Cooling, conditioning, purifying.

TAEevo Tech

WATER CHILLERS

TAEevo Tech 020÷1002 60Hz UL

OPERATING AND MAINTENANCE MANUAL

Original instructions in Italian language (Service) DDOMA01240

USER'S QUICK GUIDE

ATTENTION

⚠ ***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

⚠ *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

⚠ *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.*

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.

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.

Electronic control
TAEevo Tech 020÷351

LCD graphic display
TAEevo Tech 381÷1002

NOTE
To convert the semi-graphic LCD display on the door of the electrical panel (mod. TAEevo Tech 381÷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 StbY on the display.

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 OF.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 ∧ or ∨ 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 menu
- 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 ∧ or ∨.

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

With the unit in **StbY** (stand-by) and the ⚠ LED flashing, press menu and scroll with buttons ∧ or ∨ 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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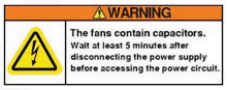
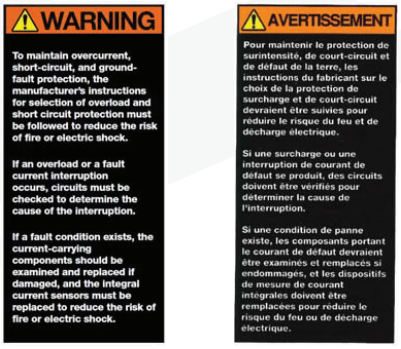
CHAPTER 1

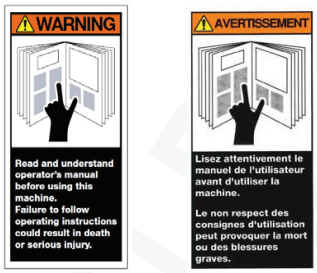
GENERAL INFORMATION

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
	Indication of the axis of reference for lifting operations		Drain point to empty the unit of water
	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
	Water filling point		Air bleed valve
	Opening to be used for the insertion of bars for the purpose of lifting the unit		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
	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.

WARNING SYMBOL	DESCRIPTION
	Hazardous voltage. All doors must be closed before energizing the panel.
	Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in death or serious injury.
	Moving parts can crush and cut. Do not operate with guard removed. Follow lockout procedure before servicing.
	Hazardous voltage. Disconnect power before servicing or cleaning.

1.1 How to interpret the model

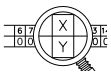
MODEL	DESCRIPTION
TAEevo Tech XXX Y	Number of refrigerant circuits Guideline power of compressor expressed in HP E = hermetic compressor A = air-cooled condenser T = tank; chiller with storage tank.

ATTENTION

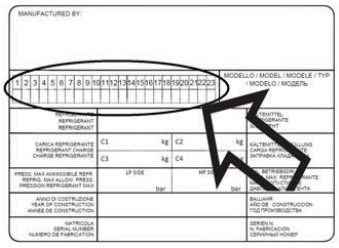
This manual, which is addressed to users, installers, and service personnel, supplies all the technical information required to install and work with the unit and to perform the routine maintenance operations required to maximise its working life.
Use only genuine parts when carrying out routine maintenance 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
		B	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 VALVE	9	0	NO
		1	YES
LASER	10	A	YES
		B	NO
FAN	11	A	AXIAL
		B	CENTRIFUGAL
		G	HIGH PRESSURE AXIAL FLOW FANS

	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
		I	P3
		L	P5
		P	P3+P3
		Q	P5+P5
TANK MATERIAL	15	B	Fe+Fe
		C	Aisi+NoF
WATER BYPASS	16	1	OVERLOAD VALVE
		2	NO
KIT TYPE	17	A	NO KIT
		B	TANK KIT
PRODUCT TYPE	18	0	STANDARD
		X	SPECIAL

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

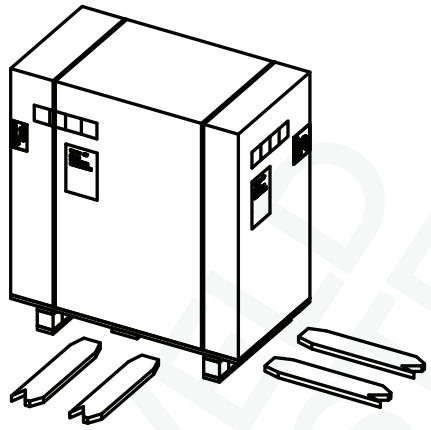
Avoid injury by using a hoist to lift heavy loads.
Check all chains, hooks, shackles and slings are in good condition and are of the correct capacity.
They must be tested and approved according to local safety regulations.
Cables, chains or ropes must never be attached directly to lifting eyes.
Always 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.

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.

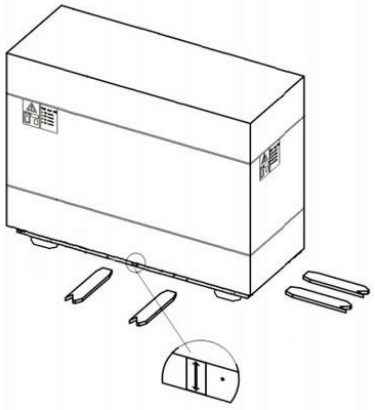
Model TAEevo Tech	020	031	051	081	101	121	161	201	251
Weight (lb)	333	465	509	785	842	882	902	1466	1468

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

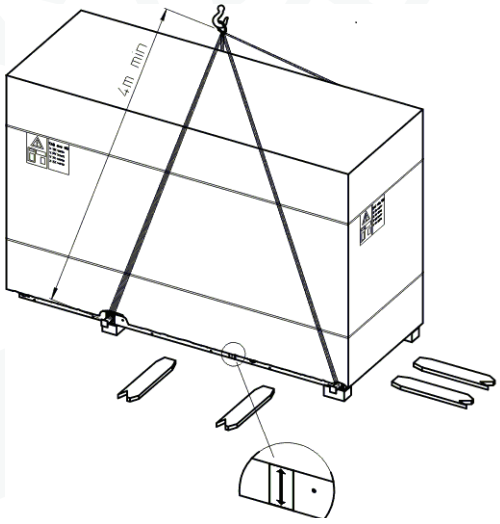
Model TAEevo Tech 020÷161



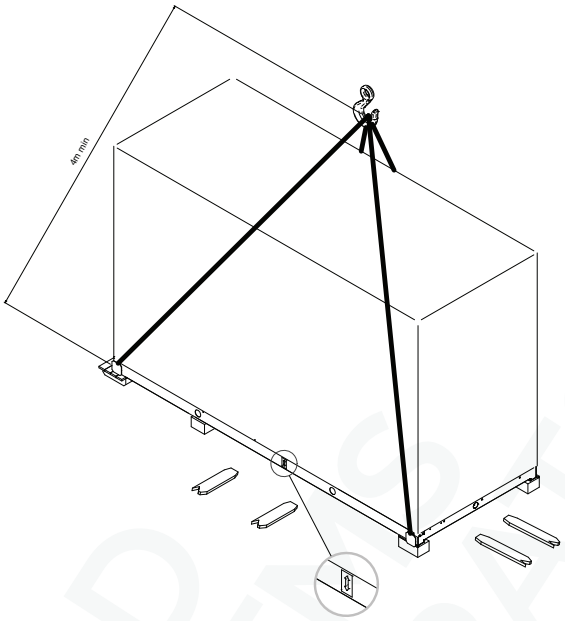
Model TAEevo Tech 201÷401



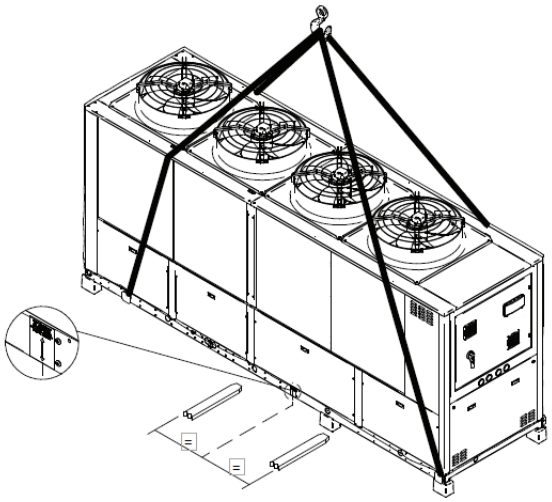
Model TAEevo Tech 402÷602



Model TAEevo Tech 702÷802



Model TAEevo Tech 902-1002



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.

ATTENTION

⚠ *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

⚠ *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

⚠ *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.

ATTENTION

⚠ *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.

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:	Safety spectacles.
Protection of the hands:	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 products:	These products are halogen compounds, hydrofluoric acid, carbon monoxides (CO, 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.

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.

3.1.2 Characteristics of pumps and fans

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
Pump P3	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 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
Pump P5	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 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 fan	No. of fans		1	1	1	1	2	2	2
	total airflow	(cfm)	2413	4414	4179	5709	9829	9417	9417
EC fan	No. of fans		-	1	1	1	2	2	2
	total airflow	(cfm)	-	3732	3637	4768	8711	8476	8476

Model TAEevo Tech			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
Pump P3	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 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
Pump P5	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 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 fan	No. of fans		2	2	3	3	2	2	2	2
	total airflow	(cfm)	11595	11595	15421	15421	22366	22366	28370	27075
EC fan	No. of fans		2	2	3	3	2	2	2	2
	total airflow	(cfm)	9594	9594	12713	12713	20306	20306	24838	23955

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

Model TAEevo Tech			902		1002	
Tank capacity	water volume	(gal)	251,0		251,0	
Pump P3	water flow rate	(gpm)	92/479,9		92/479,9	
	pump pressure head	(PSI)	43,7/4,1		43,7/4,1	
	rated power	(kW)	7,5		7,5	
Pump P5	water flow rate	(gpm)	92/383,1	92/383,1	92/383,1	92/383,1
	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
Axial flow fan	No. of fans		circ.1	circ.2	circ.1	circ.2
			2	2	2	2
	total airflow	(cfm)	57210	57210	54149	54149
EC fan	No. of fans		circ.1	circ.2	circ.1	circ.2
			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.

3.1.3 Sound level measurements

	Fan	Lp dB(A) *	Lw dB(A) **
TAEevo Tech 020	axial	68,9	81,9
TAEevo Tech 031	axial	69,6	82,6
	EC	70,0	83,0
TAEevo Tech 051	axial	70,7	83,7
	EC	71,1	84,1
TAEevo Tech 081	axial	70,9	83,9
	EC	71,4	84,4
TAEevo Tech 101	axial	72,0	85,0
	EC	72,5	85,5
TAEevo Tech 121	axial	71,2	84,2
	EC	71,8	84,8
TAEevo Tech 161	axial	72,1	85,1
	EC	72,6	85,6
TAEevo Tech 201	axial	74,2	87,2
	EC	74,8	87,8
TAEevo Tech 251	axial	74,1	87,1
	EC	74,6	87,6
TAEevo Tech 301	axial	75,6	88,6
	EC	76,1	89,1
TAEevo Tech 351	axial	75,3	88,3
	EC	75,8	88,8
TAEevo Tech 381	axial	78,0	91,0
	EC	78,5	91,5
TAEevo Tech 401	axial	80,2	93,2
	EC	80,6	93,6
TAEevo Tech 402	axial	79,5	92,5
	EC	79,9	92,9
TAEevo Tech 502	axial	79,6	92,6
	EC	80,0	93,0
TAEevo Tech 602	axial	79,3	92,3
	EC	79,7	92,7
TAEevo Tech 702	axial	79,4	92,4
	EC	79,8	92,8
TAEevo Tech 802	axial	80,6	93,6
	EC	81,0	94,0
TAEevo Tech 902	axial	81,8	94,8
	EC	82,1	95,1
TAEevo Tech 1002	axial	83,5	96,5
	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 ± 2 dB.
Sound pressure level: according to ISO 3744.

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

4.1.1 Refrigerant circuit

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:

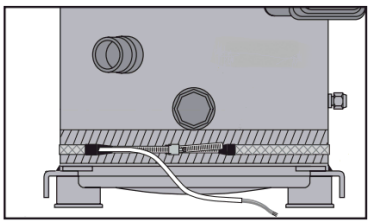
- refrigerant fluid utilised R410A;
- hermetic scroll compressor;
- pressure switch for fans with On/Off control (only TAEevo Tech 020÷401);
- high and low refrigerant pressure switches;
- high pressure transducer for electronic fan speed control (models TAEevo Tech 031÷1002);
- high pressure transducer 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.

Belt-type casing heating



NOTE

During the short periods of starting and stopping the compressor (in the models TAEevo Tech 020÷101 and TAEevo Tech 201÷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.

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 anti-freeze 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.*

ATTENTION

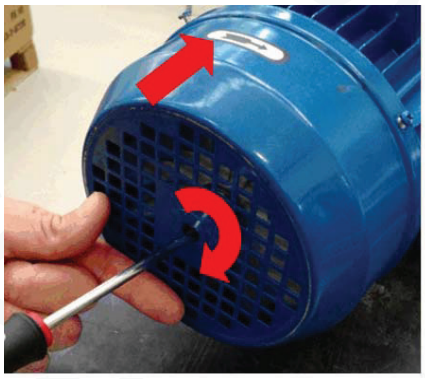
⚠ *If the unit is equipped with the P3 delivery pump, the user circuit must be of the open type.*

NOTE

The pump must never run dry.

ATTENTION

⚠ *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

⚠ *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.

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.

CHAPTER 5

INSTALLATION

ATTENTION

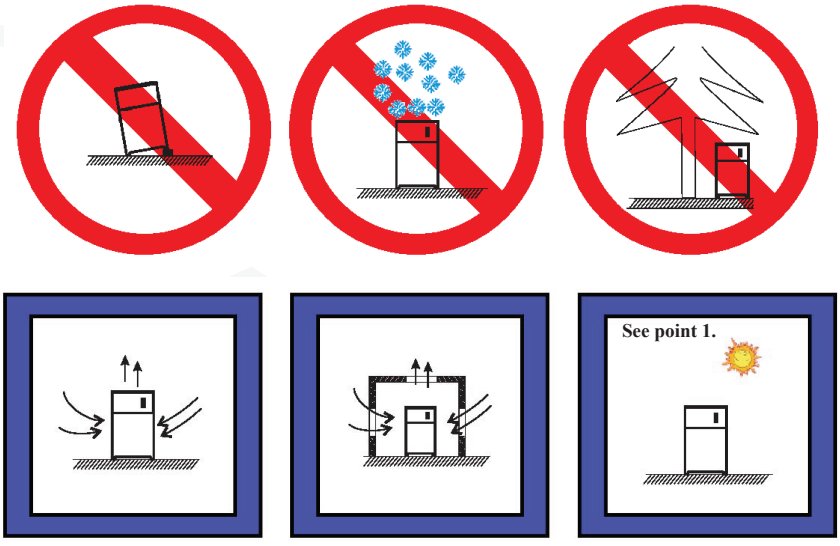
⚠ *Before installing or operating these units, ensure that all personnel involved have read and understood Chapter 2 "Safety". The unit must be installed in accordance with current national legislation in the country of use.*

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.
5. 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.



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]
Standard machine	45	0	0
	37	20	20
	32	20	25
	27	25	30
	23	30	30
	19	35	35
	14	35	40
Special machine	5	45	45
	-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

⚠ *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		Evaporator water outlet temperature		Water temperature gradient		Water circuit pressure at the water side with tank		Fans control type
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
°F		°F		°F		°F		psi		
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	
23	109 (2)	23 (3)	95	14 (3)	86	7	18	0	87	ELECTRONIC
-4 (1)	109 (2)	23 (3)	95	14 (3)	86	7	18	0	87	

NOTE

For water outlet temperatures <= 41°F and for ambient temperatures <= 32°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°F. Check the various ambient temperatures for each model in the Performance Data.*
***(3)** min. evaporator water inlet temperature 28°F; min. evaporator water outlet temperature -19°F for TAEevo Tech 020.*

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.

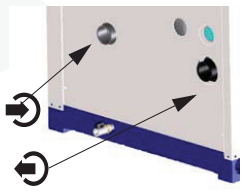
ATTENTION
⚠ *If the unit is not equipped with the hydraulic unit a pump must be installed for the evaporation water circuit.*
For any maintenance requirements it is advisable to install a water drain cock at the lowest point of the circuit.

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

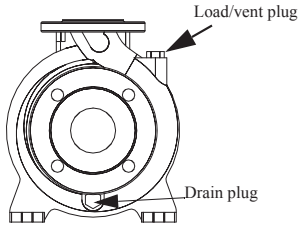
Unit model TAEevo Tech	402÷602	702÷802	902-1002	Max. pressure [PSI] units with tank
Evaporator IN/OUT water connections	Rp 2" 1/2	Rp 3"	DN100	87

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

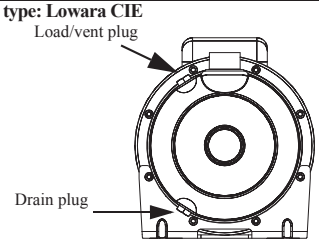


⇦	Process water inlet	⇦	Process water outlet

Pump type: Lowara NSC



Pump type: Lowara CIE



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

Water component for corrosion limit on Copper

pH	7.5 ÷ 9.0	
SO_4^{--}	< 100	ppm
HCO_3^-/SO_4^{--}	> 1.0	
Total hardness	4.5 ÷ 8.5	dH
Cl-	< 50	ppm
PO_4^{3-}	< 2.0	ppm
NH3	< 0.5	ppm
Free Chlorine	< 0.5	ppm
Fe^{3+}	< 0.5	ppm
Mn^{++}	< 0.05	ppm
CO_2	< 50	ppm
H_2S	< 50	ppb
Temperature	< 65	°C
Oxygen content	< 0.1	ppm

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:
$V = 2 \cdot Vt \cdot (Ptmin - Ptmax)$
where:

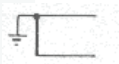
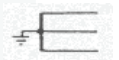
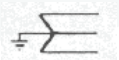
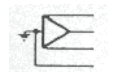
Vt=	Total circuit volume in litres
Ptmin=	Specific density at minimum temperature that can be reached by the water throughout a twelve month period expressed in °F (also during system shutdown)
Ptmax=	specific density at minimum temperature that can be reached by the water throughout a twelve month period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

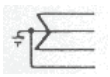
Calculation example:
Vt=200 litres
percent ethylene glycol by volume=30%
tmin=41°F from table **Ptmin**=(1.045+1.041)/2 = 1.043
tmax=104°F from table **Ptmax**=1.0282
$V=2 \cdot 200 \cdot (1.043 - 1.0282)=5.92$ litres
Specific densities table P

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

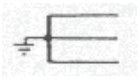
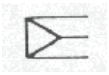
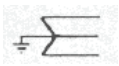
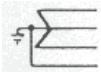
5.6 Electrical connections

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	Utilization Voltage	
	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

System	Nominal Voltage	Utilization Voltage	
	240/120	230/115	220/110
	240/120	230/115	220/110

Main distribution systems in Canada:

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

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

⚠ *Never tamper with the Phase Monitor under any circumstances.*

CHAPTER 6

STARTING

ATTENTION

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

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.*

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.
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.

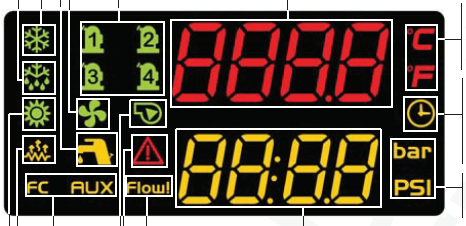
11. On three-phase power supply models make sure the compressor operates correctly (no anomalous noise and no overheating) and check that the fans and the pump (if present) rotate in the correct direction.
    If necessary, invert two phase wires of the power supply line.
12. Check that the pressure 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.

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.

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.
If lit in programming mode show temperature setpoints or differentials.
Clock icon (pumps, compressors operating hours).
When lit in programming mode shows the work load hours.
Flashing in the functions menu indicates the time remaining before defrost start.
Shows a pressure value when lit. If lit in programming mode shows pressure setpoints or differentials.
Lower display
Flashing 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 from the main mask to display the chiller setpoint.
Press twice from the main mask to display the real working setpoint (if present).
Press for 3 seconds from the main mask to edit the chiller setpoint.
Press once in programming mode to edit or confirm a parameter value.
Press once in the ALrM menu to reset the alarm.
Press once in the lower display probes menu to alternate the display of the circuits.
Press once to switch the unit ON or OFF in heat pump mode (not used in chiller-only units).
Press once to switch the unit ON or OFF in chiller mode.
Press once to gain access to the functions menu.
Press once in programming mode to quit the parameters or parameter editing mode.
Press once from the main mask to display temperature/pressure values on the upper/lower display.
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”.

7.2.1 Function of combined buttons

BUTTONS	FUNCTION
SET + ▼	To enter programming mode (pressed for 3 seconds).
SET + ▲	To exit programming phase.
SET + 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÷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	Board terminals	Description
BTWOT	EOut	PB1	Tank water outlet temperature probe (temperature control)
BEWOT	Out1	PB2	Evaporator water outlet temperature probe (anti-freeze)
BHP1	CdP1	PB3	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

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 StbY 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 OFF 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.

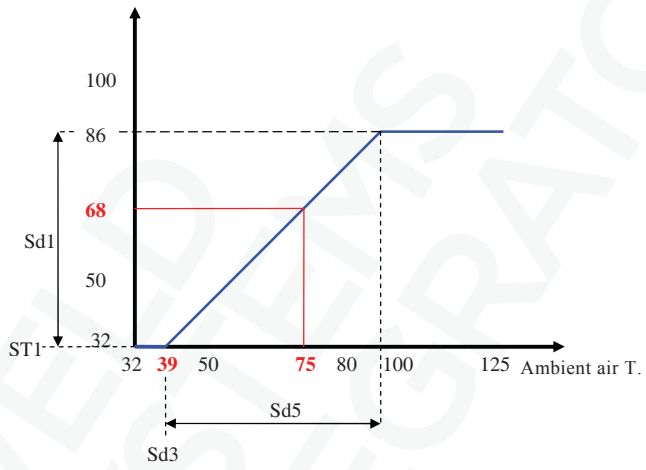
The setpoint can be changed using the ▲ or ▼ buttons.

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

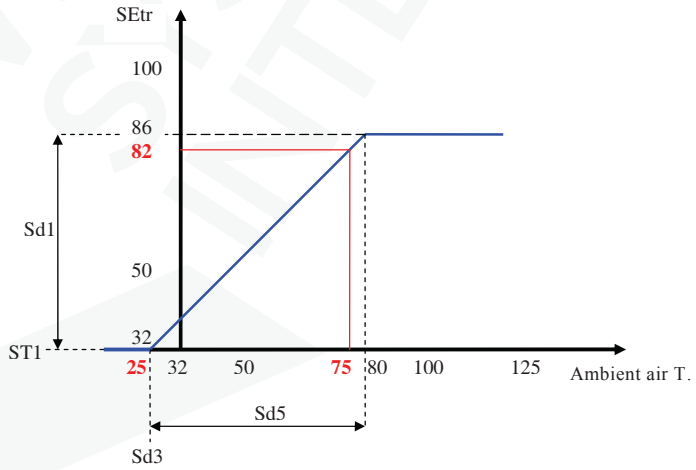
7.7 Dynamic setpoint function

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 ÷ 41°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



Case 2 - Sd03= 25



7.8 How to display the internal values of a circuit

NOTE
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:

menu
- **ALrM function** — Display and reset active alarms (see 7.11.1).
- **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.
- **Hour function** — 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).

7.9.1 CrEn - Enable or disable the single circuit

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 menu
- With the ▲ or ▼ buttons select the function **CrEn** on the lower display;
- Press SET. The lower display shows **Cr1E** while the upper display shows **En**;
- Use the ▲ or ▼ 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 menu 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.*

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 menu 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 ▲ or ▼ display all the configured compressors.

To return to normal display mode press menu or wait for the time-out.
To reset the number of compressor starts proceed as follows:

- Open the functions menu by pressing menu
- 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 menu 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 ▲ or ▼ 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.

To return to normal display mode press menu 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 menu 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.
Cnd1 Condensing fans control proportional output.
Proceed as follows to display:

- Open the functions menu by pressing menu
- With the ▲ or ▼ 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 menu or wait for the time-out.

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

- With the ▲ or ▼ 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 menu 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 menu 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 ▼ keys (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 ▼ 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 menu 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 ▲ or ▼ 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 menu or wait for the time-out.

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)

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 menu
- With the ▲ or ▼ 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 menu or wait for the time-out.

With the unit in **StbY** (stand-by) and the ⚠ LED flashing, press menu 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 **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.

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

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

1= If probe configured for anti-freeze - water heater control and **Ar10** = 0.
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

CODE Alarm	Description Alarm	Comp.	Heaters Anti-freeze water heater	Elements support	Pump Evap. Deliv. Fan	Cond. pump	Cond. fan Cir1 Cir2	Auxiliary relay
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	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							

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	**b1HP** (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

7.11.7 High pressure switch alarm and/or compressor thermal alarm

(TAEevo Tech 402÷1002 models only)

Display labels meaning	**b1HP** (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 circuits affected	Follows its control
Pump down solenoid of affected circuits	off

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

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) **b2lP** (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

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	**b1AC** (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.

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 **CO15** = 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

⚠ *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).

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	**b1tF** (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

Display labels meaning	**b1Cu** (unloading indication from circuit 1 condenser coil) **b2Cu** (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	**b1rC** (circuit 1 recovery disabling signal) **b2rC** (circuit 2 recovery disabling signal)
Cause of trip	In operation if the probe configured as condensing pressure control detects a value > set **rC06**
Reset	• If condensing pressure or temperature measures value < set **rc06** - differential **rC07** • From recovery disabling function activated after time set in Par. **rC08**
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	• If the measured water temperature is < set **CO40** - differential **CO41** • From unloading function active after time set in Par. **CO43**
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

7.11.20 Phase monitor alarm

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.*

7.11.24 Unit configuration alarm

Display labels 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** • **FA21** < **FA22** • **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 resources (e.g. compressor 3 thermal cutout configured but compressor 3 not configured).
ACF4	• **CF59** = 1 and digital input not configured or **CF59** = 2 and no NTC probe configured as ambient air temperature. • Unit configured as heat pump only and compressors plant enabled. • **CF03** ≠ 0 and no condensing unit operation enabling digital input and loads configured. • **CF03** ≠ 0 and all condensing unit operation enabling digital inputs and cooling / heating demand configured. • **CF03** ≠ 0 and capacity demands configured in mode that is incongruent with the configuration of the compressors / capacity steps relay outputs.
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	Total number of compressors in the 2 circuits (**CF04** + **CF05**) is: • > 4 • > 4 and starting is not direct (**CO10** ≠ 0) or number of capacity steps (**CF06**) is ≠ 0 • > 2 and intermittent valve is enabled with ON times (**CO08**) and OFF times (**CO09**) ≠ 0 If pump-down operation is configured but in at least one circuit: • The circuit pump-down solenoid relay is not configured. • 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 The compressor has been configured by means of parameters **CF04** and **CF05** but the relative relays have not been installed: • Compressor relay • Valve intermittent when enabled from capacity control ON / OFF times (**CO08** / **CO09** ≠ 0) • or gas by-pass when the function is enabled (by-pass time ≠ 0) • Starting part-winding • Of capacity control for all capacity steps provided A relay has been configured: • Associated with a compressor not enabled by parameters **CF04** and **CF05** • Valve intermittent when ON or OFF times =0 • Capacity control not envisaged

ACF7	Evaporator pump • defined (**CO16** ≠ 0) but no relays configured • not defined (**CO16** = 0) but one relay configured Condenser pump • defined (**CO21** ≠ 0) but no relays configured • not defined (**CO21** = 0) but one relay configured Evaporator / condenser pump configuration alarm due to anti-freeze • if **Ar24**=1 and **Ar25**=0 or • if **Ar25**=1 and there are no probes configured as NTC or • if **Ar29**=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 correctly configured (does not exist or is not NTC) • controller enabled with pressure control the associated pressure control probe is not defined
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 • the output is defined but the main relay of the compressor is not defined • modulating compressor enabled and unit configured as condensing unit
AC11	Capacity controlled compressors • digital scroll compressors • at least 1 of the compressors defined has significance 0 • temperature control is not in neutral zone
AC12	Free cooling configuration if: • the free cooling output relay is not defined • the probes for free cooling control are not defined • if **FS21** < **FS22** • if **FS01**=2 and **CF97**=2
AC13	Domestic hot water configuration if: **FS01**>0 and: • the out1 output relay is not defined • domestic hot water temperature probe 1 is not configured
AC14	Relay outputs configuration if: a relay is configured with values 75 or 76

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

7.12 iCHILL input/output configurations

7.12.1 Configuration of analogue inputs PB1 - PB2 – PB5 – PB6

0. Disabled
1. PTC temperature probe on delivery outlet of compressor n° 1
2. PTC temperature probe on delivery outlet of compressor n° 2
3. PTC temperature probe on delivery outlet of compressor n° 3
4. PTC temperature probe on delivery outlet of compressor n° 4
5. Not used
6. Not used
7. PTC temperature probe for solar panel temperature
8. NTC temperature probe on evaporator inlet
9. NTC temperature probe on evaporator outlet 1
10. NTC temperature probe on evaporator outlet 2
11. NTC temperature probe on evaporator common output/support heater management (air/air unit)
12. NTC temperature probe on common input for condenser hot water
13. NTC temperature probe on condenser hot water input of circuit 1
14. NTC temperature probe on condenser hot water input of circuit 2
15. NTC temperature probe on condenser hot water output of circuit 1
16. NTC temperature probe on condenser hot water output of circuit 2
17. NTC temperature probe on common output for condenser hot water
18. NTC temperature probe for free cooling mode
19. NTC temperature probe for external air temperature dynamic set point / boiler function / changeover
20. NTC temperature probe for combined defrost on circuit 1
21. NTC temperature probe for combined defrost on circuit 2
22. NTC temperature probe for auxiliary output on circuit 1
23. NTC temperature probe for auxiliary output on circuit 2
24. NTC temperature probe for domestic hot water temperature 1
25. NTC temperature probe for domestic hot water temperature 2
26. NTC temperature probe for solar panel temperature
27. NTC temperature probe for condensation on circuit 1
28. NTC temperature probe for condensation on 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"

7.12.2 Configuration of analogue inputs PB3 - PB4

0. Disabled
1. PTC temperature probe on delivery outlet of compressor n° 1
2. PTC temperature probe on delivery outlet of compressor n° 2
3. PTC temperature probe on delivery outlet of compressor n° 3
4. PTC temperature probe on delivery outlet of compressor n° 4
5. Not used
6. Not used
7. PTC temperature probe for solar panel temperature
8. NTC temperature probe on evaporator inlet
9. NTC temperature probe on evaporator outlet 1
10. NTC temperature probe on evaporator outlet 2
11. NTC temperature probe on evaporator common output/support heater management (air/air unit)
12. NTC temperature probe on common input for condenser hot water
13. NTC temperature probe on condenser hot water input of circuit 1
14. NTC temperature probe on condenser hot water input of circuit 2
15. NTC temperature probe on condenser hot water output of circuit 1
16. NTC temperature probe on condenser hot water output of circuit 2
17. NTC temperature probe on common output for condenser hot water
18. NTC temperature probe for free cooling mode
19. NTC temperature probe for external air temperature dynamic set point / boiler function / changeover
20. NTC temperature probe for combined defrost on circuit 1
21. NTC temperature probe for combined defrost on circuit 2
22. NTC temperature probe for auxiliary output on circuit 1
23. NTC temperature probe for auxiliary output on circuit 2
24. NTC temperature probe for domestic hot water temperature 1
25. NTC temperature probe for domestic hot water temperature 2
26. NTC temperature probe for solar panel temperature
27. Condensation probe on circuit n° 1 (NTC temperature / pressure 4÷20 mA / ratiometric 0÷ 5Volt)
28. Condensation probe on circuit n° 2 (NTC temperature / pressure 4÷20 mA / ratiometric 0÷ 5Volt)
29. Evaporation pressure probe in circuit 1
30. Evaporation pressure probe in circuit 2
31. Auxiliary output pressure probe 1

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

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

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 1
53. Step capacity control 1 on compressor 1
54. Step capacity control 2 on compressor 1
55. Step capacity control 3 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 2
63. 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 o1 to c50, as per the digital outputs.

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 ⚠
Action	Alarm relay + buzzer activated

7.12.10 Alarm relay / open - collector / buzzer notes

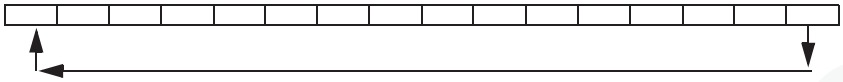
The unit features a general alarm relay that combines all alarms on a single output contact.

The relay is active with the following logic:

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

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.
- Scroll through all the alarms present press ▲ or ▼.

To exit the **ALOG** function and return to normal display mode press menu 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 ▲ or ▼.

To return to normal display mode press menu 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

⚠ *All levels are password protected.*

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

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

ATTENTION

⚠ *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 △ or ▽.
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 ▽ 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):

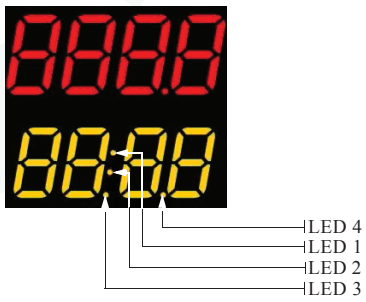
1. Enter "**Pr1**", press △ for 2 seconds; the lower display shows the label "**Pr2**". Repeat the procedure from point 2.

To enter the parameters menu "**Pr3**" (manufacturer level):

1. Enter "**Pr2**", press △ 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 + △ simultaneously.

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 ▲ or ▼.
- Press SET to store the new value and to go to the code of the next parameter.

To exit, press SET + ▲ 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

⚠ *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 menu 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:

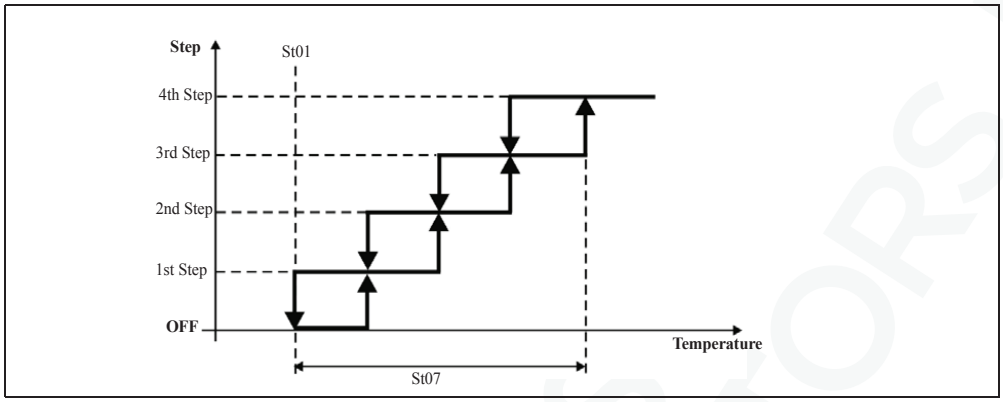
- Proportional
- Neutral Zone (factory setting)

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.

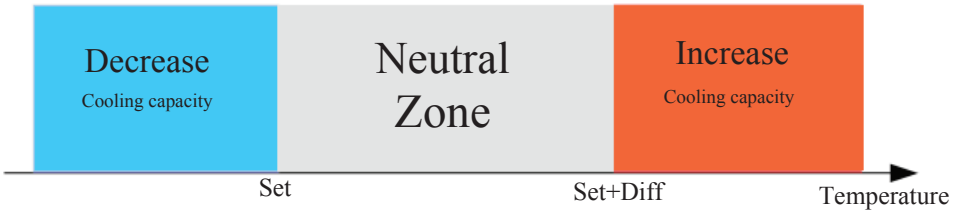
7.15.4 Compressors proportional control diagram

Compressors regulation operation diagam in chiller mode.



7.15.5 Neutral zone control (factory setting)

In chiller mode, if the reference temperature is ≥ 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 ≤ 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.

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 steps
- with 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)

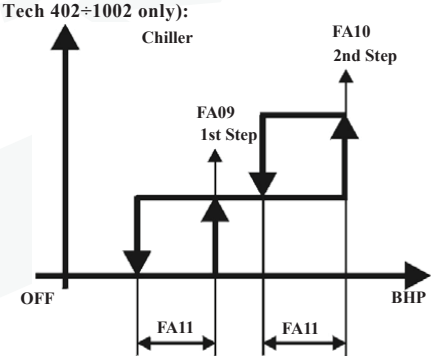
These units are equipped with a pressure transducer located on the refrigerant compressor discharge pipeline.
On the basis of the pressure read by the transducer, the electronic controller manages operation of the fans according to ON-OFF logic, i.e. supplying or disconnecting power to the fans.

7.17.2 Units configured with fan speed control / EC

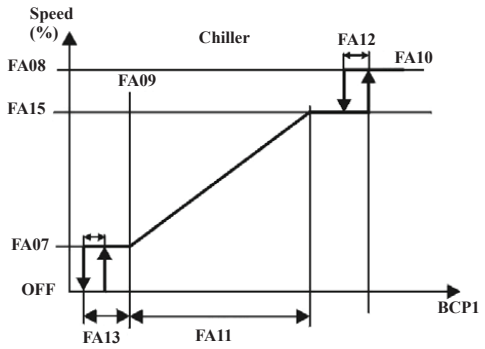
The unit is equipped with a speed controls that serve to maintain condensing pressure around a preset value.
These units are equipped with a pressure transducer located on the refrigerant compressor discharge pipeline.
For example, if the temperature of the air conveyed to the condenser decreases, the 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



7.18 Hydraulic unit

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

- 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.

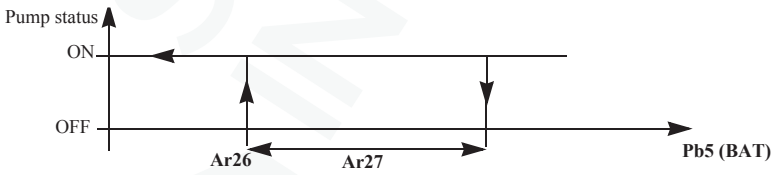
NOTE

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

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.

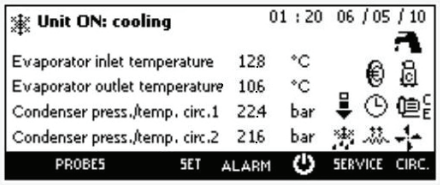
7.22 Control with LCD graphic display

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÷1002) to remote control, the relevant remote control kit must be ordered.



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)		Economy function or Energy Saving
/	Water pump / Supply fan		Unloading function
	Condenser fan or Condensing valves		Economy or ON/OFF by timetable (Function not available)
	Electric heater		Defrost (Function not available)
	Sanitary water (Function not available)		Alarm

7.23 Function of buttons

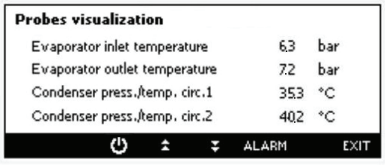
Meaning of the keys:

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
	Allows to switch on the Ichill in heating or cooling mode (Function not available)	SERVICE	Allows to enter the SERVICE menù
	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,…)

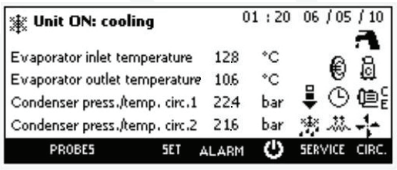
NOTE

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

7.24 Probes visualization

Mask	Description
	Press PROBES key to visualize the value of the probes configured in the control (press ▲ or ▼ to visualize all the probes).

7.25 Unit start/stop

Mask	Description
	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

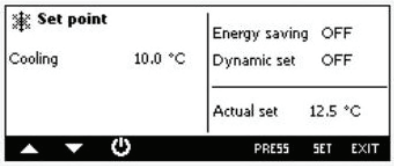
The unit can be switched on/off from a digital input configured as remote On/OFF.

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.

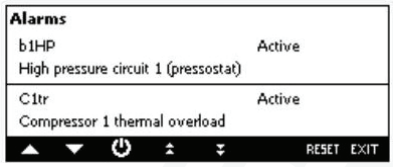
When the unit is in OFF status from a digital input the controller shows **unit OFF** on the display.

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

7.26 Visualization / modification of the set point

Mask	Description
	Press **SET** key to read the value of the set point . It is also possible to read the status of the Energy saving, the status of the Dynamic set point and the real value of the set point if the Energy saving or Dinamic set point are active. To modify the set point (Cooling): • press ▲ or ▼ to select the value of the set point • press **SET** • press ▲ or ▼ to modify the value • press **SET** .to confirm the operation

7.27 Alarm visualization

Mask	Description
	Press **ALARM** key to read the alarm status; 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. Manual reset procedure: • press ▲ or ▼ to select the alarm; • press **RESET** to reset the alarm

NOTE

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

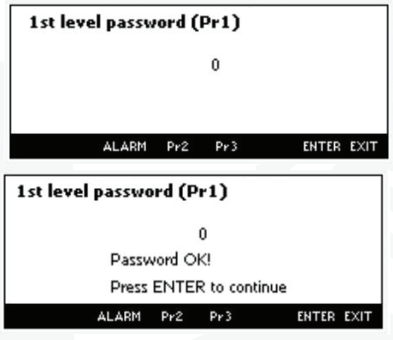
7.28 Menu service visualization

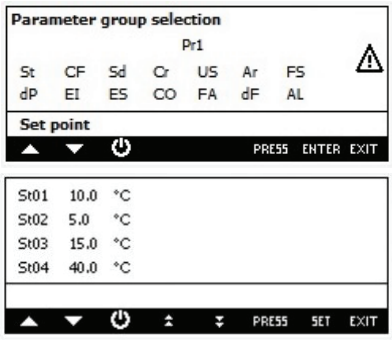
Mask


Pressing SERVICE it is possible to read the following information:

	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)	I/O	**I/O status**
	Water pump maintenance It is possible to read / reset the working hours		**Screw compressor information (Function not available)**
CIR	**Circuit maintenance**	AUX	**Auxiliary output status**
	Visualization and reset of the alarms	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		**Visograph configuration** It is possible to change the language, to set the contrast and the backlight.

7.29 Parameters programming

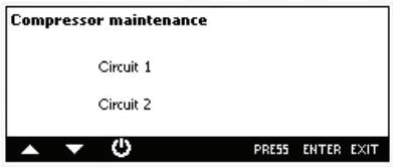
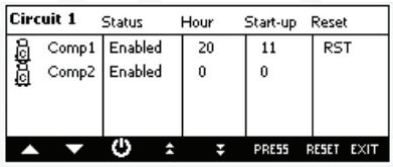
Mask	Description
	Pressing ENTER it is possible to read/modify the parameters value: • select the level 1 (default) or level 2 or level (by pressing Pr2 or Pr3 key) • press SET • press ▲ or ▼ to enter the password • press SET to confirm. • the display shows "Password OK!" (otherwise repeat the procedure) • press ENTER 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.

Mask	Description
	Pressing ▲ or ▼ it is possible to select the group of parameters to modify, then press ENTER. How to modify the value of the parameter: • press ▲ or ▼ to select the parameter to modify • press ENTER • press ▲ or ▼ to modify the value • press ENTER to confirm. Press ▲▲ or ▼▼ to scroll the parameters.

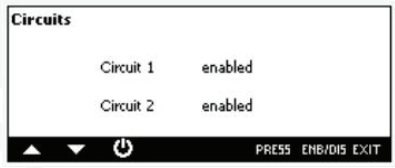
7.30 Compressor maintenance

Pressing 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.

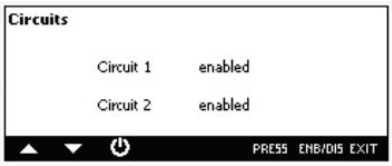
Mask	Description
	How to reset the working hours and number of start up: • press ▲ or ▼ to select the label RST; • press RESET for 5 seconds to reset hour and start up.
	How to disable a compressor: • press ▲ or ▼ to select the status of the compressor (Enabled in the "Status" column); • press ENB/DIS for 5 seconds • press ▲ or ▼ to select the status "Disabled" • press ENB/DIS for 5 seconds to confirm the operation.

7.31 Water pump maintenance

Mask	Description
	How to reset the working hours: • press ▲ or ▼ to select the label RST; • press RESET for 5 seconds to reset hour and start up.

7.32 CIR Circuit maintenance

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

Mask	Description
	How to disable a circuit: • press ▲ or ▼ to select the circuit to disable • press ENB/DIS for 5 seconds • press ▲ or ▼ to select the status "Disabled" • press ENB/DIS for 5 seconds to confirm the operation

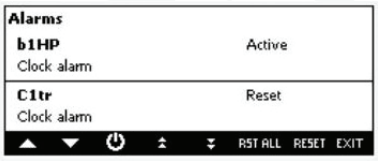
7.33 Alarm visualization and reset

Pressing ▲▲ or ▼▼ it is possible to visualize the alarms; the alarm status can be:

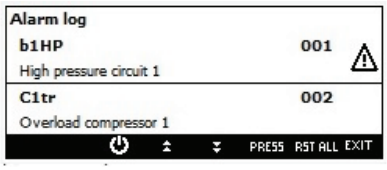
- **Active**: the alarm is still active and it is not possible to reset it
- **Reset**: the alarm is not active and it is possible to reset it

ATTENTION

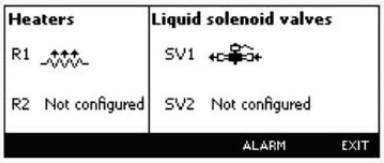
⚠ *With this procedure you can reset all the alarms except for the compressor thermal cut-out alarms for which the password will be required: 14.*

Mask	Description
	Manual reset of all alarms: press RST ALL to reset all the alarms (only the alarms that are not active) Manual reset procedure: • press ▲ or ▼ to select the alarm; • press RESET to reset the alarm. In case of compressor overload alarm when the password is requested, operate in this way: • press ▲ or ▼ to select the compressor overload alarm • press RESET • press SET • press ▲ or ▼ to insert the password value • press SET to confirm the operation

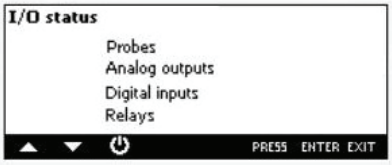
7.34 Alarm log visualization

Mask	Description
	Pressing ▲ or ▼ it is possible to read all stored alarms.

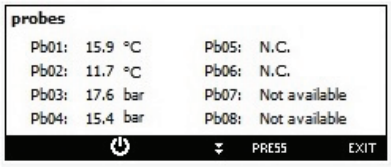
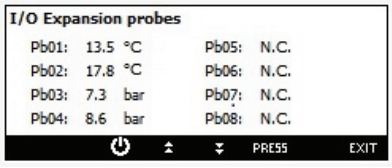
7.35 Electric heater visualization

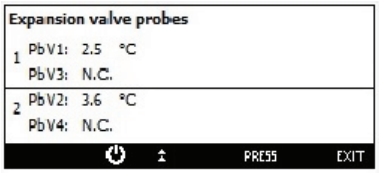
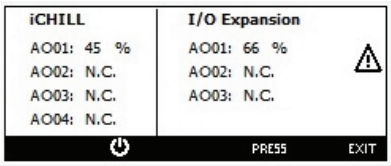
Mask	Description
	It is possible to read the status of the electrical heaters.

7.36 I/O status

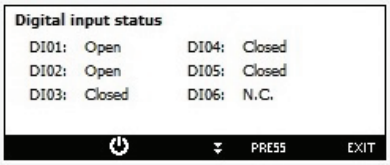
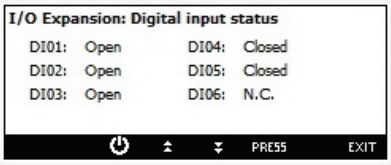
Mask	Description
	Press ▲ or ▼ to select the digital input, probes value, analog output, digital input or relays, then press ENTER.

Display of temperatures and pressures measured by the probes configured.

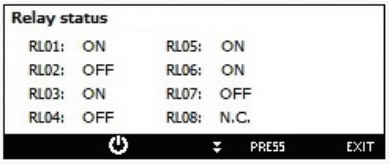
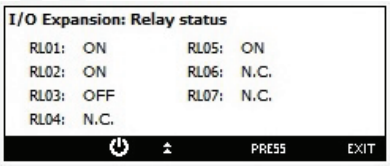
• Probe of the control	• Probes Expansion I/O (if configured)
	

• Probes Expansion I/O (if configured) • Probes of the electronic expansion valve (if configured)	• Display of values / state of the analog outputs
	

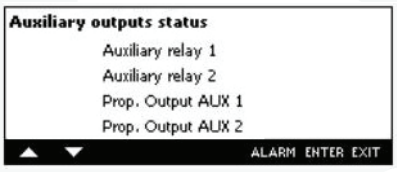
Viewing the status of the digital inputs

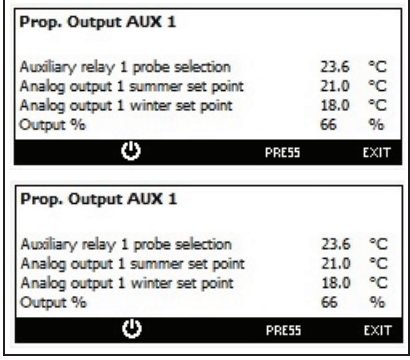
• Digital inputs of the control	• Inputs of digital I/O extension (if configured)
	

Viewing the status of the relays:

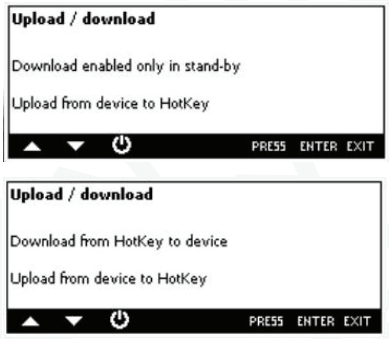
• Relays of the control	• Relay I/O extension (if configured)
	

7.37 AUX Auxiliary output visualization

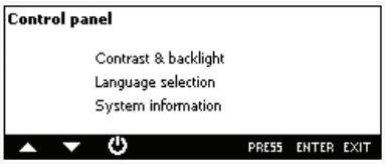
Mask	Description
	Press ▲ or ▼ to select the auxiliary relay or analog output and press ENTER to read the information (probe value, status of the output).

Mask	Description
	To view / modify the set point of operation of the analog outputs: • press ▲ or ▼ to select the set point • press SET • press ▲ o ▼ to modify the value • press SET to confirm the operation

7.38 HOTKEY 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 control (Download) • copy the parameter map from the control to HotKey 64 (Upload) **Download from HotKey 64 to control:** this operation is enabled only if the control is in STD-BY or remote OFF, otherwise the display shows the message "Download enabled only in stand-by". Download procedure: • Insert the Hot Key 64 into the 5 ways connector through the hole at the top of the control (see image below) • Select "Download from HotKey to device" • Press ENTER • if the operation was successful the display shows "OK", otherwise shows "ERR" **Upload from Ichill to Hot Key 64:** Upload procedure: • Insert the Hot Key 64 into the 5 ways connector through the hole at the top of the control (see image below) • Select "Upload from device to HotKey" • Press ENTER • if the operation was successful the display shows "OK", otherwise shows "ERR" **In case of Upload / Download failure:** • Hot Key 64 not properly inserted in the 5 ways connector • Hot Key model different to Hot Key 64

7.39 Keyboard configuration

Mask	Description
	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 ←→ Visograph keyboard) • Visograph keyboard firmware release / Visograph keyboard bin release. How to modify the configuration: • press ▲ or ▼ to select the configuration to change • press SET • press ▲ or ▼ to change the configuration • press SET to confirm.

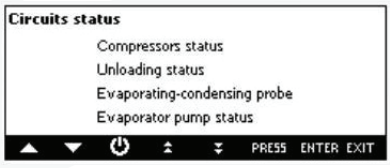
7.40 Circuit Information

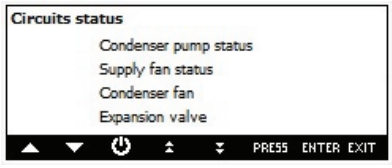
Press CIRC. to read the main information about the circuit of the compressor status, unloading status, evaporating - condensing probes, water pump, condenser fan/valve status
Load status visualization:

	Compressor OFF		Compressor ON
	Condenser fan OFF (step regulation) **(Function not available)**		Condenser fan ON (step regulation) **(Function not available)**
	Condenser fan OFF (proportional regulation) or condensation valve OFF		Condenser fan ON (proportional regulation) or condensation valve OFF
	Water pump OFF		Water pump ON
	Supply fan OFF **(Function not available)**		Supply fan ON **(Function not available)**

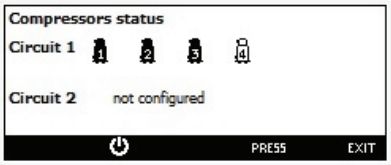
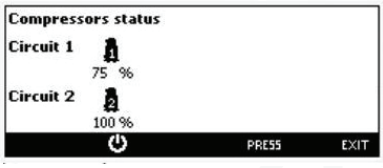
Press ▲ or ▼ to select the information to read then press SET.

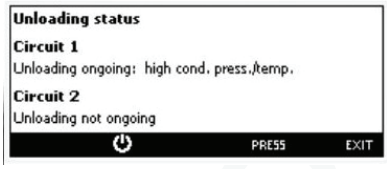
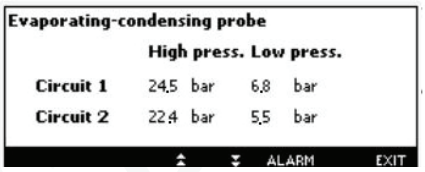
Circuits status

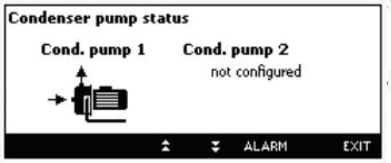
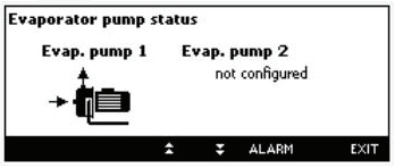


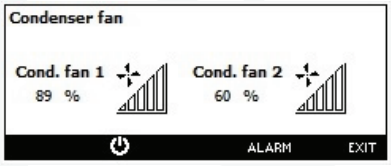
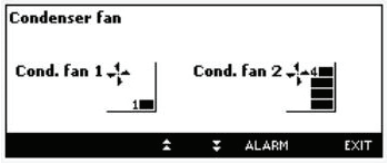


Compressors status

• Compressors of ON/OFF type	• Inverter compressors (not available)
	

Unloading status	Evaporating and condensing probe reading
	

Condensator pump status	Evaporator pump status
	

• Fans with speed control valves or condensation	**Condenser fan status** ON/OFF fan
	

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

⚠ *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				
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	C	Chiller maximum set. Establishes the maximum limit that can be utilised to set the chiller working setpoint.	**ST01**	230	°F	Int
ST04	C	Heat pump setpoint. Enables setting of the working setpoint in heat pump mode.	**ST05**	**ST06**	°F	Int
ST05	C	Heat pump minimum set. Establishes the minimum limit that can be utilised to set the heat pump working setpoint.	-58	ST04	°F	Int
ST06	C	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	C	Control steps activation band in heat pump mode.	0	45	°F	Int
ST09	C	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	0	5		
ST10	C	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° 2 condenser water inlet NTC temperature probe 9= Circuit n° 1 condenser water outlet NTC temperature probe 10= Circuit n° 2 condenser water outlet NTC temperature probe 11= Common condenser water outlet NTC temperature probe **ATTENTION** ⚠ *If the same temperature control is required both in chiller mode and in heat pump mode, set the same value in parameters **ST09** and **ST10**.*	0	11		

Parameter	Level	Description	Min.	Max.	UM	Resolution
ST11	S	Defines the temperature control type: 0= Proportional 1= Neutral zone	0	1		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
Display message						
dP01	S	Upper display default presentation. 0= No visualization 1= Temperature probe of the evaporator water inlet (EIn label) 3= Temperature probe of the common evaporator water outlet (EOut label)	0	16		
dP02	S	Lower display default presentation. 0= No visualization 1= Temperature probe of the evaporator water inlet (Label EIn) 3= Temperature probe of the common evaporator water outlet (EOut label)	0	20		
Forced display message						
dP03	C	Lower / upper display default presentation: 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.	0	3		
Remote terminals display forced presentation						
dP04	C	Remote terminal no.1 upper display default presentation: 0= The display mode depends on the value of parameters **dP01 - dP02 - dP03** 1= The upper display shows the temperature measured by the NTC probe on board remote terminal no.1	0	1		
dP05	C	Remote terminal no.2 upper display default presentation: 0= The display mode depends on the value of parameters **dP01 - dP02 - dP03** 1= The upper display shows the temperature measured by the NTC probe on board remote terminal no.2	0	1		
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		
Display presentation in STD-BY						
dP10	S	Ichill display presentation in STD-BY: 0= Shows label “STD-BY” 1= Shows parameters defined by par. **dP1** and **dP2** 2= Shows label “OFF”	0	2		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
Unit						
CF01	C	Defines the type of unit to control: 0= Air / air chiller 1= Air / water chiller 2= Water / water chiller	0	2		
CF02	C	Unit operation selection: 1= Chiller only 2= Heat pump only 3= Chiller with heat pump	1	3		
CF03	C	Condensing units: 0= No 1= Yes	0	1		

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

Parameter	Level	Description	Min.	Max.	UM	Resolution
CF27	C	Transducer **PB4** pressure value at 20mA - 5 V.	-14	725	Psi	Int
CF28	C	NOT USED	0	0		
CF29	C	NOT USED	0	0		
		Digital inputs				
CF30	C	ID1 configuration:	0 -o1	c75		
CF31	C	ID2 configuration:	0 -o1	c75		
CF32	C	ID3 configuration.	0 -o1	c75		
CF33	C	ID4 configuration.	0 -o1	c75		
CF34	C	ID5 configuration:	0 -o1	c75		
CF35	C	ID6 configuration.	0 -o1	c75		
CF36	C	ID7 configuration.	0 -o1	c75		
CF37	C	ID8 configuration.	0 -o1	c75		
CF38	C	ID9 configuration.	0 -o1	c75		
CF39	C	ID10 configuration.	0 -o1	c75		
CF40	C	ID11 configuration.	0 -o1	c75		
		Relay outputs				
CF41	C	RL1 configuration.	0 -o1	c74		
CF42	C	RL2 configuration.	0 -o1	c74		
CF43	C	RL3 configuration.	0 -o1	c74		
CF44	C	RL4 configuration:	0 -o1	c74		
CF45	C	RL5 configuration:	0 -o1	c74		
CF46	C	RL6 configuration.	0 -o1	c74		
CF47	C	RL7 configuration.	0 -o1	c74		
CF48	C	RL8 configuration.	0 -o1	c74		
		Condensing proportional outputs				
CF49	C	NOT USED				
		Modulating outputs				
CF50	C	Proportional output OUT 1: 0= Output disabled 1= Evaporator pump 0...10V with modulating operation 2= Modulating output 0...10V for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= 0...10V modulating output compressor 1 circuit no. 1 7= 0...10V modulating output compressor 1 circuit no. 2 8= Condensing fans 0...10V modulating output circuit no. 1 9= Condensing fans 0...10V modulating output circuit no. 2 Relay controlling ON / OFF output	0 o 1	9 c50		
CF51	C	Proportional output OUT 2: 0= Output disabled 1= Evaporator pump 0...10V with modulating operation 2= Modulating output 0...10V for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= 0...10V modulating output compressor 1 circuit no. 1 7= 0...10V modulating output compressor 1 circuit no. 2 8= Condensing fans 0...10V modulating output circuit no. 1 9= Condensing fans 0...10V modulating output circuit no. 2 Relay controlling ON / OFF output	0 o 1	9 c50		

Parameter	Level	Description	Min.	Max.	UM	Resolution
CF52	C	Proportional output OUT 3: 0= Output disabled 1= Evaporator pump 0...10V with modulating operation 2= Modulating output 0...10V for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= 0...10V modulating output compressor 1 circuit no. 1 7= 0...10V modulating output compressor 1 circuit no. 2 8= Condensing fans 0...10V modulating output circuit no. 1 9= Condensing fans 0...10V 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	0 o 1	11 c50		
CF53	C	Proportional output OUT 4: 0= Output disabled 1= Evaporator pump 0...10V with modulating operation 2= Modulating output 0...10V for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= 0...10V modulating output compressor 1 circuit no. 1 7= 0...10V modulating output compressor 1 circuit no. 2 8= Condensing fans 0...10V modulating output circuit no. 1 9= Condensing fans 0...10V 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	0 o 1	11 c50		
Remote terminal						
CF54	U	Configuration of remote terminal no. 1: 0= Absent 1= On board NTC probe 2= Without on board NTC probe	0	2		
CF55	C	Configuration of remote terminal no. 2: 0= Absent 1= On board NTC probe 2= Without on board NTC probe	0	2		
CF56	C	Remote terminal no. 1 NTC probe offset.	-21	21	°F	Int
CF57	C	Remote terminal no. 2 NTC probe offset.	-21	21	°F	Int
Operating logic						
CF58	C	Operating logic: 0= ❄ chiller / ✹ heat pump 1= ✹ chiller / ❄ heat pump	0	1		
Chiller / heat pump mode selection						
CF59	C	Chiller / heat pump mode selection: 0= From keypad 1= From digital input 2= From analogue input	0	2		
Automatic change-over						
CF60	C	Chiller / heat pump operation automatic changeover set if parameter **CF80**=2.	-58	230	°F	Int
CF61	C	Chiller / heat pump operation automatic changeover differential if parameter **CF80**=2.	0	45	°F	Int

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

Parameter	Level	Description	Min.	Max.	UM	Resolution
CF84	C	Visograph keypad presence: 0= No 1= Yes	0	1		
I/O expansion configuration						
EI01	C	I/O expansion board address	0	15		
EI02	C	**PB1** configuration If configured as a digital input.	0 o 1	28 c75		
EI03	C	**PB2** configuration If configured as a digital input.	0 o 1	28 c75		
EI04	C	**PB3** configuration If configured as a digital input.	0 o 1	35 c75		
EI05	C	**PB4** configuration If configured as a digital input.	0 o 1	35 c75		
EI06	C	**PB5** configuration If configured as a digital input.	0 o 1	35 c75		
EI07	C	**PB6** configuration If configured as a digital input.	0 o 1	28 c75		
EI08	C	**PB7** configuration If configured as a digital input.	0 o 1	28 c75		
EI09	C	**PB8** configuration If configured as a digital input.	0 o 1	28 c75		
I/O expansion probes offset						
EI10	C	**PB1** offset	-21	21	°F	Int
EI11	C	**PB2** offset	-21	21	°F	Int
EI12	C	**PB3** offset	-72	72	Psi	Int
EI13	C	**PB4** offset	-72	72	Psi	Int
EI14	C	**PB5** offset	-21	21	°F	Int
EI15	C	**PB6** offset	-21	21	°F	Int
EI16	C	**PB7** offset	-21	21	°F	Int
EI17	C	**PB8** offset	-21	21	°F	Int
EI18	C	Transducer **PB3** pressure value at 4mA - 0.5V.	-14	725	Psi	Int
EI19	C	Transducer **PB3** pressure value at 20mA - 4.5V.	-14	725	Psi	Int
EI20	C	Transducer **PB4** pressure value at 4mA - 0.5V.	-14	725	Psi	Int
EI21	C	Transducer **PB4** pressure value at 20mA - 4.5V.	-14	725	Psi	Int
EI22	C	Transducer **PB5** pressure value at 4mA - 0.5V.	-14	725	Psi	Int
EI23	C	Transducer **PB5** pressure value at 20mA - 4.5V.	-14	725	Psi	Int
I/O expansion digital inputs						
EI24	C	ID1 configuration	0 -o1	c75		
EI25	C	ID2 configuration	0 -o1	c75		
EI26	C	ID3 configuration	0 -o1	c75		
EI27	C	ID4 configuration	0 -o1	c75		
EI28	C	ID5 configuration	0 -o1	c75		
EI29	C	ID6 configuration	0 -o1	c75		
EI30	C	ID7 configuration	0 -o1	c75		
EI31	C	ID8 configuration	0 -o1	c75		
EI32	C	ID9 configuration	0 -o1	c75		
I/O expansion relay inputs						
EI33	C	RL1 configuration	0 -o1	c74		
EI34	C	RL2 configuration	0 -o1	c74		
EI35	C	RL3 configuration	0 -o1	c74		
EI36	C	RL4 configuration	0 -o1	c74		
EI37	C	RL5 configuration	0 -o1	c74		
EI38	C	RL6 configuration	0 -o1	c74		
EI39	C	RL7 configuration	0 -o1	c74		
I/O expansion proportional outputs						
Modulating outputs						
EI40	C	Selection of analogue outputs signal 0..10V or 4..20mA	0	1		

Parameter	Level	Description	Min.	Max.	UM	Resolution
EI41	C	Proportional output OUT 1: 0= Output disabled 1= Evaporator pump with modulating operation 2= Modulating output for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= Modulating output compressor 1 circuit no. 1 7= Modulating output compressor 1 circuit no. 2 8= 0...10V condensing fans circuit no. 1 9= 0...10V condensing fans circuit no. 2 Relay controlling ON / OFF output	0 o 1	9 c50		
EI42	C	Proportional output OUT 2: 0= Output disabled 1= Evaporator pump with modulating operation 2= Modulating output for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= Modulating output compressor 1 circuit no. 1 7= Compressor 1 modulating output circuit no. 2 8= 0...10V condensing fans circuit no. 1 9= 0...10V condensing fans circuit no. 2 10= Condensing fans PWM output circuit 1 11= Condensing fans PWM output circuit 2 Relay controlling ON / OFF output	0 o 1	11 c50		
EI43	C	Proportional output OUT 3: 0= Output disabled 1= Evaporator pump with modulating operation 2= Modulating output for Free cooling 3= Not used 4= 0...10V auxiliary output no. 1 5= 0...10V auxiliary output no. 2 6= Modulating output compressor 1 circuit no. 1 7= Modulating output compressor 1 circuit no. 2 8= 0...10V condensing fans circuit no. 1 9= 0...10V condensing fans circuit no. 2 10= Condensing fans PWM output circuit 1 11= Condensing fans PWM output circuit 2 Relay controlling ON / OFF output	0 o 1	11 c50		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
		Dynamic setpoint				
Sd01	U	Dynamic setpoint max increase in chiller mode Establishes the maximum variation of the working setpoint in chiller mode.	-54	54	°F	Int
Sd02	C	Max dynamic setpoint increase in heat pump mode Establishes the maximum variation of the working setpoint in heat pump mode.	-54	54	°F	Int
Sd03	U	Dynamic setpoint ambient air temperature setting in chiller mode.	-58	230	°F	Int
Sd04	C	Dynamic setpoint ambient air temperature setting in heat pump mode.	-58	230	°F	Int
Sd05	U	Dynamic setpoint ambient air temperature differential in chiller mode.	-54	54	°F	Int
Sd06	C	Dynamic setpoint ambient air temperature differential in heat pump mode.	-54	54	°F	Int
Sd07	C	Dynamic setpoint max increase in chiller mode auxiliary analogue output 1.	-54	54	°F	Int
Sd08	C	Dynamic setpoint max increase in heat pump mode auxiliary analogue output 1.	-54	54	°F	Int

Parameter	Level	Description	Min.	Max.	UM	Resolution
Sd09	C	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary analogue output 1.	-58	230	°F	Int
Sd10	C	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary analogue output 1.	-58	230	°F	Int
Sd11	C	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary analogue output 1.	-54	54	°F	Int
Sd12	C	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary analogue output 1.	-54	54	°F	Int
Sd13	C	Dynamic setpoint max increase in chiller mode auxiliary analogue output 2.	-54	54	°F	Int
Sd14	C	Dynamic setpoint max increase in heat pump mode auxiliary analogue output 2.	-54	54	°F	Int
Sd15	C	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary analogue output 2.	-58	230	°F	Int
Sd16	C	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary analogue output 2.	-58	230	°F	Int
Sd17	C	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary analogue output 2.	-54	54	°F	Int
Sd18	C	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary analogue output 2.	-54	54	°F	Int
Sd19	C	Dynamic setpoint max increase in chiller mode auxiliary relay 1.	-54	54	°F	Int
Sd20	C	Dynamic setpoint max increase in heat pump mode auxiliary relay 1.	-54	54	°F	Int
Sd21	C	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary relay 1.	-58	230	°F	Int
Sd22	C	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary relay 1.	-58	230	°F	Int
Sd23	C	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary relay 1.	-54	54	°F	Int
Sd24	C	Dynamic setpoint ambient air temperature differential in heat pump mode auxiliary relay 1.	-54	54	°F	Int
Sd25	C	Dynamic setpoint max increase in chiller mode auxiliary relay 2.	-54	54	°F	Int
Sd26	C	Dynamic setpoint max increase in heat pump mode auxiliary relay 2.	-54	54	°F	Int
Sd27	C	Dynamic setpoint ambient air temperature setting in chiller mode auxiliary relay 2.	-58	230	°F	Int
Sd28	C	Dynamic setpoint ambient air temperature setting in heat pump mode auxiliary relay 2.	-58	230	°F	Int
Sd29	C	Dynamic setpoint ambient air temperature differential in chiller mode auxiliary relay 2.	-54	54	°F	Int
Sd30	C	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	C	Manufacturer password	0	999		
Energy saving						
ES01	C	Start of operating band no. 1 (0...24).	0	24.00	Hours	10 Min
ES02	C	End of operating band no. 1 (0...24).	0	24.00	by Hours	10 Min
ES03	C	Start of operating band no. 2 (0...24).	0	24.00	by Hours	10 Min
ES04	C	End of operating band no. 2 (0...24).	0	24.00	by Hours	10 Min
ES05	C	Start of operating band no. 3 (0...24).	0	24.00	by Hours	10 Min
ES06	C	End of operating band no. 3 (0...24).	0	24.00	by Hours	10 Min
ES07	C	Monday operation with time band in energy saving Monday operation with automatic start / stop.	0 - 0	7 - 7		
ES08	C	Tuesday operation with time band in energy saving Tuesday operation with automatic start / stop.	0 - 0	7 - 7		
ES09	C	Wednesday operation with time band in energy saving Wednesday operation with automatic start / stop.	0 - 0	7 - 7		

Parameter	Level	Description	Min.	Max.	UM	Resolution
ES10	C	Thursday operation with time band in energy saving Thursday operation with automatic start / stop.	0 - 0	7 - 7		
ES11	C	Friday operation with time band in energy saving Friday operation with automatic start / stop.	0 - 0	7 - 7		
ES12	C	Saturday operation with time band in energy saving Saturday operation with automatic start / stop.	0 - 0	7 - 7		
ES13	C	Sunday operation with time band in energy saving Sunday operation with automatic start / stop.	0 - 0	7 - 7		
ES14	C	Energy saving setting increase in chiller mode.	-54	54	°F	Int
ES15	C	Energy saving differential in chiller mode.	0	45	°F	Int
ES16	C	Energy saving setting increase in heat pump mode.	-54	54	°F	Int
ES17	C	Energy saving differential in heat pump mode.	0	45	°F	Int
ES18	C	Maximum operating time of unit in OFF from RTC if forced ON from button.	1	250	10 Min	Min.
ES19	C	Start of time band 1 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES20	C	End of time band 1 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES21	C	Start of time band 2 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES22	C	End of time band 2 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES23	C	Start of time band 3 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES24	C	End of time band 3 - domestic hot water (0...24)	0	24.00	by Hours	10 Min
ES25	C	Monday: energy saving active Monday operation with domestic hot water time band	0	7		
ES26	C	Tuesday operation with domestic hot water time band	0	7		
ES27	C	Wednesday operation with domestic hot water time band	0	7		
ES28	C	Thursday operation with domestic hot water time band	0	7		
ES29	C	Friday operation with domestic hot water time band	0	7		
ES30	C	Saturday operation with domestic hot water time band	0	7		
ES31	C	Sunday operation with domestic hot water time band	0	7		
ES32	C	Domestic hot water energy saving setting increase	-54	54	°F	Int
ES33	C	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	C	Manufacturer password	0	999		
		Compressors plant				
Cr01	C	Defines the cooling plant temperature control type: 0= Disabled 1= Control with probe defined by **ST09** 2= Enabled with suction probe (evaporation) (condensing units and heat pumps are automatically disabled)	0	2		
Cr02	C	Suction probe compressors setpoint (evaporation) Makes it possible to program the working setpoint of the suction probe	**Cr03**	**Cr04**	Psi	Int
Cr03	C	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	C	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	C	Control steps activation band of suction probe.	1	203	Psi	Int
Cr06	C	Energy saving setting increase in cooling plant mode.	0	203	Psi	Int
Cr07	C	Energy saving differential in cooling plant mode.	1	203	Psi	Int
Cr08	C	No. of compressors to start in case of fault of probe allocated for their control 0 ... 6	0	6		
Cr09	C	No. of condensing fan steps of the circuit to activate in case of fault of probe allocated for their control 0 ... 4	0	4		

Parameter	Level	Description	Min.	Max.	UM	Resolution
Compressor						
CO01	C	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	C	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	C	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	C	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	C	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	C	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	C	Screw compressor intermittent valve control relay ON time; if parameter value is 0 the function is disabled.	0	250	Sec	
CO09	C	Screw compressor intermittent valve control relay OFF time.	0	250	Sec	
Compressor starting						
CO10	C	Compressor starting (see heading “7.15.1 Compressors control”): 0= Direct 1= Part-winding	0	1		
CO11	C	If **CO10**=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	C	Time for which condensation fan thermal protection switch is bypassed after controller power on	0	250	Sec	
CO13	C	Run time with gas by-pass valve / compressor unloaded starting valve (see capacity controls operation).	0	250	Sec	

Parameter	Level	Description	Min.	Max.	UM	Resolution
Compressors rotation - balancing - temperature control						
CO14	S	Compressors rotation (see heading "7.15.6 Compressors 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)	0	2		
CO15	S	Circuits balancing: 0= Circuits saturation 1= Circuits balancing	0	1		
Evaporator water pump						
CO16	S	Evaporator pump / delivery fan operating mode: 0= Pump not installed and delivery fans not managed 1= Continuous operation; activation of the water pump / delivery fan occurs when unit is powered on (chiller / heat pump mode 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.	0	2		
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 compressor stop. This time interval is observed also when the unit is set to stand-by.	0	250	Min	
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	C	Condenser pump operating mode: 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.	0	2		
CO22	C	Not used	0	0		
CO23	C	Condenser pump OFF time lag from compressor stopping. This time interval is observed also when the unit is set to stand-by.	0	250	Min	
CO24	C	No. of hours for forced rotation of condenser pumps.	0	999	10 Hours	10 Hours
CO25	C	Simultaneous pumps run time after forced rotation of condenser pumps.	0	250	Sec	
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	10 Hours
CO30	C	Compressor 5 hour meter set.	0	999	10 Hours	10 Hours
CO31	C	Compressor 6 hour meter set.	0	999	10 Hours	10 Hours
CO32	S	Pump / delivery fan hour meter set.	0	999	10 Hours	10 Hours
CO33	S	Evaporator pump no. 2 hour meter set.	0	999	10 Hours	10 Hours
CO34	C	Condenser pump hour meter set.	0	999	10 Hours	10 Hours
CO35	C	Condenser pump no. 2 hour meter set.	0	999	10 Hours	10 Hours

Parameter	Level	Description	Min.	Max.	UM	Resolution
Pump down						
CO36	C	Pump-down operation: 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	0	4		
CO37	C	Pump-down pressure set.	0	725	Psi	Int
CO38	C	Pump-down pressure differential.	1	174	Psi	Int
CO39	C	Maximum holding time in pump-down in starting and in stopping.	0	250	Sec	
Evaporator unloading						
CO40	C	Compressors unloading operation setpoint in chiller mode from evaporator water inlet high temperature (see “7.16 Unloading function”).	-58	230	°F	Int
CO41	C	Compressor unloading relay differential from evaporator water inlet high temperature (see “7.16 Unloading function”).	0	45	°F	Int
CO42	C	Compressor unloading function activation lag time from evaporator water inlet high temperature (see “7.16 Unloading function”).	1	250	Sec	10sec
CO43	C	Compressor unloading operation holding time from evaporator water inlet high temperature	0	250	Min	
Condenser unloading						
CO44	S	Compressor temperature / pressure unloading setpoint in chiller mode (see “7.16 Unloading function”).	0	725	Psi	Int
CO45	S	Compressor temperature / pressure differential in chiller mode (see “7.16 Unloading function”).	1	203	Psi	Int
CO46	C	Compressor temperature / pressure unloading setpoint in heat pump mode (see “7.16 Unloading function”).	0	725	Psi	Int
CO47	C	Compressor temperature / pressure unloading differential in heat pump mode (see “7.16 Unloading function”).	1	203	Psi	Int
CO48	S	Max holding time in compressors unloading operation from temperature / pressure.	1	250	Min	
CO49	C	Selection of steps per circuit to activate in unloading operation: 1= No. 1 step 2= No. 2 steps 3= No. 3 steps	1	3		
CO50	C	Minimum operating time in ON capacity step after input in unloading (only for compressors with capacity control steps).	0	250	Sec	
Compressors liquid injection function						
CO51	C	Liquid injection solenoid valve activation setpoint	32	302	°F	Int
CO52	C	Liquid injection solenoid valve deactivation differential	0	45	°F	Int
Management of resources in neutral zone operation						
CO53	S	Maximum permanence in neutral zone without activation of resources - with at least one resource activated.	0	250	Min	10 Min
CO54	C	Maximum permanence in neutral zone without rotation of resources	0	999	by Hours	1 Hour
Evaporator water low temperature unloading						
CO55	C	Compressor unloading setpoint from evaporator water low temperature	-58	230	°F	Int
CO56	C	Compressor unloading differential from evaporator water low temperature	0	45	°F	Int
CO57	C	Compressor unloading operation MAX holding time from evaporator low water temperature	0	250	Min	
Time controlled pump down						
CO58	C	Pump down time in starting: **CO58** = 0 Function disabled **CO58** ≠ 0 Function enabled for set time	0	250	Sec	

Parameter	Level	Description	Min.	Max.	UM	Resolution
CO59	C	Pump down time in stop: **CO59** = 0 Function disabled **CO59** ≠ 0 Function enabled for set time	0	250	Sec	
		Compressor with modulating control				
CO60	C	Compressor run time at maximum speed from temperature control request: 0 = Function disabled	0	250	Sec	
CO61	C	Minimum value for inverter controlled compressor 0...10V analogue output at starting	0	100	%	
CO62	C	Interval for inverter controlled compressor power increase at starting	0	250	Sec	
CO63	C	Establishes the minimum percentage of continuous operation of the inverter controlled compressor below which the count starts of time **CO64**: 0= Function disabled	0	100	%	
CO64	C	MAX continuous operation time of inverter controlled compressor with operation percentage below **CO63**: 0= Function disabled	0	250	Min	10 Min
CO65	C	Operation time of inverter controlled compressor forced to maximum speed	0	250	Sec	
CO66	C	Maximum time of continuous operation of inverter controlled compressor after which the modulating compressor is stopped and, in the basis of the rotation strategy, starting of another compressor is forced: 0= Function disabled	0	999	by Hours	
CO67	C	Minimum value for 0...10V analogue output of inverter controlled compressor no. 5 circuit no. 1	1	**CO68**	%	
CO68	C	Maximum value for 0...10V analogue output of inverter controlled compressor no. 5 circuit no. 1	**CO67**	100	%	
CO69	C	Minimum value for 0...10V analogue output of inverter controlled compressor no. 6 circuit no. 2	1	**CO70**	%	
CO70	C	Maximum value for 0...10V analogue output of inverter controlled compressor no. 6 circuit no. 2	**CO69**	100	%	
CO71	C	Capacity increase interval in steady state conditions	1	250	Sec	
		Compressor forced rotation function				
CO72	C	Maximum time of continuous operation of single compressor in circuit	0	250	Min	
		Maintenance of loads				
CO73	C	Domestic hot water pump hour meter set	0	999	10 Hours	10 Hours
CO74	C	Solar panels pump hour meter set	0	999	10 Hours	10 Hours
CO75	C	Inversion time of valve on compressor stop	0	250	Sec	
		Unit capacity control				
CO76	C	Limitation of number of steps in Chiller mode	1	15		
CO77	C	Limitation of number of steps in Heat Pump mode	1	15		
CO78	C	Limitation of number of steps in Domestic Hot Water mode	1	15		
CO79	C	Maximum output % of Inverter controlled compressor in Chiller mode	1	100	%	
CO80	C	Maximum output % of Inverter controlled compressor in Heat Pump mode	1	100	%	
CO81	C	Maximum output % of Inverter controlled compressor in Domestic Hot Water mode	1	100	%	
CO82	C	Ambient air temperature for compressor speed reduction in heat pump mode	-58 0	230 725	°F Psi	Int Int
CO83	C	Ambient air temperature hysteresis for compressor speed reduction in heat pump mode	0 1	45 203	°F Psi	Int Int
CO84	C	Inverter controlled maximum speed for surpassing ambient air temperature threshold	1	100	%	
CO85	C	Evaporator water pump stop time with unit at setpoint	0	250	10 Min	

Parameter	Level	Description	Min.	Max.	UM	Resolution
CO86	C	Evaporator water pump stop time with unit stopped (stand-by or OFF)	0	250	10 Hours	
CO87	C	Evaporator water pump run time	0	250	Sec	
CO88	C	Condenser water pump stop time with unit at setpoint	0	250	10 Min	
CO89	C	Condenser water pump stop time with unit stopped (stand-by or OFF)	0	250	10 Hours	
CO90	C	Condenser water pump run time	0	250	Sec	
CO91	C	Minimum time between two starts of the same compressor	0	250	Sec	
CO92	C	Advance of water side solenoid valve activation with respect to compressor start	0	250	Sec	
CO93	C	Time lag of water side solenoid valve activation with respect to compressor stop	0	250	Sec	
CO94	C	% compressor inverter output in defrosting	0	100	%	
CO95	C	FC pump hours set	0	999	10 Hours	
CO96	C	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						
US01	C	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		
US02	C	Configuration of analogue input for management of circuit 1 auxiliary relay makes it possible to choose probe from **PB1** to **PB10** for management of the function	1	20		
US03	C	Auxiliary relay 1 output minimum summer set	-58	**US5**	°F	Int
US04	C	Auxiliary relay 1 output maximum summer set	**US5**	230	°F	Int
US05	C	Auxiliary relay 1 output summer setpoint	**US3**	**US4**	°F	Int
US06	C	Auxiliary relay 1 output winter minimum setpoint	-58	**US8**	°F	Int
US07	C	Auxiliary relay 1 output winter maximum setpoint	**US8**	230	°F	Int
US08	C	Auxiliary relay 1 output winter setpoint	**US6**	**US7**	°F	Int
US09	C	Auxiliary relay 1 summer differential	0	45	°F	Int
US10	C	Auxiliary relay 1 winter differential	0	45	°F	Int
Circuit 2 auxiliary relay						
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		
US12	C	Configuration of analogue input for management of circuit 2 auxiliary relay makes it possible to choose probe from **PB1** to **PB10** for management of the function	1	20		
US13	C	Auxiliary relay 2 output minimum summer set	-58	**US15**	°F	Int
US14	C	Auxiliary relay 2 output maximum summer set	**US15**	230	°F	Int
US15	C	Auxiliary relay 2 output summer setpoint	**US13**	**US14**	°F	Int
US16	C	Auxiliary relay 2 output winter minimum setpoint	-58	**US18**	°F	Int
US17	C	Auxiliary relay 2 output winter maximum setpoint	**US18**	230	°F	Int
US18	C	Auxiliary relay 2 output winter setpoint	**US16**	**US7**	°F	Int
US19	C	Auxiliary relay 2 summer differential	0	45	°F	Int
US20	C	Auxiliary relay 2 winter differential	0	45	°F	Int
US21	C	Auxiliary relays maximum activation time	0	250	Min	

Parameter	Level	Description	Min.	Max.	UM	Resolution
Auxiliary 0...10V proportional output 1						
US22	C	Operation of auxiliary proportional output 1: 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	0	4		
US23	C	Configuration of analogue input for management of auxiliary output 1 makes it possible to select probe from **PB1** to **PB10** for management of the function	1	20		
US24	C	Auxiliary analogue output 1 minimum summer set	-58 0	**US26**	°F Psi	Int Int
US25	C	Auxiliary analogue output 1 maximum summer set	**US26**	230 725	°F Psi	Int Int
US26	C	Auxiliary analogue output 1 summer set	**US24**	**US25**	°F Psi	Int Int
US27	C	Auxiliary analogue output 1 minimum winter set	-58	**US29**	°F	Int
US28	C	Auxiliary analogue output 1 maximum winter set	**US29**	230	°F	Int
US29	C	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
US32	C	Auxiliary analogue output 1 minimum value	0	**US33**	%	
US33	C	Auxiliary analogue output 1 maximum value	**US32**	100	%	
Auxiliary 0...10V proportional output 2						
US34	C	Operation of auxiliary proportional output 2 (see function and 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	0	4		
US35	C	Configuration of analogue input for management of auxiliary output 2 makes it possible to select probe from **PB1** to **PB10** for management of the function	1	20		
US36	C	Auxiliary analogue output 2 minimum summer set	-58	**US38**	°F	Int
US37	C	Auxiliary analogue output 2 maximum summer set	**US38**	230	°F	Int
US38	C	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	45	°F	Int
US43	C	Auxiliary analogue output 2 winter differential	0	45	°F	Int
US44	C	Auxiliary analogue output 2 minimum value	0	**US45**	%	
US45	C	Auxiliary analogue output 2 maximum value	**US44**	100	%	
Modulating output minimum value						
US46	C	Forcing to 0 of the analogue output below the minimum value	0	1		
Modulating evaporator pump						
US47	C	Select probe 1 for modulating pump operation in chiller mode	0	20		
US48	C	Select probe 2 for modulating pump operation in chiller mode	0	20		
US49	C	Set point for modulating pump maximum speed in chiller mode	-58	230	°F	Int
US50	C	Modulating pump regulation proportional band in chiller mode	0	45	°F	Int
US51	C	Modulating pump minimum speed in chiller mode	0	100	%	
US52	C	Modulating pump maximum speed in chiller mode	0	100	%	
US53	C	Select probe 1 for modulating pump operation in heat pump mode	0	20		
US54	C	Select probe 2 for modulating pump operation in heat pump mode	0	20		
US55	C	Set point for modulating pump maximum speed in heat pump mode	-58	230	°F	Int

Parameter	Level	Description	Min.	Max.	UM	Resolution
US56	C	Modulating pump regulation proportional band in heat pump mode	0	45	°F	Int
US57	C	Modulating pump minimum speed in heat pump mode	0	100	%	
US58	C	Modulating pump maximum speed in heat pump mode	0	100	%	
US59	C	Modulating pump speed during free cooling	0	100	%	
US60	C	Modulating pump speed with compressor off	0	100	%	
		Auxiliary outputs enabling				
US61	C	Auxiliary relay 1 output enable: 1= Chiller only 2= Heat pump only 3= Chiller and heat pump	1	3		
US62	C	Auxiliary relay 2 output enable: 1= Chiller only 2= Heat pump only 3= Chiller and heat pump	1	3		
US63	C	Auxiliary relay 1 analogue output enable: 1= Chiller only 2= Heat pump only 3= Chiller and heat pump	1	3		
US64	C	Auxiliary relay 2 analogue output enable: 1= Chiller only 2= Heat pump only 3= Chiller and heat pump	1	3		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
		Condensing fans				
FA01	C	Fans control: 0= Absent 1= Always on 2= ON/OFF steps control 3= Continuous ON/OFF steps control 4= Proportional speed regulator	0	4		
FA02	C	Fans operating mode: 0= Dependent on compressor 1= Independent on compressor	0	1		
FA03	C	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 **FA03** after which the fan continues to run at the speed set by the regulator.	0	250	Sec	
FA04	C	Fans staggering	0	8	Micro-seconds	250ms
FA05	C	Single or separate condensing fan: 0= Single 1= Separate	0	1		
FA06	C	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	C	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	C	Maximum operating speed of fans in chiller mode. 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.	0	100	%	

Parameter	Level	Description	Min.	Max.	UM	Resolution
FA09	C	**Proportional control:** Used to set the condensing temperature / pressure value in chiller mode corresponding to the minimum fan speed. **Step control** **1st 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 1st condensing fan speed step.	0	725	Psi	Int
FA10	C	**Proportional control:** Used to set the condensing temperature / pressure value in chiller mode corresponding to the maximum fan speed. **Step control** **2nd 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 2nd condensing fan speed step.	0	725	Psi	Int
FA11	C	**Proportional control:** 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.	1	203	Psi	Int
FA12	C	**Proportional control:** 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.	1	203	Psi	Int
FA13	C	Override CUT-OFF in chiller mode. Used to set a temperature / pressure differential in chiller mode at which the fan remains at minimum speed.	1	203	Psi	Int
FA14	C	CUT-OFF delay time. 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 **FA14**=0 the function is not enabled.	0	250	Sec	
FA15	C	Night function speed in chiller mode. 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.	0	100	%	
		Operation in heat pump mode				
FA16	C	Fans minimum speed in heat pump mode. 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 permitted voltage.	0	100	%	
FA17	C	Fans maximum speed in heat pump mode. 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.	0	100	%	
FA18	C	**Proportional control:** Fans maximum speed temperature / pressure set in heat pump mode. Used to set the condensing temperature / pressure value in heat pump mode corresponding to the minimum fan speed. **Step control** **1st 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 1st condensing fan speed step.	0	725	Psi	Int

Parameter	Level	Description	Min.	Max.	UM	Resolution
FA19	C	**Proportional control:** Fans minimum speed temperature / pressure set in heat pump mode. Used to set the condensing temperature / pressure value in heat pump mode corresponding to the maximum fan speed. **Step control** **2nd 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 2nd condensing fan speed step.	0	725	Psi	Int
FA20	C	**Proportional control:** Fans proportional band in heat pump 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 heat pump mode (see fans control diagram).	1	203	Psi	Int
FA21	C	**Proportional control:** CUT-OFF differential in heat pump mode. 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).	1	203	Psi	Int
FA22	C	CUT-OFF override in heat pump mode. Used to set a temperature / pressure differential in heat pump mode at which the fan remains at minimum speed.	1	203	Psi	Int
FA23	C	Night function speed in heat pump mode. 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.	0	100	%	
Hot start						
FA24	C	Hot start setpoint.	-58	230	°F	Int
FA25	C	Hot start differential.	0	45	°F	Int
3-4 Fans step (chiller mode operation)						
FA26	C	**Step control** **3rd 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 3rd condensing fan speed step.	0	725	Psi	Int
FA27	C	**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.	0	725	Psi	Int
3-4 Fans step (heat pump mode operation)						
FA28	C	**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	Psi	Int
FA29	C	**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.	0	725	Psi	Int
Pre-ventilation in heat pump mode						
FA30	C	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	250	Sec	Sec
FA31	C	Post-ventilation in heat pump mode. Used to keep the fan running for a certain period after stopping of the compressor	0	250	Sec	10Sec
FA32	C	Ambient air temperature for post-ventilation in heat pump mode	-58	230	°F	Int
FA33	C	Fans speed during post-ventilation	0	100	%	
Pr1	U	User password	0	999		

Parameter	Level	Description	Min.	Max.	UM	Resolution
Pr2	S	Service password	0	999		
Pr3	C	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	C	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	C	Anti-freeze / support heaters regulation band range in heat pump mode	0	45	°F	Int
Ar05	C	Operation of anti-freeze / support heaters in defrost: 0= Activated only by thermoregulator 1= Activated by thermoregulator and during defrost cycle	0	1		
Ar06	C	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	C	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	C	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	C	Switches 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						
Ar11	C	Water heater function: 0= Disabled 1= Enabled with control in integration 2= Enabled with control in heating	0	2		
Ar12	C	Water heater elements activation ambient air setpoint.	-58	230	°F	Int
Ar13	C	Water heater elements deactivation ambient air differential.	0	45	°F	Int
Ar14	C	Water heater elements activation time lag.	0	250		Min
Water heater operation in chiller mode						
Ar15	C	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						
Ar17	C	Water heater elements setpoint in heat pump mode.	-58	230	°F	Int
Ar18	C	Water heater elements proportional band in heat pump mode.	0	45	°F	Int

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

Parameter	Level	Description	Min.	Max.	UM	Resolution
dF11	C	Temperature set for combined defrost cycle end, circuit no. 1.	-58	230	°F	Int
dF12	C	Temperature set for combined defrost cycle start, circuit no. 2 after count of parameter **DF10**.	-58	230	°F	Int
dF13	C	Temperature set for combined defrost cycle end, circuit no. 2.	-58	230	°F	Int
dF14	C	Forcing in ON activates all defrost steps in circuit no. 1: 0= Disabled 1= Enabled	0	1		
dF15	C	Forcing in ON activates all defrost steps in circuit no. 2: 0= Disabled 1= Enabled	0	1		
dF16	C	Starting time lag between two compressors in defrost.	0	250	Sec	
dF17	C	Enabling of fan ON during defrosting / dripping: 0= Disabled 1= Only defrost enabled 2= Defrost / dripping enabled	0	2		
dF18	C	Pressure / temperature set for forced ON of fans during defrost.	0	725	Psi	Int
Forced defrost						
dF19	C	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						
dF22	C	Start of defrost cycle in units with two circuits: 0= Independent 1= If both circuits have reached defrost start request 2= If at least one circuit has reached defrost start request	0	2		
dF23	C	Defrost cycle end in units with two circuits and single condensing fan: 0= Independent 1= If both circuits have reached defrost end condition 2= If at least one circuit has reached defrost end condition	0	2		
Defrost start end from analogue input						
dF24	C	Probe that determines defrost start end: 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	0	3		
Delivery fan operation in defrost						
dF25	C	Delivery fan block during defrosting: 0= Not enabled 1=Enabled	0	1		
Defrost with condensing fans						
dF26	C	Defrost enable set with condensing fans	-58	230	°F	Int
Hybrid exchangers						
dF27	C	Summer exchange temperature/pressure set 1 hybrid exchangers	-58	230	°F	Int
dF28	C	Summer exchange temperature/pressure set 2 hybrid exchangers	-58	230	°F	Int
dF29	C	Summer exchange temperature differential 1 hybrid exchangers	0	45	°F	Int
dF30	C	Summer exchange temperature differential 2 hybrid exchangers	0	45	°F	Int
dF31	C	Winter exchange temperature/pressure set 1 hybrid exchangers	-58	230	°F	Int
dF32	C	Winter exchange temperature/pressure set 2 hybrid exchangers	-58	230	°F	Int
dF33	C	Winter exchange temperature/pressure differential 1 hybrid exchangers	0	45	°F	Int
dF34	C	Winter exchange temperature/pressure differential 2 hybrid exchangers	0	45	°F	Int
dF35	C	Probe for management of hybrid exchangers: 0= Ambient air temperature 1= Condensing temperature / pressure	0	1		
dF36	C	Split coils forcing time in summer mode at compressor start	0	250	Sec.	

Parameter	Level	Description	Min.	Max.	UM	Resolution
		Dynamic setpoint in defrosting				
dF37	C	Maximum dynamic setpoint increase in defrosting	-203	203	Psi	Int
dF38	C	Dynamic setpoint ambient air temperature setting in defrosting	-58	230	°F	Int
dF39	C	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	C	Manufacturer password	0	999		
		Heat recovery				
rC01	C	Recovery operation: 0= Disabled 1= 2 separate circuits 2= 2 circuits in parallel	0	2		
rC02	C	Forced step deactivation time.	0	250	Sec	
rC03	C	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
rC07	C	Recovery function enabling differential.	1	203	Psi	Int
rC08	C	Maximum disabling time of recovery from condensing pressure / temperature.	0	250	Min	
rC09	C	Fans disabling in recovery	0	1		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
		Domestic hot water				
FS01	C	Enabling of domestic hot water production or domestic hot water 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	0	2		
FS02	C	Operating priority: 0= Heating / cooling 1= Domestic hot water 2= Domestic hot water from digital input	0	2		
FS03	C	Domestic hot water setpoint Used to program the working setpoint for the production of domestic hot water	**FS05**	**FS06**	°F	Int
FS04	C	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	C	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	C	Activation of steps to reach the domestic hot water setpoint: 0= Start all compressors 1= Start compressors and heaters	0	1		
FS08	C	Switch on heaters in domestic hot water temperature control: 0= No 1= Yes	0	1		
FS09	C	Time to start all compressors and heaters in domestic hot water production	0	250	Min	
FS10	C	Outputs energization delay for the production of domestic hot water	0	250	Sec	
FS11	C	Cycle inversion delay during production of domestic hot water	0	250	Sec	

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

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

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

Parameter	Level	Description	Min.	Max.	UM	Resolution
AL23	C	Enabling of automatic or manual reset of pump-down alarm in starting if **AL22** 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		
Anti-freeze alarm in chiller mode						
AL24	C	Minimum anti-freeze limit setpoint in chiller mode (from -22°F to **AL24**).	-58	**AL26**	°F	Int
AL25	C	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	C	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 **AL26** in order for the anti-freeze alarm to trip.	0	250	Sec	
AL29	C	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 **AL29**=0. Reset is always automatic if **AL29**=16. Reset switches from automatic to manual if **AL29** is from 1 to 15.	0	16		
AL30	C	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 **AL26** 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 **AL26** set and signals the anti-freeze alarm with label + buzzer + alarm relay.	0	1		
Anti-freeze alarm in heat pump mode						
AL31	C	Minimum anti-freeze limit setpoint in heat pump mode (from -22°F to **AL32**).	-58	**AL33**	°F	Int
AL32	C	Maximum anti-freeze limit setpoint in heat pump mode (from **AL31** to 158°F).	**AL33**	230	°F	Int
AL33	C	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	C	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

Parameter	Level	Description	Min.	Max.	UM	Resolution
AL35	C	Anti-freeze alarm delay (low outlet air temperature in air/air units) at unit start in heat pump mode. **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.*	0	250	Sec	
AL36	C	Anti-Legionella alarm delay, low ambient air temperature, low 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 **AL33** in order for the anti-freeze alarm to trip.	0	250	Sec	
AL37	C	Maximum number of trips/hour of anti-freeze alarm, low air 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.	0	16		
AL38	C	Anti-freeze alarm operation in heat pump mode: 0= stops ONLY the compressors when the temperature read by the anti-freeze control probe falls below the ***AL33*** 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 **AL33** set and signals the anti-freeze alarm with label + buzzer + alarm relay.	0	1		
Compressors discharge high temperature						
AL39	C	Compressors discharge high temperature alarm set.	32	302	°F	Int
AL40	C	Compressors discharge high temperature alarm differential.	0	45	°F	Int
AL41	C	Maximum number of trips per hour of compressors discharge high temperature alarm. 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.	0	16		
Generic unit shut-down alarm						
AL42	C	Maximum number of trips per hour of generic unit shut-down alarm. 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.	0	16		
AL43	C	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

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

Parameter	Level	Description	Min.	Max.	UM	Resolution
AL64	C	Low pressure alarm signalling delay from digital input activation	0	250	Sec	
		Domestic hot water pump flow switch alarm				
AL65	C	Domestic hot water pump flow switch alarm delay	0	250	Sec	
AL66	C	Domestic hot water pump flow switch manual alarm delay	0	250	Sec	
AL67	C	Domestic hot water pump flow switch input active duration	0	250	Sec	
AL68	C	Domestic hot water pump flow switch input inactive duration	0	250	Sec	
		Solar panels water pump flow switch alarm				
AL69	C	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	
AL72	C	Solar panels pump flow switch input inactive duration	0	250	Sec	
		Domestic hot water heater thermal alarm				
AL73	C	Maximum number of trips per hour of the domestic hot water heater thermal 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	0	16		
		Selection of the anti-freeze alarm reset type				
AL74	C	Manual reset anti-freeze alarm with password required: 0= Password not required 1= Password required	0	1		
		Domestic hot water pump thermal alarm				
AL75	C	Maximum number of trips per hour of the domestic hot water pump thermal alarm. Reset is always manual if **AL75**=0 Reset is always automatic if **AL75**=16 Reset switches from automatic to manual if **AL75** is from 1 to 15	0	16		
		Compressor oil alarm				
AL76	C	Compressor oil alarm as display only: 0= Automatic reset or manual oil alarm (**AL13**) with compressor block 1= Compressor oil alarm as display only	0	1		
		Compressor thermal alarm				
AL77	C	Automatic reset compressor thermal alarm: 0= Always manual reset compressor thermal alarm 1= Automatic reset compressor thermal alarm	0	1		
AL78	C	Dt for compressor or circuit oil differential alarm	1	203	Psi	Int
AL79	C	Differential for compressor or circuit oil differential alarm reset	1	203	Psi	Int
AL80	C	Maximum number of trips per hour of compressor oil differential 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	0	16		
AL81	C	Enabling for acknowledgement of oil differential pressure alarm: 0= Not enabled 1= Enabled for reciprocating compressor 2= Enabled for screw compressor	0	2		
AL82	C	FC level sensor alarm delay	0	250	Sec	
AL83	C	FC pump level sensor manual alarm delay	0	250	Sec	
AL84	C	Duration of FC pump level sensor active input	0	250	Sec	
AL85	C	Duration of FC pump level sensor inactive input	0	250	Sec	
		Level sensor alarm reset type				
AL86	C	Level sensor alarm reset type: 0= always manual 1= Automatic reset after 1 minute 2= Automatic reset after 2 minutes ... 250= Automatic reset after 250 minutes	0	250		
AL87	C	Evaporator and domestic hot water level sensor by-pass time from Out1 or Out2 switching	0	250	Sec	

Parameter	Level	Description	Min.	Max.	UM	Resolution
AL88	S	Water pumps stop in the event of all compressors stop due to an alarm	0	1		
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	Manufacturer password	0	999		
		Laser				
LS01	C	Laser function enable	0	1		
LS02	U	Laser set point	-58	230	°F	Int
LS03	C	Delta t: T1 – T2	32	77	°F	Int
LS04	C	Laser set point calibration error delay time	0	250	Min	
LS05	C	Laser set point calibration error value for Dt	10.4	53.6	°F	Int
LS06	C	T1 sensor selection for Dt calculation	0	20		
LS07	C	T2 sensor selection for Dt calculation	0	20		
LS08	C	Analogue output operation with laser function	0	10		
LS09	C	LASER proportional factor	32	77	°F	Int
LS10	C	LASER integral factor	0	250	Sec	
LS11	C	LASER derivative factor	0	250	Sec	
LS12	C	LASER period	2	20	Sec	
LS13	C	Minimum activation time of Laser T2 output (if ON/OFF output)	1	10	Sec	
LS14	C	Minimum deactivation time of Laser T3 output (if ON/OFF output)	1	10	Sec	
LS15	C	Derivative sampling time (Sr)	1	10	Sec	
LS16	C	Band adjustment (rS)	10.4	53.6	°F	Int
LS17	C	Integral band limitation (Ar)	32	77	°F	Int
Pr1	U	User password	0	999		
Pr2	S	Service password	0	999		
Pr3	C	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**	**UM**	**Level**
ST01	45	°F	U
ST02	41	°F	U
ST03	86	°F	C
ST04	113	°F	C
ST05	68	°F	C
ST06	122	°F	C
ST07	4	°F	U
ST08	4	°F	C
ST09	3	--	C
ST10	3	--	C
ST11	0	--	S
dP01	3	--	S
dP02	0	--	S
dP03	0	--	C
dP04	0	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
dP05	0	--	C
dP06	0	--	S
dP07	0	--	S
dP08	0	--	S
dP09	0	--	S
dP10	0	--	S
CF01	1	--	C
CF02	1	--	C
CF03	0	--	C
CF04	1	--	C
CF05	0	--	C
CF06	0	--	C
CF07	1	--	C
CF08	11	--	C
CF09	9	--	C
CF10	0	--	C
CF11	0	--	C
CF12	0	--	C
CF13	19	--	C
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	C
CF25	725	Psi	C
CF26	0	Psi	C
CF27	0	Psi	C
CF28	0	Psi	C
CF29	0	Psi	C
CF30	o7	--	C
CF31	o9	--	C
CF32	o17	--	C
CF33	0	--	C
CF34	o3	--	C
CF35	o1	--	C
CF36	o26	--	C
CF37	0	--	C
CF38	0	--	C
CF39	o43	--	C
CF40	0	--	C
CF41	c51	--	C
CF42	0	--	C
CF43	0	--	C
CF44	0	--	C
CF45	o1	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
CF46	0	--	C
CF47	c2	--	C
CF48	0	--	C
CF49	0	--	C
CF50	0	--	C
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	1	--	C
CF63	1	--	S
CF64	1	--	U
CF65	not used	--	C
CF66	not used	--	C
CF67	0	--	C
CF68	0	--	C
CF69	0	--	C
CF70	0	--	C
CF71	0	--	C
CF72	0	--	C
CF73	0	--	C
CF74	0	--	C
CF75	0	--	C
CF76	1	--	C
CF77	1	--	C
CF78	0	--	C
CF79	0	--	C
CF80	0	--	C
CF81	0	--	C
CF82	0	--	C
CF83	0	Sec	C
CF84	0	--	C
EI01	1	--	C
EI02	0	--	C
EI03	0	--	C
EI04	0	--	C
EI05	0	--	C
EI06	0	--	C
EI07	0	--	C
EI08	0	--	C
EI09	0	--	C
EI10	0	°F	C
EI11	0	°F	C
EI12	0	Psi	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
EI13	0	Psi	C
EI14	0	°F	C
EI15	0	°F	C
EI16	0	°F	C
EI17	0	°F	C
EI18	0	Psi	C
EI19	0	Psi	C
EI20	0	Psi	C
EI21	0	Psi	C
EI22	0	Psi	C
EI23	0	Psi	C
EI24	0	--	C
EI25	0	--	C
EI26	0	--	C
EI27	0	--	C
EI28	0	--	C
EI29	0	--	C
EI30	0	--	C
EI31	0	--	C
EI32	0	--	C
EI33	0	--	C
EI34	0	--	C
EI35	0	--	C
EI36	0	--	C
EI37	0	--	C
EI38	0	--	C
EI39	0	--	C
EI40	0	--	C
EI41	0	--	C
EI42	0	--	C
EI43	0	--	C
Sd01	0	°F	U
Sd02	0	°F	C
Sd03	39	°F	U
Sd04	0	°F	C
Sd05	54	°F	U
Sd06	0	°F	C
Sd07	0	°F	C
Sd08	0	°F	C
Sd09	0	°F	C
Sd10	0	°F	C
Sd11	0	°F	C
Sd12	0	°F	C
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
Sd20	0	°F	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
Sd21	0	°F	C
Sd22	0	°F	C
Sd23	0	°F	C
Sd24	0	°F	C
Sd25	0	°F	C
Sd26	0	°F	C
Sd27	32	°F	C
Sd28	32	°F	C
Sd29	0	°F	C
Sd30	0	°F	C
ES01	0	Time	C
ES02	0	Time	C
ES03	0	Time	C
ES04	0	Time	C
ES05	0	Time	C
ES06	0	Time	C
ES07	0-0	--	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	C
ES15	5	°F	C
ES16	27	°F	C
ES17	2	°F	C
ES18	1	10 Min	C
ES19	0	Time	C
ES20	0	Time	C
ES21	0	Time	C
ES22	0	Time	C
ES23	0	Time	C
ES24	0	Time	C
ES25	0	--	C
ES26	0	--	C
ES27	0	--	C
ES28	0	--	C
ES29	0	--	C
ES30	0	--	C
ES31	0	--	C
ES32	0	°F	C
ES33	1	°F	C
Cr01	0	--	C
Cr02	0	Psi	C
Cr03	0	Psi	C
Cr04	0	Psi	C
Cr05	1	Psi	C
Cr06	0	Psi	C
Cr07	1	Psi	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
Cr08	0	--	C
Cr09	0	--	C
CO01	14	10 Sec	C
CO02	22	10 Sec	C
CO03	1	Sec	C
CO04	0	Sec	C
CO05	3	10 Sec	C
CO06	0	--	C
CO07	1	--	C
CO08	0	Sec	C
CO09	0	Sec	C
CO10	0	--	C
CO11	0	0.1 Sec	C
CO12	5	Sec	C
CO13	0	Sec	C
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
CO21	0	--	C
CO22	0	--	C
CO23	0	Min	C
CO24	0	10 Hours	C
CO25	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	C
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
CO41	18	°F	C
CO42	1	10 Sec	C
CO43	5	Min	C
CO44	566	Psi	S
CO45	30	Psi	S
CO46	29	Psi	C
CO47	22	Psi	C
CO48	5	Min	S
CO49	1	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
CO50	0	Sec	C
CO51	32	°F	C
CO52	1	°F	C
CO53	3	10 Min	S
CO54	0	Hours	C
CO55	-58	°F	C
CO56	1	°F	C
CO57	0	Min	C
CO58	0	Sec	C
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
CO66	0	Hours	C
CO67	1	%	C
CO68	1	%	C
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	1	--	C
CO77	1	--	C
CO78	1	--	C
CO79	1	%	C
CO80	1	%	C
CO81	1	%	C
CO82	32	°F	C
CO83	1	°F	C
CO84	0	%	C
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	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
uS01	0	--	C
uS02	1	--	C
uS03	32	°F	C
uS04	32	°F	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
uS05	32	°F	C
uS06	32	°F	C
uS07	32	°F	C
uS08	32	°F	C
uS09	1	°F	C
uS10	1	°F	C
uS11	0	--	C
uS12	1	--	C
uS13	32	°F	C
uS14	32	°F	C
uS15	32	°F	C
uS16	32	°F	C
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
uS27	32	°F	C
uS28	32	°F	C
uS29	32	°F	C
uS30	1	°F	C
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
uS39	32	°F	C
uS40	32	°F	C
uS41	32	°F	C
uS42	1	°F	C
uS43	1	°F	C
uS44	0	%	C
uS45	100	%	C
uS46	1	--	C
uS47	0	--	C
uS48	0	--	C
uS49	32	°F	C
uS50	1	°F	C
uS51	0	%	C
uS52	100	%	C
uS53	0	--	C
uS54	0	--	C
uS55	32	°F	C
uS56	1	°F	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
uS57	0	%	C
uS58	100	%	C
uS59	0	%	C
uS60	0	%	C
uS61	1	--	C
uS62	1	--	C
uS63	1	--	C
uS64	1	--	C
FA01	0	--	C
FA02	0	--	C
FA03	10	Sec	C
FA04	4	250 µsec	C
FA05	0	--	C
FA06	0	sec	C
FA07	30	%	C
FA08	100	%	C
FA09	357	Psi	C
FA10	406	Psi	C
FA11	90	Psi	C
FA12	7	Psi	C
FA13	15	Psi	C
FA14	0	Sec	C
FA15	90	%	C
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	%	C
FA24	77	°F	C
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
Ar01	37	°F	S
Ar02	4	°F	S
Ar03	37	°F	C
Ar04	4	°F	C
Ar05	0	--	C
Ar06	0	--	C
Ar07	0	--	C
Ar08	0	--	C
Ar09	1	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
Ar10	1	--	S
Ar11	0	--	C
Ar12	113	°F	C
Ar13	4	°F	C
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	C
Ar21	3	--	C
Ar22	3	--	C
Ar23	0	--	C
Ar24	0	--	S
Ar25	0	--	C
Ar26	37	°F	C
Ar27	4	°F	C
dF01	0	--	C
dF02	68	Psi	C
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	10	Min	C
dF10	37	°F	C
dF11	50	°F	C
dF12	37	°F	C
dF13	50	°F	C
dF14	1	--	C
dF15	1	--	C
dF16	30	Sec	C
dF17	1	--	C
dF18	329	Psi	C
dF19	10	Sec	C
dF20	44	Psi	C
dF21	7	Psi	C
dF22	2	--	C
dF23	1	--	C
dF24	0	--	C
dF25	0	--	C
dF26	47	°F	C
dF27	32	°F	C
dF28	32	°F	C
dF29	1	°F	C
dF30	1	°F	C
dF31	32	°F	C
dF32	32	°F	C
dF33	1	°F	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
dF34	1	°F	C
dF35	0	--	C
dF36	0	Sec	C
dF37	-30	Psi	C
dF38	41	°F	C
dF39	27	°F	C
rC01	0	--	C
rC02	5	Sec	C
rC03	5	Sec	C
rC04	1	Min	C
rC05	1	Min	C
rC06	505	Psi	C
rC07	36	Psi	C
rC08	2	Min	C
rC09	1	--	C
FS01	0	--	C
FS02	0	--	C
FS03	68	°F	C
FS04	1	°F	C
FS05	32	°F	C
FS06	158	°F	C
FS07	0	--	C
FS08	0	--	C
FS09	0	Min	C
FS10	0	Sec	C
FS11	0	Sec	C
FS12	0	--	C
FS13	0	Hours	C
FS14	50	°F	C
FS15	50	°F	C
FS16	158	°F	C
FS17	0	Time	C
FS18	0	--	C
FS19	1	Min	C
FS20	1	°F	C
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
FS33	0	--	C
FS34	0	Min	C
FS35	0	Sec	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
FS36	0	Min	C
FS37	32	°F	C
FS38	1	°F	C
FS39	0	%	C
FS40	100	%	C
FS41	0	--	C
FS42	0	--	C
FS43	32	°F	C
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
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	C
FS62	0	--	C
FS63	32	°F	C
FS64	1	°F	C
AL01	45	Sec	S
AL02	2	10 Sec	C
AL03	45	Psi	C
AL04	22	Psi	C
AL05	3	--	C
AL06	0	--	C
AL07	0	Sec	C
AL08	0	--	S
AL09	577	Psi	C
AL10	87	Psi	C
AL11	120	Sec	C
AL12	5	Sec	C
AL13	3	--	C
AL14	0	--	C
AL15	10	Sec	C
AL16	0	Sec	C
AL17	5	Sec	C
AL18	5	Sec	C
AL19	0	Sec	C
AL20	0	--	C
AL21	0	--	C
AL22	0	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	Level
AL23	0	--	C
AL24	9	°F	C
AL25	59	°F	C
AL26	39	°F	U
AL27	7	°F	S
AL28	3	Sec	C
AL29	3	--	C
AL30	1	--	C
AL31	37	°F	C
AL32	43	°F	C
AL33	39	°F	C
AL34	4	°F	C
AL35	3	Sec	C
AL36	3	Sec	C
AL37	3	--	C
AL38	1	--	C
AL39	158	°F	C
AL40	18	°F	C
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
AL53	0	10 Sec	C
AL54	0	--	C
AL55	0	Sec	C
AL56	0	Sec	C
AL57	0	Sec	C
AL58	0	Sec	C
AL59	0	--	C
AL60	0	10 Sec	C
AL61	230	°F	C
AL62	7	°F	C
AL63	0	--	C
AL64	30	Sec	C
AL65	0	Sec	C
AL66	0	Sec	C
AL67	0	Sec	C
AL68	0	Sec	C
AL69	0	Sec	C
AL70	0	Sec	C
AL71	0	Sec	C
AL72	0	Sec	C
AL73	0	--	C
AL74	0	--	C

TAEevo Tech 020 UL			
Parameter	Value	UM	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	C
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
LS15	1	Sec	C
LS16	0	°F	C
LS17	0	°F	C
Pr1	23	--	U
Pr2	32	--	S
Pr3	69	--	C

TAEevo Tech 031÷161 UL					
				Fans control	
Parameter	Value	UM	Level	ON/OFF	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	C		
ST04	113	°F	C		
ST05	68	°F	C		
ST06	122	°F	C		
ST07	4	°F	U		
ST08	4	°F	C		
ST09	3	--	C		
ST10	3	--	C		
ST11	0	--	S		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
dP01	3	--	S		
dP02	0	--	S		
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	--	C		
CF02	1	--	C		
CF03	0	--	C		
CF04	1	--	C		
CF05	0	--	C		
CF06	0	--	C		
CF07	1	--	C		
CF08	11	--	C		
CF09	9	--	C		
CF10		--	C	0	27
CF11	0	--	C		
CF12	0	--	C		
CF13	19	--	C		
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	C		
CF25	725	Psi	C		
CF26	0	Psi	C		
CF27	0	Psi	C		
CF28	0	Psi	C		
CF29	0	Psi	C		
CF30	o7	--	C		
CF31	o9	--	C		
CF32	o17	--	C		
CF33	0	--	C		
CF34	o3	--	C		
CF35	o1	--	C		
CF36	o26	--	C		
CF37	0	--	C		
CF38	o23	--	C		
CF39	o43	--	C		
CF40	0	--	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
CF41	c51	--	C		
CF42	0	--	C		
CF43	0	--	C		
CF44	0	--	C		
CF45	o1	--	C		
CF46	0	--	C		
CF47	c2	--	C		
CF48	0	--	C		
CF49	0	--	C		
CF50		--	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	1	--	C		
CF63	1	--	S		
CF64	1	--	U		
CF65	not used	--	C		
CF66	not used	--	C		
CF67	0	--	C		
CF68	0	--	C		
CF69	0	--	C		
CF70	0	--	C		
CF71	0	--	C		
CF72	0	--	C		
CF73	0	--	C		
CF74	0	--	C		
CF75	0	--	C		
CF76	1	--	C		
CF77	1	--	C		
CF78	0	--	C		
CF79	0	--	C		
CF80	0	--	C		
CF81	0	--	C		
CF82	0	--	C		
CF83	0	Sec	C		
CF84	0	--	C		
EI01	1	--	C		
EI02	0	--	C		
EI03	0	--	C		
EI04	0	--	C		
EI05	0	--	C		
EI06	0	--	C		
EI07	0	--	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
EI08	0	--	C		
EI09	0	--	C		
EI10	0	°F	C		
EI11	0	°F	C		
EI12	0	Psi	C		
EI13	0	Psi	C		
EI14	0	°F	C		
EI15	0	°F	C		
EI16	0	°F	C		
EI17	0	°F	C		
EI18	0	Psi	C		
EI19	0	Psi	C		
EI20	0	Psi	C		
EI21	0	Psi	C		
EI22	0	Psi	C		
EI23	0	Psi	C		
EI24	0	--	C		
EI25	0	--	C		
EI26	0	--	C		
EI27	0	--	C		
EI28	0	--	C		
EI29	0	--	C		
EI30	0	--	C		
EI31	0	--	C		
EI32	0	--	C		
EI33	0	--	C		
EI34	0	--	C		
EI35	0	--	C		
EI36	0	--	C		
EI37	0	--	C		
EI38	0	--	C		
EI39	0	--	C		
EI40	0	--	C		
EI41	0	--	C		
EI42	0	--	C		
EI43	0	--	C		
Sd01	0	°F	U		
Sd02	0	°F	C		
Sd03	39	°F	U		
Sd04	0	°F	C		
Sd05	54	°F	U		
Sd06	0	°F	C		
Sd07	0	°F	C		
Sd08	0	°F	C		
Sd09	0	°F	C		
Sd10	0	°F	C		
Sd11	0	°F	C		
Sd12	0	°F	C		
Sd13	0	°F	C		
Sd14	0	°F	C		
Sd15	0	°F	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
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		
Sd23	0	°F	C		
Sd24	0	°F	C		
Sd25	0	°F	C		
Sd26	0	°F	C		
Sd27	32	°F	C		
Sd28	32	°F	C		
Sd29	0	°F	C		
Sd30	0	°F	C		
ES01	0	Time	C		
ES02	0	Time	C		
ES03	0	Time	C		
ES04	0	Time	C		
ES05	0	Time	C		
ES06	0	Time	C		
ES07	0-0	--	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	C		
ES15	5	°F	C		
ES16	27	°F	C		
ES17	2	°F	C		
ES18	1	10 Min	C		
ES19	0	Time	C		
ES20	0	Time	C		
ES21	0	Time	C		
ES22	0	Time	C		
ES23	0	Time	C		
ES24	0	Time	C		
ES25	0	--	C		
ES26	0	--	C		
ES27	0	--	C		
ES28	0	--	C		
ES29	0	--	C		
ES30	0	--	C		
ES31	0	--	C		
ES32	0	°F	C		
ES33	1	°F	C		
Cr01	0	--	C		
Cr02	0	Psi	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
Cr03	0	Psi	C		
Cr04	0	Psi	C		
Cr05	1	Psi	C		
Cr06	0	Psi	C		
Cr07	1	Psi	C		
Cr08	0	--	C		
Cr09	0	--	C		
CO01	14	10 Sec	C		
CO02	22	10 Sec	C		
CO03	1	Sec	C		
CO04	0	Sec	C		
CO05	3	10 Sec	C		
CO06	0	--	C		
CO07	1	--	C		
CO08	0	Sec	C		
CO09	0	Sec	C		
CO10	0	--	C		
CO11	0	0.1 Sec	C		
CO12	5	Sec	C		
CO13	0	Sec	C		
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		
CO21	0	--	C		
CO22	0	--	C		
CO23	0	Min	C		
CO24	0	10 Hours	C		
CO25	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	C		
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		
CO41	18	°F	C		
CO42	1	10 Sec	C		
CO43	5	Min	C		
CO44	566	Psi	S		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
CO45	30	Psi	S		
CO46	29	Psi	C		
CO47	22	Psi	C		
CO48	5	Min	S		
CO49	1	--	C		
CO50	0	Sec	C		
CO51	32	°F	C		
CO52	1	°F	C		
CO53	3	10 Min	S		
CO54	0	Hours	C		
CO55	-58	°F	C		
CO56	1	°F	C		
CO57	0	Min	C		
CO58	0	Sec	C		
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		
CO66	0	Hours	C		
CO67	1	%	C		
CO68	1	%	C		
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	1	--	C		
CO77	1	--	C		
CO78	1	--	C		
CO79	1	%	C		
CO80	1	%	C		
CO81	1	%	C		
CO82	32	°F	C		
CO83	1	°F	C		
CO84	0	%	C		
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	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		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
uS01	0	--	C		
uS02	1	--	C		
uS03	32	°F	C		
uS04	32	°F	C		
uS05	32	°F	C		
uS06	32	°F	C		
uS07	32	°F	C		
uS08	32	°F	C		
uS09	1	°F	C		
uS10	1	°F	C		
uS11	0	--	C		
uS12	1	--	C		
uS13	32	°F	C		
uS14	32	°F	C		
uS15	32	°F	C		
uS16	32	°F	C		
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		
uS27	32	°F	C		
uS28	32	°F	C		
uS29	32	°F	C		
uS30	1	°F	C		
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		
uS39	32	°F	C		
uS40	32	°F	C		
uS41	32	°F	C		
uS42	1	°F	C		
uS43	1	°F	C		
uS44	0	%	C		
uS45	100	%	C		
uS46	1	--	C		
uS47	0	--	C		
uS48	0	--	C		
uS49	32	°F	C		
uS50	1	°F	C		
uS51	0	%	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
uS52	100	%	C		
uS53	0	--	C		
uS54	0	--	C		
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	1	--	C		
uS64	1	--	C		
FA01		--	C	0	4
FA02	0	--	C		
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	357	273
FA10	406	Psi	C		
FA11		Psi	C	90	109
FA12	7	Psi	C		
FA13	15	Psi	C		
FA14	0	Sec	C		
FA15		%	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	%	C		
FA24	77	°F	C		
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		
Ar01	37	°F	S		
Ar02	4	°F	S		
Ar03	37	°F	C		
Ar04	4	°F	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
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		
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	C		
Ar21	3	--	C		
Ar22	3	--	C		
Ar23	0	--	C		
Ar24	0	--	S		
Ar25	0	--	C		
Ar26	37	°F	C		
Ar27	4	°F	C		
dF01	0	--	C		
dF02	68	Psi	C		
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	10	Min	C		
dF10	37	°F	C		
dF11	50	°F	C		
dF12	37	°F	C		
dF13	50	°F	C		
dF14	1	--	C		
dF15	1	--	C		
dF16	30	Sec	C		
dF17	1	--	C		
dF18	329	Psi	C		
dF19	10	Sec	C		
dF20	44	Psi	C		
dF21	7	Psi	C		
dF22	2	--	C		
dF23	1	--	C		
dF24	0	--	C		
dF25	0	--	C		
dF26	47	°F	C		
dF27	32	°F	C		
dF28	32	°F	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
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	C		
dF38	41	°F	C		
dF39	27	°F	C		
rC01	0	--	C		
rC02	5	Sec	C		
rC03	5	Sec	C		
rC04	1	Min	C		
rC05	1	Min	C		
rC06	505	Psi	C		
rC07	36	Psi	C		
rC08	2	Min	C		
rC09	1	--	C		
FS01	0	--	C		
FS02	0	--	C		
FS03	68	°F	C		
FS04	1	°F	C		
FS05	32	°F	C		
FS06	158	°F	C		
FS07	0	--	C		
FS08	0	--	C		
FS09	0	Min	C		
FS10	0	Sec	C		
FS11	0	Sec	C		
FS12	0	--	C		
FS13	0	Hours	C		
FS14	50	°F	C		
FS15	50	°F	C		
FS16	158	°F	C		
FS17	0	Time	C		
FS18	0	--	C		
FS19	1	Min	C		
FS20	1	°F	C		
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		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
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	C		
FS39	0	%	C		
FS40	100	%	C		
FS41	0	--	C		
FS42	0	--	C		
FS43	32	°F	C		
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		
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	C		
FS62	0	--	C		
FS63	32	°F	C		
FS64	1	°F	C		
AL01	45	Sec	S		
AL02	2	10 Sec	C		
AL03	8.7	Psi	C		
AL04	14.5	Psi	C		
AL05	3	--	C		
AL06	0	--	C		
AL07	0	Sec	C		
AL08	0	--	S		
AL09	577	Psi	C		
AL10	87	Psi	C		
AL11	120	Sec	C		
AL12	5	Sec	C		
AL13	3	--	C		
AL14	0	--	C		
AL15	10	Sec	C		
AL16	0	Sec	C		
AL17	5	Sec	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
AL18	5	Sec	C		
AL19	0	Sec	C		
AL20	0	--	C		
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	C		
AL29	3	--	C		
AL30	1	--	C		
AL31	37	°F	C		
AL32	43	°F	C		
AL33	39	°F	C		
AL34	4	°F	C		
AL35	3	Sec	C		
AL36	3	Sec	C		
AL37	3	--	C		
AL38	1	--	C		
AL39	158	°F	C		
AL40	18	°F	C		
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		
AL53	0	10 Sec	C		
AL54	0	--	C		
AL55	0	Sec	C		
AL56	0	Sec	C		
AL57	0	Sec	C		
AL58	0	Sec	C		
AL59	0	--	C		
AL60	0	10 Sec	C		
AL61	230	°F	C		
AL62	7	°F	C		
AL63	0	--	C		
AL64	30	Sec	C		
AL65	0	Sec	C		
AL66	0	Sec	C		
AL67	0	Sec	C		
AL68	0	Sec	C		
AL69	0	Sec	C		

TAEevo Tech 031÷161 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
AL70	0	Sec	C		
AL71	0	Sec	C		
AL72	0	Sec	C		
AL73	0	--	C		
AL74	0	--	C		
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	C		
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		
LS15	1	Sec	C		
LS16	0	°F	C		
LS17	0	°F	C		
Pr1	23	--	U		
Pr2	32	--	S		
Pr3	69	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	C		
ST04	113	°F	C		
ST05	68	°F	C		
ST06	122	°F	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
ST07	4	°F	U		
ST08	4	°F	C		
ST09	3	--	C		
ST10	3	--	C		
ST11	1	--	S		
dP01	3	--	S		
dP02	0	--	S		
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	--	C		
CF02	1	--	C		
CF03	0	--	C		
CF04	2	--	C		
CF05	0	--	C		
CF06	0	--	C		
CF07	1	--	C		
CF08	11	--	C		
CF09	9	--	C		
CF10		--	C	0	27
CF11	0	--	C		
CF12	0	--	C		
CF13	19	--	C		
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	C		
CF25	725	Psi	C		
CF26	0	Psi	C		
CF27	0	Psi	C		
CF28	0	Psi	C		
CF29	0	Psi	C		
CF30	o7	--	C		
CF31	o9	--	C		
CF32	o17	--	C		
CF33	o18	--	C		
CF34	o3	--	C		
CF35	o1	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
CF36	o26	--	C		
CF37	0	--	C		
CF38	o23	--	C		
CF39	o43	--	C		
CF40	0	--	C		
CF41	c51	--	C		
CF42	c57	--	C		
CF43	0	--	C		
CF44	0	--	C		
CF45	o1	--	C		
CF46	0	--	C		
CF47	c2	--	C		
CF48	0	--	C		
CF49	0	--	C		
CF50		--	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	1	--	C		
CF63	1	--	S		
CF64	1	--	U		
CF65	not used	--	C		
CF66	not used	--	C		
CF67	0	--	C		
CF68	0	--	C		
CF69	0	--	C		
CF70	0	--	C		
CF71	0	--	C		
CF72	0	--	C		
CF73	0	--	C		
CF74	0	--	C		
CF75	0	--	C		
CF76	1	--	C		
CF77	1	--	C		
CF78	0	--	C		
CF79	0	--	C		
CF80	0	--	C		
CF81	0	--	C		
CF82	0	--	C		
CF83	0	sec	C		
CF84	0	--	C		
EI01	1	--	C		
EI02	0	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
EI03	0	--	C		
EI04	0	--	C		
EI05	0	--	C		
EI06	0	--	C		
EI07	0	--	C		
EI08	0	--	C		
EI09	0	--	C		
EI10	0	°F	C		
EI11	0	°F	C		
EI12	0	Psi	C		
EI13	0	Psi	C		
EI14	0	°F	C		
EI15	0	°F	C		
EI16	0	°F	C		
EI17	0	°F	C		
EI18	0	Psi	C		
EI19	0	Psi	C		
EI20	0	Psi	C		
EI21	0	Psi	C		
EI22	0	Psi	C		
EI23	0	Psi	C		
EI24	0	--	C		
EI25	0	--	C		
EI26	0	--	C		
EI27	0	--	C		
EI28	0	--	C		
EI29	0	--	C		
EI30	0	--	C		
EI31	0	--	C		
EI32	0	--	C		
EI33	0	--	C		
EI34	0	--	C		
EI35	0	--	C		
EI36	0	--	C		
EI37	0	--	C		
EI38	0	--	C		
EI39	0	--	C		
EI40	0	--	C		
EI41	0	--	C		
EI42	0	--	C		
EI43	0	--	C		
Sd01	0	°F	U		
Sd02	0	°F	C		
Sd03	39	°F	U		
Sd04	0	°F	C		
Sd05	54	°F	U		
Sd06	0	°F	C		
Sd07	0	°F	C		
Sd08	0	°F	C		
Sd09	0	°F	C		
Sd10	0	°F	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
Sd11	0	°F	C		
Sd12	0	°F	C		
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		
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		
Sd27	32	°F	C		
Sd28	32	°F	C		
Sd29	0	°F	C		
Sd30	0	°F	C		
ES01	0	Time	C		
ES02	0	Time	C		
ES03	0	Time	C		
ES04	0	Time	C		
ES05	0	Time	C		
ES06	0	Time	C		
ES07	0-0	--	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	C		
ES15	5	°F	C		
ES16	27	°F	C		
ES17	2	°F	C		
ES18	1	10 Min	C		
ES19	0	Time	C		
ES20	0	Time	C		
ES21	0	Time	C		
ES22	0	Time	C		
ES23	0	Time	C		
ES24	0	Time	C		
ES25	0	--	C		
ES26	0	--	C		
ES27	0	--	C		
ES28	0	--	C		
ES29	0	--	C		
ES30	0	--	C		
ES31	0	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
ES32	0	°F	C		
ES33	1	°F	C		
Cr01	0	--	C		
Cr02	0	Psi	C		
Cr03	0	Psi	C		
Cr04	0	Psi	C		
Cr05	1	Psi	C		
Cr06	0	Psi	C		
Cr07	1	Psi	C		
Cr08	0	--	C		
Cr09	0	--	C		
CO01	14	10 Sec	C		
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		
CO11	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	--	C		
CO22	0	--	C		
CO23	0	Min	C		
CO24	0	10 Hours	C		
CO25	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	C		
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		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
CO40	104	°F	C		
CO41	18	°F	C		
CO42	1	10 Sec	C		
CO43	5	Min	C		
CO44	566	Psi	S		
CO45	30	Psi	S		
CO46	29	Psi	C		
CO47	22	Psi	C		
CO48	5	Min	S		
CO49	1	--	C		
CO50	0	Sec	C		
CO51	32	°F	C		
CO52	1	°F	C		
CO53	3	10 Min	S		
CO54	0	Hours	C		
CO55	-58	°F	C		
CO56	1	°F	C		
CO57	0	Min	C		
CO58	0	Sec	C		
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		
CO66	0	Hours	C		
CO67	1	%	C		
CO68	1	%	C		
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	C		
CO83	1	°F	C		
CO84	0	%	C		
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	C		
CO91	0	10 Sec	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
CO92	0	Sec	C		
CO93	0	Sec	C		
CO94	1	%	C		
CO95	0	10 Hours	C		
CO96	1	%	C		
uS01	0	--	C		
uS02	1	--	C		
uS03	32	°F	C		
uS04	32	°F	C		
uS05	32	°F	C		
uS06	32	°F	C		
uS07	32	°F	C		
uS08	32	°F	C		
uS09	1	°F	C		
uS10	1	°F	C		
uS11	0	--	C		
uS12	1	--	C		
uS13	32	°F	C		
uS14	32	°F	C		
uS15	32	°F	C		
uS16	32	°F	C		
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		
uS27	32	°F	C		
uS28	32	°F	C		
uS29	32	°F	C		
uS30	1	°F	C		
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		
uS39	32	°F	C		
uS40	32	°F	C		
uS41	32	°F	C		
uS42	1	°F	C		
uS43	1	°F	C		
uS44	0	%	C		
uS45	100	%	C		
uS46	1	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
uS47	0	--	C		
uS48	0	--	C		
uS49	32	°F	C		
uS50	1	°F	C		
uS51	0	%	C		
uS52	100	%	C		
uS53	0	--	C		
uS54	0	--	C		
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	1	--	C		
uS64	1	--	C		
FA01		--	C	0	4
FA02	0	--	C		
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	357	273
FA10	406	Psi	C		
FA11		Psi	C	90	109
FA12	7	Psi	C		
FA13	15	Psi	C		
FA14	0	Sec	C		
FA15		%	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	%	C		
FA24	77	°F	C		
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		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
Ar01	37	°F	S		
Ar02	4	°F	S		
Ar03	37	°F	C		
Ar04	4	°F	C		
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		
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	C		
Ar21	3	--	C		
Ar22	3	--	C		
Ar23	0	--	C		
Ar24	0	--	S		
Ar25	0	--	C		
Ar26	37	°F	C		
Ar27	4	°F	C		
dF01	0	--	C		
dF02	68	Psi	C		
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	10	Min	C		
dF10	37	°F	C		
dF11	50	°F	C		
dF12	37	°F	C		
dF13	50	°F	C		
dF14	1	--	C		
dF15	1	--	C		
dF16	30	Sec	C		
dF17	1	--	C		
dF18	329	Psi	C		
dF19	10	Sec	C		
dF20	44	Psi	C		
dF21	7	Psi	C		
dF22	2	--	C		
dF23	1	--	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
dF24	0	--	C		
dF25	0	--	C		
dF26	47	°F	C		
dF27	32	°F	C		
dF28	32	°F	C		
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	C		
dF38	41	°F	C		
dF39	27	°F	C		
rC01	0	--	C		
rC02	5	Sec	C		
rC03	5	Sec	C		
rC04	1	Min	C		
rC05	1	Min	C		
rC06	505	Psi	C		
rC07	36	Psi	C		
rC08	2	Min	C		
rC09	1	--	C		
FS01	0	--	C		
FS02	0	--	C		
FS03	68	°F	C		
FS04	1	°F	C		
FS05	32	°F	C		
FS06	158	°F	C		
FS07	0	--	C		
FS08	0	--	C		
FS09	0	Min	C		
FS10	0	Sec	C		
FS11	0	Sec	C		
FS12	0	--	C		
FS13	0	Hours	C		
FS14	50	°F	C		
FS15	50	°F	C		
FS16	158	°F	C		
FS17	0	Time	C		
FS18	0	--	C		
FS19	1	Min	C		
FS20	1	°F	C		
FS21	1	°F	C		
FS22	1	°F	C		
FS23	86	°F	C		
FS24	1	°F	C		
FS25	86	°F	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
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		
FS33	0	--	C		
FS34	0	Min	C		
FS35	0	Sec	C		
FS36	0	Min	C		
FS37	32	°F	C		
FS38	1	°F	C		
FS39	0	%	C		
FS40	100	%	C		
FS41	0	--	C		
FS42	0	--	C		
FS43	32	°F	C		
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		
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	C		
FS62	0	--	C		
FS63	32	°F	C		
FS64	1	°F	C		
AL01	45	Sec	S		
AL02	2	10 Sec	C		
AL03	8.7	Psi	C		
AL04	14.5	Psi	C		
AL05	3	--	C		
AL06	0	--	C		
AL07	0	Sec	C		
AL08	0	--	S		
AL09	577	Psi	C		
AL10	87	Psi	C		
AL11	120	Sec	C		
AL12	5	Sec	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
AL13	3	--	C		
AL14	0	--	C		
AL15	10	Sec	C		
AL16	0	Sec	C		
AL17	5	Sec	C		
AL18	5	Sec	C		
AL19	0	Sec	C		
AL20	0	--	C		
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	C		
AL29	3	--	C		
AL30	1	--	C		
AL31	37	°F	C		
AL32	43	°F	C		
AL33	39	°F	C		
AL34	4	°F	C		
AL35	3	Sec	C		
AL36	3	Sec	C		
AL37	3	--	C		
AL38	1	--	C		
AL39	158	°F	C		
AL40	18	°F	C		
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		
AL53	0	10 Sec	C		
AL54	0	--	C		
AL55	0	Sec	C		
AL56	0	Sec	C		
AL57	0	Sec	C		
AL58	0	Sec	C		
AL59	0	--	C		
AL60	0	10 Sec	C		
AL61	230	°F	C		
AL62	7	°F	C		
AL63	0	--	C		
AL64	30	Sec	C		

TAEevo Tech 201÷351 UL					
Parameter	Value	UM	Level	Fans control	
				ON/OFF	EC
AL65	0	Sec	C		
AL66	0	Sec	C		
AL67	0	Sec	C		
AL68	0	Sec	C		
AL69	0	Sec	C		
AL70	0	Sec	C		
AL71	0	Sec	C		
AL72	0	Sec	C		
AL73	0	--	C		
AL74	0	--	C		
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	C		
LS06	0	--	C		
LS07	0	--	C		
LS08	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	C		
LS17	0	°F	C		
Pr1	23	--	U		
Pr2	32	--	S		
Pr3	69	--	C		

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
ST01	45	°F	U						
ST02	41	°F	U						
ST03	86	°F	C						
ST04	113	°F	C						
ST05	68	°F	C						
ST06	122	°F	C						
ST07	4	°F	U						
ST08	4	°F	C						
ST09	3	--	C						
ST10	3	--	C						
ST11	1	--	S						
dP01	3	--	S						
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						
CF01	1	--	C						
CF02	1	--	C						
CF03	0	--	C						
CF04	2	--	C						
CF05	0	--	C						
CF06	0	--	C						
CF07	1	--	C						
CF08	11	--	C						
CF09	9	--	C						
CF10		--	C					0	27
CF11	0	--	C						
CF12	0	--	C						
CF13	19	--	C						
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	C						
CF25	725	Psi	C						
CF26	0	Psi	C						
CF27	0	Psi	C						
CF28	0	Psi	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
CF29	0	Psi	C						
CF30	o7	--	C						
CF31	o9	--	C						
CF32	o17	--	C						
CF33	o18	--	C						
CF34	o3	--	C						
CF35	o1	--	C						
CF36	o26	--	C						
CF37		--	C	0	0	0	o27		
CF38	o23	--	C						
CF39	o43	--	C						
CF40	0	--	C						
CF41	c51	--	C						
CF42	c57	--	C						
CF43	0	--	C						
CF44	0	--	C						
CF45	o1	--	C						
CF46	0	--	C						
CF47	c2	--	C						
CF48		--	C	0	0	0	c3		
CF49	0	--	C						
CF50		--	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	1	--	C						
CF63	1	--	S						
CF64	1	--	U						
CF65	not used	--	C						
CF66	not used	--	C						
CF67	0	--	C						
CF68	0	--	C						
CF69	0	--	C						
CF70	0	--	C						
CF71	0	--	C						
CF72	0	--	C						
CF73	0	--	C						
CF74	0	--	C						
CF75	0	--	C						
CF76	1	--	C						
CF77	1	--	C						
CF78	0	--	C						
CF79	0	--	C						
CF80	0	--	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
CF81	0	--	C						
CF82	0	--	C						
CF83	0	sec	C						
CF84	1	--	C						
EI01	1	--	C						
EI02	0	--	C						
EI03	0	--	C						
EI04	0	--	C						
EI05	0	--	C						
EI06	0	--	C						
EI07	0	--	C						
EI08	0	--	C						
EI09	0	--	C						
EI10	0	°F	C						
EI11	0	°F	C						
EI12	0	Psi	C						
EI13	0	Psi	C						
EI14	0	°F	C						
EI15	0	°F	C						
EI16	0	°F	C						
EI17	0	°F	C						
EI18	0	Psi	C						
EI19	0	Psi	C						
EI20	0	Psi	C						
EI21	0	Psi	C						
EI22	0	Psi	C						
EI23	0	Psi	C						
EI24	0	--	C						
EI25	0	--	C						
EI26	0	--	C						
EI27	0	--	C						
EI28	0	--	C						
EI29	0	--	C						
EI30	0	--	C						
EI31	0	--	C						
EI32	0	--	C						
EI33	0	--	C						
EI34	0	--	C						
EI35	0	--	C						
EI36	0	--	C						
EI37	0	--	C						
EI38	0	--	C						
EI39	0	--	C						
EI40	0	--	C						
EI41	0	--	C						
EI42	0	--	C						
EI43	0	--	C						
Sd01	0	°F	U						
Sd02	0	°F	C						
Sd03	39	°F	U						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
Sd04	0	°F	C						
Sd05	54	°F	U						
Sd06	0	°F	C						
Sd07	0	°F	C						
Sd08	0	°F	C						
Sd09	0	°F	C						
Sd10	0	°F	C						
Sd11	0	°F	C						
Sd12	0	°F	C						
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						
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						
Sd27	32	°F	C						
Sd28	32	°F	C						
Sd29	0	°F	C						
Sd30	0	°F	C						
ES01	0	Time	C						
ES02	0	Time	C						
ES03	0	Time	C						
ES04	0	Time	C						
ES05	0	Time	C						
ES06	0	Time	C						
ES07	0-0	--	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	C						
ES15	5	°F	C						
ES16	27	°F	C						
ES17	2	°F	C						
ES18	1	10 Min	C						
ES19	0	Time	C						
ES20	0	Time	C						
ES21	0	Time	C						
ES22	0	Time	C						
ES23	0	Time	C						
ES24	0	Time	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
ES25	0	--	C						
ES26	0	--	C						
ES27	0	--	C						
ES28	0	--	C						
ES29	0	--	C						
ES30	0	--	C						
ES31	0	--	C						
ES32	0	°F	C						
ES33	1	°F	C						
Cr01	0	--	C						
Cr02	0	Psi	C						
Cr03	0	Psi	C						
Cr04	0	Psi	C						
Cr05	1	Psi	C						
Cr06	0	Psi	C						
Cr07	1	Psi	C						
Cr08	0	--	C						
Cr09	0	--	C						
CO01	14	10 Sec	C						
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						
CO11	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	--	C						
CO22	0	--	C						
CO23	0	Min	C						
CO24	0	10 Hours	C						
CO25	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	C						
CO32	0	10 Hours	S						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
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						
CO41	18	°F	C						
CO42	1	10 Sec	C						
CO43	5	Min	C						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	C						
CO47	22	Psi	C						
CO48	5	Min	S						
CO49	1	--	C						
CO50	0	Sec	C						
CO51	32	°F	C						
CO52	1	°F	C						
CO53	3	10 Min	S						
CO54	0	Hours	C						
CO55	-58	°F	C						
CO56	1	°F	C						
CO57	0	Min	C						
CO58	0	Sec	C						
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						
CO66	0	Hours	C						
CO67	1	%	C						
CO68	1	%	C						
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	C						
CO83	1	°F	C						
CO84	0	%	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	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	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						
uS01	0	--	C						
uS02	1	--	C						
uS03	32	°F	C						
uS04	32	°F	C						
uS05	32	°F	C						
uS06	32	°F	C						
uS07	32	°F	C						
uS08	32	°F	C						
uS09	1	°F	C						
uS10	1	°F	C						
uS11	0	--	C						
uS12	1	--	C						
uS13	32	°F	C						
uS14	32	°F	C						
uS15	32	°F	C						
uS16	32	°F	C						
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						
uS27	32	°F	C						
uS28	32	°F	C						
uS29	32	°F	C						
uS30	1	°F	C						
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						
uS39	32	°F	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
uS40	32	°F	C						
uS41	32	°F	C						
uS42	1	°F	C						
uS43	1	°F	C						
uS44	0	%	C						
uS45	100	%	C						
uS46	1	--	C						
uS47	0	--	C						
uS48	0	--	C						
uS49	32	°F	C						
uS50	1	°F	C						
uS51	0	%	C						
uS52	100	%	C						
uS53	0	--	C						
uS54	0	--	C						
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	1	--	C						
uS64	1	--	C						
FA01		--	C					0	4
FA02	0	--	C						
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					357	273
FA10	406	Psi	C						
FA11		Psi	C					90	109
FA12	7	Psi	C						
FA13	15	Psi	C						
FA14	0	Sec	C						
FA15		%	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	%	C						
FA24	77	°F	C						
FA25	9	°F	C						
FA26	0	Psi	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
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						
Ar01	37	°F	S						
Ar02	4	°F	S						
Ar03	37	°F	C						
Ar04	4	°F	C						
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						
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	C						
Ar21	3	--	C						
Ar22	3	--	C						
Ar23	0	--	C						
Ar24	0	--	S						
Ar25	0	--	C						
Ar26	37	°F	C						
Ar27	4	°F	C						
dF01	0	--	C						
dF02	68	Psi	C						
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	10	Min	C						
dF10	37	°F	C						
dF11	50	°F	C						
dF12	37	°F	C						
dF13	50	°F	C						
dF14	1	--	C						
dF15	1	--	C						
dF16	30	Sec	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
dF17	1	--	C						
dF18	329	Psi	C						
dF19	10	Sec	C						
dF20	44	Psi	C						
dF21	7	Psi	C						
dF22	2	--	C						
dF23	1	--	C						
dF24	0	--	C						
dF25	0	--	C						
dF26	47	°F	C						
dF27	32	°F	C						
dF28	32	°F	C						
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	C						
dF38	41	°F	C						
dF39	27	°F	C						
rC01	0	--	C						
rC02	5	Sec	C						
rC03	5	Sec	C						
rC04	1	Min	C						
rC05	1	Min	C						
rC06	505	Psi	C						
rC07	36	Psi	C						
rC08	2	Min	C						
rC09	1	--	C						
FS01	0	--	C						
FS02	0	--	C						
FS03	68	°F	C						
FS04	1	°F	C						
FS05	32	°F	C						
FS06	158	°F	C						
FS07	0	--	C						
FS08	0	--	C						
FS09	0	Min	C						
FS10	0	Sec	C						
FS11	0	Sec	C						
FS12	0	--	C						
FS13	0	Hours	C						
FS14	50	°F	C						
FS15	50	°F	C						
FS16	158	°F	C						
FS17	0	Time	C						
FS18	0	--	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
FS19	1	Min	C						
FS20	1	°F	C						
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						
FS33	0	--	C						
FS34	0	Min	C						
FS35	0	Sec	C						
FS36	0	Min	C						
FS37	32	°F	C						
FS38	1	°F	C						
FS39	0	%	C						
FS40	100	%	C						
FS41	0	--	C						
FS42	0	--	C						
FS43	32	°F	C						
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						
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	C						
FS62	0	--	C						
FS63	32	°F	C						
FS64	1	°F	C						
AL01	45	Sec	S						
AL02	2	10 Sec	C						
AL03	8.7	Psi	C						
AL04	14.5	Psi	C						
AL05	3	--	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
AL06	0	--	C						
AL07	0	Sec	C						
AL08	0	--	S						
AL09	577	Psi	C						
AL10	87	Psi	C						
AL11	120	Sec	C						
AL12	5	Sec	C						
AL13	3	--	C						
AL14	0	--	C						
AL15	10	Sec	C						
AL16	0	Sec	C						
AL17	5	Sec	C						
AL18	5	Sec	C						
AL19	0	Sec	C						
AL20	0	--	C						
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	C						
AL29	3	--	C						
AL30	1	--	C						
AL31	37	°F	C						
AL32	43	°F	C						
AL33	39	°F	C						
AL34	4	°F	C						
AL35	3	Sec	C						
AL36	3	Sec	C						
AL37	3	--	C						
AL38	1	--	C						
AL39	158	°F	C						
AL40	18	°F	C						
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						
AL53	0	10 Sec	C						
AL54	0	--	C						
AL55	0	Sec	C						
AL56	0	Sec	C						
AL57	0	Sec	C						

TAEevo Tech 381÷401 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	ON/OFF	EC
AL58	0	Sec	C						
AL59	0	--	C						
AL60	0	10 Sec	C						
AL61	230	°F	C						
AL62	7	°F	C						
AL63	0	--	C						
AL64	30	Sec	C						
AL65	0	Sec	C						
AL66	0	Sec	C						
AL67	0	Sec	C						
AL68	0	Sec	C						
AL69	0	Sec	C						
AL70	0	Sec	C						
AL71	0	Sec	C						
AL72	0	Sec	C						
AL73	0	--	C						
AL74	0	--	C						
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	C						
LS06	0	--	C						
LS07	0	--	C						
LS08	5	--	C						
LS09	1	°F	C						
LS10	100	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	C						
LS17	0	°F	C						
Pr1	23	--	U						
Pr2	32	--	S						
Pr3	69	--	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
ST01	45	°F	U						
ST02	41	°F	U						
ST03	86	°F	C						
ST04	113	°F	C						
ST05	68	°F	C						
ST06	122	°F	C						
ST07	4	°F	U						
ST08	4	°F	C						
ST09	3	--	C						
ST10	3	--	C						
ST11	1	--	S						
dP01	3	--	S						
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						
CF01	1	--	C						
CF02	1	--	C						
CF03	0	--	C						
CF04	2	--	C						
CF05	2	--	C						
CF06	0	--	C						
CF07	1	--	C						
CF08	11	--	C						
CF09	9	--	C						
CF10	27	--	C						
CF11	28	--	C						
CF12	10	--	C						
CF13	19	--	C						
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	C						
CF25	725	Psi	C						
CF26	0	Psi	C						
CF27	725	Psi	C						
CF28	0	Psi	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
CF29	0	Psi	C						
CF30	o7	--	C						
CF31	o8	--	C						
CF32	o9	--	C						
CF33	o10	--	C						
CF34	o3	--	C						
CF35	o1	--	C						
CF36	o26	--	C						
CF37		--	C	0	0	0	o27		
CF38	o23	--	C						
CF39	o43	--	C						
CF40	0	--	C						
CF41	c51	--	C						
CF42	c57	--	C						
CF43	c63	--	C						
CF44	c69	--	C						
CF45	o1	--	C						
CF46	0	--	C						
CF47	c2	--	C						
CF48		--	C	0	0	0	c3		
CF49	0	--	C						
CF50		--	C					c10	8
CF51		--	C					c11	0
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	1	--	C						
CF63	1	--	S						
CF64	1	--	U						
CF65	not used	--	C						
CF66	not used	--	C						
CF67	0	--	C						
CF68	0	--	C						
CF69	0	--	C						
CF70	0	--	C						
CF71	0	--	C						
CF72	0	--	C						
CF73	0	--	C						
CF74	0	--	C						
CF75	0	--	C						
CF76	1	--	C						
CF77	1	--	C						
CF78	0	--	C						
CF79	0	--	C						
CF80	0	--	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
CF81	0	--	C						
CF82	0	--	C						
CF83	0	Sec	C						
CF84	1	--	C						
EI01	1	--	C						
EI02	0	--	C						
EI03	0	--	C						
EI04	0	--	C						
EI05	0	--	C						
EI06	0	--	C						
EI07	0	--	C						
EI08	0	--	C						
EI09	0	--	C						
EI10	0	°F	C						
EI11	0	°F	C						
EI12	0	Psi	C						
EI13	0	Psi	C						
EI14	0	°F	C						
EI15	0	°F	C						
EI16	0	°F	C						
EI17	0	°F	C						
EI18	0	Psi	C						
EI19	0	Psi	C						
EI20	0	Psi	C						
EI21	0	Psi	C						
EI22	0	Psi	C						
EI23	0	Psi	C						
EI24	0		C						
EI25	0	--	C						
EI26	0	--	C						
EI27	0	--	C						
EI28	0	--	C						
EI29	0	--	C						
EI30	0	--	C						
EI31	0	--	C						
EI32	0	--	C						
EI33	0	--	C						
EI34	0	--	C						
EI35	0	--	C						
EI36	0	--	C						
EI37	0	--	C						
EI38	0	--	C						
EI39	0	--	C						
EI40	0	--	C						
EI41	0	--	C						
EI42	0	--	C						
EI43	0	--	C						
Sd01	0	°F	U						
Sd02	0	°F	C						
Sd03	39	°F	U						
Sd04	0	°F	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
Sd05	54	°F	U						
Sd06	0	°F	C						
Sd07	0	°F	C						
Sd08	0	°F	C						
Sd09	0	°F	C						
Sd10	0	°F	C						
Sd11	0	°F	C						
Sd12	0	°F	C						
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						
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						
Sd27	32	°F	C						
Sd28	32	°F	C						
Sd29	0	°F	C						
Sd30	0	°F	C						
ES01	0	Time	C						
ES02	0	Time	C						
ES03	0	Time	C						
ES04	0	Time	C						
ES05	0	Time	C						
ES06	0	Time	C						
ES07	0-0	--	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	C						
ES15	5	°F	C						
ES16	27	°F	C						
ES17	2	°F	C						
ES18	1	10 Min	C						
ES19	0	Time	C						
ES20	0	Time	C						
ES21	0	Time	C						
ES22	0	Time	C						
ES23	0	Time	C						
ES24	0	Time	C						
ES25	0	--	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
ES26	0	--	C						
ES27	0	--	C						
ES28	0	--	C						
ES29	0	--	C						
ES30	0	--	C						
ES31	0	--	C						
ES32	0	°F	C						
ES33	1	°F	C						
Cr01	0	--	C						
Cr02	0	Psi	C						
Cr03	0	Psi	C						
Cr04	0	Psi	C						
Cr05	1	Psi	C						
Cr06	0	Psi	C						
Cr07	1	Psi	C						
Cr08	0	--	C						
Cr09	0	--	C						
CO01	14	10 Sec	C						
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						
CO11	0	0.1 Sec	C						
CO12	5	Sec	C						
CO13	0	Sec	C						
CO14	2	--	S						
CO15	1	--	S						
CO16	1	--	S						
CO17	6	10 Sec	S						
CO18	2	Min	S						
CO19	4	10 Hours	U						
CO20	2	Sec	S						
CO21	0	--	C						
CO22	0	--	C						
CO23	0	Min	C						
CO24	0	10 Hours	C						
CO25	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	C						
CO32	0	10 Hours	S						
CO33	0	10 Hours	S						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
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						
CO41	18	°F	C						
CO42	1	10 Sec	C						
CO43	5	Min	C						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	C						
CO47	22	Psi	C						
CO48	5	Min	S						
CO49	1	--	C						
CO50	0	Sec	C						
CO51	32	°F	C						
CO52	1	°F	C						
CO53	3	10 Min	S						
CO54	0	Hours	C						
CO55	-58	°F	C						
CO56	1	°F	C						
CO57	0	Min	C						
CO58	0	Sec	C						
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						
CO66	0	Hours	C						
CO67	1	%	C						
CO68	1	%	C						
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	4	--	C						
CO77	4	--	C						
CO78	4	--	C						
CO79	1	%	C						
CO80	1	%	C						
CO81	1	%	C						
CO82	32	°F	C						
CO83	1	°F	C						
CO84	0	%	C						
CO85	0	10 Min	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
CO86	0	10 Hours	C						
CO87	0	10 Sec	C						
CO88	0	10 Min	C						
CO89	0	10 Hours	C						
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	C						
CO96	1	%	C						
uS01	0	--	C						
uS02	1	--	C						
uS03	32	°F	C						
uS04	32	°F	C						
uS05	32	°F	C						
uS06	32	°F	C						
uS07	32	°F	C						
uS08	32	°F	C						
uS09	1	°F	C						
uS10	1	°F	C						
uS11	0	--	C						
uS12	1	--	C						
uS13	32	°F	C						
uS14	32	°F	C						
uS15	32	°F	C						
uS16	32	°F	C						
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						
uS27	32	°F	C						
uS28	32	°F	C						
uS29	32	°F	C						
uS30	1	°F	C						
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						
uS39	32	°F	C						
uS40	32	°F	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
uS41	32	°F	C						
uS42	1	°F	C						
uS43	1	°F	C						
uS44	0	%	C						
uS45	100	%	C						
uS46	1	--	C						
uS47	0	--	C						
uS48	0	--	C						
uS49	32	°F	C						
uS50	1	°F	C						
uS51	0	%	C						
uS52	100	%	C						
uS53	0	--	C						
uS54	0	--	C						
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	1	--	C						
uS64	1	--	C						
FA01		--	C					3	4
FA02	0	--	C						
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					357	273
FA10	406	Psi	C						
FA11		Psi	C					90	109
FA12	7	Psi	C						
FA13	15	Psi	C						
FA14	0	Sec	C						
FA15		%	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	%	C						
FA24	77	°F	C						
FA25	9	°F	C						
FA26	0	Psi	C						
FA27	0	Psi	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
FA28	0	Psi	C						
FA29	0	Psi	C						
FA30	0	Sec	C						
FA31	0	Sec	C						
FA32	32	°F	C						
FA33	0	%	C						
Ar01	37	°F	S						
Ar02	4	°F	S						
Ar03	37	°F	C						
Ar04	4	°F	C						
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						
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	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						
dF01	0	--	C						
dF02	68	Psi	C						
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	10	Min	C						
dF10	37	°F	C						
dF11	50	°F	C						
dF12	37	°F	C						
dF13	50	°F	C						
dF14	1	--	C						
dF15	1	--	C						
dF16	30	Sec	C						
dF17	1	--	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
dF18	329	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						
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	C						
dF38	41	°F	C						
dF39	27	°F	C						
rC01	0	--	C						
rC02	5	Sec	C						
rC03	5	Sec	C						
rC04	1	Min	C						
rC05	1	Min	C						
rC06	505	Psi	C						
rC07	36	Psi	C						
rC08	2	Min	C						
rC09	1	--	C						
FS01	0	--	C						
FS02	0	--	C						
FS03	68	°F	C						
FS04	1	°F	C						
FS05	32	°F	C						
FS06	158	°F	C						
FS07	0	--	C						
FS08	0	--	C						
FS09	0	Min	C						
FS10	0	Sec	C						
FS11	0	Sec	C						
FS12	0	--	C						
FS13	0	Hours	C						
FS14	50	°F	C						
FS15	50	°F	C						
FS16	158	°F	C						
FS17	0	Time	C						
FS18	0	--	C						
FS19	1	Min	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
FS20	1	°F	C						
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						
FS33	0	--	C						
FS34	0	Min	C						
FS35	0	Sec	C						
FS36	0	Min	C						
FS37	32	°F	C						
FS38	1	°F	C						
FS39	0	%	C						
FS40	100	%	C						
FS41	0	--	C						
FS42	0	--	C						
FS43	32	°F	C						
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						
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	C						
FS62	0	--	C						
FS63	32	°F	C						
FS64	1	°F	C						
AL01	45	Sec	S						
AL02	2	10 Sec	C						
AL03	8.7	Psi	C						
AL04	14.5	Psi	C						
AL05	3	--	C						
AL06	0	--	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
AL07	0	Sec	C						
AL08	0	--	S						
AL09	577	Psi	C						
AL10	87	Psi	C						
AL11	120	Sec	C						
AL12	5	Sec	C						
AL13	3	--	C						
AL14	0	--	C						
AL15	10	Sec	C						
AL16	0	Sec	C						
AL17	5	Sec	C						
AL18	5	Sec	C						
AL19	0	Sec	C						
AL20	0	--	C						
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	C						
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	C						
AL36	3	Sec	C						
AL37	3	--	C						
AL38	1	--	C						
AL39	158	°F	C						
AL40	18	°F	C						
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						
AL53	0	10 Sec	C						
AL54	0	--	C						
AL55	0	Sec	C						
AL56	0	Sec	C						
AL57	0	Sec	C						
AL58	0	Sec	C						

TAEevo Tech 402÷602 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
AL59	0	--	C						
AL60	0	10 Sec	C						
AL61	230	°F	C						
AL62	7	°F	C						
AL63	0	--	C						
AL64	30	Sec	C						
AL65	0	Sec	C						
AL66	0	Sec	C						
AL67	0	Sec	C						
AL68	0	Sec	C						
AL69	0	Sec	C						
AL70	0	Sec	C						
AL71	0	Sec	C						
AL72	0	Sec	C						
AL73	0	--	C						
AL74	0	--	C						
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	C						
LS06	0	--	C						
LS07	0	--	C						
LS08	5	--	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	C						
LS17	0	°F	C						
Pr1	23	--	U						
Pr2	32	--	S						
Pr3	69	--	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
ST01	45	°F	U						
ST02	41	°F	U						
ST03	86	°F	C						
ST04	113	°F	C						
ST05	68	°F	C						
ST06	122	°F	C						
ST07	4	°F	U						
ST08	4	°F	C						
ST09	3	--	C						
ST10	3	--	C						
ST11	1	--	S						
dP01	3	--	S						
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						
CF01	1	--	C						
CF02	1	--	C						
CF03	0	--	C						
CF04	2	--	C						
CF05	2	--	C						
CF06	0	--	C						
CF07	1	--	C						
CF08	11	--	C						
CF09	9	--	C						
CF10	27	--	C						
CF11	28	--	C						
CF12	10	--	C						
CF13	19	--	C						
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	C						
CF25	725	Psi	C						
CF26	0	Psi	C						
CF27	725	Psi	C						
CF28	0	Psi	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
CF29	0	Psi	C						
CF30	o7	--	C						
CF31	o8	--	C						
CF32	o9	--	C						
CF33	o10	--	C						
CF34	o3	--	C						
CF35	o1	--	C						
CF36	o26	--	C						
CF37		--	C	0	0	0	o27		
CF38	o23	--	C						
CF39	o43	--	C						
CF40	0	--	C						
CF41	c51	--	C						
CF42	c57	--	C						
CF43	c63	--	C						
CF44	c69	--	C						
CF45	o1	--	C						
CF46	0	--	C						
CF47	c2	--	C						
CF48		--	C	0	0	0	c3		
CF49	0	--	C						
CF50		--	C					c10	8
CF51		--	C					c11	8
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	1	--	C						
CF63	1	--	S						
CF64	1	--	U						
CF65	not used	--	C						
CF66	not used	--	C						
CF67	0	--	C						
CF68	0	--	C						
CF69	0	--	C						
CF70	0	--	C						
CF71	0	--	C						
CF72	0	--	C						
CF73	0	--	C						
CF74	0	--	C						
CF75	0	--	C						
CF76	1	--	C						
CF77	1	--	C						
CF78	0	--	C						
CF79	0	--	C						
CF80	0	--	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
CF81	0	--	C						
CF82	0	--	C						
CF83	0	Sec	C						
CF84	1	--	C						
EI01	1	--	C						
EI02	0	--	C						
EI03	0	--	C						
EI04	0	--	C						
EI05	0	--	C						
EI06	0	--	C						
EI07	0	--	C						
EI08	0	--	C						
EI09	0	--	C						
EI10	0	°F	C						
EI11	0	°F	C						
EI12	0	Psi	C						
EI13	0	Psi	C						
EI14	0	°F	C						
EI15	0	°F	C						
EI16	0	°F	C						
EI17	0	°F	C						
EI18	0	Psi	C						
EI19	0	Psi	C						
EI20	0	Psi	C						
EI21	0	Psi	C						
EI22	0	Psi	C						
EI23	0	Psi	C						
EI24	0		C						
EI25	0	--	C						
EI26	0	--	C						
EI27	0	--	C						
EI28	0	--	C						
EI29	0	--	C						
EI30	0	--	C						
EI31	0	--	C						
EI32	0	--	C						
EI33	0	--	C						
EI34	0	--	C						
EI35	0	--	C						
EI36	0	--	C						
EI37	0	--	C						
EI38	0	--	C						
EI39	0	--	C						
EI40	0	--	C						
EI41	0	--	C						
EI42	0	--	C						
EI43	0	--	C						
Sd01	0	°F	U						
Sd02	0	°F	C						
Sd03	39	°F	U						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
Sd04	0	°F	C						
Sd05	54	°F	U						
Sd06	0	°F	C						
Sd07	0	°F	C						
Sd08	0	°F	C						
Sd09	0	°F	C						
Sd10	0	°F	C						
Sd11	0	°F	C						
Sd12	0	°F	C						
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						
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						
Sd27	32	°F	C						
Sd28	32	°F	C						
Sd29	0	°F	C						
Sd30	0	°F	C						
ES01	0	Time	C						
ES02	0	Time	C						
ES03	0	Time	C						
ES04	0	Time	C						
ES05	0	Time	C						
ES06	0	Time	C						
ES07	0-0	--	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	C						
ES15	5	°F	C						
ES16	27	°F	C						
ES17	2	°F	C						
ES18	1	10 Min	C						
ES19	0	Time	C						
ES20	0	Time	C						
ES21	0	Time	C						
ES22	0	Time	C						
ES23	0	Time	C						
ES24	0	Time	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
ES25	0	--	C						
ES26	0	--	C						
ES27	0	--	C						
ES28	0	--	C						
ES29	0	--	C						
ES30	0	--	C						
ES31	0	--	C						
ES32	0	°F	C						
ES33	1	°F	C						
Cr01	0	--	C						
Cr02	0	Psi	C						
Cr03	0	Psi	C						
Cr04	0	Psi	C						
Cr05	1	Psi	C						
Cr06	0	Psi	C						
Cr07	1	Psi	C						
Cr08	0	--	C						
Cr09	0	--	C						
CO01	14	10 Sec	C						
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						
CO11	0	0.1 Sec	C						
CO12	5	Sec	C						
CO13	0	Sec	C						
CO14	2	--	S						
CO15	1	--	S						
CO16	1	--	S						
CO17	6	10 Sec	S						
CO18	2	Min	S						
CO19	4	10 Hours	U						
CO20	2	Sec	S						
CO21	0	--	C						
CO22	0	--	C						
CO23	0	Min	C						
CO24	0	10 Hours	C						
CO25	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	C						
CO32	0	10 Hours	S						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
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						
CO41	18	°F	C						
CO42	1	10 Sec	C						
CO43	5	Min	C						
CO44	566	Psi	S						
CO45	30	Psi	S						
CO46	29	Psi	C						
CO47	22	Psi	C						
CO48	5	Min	S						
CO49	1	--	C						
CO50	0	Sec	C						
CO51	32	°F	C						
CO52	1	°F	C						
CO53	3	10 Min	S						
CO54	0	Hours	C						
CO55	-58	°F	C						
CO56	1	°F	C						
CO57	0	Min	C						
CO58	0	Sec	C						
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						
CO66	0	Hours	C						
CO67	1	%	C						
CO68	1	%	C						
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	4	--	C						
CO77	4	--	C						
CO78	4	--	C						
CO79	1	%	C						
CO80	1	%	C						
CO81	1	%	C						
CO82	32	°F	C						
CO83	1	°F	C						
CO84	0	%	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	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	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						
uS01	0	--	C						
uS02	1	--	C						
uS03	32	°F	C						
uS04	32	°F	C						
uS05	32	°F	C						
uS06	32	°F	C						
uS07	32	°F	C						
uS08	32	°F	C						
uS09	1	°F	C						
uS10	1	°F	C						
uS11	0	--	C						
uS12	1	--	C						
uS13	32	°F	C						
uS14	32	°F	C						
uS15	32	°F	C						
uS16	32	°F	C						
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						
uS27	32	°F	C						
uS28	32	°F	C						
uS29	32	°F	C						
uS30	1	°F	C						
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						
uS39	32	°F	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
uS40	32	°F	C						
uS41	32	°F	C						
uS42	1	°F	C						
uS43	1	°F	C						
uS44	0	%	C						
uS45	100	%	C						
uS46	1	--	C						
uS47	0	--	C						
uS48	0	--	C						
uS49	32	°F	C						
uS50	1	°F	C						
uS51	0	%	C						
uS52	100	%	C						
uS53	0	--	C						
uS54	0	--	C						
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	1	--	C						
uS64	1	--	C						
FA01		--	C					3	4
FA02	0	--	C						
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					357	273
FA10	406	Psi	C						
FA11		Psi	C					90	109
FA12	7	Psi	C						
FA13	15	Psi	C						
FA14	0	Sec	C						
FA15		%	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	%	C						
FA24	77	°F	C						
FA25	9	°F	C						
FA26	0	Psi	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
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						
Ar01	37	°F	S						
Ar02	4	°F	S						
Ar03	37	°F	C						
Ar04	4	°F	C						
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						
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	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						
dF01	0	--	C						
dF02	68	Psi	C						
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	10	Min	C						
dF10	37	°F	C						
dF11	50	°F	C						
dF12	37	°F	C						
dF13	50	°F	C						
dF14	1	--	C						
dF15	1	--	C						
dF16	30	Sec	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
dF17	1	--	C						
dF18	329	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						
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	C						
dF38	41	°F	C						
dF39	27	°F	C						
rC01	0	--	C						
rC02	5	Sec	C						
rC03	5	Sec	C						
rC04	1	Min	C						
rC05	1	Min	C						
rC06	505	Psi	C						
rC07	36	Psi	C						
rC08	2	Min	C						
rC09	1	--	C						
FS01	0	--	C						
FS02	0	--	C						
FS03	68	°F	C						
FS04	1	°F	C						
FS05	32	°F	C						
FS06	158	°F	C						
FS07	0	--	C						
FS08	0	--	C						
FS09	0	Min	C						
FS10	0	Sec	C						
FS11	0	Sec	C						
FS12	0	--	C						
FS13	0	Hours	C						
FS14	50	°F	C						
FS15	50	°F	C						
FS16	158	°F	C						
FS17	0	Time	C						
FS18	0	--	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
FS19	1	Min	C						
FS20	1	°F	C						
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						
FS33	0	--	C						
FS34	0	Min	C						
FS35	0	Sec	C						
FS36	0	Min	C						
FS37	32	°F	C						
FS38	1	°F	C						
FS39	0	%	C						
FS40	100	%	C						
FS41	0	--	C						
FS42	0	--	C						
FS43	32	°F	C						
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						
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	C						
FS62	0	--	C						
FS63	32	°F	C						
FS64	1	°F	C						
AL01	45	Sec	S						
AL02	2	10 Sec	C						
AL03	8.7	Psi	C						
AL04	14.5	Psi	C						
AL05	3	--	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
AL06	0	--	C						
AL07	0	Sec	C						
AL08	0	--	S						
AL09	577	Psi	C						
AL10	87	Psi	C						
AL11	120	Sec	C						
AL12	5	Sec	C						
AL13	3	--	C						
AL14	0	--	C						
AL15	10	Sec	C						
AL16	0	Sec	C						
AL17	5	Sec	C						
AL18	5	Sec	C						
AL19	0	Sec	C						
AL20	0	--	C						
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	C						
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	C						
AL36	3	Sec	C						
AL37	3	--	C						
AL38	1	--	C						
AL39	158	°F	C						
AL40	18	°F	C						
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						
AL53	0	10 Sec	C						
AL54	0	--	C						
AL55	0	Sec	C						
AL56	0	Sec	C						
AL57	0	Sec	C						

TAEevo Tech 702÷802 UL									
Parameter	Value	UM	Level	Hydraulic group				Fans control	
				SP	P3	P5	P3+P3	Step	EC
AL58	0	Sec	C						
AL59	0	--	C						
AL60	0	10 Sec	C						
AL61	230	°F	C						
AL62	7	°F	C						
AL63	0	--	C						
AL64	30	Sec	C						
AL65	0	Sec	C						
AL66	0	Sec	C						
AL67	0	Sec	C						
AL68	0	Sec	C						
AL69	0	Sec	C						
AL70	0	Sec	C						
AL71	0	Sec	C						
AL72	0	Sec	C						
AL73	0	--	C						
AL74	0	--	C						
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	C						
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						
LS15	1	Sec	C						
LS16	0	°F	C						
LS17	0	°F	C						
Pr1	23	--	U						
Pr2	32	--	S						
Pr3	69	--	C						

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
ST01	45	°F	U		
ST02	41	°F	U		
ST03	86	°F	C		
ST04	113	°F	C		
ST05	68	°F	C		
ST06	122	°F	C		
ST07	4	°F	U		
ST08	4	°F	C		
ST09	3	--	C		
ST10	3	--	C		
ST11	1	--	S		
dP01	3	--	S		
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		
CF01	1	--	C		
CF02	1	--	C		
CF03	0	--	C		
CF04	2	--	C		
CF05	2	--	C		
CF06	0	--	C		
CF07	1	--	C		
CF08	11	--	C		
CF09	9	--	C		
CF10	27	--	C		
CF11	28	--	C		
CF12	10	--	C		
CF13	19	--	C		
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	C		
CF25	725	Psi	C		
CF26	0	Psi	C		
CF27	725	Psi	C		
CF28	0	Psi	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
CF29	0	Psi	C		
CF30	o7	--	C		
CF31	o8	--	C		
CF32	o9	--	C		
CF33	o10	--	C		
CF34	o3	--	C		
CF35	o1	--	C		
CF36	o26	--	C		
CF37	0	--	C		
CF38	o23	--	C		
CF39	o43	--	C		
CF40	o24	--	C		
CF41	c51	--	C		
CF42	c57	--	C		
CF43	c63	--	C		
CF44	c69	--	C		
CF45	o1	--	C		
CF46	0	--	C		
CF47	c2	--	C		
CF48	0	--	C		
CF49	0	--	C		
CF50		--	C	c10	8
CF51		--	C	c11	8
CF52		--	C	c14	9
CF53			C	c15	9
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	1	--	C		
CF63	1	--	S		
CF64	1	--	U		
CF65	not used	--	C		
CF66	not used	--	C		
CF67	0	--	C		
CF68	0	--	C		
CF69	0	--	C		
CF70	0	--	C		
CF71	0	--	C		
CF72	0	--	C		
CF73	0	--	C		
CF74	0	--	C		
CF75	0	--	C		
CF76	1	--	C		
CF77	1	--	C		
CF78	0	--	C		
CF79	0	--	C		
CF80	0	--	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
CF81	0	--	C		
CF82	0	--	C		
CF83	0	Sec	C		
CF84	1	--	C		
EI01	1	--	C		
EI02	0	--	C		
EI03	0	--	C		
EI04	0	--	C		
EI05	0	--	C		
EI06	0	--	C		
EI07	0	--	C		
EI08	0	--	C		
EI09	0	--	C		
EI10	0	°F	C		
EI11	0	°F	C		
EI12	0	Psi	C		
EI13	0	Psi	C		
EI14	0	°F	C		
EI15	0	°F	C		
EI16	0	°F	C		
EI17	0	°F	C		
EI18	0	Psi	C		
EI19	0	Psi	C		
EI20	0	Psi	C		
EI21	0	Psi	C		
EI22	0	Psi	C		
EI23	0	Psi	C		
EI24	0		C		
EI25	0	--	C		
EI26	0	--	C		
EI27	0	--	C		
EI28	0	--	C		
EI29	0	--	C		
EI30	0	--	C		
EI31	0	--	C		
EI32	0	--	C		
EI33	0	--	C		
EI34	0	--	C		
EI35	0	--	C		
EI36	0	--	C		
EI37	0	--	C		
EI38	0	--	C		
EI39	0	--	C		
EI40	0	--	C		
EI41	0	--	C		
EI42	0	--	C		
EI43	0	--	C		
Sd01	0	°F	U		
Sd02	0	°F	C		
Sd03	39	°F	U		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
Sd04	0	°F	C		
Sd05	54	°F	U		
Sd06	0	°F	C		
Sd07	0	°F	C		
Sd08	0	°F	C		
Sd09	0	°F	C		
Sd10	0	°F	C		
Sd11	0	°F	C		
Sd12	0	°F	C		
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		
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		
Sd27	32	°F	C		
Sd28	32	°F	C		
Sd29	0	°F	C		
Sd30	0	°F	C		
ES01	0	Time	C		
ES02	0	Time	C		
ES03	0	Time	C		
ES04	0	Time	C		
ES05	0	Time	C		
ES06	0	Time	C		
ES07	0-0	--	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	C		
ES15	5	°F	C		
ES16	27	°F	C		
ES17	2	°F	C		
ES18	1	10 Min	C		
ES19	0	Time	C		
ES20	0	Time	C		
ES21	0	Time	C		
ES22	0	Time	C		
ES23	0	Time	C		
ES24	0	Time	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
ES25	0	--	C		
ES26	0	--	C		
ES27	0	--	C		
ES28	0	--	C		
ES29	0	--	C		
ES30	0	--	C		
ES31	0	--	C		
ES32	0	°F	C		
ES33	1	°F	C		
Cr01	0	--	C		
Cr02	0	Psi	C		
Cr03	0	Psi	C		
Cr04	0	Psi	C		
Cr05	1	Psi	C		
Cr06	0	Psi	C		
Cr07	1	Psi	C		
Cr08	0	--	C		
Cr09	0	--	C		
CO01	14	10 Sec	C		
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		
CO11	0	0.1 Sec	C		
CO12	5	Sec	C		
CO13	0	Sec	C		
CO14	2	--	S		
CO15	1	--	S		
CO16	1	--	S		
CO17	6	10 Sec	S		
CO18	2	Min	S		
CO19	4	10 Hours	U		
CO20	2	Sec	S		
CO21	0	--	C		
CO22	0	--	C		
CO23	0	Min	C		
CO24	0	10 Hours	C		
CO25	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	C		
CO32	0	10 Hours	S		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
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		
CO41	18	°F	C		
CO42	1	10 Sec	C		
CO43	5	Min	C		
CO44	566	Psi	S		
CO45	30	Psi	S		
CO46	29	Psi	C		
CO47	22	Psi	C		
CO48	5	Min	S		
CO49	1	--	C		
CO50	0	Sec	C		
CO51	32	°F	C		
CO52	1	°F	C		
CO53	3	10 Min	S		
CO54	0	Hours	C		
CO55	-58	°F	C		
CO56	1	°F	C		
CO57	0	Min	C		
CO58	0	Sec	C		
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		
CO66	0	Hours	C		
CO67	1	%	C		
CO68	1	%	C		
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	4	--	C		
CO77	4	--	C		
CO78	4	--	C		
CO79	1	%	C		
CO80	1	%	C		
CO81	1	%	C		
CO82	32	°F	C		
CO83	1	°F	C		
CO84	0	%	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				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	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		
uS01	0	--	C		
uS02	1	--	C		
uS03	32	°F	C		
uS04	32	°F	C		
uS05	32	°F	C		
uS06	32	°F	C		
uS07	32	°F	C		
uS08	32	°F	C		
uS09	1	°F	C		
uS10	1	°F	C		
uS11	0	--	C		
uS12	1	--	C		
uS13	32	°F	C		
uS14	32	°F	C		
uS15	32	°F	C		
uS16	32	°F	C		
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		
uS27	32	°F	C		
uS28	32	°F	C		
uS29	32	°F	C		
uS30	1	°F	C		
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		
uS39	32	°F	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
uS40	32	°F	C		
uS41	32	°F	C		
uS42	1	°F	C		
uS43	1	°F	C		
uS44	0	%	C		
uS45	100	%	C		
uS46	1	--	C		
uS47	0	--	C		
uS48	0	--	C		
uS49	32	°F	C		
uS50	1	°F	C		
uS51	0	%	C		
uS52	100	%	C		
uS53	0	--	C		
uS54	0	--	C		
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	1	--	C		
uS64	1	--	C		
FA01		--	C	3	4
FA02	0	--	C		
FA03	10	sec	C		
FA04	4	250 µsec	C		
FA05	1	--	C		
FA06	0	Sec	C		
FA07	10	%	C		
FA08	100	%	C		
FA09		Psi	C	357	273
FA10	406	Psi	C		
FA11		Psi	C	90	109
FA12		Psi	C	90	7
FA13	15	Psi	C		
FA14	0	Sec	C		
FA15	100	%	C		
FA16	10	%	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	%	C		
FA24	77	°F	C		
FA25	9	°F	C		
FA26	0	Psi	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
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		
Ar01	37	°F	S		
Ar02	4	°F	S		
Ar03	37	°F	C		
Ar04	4	°F	C		
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		
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	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		
dF01	0	--	C		
dF02	68	Psi	C		
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	10	Min	C		
dF10	37	°F	C		
dF11	50	°F	C		
dF12	37	°F	C		
dF13	50	°F	C		
dF14	1	--	C		
dF15	1	--	C		
dF16	30	Sec	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
dF17	1	--	C		
dF18	329	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		
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	C		
dF38	41	°F	C		
dF39	27	°F	C		
rC01	0	--	C		
rC02	5	Sec	C		
rC03	5	Sec	C		
rC04	1	Min	C		
rC05	1	Min	C		
rC06	505	Psi	C		
rC07	36	Psi	C		
rC08	2	Min	C		
rC09	1	--	C		
FS01	0	--	C		
FS02	0	--	C		
FS03	68	°F	C		
FS04	1	°F	C		
FS05	32	°F	C		
FS06	158	°F	C		
FS07	0	--	C		
FS08	0	--	C		
FS09	0	Min	C		
FS10	0	Sec	C		
FS11	0	Sec	C		
FS12	0	--	C		
FS13	0	Hours	C		
FS14	50	°F	C		
FS15	50	°F	C		
FS16	158	°F	C		
FS17	0	Time	C		
FS18	0	--	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
FS19	1	Min	C		
FS20	1	°F	C		
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		
FS33	0	--	C		
FS34	0	Min	C		
FS35	0	Sec	C		
FS36	0	Min	C		
FS37	32	°F	C		
FS38	1	°F	C		
FS39	0	%	C		
FS40	100	%	C		
FS41	0	--	C		
FS42	0	--	C		
FS43	32	°F	C		
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		
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	C		
FS62	0	--	C		
FS63	32	°F	C		
FS64	1	°F	C		
AL01	45	Sec	S		
AL02	2	10 Sec	C		
AL03	9	Psi	C		
AL04	14	Psi	C		
AL05	3	--	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
AL06	0	--	C		
AL07	0	Sec	C		
AL08	0	--	S		
AL09	577	Psi	C		
AL10	87	Psi	C		
AL11	120	Sec	C		
AL12	5	Sec	C		
AL13	3	--	C		
AL14	0	--	C		
AL15	10	Sec	C		
AL16	0	Sec	C		
AL17	5	Sec	C		
AL18	5	Sec	C		
AL19	0	Sec	C		
AL20	0	--	C		
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	C		
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	C		
AL36	3	Sec	C		
AL37	3	--	C		
AL38	1	--	C		
AL39	158	°F	C		
AL40	18	°F	C		
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		
AL53	0	10 Sec	C		
AL54	0	--	C		
AL55	0	Sec	C		
AL56	0	Sec	C		
AL57	0	Sec	C		

TAEevo Tech 902÷1002 UL					
Parameter	Value	UM	Level	Fans control	
				Step	EC
AL58	0	Sec	C		
AL59	0	--	C		
AL60	0	10 Sec	C		
AL61	230	°F	C		
AL62	7	°F	C		
AL63	0	--	C		
AL64	30	Sec	C		
AL65	0	Sec	C		
AL66	0	Sec	C		
AL67	0	Sec	C		
AL68	0	Sec	C		
AL69	0	Sec	C		
AL70	0	Sec	C		
AL71	0	Sec	C		
AL72	0	Sec	C		
AL73	0	--	C		
AL74	0	--	C		
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	C		
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		
LS15	1	Sec	C		
LS16	0	°F	C		
LS17	0	°F	C		
Pr1	23	--	U		
Pr2	32	--	S		
Pr3	69	--	C		

7.41.3 Parameters dependent on remote terminal kit

Parameter	UM	Level	Remote terminal kit	
			No	Yes
CF54	--	U	0	2

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:

Pressure switch	Refrigerant gases	TRIP		RESET	
		PSI	°F	PSI	°F
HP	R410A	594.6	148.5	478.6	131
LP		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 gases	TRIP		RESET	
		PSI	°F	PSI	°F
Axial Fans **FP**	R410A	391.6	115	304.5	97

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;

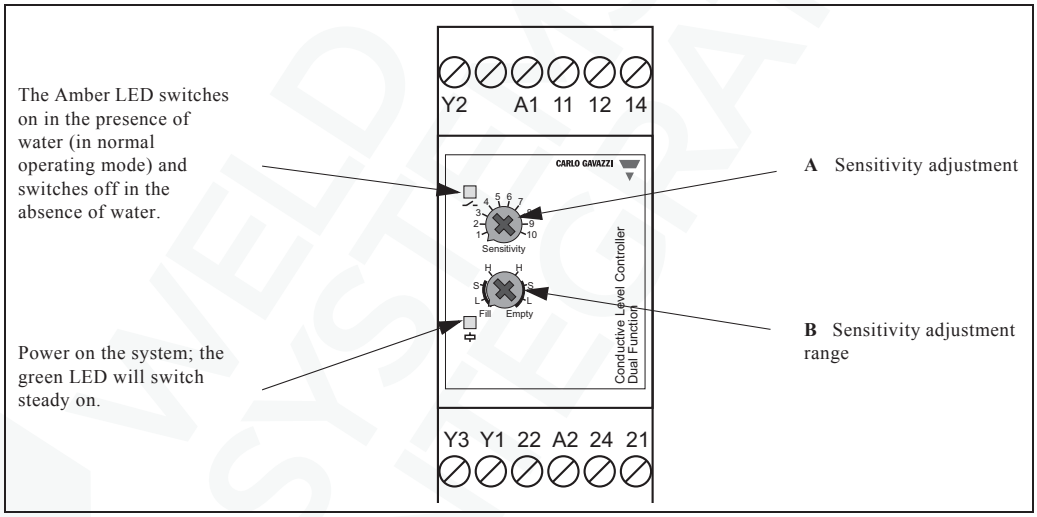
Therefore, if pressure in one circuit increases with respect to the preset limit value, an alarm signal can be tripped to stop the unit or stop one or more compressors after a programmable time interval.

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.



Adjusting potentiometer **B** changes the sensitivity range of potentiometer **A**

B	A
L	250 Ω ÷ 5 KΩ
S	5 KΩ ÷ 100 KΩ
H	50 KΩ÷ 500 KΩ

ATTENTION

⚠ *The level sensor has been calibrated to function with 250kOhm sensitivity (position* **A***=5,* **B***=H on the "Empty" side).*

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

ATTENTION

⚠ *There is an anti-tamper sticker over the adjustment potentiometers (A and B).*

Damaging this sticker, even partially, will automatically invalidate the warranty.

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"*

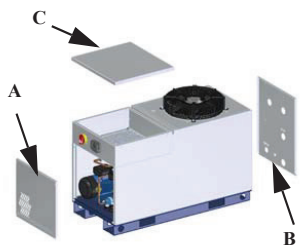
9.3 Access to the unit

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.*

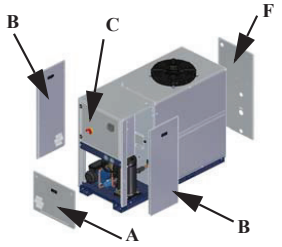
For i models TAEevo Tech 020÷051:
To access the refrigerant circuit components use the wrench supplied with the unit and open the latches securing front panel (A).
To access the evaporator and hydraulic circuit components use a screwdriver to undo the screws fixing panel (B).
To access the electrical 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).

TAEevo Tech 020

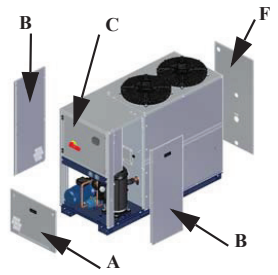


TAEevo Tech 031÷051

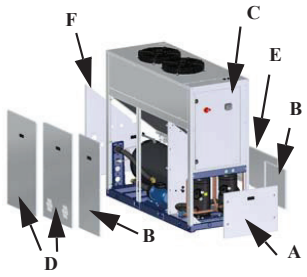
TAEevo Tech 081



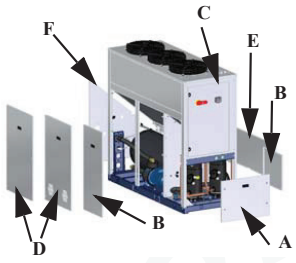
TAEevo Tech 101÷161



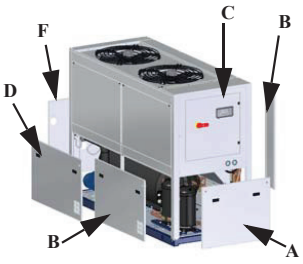
TAEevo Tech 201÷251



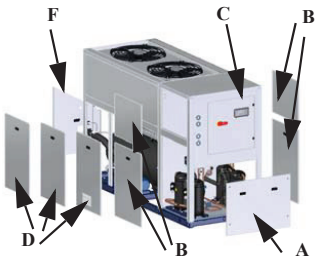
TAEevo Tech 301÷351



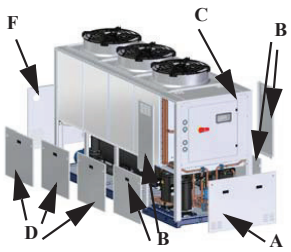
TAEevo Tech 381÷401



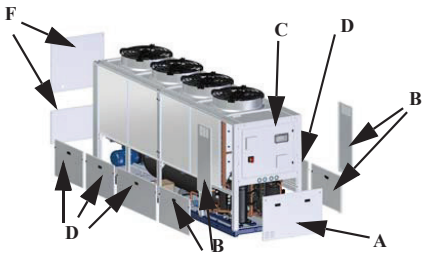
TAEevo Tech 402-502-602



TAEevo Tech 702÷802



TAEevo Tech 902÷1002

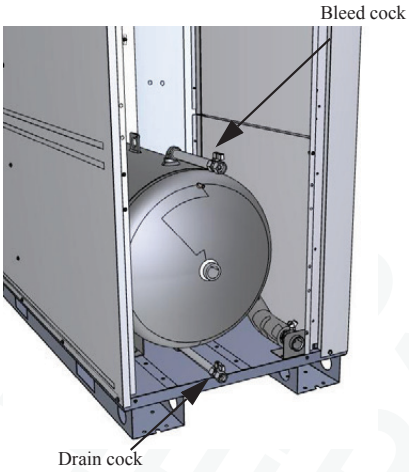


9.4 Filling the process water circuit

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:



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.

- 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

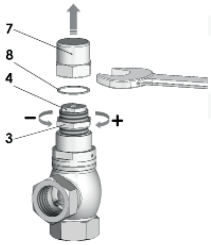
As **pressure limiting valve (proportional safety valve)** for non-adhesive liquids, gas, steam for protection against excess pressure in pressure tanks or steam boilers as well as pressure-holding equipment parts for pressure devices in compliance with the EC pressure equipment directive.
As **overflow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

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.	◊			
Check that the water outlet temperature is within the prescribed interval.	◊			
Check that water inlet temperature is in compliance with the value utilised for selection of the unit. **(*)**		◊		
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.		◊		
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. **(*)**			◊	
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.			◊	
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.				◊

(*) For this purpose use specific test meters.

ATTENTION

⚠ *The above maintenance schedule is based on average operating conditions.*

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

CHAPTER 10

TROUBLESHOOTING

PROBLEM	CAUSE	SYMPTOM	REMEDY
A Tank water outlet temperature **BTWOT** higher than prescribed value.	**A1** Thermal load too high.	**A1.1** **BTWOT** temperature higher than prescribed value.	Restore thermal load to within prescribed limits.
	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.	**A3.1** 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.	**A5.1** • See A1.1; • Low evaporation pressure; • Check for the presence of a large number of air bubbles on the liquid sight glass.	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.	**A6.1** • The head and the body of the compressor are very hot; • The compressor stops and attempts to restart after a short time (even few seconds).	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
B Insufficient pressure head (water pressure) at the pump outlet.	**B1** Excessively high water flow rate. The pump is running outside its operating limits (high flow rate, low pressure head, high power consumption).	**B1.1** • Possible increase in outlet temperature **BTOWT** (See A1.1); • With pump installed on unit: pump running - pump stopped pressure difference read on unit pressure gauge is too low; • Possible pump thermal trip.	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.	**B3.1** High temperature difference between water inlet and outlet.	In relation to the type of fouling: • Clean the evaporator by flushing it with a mild detergent suitable for steel, aluminium and copper; • Supply a high flow rate of water in countercurrent conditions. Install a filter upline from the unit.

PROBLEM	CAUSE	SYMPTOM	REMEDY
C The level sensor and/or flow meter alarm FLOW trips. Alarm displayed: **AEFL**	**C1** Unit upline filter, if present, is clogged.	**C1.1** • Water flow is irregular. Pressure difference between inlet and outlet below 0.36 PSI; • The text **AEFL** appears on the display; • General alarm relay activation.	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).	**C2.1** • See C1.1; • General alarm relay activation.	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).	**C3.1** • See C1.1; • General alarm relay activation.	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.	**C4.1** • The text **AEFL** appears on the display; • General alarm relay activation.	Bleed the storage tank via the relative bleed valve.

PROBLEM	CAUSE	SYMPTOM	REMEDY
D High pressure switch (HP) trip (TAEevo Tech 020÷401 models only) Alarm displayed: **b(n)HP**	**D1** The fan doesn't work.	**D1.1** • Refrigerant compressor stops; • The text **b(n)HP** appears on the display alternating with value of **BTOWT**; • General alarm relay activation;	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.	**D2.1** • Ambient air temperature higher than maximum permitted value; • See D1.1.	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.	**D3.1** • Condenser cooling air temperature higher than maximum permitted value; • See D1.1.	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.	**D4.1** See D1.1.	Clean the condenser fins. Perform the alarm reset procedure to restart the unit (see Electronic controller).
	D5 See A4.	**D5.1** 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.	**D6.1** • Water outlet temperature too high; • Refrigerant compressor stops; • General alarm relay activation.	Restore thermal load to within prescribed limits if possible. Perform the alarm reset procedure to restart the unit (see Electronic controller).

PROBLEM	CAUSE	SYMPTOM	REMEDY
E High pressure switch (HP) trip and/or compressor protection trips (TAEevo Tech 402÷1002 models only) Alarm displayed: **b(n)HP**	**E1** The fan doesn't work.	**E1.1** • Refrigerant compressor stops; • The text **b(n)HP** appears on the display alternating with value of **BTOWT**; • General alarm relay activation;	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").
	E2 Ambient air temperature too high.	**E2.1** • Ambient air temperature higher than maximum permitted value; • See D1.1.	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.	**E3.1** • Condenser cooling air temperature higher than maximum permitted value; • See D1.1.	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").
	E4 See A3.	**E4.1** See D1.1.	Clean the condenser fins. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
	E5 See A4.	**E5.1** 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.	**E6.1** • Water outlet temperature too high; • Refrigerant compressor stops; • General alarm relay activation.	Restore thermal load to within prescribed limits if possible. Perform the alarm reset procedure to restart the unit (see Chapter 7 "Electronic controller").
	E7 Thermal load too high with insufficient refrigerant charge in circuit (see also A5).	**E7.1** • The head and the body of the compressor are very hot; • The compressor stops and attempts to restart after a short time (even few seconds). • Compressor thermal protection trips • Display shows message **C(n)tr** • LED of general alarm icon ⚠ illuminates.	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.

PROBLEM	CAUSE	SYMPTOM	REMEDY
F Low pressure switch (LP) trips Alarm displayed: **b(n)HP**	**F1** No refrigerant fluid in the circuit (see also A5).	**F1.1** • Refrigerant compressor stops; • The text **b(n)LP** appears on the display alternating with value of **BTOWT** probe; • General alarm relay activation.	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
	F2 Unit upline filter, if present, is fouled	**F2.1** See F1.1.	Clean or renew the water inlet filter, if installed.
G Compressor protection trips (TAEevo Tech 020÷401 models only). Alarm displayed: **C(n)tr**	**G1** Thermal load too high with insufficient refrigerant charge in circuit (see also A5).	**G1.1** • The head and the body of the compressor are very hot; • The compressor stops and attempts to restart after a short time (even few seconds); • Compressor thermal protection trips; • Display shows message **C(n)tr**; • LED of general alarm icon ⚠ illuminates.	Call in a qualified refrigeration engineer to check for leaks and eliminate them. Have the circuit charged by a qualified refrigeration engineer.
	G2 Incorrect rotation direction of scroll compressor (three-phase units only).	**G2.1** Refrigerant is not compressed and the unit is unable to provide cooling action.	Invert the position of two phase wires of the power supply.
H 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 problem contact an authorised service centre.
I Alarm displayed: **AP1÷AP6**	**I1** Probes damaged.	**I1.1** • See problem; • General alarm relay activation.	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.
J Alarm displayed: **b(n)Ac**	**J1** Low water outlet temperature. The value set in the relative parameter is lower than the value measured by the probe.	**J1.1** • See problem; • Compressor stops and then restarts; • General alarm relay activation; • LED of general alarm icon ⚠ illuminates.	Identify and remedy the problem that caused **BEWOT** temperature to fall to a value below **AL26**.
	J2 Water flow rate too low.	**J2.1** • See problem; • Compressor stops and then restarts; • General alarm relay activation.	Increase the water flow rate.

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.	**K1.1** • See problem; • General alarm relay activation; • Refrigerant compressor and pump stop; • The display shows the message **AtE1/AtE2** alternating with the value of the **BTWOT** probe; • 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.	Reset thermal cutout. Increase hydraulic circuit pressure drop by partially closing, for example, a pump outlet cock.
	K2 The grille through which the pump cooling air flows is obstructed.	**K2.1** • See problem; • General alarm relay activation; • Refrigerant compressor and pump stop.	Reset thermal cutout. Remove obstruction from grille.
	K3 Pump malfunctioning.	**K3.1** • See problem; • General alarm relay activation; • Refrigerant compressor and pump stop; • Pump current input higher than nominal value; • Pump noise levels may be anomalous.	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.	**M1.1** • Unit not working; • Code **AEE** flashing on display; • LED of general alarm icon ⚠ illuminates.	Power off the unit and then power it on again. If this doesn't solve the problem, contact the nearest service centre.

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”

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”
14. Hazards generated by noise levels that may impair hearing capacity (deafness) and other physical disorders (such as loss of balance, consciousness).	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”
21. 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.	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”

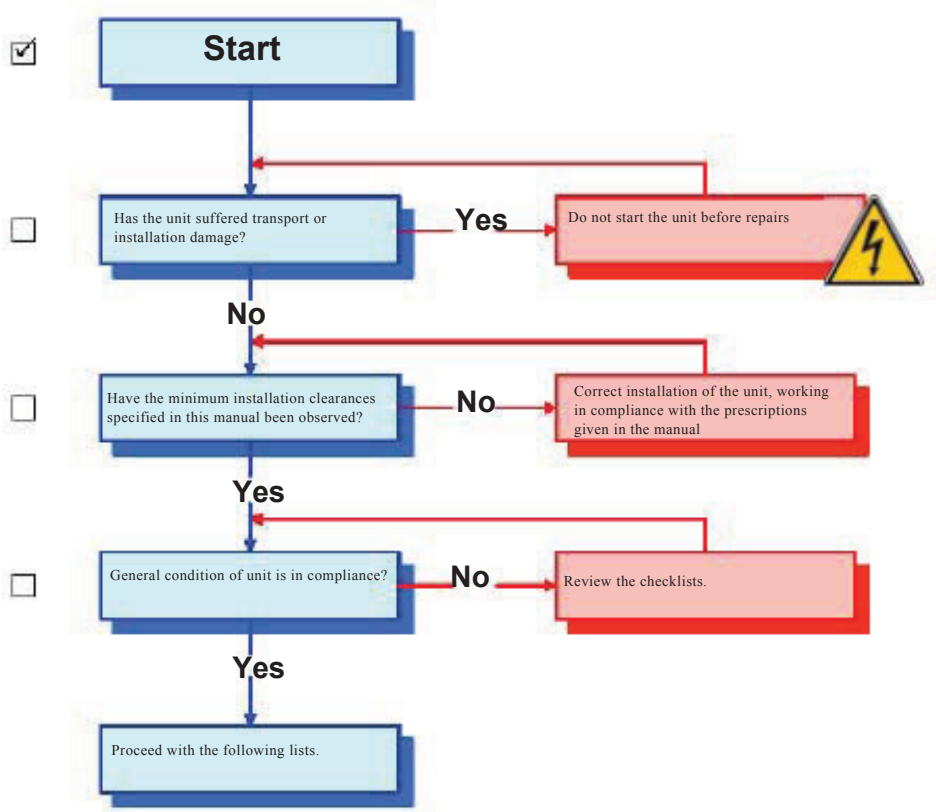
Description of risk:	Effect:	User instructions:
23. Inadvertent start-up, overtravel/ unexpected excess speed (or any other similar malfunction) caused by: return of electric power supply after failure.	Hazards associated with inadvertent start-up of the machine when electric power supply is restored.	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”
29. Hazards generated by absence of and/or position of measures/ instruments influencing safety: all guards.	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”

APPENDIX

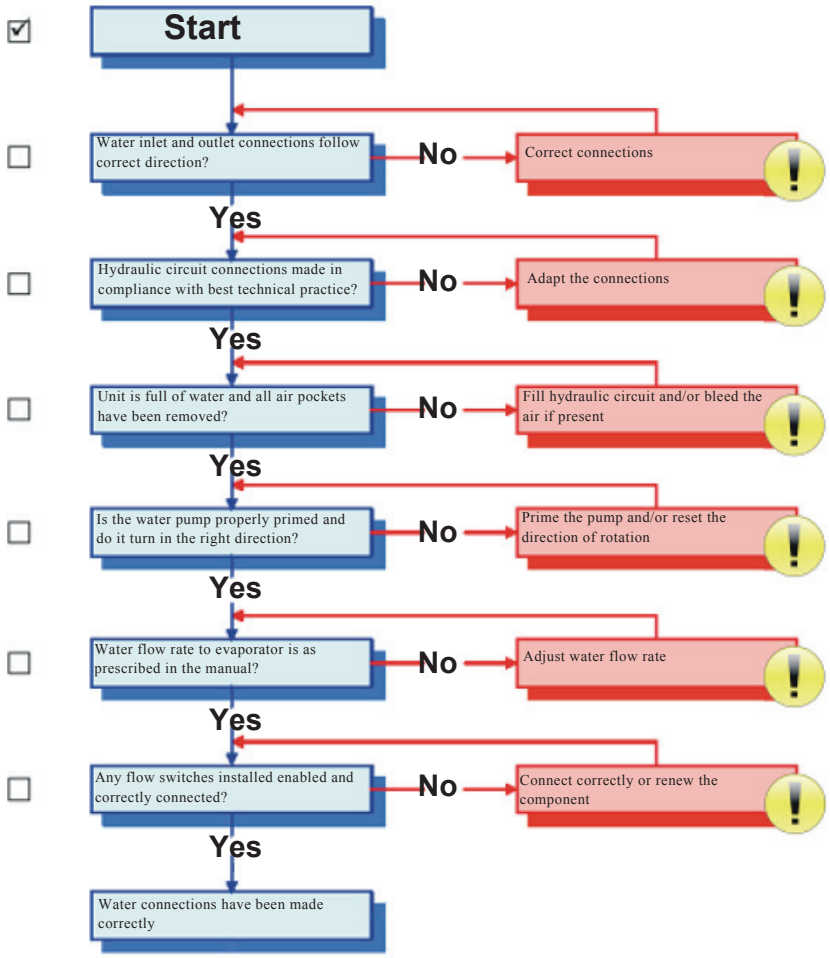
GENERAL CONDITIONS CHECKLIST

WARNING

⚠ *DO NOT POWER ON THE UNIT!*

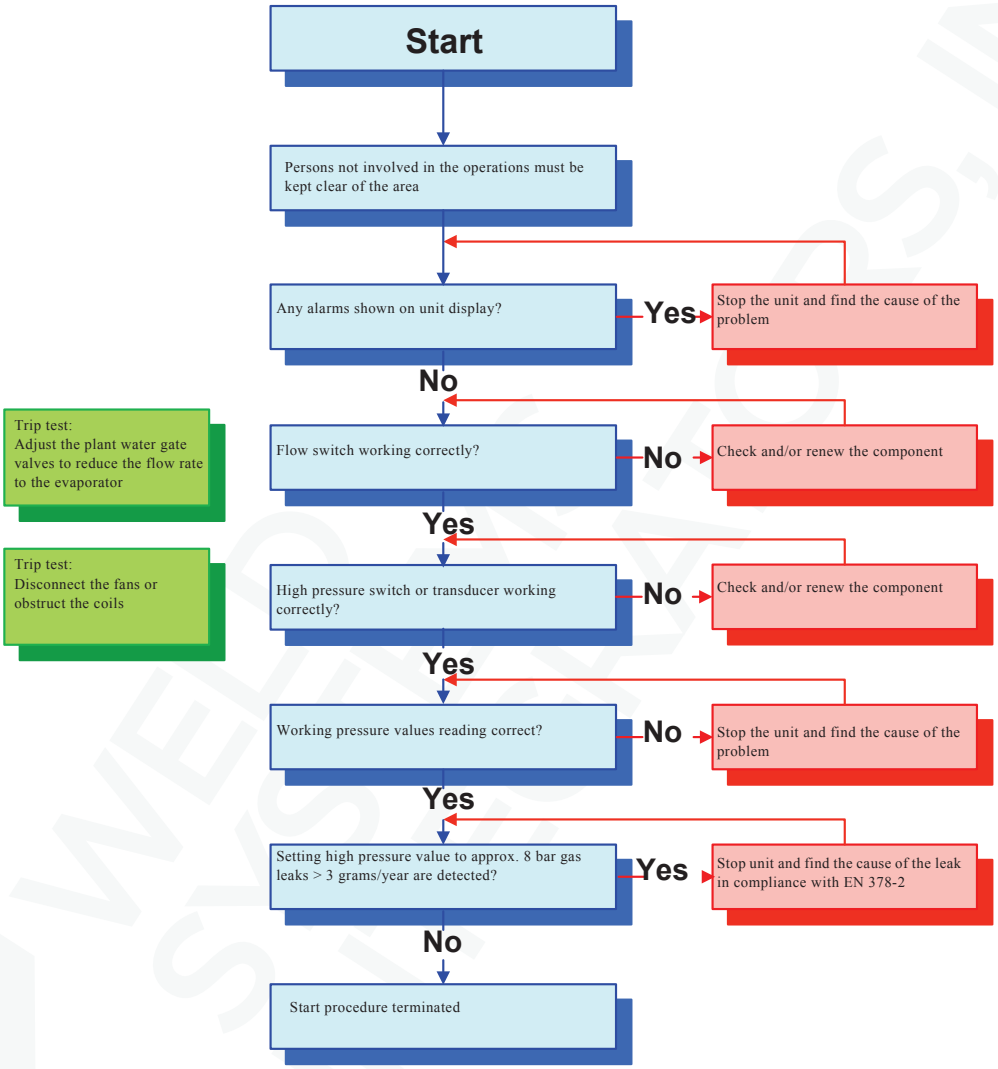


HYDRAULIC CIRCUIT CHECKLIST

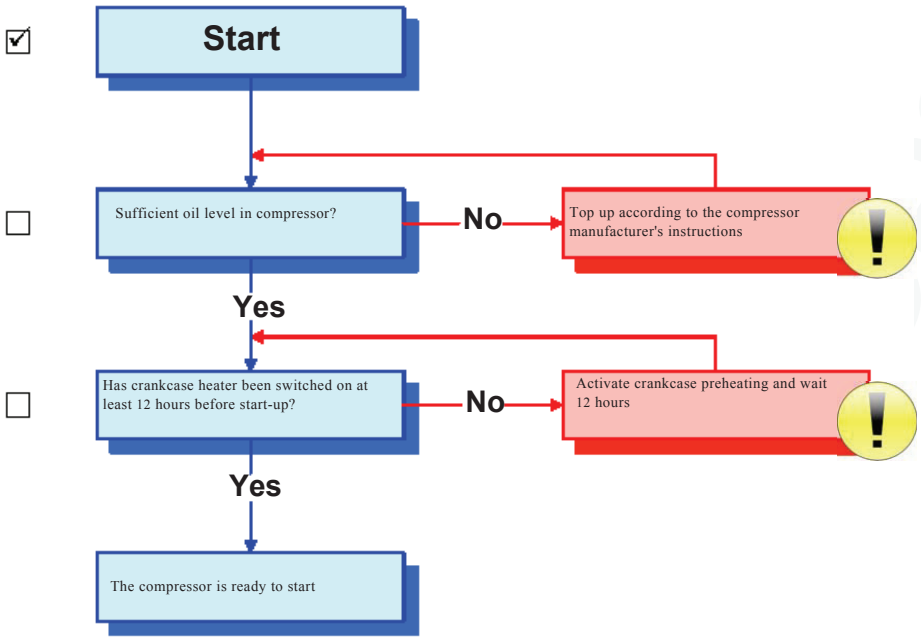


CONTROLLER CHECKLIST

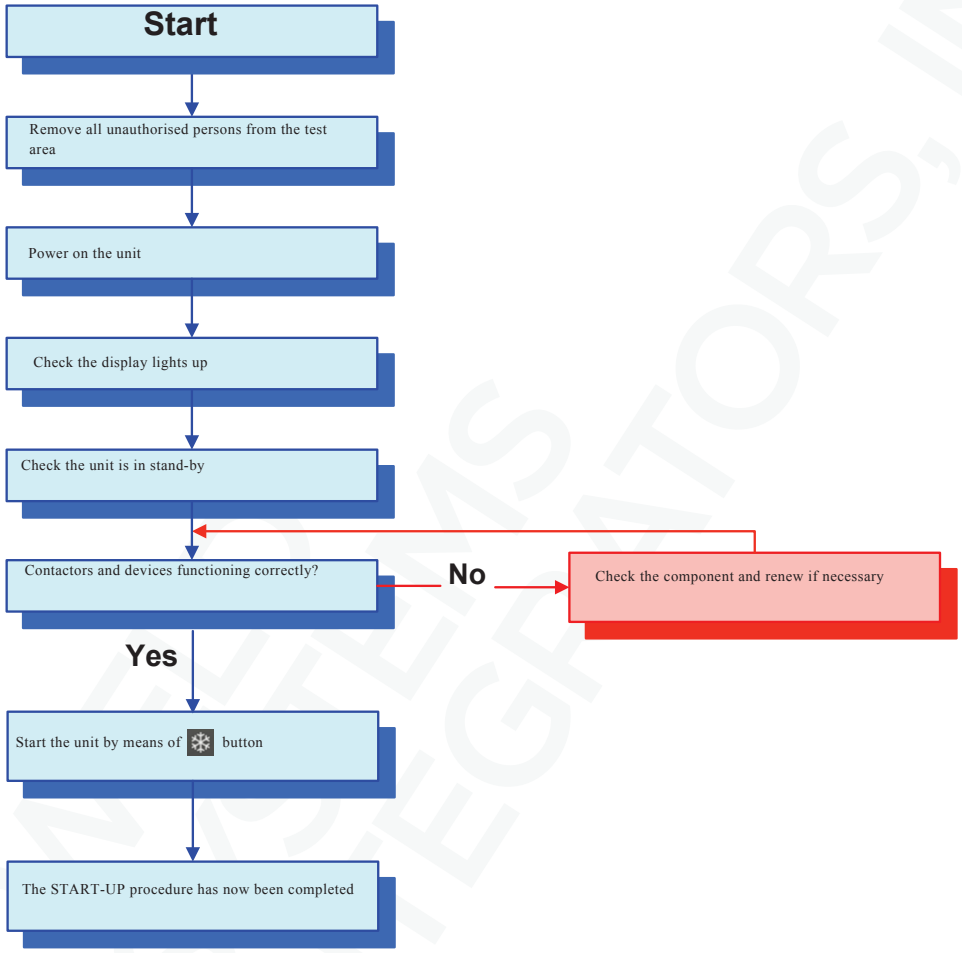
FIRST START CHECKLIST



OIL CHECKLIST



UNIT RUNNING CHECKLIST



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