

# TAEevo Tech

# WATER CHILLERS





OPERATING AND MAINTENANCE MANUAL

WSI WELD SYSTEMS INTEGRATORS, INC

# USER'S QUICK GUIDE

# ATTENTION

- User's quick guide

OPERATING AND MAINTENANCE MANUAL

# Modification of an ul listed product

MTA chillers feature an electrical cabinet designed and wired in compliance with the UL508A standard for electrical enclosures. The UL compliance allows this MTA equipment to meet local code requirements in most locations in the US and Canada. When a UL Listed product is modified, retrofitted or altered in any way after it leaves the factory, it is necessary to verify if the product continues to meet the applicable certification safety requirements.

If a modification made to the product in the field (outside of the MTA factory) does NOT affect the electrical characteristics of the panel installed on the machine, then the UL Listing is not affected and the UL label that was placed on the product at the factory can remain. Some examples include:

- Making the remote ON / OFF connection (to terminals provided in the panel)
- Making the alarm relay connection (to terminals provided in the panel)
- Making remote terminal connection (to terminals provided in the panel)
- Replacement of panel components with equal components

If a modification made in the field DOES affect the electrical characteristics of the panel installed on the machine, it is not possible for UL to confirm that the product continues to meet the applicable certification safety requirements. In this case the field modifications must be specifically inspected and recertified by the appropriate UL agency. Some examples include: - Replacement of panel components with components that are different than those originally supplied

- Replacement of motors (or other current-drawing devices) that involve the change of components inside the panel

- Addition of devices not provided for by MTA
- Addition of electrical loads not foreseen by MTA

In this case it is the responsibility of the AUTHORITY HAVING JURISDICTION to assess the acceptability of modifications and/or to determine if modifications are significant enough to require a member of the UL field engineering services staff to evaluate and/or recertify the modified product. Anyone directly involved with a product (including manufacturers, owners, contractors, and regulatory authorities) can request a Field Evaluation.

For further clarification, contact MTA USA or visit the UL's Web site at www.ul.com/field.

#### ATTENTION

 $\Delta$  At the first start-up, check the correct operation of all electrical connections.

### ATTENTION

Before starting units of this type, ensure that all personnel involved have read and understood Chapter 2 "Safety" and follow the procedures set down in Chapter 6 "Starting".

## ATTENTION

Men first starting after a stop of several days, ensure that the casing heating element of each compressor is switched on for at least 12 hours before pressing the start button.

# ATTENTION

The pressure limiting valve is factory set, according to the pump nominal flow operating at a standard voltage. Before using the unit it is necessary to set the limiting valve according to the plant nominal flow and according to the power supply.

# ATTENTION

For pump models where the manufacturer requires it, before starting check that it turns freely in manual mode (see ch. 4.6 "Pump").

#### NOTE

The pump must never run dry.

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OPERATING AND MAINTENANCE MANUAL - User's quick quide

Units in the TAEevo Tech range are equipped with an electronic controller that manages correct operation of the appliance on the basis of signals read on the analogue and digital inputs.

This quick guide contains a list of the main functions of the electronic board. For more detailed information consult Chapter 7 "Electronic controller".

On the models TAEevo Tech 020÷351 the electronic control unit is installed on the door of the electrical panel, while on models TAEevo Tech 381÷1002 it is fitted inside the electrical panel while the door is equipped with LCD graphic display.



## NOTE

To convert the semi-graphic LCD display on the door of the electrical panel (mod. TAEevo Tech  $381 \pm 1002$ ) to remote control, the relevant remote control kit must be ordered.

#### 0.1 Unit start/stop

The unit can be switched on and off as follows:

- From the keypad (local or remote)
  - From a digital input configured as remote ON/OFF

## NOTE

In case of a power loss, when power is restored the unit will be ON if it was ON at the time of power loss, and OFF if it was OFF.

#### 0.1.1 Start from the keypad

From unit OFF (stand-by) press and release button 😵 to switch the unit on or off in chiller mode. With the unit on LED 🔅 is lit.

Stand-by mode is set each time the unit is switched off from chiller operating mode. Also in stand-by the controller makes it possible to:

• Display the measured values.

• Manage the alarm situation by displaying and signalling active alarms.

When the unit is in stand-by the controller shows the label 5Eby on the display.



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OPERATING AND MAINTENANCE MANUAL - User's quick quide

#### 0.1.2 Start-up from a digital input

The unit can be switched on/off from a digital input configured as remote On/OFF. The power-off command (local or remote) always assumes priority with respect to the power-on command. If the unit is powered-off with a local command it must be powered back on with a local command. When the unit is in OFF status from a digital input the controller shows the label DF. F on the display.

For details concerning the connection, refer to the electrical diagram.

## 0.2 Setpoint

#### 0.2.1 Display the setpoint

To display the setpoint press and release the SET key.

With the unit in stand-by the lower display will show **SetC** (chiller set). The upper display will show the set value.

#### 0.2.2 Change the setpoint

To change the unit working setpoint press the set key for at least 3 seconds and the working setpoint SetC (chiller set) will appear in flashing mode.

The setpoint can be changed using the  $\bigtriangleup$  or  $\bigtriangledown$  buttons.

To save the new setpoint, press SET or wait for the time-out to exit programming mode.

# 0.3 Alarms display and reset

# ATTENTION

With this procedure you can reset all the alarms except for the compressor thermal cut-out alarms for which the password will be required: 14.

To open the functions menu proceed as follows:

- Open the functions menu by pressing the button
- With the 🛆 or 🤝 buttons select the ALrM function
- Press SET.
- If no alarms are present, pressing button SET is not enabled.
- The lower display shows the label with the alarm code; the upper display, if the alarm displayed is resettable, shows the label **rSt** or **no** if the alarm condition is still present.
- Pressing set in correspondence with label rSt resets the alarm and the system goes to the next one; if this too is resettable, press set to reset it and go to the next one.
- If you want to scroll through all the alarms present press  $\triangle$  or  $\bigtriangledown$ .

To exit the ALrM function and return to normal display mode press or wait for the time-out.

With the unit in StbY (stand-by) and the  $\triangle$  LED flashing, press and scroll with buttons  $\triangle$  or  $\forall$  to select the ALrM function and press button **SET** to display the active alarm.

#### NOTE

To reset the compressor thermal alarms refer to the specific heading.

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Chapter 1 - General information

CHAPTER 1

# **GENERAL INFORMATION**

The units described in this manual may be referred to below as "WATER CHILLERS".

This manual is addressed to personnel responsible for installing, using and servicing the unit.

The units were constructed using components made by premium quality manufacturers and the entire design, production and control process was carried out in compliance with standard ISO 9001.

In the majority of applications the liquid in the user circuit is water so henceforth the term "WATER" will be utilised, even if the liquid in the user service is different (for example mixtures of water and ethylene or propylene glycol).

Hereinafter the expression "PRESSURE" is used to indicate relative pressure.

The electrical panel has been designed following UL508A standard rule (Industrial Control Panels).

The compressors, fans and pumps carry the cURus marking.

The following symbols are to be found on the decals affixed to the unit and also in the dimensional drawings and refrigerant circuit diagrams.

The meaning of each symbol is indicated below:

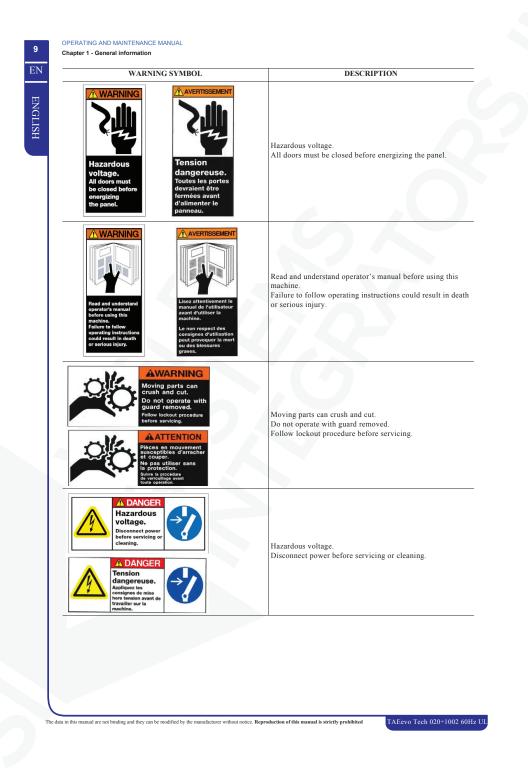
	Process water inlet		Process water outlet
A second se	Indication of the axis of reference for lifting operations		Drain point to empty the unit of water
A	Electric shock hazard		Risk of burns from contact with high- temperature surfaces
	Direction of flow of refrigerant fluid and water circuit		Rotation direction of pump (if installed) and fans
ř	Water filling point	Ť	Air bleed valve
	Opening to be used for the insertion of bars for the purpose of lifting the unit	WARNING The fans contain capacitors. Wait at least 5 inimutes after disconnecting the power supply before accessing the power circuit.	The fans contain condensers. After disconnecting the electricity supply, wait at least 5 minutes before accessing the power circuit.

The following warning symbols are shown on the stickers on the unit. If requested, the same stickers are available also in French. Their meaning is the following:

WARNING	SYMBOL	DESCRIPTION				
Contrast of the second	Every advantage of the second	• To maintain overcurrent, short-circuit, and ground-fault protection, the manufacturer's instructions for selection of overload and short circuit protection must be followed to reduce the risk of fire or electric shock. In an overload or a fault current interruption occurs, circuits must be checked to determine the cause of the interruption. If a fault condition exists, the current-carrying components should be examined and replaced if damaged, and the integral current sensors must be replaced to reduce the risk of fire or electric shock.				

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Chapter 1 - General information

# 1.1 How to interpret the model

MODEL	DESCRIPTION	
	Number of refrigerant circuits Guideline power of compressor expressed in HP E = hermetic compressor A = air-cooled condenser T = tank; chiller with storage tank.	

# ATTENTION

This manual, which is addressed to users, installers, and service personnel, supplies all the technical information required to install and work with the unit and to perform the routine maintenance operations required to maximise its

working life. Use only genuine parts when carrying out routine maintenance or repairs.

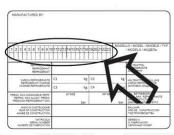
Requests for SPARE PARTS and any INFORMATION concerning the unit must be made to your dealer or nearest service centre, specifying the MODEL and SERIAL NUMBER shown on the unit's dataplate and on the last page of this manual.

# 1.2 How to interpret the alphanumeric string

The alphanumeric string is shown on the metal data plate on the cover page of this manual.



This symbol shown alongside appears in some refrigerant circuit diagrams and electrical diagrams. This symbol refers to the alphanumeric string reported in the manual. The upper box (X) identifies the position of the string, the lower box (Y) identifies the assigned value.



The empty alphanumerical string is circled in the adjacent figure; each position in the upper row is associated with an alphanumeric value in the lower row (0, 1, 2, A, B, etc.) and each character is associated with a specific feature of the unit.

	POS.	VALUE	DESCRIPTION
REFRIGERANT	1	3	R410A
VOLTAGE	2	0	400/3/50
		1	460/3/60
		В	230/3/60
		N	400/460/3/50-60
UNIT AMBIENT TEMPERATURE	3	0	STANDARD
		1	-4°F
COMPRESSOR START-UP	4	0	DIRECT
		2	SOFT STARTER
EVAP. FREEZE PROTECTION	5	0	NO
		1	YES
VERSION	6-7-8	STD	STANDARD
ELECTRONIC THERMOSTATIC	9	0	NO
VALVE		1	YES
LASER	10	А	YES
		В	NO
FAN	11	А	AXIAL
		В	CENTRIFUGAL
		G	HIGH PRESSURE AXIAL FLOW FANS

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	POS.	VALUE	DESCRIPTION
FAN CONTROL	12	1	ELECTRONIC CONTROL
		3	ON/OFF
		4	EC BRUSHLESS FANS
PRE-PAINTED CONDENSING COILS	13	0	NO
		1	YES
PUMP	14	R	SP - Predisposed P3
		S	P3 DELIVERY PUMP
		Ι	P3
		L	P5
		Р	P3+P3
		Q	P5+P5
TANK MATERIAL	15	В	Fe+Fe
		С	Aisi+NoF
WATER BYPASS	16	1	OVERLOAD VALVE
		2	NO
KIT TYPE	17	А	NO KIT
		В	TANK KIT
PRODUCT TYPE	18	0	STANDARD
		Х	SPECIAL

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OPERATING AND MAINTENANCE MANUAL Chapter 2 - Safety

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CHAPTER 2

# SAFETY

This unit is designed to ensure the best guarantees of safety and efficiency in its intended use, on the condition that it is installed, commissioned, and serviced in compliance with the instructions given in this manual.

The manual must therefore be studied by all those who want to install, use or maintain the unit.

The unit contains electrical components that operate at mains voltage and also moving parts.

All work on the unit must be carried out only after disconnecting the electrical supply. Maintenance operations involving work inside the unit must be performed by skilled and adequately qualified personnel equipped with suitable protection means (active and passive, e.g. work gloves) to ensure maximum safety.

Keep unauthorized persons (e.g. children) away from the place of installation of the unit.

# 2.1 General

When handling or maintaining the unit and all auxiliary equipment, personnel must operate with care observing all instructions concerning health and safety at the installation site.

# ATTENTION

Numerous accidents that occur during operation and maintenance of the units are caused by failure to comply with basic safety rules and precautions.

An accident can often be avoided by recognising a situation that is potentially hazardous.

The user must ensure that all personnel involved in operating and servicing the unit have read and understood all the warnings, precautions, prohibitions and notes given in this manual and affixed to the unit. Improper operation or maintenance of the unit and auxiliary equipment can be dangerous and can cause serious or fatal accidents.

We cannot anticipate every possible circumstance which might constitute a potential hazard.

The warnings in this manual are therefore not all-inclusive.

If the user adopts operational procedures or uses tools or working procedures that are not specifically recommended, he must take care to ensure that the unit and the auxiliary equipment are not damaged or made unsafe and that no risks emerge in relation to persons or property. Any improper use of the unit will relieve the manufacturer from any liability for possible personal injury or property damage.

Arbitrary modifications made to the unit will automatically invalidate all forms of guarantee provided by the manufacturer.

# ATTENTION

The hot / chilled water produced by units cannot be used for hygiene/sanitary or food applications. If it is used for the above purposes, the installer must install an intermediate exchanger.



If the intermediate exchanger is not present, the installer must affix a warning notice to the effect "non potable water".

# 2.2 User circuit liquids

The user circuit liquids must be compatible with the materials used for the construction of the unit's hydraulic circuit. The expression "liquids" means: water, water with additives and/or glycol. Additive and glycol suppliers must guarantee compatibility with the materials. For further information refer to "4.9 Materials in contact with the liquid to be cooled".

# ATTENTION

If the liquids in the user circuit contain hazardous substances (such as glycol, for example), any liquid that is expelled from a leakage area must be collected because it is noxious for the environment. The disposal of hazardous liquids must be handled by specialised companies authorised for the treatment of hazardous wastes.

# 2.3 Lifting and transport precautions

Avoid injury by using a hoist to lift heavy loads.

Check all chains, hooks, shackles and slings are in good condition and are of the correct capacity.

They must be tested and approved according to local safety regulations.

Cables, chains or ropes must never be attached directly to lifting eyes.

Always use an appropriate shackle or hook properly positioned. Arrange lifting cables so that there are no sharp bends. Use a spreader bar to avoid lateral loading of hooks and eyebolts.

When a load is lifted from the ground keep well clear of the area beneath the load and the immediately surrounding area.

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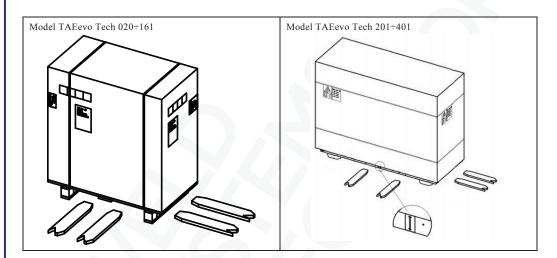
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Keep lifting acceleration and speed well within safety limits and never leave a suspended load attached to a hoist any longer than strictly necessary. The weight values shown in the following table were obtained with the unit empty, pump P3 and axial fans.

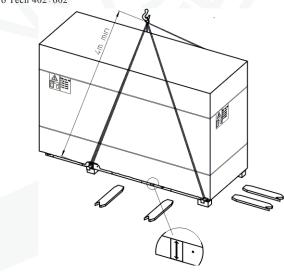
The manufacturer does not supply load spreaders, lifting straps or hooks with the unit.

Model TAEevo Tech	020	031	051	081	101	121	161	201	251
Weight (lb)	333	465	509	785	842	882	902	1466	1468

Model TAEevo Tech	301	351	381	401	402	502	602	702	802	902	1002
Weight (lb)	1567	1623	2194	2310	2665	2701	2798	3194	3276	4334	4548



Model TAEevo Tech 402÷602



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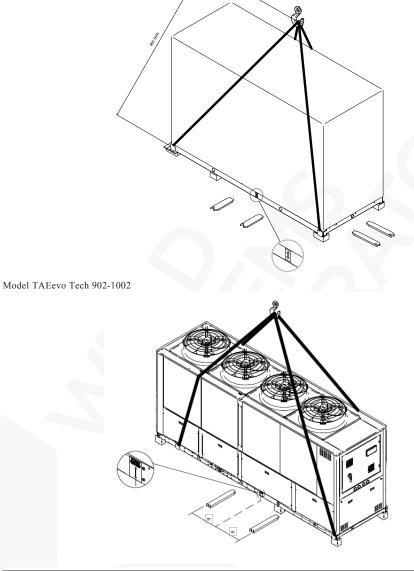


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Model TAEevo Tech 702÷802



## NOTE

Weight values are guideline, with the water circuit empty. The values may vary in relation to the configuration of the unit (pump type, supply type, and ventilation type).

# 2.4 Precautions to be adopted during installation

The connections to be prearranged concern the process water circuit. For connection to the mains electrical supply consult the technical documentation attached to the unit.

# 2.5 Precautions to be adopted during operation

The unit must be operated by competent personnel under the guidance of a qualified supervisor. All water pipelines must be painted or clearly marked in compliance with local safety prescriptions in force in the place of installation.

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#### ATTENTION

 $\triangle$  Do not remove or tamper with safety devices, protections, or the insulating materials installed in the unit and in the auxiliary equipment.

All electrical connections must comply with local codes.

The unit and its auxiliary equipment must be connected to earth and protected against short circuits and overloads.

When mains power is switched on, lethal voltages are present in the electrical circuits and extreme caution must be exercised if any work must be carried out on the electrical system.

Do not open the electrical equipment guard panels while the circuit is energized. Operations that require intervention with the electrical circuit energized must be performed only by qualified personnel using appropriate equipment and wearing apparel and devices designed to protect against electrical hazards.

# 2.6 Maintenance precautions

# ATTENTION

When it is necessary to discharge waste material do not pollute water pipelines, groundwater or watercourses. Avoid the combustion of materials that could produce fumes that are toxic and harmful when released into the atmosphere. Protect the environment by using only approved methods of disposal.

Keep a written record of all work carried out on the unit and the auxiliary equipment. The frequency and the nature of the work required over a period can reveal adverse operating conditions that should be corrected.

# ATTENTION

ightarrow Use only the refrigerant specified on the data plate of the unit.

Make sure that all instructions concerning operation and maintenance are strictly followed and that the complete unit, with all accessories and safety devices, is kept in good working order. The accuracy of pressure and temperature gauges must be regularly checked. If values are discovered that exceed the permissible tolerances, the gauges must be replaced.

# ATTENTION

Do not perform welding procedures or other operations that can produce heat in the vicinity of elements containing oil or flammable liquids. Systems which may contain oil or flammable liquids must be completely purged and cleaned, e.g. with steam, before carrying out such operations.

Components in the vicinity must be protected with non-inflammable material and, if the operation is to be performed close to parts of the lubrication system or in the vicinity of components that may contain oil or inflammable liquids, the system must first be purged.

Never use an open flame as a light source to inspect parts of the unit. For all units establish a suitable time interval for cleaning procedures.

# ATTENTION

 ${
m I}$  If replacement parts are needed use only original spares.

Take care not to damage pressure limiting devices. All guards must be refitted after carrying out repair or maintenance work.

# ATTENTION

Check the direction of rotation of the motors (the pump, if installed) when starting the unit for the first time and after work has been performed on the electrical connections or on the power supply sectioning device.

Do not use flammable liquids to clean the unit when it is running. If chlorinated hydrocarbon non-flammable fluids are used for cleaning, safety precautions must be taken against any toxic vapours that may be released.

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Chapter 2 - Safety

# ATTENTION

igta Before removing any panels or dismantling any part of the unit, carry out the following operations:

- Isolate the unit from the electrical power supply by disconnecting the supply upstream of the power feeding line.
- Lock out the disconnect switch in the "OFF" position by fitting a padlock.
- Affix a tag to the disconnect switch handle stating "WORK IN PROGRESS DO NOT SWITCH ON".
- Do not set the electrical power switch to ON or attempt to start the unit if it has been tagged out with a warning sign.

Coloured tracers can be used in service-maintenance operations.

Inspect all refrigerant circuit unions including connectors, flanges, and more generally all critical points (open unions) in order to prevent possible leakage of refrigerant gas.

# 2.7 Disposal, disassembly and recycling

The product was designed and built with recyclable materials.

The correct waste sorting for the subsequent start-up of the equipment disposed of for recycling, treatment and for compatible environmental disposal, contributes to prevent possible negative consequences on the environment and health. It also favour the recycling of the materials the equipment is made up with.

The unit may include all or some of the materials listed below:

- Refrigerant fluid R410A
- Copper parts
- Aluminium parts
- Carbon Steel parts
- Stainless Steel parts
- PVC parts
- CFC-free synthetic insulating material
  polystyrene parts
- Polyester oil
- Brass

During dismantling, the compressor, pumps, fans, exchangers (if working) can be recovered for possible re-use thanks to specialised centres. All materials must be recycled or disposed of in compliance with the corresponding national regulations. Refrigerant, oil and possible anti-freeze solutions recycling must be done by specialised companies in compliance with the corresponding local and national legislation.

Electrical and electronic materials cannot not be disposed of together with domestic general waste. They must be disposed of in special collection centres.

Units must be treated at a centre specialised in re-conditioning, recycling and recovery of materials.

## 2.8 Refrigerant gases

The units are charged with R410A refrigerant.

Do not replace or mix one gas with another because different gases are not mutually compatible.

To clean out a very heavily contaminated refrigerant system, e.g. after a refrigerant compressor burnout, a qualified refrigeration engineer must be consulted to carry out the task.

The manufacturer's instructions and local safety regulations should always be observed when handling and storing high pressure gas cylinders.

## 2.8.1 Refrigerants safety datasheet

Denomination:	R410A (50% Difluoromethane (R32); 50% Pentafluoroethane).
	INDICATION OF HAZARDS
Major hazards:	Suffocation.
Specific hazards:	Rapid evaporation can cause frostbite.
	FIRST AID MEASURES
General information:	Do not attempt to administer liquids or solids to persons who have lost consciousness.
Inhalation:	Move victims to the open air. Use oxygen or artificial respiration if necessary. Do not administer adrenaline or similar substances.
Contact with the eyes:	Wash thoroughly with plenty of clean water for at least 15 minutes and seek medical assistance.
Contact with the skin:	Wash immediately in plenty of clean water. Remove contaminated clothing immediately
	FIRE-FIGHTING MEASURES
Means of extinction:	Any.
Specific hazards:	Pressure rise.
Specific methods:	Cool containers with water spray.

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#### OPERATING AND MAINTENANCE MANUAL Chapter 2 - Safety

# MEASURES IN THE EVENT OF ACCIDENTAL LEAKAGE

Individual precautions:	Evacuate personnel to safe muster points. Provide adequate ventilation. Use personal
	protective equipment.
Environmental precautions:	Evaporates.
Cleaning methods:	Evaporates.
	HANDLING AND STORAGE
Handling	
Technical measures/ precautions	Ensure the presence of sufficient ventilation and/or air extraction means in the
	workplace.
Recommendations for safe use:	Do not breath fumes or aerosol.
Storage:	Close hermetically and store in a cool, dry and well-ventilated place. Store in its original
	containers. Incompatible products: explosives, flammable materials, organic peroxide
	CONTROL OF EXPOSURE/INDIVIDUAL PROTECTION
Control parameters:	AEL (8-h and 12-h TWA) = 1000 ml/m3 for each of the two components.
Respiratory protection:	For rescue and maintenance work in tanks use autonomous breathing apparatus. The
	vapours are heavier than air and can cause suffocation, by reducing the oxygen available for breathing.
Protection of the eyes: Protection of the hands:	Safety spectacles.
	Rubber gloves.
Hygiene measures:	Do not smoke.
	PHYSICAL AND CHEMICAL PROPERTIES
Colour:	Colourless.
Odour:	Ethereal.
Boiling point:	-60.8°F at atmospheric pressure.
Flash point:	Non-flammable.
Relative density:	1.08 kg/l at 77°F.
Solubility in water:	Negligible.
	STABILITY AND REACTIVITY
Stability:	No reactivity if used in compliance with instructions.
Materials to avoid:	Highly oxidising materials. Incompatible with magnesium, zinc, sodium, potassium and aluminium.
	Incompatibility is more critical if the metal is present in the form of powder or if surfaces have been recently unprotected.
Hazardous decomposition	These products are halogen compounds, hydrofluoric acid, carbon monoxides (CO,
products:	CO2), carbonyl halides.
	TOXICOLOGICAL INFORMATION
Acute toxicity:	(R32) LC50/inhalation/4 hours/lab. rats 760 ml/l
	(Pentafluoroethane) LC50/inhalation/4 hours/lab. rats 3480 mg/l
Local effects:	Concentrations significantly above the TLV can cause narcotic effects.
	Inhalation of products in decomposition can lead to respiratory difficulty (pulmonary oedema).
Long-term toxicity:	No carcinogenic, teratogenic, or mutagenic effects observed in laboratory animals.
	ECOLOGICAL INFORMATION
Global warming potential GWP (EU n° 517/2014):	2088
Ozone depletion potential ODP (R11=1):	0
Considerations on disposal:	Usable with reconditioning.
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Chapter 3 - Technical data

CHAPTER 3

# **TECHNICAL DATA**

The data plate affixed to the unit bears the following technical data:

MODEL and CODE	The model number and the code identify the size of the unit and the type of construction.
MANUAL	Code number of the manual.
SERIAL NUMBER	Construction number of the unit.
MANUFACTURING YEAR	Year of unit's final testing.
VOLTAGE/PHASE/FREQUENCY	Electrical power supply characteristics.
SHORT CIRCUIT CURRENT	Short circuit current.
HIGHER MOTOR FLA	Max. absorbed current.
MAX CURRENT DRAW	Unit current draw in limit operating conditions.
INSTALLED POWER	Unit power input in limit operating conditions
PROTECTION RATING	According to European standard EN 60529 / NEMA 250 international standard.
ELECTRICAL DIAGRAM	Identifies the electrical diagram number.
REFRIGERANT	Refrigerant fluid in the unit.
REFRIGERANT QUANTITY	Quantity of refrigerant fluid contained in the unit.
MAX REFRIG. PRESS.	Refrigerant circuit design pressure
MAX. REFRIG. TEMP.	Refrigerant circuit design temperature
USER CIRC. FLUID	Type of user fluid utilised by the unit (normally water).
MAX WORKING PRESSURE	Max. design pressure of the user circuit.
MAX. TEMPERATURE	Minimum and maximum design temperature values of the user circuit; this should not be confused with the maximum working temperature which is established when the offer is made.
SOUND PRESSURE LEVEL	Free field sound pressure level in hemispherical radiation conditions (open field) at a distance of 5,2 FT from the condenser side of the unit and a height of 3,2 FT from the ground.
AMBIENT TEMPERATURE	Minimum and maximum values of ambient air temperature.
WEIGHT	Weight of the unit before packing.

# 3.1 Data for standard units

3.1.1 Dimensions

See attached drawings.

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#### 3.1.2 Characteristics of pumps and fans

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Model TAEevo Tech		020	031	051	081	101	121	161	
Tank capacity	water volume	(gal)	15,9	30,4	30,4	37,0	67,4	67,4	67,4
	water flow rate	(gpm)	2,2/21,1	2,2/21,1	2,2/21,1	11/42,3	11/42,3	11/84,5	15,4/84,5
Pump P3	pump pressure head	(PSI)	44,7/27,4	44,7/23,8	44,6/26,2	42,6/22,3	42,5/23,2	42,6/10,7	41,9/6,9
	rated power	(kW)	0,75	0,75	0,75	0,90	0,90	2,2	2,2
	water flow rate	(gpm)	2,2/22,9	2,2/22,9	2,2/22,9	11/74,8	11/74,8	11/74,8	15,4/74,8
Pump P5	pump pressure head	(PSI)	97,4/34,2	97,4/30,6	97,3/33,3	71,6/19,3	71,6/17,7	71,6/17,7	70,3/14,7
	rated power	(kW)	1,10	1,10	1,10	2,20	2,20	2,20	2,20
Axial flow	No. of fans		1	1	1	1	2	2	2
fan	total airflow	(cfm)	2413	4414	4179	5709	9829	9417	9417
EC fan	No. of fans		-	1	1	1	2	2	2
EC IAII	total airflow	(cfm)	-	3732	3637	4768	8711	8476	8476

Moo	lel TAEevo Tecl	1	201	251	301	351	381	401	402	502
Tank capacity	water volume	(gal)	92,5	92,5	92,5	92,5	108,0	108,0	132,1	132,1
	water flow rate	(gpm)	15,4/84,5	15,4/84,5	29/149,7	29/149,7	35,7/ 233,4	35,7/ 233,4	35,7/ 233,4	35,7/ 233,4
Pump P3	pump pressure head	(PSI)	42,4/22,5	42,4/22,5	49,2/7,8	49,2/7,8	39,1/8,2	39,1/8,2	39,1/12	39,1/12
	rated power	(kW)	2,2	2,2	4,00	4,00	4,00	4,00	4,00	4,00
	water flow rate	(gal)	15,4/ 114,5	15,4/ 114,5	29/114,5	29/114,5	35,7/ 259,8	35,7/ 259,8	35,7/ 259,8	35,7/ 259,8
Pump P5	pump pressure head	(PSI)	69,1/24,6	69,1/24,6	66,9/26,8	66,9/26,8	69,9/35,9	69,9/35,9	70/40,5	70/40,5
	rated power	(kW)	4,00	4,00	4,00	4,00	9,20	9,20	9,20	9,20
Axial flow	No. of fans	-	2	2	3	3	2	2	2	2
fan	total airflow	(cfm)	11595	11595	15421	15421	22366	22366	28370	27075
ECfor	No. of fans		2	2	3	3	2	2	2	2
EC fan	total airflow	(cfm)	9594	9594	12713	12713	20306	20306	24838	23955

Moo	lel TAEevo Tech	1	602	702	802	
Tank capacity	water volume	(gal)	132,1	179,0	179,0	
	water flow rate	(gpm)	35,7/233,4	65,6/206,9	65,6/206,9	
Pump P3	pump pressure head	(PSI)	39,1/12	46,8/29,4	46,8/29,4	
	rated power	(kW)	4,00	5,5	5,5	
	water flow rate	(gal)	35,7/259,8	65,6/383,1	65,6/383,1	
Pump P5	pump pressure head	(PSI)	70/40,5	62,9/20	62,9/20	
	rated power	(kW)	9,20	11	11	
Axial flow	No. of fans		2	3	3	
fan	total airflow	(cfm)	25898	41672	39553	
EC fan	No. of fans		2	3	3	
EC Ian	total airflow	(cfm)	23249	36904	35315	

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M	odel TAEevo Tecl	1	9	02	10	02
Tank capacity	water volume	(gal)	25	1,0	251,0	
	water flow rate	(gpm)	92/4	79,9	92/4	79,9
Pump P3	pump pressure head	(PSI)	43,7/4,1		43,7/4,1	
	rated power	(kW)	7	,5	7,5	
	water flow rate	(gpm)	92/383,1	92/383,1	92/383,1	92/383,1
Pump P5	pump pressure head	(PSI)	62,5/36,9	62,5/36,9	62,5/36,9	62,5/36,9
	rated power	(kW)	11	11	11	11
	No. of fans		circ.1	circ.2	circ.1	circ.2
Axial flow fan	NO. OI TAIIS		2	2	2	2
1411	total airflow	(cfm)	57210	57210	54149	54149
	No. of fans		circ.1	circ.2	circ.1	circ.2
EC fan	ino. of fans		2	2	2	2
	total airflow	(cfm)	49441	49441	47675	47675
	•					

# NOTE

The values in the table may vary in relation to the unit model and configuration. In this case refer to the offer data.

#### NOTE

The pressure head is the pressure head available in the user's premises. The installed pump my differ with respect to the standard pump. For the flow rate and pressure head values two numbers are specified: the first refers to nominal conditions and the second refers to maximum conditions.

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#### 3.1.3 Sound level measurements

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	Fan	Lp dB(A) *	Lw dB(A) **
TAEevo Tech 020	axial	68,9	81,9
TAEouo Toob 021	axial	69,6	82,6
TAEevo Tech 031	EC	70,0	83,0
TAEevo Tech 051	axial	70,7	83,7
TALEVO TECH USI	EC	71,1	84,1
TAEevo Tech 081	axial	70,9	83,9
TALEVO TECH USI	EC	71,4	84,4
TAEevo Tech 101	axial	72,0	85,0
TALEVO TECHTOT	EC	72,5	85,5
TAEevo Tech 121	axial	71,2	84,2
TALEVO TECH 121	EC	71,8	84,8
TAE T	axial	72,1	85,1
TAEevo Tech 161	EC	72,6	85,6
TAEovo Th 201	axial	74,2	87,2
TAEevo Tech 201	EC	74,8	87,8
TAE T 1 071	axial	74,1	87,1
TAEevo Tech 251	EC	74,6	87,6
TAE T 1 201	axial	75,6	88,6
TAEevo Tech 301	EC	76,1	89,1
TAE T 1 271	axial	75,3	88,3
FAEevo Tech 351	EC	75,8	88,8
TAE T 1 201	axial	78,0	91,0
TAEevo Tech 381	EC	78,5	91,5
TAE T 1 401	axial	80,2	93,2
TAEevo Tech 401	EC	80,6	93,6
TAE T 1 403	axial	79,5	92,5
TAEevo Tech 402	EC	79,9	92,9
TAFan Task 502	axial	79,6	92,6
TAEevo Tech 502	EC	80,0	93,0
TAE T	axial	79,3	92,3
TAEevo Tech 602	EC	79,7	92,7
	axial	79,4	92,4
TAEevo Tech 702	EC	79,8	92,8
TAEovo Toob 903	axial	80,6	93,6
TAEevo Tech 802	EC	81,0	94,0
TAEovo Th 002	axial	81,8	94,8
TAEevo Tech 902	EC	82,1	95,1
TAEevo Tech 1002	axial	83,5	96,5
TALEVO TECH 1002	EC	83,8	96,8

\* at distance of 3,2 FT

\*\* global

**Test conditions** 

Noise levels refer to operation of the unit at full load in nominal conditions.

Sound pressure level in hemispherical irradiation conditions at a distance of 3,2 FT from the condensers side of the unit and height of 5,2 FT from the ground. Values with tolerance of  $\pm$  2 dB. **Sound pressure level:** according to ISO 3744.



**OPERATING AND MAINTENANCE MANUAL** Chapter 4 - Description

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# **CHAPTER 4**

# DESCRIPTION

#### 4.1 Components

Data for materials are referred to standard units. Non-standard materials may be utilised in order to meet specific requirements. In this case refer to the offer data.

The units are basically composed of the following parts:

- Refrigerant compressor
- Condenser
- Evaporator
- Tank
- Pump Frame/cabinet
- Electronic controller
- Refrigerant circuit

# 4.1.1

TAEevo Tech 020÷401 models feature a single refrigerant circuit with one or two compressors connected in parallel (tandem).

TAEevo Tech 402÷1002 models feature two refrigerant circuits with two compressors connected in parallel (tandem). Each refrigerant circuit, is equipped with the following components:

- refrigerant fluid utilised R410A;
- hermetic scroll compressor;
- pressure switch for fans with On/Off control (only TAEevo Tech 020÷401);
- high and low refrigerant pressure switches;
- high pressure transducer for electronic fan speed control (models TAEevo Tech 031÷1002);
- high pressure transducer for unloading (models TAEevo Tech 402÷1002);
- high pressure transducer for ON/OFF fan speed control (models TAEevo Tech 402÷1002);
- thermostatic lamination valve complete with external pressure equalizer;
- filter dryer;
- liquid sight-glass;
- refrigerant pressure gauges (from TAEevo Tech 031);
- schrader service valves.

For more information consult the attached diagrams.

#### 4.2 Compressors

The compressors are of the SCROLL type and are characterised by high energy efficiency, low vibration and consequent very low noise during normal operation.

The compressors are cooled by the refrigerant on the suction line, protected against possible overheating of the windings by an internal module that monitors windings temperature, and protected upline by thermal magnetic cutouts. These components are housed in an enclosed compartment, but they are readily accessible.



#### NOTE

During the short periods of starting and stopping the compressor (in the models TAEevo Tech 020÷101 and TAEevo Tech  $201 \div 1002$ ) you may hear a metallic noise due respectively to the initial contact between the coils and to the momentary reversal of their rotation. This noise is absolutely normal and does not affect the reliability of the compressor.

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## ATTENTION

*When first starting after a stop of several days, ensure that the casing heating element of each compressor is switched on for at least 12 hours before pressing the start button.* 

# 4.3 Condenser

Condensation occurs in finned core coils composed of copper tubes and headers, corrugated aluminium fins, and galvanized sheet metal shoulders.

# 4.4 Evaporator

The evaporator is of the finned core type; water flows in contact with the finned surface at velocities such as to ensure low pressure drops, while the refrigerant flows through the tubes.

In these models the exchanger is protected from the risk of ice formation caused by low evaporation temperatures, with antifreeze strategies handled by the electronic controller. The evaporator water outlet temperature is controlled by a probe. If negative room/water temperatures are required, a mixture of water and glycol must be used. To drain the circuit refer to "9.5 Draining the process water circuit".

# 4.5 Tank

The storage tank is cylindrical.

The tank can be protected against freezing by means of an electric heater managed by the electronic controller. A level sensor in the tank serves to signal low water level conditions. The standard supply includes anti-condensation cladding, a drain valve and an air bleed valve.

An internal bypass between the water delivery and return connections makes it possible to read the anti-freeze probe if the unit's process water inlet and outlet connections are inadvertently closed. In this case the unit stops due to tripping of the anti-freeze alarm and the shut-off valves must be reopened.

The bypass serves exclusively to allow an anti-freeze alarm to trip (if present) and to allow the pump to run with a reduced water flow rate without damage. It is advisable to avoid repeated anti-freeze alarm trip cycles in the foregoing conditions.



For models TAEevo Tech 031÷1002 it is possible to fit a semi-transparent container kit, secured to the rear of the unit. In steady state conditions the water level in the container must be approximately at the half-way point. In this case water filling is performed via the container kit.

# 4.6 Pump

The unit is equipped with centrifugal pumps that can be of two different types, characterised by their ability to provide different pressure heads depending on requirements (43.5 and 72.5 PSI pump). The unit can also be supplied without an installed pump.

The electrical characteristics of the compatible pump are specified in the wiring diagram.

The system features the option with P3 pump delivery on evaporator inlet side, suitable for applications on open tanks. The pumps which get in contact with water are composed of:

- P3 pump: completely in stainless steel until TAEevo Tech 251;
- P5 pump: completely in stainless steel until TAEevo Tech 161;
- P3 and P5 pump for NoFe versions (see below) completely in stainless steel.

The pump seals are in silicon carbide/silicon carbide/EPDM.

# ATTENTION

Bleed the circuit by unscrewing the bleed cap on the pump whenever the hydraulic circuit is filled. See 5.4 "Hydraulic connections".

# ATTENTION

Before starting a unit featuring the P3 delivery pump, make sure to bleed first the hydraulic circuit to prime the pump. The hydraulic lines must never be shut off while the machine is running.

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TAEevo Tech 020÷1002 60Hz UL



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# ATTENTION

 ${
m I}{
m f}$  If the unit is equipped with the P3 delivery pump, the user circuit must be of the open type.

#### NOTE

The pump must never run dry.

# ATTENTION

 ${
m I}{
m I}$  For pump models where the manufacturer requires it, before starting check that it turns freely in manual mode.

Use a flatblade screwdriver on the relative slot on the shaft in the middle in line with the fan cover following the rotation direction indicated by the arrow on the cover.

If the shaft does not turn freely, try and force it to rotate, if the pump is blocked contact the technical assistance.



#### 4.7 Fans

#### 4.7.1 Axial

The fans are of the axial flow type, comprising a diecast aluminium fan wheel with sickle shaped blades. The protection rating of the fans is IP54.

All fans feature insulation class F to ensure they are compatible with outdoor operation in all climates. Fan assembly is completed by an upper safety grille (supporting the fan).

The axial flow fans feature ON/OFF operation or electronic speed control.

Electronic speed control fans are driven by integrated inverter and EC technology motor (with permanent magnets and electronic commutation) (except for model TAEevo Tech 020).

# ATTENTION

 ${ig M}$  In the event of maintenance work on the EC fans, the fact that condensers are used means it is necessary to wait at least

5 minutes after disconnecting the power supply to the unit before opening the box containing the electrical contacts.

- To avoid condensation the drive must be continuously energized due to the application of heat, with interruptions such that cooling to the point of condensation does not occur.

#### 4.8 Cabinet

The entire plinth, the uprights, and the outer panels are made of galvanized carbon steel sheet and are assembled by means of screws and/or rivets. All panels undergo phosphor degreasing treatment followed by epoxy polyester power coating.

#### 4.9 Materials in contact with the liquid to be cooled

Standard chillers: carbon steel, copper, aluminium, zinc, brass, stainless steel and plastic materials specifically:

evaporator with copper tubes, aluminium fins and galvanized sheet metal shoulders;

carbon steel tank.

Chillers with non-ferrous hydraulic circuit (TAEevo Tech 020+802): stainless steel (AISI 304), copper, brass and plastic materials.

#### Specifically:

- with copper tubes and fins and brass shoulders;
- tank in AISI 304 stainless steel.

The pump mechanical seals are in silicon carbide/silicon carbide/EPDM.

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Chapter 4 - Description

# 4.10 Overall dimensions and minimum clearances with respect to walls

See the enclosed electrical diagrams.

#### 4.11 Electrical circuit

Refer to Chapter 5 "Installation" for information on electrical hook-ups and consult the attached diagrams.

# 4.12 Sub-zero ambient temperatures

In the presence of sub-zero ambient temperatures (-4°F) the unit is equipped with a system that assures perfect operation, also in the presence of harsh temperatures. The additional elements fitted are:

- EC Brushless fans
  - electrical cabinet heater.

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OPERATING AND MAINTENANCE MANUAL Chapter 5 - Installation

CHAPTER 5

# INSTALLATION

# ATTENTION

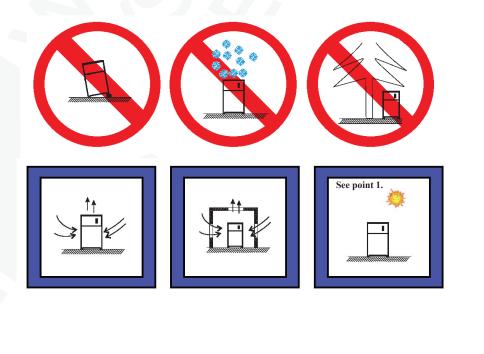
Before installing or operating these units, ensure that all personnel involved have read and understood Chapter 2 "Safety". The unit must be installed in accordance with current national legislation in the country of use.

#### 5.1 Inspection

As soon as the unit has been unpacked check it carefully for damage.

# 5.2 Location

- 1. The unit can be installed either outdoors or in an enclosed environment, depending on the degree of IP protection of the electrical panel and the unit itself.
- 2. If the unit is installed indoors the place of installation must be well ventilated. In certain cases it may be necessary to install ventilation fans or extractor fans in order to reduce room temperature.
- 3. The ambient air must be clean, avoid sea ambients (brackish air), and not contain flammable gas or corrosive solvents.
- 4. The minimum and maximum working ambient temperature are specified on the unit data plate. Ensure that the unit is not installed in flows of hot air emitted by other equipment. In extremetemperature conditions, the protection devices may trip.
- Do not obstruct or interfere with the air flow produced by the unit; comply strictly with the minimum spaces/ distances specified in the installation drawings.
- 6. The machine must be installed on a perfectly horizontal flat surface, built and calculated to withstand the machine's operating weight, especially in the contact points highlighted in the installation drawing. In the event of installations which fail to comply with the above requirements, the manufacturer's warranty cover will immediately become null and void and the unit could malfunction or even lock out.
- 7. Leave free space around the unit for access during service interventions (see Attachments).
- 8. Do not install the plant in sites exposed to strong winds; if unavoidable, install suitable windscreens.





Chapter 5 - Installation

# 5.3 Freeze protection

Even if the minimum operating temperature is higher than 32°F, during shutdown periods in the cold season the unit may be subject to temperatures that are lower than 32°F.

In such cases if the water is not drained out of the unit ethylene or propylene glycol antifreeze should be added to the water in the following percentages:

Ambient T up to °F	Ethylene Glycol [% by weight]	Propylene Glycol [% by weight]
32	0	0
23	15	18
14	25	27
5	30	33
-4	40	40

In accordance with the chilled water outlet temperature, to avoid the formation of ice ethylene or propylene glycol antifreeze should be added to the water in the following percentages:

	Water outlet T up to °F	Ethylene Glycol [% by weight]	Propylene Glycol [% by weight]
	45	0	0
	37	20	20
	32	20	25
Standard machine	27	25	30
	23	30	30
	19	35	35
	14	35	40
Special machine	5	45	45
special machine	-4	50	50

#### NOTE

The water flow rate must correspond to the value stated in the technical specifications or in the selection software. The conditions specified in the table do not guarantee anti-freeze protection with the machine operating in bypass mode between water delivery and return, and with the machine water inlet and outlet fittings shut off.

#### ATTENTION

 $\triangle$  The anti-freeze setting is 39°F. To reduce the anti-freeze setting edit parameter AL26.

For water outlet temperatures lower than 42.8°F you must add a suitable quantity of antifreeze solution.

#### 5.3.1 Operating limits

The operating limits are decided at the time of sale. Refer to the data specified in the contract.

Ambient air temperature		Evaporator water inlet temperature				tempe	iter rature lient	Water circuit pressure at the water side with tank		
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Fans control type
0	°F		°F		°F		F	psi		rans control type
23	109 (2)	32	95	23	86	7	18	0	87	ON/OFF
41	109 (2)	23 (3)	95	14 (3)	86	7	18	0	87	010/011
23	109 (2)		95	14 (3)	86	7	18	0	87	ELECTRONIC
-4 <sup>(1)</sup>	109 (2)	23 (3)	95	14 (3)	86	7	18	0	87	ELECTRONIC

#### NOTE

For water outlet temperatures  $\leq 41^{\circ}F$  and for ambient temperatures  $\leq 32^{\circ}F$  we recommend the use of anti-freeze solutions (compatible with the contact materials);

(1) value referred to the unit chosen with the configurator option "-4°F ambient". The unit is thus equipped with electronic fans control, casing heaters and electrical cabinet heater.

If glycol is not used in the circuit it is advisable to equip the unit with anti-freeze heaters;

(2) reference value for the range with a water outlet temperature of  $59^{\circ}F$ . Check the various ambient temperatures for each model in the Performance Data.

(3) min. evaporator water inlet temperature  $28^{\circ}F$ ; min. evaporator water outlet temperature  $-19^{\circ}F$  for TAEevo Tech 020.

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# 5.4 Hydraulic connections

#### NOTE

All the unit's hydraulic connections must be made by the user.

- 1. Connect the unit to the water pipes observing the water flow direction as shown in the attached dimensional drawings.
- 2. Provide two valves (one at the inlet, one at the outlet) to isolate the unit in the case of maintenance work without having to empty the user water circuit.
- 3. Fill the tank with water using:
  - a remote filling system, bleeding the air from the tank manually if necessary by means of the manual bleed valve.
  - if the water circuit is subject to frequent infiltrations of air it is good practice to install an automatic bleed valve.
- 4. If the unit is supplied without pump make sure the pump installed by the user has its suction port connected directly to the tank outlet connection in the event of a closed user circuit.
- 5. If the unit is supplied without pump make sure the pump installed by the user has its outlet port connected directly to the unit inlet connection in the event of a user circuit that is open to the atmosphere.

#### NOTE

The pump must never run dry.

# ATTENTION

If the unit is not equipped with the hydraulic unit a pump must be installed for the evaporation water circuit. For any maintenance requirements it is advisable to install a water drain cock at the lowest point of the circuit.

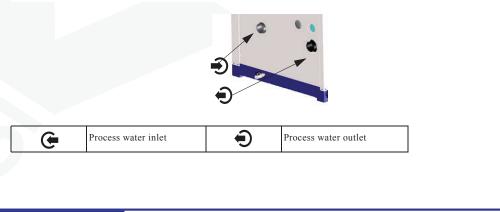
Evaporator water connections sizes:

Unit model TAEevo Tech	020	031÷051	081÷161	201÷351	381÷401
Evaporator IN/OUT water connections	Rp 3/4"	Rp 1"	Rp 1" 1/2	Rp 2"	Rp 2" 1/2

Unit model TAEevo Tech	402÷602	702÷802	902-1002	Max. pressure [PSI] units with tank
Evaporator IN/OUT water connections	Rp 2" 1/2	Rp 3"	DN100	87

#### NOTE

The machine interior is equipped with the fittings for BSP/NPT reducers, to be installed by the user.

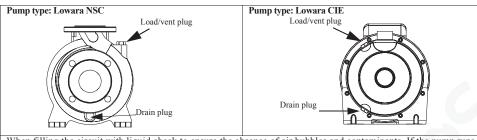


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OPERATING AND MAINTENANCE MANUAL Chapter 5 - Installation

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When filling the circuit with liquid check to ensure the absence of air bubbles and contaminants. If the pump runs noisily or emits anomalous noise it may be necessary to bleed the liquid circuit in order to prime the pump. The procedure is as follows:

- unscrew the filler/breather plug at the top of the pump
- fill the hydraulic circuit until water starts to overflow from the filler hole
- refit the plug and tighten it

Repeat the operation if the pump continuous to run noisily, in such a way as to eliminate any air that had previously remained trapped in the impeller vanes.

#### 5.4.1 Evaporator water limit features

pН	7.5 ÷ 9.0	
SO4	< 100	ppm
HCO3 <sup>-7</sup> SO4 <sup></sup>	> 1.0	
Total hardness	4.5 ÷ 8.5	dH
CI-	< 50	ppm
PO4 <sup>3-</sup>	< 2.0	ppm
NH3	< 0.5	ppm
Free Chlorine	< 0.5	ppm
Fe <sup>3+</sup>	< 0.5	ppm
Mn++	< 0.05	ppm
CO <sub>2</sub>	< 50	ppm
H <sub>2</sub> S	< 50	ppb
Temperature	< 65	°C
Oxygen content	< 0.1	ppm

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#### 5.5 Expansion vessel

In the presence of a closed hydraulic circuit an expansion vessel must be installed.

The expansion vessel must always be installed on the pump suction side.

To calculate the minimum volume of the expansion vessel use the formula shown below, which is valid if the circuit pressure is less than or equal to 7.2 PSI when the pump is idle and the maximum working pressure of the expansion vessel is greater than or equal to 58 PSI.

The volume of expansion vessel V in litres is provided by the formula:

V	= 2	·	Vi	t ·	(F	<b>'</b> tmi	n -	Ptmax	:)
---	-----	---	----	-----	----	--------------	-----	-------	----

wl	ner	e:

Vt=	Total circuit volume in litres
Ptmin=	Specific density at minimum temperature that can be reached by the water throughout a twelve month
	period expressed in °F (also during system shutdown)
Ptmax=	specific density at minimum temperature that can be reached by the water throughout a twelve month
	period expressed in °F (also during system shutdown)

#### Calculation example:

Vt=200 litres percent ethylene glycol by volume=30% tmin=41°F from table Ptmin=(1.045+1.041)/2 = 1.043 tmax=104°F from table **Ptmax**=1.0282 V=2 · 200 · (1.043 - 1.0282)=5.92 litres

Specific densities table P

	% Glycol	0%	10%	20%	- 30%	40%
	-4	1.0036	1.0195	1.0353	1.0511	1.0669
Ho	14	1.0024	1.0177	1.033	1.0483	1.0635
	32	1.0008	1.0155	1.0303	1.045	1.0598
erati	50	0.9988	1.013	1.0272	1.0414	1.0556
Temperature	68	0.9964	1.0101	1.0237	1.0374	1.051
Te	86	0.9936	1.0067	1.0199	1.033	1.0461
	104	0.9905	1.003	1.0156	1.0282	1.0408

#### 5.6 **Electrical connections**

The machine must be connected to the main power supply in accordance with the laws and regulations in force in the country of installation, after verifying the wiring diagram annexed to the unit.

Voltage, frequency and the number of phases must comply with the values indicated on the machine data plate. Main distribution systems in United States:

System	Nominal Voltage	Utilizatio	n Voltage
Ť,	120	115	110
÷	240/120	230/115	220/110
	600 480 240	575 460 230	550 440 220
÷	480	460	440
+[]	480/277 208/120	460/266 200/115	440/254 190/110

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Chapter 5 - Installation

 System
 Nominal Voltage
 Utilization Voltage

 \$\frac{1}{2}\$
 240/120
 230/115
 220/110

 \$\frac{1}{2}\$
 240/120
 230/115
 220/110

Main distribution systems in Canada:

System	Nominal Voltage	Utilization	n Voltage
	240 480	230 460	220 440
÷L	600	575	550
÷	240/120	230/115	220/110
$\ge$	600 480 240	575 460 230	550 440 220
	600	575	550
÷	480 240	460 230	440 220
	600/347	575/332	550/318
÷1	480/277 416*/240	460/266 400*/230	440/254 380*/220
	208/120	200/115	190/110

#### For mains power input:

- 1. Connect the machine (terminal **\_\_\_\_** in the electrical panel) to the earth system of the building;
- 2. Provide protection against direct contact of at least NEMA Type 1 upline from the power cable;
- 3. Fit a device protecting the power cable from overcurrent (short-circuit) (see indication in the electrical diagram) upline from the power cable. For this purpose, all protection devices must be homologated ("listed").
- 4. Use conductors which can carry the maximum current required at the maximum ambient operating temperature, according to the type of installation chosen (seeindication in the electrical diagram). Use only UL marked copper cables, in conformity with NEC (NATIONAL ELECTRICAL CODE) and CEC (CANADIAN ELECTRICAL CODE).
- 5. After the connection to the circuit breaker/switch (as indicated in the wiring diagram), the unit's power cable must exit the unit by the appropriate hole positioned on the back panel and identified by a label with the indication of the power supply.

# 5.7 Phase Monitor

By means of a Phase Monitor device (see unit electrical schematic) the electronic controller is able to monitor the unit's power supply, stopping the unit in the case of missing phases or an incorrect phase sequence.

Tripping of the Phase Monitor shuts down the unit and displays alarm ALc1.

A certain level of power supply instability is perfectly normal. If the frequency with which the unit is shut down due to tripping of the Phase Monitor tends to increase unacceptably, contact your local electricity company to find a solution.

# ATTENTION

Mever tamper with the Phase Monitor under any circumstances.

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OPERATING AND MAINTENANCE MANUAL Chapter 6 - Starting

# CHAPTER 6

# STARTING

# ATTENTION

🗥 Before starting this type of unit, ensure that all personnel involved have read and understood Chapter 2 "Safety"

# ATTENTION

Men first starting after a stop of several days, ensure that the casing heating element of each compressor is switched on for at least 12 hours before pressing the start button.

# ATTENTION

*On starting the unit:* 

1) If the high pressure alarm trips (b1HP/b2HP/b1hP/b2hP) without the compressor having started, stop the unit immediately by setting it to off on the controller.

Now check the refrigerant circuit high pressure value.

2) If the Phase Monitor alarm ALc1 trips check the correct phase sequence upline from the unit. The ALc1 alarm may be generated by tripping of the protections upline from the phase monitor.

- 1. Check that the unit shut-off valves are open.
- 2. Check that the tank has been completely filled with water and that the air has been bled out correctly.
- 3. Check that the ambient temperature is within the range indicated on the unit's data plate.
- 4. Use the pressure gauge on the rear panel of the unit to check that the pressure is approximately 7.2 PSI (only for closed hydraulic circuits).
  - 5. Check that the main switch is in the OFF position ("O").



6.Check that the unit power supply voltage is correct. 7.Power the unit by means of the line protection device.

7.1 ower the unit by means of the fine protection device.

8. Close the unit's main switch by setting it to the ON position ("I").

9. Check that water is flowing through the evaporator.

10.To start the unit perform the following procedure (For more information consult Chapter 7 "Electronic controller")



From unit OFF (stand-by) press and release button 🗱 to switch the unit on or off in chiller mode. With the unit on LED 🕵 is lit.

- 11. On three-phase power supply models make sure the compressor operates correctly (no anomalous noise and no overheating) and check that the fans and the pump (if present) rotate in the correct direction. If necessary, invert two phase wires of the power supply line.
- 12. Check that the pressure difference between the pressure gauge reading with the pump running and the reading with the pump idle is higher than the available pressure head with the maximum pump flow rate. If the difference is lower this means that the water flow rate is higher than the maximum permissible value. To avoid damaging the pump increase the pressure drop in the hydraulic circuit, for example by partially closing a shut-off cock on the pump outlet.
- 13. If at the time of first startup the ambient temperature is high and the water temperature in the hydraulic circuit is significantly higher than the operating value (e.g. 77-86°F) this means that the chiller is starting in overloaded conditions resulting in possible tripping of the protections. To reduce the overload you can progressively close (without closing it completely!) a valve at the chiller outlet to reduce the flow rate of water passing through it. As the water temperature in the hydraulic circuit approaches the working value, the valve can be re-opened.

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#### OPERATING AND MAINTENANCE MANUAL Chapter 6 - Starting

#### 14. The unit is now ready to start operating.

If the thermal load is lower than that produced by the unit, the water temperature decreases until it reaches the setpoint value set following the instructions. Chapter 7 "Electronic controller"

Once the SETPOINT value has been reached the controller monitoring the water inlet temperature will stop the compressor. In these conditions the water pump runs constantly.

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Chapter 7 - Electronic controller

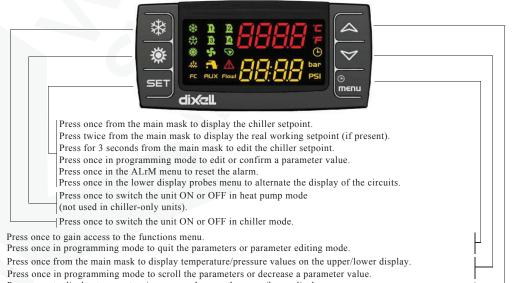
CHAPTER 7

# **ELECTRONIC CONTROLLER**

# 7.1 User interface

The icon is flashing during the countdown of the interval between defrost cycles. The icon is steady on during the defrost cycle (not used).
Chiller operating mode icon.
Lit if the domestic hot water production function is active (not used).
Lit if at least one condensing fan is running.
Compressors operating status icon, lit if the associated compressor is running.
Flashing if the compressor is in timer controlled starting mode.
Upper display
Shows a temperature value when lit.
<ul> <li>If lit in programming mode show temperature setpoints or differentials.</li> <li>Clock icon (pumps, compressors operating hours).</li> <li>When lit in programming mode shows the work load hours.</li> <li>Flashing in the functions menu indicates the time remaining before defrost start.</li> </ul>
Shows a pressure value when lit. If lit in programming mode shows pressure setpoints or differentials.
-Lower display
Helashing if the pressure switch digital input is active with the pump running.
Flashing if at least one alarm is present
Lit if at least one of the water pumps is running.
FC (not used). AUX lit with tank auxiliary heater on.
Lit if heaters (anti-freeze) heaters are on. Heat pump operating mode icon (not used).

# 7.2 Function of buttons



Press once in programming mode to scroll the parameters or decrease a parameter value. Press once to display temperature/pressure values on the upper/lower display. Press once in programming mode to scroll the parameters or increase a parameter value. Press for 1 second in programming mode to change the parameters access level. See "7.13.1 Access to parameters".

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OPERATING AND MAINTENANCE MANUAL Chapter 7 - Electronic controller

#### 7.2.1 Function of combined buttons

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BUTTONS	FUNCTION
SET +	To enter programming mode (pressed for 3 seconds).
SET +	To exit programming phase.
SET + <sup>©</sup> menu	In programming mode: Press once from the main mask to display the "user" parameters; Press twice from the main mask to display the "service" parameters.

# 7.3 Remote terminal

There is a choice of two types of terminals for converting the unit to remote control (with LED display or LCD keypad). The terminal generally shows the same parameters as the local display. The display can be customized with the dedicated parameters (see "7.41 Parameters description-settings")

In the absence of communication between the control unit and the remote terminal the upper display shows the message "noL" (no link).





Duplicate remote control with LED display.

Semi-graphic remote control with LED display.

#### NOTE

To convert the semi-graphic LCD display on the door of the electrical panel (mod. TAEevo Tech  $381 \div 1002$ ) to remote control, the relevant remote control kit must be ordered.

# 7.4 Probes key

This chapter refers to the probes; for the positioning of these probes consult the refrigerant circuit diagram and the electrical diagram.

Descriptions of the probes utilised are given below: Models TAEevo Tech 020÷401:

Probe code	Board label	<b>Board terminals</b>	Description
BTWOT	EOut	PB1	Tank water outlet temperature probe (temperature control)
BEWOT	Out1	PB2	Evaporator water outlet temperature probe (anti-freeze)
BHP1	CdP1	РВЗ	Circuit 1 high pressure temperature transducer (only with electronic control)
BAT1	Et	PB6	Ambient temperature probe

#### Models TAEevo Tech 402÷1002:

Probe code	Board label	Board terminals	Description
BTWOT	EOut	PB1	Tank water outlet temperature probe
BEWOT1	Out1	PB2	Evaporator 1 water outlet temperature probe
BHP1	CdP1	PB3	Circuit 1 high pressure transducer
BHP2	CdP2	PB4	Circuit 2 high pressure transducer
BEWOT2	Out2	PB5	Evaporator 2 water outlet temperature probe
BAT1	Et	PB6	Ambient temperature probe

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#### 7.5 Unit start/stop

The unit can be switched on and off as follows:

- From the keypad (local or remote)
- From a digital input configured as remote ON/OFF
- · Makes it possible to gain access to parameters programming mode.

#### NOTE

In case of a power loss, when power is restored the unit will be ON if it was ON at the time of power loss, and OFF if it was OFF.

#### 7.5.1 Start from the keypad

From unit OFF (stand-by) press and release button 🗱 to switch the unit on or off in chiller mode. With the unit on LED 🗱 is lit.

Stand-by mode is set each time the unit is switched off from chiller operating mode. Also in stand-by the controller makes it possible to:

- · Display the measured values
- · Manage the alarm situation by displaying and signalling.
- Programmable

When the unit is in stand-by the controller shows the label 5by on the display



#### 7.5.2 Start from a digital input

The unit can be switched on/off from a digital input configured as remote On/OFF. The power-off command (local or remote) always assumes priority with respect to the power-on command. If the unit is powered-off with a local command it must be powered back on with a local command.

When the unit is in OFF status from a digital input the controller shows the label DF.F on the display.



#### 7.6 Setpoint

#### 7.6.1 Display the setpoint

To display the setpoint press and release the SET key.

With the unit in stand-by the lower display will show **SetC** (chiller set). The upper display will show the set value.

#### 7.6.2 Change the setpoint

To change the unit working setpoint press the set key for at least 3 seconds and the working setpoint SetC (chiller set) will appear in flashing mode.

The setpoint can be changed using the  $\bigtriangleup$  or  $\bigtriangledown$  buttons.

To save the new setpoint, press SET or wait for the time-out to exit programming mode.

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Chapter 7 - Electronic controller

#### 7.7 Dynamic setpoint function

The regulator allows the operating setpoint to be modified by adding or subtracting a coefficient proportional to the external air temperature.

For industrial applications, the purpose of this function is to prevent condensate from forming on the surface of the component cooled by the unit.

The operating setpoint increases proportionally as the ambient temperature rises; the difference between the ambient temperature and the operating setpoint is a value which can be set by means of parameter Sd03, with values from  $23 \div 41^{\circ}$ F. To activate the function, set the following parameters:

Chiller setpoint **ST01**= 32°F

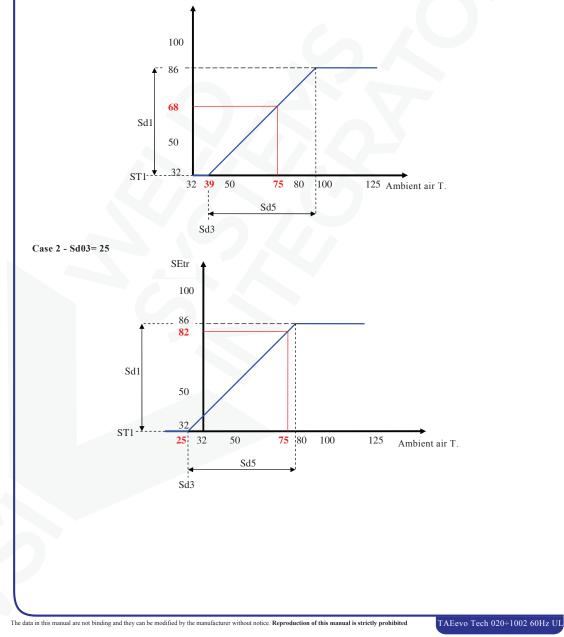
Max. increase in dynamic setpoint Sd01= 86°F

Temperature differential between external air and dynamic setpoint Sd05= 54°F

External air temperature - dynamic setpoint delta Sd03= 23 to 41°F

The graphs below illustrate operation of the dynamic setpoint (SEtr) with Sd03 set at 39°F and 25°F.

For example, with ambient T of 75°F the operating setpoint SEtr= 68°F in case 1 and SEtr= 82°Fcase 2. Case 1 - Sd03= 39



ENGLISH



#### Chapter 7 - Electronic controller

#### 7.8 How to display the internal values of a circuit

NOTE

() m

This chapter is not applicable to single circuit units.

In normal operating mode circuit no. 1 is always displayed by default.

To switch from one circuit to another use the 🖂 or 🤝 buttons to select an identification label within a circuit and press the SET button.

#### 7.9 Functions menu button "Menu"

Access to Functions Menu enables the user to:

	ALrM function	Display and reset active alarms (see 7.11.1).
nenu	ALOG function	Display and clear the alarms log (see 7.12.12).
	UPL function	Upload instrument parameters to the smart key (see 7.14).
	CrEn function	Enable / disable operation of a single circuit.
	COEn function	Enable / disable operation of a single compressor.
	COSn function	Display and reset the number of starts of each compressor.
		Display and reset the running hours of the controlled loads.
	Cond function	Display the percentage of operation of the proportional outputs for control of the condensing fans speed.
	POEn function	ENABLE or DISABLE the operation of a water pump using the key (if present).
	— uS function	Tank heater probe display.
	dF function	Display the time remaining before the start of the defrost cycle (heat pumps only).

#### CrEn - Enable or disable the single circuit 7.9.1

With the CrEn submenu the operation of a single circuit can be disabled for maintenance purposes or to isolate it in the event of malfunctions

Proceed as follows:

- Open the functions menu by pressing
- With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the function **CrEn** on the lower display; .
- Press SET. The lower display shows Cr1E while the upper display shows En;
- Use the  $\bigtriangleup$  or  $\bigtriangledown$  buttons to display the label Cr1E or Cr2E;
- Press the SET button for 3 seconds in correspondence with label Cr1E or Cr2E. The upper display shows En in flashing mode;
- Use the 🖾 or 🤝 buttons to select label diS (circuit operation disabled) or En (circuit operation enabled);
- Press SET to confirm the set function and proceed to the next circuit (only the loads associated with the circuit are disabled):

To exit the CrEn function and return to normal display mode press en or wait for the time-out.

In normal operation if one of the circuits is set to diS the lower display shows a flashing label alternated with the parameter shown at that time.

If circuit 1 is in diS mode the label shown on the lower display is b1dS = circuit 1 disabled. If circuit 2 is in diS mode the label shown on the lower display is b2dS = circuit 2 disabled.

#### NOTE

Label b2dS is present only on units with two refrigerant circuits.

#### ATTENTION

The CrEn function is enabled also on single circuit units. If you proceed to disable the only circuit present on these units, the unit will suspend its entire cooling capacity.

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#### 7.9.2 COEn - Enable or disable the single compressor

With the **COEn** submenu the operation of a single compressor within a circuit can be disabled for compressor maintenance purposes or to isolate it in the event of malfunctions.

The compressor status labels in the COEn function are:

- **CO1E** = operating status of compressor no. 1;
- **CO2E** = operating status of compressor no. 2;
- **CO3E** = operating status of compressor no. 3 (only two circuit units);
- **CO4E** = operating status of compressor no. 4 (only two circuit units);

To enable or disable the compressors proceed as follows:

- Open the functions menu by pressing menu
- With the 🛆 or 🤝 buttons select function CrEn
- Press **SET**; the lower display shows **CO1E** while the upper display shows **En**
- Use the 🛆 or 😾 buttons to select the required label on the lower display. The upper display shows **En**
- Press set for 3 seconds in correspondence with the label identifying the compressor to be disabled
- The upper display shows flashing **En**; use or to select the **diS**(compressor operation disabled) or **En** (compressor operation enabled) function
- Press SET to confirm the selected function and proceed to the next compressor

#### To exit the **COEn** function and return to normal display mode press or wait for the time-out.

7.9.3 COSn - Display and reset the number of compressor starts

The number of compressor starts can be viewed in the **COSn** submenu. The labels displayed are:

- C1S compressor 1 starts
- C2S compressor 2 starts
- C3S compressor 3 starts
- C4S compressor 4 starts

The number of starts is displayed in the lower display with a resolution of 10 starts. For example, if the number 2 is displayed, the compressor starts are 20 in number.

To display the number of starts proceed as follows:

- Open the functions menu by pressing menu
- With the 🛆 or 🄝 buttons select the function COSn
- Press set. The label of the single load C1S is shown on the upper display; the lower display shows the number of starts multiplied by 10.
- With buttons  $\bigtriangleup$  or  $\bigtriangledown$  display all the configured compressors.

To return to normal display mode press and or wait for the time-out.

To reset the number of compressor starts proceed as follows:

- Open the functions menu by pressing
- In function COSn use △ or ♥ to select the label C1S or C2S or C3S or C4S.
- Press set for 3 seconds in correspondence with load C1S or C2S or C3S or C4S. The lower display now shows the number of starts in flashing mode (reset in progress) and then the value "0" indicating that the number has been reset.
- At this point the starts of the next compressor are displayed.

To exit the reset function and return to normal display mode press and or wait for the time-out.

#### 7.9.4 Hour - Display and reset the running hours of the loads

In the Hour submenu you can display the running hours of each compressor and also of the water pump. The labels displayed are:

- CO1H compressor 1 running hours
- CO2H compressor 2 running hours
- CO3H compressor 3 running hours
- · CO4H compressor 4 running hours
- EP1H evaporator water pump running hours
- EP2H evaporator second water pump running hours

As for the number of starts, the running hours are shown on the upper display with a resolution of 10 hours.

To view the running hours proceed as follows:

- Open the functions menu by pressing menu
- With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the Hour function
- Press set. The label of the single compressor is shown on the lower display; the upper display shows the number of running hours multiplied by 10. The () icon will be illuminated.
- With buttons 🛆 or 🤝 display all the configured compressors.

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To return to normal display mode press **Rep** or wait for the time-out. To reset the running hours proceed as follows:

- Open the functions menu by pressing menu
  - In the Hour function use or to select the label CO1H or CO2H or CO3H or CO4H or EP1H or EP2H
  - Press **SET** for 3 seconds in correspondence with the compressor label **CO1H** or **CO2H** or **CO3H** or **CO4H** or **EP1H** or **EP2H**; the upper display will show the running hours in flashing mode (reset in progress) followed by 0 to confirm that the value has been reset, and then progresses to the next load.

To exit the reset function and return to normal display mode press from or wait for the time-out.

#### 7.9.5 Cond - Display of percentage / number of condensing steps

In the functions menu you can view the working percentages of the fans proportional output. Cndl Condensing fans control proportional output.

Proceed as follows to display:

- Open the functions menu by pressing menu
- With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the **Cond function**
- Hold down button set. The lower display shows Cnd1, the upper display shows the work percentage.

To return to normal display mode press or wait for the time-out.

In dual circuit units, to display the number of fan steps activated open the functions menu by pressing entry

- With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the **Cond function**
- Press SET. The lower display shows Cnd1, the upper display shows the number of steps activated.

Use or to select the label Cnd1 on the lower display; the upper display to shows the work percentage from 0 to 100 %:

To return to normal display mode press new or wait for the time-out.

**7.9.6 POEn - ENABLE or DISABLE the operation of a water pump using the key** Operation of a single pump can be disabled for servicing or to disconnect it from the circuit in the event of a malfunction. In the functions menu it is displayed with the label **POEn**; inside the folder it is displayed as follows: **PE1E** = evaporator no. 1 pump operating status.

The labels which identify the individual pumps are only displayed in the **POEn** function for the pumps actually present. Access the function menu **Been** key:

- use the 🛆 or 🄝 keys to scroll the list and select the "POEn" function
- press the SET key: the bottom display shows "PE1E" and the top display "En";
- select the pump for disabling by pressing the or vertice weys (labels "PE1E", "PE2E"... present depending on the unit's configuration)
- press the set key for 3 seconds: the top display shows a flashing "En". Pressing the or v keys alternates the contents of the top display between "En" and "diS"; pressing the set key confirms the selected status (En= enabled, diS=disabled).

Press the green key to quit the POEn menu; it will also be shut down after a time-out.

#### Display status of the DISABLED water pump

During normal operation, if one of the pumps is disabled, a flashing label **P1Ed**, **P2Ed**, (evaporator pumps 1 and 2) appears on the bottom display, alternating with the parameter currently displayed.

#### 7.10 uS - Tank heater probe display

The temperature / pressure value of the probes that control the auxiliary outputs can be displayed in the functions menu. FUNCTION **uS** display of temperature / pressure value; identification label in function **uS**:

- uSt1 value measured by circuit 1 auxiliary probe
- **uSt2** value measured by circuit 2 auxiliary probe

To display the probe values:

- With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the **uS** function and press SET
- The lower display will show the label **uSt1** (if the auxiliary probe is configured for temperature) or **uSP1** (if the auxiliary probe is configured for pressure); the upper display will show the measured temperature / pressure value.
- Use 🛆 or 🤝 to display the measured pressure value of auxiliary output 2, if present.
- To return to normal display mode press or wait for the time-out.

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#### 7.11 Alarms

The electronic controller manages the display, reset and logging of a large number of alarms.

#### 7.11.1 Alarms display and reset (ALrM function)

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 $\triangle$  With this procedure you can reset all the alarms except for the compressor thermal cut-out alarms for which the password will be required: 14.

To open the functions menu proceed as follows:

- Open the functions menu by pressing <sup>☉</sup><sub>menu</sub>
  - With the  $\bigtriangleup$  or  $\bigtriangledown$  buttons select the ALrM function
- Press SET.
- If no alarms are present, pressing SET is not enabled.
- The lower display shows the label with the alarm; the upper display, if the alarm displayed is resettable, shows the label **rSt** or **no** if the alarm condition is still present.
- Pressing set in correspondence with label **rSt** resets the alarm and the system goes to the next one; if this too is resettable, press set to reset it and go to the next one.
- If you want to scroll through all the alarms present press 🛆 or 🤝
- To exit the ALrM function and return to normal display mode press or wait for the time-out.

With the unit in StbY (stand-by) and the 🛆 LED flashing, press and scroll with 🖾 or 🔝 to select the ALrM function

and press button **SET** to display the active alarm.

#### 7.11.2 How to mute the buzzer

The controller emits an audible signal to alert the operator to the presence of alarms (buzzer).

The buzzer is muted in the following ways:

- Automatic muting: the buzzer is muted when the situation that caused the alarm ceases.
- Manual muting: press and release one of the buttons; the buzzer will be muted even if the alarm condition persists.

#### 7.11.3 General alarms list

Alarm codes and indications are composed of letters and numbers that identify different alarm types. The first letter of the alarm label identifies the type as follows:

- Letter A = unit alarm
- Letter  $\mathbf{b}$  = circuit alarm
- Letter **C** = compressor alarm

The following tables contain a description of the alarms managed by the electronic circuit board. Some of the alarms mentioned may not be referable to all unit models.

					Outp	uts block	ί.
COD. alarm	Alarm Description	Alarm reset	Alarm Trip	Compressor	Pump	Fan	Heaters
AP1	Probe PB1 fault alarm	А	Ι	Х		Х	X(1)
AP2	Probe PB2 fault alarm	А	Ι	Х		Х	X(1)
AP3	Probe PB3 fault alarm	А	Ι	Х		Х	X(1)
AP4	Probe PB4 fault alarm	А	Ι	Х		Х	X(1)
AP5	Probe PB5 fault alarm	А	Ι	Х		Х	X(1)
AP6	Probe <b>PB6</b> fault alarm		Ι	Х		Х	X(1)
APE1	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
APE2	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
APE3	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
APE4	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
APE5	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
APE6	Probe PB1 Probe Pb8 of I/O expansion		Ι	Х	Х	Х	
APE7	Probe PB1 Probe Pb8 of I/O expansion			Х	Х	Х	
APE8	Probe PB1 Probe Pb8 of I/O expansion	А	Ι	Х	Х	Х	
AEFL	Level sensor and/or flow meter alarm	A/M	R	Х	X(2)	Х	Х

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					Outp	uts block	
COD. alarm	Alarm	Alarm reset	Alarm Trip	Compressor	Pump	Fan	Heaters
AtE1	Evaporator water pump thermal cutout	М	I	X(3)	Х	Х	X(4)
AtE2	Evaporator second water pump thermal cutout	М	Ι	X(3)	Х	Х	X(4)
AEE	EEprom alarm	М	Ι	Х	Х	Х	
ALSF	Phase sequence alarm (NOT USED)	А	Ι	Х	Х	Х	Х
ASLA	LAN communication with I/O expansion alarm	А	Ι	Х	Х	Х	
ALc1	Phase monitor alarm	A/M	Ι	Х	Х	Х	
AEUn	Evaporator inlet high temperature unloading indication	А	R				
ACF1	Configuration alarm	А	Ι	Х	Х	Х	
ACF2	Configuration alarm	А	Ι	Х	Х	Х	1
ACF3	Configuration alarm	А	Ι	Х	Х	Х	
ACF4	Configuration alarm	А	Ι	Х	Х	Х	
ACF5	Configuration alarm	А	I	Х	X	Х	
ACF6	Configuration alarm	А	Ι	Х	Х	Х	
ACF7	Configuration alarm	А	Ι	Х	Х	Х	
ACF8	Configuration alarm	Α	Ι	Х	X	Х	
ACF9	Configuration alarm	А	Ι	Х	Х	Х	
AC10	Configuration alarm	А	I	Х	Х	Х	
AC11	Configuration alarm	А	Ι	Х	Х	Х	
AC12	Configuration alarm	Α	Ι	Х	Х	Х	
AC13	Configuration alarm	А	Ι	Х	Х	Х	
AC14	Configuration alarm	М	Ι	Х	Х	Х	
b(n)HP	Circuit (n) high pressure switch (TAEevo Tech 020÷401 models only)	A/M	R	Х	1	Х	
b(n)HP	Circuit (n) high pressure switch and/or compressor thermal alarm (TAEevo Tech 402÷1002 models only)	A/M		Х		Х	
b(n)LP	Circuit (n) low pressure switch	A/M	R	Х		Х	
b(n)AC	Anti-freeze in chiller circuit (n)	A/M	R	Х		Х	
b(n)Ac	Signalling of anti-freeze in chiller circuit (n)	A/M	R	1		1	
b(n)hP	High condensing pressure transducer circuit (n)	М	Ι			Х	
b(n)lP	Low condensing pressure - (evaporation with low pressure transducer) transducer circuit (n)	A/M	R	Х			
AEht	Evaporator water inlet high temperature alarm	М	Ι	Х		Х	
b1tF	Circuit 1 fans thermal alarm	М	Ι	Х			
b(n)Cu	Signalling unloading temp. press. condensing circuit (n)	А	Ι	1	1	1	1
b(n)rC	Circuit (n) recovery disabled signalling	А	Ι	1		1	
C(n)tr	Compressor (n) thermal alarm with $AL47 = 0 - 1$	М	Ι	Х		1	

2= With manual reset alarm.

3= Compressors stopped with only 1 water pump configured or with 2 water pumps configured and both in thermal alarm state.

4= water heater elements off with only 1 water pump configured or with 2 water pumps configured and both in thermal alarm status (in this case the water heater elements are switched on only by the evaporator anti-freeze protection setpoint). (n)= identifies circuit 1 or circuit 2

Key:

A= automatic

M= manual

R= delayed

I= instantaneous



7.11.4 Indications table

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CODE Alarm	Description	Comp.	Heaters	Anti-freeze	water heater	Elements sunnort	 Pump Evap.	Deliv. Fan	Cond. pump	Cond.	fan Cirl Cir2	Auxiliary	генау
AEUn	Evaporator unloading indication												
b(n)Cu	Unloading indication from condensing press. temp. circuit (n)												
b(n)Eu	Unloading indication from evaporator low temp. circuit (n)												
C(n)Mn	n Compressor (n) maintenance												
AEP1	Evaporator water pump maintenance												
AEP2	Second evaporator pump maintenance							<					
noL	Indication of communication loss between keypad or controller 2 remote terminals configured with same address												
Atr(n)	Remote terminal alarm											1	_
7.11	.5 Probe faulty												

#### 7.11.5 Probe faulty

Display labels meaning	AP1 probe PB1÷AP6 alarm probe PB6 alarm
Cause of trip	Probe configured and converted value off range
Reset	Probe not configured or converted value within range
Reset	Automatic
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
	In accordance with the particular probe in error status, the regulators associated with the probe in question will be disabled. An error of the temperature control probe will cause a unit shut-down, while an error of the external air temperature probe will result in disabling of the functions associated with the probe in question (e.g. dynamic setpoint)

#### 7.11.6 High pressure switch alarm (TAEevo Tech 020÷401 models only)

Display labels meaning	<b>b1HP</b> (circuit 1 high pressure digital input)
Cause of trip	With unit in ON status and circuit high pressure switch input active
Reset	Input inactive
Reset	Reset is always manual
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Fans	If Par. FA02= 0 fans operating mode depends on the compressor, with alarm active the fans are forced at the maximum speed for 60 seconds before switching off If Par. FA02= 1 fans operating mode independent from the compressor, with alarm active the fans are forced at the maximum speed for 60 seconds then are subjected to speed control
Compressors of unaffected circuits	Follows its control
Pump down solenoid of non-condensing circuits affected	Follows its control
Pump down solenoid of affected circuits	off

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# 7.11.7 High pressure switch alarm and/or compressor thermal alarm $({\rm TAEevo\ Tech\ 402\div1002\ models\ only})$

Display labels meaning	<b>b1HP</b> (circuit 1 high pressure digital input) and/or compressor thermal alarm
	b2HP (circuit 2 high pressure digital input) and/or compressor thermal alarm
Cause of trip	With unit in ON status and circuit high pressure switch input active and/or
	compressor thermal alarm
Reset	Input inactive
Reset	Reset is always manual
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Fans	If Par. FA02= 0 fans operating mode depends on the compressor, with alarm
	active the fans are forced at the maximum speed for 60 seconds before
	switching off
	If Par. FA02= 1 fans operating mode independent from the compressor, with
	alarm active the fans are forced at the maximum speed for 60 seconds then are
	subjected to speed control
Compressors of unaffected circuits	Follows its control
Pump down solenoid of non-condensing	Follows its control
circuits affected	
Pump down solenoid of affected circuits	off

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#### 7.11.8 Low pressure switch alarm

Display labels meaning	b1LP (circuit 1 low pressure digital input)
	b2LP (circuit 2 low pressure digital input)
Cause of trip	With low pressure switch input of active circuit
	The alarm is not signalled:
	1. On compressor starting for time AL01
	2. If time AL64 from activation of the digital input has not elapsed
Reset	Input deactivation
Reset	Automatic - becomes manual after AL05 trips / hour (reset procedure in
	functions menu)
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Condensing fans	Off
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors	off
Pump down solenoid	off



#### 7.11.9 High pressure

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Display labels meaning	b1hP (circuit 1 high pressure analogue input)
	b2hP (circuit 2 high pressure analogue input)
Cause of trip	Condensing control probe detects value > set AL09
Reset	Condensing control probe detects value < set AL09 - differential AL10
Reset	Reset is always manual
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Condensing fans	If Par. $FA02=0$ fans operating mode depends on the compressor, with alarm active the fans are forced at the maximum speed for 60 seconds before switching off
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors of affected circuits	Off
Compressors of unaffected circuits	Follows its control
Pump down solenoid of unaffected circuits	Follows its control
Pump down solenoid of affected circuits	off

#### 7.11.10 Low pressure

Display labels meaning	b1lP (circuit 1 low pressure analogue input)
	<b>b2IP</b> (circuit 2 low pressure analogue input)
Cause of trip	The alarm is generated when the evaporation pressure alarm reads a pressure value < set AL03 When the compressor is started the alarm is not generated for time AL01.
Reset	If the evaporation control probe measures pressure > set AL03 + differential AL04
Reset	Automatic - becomes manual after AL05 trips / hour (reset procedure in functions menu)
Icon	Flashing 🛆
Action	Relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Condensing fans	Off
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors of affected circuits	Off
Compressors of unaffected circuits	Follows its control
Pump down solenoid of unaffected circuits	Follows its control
Pump down solenoid of affected circuits	off

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#### 7.11.11 Anti-freeze alarm

The anti-freeze alarm is reset automatically. It switches to manual reset after 3 trips/hour.

With the unit in Stand-by or OFF the anti-freeze alarm message is tripped in reference to the chiller and heat pump setpoints. 7.11.12 Chiller mode anti-freeze alarm

	Chiller Operation
Display labels meaning	<b>b1AC</b> (chiller mode circuit 1 anti-freeze alarm)
	b1Ac (chiller mode circuit 1 anti-freeze alarm indication)
	With the alarm active and a dual circuit unit both the labels are displayed
	(b1AC-b2AC/b1Ac-b2Ac).
Cause of trip	In operation and in stand-by remote OFF, if the anti-freeze control probe detects
	a temperature < set AL26 for at least AL28 seconds.
Reset	Anti-freeze control probe detects a temperature $>$ set A26 + differential AL27.
Reset	Automatic - becomes manual after AL29 trips / hour (reset procedure in
	functions menu).
Icon	Flashing 🛆
Action	The compressors are stopped and the alarm label is displayed (b1AC b2AC)
	and the Alarm relay + buzzer are activated
Regulators	
Alarm	If AL30=1 Relay + buzzer activated + anti-freeze heaters
Inversion valve	Follows its control
Recovery valve	Follows its control
Free cooling ON/OFF valve	Follows its control
Auxiliary relay	Follow(s) its/their control
No-load start-up valve	Follows its control
Delivery fan	If air-air unit off
Condensing fans	Follows its control
Support /water heater /anti-freeze	If air-air unit off, otherwise follows its control
Support /water heater /anti-freeze	With alarm from ID activated
Evaporator/ condenser water pump(s)	Follows its control
Compressors	Off
Pump down solenoid	Off

#### 7.11.13 Level sensor and/or flow meter alarm

Each time the water pump is started the level sensor alarm is disregarded for time AL15 to allow the hydraulic circuit to reach steady state conditions. In normal operating conditions, if the level sensor is in alarm for time AL17 the compressor is stopped and label AEFL is displayed: the water pump continues to run for additional time AL16 after which, if the level sensor is still in alarm, the pump is stopped.

At this point the alarm persists with manual reset so it must be reset manually.

Parameter AL18 is the time for which the level sensor must not be in alarm in order to allow a reset.

AL15 Pump start level sensor alarm delay

Used to set a delay for acknowledgement of the level sensor alarm from starting of the water pump to allow the flow rate to reach steady state conditions.

AL16 Alarm persistence time to stop the water pump.

Defines the level sensor alarm persistence time (digital input active) after which the alarm switches from automatic reset to manual reset and the water pump is stopped.

AL17 Level sensor input active duration

Used to set a time during which the level sensor alarm must persist before the alarm is signalled. The count starts after time AL15 and makes it possible to filter out possible flow rate drops or the presence of air pockets in the water circuit. AL18 Level sensor input not active duration

Used to set a time during which the level sensor alarm must remain inactive; after this interval, if the alarm is automatic reset type it is reset, while it can be reset manually if it is manual reset type.

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Display labels meaning	AEFL (level sensor and/or flow meter alarm)
Cause of trip	The alarm is not acknowledged for time AL15 after starting of the water pump.
	Alarm signalled if ID active for time AL17.
Reset	ID not active for time AL18
Reset	Automatic - becomes manual if ID active for time AL16 counted at expiry of
	AL17 (reset procedure in functions menu)
Icon	Flashing Flow!
Action	Alarm relay + buzzer activated only if the level sensor alarm is active during a
	normal operating stage.
Regulators	
Alarm	Relay + buzzer activated only if the level sensor alarm is active during a normal
	operating stage.
Inversion valve	Follows its control
Recovery valve	Follows its control
Free cooling ON/OFF valve	Follows its control
Anti-freeze / Support / water heater	Off
Auxiliary relay	Follows its control
Delivery fan	Off
Condensing fans	Follows its control
Support /water heater /anti-freeze	Follows its control
Evaporator water pump	With CO15 = 1 always on; off when alarm switches to manual reset (only in
	chiller or heat pump mode)
Evaporator water pump	With <b>CO15</b> = 2 follows its control; off when alarm switches to manual reset
	(only in chiller or heat pump mode)
Condenser water pump	Follows its control
Compressors	Off
Pump down solenoid	Off

#### ATTENTION

 $\triangle$  Activation of alarm relay + buzzer occurs only if the level sensor alarm is active during a normal operating stage. Otherwise exclusively an illuminated signal is generated (flashing icon).

#### NOTE

The alarm is always automatic reset with the unit in stand-by or remote OFF (pump stopped).

Level sensor alarm manual reset:

If the alarm features manual reset, to reset it the operator must open the functions menu (reset procedure in functions menu).

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#### 7.11.14 Compressors thermal alarm

Display labels meaning	C1tr (compressor 1 thermal alarm)C4tr (compressor 4 thermal alarm)
Cause of trip	With digital input active.
	The alarm is not acknowledged for AL19 after compressor start.
Reset	If ID inactive
Reset	Manual from menu ALrM with password request
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	Follows its control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Condensing fans	Follows its control
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressor affected	If Par. $AL47 = 0$ or 1 Off
Compressor unaffected	If Par. AL47 = 0 follows its control - If Par. AL47 = 1 Off
Pump down solenoid	Switched off if only 1 compressor per circuit, otherwise follows its control

# 7.11.15 Fan thermal alarm

Display labels meaning	<b>b1tF</b> (circuit 1 condensing fan thermal alarm)
	b2tF (circuit 2 condensing fan thermal alarm)
Cause of trip	With configured circuit digital input active
Reset	With digital input inactive.
Reset	Manual. (reset procedure in functions menu)
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	follows its control
No-load start-up valve	follows its control
Delivery fan	Off
Condensing fans	Off
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors	Off
Pump down solenoid	Off



#### 7.11.16 High condensing pressure unloading indication in chiller mode

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Display labels meaning	b1Cu (unloading indication from circuit 1 condenser coil)
	<b>b2Cu</b> (unloading indication from circuit 2 condenser coil)
Cause of trip	In operation if the probe configured as condensing pressure or temperature
	control detects a value > CO44
Reset	• if condensing pressure or temperature measures value < CO44 -
	differential CO45
	• with unloading active, after time setting Par. CO48
Reset	Automatic
Icon	Flashing 🛆
Action	Alarm relay + buzzer NOT activated
Regulators	·
Alarm	Relay + buzzer NOT activated
Inversion valve	Follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	follows its control
Auxiliary relay	follows its control
No-load start-up valve	follows its control
Delivery fan	Follows its control
Condensing fans	Follows its control
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors	Follows its control
Pump down solenoid	Follows its control

#### 7.11.17 High condensing pressure recovery disabling indication

Display labels meaning	<b>b1rC</b> (circuit 1 recovery disabling signal)	
	<b>b2rC</b> (circuit 2 recovery disabling signal)	
Cause of trip	In operation if the probe configured as condensing pressure control detects a value > set rC06	
Reset	<ul> <li>If condensing pressure or temperature measures value &lt; set rc06         <ul> <li>differential rC07</li> <li>From recovery disabling function activated after time set in Par. rC08</li> </ul> </li> </ul>	
Reset	Automatic	
Icon	Flashing 🛆	
Action	Alarm relay + buzzer NOT activated	
Regulators		
Alarm	Relay + buzzer NOT activated	
Inversion valve	Follows its control	
Recovery valve	Off	
Free cooling ON/OFF valve	Follows its control	
Auxiliary relay	Follows its control	
No-load start-up valve	Follows its control	
Delivery fan	Follows its control	
Condensing fans	Follows its control	
Support /water heater /anti-freeze	Follows its control	
Evaporator/ condenser water pump(s)	Follows its control	
Compressors	Follows its control	
Pump down solenoid	Follows its control	



#### 7.11.18 Evaporator inlet high water temperature unloading indication

Display labels meaning	AEun (unloading from evaporator indication)
Cause of trip	operation if evaporator water inlet temperature measured is > set CO40 for time set in Par.CO42
Reset	<ul> <li>If the measured water temperature is &lt; set CO40 - differential CO41</li> <li>From unloading function active after time set in Par. CO43</li> </ul>
Reset	Automatic
Action	Alarm relay + buzzer NOT activated
Regulators	
Alarm	Relay + buzzer NOT activated
Inversion valve	Follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	Follows its control
Auxiliary relay	Follows its control
No-load start-up valve	Follows its control
Delivery fan	Follows its control
Condensing fans	Follows its control
Support /water heater /anti-freeze	Follows its control
Evaporator/ condenser water pump(s)	Follows its control
Compressors	Follows its control
Pump down solenoid	Follows its control

#### 7.11.19 Evaporator water pump group thermal alarm

Display labels meaning	AtE1 (evaporator water pump thermal cutout)
	AtE2 (evaporator second pump thermal cutout)
Cause of trip	ID configured as evaporator water pump thermal cutout active
	ID configured as evaporator second pump thermal cutout active
Reset	With ID inactive
Reset	Manual. (reset procedure in functions menu)
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Inversion valve	Follows its control
Recovery valve	follows its control
Free cooling ON/OFF valve	Follows its control
Auxiliary relay	Follows its control
No-load start-up valve	Follows its control
Delivery fan	Off if no pump available
Condensing fans	Off if no pump available
Support /water heater /anti-freeze	Follows its control
Condenser / evaporator water pump	Off if no pump available
Condenser water pump	Follows its control
Compressors	Off if no pump available
Pump down solenoid	Off if no pump available



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#### 7.11.20 Phase monitor alarm

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Display labels meaning	ALc1
Cause of trip	Phase monitor alarm
Reset	Phase monitor not active alarm
Reset	automatic - becomes manual after AL42 trips / hour (reset procedure in functions menu). Recorded in alarms log exclusively with manual reset.
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	·
Alarm	Relay + buzzer activated
Other loads	Off

#### 7.11.21 Compressors maintenance alarm

Display labels meaning	C1Mn (compressor 1 maintenance request)	
	C2Mn (compressor 2 maintenance request)	
	C3Mn (compressor 3 maintenance request)	
	C4Mn (compressor 4 maintenance request)	
Cause of trip	Compressor running hours > programmed hour meter setting	
Reset	Running hours reset (in functions menu, "Hour" function, hold down "set" button for several seconds)	
Reset	Manual	
Icon	Flashing 🛆	
Action	Alarm relay + buzzer activated	
Regulators		
Alarm	Relay + buzzer activated	
Other loads	Follow their control	

#### 7.11.22 Pumps maintenance alarm

Display labels meaning	AEP1 (evaporator water pump maintenance request) AEP2 (evaporator second pump maintenance request)
Cause of trip	Pump running hours > programmed hour meter setting
Reset	Running hours reset (in functions menu, "Hour" function, hold down "set" button for several seconds)
Reset	Manual
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Other loads	Follow their control

#### 7.11.23 EEprom alarm

Display labels meaning	AEE	
Cause of trip	Failed write to Eeprom	
Reset		
Reset	Manual	
Icon	Flashing 🛆	
Action	Alarm relay + buzzer activated	
Regulators		
Other loads	Off	

#### NOTE

For unit configuration alarms "ACF1+ACF9" and "AC10+AC14", contact technical assistance.

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#### 7.11.24 Unit configuration alarm

	abels meaning				
ACF1	Unit configured as heat pump and circuit inversion valve not configured incorrect combination in values of defrost parameter (dF22/23)				
ACF2	Unit configured for ON/OFF or proportional condensing control without configuration of the competent probe (1 probe per circuit if separate condensing, at least 1 probe if single condensing). In case of proportional control at least one of the following rules is not observed: • FA09 + FA11 + FA12 < FA10 • FA12 < FA13 • FA07 < FA15 < FA08 In case of proportional control at least one of the following rules is not observed: • FA18 + FA21 + FA20 < FA19 • FA18 + FA21 + FA20 < FA19 • FA16 < FA23 < FA17 In case of ON-OFF control the following rule is not observed: • FA09 < FA10 In case of ON-OFF control with pump enabled the following rule is not observed: • FA18 < FA19 In case of pump enabled and defrost enabled no condensing / evaporation probe per circuit. In case of fans control with PWM signal continuous supply has been selected (CF83=0). In case of step control enabled if step1 is not < step2 < step3 < step 4 in chiller mode / if step 4 is not < step3 < step2 < step 1 in heat pump mode.				
ACF3	Two digital / analogue or relays configured with same function or configured without adequate resour (e.g. compressor 3 thermal cutout configured but compressor 3 not configured).				
ACF4	<ul> <li>CF59 = 1 and digital input not configured or CF59 = 2 and no NTC probe configured as ambient air temperature.</li> <li>Unit configured as heat pump only and compressors plant enabled.</li> <li>CF03 ≠ 0 and no condensing unit operation enabling digital input and loads configured.</li> <li>CF03 ≠ 0 and all condensing unit operation enabling digital inputs and cooling / heating demand configured.</li> <li>CF03 ≠ 0 and capacity demands configured in mode that is incongruent with the configuration of the compressors / capacity steps relay outputs.</li> </ul>				
ACF5	If circuit 2 is not configured and the resources have not been configured (pump-down relay, heating elements, cycle inversion valve, condensing fans, recovery, auxiliary).				
ACF6	<ul> <li>Total number of compressors in the 2 circuits (CF04 + CF05) is:</li> <li>&gt; 4</li> <li>&gt; 4 and starting is not direct (CO10 ≠ 0) or number of capacity steps (CF06) is ≠ 0</li> <li>&gt; 2 and intermittent valve is enabled with ON times (CO08) and OFF times (CO09) ≠ 0</li> <li>If pump-down operation is configured but in at least one circuit: <ul> <li>The circuit pump-down solenoid relay is not configured.</li> <li>The pump-down is not performed by time and the pump-down pressure switch and circuit evaporation probe are not configured and pump-down is enabled also in start-up or even the low pressure switch is not configured</li> </ul> </li> <li>The compressor has been configured by means of parameters CF04 and CF05 but the relative relays have not been installed: <ul> <li>Compressor relay</li> <li>Valve intermittent when enabled from capacity control ON / OFF times (CO08 / CO09 ≠ 0)</li> <li>or gas by-pass when the function is enabled (by-pass time ≠ 0)</li> <li>Starting part-winding</li> </ul> </li> </ul>				
	<ul> <li>Of capacity control for all capacity steps provided</li> <li>A relay has been configured:         <ul> <li>Associated with a compressor not enabled by parameters CF04 and CF05</li> <li>Valve intermittent when ON or OFF times =0</li> <li>Capacity control not envisaged</li> </ul> </li> </ul>				

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ACF7	Evaporator pump
	<ul> <li>defined (CO16 ≠ 0) but no relays configured</li> <li>not defined (CO16 = 0) but one relay configured</li> </ul>
	Condenser pump
	• defined (CO21 $\neq$ 0) but no relays configured
	• not defined (CO21 = 0) but one relay configured
	Evaporator / condenser pump configuration alarm due to anti-freeze
	• if <b>Ar24</b> =1 and <b>Ar25</b> =0
	or • if <b>Ar25</b> =1 and there are no probes configured as NTC
	• if <b>Ar25</b> =1 and there are no probes configured as NTC
	• if <b>Ar29</b> =1 and there are no probes configured as NTC
ACF8	Temperature control probes configuration:
	• one temperature control probe (in chiller ST09, in heat pump when ST10 is enabled) is not
	<ul> <li>correctly configured (does not exist or is not NTC)</li> <li>controller enabled with pressure control the associated pressure control probe is not defined</li> </ul>
ACF9	Recovery enabled but in one circuit only certain resources are defined (the following are necessary:
	condensing probe, recovery request digital input, recovery relay) or no output is defined.
AC10	Compressors with inverter:
	• there are at last 2 analogue outputs configured for capacity modulation of the same compressor
	<ul> <li>the output is defined but the main relay of the compressor is not defined</li> <li>modulating compressor enabled and unit configured as condensing unit</li> </ul>
AC11	Capacity controlled compressors
	<ul> <li>digital scroll compressors</li> <li>at least 1 of the compressors defined has significance 0</li> </ul>
	<ul> <li>temperature control is not in neutral zone</li> </ul>
AC12	Free cooling configuration if:
	<ul> <li>the free cooling output relay is not defined</li> </ul>
	the probes for free cooling control are not defined
	<ul> <li>if FS21 &lt; FS22</li> <li>if FS01=2 and CF97=2</li> </ul>
1.012	
AC13	Domestic hot water configuration if: <b>FS01</b> >0 and:
	• the out1 output relay is not defined
	<ul> <li>domestic hot water temperature probe 1 is not configured</li> </ul>
AC14	Relay outputs configuration if:
1	

Cause of trip	Incorrect programming
Reset	Correct programming
Reset	Automatic
Icon	Flashing 🛆
Action	Alarm relay + buzzer activated
Regulators	
Alarm	Relay + buzzer activated
Other loads	Off

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a relay is configured with values 75 or 76

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7.12	iCHILL input/output configurations
7.12.1	Configuration of analogue inputs PB1 - PB2 – PB5 – PB6
. Disabled	
	rature probe on delivery outlet of compressor n° 1
	rature probe on delivery outlet of compressor n° 2
	rature probe on delivery outlet of compressor n° 3 rature probe on delivery outlet of compressor n° 4
. Not used	
. Not used	
. PTC tempe	rature probe for solar panel temperature
. NTC temps	erature probe on evaporator inlet
	rature probe on evaporator outlet 1
	berature probe on evaporator outlet 2
	berature probe on evaporator common output/support heater management (air/air unit)
	berature probe on condenser hot water input of circuit 1
	berature probe on condenser hot water input of circuit 2
5. NTC temp	perature probe on condenser hot water output of circuit 1
	perature probe on condenser hot water output of circuit 2
	berature probe on common output for condenser hot water
	perature probe for free cooling mode perature probe for external air temperature dynamic set point / boiler function / changeover
	berature probe for combined defrost on circuit 1
	berature probe for combined defrost on circuit 2
	perature probe for auxiliary output on circuit 1
	perature probe for auxiliary output on circuit 2
	perature probe for domestic hot water temperature 1
	perature probe for domestic hot water temperature 2 perature probe for solar panel temperature
	berature probe for condensation on circuit 1
	perature probe for condensation on circuit 2
f the input is	to be used as a digital input, the configuration will be from o1 to C75 and will take on the meaning seen in
Configuratio	n of digital inputs ID1 – ID18"
	Configuration of analogue inputs PB3 - PB4
. Disabled	
	rature probe on delivery outlet of compressor n° 1 rature probe on delivery outlet of compressor n° 2
· ·	rature probe on delivery outlet of compressor n° 3
	rature probe on delivery outlet of compressor n° 4
. Not used	
. Not used	
	rature probe for solar panel temperature
	erature probe on evaporator inlet erature probe on evaporator outlet 1
	berature probe on evaporator outlet 2
	perature probe on evaporator common output/support heater management (air/air unit)
	perature probe on common input for condenser hot water
	perature probe on condenser hot water input of circuit 1
	perature probe on condenser hot water input of circuit 2
	perature probe on condenser hot water output of circuit 1 perature probe on condenser hot water output of circuit 2
	berature probe on common output for condenser hot water
	perature probe for free cooling mode
9. NTC temp	perature probe for external air temperature dynamic set point / boiler function / changeover
	perature probe for combined defrost on circuit 1
	berature probe for combined defrost on circuit 2 berature probe for auxiliary output on circuit 1
	perature probe for auxiliary output on circuit 2
	berature probe for domestic hot water temperature 1
	perature probe for domestic hot water temperature 2
	berature probe for solar panel temperature
	tion probe on circuit n° 1 (NTC temperature / pressure 4÷20 mA / ratiometric 0÷ 5Volt)
	tion probe on circuit n° 2 (NTC temperature / pressure 4÷20 mA / ratiometric 0÷ 5Volt)
	on pressure probe in circuit 1 on pressure probe in circuit 2
	output pressure probe 1

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32. Auxiliary output pressure probe 2

- 33. Pressure probe for 4..20 mA dynamic set point
- 34. Oil pressure probe on compressor 1 or circuit 1
- 35. Oil pressure probe on compressor 2 or circuit 2

If the input is to be used as a digital input, the configuration will be from o1 to C75 and will take on the meaning seen in "Configuration of digital inputs ID1 - ID18"

#### 7.12.3 Configuration of digital inputs ID1 - ID11

0. Disabled

- 1. Remote ON / OFF
- 2. Remote Chiller / heat pump
- 3. Flow switch / delivery fan thermal cutout
- 4. Hot side flow switch
- 5. Antifreeze alarm on circuit 1
- 6. Antifreeze alarm on circuit 2
- 7. High pressure switch on circuit 1 8. High pressure switch on circuit 2
- 9. Low pressure switch on circuit 1
- 10. Low pressure switch on circuit 2
- 11. High pressure on compressor 1
- 12. High pressure on compressor 2
- 13. High pressure on compressor 3
- 14. High pressure on compressor 4
- 15. Not used
- 16. Not used
- 17. Thermal cutout on compressor 1
- 18. Thermal cutout on compressor 2
- 19. Thermal cutout on compressor 3
- 20. Thermal cutout on compressor 4
- 21. Not used
- 22. Not used
- 23. Condensation fan thermal cutout on circuit 1
- 24. Condensation fan thermal cutout on circuit 2
- 25. Common condensation fan thermal cutout
- 26. Evaporator water pump 1 thermal cutout
- 27. Evaporator support water pump thermal cutout
- 28. Condenser water pump 1 thermal cutout
- 29. Condenser support water pump thermal cutout
- 30. Recovery request on circuit 1
- 31. Recovery request on circuit 2
- 32. Defrost start/end on circuit 1
- 33. Defrost start/end on circuit 2
- 34. Energy Saving
- 35. Oil pressure switch / float switch on compressor 1
- 36. Oil pressure switch / float switch on compressor 2
- 37. Oil pressure switch / float switch on compressor 3
- 38. Oil pressure switch / float switch on compressor 4
- 39. Not used
- 40. Not used
- 41. Pump down pressure switch on circuit 1
- 42. Pump down pressure switch on circuit 2
- 43. Digital input for general unit block alarm 1
- 44. Digital input for general alarm signal / unit block alarm 2
- 45. Digital input for automatic RTC enable (time band) / manual mode (keypad)
- 46. Digital input for operation with delivery fan only
- 47. Digital input for temperature control request
- 48. Digital input for chiller request
- 49. Digital input for heat pump request
- 50. Digital input for power step 2 request
- 51. Digital input for power step 3 request
- 52. Digital input for power step 4 request
- 53. Digital input for power step 5 request
- 54. Digital input for power step 6 request 55. Digital input for power step 7 request
- 56. Digital input for power step 8 request
- 57. Digital input for power step 9 request
- 58. Digital input for power step 10 request

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- 59. Digital input for power step 11 request
- 60. Digital input for power step 12 request
- 61. Digital input for power step 13 request 62. Digital input for power step 14 request
- 63. Digital input for power step 15 request
- 64. Digital input for power step 16 request
- 65. Domestic hot water pump flow switch
- 66. Solar panel water pump flow switch
- 67. Enable only domestic hot water production
- 68. Domestic hot water heater thermal cutout
- 69. Domestic hot water pump thermal cutout
- 70. Enable second domestic water set point
- 71. Phase sequence alarm
- 72. Domestic water operation priority
- 73. FC pump flow switch
- 74. Expansion valve alarm on circuit 1
- 75. Expansion valve alarm on circuit 2

#### 7.12.4 Configuration of digital outputs RL1- RL8

0. Disabled

- 1. Alarm
- 2. Evaporator water pump / delivery fan
- 3. Evaporator support water pump
- 4. Anti-freeze resistance / support / boiler circuit 1
- 5. Anti-freeze resistance / support / boiler circuit 2

6. Recovery condenser water pump

- 7. Recovery condenser support water pump
- 8. Chiller / heat pump inversion valve on circuit 1
- 9. Chiller / heat pump inversion valve on circuit 2
- 10. 1st ON/OFF condensation ventilation step on circuit 1
- 11. 2nd ON/OFF condensation ventilation step on circuit 1
- 12. 3rd ON/OFF condensation ventilation step on circuit 1
- 13. 4th ON/OFF condensation ventilation step on circuit 1
- 14. 1st ON/OFF condensation ventilation step on circuit 2
- 15. 2nd ON/OFF condensation ventilation step on circuit 2
- 16. 3rd ON/OFF condensation ventilation step on circuit 2 17. 4th ON/OFF condensation ventilation step on circuit 2

18. Pump-down solenoid on circuit 1 19. Pump-down solenoid on circuit 2

- 20. Recovery valve on circuit 1
- 21. Recovery valve on circuit 2
- 22. Free cooling ON/OFF valve 23. Auxiliary output 1
- 24. Auxiliary output 2
- 25. Screw compressor intermittent valve on compressor 1
- 26. Screw compressor intermittent valve on compressor 2
- 27. Liquid injection solenoid valve on compressor 1
- 28. Liquid injection solenoid valve on compressor 2
- 29. Valve 1 for domestic hot water production
- 30. Valve 2 for domestic hot water production
- 31. Resistances (1st step) for domestic hot water production
- 32. Resistances (2nd step) for domestic hot water production
- 33. Resistances (3rd step) for domestic hot water production
- 34. Solar panel pump
- 35. ON/OFF valve to enable/disable solar panel coil
- 36. Domestic hot water pump
- 37. Hybrid exchanger 1 on circuit 1
- 38. Hybrid exchanger 2 on circuit 1
- 39. Hybrid exchanger 1 on circuit 2
- 40. Hybrid exchanger 2 on circuit 2
- 41. Summer/Winter operating mode on circuit 1
- 42. Summer/Winter operating mode on circuit 2
- 43. Defrost status on circuit 1
- 44. Defrost status on circuit 2
- 45. Circuit 1 in regulation status
- 46. Circuit 2 in regulation status
- 47. Domestic water production status

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- 48. Remote standby/off machine status
- 49. Water side solenoid valve on circuit 1
- 50. Water side solenoid valve on circuit 2
- 51. Direct start-up: compressor 1 relay
- PW start-up: winding 1 relay on compressor 1
- 52. PW start-up: winding 2 relay on compressor 153. Step capacity control 1 on compressor 1
- 54. Step capacity control 2 on compressor 1
- 55. Step capacity control 2 on compressor 1
- 56. Gas bypass valve on start-up of compressor 1
- 57. Direct start-up: compressor 2 relay
- PW start-up: winding 1 relay on compressor 2
- 58. PW start-up: winding 2 relay on compressor 2
- 59. Step capacity control 1 on compressor 2
- 60. Step capacity control 2 on compressor 2
- 61. Step capacity control 3 on compressor 2
- 62. Gas bypass valve on start-up of compressor 263. Direct start-up: compressor 3 relay
- PW start-up: winding 1 relay on compressor 3
- 64. PW start-up: winding 2 relay on compressor 3
- 65. Step capacity control 1 on compressor 3
- 66. Step capacity control 2 on compressor 3
- 67. Step capacity control 3 on compressor 3
- 68. Gas bypass valve on start-up of compressor 3
- 69. Direct start-up: compressor 4 relay
- PW start-up: winding 1 relay on compressor 4
- 70. PW start-up: winding 2 relay on compressor 4
- 71. Step capacity control 1 on compressor 4
- 72. Step capacity control 2 on compressor 4
- 73. Step capacity control 3 on compressor 4
- 74. Gas bypass valve on start-up of compressor 4
- 75. Laser function valve

#### 7.12.5 Configuration of proportional outputs OUT1 and OUT2 (0 - 10 VOLT)

0. Output disabled

- 1. 0-10V output for evaporator pump in modulating mode
- 2. 0-10V free cooling modulating output
- 3. Laser function output
- 4. 0-10V auxiliary output 1
- 5. 0-10V auxiliary output 2
- 6. 0-10V output inverter compressor on circuit 1
- 7. 0-10V output inverter compressor on circuit 2
- 8. 0-10V output condensation fans on circuit 1
- 9. 0-10V output condensation fans on circuit 2

ON/OFF output, relay pilot, to enable configuration of a proportional output with the same characteristics as a digital output. The displayed values range from o1 to c50, as per the digital outputs.

#### 7.12.6 Configuration of proportional outputs OUT3 and OUT4 (0 – 10 VOLT/PWM)

- 0. 10 Output disabled
- 1. 0-10V output for evaporator pump in modulating mode
- 2. 0-10V free cooling modulating output
- 3. Laser function output
- 4. 0-10V auxiliary output 1
- 5. 0-10V auxiliary output 2
- 6. 0-10V output inverter compressor on circuit 1
- 7. 0-10V output inverter compressor on circuit 2
- 8. 0-10V output condensation fans on circuit 1
- 9. 0-10V output condensation fans on circuit 2
- 10. PWM output condensation fans on circuit 1
- 11. PWM output condensation fans on circuit 2

ON / OFF output, relay pilot, to enable configuration of a proportional output with the same characteristics as a digital output. The displayed values range from ol to c50, as per the digital outputs.

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#### 7.12.7 Display in programming mode of polarity of digital inputs / outputs

- The parameters enable the configuration of:
  - 1. Digital inputs
  - 2. Digital outputs (relays)
  - 3. Proportional outputs configured as ON/OFF outputs
  - 4. Analogue inputs configured as digital inputs
- to enable assignment of a function and control of polarity.

#### Example of display in programming mode:

The lower display shows the parameter label (CF37) for configuration of the digital input ID8. The upper display shows label "c" or "o" and the relative configuration number.



In the example, digital input ID8 is configured as a high pressure switch on circuit 1, label "o", active with contact OPEN.



In the example, digital input ID8 is configured as a high pressure switch on circuit 1, label "c", active with contact CLOSED.

#### 7.12.8 Remote terminal alarm

Display labels meaning noL (no link signalling)				
Cause of trip	Incorrect connection between remote terminal and controller or two remote			
	terminals configured as present and both with same HW address (see position of			
	keypads address assignment switch)			
Reset	Correct connection - two different HW addresses			
Reset	Automatic			
Icon	Flashing 🛆			
Action	Alarm relay + buzzer activated			
Regulators				
Alarm	Relay + buzzer activated			
Other loads	Follow their control			

#### 7.12.9 Remote terminal alarm

Display labels meaning	Atr1 / Atr2
Cause of trip	Remote terminal configured from parameter but not electrically connected
Reset	Correct connection - remote terminal declared absent from parameter
Reset	Automatic
Icon	Flashing Δ
Action	Alarm relay + buzzer activated

#### 7.12.10 Alarm relay / open - collector / buzzer notes

The unit features a general alarm relay that combines all alarms on a single output contact. The relay is active with the following logic:

ON	With no alarms
OFF	With alarms not terminated
	With alarms not reset
	Unit power disconnected

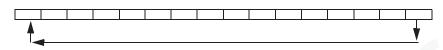


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#### 7.12.11 Diagnostic of alarms that switch from automatic to manual

#### No. of trips per hour

Every hour is divided into 16 intervals each lasting 3600 / 16 = 225 seconds (3 minutes 45 seconds).



When the instrument is powered on each observation interval is flagged as "inactive".

Each observation interval is initially flagged as "inactive" and subsequently, up to its termination (i.e. for 225 seconds) it is flagged as "active" if at least one alarm trips. When each observation terminates the next one starts, remembering that the observation is continuous and once the first 16 intervals have elapsed the 17th interval replaces the first, the 18th replaces the second, and so forth.

In this manner the last hour of operation is always monitored and the "active" intervals can be counted. When the number of active intervals exceeds the set limit, the alarm switches to manual.

Setting the limit to 0 the alarm will therefore be manual already at the first trip, while if the limit is set at 16 the alarm will remain constantly automatic because the observation intervals are not 17 in number.

#### 7.12.12 Display and delete the alarms log in the memory (ALOG function)

The function to display the alarm codes is active only if alarms are actually present.

- Enter the functions menu by pressing menu
- Select the ALOG function.
- Press SET.
- If no alarms are present, pressing SET is not enabled.
- The lower display shows the label with the alarm code, while the upper display shows the label "**n**" with a sequential number from 00 to 99.

To exit the ALOG function and return to normal display mode press or wait for the time-out.

The memory has space for 99 alarms. Each alarm stored beyond this number will automatically overwrite the oldest alarm (the alarms are displayed in ascending order from the oldest to the most recent).

- To clear the alarms log enter the functions menu.
- With the 🛆 or 🤝 buttons select the function ALOG on the lower display and press SET
- Scroll the alarm labels until finding ArSt in the lower display. The upper display shows PASS.
- Press SET. Enter the deletion password (the password value to reset the alarms log is 14) and press SET to confirm.
- If the password is correct, the label ArSt flashes for 5 seconds to confirm the deletion. After deleting the
- alarms log the system exits the functions menu automatically and returns to normal display mode.
  If the password is incorrect the message PASS appears again. If the correct password is not entered it is
  - anyway possible to scroll through the alarms in the memory with  $\bigtriangleup$  or  $\bigtriangledown$ .

To return to normal display mode press and or wait for the time-out.

#### 7.13 Programming from keypad

The parameters of the electronic controller are divided into groups subdivided into three levels, namely:

- 1. USER (Pr1);
- 2. SERVICE (Pr2).
- 3. MANUFACTURER (Pr3).

The USER level (**Pr1**) provides access exclusively to the user parameters, the SERVICE (**Pr2**) / MANUFACTURER level (**Pr3**) provides access to parameters concerning unit configuration.

The association of a given parameter with a given level is established in the design stage.

#### ATTENTION

igtarrow All levels are password protected.

The USER password is 23. The SERVICE password is 32.

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The parameter families, identified by "Labels", are divided as follows:

LABEL	ACTION
ALL	Displays all parameters
ST	Displays Thermoregulation parameters only
dP	Displays Display Presentation parameters only
CF	Displays Configuration parameters only
SD	Displays dynamic setpoint parameters only
ES	Displays energy saving and starting parameters only (FUNCTION NOT ACTIVE) Displays second setpoint parameters only
CO	Displays Compressor parameters only
US	Displays auxiliary output parameters only
FA	Displays Fan parameters only
Ar	Displays anti-freeze heater parameters only
DF	Displays defrost parameters only
rC	Displays Recovery parameters only
AL	Displays Alarm parameters only
Pr	Password

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#### ATTENTION

 ${
m Im}$  Configuration parameters "CF" are editable only with the unit in Stand-by.

#### 7.13.1 Access to parameters

To enter the parameters menu "Pr1" (user level):

- 1. Press set + ♥ for 3 seconds. The upper display shows the label "PASS", the lower display shows the label "Pr1".
- 2. Press **SET**, the upper display shows flashing "0".
- 3. To enter the password use  $\bigtriangleup$  or  $\checkmark$ .
- 4. If the password entered is incorrect, you will be prompted to enter it again. If the password is correct press **set** to display the parameters. The upper part of the display shows the first label "**ALL**".
- 5. To select the labels press or vanishing and then press set. The lower display shows the label and the code of the first parameter it contains; the upper display shows the associated value.

To enter the parameters menu "Pr2" (service level):

1. Enter "**Pr1**", press for 2 seconds; the lower display shows the label "**Pr2**". Repeat the procedure from point 2. To enter the parameters menu "**Pr3**" (manufacturer level):

1. Enter "Pr2", press A for 2 seconds; the lower display shows the label "Pr3". Repeat the procedure from point 2.

#### ATTENTION

Certain parameters may be read-only. If a parameter is read-only LEDs 1 and 2 will flash.

To exit programming mode and return to normal display mode press Set + A simultaneously.



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#### 7.13.2 How to change a parameter value

- Enter programming mode;
- Press **SET** + ♥ simultaneously for 3 seconds
- Select the desired parameter.
- To change the value press SET.
- Change the value with  $\bigtriangleup$  or  $\bigtriangledown$ .
- Press **SET** to store the new value and to go to the code of the next parameter.
- To exit, press **SET** + A when a parameter is displayed, or wait 240 seconds without pressing any buttons.

#### NOTE

The new value you have entered is saved also when you exit the parameter setting function by waiting for it to time out automatically without pressing **SET**.

#### 7.14 Use of the hot-key (function UPL)

#### 7.14.1 Programming the board with the hot-key

With instrument off:

- Insert the key.
- Switch on the instrument.
- Data download now starts from the key to the instrument.

During this stage adjustments are blocked and the lower display shows flashing message "doL"

- At the end of the procedure one of two messages will be shown on the upper display:
  - "End" if programming was successful (control starts after 30 seconds).
  - "Err" if programming failed.

In the event of an error the instrument must be switched off and switched on again to repeat the operation or start with normal control (in this case the key must be unplugged when the instrument is off).

#### 7.14.2 Hot-key programming

ATTENTION

M Important: the hot-key saves the instrument parameters but it does not program them.

With unit switched on:

- Insert the key.
- Enter the functions menu
- Select the function UPL on the lower display

Press SET to start data download from instrument to key.

During this stage the lower display shows flashing message "UPL".

At the end of the procedure one of two messages will be shown on the upper display:

- "End" If programming was successful
- "Err" if programming failed.

To exit the **UPL** function press group or wait for the time-out (15 sec) to elapse

#### 7.15 Unit adjustment and control

#### 7.15.1 Compressors control

The electronic controller manages compressor start and stops, observing the minimum run times. The following section describes the two methods of control and rotation.

#### 7.15.2 Choice of compressors control type

The controller features the facility to choose between two temperature control types:

- Proportional
- Neutral Zone (factory setting)

#### 7.15.3 Proportional control

For chillers, proportional control uses the setpoint temperature value as a reference and a deviation value called the differential. When the measured temperature increases the system progressively starts the compressors. When the temperature falls below the differential the compressors are progressively stopped.

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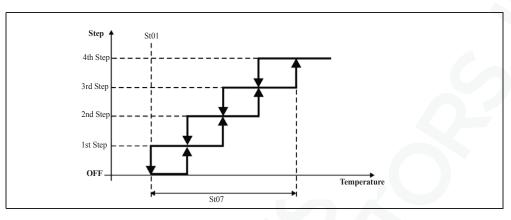


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#### 7.15.4 Compressors proportional control diagram Compressors regulation operation diagam in chiller mode.



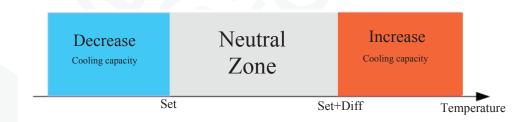
#### 7.15.5 Neutral zone control (factory setting)

In chiller mode, if the reference temperature is  $\geq$  Setpoint+Differential, the unit's compressors are started in sequence in accordance with the starting time lag outside the neutral zone.

In contrast, if the reference temperature is  $\leq$  Setpoint, the unit's compressors are stopped in sequence in accordance with the stopping time lag outside the neutral zone.

Moreover, to guarantee arrival at the temperature setpoint and rotation of the compressors, if the reference temperature is within the neutral zone, the unit's compressors are started in sequence, respecting the starting time lag in neutral zone (CO53). Still within the neutral zone, after a programmable time interval (CO54) the controller stops one compressor and, observing the programmed rotation, starts another. Actions in the neutral zone are performed only if at least one of the unit's compressors is already running.

Compressors regulator operation diagram in chiller mode:



#### 7.15.6 Compressors rotation

For correct operation in the compressors time the electronic controller manages rotation of compressor starts with different logic, selectable by means of a parameter.

The possible choices are:

- Fixed sequence: the first compressor to start is always the last one to stop.
- Rotation by hours: the compressor that will be started is the one with the lowest number of running hours, while the first to be stopped will be the one, among the running compressors, with the highest number of running hours.
- Rotation by starts (factory setting): the compressor that will be started is the one, among those available, with the lowest number of starts, while the first to be stopped will be the one, among the running compressors, with the highest number of starts.

In two-circuit units it is also possible to choose whether to favour saturation or balancing of the compressors in each circuit.

#### 7.15.7 Forced compressors rotation

For units that frequently operate at partial loads, the controller provides the facility to perform forced compressor rotations. For circuits with more than one compressor although only one of which running, after programmable time (CO72) the compressor is stopped and starting of the available compressor is forced.

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#### 7.15.8 Compressors starting time limitation

If there are several compressors in a circuit but only one is running, after programmable running time (CO52) the compressor is stopped and another compressor is started (the first free compressor in accordance with the running hours or number of starts).

#### 7.16 Unloading function

This function makes it possible to reduce cooling capacity of the unit when required; it may affect the entire unit or a single circuit and it is achieved by stopping one or more compressors. The unloading types are as follows:

- Unloading due to high temperature: having defined an unloading set and differential, if the temperature measured by the probe remains above the set for an activation time, in each circuit one compressor is stopped. If the temperature of the probe becomes lower than or equal to an unloading set less the differential, or if the associated maximum duration has elapsed, the unloading function is deactivated and the compressors are restarted.
- Unloading due to high pressure (if high pressure transducer is present): having defined a set, a differential and an unloading time, if the condensing pressure measured in a circuit is greater than or equal to the set the unloading function is activated in the circuit and then a compressor is stopped in only the circuit involved. The unloading function is deactivated only if the condensing pressure decreases and remains below the unloading set for a preset time or if it falls below set diff.

#### 7.17 Fans control

On TAEevo Tech units the fans can be controlled in the following ways:

- ON/OFF
- by stepswith speed control /EC.

The selection is made on the basis of the unit configuration.

#### 7.17.1 Units configured with "STEP" fans

#### (only models TAEevo Tech 402÷1002)

These units are equipped with a pressure transducer located on the refrigerant compressor discharge pipeline. On the basis of the pressure read by the transducer, the electronic controller manages operation of the fans according to ON-OFF logic, i.e. supplying or disconnecting power to the fans.

#### 7.17.2 Units configured with fan speed control / EC

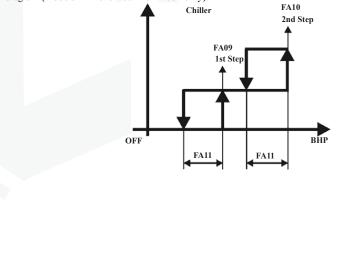
The unit is equipped with a speed controls that serve to maintain condensing pressure around a preset value. These units are equipped with a pressure transducer located on the refrigerant compressor discharge pipeline.

For example, if the temperature of the air conveyed to the condenser decreases, the pressure transducer detects a drop in condensing pressure, which on sending the signal to the speed controller causes a reduction in the fans rpm thus decreasing the air flow through the condenser.

In the same way, in the case of an increase of the temperature of the air conveyed to the condenser, with a consequent increase in condensing pressure, the speed controller increases fan rotation speed to increase the air flow through the condenser.

#### 7.17.3 Fan control diagrams

The following diagram illustrates the fans STEP control logic in accordance changes in condensing pressure. STEP diagram (models TAEevo Tech 402÷1002 only):





Speed control diagram / EC

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#### 7.18 Hydraulic unit

The circulator pump is only installed on request; in general terms the following configurations are possible:

FA11

Chiller

FA09

**FA13** 

FA12

**FA10** 

BCP1

- Without pump
- Single pump
- Double pump (one in stand-by)
- When the unit is powered on the pump (if installed) starts and continues to run until the unit is set to OFF.

#### NOTE

With configuration "without pump" there is a provision for an external pump.

Speed

**FA08** 

**FA15** 

FA07 OFF

In configurations with the double pump when the unit is started for the first time pump 1 is always started. On subsequent starts the water pump having the smaller number of running hours will be started.

In the case of an alarm that blocks the currently running pump, the inactive pump will be started.

In addition, to maintain a balance between the running hours of the two pumps the controller automatically switches over the two devices when a programmable threshold is reached (CO19).

# 7.19 Anti-freeze pump management (if ambient probe is installed)

The pumps installed in the unit can be started in anti-freeze mode to prevent the formation of ice in the unit's hydraulic circuit. If the unit is powered off and the selected reference temperature is below the programmed setpoint, one of the pumps is started. The pump is stopped if the temperature increases above the setpoint + differential, in accordance with the following diagram:



#### 7.20 ModBus

The supervision system provides the facility to monitor and act on certain of the unit's parameters by means of a remote device using the RS485 port. The MODBUS communication mode for the controller features the following characteristics: Baud Rate = 9600 bps

Data Bit = 8 bit

Parity = None

Stop Bit = 1

Start/stop= 4milliseconds of silence (approximately 3 characters) Minimum time-out = 500 ms

For further information refer to the specific manual.

#### 7.21 Automatic restart

In case of a power loss, when power is restored the unit will be ON if it was ON at the time of power loss, and OFF if it was OFF.

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#### 7.22 Control with LCD graphic display

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JUnit ON: heating	,	19:00	08 / 10 / 10	
	8.8	°C	© â	
External air temperature San, water temperature	32.8	°C	0.00%	
e lucespel temperature	21.0 36.8	°C	11	
Condenser inlet temperature	LARM		SERVICE CIRC.	
PROBES SET	C. MINI	-		

LCD graphic display TAEevo Tech 381÷1002

On the models TAEevo Tech 020÷351 the electronic control unit is installed on the door of the electrical panel, while on models TAEevo Tech 381÷1002 it is fitted inside the electrical panel while the door is equipped with LCD graphic display.

#### NOTE

To convert the semi-graphic LCD display on the door of the electrical panel (mod. TAEevo Tech  $381 \div 1002$ ) to remote control, the relevant remote control kit must be ordered.

🔆 Unit ON: cooling	0	1:20	06 / 05 / 10
Evaporator inlet temperature	12,8	°C	88
Evaporator outlet temperature	10.6	°C	_ ® ₫
Condenser press./temp. circ.1	22.4	bar	1 (C) (D)
Condenser press./temp. circ.2	216	bar	****
PROBES SET A	LARM	Ċ	SERVICE CIRC

In the main visualization it is possible to read:

- status of the unit: cooling, heating, remote OFF or STD-BY
- 4 probes value; it is possible to manage 4 lines to visualize the probe temperature / pressure (parameters dP06..dP09)
- load / function status as showed below:

	Compressor/s (blinking during the start up delay)	۲	Economy function or Energy Saving
@ / 🔊	Water pump / Supply fan	ţ	Unloading function
-1-	Condenser fan or Condensing valves	Θ	Economy or ON/OFF by timetable (Function not available)
	Electric heater	***	Defrost (Function not available)
a	Sanitary water (Function not available)	Δ	Alarm

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#### 7.23 Function of buttons

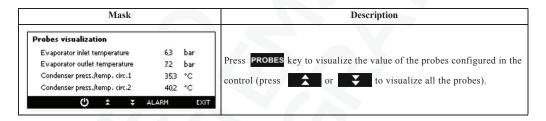
Meaning of the keys:

PROBES	Allows to read the value of the probes configured in the Ichill	SET	Allows to read/modify the set point
	Allows to switch on the Ichill in cooling mode	ALARM	Allows to read the alarms
- <del>*</del> -	Allows to switch on the Ichill in heating or cooling mode (Function not available)	SERVICE	Allows to enter the SERVICE menù
Φ	Allows to put the Ichill in STD- BY (active when the machine is in cooling mode)	CIRC.	Allows to read the main information of the circuits (compressor status, water pump status, pressure probe value,)

#### NOTE

In case of alarm the pressure of any key silences the alarm.

#### 7.24 Probes visualization



#### 7.25 Unit start/stop

Mask		Description	
Wint ON: cooling         Evaporator inlet temperature       128         Evaporator outlet temperature       106         Condenser press,/temp, circ.1       224         Condenser press,/temp, circ.2       216         PR0855       561       ALARM	bar 阜區 @ef bar 漱森寺	The unit can be switched on and off as follows: • From the keypad • From a digital input configured as remote ON/OFF	

#### NOTE

In case of a power loss, when power is restored the unit will be ON if it was ON at the time of power loss, and OFF if it was OFF.

#### 7.25.1 Start from the keypad

From unit OFF (stand-by) press and release button 🔮 to switch the unit on or off in chiller mode. With the unit ON the controller shows **unit ON** on the display.

Stand-by mode is set each time the unit is switched off from chiller operating mode. Also in stand-by the controller makes it possible to:

- Display the measured values.
- Manage the alarm situation by displaying and signalling active alarms.

#### 7.25.2 Start-up from a digital input

The unit can be switched on/off from a digital input configured as remote On/OFF.

The power-off command (local or remote) always assumes priority with respect to the power-on command. If the unit is powered-off with a local command it must be powered back on with a local command.

When the unit is in OFF status from a digital input the controller shows unit OFF on the display.

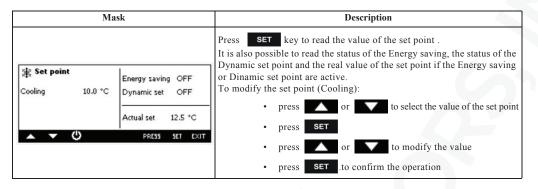
For details concerning the connection, refer to the electrical diagram.

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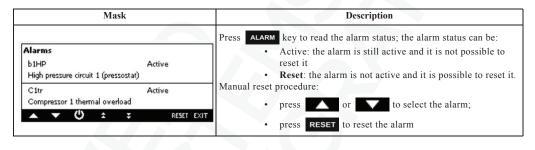


#### 7.26 Visualization / modification of the set point

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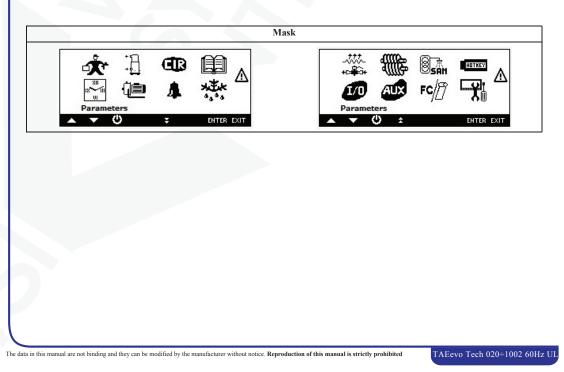
#### 7.27 Alarm visualization



#### NOTE

In case of alarm the pressure of any key silences the alarm.

#### 7.28 Menu service visualization



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Pressing **SERVICE** it is possible to read the following information:

Å	Parameter programming		Programming clock Energy saving and ON/OFF scheduling (Function not available)
+ [] + []	Compressor maintenance It is possible to disable the compressor for maintenance, read the working hours and number of start up (and reset them)	10	I/O status
(Þ	Water pump maintenance It is possible to read / reset the working hours		Screw compressor information (Function not available)
œ	Circuit maintenance	AUX	Auxiliary output status
4	Visualization and reset of the alarms	8. San	Sanitary water status, sanitary water temperature, antilegionella status, etc. (Function not available)
	Visualization and reset of the alarm log	FC/	Free cooling and Solar panel visualization (Function not available)
***	Defrost status (Function not available)	HOTKEY	Upload e Download mappa parametri con Hot Key
	Electrical heater	<b>R</b>	Visograph configuration It is possible to change the language, to set the contrast and the backlight.

### 7.29 Traneters programming

Mask	Description
1st level password (Pr1) 0	Pressing ENTER it is possible to read/modify the parameters value: • select the level 1 (default) or level 2 or level (by pressing Pr2 or Pr3 key)
ALARM Pr2 Pr3 ENTER EXIT	press SET     press or to enter the password
1st level password (Pr1) 0	<ul> <li>press SET to confirm.</li> <li>the display shows "Password OK!" (otherwise repeat the procedure)</li> </ul>
Password OK! Press ENTER to continue ALARM Pr2 Pr3 ENTER EXIT	• press <b>ENTER</b> to visualize the parameters. If the value of the password is incorrect, the display will remain in setting passwords and will be replayed the steps listed above.

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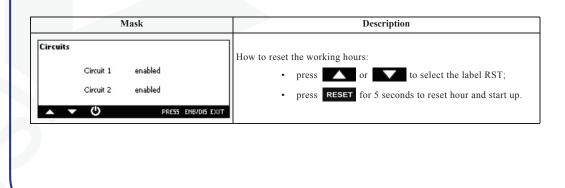
Mask					Description			
Paran	CF	grou Sd	p sele	Pr1 US	Ar	FS	⊿	Pressing or it is possible to select the group of
dP	EI	ES	CO	FA	dF	AL		How to modify the value of the parameter:
Set p	oint	Ċ			PR	ESS ENTE	R EXIT	press     or     to select the parameter to     modify
St01	10.0	°C						• press ENTER
St02 St03	5.0 15.0	°C ℃						press or to modify the value
St04	40.0	°C						• press <b>ENTER</b> to confirm.
	-	<b>(</b> ')	÷	Ξ	PR	E55 5ET	EXIT	Press or to scroll the parameters.

Pressing  $\rightarrow$  it is possible to visualize the compressor working hour and the number of activations. It is also possible to disable the compressor for maintenance.

Pressing **ENTER** in correspondence of the circuit 1 or circuit 2 allows access to the compressors of the circuit.

Mask	Description	
Compressor maintenance Circuit 1 Circuit 2 PRESS ENTER EXIT	<ul> <li>How to reset the working hours and number of start up:</li> <li>press or to select the label RST;</li> <li>press RESET for 5 seconds to reset hour and start up.</li> </ul>	
Circuit 1 Status Hour Startum Reset	How to disable a compressor:	
Circuit 1         Status         Hour         Start-up         Reset           B         Comp1         Enabled         20         11         RST           B         Comp2         Enabled         0         0         0	<ul> <li>press or to select the status of the compressor (Enabled in the "Status" column);</li> <li>press ENB/DIS for 5 seconds</li> </ul>	
▲ ▼ <sup>(1)</sup> ★ ¥ PRESS RESET EXIT	press or to select the status "Disabled     press ENB/DIS for 5 seconds to confirm the operation.	





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#### 7.32 ECircuit maintenance

Press I to disable the circuit for maintenance; all the compressor will be switched off after disabling the circuit.

	Mask	Description	
		How to disable a circuit:	
Circuits		• press or to select the circuit to disable	
Circuit 1	enabled	• press ENB/DIS for 5 seconds	
Circuit 2	enabled	• press or to select the status "Disabled"	
▲ ▼ Ů	PRESS ENB/DIS EXIT	• press <b>ENB/DIS</b> for 5 seconds to confirm the operation	

#### 7.33 🎝 Alarm visualization and reset

Pressing for the is possible to visualize the alarms; the alarm status can be:

- Active: the alarm is still active and it is not possible to reset it
- Reset: the alarm is not active and it is possible to reset it

#### ATTENTION

 $\triangle$  With this procedure you can reset all the alarms except for the compressor thermal cut-out alarms for which the password will be required: 14.

Mask		Description		
		Manual reset of all alarms:		
		press <b>RSTALL</b> to reset all the alarms (only the alarms that are not active		
		Manual reset procedure:		
		• press or to select the alarm;		
Alarms	Active	• press <b>RESET</b> to reset the alarm.		
<b>b1HP</b> Clock alarm		In case of compressor overload alarm when the password is requested, operate in this way:		
C1tr Clock alarm	Reset	press or to select the compressor		
▲ ▼ 🖑 🛣 ∓ RSTALL RE		overload alarm		
		• press <b>RESET</b>		
		• press <b>SET</b>		
		• press or to insert the password value		
		• press <b>SET</b> to confirm the operation		

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Mask	Description
Alarm log b1HP 001 High pressure circuit 1 C1tr 002 Overload compressor 1 C1 C PRESS RST ALL E	Pressing or it is possible to read all stored alarm
7.35 data the and the analysis of the analysi	ater visualization
Mask	Description
Heaters     Liquid solenoid valves       R1     SV1 +C==+++       R2 Not configured     SV2 Not configured	It is possible to read the status of the electrical heaters.
I/O status Probes Analog outputs Digital inputs Relays PRESS ENTER ED	Press or to select the digital input, probes value, analog output, digital input or relays, then press <b>ENTER</b> .
splay of temperatures and pressures me • Probe of the control	
probes           Pb01:         15.9 °C         Pb05:         N.C.           Pb02:         11.7 °C         Pb06:         N.C.           Pb03:         17.6 bar         Pb07:         Not av           Pb04:         15.4 bar         Pb08:         Not av	

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<ul> <li>Probes Expansion I/O (if configured)</li> <li>Probes of the electronic expansion valve (if configured)</li> </ul>	• Display of	values / state of the	analog
Expansion valve probes 1 PbV1: 2.5 °C PbV3: N.C. 2 PbV2: 3.6 °C PbV4: N.C.	iCHILL AO01: 45 % AO02: N.C. AO03: N.C. AO04: N.C.	I/O Expansion AO01: 66 % AO02: N.C. AO03: N.C.	Δ
C) ★ PRE55 EXIT	U)	PRESS	EXIT

Viewing the status of the digital inputs

Digital	input statu	5	E		I/O Expa	ansion: Di	igital inpu	t status	
DI01:	Open	DI04:	Closed		DI01:	Open	D104	: Closed	
DI02:	Open	D105:	Closed		DI02:	Open	D105	Closed	
DI03:	Closed	D106:	N.C.		DI03:	Open	DIO	: N.C.	

Viewing the status of the relays:

Relay s	tatus				I/O Exp	ansion: R	elay status		
RL01:	ON	RL05:	ON		RL01:	ON	RL05:	ON	
RL02:	OFF	RL06:	ON		RL02:	ON	RL06:	N.C.	
RL03:	ON	RL07:	OFF		RL03:	OFF	RL07:	N.C.	
RL04:	OFF	RL08:	N.C.		RL04:	N.C.			

#### Auxiliary output visualization 7.37

Mask	Description
Auxiliary outputs status	
Auxiliary relay 1	Press or to select the auxiliary relay or analog output
Auxiliary relay 2	
Prop. Output AUX 1	and press <b>ENTER</b> to read the information (probe value, status of the
Prop. Output AUX 2	output).
ALARM ENTER EX	KIT

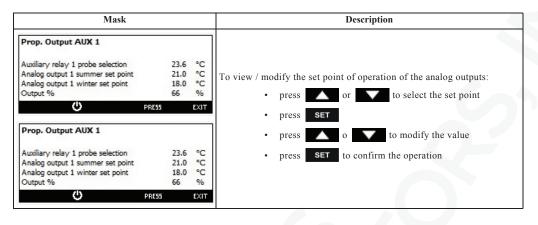


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# 7.38 **FOTHER** Parameters programming with Hot Key

Mask	Description
	It is possible to use the HotKey 64 for:
	copy the parameter map from the HotKey 64 to the contro
	(Download)
	<ul> <li>copy the parameter map from the control to HotKey 64 (Upload)</li> </ul>
	Download from HotKey 64 to control:
	this operation is enabled only if the control is in STD-BY or remote OFF
Upload / download	otherwise the display shows the message "Download enabled only in
	stand-by".
Download enabled only in stand-by	Download procedure:
Upload from device to HotKey	• Insert the Hot Key 64 into the 5 ways connector through
Upload from device to Hotkey	the hole at the top of the control (see image below)
A V () PRESS ENTER ED	
	Press ENTER
Upload / download	• if the operation was successful the display shows "OK",
opioau / uowinoau	otherwise shows "ERR"
Download from HotKey to device	Upload from Ichill to Hot Key 64:
Download from Hotkey to device	Upload procedure:
Upload from device to HotKey	• Insert the Hot Key 64 into the 5 ways connector through
	the hole at the top of the control (see image below)
A V C PRESS ENTER EX	• Select "Upload from device to HotKey"
	Press ENTER
	<ul> <li>FIESS ENTER</li> <li>if the operation was successful the display shows "OK",</li> </ul>
	<ul> <li>If the operation was successful the display snows OK, otherwise shows "ERR"</li> </ul>
	other moe bhoms "Effet
	In case of Upload / Download failure:
	• Hot Key 64 not properly inserted in the 5 ways connector
	<ul> <li>Hot Key model different to Hot Key 64</li> </ul>



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### Keyboard configuration 7.39

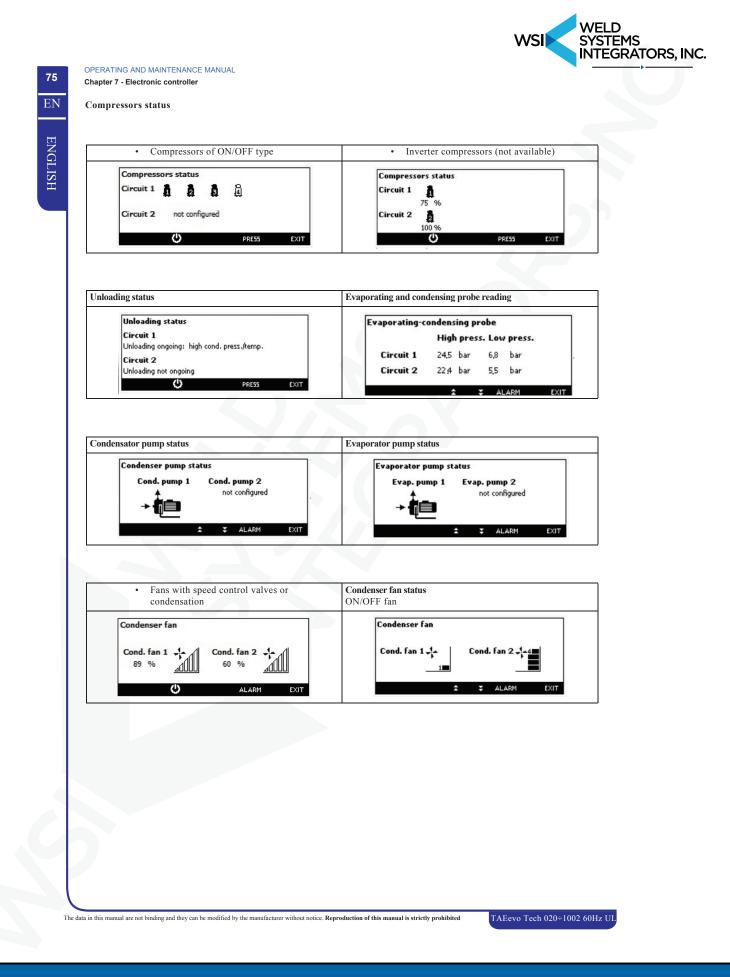
Mask	Description
Control panel Contrast & backlight Language selection System information	It is possible to set:       • contrast and backlight (it is strongly recommended to reduce as possible the activation time of the backlight)       • language selection         • Ichill firmware release (to verify the compatibility control        

#### 7.40 **Circuit Information**

Press CIRC. to read the main information about the circuit of the compressor status, unloading status, evaporating condensing probes, water pump, condenser fan/valve status Load status visualization:

Condenser fan OFF (step regulation) (Function not available)	ulation) (Function not
Condenser fan OFF (proportional regulation) or condensation valve OFF	onal regulation) or
UFF     Water pump OFF     → in     Water pump ON	
Sr     Sr       Supply fan OFF (Function not available)     Sr       Supply fan ON (Function not available)	iot available)
Press or to select the information to read then press SET . Circuits status	

Circuits sta	atus						C	Circu	its sta	atus				
	Compre	a zrozze	tatus							Conder	nser pur	mp stat	us	
	Unloadi	ing stat	zu							Supply	fan sta	itus		
	Evapor	ating-co	ondensi	ng probe						Conder	iser fan			
	Evapor	ator pu	mp sta	tus						Expansi	ion val	ve		
<b>A V</b>	Ċ	÷	Ŧ	PRESS	ENTER	EXIT		•	$\mathbf{v}$	Ċ	÷	Ŧ	PRESS	ENTER E





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#### 7.41 Parameters description-settings

The following is a list of all the programmable parameters complete with their associated access levels. U= User level

S= Service level

C= Manufacturer level

ATTENTION

 ${
m I}{
m M}_{
m Ensure}$  these instructions are observed in full to avoid incorrect operation of the unit.

## 7.41.1 Description of parameters

Parameter	Level	Description	Min.	Max.	UM	Resolution
	•	Thermoregulator		1		•
ST01	U	Chiller setpoint. Enables setting of the working setpoint in chiller mode.	ST02	ST03	°F	Int
ST02	U	Chiller minimum set. Establishes the minimum limit that can be utilised to set the chiller working setpoint.	-58	ST01	°F	Int
ST03	С	Chiller maximum set. Establishes the maximum limit that can be utilised to set the chiller working setpoint.	ST01	230	°F	Int
ST04	С	Heat pump setpoint. Enables setting of the working setpoint in heat pump mode.	ST05	ST06	°F	Int
ST05	С	Heat pump minimum set. Establishes the minimum limit that can be utilised to set the heat pump working setpoint.	-58	ST04	°F	Int
ST06	С	Heat pump maximum set. Establishes the maximum limit that can be utilised to set the heat pump working setpoint.	ST04	230	°F	Int
ST07	U	Control steps activation band in chiller mode.	0	45	°F	Int
ST08	С	Control steps activation band in heat pump mode.	0	45	°F	Int
ST09	С	Defines the probe for temperature control of the unit in chiller mode: 0= Evaporator inlet NTC temperature probe 1= Evaporator outlet NTC temperature probe no. 1 2= Evaporator outlet NTC temperature probe no. 2 3= Common evaporator outlet NTC temperature probe 4= Remote terminal temperature probe no. 1 5= Remote terminal temperature probe no. 2		5		
ST10	С	Defines the probe for temperature control of the unit in heat pump mode: 0 = Evaporator inlet NTC temperature probe 1 = Evaporator outlet NTC temperature probe no. 1 2 = Evaporator outlet NTC temperature probe no. 2 3 = Common evaporator outlet NTC temperature probe 4 = Remote terminal temperature probe no. 1 5 = Remote terminal temperature probe no. 2 6 = Common condenser water inlet NTC temperature probe 7 = Circuit n° 1 condenser water inlet NTC temperature probe 8 = Circuit n° 1 condenser water outlet NTC temperature probe 10 = Circuit n° 1 condenser water outlet NTC temperature probe 10 = Circuit n° 1 condenser water outlet NTC temperature probe 11 = Common condenser water outlet NTC temperature probe 11 = Common condenser water outlet NTC temperature probe 12 = Common condenser water outlet NTC temperature probe 13 = Common condenser water outlet NTC temperature probe 14 = Remote temperature control is required both in chiller mode and in heat pump mode, set the same value in parameters		11		
		igwedge If the same temperature control is required both in chiller				



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Parameter	Level	Description	Min.	Max.	UM	Resolution
ST11	S	Defines the temperature control type:	0	1		
		0= Proportional				
		1= Neutral zone				
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
	<u>ا</u> ت	Display message	l °			
dP01	S	Upper display default presentation.	0	16		I Contraction
ui 01	5	0= No visualization	Ŭ	10		
		1= Temperature probe of the evaporator water inlet (EIn label)				
		3= Temperature probe of the common evaporator water outlet				
		(EOut label)				
dP02	S	Lower display default presentation.	0	20		
		0= No visualization				
		1= Temperature probe of the evaporator water inlet (Label EIn)				1
		3= Temperature probe of the common evaporator water outlet				
		(EOut label)				
		Forced display message				
dP03	С	Lower / upper display default presentation:	0	3		
		0= Configurable presentation				
		1= Upper display evaporator IN / lower display evaporator OUT				
		2= Upper display condenser IN / lower display condenser OUT				
		3= Upper display condensing temperature / pressure / lower display evaporation pressure.				
		Remote terminals display forced presentation				
100.4		A V A	10	1. 1		T
dP04	С	Remote terminal no.1 upper display default presentation: 0= The display mode depends on the value of parameters <b>dP01</b> -	0	1		
		dP02 - dP03	T			
		1= The upper display shows the temperature measured by the				
		NTC probe on board remote terminal no.1				
dP05	С	Remote terminal no.2 upper display default presentation:	0	1		
ui oo	Ŭ	0 = The display mode depends on the value of parameters <b>dP01</b> -	Ŭ			
		dP02 - dP03				
		1= The upper display shows the temperature measured by the				
		NTC probe on board remote terminal no.2				
dP06	S	Visograph: first displayed probe selection	0	35		
dP07	S	Visograph: second displayed probe selection	0	35		
dP08	S	Visograph: third displayed probe selection	0	35		
dP09	S	Visograph: fourth displayed probe selection	0	35		1
	<u> </u>	Display presentation in STD-BY	1.	<u> </u>		
dP10	S	Ichill display presentation in STD-BY:	0	2		Т
	2	0= Shows label "STD-BY"	Ŭ	-		
		1= Shows parameters defined by par. <b>dP1</b> and <b>dP2</b>				
		2= Shows label "OFF"				
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		1
Pr3	C	Manufacturer password	0	999		
-	۱ <sup>-</sup>	Unit	1 <sup>*</sup>	1		<u> </u>
CF01	С	Defines the type of unit to control:	0	2		1
0101	-	0= Air / air chiller	Ŭ.	-		
		1= Air / water chiller				
		2= Water / water chiller				
CF02	С	Unit operation selection:	1	3		
		1= Chiller only	ľ			
		2= Heat pump only				
		3= Chiller with heat pump				
CF03	С	Condensing units:	0	1		+
		$0 = N_0$	ľ			
		1= Yes	1	1		1

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Parameter	Level	Description	Min.	Max.	UM	Resolution
		Compressors				
CF04	С	Number of compressors present in circuit no. 1: 1= 1 compressor 2= 2 compressors 3= 3 compressors 4= 4 compressors	1	4		
CF05	С	Number of compressors present in circuit no. 2: 0= None 1= 1 compressor 2= 2 compressors 3= 3 compressors	0	3		0
CF06	С	Number of capacity steps per compressor: 0= None 1= 1 step 2= 2 steps 3= 3 steps	0	3		
		Analogue inputs				
CF07	С	Operation in temperature or pressure from analogue input: <b>0= Operation in temperature / pressure NTC - 420 mA</b> : The condensing temperature is controlled via an NTC probe while a transducer with 420mA output must be used for the evaporation pressure control of circuits 1 and 2 and the pressure probe configured as auxiliary output 1 and 2. <b>1= Operation in pressure with 420 mA input</b> : A transducer with 420mA output must be used to control the condensing or evaporation pressures <b>2= Operation in temperature / pressure NTC - 05V</b> : The condensing temperature is controlled via an NTC probe while a ratiometric transducer with 05V input must be used for the evaporation <b>pressure with 05V input</b> : A ratiometric transducer with 05V input the used to control the condensing or evaporation pressure with 05V input. A ratiometric transducer with 05V input must be used to control the condensing or evaporation pressures.	0	3		
CF08	С	PB1 configuration If configured as a digital input.	0 o 1	28 c75		
CF09	С	PB2 configuration If configured as a digital input.	0 1 0 1	28 c75		
CF10	С	PB3 configuration If configured as a digital input.	0 o 1	35 c75		
CF11	С	PB4 configuration If configured as a digital input.	0 o 1	35 c75		
CF12	С	PB5 configuration If configured as a digital input.	0 o 1	28 c75		
CF13	С	<b>PB6</b> configuration If configured as a digital input.	0 o 1	28 c75		
CF14	С	NOT USED	0	0		
CF15	С	NOT USED	0	0		
CEL	10	Probes offset	1.21	121	I O F	Int
CF16 CF17	S S	PB1 offset. PB2 offset.	-21 -21	21 21	°F °F	Int Int
CF17 CF18	s S	PB2 offset.	-21	72	Psi	Int
CF18 CF19	S S	PB3 offset.	-72	72	Psi	Int
CF19 CF20	S S	PB4 offset.	-72	21	°F	Int
CF20 CF21	S	PB6 offset.	-21	21	°F	Int
CF21 CF22	S	NOT USED	-21	0	г	1111
CF22 CF23	s s	NOT USED	0	0	1	+
CF23 CF24	S C	Transducer <b>PB3</b> pressure value at 4mA - 0.5 V.	-14	725	Psi	Int
CF24 CF25	C	Transducer <b>PB3</b> pressure value at 20mA - 5 V.	-14	725	Psi	Int
CF25 CF26	C	Transducer <b>PB4</b> pressure value at 4mA - 0.5 V.	-14	725	Psi	Int

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Parameter	Level	Description	Min.	Max.	UM	Resolution
CF27	С	Transducer <b>PB4</b> pressure value at 20mA - 5 V.	-14	725	Psi	Int
CF28	С	NOT USED	0	0		
CF29	С	NOT USED	0	0		
		Digital inputs				
CF30	С	ID1 configuration:	0 -01	c75		
CF31	С	ID2 configuration:	0 -01	c75		
CF32	С	ID3 configuration.	0 -01	c75		
CF33	С	ID4 configuration.	0 -01	c75		
CF34	С	ID5 configuration:	0 -01	c75		
CF35	С	ID6 configuration.	0 -01	c75		
CF36	С	ID7 configuration.	0-01	c75		
CF37	С	ID8 configuration.	0 -01	c75		
CF38	С	ID9 configuration.	0 -01	c75		2
CF39	С	ID10 configuration.	0 -01	c75		
CF40	С	ID11 configuration.	0 -01	c75		
	1	Relay outputs				
CF41	С	RL1 configuration.	0-01	c74		
CF42	С	RL2 configuration.	0 -01	c74		
CF43	C	RL3 configuration.	0 -01	c74		
CF44	C	RL4 configuration:	0 -01	c74		
CF45	C	RL5 configuration:	0 -01	c74		
CF46	C	RL6 configuration.	0 -01	c74		
CF47	C	RL7 configuration.	0 -01	c74		-
CF48	C	RL8 configuration.	0 -01	c74		-
01.10		Condensing proportional outputs	0 01			1
CF49	C	NOT USED	- T	1	1	Т
(14)	<u> </u>	Modulating outputs		I		
CF50	C	Proportional output OUT 1:		1	1	
CF 50	C (	0= Output disabled	0	9		
		1= Evaporator pump 010V with modulating operation	Ŭ	-		
		2= Modulating output 010V for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1				
		5= 010V auxiliary output no. 2				
		6= 010V modulating output compressor 1 circuit no. 1 7= 010V modulating output compressor 1 circuit no. 2				
		8= Condensing fans 010V modulating output circuit no. 1				
		9= Condensing fans 010V modulating output circuit no. 2				
		Relay controlling ON / OFF output	o 1	c50		
CF51	С	Proportional output OUT 2:				
		0= Output disabled	0	9		
		1= Evaporator pump 010V with modulating operation				
		2= Modulating output 010V for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1 5= 010V auxiliary output no. 2				
		5 = 010 V auxiliary output no. 2 6 = 010 V modulating output compressor 1 circuit no. 1				
		7=010V modulating output compressor 1 circuit no. 2				
		8= Condensing fans 010V modulating output circuit no. 1				
		9= Condensing fans 010V modulating output circuit no. 2				
		Relay controlling ON / OFF output	o 1	c50	1	

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Parameter		Description	Min.	Max.	UM	Resolution
CF52	С	Proportional output OUT 3:				
		0= Output disabled	0	11		
		1= Evaporator pump 010V with modulating operation				
		2= Modulating output 010V for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1				
		5= 010V auxiliary output no. 2				
		6= 010V modulating output compressor 1 circuit no. 1				
		7=010V modulating output compressor 1 circuit no. 2				
		8= Condensing fans 010V modulating output circuit no. 1 9= Condensing fans 010V modulating output circuit no. 2				
		10= Condensing fans phase chopping modulating output circuit				
		no. 1				
		11= Condensing fans phase chopping modulating output circuit				
		no. 2				
		Relay controlling ON / OFF output	o 1	c50		
CF53	С	Proportional output OUT 4:	-			
0100	0	0= Output disabled	0	11		
		1= Evaporator pump 010V with modulating operation				
		2= Modulating output 010V for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1				
		5= 010V auxiliary output no. 2				
		6= 010V modulating output compressor 1 circuit no. 1				
		7= 010V modulating output compressor 1 circuit no. 2				
		8= Condensing fans 010V modulating output circuit no. 1				
		9= Condensing fans 010V modulating output circuit no. 2				
		10= Condensing fans phase chopping modulating output circuit				
		no. 1 11= Condensing fans phase chopping modulating output circuit				
		no. 2				
		Relay controlling ON / OFF output	o 1	c50		
		Remote terminal	0.1			
CF54	U	Configuration of remote terminal no. 1:	0	2	1	
		0= Absent	-			
		1= On board NTC probe				
		2= Without on board NTC probe				
		2- without on board NTC probe				
CF55	С		0	2		
CF55	С	Configuration of remote terminal no. 2: 0= Absent	0	2		
CF55	С	Configuration of remote terminal no. 2:	0	2		
CF55	С	Configuration of remote terminal no. 2: 0= Absent	0	2		
	C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe	0-21	2 21	°F	Int
CF56		Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe	Ū		°F °F	Int Int
CF56	C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset.	-21	21		
CF56 CF57	C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic Operating logic:	-21	21		
CF55 CF56 CF57 CF58	C C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic Operating logic:	-21 -21	21		
CF56 CF57	C C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= Coperating	-21 -21	21		
CF56 CF57	C C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= Coperating	-21 -21	21		
CF56 CF57	C C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= Chiller / Chiller	-21 -21	21		
CF56 CF57 CF58	С	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= * chiller / * heat pump 1= * chiller / * heat pump Chiller / heat pump mode selection	-21 -21 0	21 21 1		
CF56 CF57 CF58	C C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= Chiller / Chiller / Chiller / Chiller / heat pump Chiller / heat pump mode selection Chiller / heat pump mode selection:	-21 -21	21		
CF56 CF57	С	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= $\stackrel{\bullet}{\longrightarrow}$ chiller / $\stackrel{\bullet}{\longrightarrow}$ heat pump 1= $\stackrel{\bullet}{\longleftarrow}$ chiller / $\stackrel{\bullet}{\longrightarrow}$ heat pump Chiller / heat pump mode selection Chiller / heat pump mode selection: 0= From keypad	-21 -21 0	21 21 1		
CF56 CF57 CF58	С	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= * chiller / * heat pump 1= * chiller / * heat pump Chiller / heat pump mode selection Chiller / heat pump mode selection: 0= From keypad 1= From digital input	-21 -21 0	21 21 1		
CF56 CF57 CF58	С	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= $\stackrel{\bullet}{\longrightarrow}$ chiller / $\stackrel{\bullet}{\longrightarrow}$ heat pump 1= $\stackrel{\bullet}{\longleftarrow}$ chiller / $\stackrel{\bullet}{\longrightarrow}$ heat pump Chiller / heat pump mode selection Chiller / heat pump mode selection: 0= From keypad	-21 -21 0	21 21 1		
CF56 CF57 CF58 CF59	С	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= * chiller / * heat pump 1= * chiller / * heat pump Chiller / heat pump mode selection: 0= From keypad 1= From digital input 2= From analogue input	-21 -21 0	21 21 1		
CF56 CF57 CF58 CF59 CF60	с с с	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= * chiller / * heat pump 1= * chiller / * heat pump Chiller / heat pump mode selection Chiller / heat pump mode selection: 0= From keypad 1= From digital input 2= From analogue input Automatic change-over Chiller / heat pump operation automatic changeover set if parameter CF80=2.	-21 -21 0 0	21 21 1 2 230	°F	Int
CF56 CF57 CF58 CF59	с с с	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe Remote terminal no. 1 NTC probe offset. Remote terminal no. 2 NTC probe offset. Operating logic: 0= Chiller / Chiller / Chiller / heat pump 1= Chiller / Meat pump Chiller / heat pump mode selection: 0= From keypad 1= From digital input 2= From analogue input Automatic change-over Chiller / heat pump operation automatic changeover set if	-21 -21 0 0	21 21 1 2	°F	Int



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Parameter	r Level	Description	Min.	Max.	UM	Resolution
		Unit of measurement selection	1			1
CF62	С	°C or °F selection:	0	1		
		0= °C / BAR				
		1 = °F / psi				
CE(2	10	Mains frequency selection	10	12		ŀ
CF63	S	Mains frequency selection: 0= 50 Hz	0	2		
		1 = 60  Hz				
		2= Continuous power input (to use if the PWM outputs for control				
1		of the condensing fans are not used)				
		Serial address				
CF64	U	Serial address.	1	247		
CF65	С	Firmware release				
CF66	С	Eeprom parameters	0	999		2
		Temperature control of compressors with different cooli	ng cap	acity		
CF67	С	Compressor 1 capacity	0	100%		
CF68	С	Compressor 2 capacity	0	100%		
CF69	С	Compressor 3 capacity	0	100%		
CF70	С	Compressor 4 capacity	0	100%		
CF71	С	NOT USED	0	0		
CF72	С	NOT USED	0	0		
CF73	С	Maximum number of compressor starts after 15 minutes ON: 0 = Function disabled	0	15		
		Compressors operation enabling				
CF74	IC	Selection of compressors operation enabling:	0	2	1	1
CF/4	C	0= Chiller and heat pump	0	2		
		1= Chiller only				
		2= Heat pump only				
		Enabling of units with hybrid exchangers				
CF75	С	Enabling of units with hybrid exchangers:	0	1		
		1= Enabled				
		Buzzer enabling	1.	<b>1</b>	-	1
CF76	С	Buzzer enabling:	0	1		
		0= Disabled 1= Enabled				
		Chiller mode				
CF77	С	Chiller mode:	1	3		
CITT	C	1= With compressors	1	5		
		2 = Only FC				
		3= With compressors and FC				
		I/O expansion enabling				
CF78	С	I/O expansion enabling:	0	1		
		0= Not enabled				
	I	1= Enabled				
CE70	IC.	Electronic expansion valve driver enabling Circuit 1 electronic expansion valve enabling:	0	1		
CF79	С	0= Not enabled	0	1		
		1= Enabled				
CF80	С	Circuit 2 electronic expansion valve enabling:	0	1	1	1
	-	0= Not enabled	Ĩ			
		1= Enabled				
CF81	С	Electronic expansion valve address	1	15		
CF82	С	Evaporation probe positioning selection:	0	1		
		0= In Ichill controller				
		1= In IEV valve driver				
CF83	С	Temperature control start delay after transmitting valve start command	0	250	Sec.	

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С	Visograph keypad presence:	0	1		
		0	1		
	0 = No 1 = Voc				
1			I		
IC.		10	15	1	1
	~ ·	-	-		-
C		o 1	c75		
С		0	28		
-	If configured as a digital input.	o 1	c75		
С	PB3 configuration	0	35		
	If configured as a digital input.	o 1	c75		
С		0	35		
		o 1			
С					
С		· · ·			
C					
C					
C					
C		0 1			
1	I/O expansion probes offset	-		<u> </u>	
С	PB1 offset	-21	21	°F	Int
С	PB2 offset	-21	21	°F	Int
С	PB3 offset	-72	72	Psi	Int
	PB4 offset	-72	72	Psi	Int
С	PB5 offset	-21	21	°F	Int
C	PB6 offset	-21	21	°F	Int
	PB7 offset	-21	21	°F	Int
	PB8 offset	-21	21	°F	Int
				Psi	Int
				-	Int
				-	Int
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Parameter	Level	Description	Min.	Max.	UM	Resolution
EI41	С	Proportional output OUT 1: 0= Output disabled	0	9		
		1 = Evaporator pump with modulating operation	0	<i>,</i>		
		2= Modulating output for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1				
		5= 010V auxiliary output no. 2				
		6= Modulating output compressor 1 circuit no. 1				
		7= Modulating output compressor 1 circuit no. 2				
		8= 010V condensing fans circuit no. 1				
		9= 010V condensing fans circuit no. 2				
		Relay controlling ON / OFF output	o 1	c50		
EI42	С	Proportional output OUT 2:				
		0= Output disabled	0	11		
		1= Evaporator pump with modulating operation				
		2= Modulating output for Free cooling 3= Not used				
		4=010V auxiliary output no. 1				
		5=010 V auxiliary output no. 2				
		6= Modulating output compressor 1 circuit no. 1				
		7= Compressor 1 modulating output circuit no. 2				
		8 = 010V condensing fans circuit no. 1				
		9= 010V condensing fans circuit no. 2				
		10= Condensing fans PWM output circuit 1				
		11= Condensing fans PWM output circuit 2				
		Relay controlling ON / OFF output	o 1	c50		
EI43	С	Proportional output OUT 3:				
		0= Output disabled	0	11		
		1= Evaporator pump with modulating operation				
		2= Modulating output for Free cooling				
		3= Not used				
		4= 010V auxiliary output no. 1				
		5= 010V auxiliary output no. 2				
		6= Modulating output compressor 1 circuit no. 1 7= Modulating output compressor 1 circuit no. 2				
		8 = 010V condensing fans circuit no. 1				
		9=010V condensing fans circuit no. 2				
		10= Condensing fans PWM output circuit 1				
		11= Condensing fans PWM output circuit 2	01	c50		
		Relay controlling ON / OFF output				
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
		Dynamic setpoint				•
Sd01	U	Dynamic setpoint max increase in chiller mode	-54	54	°F	Int
		Establishes the maximum variation of the working setpoint in				
		chiller mode.				
Sd02	С	Max dynamic setpoint increase in heat pump mode	-54	54	°F	Int
		Establishes the maximum variation of the working setpoint in				
~ 10.0		heat pump mode.			0.5	
Sd03	U	Dynamic setpoint ambient air temperature setting in chiller mode.		230	°F	Int
Sd04	С	Dynamic setpoint ambient air temperature setting in heat pump mode.	-58	230	°F	Int
Sd05	U	Dynamic setpoint ambient air temperature differential in chiller	-54	54	°F	Int
5400	C	mode.	5.		1	
Sd06	С	Dynamic setpoint ambient air temperature differential in heat pump mode.	-54	54	°F	Int
Sd07	С	Dynamic setpoint max increase in chiller mode auxiliary	-54	54	°F	Int
		analogue output 1.				
Sd08	С	Dynamic setpoint max increase in heat pump mode auxiliary	-54	54	°F	Int
	1	analogue output 1.	1	1	1	1

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Parameter		Description	Min.	Max.	UM	Resolution
Sd09	С	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary analogue output 1.	-58	230	°F	Int
Sd10	С	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary analogue output 1.	-58	230	°F	Int
Sd11	С	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary analogue output 1.	-54	54	°F	Int
Sd12	С	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary analogue output 1.	-54	54	°F	Int
Sd13	С	Dynamic setpoint max increase in chiller mode auxiliary analogue output 2.	-54	54	°F	Int
Sd14	С	Dynamic setpoint max increase in heat pump mode auxiliary analogue output 2.	-54	54	°F	Int
Sd15	С	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary analogue output 2.	-58	230	°F	Int
Sd16	С	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary analogue output 2.	-58	230	°F	Int
Sd17	С	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary analogue output 2.	-54	54	°F	Int
Sd18	С	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary analogue output 2.	-54	54	°F	Int
Sd19	С	Dynamic setpoint max increase in chiller mode auxiliary relay 1.	-54	54	°F	Int
Sd20	С	Dynamic setpoint max increase in heat pump mode auxiliary relay 1.	-54	54	°F	Int
Sd21	С	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary relay 1.	-58	230	°F	Int
Sd22	С	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary relay 1.	-58	230	°F	Int
Sd23	С	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary relay 1.	-54	54	°F	Int
Sd24	С	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary relay 1.	-54	54	°F	Int
Sd25	С	Dynamic setpoint max increase in chiller mode auxiliary relay 2.	-54	54	°F	Int
Sd26	С	Dynamic setpoint max increase in heat pump mode auxiliary relay 2.	-54	54	°F	Int
Sd27	С	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary relay 2.	-58	230	°F	Int
Sd28	С	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary relay 2.	-58	230	°F	Int
Sd29	С	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary relay 2.	-54	54	°F	Int
Sd30	С	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary relay 2.	-54	54	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
	1~	Energy saving	1	1	1	
ES01	С	Start of operating band no. 1 (024).	0	24.00	Hours	10 Min
ES02	С	End of operating band no. 1 (024).	0	24.00	by Hours	
ES03	С	Start of operating band no. 2 (024).	0	24.00	by Hours	10 Min
ES04	С	End of operating band no. 2 (024).	0	24.00	by Hours	
ES05	С	Start of operating band no. 3 (024).	0	24.00	by Hours	
ES06	С	End of operating band no. 3 (024).	0	24.00	by Hours	10 Min
ES07	С	Monday operation with time band in energy saving Monday operation with automatic start / stop.	0 - 0	7 - 7		
ES08	С	Tuesday operation with time band in energy saving Tuesday operation with automatic start / stop.	0 - 0	7 - 7		
ES09	С	Wednesday operation with time band in energy saving Wednesday operation with automatic start / stop.	0 - 0	7 - 7		



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Parameter	Level	Description	Min.	Max.	UM	Resolution
ES10	С	Thursday operation with time band in energy saving Thursday operation with automatic start / stop.	0 - 0	7 - 7		
ES11	С	Friday operation with time band in energy saving Friday operation with automatic start / stop.	0 - 0	7 - 7		
ES12	С	Saturday operation with time band in energy saving Saturday operation with automatic start / stop.	0 - 0	7 - 7		
ES13	С	Sunday operation with time band in energy saving Sunday operation with automatic start / stop.	0 - 0	7 - 7		
ES14	С	Energy saving setting increase in chiller mode.	-54	54	°F	Int
ES15	С	Energy saving differential in chiller mode.	0	45	°F	Int
ES16	С	Energy saving setting increase in heat pump mode.	-54	54	°F	Int
ES17	С	Energy saving differential in heat pump mode.	0	45	°F	Int
ES18	С	Maximum operating time of unit in OFF from RTC if forced ON from button.	1	250	10 Min	Min.
ES19	С	Start of time band 1 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES20	С	End of time band 1 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES21	С	Start of time band 2 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES22	С	End of time band 2 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES23	С	Start of time band 3 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES24	С	End of time band 3 - domestic hot water (024)	0	24.00	by Hours	10 Min
ES25	С	Monday: energy saving active Monday operation with domestic hot water time band	0	7		
ES26	С	Tuesday operation with domestic hot water time band	0	7		
ES27	С	Wednesday operation with domestic hot water time band	0	7		
ES28	С	Thursday operation with domestic hot water time band	0	7		
ES29	С	Friday operation with domestic hot water time band	0	7		
ES30	С	Saturday operation with domestic hot water time band	0	7		
ES31	С	Sunday operation with domestic hot water time band	0	7		
ES32	С	Domestic hot water energy saving setting increase	-54	54	°F	Int
ES33	С	Domestic hot water differential in time band/digital input	0	45	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
	I	Compressors plant	1	1	I	I
Cr01	С	Defines the cooling plant temperature control type: 0= Disabled				
		<ul> <li>a Control with probe defined by ST09</li> <li>2= Enabled with suction probe (evaporation) (condensing units and heat pumps are automatically disabled)</li> </ul>	0	2		
Cr02	С	Suction probe compressors setpoint (evaporation) Makes it possible to program the working setpoint of the suction probe	Cr03	Cr04	Psi	Int
Cr03	С	Suction probe compressors minimum setting (evaporation) Establishes the minimum limit that can be utilised to set the suction probe working setpoint.	0	Cr02	Psi	Int
Cr04	С	Suction probe compressors maximum setting (evaporation) Establishes the maximum limit that can be utilised to set the suction probe working setpoint.	Cr02	725	Psi	Int
Cr05	С	Control steps activation band of suction probe.	1	203	Psi	Int
Cr06	С	Energy saving setting increase in cooling plant mode.	0	203	Psi	Int
Cr07	С	Energy saving differential in cooling plant mode.	1	203	Psi	Int
Cr08	С	No. of compressors to start in case of fault of probe allocated for their control 0 6	0	6		
Cr09	С	No. of condensing fan steps of the circuit to activate in case of fault of probe allocated for their control 0 4	0	4		

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Paramete	er Level	Description	Min.	Max.	UM	Resolution
		Compressor				
CO01	С	Compressor minimum run time. Establishes the time during which the compressor must run after being starting, even if the demand drops.	0	250	10 Sec	10 Seconds
CO02	С	Compressors minimum stop time. Establishes the time during which the compressor must remain stopped, even if restarting is requested. During this period the compressor LED will flash.	0	250	10 Sec	10 Seconds
CO03	С	Time lag between starts of 2 compressors / capacity steps. With two compressors, establishes the starting time lag between the two in order to limit starting peak current. During this period the compressor LED will flash (only for the compressor). With unit having one capacity controlled compressor. Establishes the activation time of the capacity control solenoid for a start at minimum capacity (see heading "7.15.1 Compressors control").	1	250	Sec	
CO04	С	Time lag between stops of 2 compressors / capacity steps. Establishes the stopping time lag between two compressors or two capacity steps.	0	250	Sec	
CO05	С	Delay at compressors starting from power ON. Starting construed as physical power-up of the controller. Delays activation of all the outputs to distribute current draw and protect the compressor(s) from repeated starts in the event of frequent mains power losses.	0	250	10 Sec	10 Seconds
		Capacity controls (INACTIVE FUNCTION)				
CO06	С	Capacity controls operation: 0= ON/OFF steps control 1= Direct action continuous run with capacity steps 2= Reverse action continuous run with capacity steps 3= Global continuous capacity step control	0	3		
CO07	C	Enabling for operation of minimum compressor capacity / unloaded starting management: 0= Enables minimum capacity only at compressor start (start with minimum capacity / unloaded starting with valve OFF and compressor stopped) 1= Enables minimum capacity only at compressor start and during temperature control (start with minimum capacity / unloaded starting with valve OFF and compressor stopped) 2= Screw compressors, enables minimum capacity only at compressor start (start with minimum capacity / unloaded starting with valve ON and compressor stopped) 3= Screw compressors, enables minimum capacity at compressor start and during temperature control (start with minimum capacity / unloaded starting with valve ON and compressor stopped)	0	3		
CO08	С	Screw compressor intermittent valve control relay ON time; if parameter value is 0 the function is disabled.	0	250	Sec	
CO09	С	Screw compressor intermittent valve control relay OFF time.	0	250	Sec	
	1 a	Compressor starting	1.	1.		T
CO10	С	Compressor starting (see heading "7.15.1 Compressors control"): 0= Direct 1= Part-winding	0	1		
C011	С	If <b>CO10</b> =1 part-winding starting time. Used to vary the energization of the two different relays that feed the two motor windings.	0	100	Dec Sec	0.1 Sec
CO12	С	Time for which condensation fan thermal protection switch is bypassed after controller power on	0	250	Sec	
CO13	С	Run time with gas by-pass valve / compressor unloaded starting valve (see capacity controls operation).	0	250	Sec	



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Parameter	Level	Description	Min.	Max.	UM	Resolution
	•	Compressors rotation - balancing - temperature con	trol			
CO14	S	Compressors rotation (see heading "7.15.6 Compressors	0	2		
		rotation"):				
		0= Fixed sequence				
		1= Rotation enabled with compressors temperature control on				
		basis of running hours				
		2= Rotation enabled with compressors temperature control on basis of starts/hour (peak loads)				
CO15	C	· · · ·	0	1		
CO15	S	Circuits balancing: 0= Circuits saturation	0	1		
		1= Circuits balancing				
		Evaporator water pump				
CO16	le.	· · ·	0	12		1
010	S	Evaporator pump / delivery fan operating mode: 0= Pump not installed and delivery fans not managed	0	2		
		1= Continuous operation; activation of the water pump / delivery				
		fan occurs when unit is powered on (chiller / heat pump / derivery				
		selection).				
		2= Operation on compressor request, starting and stopping of the				
		pump and delivery fan are linked to starting and stopping of the				
		compressor. In the case of an anti-freeze alarm the compressor				
		will stop and the pump will continue to run.				
CO17	S	Compressor ON time lag from starting of pump / delivery fan.	1	250	Sec	
CO18	S	Evaporator water pump / delivery fan OFF time lack from	0	250	Min	
		compressor stop. This time interval is observed also when the unit				
		is set to stand-by.				
CO19	U	No. of hours for forced rotation of evaporator pumps.	0	999	10 Hours	10 Hours
CO20	S	Simultaneous pumps run time after forced pumps rotation.	0	250	Sec	
		Condenser water pump				
CO21	С	Condenser pump operating mode:	0	2	[	[
		0= Absent, pump is not managed				
		1= Continuous operation; starting and stopping of the pump				
		linked to starting and stopping of the unit				
		2= Operation on compressor request; starting and stopping of the				
		pump linked to starting and stopping of the compressor. In the				
		case of an anti-freeze alarm the compressor will stop and the				
		pump will continue to run.				
CO22	C	Not used	0	0		
CO23	С	Condenser pump OFF time lag from compressor stopping. This	0	250	Min	
		time interval is observed also when the unit is set to stand-by.				
CO24	С	No. of hours for forced rotation of condenser pumps.	0	999	10 Hours	10 Hours
CO25	С	Simultaneous pumps run time after forced rotation of condenser	0	250	Sec	
		pumps.				
		Maintenance of loads				
CO26	S	Compressor 1 hour meter set.	0	999	10 Hours	10 Hours
CO27	S	Compressor 2 hour meter set.	0	999	10 Hours	10 Hours
CO28	S	Compressor 3 hour meter set.	0	999	10 Hours	10 Hours
CO29	S	Compressor 4 hour meter set.	0	999	10 Hours	
CO30	~ C	Compressor 5 hour meter set.	0	999	10 Hours	
CO31	C	Compressor 6 hour meter set.	0	999	10 Hours	
CO32	S		0	999	10 Hours	
		Pump / delivery fan hour meter set.				
CO33	S	Evaporator pump no. 2 hour meter set.	0	999	10 Hours	
	С	Condenser pump hour meter set.	0	999	10 Hours	10 Hours
CO34 CO35	C	Condenser pump no. 2 hour meter set.	0	999	10 Hours	10 Hours

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arameter	Level	Description	Min.	Max.	UM	Resolution
	1~	Pump down	1	1.	T	
2036	С	Pump-down operation:	0	4		
		0= Function disabled				
		1= Power off with pump-down without pump-down on starting				
		2= Power off with pump-down with pump-down on starting 3= Power off with pump-down only in chiller mode without				
		pump-down on starting				
		4= Power off with pump-down only in chiller mode with pump-				
		down on starting				
037	С	Pump-down pressure set.	0	725	Psi	Int
			-		- 7	
038	С	Pump-down pressure differential.	1	174	Psi	Int
039	С	Maximum holding time in pump-down in starting and in stopping.	0	250	Sec	
0.40		Evaporator unloading	1 = 0	1.0.0	1017	
O40	С	Compressors unloading operation setpoint in chiller mode from	-58	230	°F	Int
		evaporator water inlet high temperature (see "7.16 Unloading				
		function").				
041	С	Compressor unloading relay differential from evaporator water	0	45	°F	Int
		inlet high temperature (see "7.16 Unloading function").				
042	С	Compressor unloading function activation lag time from	1	250	Sec	10sec
		evaporator water inlet high temperature (see "7.16 Unloading				
		function").				
043	С	Compressor unloading operation holding time from evaporator	0	250	Min	
		water inlet high temperature				
		Condenser unloading		1	I	
044	S	Compressor temperature / pressure unloading setpoint in chiller	0	725	Psi	Int
	~	mode (see "7.16 Unloading function").				
045	S	Compressor temperature / pressure differential in chiller mode	1	203	Psi	Int
045	5	(see "7.16 Unloading function").	1	205	1 51	1111
CO46	C	Compressor temperature / pressure unloading setpoint in heat	0	725	Psi	T-++
040	С		0	725	PSI	Int
0.45		pump mode (see "7.16 Unloading function").			n :	
047	C	Compressor temperature / pressure unloading differential in heat	1	203	Psi	Int
		pump mode (see "7.16 Unloading function").				
048	S	Max holding time in compressors unloading operation from	1	250	Min	
		temperature / pressure.				
049	С	Selection of steps per circuit to activate in unloading operation:	1	3		
		1 = No. 1 step				
		2= No. 2 steps				
		3= No. 3 steps				
CO50	С	Minimum operating time in ON capacity step after input in	0	250	Sec	
		unloading (only for compressors with capacity control steps).				
		Compressors liquid injection function		•		
051	С	Liquid injection solenoid valve activation setpoint	32	302	°F	Int
052	C	Liquid injection solenoid valve deactivation differential	0	45	°F	Int
002	C	Management of resources in neutral zone operatio	*	15	1	IIIt
053	S	Maximum permanence in neutral zone without activation of	0	250	Min	10 Min
035	3	resources - with at least one resource activated.	0	250	141111	10 WIIII
054	С	Maximum permanence in neutral zone without rotation of	0	999	by Hours	1 Have
.054	C	resources	0	999	by Hours	1 Hour
		Evaporator water low temperature unloading				
0.55	G	· · · · ·	50	220	0.12	<b>T</b>
055	С	Compressor unloading setpoint from evaporator water low	-58	230	°F	Int
		temperature				
056	С	Compressor unloading differential from evaporator water low	0	45	°F	Int
		temperature				
057	С	Compressor unloading operation MAX holding time from	0	250	Min	
		evaporator low water temperature				
		Time controlled pump down				
058	С	Pump down time in starting:	0	250	Sec	
	-	CO58 = 0 Function disabled				
	1	<b>CO58</b> $\neq$ 0 Function enabled for set time	1	l I	1	



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Parameter	Level	Description	Min.	Max.	UM	Resolution
CO59	С	Pump down time in stop: CO59 = 0 Function disabled	0	250	Sec	
		<b>CO59</b> $\neq$ 0 Function enabled for set time				
		Compressor with modulating control	1		<u>.</u>	
CO60	С	Compressor run time at maximum speed from temperature control	0	250	Sec	
		request:				
60(1	G	0 = Function disabled	0	100	0.(	
CO61	С	Minimum value for inverter controlled compressor 010V analogue output at starting	0	100	%	
CO62	С	Interval for inverter controlled compressor power increase at	0	250	Sec	
0002	C	starting	0	230	bee	
CO63	С	Establishes the minimum percentage of continuous operation of	0	100	%	
		the inverter controlled compressor below which the count starts				
		of time CO64:				2
	-	0= Function disabled				
CO64	С	MAX continuous operation time of inverter controlled	0	250	Min	10 Min
		compressor with operation percentage below CO63: 0= Function disabled				
CO65	С	Operation time of inverter controlled compressor forced to	0	250	Sec	
0005	C	maximum speed	0	230	500	
CO66	С	Maximum time of continuous operation of inverter controlled	0	999	by Hours	
	-	compressor after which the modulating compressor is stopped			- )	
		and, in the basis of the rotation strategy, starting of another				
		compressor is forced:				
00/8	G	0= Function disabled	1	000	0 /	
CO67	С	Minimum value for 010V analogue output of inverter controlled compressor no. 5 circuit no. 1	1	CO68	%	
CO68	С	Maximum value for 010V analogue output of inverter	CO67	100	%	
0000	C	controlled compressor no. 5 circuit no. 1	0007	100	/0	
CO69	С	Minimum value for 010V analogue output of inverter controlled	1	CO70	%	
		compressor no. 6 circuit no. 2				
CO70	С	Maximum value for 010V analogue output of inverter	CO69	100	%	
		controlled compressor no. 6 circuit no. 2				
CO71	C	Capacity increase interval in steady state conditions	1	250	Sec	
	1	Compressor forced rotation function	Γ.	T	r .	
CO72	С	Maximum time of continuous operation of single compressor in circuit	0	250	Min	
		Maintenance of loads				
CO73	С		0	999	10 Hours	10 Hours
CO73 CO74	C	Domestic hot water pump hour meter set Solar panels pump hour meter set	0	999	10 Hours	10 Hours
00/4	C		-	250	Sec	10 Hours
C075	C	Inversion time of value on compressor stop		250	Sec	
CO75	С	Inversion time of valve on compressor stop	0			
CO75	1	Unit capacity control	[ -	15		[
CO76	С	Unit capacity control Limitation of number of steps in Chiller mode	1	15		
CO76 CO77	C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode	1	15		
CO76 CO77 CO78	C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode	1 1 1	15 15	0/2	
CO76	C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode	1	15	%	
CO76 CO77 CO78 CO79	C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode	1 1 1 1	15 15 100		
CO76 CO77 CO78	C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller	1 1 1	15 15	%	
CO76 CO77 CO78 CO79	C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat	1 1 1 1	15 15 100		
CO76 CO77 CO78 CO79 CO80	C C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode	1 1 1 1 1	15 15 100 100	%	
CO76 CO77 CO78 CO79 CO80 CO81	C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode Ambient air temperature for compressor speed reduction in heat	1 1 1 1 1	15 15 100 100 230	% % °F	Int
CO76 CO77 CO78 CO79 CO80 CO81 CO82	C C C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode Ambient air temperature for compressor speed reduction in heat pump mode	1 1 1 1 1 1 -58 0	15           15           100           100           230           725	% % °F Psi	Int
CO76 CO77 CO78 CO79 CO80 CO81 CO82	C C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode Ambient air temperature for compressor speed reduction in heat pump mode Ambient air temperature hysteresis for compressor speed	1 1 1 1 1 1 -58 0 0	15 15 100 100 230 725 45	% % Psi °F	Int Int
CO76 CO77 CO78 CO79 CO80 CO81 CO82 CO83	C C C C C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode Ambient air temperature for compressor speed reduction in heat pump mode Ambient air temperature hysteresis for compressor speed reduction in heat pump mode	1 1 1 1 1 1 -58 0 0 1	15           15           100           100           230           725           45           203	% % Psi °F Psi	Int
CO76 CO77 CO78 CO79 CO80	C C C C C C	Unit capacity control Limitation of number of steps in Chiller mode Limitation of number of steps in Heat Pump mode Limitation of number of steps in Domestic Hot Water mode Maximum output % of Inverter controlled compressor in Chiller mode Maximum output % of Inverter controlled compressor in Heat Pump mode Maximum output % of Inverter controlled compressor in Domestic Hot Water mode Ambient air temperature for compressor speed reduction in heat pump mode Ambient air temperature hysteresis for compressor speed	1 1 1 1 1 1 -58 0 0	15 15 100 100 230 725 45	% % Psi °F	Int Int

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Parameter	Level	Description	Min.	Max.	UM	Resolution
CO86	С	Evaporator water pump stop time with unit stopped (stand-by or OFF)	0	250	10 Hours	
C <b>O87</b>	С	Evaporator water pump run time	0	250	Sec	
C <b>O</b> 88	С	Condenser water pump stop time with unit at setpoint	0	250	10 Min	
C <b>O</b> 89	С	Condenser water pump stop time with unit stopped (stand-by or OFF)	0	250	10 Hours	
CO90	С	Condenser water pump run time	0	250	Sec	
C <b>O</b> 91	С	Minimum time between two starts of the same compressor	0	250	Sec	
092	С	Advance of water side solenoid valve activation with respect to compressor start	0	250	Sec	
093	С	Time lag of water side solenoid valve activation with respect to compressor stop	0	250	Sec	
C <b>O</b> 94	С	% compressor inverter output in defrosting	0	100	%	
095	С	FC pump hours set	0	999	10 Hours	
C <b>O</b> 96	С	Inverter compressor analogue output value in unloading	0	100	%	
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
		Circuit 1 auxiliary relay	-	L	1	
US01	С	Auxiliary relay 1 operation (see paragraph "7.17 Fans control"): 0= Not enabled 1= Direct action always enabled 2= Direct action enabled only with unit in ON 3= Reverse action always enabled 4= Reverse action enabled only with unit in ON	0	4		
J <b>S02</b>	С	Configuration of analogue input for management of circuit 1 auxiliary relay makes it possible to choose probe from <b>PB1</b> to <b>PB10</b> for management of the function	1	20		
US03	С	Auxiliary relay 1 output minimum summer set	-58	US5	°F	Int
US03 US04	C		-38 US5	230	°F	Int
JS04 JS05	C	Auxiliary relay 1 output maximum summer set	US5 US3	230 US4	°F	Int
JS05 JS06	C	Auxiliary relay 1 output summer setpoint		US4 US8	°F	
	1	Auxiliary relay 1 output winter minimum setpoint	-58		°F	Int
JS07	C	Auxiliary relay 1 output winter maximum setpoint	US8	230	-	Int
US08	С	Auxiliary relay 1 output winter setpoint	US6	US7	°F	Int
US09	С	Auxiliary relay 1 summer differential	0	45	°F	Int
J <b>S10</b>	С	Auxiliary relay 1 winter differential	0	45	°F	Int
	F	Circuit 2 auxiliary relay	1.	1.	1	
US11	C	Auxiliary relay 2 operation: 0= Not enabled 1= Direct action always enabled 2= Direct action enabled only with unit in ON 3= Reverse action always enabled 4= Reverse action enabled only with unit in ON	0	4		
U <b>S12</b>	С	Configuration of analogue input for management of circuit 2 auxiliary relay makes it possible to choose probe from <b>PB1</b> to <b>PB10</b> for management of the function	1	20		
J <b>S13</b>	С	Auxiliary relay 2 output minimum summer set	-58	US15	°F	Int
J <b>S14</b>	С	Auxiliary relay 2 output maximum summer set	US15		°F	Int
J <b>S15</b>	С	Auxiliary relay 2 output summer setpoint	US13	US14	°F	Int
J <b>S16</b>	С	Auxiliary relay 2 output winter minimum setpoint	-58	US18	°F	Int
J <b>S17</b>	С	Auxiliary relay 2 output winter maximum setpoint	US18	230	°F	Int
J <b>S18</b>	С	Auxiliary relay 2 output winter setpoint	US16	US7	°F	Int
JS19	С	Auxiliary relay 2 summer differential	0	45	°F	Int
10.00	С	Auxiliary relay 2 winter differential	0	45	°F	Int
JS20	0					

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Parameter	Level	Description	Min.	Max.	UM	Resolution
		Auxiliary 010V proportional output 1			_	
US22	С	Operation of auxiliary proportional output 1:	0	4		
		0= Not enabled				
		1= Direct action always enabled				
		2= Direct action enabled only with unit in ON 3= Reverse action always enabled				
		4= Reverse action enabled only with unit ON				
US23	С	Configuration of analogue input for management of auxiliary	1	20		
0.525	C	output 1 makes it possible to select probe from <b>PB1</b> to <b>PB10</b> for	1	20		
		management of the function				
US24	С	Auxiliary analogue output 1 minimum summer set	-58	US26	°F	Int
	-		0		Psi	Int
US25	С	Auxiliary analogue output 1 maximum summer set	US26	230	°F	Int
	-			725	Psi	Int
US26	С	Auxiliary analogue output 1 summer set	US24	<b>US25</b>	°F	Int
		5 6 1			Psi	Int
US27	С	Auxiliary analogue output 1 minimum winter set	-58	US29	°F	Int
US28	С	Auxiliary analogue output 1 maximum winter set	US29	230	°F	Int
US29	С	Auxiliary analogue output 1 winter set	US27	US28	°F	Int
US30	C	Auxiliary analogue output 1 summer differential	0	45	°F	Int
US31	C	Auxiliary analogue output 1 winter differential	0	45	°F	Int
US31 US32	C	Auxiliary analogue output 1 minimum value	0	4.5 US33	%	IIIt
US32 US33	C	Auxiliary analogue output 1 maximum value	US32	100	%	
0833	Ľ		0832	100	<sup>%</sup> 0	
	1~	Auxiliary 010V proportional output 2	1	T .	1	1
US34	С	Operation of auxiliary proportional output 2 (see function and	0	4		
		auxiliary output diagrams): 0= Not enabled				
		1= Direct action always enabled				
		2= Direct action enabled only with unit in ON				
		3= Reverse action always enabled				
		4= Reverse action enabled only with unit ON				
US35	С	Configuration of analogue input for management of auxiliary	1	20		
		output 2 makes it possible to select probe from PB1 to PB10 for		-		
		management of the function				
US36	С	Auxiliary analogue output 2 minimum summer set	-58	US38	°F	Int
US37	С	Auxiliary analogue output 2 maximum summer set	US38	230	°F	Int
US38	С	Auxiliary analogue output 2 summer set	US36	US37	°F	Int
US39	C	Auxiliary analogue output 2 minimum winter set	-58	US41	°F	Int
US40	C	Auxiliary analogue output 2 maximum winter set	US41	230	°F	Int
US41	C	Auxiliary analogue output 2 winter set	US39	US40	°F	Int
US42	C	Auxiliary analogue output 2 summer differential	0.557	45	°F	Int
US42 US43	-	,	-	-	°F	
00.0	С	Auxiliary analogue output 2 winter differential	0	45	-	Int
US44	C	Auxiliary analogue output 2 minimum value	0	US45	%	
US45	С	Auxiliary analogue output 2 maximum value	US44	100	%	
		Modulating output minimum value				
US46	С	Forcing to 0 of the analogue output below the minimum value	0	1		
		Modulating evaporator pump				
US47	С	Select probe 1 for modulating pump operation in chiller mode	0	20		
US48	С	Select probe 2 for modulating pump operation in chiller mode	0	20	İ	1
US49	С	Set point for modulating pump maximum speed in chiller mode	-58	230	°F	Int
	C	Modulating pump regulation proportional band in chiller mode	0	45	°F	Int
US50		Modulating pump minimum speed in chiller mode	0	100	%	
US50 US51	IC:	in our and pump minimum speed in entiter mode			%	
US51	C	Modulating numn maximum speed in shillor mode	0			
US51 US52	С	Modulating pump maximum speed in chiller mode	0	100	70	
US51 US52 US53	C C	Select probe 1 for modulating pump operation in heat pump mode	0	20	70	
US50 US51 US52 US53 US54 US55	С				°F	Int

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Parameter	Level	Description	Min.	Max.	UM	Resolution
US56	С	Modulating pump regulation proportional band in heat pump mode	0	45	°F	Int
US57	С	Modulating pump minimum speed in heat pump mode	0	100	%	
US58	С	Modulating pump maximum speed in heat pump mode	0	100	%	
US59	С	Modulating pump speed during free cooling	0	100	%	
US60	С	Modulating pump speed with compressor off	0	100	%	
		Auxiliary outputs enabling				
US61	С	Auxiliary relay 1 output enable: 1= Chiller only	1	3		
		2= Heat pump only 3= Chiller and heat pump				
US62	С	Auxiliary relay 2 output enable: 1= Chiller only	1	3		
		2= Heat pump only				
		3= Chiller and heat pump				
US63	С	Auxiliary relay 1 analogue output enable: 1= Chiller only	1	3		
		2= Heat pump only 3= Chiller and heat pump				
US64	С	Auxiliary relay 2 analogue output enable: 1= Chiller only	1	3		
		2= Heat pump only 3= Chiller and heat pump				
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	S C	Manufacturer password	0	999		
115	C	Condensing fans	0	,,,,		
FA01	С	Fans control:	0	14	1	1
		0= Absent 1= Always on 2= ON/OFF steps control 3= Continuous ON/OFF steps control 4= Proportional speed regulator				
FA02	С	Fans operating mode: 0= Dependent on compressor 1= Independent on compressor	0	1		
FA03	С	Fans max speed start time after ON (TRIAC). At each start, irrespective of the condensing temperature / pressure the fan is fed at maximum voltage for time <b>FA03</b> after which the fan continues to run at the speed set by the regulator.	0	250	Sec	
FA04	С	Fans staggering	0	8	Micro- seconds	250ms
FA05	С	Single or separate condensing fan: 0= Single 1= Separate	0	1		
FA06	С	Pre-ventilation in chiller mode before compressor ON. Used to set a run time of the fans at maximum speed in chiller mode before compressor start, in order to anticipate the sudden condensing temperature / pressure increase (resulting from starting of the compressor) and improve temperature control.	0	250	Sec	
		Operation in chiller mode				
FA07	С	Minimum operating speed of fans in chiller mode. Used to set a minimum value of the proportional control of the fans in chiller mode. Expressed as a percentage from 0 to 100% of the maximum permitted voltage.	0	100	%	
FA08	С	Maximum operating speed of fans in chiller mode.	0	100	%	
		Used to set a maximum value of the proportional control of the fans in chiller mode. Expressed as a percentage from 0 to 100% of the maximum permitted voltage.				



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Parameter	Level	Description	Min.	Max.	UM	Resolutio
FA09	С	Proportional control:	0	725	Psi	Int
		Used to set the condensing temperature / pressure value in chiller				
		mode corresponding to the minimum fan speed.				
		Step control				
		<b>1st STEP SET</b> Used to set the condensing temperature / pressure				
		<u> </u>				
		value in chiller mode to which operation in ON corresponds of the				
		relay output configured as 1st condensing fan speed step.				
'A10	С	Proportional control:	0	725	Psi	Int
		Used to set the condensing temperature / pressure value in chiller				
		mode corresponding to the maximum fan speed.				
		Step control				
		<b>2nd STEP SET</b> Used to set the condensing temperature / pressure				
		e				
		value in chiller mode to which operation in ON corresponds of the				
		relay output configured as 2nd condensing fan speed step.				
A11	С	Proportional control:	1	203	Psi	Int
		Fans control proportional band in chiller mode.				
		Used to set a temperature / pressure differential with a				
		corresponding change in fan speed from minimum to maximum.				
		Step control				
		With Par. $FA01 = 2$ or 3 this becomes the differential on the step				
		of circuit 1 in chiller mode.				
FA12	С	Proportional control:	1	203	Psi	Int
	-	CUT-OFF differential in chiller mode.	-			
		Used to set a temperature / pressure differential in chiller mode				
		for stopping of the fan.				
		Step control				
		With Par. $FA01 = 2$ or 3 this becomes the differential on the step				
		of circuit 2 in chiller mode.				
FA13	С	Override CUT-OFF in chiller mode.	1	203	Psi	Int
	C	Used to set a temperature / pressure differential in chiller mode at	1	205	1 51	IIIt
		which the fan remains at minimum speed.				
FA14	С	CUT-OFF delay time.	0	250	Sec	
		Used to set a time lag for activation of the CUT-OFF function at				
		starting of the fans.				
		If at the compressor start the proportional controller requests fan				
		cut-off and FA14 is different from 0, the fan will be forced to the				
		minimum speed for the set time.				
		If <b>FA14</b> =0 the function is not enabled.				
FA15	С	Night function speed in chiller mode.	0	100	%	
		Used to set a maximum value of the proportional control of the				
		fans in chiller mode.				
		Expressed as a percentage from 0 to 100% of the maximum				
		permitted voltage.				
		Operation in heat pump mode				
FA16	С	Fans minimum speed in heat pump mode.	0	100	%	
		Used to set a minimum value of the proportional control of the				
		fans in heat pump mode.				
		Expressed as a percentage from 0 to 100% of the maximum		1		1
		permitted voltage.				
FA17	С	Fans maximum speed in heat pump mode.	0	100	%	
		Used to set a maximum value of the proportional control of the		1		1
		fans in heat pump mode.				
		Expressed as a percentage from 0 to 100% of the maximum				
		permitted voltage.	1	1		1
	6				n ·	
FA18	С	Proportional control:	0	725	Psi	Int
		Fans maximum speed temperature / pressure set in heat pump				
		mode.	1	1		
		Used to set the condensing temperature / pressure value in heat				
		pump mode corresponding to the minimum fan speed.		1		1
	1	Step control	1	1		
		INTOD CONTROL	1	1	1	1
		•				
		1st STEP SET Used to set the condensing temperature / pressure				
		•				

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Parameter		Description	Min.	Max.	UM	Resolutio
A19	С	Proportional control:	0	725	Psi	Int
	1	Fans minimum speed temperature / pressure set in heat pump			1	
		mode.				
	1	Used to set the condensing temperature / pressure value in heat			1	
		pump mode corresponding to the maximum fan speed.				
		Step control 2nd STEP SET Used to set the condensing temperature / pressure				
		<b>2nd STEP SET</b> Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds				
	1	of the relay output configured as 2nd condensing fan speed step.				
FA20	С	Proportional control:	1	203	Psi	Int
1 A20	C	Fans proportional band in heat pump mode.	1	205	1 51	IIIt
		Used to set a temperature / pressure differential with a				
		corresponding change in fan speed from minimum to maximum.				
		Step control				
		With Par. FA01= 2 or 3 this becomes the differential on the step				
		of circuit 1 in heat pump mode (see fans control diagram).				
FA21	С	Proportional control:	1	203	Psi	Int
		CUT-OFF differential in heat pump mode.				
	1	Used to set a temperature / pressure differential in heat pump				
		mode for stopping of the fan.				
		Step control				
		With Par. $FA01 = 2/3$ becomes the differential on the step of				
		circuit no. 2 in heat pump mode (see fans control diagram).				
FA22	С	CUT-OFF override in heat pump mode.	1	203	Psi	Int
		Used to set a temperature / pressure differential in heat pump				
		mode at which the fan remains at minimum speed.		1.0.0	0.(	
FA23	С	Night function speed in heat pump mode.	0	100	%	
		Used to set a maximum value of the proportional control of the				
		fans in heat pump mode.				
		Expressed as a percentage from 0 to 100% of the maximum				
		permitted voltage. Hot start				
FA24	С		-58	230	°F	Int
FA24 FA25	C	Hot start setpoint. Hot start differential.	-38	45	°F	Int
FA23	C	3-4 Fans step (chiller mode operation)	0	45	I.	IIII
FA26	С	Step control	0	725	Psi	Int
FA20	C	<b>3rd STEP SET</b> Used to set the condensing temperature / pressure	0	125	1 51	1111
		value in chiller mode to which operation in ON corresponds of the				
		relay output configured as 3rd condensing fan speed step.				
FA27	С	Step control	0	725	Psi	Int
F AL /	C	•	0	125	1 51	1111
		Ath STEP SET Used to set the condensing temperature / pressure				
		<b>4th STEP SET</b> Used to set the condensing temperature / pressure value in chiller mode to which operation in ON corresponds of the				
		value in chiller mode to which operation in ON corresponds of the				
		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step.				
FA28		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. <b>3-4 Fans step (heat pump mode operation)</b>	0	725	Psi	Int
FA28	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control	0	725	Psi	Int
FA28	C	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure	0	725	Psi	Int
FA28	C	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control	0	725	Psi	Int
-	C	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step.	0	725		Int
FA28 FA29		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control	-		Psi Psi	
-		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step.	-			
-		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure	-			
-		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds	-			
FA29		value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step.	-			
FA29	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode	0	725	Psi	Int
-	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode.	0	725	Psi	Int
FA29 FA30	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4)	0	725	Psi	Int
FA29	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4) Post-ventilation in heat pump mode.	0	250	Psi	Int
FA29 FA30	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4) Post-ventilation in heat pump mode. Used to keep the fan running for a certain period after	0	250	Psi	Int
FA29 FA30 FA31	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4) Post-ventilation in heat pump mode. Used to keep the fan running for a certain period after stopping of the compressor	0	725 250 250	Psi	Int Sec 10Sec
FA29 FA30 FA31 FA32	C C C	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4) Post-ventilation in heat pump mode. Used to keep the fan running for a certain period after stopping of the compressor Ambient air temperature for post-ventilation in heat pump mode	0	725 250 250 230	Psi Sec Sec	Int
FA29 FA30	С	value in chiller mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. 3-4 Fans step (heat pump mode operation) Step control 3rd STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 3rd condensing fan speed step. Step control 4th STEP SET Used to set the condensing temperature / pressure value in heat pump mode to which operation in ON corresponds of the relay output configured as 4th condensing fan speed step. Pre-ventilation in heat pump mode. Used to set a run time of the fans at maximum speed in Heat pump mode before starting of the compressor (only if FA01 = 4) Post-ventilation in heat pump mode. Used to keep the fan running for a certain period after stopping of the compressor	0	725 250 250	Psi Sec Sec	Int Sec 10Sec



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Parameter		Description	Min.	Max.	UM	Resolution
Pr2	S	Service password	0	999		_
Pr3	С	Manufacturer password	0	999		
		Anti-freeze - support - water heater elements			•	
Ar01	S	Anti-freeze heaters setpoint (air/air unit) in chiller mode. Used to set a temperature value below which the anti-freeze heaters are switched on	-58	230	°F	Int
Ar02	S	Anti-freeze / support heaters regulation band range in chiller mode	0	45	°F	Int
Ar03	С	Support heaters setpoint (air/air unit) in heat pump mode. Used to set a temperature value below which the anti-freeze heaters are switched on	-58	230	°F	Int
Ar04	С	Anti-freeze / support heaters regulation band range in heat pump mode	0	45	°F	Int
Ar05	С	Operation of anti-freeze / support heaters in defrost: 0= Activated only by thermoregulator 1= Activated by thermoregulator and during defrost cycle	0	1		
Ar06	С	Anti-freeze / support heaters thermoregulation probe in chiller mode: 0= Disabled 1= Regulation on evaporator inlet 2= Regulation on evaporator outlet 1 / 2 3= Regulation on evaporator outlet 1 / 2 and common outlet 4= Regulation on ambient air temperature	0	4		
Ar07	С	Anti-freeze / support heaters thermoregulation probe in heat pump mode: 0= Disabled 1= Regulation on evaporator inlet 2= Regulation on evaporator outlet 1 / 2 3= Regulation on evaporator outlet 1 / 2 and common outlet 4= Regulation on ambient air temperature	0	4		
Ar08	С	Condenser anti-freeze heaters thermoregulation probe: 0= Disabled 1= Regulates common condenser water inlet probe 2= Regulates common condenser and condenser 1 / 2 water inlet probe 3= Regulates condenser 1 / 2 water outlet probe 4= Regulates condenser 1 / 2 and common water outlet probe 5= Regulation on ambient air temperature	0	5		
Ar09	С	S= Regulation on anti-freeze heaters when instrument is in remote OFF or Stand-by: 0= Always off in remote OFF or Stand-by 1= On in remote OFF or Stand-by (switched on in accordance with thermoregulator request)	0	1		
Ar10	S	Establishes operation of evaporator / condenser anti-freeze heaters in case of fault of a probe dedicated to heaters control: 0= Off in case of probe fault 1= On in case of probe fault	0	1		
	-	Water heater function		1-	I	-
Ar11	С	Water heater function: 0= Disabled 1= Enabled with control in integration 2= Enabled with control in heating	0	2		
Ar12	С	Water heater elements activation ambient air setpoint.	-58	230	°F	Int
Ar13	С	Water heater elements deactivation ambient air differential.	0	45	°F	Int
Ar14	С	Water heater elements activation time lag.	0	250		Min
		Water heater operation in chiller mode				
Ar15	С	Water heater elements setpoint in chiller mode.	-58	230	°F	Int
Ar16	C	Water heater elements proportional band in chiller mode.	0	45	°F	Int
		Water heater operation in heat pump mode	۲ <u>ــــــــــــــــــــــــــــــــــــ</u>	15	L *	12.00
A = 17	C		58	220	°F	Int
Ar17	C	Water heater elements setpoint in heat pump mode.	-58	230		
Ar18	С	Water heater elements proportional band in heat pump mode.	0	45	°F	Int

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Parameter	Level	Description	Min.	Max.	UM	Resolution
Ar19	С	Compressors off ambient air setpoint in integration mode.	-58	230	°F	Int
Ar20	С	Compressors on ambient air differential in integration mode.	0	45	°F	Int
	-	Anti-freeze alarm				
Ar21	С	Anti-freeze alarm thermoregulation probe in chiller mode:	0	4		
		0= Disabled 1= Regulation on evaporator inlet				
		2 = Regulation on evaporator outlet 1/2				
		3 = Regulation on evaporator outlet $1/2$ and common outlet				
		4= Regulation on temperature Ambient air				
Ar22	С	Anti-freeze alarm thermoregulation probe in heat pump mode:	0	4		
		0= Disabled				
		1= Regulation on evaporator inlet 2= Regulation on evaporator 1 / 2 outlet				
		3 = Regulation on evaporator outlet 1 / 2 and common outlet				
		4= Regulation on Ambient Air Temp.				
Ar23	С	Condenser anti-freeze alarm thermoregulation probe:	0	5		
		0= Disabled				
		1= Regulates common condenser water inlet probe				
		2= Regulates common condenser and condenser 1 / 2 water inlet probe				
		3= Regulates condenser 1 / 2 water outlet probe				
		4= Regulates condenser 1 / 2 and common water outlet probe				
		5= Regulation on ambient air temperature				
		Evaporator water pump operation with anti-freeze a	larm			
Ar24	S	Causes pump/s to start for anti-freeze when device is OFF or on	0	1		
		Stand-by: 0= Always off in remote OFF or Stand-by				
		1= On in remote OFF or Stand-by (switched on in accordance				
		with thermoregulator request)				
Ar25	С	Pump/s operation thermoregulation probe for anti-freeze:	0	4		
		0= Disabled				
		1= Regulation on evaporator inlet				
		2= Regulation on evaporator outlet 1 / 2				
		3= Regulation on evaporator outlet 1 / 2 and common outlet 4= Regulation on Ambient Air Temp.				
Ar26	С	Pump activation setpoint in anti-freeze operation on	-58	230	°F	Int
1120	Ŭ	thermoregulation probe	50	200	1	Int
Ar27	С	Pump deactivation differential in anti-freeze operation on	0	45.0	°F	Int
		thermoregulation probe	-			
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
		Defrosting				
dF01	С	Defrost modes:	0	5		
		0= Defrosting disabled				
		1= Temperature / pressure 2= Start depends on value of par. <b>dF24</b> end by time				
		3 = Start depends on value of part <b>dF24</b> end by time 3 = Start depends on value of part <b>dF24</b> end by external contact				
		4= With condensing fan				
		5= Start by external contact and end depending on value of par.				
		dF24				
dF02	C	Defrost start pressure / temperature.	0	725	Psi	Int
dF03	С	Defrost end pressure / temperature.	0	725	Psi	Int
dF04	С	Defrost minimum duration.	0	250	Sec	
dF05	С	Defrost maximum duration.	0	250	Min	
dF06	С	Time lag between defrosting of two circuits.	0	250	Min	
dF07	С	Wait time in compressor OFF before defrosting.	0	250	Sec	
dF08	С	Wait time in compressor OFF after defrosting.	0	250	Sec	
dF09	С	Defrosting interval on same circuit.	1	99	Min	
dF10	С	Temperature set for combined defrost cycle start, circuit no. 1	-58	230	°F	Int
		after count of parameter DF10.	1	1	1	



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Parameter	Level	Description	Min.	Max.	UM	Resolutio
dF11	С	Temperature set for combined defrost cycle end, circuit no. 1.	-58	230	°F	Int
dF12	С	Temperature set for combined defrost cycle start, circuit no. 2	-58	230	°F	Int
1544		after count of parameter <b>DF10</b> .			0.5	
dF13	С	Temperature set for combined defrost cycle end, circuit no. 2.	-58	230	°F	Int
dF14	С	Forcing in ON activates all defrost steps in circuit no. 1: 0= Disabled 1= Enabled	0	1		
dF15	С	Forcing in ON activates all defrost steps in circuit no. 2:	0	1		
		0= Disabled 1= Enabled				
dF16	С	Starting time lag between two compressors in defrost.	0	250	Sec	
dF17	C	Enabling of fan ON during defrosting / dripping: 0= Disabled	0	2		
		1= Only defrost enabled 2= Defrost / dripping enabled				2
dF18	С	Pressure / temperature set for forced ON of fans during defrost.	0	725	Psi	Int
ui io	Г <sup>с</sup>	Forced defrost	Ŭ	120	1.01	
dF19	С	Minimum wait time before forced defrost.	0	250	Sec	
dF20	C	Forced defrost temperature / pressure set.	0	725	Psi	Int
dF21	C	Forced defrost differential.	1	203	Psi	Int
		Defrost mode	I		1	
dF22	С	Start of defrost cycle in units with two circuits:	0	2	1	
		0= Independent				
		1= If both circuits have reached defrost start request 2= If at least one circuit has reached defrost start request				
dF23	С	Defrost cycle end in units with two circuits and single condensing	0	2		
		fan: 0= Independent				
		1= If both circuits have reached defrost end condition				
		2= If at least one circuit has reached defrost end condition				
		Defrost start end from analogue input	1	1	1	-
dF24	С	Probe that determines defrost start end:	0	3		
		0= Start and end with condensing temperature / pressure probe 1= Start with evaporation pressure probe, stop with condensing				
		temperature / pressure prone				
		2= Start with condensing temperature / pressure probe, stop with evaporation pressure probe				
		3= Start and end by evaporation pressure				
		Delivery fan operation in defrost		1	I	1
dF25	С	Delivery fan block during defrosting:	0	1	1	1
	C	0=Not enabled 1=Enabled	Ū	-		
		Defrost with condensing fans	1	1	1	-1
dF26	С	Defrost enable set with condensing fans	-58	230	°F	Int
		Hybrid exchangers				•
dF27	С	Summer exchange temperature/pressure set 1 hybrid exchangers	-58	230	°F	Int
dF28	С	Summer exchange temperature/pressure set 2 hybrid exchangers	-58	230	°F	Int
dF29	С	Summer exchange temperature differential 1 hybrid exchangers	0	45	°F	Int
dF30	С	Summer exchange temperature differential 2 hybrid exchangers	0	45	°F	Int
dF31	С	Winter exchange temperature/pressure set 1 hybrid exchangers	-58	230	°F	Int
dF32	С	Winter exchange temperature/pressure set 2 hybrid exchangers	-58	230	°F	Int
dF33	С	Winter exchange temperature/pressure differential 1 hybrid exchangers	0	45	°F	Int
dF34	С	Winter exchange temperature/pressure differential 2 hybrid exchangers	0	45	°F	Int
	С	Probe for management of hybrid exchangers:	0	1		
dF35		0= Ambient air temperature	1	1	1	
dF35		1= Condensing temperature / pressure Split coils forcing time in summer mode at compressor start				

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Parameter	· Level	Description	Min.	Max.	UM	Resolution
		Dynamic setpoint in defrosting				
dF37	С	Maximum dynamic setpoint increase in defrosting	-203	203	Psi	Int
dF38	С	Dynamic setpoint ambient air temperature setting in defrosting	-58	230	°F	Int
dF39	С	Dynamic setpoint ambient air temperature differential in defrosting	-54	54	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
	1	Heat recovery	1	1		
rC01	С	Recovery operation: 0= Disabled	0	2		
		1= 2 separate circuits 2= 2 circuits in parallel				
rC02	С	Forced step deactivation time.	0	250	Sec	
rC03	С	Forced step deactivation time after rotation of recovery valve.	0	250	Sec	
rC04	C	Minimum operation time in recovery mode.	0	250	Min	
rC05	C	Minimum time lag between recovery end and next recovery.	0	250	Min	
rC06	C	Recovery function disabling set.	0	725	Psi	Int
rC00	C	Recovery function enabling differential.	1	203	Psi	Int
rC07 rC08	C	Maximum disabling time of recovery from condensing pressure / temperature.	0	203	Min	1111
rC09	С	Fans disabling in recovery	0	1		
Pr1	U	User password	0	999		+
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
rr3	<u> </u>	Domestic hot water	0	999		
FS01	IC	Enabling of domestic hot water production or domestic hot water		2	r	
		and free cooling: 0= Disabled 1= Domestic hot water production with common return, heating/ cooling 2= Domestic hot water production with dedicated return, heating/ cooling				
FS02	С	Operating priority: 0= Heating / cooling 1= Domestic hot water 2= Domestic hot water from digital input	0	2		
FS03	С	Domestic hot water setpoint Used to program the working setpoint for the production of domestic hot water	FS05	FS06	°F	Int
FS04	С	Domestic hot water control steps activation band	0	45	°F	Int
FS05	C	Domestic hot water minimum setpoint value Establishes the minimum limit that can be utilised to set the domestic hot water setpoint	-58	FS06	°F	Int
FS06	С	Domestic hot water maximum setpoint value Establishes the maximum limit that can be utilised to set the domestic hot water setpoint	FS05	230	°F	Int
FS07	С	Activation of steps to reach the domestic hot water setpoint: 0= Start all compressors 1= Start compressors and heaters	0	1		
FS08	С	Switch on heaters in domestic hot water temperature control: 0= No 1= Yes	0	1		
FS09	С	Time to start all compressors and heaters in domestic hot water production	0	250	Min	
FS10	С	Outputs energization delay for the production of domestic hot water	0	250	Sec	
FS11	С	Cycle inversion delay during production of domestic hot water	0	250	Sec	1

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Parameter	Level	Description	Min.	Max.	UM	Resolution
FS12	С	Type of Anti-Legionella activation:	0	2		
		0= By time				
		1= By hourly bands 2= Daily				
FS13	С	Time lag between two Anti-Legionella production cycles. If the value is set to 0 the function is disabled.	0	250	by Hours	
FS14	С	Anti-Legionella setpoint	FS15	FS16	°F	Int
FS15	С	Used to set the Anti-Legionella working setpoint Anti-Legionella setpoint minimum value	-58	FS14	°F	Int
F515		Establishes the minimum limit that can be utilised to set the Anti- Legionella setpoint	-38	1514	r	IIIt
FS16	С	Anti-Legionella setpoint maximum value Establishes the maximum limit that can be utilised to set the Anti- Legionella setpoint	FS14	230	°F	Int
FS17	С	Anti-Legionella activation time	0	24.00	by Hours	10 Min
FS18	С	Anti-Legionella activation day:	0	7	5	
		1= Sunday 7= Saturday				
FS19	С	Holding time in Anti-Legionella production	1	250	Min	
FS20	С	Heating elements switch-off band in Anti-Legionella	0	45	°F	Int
FS21	С	Free cooling operation enabling differential	0	45	°F	Int
FS22	С	Free cooling operation hysteresis	0	45	°F	Int
FS23	С	Water setpoint for solar panels integration Used to set the working setpoint of the solar panels	FS25	FS26	°F	Int
FS24	С	Solar panels integration operation band	0	45	°F	Int
FS25	С	Solar panels minimum water set Establishes the minimum limit that can be utilised to set the solar panels setpoint	-58	FS23	°F	Int
FS26	С	Solar panels maximum water set Establishes the maximum limit that can be utilised to set the solar panels setpoint	FS23	230	°F	Int
FS27	С	Domestic hot water outlets inversion delay from starting of domestic hot water pump	0	250	Sec	
FS28	С	Domestic hot water pump off delay from inversion of domestic hot water outlets	0	250	Sec	
FS29	С	Maximum holding time in Anti-Legionella function	0	250	Min	
FS30	С	Domestic hot water production suspension setpoint	-58	230	°F	Int
FS31	С	Domestic hot water production re-enabling differential	0	45	°F	Int
FS32	С	Domestic hot water production suspension minimum duration	0	250	Min	
FS33	С	Domestic hot water pump continuous operation enabling	0	1		
FS34	С	Free cooling pump off time for units with exclusively Free cooling	0	250	Min	
FS35	С	Free cooling pump on time for units with exclusively Free cooling	0	250	Sec	
FS36	С	Maximum holding time in Free cooling	0	250	Min	
FS37	С	Free cooling control setpoint	-58	230	°F	Int
FS38	С	Free cooling control proportional band	0	45	°F	Int
FS39	С	Free cooling valve outlet minimum value	0	100	%	
FS40	С	Free cooling valve outlet maximum value	0	100	%	
FS41	С	Selection of T1 probe for Free cooling: 0= Disabled 1= Pb1 2= Pb2, others.	0	20		
FS42	С	Selection of T1 probe for Free cooling: 0= Disabled 1= <b>Pb1</b>	0	20		
		2= <b>Pb2</b> , others.				
FS43	С	Ambient air set point for condensing fans forcing to maximum speed	-58	230	°F	Int
FS44	С	Ambient air differential for condensing fans forcing to maximum speed	0	45	°F	Int

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Parameter	Level	Description	Min.	Max.	UM	Resolution
FS45	С	Condensing fans control delay time in free cooling	0	250	Min	
FS46	С	Anti-Legionella cycle operation type:	0	3		
		0= Compressors and heaters				
		1= First compressors and then heaters				
		2= Heaters only 3= Compressors only				
FS47	С	Disabling of evaporator pump in domestic hot water production:	0	1		
1947	C	0 = Enabled	0	1		
		1= Disabled				
FS48	С	Selection of probe for forced exit from domestic hot water	0	20		
		production:				
		0= Function disabled				
		1= Probe <b>Pb1</b> 2= Probe <b>Pb2</b>				
		2- 11000 102				
FS49	С	Start domestic hot water temperature control:	0	1		
1547	C	0= On request of all steps	0	1		
		1= On request of first step				
FS50	С	Compressors deactivation setpoint during Anti-Legionella cycle	-58	230	°F	Int
FS51	С	Safety time of compressor in case of domestic hot water request:	0	1	1	
		0= Safety times not observed				
		1= Safety times observed				
FS52	С	Domestic hot water low temperature setpoint	-58	230	°F	Int
FS53	С	Domestic hot water low temperature proportional band	0	45	°F	Int
FS54	С	Selection of probe for low temperature control of domestic hot	0	20		
		water: 0= Not used				
		$1 = \mathbf{Pb1}$				
		2 = Pb2				
FS55	С	Enabling of solar panels in heating / integration with domestic hot	0	2		
		water production:				
		0= Not enabled				
		1= Integration 2= Heating				
FS56	С	Enabling of solar panels in heating or integration with heating:	0	2		
F 330	C	0 = Not enabled	0	2		
		1= Integration				
		2= Heating				
FS57	С	Selection of probe for solar panels Dt in domestic hot water	0	20		
		production				
FS58	С	Selection of probe for solar panels Dt in heating	0	20		
FS59	С	Solar panels enabling Dt in domestic hot water production	0	45	°F	Int
FS60	С	Solar panels enabling Dt in heating	0	45	°F	Int
FS61	С	Solar panels maximum time if set is not satisfied	0	250	Min	
FS62	С	Selection of probe for Free cooling end due to low temperature	0	20		
FS63	С	Free cooling end setpoint due to low temperature	-58	230	°F	Int
FS64	С	Free cooling end differential due to low temperature	0	45	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
		Alarms				
AL01	S	Low pressure alarm delay from digital / analogue input.	0	250	Sec	
AL02	С	Parameter AL02 defines operation of the low pressure alarm with	10	250	10 Sec	
		pump down enabled:				
		AL02=0 The low pressure alarm is inhibited during the				
		compressor stop in pump down and with the compressor stopped				
		$AL02 \neq 0$ The low pressure alarm is inhibited during the				
		compressor stop in				
	1	pump down and with the compressor stopped for the set time.	1	1		



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Parameter	Level	Description	Min.	Max.	UM	Resolution
AL03	С	Analogue input low pressure alarm setpoint.	0	725	Psi	Int
AL04	С	Analogue input low pressure alarm differential.	1	203	Psi	Int
AL05	C	Max. number of trips per hour of digital / analogue input low	0	16	1.01	
ALUS	C	pressure alarm.	0	10		
		Reset is always manual if AL05=0.				
		Reset is always infinitian in AL05–0. Reset is always automatic if AL05=16.				
		Reset switches from automatic to manual if <b>AL05</b> is from 1 to 15.				
11.07	C		0	1		
AL06	С	Low temperature / pressure alarm in defrost: 0= Not enabled	0	1		
		1= Enabled				
	9					
AL07	С	Low temperature / pressure in defrost alarm delay.	0	250	Sec	
AL08	S	Low temperature / pressure alarm with unit in remote OFF or	0	1		
		stand-by:				
		0= Alarm acknowledgement not enabled				
		1= Alarm acknowledgement enabled				
		High alarm				
AL09	С	Analogue input high condensing temperature / pressure alarm	0	725	Psi	Int
		setpoint.				
AL10	С	Analogue input high condensing temperature / pressure	1	203	Psi	Int
	Ĩ	differential.				
		Compressor oil alarm				1
4111	0	*		250	0	-
AL11	С	Digital input low oil pressure / level alarm delay.	0	250	Sec	
AL12	С	Duration of low oil pressure / level alarm input active from digital	0	250	Sec	
		input in steady state operation.				
AL13	С	Max. number of trips per hour of oil low pressure / level alarm.	0	16		
		Reset is always manual if AL13=0.				
		Reset is always automatic if AL13=16.				
		Reset switches from automatic to manual if AL13 is from 1 to 15.				
		Level sensor alarm				- <b>.</b>
AL14	С	Condenser level sensor operation:	0	3	1	Т
	č	0= Disabled	Ŭ	5		
		1= Chiller only				
		2= Heat pump only				
		3= Chiller and heat pump				
AL15	С	Delay of evaporator level sensor / delivery fans thermal cutout	0	250	Sec	_
AL15	C		0	250	Sec	
	-	alarm from evaporator water pump / delivery fan start.				
AL16	С	Maximum holding time of evaporator level sensor alarm before	0	250		
		switching to manual and blocking the evaporator water pump, if it				
		is running.				
AL17	С	Duration of level sensor / fans thermal cutout input active.	0	250	Sec	1
AL18	С	Duration of level sensor / fans thermal cutout input inactive.	0	250	Sec	
		Compressors thermal alarm				
AL19	С	Compressors thermal alarm delay at start	0	250	Sec	
AL19 AL20	C		0		500	
AL20	C	Compressors thermal cutout max. trips per hour.	0	16		
		Reset is always manual if AL20=0.				1
		Reset is always automatic if AL20=16.				
		Reset switches from automatic to manual if AL20 is from 1 to 15.				
		Pump-down alarm				
AL21	С	Maximum number of pump-down alarm trips per hour in stopping	0	16		
		after which the alarm is registered and indicated with a code on				
		the display and activation of the alarm relay + buzzer.				
		Reset is always manual if AL21=0.				
		Reset is always automatic if AL21=16.				
		Reset switches from automatic to manual if AL21 is from 1 to 15.				
AL22	С	Maximum number of pump-down alarm trips per hour in starting	0	16	1	+
	-	after which the alarm is switches to manual reset and is registered	ľ			
		and the alarm relay + buzzer are activated.				
		Reset is always manual if $AL22=0$ .				
		5				1
		Reset is always automatic if AL22=16.				
		The alarm switches from automatic to manual if AL22 is from 1				
		to 15 and on the basis of the configuration of parameter AL23.	1	1	1	1

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Parameter	Level	Description	Min.	Max.	UM	Resolution
AL23	С	Enabling of automatic or manual reset of pump-down alarm in starting if <b>AL22</b> number of trips per hour is reached: 0= Automatic reset remains even if the number of trips per hour is reached 1= Manual reset enabled once the number of trips per hour is reached	0	1		
	1	Anti-freeze alarm in chiller mode			1	
AL24	С	Minimum anti-freeze limit setpoint in chiller mode (from -22°F to AL24).	-58	AL26	°F	Int
AL25	С	Maximum anti-freeze limit setpoint in chiller mode (from AL24 to 158°F).	AL26	230	°F	Int
AL26	U	Chiller anti-freeze alarm set, provides facility to set a temperature value below which the anti-freeze, low ambient air temperature (air/air unit), low air outlet temperature (air/air unit) alarm is tripped (from AL24 to AL25).	AL24	AL25	°F	Int
AL27	S	Anti-freeze alarm differential in chiller mode, low ambient air temperature, low outlet air temperature. Provides the facility to set a temperature differential that determines the alarm reset.	0	45	°F	Int
AL28	С	Anti-Legionella alarm delay, low ambient air temperature, low outlet air temperature in chiller mode. Used to set a time interval during which the temperature must remain below the set imposed by parameter <b>AL26</b> in order for the anti-freeze alarm to trip.	0	250	Sec	
AL29	С	Maximum number of trips/hour of anti-freeze alarm, low air temperature at chiller outlet. Establishes a maximum number of trips per hour of the anti-freeze alarm, low ambient air temperature, low air outlet temperature, after which the alarm switches from automatic reset to manual reset. Reset is always manual if <b>AL29</b> =0. Reset is always automatic if <b>AL29</b> =16. Reset switches from automatic to manual if <b>AL29</b> is from 1 to 15.	0	16		
AL30	С	Anti-freeze alarm operation in chiller mode: 0= stops ONLY the compressors when the temperature read by the anti-freeze control probe falls below the <b>AL26</b> set and signals the anti-freeze alarm but with a label, while not activating the buzzer or the alarm relay 1= stops the compressors when the temperature read by the anti- freeze control probe falls below the <b>AL26</b> set and signals the anti- freeze alarm with label + buzzer + alarm relay.	0	1		
	•	Anti-freeze alarm in heat pump mode			•	•
AL31	С	Minimum anti-freeze limit setpoint in heat pump mode (from - 22°F to AL32).	-58	AL33	°F	Int
AL32	С	Maximum anti-freeze limit setpoint in heat pump mode (from AL31 to 158°F).	AL33	230	°F	Int
AL33	С	Anti-freeze alarm set in heat pump mode. Used to set a temperature value below which the anti-freeze, low ambient air temperature (air/air unit), low air outlet temperature (air/air unit) alarm is tripped (from AL31 to AL32).	AL31	AL32	°F	Int
AL34	С	Anti-freeze alarm differential in chiller mode, low ambient air temperature, low outlet air temperature. Provides the facility to set a temperature differential that determines the alarm reset.	0	45	°F	Int



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Parameter	Level	Description	Min.	Max.	UM	Resolution
AL35	С	Anti-freeze alarm delay (low outlet air temperature in air/air units) at unit start in heat pump mode.	0	250	Sec	
		ATTENTION				
		If in stand-by / remote OFF, the unit presents an anti-freeze				
		alarm situation and the time set in parameter AL35 is different from zero; selecting operation in heat pump mode from control button or digital input the anti-freeze situation is reset and compressor starting is allowed for the time set in parameter				
		AL35 so that the unit heats the water or the air. Once delay time AL35 has elapsed, if the anti-freeze control probe continues to read a temperature < AL33 set for at least AL36 seconds, the unit is blocked and an anti-freeze alarm is generated.				
AL36	С	Anti-Legionella alarm delay, low ambient air temperature, low	0	250	Sec	2
	-	outlet air temperature in heat pump mode. Used to set a time interval during which the temperature must remain below the set imposed by parameter <b>AL33</b> in order for the anti-freeze alarm to trip.				
AL37	С	Maximum number of trips/hour of anti-freeze alarm, low air	0	16		
		temperature at heat pump outlet. Establishes a maximum number of trips per hour of the anti- freeze alarm, low ambient air temperature, low air outlet				
		temperature, after which the alarm switches from automatic reset to manual reset.				
		Reset is always manual if AL37=0. Reset is always automatic if AL37=16. Reset switches from automatic to manual if AL37 is from 1 to 15.				
AL38	С	Anti-freeze alarm operation in heat pump mode:	0	1		
		0= stops ONLY the compressors when the temperature read by the anti-freeze control probe falls below the <i>AL33</i> set and signals the anti-freeze alarm but with a label, while not activating the				
		buzzer or the alarm relay. 1= stops the compressors when the temperature read by the anti- freeze control probe falls below the <b>AL33</b> set and signals the anti-				
		freeze alarm with label + buzzer + alarm relay. Compressors discharge high temperature				
AL39	С	Compressors discharge high temperature alarm set.	32	302	°F	Int
AL40	C	Compressors discharge high temperature alarm differential.	0	45	°F	Int
AL41	С	Maximum number of trips per hour of compressors discharge high temperature alarm.	0	16		
		Establishes a maximum number of trips per hour of the compressors discharge high temperature alarm, after which the alarm switches from automatic reset to manual reset.				
		Reset is always manual if AL41=0. Reset is always automatic if AL41=16. Reset switches from automatic to manual if AL41 is from 1 to 15.				
		Generic unit shut-down alarm				
AL42	С	Maximum number of trips per hour of generic unit shut-down alarm.	0	16		
		Establishes a maximum number of trips per hour of the generic unit shut-down alarm, after which the alarm switches from automatic reset to manual reset.				
		Reset is always manual if AL42=0. Reset is always automatic if AL42=16. Reset switches from automatic to manual if AL42 is from 1 to 15.				
AL43	С	Generic unit shut-down alarm delay time with digital input active.	0	250	Sec	
AL44	C	Generic unit shut-down alarm delay time with digital input inactive.	0	250	10 Sec	10 Sec

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Parameter	Level	Description	Min.	Max.	UM	Resolution
AT 47	C	Alarm relay	10	1	1	_
AL45	С	Enables alarm relay output in remote OFF or stand-by: 0= Alarm output enabled	0	1		
		1= Alarm output disabled				
		Alarms log - compressors thermal alarm reset passw	ord	I		
AL46	С	Value of alarms log, compressors thermal alarm and anti-freeze	0	999	1	
		alarm reset password (refer to procedures)				
AL47	С	Operation of compressor thermal alarm:	0	1		
		0= Blocks single compressor				
		1= Blocks circuit				
AL48	С	Compressor thermal alarm with compressor in OFF:	0	1		
		0= Alarm acknowledgement disabled 1= Alarm acknowledgement enabled				
		5				
1 40	C	Compressor oil alarm management	0	1		1
AL49	С	Oil level sensor / level float alarm with compressor in OFF: 0= Alarm acknowledgement disabled	0	1		
		1= Alarm acknowledgement enabled				
		Unit generic block / signalling alarm no. 2				
AL50	С	Generic alarm no. 2 operation:	0	1	ŀ	1
11.50	C	0= Display- only not dependent on <b>AL51</b> (alarm relay and buzzer	0	1		
		activated) always automatic reset				
		1= the alarm blocks the unit; the alarm reset depends on the value				
		of parameter AL51				
AL51	С	Maximum number of trips per hour of generic unit shut-down	1	16		
		alarm no. 2. Establishes a maximum number of trips per hour of				
		the generic unit shut-down alarm, after which the alarm switches				
		from automatic reset to manual reset				
		Reset is always manual if AL51=0				
		Reset is always automatic if AL51=16				
	~	Reset switches from automatic to manual if AL51 is from 1 to 15			~	-
AL52	C	Generic unit shut-down alarm delay time with digital input active		250	Sec	Sec
AL53	С	Generic unit shut-down alarm delay time with digital input inactive	0	250	Sec	Sec
		High pressure alarm reset	1	1		
AL54	C	Maximum number of trips per hour of high condensing	0	16	1	1
	-	temperature / pressure alarm from digital / analogue input. Reset	Ĩ.			
		is always manual if AL54=0				
		Reset is always automatic if AL54=16				
		Reset switches from automatic to manual if AL54 is from 1 to 15				
		Condenser side water pump flow switch alarm				
AL55	С	Condenser flow switch alarm delay from starting of condenser	0	250	Sec	0
		water pump				
AL56	С	Maximum holding time of condenser flow switch alarm before	0	250	Sec	0
		switching to manual and blocking the condenser water pump, if it				
		is running				
AL57	С	Condenser flow switch input active duration	0	250	Sec	0
AL58	С	Condenser flow switch input inactive duration	0	250	Sec	0
		Evaporator water inlet high temperature alarm				
AL59	С	Max. number of trips per hour of system water inlet high	0	16		
		temperature probe alarm				
		Reset is always manual if AL59=0				
		Reset is always automatic if <b>AL59</b> =16 Reset switches from automatic to manual if <b>AL59</b> is from 1 to 15				
AT 60	C		0	250	500	10 8
AL60	С	Plant water inlet high temperature probe alarm delay from	0	250	Sec	10 Sec
AT 61	С	compressor ON	50	220	°F	Int
AL61		Plant water inlet high temperature probe alarm setpoint	-58	230		Int
AL62	С	Plant water inlet high temperature probe alarm differential	0	45	°F	Int
AL63	С	Configuration of NTC / PTC analogue input for management of	0	20		
		the system water inlet high temperature alarm: 0= Function disabled				
		IV- FUNCTION DISADIED	1	1	1	1



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Parameter	Level	Description	Min.	Max.	UM	Resolution
AL64	С	Low pressure alarm signalling delay from digital input activation	0	250	Sec	
		Domestic hot water pump flow switch alarm				
AL65	С	Domestic hot water pump flow switch alarm delay	0	250	Sec	
AL66	С	Domestic hot water pump flow switch manual alarm delay	0	250	Sec	
AL67	С	Domestic hot water pump flow switch input active duration	0	250	Sec	
AL68	С	Domestic hot water pump flow switch input inactive duration	0	250	Sec	
		Solar panels water pump flow switch alarm		1		
AL69	С	Solar panels flow switch alarm delay	0	250	Sec	
AL70	C	Solar panels flow switch manual alarm delay	0	250	Sec	
AL71	C	Solar panels pump flow switch input active duration	0	250	Sec	
AL71 AL72	C	Solar panels pump flow switch input active duration	0	250	Sec	
AL/2	Ľ		0	250	Sec	
	la	Domestic hot water heater thermal alarm		1.6		1
AL73	С	Maximum number of trips per hour of the domestic hot water	0	16		
		heater thermal alarm. Reset is always manual if AL73=0				
		Reset is always automatic if <b>AL73</b> =16 Reset switches from automatic to manual if <b>AL73</b> is from 1 to 15				
.1.7.4	0	Selection of the anti-freeze alarm reset type	0	11	1	T.
AL74	С	Manual reset anti-freeze alarm with password required:	0	1		
		0= Password not required 1= Password required				
	la	Domestic hot water pump thermal alarm		1.6	1	T
AL75	С	Maximum number of trips per hour of the domestic hot water pump thermal alarm. Reset is always manual if AL75=0	0	16		
		Reset is always automatic if <b>AL75</b> =16				
		Reset is always automatic if AL75-16 Reset switches from automatic to manual if AL75 is from 1 to 15				
		Compressor oil alarm		I		
1176		*	0	11	1	T
AL76	С	Compressor oil alarm as display only:	0	1		
		0= Automatic reset or manual oil alarm (AL13) with compressor block				
		1= Compressor oil alarm as display only				
		Compressor thermal alarm				
.1.77	0	<u>^</u>	0	11	1	T.
AL77	С	Automatic reset compressor thermal alarm:	0	1		
		0= Always manual reset compressor thermal alarm 1= Automatic reset compressor thermal alarm				
AT 70	C		1	202	D.:	T-r-4
AL78	C	Dt for compressor or circuit oil differential alarm	1	203	Psi	Int
AL79	С	Differential for compressor or circuit oil differential alarm reset	1	203	Psi	Int
AL80	С	Maximum number of trips per hour of compressor oil differential	0	16		
		alarm				
		Reset is always manual if AL73=0. Reset is always automatic if AL73=16				
		Reset switches from automatic to manual if AL73 is from 1 to 15				
AL81	С	Enabling for acknowledgement of oil differential pressure alarm:	0	2		
ALOI	C	0 =  Not enabled	0	2		
		1= Enabled for reciprocating compressor				
		2= Enabled for screw compressor				
AL82	С	FC level sensor alarm delay	0	250	Sec	
AL82 AL83	C	FC pump level sensor manual alarm delay	0	250	Sec	
	C		0	250		
AL84		Duration of FC pump level sensor active input			Sec	
AL85	С	Duration of FC pump level sensor inactive input	0	250	Sec	
	1	Level sensor alarm reset type	-		1	_
AL86	С	Level sensor alarm reset type:	0	250		
		0= always manual				
		1= Automatic reset after 1 minute				
		2= Automatic reset after 2 minutes				
		 250- Automatia rasat aftar 250 minutas				
41.07	C	250= Automatic reset after 250 minutes	0	250	S	
AL87	С	Evaporator and domestic hot water level sensor by-pass time from	U	250	Sec	
	1	Out1 or Out2 switching		1	1	1

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Parameter	Level	Description	Min.	Max.	UM	Resolution
AL88	S	Water pumps stop in the event of all compressors stop due to an	0	1		
		alarm				
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		
	•	Laser			•	•
LS01	С	Laser function enable	0	1		
LS02	U	Laser set point	-58	230	°F	Int
LS03	С	Delta t: T1 – T2	32	77	°F	Int
LS04	С	Laser set point calibration error delay time	0	250	Min	
LS05	С	Laser set point calibration error value for Dt	10.4	53.6	°F	Int
LS06	С	T1 sensor selection for Dt calculation	0	20		
LS07	С	T2 sensor selection for Dt calculation	0	20		2
LS08	С	Analogue output operation with laser function	0	10		
LS09	С	LASER proportional factor	32	77	°F	Int
LS10	С	LASER integral factor	0	250	Sec	
LS11	С	LASER derivative factor	0	250	Sec	
LS12	С	LASER period	2	20	Sec	
LS13	С	Minimum activation time of Laser T2 output (if ON/OFF output)	1	10	Sec	
LS14	С	Minimum deactivation time of Laser T3 output (if ON/OFF output)	1	10	Sec	
LS15	С	Derivative sampling time (Sr)	1	10	Sec	
LS16	С	Band adjustment (rS)	10.4	53.6	°F	Int
LS17	С	Integral band limitation (Ar)	32	77	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	С	Manufacturer password	0	999		

#### 7.41.2 Parameters setting

The following table shows the setting of controller parameters on the basis of the various configurations established for the entire range of units.

Certain functions may not be active or available on all models (hence the associated parameters may not be visible on the controller).

If the parameter is not present in the "Value" column, refer to the options listed on the right hand side of the table.

	TAEevo Tech 020	UL	
Parameter	Value 45	MU	Level
ST01	45	°F	U
ST02	41	°F	U
ST03	86	°F	С
ST04	113	°F	С
ST05	68	°F	С
ST06	122	°F	С
ST07	4	°F	U
ST08	4	°F	С
ST09	3		С
ST10	3		С
ST11	0		S
dP01	3		S
dP02	0		S
dP03	0		С
dP04	0		С



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met	ల		_
Parameter	alu	ΠM	eve
dP05	0 Value	<u> </u>	O Level
			S
dP06	0		
dP07	0		S
dP08	0		S
dP09	0		S
dP10	0		S
CF01	1		С
CF02	1		С
CF03	0		С
CF04	1		С
CF05	0		С
CF06	0		С
CF07	1		С
CF08	11		С
CF09	9		C
CF10	0		C
CF11	0		C
CF12	0		C
CF12 CF13	19		C
CF14	0		C
CF14 CF15	0		C
CF15 CF16	0	 °F	S
CF16 CF17	0	°F	S
CF18	0	Psi	S
CF19	0	Psi	S
CF20	0	°F	S
CF21	0	°F	S
CF22	0	°F	S
CF23	0	°F	S
CF24	0	Psi	C
CF25	725	Psi	C
CF26	0	Psi	С
CF27	0	Psi	С
CF28	0	Psi	С
CF29	0	Psi	С
CF30	o7		С
CF31	09		С
CF32	o17		С
CF33	0		С
CF34	03		C
CF35	01		C
CF36	026		C
CF37	0		C
CF38	0		C
CF38	043	-	C
CF39 CF40	043		C
			C
CF41	c51		
CF42	0		C
CF43	0		С
CF44	0		С
CF45	o1		С

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L	TAEevo Tech 020	UL	
Parameter	Value	M	D Level
CF46	0		C
CF47	c2		С
CF48	0		С
CF49	0		С
CF50	0		С
CF51	0		С
CF52	0		С
CF53	0		С
CF54	See Ch. 7.41.3		U
CF55	0		С
CF56	0	°F	С
CF57	0	°F	С
CF58	0		С
CF59	0		С
CF60	86	°F	С
CF61	18	°F	С
CF62	1		С
CF63	1		S
CF64	1		U
CF65	not used		С
CF66	not used		С
CF67	0		C
CF68	0		С
CF69	0		С
CF70	0		С
CF71	0		C
CF72	0		С
CF73	0		С
CF74	0		С
CF75	0		С
CF76	1		C
CF77	1		С
CF78	0		С
CF79	0		С
CF80	0		С
CF81	0		С
CF82	0		С
CF83	0	Sec	С
CF84	0		С
EI01	1		С
EI02	0		С
E103	0		С
EI04	0		С
E105	0		С
E106	0		С
EI07	0		С
E108	0		С
E109	0		С
EI10	0	°F	С
EI11	0	°F	С
EI12	0	Psi	С



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	TALEVO TECH 02	20 01	
Parameter			
ram	Value	5	C Level
Pa		MU	Le
EI13	0	Psi	С
EI14	0	°F	С
EI15	0	°F	С
EI16	0	°F	С
EI17	0	°F	С
EI18	0	Psi	С
EI19	0	Psi	С
EI20	0	Psi	С
EI21	0	Psi	С
EI22	0	Psi	С
EI23	0	Psi	С
EI24	0		C
E125	0		C
E125	0		C
E120	0		C
EI28	0		C
EI29	0	-	C
EI30	0		C
EI31	0	-	C
EI32	0		С
EI33	0		C
EI34	0		C
EI35	0		С
EI36	0		С
EI37	0		C
EI38	0		С
EI39	0		С
EI40	0		С
EI41	0		С
EI42	0		С
EI43	0		C
	-		
Sd01	0	°F	U
Sd01 Sd02	0	°F	C
Sd02 Sd03	39	°F	U
		°F	C
Sd04	0	°F	U
Sd05	54		
Sd06	0	°F	C
Sd07	0	°F	C
Sd08	0	°F	С
Sd09	0	°F	С
Sd10	0	°F	С
Sd11	0	°F	С
Sd12	0	°F	С
Sd13	0	°F	С
Sd14	0	°F	С
Sd15	0	°F	С
Sd16	0	°F	С
Sd17	0	°F	C
Sd17	0	°F	C
Sd19	0	°F	C
Sd19 Sd20	0	°F	C
5440	U U	1	



	TAEevo Tech	020 UL	
Parameter			
me	<u>e</u>		-
ara	Value	MU	eve
Sd21	0	°F	D Level
Sd21 Sd22	0	°F	C
Sd23	0	°F	C
Sd24	0	°F	С
Sd25	0	°F	С
Sd26	0	°F	С
Sd27	32	°F	С
Sd28	32	°F	С
Sd29	0	°F	С
Sd30	0	°F	С
7.04			
ES01	0	Time	C
ES02	0	Time	С
ES03	0	Time	С
ES04	0	Time	С
ES05	0	Time	С
ES06	0	Time	С
ES07	0-0		С
ES08	0-0		С
ES09	0-0		C
ES10	0-0		C
ES10 ES11	0-0		C
ES11 ES12	0-0		C
ES12 ES13	0-0		C
		 °F	
ES14	37		C
ES15	5	°F	C
ES16	27	°F	С
ES17	2	°F	С
ES18	1	10 Min	C
ES19	0	Time	С
ES20	0	Time	C
ES21	0	Time	С
ES22	0	Time	С
ES23	0	Time	С
ES24	0	Time	С
ES25	0		C
ES26	0		C
ES27	0		C
ES27	0		C
ES28 ES29	0		C
	0		
ES30			C
ES31	0		C
ES32	0	°F	C
ES33	1	°F	С
Cr01	0		С
Cr02	0	Psi	C
			C
Cr03	0	Psi	
Cr04	0	Psi	C
Cr05	1	Psi	C
Cr06	0	Psi	C
Cr07	1	Psi	C



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Parameter	Value	MU	O Level
Cr08	0		С
Cr09	0		С
		1	
CO01	14	10 Sec	С
CO02	22	10 Sec	C
CO03	1	Sec	С
CO04	0	Sec	C
C005	3	10 Sec	C
C006	0		C
C007	1		C
C008	0	Sec	C
C009	0	Sec	C
CO10	0		C
		 0.1 Sec	
C011	0 5		C C
CO12		Sec	C
C013	0	Sec	
C014	0		S
C015	0		S
CO16	1		S
CO17	6	10 Sec	S
CO18	2	Min	S
CO19	4	10 Hours	U
CO20	2	Sec	S
CO21	0		С
CO22	0		C
CO23	0	Min	С
CO24	0	10 Hours	С
CO25	0	Sec	С
CO26	0	10 Hours	S
CO27	0	10 Hours	S
CO28	0	10 Hours	S
CO29	0	10 Hours	S
CO30	0	10 Hours	С
CO31	0	10 Hours	С
CO32	0	10 Hours	S
CO33	0	10 Hours	S
CO34	0	10 Hours	C
CO35	0	10 Hours	C
CO36	0		C
CO37	15	Psi	C
CO38	7	Psi	C
CO39	30	Sec	C
CO40	104	°F	C
CO40 CO41	18	°F	C
CO41 CO42	18	Il Sec	C
CO42 CO43	5	Min	C
CO44	566	Psi	S
CO45	30	Psi	S
CO46	29	Psi	C
CO47	22	Psi	С
CO48	5	Min	S
CO49	1		С



	TAEevo Tech	020 UL	
Parameter	Value	MU	O Level
CO50	0	Sec	C
CO51	32	°F	С
CO52	1	°F	С
CO53	3	10 Min	S
CO54	0	Hours	С
CO55	-58	°F	С
CO56	1	°F	С
CO57	0	Min	С
CO58	0	Sec	С
CO59	0	Sec	С
CO60	0	Sec	C
CO61	0		C
CO62	0	Sec	C
CO62 CO63	0	%	C
C063 C064	0	10 Min	C
CO64 CO65	0	Sec	C
CO65 CO66	0		C
		Hours %	C
CO67	1		
CO68	1	%	C
CO69	1	%	C
CO70	1	%	C
C071	1	Sec	C
CO72	0		С
CO73	0	10 Hours	С
CO74	0	10 Hours	С
CO75	0	Sec	С
CO76	1		С
CO77	1		С
CO78	1		С
CO79	1	%	С
CO80	1	%	C
CO81	1	%	С
CO82	32	°F	С
CO83	1	°F	С
CO84	0	%	С
CO85	0	10 Min	С
CO86	0	10 Hours	С
CO87	0	10 Sec	С
CO88	0	10 Min	С
CO89	0	10 Hours	С
CO90	0	10 Sec	C
CO91	0	10 Sec	C
CO92	0	Sec	C
CO93	0	Sec	C
C094	1	%	C
C095	0	10 Hours	C
CO96	1	%	C
0.070	1	/0	U
u\$01	0		С
uS01 uS02	0		C
uS03	32	°F	C
uS04	32	°F	С

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Parameter	Value	MU	O O Level
uS05	32	°F	C
uS06	32	°F	С
uS07	32	°F	C
uS08	32	°F	C
uS09	1	°F	C
uS09	1	°F	C
uS10 uS11	0		C
uS11 uS12	1		C
uS12 uS13	32	 °F	C
uS13 uS14		°F	C
	32		
uS15	32	°F	С
uS16	32	°F	С
uS17	32	°F	С
uS18	32	°F	С
uS19	1	°F	С
uS20	1	°F	С
uS21	0	Min	С
uS22	0		С
uS23	1	-	С
uS24	32	°F	С
uS25	32	°F	С
uS26	32	°F	С
uS27	32	°F	С
uS28	32	°F	С
uS29	32	°F	C
uS30	1	°F	C
uS31	1	°F	C
uS31 uS32	0	%	C
uS32 uS33	100	%	C
uS33	0		C
uS34 uS35	0		C
u835 u836	32	 °F	C
uS37	32	°F	С
uS38	32	°F	C
uS39	32	°F	С
uS40	32	°F	С
uS41	32	°F	С
uS42	1	°F	С
uS43	1	°F	С
uS44	0	%	С
uS45	100	%	С
uS46	1		С
uS47	0		С
uS48	0		С
uS49	32	°F	С
uS50	1	°F	С
uS51	0	%	C
uS52	100	%	C
uS52	0		C
uS54	0		C
	32	 °F	C
u\$55			
uS56	1	°F	С

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	TAEevo Tech	020 UL	
ter			
Parameter	ల		_
ara	⁄alue	X	eve
	>	5	O Level
uS57	0	%	
uS58	100	%	С
uS59	0	%	С
uS60	0	%	С
uS61	1		С
uS62	1		С
uS63	1		С
uS64	1		C
u504	1		C
E 4 0 1	0		0
FA01	0		C
FA02	0		С
FA03	10	Sec	С
FA04	4	250 µsec	С
FA05	0		С
FA06	0	sec	С
FA07	30	%	C
FA08	100	%	C
FA08 FA09			C
	357	Psi	
FA10	406	Psi	C
FA11	90	Psi	С
FA12	7	Psi	C
FA13	15	Psi	C
FA14	0	Sec	С
FA15	90	%	С
FA16	30	%	C
			C
FA17	100	%	
FA18	112	Psi	C
FA19	175	Psi	С
FA20	42	Psi	С
FA21	22	Psi	С
FA22	36	Psi	C
FA23	90	%	С
FA24	77	°F	C
		°F	
FA25	9		C
FA26	0	Psi	С
FA27	0	Psi	C
FA28	0	Psi	С
FA29	0	Psi	С
FA30	0	Sec	С
FA31	0	Sec	С
FA32	32	°F	C
FA32 FA33	0	%	C
TA33	0	/0	
1.01			
Ar01	37	°F	S
Ar02	4	°F	S
Ar03	37	°F	С
Ar04	4	°F	С
Ar05	0		C
Ar06	0		C
Ar07	0		C
Ar08	0		С
Ar09	1		С



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		-	
rameter	Value	v	co Level
Pa	Va	UM	Le
Ar10	1		S
Ar11	0		С
Ar12	113	°F	С
Ar13	4	°F	C
Ar14	0	Min	C
Ar15	104	°F	C
Ar16	4	°F	C
		°F	C
Ar17	113		C
Ar18	4	°F	
Ar19	113	°F	С
Ar20	4	°F	С
Ar21	3		С
Ar22	3		С
Ar23	0		С
Ar24	0		S
Ar25	0		С
Ar26	37	°F	С
Ar27	4	°F	С
dF01	0		С
dF02	68	Psi	C
dF03	290	Psi	C
dF04	180	Sec	C
dF04 dF05	5	Min	C
dF05 dF06	5		C
		Min	C
dF07	10	Sec	
dF08	10	Sec	C
dF09	10	Min	C
dF10	37	°F	C
dF11	50	°F	С
dF12	37	°F	C
dF13	50	°F	С
dF14	1		С
dF15	1	-	С
dF16	30	Sec	С
dF17	1		С
dF18	329	Psi	С
dF19	10	Sec	С
dF20	44	Psi	C
dF21	7	Psi	C
dF22	2		C
dF23	1		C
dF24	0		C
dF24 dF25	0		C
dF26	47	°F	C
dF27	32	°F	C
dF28	32	°F	C
dF29	1	°F	С
dF30	1	°F	С
dF31	32	°F	С
dF32	32	°F	С
dF33	1	°F	С

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	TAEevo Tech (	020 UL	
Parameter			
ram	Value	-	vel
		°F	Lev
dF34	1	°F	D Level
dF35	0		С
dF36	0	Sec	С
dF37	-30	Psi	С
dF38	41	°F	С
dF39	27	°F	С
rC01	0		C
rC02	5	Sec	С
rC03	5	Sec	С
rC04	1	Min	С
rC05	1	Min	C
rC06	505	Psi	C
rC07	36	Psi	C
rC08	2	Min	C
rC08	1	IVIIII	C
1007	1		
FS01	0		C
FS01 FS02	0		C
FS02 FS03	-	 °F	
	68		C
FS04	1	°F	C
FS05	32	°F	C
FS06	158	°F	C
FS07	0		C
FS08	0		С
FS09	0	Min	С
FS10	0	Sec	С
FS11	0	Sec	С
FS12	0		C
FS13	0	Hours	С
FS14	50	°F	C
FS15	50	°F	С
FS16	158	°F	С
FS17	0	Time	С
FS18	0		С
FS19	1	Min	C
FS20	1	°F	C
FS21	1	°F	C
FS22	1	°F	C
FS23	86	°F	C
FS23	1	°F	C
FS24 FS25	86	°F	C
FS25 FS26	91	°F	C
FS27 FS28	0	Sec	C
	0	Sec	C
FS29	0	Min	C
FS30	32	°F	C
FS31	1	°F	С
FS32	0	Min	С
FS33	0		С
FS34	0	Min	С
FS35	0	Sec	С



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Parameter	Value	MC	D Level
FS36	0	Min	C
FS37	32	°F	C
FS38	1	°F	C
FS39	0	%	C
FS40	100	%	C
FS40	0		C
FS41 FS42	0		C
F 542 F 543		°F	C
	32		
FS44	1	°F	C
FS45	0	Min	C
FS46	0		C
FS47	0		C
FS48	0		С
FS49	0		С
FS50	32	°F	С
FS51	0		С
FS52	32	°F	С
FS53	1	°F	С
FS54	0		С
FS55	0		С
FS56	0		C
FS57	0		C
FS58	0		C
FS59	1	°F	C
FS60	1	°F	C
F 560 F 561			C
	0	Min	
FS62	0		C
FS63	32	°F	C
FS64	1	°F	С
AL01	45	Sec	S
AL02	2	10 Sec	C
AL02 AL03	45	Psi	C
AL03 AL04	43	Psi	C
AL05	3		C
AL06	0		C
AL07	0	Sec	С
AL08	0		S
AL09	577	Psi	С
AL10	87	Psi	С
AL11	120	Sec	C
AL12	5	Sec	C
AL13	3		С
AL14	0		С
AL15	10	Sec	С
AL16	0	Sec	C
AL17	5	Sec	C
AL18	5	Sec	C
AL10 AL19	0	Sec	C
AL20	0		C
AL21	0		C
AL22	0		C

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	TAEevo Tech 02	20 UL	
ler			
Parameter	0		_
ıraı	Value	MU	D Level
		5	Le
AL23	0		С
AL24	9	°F	С
AL25	59	°F	С
AL26	39	°F	U
AL27	7	°F	S
AL28	3	Sec	C
AL28 AL29			
	3		C
AL30	1		С
AL31	37	°F	С
AL32	43	°F	С
AL33	39	°F	С
AL34	4	°F	C
AL35	3	Sec	C
AL35 AL36	3	Sec	C
AL37	3		C
AL38	1		С
AL39	158	°F	С
AL40	18	°F	С
AL41	1		C
AL42	2		C
AL43	1	Sec	C
AL43 AL44			
	1	10 Sec	C
AL45	0		С
AL46	14		С
AL47	1		С
AL48	0		С
AL49	0		С
AL50	0		C
AL51	0		C
AL52	0	Sec	C
AL53	0	10 Sec	C
AL54	0		С
AL55	0	Sec	С
AL56	0	Sec	С
AL57	0	Sec	С
AL58	0	Sec	C
AL50 AL59	0		C
AL59 AL60	0	10 Sec	C
AL61	230	°F	С
AL62	7	°F	С
AL63	0		С
AL64	30	Sec	С
AL65	0	Sec	С
AL66	0	Sec	C
AL67	0	Sec	C
AL68	0	Sec	C
AL69	0	Sec	С
AL70	0	Sec	С
AL71	0	Sec	С
AL72	0	Sec	С
AL73	0		C
AL73 AL74	0	_	C
AL/4	U		



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Parameter	Value	MU	O Level
AL75	0		C
AL76	0		C
AL77	0		C
AL78	1	Psi	C
AL79	1	Psi	C
AL80	0		C
AL81	0		C
AL82	0	Sec	C
AL83	0	Sec	C
AL84	0	Sec	C
AL85	0	Sec	C
AL86	0	Min	C
AL87	0	Sec	C
AL88	0		S
LS01	0		C
LS02	59	°F	U
LS03	0	°F	C
LS04	1	Min	C
LS05	4	°F	С
LS06	0		C
LS07	0		C
LS08	5		C
LS09	4	°F	C
LS10	100	Sec	C
LS11	5	Sec	C
LS12	11	Sec	C
LS13	3	Sec	C
LS14	1	Sec	C
	1	Sec	C
LS15	0	°F	C
LS15 LS16		1	
	0	°F	C
LS16	0 23	°F	C U
LS16 LS17			

eter				Fans co	ntrol
Parameter	Value	MU	Level	ON/OFF	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	С		
ST04	113	°F	С		
ST05	68	°F	С		
ST06	122	°F	С		
ST07	4	°F	U		
ST08	4	°F	С		
ST09	3		С		
ST10	3		С	1	
ST11	0		S	1 1	

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ter	TAEevo			Fans co	ontrol
Parameter	Value	MU	Level	ON/OFF	EC
1P01	3		S		
1P02	0		S	1	
1P03	0		C		
iP04	0		С		
1P05	0		С		
1P06	0		S		
1P07	0		S		
1P08	0		S		
1P09	0		S		
1P10	0		S	+ +	
			-	1 1	
CF01	1		С		
CF02	1		C		
CF03	0		C		-
CF04	1		C		
CF05	0		C		
F06	0		C		
F07	1		C		
CF08	11		C		
CF09	9		C		
CF10			C	0	27
F11	0		C		27
F12	0		C		
F13	19		C	+	_
F14	0		C		
F15	0		C		
F16	0	°F	S		
F17	0	°F	S		
F17	0	Psi	S		
F10	0	Psi	S		~
F19	0	°F	S		
F20	0	°F	S		
F21		°F	S		
F22 F23	0	°F	S		
F23				┥──┤	
	0	Psi	C		
CF25 CF26	725	Psi Psi	C	┥──┤	
	-			┥──┤	
F27	0	Psi	C		
F28	0	Psi	C		
F29	0	Psi	C		
F30	07		C	↓↓	
F31	09		C	↓	
F32	017		C	↓↓	
F33	0		C	↓↓	
F34	03		С		
F35	01		С		
CF36	026		С		
CF37	0		С		
CF38	023		С		
F39	043		С		
F40	0		С	1 T	



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met	43			Fans co	
Parameter	Value	MU	Level	ON/OFF	EC
CF41	c51		С		
CF42	0		С		
CF43	0		С		
CF44	0		С		
CF45	01		С		
CF46	0		С		
CF47	c2		С		
CF48	0		С		
CF49	0		С		
CF50			С	0	8
CF51	0		С		
CF52	0		С		
CF53	0		С		
CF54	See Ch. 7.41.3		U		
CF55	0		С		
CF56	0	°F	С		
CF57	0	°F	С		
CF58	0		С		
CF59	0	-	C		
CF60	86	°F	С		
CF61	18	°F	C		
CF62	1		C		
CF63	1	-	S		
CF64	1	-	U		
CF65	not used	-	C		
CF66	not used		С		
CF67	0		С		
CF68	0		С		
CF69	0		C		
CF70	0		С		
CF71	0		C		
CF72	0		С		
CF73	0		С		
CF74	0		С		
CF75	0		C		
CF76	1		C		
CF77	1		C		
CF78	0		C		
CF79	0		C		
CF80	0		C		
CF81	0		C		
CF82	0		C	1	
CF83	0	Sec	C		
CF84	0		C		
EI01	1		С		
EI01	0		C	+	
EI02	0		C		
EI04	0		C		
EI05	0		C	1 1	
E106	0		C		
EI07	0		С	1 1	

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L.	TAECVO	TAEevo Tech 031÷16			Fans control		
Parameter	0 Value	MU	D Level	ON/OFF	EC		
EI08	>		- T				
E100 E109	0	_	C				
		 °F					
EI10	0		C				
EI11	0	°F	C				
EI12	0	Psi	С				
EI13	0	Psi	С				
EI14	0	°F	С				
EI15	0	°F	С				
EI16	0	°F	С				
EI17	0	°F	С				
EI18	0	Psi	С				
EI19	0	Psi	С				
EI20	0	Psi	С				
I21	0	Psi	С				
EI22	0	Psi	C		-		
122	0	Psi	C				
EI24	0		C				
EI25	0		C		_		
E125 E126	0		C				
2126	0		C				
128	0		C				
129	0		C \				
130	0		С				
131	0		С				
132	0		C				
133	0		С				
134	0		С				
135	0		С				
136	0		C				
137	0		С				
138	0		C				
139	0		C				
			C				
140	0						
I41	0		C				
142	0		C				
143	0		C				
		-					
d01	0	°F	U				
d02	0	°F	С				
d03	39	°F	U	1			
d04	0	°F	С				
d05	54	°F	U				
d06	0	°F	С				
d07	0	°F	C	+ +			
d08	0	°F	C	+ +			
d09	0	°F	C	+			
	0	°F	C	┥──┤			
d10							
d11	0	°F	C	↓↓			
d12	0	°F	C				
d13	0	°F	С				
d14	0	°F	С				
d15	0	°F	С				



Chapter 7 - Electronic control

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me	9		_		
Parameter	0 Value	°F	O Level	ON/OFF	EC
Sd16	0	°F	C		
Sd17	0	°F	С		
Sd18	0	°F	С		
Sd19	0	°F	С		
Sd20	0	°F	C		
Sd21	0	°F	C		
Sd22	0	°F	C		
Sd23	0	°F	C		
Sd24	0	°F	C		
Sd25	0	°F	C		
Sd26	0	°F	C		
Sd20 Sd27	32	°F	C		
Sd27 Sd28	32	°F	C		
Sd20 Sd29	0	°F	C	-	
Sd29 Sd30	0	°F	C		
5450	U	Г			
ES01	0	Time	C		_
ES01 ES02					_
ES02 ES03	S02         0         Time         C           S03         0         Time         C				
ES03 ES04					
ES04 ES05	0	Time	C		
			C		
ES06 ES07	0-0	Time	C		_
		-			
ES08	0-0		C		
ES09	0-0		C		
ES10	0-0		C		
ES11	0-0		C		
ES12	0-0		C		
ES13	0-0		C		
ES14	37	°F	С		
ES15	5	°F	C		
ES16	27	°F	С		
ES17	2	°F	С		
ES18	1	10 Min	С		
ES19	0	Time	С		
ES20	0	Time	C		
ES21	0	Time	С		
ES22	0	Time	С		
ES23	0	Time	С		
ES24	0	Time	С		
ES25	0		С		
ES26	0		С		
ES27	0		С		
ES28	0		С		
ES29	0		С	1 1	
ES30	0		С	1 1	
ES31	0		С		
ES32	0	°F	С		
ES33	1	°F	C	+ +	
-		`	I		
Cr01	0		C		
Cr02	0	Psi	С	+ +	

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5		vo Tech 031÷16		Fans	Fans control	
Parameter	Value	UM	Level	ON/OFF	EC	
Cr03	0	Psi	С			
Cr04	0	Psi	С			
Cr05	1	Psi	С			
Cr06	0	Psi	С			
Cr07	1	Psi	С			
Cr08	0		С			
Cr09	0		С	1		
CO01	14	10 Sec	С			
CO02	22	10 Sec	С			
CO03	1	Sec	С			
CO04	0	Sec	С			
CO05	3	10 Sec	С			
CO06	0		С			
CO07	1		С			
CO08	0	Sec	С			
CO09	0	Sec	С			
CO10	0		С			
CO11	0	0.1 Sec	С			
CO12	5	Sec	С			
CO13	0	Sec	С			
CO14	0		S			
CO15	0		S			
CO16	1		S			
CO17	6	10 Sec	S			
CO18	2	Min	S			
CO19	4	10 Hours	U			
CO20	2	Sec	S			
C <b>O21</b>	0		С			
CO22	0		С			
CO23	0	Min	С			
CO24	0	10 Hours	С			
CO25	0	Sec	С			
CO26	0	10 Hours	S			
CO27	0	10 Hours	S			
CO28	0	10 Hours	S	1		
CO29	0	10 Hours	S	1 1		
CO30	0	10 Hours	C	1 1		
CO31	0	10 Hours	C	1 1		
CO32	0	10 Hours	S	1 1		
CO33	0	10 Hours	S			
CO34	0	10 Hours	C			
CO35	0	10 Hours	C			
CO36	0		C	+ +		
CO37	15	Psi	C			
CO38	7	Psi	C	+ +		
CO39	30	Sec	C	+ +		
CO40	104	°F	C	+ +		
CO40	18	°F	C	┨───┤		
CO41 CO42	18	10 Sec	C			
CO42 CO43	5	Min	C	+ +		
CO43 CO44	566	Psi	S	+ +		
0044	500	F 51	0	1		



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T		İ		Fans co	ontrol
Parameter	Value 05	MU	w Level	ON/OFF	EC
<u>م</u> CO45		Psi	Ĩ	┥──┤	
CO46	29	Psi	C		
CO47	22	Psi	С		
CO48	5	Min	S		
CO49	1		C		
CO50	0	Sec	C		
CO51	32	-	C		
CO52	1	°F	C		
CO53	3	10 Min	S		
CO54	0	Hours	C		
C055	-58	°F	C		
CO56	1	°F	С		
CO57	0	Min	С		
CO58	0	Sec	С		
CO59	0	Sec	С		
CO60	0	Sec	С		
CO61	0		С		
CO62	0	Sec	С		
CO63	0	%	С		
CO64	0	10 Min	С		
CO65	0	Sec	C		
CO66	0	Hours	С		
CO67	1	%	С		
CO68	1	%	С		
CO69	1	%	С		
CO70	1	%	С		
CO71	1	Sec	С		
CO72	0		С		
CO73	0	10 Hours	С		
CO74	0	10 Hours	С		
CO75	0	Sec	С		
CO76	1		С		
CO77	1		С		
CO78	1		С		
CO79	1	%	C		
CO80	1	%	C		
CO81	1	%	C		
CO82	32	°F	C	+ +	
CO82 CO83	1	°F	C	+ +	
CO83	0	%	C	+ +	
CO84 CO85	0	10 Min	C		
CO86	0	10 Milli 10 Hours	C		
CO86 CO87	0	10 Hours 10 Sec	C	┥──┤	
CO87	0		C	┥──┤	
C088 C089	0	10 Min	C		
		10 Hours			
CO90	0	10 Sec	C		
CO91	0	10 Sec	C	┥──┤	
CO92	0	Sec	C	↓ ↓	
CO93	0	Sec	C	↓ ↓	
CO94	1	%	C		
CO95	0	10 Hours	С		
CO96	1	%	С	1	

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eter				Fans control	
Parameter	Value	Ш	Level	ON/OFF	EC
uS01	0		C	<u>г г</u>	
uS01 uS02	1		C	++	
uS02 uS03	32	°F	C	++	
uS03 uS04	32	°F	C		
uS04 uS05	32	°F	C		
uS05 uS06	32	°F	C		
uS00 uS07	32	°F	C		
1507	32	°F	C		
uS08 uS09	1	°F	C		
uS09 uS10		°F	C		
1810	1 0	-F	C		
1511	1		C		
		 °F	-		
1813	32		C		
1814	32	°F	C		_
uS15	32	°F	C		
uS16	32	°F	C		
1817	32	°F	C		
uS18	32	°F	C		
uS19	1	°F	С		
uS20	1	°F	C		
1821	0	Min	C		
1822	0		С		
IS23	1		С		
S24	32	°F	С		
IS25	32	°F	С		
S26	32	°F	С		
S27	32	°F	С		
S28	32	°F	С		
S29	32	°F	С		
S30	1	°F	C		
S31	1	°F	С		
S32	0	%	С		
S33	100	%	С		
S34	0		С		
1835	1		C	+ +	
1836	32	°F	C	+ +	
S37	32	°F	C	+ +	
S38	32	°F	C	+ +	
S39	32	°F	C		
S40	32	°F	C		
IS40	32	°F	C		
S42	1	°F	C	+	
S42 S43	1	°F	C	+	
S43	0	Г %	C	+	
844 845	100	%	C	├	
S46	1		C		
S47	0		C		
1848	0		C		
1849	32	°F	С		
1850	1	°F	С		
S51	0	%	С	I T	



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met		1		Fans co	
Parameter	Value	MU	D Level	ON/OFF	EC
uS52	100	%			
uS53	0		С		
uS54	0		С	1	
uS55	32	°F	С		
uS56	1	°F	С	1	
uS57	0	%	С	1 1	
uS58	100	%	С	† †	
uS59	0	%	С	1 1	
uS60	0	%	С	† †	
uS61	1		С	† †	
uS62	1		С		
uS63	1		С		
uS64	1		С		
		I	1		
FA01			С	0	4
FA02	0		C		
FA03	10	Sec	C		
FA04	4	250 µsec	C		_
FA04 FA05	0		C		
FA05	0	sec	C		
FA00 FA07	v	%	C	30	10
FA07 FA08	100	/0 %	C	50	10
FA08 FA09	100	Psi	C	357	273
FA10	406	Psi	C	551	213
FA10 FA11	400	Psi	C	90	109
FAI1 FA12	7	Psi	C	90	109
FA12 FA13	15	Psi	C		
FA14	0	Sec	C	00	100
FA15	20	%	C	90	100
FA16	30	%	C		
FA17	100	%	C		
FA18	112	Psi	C		
FA19	175	Psi	C		
FA20	42	Psi	C		
FA21	22	Psi	C		
FA22	36	Psi	C		
FA23	90	%	С		
FA24	77	°F	C		
FA25	9	°F	С		
FA26	0	Psi	С		
FA27	0	Psi	С		
FA28	0	Psi	С		
FA29	0	Psi	С		
FA30	0	Sec	С		
FA31	0	Sec	С	1 1	
FA32	32	°F	С	1 1	
FA33	0	%	С	1 1	
			•		
Ar01	37	°F	S	T	
Ar02	4	°F	S	† †	
Ar03	37	°F	С	† †	
Ar04	4	°F	С	+ +	

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T.		o Tech 031÷16		Fans co	ntrol
Parameter	0 Value	UM	O Level	ON/OFF	EC
Ar05	0				
Ar06	0		С		
Ar07	0		С	1 1	
Ar08	0		С		
Ar09	1		С		
Ar10	1		S		
Ar11	0		C		
Ar12	113	°F	C		
Ar13	4	°F	C		
Ar14	0	Min	C		
Ar14 Ar15	104	°F	C	┥───┤	
Ar16	4	°F	C		
Ar17	113	°F	С		
Ar18	4	°F	С		
Ar19	113	°F	С		
Ar20	4	°F	С		
Ar21	3		С		
Ar22	3		С		
Ar23	0	/	С		
Ar24	0		S		
Ar25	0		C		_
Ar26	37	°F	C		
Ar27	4	°F	C		_
127	Ŧ	Г	C		
F01	0	_	C	T. T	
	0		C		
F02	68	Psi	C		
F03	290	Psi	С		
F04	180	Sec	С		
F05	5	Min	C		
F06	5	Min	С		
E07	10	Sec	C		
IFU/	10	500			
	10	Sec	С		
F08			C C		
IF08 IF09	10	Sec			
F08 F09 F10	10 10	Sec Min	С		
F08 F09 F10 F11	10 10 37 50	Sec Min °F °F	C C C		
IF08 IF09 IF10 IF11 IF12	10 10 37 50 37	Sec Min °F °F °F	C C C C		
F08 F09 F10 F11 F12 F13	10 10 37 50 37 50	Sec Min °F °F °F °F	C C C C C		
F08 F09 F10 F11 F12 F13 F14	10 10 37 50 37 50 1	Sec Min °F °F °F °F 	C C C C C C C C		
F08       F09       F10       F11       F12       F13       F14       F15	10 10 37 50 37 50 1 1	Sec           Min           °F           °F           °F	C C C C C C C C		
IF08       IF09       IF10       IF11       IF12       IF13       IF14       IF15       IF16	10 10 37 50 37 50 1 1 30	Sec           Min           °F           °F           °F           °F           °F           Sec	C C C C C C C C C C C C		
F08           F09           F10           F11           F12           F13           F14           F15           F16           F17	10 10 37 50 37 50 1 1 30 1	Sec           Min           °F           °F           °F           °F           Sec              Sec	C           C		
F08           F09           F10           F11           F12           F13           F14           F15           F16           F17           F18	10 10 37 50 37 50 1 1 30 1 329	Sec Min °F °F °F °F  Sec  Psi	C           C		
F08           F09           F10           F11           F12           F13           F14           F15           F16           F17           F18	10 10 37 50 37 50 1 1 30 1	Sec           Min           °F           °F           °F           °F           Sec              Sec	C           C		
F08           F10           F11           F12           F13           F14           F15           F16           F17           F18           F19	10 10 37 50 37 50 1 1 30 1 329	Sec Min °F °F °F °F  Sec  Psi	C           C		
F08           F10           F11           F12           F13           F14           F15           F16           F17           F18           F19           F20	10 10 37 50 37 50 1 1 30 1 329 10	Sec Min °F °F °F °F  Sec  Sec Psi Sec	C           C		
F08           FF09           FF10           FF11           FF12           FF13           FF14           FF15           FF16           FF17           FF18           FF19           F20           F21	10 10 37 50 37 50 1 1 30 1 329 10 44	Sec Min °F °F °F °F  Sec  Psi Sec Psi	C           C		
IF08         IF09         IF10         IF11         IF12         IF13         IF14         IF15         IF16         IF17         IF18         IF19         IF21         IF22	10 10 37 50 37 50 1 1 30 1 329 10 44 7	Sec Min °F °F °F °F  Sec  Psi Sec Psi Psi Psi 	C           C		
IF08           IF09           IF10           IF11           IF12           IF13           IF14           IF15           IF16           IF17           IF18           IF19           IF20           IF21           IF22           IF23	$ \begin{array}{r} 10\\ 10\\ 37\\ 50\\ 37\\ 50\\ 1\\ 1\\ 30\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 1 \\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 1\\ 329\\ $	Sec Min °F °F °F °F  Sec  Psi Sec Psi Psi Psi  	C           C		
IF08         IF09         IF10         IF11         IF12         IF13         IF14         IF15         IF16         IF17         IF18         IF19         IF20         IF21         IF23         IF24	$ \begin{array}{r} 10\\ 10\\ 37\\ 50\\ 37\\ 50\\ 1\\ 1\\ 30\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 0\\ \end{array} $	Sec           Min           °F           °F	C           C		
dF07           dF08           dF09           dF10           dF11           dF12           dF13           dF14           dF15           dF16           dF17           dF18           dF19           dF20           dF21           dF22           dF23           dF24           dF23           dF24           dF25	$ \begin{array}{r} 10\\ 10\\ 37\\ 50\\ 37\\ 50\\ 1\\ 1\\ 30\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 0\\ 0\\ 0 \end{array} $	Sec           Min           °F           °F           °F           °F              Sec              Psi           Sec           Psi	C           C		
IF08         IF09         IF10         IF11         IF12         IF13         IF14         IF15         IF16         IF17         IF18         IF19         IF20         IF21         IF23         IF24         IF25         IF26	$ \begin{array}{c} 10\\ 10\\ 37\\ 50\\ 37\\ 50\\ 1\\ 1\\ 30\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 0\\ 44\\ 7\\ 2\\ 1\\ 0\\ 44\\ 7\\ 2\\ 1\\ 0\\ 0\\ 47\\ \end{array} $	Sec           Min           °F	C           C		
F08           FF09           FF10           FF11           FF12           FF13           FF14           FF15           FF16           FF17           FF18           FF19           FF20           FF21           FF23           FF24           FF25	$ \begin{array}{r} 10\\ 10\\ 37\\ 50\\ 37\\ 50\\ 1\\ 1\\ 30\\ 1\\ 329\\ 10\\ 44\\ 7\\ 2\\ 1\\ 0\\ 0\\ 0 \end{array} $	Sec           Min           °F           °F           °F           °F              Sec              Psi           Sec           Psi	C           C		

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net				Fans c	
Parameter	L Aalue	ΜIJ	O Level	ON/OFF	EC
dF29	1	°F	С		
dF30	1	°F	С		
dF31	32	°F	С		
dF32	32	°F	С		
dF33	1	°F	C		
dF34	1	°F	C		
dF35	0		C		
dF36	0	Sec	C		
dF37	-30	Psi	C		
		°F			
dF38	41		C		
dF39	27	°F	С		
	0	F.		1 1	
rC01	0		C		
rC02	5	Sec	C		
rC03	5	Sec	С		
rC04	1	Min	С		
rC05	1	Min	С		
rC06	505	Psi	С		
rC07	36	Psi	C		
rC08	2	Min	С		
rC09	1		C		
				1	_
FS01	0		C		
FS02	0		С		
FS03	68	°F	C		-
FS03	1	°F	C		
FS05	32	°F	C		
		°F			
FS06	158		C		
FS07	0		C		
FS08	0		С		
FS09	0	Min	C		
FS10	0	Sec	C		
FS11	0	Sec	С		
FS12	0		С		
FS13	0	Hours	С		
FS14	50	°F	С		
FS15	50	°F	С		
FS16	158	°F	C		
FS17	0	Time	C		
FS18	0		C	┨	
FS18 FS19	1	Min	C		
		°F	C		
FS20	1				
FS21	1	°F	C		
FS22	1	°F	C		
FS23	86	°F	С		
FS24	1	°F	С		
FS25	86	°F	С		
FS26	91	°F	С		
FS27	0	Sec	С		
FS28	0	Sec	С		
FS29	0	Min	C		
FS30	32	°F	C	┼──┤	
1.000	54	1.		1	

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ter				Fans co	ontrol
Parameter 1583	1 Value	×	O Level	ON/OFF	EC
S31	<u>&gt;</u> 1	°F			
531	0	Min	C		
S32 S33	0		C		
S34	0	Min	C		
S35	0	Sec	C		
S36	0	Min	C		
S30	32	°F	C	<b>├</b> ───	
S37	1	°F	C		
S30 S39	0	г %	C		
S39	100	%	C		
S40 S41					
	0		C		
S42	0		C		
S43	32	°F	C		
S44	1	°F	C		
845	0	Min	C		_
S46	0		C		
S47	0		C		
S48	0		С		
S49	0		С		
S50	32	°F	C		
S51	0	-	С		- <
S52	32	°F	C		
853	1	°F	С		
854	0	-	С		
S55	0		С		
856	0		С		
S57	0		С		
\$58	0		С		
\$59	1	°F	С		
S60	1	°F	С		
S61	0	Min	С		
S62	0		С		
S63	32	°F	C		
S64	1	°F	C		
	•				
L01	45	Sec	S	I	
L01	2	10 Sec	C	+	
L02 L03	8.7	Psi	C	┼───┤	
L03	14.5	Psi	C	┨───┤	
L04 L05	3		C	+	
L05 L06	0		C		
L00 L07	0	Sec	C		
				┥──┤	
L08	0	 D-:	S	───	
L09	577	Psi	C	┥──┤	
L10	87	Psi	C	↓↓	
L11	120	Sec	C		
L12	5	Sec	С		
L13	3		С		
L14	0		С		
L15	10	Sec	С		
L16	0	Sec	С		
L17	5	Sec	С	1 1	

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neta				Fans co	
Parameter	Value	ΜIJ	Level	ON/OFF	EC
AL18	5	Sec	С		
AL19	0	Sec	С		
AL20	0		С		
AL21	0		С		
AL22	0		С	1 1	
AL23	0		С		
AL24	9	°F	С		
AL25	59	°F	С		
AL26	39	°F	U		
AL27	7	°F	S		
AL28	3	Sec	C		
AL20	3		C	+ +	
AL2) AL30	1		C		
AL30 AL31	37	 °F	C		
AL31 AL32		°F	C		
AL32 AL33	43	°F			-
	39		C		
AL34	4	°F	C		
AL35	3	Sec	C		
AL36	3	Sec	C		
AL37	3		С		
AL38	1	-	C		
AL39	158	°F	C .		
AL40	18	°F	С		
AL41	1		С		
AL42	2		С		
AL43	1	Sec	С		
AL44	1	10 Sec	С		
AL45	0		С		
AL46	14		C		
AL47	1		С		1
AL48	0		С		
AL49	0		С		
AL50	0		С		
AL51	0		С		
AL52	0	Sec	C	1	
AL53	0	10 Sec	C		
AL54	0		C		
AL54 AL55	0	Sec	C	+ +	
AL55	0	Sec	C	+ +	
AL50 AL57	â		G	┥──┤	
	0	Sec	C	┨───┤	
AL58		Sec			
AL59	0		C		
AL60	0	10 Sec	C	↓ ↓	
AL61	230	°F	С		
AL62	7	°F	С		
AL63	0		С		
AL64	30	Sec	С		
AL65	0	Sec	С		
AL66	0	Sec	С		
AL67	0	Sec	С		
AL68	0	Sec	С	1	
AL69	0	Sec	С	1	

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eter				Fans c	ontrol
Parameter	0 Value	MU	D Level	ON/OFF	EC
AL70	0	Sec	С		
AL71	0	Sec	С		
AL72	0	Sec	С		
AL73	0		С		
AL74	0		С		
AL75	0		С		
AL76	0		С		
AL77	0		С		
AL78	1	Psi	С		
AL79	1	Psi	С		
AL80	0		С		
AL81	0		С		
AL82	0	Sec	С		
AL83	0	Sec	С		
AL84	0	Sec	С		
AL85	0	Sec	С		
AL86	0	Min	С		
AL87	0	Sec	С		
AL88	0		S		
LS01	0	-	C		
LS02	59	°F	U		
LS03	0	°F	С		
LS04	1	Min	С		
LS05	4	°F	С		
LS06	0		С		
LS07	0		C		
LS08	5		С		
LS09	4	°F	C		
LS10	100	Sec	C		
LS11	5	Sec	C		
LS12	11	Sec	С		
LS13	3	Sec	C		
LS14	1	Sec	C		
LS15	1	Sec	C	ļ	
LS16	0	°F	C		
LS17	0	°F	C		
Pr1	23		U		
Pr2	32		S		
Pr3	69		C		

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ter				Fans c	ontrol
Parameter	Value	MU	Level	ON/OFF	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	С		
ST04	113	°F	С		
ST05	68	°F	С		
ST06	122	°F	С		

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met				Fans co	
Parameter	4 Value	MU	C Level	ON/OFF	EC
ST07		°F	Г Ш	+	
				<u> </u>	
ST08	4	°F	C		
ST09	3		С		
ST10	3		C		
ST11	1		S		
dP01	3		S	1 1	
dP02	0		S	1 1	
dP03	0		C		
dP04	0		C		
dP05	0		C		
dP06	0		S		
dP07	0		S	-	
dP08	0		S		
dP09	0		S		
dP10	0		S		
CF01	1	·	С	1	
CF01 CF02	1		C		
CF02 CF03	0		C		
CF03	2		C		
CF04 CF05	0	-	C		_
CF05 CF06	0	-	C		_
CF00 CF07	1	-	C		
CF08	11	-	C		
CF09	9		C	0	27
CF10	0		C	0	27
CF11	0		C		
CF12	0		C		
CF13	19		C		
CF14	0		C		
CF15	0		С		
CF16	0	°F	S		
CF17	0	°F	S		
CF18	0	Psi	S		
CF19	0	Psi	S		
CF20	0	°F	S		
CF21	0	°F	S		
CF22	0	°F	S		
CF23	0	°F	S		
CF24	0	Psi	С		
CF25	725	Psi	С		
CF26	0	Psi	С		
CF27	0	Psi	С	1 1	
CF28	0	Psi	С		
CF29	0	Psi	С		
CF30	o7		С		
CF31	09		С	1 1	
CF32	o17		С		
CF33	018		С		
CF34	03		C	+ +	
CF35	01		C	+ +	

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leter				Fans c	ontrol
Parameter	Value	MU	Level	ON/OFF	EC
CF36	o26		С		
CF37	0		С		
CF38	o23		С		
CF39	o43		С		
CF40	0		С		
CF41	c51		С		
CF42	c57		С		
CF43	0		С		
CF44	0		С		
CF45	o1		С		
CF46	0		С		
CF47	c2		C		
CF48	0		C		
CF49	0		C		
CF50	<u> </u>		C	0	8
CF51	0		C		
CF52	0	-	C		
CF53	0		C		
CF54	See Ch. 7.41.3		U		
CF55	0		C		
CF56	0	°F	C		
CF57	0	°F	C		
CF58	0		C		
CF59	0		C		
CF60	86	°F	C		
CF61	18	°F	C		
CF62 CF63	1		C		
CF63	1		S		
CF64 CF65	1 not used		U C		
CF65	not used		C		~
CF67	0		C		
CF68	0		C		
CF69	0		C		1
CF70	0		C		1
CF70 CF71	0		C		1
CF71 CF72	0		C		1
CF72 CF73	0		C		
CF74	0		C		
CF75	0		C		
CF76	1		C		1
CF70	1		C		
CF78	0		C		
CF79	0		C		
CF80	0		C		1
CF81	0		C		1
CF82	0		C		1
CF83	0	sec	C		1
CF84	0		C		
		1	·		
EI01	1		С		
EI02	0		C		



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ıme	<u>e</u>		-	ONIOPE	EC
Parameter 8013	0 Value	MU	D Level	ON/OFF	EC
EI03	0		C	+ +	
EI04	0		C	+ +	
E105	0		C		
E105	0		C		
E100 E107	0		C		
E107	0		C		
E108 E109	0		C	+ +	
E109 EI10	0	 °F	C		
EI11	0	°F	С		
EI12	0	Psi	С		
EI13	0	Psi	С		
EI14	0	°F	С		
EI15	0	°F	С		
EI16	0	°F	С		
EI17	0	°F	С		
EI18	0	Psi	С		
EI19	0	Psi	С		
EI20	0	Psi	С		
EI21	0	Psi	C		
EI22	0	Psi	C		
EI23	0	Psi	С		
EI24	0		C		-
EI24 EI25	0		C		_
E125	0		C		_
E120 E127	0		C		_
E127 E128	0		C		
E129	0		C		
EI30	0		С		
EI31	0		C		
EI32	0		С		
E133	0		C		
EI34	0		C		
EI35	0		С		
EI36	0		С		
EI37	0		С		
EI38	0		С		
EI39	0		С	1 1	
EI40	0		С	1 1	
EI41	0		С		
EI42	0		С	+ +	
EI43	0		C	+	
-		1	-		
Sd01	0	°F	U	<u> </u>	
Sd01 Sd02	0	°F	C	+	
Sd02 Sd03	39	°F	U	+	
Sd03 Sd04	0	°F	C	+	
Sd05	54	°F	U	$\downarrow$	
Sd06	0	°F	С		
Sd07	0	°F	С		
Sd08	0	°F	С		
Sd09	0	°F	С		
Sd10	0	°F	С	1 1	

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er	I ALLO	TAEevo Tech 201÷351 UI			ontrol
Parameter	o Value	MU	O Level	ON/OFF	EC
Sd11	0	°F	С		
Sd12	0	°F	С		
Sd13	0	°F	С		
Sd14	0	°F	C		
Sd15	0	°F	C		
Sd16	0	°F	C		
Sd17	0	°F	C		
Sd17 Sd18	0	°F	C		
		°F	-		
Sd19	0		C		
Sd20	0	°F	С		
Sd21	0	°F	С		
Sd22	0	°F	С		
Sd23	0	°F	С		
Sd24	0	°F	С		
Sd25	0	°F	С		
Sd26	0	°F	С		
Sd27	32	°F	С		
Sd28	32	°F	C		_
Sd20 Sd29	0	°F	C		
Sd29 Sd30	0	°F	C		
5450	0	Г			
ES01	0	Time	C		
ES02	0	Time	C		
ES03	0	Time	C		
ES03	0	Time	C		_
ES04 ES05	0	Time	C		
	0		C		_
ES06		Time			
ES07	0-0		C		
ES08	0-0		C		
ES09	0-0		C		
ES10	0-0		C		
ES11	0-0		С		
ES12	0-0		С		
ES13	0-0		С		
ES14	37	°F	С		
ES15	5	°F	C		
ES16	27	°F	C		
ES17	27	°F	C	+ +	
				┥──┤	
ES18	1	10 Min	C		
ES19	0	Time	C	↓	
ES20	0	Time	C		
ES21	0	Time	C		
ES22	0	Time	С		
ES23	0	Time	С		
ES24	0	Time	С		
ES25	0		С	1 1	
ES26	0		С		
ES27	0		C	+ +	
ES28	0		C	+ +	
ES29	0		C	+ +	
ES29 ES30	0		C	+ +	
				┥──┤	
ES31	0		C	1	

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met	<u>دە</u>					
Parameter	o Value	MU	D Level	ON/OFF	EC	
ES32	0	°F	С			
ES33	1	°F	С			
Cr01	0		C			
Cr02	0	Psi	С			
Cr03	0	Psi	С			
Cr04	0	Psi	С			
Cr05	1	Psi	С			
Cr06	0	Psi	C			
Cr07	1	Psi	C			
Cr08	0		C			
Cr09	0		С			
CO01	14	10 Sec	C			
CO01 CO02	22	10 Sec	C			
CO02 CO03	60	Sec	C			
CO03	30	Sec	C			
C004 C005	30	10 Sec	C			
CO05 CO06	0		C			
CO07	1		C			
CO08	0	Sec	C			
CO09	0	Sec	C			
CO10	0		C			
C011	0	0.1 Sec	C			
CO12	5	Sec	C		_	
CO13	0	Sec	C			
CO14	2		S			
CO15	0		S			
CO16	1		S			
CO17	6	10 Sec	S		-	
CO18	2	Min	S			
CO19	4	10 Hours	U			
CO20	2	Sec	S			
CO21	0		С			
CO22	0	-	С	1 1		
CO23	0	Min	С			
CO24	0	10 Hours	С			
CO25	0	Sec	С			
CO26	0	10 Hours	S			
CO27	0	10 Hours	S			
CO28	0	10 Hours	S			
CO29	0	10 Hours	S			
CO30	0	10 Hours	С			
CO31	0	10 Hours	С			
CO32	0	10 Hours	S			
CO33	0	10 Hours	S			
CO34	0	10 Hours	С			
CO35	0	10 Hours	С			
CO36	0		С			
CO37	15	Psi	С			
CO38	7	Psi	С			
CO39	30	Sec	С	1 T		

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r.	IALEVO	Fech 201÷35		Fans control		
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Parameter 0400	Value	M	O Level	ON/OFF	EC	
	104	₩n °F	C			
CO41	18	°F	C			
CO42	1	10 Sec	С			
CO43	5	Min	С			
CO44	566	Psi	S			
CO45	30	Psi	S			
CO46	29	Psi	С			
CO47	22	Psi	С			
CO48	5	Min	S			
CO49	1		C			
CO50	0	Sec	C			
CO51	32	°F	C	+ +		
CO52	1	°F	C			
CO52	3	10 Min	S	+ +		
CO54	0	Hours	C			
C054	-58	°F	C			
CO56	-38	°F	C			
CO57	0	Min	C		_	
CO58	0	Sec	C			
CO58	0	Sec	C			
CO59 CO60	0	Sec	C			
CO60 CO61	0		C			
CO61 CO62	0	Sec	C			
CO62 CO63	0	Sec %	C		<u> </u>	
CO63 CO64	0	% 10 Min	C			
CO64 CO65	0	10 Min Sec	C			
CO65 CO66	0	Hours	C			
CO67	0	Hours %	C			
CO67 CO68		%	C			
	1	%	-		-	
CO69	1		C			
CO70	1	%	C			
CO71	1	Sec	C			
CO72	0		C			
CO73	0	10 Hours	C			
CO74	0	10 Hours	C	↓ ↓		
CO75	0	Sec	C			
CO76	2		C			
CO77	2		C			
CO78	2		C			
CO79	1	%	C			
CO80	1	%	C			
CO81	1	%	C			
CO82	32	°F	С			
CO83	1	°F	С			
CO84	0	%	С			
CO85	0	10 Min	С			
CO86	0	10 Hours	С			
CO87	0	10 Sec	С			
CO88	0	10 Min	С			
CO89	0	10 Hours	С			
CO90	0	10 Sec	С			
CO91	0	10 Sec	С			



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I.				Fans contro		
Parameter	0 Value	WI	O Level	ON/OFF	EC	
<u>م</u> CO92	×	_	r	───		
		Sec		+		
CO93	0	Sec	С			
CO94	1	%	С			
CO95	0	10 Hours	С			
CO96	1	%	С			
001	0	1	0	т т		
uS01	0		C	┥──┤		
uS02	1		C			
uS03	32	°F	C			
uS04	32	°F	С			
uS05	32	°F	С			
uS06	32	°F	С			
uS07	32	°F	С			
uS08	32	°F	С			
uS09	1	°F	С			
uS10	1	°F	С			
uS11	0		С			
uS12	1		C			
uS12	32	°F	C			
uS13	32	°F	C			
uS14 uS15	32	°F	C		_	
uS15 uS16	32	°F	C		_	
uS10 uS17	32	°F	C		-	
		°F				
uS18	32		C			
uS19	1	°F	С			
uS20	1	°F	С			
uS21	0	Min	С		- <u>-</u>	
uS22	0		С			
uS23	1		С			
uS24	32	°F	С			
uS25	32	°F	C			
uS26	32	°F	С			
uS27	32	°F	С			
uS28	32	°F	С			
uS29	32	°F	С	1 1		
uS30	1	°F	С			
uS31	1	°F	С	+ +		
uS32	0	%	C	+		
uS33	100	%	C			
uS33	0		C	+		
uS34 uS35	1		C	+		
u835 u836	32	 °F	C			
		°F		+ +		
uS37	32		C			
uS38	32	°F	C	$\downarrow$ $\downarrow$		
uS39	32	°F	С			
uS40	32	°F	С			
uS41	32	°F	С			
uS42	1	°F	С			
uS43	1	°F	С			
uS44	0	%	С			
uS45	100	%	С			
uS46	1		С			

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er	TAEevo Tech 201÷351 UL			Fans control		
Parameter	Value	MU	O Level	ON/OFF	EC	
uS47	0					
uS48	0		С			
uS49	32	°F	С			
uS50	1	°F	С			
uS51	0	%	С			
uS52	100	%	С			
uS53	0		С			
uS54	0		С			
uS55	32	°F	С			
uS56	1	°F	С			
uS57	0	%	С			
uS58	100	%	С			
uS59	0	%	С			
uS60	0	%	С			
uS61	1		С			
uS62	1		С			
uS63	1		С			
uS64	1		С			
FA01			С	0	4	
FA02	0	<u> </u>	С			
FA03	10	Sec	C			
FA04	4	250 µsec	С			
FA05	0		С			
FA06	0	Sec	C			
FA07		%	С	30	10	
FA08	100	%	С			
FA09		Psi	С	357	273	
FA10	406	Psi	С			
FA11		Psi	С	90	109	
FA12	7	Psi	C			
FA13	15	Psi	С			
FA14	0	Sec	С			
FA15		%	С	90	100	
FA16	30	%	С			
FA17	100	%	С			
FA18	112	Psi	С			
FA19	175	Psi	С			
FA20	42	Psi	С			
FA21	22	Psi	С	+ +		
FA22	36	Psi	C			
FA23	90	%	C			
FA24	77	°F	С	+ +		
FA25	9	°F	C	+ +		
FA26	0	Psi	C	+ +		
FA27	0	Psi	C	+ +		
FA28	0	Psi	C	+ +		
FA29	0	Psi	C	+ +		
FA30	0	Sec	C	+ +		
FA31	0	Sec	C	+ +		
FA32	32	°F	C	+		
FA33	0	%	C	+		
	0	/0		1		



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ietei				Fans control	
Parameter	Value	M	Level	ON/OFF	EC
Ar01	37	°F	S	<u> </u>	
Ar01 Ar02	4	°F	S		
Ar02 Ar03	37	°F	C	+ +	
Ar03 Ar04	4	°F	C	+ +	
Ar04 Ar05	0		C	+ +	
Ar06	0		C		
Ar07	0		C	+	
Ar08	0		C	+	
Ar09	1		C		
Ar10	1		S		
Ar11	0		C	+ +	
Ar12	113	°F	C	+ +	
Ar13	4	°F	C	1 1	
Ar14	0	Min	C		
Ar15	104	°F	C		
Ar16	4	°F	C		
Ar17	113	°F	C		_
Ar18	4	°F	C		
Ar19	113	°F	C		
Ar20	4	°F	С		
Ar21	3		С		
Ar22	3		С		
Ar23	0		С		
Ar24	0		S		
Ar25	0		С		
Ar26	37	°F	С		
Ar27	4	°F	С		
dF01	0		С		
dF02	68	Psi	C		
dF03	290	Psi	C		
dF04	180	Sec	С		
dF05	5	Min	С		
dF06	5	Min	С		
dF07	10	Sec	C		
dF08	10	Sec	C	<u>                                     </u>	
dF09	10	Min	C	<u>                                     </u>	
dF10	37	°F	C	$\downarrow$	
dF11	50	°F	C	$\downarrow$	
dF12	37	°F	C		
dF13	50	°F	C	$\downarrow$	
dF14	1		C	$\downarrow$	
dF15	1		C		
dF16	30	Sec	C	┥──┤	
dF17	1	 D-:	C	┥──┤	
dF18	329	Psi	C	┥──┤	
dF19	10	Sec	C	┥──┤	
dF20	44	Psi	C	┥──┤	
dF21	7	Psi	C C	┥──┤	
dF22 dF23	2		C	┥──┤	
ur 23	1 1			1	

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ıa		Tech 201÷35	1	Fans control	
Parameter	0 Value	MU	O Level	ON/OFF	EC
≏_ dF24	0		C	+ +	
dF25	0		C		
dF26	47	°F	C		
dF27	32	°F	C		
dF28	32	°F	С		
dF29	1	°F	С		
dF30	1	°F	С		
dF31	32	°F	С		
dF32	32	°F	С		
dF33	1	°F	С		
dF34	1	°F	С		
dF35	0		С		
dF36	0	Sec	С		
dF37	-30	Psi	С		
dF38	41	°F	С		
dF39	27	°F	С		
6.0.1					
rC01	0		C		
rC02	5	Sec	C C		
rC03 rC04	5	Sec	C		
rC04 rC05	1	Min	C		_
rC05	505	Psi	C		
rC07	36	Psi	C		
rC08	2	Min	C		_
rC09	1		C		
				1 1	
FS01	0		С		
FS02	0		С		
FS03	68	°F	С		
FS04	1	°F	C		
FS05	32	°F	С		
FS06	158	°F	С		
FS07	0		С		
FS08	0		C		
FS09	0	Min	C		
FS10	0	Sec	C		
FS11	0	Sec	C		
FS12 FS13	0	 Hours	C C	┨───┤	
FS13 FS14	50	°F	C		
FS14 FS15	50	°F	C		
FS15 FS16	158	°F	C	$\left  \right $	
	0	Time	C	+	
FS17	0		C	+ +	
FS17 FS18		Min	C	+ +	
FS18	1			+	
FS18 FS19	1	°F	C		
FS18		°F °F	C C		
FS18 FS19 FS20	1				
FS18 FS19 FS20 FS21	1	°F	С		
FS18 FS19 FS20 FS21 FS22	1 1 1	°F	C C		



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r	TAEevo Tech 201÷351 UL			Fans control		
Parameter	<i>6</i> )			1 1		
araı	aluć	MU	evel	ON/OFF	EC	
	Value 16	5 °F	O Level			
FS26						
FS27	0	Sec	C	┥──┤		
FS28	0	Sec	C			
FS29	0	Min	C			
FS30	32	°F	C	↓ ↓		
FS31	1	°F	C			
FS32	0	Min	C			
FS33	0		C	↓ ↓		
FS34	0	Min	C			
FS35	0	Sec	C			
FS36	0	Min	C			
FS37	32	°F	C			
FS38	1	°F	С			
FS39	0	%	С			
FS40	100	%	С			
FS41	0		С			
FS42	0		С			
FS43	32	°F	С			
FS44	1	°F	C			
FS45	0	Min	С			
FS46	0		C			
FS47	0		C			
FS48	0		С			
FS49	0	-	С			
FS50	32	°F	С			
FS51	0		С			
FS52	32	°F	С			
FS53	1	°F	С			
FS54	0		С			
FS55	0		С			
FS56	0		C			
FS57	0		С			
FS58	0		С			
FS59	1	°F	С			
FS60	1	°F	С			
FS61	0	Min	С			
FS62	0		С			
FS63	32	°F	С			
FS64	1	°F	C	+ +		
		1	1			
AL01	45	Sec	S			
AL02	2	10 Sec	C			
AL03	8.7	Psi	C	+ +		
AL04	14.5	Psi	C	+ +		
AL04 AL05	3		C	+ +		
AL05	0		C	+ +		
AL00	0	Sec	C	+ +		
AL07 AL08	0		S	+ +		
AL08 AL09	577	Psi	C			
AL09 AL10	87	Psi	C			
AL10 AL11	120	Sec	C	+		
AL11 AL12	5		C	+		
ALIZ	3	Sec		1		

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er	TALEV	o Tech 201÷35		Fans co	ontrol
Parameter	Value c	MU	O Level	ON/OFF	EC
AL13	3				
AL14	0		С		
AL15	10	Sec	С		
AL16	0	Sec	С		
AL17	5	Sec	С		
AL18	5	Sec	С		
AL19	0	Sec	С		
AL20	0		С		
AL21	0		С	T T	
AL22	0		С		
AL23	0		С		
AL24	9	°F	С		
AL25	59	°F	С		
AL26	39	°F	U		
AL27	7	°F	S		
AL28	3	Sec	С		
AL29	3		С		
AL30	1		С		
AL31	37	°F	С		
AL32	43	°F	С		
AL33	39	°F	С		
AL34	4	°F	С		
AL35	3	Sec	С		
AL36	3	Sec	С		
AL37	3		С		_
AL38	1		С		
AL39	158	°F	С		
AL40	18	°F	С		
AL41	1		C		
AL42	2		C		
AL43	1	Sec	C		
AL44	1	10 Sec	C		
AL45	0		C		
AL46	14		C		
AL47	1		C		
AL48	0		C		
AL49	0		C	+ +	
AL50	0		C	+ +	
AL51	0		C	+	
AL52	0	Sec	C	+	
AL52 AL53	0	10 Sec	C		
AL55 AL54	0		C		
AL54 AL55	0	Sec	C	+ +	
AL55	0	Sec	C	+	
AL50 AL57	0	Sec	C	+	
AL57 AL58	0	Sec	C	+	
AL58 AL59				+	
	0		C	┥──┤	
AL60	0	10 Sec	C	┥──┤	
AL61	230	°F	C	┥ ┥	
AL62	7	°F	C	+	
AL63	0		C	+	
AL64	30	Sec	С	1	

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eter				Fans c	ontrol
Parameter	Value	MU	O Level	ON/OFF	EC
AL65	0	Sec	С		
AL66	0	Sec	С		
AL67	0	Sec	С		
AL68	0	Sec	С		
AL69	0	Sec	С		
AL70	0	Sec	С		
AL71	0	Sec	С		
AL72	0	Sec	С		
AL73	0		С		
AL74	0		С		
AL75	0		С		
AL76	0		С		
AL77	0		С		
AL78	1	Psi	С		
AL79	1	Psi	С		
AL80	0		С		
AL81	0		С		
AL82	0	Sec	C		
AL83	0	Sec	C		
AL84	0	Sec	С		
AL85	0	Sec	C		
AL86	0	Min	C		
AL87	0	Sec	С		
AL88	0		S		
LS01	0		C		
LS01	59	°F	U		
LS02 LS03	0	°F	C		
LS04	1	Min	C		
LS05	4	°F	C		
LS06	0		C		
LS07	0		C		
LS07	10		C		
LS09	3	°F	C		
LS10	70	Sec	C		
LS11	5	Sec	C		
LS12	11	Sec	C		
LS13	3	Sec	C		
LS14	1	Sec	C		
LS15	1	Sec	C		
LS16	0	°F	С		
LS17	0	°F	С		
Pr1	23		U		
Pr2	32		S		
Pr3	69		С	1	

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ter				h 381÷4	Hydrau	lic group	)	Fans c	ontrol
Parameter 10TS	Value	MU	Level	SP	P3	Р5	P3+P3	ON/OFF	EC
ST01	45	°F	Ū						
ST02	41	°F	U						
ST03	86	°F	С						_
ST04	113	°F	С						
ST05	68	°F	С						
ST06	122	°F	С						
ST07	4	°F	U						
ST08	4	°F	С						
ST09	3		С						
ST10	3		С						
ST11	1		S						
dP01	3		S						
dP02	0		S						
dP03	0		С						
dP04	0		С						
dP05	0		С						
dP06	11		S						
dP07	0		S						
dP08	0		S						
dP09	0		S						
dP10	0		S						
CF01	1		C				1		
CF02	1		С				1		
CF03	0	/	С						
CF04	2		С						
CF05	0		С						
CF06	0		С						
CF07	1		C						
CF08	11		С						
CF09	9		C						
CF10			С					0	27
CF11	0		С						
CF12	0		C						
CF13	19		С			ļ	<u> </u>		
CF14	0		C		ļ	L	<b> </b>		
CF15	0		C			<u> </u>	<b> </b>		
CF16	0	°F	S		ļ	L	<b> </b>		
CF17	0	°F	S			ļ			
CF18	0	Psi	S						
CF19 CF20	0	Psi °F	S S						
CF20 CF21		°F							
CF21 CF22	0	°F	S S				+		
CF22 CF23	0	°F	S				+		
	0		C S						
CF24	725	Psi	C						
CF25		Psi				<u> </u>			
CF26 CF27	0	Psi	C C			<u> </u>			
CF27 CF28		Psi				<u> </u>			
UF28	0	Psi	С	1	1	1	1		



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		TAEevo Tech 381÷401 UL Hydraulic group Fans control										
eter					Hydrau	lic group		Fans co	ontrol			
Parameter	0 Value	MU	D Level	SP	Р3	Р5	P3+P3	ON/OFF	EC			
CF29	0	Psi										
CF30	о7		С									
CF31	09		С									
CF32	o17		С									
CF33	018		С									
CF34	o3		С									
CF35	o1		С									
CF36	026		С									
CF37			С	0	0	0	o27					
CF38	023		С									
CF39	043		С									
CF40	0		С									
CF41	c51		С									
CF42	c57		С									
CF43	0		С									
CF44	0		С									
CF45	01		С									
CF46	0		С									
CF47	c2		С									
CF48			С	0	0	0	c3					
CF49	0	-	C									
CF50			C					0	8			
CF51	0		С									
CF52	0		С				1					
CF53	0		С									
CF54	See Ch. 7.41.3		U									
CF55	0		С									
CF56	0	°F	С									
CF57	0	°F	C									
CF58	0		С									
CF59	0		C									
CF60	86	°F	С									
CF61	18	°F	С									
CF62	1		С		1	1						
CF63	1		S									
CF64	1		U									
CF65	not used		С			1						
CF66	not used		C		1	1						
CF67	0		C		1	1						
CF68	0		C		1	1						
CF69	0		C		1		1					
CF70	0		C			1						
CF71	0		C		1	<u> </u>						
CF72	0		C		1	<u> </u>	-					
CF73	0		C									
CF74	0		C									
CF75	0		C			<del> </del>		├				
CF76	1		C									
CF70 CF77	1		C									
CF77	0		C									
CF 78 CF 79	0		C			<u> </u>						
				1	<b> </b>	<u> </u>		<b>├</b> ──┤				
CF80	0		С									

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		TAI	Levo Tec	h 381÷4		lic group			
eter					Fans control				
Parameter CF81	0 Value	MU	D Level	SP	Р3	P5	P3+P3	ON/OFF	EC
CF81	0		C						
CF82	0		С						
CF83	0	sec	С						
CF84	1		С						
			1		1		1	<u> </u>	
EI01	1		С	1		[	1		
EI02	0		С						
EI03	0		С						
EI04	0		С						
E105	0		С						
E106	0		С						
EI07	0		C						
E108	0		С						_
E109	0		C						
EI10	0	°F	C						
EI11	0	°F	C						
EI12	0	Psi	C						
EI13	0	Psi	C			ľ –			
EI14	0	°F	C						
EI15	0	°F	C						
EI16	0	°F	C						
EII0 EI17	0	°F	C						
EII7 EI18	0	Psi	C						
EII8 EI19	0	Psi	C						
EII) EI20	0	Psi	C						
E120 E121	0	Psi	C						
EI21 EI22	0	Psi	C						
E122 E123	0	Psi	C			<u> </u>			
E123 E124	0		C						
E124 E125	0		C						
E125 E126	0		C						
E120 E127	0		C						
E127 E128			C						
E128 E129	0		C			<b> </b>			
E129 E130	0		C						
E130 E131	0		C						
E132 E133	0 0		C C						
	0		C						
EI34 EI35						<u> </u>			
	0		C						
E136 E137	0 0		C C						
EI38	0		C						
EI39	0		C						
EI40	0		C		ļ				
EI41	0		C		ļ				
EI42	0		С		ļ	ļ			
EI43	0		С						
0.101				1	1	1			
Sd01	0	°F	U						
Sd02	0	°F	С						
Sd03	39	°F	U		1		1		



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		TAE	evo Tec	h 381÷4	01 UL				
ter					Hydrau	lic group	1	Fans c	ontrol
Parameter	0 Value	MU	O Level	SP	Р3	Р5	P3+P3	ON/OFF	EC
Sd04		°F							
Sd05	54	°F	U						
Sd06	0	°F	С						
Sd07	0	°F	С						
Sd08	0	°F	С						
Sd09	0	°F	С						
Sd10	0	°F	С						
Sd11	0	°F	С						
Sd12	0	°F	С						
Sd13	0	°F	С						
Sd14	0	°F	C						
Sd15	0	°F	C						
Sd16	0	°F	C						
Sd17	0	°F	C						
Sd18	0	°F	C						
Sd19	0	°F	C						
Sd20	0	°F	C						
Sd21	0	°F	C						
Sd22	0	°F	C C						
Sd23	0								
Sd24	0	°F	C C						
Sd25 Sd26	0	°F	C						
Sd26 Sd27	32	°F	C						
Sd27 Sd28	32	°F	C						
Sd28 Sd29	0	°F	C						
Sd20	0	°F	C						
5450	0	1	C						
ES01	0	Time	C			1	1		
ES02	0	Time	C						
ES03	0	Time	С						
ES04	0	Time	С						
ES05	0	Time	С						
ES06	0	Time	С						
ES07	0-0		С						
ES08	0-0		С						
ES09	0-0		С		İ	İ	1		
ES10	0-0		С		1	İ	1		
ES11	0-0		С		1	1	1		
ES12	0-0		С		1	1	1		
ES13	0-0		С				1		
ES14	37	°F	С						
ES15	5	°F	С						
ES16	27	°F	С						
ES17	2	°F	С						
ES18	1	10 Min	С						
ES19	0	Time	С						
ES20	0	Time	С						
ES21	0	Time	С						
ES22	0	Time	С						
ES23	0	Time	С						
ES24	0	Time	С						

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$\overline{\mathbf{x}}$ $\overline{\mathbf{x}}$	L		IAE			01 UL Hydrau	lie group		Fans	ntrol
S26       0        C            S27       0        C            S28       0        C            S29       0        C             S30       0        C              S33       0        C	mete	6		_		1		1		
S26       0        C            S27       0        C            S28       0        C            S29       0        C             S30       0        C              S33       0        C	Para	Valuo	M	Leve	SP	P3	P5	P3+P3	ON/OFF	EC
S26       0        C            S27       0        C            S28       0        C            S29       0        C             S30       0        C              S33       0        C	ES25	0		С						
$828$ 0        C $830$ 0        C $833$ 0 $$ C $833$ 1 $^{\circ}$ F       C $833$ 1 $^{\circ}$ F       C	ES26	0		С						
S29       0        C            S30       0        C  <	ES27	0		С						
830       0        C $831$ 0        C	ES28	0		С						
331       0        C	ES29	0		С			1			
832       0       ?F       C       0       0         833       1       ?F       C       0       0         2833       1       ?F       C       0       0         2833       1       ?F       C       0       0         2833       1       ?F       C       0       0         2702       0       Psi       C       0       0         2704       0       Psi       C       0       0         2705       1       Psi       C       0       0         2706       0        C       0       0         2707       1       Psi       C       0       0       0         2708       0        C       0       0       0         2709       0        C       0       0       0         0701       14       10 Sec       C       0       0       0         0703       60       Sec       C       0       0       0       0       0       0       0       0       0       0       0       0       0       0	ES30	0		С			1			
833       1       °F       C       Image: Constraint of the second s	ES31	0								
Image: Constraint of the second sec	ES32	0								
Cr02         0         Psi         C         1 </td <td>ES33</td> <td>1</td> <td>°F</td> <td>С</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ES33	1	°F	С						
Cr02         0         Psi         C         1 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>										
Cr03         0         Psi         C              Cr04         0         Psi         C	Cr01	0		С						
Cr04         0         Psi         C         1         Psi         C           Cr05         1         Psi         C         1	Cr02	0	Psi							
Cr05         1         Psi         C         Image: Constraint of the second secon	Cr03	0	Psi	С						
Cr06         0         Psi         C         1         Psi         S         1         1         Psi         S         1         1	Cr04	0								
Cr07         1         Psi         C         Image: Cross of the sec of t	Cr05									
Cr08         0          C <th< th=""> <t< td=""><td>Cr06</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></th<>	Cr06									
Cr09         0          C         Image: Cross of the sec of th	Cr07		Psi							
CO01         14         10 Sec         C         Image: Constraint of the sec of the	Cr08									
2002       22       10 Sec       C       Image: Constraint of the sec of the	Cr09	0		C						
2002       22       10 Sec       C       Image: Constraint of the sec of the										
2003         60         Sec         C         Image: Constraint of the sec in the se	CO01									
3004         30         Sec         C         Image: constraint of the sector of th										
3       10 Sec       C       Image: Constraint of the sec of th										
2006       0        C       Image: Constraint of the stress of the										
1        C       Image: Constraint of the structure of t			10 Sec							
2008       0       Sec       C       Image: Constraint of the sec in the sec										
2009       0       Sec       C       Image: Constraint of the sec in the sec										
000       0        C       Image: Constraint of the stress of the s		0								
0011       0       0.1 Sec       C </td <td></td> <td></td> <td>Sec</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			Sec							
3012       5       Sec       C										
2013       0       Sec       C				1. The second second second second second second second second second second second second second second second						
2014       2        S										
2015       0        S			Sec							
2016       1        S										
2017       6       10 Sec       S           2018       2       Min       S            2019       4       10 Hours       U             2019       4       10 Hours       U              2020       2       Sec       S										
2018       2       Min       S       Image: Second sec										
2019       4       10 Hours       U       Image: Constraint of the state of the s										
2020       2       Sec       S										
0021       0        C       Image: Constraint of the state o										
CO22       0        C       Image: Color of the state of the										
2023       0       Min       C       Image: Constraint of the state										
CO24         0         10 Hours         C										
CO25         0         Sec         C <th< th=""> <th< td=""><td></td><td></td><td></td><td></td><td> </td><td> </td><td></td><td></td><td></td><td></td></th<></th<>										
CO26         0         10 Hours         S										
CO27         0         10 Hours         S										
CO28 0 10 Hours S						ļ	ļ			
						ļ	ļ			
2029 I 0 I 10 Hours I S I I I I I I I I I										
	CO30					ļ				
	CO31 CO32					ļ				



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		TAE	evo Tec	h 381÷4	01 UL				
ter			İ		Hydrau	lic group		Fans c	ontrol
Parameter	0 Value	MU	Level	SP	Р3	P5	P3+P3	ON/OFF	EC
CO33	0	10 Hours	S						
CO34	0	10 Hours	С						
CO35	0	10 Hours	С						
CO36	0		С						
CO37	15	Psi	С						
CO38	7	Psi	С						
CO39	30	Sec	С						
CO40	104	°F	С						
CO41	18	°F	С						
CO42	1	10 Sec	С						
CO43	5	Min	С						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	С						
CO47	22	Psi	С						
CO48	5	Min	S						
CO49	1		С						
CO50	0	Sec	С						
CO51	32	°F	С						
CO52	1	°F	С						
CO53	3	10 Min	S						
CO54	0	Hours	C						
CO55	-58	°F	С						
CO56	1	°F	C						
CO57	0	Min	C						
CO58	0	Sec	С						
CO59	0	Sec	С						
CO60	0	Sec	С						
CO61	0		С						
CO62	0	Sec	С						
CO63	0	%	C						
CO64	0	10 Min	С						
CO65	0	Sec	С						
CO66	0	Hours	С						
CO67	1	%	С						
CO68	1	%	C						
CO69	1	%	С						
CO70	1	%	С						
CO71	1	Sec	С						
CO72	0		С						
CO73	0	10 Hours	С						
CO74	0	10 Hours	C						
CO75	0	Sec	С						
CO76	2		С						
CO77	2		С						
CO78	2		С						
CO79	1	%	С						
CO80	1	%	С						
CO81	1	%	С						
CO82	32	°F	С						
CO83	1	°F	С						
CO84	0	%	С						

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<u> </u>		IAL		h 381÷4		lic group		Fans c	ontrol
Parameter	Value	WN	Level	SP	P3	P5	P3+P3		ontrol EC
CO85	0	10 Min	C						
CO86	0	10 Hours	C						
C <b>O</b> 87	0	10 Nec	C						_
CO88	0	10 Min	C						
CO89	0	10 Hours	C						-
CO90	0	10 Nec	C						
CO91	0	10 Sec	C						
CO92	0	Sec	C						
CO93	0	Sec	C						
CO94	1	%	C						
CO95	0	10 Hours	C						
CO96	1	%	C						
	•	1 /*	Ľ			I	L		
uS01	0		C	1					
uS02	1		C						
uS02	32	°F	C						
uS04	32	°F	C	$\vdash$					
uS04 uS05	32	°F	C			1			
uS05 uS06	32	°F	C						
uS00 uS07	32	°F	C						
uS07 uS08	32	°F	C						
uS08 uS09	1	°F	C						
1809	1	°F	C						
uS10 uS11	0	г 	C				V		
1811	0		C						
1812	32	 °F	C						
1813	32	°F	C						
1814	32	°F	C			-			
uS15 uS16	32	°F	C						
1810	32	°F	C						
uS17 uS18	32	°F	C		-				
uS18 uS19	32	°F	C						
uS19 uS20	1	°F	C						
1820									
	0	Min	C						
uS22	0		C						
1823	1	 9E	C						
uS24	32	°F °F	C C						
1825	32		-						
uS26	32	°F	C						
uS27	32	°F	C		ļ				
uS28	32		C						
1S29	32	°F	C		ļ				
uS30	1	°F	C		ļ	ļ			
1831	1	°F	C		ļ				
IS32	0	%	C						
1833	100	%	C						
1834	0		C						
uS35	1		С						
uS36	32	°F	С						
uS37	32	°F	С						
uS38	32	°F	С						
1839	32	°F	С		T				



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		TAE	evo Tec	h 381÷4	01 UL				
ter					Hydrau	lic group		Fans c	ontrol
Parameter	Aalue 32	MU	D Level	SP	Р3	P5	P3+P3	ON/OFF	EC
uS40	32	°F	С						
uS41	32	°F	С						
uS42	1	°F	С						
uS43	1	°F	С						
uS44	0	%	С						
uS45	100	%	С						
uS46	1		С						
uS47	0		С						
uS48	0		С						
uS49	32	°F	С						
uS50	1	°F	С						
uS51	0	%	С						
uS52	100	%	С						
uS53	0		С						
uS54	0		С						
uS55	32	°F	С						
uS56	1	°F	С						
uS57	0	%	С						
uS58	100	%	C						
uS59	0	%	C						
uS60	0	%	C						
uS61	1		C						
uS62	1		С						
uS63	1		С						
uS64	1	-	C						
EA01		T	C		1	1	1	0	4
FA01 FA02	0		C C			ļ		0	4
	0								
FA03 FA04	10	Sec	C C						
FA04 FA05	0	250 μsec	C						
FA05 FA06	0	Sec	C						
FA00 FA07	0	%	C					30	10
FA07 FA08	100	70 %	C					30	10
FA08 FA09	100	Psi	C					357	273
FA10	406	Psi	C					551	215
FA11	100	Psi	C					90	109
								70	109
FA12	7	Psi							
FA12 FA13	7 15	Psi Psi	C C						
FA13	7 15 0	Psi	С						
FA13 FA14	15	Psi Sec	C C	_				90	100
FA13	15	Psi	C C C					90	100
FA13 FA14 FA15	15 0	Psi Sec %	C C					90	100
FA13 FA14 FA15 FA16 FA17	15 0 30	Psi Sec %	C C C C					90	100
FA13 FA14 FA15 FA16	15 0 30 100	Psi           Sec           %           %	C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18	15 0 30 100 112	Psi Sec % % % Psi	C C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18 FA19	15 0 30 100 112 175	Psi Sec % % % Psi Psi	C C C C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18 FA19 FA20	15 0 30 100 112 175 42	Psi Sec % % Psi Psi Psi Psi	C C C C C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18 FA19 FA20 FA21	15 0 30 100 112 175 42 22	Psi Sec % % Psi Psi Psi Psi Psi	C C C C C C C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18 FA19 FA20 FA21 FA22	15 0 30 100 112 175 42 22 36	Psi Sec % % Psi Psi Psi Psi Psi Psi Psi	C C C C C C C C C C C C C					90	100
FA13 FA14 FA15 FA16 FA17 FA18 FA19 FA20 FA21 FA22 FA23	15 0 30 100 112 175 42 22 36 90	Psi Sec % % Psi Psi Psi Psi Psi Psi %	C C C C C C C C C C C C C C C C C C C					90	100



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		TAE	evo Tec	h 381÷4					
eter					Hydrau	lic group	·	Fans c	ontrol
Parameter	Value	MU	Level	SP	Р3	Р5	P3+P3	ON/OFF	EC
	0	Psi	C						
FA28	0	Psi	С						
FA29	0	Psi	С						
FA30	0	Sec	С						
A31	0	Sec	С						
FA32	32	°F	С						
FA33	0	%	С						
Ar01	27	°F	1 0			1	1		
	37		S						
Ar02	4	°F °F	S						
Ar03	37		C						
Ar04	4	°F	C						
Ar05	0		C						
Ar06	0		C						
Ar07	0		C						ļ
Ar08	0		C						
Ar09	1		С						
Ar10	1		S						
Ar11	0		С						
Ar12	113	°F	С						
Ar13	4	°F	C						
Ar14	0	Min	C						
Ar15	104	°F	С						
Ar16	4	°F	С						
Ar17	113	°F	C						
Ar18	4	°F	С						
Ar19	113	°F	C						
Ar20	4	°F	С						
Ar21	3		C						
Ar22	3		С						
Ar23	0		C						
Ar24	0		S						
Ar25	0		С						
Ar26	37	°F	С						
Ar27	4	°F	С						
IF01	0		C			1	T		
1F02	68	Psi	C				+		
1F02 1F03	290	Psi	C				+		l
1F04	180	Sec	C				-		1
IF04 IF05	5	Min	C			<u> </u>			
1F05 1F06	5	Min	C						
1F00 1F07	10	Sec	C						
IF07 IF08							+		ļ
	10	Sec	C			<u> </u>			
IF09	10	Min °F	C		<b> </b>	<u> </u>			
IF10	37		C						
IF11	50	°F	С				<u> </u>	ļ	
IF12	37	°F	С						
IF13	50	°F	С						
IF14	1		С						ļ
IF15	1		С						
IF16	30	Sec	С						



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		IAL	evo 1ec	h 381÷4	01 UL				
ler					Hydrau	lic group	1	Fans c	ontrol
Parameter		MU	Level	SP	Р3	Р5	P3+P3	ON/OFF	EC
dF17	1		С						
dF18	329	Psi	С						
dF19	10	Sec	С						
dF20	44	Psi	С						
dF21	7	Psi	С						
dF22	2		С						
dF23	1		С						
dF24	0		С						
dF25	0		С						
dF26	47	°F	С						
dF27	32	°F	С						
dF28	32	°F	С						
dF29	1	°F	C						
dF30	1	°F	C						
dF31	32	°F	C						
dF32	32	°F	C						
dF33	1	°F	C						
dF34	1	°F	C		-				
dF35	0		C						
dF36	0	Sec	C						
dF37	-30	Psi °F	C						
dF38	41		C						
dF39	27	°F	С				V		
*C01	0	-	C		1	1	1		
rC01	0		C C						
rC02 rC03	5	Sec Sec	C						
rC04	1	Min	C						
rC04	1	Min	C						
rC06	505	Psi	C						
rC07	36	Psi	C						
rC08	2	Min	C		-				
rC09	1		C		-				
1007	1		U				1		
FS01	0	- T	С		1	1	1		
FS02	0		C						
FS03	68	°F	C		1	1	1		
FS04	1	°F	C		1		1		
FS05	32	°F	C		1		1		
FS06	158	°F	С	L	1				
FS07	0		С		1				
FS08	0		С		1	1	1		
FS09	0	Min	С		1	1	1		
FS10	0	Sec	С		1	İ	İ		
FS11	0	Sec	С		1	İ	1		
FS12	0		С		1	1	1		
FS13	0	Hours	С		1	1	1		
FS14	50	°F	С		1	1	1		
FS15	50	°F	С		1	1	1		
FS16	158	°F	С		1		1		
FS17	0	Time	С		1		1		
FS18	0		С			1	1		

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		IAE	evo rec	11 30174	01 UL			г	
Parameter	Ie		e	SP	Hydrau P3	lic group P5	P3+P3	Fans contraction of the factor	ontrol EC
Par	Value	ΠM	Level	51	15	15	15115	010/011	LC
FS19	1	Min	С						
FS20	1	°F	С						
FS21	1	°F	С	-					
FS22	1	°F	С						
FS23	86	°F	С	-					
FS24	1	°F	С	-					
FS25	86	°F	С						
FS26	91	°F	С	-					
FS27	0	Sec	С	-					
FS28	0	Sec	С						
FS29	0	Min	С		1				
FS30	32	°F	С						
FS31	1	°F	С						
FS32	0	Min	С						
FS33	0		C						
FS34	0	Min	C						
FS35	0	Sec	C						
FS36	0	Min	C			F			
FS37	32	°F	C		t				
FS38	1	°F	C						
FS39	0	%	C						
FS40	100	%	C						
FS41	0		C						
FS42	0		C				· · · ·		
FS43	32	°F	C	2					
FS44	1	°F	C						
FS45	0	Min	C						
FS46	0		C						
FS47	0		C						
FS48	0		C						
FS49	0		C						
FS50	32	°F	C						
FS51	0		C						
FS52	32	°F	C						
FS52 FS53	1	°F	C						
FS54	0		C						
FS55	0		C			<u> </u>			
FS56	0		C						
FS50 FS57	0		C	L		<b> </b>			
FS58	0		C			<u> </u>			
FS59	1	 °F	C			<b> </b>			
FS60	1	°F	C				<u> </u>		
			C						
FS61	0	Min					<u> </u>		
FS62	0	 °F	C						
FS63	32	°F	C						
FS64	1	<sup>T</sup>	С	L	L	I	L		
1.01	45				1	1	1		
AL01	45	Sec	S						
AL02	2	10 Sec	C			I			
AL03	8.7	Psi	C		ļ	L			
AL04	14.5	Psi	C						
AL05	3		С				1	1	



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		TAE	evo Tec	h 381÷4	01 UL				
ter					Hydrau	lic group	1	Fans c	ontrol
Parameter	0	MU	O Level	SP	Р3	Р5	P3+P3	ON/OFF	EC
AL06									
AL07	0	Sec	С						
AL08	0		S						
AL09	577	Psi	C						
AL10	87	Psi	C						
AL11	120	Sec	C						
AL12 AL13	5 3	Sec	C C						
AL13 AL14	0		C						
AL14 AL15	10	Sec	C		-				
AL15 AL16	0	Sec	C		-				
AL10 AL17	5	Sec	C						
AL18	5	Sec	C						
AL10 AL19	0	Sec	C						
AL20	0		C						
AL20	0		C						
AL22	0		C						
AL23	0		С			1			
AL24	9	°F	С						
AL25	59	°F	С						
AL26	39	°F	U						
AL27	7	°F	S						
AL28	3	Sec	С						
AL29	3		С						
AL30	1		C						
AL31	37	°F	С						
AL32	43	°F	C			_			
AL33	39	°F	C						
AL34	4	°F	C						
AL35	3	Sec	C C						
AL36 AL37	3	Sec	C						
AL37 AL38	1		C		-				
AL38 AL39	158	°F	C		-				
AL37 AL40	138	°F	C						
AL41	1		C		-				
AL42	2		C						
AL43	1	Sec	C			1	1		
AL44	1	10 Sec	С						
AL45	0		С				1		
AL46	14		С		1	1	1		
AL47	1		С		1		1		
AL48	0		С		1		1		
AL49	0		С						
AL50	0		С						
AL51	0		С						
AL52	0	Sec	С						
AL53	0	10 Sec	С						
AL54	0		C						
AL55	0	Sec	C			<u> </u>			
AL56	0	Sec	C			<b> </b>	ļ		
AL57	0	Sec	С						

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		IAE	evo 1ec	n 381÷4	01 UL			-	
eter					Hydrau	lic group		Fans c	ontrol
Parameter	Value	MU	Level	SP	Р3	Р5	P3+P3	ON/OFF	EC
AL58	0	Sec	C						
AL59	0		С						
AL60	0	10 Sec	С						
AL61	230	°F	С						
AL62	7	°F	С						
AL63	0		С						
AL64	30	Sec	С						
AL65	0	Sec	С						
AL66	0	Sec	С						
AL67	0	Sec	С						
AL68	0	Sec	С						
AL69	0	Sec	С						
AL70	0	Sec	С						
AL71	0	Sec	С						
AL72	0	Sec	С						
AL73	0		С						
AL74	0		С						
AL75	0		С						
AL76	0		С						
AL77	0		С						
AL78	1	Psi	С						
AL79	1	Psi	С				1		
AL80	0		С						
AL81	0		С				1		
AL82	0	Sec	С				1		
AL83	0	Sec	С				1		
AL84	0	Sec	С				1		
AL85	0	Sec	С				1		
AL86	0	Min	С			1	1		
AL87	0	Sec	С				1		
AL88	0		S						
LS01	0		С			1	1		
LS01 LS02	59	°F	U		+	<u> </u>	+		
LS02 LS03	0	°F	C		+		+		
LS03	1	Min	C		+	<u> </u>	1		
LS04	4	°F	C		+	<u> </u>	1		
LS05	0		C		+	<u> </u>	1		
LS00	0		C		+	<u> </u>	1		
LS07	5		C						
LS08	1	°F	C						
LS09 LS10	100	Sec	C						
LS10	5	Sec	C						
LS11 LS12	11	Sec	C		+				
LS12 LS13	3	Sec	C						
LS15 LS14	3	Sec	C		+				
LS14 LS15	1	Sec	C		+				
LS15 LS16	0	°F	C			<b> </b>			
LS10 LS17	0	°F	C		+				
Pr1	23	•F	U			<b> </b>			
Pr1 Pr2	32	-	S						
Pr2 Pr3	69		C						
113	09			I	1		1		



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		TAE	Levo Tec	h 402÷6					
ter					Hydrau	lic group	)	Fans c	ontrol
Parameter	Aalue 42	MU	Level	SP	Р3	Р5	P3+P3	Step	EC
ST01	45	°F	U						
ST02	41	°F	U						
ST03	86	°F	С						
ST04	113	°F	С						
ST05	68	°F	С						
ST06	122	°F	С						
ST07	4	°F	U						
ST08	4	°F	С						
ST09	3		С						
ST10	3		С						
ST11	1		S						
dP01	3		S						
dP02	0		S						
dP03	0		C	-					
dP04	0		C						
dP05	0		C			7			
dP06	11		S						
dP07	0		S						
dP08	0		S						
dP09	0		S						
dP10	0		S						
CF01	1		С						
CF02	1		С						
CF03	0		С						
CF04	2		С						
CF05	2		C						
CF06	0		С						
CF07	1		С						
CF08	11		С						
CF09	9		С						
CF10	27	-	С						
CF11	28		С		İ				
CF12	10		C		1	1			
CF13	19		С			1			
CF14	0		С			1			
CF15	0		С						
CF16	0	°F	S						
CF17	0	°F	S						
CF18	0	Psi	S						
CF19	0	Psi	S				İ		
CF20	0	°F	S				İ		
CF21	0	°F	S						
CF22	0	°F	S						
CF23	0	°F	S				İ		
CF24	0	Psi	С						
CF25	725	Psi	С			1			
CF26	0	Psi	С		1	1			
CF27	725	Psi	С		1				
CIT									

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L.			Eevo Tec			lic group	, I	Fans c	control
Parameter	Value	M	Level	SP	P3	P5	P3+P3	Step	EC
CF29	0	Psi	C						
CF30	07		С						
CF31	08		С						
CF32	09		С						
CF33	o10		С						
CF34	03		С						
CF35	01		С		1		1		
CF36	o26		С						
C <b>F37</b>			С	0	0	0	027		
CF38	o23		С						
CF39	043		C			<u> </u>			
CF40	0		C			ļ			
CF41	c51		C						
CF42 CF43	c57		C C						
CF43 CF44	c63 c69		C						
CF44 CF45	01		C						
CF45	0		C			V			
CF47	c2		C						
CF48			C	0	0	0	c3		
CF49	0		C						
CF50			C					c10	8
CF51			C					c11	0
CF52	0		С						
CF53	0		С						
	See Ch. 7.41.3		U						
CF55	0		С						
CF56	0	°F	С						
F57	0	°F	C						
CF58	0		С			ļ			
CF59	0		C						
CF60	86	°F	C						
CF61	18	°F	C						
CF62 CF63	1	-	C						
CF63	1		S U				┨───┨		
CF65	not used		C				┼──┤		
CF66	not used		C				┤──┤		
CF67	0		C						
CF68	0		C						
F69	0		C						
CF70	0		C						
CF71	0		C						
CF72	0		С		1				
F73	0		С						
F74	0		С		1	1			
CF75	0		С						
CF76	1		С						
CF77	1		С						
CF78	0		С						
CF79	0		C						
CF80	0		С		1				



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		TAE	evo Tec	h 402÷6					
eter					Hydrau	lic group		Fans	control
Parameter	0 Value	MU	O Level	SP	Р3	Р5	P3+P3	Step	EC
CF81									
CF82	0		С						
CF83	0	Sec	С						
CF84	1		С						
EI01	1		С			1	<u>г т</u>		
EI02	0		C						
EI03	0		C						
E104	0		С						
E105	0		С						
E106	0		С						
EI07	0		С						
E108	0		С						
E109	0		С						
EI10	0	°F	С						
EI11	0	°F	С						
EI12	0	Psi	С						
EI13	0	Psi	С						
EI14	0	°F	C						
EI15	0	°F	С						
EI16	0	°F	C						
EI17	0	°F	C						
EI18	0	Psi	С						
EI19	0	Psi	С						
EI20	0	Psi	C						
EI21	0	Psi	C						
EI22	0	Psi	C						
EI23	0	Psi	C						
EI24	0		C						
E125 E126	0		C						
E126 E127			C C						
E127 E128	0		C						
E128 E129	0		C						
E129 E130	0		C						
EI30 EI31	0		C	1			├───┤		
EI31 EI32	0		C				$\left  \right $		
EI32 EI33	0		C				+ +		
EI33	0		C	<u> </u>					
E135	0		C		1				
E136	0		C		1				
EI37	0		C		1				
E138	0		C		1	<u> </u>			
EI39	0		С	L					
EI40	0		С						
EI41	0		С		1				
EI42	0		С		1				
EI43	0		С		1				
Sd01	0	°F	U		İ				
Sd02	0	°F	С		İ				
Sd03	39	°F	U		l				İ
Sd04	0	°F	С		İ	1			İ

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<u> </u>		IAL	evo rec	h 402÷6		lia area-	ı	Fanc -	ontrol
netei					Hydrau	lic group		rans c	ontrol
Parameter	Aalue 54	MU	Level	SP	Р3	P5	P3+P3	Step	EC
Sd05	54	°F	U						
Sd06	0	°F	С						
Sd07	0	°F	С						
Sd08	0	°F	С						
Sd09	0	°F	С						
Sd10	0	°F	С						
Sd11	0	°F	С						
Sd12	0	°F	С						
Sd13	0	°F	C						
Sd14	0	°F	C						
Sd15	0	°F	C						
Sd16	0	°F	C						
Sd17	0	°F	C						
Sd18	0	°F	C						
Sd19	0	°F	C						<u> </u>
Sd20	0	°F °F	C						
Sd21	0	°F	C						
Sd22 Sd23	0 0	°F	C C						
Sd23 Sd24	0	°F	C						
Sd24 Sd25	0	°F	C						
Sd25 Sd26	0	°F	C						
Sd20 Sd27	32	°F	C						
Sd27	32	°F	C						
Sd29	0	°F	C						
Sd30	0	°F	C						
~		-					<u> </u>		
ES01	0	Time	C			1			[
ES02	0	Time	C						
ES03	0	Time	С						
ES04	0	Time	С						
ES05	0	Time	С						
ES06	0	Time	С		1				
ES07	0-0		С		1				
ES08	0-0		С		1				
ES09	0-0		C		1	İ			
ES10	0-0		С		1	İ			
ES11	0-0		С		1	ĺ			
ES12	0-0		С						
ES13	0-0		С						
ES14	37	°F	С						
ES15	5	°F	С						
ES16	27	°F	С						
ES17	2	°F	С						
ES18	1	10 Min	С						
ES19	0	Time	С						
ES20	0	Time	С						
ES21	0	Time	С						
ES22	0	Time	С						
ES23	0	Time	С						
ES24	0	Time	С						
ES25	0		С		1				



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		TAE	evo Tec	h 402÷6					
ter					Hydrau	lic group		Fans o	control
Parameter	0 Value	MU	O Level	SP	Р3	Р5	P3+P3	Step	EC
ES26									
ES27	0		С						
ES28	0		С						
ES29	0		С						
ES30	0		С						
ES31	0		С						
ES32	0	°F	С						
ES33	1	°F	С						
			I		1	1	<b>.</b>		
Cr01	0		С						
Cr02	0	Psi	C						
Cr03	0	Psi	С						
Cr04	0	Psi	С						
Cr05	1	Psi	C						
Cr06	0	Psi	C						
Cr07	1	Psi	C						
Cr08	0	-	C						
Cr09	0		С						
0001	1.4	10.0	0				<u>г т</u>		
CO01	14	10 Sec	C						
CO02	22	10 Sec	C						
CO03 CO04	60 30	Sec	C						
C004 C005	30	10 Sec	C C						
C005 C006		A							
C006 C007	0		C C						
C007 C008	0	 Sec	C						
C008	0	Sec	C						
C009 CO10	0		C						
C010 C011	0	0.1 Sec	C						
C011	5	Sec	C						
C012 C013	0	Sec	C						
C013	2		S						
C014	1		S						
C015	1		S						
C017	6	10 Sec	S						
C018	2	Min	S			1			
CO19	4	10 Hours	U		1	1			
CO20	2	Sec	S			1			
CO21	0		C			1			
CO22	0		C			1			
CO23	0	Min	C						
CO24	0	10 Hours	С		1	1			
CO25	0	Sec	С		1	1			
CO26	0	10 Hours	S		1	1			
CO27	0	10 Hours	S		1	İ			
CO28	0	10 Hours	S		İ	İ			
CO29	0	10 Hours	S		İ	İ			
CO30	0	10 Hours	С		İ	İ			
CO31	0	10 Hours	С		1	İ			
CO32	0	10 Hours	S		İ	İ			
CO33	0	10 Hours	S		İ	İ			

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		IAL	evo rec	II 402÷0	02 UL	R		F	
ietei					Hydrau	lic group 		Fans c	ontrol
Parameter	Value	MU	Level	SP	Р3	Р5	P3+P3	Step	EC
CO34	0	10 Hours	С						
CO35	0	10 Hours	С						
CO36	0		С						
CO37	15	Psi	С						
CO38	7	Psi	С						
CO39	30	Sec	С						
CO40	104	°F	С						
CO41	18	°F	С						
CO42	1	10 Sec	С						
CO43	5	Min	С						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	С						
CO47	22	Psi	С						
CO48	5	Min	S						
CO49	1		С						
CO50	0	Sec	С						
CO51	32	°F	С			1			
CO52	1	°F	С						
CO53	3	10 Min	S						
CO54	0	Hours	С						
CO55	-58	°F	С						
CO56	1	°F	C						
CO57	0	Min	С						
CO58	0	Sec	С						
CO59	0	Sec	C						
CO60	0	Sec	C						
CO61	0		C						
CO62	0	Sec	C						
CO63	0	%	C				+		
CO64	0	10 Min	C						
CO65	0	Sec	C		<u> </u>				
CO66	0	Hours	C						
CO67	1	110u13 %	C						
CO68	1	<sup>70</sup> %	C						
CO69	1	<sup>70</sup> %	C		+				
CO70	1	<sup>70</sup> %	C		+				
CO70 CO71	1	Sec	C		+				
CO72	0		C						
CO72 CO73	0	10 Hours	C		<b> </b>	<u> </u>			
CO73 CO74	0		C						
CO74 CO75	0	10 Hours	C						
		Sec							
CO76	4		C						
CO77	4		C		-	<u> </u>			
CO78	4		C			ļ			
CO79	1	%	C		<b> </b>	ļ			
CO80	1	%	C		<u> </u>				
CO81	1	%	С		<u> </u>				
CO82	32	°F	C						
CO83	1	°F	С						
CO84	0	%	С						
CO85	0	10 Min	С		1	1			



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$\frac{2}{C086}$ $\frac{2}{O}$ $\frac{2}{O}$ $\frac{2}{O}$ $\frac{1}{O}$ C087         0         10 Hours         C			TAE	evo Tec	h 402÷6	02 UL				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	er						lic group		Fans o	control
CO87         0         10 Sec         C         10           CO88         0         10 Mins         C         10           CO89         0         10 Hours         C         10           CO90         0         10 Sec         C         10           CO91         0         10 Sec         C         10           CO92         0         Sec         C         10           CO93         0         Sec         C         10           CO93         0         Sec         C         10           CO95         0         10 Hours         C         10           CO96         1         %         C         10           uss01         0          C         10         10           uss02         1          C         10         10           uss03         32         °F         C         10         10           uss05         32         °F         C         10         10           uss07         32         °F         C         10         10           uss08         32         °F         C         10		Value		Level	SP	1	1		Step	EC
CO88         0         10 Min         C         10           CO99         0         10 Hours         C         10           CO91         0         10 Sec         C         10           CO91         0         10 Sec         C         10           CO92         0         Sec         C         10           CO93         0         Sec         C         10           CO94         1         %         C         10           CO95         0         10 Hours         C         10           CO96         1         %         C         10           us01         0          C         10           us03         32         °F         C         10           us03         32         °F         C         10           us06         32         °F         C         10           us06         32         °F         C         10           us06         32         °F         C         10           us06         32         °F         C         10           us10         1         °F         10         10 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>										
CO89         0         10 Hours         C         10           CO90         0         10 Sec         C         10           CO91         0         10 Sec         C         10           CO92         0         Sec         C         10           CO93         0         Sec         C         10           CO93         0         Sec         C         10           CO94         1         %         C         10           CO95         0         10 Hours         C         10           CO96         1         %         C         10           u\$01         0          C         10           u\$03         32         °F         C         10           u\$04         32         °F         C         10           u\$06         32         °F         C         10           u\$08         32         °F         C         10           u\$06         32         °F         C         10           u\$10         1         °F         C         10           u\$10         1         °F         C         10										
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $										
CO93         0         Sec         C         1 $\%$ C           CO94         1 $\%$ C         1										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $										
CO95         0         10 Hours         C         1         %         C         1 <th1< th="">         1         1         <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<></th1<>										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $										
uS01         0          C             uS02         1          C              uS03         32         °F         C               uS04         32         °F         C                uS06         32         °F         C										
us02         1          C         Image: constraint of the state	0.070	1	70	C		I				
us02         1          C         Image: constraint of the state	uS01	0		C						
u\$03         32         °F         C         Image: constraint of the structure of										
uS04         32         °F         C         Image: constraint of the system of the										
u\$05         32         °F         C         Image: constraint of the structure of										
u\$06         32         °F         C         Image: constraint of the structure of										
uson         32         °F         C         Image: constraint of the system of th		32	°F	С						
u809         1         °F         C         Image: constraint of the system of the	uS07	32	°F	С						
uS10         1         °F         C         Image: constraint of the structure           uS11         0          C         Image: constraint of the structure         Image: constructure              uS11	uS08	32	°F	С						
uS11         0          C             uS12         1          C              uS13         32         °F         C               uS14         32         °F         C                uS14         32         °F         C	uS09	1	°F	C						
usi2         1          C         1         1           usi3         32         °F         C         1 <t< th=""><th>uS10</th><th>1</th><th>°F</th><th>C</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	uS10	1	°F	C						
u\$13         32         °F         C         Image: constraint of the structure           u\$14         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$15         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$16         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$17         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$18         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$19         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$20         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$21         0         Min         C         Image: constraint of the structure         Image: constraint of the structure           u\$22         0          C         Image: constraint of the structure         Image: constraint of the structure           u\$231         32	uS11	0		С						
uS14         32         °F         C         Image: constraint of the structure           uS15         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS16         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS16         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS17         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS18         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS19         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS20         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS21         0         Min         C         Image: constraint of the structure         Image: constraint of the structure           uS22         0          C         Image: constraint of the structure         Image: constraint of the structure           uS26         32										
u\$15         32         °F         C         Image: constraint of the structure           u\$16         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$17         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$18         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$19         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$20         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           u\$21         0         Min         C         Image: constraint of the structure         Image: constraint of the structure           u\$22         0          C         Image: constraint of the structure         Image: constraint of the structure           u\$23         1          C         Image: constraint of the structure         Image: constraint of the structure           u\$24         32         °F         C         Image: constraint of the structure         Image: constraint of the structure         Image: constraint of the structure         Imag										
uS16         32         °F         C         Image: constraint of the structure           uS17         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS18         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS19         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS20         1         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS21         0         Min         C         Image: constraint of the structure         Image: constraint of the structure           uS22         0          C         Image: constraint of the structure         Image: constraint of the structure           uS23         1          C         Image: constraint of the structure         Image: constraint of the structure           uS24         32         °F         C         Image: constraint of the structure         Image: constraint of the structure           uS26         32         °F         C         Image: constraint of the structure         Image: constraint of the structure         Image: constraint of the structure         Imag										
uS17         32         °F         C           uS18         32         °F         C           uS19         1         °F         C           uS20         1         °F         C           uS21         0         Min         C           uS22         0          C           uS23         1          C           uS24         32         °F         C           uS25         32         °F         C           uS26         32         °F         C           uS26         32         °F         C           uS26         32         °F         C           uS27         32         °F         C           uS28         32         °F         C           uS28         32         °F         C           uS30         1         °F         C           uS31         1         °F         C           uS33         100         %         C										
uS18       32       °F       C       Image: constraint of the structure         uS19       1       °F       C       Image: constraint of the structure       Image: constraint of the structure         uS20       1       °F       C       Image: constraint of the structure       Image: constraint of the structure         uS21       0       Min       C       Image: constraint of the structure       Image: constraint of the structure         uS22       0        C       Image: constraint of the structure       Image: constraint of the structure         uS23       1        C       Image: constraint of the structure       Image: constraint of the structure         uS23       1        C       Image: constraint of the structure       Image: constraint of the structure         uS24       32       °F       C       Image: constraint of the structure       Image: constraint of the structure         uS26       32       °F       C       Image: constraint of the structure       Image: constraint of the structure         uS28       32       °F       C       Image: constraint of the structure       Image: constraint of the structure         uS30       1       °F       C       Image: constraint of the structure       Image: constraint of the str										
uS19       1       °F       C       Image: constraint of the structure of t										
uS20       1       °F       C       Image: Constraint of the state o										
uS21       0       Min       C       Image: Constraint of the state										
uS22       0        C       Image: Constraint of the structure         uS23       1        C       Image: Constraint of the structure       Image: Constraint of the structure         uS24       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS25       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS26       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS26       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS26       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS28       32       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS30       1       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS31       1       °F       C       Image: Constraint of the structure       Image: Constraint of the structure         uS33       100       %       C       Image: Constraint of the structure       Image: Constraint of the										
uS23       1        C           uS24       32       °F       C            uS25       32       °F       C             uS26       32       °F       C              uS26       32       °F       C										
uS24       32       °F       C       Image: Constraint of the state										
uS25       32       °F       C       Image: Constraint of the state										
uS26       32       °F       C         uS27       32       °F       C         uS28       32       °F       C         uS29       32       °F       C         uS30       1       °F       C         uS31       1       °F       C         uS32       0       %       C       Image: Constraint of the second seco						1	1			
uS27         32         °F         C         Image: Constraint of the state						1	1			
uS28         32         °F         C           uS29         32         °F         C           uS30         1         °F         C           uS31         1         °F         C           uS32         0         %         C           uS33         100         %         C			°F							
uS30         1         °F         C            uS31         1         °F         C             uS32         0         %         C              uS33         100         %         C						1	1			1
uS31         1         °F         C           uS32         0         %         C           uS33         100         %         C	uS29	32		С		1	1			
uS32         0         %         C           uS33         100         %         C		1								
uS33 100 % C										
	uS34	0		C						
uS35 1 C										
u\$36 32 °F C										
u\$37 32 °F C							ļ			ļ
<b>uS38</b> 32 °F C							ļ			ļ
u839 32 °F C										
uS40 32 °F C	u840	32	۴	C						

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<u> </u>		IAL	10 100	h 402÷6		lic group		Fans	control
Parameter	e		_		1	1	1		l
ara	Value	ПM	Level	SP	P3	P5	P3+P3	Step	EC
uS41	32	°F	C						
uS42	1	°F	С						
uS43	1	°F	С						
uS44	0	%	С						
uS45	100	%	С				1		
uS46	1		С				1		
uS47	0		С						
uS48	0		С						
uS49	32	°F	С						
uS50	1	°F	С						
uS51	0	%	С						
uS52	100	%	С						
uS53	0		C						
uS54	0		С						
uS55	32	°F	C						
uS56	1	°F	C						
uS57	0	%	C						
uS58	100	%	C						
uS59	0	%	C						
uS60	0	%	C						
uS61	1	-	C						
uS62	1		C						
uS63 uS64	1		C C						
u304	1		U				<u> </u>		
FA01		1	С				1 1	3	4
FA01 FA02	0		C				+	3	4
FA03	10	sec	C						
FA04	4	250 µsec	C				+		
FA05	0		C						
FA06	0	Sec	C						
FA07		%	C					30	10
FA08	100	%	C						
FA09		Psi	C		1			357	273
FA10	406	Psi	C		1				
FA11		Psi	C		1			90	109
FA12	7	Psi	С		1	<u> </u>			
FA13	15	Psi	С		1	1			
FA14	0	Sec	С		1				
FA15		%	С		1	<u> </u>	1 1	90	100
FA16	30	%	С		İ				
FA17	100	%	С		1				
FA18	112	Psi	С						ĺ
FA19	175	Psi	С						
FA20	42	Psi	С						
FA21	22	Psi	С						
FA22	36	Psi	С						
FA23	90	%	С						
FA24	77	°F	С						
FA25	9	°F	С						
	0	Psi	С	1	1				
FA26 FA27	0 0	Psi	C						



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		TAE	Levo Tec	h 402÷6					
ter					Hydrau	lic group		Fans	control
Parameter	0 Value	MU	O Level	SP	Р3	Р5	P3+P3	Step	EC
FA28		Psi	С						
FA29	0	Psi	С						
FA30	0	Sec	С						
FA31	0	Sec	С						
FA32	32	°F	С						
FA33	0	%	С						
4.01	27	015	0		1		<b>r</b>		<b>F</b>
Ar01	37	°F °F	S S						
Ar02	4	°F	C S						
Ar03	37								
Ar04	4	°F	C					_	
Ar05	0		C				-		
Ar06	0		C						
Ar07	0		C						
Ar08 Ar09	0		C C						
Ar09 Ar10	1		S					_	
Ar10 Ar11	0		C						
Ar12	113	°F	C						
Ar12 Ar13	4	°F	C						
Ar13 Ar14	0	Min	C						
Ar14 Ar15	104	°F	C						
Ar16	4	°F	C						
Ar17	113	°F	C						
Ar18	4	°F	C						
Ar19	113	°F	C						
Ar20	4	°F	C				+ +		
Ar21	2.0		C			-	+ +		
Ar22	2.0		C				+ +		
Ar23	0		C						
Ar24	0		S						
Ar25	0		C						
Ar26	37	°F	C						
Ar27	4	°F	C						
			-		1	1	1 1		
dF01	0		С	[			1 1		1
dF02	68	Psi	С				1 1		
dF03	290	Psi	С						
dF04	180	Sec	C						
dF05	5	Min	С		1				
dF06	5	Min	С		1				
dF07	10	Sec	С		1	1	1 1		1
dF08	10	Sec	С		1		1 1		1
dF09	10	Min	С		İ	1	1 1		İ
dF10	37	°F	С		1		1 1		1
dF11	50	°F	С		İ	1	1 1		İ
dF12	37	°F	С		İ	1	1 1		İ
dF13	50	°F	С		İ	1	1 1		İ
dF14	1		С		1	1	1 1		1
dF15	1		С		İ	1	1 1		İ
dF16	30	Sec	С		1		1 1		1
dF17	1		С		1	1			

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	1	TAE	evo Tec	h 402÷6				-	
Parameter	ల		_		1	lic group		Fans c	
ara	/alu	MU	Level	SP	P3	P5	P3+P3	Step	EC
dF18	Aalue S29	Psi	C						
dF19	10	Sec	C						
dF20	44	Psi	C						
dF21	7	Psi	C				+		
dF22	2		C						
dF23	1		C						
dF24	1		C						
dF25	0		C						
dF26	47	°F	C						
dF27	32	°F	C						
dF28	32	°F	C						
dF28 dF29	1	°F	C					-	
	1	°F							
dF30			C						
dF31	32	°F	C						
dF32	32	°F	C						
dF33	1	°F	C						
dF34	1	°F	C						
dF35	0		C						
dF36	0	Sec	С						
dF37	-30	Psi	С						
dF38	41	°F	C						
dF39	27	°F	C						
rC01	0		С						
rC02	5	Sec	C						
rC03	5	Sec	C						
rC04	1	Min	С						
rC05	1	Min	С						
rC06	505	Psi	С						
rC07	36	Psi	С						
rC08	2	Min	C						
rC09	1		С						
FS01	0		С						
FS02	0	-	С	ĺ	1	l			
FS03	68	°F	С		1	İ			
FS04	1	°F	С			1			
FS05	32	°F	С	İ	1	1			
FS06	158	°F	С						L
FS07	0		С		1				
FS08	0		C		<u> </u>				l
FS09	0	Min	C		1		+ +		
FS10	0	Sec	C		<u> </u>		+ +		<u> </u>
FS11	0	Sec	C				+		
FS12	0		C				+		
FS12 FS13	0	Hours	C				+		1
FS13	50	°F	C				┨───┤		
							┥──┤		
FS15	50	°F	C				──┤		
FS16	158	°F	C						
FS17	0	Time	C				↓		
FS18	0	 Min	C C						
FS19	1								



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				h 402÷6	02 UL				
er					Hydrau	lic group		Fans	control
Parameter	- Value	MU	Level	SP	Р3	P5	P3+P3	Step	EC
FS20	1	°F	C						
FS21	1	°F	C						
FS22	1	°F	C						
FS23	86	°F	C						
FS24	1	°F	С						
FS25	86	°F	С						
FS26	91	°F	С						
FS27	0	Sec	С						
FS28	0	Sec	С						
FS29	0	Min	С						
FS30	32	°F	С						
FS31	1	°F	С						
FS32	0	Min	С						
FS33	0		С						
FS34	0	Min	С						
FS35	0	Sec	С						
FS36	0	Min	С						
FS37	32	°F	С						
FS38	1	°F	C						
FS39	0	%	С						
FS40	100	%	C						
FS41	0		C						
FS42	0	-	С						
FS43	32	°F	C						
FS44	1	°F	C						
FS45	0	Min	C						
FS46	0		C						
FS47	0		C						
FS48 FS49	0 0		C C						
F 549 F 550	32	 °F	C						
FS51	0		C						
FS51 FS52	32	°F	C						
FS53	1	°F	C						
FS54	0		C						
F\$55	0		C						
FS56	0		C						
FS57	0		C			1			
FS58	0		C			1			
FS59	1	°F	C		1	1			
FS60	1	°F	C		1	1			
FS61	0	Min	C		1	1			
FS62	0		С						
FS63	32	°F	С	L					
FS64	1	°F	С		1				
AL01	45	Sec	S				[ [		
AL02	2	10 Sec	С		1	1			1
AL03	8.7	Psi	С		1	1			
AL04	14.5	Psi	С		1	1			1
AL05	3		С		1	1			1
AL06	0		С		1	1			1

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<u> </u>		IAL		h 402÷6		lic group		Fan-	control
Parameter	э		5	SP	P3	P5	P3+P3	Step	EC
Para	0 Value	MU	Level	51	гэ	15	r3+r3	Step	EU
4L07	0	Sec	C						
AL08	0		S						
AL09	577	Psi	С						
AL10	87	Psi	С						
AL11	120	Sec	С						
AL12	5	Sec	С						
AL13	3		С						
AL14	0		С						
AL15	10	Sec	С						
AL16	0	Sec	С						
AL17	5	Sec	С		1	1			
AL18	5	Sec	С			1			
AL19	0	Sec	С						
AL20	0		С						
AL21	0		С						
AL22	0		С						1
AL23	0		С						
AL24	9	°F	С						
AL25	59	°F	С						1
AL26	39	°F	U						
AL27	7	°F	S						
AL28	3	Sec	C						<u> </u>
AL29	1		C						
AL30	1		С						
AL31	37	°F	C				1		
AL32	43	°F	C				+		
AL33	39	°F	С						
AL34	4	°F	C				1		<u> </u>
AL35	3	Sec	C				1		<u> </u>
AL36	3	Sec	C			1	1		<u> </u>
AL37	3		C		1		1		<u> </u>
AL38	1		C						<u> </u>
AL39	158	°F	C		1	1			
AL40	18	°F	C		1				<u> </u>
AL41	1		C		1				
AL42	2		C		1				
AL43	1	Sec	C		1				
AL44	1	10 Sec	C		1	<u> </u>			
AL45	0		C		1				
AL46	14		C						
AL47	1		C		1				
AL48	0		C		1				
AL49	0		C			1	+		
AL50	0		C				+ -		
AL51	0		C			1	+		
AL51	0	Sec	C				+		
AL52 AL53	0	10 Sec	C				+		
AL54	0		C				+		
AL54	0	Sec	C		<u> </u>	<u> </u>	+		
AL55 AL56	0	Sec	C						
AL50 AL57	0	Sec	C						
AL57 AL58	0		C				+		
1130	U	Sec							



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		TAE	evo Tec	h 402÷6					
ter						lic group		Fans	control
Parameter	0 Value	MU	Level	SP	Р3	Р5	P3+P3	Step	EC
AL59			С						
AL60	0	10 Sec	С						
AL61	230	°F	С						
AL62	7	°F	С						
AL63	0		С						
AL64	30	Sec	С						
AL65	0	Sec	C						
AL66	0	Sec	C						
AL67	0	Sec	C						
AL68	0	Sec	C						
AL69	0	Sec	C C					_	
AL70	0	Sec					4		
AL71 AL72	0	Sec	C C						
AL72 AL73	0	Sec							
AL/3 AL74	0 0		C C						
AL74 AL75	0		C						
AL75 AL76	0		C						
AL70 AL77	0		C		-				
AL77 AL78	1	Psi	C						
AL70 AL79	1	Psi	C						
AL80	0		C						
AL81	0		C						
AL82	0	Sec	C						
AL83	0	Sec	C						
AL84	0	Sec	С						
AL85	0	Sec	С						
AL86	0	Min	С			1			
AL87	0	Sec	С						
AL88	0		S						
					•				
LS01	0		С						
LS02	59	°F	U						
LS03	0	°F	С						
LS04	1	Min	С						
LS05	4	°F	C						
LS06	0		C						
LS07	0		C						
LS08	5		C						
LS09	3	°F	C						
LS10	70 5	Sec	C C						
LS11 LS12	5	Sec	C				┥ ┥		
LS12 LS13	3	Sec Sec	C				├		
LS13 LS14	1	Sec	C		+				
LS14 LS15	1	Sec	C				┼──┤		
LS15 LS16	0	°F	C				┼──┤		
LS10 LS17	0	°F	C				+ +		
Pr1	23		U				┼──┤		<u> </u>
Pr2	32		S		+		+ +		-
Pr3	69		C		-				
	-/	1	Ľ		1	1	1		1

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		TAE	evo Tec	h 702÷8				-	
eter					Hydrau	lic group	)	Fans	control
Parameter	Value	MU	Level	SP	Р3	Р5	P3+P3	Step	EC
ST01	45	°F	U						
ST02	41	°F	U						
ST03	86	°F	С						
ST04	113	°F	С						
ST05	68	°F	С						
ST06	122	°F	С						
ST07	4	°F	U						
ST08	4	°F	С						
ST09	3		С						
ST10	3		С						
ST11	1		S						
			1		1		-		-
dP01	3		S	1					1
dP02	0		S	(					
dP03	0		C						
dP04	0		C						
dP05	0		C						
dP06	11		S						
dP07	0		S						
dP08	0		S						
dP09	0		S						
dP10	0		S				-		
ur 10	U		0				Y	L	L
CF01	1		С		1		1		1
	1								
CF02	1		C						
CF03	0		C						
CF04	2		C						
CF05	2		C				<b> </b>		
CF06	0		C						ļ
CF07	1		C				<u> </u>		
CF08	11	'	С						
CF09	9		C				1		
CF10	27		С						
CF11	28		C						
CF12	10		C						
CF13	19		С						
CF14	0		С						
CF15	0		С						
CF16	0	°F	S						
CF17	0	°F	S						
CF18	0	Psi	S						
CF19	0	Psi	S		1				
CF20	0	°F	S		1				
CF21	0	°F	S	İ	İ	1	1		
CF22	0	°F	S	1	1	1	1		1
CF23	0	°F	S		1	1	1		1
CF24	0	Psi	С				1		
CF25	725	Psi	C		1		+		
CF26	0	Psi	C						
CF20 CF27	725	Psi	C				+		
CF28	0	Psi	C				+		
0140	0	1 31		1	1	1	1		1



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E I		TA	1		Hydrau	lic group	i	Fans c	ontrol
Parameter	0 Value	ΜŊ	Level	SP	P3	P5	P3+P3	Step	EC
CF29	0	Psi	С						
CF30	о7		С						
CF31	08		С						
CF32	09		С						
CF33	o10		С						
CF34	03		С						
CF35	o1		С						
CF36	026		C						
CF37			C	0	0	0	o27		
CF38	023		C						
CF39	043		C						
CF40	0		С						
CF41	c51		C						
CF42	c57		C						
CF43 CF44	c63 c69		C C						
CF44 CF45	01		C						
CF45 CF46	0		C					~	
CF40 CF47	0 c2		C		-				
CF47 CF48	02		C	0	0	0	c3		
CF49	0		C	0	•	0	0.5		
CF50	Ŭ		C					c10	8
CF51			C					c11	8
CF52	0		C						
CF53	0		C						
CF54	See Ch. 7.41.3		U						
CF55	0		С						
CF56	0	°F	С						
CF57	0	°F	С						
CF58	0		С						
CF59	0		С			İ			
CF60	86	°F	С			ĺ			
CF61	18	°F	С						
CF62	1	-	С						
CF63	1		S						
CF64	1		U						
CF65	not used		С						
CF66	not used		C						
CF67	0		C		<u> </u>				
CF68	0		С		<u> </u>				
CF69	0		C		<b> </b>				
CF70	0		C						
CF71	0		C	L					
CF72	0		C						
CF73 CF74	0		C C				─		
CF74 CF75							┥ ┥		
	0		C C				─		
CF76							─		
CF77 CF78	1 0		C C		+		├		
CF 78 CF 79	0		C						
CF 79	0		C		<b> </b>				



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eter					Hydrau	lic group		Fans o	control
Parameter	Value	MU	O Level	SP	Р3	Р5	P3+P3	Step	EC
F81	0								
F82	0		С			1	1		
F83	0	Sec	С						
F84	1		С						
I01	1		C	[	1	r –	1 1		
101	0		C				+		
102	0		C					_	
104	0		С						
105	0		С						
106	0		С				1 1		
107	0		С						
108	0		С						
109	0		С						
[10	0	°F	С						
I11	0	°F	С						
I12	0	Psi	С						
I13	0	Psi	С						
I14	0	°F	С						
I15	0	°F	С						
I16	0	°F	С						
[17	0	°F	C						
I18 I19	0	Psi Psi	C C						
119 120	0	Psi	C						
20	0	Psi	C						
121	0	Psi	C						
122	0	Psi	C						
123	0	1 51	C						
125	0		C						
126	0		C						
127	0		C						
128	0		С						
129	0		С						
130	0		С						
I31	0		С		1				
132	0		С		İ	1			İ
133	0		С						
34	0		С						
135	0		С						
36	0		С						
37	0		С						
138	0		С						
139	0		C						
[40	0		C						
I41	0		C		ļ				
142 143	0 0		C C						
143	U				L	L			
d01	0	°F	U						
d02	0	°F	С		1				
d03	39	°F	U		1				



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		TAE	evo Tec	h 702÷8					
ter					Hydrau	lic group		Fans	control
Parameter	0 Value	M∩ °F	O Level	SP	Р3	Р5	P3+P3	Step	EC
Sd04	0	°F	С						
Sd05	54	°F	U						
Sd06	0	°F	С						
Sd07	0	°F	С						
Sd08	0	°F	С						
Sd09	0	°F	С						
Sd10	0	°F	С						
Sd11	0	°F	С						
Sd12	0	°F	С						
Sd13	0	°F	С						
Sd14	0	°F	С						
Sd15	0	°F	С						
Sd16	0	°F	С						
Sd17	0	°F	С						
Sd18	0	°F	С						
Sd19	0	°F	С						
Sd20	0	°F	С						
Sd21	0	°F	С						
Sd22	0	°F	C						
Sd23	0	°F	C						
Sd24	0	°F	C						
Sd25	0	°F	C						
Sd26	0	°F	С						
Sd27	32	°F	С						
Sd28	32	°F	C						
Sd29	0	°F	С						
Sd30	0	°F	C						
ES01	0	Time	C						[
ES02	0	Time	С						
ES03	0	Time	C						
ES04	0	Time	С						
ES05	0	Time	С						
ES06	0	Time	С						
ES07	0-0	-	С						
ES08	0-0		С						
ES09	0-0		С						
ES10	0-0		С						
ES11	0-0		С						
ES12	0-0		С						
ES13	0-0		С						
ES14	37	°F	C						
ES15	5	°F	С						
ES16	27	°F	С						
ES17	2	°F	С						
ES18	1	10 Min	С						
ES19	0	Time	С						
ES20	0	Time	С						
ES21	0	Time	С						
ES22	0	Time	С						
ES23	0	Time	С						

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5		IAEC	10 100	h 702÷8		lic group		Fone	ontrol
Parameter	ē		T	CB	1		1		
Para	Value	ΠM	Level	SP	P3	P5	P3+P3	Step	EC
ES25	0		C						
ES26	0		С						
ES27	0		С						
ES28	0		С						
ES29	0		С						
ES30	0		С						
ES31	0		С						
ES32	0	°F	С						
ES33	1	°F	С						
Cr01	0		С		1	[	1		
Cr02	0	Psi	С						
Cr03	0	Psi	С						
Cr04	0	Psi	С						
Cr05	1	Psi	С						
Cr06	0	Psi	С						
Cr07	1	Psi	С						
Cr08	0		С						
Cr09	0		С						
		•							
CO01	14	10 Sec	С						
CO02	22	10 Sec	C						
CO03	60	Sec	С						
CO04	30	Sec	С						
CO05	3	10 Sec	С						
CO06	0		С						
CO07	1		С						
CO08	0	Sec	С						
CO09	0	Sec	С						
CO10	0		С						
CO11	0	0.1 Sec	C						
CO12	5	Sec	С						
CO13	0	Sec	С		1	1	1		
CO14	2		S				1		
CO15	1		S				1		
CO16	1		S	İ			1		
C <b>O17</b>	6	10 Sec	S	İ			1		
CO18	2	Min	S						
CO19	4	10 Hours	U						
CO20	2	Sec	S				1		
CO21	0		С				1		
CO22	0		С						
C <b>O23</b>	0	Min	С						
C <b>O24</b>	0	10 Hours	С						
CO25	0	Sec	С						
CO26	0	10 Hours	S						
CO27	0	10 Hours	S				1		
CO28	0	10 Hours	S	İ			1		
CO29	0	10 Hours	S	İ			1		
CO30	0	10 Hours	С	İ			1		
C <b>O</b> 31	0	10 Hours	С		1		1		
CO32	0	10 Hours	S	l	1	1	1		



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		TAE	evo Tec	h 702÷8	02 UL				
er					Hydrau	lic group		Fans o	control
Parameter	0 Value	MU	Level	SP	Р3	P5	P3+P3	Step	EC
CO33	0	10 Hours	S						
CO34	0	10 Hours	С						
CO35	0	10 Hours	С						
CO36	0		С						
CO37	15	Psi	С						
CO38	7	Psi	С						
CO39	30	Sec	С						
CO40	104	°F	С						
CO41	18	°F	С						
CO42	1	10 Sec	С						
CO43	5	Min	С						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	С						
CO47	22	Psi	С						
CO48	5	Min	S						
CO49	1		C						
CO50	0	Sec	C						
C051	32	°F	C						
CO52 CO53	1		C						
	3	10 Min	S						
CO54 CO55	-58	Hours °F	C C						
C055	-38	°F	C						
C050 C057	0	Г Min	C						
C058	0	Sec	C						
CO38 CO59	0	Sec	C						
CO60	0	Sec	C						
CO61	0		C						
CO62	0	Sec	C	_					
CO62	0	%	C						
CO64	0	10 Min	C						
CO65	0	Sec	C						
CO66	0	Hours	C						
CO67	1	%	C						
CO68	1	%	C						
CO69	1	%	С						
CO70	1	%	C						
CO71	1	Sec	C						
CO72	0		С						
CO73	0	10 Hours	С						
CO74	0	10 Hours	С		İ				İ
CO75	0	Sec	С		İ				İ
CO76	4		С		İ				İ
CO77	4		С		l				l
CO78	4		С						
CO79	1	%	С		1				
CO80	1	%	С		1				İ
CO81	1	%	С		1				
CO82	32	°F	С						
CO83	1	°F	С						
CO84	0	%	С						

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		TAE	evo Tec	h 702÷8					
ter					Hydrau	lic group		Fans c	ontrol
Parameter	Value	MU	Level	SP	Р3	P5	P3+P3	Step	EC
CO85	0	10 Min	С						
CO86	0	10 Hours	С						
CO87	0	10 Sec	С						
CO88	0	10 Min	С						
CO89	0	10 Hours	С						
CO90	0	10 Sec	С						
CO91	0	10 Sec	С						
CO92	0	Sec	С						
CO93	0	Sec	С						
CO94	1	%	С						
CO95	0	10 Hours	С		1				
CO96	1	%	С						
		1	1						
uS01	0		С						
uS02	1		С						
uS03	32	°F	С						
uS04	32	°F	С						
uS05	32	°F	С						
uS06	32	°F	С						
uS07	32	°F	С						
uS08	32	°F	С						
uS09	1	°F	С						
uS10	1	°F	С						
uS11	0		С				1		
uS12	1		С						
uS13	32	°F	С						
uS14	32	°F	С						
uS15	32	°F	С						
uS16	32	°F	С			1			
uS17	32	°F	С						
uS18	32	°F	C		1				
uS19	1	°F	С			1			
uS20	1	°F	С		1				
uS21	0	Min	С		1				
uS22	0		С		1	1			
uS23	1		С		1				
uS24	32	°F	С		1				
uS25	32	°F	С		1				
uS26	32	°F	С		1				
uS27	32	°F	C		1	1			
uS28	32	°F	C		1		1	<u> </u>	
uS29	32	°F	C		1				
uS30	1	°F	C		1	1			
uS31	1	°F	C		1		1	<u> </u>	
uS32	0	%	C		1			<u> </u>	
uS33	100	%	C		1			<u> </u>	
uS34	0		C			<u> </u>		1	
uS35	1		C		+				
uS36	32	°F	C		+	<u> </u>			
uS37	32	°F	C		+	<del> </del>			
uS38	32	°F	C						
uS39	32	°F	C						
u.557	32	г	L L		1				



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		TAE	evo Tec	h 702÷8	02 UL				
ter					Hydrau	lic group		Fans	control
Parameter	Aalue 32	MU	D Level	SP	Р3	P5	P3+P3	Step	EC
uS40	32	°F	C						
uS41	32	°F	С	-					
uS42	1	°F	С						
uS43	1	°F	С						
uS44	0	%	С						
uS45	100	%	С						
uS46	1		С						
uS47	0		С						
uS48	0		С						
uS49	32	°F	С						
uS50	1	°F	С						
uS51	0	%	С						
uS52	100	%	С						
uS53	0		С						
uS54	0		С						
u855	32	°F	С						
uS56	1	°F	С						
uS57	0	%	С						
uS58	100	%	C						
u859	0	%	C						
uS60	0	%	C						
uS61	1		C						
uS62	1		C						
uS63	1		C						
uS64	1	-	C	1.00					
FA01			С		1	r	т т	3	4
FA01 FA02			C						
	0		C				1 1		-
	0		C					-	-
FA03	10	sec	С					-	
FA03 FA04	10 4	sec 250 μsec	C C						
FA03 FA04 FA05	10 4 0	sec 250 μsec 	C C C						
FA03 FA04 FA05 FA06	10 4	sec 250 μsec  Sec	C C C C						
FA03 FA04 FA05 FA06 FA07	10 4 0 0	sec 250 μsec  Sec %	C C C C C					30	10
FA03 FA04 FA05 FA06 FA07 FA08	10 4 0	sec           250 μsec              Sec           %           %	C C C C C C					30	10
FA03 FA04 FA05 FA06 FA07 FA08 FA09	10 4 0 0 100	sec           250 μsec              Sec           %           %           Psi	C C C C C C C						
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10	10 4 0 0	sec           250 μsec              Sec           %           %           Psi           Psi	C C C C C C C C C					30	10
FA03 FA04 FA05 FA06 FA07 FA08 FA09	10 4 0 0 100	sec           250 μsec              Sec           %           %           Psi           Psi           Psi           Psi	C C C C C C C C C C C					30 357	10
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12	10 4 0 0 100 406 7	sec 250 µsec  Sec % % Psi Psi Psi Psi Psi	C C C C C C C C C C C C C C					30 357	10
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10 FA11	10 4 0 0 100 406	sec           250 μsec              Sec           %           %           Psi           Psi           Psi           Psi	C C C C C C C C C C C					30 357	10
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10 FA11 FA11 FA12 FA13	10 4 0 0 100 406 7 15	sec 250 µsec  Sec % 9% Psi Psi Psi Psi Psi Psi	C C C C C C C C C C C C C C C C C C C					30 357	10
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10 FA11 FA11 FA12 FA13 FA14	10 4 0 0 100 406 7 15	sec 250 µsec  Sec % 9% 9% 9% 9% 9% 9% 9% 9% 9% 9% 9% 9% 9	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10 FA11 FA11 FA12 FA13 FA14 FA15	10 4 0 0 100 406 7 15 0	sec 250 µsec  Sec % 9% Psi Psi Psi Psi Psi Psi Sec %	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16	10 4 0 0 100 406 7 15 0 30	sec           250 μsec              Sec           %           Psi           Psi           Psi           Psi           Sec           %           %	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16	10 4 0 0 100 406 7 15 0 30 100	sec           250 µsec              Sec           %           Psi           Psi           Psi           Sec           %           9%           9%           9%           9%           9%           9%           %           %           %           %           %           %           %           %	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16           FA17           FA18	10 4 0 0 100 406 7 15 0 30 100 112	sec           250 µsec              Sec           %           Psi           Psi           Psi           Sec           %           9%           9si           9si           9si           9si           9si           9si           9si           9%           %           %           %           %           %           %           Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16           FA17           FA18           FA19	10 4 0 0 100 406 7 15 0 30 30 100 112 175	sec           250 μsec              Sec           %           Psi           Psi           Psi           Sec           %           Psi           Psi           Psi           Sec           %           Psi           Psi           Sec           %           %           Psi           Psi           Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03 FA04 FA05 FA06 FA07 FA08 FA09 FA10 FA11 FA12 FA13 FA14 FA15 FA16 FA17 FA18 FA19 FA20	$ \begin{array}{r} 10\\ 4\\ 0\\ 0\\ 100\\ \hline 100\\ \hline 7\\ 15\\ 0\\ \hline 30\\ 100\\ 112\\ 175\\ 42\\ \hline \end{array} $	sec           250 μsec              Sec           %           Psi           Psi           Psi           Sec           %           Psi           Psi           Psi           Psi           Psi           Psi           %           %           %           %           %           %           %           %           %           %           %           %           Psi           Psi           Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16           FA17           FA18           FA19           FA20	$ \begin{array}{r} 10\\ 4\\ 0\\ 0\\ 100\\ \hline 100\\ \hline 7\\ 15\\ 0\\ \hline 30\\ 100\\ \hline 112\\ 175\\ 42\\ 22\\ \hline 22\\ \hline \end{array} $	sec 250 µsec  Sec % Psi Psi Psi Psi Sec % % % Psi Psi Psi Psi Psi Psi Psi Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16           FA17           FA18           FA19           FA20           FA21	$ \begin{array}{r} 10\\ 4\\ 0\\ 0\\ 100\\ \hline 100\\ \hline 7\\ 15\\ 0\\ \hline 30\\ 100\\ \hline 112\\ 175\\ 42\\ 22\\ 36\\ \hline \end{array} $	sec 250 µsec  Sec % Psi Psi Psi Psi Sec % % % Psi Psi Psi Psi Psi Psi Psi Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109
FA03           FA04           FA05           FA06           FA07           FA08           FA09           FA10           FA11           FA12           FA13           FA14           FA15           FA16           FA17           FA18           FA19           FA20           FA21           FA22           FA23	$     \begin{array}{r}       10 \\       4 \\       0 \\       0 \\       0 \\       100 \\       406 \\       7 \\       15 \\       0 \\       30 \\       100 \\       112 \\       175 \\       42 \\       22 \\       36 \\       90 \\     \end{array} $	sec 250 µsec  Sec % Psi Psi Psi Psi Sec % % Psi Psi Psi Psi Psi Psi Psi Psi	C C C C C C C C C C C C C C C C C C C					30 357 90	10 273 109

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		IAF	Levo Tec	n /02÷ð					
Parameter					Hydrau	lic group 		Fans c	ontrol
Parar	Value	MU	Level	SP	P3	P5	P3+P3	Step	EC
FA27	0	Psi	C		1				
FA28	0	Psi	С		1				
FA29	0	Psi	C						
FA30	0	Sec	C						
FA31	0	Sec	С						
FA32	32	°F	C						
FA33	0	%	C						
				1	1		<u> </u>		
Ar01	37	°F	S	1	1	[			
Ar02	4	°F	S						
Ar03	37	°F	С						
Ar04	4	°F	С						
Ar05	0		С						
Ar06	0		C						
Ar07	0		C						
Ar08	0		C						
Ar09	1		C						
Ar10	1		S						
Ar11	0		C						
Ar12	113	°F	C						
Ar12 Ar13	4	°F	C						
Ar14	0	Min	C						
Ar15	104	°F	C						
Ar16	4	°F	C				¥ I		
Ar17	113	°F	C				+		
Ar18	4	°F	C				┼──┤		
Ar19	113	°F	C				+		
Ar20	4	°F	C			<u> </u>	+		
Ar21	2.0		C				┼──┤		
Ar21 Ar22	2.0		C						
Ar22 Ar23	0		C				+		
Ar24	0		S				+ -		
Ar24 Ar25	0		C				┨		
Ar25 Ar26	37	 °F	C		+		+		
Ar26 Ar27	4	°F	C				+		
AI 2 /	4	Г			1	I			
dF01	0		С	1	1	1	<u> </u>		
					+		+ -		
dF02 dF03	68 290	Psi Psi	C C				┨		
dF03 dF04	180	Sec	C			<u> </u>	┥──┤		
dF04 dF05			C				┥──┤		
	5 5	Min				<u> </u>	┤───┤		
dF06		Min	C		<b> </b>	<u> </u>	┥──┤		
dF07	10	Sec	C						
dF08	10	Sec	C				┥		
dF09	10	Min	C			<u> </u>	↓		
dF10	37	°F	С				↓		
dF11	50	°F	C		ļ				
dF12	37	°F	С						
dF13	50	°F	С						
dF14	1		С			L			
dF15	1		С						
dF16	30	Sec	С		1				



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		TAE	evo Tec	h 702÷8	02 UL				
.er					Hydrau	lic group		Fans o	control
Parameter	- Value	MU	O Level	SP	P3	P5	P3+P3	Step	EC
dF17	1		C						
dF18	329	Psi	С						
dF19	10	Sec	С						
dF20	44	Psi	С						
dF21	7	Psi	С						
dF22	2		С						
dF23	1		С						
dF24	1		С						
dF25	0		С						
dF26	47	°F	С						
dF27	32	°F	С						
dF28	32	°F	С						
dF29	1	°F	С						
dF30	1	°F	С						
dF31	32	°F	С						
dF32	32	°F	С						
dF33	1	°F	С						
dF34	1	°F	С					7	
dF35	0		C						
dF36	0	Sec	С						
dF37	-30	Psi	C						
dF38	41	°F	C						
dF39	27	°F	С						
		•							r
rC01	0		C						
rC02	5	Sec	С						
rC03	5	Sec	C						
rC04	1	Min	С						
rC05	1	Min	C						
rC06	505	Psi	C						
rC07	36	Psi	C						
rC08 rC09	2	Min	C C						
rcuy	1		C						
FS01	0	1	C	-	r	r	1		1
FS01 FS02	0		C						
FS02 FS03	68	°F	C						
FS04	1	°F	C						
FS04	32	°F	C						
FS06	158	°F	C						
FS07	0		C						
FS08	0		C		1	1			
FS09	0	Min	C		1	1			
FS10	0	Sec	C		1	1			
FS11	0	Sec	С						
FS12	0		С		1	1			1
FS13	0	Hours	С		1	1			1
FS14	50	°F	С		1	1			
FS15	50	°F	С		1	1			1
FS16	158	°F	С				1		
FS17	0	Time	С				1		
	0								

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		TAE	evo Tec	n /02÷8	02 UL				
Parameter					1	lic group			control
Parar		MU	Level	SP	P3	P5	P3+P3	Step	EC
FS19	1	Min	C						
FS20	1	°F	С						
FS21	1	°F	C						
FS22	1	°F	C						
FS23	86	°F	C						
FS24	1	°F	C						
FS25	86	°F	C						
FS26	91	°F	C						
FS27	0	Sec	C						
FS28	0	Sec	C						
FS29	0	Min	C						
FS30	32	°F	C						
FS31	1	°F	C						
FS32	0	Min	C						
FS32	0		C						
FS34	0	Min	C				-		
FS35	0	Sec	C					-	
FS36	0	Min	C			1			
FS30 FS37	32	°F	C						
FS37	1	°F	C						
FS39	0	1 <sup>-</sup> %	C						
FS40	100	%	C						
FS40 FS41	0	70	C						
FS41 FS42	0		C						
FS42 FS43	32	°F	C						
		°F							
FS44 FS45	1 0		C C						
		Min							
FS46	0		C						
FS47	0		C						
FS48	0		C						
FS49	0		C						
FS50	32	°F	C						
FS51	0		C						
FS52	32	°F	C						
FS53	1	°F	C						
FS54	0		C						
FS55	0		C						
FS56	0		C						
FS57	0		C						
FS58	0		C						
FS59	1	°F	C						
FS60	1	°F	C						
FS61	0	Min	С						
FS62	0		С						
FS63	32	°F	С						
FS64	1	°F	С						
AL01	45	Sec	S						
AL02	2	10 Sec	С						
AL03	8.7	Psi	С						
AL04	14.5	Psi	С						
AL05	3		С						



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		IAL	evo Tec	1 702.0						
eter					Hydrau	lic group	r, T	Fans control		
Parameter	0 Value	MU	O Level	SP	Р3	Р5	P3+P3	Step	EC	
AL06										
AL07	0	Sec	С							
AL08	0		S							
AL09	577	Psi	С							
AL10	87	Psi	С							
AL11	120	Sec	С							
AL12	5	Sec	С							
AL13	3		С							
AL14	0		С							
AL15	10	Sec	С							
AL16	0	Sec	С							
AL17	5	Sec	С							
AL18	5	Sec	С							
AL19	0	Sec	С							
AL20	0		С							
AL21	0		С							
AL22	0		С							
AL23	0		C							
AL24	9	°F	C							
AL25	59	°F	C							
AL26	39	°F	U							
AL27	7	°F	S							
AL28	3	Sec	С							
AL29	1		С							
AL30	1		C							
AL31	37	°F	С							
AL32	43	°F	С							
AL33	39	°F	С							
AL34	4	°F	C							
AL35	3	Sec	С							
AL36	3	Sec	C							
AL37	3		C							
AL38	1		С							
AL39	158	°F	С							
AL40	18	°F	С							
AL41	1		C							
AL42	2		С							
AL43	1	Sec	С							
AL44	1	10 Sec	С							
AL45	0		С							
AL46	14		С							
AL47	1		С							
AL48	0		С							
AL49	0		С							
AL50	0		С							
AL51	0		С							
AL52	0	Sec	С							
AL53	0	10 Sec	С							
AL54	0		С		1	1				
AL55	0	Sec	С							
AL56	0	Sec	С		1		1 1			
AL57	0	Sec	С		1	1	1 1			

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		TAE	evo Tec	h 702÷8					
eter					Hydrau	lic group		Fans o	control
Parameter	Value	MU	Level	SP	Р3	Р5	P3+P3	Step	EC
AL58	0	Sec	C						
AL59	0		С						
AL60	0	10 Sec	С						
AL61	230	°F	С						
AL62	7	°F	С						
AL63	0		С						
AL64	30	Sec	С						
AL65	0	Sec	С						
AL66	0	Sec	С						
AL67	0	Sec	С						
AL68	0	Sec	С						
AL69	0	Sec	С						
AL70	0	Sec	С						
AL71	0	Sec	С						
AL72	0	Sec	С						
AL73	0		С						
AL74	0		С						
AL75	0	-	С						
AL76	0	-	C						
AL77	0		С						
AL78	1	Psi	C						
AL79	1	Psi	C						
AL80	0	-	С						
AL81	0		С						
AL82	0	Sec	C						
AL83	0	Sec	С						
AL84	0	Sec	С						
AL85	0	Sec	С						
AL86	0	Min	C						
AL87	0	Sec	С						
AL88	0		S						
LS01	0		С		1				
LS02	59	°F	U		1				
LS03	0	°F	С		1				
LS04	1	Min	С		1				
LS05	4	°F	С		1				
LS06	0		С		1	1			
LS07	0		С		1				
LS08	5		С		1				
LS09	4	°F	С		1				
LS10	100	Sec	С						
LS11	5	Sec	С		1	1			
LS12	11	Sec	С		1				
LS13	3	Sec	C		1	1			
LS14	1	Sec	C		1				
LS15	1	Sec	C		1	<u> </u>			
LS16	0	°F	C		1				
LS17	0	°F	C		1				
Pr1	23		U		1				
Pr2	32		S		1				
Pr3	69		C						

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leter				Fans c	ontrol
Parameter	Value	MU	Level	Step	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	С		
ST04	113	°F	С		
ST05	68	°F	С		
ST06	122	°F	С		
ST07	4	°F	U		
ST08	4	°F	С		
ST09	3		С		
ST10	3		С		
ST11	1		S		
dP01	3		S		
dP02	0		S		
dP03	0		С		
dP04	0		С		
dP05	0		С		
dP06	11		S		
dP07	0		S		
dP08	0		S		
dP09	0		S		
dP10	0	-	S		
CF01	1		C		
CF02	1		C		
CF03	0		С		
CF04	2		С		
CF05	2		C		
CF06	0		С		
CF07	1		C		
CF08	11		С		
CF09	9		C		
CF10	27		С		
CF11	28		C		
CF12	10		C		
CF13	19		С		
CF14	0		C		
CF15	0		C		
CF16	0	°F	S		
CF17	0	°F	S		
CF18	0	Psi	S		
CF19	0	Psi	S		
CF20	0	°F	S		
CF21	0	°F	S		
CF22	0	°F	S		
CF23	0	°F	S		
CF24	0	Psi	С		
CF25	725	Psi	С		
CF26	0	Psi	C		
CF27	725	Psi	C		
CF28	0	Psi	С		1

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er	TAEevo Te			Fans c	ontrol
Parameter	Value 0	MU	O Level	Step	EC
F29	0	Psi			
CF30	о7		С		
F31	08		С		
F32	09		С		
CF33	o10		С		
CF34	03		С		
F35	o1		С		
CF36	026		С		
F37	0		С		
F38	023		С		
F39	o43		С		L
F40	024		C		
F41	c51		C		
F42	c57		C		
F43	c63		C		
F44	c69		C		
F45	01		C		
F46	0		C		
F47	c2		C		
F48	0		C		
F49	0		C		
F50	3		C	c10	8
F51			C	c10	8
F52			C	c11	9
F52			C	c14	9
F54	See Ch. 7.41.3		U	015	,
F54 F55	0		C		
F56	0	°F	C		
F 50 F 57	0	°F	C		
F57 F58	0		C		
F 58 F 59	0		C		4
		°F	C		
F60	86				
F61	18	°F	C		
F62	1		C		
F63	1		S		
F64	1		U		
F65	not used		C		
F66	not used		C		
F67	0		C		
F68	0		C		
F69	0		C		
F70	0		C		
F71	0		С		
F72	0		С		
F73	0		С		
F74	0		С		
F75	0		С		
F76	1		С		
F77	1		С		
F78	0		С		
F79	0		С		
F80	0		С		



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nete				2 4113 1	control
Parameter	0 Value	2	O Level	Step	EC
	<u> </u>	MU	Le		
CF81					
CF82	0		С		
CF83	0	Sec	С		
CF84	1		С		
EI01	1		С		
EI02	0		С		
E103	0		С		
E104	0		С		
E105	0		С		
EI06	0		С		
EI07	0		С		
EI08	0		С		
E109	0		С		
EI10	0	°F	С		
EI11	0	°F	С		
EI12	0	Psi	С		
EI13	0	Psi	C		
EI14	0	°F	C		
EI15	0	°F	C		
EI16	0	°F	C		
EI17	0	°F	C		
EI17 EI18	0	Psi	C		
EI10 EI19	0	Psi	C		
E119 E120	0	Psi	C		
EI20 EI21	0	Psi	C		
EI21 EI22	0	Psi	C		
EI23	0	Psi	С		
EI24	0		C		
E125	0		С		
E126	0		C		
EI27	0		С		
EI28	0		С		
EI29	0		С		
E130	0	-	С		
EI31	0		C		
EI32	0		С		
EI33	0		С		
EI34	0		С		
EI35	0		С		
EI36	0		С		
EI37	0		С		
EI38	0		С		
EI39	0		С		
EI40	0		С		1
EI41	0		С		1
EI42	0		C		
EI43	0		C	<u> </u>	
-	-		1 -		L
Sd01	0	°F	U		
Sd01 Sd02	0	°F	C	1	
Sd02	39	°F	U		<u> </u>

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5		o Tech 902÷100		Fans c	ontrol
Parameter	0 Value	MU	O Level	Step	EC
<u>ස</u> Sd04	>	°F	Г С		
5d04 Sd05	54	°F	U U		
5d05 5d06		°F			
	0	°F	C C		
Sd07	-	°F	C C		
Sd08	0	-			
d09	0	°F	C		
5d10	0	°F	C		
Sd11	0	°F	C		
Sd12	0	°F	C		
Sd13	0	°F	C		
Sd14	0	°F	С		
5d15	0	°F	С		
Sd16	0	°F	С		
d17	0	°F	С		
Sd18	0	°F	С		
Sd19	0	°F	С		
5d20	0	°F	С		
5d21	0	°F	С		
5d22	0	°F	С		
d23	0	°F	С		
d24	0	°F	С		
d25	0	°F	C		
d26	0	°F	C		
d27	32	°F	C	_	
d28	32	°F	C		
d29	0	°F	C		
d29 d30	0	°F	C		
450	U	Г	C		
S01	٥	T:			
	0	Time	C		
S02	0	Time	C		
S03	0	Time	C		
ES04	0	Time	С		
CS05	0	Time	С		
ES06	0	Time	С		
CS07	0-0		С		
CS08	0-0		C		
S09	0-0		С		
CS10	0-0		С		
S11	0-0		С		
S12	0-0		С		
S13	0-0		С		
S14	37	°F	C		
ES15	5	°F	C		
CS16	27	°F	C		
ES17	27	°F	C		
S17	1	10 Min	C		
S19	0	Time	C		
ES20	0	Time	C		
ES21	0	Time	C		
ES22	0	Time	C		
ES23	0	Time	C		
S24	0	Time	С		

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net					ontrol
Parameter	0 Value	MU	O Level	Step	EC
ES25	0				
ES26	0		С		
ES27	0		С		
ES28	0		С		
ES29	0		С		
ES30	0		С		İ
ES31	0		С		İ
ES32	0	°F	С		İ
ES33	1	°F	С		
Cr01	0		С		
Cr02	0	Psi	С		
Cr03	0	Psi	С		
Cr04	0	Psi	С		
Cr05	1	Psi	С		
Cr06	0	Psi	С		
Cr07	1	Psi	С		
Cr08	0		С		
Cr09	0	-	C		
CO01	14	10 Sec	С		
CO02	22	10 Sec	C		
CO03	60	Sec	C		
CO04	30	Sec	C		
CO05	3	10 Sec	C	-	
CO06	0		C		
CO07	1		C		
CO08	0	Sec	C		
CO09	0	Sec	C		
CO10	0		C		
CO10	0	0.1 Sec	C		
CO12	5	Sec	C		
CO12 CO13	0	Sec	C		
CO13	2		S		
C014 C015	1		S		
CO15 CO16	1		S		
CO10 CO17	6	10 Sec	S		
CO17 CO18	2	Min	S		
CO18 CO19	4	10 Hours	U U		
~ ~ ~ ~					
CO20 CO21	2	Sec	S C		
CO21 CO22	0		C		
CO22 CO23	0	 Min	C		
CO24 CO25	0	10 Hours	C		
	0	Sec	C		
CO26	0	10 Hours	S		
CO27	0	10 Hours	S		
CO28	0	10 Hours	S		
CO29	0	10 Hours	S		
CO30	0	10 Hours	C		
CO31	0	10 Hours	С		
CO32	0	10 Hours	S		1

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ter				Fans o	control
Parameter	Value	MU	co Level	Step	EC
033	0	10 Hours	S		
034	0	10 Hours	С		
035	0	10 Hours	С		
036	0		С		
037	15	Psi	С		
038	7	Psi	С		
039	30	Sec	С		
CO40	104	°F	С		
2041	18	°F	С		
CO42	1	10 Sec	С		
CO43	5	Min	С		
044	566	Psi	S		
045	30	Psi	S		
CO46	29	Psi	C		
047	22	Psi	C		
2048	5	Min	S		
2049	1		C		
050	0	Sec	C		
2051	32	°F	C		
2052	1	°F	C		
052	3	г 10 Min	S		
2053	0	Hours	C		
054	-58	°F	C		
		°F			
056	1		C		
2057	0	Min	C		
CO58	0	Sec	C		
2059	0	Sec	C		
060	0	Sec	С		
061	0		C		
062	0	Sec	С		
:063	0	%	C		
CO64	0	10 Min	С		
CO65	0	Sec	C		
CO66	0	Hours	С		
CO67	1	%	С		
CO68	1	%	C		
:069	1	%	С		
CO70	1	%	С		
071	1	Sec	С		
2072	0		С	<u> </u>	
073	0	10 Hours	С		1
CO74	0	10 Hours	С		
075	0	Sec	С		1
076	4		C		<u> </u>
077	4		C	1	<u> </u>
2078	4		C	1	
2079	1	%	C		
CO80	1	%	C		<u> </u>
081	1	% °F	C		<u> </u>
2082	32	-	C		
2083	1	°F	C		
084	0	%	С		



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er				Fans	control
Parameter	0 Value	M	O Level	Step	EC
CO85	0	10 Min	C		
CO86	0	10 Hours	C		
CO87	0	10 Sec	C		
CO88	0	10 Min	C		
CO89	0	10 Hours	C		
CO90	0	10 Sec	С		
CO91	0	10 Sec	C		
CO92	0	Sec	C		
CO93	0	Sec	С		
CO94	1	%	С		
CO95	0	10 Hours	C		
CO96	1	%	C		
			-		
uS01	0		С		
uS01	1		C		
uS02	32	°F	C		
uS02	32	°F	C		
uS04	32	°F	C		
uS05	32	°F	C		-
uS07	32	°F	C		
uS07	32	°F	C		
uS09	1	°F	C		
uS10	1	°F	C		
uS10	0		C		
uS11 uS12	1		C	_	
uS12 uS13	32	 °F	C		
uS13 uS14	32	°F	C		
uS14 uS15	32	°F	C		
uS15 uS16	32	°F	C		
uS17	32	°F	C		
uS17	32	°F	C		×
uS19	1	°F	C		
uS1)	1	°F	C	_	
uS20	0	Г Min	C		
uS21 uS22	0	MIIn	C		
uS22 uS23	1		C		
uS23	32	 °F	C		
uS24 uS25	32	°F	C		
uS25 uS26	32	°F	C		
uS20	32	°F	C		<u> </u>
uS27	32	°F	C		
uS28 uS29	32	°F	C		<u> </u>
uS29 uS30	32	°F	C		
uS30 uS31	1	°F	C		
uS32	0	%	C		
uS33	100	%	C		
uS34	0		C		
uS35	1		C		
uS36	32	°F	C		
uS37	32	°F	C		
uS38	32	°F	C		L
uS39	32	°F	С		

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5	TAEev	Fans control			
Parameter	Aalue 32	Mn °F	O Level	Step	EC
uS40	32	°F	С		
uS41	32	°F	С		
uS42	1	°F	С		
uS43	1	°F	С		
uS44	0	%	С		
uS45	100	%	С		
uS46	1		С		
uS47	0		С		
uS48	0		С		
uS49	32	°F	С		
uS50	1	°F	С		<u> </u>
uS51	0	%	C		
uS52	100	%	С		
uS53	0		C		
uS54	0		C		
uS55	32	°F	C		
uS56	1	°F	C		
uS57	0	%	C		
uS58	100	%	C		<u> </u>
uS59	0	%	C		
uS60	0	%	C		
uS61	1		C		
uS62	1		C		
uS63	1		C		
uS64	1		C		
FA01			С	3	4
FA02	0		С		
FA03	10	sec	С		
FA04	4	250 µsec	С		
FA05	1		С		
FA06	0	Sec	С		
FA07	10	%	С		
FA08	100	%	С		
FA09		Psi	С	357	273
FA10	406	Psi	С		
FA11		Psi	С	90	109
FA12		Psi	С	90	7
FA13	15	Psi	С		
FA14	0	Sec	С		<u> </u>
FA15	100	%	С		
FA16	10	%	C		
FA17	100	%	C		<u> </u>
FA18	112	Psi	С		
FA19	175	Psi	C		
FA20	42	Psi	C	ļ	
FA21	22	Psi	C		
FA22	36	Psi	C		
	90	%	C		
FA23		°F	C		
FA23 FA24	77	*H			
FA23 FA24 FA25	77 9	°F	C		



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JC .				Fans c	ontrol
Parameter	0 Value	MU	D Level	Step	EC
FA27		Psi	- T		
FA27	0	Psi	C		
FA29	0	Psi	C		
FA30	0	Sec	C		
FA31	0	Sec	C		
FA32	32	°F	C		
FA33	0	%	С		
		1			
Ar01	37	°F	S		
Ar02	4	°F	S		
Ar03	37	°F	С		
Ar04	4	°F	С		
Ar05	0		С		
Ar06	0		С		
Ar07	0		С		
Ar08	0		C		
Ar09	1	-	C		
Ar10	1		S		
Ar11	0		C		
Ar12	113	°F	C		
Ar13	4		C		
Ar14 Ar15	0 104	Min °F	C		
Ar15 Ar16	4	°F	C		
Ar10 Ar17	113	°F	C	_	
Ar18	4	°F	C		
Ar19	113	°F	C		
Ar20	4	°F	C		
Ar21	2.0		C		
Ar22	2.0		C		
Ar23	0		C		
Ar24	0		S		
Ar25	0		С		
Ar26	37	°F	С		
Ar27	4	°F	С		
		·			
dF01	0		С		
dF02	68	Psi	С		
dF03	290	Psi	C		
dF04	180	Sec	C		
dF05	5	Min	C		
dF06	5	Min	C		
dF07	10	Sec	C		
dF08	10	Sec	C		
dF09 dF10	10 37	Min °F	C C		
dF10 dF11	50	°F	C		
dF12	37	°F	C		
dF12 dF13	50	°F	C		
dF14	1	г 	C		
dF15	1		C		
dF16	30	Sec	C		

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er	TAEevo Tech 902÷1002 UL			Fans c	ontrol
Parameter	Value	MU	O Level	Step	EC
dF17	1				
dF18	329	Psi	С		
dF19	10	Sec	С		
dF20	44	Psi	С		
dF21	7	Psi	С		
dF22	2		С		
dF23	1		С		
dF24	1		С		
dF25	0		С		
dF26	47	°F	С		
dF27	32	°F	С		
dF28	32	°F	С		
dF29	1	°F	С		
dF30	1	°F	С		
dF31	32	°F	С		
dF32	32	°F	С		
dF33	1	°F	С		
dF34	1	°F	С		
dF35	0		C		
dF36	0	Sec	C		
1F37	-30	Psi	C		r
dF38	41	°F	C		
1F39	27	°F	C		
	27	-			
rC01	0	-	C		<u> </u>
rC02	5	Sec	C		
rC02	5	Sec	C		
rC03	1	Min	C		
rC05	1	Min	C		
rC06	505	Psi	C		×
C07	36	Psi	C		
rC08	2	Min	С		
rC09	1		С		
201	-				
FS01	0		C		
FS02	0		C		
FS03	68	°F	С		
FS04	1	°F	С		
FS05	32	°F	С		
FS06	158	°F	С		
FS07	0		С		
FS08	0		С		
FS09	0	Min	С		
FS10	0	Sec	С		
FS11	0	Sec	С		
FS12	0		С		
FS13	0	Hours	С		
FS14	50	°F	C		
FS15	50	°F	C		
FS16	158	°F	C		
FS10	0	Time	C		
FS17	0		C		
	0				1



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eter				Fans	control
Parameter	Value	WO	O Level	Step	EC
<u>ت</u> FS19	<b>&gt;</b> 1	Min	Ĩ		
FS19 FS20	1	°F	C		
FS20 FS21		°F	C		
	1	°F			
FS22	1	°F	C		
FS23	86	°F	C		
FS24	1	°F	C		
FS25	86	°F	C		
FS26	91		C		
FS27	0	Sec	C		
FS28	0	Sec	C		
FS29	0	Min	C		
FS30	32	°F	C		
FS31	1	°F	C		
FS32	0	Min	C		
FS33	0		C		
FS34	0	Min	С		
FS35	0	Sec	С		
FS36	0	Min	С		
FS37	32	°F	C		
FS38	1	°F	С		
FS39	0	%	C		
FS40	100	%	C		
FS41	0		С		
FS42	0		С		
FS43	32	°F	C		
FS44	1	°F	С		
FS45	0	Min	С		
FS46	0		С		
FS47	0		С		
FS48	0		С		
FS49	0		C		
FS50	32	°F	С		
FS51	0		С		
FS52	32	°F	С		1
FS53	1	°F	С		1
FS54	0		С		1
FS55	0		С		1
FS56	0		С		1
FS57	0		С		
FS58	0		С		
FS59	1	°F	С		
FS60	1	°F	C		
FS61	0	Min	C	<u> </u>	
FS62	0		C	1	
FS63	32	°F	C		-
FS64	1	°F	C		
1504	1				1
AL01	45	Sec	S		1
AL01 AL02	2	10 Sec	C		
AL02 AL03	9	Psi	C	1	
AL03 AL04	14	Psi	C	1	
AL04 AL05	3		C		
AL03	5				1

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<b>1</b>	Fans control				
Parameter	0 Value	MU	C Level	Fans c Step	EC
AL06	0		T C		
AL07	0	Sec	C		
AL07	0		S		
AL00 AL09	577	Psi	C		
AL10	87	Psi	C		
AL10 AL11	120	Sec	C		
AL11 AL12	5	Sec	C		
AL12 AL13	3		C		
AL13 AL14	0		C		
AL14 AL15	10	Sec	C		
AL15 AL16		Sec	C		
AL16 AL17	0 5	Sec	C		
AL17 AL18			C		
AL18 AL19	5	Sec			
AL19 AL20	0	Sec	C C		
	0				
AL21	0		C		
AL22	0		C		
AL23	0		C		
AL24	9	°F	C		
AL25	59	°F	C		
AL26	39	°F	U		
AL27	7	°F	S		
AL28	3	Sec	С		
AL29	1		C		
AL30	1		C		
AL31	37	°F	C		
AL32	43	°F	C		
AL33	39	°F	C		
AL34	4	°F	C		
AL35	3	Sec	С		
AL36	3	Sec	C		
AL37	3		С		
AL38	1		С		
AL39	158	°F	С		
AL40	18	°F	С		
AL41	1		C		
AL42	2		С		
AL43	1	Sec	С		
AL44	1	10 Sec	С		
AL45	0		С		
AL46	14		С		
AL47	1		C		
AL48	0		С		
AL49	0		С		
AL50	0		С		
AL51	0		С		
AL52	0	Sec	С		
AL53	0	10 Sec	С		
AL54	0		С		
AL55	0	Sec	С		
AL56	0	Sec	С		
AL57	0	Sec	С		



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nete				1 4115 (	ontrol
Parameter	Value	MU	O Level	Step	EC
AL58	0	Sec			
AL59	0		С		
AL60	0	10 Sec	С		
AL61	230	°F	С		
AL62	7	°F	С		
AL63	0		С		
AL64	30	Sec	С		
AL65	0	Sec	С		
AL66	0	Sec	С		
AL67	0	Sec	С		
AL68	0	Sec	С		
AL69	0	Sec	С	<u> </u>	
AL70	0	Sec	С		
AL71	0	Sec	С		
AL72	0	Sec	C		
AL73	0		C		
AL74	0		C		
AL75	0		C		
AL75 AL76	0		C		
AL70 AL77	0		C		
AL78	1	Psi	C		
AL70 AL79	1	Psi	C		
AL79 AL80	0		C		
AL80 AL81	0		C		
AL81 AL82			C		
	0	Sec			
AL83	0	Sec	C		
AL84	0	Sec	C		
AL85	0	Sec	C		
AL86	0	Min	C		
AL87	0	Sec	С		
AL88	0		S		
		- 1			
LS01	0		C		
LS02	59	°F	U		
LS03	0	°F	С		
LS04	1	Min	C		
LS05	4	°F	С		
LS06	0		С		
LS07	0		С		
LS08	5		С		
LS09	4	°F	С		
LS10	100	Sec	С		
LS11	5	Sec	С		
LS12	11	Sec	С		
LS13	3	Sec	С	<u> </u>	
LS14	1	Sec	С	<u> </u>	
LS15	1	Sec	С		
LS16	0	°F	C		
LS10 LS17	0	°F	C		
Pr1	23		U		
Pr2	32		S		
Pr3	69		C		
113	07				

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#### 7.41.3 Parameters dependent on remote terminal kit

meter			Remote terminal ki	
Para	MU	Level	°N	Yes
CF54		U	0	2

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CHAPTER 8

#### **OTHER COMPONENTS**

#### 8.1 Compressor motor protection

The unit is equipped with an internal motor protection system by means of a power circuit breaker.

#### 8.2 Refrigerant high and low pressure switches

#### The units are equipped with the following pressure switches:

#### 1. low pressure switch (LP)

This monitors refrigerant compressor suction pressure and will trip to protect the compressor if the pressure falls to potentially hazardous values that could harm the compressor. The pressure switch is of the "automatic reset" type. Alarm **b1LP** or **b2LP** (see chapter "7.11.8 Low pressure switch alarm"), generated by tripping of this pressure switch, can be delayed with respect to start-up of the compressor, to prevent temporary fluctuations in suction pressure or false alarms from interfering with correct operation of the unit. Once the preset time interval has elapsed tripping of this pressure switch will be detected by the electronic control unit, which will display alarm signal **b1LP** or **b2LP** (see chapter "7.11.8 Low pressure switch alarm") and shut down the compressor(s), while the pump (if installed) will continue to run. After the alarm has tripped if the compressor suction pressure increases and exceeds the reset value the pressure switch will reset. The unit can be restarted by following the alarms reset procedure described in Chapter 7 "Electronic controller". If the cause of the pressure switch trip has not been remedied this cycle will be repeated continuously.

2. high pressure switch (HP)

This monitors the refrigerant compressor discharge pressure and prevents it increasing to potentially hazardous values that could harm the compressor and people within the vicinity. The pressure switch is of the "automatic reset" type. Tripping of this pressure switch is read by the electronic controller, which opens the compressor power feeding circuit and displays alarm signal **b1HP** or **b2HP** (see section "7.11.9 High pressure").

When the compressor discharge pressure decreases and falls below the reset point, the pressure switch resets automatically.

The unit can then be restarted according to the alarm reset procedure described in Chapter 7 "Electronic controller". If the cause of pressure switch activation is not eliminated, this cycle may be repeated continuously.

The LP and HP pressure switches are connected to the refrigerant circuit pipes by means of SCHRAEDER valves (with needle) that prevent the refrigerant from escaping if the pressure switches are to be replaced.

The TRIP and RESET values of the pressure switches depend on the type of refrigerant and are shown in the following table:

Drossuro switch	Pressure switch Refrigerant		RIP	RESET	
Tressure switch	gases	PSI	°F	PSI	°F
НР	R410A	594.6	148.5	478.6	131
LP	RHIOA	36.2	-10.8	58	6.8

#### 8.3 Fan pressure switches

#### (Models TAEevo Tech 020÷401)

With fan speed control in ON/OFF mode these units are equipped with a Pressure switch (**FP**) that monitors the refrigerant compressor discharge pressure and is responsible for controlling operation of the fans in ON-OFF mode, i.e. connecting or disconnecting the fans electrical power supply.

The FP pressure switch is connected to the refrigerant circuit pipes by means of SCHRAEDER valves (with needle) that prevent refrigerant from escaping if the pressure switch is to be replaced.

The TRIP and RESET values of the pressure switch depend on the type of refrigerant and are shown in the following table:

Pressure switch	Refrigerant		RIP	RESET		
I ressure switch	gases	PSI	°F	PSI	°F	
Axial Fans FP	R410A	391.6	115	304.5	97	



Chapter 8 - Other components



#### 8.4 Pressure transducers

The models TAEevo Tech 402÷1002 are equipped with a high pressure transducer on the refrigerant circuit. Pressure transducers read the compressors discharge pressure values and control operation of the unit on the basis of the pressure setpoint values set on the electronic controller.

By means of the values read by these transducers the following functions of each circuit can be provided separately:

- · high pressure alarm;
- unloading for high pressure ;
- measurement of high pressure values;

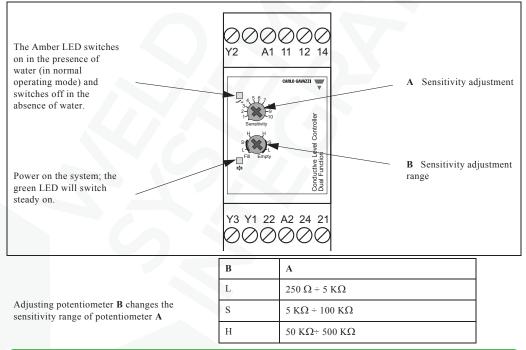
Therefore, if pressure in one circuit increases with respect to the preset limit value, an alarm signal can be tripped to stop the unit or stop one or more compressors after a programmable time interval.

#### 8.5 Level sensor

All units are equipped with a level sensor. The level sensor is mounted in the tank where it is responsible for signalling low water level conditions. If this problem is detected the sensor sends an alarm signal to the control unit resulting in an immediate shutdown of the chiller.

#### ATTENTION

Adopt all the possible precautions in order to prevent accidental contact with electrically live parts. The voltage present in the electrical cabinet can reach values that are potentially fatal for humans.



#### ATTENTION

Calibration of the level sensor is performed by the manufacturer so it must not be altered.

#### ATTENTION

 $\bigtriangleup$  There is an anti-tamper sticker over the adjustment potentiometers (A and B). Damaging this sticker, even partially, will automatically invalidate the warranty.

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CHAPTER 9

#### **OPERATION AND MAINTENANCE**

#### 9.1 Operation

Operation of the unit is fully automatic.

It is not necessary to power the unit off in the absence of a thermal load because it powers off automatically once it reaches the preset water outlet temperature.

#### 9.2 Maintenance

#### ATTENTION

Before installing or operating these units, ensure that all personnel involved have read and understood Chapter 2 "Safety"

#### 9.3 Access to the unit

#### ATTENTION

Any task that requires the panelling to be opened must be performed only with the unit powered off and disconnected from the electrical supply.

#### For i models TAEevo Tech 020÷051:

To access the refrigerant circuit components use the wrench supplied with the unit and open the latches securing front panel (A).

To access the evaporator and hydraulic circuit components use a screwdriver to undo the screws fixing panel (B). To access the electrical circuit components remove front panel (C).

#### For models TAEevo Tech 081÷802:

To access the components of the refrigerant circuit open the latches securing panel (A). You can also access the refrigerant circuit components by removing the side panels (B). To access the electrical circuit components remove front panel (C). Access to the evaporator and the hydraulic circuit components is possible by removing rear panel (F) or side panels (D), (E). For models TAEevo Tech 902-1002:

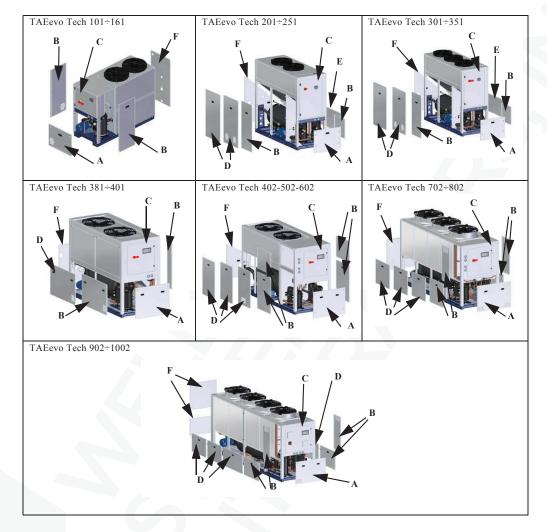
To access the components of the refrigerant circuit open the latches securing panel (A). You can also access the refrigerant circuit components by removing the side panels (B). To access the electrical circuit components remove front panel (C). Access to the evaporator and the hydraulic circuit components is possible by removing rear panel (F) or side panels (D).





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#### 9.4 Filling the process water circuit

Connect the water pipes to the machine.

Make sure there is a filling point on the water inlet pipe.

Make sure there are vents on the highest points of the hydraulic circuit, where air may collect.

Fill the system until water seeps out of the vents on the hydraulic circuit. The water pressure gauge on the hydraulic circuit must show a value that is compatible with the expansion tank (fitted by the installer). Start up the pumps without activating the compressors, to fully bleed the system, and continue filling, if necessary.



#### 9.5 Draining the process water circuit

This operation is essential when, with the unit stopped and without the anti-freeze heater, the temperature in the place of installation may fall to the point at which the water in the unit could freeze.

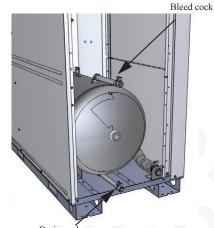
To drain the exchangers proceed as follows:

For units with tank and finned core exchanger:



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Drain cock

After having emptied the hydraulic system open the drain cocks and the bleed cock and wait until all the water in the storage tank is drained off.

When a pump is installed use special caution to ensure it is emptied, draining off any water that has collected in the impeller.

#### 9.6 Pressure limiting valve (option)

The pressure limiting valve is factory set, according to the pump nominal flow operating at a standard voltage. Before using the unit it is necessary to set the limiting valve according to the customer plant nominal flow and according to the power supply.



To set the pressure limiting valve it is necessary to follow the procedure below.

#### 9.6.1 General notes of safety

- Only use the valve:
  - for the intended purpose
  - in satisfactory condition
- with respect for safety and potential hazards.
- Always observe the installation instructions.
- Faults that may impair safety must be addressed immediately.
- The valves are exclusively intended for the application area stated in these installation instructions. Any other or further use is not valid as the intended use.
- The manufacturer's warranty for the setting of the valve shall be null and void if the sealed cover is removed.

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• All assembly work is to be carried out by authorized specialist staff.

#### 9.6.2 General notes

Overflow valves and pressure limiting valves are high-quality fittings which require a particularly careful handling. The sealing surfaces are precision-machined at the seat and cone to attain the required tightness. Always avoid the penetration of foreign particles into the valve during assembly and during the operation. The tightness of a pressure limiting / overflow valve can be impaired when using hemp, Teflon tape, as well as through welding beads, among other things. Also rough handling of the finished valve during storage, transport and assembly can result in a valve leaking. If the valves are painted, make sure that the sliding parts do not come into contact with the paint.

#### 9.6.3 Range of application

As **pressure limiting valve (proportional safety valve)** for non-adhesive liquids, gas, steam for protection against excess pressure in pressure tanks or steam boilers as well as pressure-holding equipment parts for pressure devices in compliance with the EC pressure equipment directive.

As **overflow valve (only the gastight versions tGFO)** for non-adhesive liquids, gas and steam for pressure limitation and/or regulation, for protection of pumps and as bypass valve. Overflow valves can also be used if there is counterpressure. For details on the range of application of the individual versions please refer to the datasheets of the manufacturer.

#### 9.6.4 Installation and assembly

To ensure a satisfactory operation of the valves they must be assembled in such a way that the safety valve is not exposed to any impermissible static, dynamic or thermal loads.

The installation has to be flushed before installing the valve. If an installation is not sufficiently cleaned or the valve is installed improperly, the valve may leak even the first time it responds.

Appropriate safety measures must be taken at the place of installation of the valves if the medium that discharges upon actuation of the valve can lead to direct or indirect hazards to people or the environment.

**Pressure limiting valves** are to be installed vertically, if possible, and with the bonnet pointing upward. A different installation position must be clarified with the manufacturer.

**Overflow valves (618 tGFO)** can be installed in any position. The function of the valves is guaranteed in every position. During **assembly** always make sure **not to apply any force when fastening the connecting thread and not to screw it in too far**, as this could otherwise **damage the seat of the valve**. Do not allow sealing material such as hemp or Teflon to penetrate into the valve.

#### 9.6.5 Setting

The valves can be delivered with a set pressure and sealed by the factory or without set pressure with the desired range of adjustment. Valves which have been set and sealed by the factory are marked with the set pressure. Before changing the set pressure the seal has to be removed. If valves are unsealed, the desired pressure can be set within the pressure range of the spring.

618 tGFO:

- 1. Unscrew cap nut (7) and remove copper gasket (8).
- 2. Release locknut (3).
- Turn pressure screw (4): Turn in clockwise direction to increase pressure, turn in counterclockwise direction to reduce pressure.
- 4. Tighten locknut (3) again and mount copper gasket (8).
- 5. Screw on cap nut (7) and tighten.
- The setting can be secured by means of a seal.

#### 9.6.6 Operating and maintenance

The operating pressure of the plant is to be at least 5 % lower than the closing pressure of the valve if it is used as a pressure limiting valve. In this way, the valve can satisfactorily close again after blowing off.

In the event of minor leaks, the valves can be made to respond by lifting the lever for version 618 sGFL (the lever is not used for adjusting the valve!), or by applying overpressure for the remaining model series. If this does not remove the leak the valve has to be overhauled. After long periods of non-use the function of the valve must be tested.

#### 9.6.7 Warranty

Every valve is tested prior to leaving the factory. We grant a warranty for our products which entails the repair, free of charge, of any parts that are returned and verified as being prematurely unsuitable for use due to defective material or manufacturing. We shall not assume liability for any damage or other such obligations. If the factory seal is damaged (in the case of pressure limiting valves), in the event of any incorrect handling or installation, contamination or normal wear, warranty claims shall be null and void.



Chapter 9 - Operation and maintenance

#### 9.6.8 Marking

Valves adjusted at the factory have the set pressure marked in a permanent manner on the nameplate or on a brass label that is attached to the valve. For valves that are not adjusted at the factory the range of adjustment for the installed spring is specified on it.

#### 9.7 Maintenance Schedule

OPERATION	1 day	1 month	6 months	1 year
Check control panel display for any alarm signals.	$\diamond$			
Check that the water outlet temperature is within the prescribed interval.	$\diamond$			
Check that water inlet temperature is in compliance with the value utilised for selection of the unit. (*)	1	<b>\</b>		
In units complete with a hydraulic unit, check that the pressure in the tank (with pump stopped) is approximately 7.2 PSI.		\$		
In units equipped with a hydraulic unit check that the difference between the pump outlet pressure and suction pressure (measured on the pressure gauge with pump stopped) is within the prescribed range and not lower than the pump maximum flow rate value.		<u> </u>		
Clean the water filter. The water filter should be cleaned one week after the first start-up of the unit.		\$		
Check that the liquid sight glass is always full or shows a minimum passage of bubbles when the compressor is running.			\$	
Check that the unit's current absorption is within the data plate values. (*)			$\diamond$	
Carry out visual inspection of refrigerant circuit, looking out for any deterioration of the piping or any traces of oil which might indicate a refrigerant leak.			\$	
Check the condition and safety of piping connections.			\$	
Check the condition and safety of wiring and electrical connections.			$\diamond$	
Check that ambient air temperature is commensurate with the value utilised when selecting the dryer. Check that the area in which the unit is installed is well-ventilated.		\$		
Make sure that the fan starts automatically. Thoroughly clean the fins of the condenser with soft brush and/or jet of clean compressed air. Check that the grilles of the dryer are free from dirt and any other obstructions.			\$	
Clean condenser fins with a mild detergent.				$\diamond$

(\*) For this purpose use specific test meters.

### ATTENTION

 $\Lambda$  The above maintenance schedule is based on average operating conditions.

In some installations it may be necessary to increase the frequency of maintenance.

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TAEevo Tech 020÷1002 60Hz UL

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PROBLEM

OPERATING AND MAINTENANCE MANUAL

REMEDY

Chapter 10 - Troubleshooting

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TROUBL	ESHOOTING
CAUSE	SYMPTOM
1 Thermal load too high.	A1.1 BTWOT temperature higher than prescribed

CHAPTER 10

	PROBLEM	CAUSE	SYMPTOM	REMEDY
A	Tank water outlet temperature <b>BTWOT</b> higher than prescribed	A1 Thermal load too high.	A1.1 BTWOT temperature higher than prescribed value.	Restore thermal load to within prescribed limits.
	value.	A2 Ambient temperature too high.	A2.1 See A1.1.	If the unit is installed in an enclosed place, reduce ambient temperature to within the prescribed limits, for example by increasing room ventilation.
		A3 Condenser fins fouled.	<b>A3.1</b> See A1.1.	Clean the condenser fins.
		A4 Front surface of condenser blocked.	A4.1 See A1.1.	Remove the obstruction from the front surface of the compressor.
		A5 No refrigerant fluid in the circuit.	<ul> <li>A5.1</li> <li>See A1.1;</li> <li>Low evaporation pressure;</li> <li>Check for the presence of a large number of air bubbles on the liquid sight glass.</li> </ul>	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
		A6 Compressor protection trips.	<ul> <li>A6.1</li> <li>The head and the body of the compressor are very hot;</li> <li>The compressor stops and attempts to restart after a short time (even few seconds).</li> </ul>	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
В	Insufficient pressure head (water pressure) at the pump outlet.	<b>B1</b> Excessively high water flow rate. The pump is running outside its operating limits (high flow rate, low pressure head, high power consumption).	<ul> <li>B1.1</li> <li>Possible increase in outlet temperature BTOWT (See A1.1);</li> <li>With pump installed on unit: pump running - pump stopped pressure difference read on unit pressure gauge is too low;</li> <li>Possible pump thermal trip.</li> </ul>	Restore flow rate to within prescribed limits, for example by partially closing a pump outlet cock. Reset pump thermal cutout and check electrical power consumption.
		B2 See point C.	B2.1 See point C.	See point C.
		B3 Evaporator clogged by impurities conveyed by the user circuit water.	<b>B3.1</b> High temperature difference between water inlet and outlet.	<ul> <li>In relation to the type of fouling:</li> <li>Clean the evaporator by flushing it with a mild detergent suitable for steel, aluminium and copper;</li> <li>Supply a high flow rate of water in countercurrent conditions.</li> <li>Install a filter upline from the unit.</li> </ul>



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PROBLEM	CAUSE	SYMPTOM	REMEDY
The level sensor and/or flow meter alarm FLOW trips. Alarm displayed: AEFL	C1 Unit upline filter, if present, is clogged.	<ul> <li>C1.1</li> <li>Water flow is irregular. Pressure difference between inlet and outlet below 0.36 PSI;</li> <li>The text AEFL appears on the display;</li> <li>General alarm relay activation.</li> </ul>	Clean the filter upline from the unit, if installed. Perform the alarm reset procedure to restart the unit (see Electronic controller).
	C2 The pump does not work or rotates in the opposite direction (three-phase power supply).	<ul> <li>C2.1</li> <li>See C1.1;</li> <li>General alarm relay activation.</li> </ul>	Check the pump electrical supply and, if necessary, invert two of the phases. Perform the alarm reset procedure to restart the unit (see Electronic controller).
	C3 Water inlet-outlet inverted (units without hydraulic kit).	<ul> <li>C3.1</li> <li>See C1.1;</li> <li>General alarm relay activation.</li> </ul>	Invert water inlet and outlet. Perform the alarm reset procedure to restart the unit (see Electronic controller).
	C4 The storage tank has not been bled correctly.	<ul> <li>C4.1</li> <li>The text AEFL appears on the display;</li> <li>General alarm relay activation.</li> </ul>	Bleed the storage tank via the relative bleed valve.

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	PROBLEM	CAUSE	SYMPTOM	REMEDY
D	High pressure switch (HP) trip (TAEevo Tech 020÷401 models only) Alarm displayed: <b>b(n)HP</b>	D1 The fan doesn't work.	<ul> <li>D1.1</li> <li>Refrigerant compressor stops;</li> <li>The text b(n)HP appears on the display alternating with value of BTOWT;</li> <li>General alarm relay activation;</li> </ul>	Repair or replace the fan. Where fitted, check the circuit breaker of the fan. Perform the alarm reset procedure to restart the unit (see Electronic controller).
		D2 Ambient air temperature too high.	<ul> <li><b>D2.1</b></li> <li>Ambient air temperature higher than maximum permitted value;</li> <li>See D1.1.</li> </ul>	If the unit is installed in an enclosed place, reduce ambient temperature to within the prescribed limits, for example by increasing room ventilation. Perform the alarm reset procedure to restart the unit (see Electronic controller).
		D3 Recirculation of warm air due to incorrect installation.	<ul> <li>D3.1</li> <li>Condenser cooling air temperature higher than maximum permitted value;</li> <li>See D1.1.</li> </ul>	Change the position of the unit or the position of any nearby obstructions in order to prevent recirculation. Perform the alarm reset procedure to restart the unit (see Electronic controller).
		D4 See A3.	<b>D4.1</b> See D1.1.	Clean the condenser fins. Perform the alarm reset procedure to restart the unit (see Electronic controller).
		D5 See A4.	<b>D5.1</b> See D1.1.	Remove the obstruction from the front surface of the compressor. Perform the alarm reset procedure to restart the unit (see Electronic controller).
		D6 Thermal load too high.	<ul> <li>D6.1</li> <li>Water outlet temperature too high;</li> <li>Refrigerant compressor stops;</li> <li>General alarm relay activation.</li> </ul>	Restore thermal load to within prescribed limits if possible. Perform the alarm reset procedure to restart the unit (see Electronic controller).

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	PROBLEM	CAUSE	SYMPTOM	REMEDY
E	High pressure switch (HP) trip and/or compressor protection trips (TAEevo Tech 402÷1002 models only) Alarm displayed:	E1 The fan doesn't work.	<ul> <li>E1.1</li> <li>Refrigerant compressor stops;</li> <li>The text b(n)HP appears on the display alternating with value of BTOWT;</li> <li>General alarm relay activation;</li> </ul>	Repair or replace the fan. Where fitted, check the circuit breaker of the fan. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
	b(n)HP	E2 Ambient air temperature too high.	<ul> <li>E2.1</li> <li>Ambient air temperature higher than maximum permitted value;</li> <li>See D1.1.</li> </ul>	If the unit is installed in an enclosed place, reduce ambient temperature to within the prescribed limits, for example by increasing room ventilation. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
		E3 Recirculation of warm air due to incorrect installation.	<ul> <li>E3.1</li> <li>Condenser cooling air temperature higher than maximum permitted value;</li> <li>See D1.1.</li> </ul>	Change the position of the unit or the position of any nearby obstructions in order to prevent recirculation. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
		<b>E4</b> See A3.	<b>E4.1</b> See D1.1.	Clean the condenser fins. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
		E5 See A4.	<b>E5.1</b> See D1.1.	Remove the obstruction from the front surface of the compressor. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
		E6 Thermal load too high.	<ul> <li>E6.1</li> <li>Water outlet temperature too high;</li> <li>Refrigerant compressor stops;</li> <li>General alarm relay activation.</li> </ul>	Restore thermal load to within prescribed limits if possible. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
		<b>E7</b> Thermal load too high with insufficient refrigerant charge in circuit (see also A5).	<ul> <li>E7.1</li> <li>The head and the body of the compressor are very hot;</li> <li>The compressor stops and attempts to restart after a short time (even few seconds).</li> <li>Compressor thermal protection trips</li> <li>Display shows message C(n)tr</li> <li>LED of general alarm icon</li></ul>	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
		E8 Incorrect rotation direction of scroll compressor (three- phase units only).	E8.1 Refrigerant is not compressed and the unit is unable to provide cooling action.	Invert the position of two phase wires of the power supply.

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	PROBLEM	CAUSE	SYMPTOM	REMEDY
F	Low pressure switch (LP) trips Alarm displayed:	F1 No refrigerant fluid in the circuit (see also A5).	<ul> <li>F1.1</li> <li>Refrigerant compressor stops;</li> <li>The text b(n)LP appears on the display alternating with</li> </ul>	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer
	b(n)HP		value of <b>BTOWT</b> probe; • General alarm relay activation.	
		F2 Unit upline filter, if present, is fouled	F2.1 See F1.1.	Clean or renew the water inlet filter, if installed.
3	Compressor protection trips (TAEevo Tech 020÷401 models only). Alarm displayed: <b>C(n)tr</b>	G1	<ul> <li>G1.1</li> <li>The head and the body of the compressor are very hot;</li> <li>The compressor stops and attempts to restart after a short time (even few seconds);</li> <li>Compressor thermal protection trips;</li> </ul>	Call in a qualified refrigeratior engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration enginee
		G2	<ul> <li>Display shows message C(n)tr;</li> <li>LED of general alarm icon △ illuminates.</li> </ul>	Invert the position of two phase
		Incorrect rotation direction of scroll compressor (three- phase units only).	Refrigerant is not compressed and the unit is unable to provide cooling action.	wires of the power supply.
1	Display blank and all LEDs switched off with main switch P1 set to ON (I).	H1 Control circuit fuse has blown.	H1.1 Using a tester, no voltage reading is obtained on the transformer secondary winding terminals.	Check the possible causes for blowing of the fuse. Change the fuse.
		H2 Abnormal power consumption by one or more of the control board components.	H2.1 Despite the presence of power on the board terminals the display remains blank and the LEDs remain off.	Try powering off the unit and then powering it on again. If this fails to solve the problen contact an authorised service centre.
[	Alarm displayed: AP1÷AP6	<b>I1</b> Probes damaged.	<ul> <li><b>I1.1</b></li> <li>See problem;</li> <li>General alarm relay activation.</li> </ul>	Check that the temperature probe is correctly connected to the control board terminals and that the cable is undamaged. If necessary replace the temperature probe.
I	Alarm displayed: b(n)Ac	<b>31</b> Low water outlet temperature. The value set in the relative parameter is lower than the value measured by the probe.	<ul> <li>J1.1</li> <li>See problem;</li> <li>Compressor stops and then restarts;</li> <li>General alarm relay activation;</li> <li>LED of general alarm icon</li></ul>	Identify and remedy the problem that caused <b>BEWOT</b> temperature to fall to a value below <b>AL26</b> .
		J2 Water flow rate too low.	<ul> <li>J2.1</li> <li>See problem;</li> <li>Compressor stops and then restarts;</li> <li>General alarm relay activation.</li> </ul>	Increase the water flow rate.



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PROBLEM	CAUSE	SYMPTOM	REMEDY
K Alarm displayed: AtE1/AtE2 pump thermal cutout.	K1 The pump thermal cutout has tripped because the water flow rate was too high.	<ul> <li>K1.1</li> <li>See problem;</li> <li>General alarm relay activation;</li> <li>Refrigerant compressor and pump stop;</li> <li>The display shows the message AtE1/AtE2 alternating with the value of the BTWOT probe;</li> <li>Pressure difference read on the pressure gauge with pump running and pump stopped is lower than the available pressure head with pump maximum flow rate.</li> </ul>	Reset thermal cutout. Increase hydraulic circuit pressure drop by partially closing, for example, a pump outlet cock.
	<b>K2</b> The grille through which the pump cooling air flows is obstructed.	<ul> <li>K2.1</li> <li>See problem;</li> <li>General alarm relay activation;</li> <li>Refrigerant compressor and pump stop.</li> </ul>	Reset thermal cutout. Remove obstruction from grille.
	K3 Pump malfunctioning.	<ul> <li>K3.1</li> <li>See problem;</li> <li>General alarm relay activation;</li> <li>Refrigerant compressor and pump stop;</li> <li>Pump current input higher than nominal value;</li> <li>Pump noise levels may be anomalous.</li> </ul>	Reset thermal cutout. Renew pump.
L Alarm ACFx	L1 Configuration error.	L1.1 Code ACFx flashing on display and unit shuts down.	Power off the unit and then power it on again. If this doesn't solve the problem, contact the nearest service centre.
M Alarm AEE	M1 Processor is not saving data correctly.	<ul> <li>M1.1</li> <li>Unit not working;</li> <li>Code AEE flashing on display;</li> <li>LED of general alarm icon</li></ul>	Power off the unit and then power it on again. If this doesn't solve the problem, contact the nearest service centre.

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Chapter 11 - Risk analysis: residual risk

CHAPTER 11

### **RISK ANALYSIS: RESIDUAL RISK**

	Description of risk:	Effect:	User instructions:
1.	Risk of crushing	Falling of machine onto persons and/ or crushing of limbs.	Use lifting equipment suited to the task in hand, to be performed by qualified personnel with reference to the labelling instructions and manual.
2.	Risk of cutting and detachment caused by sheets or profiles in general.	Risk of cutting upper limbs on sharp edges caused by shearing of sheets or saw cutting of profiles.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance".
3.	Risk of cutting or detachment due to the finned surface of air-cooled condensers.	Risk of cutting upper limbs.	Strictly observe all manual instructions. Chapter 1 "General information"; Chapter 2 "Safety" and Chapter 9 "Operation and maintenance".
4.	Risk of cutting or detachment due to fan blades.	Risk of cutting or detachment.	Strictly observe all manual instructions. Chapter 1 "General information"; Chapter 2 "Safety" and Chapter 9 "Operation and maintenance".
5.	Risk of high pressure fluid ejection from pipelines and/or pressure tanks in cooling circuit due to accidental bursting.	Contact of body parts with refrigerant gas or parts of cooling circuit pipelines launched at high speed.	Strictly observe all manual instructions. Chapter 2 "Safety" and Chapter 5 "Installation"
6.	Risk of high pressure fluid ejection from pipelines and/or pressure tanks in cooling circuit due to design pressure values being exceeded.	Contact of body parts with refrigerant gas or parts of cooling circuit pipelines launched at high speed.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
7.	Risk of high pressure fluid ejection from pipelines and/or pressure tanks in hydraulic circuit due to accidental bursting.	Contact of body parts with fluids or residual parts of hydraulic circuit pipelines launched at high speed.	Disconnect the machine from the electrical mains during interventions on the hydraulic circuit. Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
8.	Risk of high pressure fluid ejection from pipelines and/or pressure tanks in hydraulic circuit due to design pressure values being exceeded.	Contact of body parts with fluids or residual parts of circuit pipelines launched at high speed.	Depressurise the machine during interventions on the hydraulic circuit. Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
9.	Electrical hazards due to direct contact with live parts.	Risk of electrocution and burns.	Strictly observe all manual instructions. Chapter 2 "Safety" and 5.6 "Electrical connections"
10	Electrical hazards due to indirect contact with parts that are live due to faults, in particular due to an insulation fault.	Risk of electrocution and burns.	Strictly observe all manual instructions. Chapter 2 "Safety" and 5.6 "Electrical connections"
11	. Electrical hazards: electrostatic phenomena.	Uncontrolled movements by victim of electrostatic discharge due to contact	Strictly observe all manual instructions. 5.6 "Electrical connections"
12	Electrical hazard: heat radiations or other phenomena, such as projection of melted particles, and chemical effects deriving from short circuits, overloads.	Risk of electrocution with live parts due to short circuits, scalding on contact with hot components due to overload.	Strictly observe all manual instructions. Chapter 2 "Safety" and 5.6 "Collegamenti elettrici"

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Description of risk:	Effect:	User instructions:
13. Heat-associated risk: burns and/or scalding	Scalding on contact with pipelines at temperatures over 149°F and/or freezing due to contact with surfaces at temperatures below 32°F.	Strictly observe all manual instructions. Chapter 2 "Safety"
<ol> <li>Hazards generated by noise levels that may impair hearing capacity (deafness) and other physical disorders (such as loss of balance, consciousness).</li> </ol>	Loss of hearing capacity by operator.	Secure all components correctly after interventions and maintenance.
15. Hazards generated by materials or substances handled, used, produced or offloaded from the machine and by materials used to construct the machine: inhalation of refrigerant gases.	Inhalation of refrigerant gas.	Strictly observe all manual instructions. Chapter 2 "Safety"
16. Hazards generated by materials or substances handled, used, produced or offloaded from the machine and materials used to construct the machine: fire or explosion.	Risk of fire or explosion.	Install the system in an environment fitted with adequate fire fighting equipment. Strictly observe all manual instructions. Chapter 5 "Installation"
17. Hazards generated by failure to use personal protective equipment.	Lacerations to upper limbs during maintenance or installation.	Use adequate personal protective equipment and observe all instructions in the manual. Chapter 1 "General information"; Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
18. Hazards generated by failure to observe principles of ergonomics during machine design, caused, for example, by: inadequate design, layout or identification of manual controls.	Hazards associated with failure to correctly identify manual controls.	Consult all sections of the manual.
19. Hazards generated by failure to observe principles of ergonomics during machine design, caused, for example, by: inadequate design, or layout/location of visual display units.	Hazards associated with failure to correctly understand visual display units.	Consult all sections of the manual.
20. Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by: fault or malfunction of control system.	Electrical or mechanical hazard due to incorrect settings of operating parameters or settings.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 9 "Operation and maintenance"; 5.6 "Electrical connections" and Chapter 5 "Installation"
<ol> <li>Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by: fault or malfunction of control system with possibility of disabling safety devices.</li> </ol>	Electrical hazard during interventions on machine with safety devices inhibited.	Strictly observe all manual instructions. Chapter 2 "Safety"; 5.6 "Electrical connections"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
22. Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by: fault or malfunction of control system.	Electrical hazards associated with environmental work conditions.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 3 "Technical data" and 5.6 "Electrical connections"

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Chapter 11 - Risk analysis: residual risk

Description of risk:	Effect:	User instructions:
23. Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by: return of electric power supply after failure.	Hazards associated with inadvertent start-up of the machine when electric power supply is restored.	Strictly observe all manual instructions. Chapter 2 "Safety"; 5.6 "Electrical connections" and Chapter 6 "Starting"
24. Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by external factors on the electrical equipment (EMC).	Electrical hazards associated with electric stress on internal machine components, short circuits and overloads.	Strictly observe all manual instructions Chapter 2 "Safety"; 5.6 "Electrical connections" and Chapter 9 "Operation and maintenance"
25. Hazards caused by assembly errors.	Hazards associated with machine instability caused by vibrations. Hazards on contact with operating fluids, risk of pollution due to dispersion of fluids into the environment.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 6 "Starting"
26. Risk of falling or projection of objects or fluids.	Contact of body parts with metallic materials such as the fan blades or moving parts of the compressor.	Disconnect the machine from the electrical mains during interventions on the hydraulic circuit. Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation" and Chapter 9 "Operation and maintenance"
27. Loss of stability/upturning of machine.	Crushing of body parts.	Strictly observe all manual instructions. Chapter 5 "Installation" and instructions on packaging.
28. Loss of stability/upturning of machine due to installation on unstable ground and/or vibrations generated on connection pipelines.	Crushing of body parts due to upturning of the machine, contact of body parts with water due to failure of connections to the hydraulic circuit caused by excessive vibrations.	Strictly observe all manual instructions. Chapter 5 "Installation" and Chapter 6 "Starting"
<ol> <li>Hazards generated by absence of and/or position of measures/ instruments influencing safety: all guards.</li> </ol>	Hazard of contact, due to sudden ejections, with machine components and processed or used materials.	Strictly observe all manual instructions Chapter 2 "Safety"; Chapter 5 "Installation"; Chapter 6 "Starting" and Chapter 9 "Operation and maintenance"
30. Hazards generated by absence of and/or position of measures/ instruments influencing safety: graphic safety signs.	Hazard associated with the lack of or inadequate graphic instruction and warning symbols related to dangers that could not be eliminated in design.	The operator must observe all graphic safety signs on the machine and replace when worn or illegible. Strictly observe all manual instructions. Chapter 1 "General information"
31. Hazards generated by absence of and/or position of measures/ instruments influencing safety: manual.	Hazards associated with incorrect preparation of the manual due to lack of and/or unclear information required to ensure operator safety and safe use of the machine.	Consult all sections of the manual.
32. Hazards generated by absence of and/or position of measures/ instruments influencing safety: disconnection of power sources.	Contact with live parts, contact with high pressure fluids or gas.	Strictly observe all manual instructions. Chapter 2 "Safety" and 5.6 "Electrical connections"
33. Hazards generated by absence of and/or position of measures/ instruments influencing safety: instruments and accessories for adjustments and/or maintenance in safety conditions.	Hazard of cutting, ejection of fluids or gas at high pressure, scalding, or vibrations caused by incorrect maintenance.	Strictly observe all manual instructions. Chapter 2 "Safety"; Chapter 5 "Installation"; Chapter 9 "Operation and maintenance"

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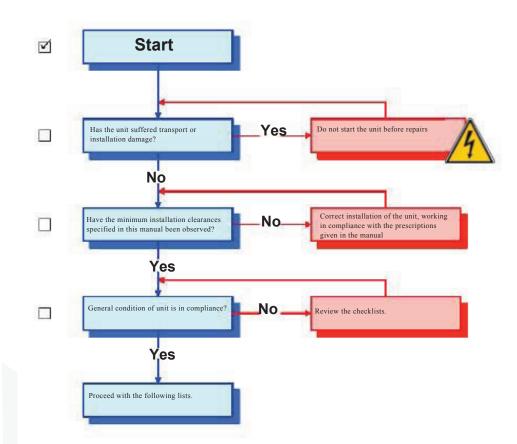
- Appendix

#### **APPENDIX**

#### GENERAL CONDITIONS CHECKLIST

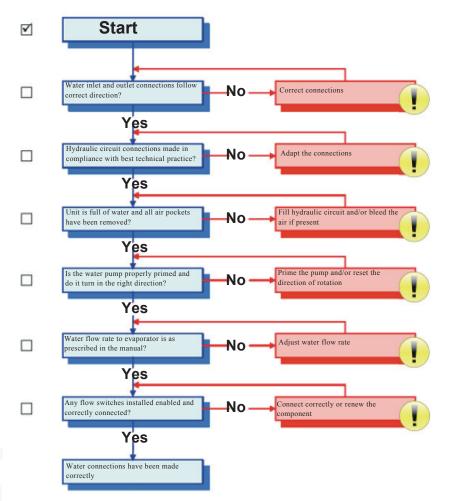


**A** DO NOT POWER ON THE UNIT!





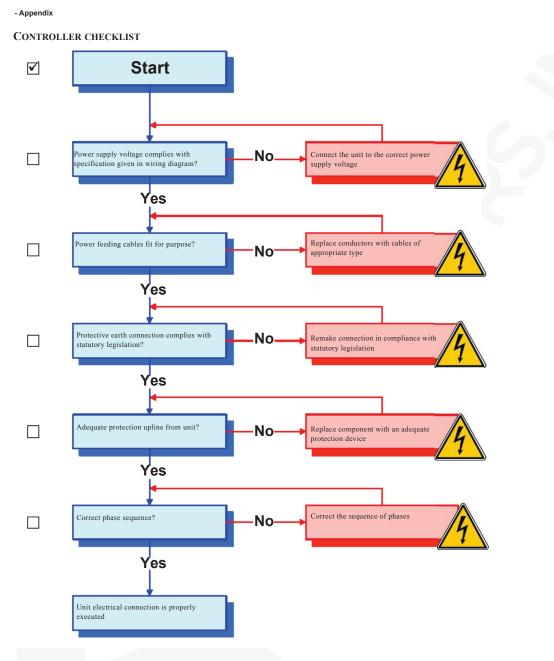
#### HYDRAULIC CIRCUIT CHECKLIST



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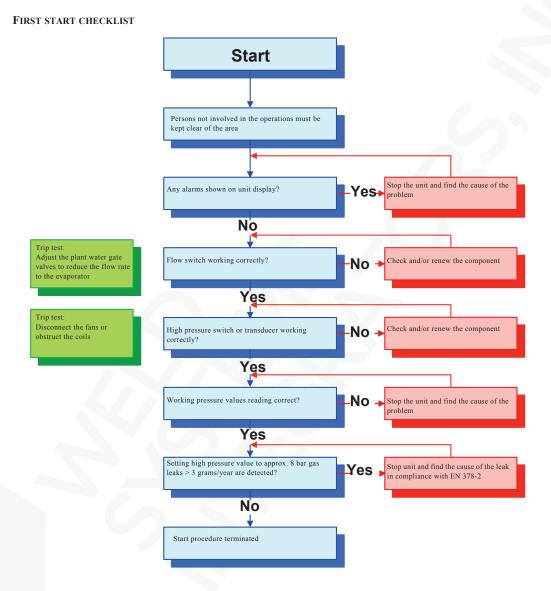
- Appendix







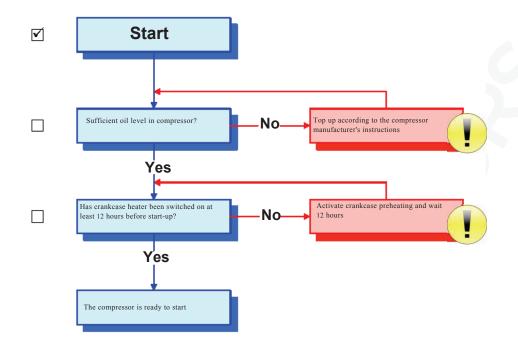
- Appendix





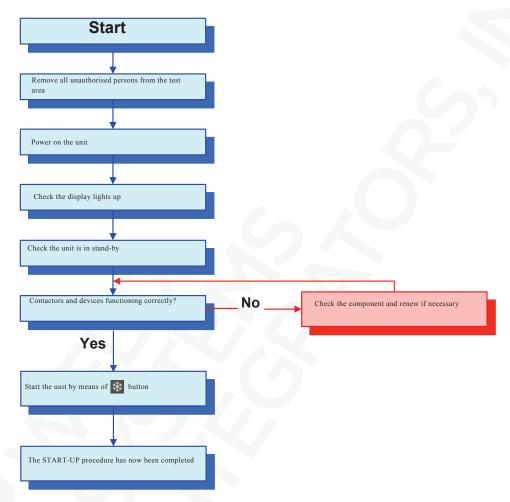
#### - Appendix

**OIL CHECKLIST** 





#### UNIT RUNNING CHECKLIST



- Appendix



## **Contact your WSI Representative TODAY!**



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