





## INSTALLATION AND OPERATION MANUAL FOR THE BASIC CONTROL PANEL (CCB2.0) FOR FISAIR EVAPORATIVE HUMIDIFIERS

Software version 2.1 | MCCB2.0-EN-22-1

In compliance with the Rules and Standards of the European Union on Machine Safety, it is essential to read this protocol carefully before installing any equipment.





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## ANEX

WIRING DIAGRAM: E09489 (230VAC) WIRING DIAGRAM: E09490 (400VAC) WIRING DIAGRAM: E11327 (Control panel with forced ventilation)



#### 1. Safety instructions

Need to consign the control panel for maintenance and revision



The machine controlled by CCB2.0 panel must not be manipulated when it is in operation. Facing any problem that is detected in the machine during its operation, **disconnect it and set the main switch of the CCB2.0 panel using a padlock.** 



Installation of a residual current device in the power supply line.



The installer must install a specific residual current device in the machine's electrical power circuit.

FISAIR disclaims any liability if not all the installation and operating instructions it has provided are complied with; if the products have been modified or altered without the written consent of FISAIR; or if the products have been subjected to improper use, mishandling, alteration, improper maintenance or show signs of negligent use or being involved in an accident. These situations could include an incorrect power connection, impacts with other objects, removal or disarming of security fittings/measures, etc.



## 2. General description

The basic control panel has been specifically designed for the interconnection and supervision of the accessories supplied with the *FISAIR Evaporative Humidifiers*. The incorporation of the CCB2.0 provides a more accurate, simple and reliable integration for this in air handling units.

The control panel manages all the field components of FISAIR Evaporative Humidifiers:

- Water recirculation pump
- Detector of the minimum and maximum basin water level
- Basin water supply solenoid valve
- Emptying/draining motor-valve in the basin
- UV lamp water treatment system (optional)
- Water conductivity control (optional)
- Modbus TCP/IP (optional)
- Modbus RTU (optional)
- BACnet/IP (optional)

\* For the MAXIMUM distance of the conductivity probe, ask FISAIR when CCB2.0 + Conductivity Control



Figure 1: Examples of installation of CCB2.0 on vertical wall and CCB2.0 integrated in the AHU



#### 3. Operating environment

The Basic Control panel is supplied in an insulating box composed of a bottom and a hinged lid made of steel with a surface finish of RAL7035 grey weather-resistant epoxy-polyester powder with IP54 degree of protection according to IEC-60529 and IK10 impact protection according to IEC62262.

Operating environment temperature and humidity conditions:

- Relative humidity [5%... 95% HR], no condensation.
- Temperature [-10 °C ... +35°C]\*

\*Above 35°C it is recommended to use the optional CCB2.0 + forced ventilation control panel. The recommended gaps for connection, inspection and maintenance must be observed during installation. If the box is drilled in the locations indicated for mounting, it must be ensured that a degree of protection  $\geq$  IP54 is maintained.

The basic control panel weighs 6 kg and must be installed vertically on the wall (see Figure 1) to maintain the degree of protection IP54. Figures 2.1 and 2.2 show the minimum service spaces to be observed and the drill hole measurements for mounting.



Figure 2.1: Vertical section: front, open door. (Interior)

Figure 2.2: Cross section: door closed/open



#### INSTALLATION OF THE CONTROL PANEL OUTSIDE:



Whenever the control panel is installed outdoors, it must be placed under an appropriate cover to protect it from the direct incidence of rain and sun (considering that 40°C cannot be exceeded in the installation area):







#### 4. Rating plate and machine classification:

The rating plate provides essential information about the technical features of the machine.

The EC Machinery Safety Regulation requires all machinery operated within the European Economic Community to have a rating plate indicating its main features, the machine serial number and the manufacturer's name inscribed in a durable manner.

According to article 2, section g of the Machinery Directive 2006/42/CE - RD 1644/2008, 'partly completed machinery' means

"an assembly which is almost machinery, but which cannot in itself perform a specific application. A drive system is partly completed machinery. Partly completed machinery is intended only to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery to which this Directive applies"

Therefore, the CCB2.0 basic control panel is classified as a "partly completed machinery"

Note: If the CCB2.0 basic control panel is supplied together with a device from the HEF range, the set is classified as "machine"

Location of the rating plate:





The rating plate shows the following information for the particular CCB2.0 stages control panel:

- Model
- Serial No.: equipment serial number
- Power supply
- Maximum power
- Rated current
- Wiring diagram
- Configuration program
- Machine type
- Designed according to the directive:
- FISAIR equipment you can join
- Year and place of manufacture.
- Service QR code and Warranty activation

fisar, air humidity control	FISA IR S. LU. C/ Ura nio, 20 28330 San Ma MADRID (SPA www.fisair.co	- P.L. AIM AYR artin de la Vega IN) om	After Sales Service Servicio Postventa Mail: sat@fisair.com Tel: + 34916921514	CE	EAC	
Modelo Model Typ	CCB 2.0	№ Serie Serial Number Seriennumme	r Pr	202000	01	
Alimentación Eléctrica Power Supply Energieversorgung		Potencia Máxima Maximun Power Maximale Leistung		600 W		
Intensidad Nominal Rated Current Bernessungsstrom	2,2 A	Tipo de má quir Machine type Maschinentyp	R	Cuasi Máquina Quasi Machine Quasi Maschine		
Esquema Eléctrico Wiring Diagram Schaltplan	E09489	Diseñada dea co Designed accor Entwickelt nach	uerdo a directiva rding to directive h richtlinien	tive 2006/42/CE		
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## 5. Hardware description



Figure 5.1: CCB2.0 front cover





Figure 5.2: CCB2.0 open





Figure 5.3: Inside cover CCB2.0 (standard)





Figure 5.4: Inside cover CCB2.0 (optional data bus and conductivity cards. IP connection)





Figure 5.4: Inside cover CCB2.0 (optional data bus and conductivity cards. RTU connection)



LED / Key/ Component	No.	Description, Function and Article Code
	1	Disconnector switch (I1) for cutting and isolating the supply voltage; possibility of locking by padlock (not supplied) Art. Cod.: 64300129
	2	HMI. Command and display interface SEF-027.1 Art. Cod.: 52300012
$\bigcirc$	3	LED. Yellow. Live equipment
	4	LED. Red. General fault
	5	Operating key in Manual mode
	6	Start/stop status change button
AUTO	7	Operating key in Automatic mode.
	8	OK button (ENTER)
Esc	9	Back button (ESC)
$\textcircled{0}{0}$	10	Navigation keys
UV	11	LED. Blue. UV Lamp is operating
X	12	LED. Yellow. Indicates the water supply solenoid valve is powered
M	13	LED. Green. Indicates the drain valve motor is powered
$\bowtie$	14	LED. Green. Indicates the drain motor valve is open (requires feedback connection)



LED / Key/ Component	Ref.	Description, Function and Article Code
	15	<ul> <li>Float switch status LED:</li> <li>Yellow. Indicates level below minimum</li> <li>Green. Indicates operating level</li> <li>Red. Indicates maximum water level</li> <li>Flashing red: Indicates fault</li> </ul>
	16	Water pump status LED: <ul> <li>Green. Water pump running</li> <li>Red. Malfunction</li> </ul>
	17	Display screen
	18	Power terminals (X1)
	19	Magneto-thermal circuit breaker (U1 in electrical diagram) to protect water pump Art. Cod.: 64350005 (55 W single-phase pump) Art. Cod.: 64350002 (60 W 3-phase pump) Art. Cod.: 64350010 (90 W single-phase pump) Art. Cod.: 64350004 (125 W 3-phase pump) Art. Cod.: 64350005 (240W 3-phase pump) Art. Cod.: 64350020 (370W single-phase pump)



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Electronic power card SEF-028.1 Art. Cod.: 523000013



LED / Key / Component	Ref.	Description, Function and Article Code
RL8	21	RL8 relay for motor-valve drain/emptying Code Art: 64130018
F2	23	Fuse F2 for auxiliary power protection Art. Cod.: 64600012
F3	24	Fuse F3 to protect the water supply solenoid valve Art. Cod.: 64600012
F4	25	Fuse F4 for drain/emptying motor valve protection Art. Cod.: 64600012
F5	26	Fuse F5 for UV lamp protection Art. Cod.: 64600013
RL1	27	Relay RL1 for water recirculation pump Art. Cod.: 64130019
RL2	28	Relay RL2 for UV lamp Art. Cod.: 64130018
RL3	29	Relay RL3 for water supply solenoid valve Art. Cod.: 64130018
	30	Central processing card SEF-025.1 Art. Cod.: 52300010





LED / Key / Component	Ref.	Description, Function and Article Code
	31	Battery 3V CR2032 Art. Cod.: 69101000
	32	40 pins Flat cable connector 40 pins. Between SEF- 28.1 and SEF-025.1
Figure 1       Example 1       Constrained 1         March 1       Constrained 1       Constrained 1         March 1       Fishers 1       Fishers 1         March 1       Fishers 1       Constrained 1         March 1       Constrained 1       Constrained 1      Constraine 1       Constrained 1	-	CCB2.0 rating plate. For ubication see chapter 4.
	34	Conductivity probe with 2 m cable for CCB2.0+C Art. Cod.: 64220250 (optional)
	35	Conductivity sensor card SEF-026 for CCB2.0 +C (optional) Art. Cod.: 52300011
	36.1	Communication card via data bus: Modbus TCP/IP 2.0 (optional) SEF-029 Art. Cod.: 52300014 Communication card SEF-031 via data bus: BACnet / IP 2.0(optional) Art. Cod.: 52300014
	36.2	Communication card SEF-030 via data bus: Modbus RTU 2.0 (optional) Art. Cod.: 52300015



#### 5.1. CCB2.0 + forced ventilation control panel optional

When the panel is to be installed in locations generally outdoors with high temperatures (>35°C), it is recommended to use the CCB2.0+forced ventilation control panel. This panel has dimensions of 300x300x200 mm and includes a cooling fan and a thermostat that activates the fan when the setpoint of the thermostat is exceeded (factory setting 35°C, adjustable on demand on the thermostat itself).



Figure 5.5: CCB2.0 + forced ventilation control panel open

LED / Key/ Component	Ref.	Description, Function and Article Code
S1	44	Control panel cooling fan thermostat
ME	45	Control panel cooling fan







Figure 5.6: Vertical section: front, open door. (Interior)

Figure 5.7: Cross section: door closed/open



## 6. Connections

1) Connect the standard accessories to the SEF-028.1 card according to Figure 4.1.





Type of connection	Symbol	Connection	Description	Max. Power Max. Voltage
Optional.	+24VDC	J12*	Water drain/emptying motor-valve supply	5W 24Vdc
Mandatory	24VDC PE ↓ =	J13	Water supply solenoid valve	14W 24Vdc
Mandatory	24VDC PE M =	J14*	Water drain/emptying motor valve	40W 24Vdc
Mandatory	Feed Back	J15*	Emptying motor valve feedback position (limit switch opened)	Not powered
Mandatory	HWL	J16	Maximum water level sensor (NC contact)	Not powered
Mandatory		J17	Minimum water level sensor (NO contact)	Not powered
*See next pag	је			



Type of connection	Symbol	Connection	Description	Max. Power Max. Voltage
Optional.	IN1	J18**	UV lamp operating sensor (if applicable)	Not powered
Optional.	IN2 L	J19**	Forced drainage remote signal: The rest of the signals are ignored, until the forces drainage signal ends, at that moment, it returns to the previous state.	Not powered
Optional.	IN3	J20**	External fault lock	Not powered
Optional.	H1 L	J21**	Remote interlock ON/OFF in automatic mode.	Not powered
-		J22	Not used.	500VA
Optional.		J23	Remote fault signal.	250V
Ontional		124	Remote operation signal	500VA
	$\triangleright$	524	Remote operation signal.	250V
Optional		.125	Remote voltage signal	500VA
		020		250V
Optional.		J10	UV lamp supply	40W 230V
Mandatary	PE U V V	v I 1 1	Water regire dation numb	240W to 400 V
ivial lual OF y	$\bigcirc$	JII		370W to 230 V

\* Connection of drain/emptying valve actuators:

	Actuator			
SEF-028.1 connection	Actuator wire number	Actuator wire		
	(code)	colour		
J12 + (red)	2	Red		
J12 – (black)	1	Black		
J14+ (red)	3	White		
J14-(black)	-			
J14 ground (yellow)	-	-		
J15 a (grey)	S1	Violet		
J15 b (grey)	S2	Red		
Turning sense	-			

\*\* See next page



\*\* The following considerations should be taken:

When cable length > 5 m  $\rightarrow$  A twisted and shielded cable must be used.

When cable length > 15 m  $\rightarrow$  It can happen that the resistivity of the cable or an excess of noise in the line, produces a potential drop in it. In these cases, a high sensitivity relay must be inserted, close to the CCB2.0 panel, which is actuated externally.

Example: Connection at J21 (H1):





2) (Optional, only for CCB2.0+ Conductivity control) Connect the conductivity probe to the SEF-026 card and the cables according to the indicated colours (earth to J3, either of the two interlocks):



Figure 6.2: SEF-026 Card

3) (Optional, Modbus RTU communication) Connect the 3 cables identified with X, A and B on the SEF-030.1 card.



Figure 6.3: SEF-030.1 Card



4) With the disconnector in position 0, connect the appropriate mains supply for each case to the supply terminals X1:









#### Proper wiring prevents electrical noise.

Electrical noise can produce undesirable effects on electronic control circuits, which affects controllability. Electrical noise is generated by electrical equipment, such as: inductive loads, electric motors, solenoid coils, welding machinery, or fluorescent light circuits. The electrical noise or interference generated from these sources (and the effect on controllers) is difficult to define, but the most common symptoms are erratic control or intermittent operational problems.

#### Important.

For maximum EMC effectiveness, wire all humidity, high limit, and airflow controls using multicolored shielded/screened plenum-rated cable with a drain wire for the shield/screen. Connect the drain wire to the shield/screen ground terminal with wire less than 2" (50 mm) in length.

Do not ground shield at the device end.

#### 7. Supervision and principal operation modes

**START:** This is the main screen that appears once the equipment is powered by the disconnector (I1) which shows the following information through 2 screens that alternate continuously:

#### Screen 1:

- ✤ Name of the Company: FISAIR, S.L.U
- Status indication: HEF2E → OFF

#### Screen 2:

- Date: 01/01/2019
- ✤ Time: 21:00

Fisair S.L.U. HEF2E>OFF	
$\checkmark$	
00/00/0000 00:00	

To start the device, select either of the two available configuration modes, manual (MAN) or automatic (AUTO):

**MAN:** Select manual mode (MAN) from the command and display to enter that mode. The following information is shown on the Display through 2 screens that alternate continuously.

#### Screen 1:

- ✤ Name of the Company: FISAIR, S.L.U.
- Status indication: HEF2E → ON (MAN)

Screen 2:

- Date: 01/01/2019
- Time: 21:00
- Conductivity value and water temperature (µS/cm). \* In the case of having conductivity Control.

Fisair S.L.U. HEF2E --> ON(MAN) 00/00/0000 00:00 0000µS/cm 00°C\* A00\*\*\*

\*\*\* If there is a fault, an **alarm code is shown** on the second line of the display; see section 12 "Alarms" for more information.

#### MANUAL MODE OPERATION:

The unit operates directly when manual mode is enabled. No activation of H1 (contacts J21) is required, and the unit is always active unless switch I1 is turned off or key (6) of the HMI  $\bigcirc$  is

pressed.

\*\*\* If there is a fault, an **alarm code is shown** on the second line of the display; see section 10 "Alarms" for more information.





**AUTO:** Select Automatic mode (AUTO) from the command and display interface to enter that mode. The following information is shown on the Display through 2 screens that alternate continuously.

#### Screen 1:

- ✤ Name of the Company: FISAIR, S.L.U.
- Status indication: HEF2E→ ON (AUTO)

#### Screen 2:

- Date: 01/01/2019
- ✤ Time: 21:00
- Conductivity value and water temperature (µS/cm). \* In the case of having conductivity Control.



#### AUTOMATIC MODE OPERATION:

The equipment operates when automatic mode is enabled and the H1 signal (J21 contacts) is on.

To stop the unit in automatic mode, it is necessary to deactivate the H1 signal (contacts J21) or by pressing the key (6) on the HMI.

Note: If the disconnector is turned off and on again, the Automatic mode is retained and will turn the unit off or on depending on the status of the H1 signal.

\*\*\* If there is a fault, an **alarm code is shown** on the second line of the display; see section 12 "Alarms" for more information.



## 8. Configuration

Configure the basic control panel according to your air handling needs as part of the process incorporating the Fisair Evaporative Humidifier. Pay special attention to the water supply quality, the application hygiene requirements and the required work cycles.

To do this, select the different configuration options using the control and display interface buttons.

The different configuration modes are shown on the Display screen (integrated in the command and display interface).

To enter the configuration menu it is necessary to press the keys at the same time for a few seconds. You can move from one screen to another using the vertical arrows. Use the right arrow to advance to the next level within a screen, and the left arrow to go back a level.

The possible configurations are shown below:

#### 8.1. Draining

The draining of the basin is configured using the following control options:

#### 8.1.1. Forced draining

By means of the external draining/emptying signal connected to contact J19, a forced drain is performed until this signal is no longer active. It consists of the following procedure:

The drain motor-valve is opened until the external signal J19 is disconnected.

This signal will override the previous settings and is activated physically from the signal or by means of the optional communications.



8.1.2. Draining by conductivity control:

In the conductivity control draining configuration, two types of drainings are performed:

- 1. <u>Partial draining by the conductivity sensor is controlled by the "Set</u> point" and the following Timers:
  - Conductivity Set-Point\* (0-1999 µS/cm)
     The desired water conductivity in the basin is established in the SET-POINT Timer.
     If the conductivity sensor exceeds this value, it is partially emptied.
  - Timer T02\* (Min. 1min / Max. 15min)
     The time between partial emptyings is established by the conductivity control according to the time value set in TO2.
  - Timer T07\* (Min. 5 s / Max. 360 s)
     The partial emptying time is configured with the conductivity control after the SET-POINT is exceeded.

#### 2. Draining by unit stop:

- When the unit is stopped, it is emptied once the time value defined in T06\* has elapsed, once this time has elapsed, the emptying cycles start to ensure complete drying of the cassette and the basin.
- Timer T04\* is used to set the opening time of the emptying motor-valve during each operating/periodic emptying cycle.

\*These Timers are configured in chapter "Settings".

CONFIGURATION		
└>Drain cont	f.	
→Condu →Standa →Never	ctivity control ard	



#### 8.1.3. Standard draining:

In the standard control draining configuration, two types of drainings are performed:

- 1. Complete draining of the basin:
  - <u>Timer T05\*</u> (Min. NEVER / Max. 24h)
     While the equipment is running, it is fully emptied periodically according to the time value set in T05.
  - <u>Timer T06\*</u> (min. 0 h / Max. 24h)
     The delay time for complete emptying is set according to the time value in T06, with the equipment switched off.
- 2. Draining by unit stop:
  - When the unit is stopped, it is emptied once the time value defined in T06\* has elapsed, once this time has elapsed, the emptying cycles start to ensure complete drying of the cassette and the basin.
  - Timer T04\* is used to set the opening time of the emptying motor-valve during each operating/periodic emptying cycle.
- 8.1.4. No draining (never):

The basin is never emptied



CONFIGURATION
└→Drain conf.
→Conductivity control →Standard →Never



#### 8.2. Configuration Prior to Start-Up (Pre-Start-up)

The pre-start-up process can be enabled and the number of cycles to be repeated specified.

This process consists of carrying out the following repeat cycles for the number of times established:

Keep the water recirculation pump running for 10 minutes then empty the basin for 10 minutes.

This process cleans dust produced in the manufacturing process from the panel.

During the pre-start-up cycle, the duct fans for the air to be treated must be turned off. The UV lamp must not be switched on during this process.

Once this function is enabled, the equipment must be started at the Manual mode (MAN) to proceed with the start-up cycles.

The following control options are available:

- Enabled:
   Enables the start-up process
- Disabled(\*):
   Enables the start-up process
- No. cycles :( min. 0 cycles /Max. 10 cycles)
   Sets the start-up process cycles number.
   The factory set value is 6 cycles



(\*) Once this function is enabled, the equipment must be started in manual mode (MAN) to proceed with the commissioning cycles.

#### 8.3. Stages Conf.

#### Not available in the Basic Control Panel 2.0 (CCB2.0).

Staged regulation is only available in the Stages Control Panel 2.0 (CCE2.0).

Note 1: This setting must be set to "NO" for the recirculation pump to start.

#### 8.4. 0...10V o 4...20 mA Conf.:

#### Not available in the Basic Control Panel 2.0 (CCB2.0).

Staged regulation is only available in the Stages Control Panel 2.0 (CCE2.0).



#### 8.5. UV lamp configuration

Switches the UV water treatment system on or off:

- Enabled (1)
- Disabled (0)

**Note 1:** If the UV lamp is installed immersed in the basin, a bridge must be made in J18 (IN1) **Note 2:** Each time the UV lamp is switched on, an internal 16,000 hr operating counter is activated, only when the equipment is running. After these 16,000 hours of operation, the E51 error is triggered to replace the lamp.

**Note 3:** After the lamp is replaced following an E51 error, the 16,000-hour counter must be reset by switching the lamp off (0) and on (1) in this configuration menu.

#### 8.6. Conf. 1-3 PHASES

Select whether you have a single-phase or three-phase power supply.







#### 8.7. Bus configuration

You can configure 3 types of data bus (Modbus RTU, Modbus TCP / IP and BACnet). Depending on the type, its configuration protocol varies:

#### 8.7.1. MODBUS: TCP/IP y RTU

Pay attention to the following screens that the Display shows regarding this type of communication:

- ✤ MODBUS RS5485: Select the slave ID address.
- Mac Address: This allows the last byte of the MAC address to be modified. If there are several computers in the same network, each should have a different value.
- Fallback Ip Adrr: Used to enter the address manually if there is no DHCP server in the network. It assumes that the mask is always 255.255.255.0 and that the network Gateway is the same as that entered, ending in 1. For example, if you enter 192.168.1.23, the gateway will be 192.168.1.1
- DCHP ON/OFF: The equipment is configured to work within a network with dynamic Host configuration (IP of the equipment given by the server) or fixed IP assigned by the user within the Fallback Ip Adrr parameter.
- ◆ <u>IP test:</u> Shows the current IP address to be assigned by the server.
- ✤ Modbus TCP Port: TCP port for the TCP Modbus. By default it is 9900

The settings for RTU communication are:

- <u>Communication speed: 9600 Baud</u>
- Data bits: 8
- Parity: None parity
- Stop bits: 1

#### **MODBUS TCP/IP protocol:**

- Type: MOBUS/RTU ASCII over TCP/IP protocol
- Connect the Ethernet cable to the SEF-029 card before starting the Disconnector I1. The LEDs for connection (yellow) and communication (green) are not currently available.



#### **MODBUS RTU protocol**

- Type: MOBUS/RTU protocol
- Connect the R8485 USB adapter wire to the SEF-030.1 card before starting the Disconnector I1. (see chapter 4)

#### Mapping for MODBUS communication protocols:

Write: The following table shows the write function of each communication address:

Address	Description	Writing
1010	Write position disconnector switch I1	0→Off, 1→Manual, 2→Auto (Subject
		to interlocking function in J21)
1064	Write signal configuration empty	0→Never, 1→Standard, 2→
		Conductivity control
1066	Write pre-set on configuration	0→Disabled 1→Enabled
1068	Write pre-set on cycle configuration	Write range 0-10 cycles
1070	Write Language	0→Spanish 1→English 2→German
		3→French

Address	Description	Writing range (increase)	Factory setting
1012	Write conductivity Set-Point	0-1999µS/cm*(increase 1µS/cm)	300 µS/cm
1030	Write Timer T01	30-1000s*(increase 15s)	90s
1032	Write Timer T02	1-15 min*(increase 1min)	5min
1034	Write Timer T03	1-60 min*(increase 1min)	10min
1036	Write Timer T04	30-400min*(increase 30min)	60min
1038	Write Timer T05	0-24h*(increase 1h)	0min=never
1040	Write Timer T06	0-24h*(increase 1h)	1h
1042	Write Timer T07	5-360s*(increase 5s)	30s
1044	Write Timer T08	10-60min*(increase 5min)	15min

\*These values must be entered in seconds in the write for such addresses



Read: The following table shows the read function of each communication address:

Address	Description	Reading
2010	Status read On/Off	Off→0, On→1
2012	Read conductivity value	0-1999 μS/cm*
2014	Read temperature value <sup>o</sup> C	Divide the result by 100. Ej. 1815 →18,15ºC

Address	Description	Reading range	Factory setting
2030	Read Timer T01	30-1000s*	90s
2032	Read Timer T02	1-15 min *	5min
2034	Read Timer T03	1-60 min *	10min
2036	Read Timer T04	30-400min*	60min
2038	Read Timer T05	0-24h *	0min=never
2040	Read Timer T06	0-24h *	1h
2042	Read Timer T07	5-360s*	30s
2044	Read Timer T08	10-60min*	15min

\*These values are shown in seconds

Address	Description	Reading
2116	Read equipment live J25	0→not live (yellow led [3]Off)
		1→live (yellow led [3]On)
2118	Read general equipment failure J23	0→no equipment failure(red led [4] Off)
		1→equipment failure(red led [4] On)
2120	Read general equipment operation	0→not working
	status J24	1→in operation
2122	Read UV lamp operation status J10	0→Off (blue led [11] Off)
		1→On (blue led [11] On)
		2→Fault (blue led [11] flashing)
2124	Read filling solenoid valve status J13	0→Off (yellow led [12] Off)
		1 <b>→</b> On (yellow led [12] On)
2126	Read drainage motor valve power status	0→No power (green led [13] Off)
	J14	1→Powered (green led [13] On)
2128	Read drain motor valve position J15	1→closed (green led [14] Off)
		0→open (green led [14] On)
2130	Read Level position status	0→Low-minimum (Yellow led [15])
		1→Operating level J17(Green led [15])
		2→Maximum water level J16(red led [15])
		3→Level fault (red led [15] flashing)



Address	Description	Reading
2132	Read pump status J11	0→not operating (green led [16] Off)
		1→Operating (green led [16] On)
		2→Pump fault (red led [16] On)
2134	Motor pump circuit breaker status	0→Circuit breaker fault
		1→Circuit breaker correct
2136	UV lamp operating status sensor J18	0-→No fault
		1 <b>→</b> Fault
2200	Alarm, shows the equipment alarm code	
	$0 \rightarrow NO ALARM$	
	1 → CPU	
	2 → CLOCK	
	4 →PROBE	
	8 →LEVEL SENSORS	
	16 →CIRCUIT BREAK FAULT	
	32 →UV FAULT	
	64 →DRAIN	
	128 →FILLING	
	256 →MOTOR VALVE 1	
	512 →DIRTY WATER	
	1024 →AUXILIARY FAULT	
	2048→UV LAMP EXPIRED	
	F4096 →AUXILIARY MODBUS 4096 F	AULT

#### 8.7.2. BACnet/IP:

Pay attention to the following screens that the Display shows regarding this type of communication:

- ◆ BACNET UDP Port: Select the address of the Bacnet UDP Port. By default it is 47808.
- Select the BACnet device number. By default it is 1234.

#### **BACnet/ IP Protocol:**

- Type: Bacnet/IP over Udp
- Connect the Ethernet cable to the SEF-029 card before starting the Disconnector I1. The LEDs for connection (yellow) and communication (green) are not currently available. The default IP address is 10.42.0.100
- The foreign device must be registered as follows: Remote BBMDIPv4.IPv6 Endpoint = 10.42.0.100:47808



#### Mapping for BACnet communication protocols:

Write: The following table shows the write function of each communication object:

Object	Description	Writing
SET OnOff Auto*	Write position disconnector	$0 \rightarrow OFF$ , $1 \rightarrow ON$ , $2 \rightarrow AUTO(Subject)$
(Analog_Output:0)=1010	switch I1	to interlocking function in J21)
SET DRAIN CONFIG.	Write signal configuration	0→Never, 1→Standard, 2→
(Analog_Output:14)=1064	empty	Conductivity control
SET_LANGUAGE	Write Language	0→Spanish 1→English 2→German
(Analog_Output:16)=1070		3-→French
RESET DEF. VALUES	Reset to factory default	Key required for reset 1997
(Analog_Input:14)	values	
SET EMERGENCY J20	Activates the alarm signal	$0 \rightarrow$ Alarm Off
(Analog_Output:17)		1→ Alarm On

\* These objects are bidirectional: In addition to working as writing, they show the reading of their states.

Object	Description	Writing range (increase)	Factory
			setting
SETPOINT µS*	Write conductivity	0-1999µS/cm*(increase	300 µS/cm
(Analog_Output:9)=1012	Set-Point	1µS/cm)	
SET Timer 1*	Write Timer T01	30-1000s(increase 15s)	90s
(Analog_Output:1)=1030			
SET Timer 2*	Write Timer T02	1-15 min(increase 1min)	5min
(Analog_Output:2)=1032			
SET Timer 3*	Write Timer T03	1-60 min(increase 1min)	10min
(Analog_Output:3)=1034			
SET Timer 4*	Write Timer T04	30-400min*(increase	60min
(Analog_Output:4)=1036		30min)	
SET Timer 5*	Write Timer T05	0-24h(increase 1h)	0min=never
(Analog_Output:5)=1038			
SET Timer 6*	Write Timer T06	0-24h(increase 1h)	1h
(Analog_Output:6)=1040			
SET Timer 7*	Write Timer T07	5-360s(increase 5s)	30s
(Analog_Output:7)=1042			
SET Timer 8*	Write Timer T08	10-60min*(increase 5min)	15min
(Analog_Output:8)=1044			



\* These objects are bidirectional: In addition to working as writing, they show the reading of their states.

**Read:** The following table shows the read function of each communication objects:

Object	Description	Reading
PROBE GET µS (Analog_Input:0)=2012	Read conductivity value	0-1999 μS/cm*
PROBE GET TEMP (Analog_Input:1)= 2014	Read temperature value °C	Ej. 18 →18,15ºC

Object	Description	Reading
GET STATUS J25	Read equipment live J25	0→not live (yellow led [3]Off)
(Analog_Input:4)=2116		1→live (yellow led [3]On)
GET STATUS J23	Read general equipment	0→no equipment failure(red led [4]
(Analog_Input:5)= 2118	failure J23	Off)
		1→equipment failure(red led [4] On)
GET STATUS J24	Read general equipment	0→not working
(Analog_Input:6)= 2120	operation status J24	1→in operation
GET STATUS J10	Read UV lamp operation	0→Off (blue led [11] Off)
(Analog_Input:7)= 2122	status J10	1→On (blue led [11] On)
		2→Fault (blue led [11] flashing)
GET STATUS J13	Read filling solenoid valve	0→Off (yellow led [12] Off)
(Analog_Input:8)= 2124	status J13	1→On (yellow led [12] On)
GET STATUS J14	Read drainage motor valve	$U \rightarrow No \text{ power (green led [13] Off)}$
$(Analog_Input:9) = 2126$	power status J14	□→Powerea (green lea [13] Oh)



GET STATUS J15	Read drain motor valve	1→closed (green led [14] Off)
(Analog_Input:10) =2128	position J15	0→open (green led [14] On)
GET STATUS J16&J17	Read Level position status	0→Low-minimum (Yellow led [15])
(Analog_Input:11) =2130	·	1→Operating level J17(Green led
		[15])
		2→Maximum water level J16(red
		led [15]) 3→Level fault (red led [15]
		flashing)
Object	Description	Poading
GET STATUS 111	Read nump status, 111	$0 \rightarrow \text{not operating}$ (green led [16] Off)
(Analog Input: 12) - 2132		$1 \rightarrow 0$ perating (green led [16] 0n)
( <i>indiog_input.rz</i> ) = 2102		$2 \rightarrow Pump fault (red led [16] On)$
GET STATUS BREAKER	Motor pump circuit breaker	$0 \rightarrow Circuit breaker fault$
(Analog Input: 13) = 2134	status	1→Circuit breaker correct
GET STATUS J18	UV lamp operating status	0→No fault
(Analog Input:14) =2136		
	sensor J18	1→Fault
GET ALARMS	sensor J18 Alarm, shows the equipmen	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU 2 → CLOCK	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU 2 → CLOCK 4 → PROBE	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU 2 → CLOCK 4 →PROBE 8 →LEVEL SENSORS	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU 2 → CLOCK 4 →PROBE 8 →LEVEL SENSORS 16 →CIRCUIT BREAK FA	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen 0 → NO ALARM 1 → CPU 2 → CLOCK 4 → PROBE 8 → LEVEL SENSORS 16 → CIRCUIT BREAK FA 32 → UV FAULT	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen $0 \rightarrow NO ALARM$ $1 \rightarrow CPU$ $2 \rightarrow CLOCK$ $4 \rightarrow PROBE$ $8 \rightarrow LEVEL SENSORS$ $16 \rightarrow CIRCUIT BREAK FA$ $32 \rightarrow UV FAULT$ $64 \rightarrow DRAIN$	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18         Alarm, shows the equipmen         0 → NO ALARM         1 → CPU         2 → CLOCK         4 → PROBE         8 → LEVEL SENSORS         16 → CIRCUIT BREAK FA         32 → UV FAULT         64 → DRAIN         128 → FILLING	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen $0 \rightarrow NO ALARM$ $1 \rightarrow CPU$ $2 \rightarrow CLOCK$ $4 \rightarrow PROBE$ $8 \rightarrow LEVEL SENSORS$ $16 \rightarrow CIRCUIT BREAK FA$ $32 \rightarrow UV FAULT$ $64 \rightarrow DRAIN$ $128 \rightarrow FILLING$ $256 \rightarrow MOTOR VALVE 1$	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18         Alarm, shows the equipmen         0 → NO ALARM         1 → CPU         2 → CLOCK         4 → PROBE         8 → LEVEL SENSORS         16 → CIRCUIT BREAK FA         32 → UV FAULT         64 → DRAIN         128 → FILLING         256 → MOTOR VALVE 1         512 → DIRTY WATER	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18 Alarm, shows the equipmen $0 \rightarrow NO ALARM$ $1 \rightarrow CPU$ $2 \rightarrow CLOCK$ $4 \rightarrow PROBE$ $8 \rightarrow LEVEL SENSORS$ $16 \rightarrow CIRCUIT BREAK FA$ $32 \rightarrow UV FAULT$ $64 \rightarrow DRAIN$ $128 \rightarrow FILLING$ $256 \rightarrow MOTOR VALVE 1$ $512 \rightarrow DIRTY WATER$ $1024 \rightarrow AUXILIARY FAUL$	1→Fault t alarm code
GET ALARMS (Analog_Input:15) = 2200	sensor J18         Alarm, shows the equipmen         0 → NO ALARM         1 → CPU         2 → CLOCK         4 → PROBE         8 → LEVEL SENSORS         16 → CIRCUIT BREAK FA         32 → UV FAULT         64 → DRAIN         128 → FILLING         256 → MOTOR VALVE 1         512 → DIRTY WATER         1024 → AUXILIARY FAUL         2048 → UV LAMP EXPIRE	1→Fault t alarm code AULT .T :D



#### 8.8. Language

Select the language you want from the Display:

- Español
- English
- Deutsch
- Francais
- 8.9. Date

Set the exact date and time by entering the data shown on the following screens:

- Seconds
- Minutes
- ✤ Time:
- Day of the week
- Month
- ✤ Year

CONF	IGURATION
-⊢LA	NGUAGE
	→French →Deutsch →English →Spanish

CONF	IGURATION
-⊳D/	ATE
	→SEC 00 →MIN 00 →HOUR 00 →WEEK DAY 00 →MONTH 00 →YEAR 00

ADJUSTMENTS

→SET-POINT µS/cm



## 9. Settings

The desired values for the different parameters to be adjusted are configured in this section. The conductivity set-point and the different Timers are configured. Each parameter has a range of values it can be set to.

The different parameters to be adjusted are shown on the Display screen (integrated in the command and display interface).

You can move from one screen to another using the vertical arrows. Use the right arrow to advance to the next level within a screen, and the left arrow to go back a level.

#### 9.1. SET-POINT µS/cm (if applicable)

Enter the conductivity set-point. If this conductivity value is exceeded, the motorised drain valve is activated and the water is renewed to the desired conductivity (lower than the Set point).

It must be remembered that the TIMER T07 regulates the time for the set-point value to be exceeded before opening the drain valve, while TIMER T02 established the time between partial emptyings.

The range varies from 0-1999 µS/cm.

#### 9.2. TIMER T01 (ex SW1 AB)

Enter the recirculation pump delay time after the minimum water level is detected. This is not too short to cause the phenomenon of spiking but not too long for the minimum water level to shut down the pump. ADJUSTMENTS └→TIMER T01 SW1 AB └→000 seg

The Timer range is from 30 s to 1000 s.

The factory set value is 90 s.



# ADJUSTMENTS STIMER T02 SW1 CD └>00 min ADJUSTMENTS →TIMER T03 SW2 AB 1⇒00 min ADJUSTMENTS →TIMER T04 SW2 CD └>000 min ADJUSTMENTS →TIMER T05 SW3 AB └>00 h

#### 9.3. TIMER T02 (ex SW1 CD)

Enter the time between partial emptying of the basin with conductivity control.

The Timer range is from 1 min to 15 min. The factory set value is 5 min.

## 9.4. TIMER T03 (ex SW2 AB)

Enter the complete emptying confirmation time. This is the maximum time for the level sensor to confirm the minimum water level or obstruction of the drain after the emptying command.

The Timer range is from 1 min to 60 min. The factory set value is 10 min.

## 9.5. TIMER T04 (ex SW2 CD)

Enter the additional complete emptying time, during which the emptying motor valve will be open.

## The Timer range is from 30 min to 400 min.

The factory set value is 60 min.

## **9.6. TIMER T05** (ex SW3 AB)

Enter the complete emptying frequency during operation.

The Timer range is from 0 min to 24 h. The factory set value is 0 min.  $0 \min = never$ 



#### 9.7. TIMER T06 (ex SW3 CD)

Enter the delay before complete emptying after the equipment has been turned off.

The Timer **range** is from 0 h **to 24 h**. The factory set value is 1 h. O h = Empties as soon as the equipment is switched off.

9.8. TIMER T07 (ex SW4 CD)

Enter the set-point time before partial emptying, by opening the drain motor-valve, due to the conductivity being continuously exceeded.

The Timer **range** is from 5 s **to 360 s**. The factory set value is 30 s.

#### 9.9. TIMER T08

Enter the maximum time for the filling to occur: Time for the minimum level to be reached once the basin is on process of filling.

The Timer **range** is from 5 min **to 60 min.** The factory set value is 15 min.

ADJUSTMENTS
→TIMER T06 SW3 CD
L>00 h



└>000 min



## 10. Calibration

Calibration is recommended every 12 months.

This is done as follows:

- I. Immerse the probe tip in the HI 7061 Cleaning Solution (item code 69510002) for at least one hour. If thorough cleaning is required, wipe the metal tips with very fine sandpaper or a non-abrasive brush.
- II. Fill a clean container with high conductivity liquid. This can be done with the HI 7031 solution of 1413 μS/cm (item code 69510001).
- III. Insert the probe into the container to measure the conductivity.
- IV. Obtain the liquid temperature (e.g. 22°C) shown in the supervision menu. Wait 5 min until the temperature reading stabilises.
- V. Check the solution conductivity at that temperature on the table on the bottle label (e.g. 1332  $\mu$ S).
- VI. This value is entered in the menu CALIBRATION → HIGH.
   To do this, access the menu containing the conductivity value for the measuring probe (e.g. 1380 µS). Correct it according to the conductivity value at that temperature.

CALIBRATION: └>HIGH 1413 µS/cm 000 <

(Example 1332  $\mu$ S). Exit completely from the menu to the supervision, so that the value is registered in the memory.

VII. For CALIBRATION →LOW, repeat steps I - VI, using the low conductivity liquid. The HI 7033 solution of 84µS/cm (item codes 69510003 and 69510004) can be used.

CALIBRATION: LQW 84 µS/cm >000



## 11. Launching

#### **IMPORTANT:**

Request start-up of your units by contacting: sat@fisair.com o service@fisair.com https://fisair.com/es/servicio/puestas-en-marcha/ (request in spanish) https://fisair.com/service/start-ups/ (request in english)

After the pre-installation steps and all connections have been made according to the corresponding electrical diagram: (See the electrical diagram number on the ratings plate inside the CCB2.0)

- **1.** Check the mains voltage corresponds to the CCB2.0 supply voltage according to its corresponding electrical diagram.
- 2. Switch the disconnector I1 status from position 0 to 1.

The LEDs over the control and display interface are swept and the "low voltage" remote signalling contact is activated (Connection J25).



Fisair S.L.U. 00/00/0000 00:00 HEF2E --> OFF

- 3. The initial adjustments (configuration and settings) to the working mode choice are made.
- a) UV lamp (if applicable)

Turn the UV lamp on or off using the navigation buttons. See section 6.3

- b) Conductivity probe: (if applicable)
   Adjusting the SET-POINT: The conductivity SET-POINT is adjusted as in section 7.1.
- Recommendation:

The set-point should be 20% higher than the first reading made, when filling the clean water basin is filled for the first time.

The TIMER **T01** must be coded to perform this reading (see section 7.2) at 1000 s, so the reading can be done without starting the pump; as starting the pump would contaminate the water in the basin. Once this reading is noted, re-set the **TIMER T01** to the factory setting or according to contractual requirements.



Partial emptying operation (if Conductivity Control is applied):

- \* Once the SET-POINT and **TIMER T07** are exceeded (the latter establishes the time the setpoint has to be continuously exceeded), the emptying motor valve will open and the water in the basin will be renewed, due to the filling solenoid valve staying open (the filling solenoid valve is controlled and closes only when the maximum level is detected).
- \* A minimum partial emptying of 100s will be performed, the motor valve will be closed and the basin filled until the float valve cuts out. The filling solenoid valve will remain open (the closing of the filling solenoid valve is controlled only by the maximum level detector).
- If the probe has no reading (it is not in contact with the water), this means the water level has dropped below the probe electrodes. The motor valve will close and a new partial emptying cycle will begin, with the **TIMER T02** taking note of the minimum time between partial emptying and **TIMER T07** of the set-point time of the conductivity being continuously exceeded.
- \* The complete cycle of this operation is performed without the pump being shut down.
- 4. Selecting the working mode that best suits your needs: automatic or manual:

The desired working mode is selected using the MAN or AUTO buttons. (Remember to have the I1 disconnector in position 1)

See section 5 "Supervision" to display the equipment status (MAN, AUTO or START).

MAN → START OPERATION

Fisair S.L.U. 00/00/0000 00:00 HEF2E--> ON (MAN);

AUTO → START OPERATION

Fisair S.L.U. 00/00/0000 00:00 HEF2E--> ON (AUTO);



#### 5. Operation:

- I. If the UV lamp is on, the LED  $\bigotimes$  uv flashes blue until the confirmation of the ignition sensor is received. It will then stop flashing and be lit continuously in blue. If the lamp is submerged, J18 must be bridged (IN1) as it works for hours.
- II. Once the working mode has been chosen (MAN or AUTO), the water supply solenoid valve LED ights up to fill the basin until the mechanical float valve closes. If there is a fault in the mechanical float valve, the basin continues filling until the level

sensor detects the maximum water level (LED turns red)

- III. Once the minimum water level has been reached (green LED ), the water recirculation pump turns on (green LED) after the time established in **TIMER TO1**
- IV. During operation or after switching off, the LEDs  $\checkmark$  will light up depending on  $\bowtie$  the emptying settings.
- V. During the operation whether MAN or AUT an alarm code will be seen on the display if there is an anomaly. (see section 5 "supervision")
- VI. If the equipment has a conductivity meter option:
   The conductivity reading will appear in the display in µS/cm. (see section 5 "supervision")



#### 12. Alarms

List of alarms:

Signal for alarm	Component	Description of the alarm	Recommended action
40*	CPU	Internal card failure: SEF-025.1	Contact Technical Services
41*	RAM memory	RAM memory	Replace battery and/or contact Technical Services to reload the program into RAM memory
42*	Conductivity probe:	Connection error or damaged component	Check the connection and/or contact Technical Services
43	Level switch	Connection error or damaged component	Contact Technical Services
44*	Magneto-thermal circuit breaker	Connection error, over current or lack of phases	Check the connection, ensure the power network is correct. Fault repaired: Reset circuit breaker
45*	UV lamp	The contact IN1 has not been closed by the lamp sensor	Check the UV lamp sensor signal
46	Drain/emptying motor-valve	Emptying confirmation time has elapsed; no minimum level of water detected	Check proper operation of the emptying motor-valve
47	Water supply	Fill confirmation time has elapsed; no minimum level of water detected	Check proper operation of the water supply solenoid valve
48	Drain/emptying motor-valve	Established time has elapsed without detecting feedback from the drain/emptying motor valve	Check proper operation of the motor valve feedback connection
49	Conductivity	Unable to reduce water conductivity	Check proper operation of the conductivity sensor. Check conductivity set-point
50*	External fault	IN3 open, if external component installed.	-
51*	UV lamp immersion in basin	This lamp has been used for over 16,000 hours	Replace UV lamp with a new one. Reset timer 16,000 h according to chapter 8.5 UV lamp configuration

\* These alarms stop the operation of the equipment. Once you have resolved the problem, you must turn the device off and on again to reset to initial status.



#### 13. Declaration of conformity

#### 13.1.D.C. Machine





#### 13.2.D.C. Partly completed machinery





## 14. Warranty

APPRO	
	Departamento de Calidad
	<b>FISAIR S.L.U.</b> C/ Uranio, 20 (Pol. Ind. Aimayr) 28330 San Martín de la Vega (Madrid) SPAIN Tf <sup>o</sup> (34) 916921514 Fax (34) 916916456
Two-year	Limited Warranty
FISAIR war two (2) yea the earlier.	rants to the original purchaser that its products will be free from defects in materials and parts for a period Irs after installation or twenty-seven (27) months from the date FISAIR ships such product, whichever date
If any FISA entire liab product or	IR product is found to be defective in material or assembly during the applicable warranty period, FISAIR ility, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective part.
Warranty	disclaimer
FISAIR sha or reinstall	Il not be liable for any costs or expenses, whether direct or indirect, associated with the installation, remov ation of any defective product.
The Limite	d Warranty does not include any consumer part such as joints, pulleys, filters or media.
FISAIR's Lir	nited Warranty shall not be effective or actionable if:
a) b) c)	All related product invoices have been payed in time and terms. Unless there is compliance with all installation and operating instructions furnished by FISAIR, or if th products have been modified or altered without the written consent of FISAIR, or if such products have bees subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Such situation could be an incorrect power supply connection, crashed with inappropriate objects, security protection devices unblocked and so. Components and/or manufactures are affected or damaged by the effects of corrosion (gradual wear of the metal bodies by the action of external actors not controlled by FISAIR).
Anywarra	nty claim must be submitted to FISAIR in writing within the stated warranty period.
Parts War	ranty
Defective p customert (see warra	parts may be required to be returned to FISAIR. In case any part is claimed as a faulty one, FISAIR will ask th o send the part back to the factory in order to analyze if the part is failing due to any of above referred actior nty disclaimer) or due to effective part failing.
lf the part with a 30 d would be n	must be replaced immediately, FISAIR will ship the part to the customer immediately and invoice the pa ays delay payment for the faulty part to be returned. If the part is returned in this period, the part fail analys nade to emit a technical report for the warranty coverage based in this Warranty Statement document.
In case tha FISAIR doe paragraph	t the part is failing due to a lack of quality, FISAIR will credit this invoice in order to stop the payment. In cas s not receive the part in this period, or if the failure is due to the reasons covered in the Warranty disclaime , the invoice will be effective.
In case an shipment c	y part from the product / shipment is missing, the customer should notify FISAIR before 3 days from th Jate of arrival.
	1/2



CONTROL OF	FISAIR S.L.U. WARRANTY POLICY
	Quality Department Departamento de Calidad
Service Covere	d by Warranty
In case that there select the perso service FISAIR un	e is any FISAIR product that should be serviced in order to recover its proper used designed, FISAIR will n (s) in charge of this operation. These qualified technicians should have the enough knowledge to its.
No company sho any cost should FISAIR staff to so	uld practice a warranty service without the writing FISAIR notice giving the authorization to do it and if be cover by FISAIR should be advised in advance to the service job. In case that FISAIR should send lve the solution, trip expenses are not covered by the warranty.
FISAIR's Limited including but no purpose, any imp	Warranty is made in lieu of, and FISAIR disclaims all other warranties, whether express or implied, t limited to any implied warranty of merchantability, any implied warranty of fitness for a particular plied warranty arising out of a course of dealing or of performance, custom or usage of trade.
FISAIR shall not, (including, but no related to the m sought based on if FISAIR has noti	under any circumstances be liable for any direct, indirect, incidental, special or consequential damages ot limited to, loss of profits, revenue or business) or damage or injury to persons or property in any way anufacture or the use of its products. The exclusion applies regardless of whether such damages are breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory, even ce of the possibility of such damages.
By purchasing FIS	SAIR's products, the purchaser agrees to the terms and conditions of this Limited Warranty.
Extended Warr	ranty
The original user applicable warra conditions of th extended term.	r may extend the term of the FISAIR Limited Warranty for a limited number of months past the initial anty period and term provided in the first paragraph of this Limited Warranty. All the terms and e Limited Warranty during the initial applicable warranty period and term shall apply during any
Each case shoul operation site.	d be valued in terms of type of product, equipment application, use and location of the product
Any extension of the purchaser.	f the Limited Warranty under this program must be in writing, signed by FISAIR, and paid for in full by
Quality Mana	ger:
Hugo J. Lópe	zzAlvarez
San Martin d	de la Vega, February 2016
	2/2