fisair
air humidity control

INSTALLATION AND OPERATION MANUAL
FOR THE STAGES CONTROL PANEL (CCE2.0) FOR
FISAIR EVAPORATIVE HUMIDIFIERS

Software version 2.1 | MCCE2.0-EN-22-0

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.

Contents

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 CCE2.0 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 CCE2.0 panel using a padlock.**
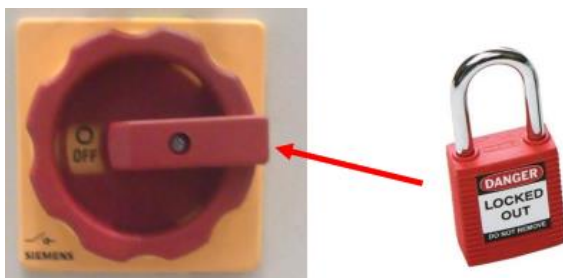
Installation of a residual current device in the power supply line.

The installer has to 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 stages control panel has been specifically designed for the interconnection and supervision of the accessories supplied with the *FISAIR Evaporative Humidifiers*. The incorporation of the CCE2.0 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
- Solenoid valves for different Stages
- UV lamp water treatment system (optional)
- Water conductivity control (optional)
- Modbus TCP/IP (optional)
- Modbus RTU (optional)
- BACnet/IP (optional)

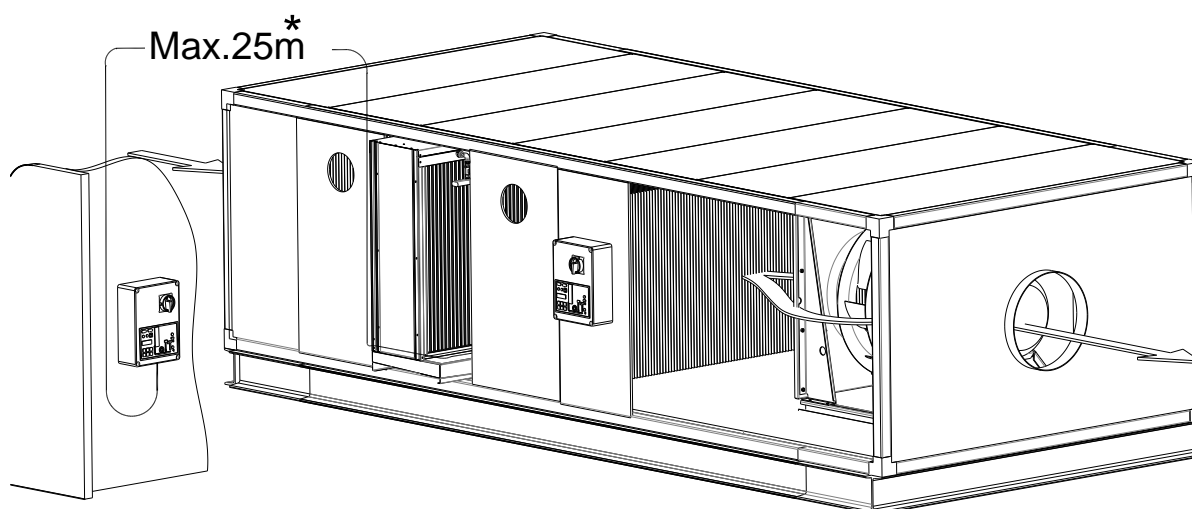* For the MAXIMUM distance of the conductivity probe, ask FISAIR when CCE2.0 + Conductivity Control

Max.25m*

Figure 1: Examples of installation of CCE2.0 on vertical wall and CCE2.0 integrated in the AHU

3. Operating environment

The Stages 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 35ºC it is recommended to use the optional CCE2.0 + 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 ≥ IP54 is maintained.

The basic control panel weighs 7,2 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.
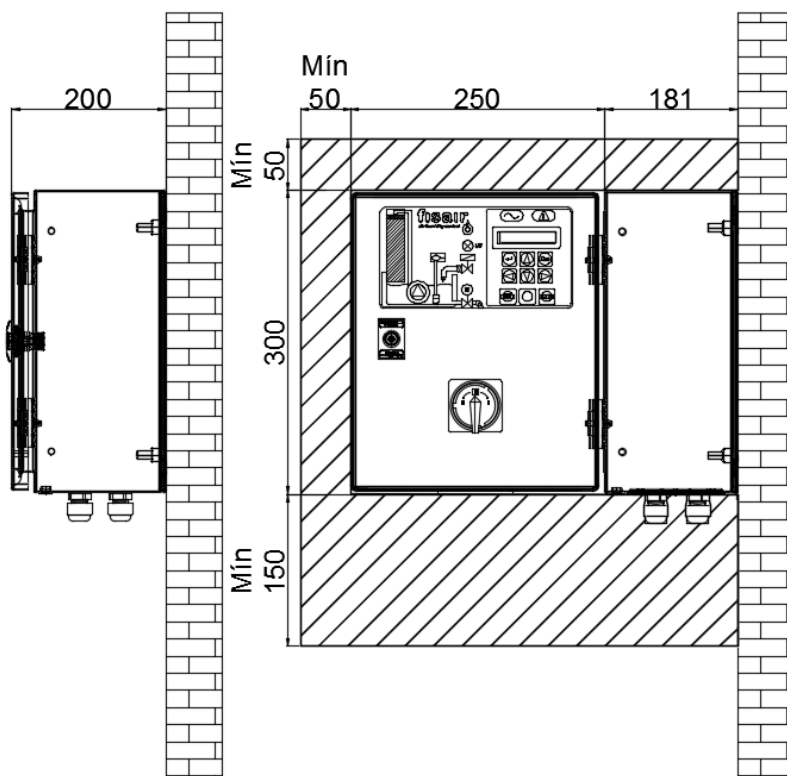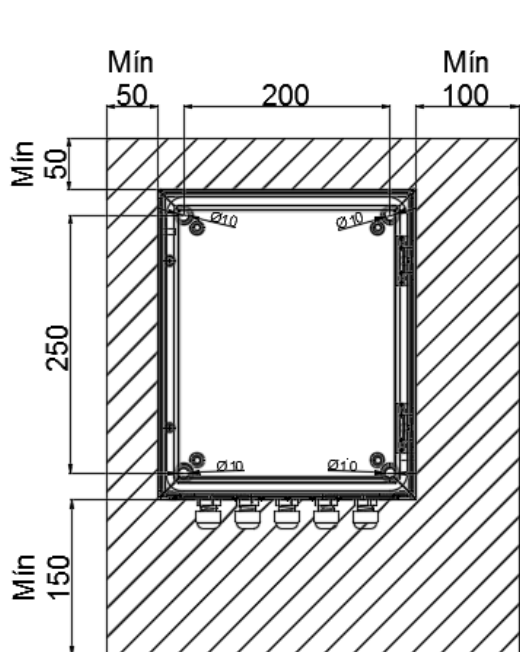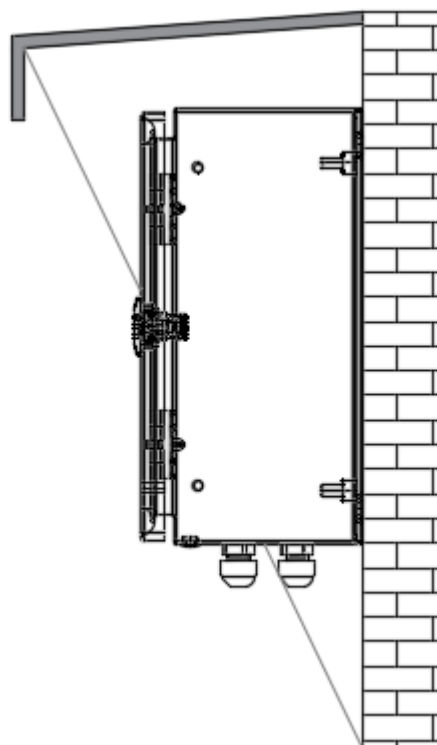

Figure 2.1: Vertical section: front, open door. (Interior)

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 40ºC 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 CCE2.0 stages control panel is classified as a "partly completed machinery"**

Note: If the CCE2.0 stages control panel is supplied together with a device from the HEF range, the set is classified as "machine"

Location of the rating plate:
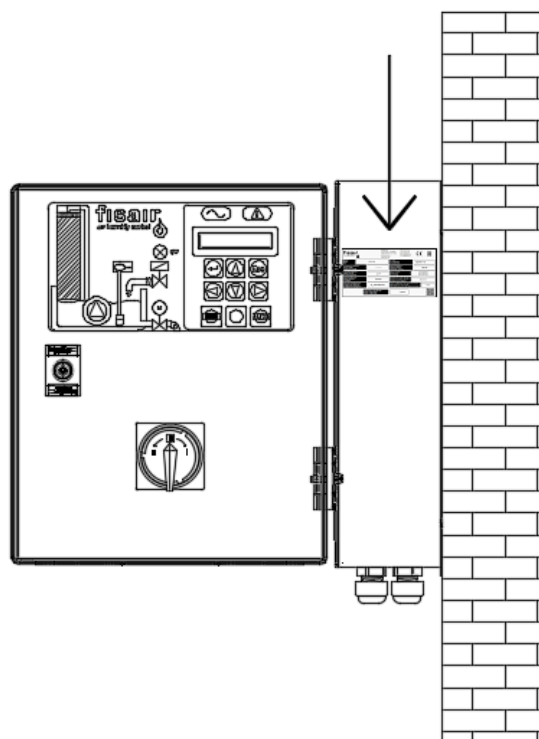
The rating plate shows the following information for the particular CCE2.0 stages control panel:

• 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

fisair air humidity control		FISAIR S.L.U. C/ Uranio, 20 - P.I. AIMAYR 28330 San Martín de la Vega MADRID (SPAIN) www.fisair.com	After Sales Service Servicio Postventa Mail: sat@fisair.com Tel: +34916921514	CE	EAC
Modelo Model Typ	CCB 2.0	Nº Serie Serial Number Seriennummer	202000---01		
Alimentación Eléctrica Power Supply Energieversorgung	-------	Potencia Máxima Maximun Power Maximale Leistung	600 W		
Intensidad Nominal Rated Current Bemessungsstrom	2,2 A	Tipo de máquina Machine type Maschinentyp	Cuasi Máquina Quasi Machine Quasi Maschine		
Esquema Eléctrico Wiring Diagram Schaltplan	E09489	Diseñada de acuerdo a directiva Designed according to directive Entwickelt nach richtlinien	2006/42/CE		
Programa Configuración Configuration Program Konfigurationsprogramm	11_03A03009.bim	Equipos de FISAIR a los que puede incorporarse FISAIR equipment you can join FISAIR-Aurüstung, an der Sie teilnehmen können	HEF2E		
	Fabricado en España (UE) Made in Spain (EU) Made in Spain (UE)	--/2020			

5. Hardware description
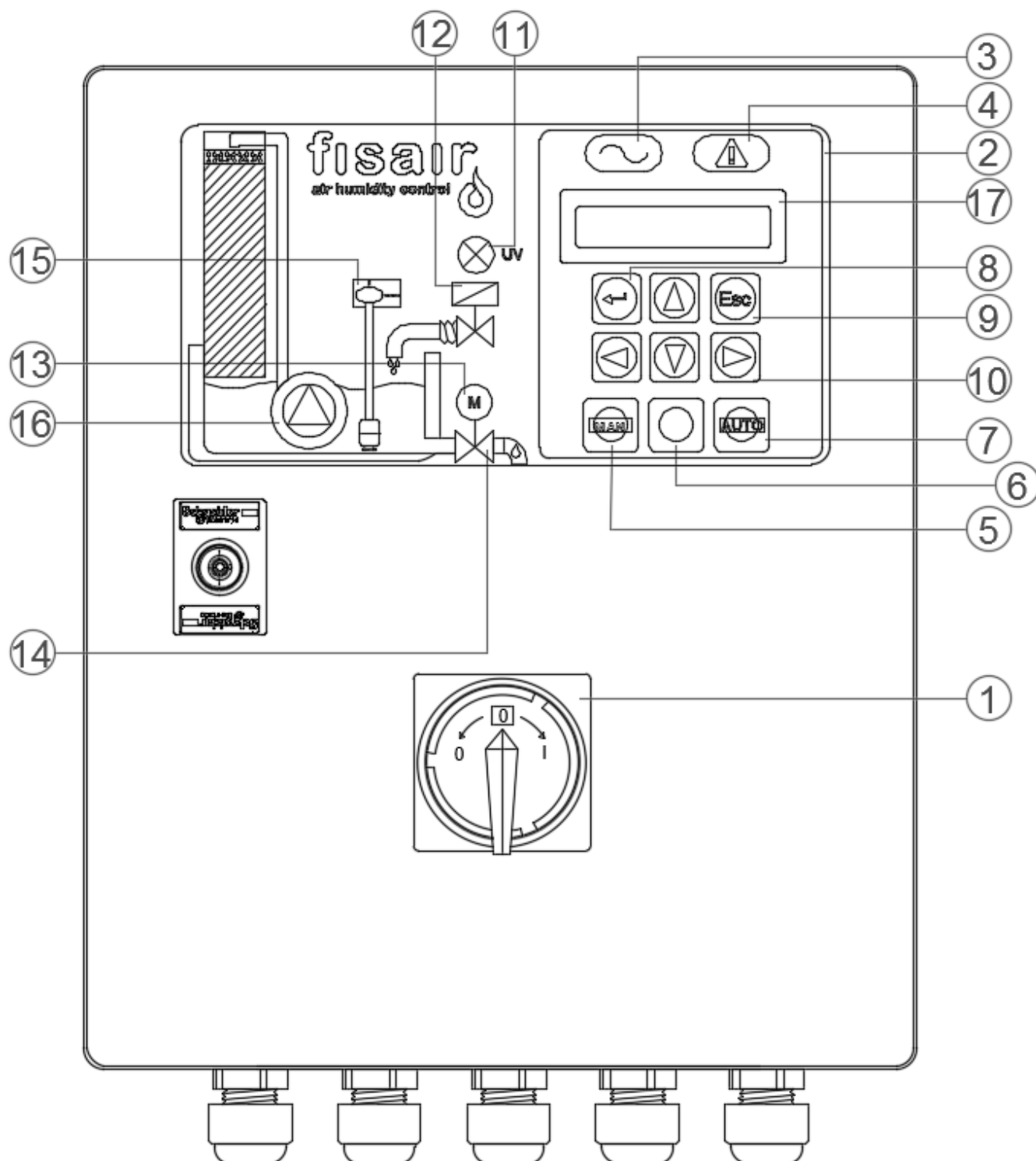
Figure 5.1: CCE2.0 front cover
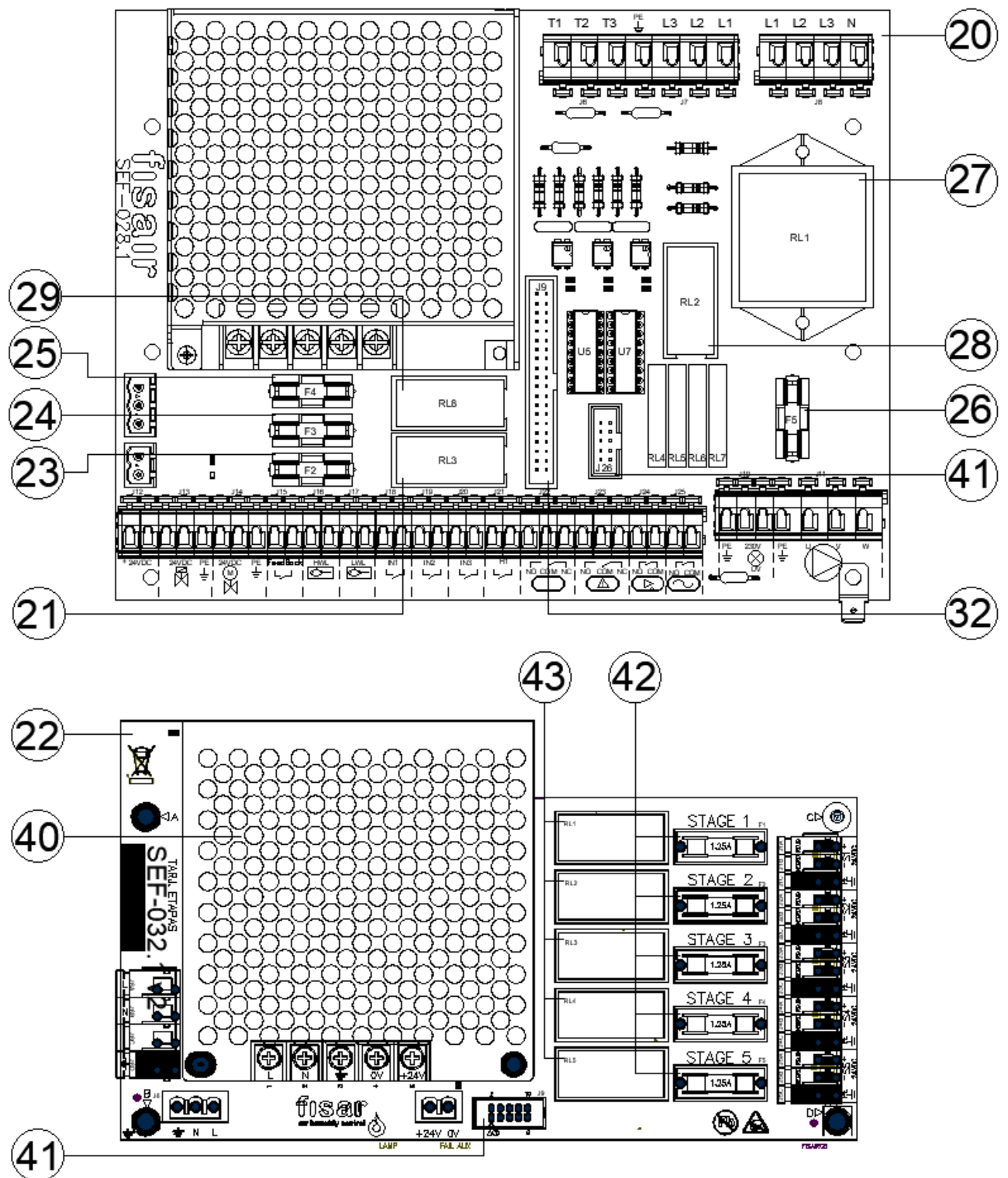
Figure 5.2: SEF-028.1 and SEF-032.1 v2 Power cards
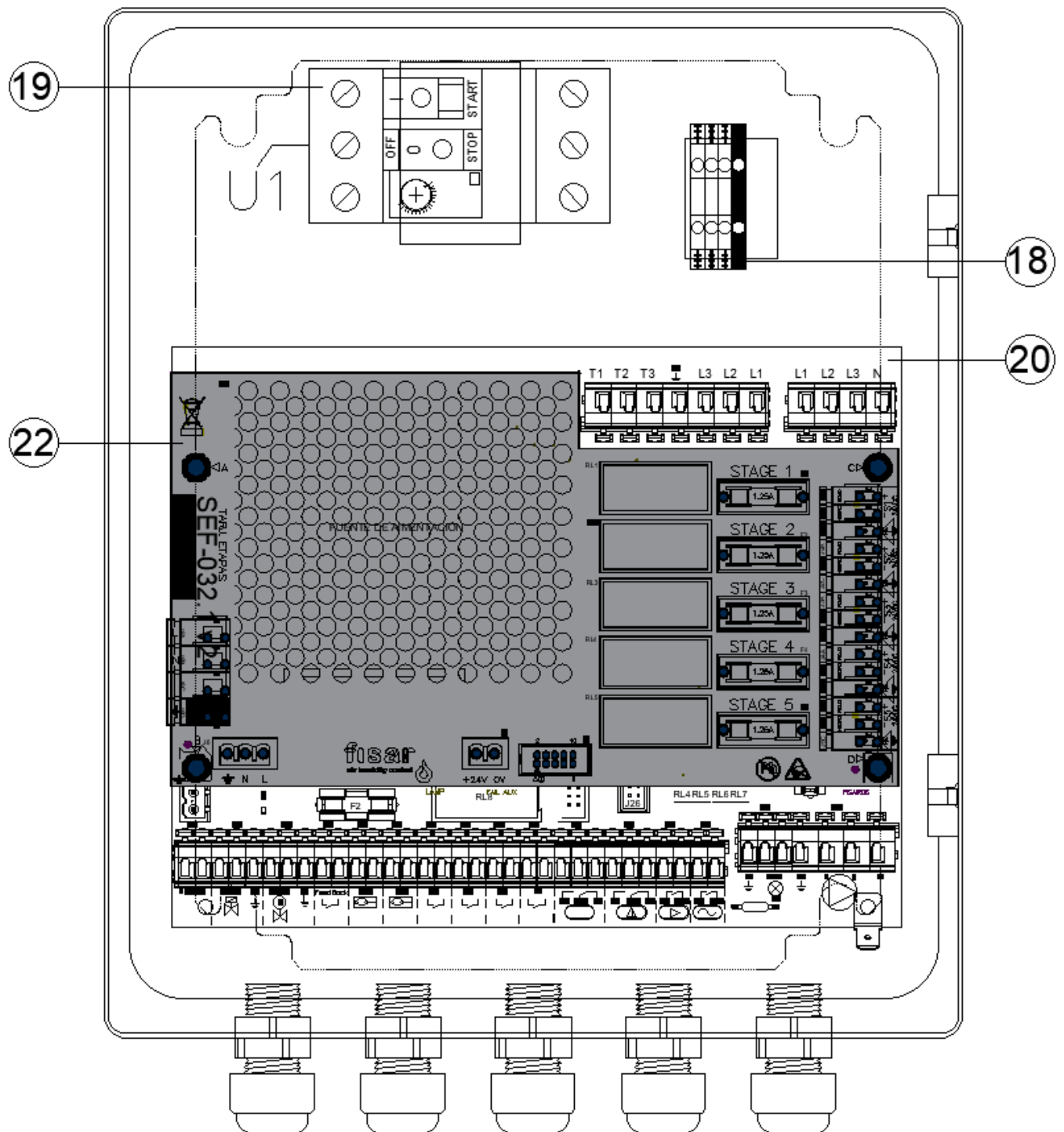
Figure 5.3: CCE2.0 Open (location SEF-028.1 and SEF-032.1 v2 cards)
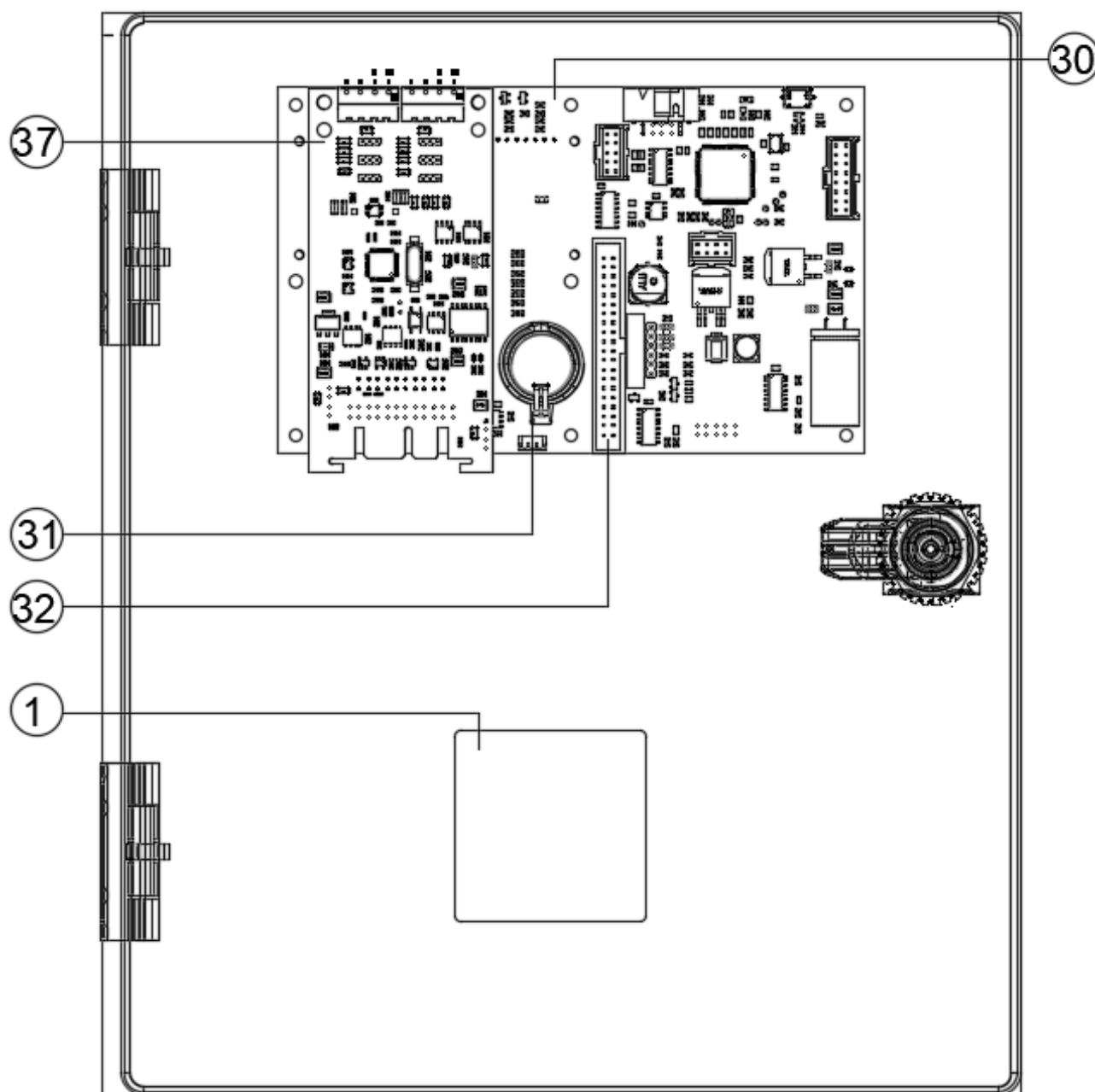
Figure 5.4: Inside cover CCE2.0 (standard)
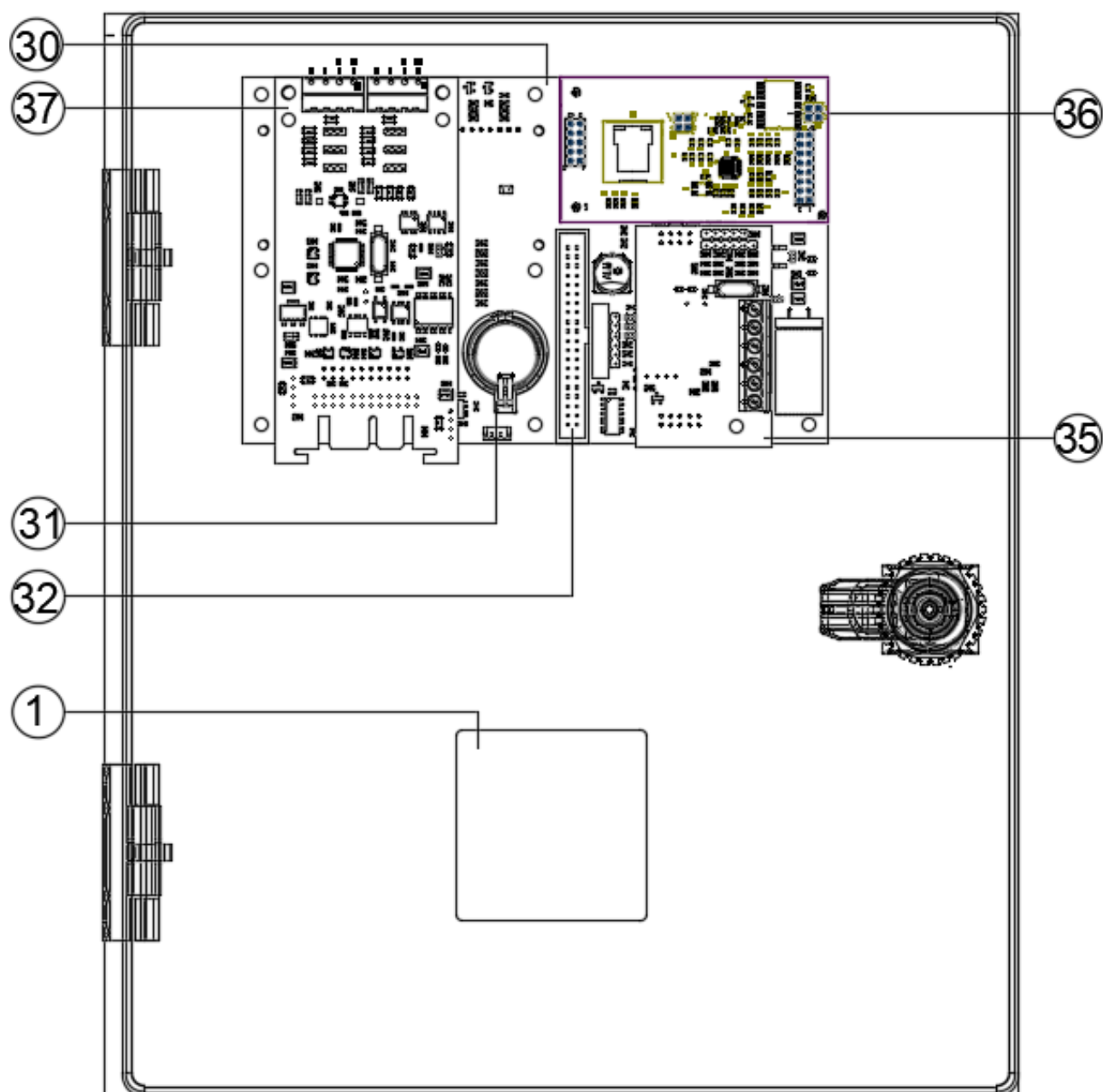
Figure 5.5: Inside cover CCE2.0 (optional data bus and conductivity cards. IP Connection)
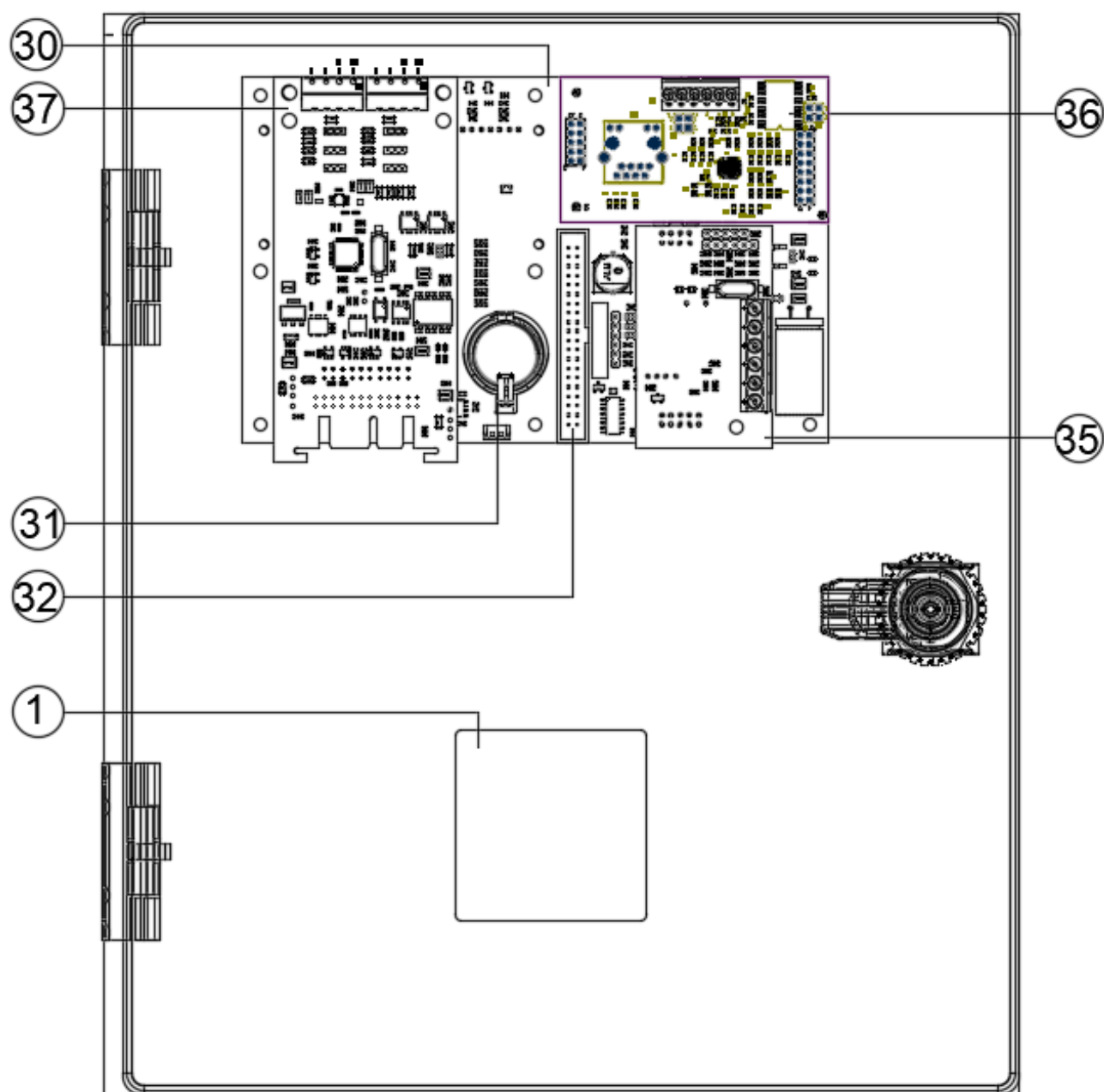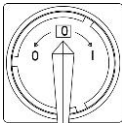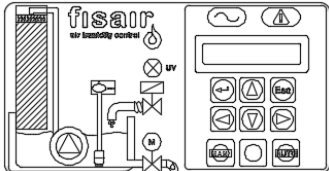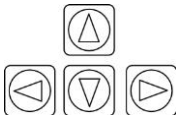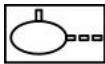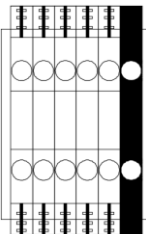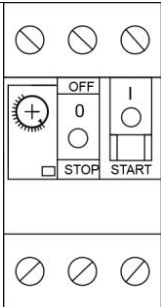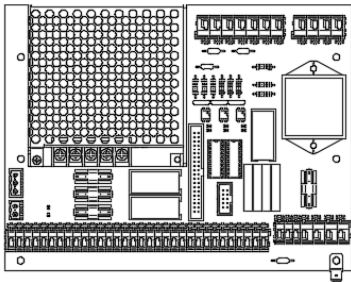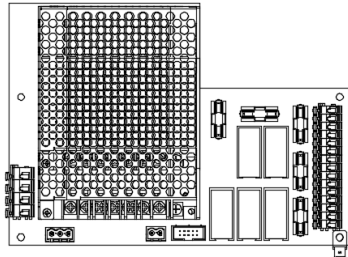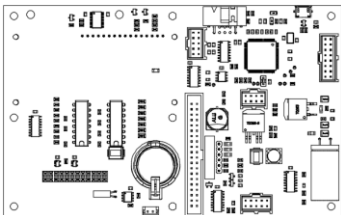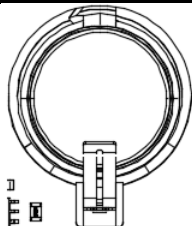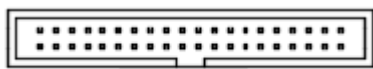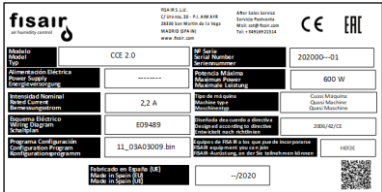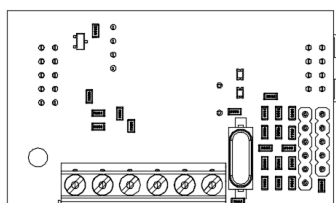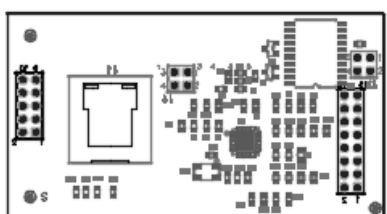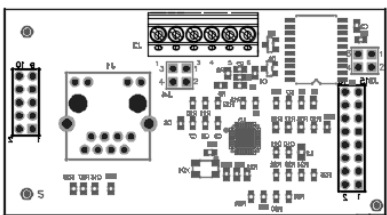
Figure 5.6: Inside cover CCE2.0 (optional data bus and conductivity cards. RTU Connection)
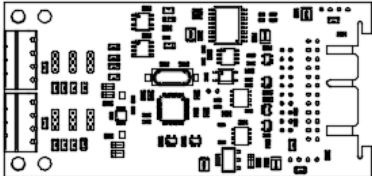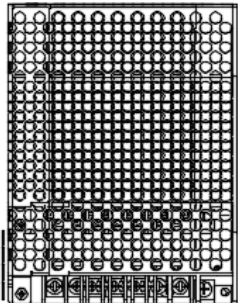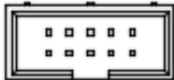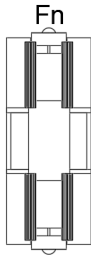
LED / Key	No.	Description, Function and Article Code
	1	Disconnector switch (I1) for cutting and isolating the supply voltage; possibility of locking by padlock (not supplied) Art. Cod.: 64300129
	2	HMI. Command and display interface SEF-027.1 Art. Cod.: 52300012
	3	LED. Yellow. Live equipment
	4	LED. Red. General fault
	5	Operating key in Manual mode
	6	Start/stop status change button
	7	Operating key in Automatic mode.
	8	OK button (ENTER)
	9	Back button (ESC)
	10	Navigation keys
	11	LED. Blue. UV Lamp is operating
	12	LED. Yellow. Indicates the water supply solenoid valve is powered
	13	LED. Green. Indicates the drain valve motor is powered
	14	LED. Green. Indicates the drain motor valve is open (requires feedback connection)

LED / Key/Component	Ref.	Description, Function and Article Code
	15	Float switch status LED: ∗ Yellow. Indicates level below minimum ∗ Green. Indicates operating level ∗ Red. Indicates maximum water level ∗ Flashing red: Indicates fault
	16	Water pump status LED: ∗ Green. Water pump running ∗ Red. Malfunction
	17	Display screen
	18	Power terminals (X1)
	19	Magneto-thermal circuit breaker (U1 in electrical diagram) to protect water pump Art. Cod.: 64350010 (55 W single-phase pump) Art. Cod.: 64350010 (60 W 3-phase pump) Art. Cod.: 64350005 (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)
	20	Electronic power card SEF-028.1 Art. Cod.: 523000013
	22	Electronic power card SEF-032.1 v2 for steps control. Art Cod.: 523000017

LED / Key/ Component	Ref.	Description, Function and Article Code
RL8	29	RL8 relay for motor-valve drain/emptying Art. Cod 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	21	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. Between SEF-28.1 and SEF-025.1
	-	CCE2.0 rating plate. See location in chapter 4.
	34	Conductivity probe with 2 m cable for CCE2.0+C (optional) Art. Cod.: 64220250
	35	Conductivity sensor card SEF-026 for CCE2.0 +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

LED / Key/ Component	Ref.	Description, Function and Article Code
	37	Stage processing card MPCB-IN01. Analog signal for stages 0-10V or 4-20mA Code Art: 52300018
	40	24 V_{DC} Power supply
	41	10 pins Flat cable connector J21. Between SEF-028.1 and SEF-032
	42	Fuse of stage n: F_n n=1,2,3,4,5
	43	Relay of stage n: R_{In} n=1,2,3,4,5

5.1. CCE2.0 + forced ventilation control panel optional

When the panel is to be installed in locations generally outdoors with high temperatures (>35ºC), it is recommended to use the CCE2.0+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 35ºC, adjustable on demand on the thermostat itself).
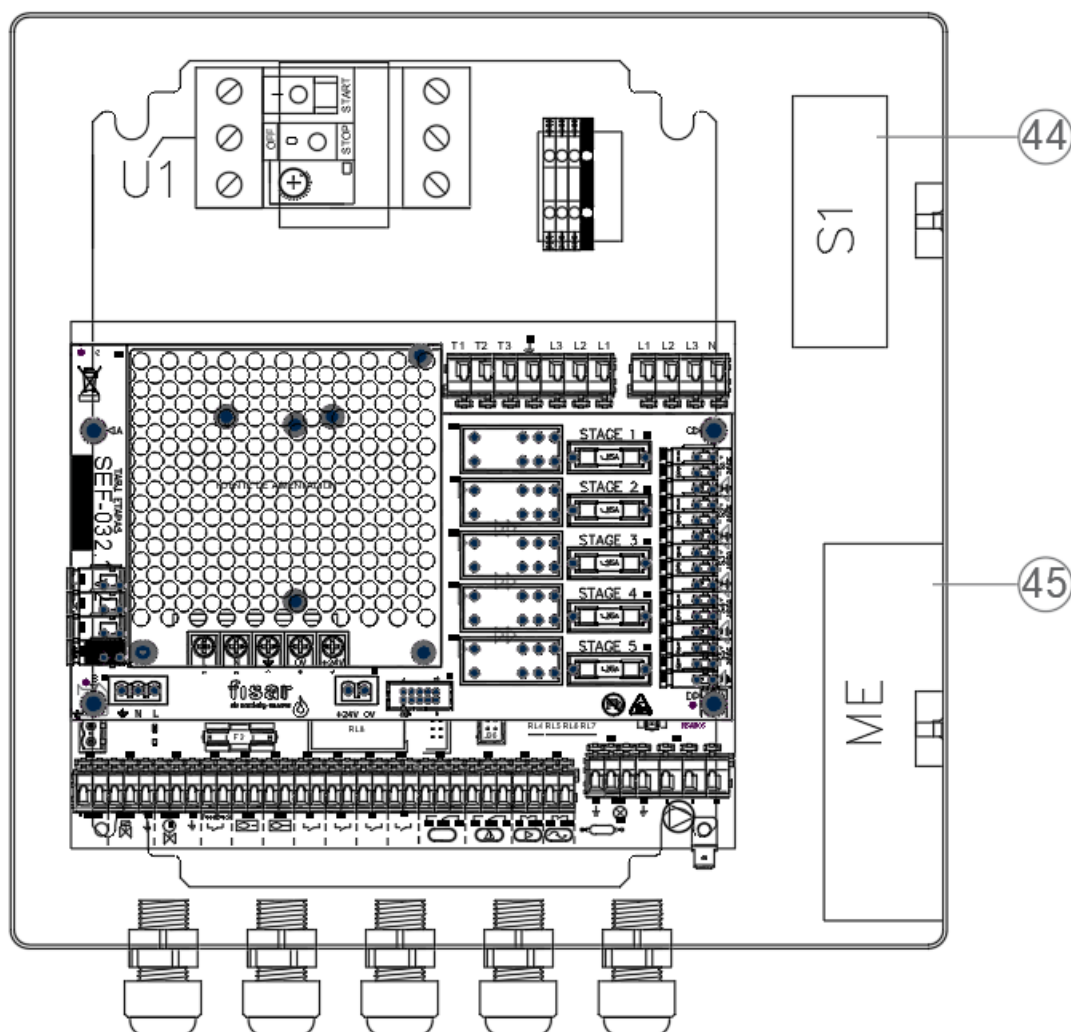
Figure 5.7: CCE2.0 + forced ventilation control panel open

LED / Key/ Component	Ref.	Description, Function and Article Code
S1	44	Control panel cooling fan thermostat
ME	45	Control panel cooling fan
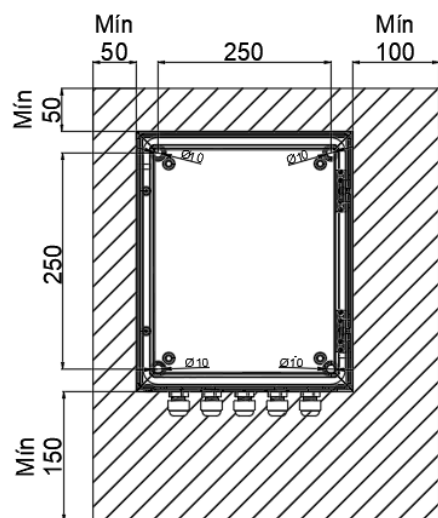
Figure 5.8: Vertical section: front, open door. (Interior)
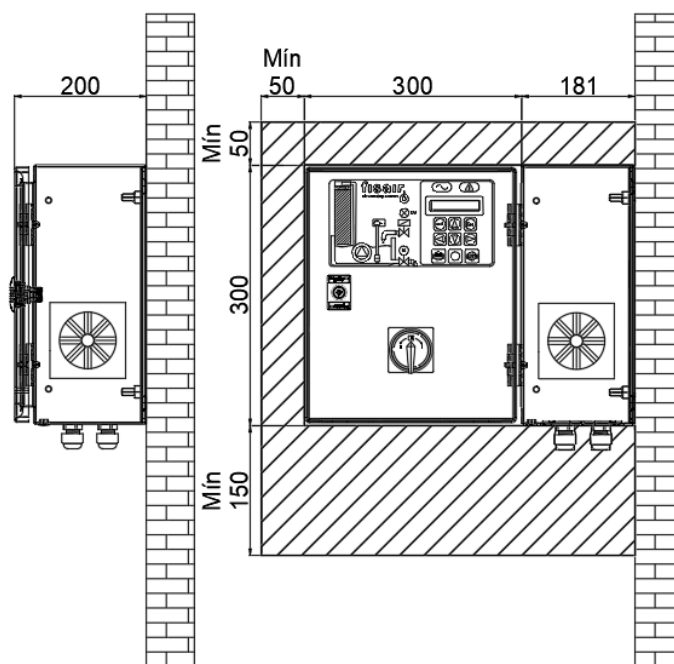
Figure 5.9: Cross section: door closed/open

6. Connections

1) Connect the standard accessories to the SEF-028.1 card according to *Figure* 4.1.
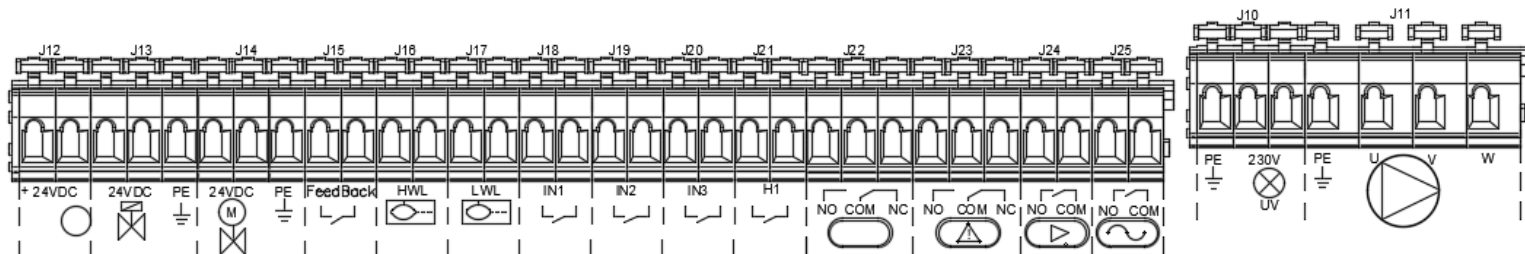
Figure 6.1: SEF-028.1 card

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	50W 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	LWL	J17	Minimum water level sensor (NO contact)	Not powered

*See next page

Type of connection	Symbol	Connection	Description	Max. Power Max. Voltage
Optional.	IN1	J18**	UV lamp operating sensor (if applicable)	Not powered
Optional.	IN2	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	J21**	Remote interlock ON/OFF in automatic mode.	Not powered
-	NO COM NC	J22	Not used.	500VA 250V
Optional.	NO COM NC	J23	Remote fault signal.	500VA 250V
Optional.	NO COM	J24	Remote operation signal.	500VA 250V
Optional.	NO COM	J25	Remote voltage signal	500VA 250V
Optional.	PE 230V UV	J10	UV lamp supply	40W 230V
Mandatory	PE U V V	J11	Water recirculation pump	240W to 400 V 370W to 230 V

* Connection of draining/emptying valve actuators:

SEF-028.1 connection	Actuator	
	Actuator wire number (code)	Actuator wire 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 → A twisted and shielded cable must be used.

When cable length > 15 m → 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 CCE2.0 panel, which is actuated externally.

Example: Connection at J21 (H1):
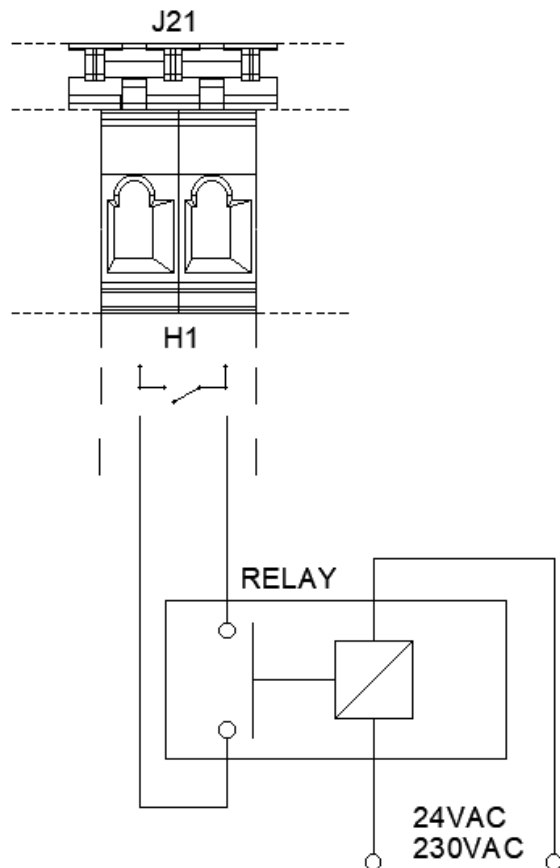
2) Connect (*) the regulated analog external signal to the MPCB-IN01 card according to figure 4.2.
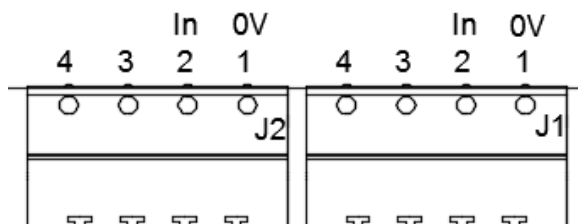
Figure 6.2: MPCB-IN01 *Card (Analog signal connection)*

Type of connection	Symbol	Connection	Description	Max. Power Max. Voltage
Mandatory	0V 1	J1.1	Reference signal (0V)	-
Mandatory	IN 2	J1.2	Analog signal (0-10V)	-
Mandatory	0V 1	J2.1	Reference signal 0V	-
Mandatory	IN 2	J2.2	Analog signal 4-20 mA	-

A. Regulated analog signal of stage control 0..10 V_{DC}.
    Connect this signal to Jumper 1 (J1)
    Connect Jumper JH1, JH2 and JH3 in position 1-2

B. Regulated analog signal of stage control 4..20 mA .
    Connect this signal to Jumper 2 (J2)
    Connect jumper JH4 in position 1-2 and Jumper JH5 and JH6 in position 2-3
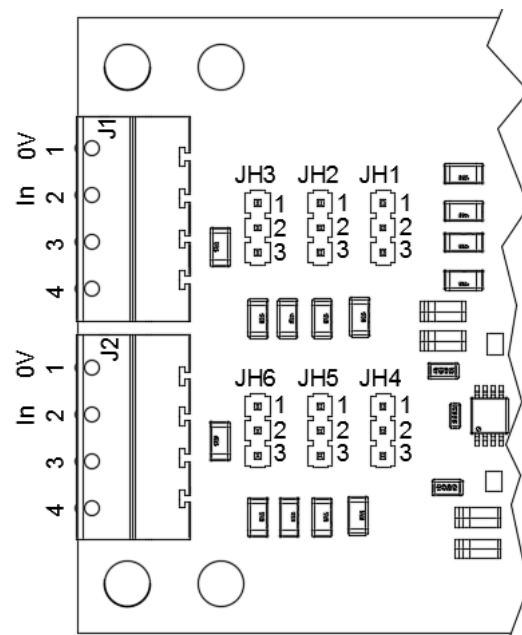
Figure 6.3: MPCB-IN01 card (Jumpers detail)

* When the data bus communication options are available, the analogue signal regulation card MPCB-IN01 must not be connected, as communication will be via the data bus. If you do not want to regulate by data bus, the card must be connected. In these cases, the card is delivered disconnected.

3) Connect the solenoid valves of the different stages to the SEF-032 card according to figure 4.4.

Figure 6.4: SEF 32 Card
(Detail of the connection
Solenoid valves)
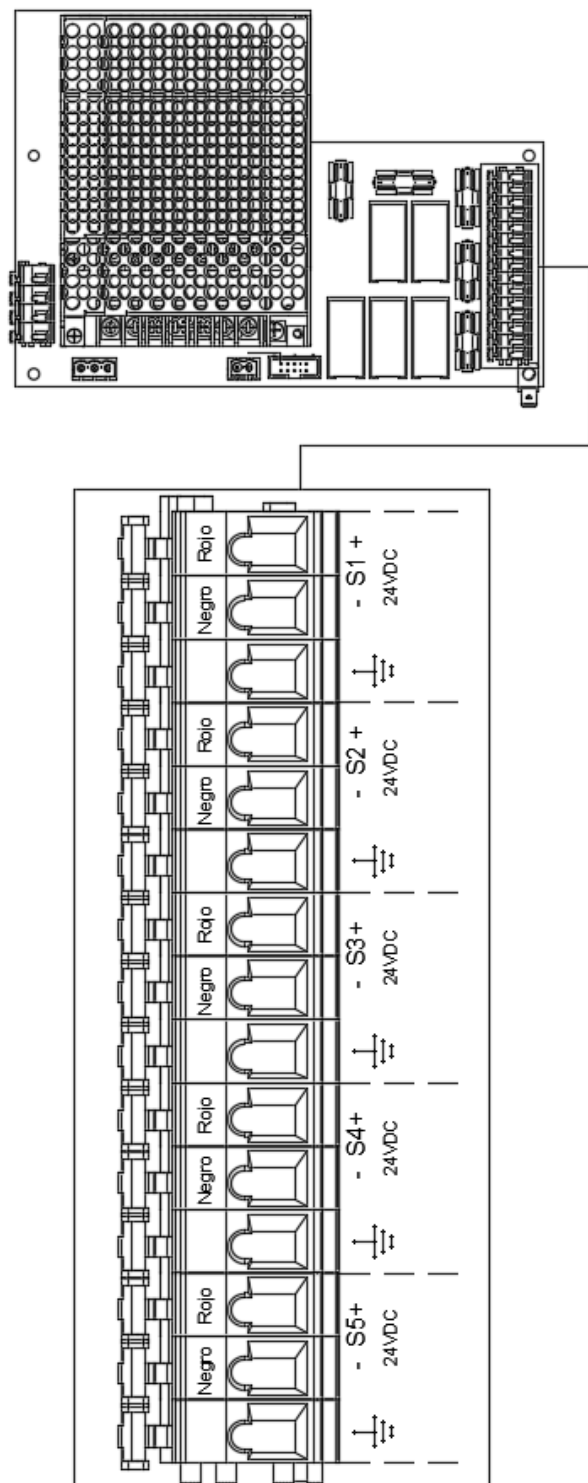
<u>Connection for each irrigation stage (*):</u>

Rojo (red) → +

Negro (black) → -

⏚ → Ground

(*) Connect No. of cassette irrigation solenoid valve connections according to the number of stages available

4) (Optional, only for CCE2.0+ 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):
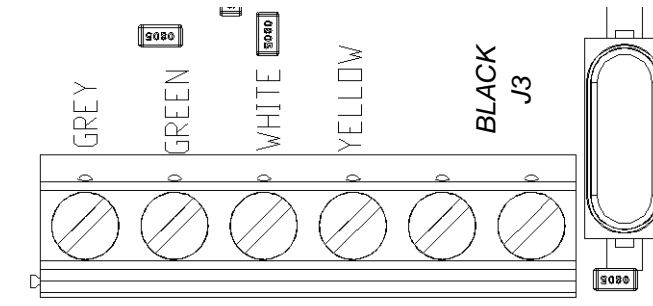
Figure 6.5: SEF-026 Card

5) (Optional, Modbus RTU communication) Connect the 3 cables identified with X, A and B on the SEF-030.1 card.
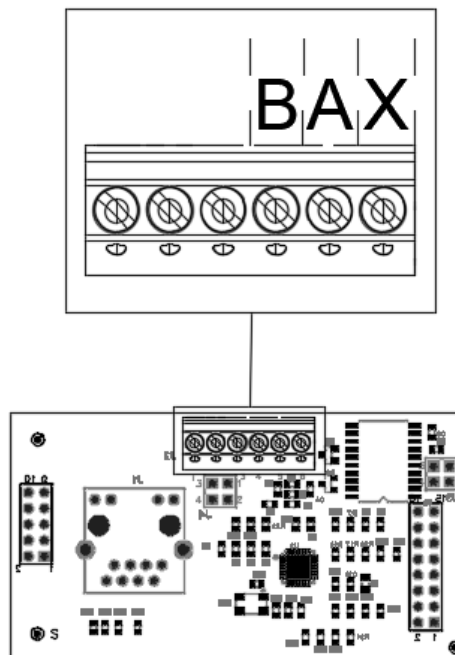
Figure 6.6: SEF-030.1 Card

6) With the disconnector in position 0, connect the appropriate mains supply for each case to the supply terminals X1:
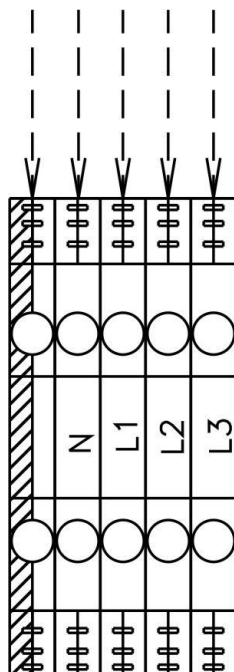
3-phase line connection   Single-phase line connection
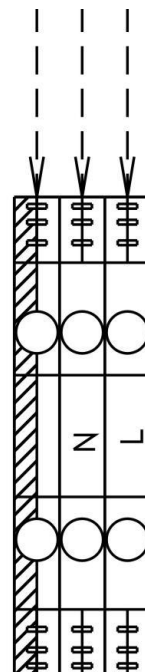
Proper wiring prevents electrical noise.

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

        ↓

00/00/0000 00:00
```
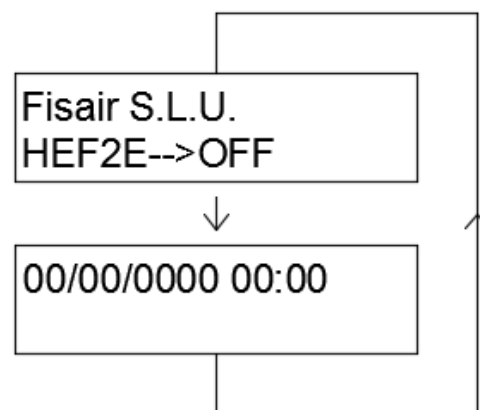
To start the device, select either of the two available configuration modes, manual (MAN) or automatic (AUTO):

MAN: Select manual mode (MAN) from the command and display to enter that mode. The following information is shown on the Display through 3 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.

Screen 2:

- ❖ Analog input value 0-10V.   ** The analog input value can appear at 4 ... 20mA
- ❖ No. of active stages: S1 + S2 + S3

```
Fisair S.L.U.
HEF2E --> ON(MAN)

        ↓

00/00/0000  00:00
0000µS/cm 00ºC* A00***

        ↓

0..10 VDC**
S1 + S2 + S3
```
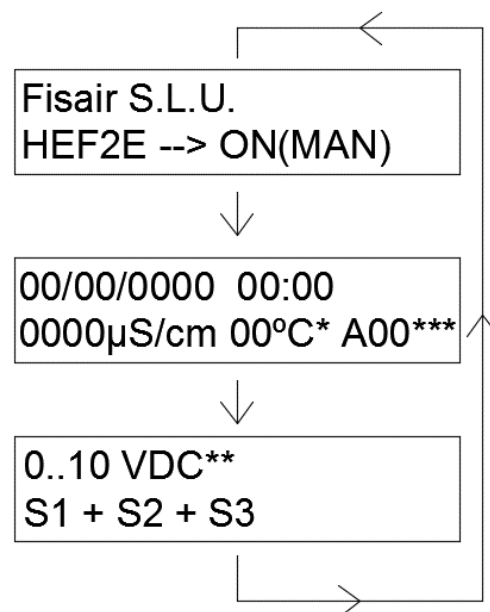
MANUAL MODE OPERATION:

The unit operates directly by activating the stages proportionally by means of the external 0-10V signal. 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 ◯ is pressed.

*** If there is a fault, an **alarm code is shown** on the second line of the display; see section 12 "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 3 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.

Screen 2:

- ❖ Analog input value 0-10V. ** The analog input value can appear at 4 ... 20mA
- ❖ No. of active stages: S1 + S2 + S3

```
Fisair S.L.U.
HEF2E --> ON(AUTO)
```

```
00/00/0000  00:00
0000µS/cm 00ºC* A00***
```

```
0..10 VDC**
S1 + S2 + S3
```
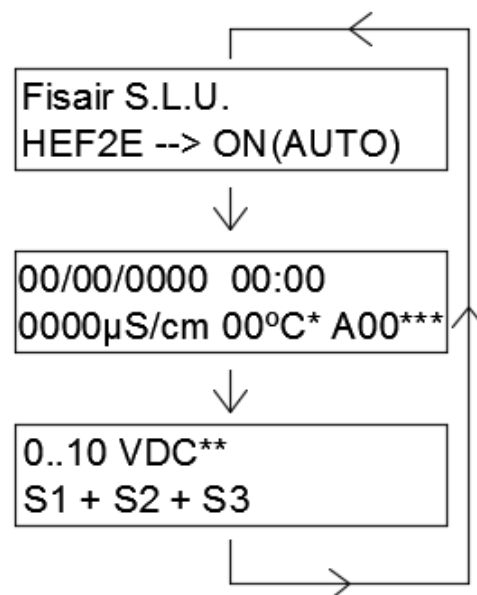
AUTOMATIC MODE OPERATION:

The equipment operates by activating the stages proportionally by means of the external 0-10V signal as long as the H1 signal (J21 contacts), is activated. 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 stages 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:

```
CONFIGURATION
  ↳Drain conf.
      →Conductivity control
      →Standard
      →Never
```
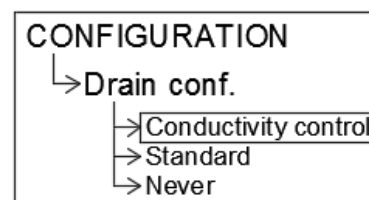
1. Partial draining by the conductivity sensor is controlled by the "Set point" and the following Timers:

   ❖ 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".

8.1.3. Standard draining:

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

```
CONFIGURATION
 ↳Drain conf.
     →Conductivity control
     →Standard
     →Never
```
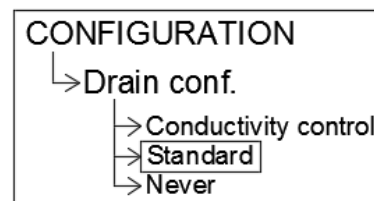
1. <u>Complete draining of the basin:</u>

❖ <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. <u>Draining by unit stop:</u>

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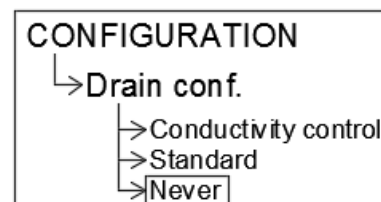
8.2. Configuration Prior to Start-Up (Pre-Start-up)

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

```
CONFIGURATION
  └→Conf. P Start-Up
       →Enable
       →Disable
     └→Cycles number
           └→00
```
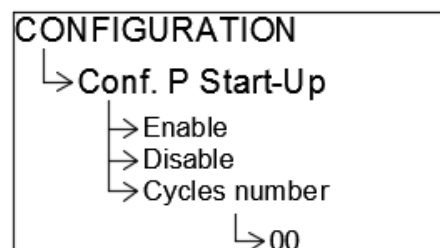
(*) Remember that you must disable this configuration if you
Want to start the equipment as standard mode.

8.3. Stages configuration:

The number of cassette irrigation stages available is set. To do this, you must select one of the following four options, depending on the number of stages you have on your machine:

NO

S1+S2

S1+S2+S3

S1+S2+S3+S4

S1+S2+S3+S4+S5

```
CONFIGURATION
  ↳Stages conf.
      ⇨NO
      ⇨ S1+S2
      ⇨ S1+S2+S3
      ⇨ S1+S2+S3+S4
      ⇨ S1+S2+S3+S4+S5
```
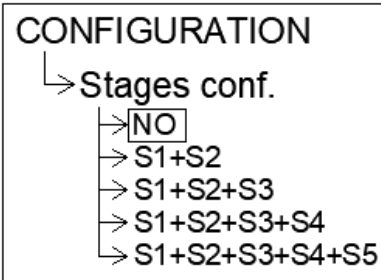
These stages are regulated by the analog signal introduced in the CCE2.0 through the MPCB-IN01 card. This input signal must be selected in V (0-10VDC) or mA (4-20mA).
Remember to connect said input signal on the MPCB-IN01 card to J1 for input range 0-10 VDC and to J2 for 4-20mA. (See section 4.2 connections).

No. of available stages	Analog signal range V_{DC}	No. Active solenoid valves	Analog signal range mA	No. Active solenoid valves
5 Stages	0-0,2 V_{DC}	All OFF	<4,2 mA	All OFF
	0,3-2 V_{DC}	S1	4,3 – 7,2 mA	S1
	2,1-4 V_{DC}	S1+S2	7,3 – 10,4 mA	S1+S2
	4,1-6 V_{DC}	S1+S2+S3	10,5 – 13,6 mA	S1+S2+S3
	6,1-8 V_{DC}	S1+S2+S3+S4	13,7 – 16,8 mA	S1+S2+S3+S4
	8,1-10 V_{DC}	S1+S2+S3+S4+S5	16,9 – 20 mA	S1+S2+S3+S4+S5
4 Stages	0-0,2 V_{DC}	All OFF	<4,2 mA	All OFF
	0,3-2,5 V_{DC}	S1	4,3-8,2 mA	S1
	2,6-5 V_{DC}	S1+S2	8,3-12,3 mA	S1+S2
	5,1-7,5 V_{DC}	S1+S2+S3	12,4-16,3mA	S1+S2+S3
	7,6-10 V_{DC}	S1+S2+S3+S4	16,4-20 mA	S1+S2+S3+S4
3 Stages	0-0,2 V_{DC}	All OFF	<4,2 mA	All OFF
	0,3-3,3 V_{DC}	S1	4,3-9,6 mA	S1
	3,4-6,6 V_{DC}	S1+S2	9,7- 15 mA	S1+S2
	6,7-10 V_{DC}	S1+S2+S3	15,1-20 mA	S1+S2+S3
2 Stages	0-0,2 V_{DC}	All OFF	<4,2 mA	All OFF
	0,3-5 V_{DC}	S1	4,3-12,1 mA	S1
	5,1-10 V_{DC}	S1+S2	12,1- 20 mA	S1+S2

8.4. Conf. 0...10V or 4...20 mA:

Select what type of external analog signal the equipment will receive:

❖ 0…10 V$_{DC}$

❖ 4…20 mA

```
CONFIGURATION
  ↳Conf. V/mA
      ↳0..10V
      ↳4..20 mA
```
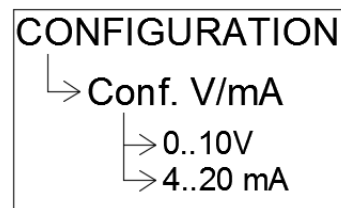
8.5. UV lamp configuration

Switches the UV water treatment system on or off:

❖ Enabled (1)

❖ Disabled (0)

```
CONFIGURATION
  ↳ U.V. Lamp conf.
     ↳Enable
     ↳Disable
```
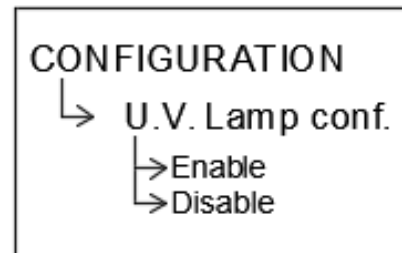
Note 1: If the UV lamp is installed immersed in the basin, a bridge must be made in J18 (IN1)

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 A51 error is triggered to replace the lamp.

Note 3: After the lamp is replaced following an A51 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.

```
CONFIGURATION
  ↳SET. 1-3 PHASES
      ↳1
      ↳3
```
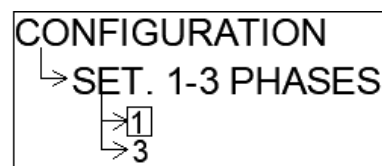
8.7. Bus configuration

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

IMPORTANT: For Modbus RTU, Modbus TCP / IP and BACnet communications proper operation, it is imperative to disconnect the MPCB-IN01 stage processing card (see section 6 connections).

8.7.1. MODBUS: TCP/IP y RTU

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

- ❖ <u>MODBUS RS5485:</u> Select the slave ID address.
- ❖ <u>Mac Address:</u> 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.
- ❖ <u>Fallback Ip Adrr:</u> 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
- ❖ <u>DCHP ON/OFF:</u> 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.
- ❖ <u>Modbus TCP Port:</u> TCP port for the TCP Modbus. By default it is 9900

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 6)

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)
1060	Write analogue signal 0-10 VDC step control	Write range 0-100.
1061	Select if the steps are regulated by	Volts (0→V) or amperes (1→A)
1062	Write analogue signal 4-20 mA step control	Write range 40-200
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 ºC	Divide the result by 100. Ej. 1815 →18,15ºC
2020	Read analogue input of signal 0-10 V (Range 0-100)	Reading range 0-100. Divide the result by 10. Ej. 80 →8 V
2022	Read analogue input of signal 4-20 mA (Range 40-200)	Reading range 40-200. Divide the result by 10. Ej. 80 →8 mA

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 status J24	0→not working 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→On (yellow led [12] On)
2126	Read drainage motor valve power status J14	0→No power (green led [13] Off) 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→Fault
2138	Sample active stages:	0→0 active stages 1→1 active stages 2→2 active stages 3→3 active stages 4→4 active stages
2200	Alarm, shows the equipment alarm code	

0 → 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 FAULT

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.
❖ Bacnet Device number: Select the BACnet device number. By default it is 1234.

Protocolo 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* (Analog_Output:0)=1010	Write position disconnector switch I1	0→OFF, 1→ON, 2→AUTO(Subject to interlocking function in J21)
SET V CONTROL Analog_Output:12 =1060*	Write analogue signal 0-10 VDC step control	Write range 0-10.
SET V OR mA (Analaog_Output:11)= 1061	Select if the steps are regulated by	Volts (0→V) or amperes (1→A)
SET mA CONTROL (Analog_Output:13)=1062*	Write analogue signal 4-20 mA step control	Write range 4-20
SET DRAIN CONFIG. (Analog_Output:14)=1064	Write signal configuration empty	0→Never, 1→Standard, 2→ Conductivity control
SET_LANGUAGE (Analog_Output:16)=1070	Write Language	0→Spanish 1→English 2→German 3→French
RESET DEF. VALUES (Analog_Input:14)	Reset to factory default values	Key required for reset 1997
SET EMERGENCY J20 (Analog_Output:17)	Activates the alarm signal	0→ Alarm Off 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* (Analog_Output:9)=1012	Write conductivity Set-Point	0-1999µS/cm*(increase 1µS/cm)	300 µS/cm
SET Timer 1* (Analog_Output:1)=1030	Write Timer T01	30-1000s(increase 15s)	90s
SET Timer 2* (Analog_Output:2)=1032	Write Timer T02	1-15 min(increase 1min)	5min
SET Timer 3* (Analog_Output:3)=1034	Write Timer T03	1-60 min(increase 1min)	10min
SET Timer 4* (Analog_Output:4)=1036	Write Timer T04	30-400min*(increase 30min)	60min
SET Timer 5* (Analog_Output:5)=1038	Write Timer T05	0-24h(increase 1h)	0min=never
SET Timer 6* (Analog_Output:6)=1040	Write Timer T06	0-24h(increase 1h)	1h
SET Timer 7* (Analog_Output:7)=1042	Write Timer T07	5-360s(increase 5s)	30s
SET Timer 8* (Analog_Output:8)=1044	Write Timer T08	10-60min*(increase 5min)	15min

* 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 ºC	Ej. 18 →18,15ºC
MPCB V (Analog_Input:2) =2020	Read analogue input of signal 0-10 V (Range 0-10)	Ej. 8 →8 V
MPCB mA (Analog_Input:3) = 2022	Read analogue input of signal 4-20 mA (Range 4-20)	Ej. 8 →8 mA

Object	Description	Reading
GET STATUS J25 (Analog_Input:4)=2116	Read equipment live J25	0→not live (yellow led [3]Off) 1→live (yellow led [3]On)
GET STATUS J23 (Analog_Input:5)= 2118	Read general equipment failure J23	0→no equipment failure(red led [4] Off) 1→equipment failure(red led [4] On)
GET STATUS J24 (Analog_Input:6)= 2120	Read general equipment operation status J24	0→not working 1→in operation
GET STATUS J10 (Analog_Input:7)= 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)
GET STATUS J13 (Analog_Input:8)= 2124	Read filling solenoid valve status J13	0→Off (yellow led [12] Off) 1→On (yellow led [12] On)
GET STATUS J14 (Analog_Input:9) = 2126	Read drainage motor valve power status J14	0→No power (green led [13] Off) 1→Powered (green led [13] On)
GET STATUS J15 (Analog_Input:10) =2128	Read drain motor valve position J15	1→closed (green led [14] Off) 0→open (green led [14] On)
GET STATUS J16&J17 (Analog_Input:11) =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)

Object	Description	Reading
GET STATUS J11 (Analog_Input:12) =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)
GET STATUS BREAKER (Analog_Input:13) =2134	Motor pump circuit breaker status	0→Circuit breaker fault 1→Circuit breaker correct
GET STATUS J18 (Analog_Input:14) =2136	UV lamp operating status sensor J18	0→No fault 1→Fault
GET ALARMS (Analog_Input:15) = 2200	Alarm, shows the equipment alarm code	
	0 → 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 FAULT	

8.8. Language

Select the language you want from the Display:
- ❖ Español
- ❖ English
- ❖ Deutsch
- ❖ Francais

```
CONFIGURATION
 ↳LANGUAGE
     →French
     →Deutsch
     →English
     →Spanish
```
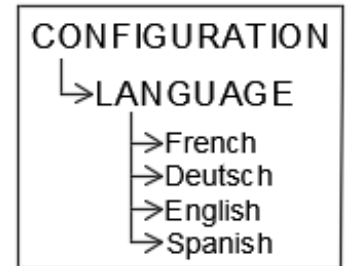
8.9. Date

Set the exact date and time by entering the data shown on the following screens:
- ❖ Seconds
- ❖ Minutes
- ❖ Time:
- ❖ Day of the week
- ❖ Month
- ❖ Year

```
CONFIGURATION
 ↳DATE
     →SEC 00
     →MIN 00
     →HOUR 00
     →WEEK DAY 00
     →MONTH 00
     →YEAR 00
```
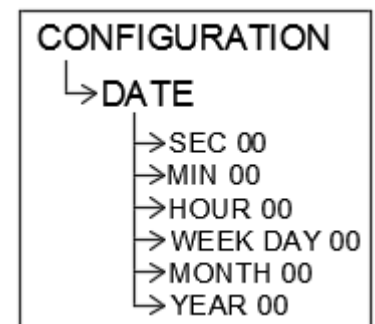
9. Settings

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).

```
ADJUSTMENTS
 ↳SET-POINT µS/cm
```

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.
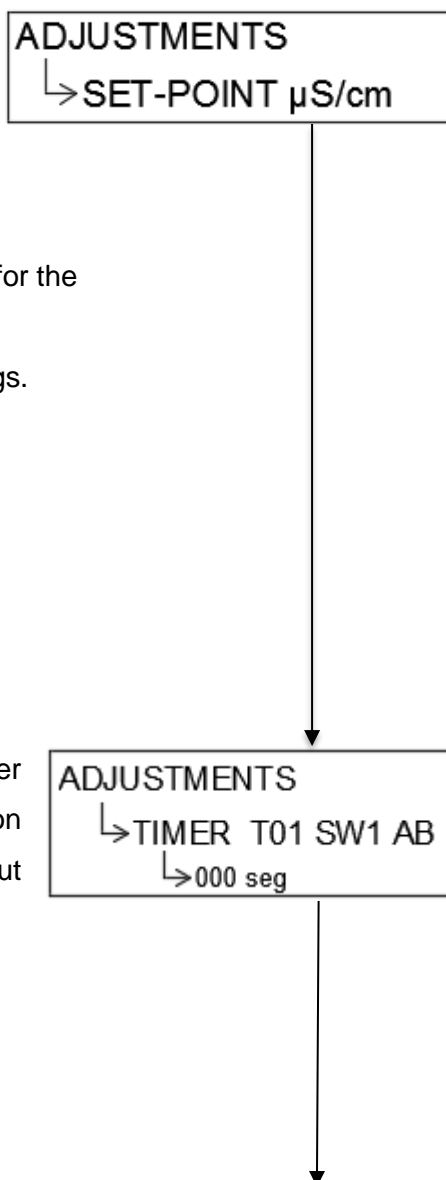
9.3. TIMER T02 (ex SW1 CD)

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

```
ADJUSTMENTS
  ↳TIMER T02 SW1 CD
    ↳00 min
```

The Timer **range is from 1 min to 15 min.**
The factory set value is 5 min.
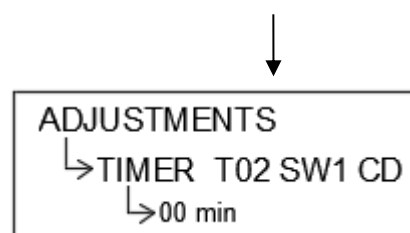
9.4. TIMER T03 (ex SW2 AB)

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.

```
ADJUSTMENTS
  ↳TIMER  T03 SW2 AB
    ↳00 min
```

The Timer **range is from 1 min to 60 min.**
The factory set value is 10 min.
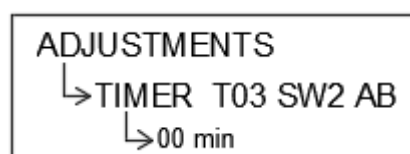
9.5. TIMER T04 (ex SW2 CD)

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

```
ADJUSTMENTS
  ↳TIMER  T04 SW2 CD
    ↳000 min
```

The Timer **range is from 30 min to 400 min.**
The factory set value is 60 min.
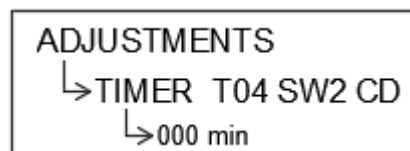
9.6. TIMER T05 (ex SW3 AB)

Enter the complete emptying frequency during operation.

```
ADJUSTMENTS
  ↳TIMER  T05 SW3 AB
    ↳00 h
```

The Timer **range** is from 0 min **to 24 h.**
The factory set value is 0 min.
0 min = never
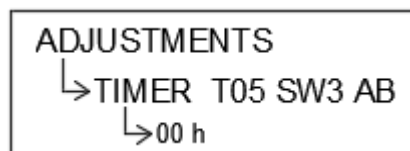
9.7. TIMER T06 (ex SW3 CD)

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

```
ADJUSTMENTS
  ↳TIMER T06 SW3 CD
      ↳00 h
```

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.
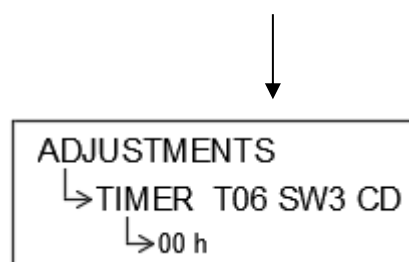
9.8. TIMER T07 (ex SW4 CD)

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

```
ADJUSTMENTS
  ↳TIMER T07 SW4 CD
      ↳000 seg
```

The Timer **range** is from 5 s **to 360 s.**

The factory set value is 30 s.
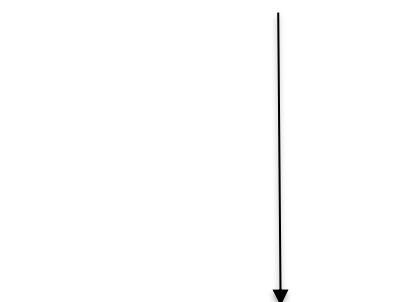
9.9. TIMER T08

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.

```
ADJUSTMENTS
  ↳TIMER T08
      ↳000 min
```

The Timer **range** is from 5 min **to 60 min.**

The factory set value is 15 min.
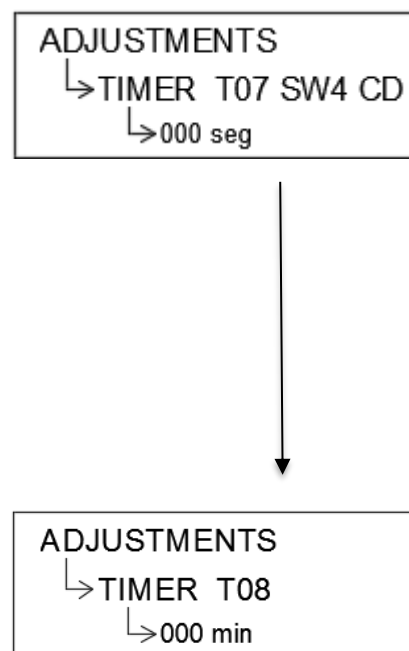
10. Calibration

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. 22ºC) 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 µS).

 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 µS). Exit completely from the menu (till supervision) so that the value is registered in the memory.

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

```
CALIBRATION:
  ↳LOW 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/ (application in Spanish)

https://fisair.com/service/start-ups/ (application 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.

c) Solenoid valves for irrigation stages:

Make sure that the wirings of the analog input signal of the control of the irrigation solenoid valves and that of the irrigation solenoid valves are connected and review the proper position of the jumpers for the desired configuration (V or mA). See sections 4.2 and Check that you have set the number of stages available on the device. See section 6.3

- 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 set-point 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 [MAN] or AUTO [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 ⊗ **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 ⋈ lights 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 Ⓜ will light up depending on ⋈ 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

DECLARACIÓN CE DE CONFORMIDAD
EC CONFORMITY DECLARATION
EG KONFORMITÄTSERKLÄRUNG
DECLARATION CE DE CONFORMITÉ

Departamento de Dirección de Calidad
Quality Management Department

Qualitätsmanagement-Abteilung
Département de gestion de la qualité

fisair
air humidity control

FISAIR S.L.U.
C/ Ciudad de Frias,33-(P.L. Camino de Getafe)
28021 Madrid SPAIN
Tel.: (+34) 916921514
info@fisair.com

La presente declaración de conformidad se expide bajo exclusiva responsabilidad del fabricante.
This declaration of conformity is issued under the sole responsability of the manufacturer.
Diese konformitätserklärung wird in der alleinigen verantwortung des herstellers ausgestellt.
Cette déclaration de conformité est délivrée sous la seule responsabilité du fabricant.

Descripción/ Product description/ Produktbeschreibung/ Description du produit: **CCE 2.0**
Tipo de máquina/ Machine type/ Maschinetyp/ Type de machine: **MÁQUINA/ MACHINE/ MASCHINE/ MACHINE**
Marca/ Brand/ Marke/ Marque: **FISAIR**

Es conforme con la legislación de armonización pertinente a la unión europea:
It complies with the harmonization legislation relevant to the European Union:
Es entspricht den für die Europäische Union relevanten Harmonisierungsgesetzen

2006/42/CE
2014/30/UE
2014/35/UE

Es conforme con las siguientes normas:
It complies with the following standards:
Es entspricht den folgenden Normen:
Il est conforme aux normes suivantes:

UNE-EN ISO 12.100:2012
UNE-EN 60204-2:2019
UNE-EN 61000-6-6:2012
UNE-EN 61000-6-3:2012

FISAIR se exime de cualquier responsabilidad a menos que se cumplan con todas las instrucciones de instalación y funcionamiento proporcionadas por FISAIR, o si los productos han sido modificados o alterados sin el consentimiento por escrito de FISAIR, o si tales productos han sido sometidos a un mal uso, mala manipulación, alteración, mantenimiento inadecuado o muestran consecuencias de accidente o utilización negligente.
FISAIR disclaims any liability unless all installation and operating instructions provided by FISAIR are followed, or if products have been modified or altered without FISAIR's written consent, or if such products have been subjected to misuse. use, mishandling, alteration, improper maintenance or show consequences of accident or negligent use.

Con exclusión de responsabilidades sobre las partes o componentes adicionados o montados por el cliente.
With no liability for the parts or components added or assembled by the customer.
Unter Ausschluß der Verantwortung über die vom Kunden bereitgestellten und/oder angebauten Teile.
Avec exclusion des responsabilités concernant les parties ou les composants ajoutés ou assemblés par le.

Juan Boeta Tejera
-Chairman and CEO- July 2020
Property of FISAIR

Rev01

13.2.   D.C. Partly completed machinery

DECLARACIÓN CE DE CONFORMIDAD
EC CONFORMITY DECLARATION
EG KONFORMITÄTSERKLÄRUNG
DECLARATION CE DE CONFORMITÉ

Departamento de Dirección de Calidad
Quality Management Department

Qualitätsmanagement-Abteilung
Département de gestion de la qualité

FISAIR S.L.U.
C/ Ciudad de Frias,33-(P.L. Camino de Getafe)
28021 Madrid SPAIN
Tel.: (+34) 916921514
info@fisair.com

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Cette déclaration de conformité est délivrée sous la seule responsabilité du fabricant.

Descripción/ Product description/ Produktbeschreibung/ Description du produit: **CCE 2.0**

Tipo de máquina/ Machine type/ Maschinetyp/ Type de machine: **CUASI MÁQUINA/ QUASI MACHINE/ QUASI MASCHINE/ QUASI MACHINE**

Marca/ Brand/ Marke/ Marque: **FISAIR**

Es conforme con la legislación de armonización pertinente a la unión europea: **2006/42/CE**
It complies with the harmonization legislation relevant to the European Union: **2014/30/UE**
Es entspricht den für die Europäische Union relevanten Harmonisierungsgesetzen   **2014/35/UE**

Es conforme con las siguientes normas: **UNE-EN ISO 12.100:2012**
It complies with the following standards: **UNE-EN 60204-2:2019**
Es entspricht den folgenden Normen: **UNE-EN 61000-6-6:2012**
Il est conforme aux normes suivantes: **UNE-EN 61000-6-3:2012**

FISAIR se exime de cualquier responsabilidad a menos que se cumplan con todas las instrucciones de instalación y funcionamiento proporcionadas por FISAIR, o si los productos han sido modificados o alterados sin el consentimiento por escrito de FISAIR, o si tales productos han sido sometidos a un mal uso, mala manipulación, alteración, mantenimiento inadecuado o muestran consecuencias de accidente o utilización negligente.
FISAIR disclaims any liability unless all installation and operating instructions provided by FISAIR are followed, or if products have been modified or altered without FISAIR's written consent, or if such products have been subjected to misuse. use, mishandling, alteration, improper maintenance or show consequences of accident or negligent use.

Lea el Manual de Instalación, Funcionamiento y Mantenimiento antes de utilizar este equipo.
La puesta en servicio de cuasi máquina estará prohibida hasta que la cuasi máquina sea montada en una máquina y esta cumpla las disposiciones de la Directiva 2006/42/CE y se disponga de la declaración de conformidad de acuerdo con lo dispuesto en el Anexo II A. En el manual se determinan medidas de seguridad que deberá cumplir la máquina en la que se monte la cuasi máquina. FISAIR no se responsabiliza de la seguridad.
Read the Installation, Use and Maintenance Manual before using this equipment.
The commissioning of the quasi-machine shall be prohibed until the quasi-machine is mounted on a machine and the machine complies with the provisions of Directive 2006/42/CE and the declaration of conformity is available in accordance with the provisions of Annex II A. The manual determines the safety measures that the machine on wich the quasi-machine is mounted must comply. FISAIR is not responsible for security.

Con exclusión de responsabilidades sobre las partes o componentes adicionados o montados por el cliente.
With no liability for the parts or components added or assembled by the customer.
Unter Ausschluß der Verantwortung über die vom Kunden bereitgestellten und/oder angebauten Teile.
Avec exclusion des responsabilités concernant les parties ou les composants ajoutés ou assemblés par le.

Juan Boeta Tejera
-Chairman and CEO- July 2020
Property of FISAIR

Rev01

14. Warranty

FISAIR S.L.U. WARRANTY POLICY

Quality Department
Departamento de Calidad

FISAIR S.L.U.
C/ Uranio, 20 (Pol. Ind. Aimayr)
28330 San Martín de la Vega (Madrid) SPAIN
☎ Tfº (34) 916921514
🖷 Fax (34) 916916456

Two-year Limited Warranty

FISAIR warrants to the original purchaser that its products will be free from defects in materials and parts for a period of two (2) years after installation or twenty-seven (27) months from the date FISAIR ships such product, whichever date is the earlier.

If any FISAIR product is found to be defective in material or assembly during the applicable warranty period, FISAIR's entire liability, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective product or part.

Warranty disclaimer

FISAIR shall not be liable for any costs or expenses, whether direct or indirect, associated with the installation, removal or reinstallation of any defective product.

The Limited Warranty does not include any consumer part such as joints, pulleys, filters or media.

FISAIR's Limited Warranty shall not be effective or actionable if:

a) All related product invoices have been payed in time and terms.
b) Unless there is compliance with all installation and operating instructions furnished by FISAIR, or if the products have been modified or altered without the written consent of FISAIR, or if such products have been subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Such situations could be an incorrect power supply connection, crashed with inappropriate objects, security protection devices unblocked and so.
c) 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).

Any warranty claim must be submitted to FISAIR in writing within the stated warranty period.

Parts Warranty

Defective parts may be required to be returned to FISAIR. In case any part is claimed as a faulty one, FISAIR will ask the customer to send the part back to the factory in order to analyze if the part is failing due to any of above referred actions (see warranty disclaimer) or due to effective part failing.

If the part must be replaced immediately, FISAIR will ship the part to the customer immediately and invoice the part with a 30 days delay payment for the faulty part to be returned. If the part is returned in this period, the part fail analysis would be made to emit a technical report for the warranty coverage based in this Warranty Statement document.

In case that the part is failing due to a lack of quality, FISAIR will credit this invoice in order to stop the payment. In case FISAIR does not receive the part in this period, or if the failure is due to the reasons covered in the Warranty disclaimer paragraph, the invoice will be effective.

In case any part from the product / shipment is missing, the customer should notify FISAIR before 3 days from the shipment date of arrival.

1/2

	FISAIR S.L.U. WARRANTY POLICY	
	Quality Department Departamento de Calidad	

Service Covered by Warranty

In case that there is any FISAIR product that should be serviced in order to recover its proper used designed, FISAIR will select the person (s) in charge of this operation. These qualified technicians should have the enough knowledge to service FISAIR units.

No company should practice a warranty service without the writing FISAIR notice giving the authorization to do it and if any cost should be cover by FISAIR should be advised in advance to the service job. In case that FISAIR should send FISAIR staff to solve the solution, trip expenses are not covered by the warranty.

FISAIR's Limited Warranty is made in lieu of, and FISAIR disclaims all other warranties, whether express or implied, including but not limited to any implied warranty of merchantability, any implied warranty of fitness for a particular purpose, any implied warranty arising out of a course of dealing or of performance, custom or usage of trade.

FISAIR shall not, under any circumstances be liable for any direct, indirect, incidental, special or consequential damages (including, but not limited to, loss of profits, revenue or business) or damage or injury to persons or property in any way related to the manufacture or the use of its products. The exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory, even if FISAIR has notice of the possibility of such damages.

By purchasing FISAIR's products, the purchaser agrees to the terms and conditions of this Limited Warranty.

Extended Warranty

The original user may extend the term of the FISAIR Limited Warranty for a limited number of months past the initial applicable warranty period and term provided in the first paragraph of this Limited Warranty. All the terms and conditions of the Limited Warranty during the initial applicable warranty period and term shall apply during any extended term.

Each case should be valued in terms of type of product, equipment application, use and location of the product operation site.

Any extension of the Limited Warranty under this program must be in writing, signed by FISAIR, and paid for in full by the purchaser.

Quality Manager:

Hugo J. López Álvarez
San Martín de la Vega, February 2016

POWER CONSUMPTION
230V±5/1Ph+N/50-60Hz

X1 L1 5   6
X1 N   7   8
X1 PE

PE
14E.2

In=0,67A
Pt=600W

I1
12A

CS

NTC

OPTIONAL
SEF-026
Grey
Green
White
Yellow
Shield
J22
J20

SEF-029.1
BACnet
ModBus TCP/IP

SEF-030.1
1:GND
2:A+
3:B+
ModBus RTU

I(A)
0,63...1A
0,63...1A
0,4...0,63A
0,4...0,63A
0,4...0,63A
0,4...0,63A

U1
1 3 5
2 4 6
I>

MPCB-IN01
(RED BOARD)
0..10V — J1
4..20mA — J2
P2
J9

J06 J10   J4 J5

SEF-025.1

J53

J8

SEF 027.1

fisair

HMI

(STAGES)

SEF-32.1

J9

PE
2B.2

IN1   IN2   IN3   9E.1 H1
                     9E.1

J18   J19   J20   J21

J9

J26

SEF-028.1

T1 T2 T3   L3 L2 L1   N L3 L2 L1
J6   J7   J8

J12   J13   J14   J15   J16   J17 J9   J22   J23   J24   J25   J10   J11

+ 24Vdc —   Free   230V   PE U V W

                                          NO COM NC   NO COM NC   NO   NO

250V-6A AC1
REMOTE STATUS SIGNALS

S1   S2

EV1

Feed Back   HWL   LWL

PE
N
L

OPTIONAL
PE   UV

P(W)
340W
240W
125W
90W
60W
50W

U   W
M
P(W)

1
2   M   3

MV1

fisair
air humidity control

| Nº PLANO: Dwg Nr: | E09489 | TIPO: Type: | CCB2.0/CCE2.0 | DENOMINACIÓN: Denomination: | Esquema eléctrico Wiring diagram | DIBUJADO: Drawn: | A.R.F. | APROBADO: Approved: | H.L.A. |
| REVISION: Review: | D | CONEXIÓN: Supply: 230V±5%/I+N/50-60Hz | | | | COMPROBADO: Checked: | R.C.C. | HOJA Nº: Sheet Nr: 1 | DE: Of: 3 |

Esquema eléctrico wiring diagram — CCB2.0/CCE2.0

Top column numbers: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Row labels (left): A B C D E F G H I J

ETAPA S1 — EV1
ETAPA S2 — EV2
ETAPA S3 — EV3
ETAPA S4 — EV4
ETAPA S5 — EV5

+ − PE (×5)

J1 A B C
J2 A B C
J3 A B C
J4 A B C
J5 A B C

(ETAPAS) SEF-32.1

POWER SUPPLY
230V±5/1Ph+N/50−60Hz

J8
A — X1.L1
B — X1.N
C
D — X1.PE

J9
J26
J9

SEF-028.1

J18 J19 J20 J21

J6 T1 T2 T3
J7 L3 L2 L1
J8 N L3 L2 L1

J12 + 24Vdc −
J13 J14 J15 J16 J17 J9

J22 Free NO COM NC
J23 ⚠ NO COM NC
J24 ▷ NO
J25 ∿ NO
J10 230V
J11 PE U V W

Nombre Name	Descripción. Description.	Posición Position	Nombre Name	Descripción. Description.	Posición Position	Nombre Name	Descripción. Description.	Posición Position
I1	Seccionador. Isolator switch.	1A2	Mv1	Válvula de drenaje Drain valve	1I4	MPCB-IN01	Tarjeta para control externo por Voltaje o corriente. Voltage/Current Board external control	1D.3
U1	Protección magnetotérmica. Motor circuit breaker.	1B14	HWL	Detector de nivel máximo High water level swith	1I5	SEF-32.1	Tarjeta Etapas S1 a S5. Level Board S1 to S5. (Opcional)	1D.11
F2	Protección fusible de alimentación auxiliar. Auxiliary supply fuse.	2F6	LWL	Detector de nivel mínimo Low water level swith	1I6	EV1-EV5	Electroválvula Etapas S1 a S5. EV. Levels S1 to S5 (Opcional)	2B1-2B9
F3	Protección fusible de Ev1. Ev1 fuse.	2F7	SEF-025.1	CPU CPU	1C6			
F4	Protección fusible de Mv1. Mv1 fuse.	2F7	SEF-026	Transmisor de conductividad. (Opcional) Conductivity sensor	1B6			
F5	Protección fusible de lampara UV. UV Lamp fuse.	2F9	SEF-027.1	Inteface de estados y teclado. HMI. (keyboard & bright synoptic)	1B9			
H1	Conexión remota para puesta en marcha en modo Auto.. Remote conection for turn-on the humidifier in AUTO.	1D5	SEF-028.1	Interface de potencia y conexión. Power and conectivity interface	1F*			
RL1	Relé para moto-bomba. Pump relay.	2E10	TRF1	Fuente de voltaje Voltage Source	2E7			
RL3	Relé para válvula de drenaje. Drain valve relay.	2E8	SEF-029.1	Tarjeta Interface Modbus-TCP/IP (Opcional) ModBus-TCP/IP interface Cardboard.	1B4			
RL8	Relé para válvula de llenado. Fill valve relay.	2F8	SEF-030.1	Tarjeta Interface Modbus/RTU (Opcional) ModBus/RTU interface Cardboard.	1B9			
M	Moto-bomba. Pump motor.	1J16	cs	Conductivímetro (Opcional) Conductivemeter	1C.4			
Ev1	Válvula de llenado. Fill valve.	1I3						

N° PLANO: Dwg Nr:	E09489	**TIPO:** Type:	CCB2.0/CCE2.0	**DENOMINACIÓN:** Denomination: Esquema eléctrico Wiring diagram
REVISION: Review:	D	**CONEXIÓN:** Supply: 230V±5%/I+N/50-60Hz		

fisair — air humidity control

DIBUJADO: Drawn: A.R.F.
COMPROBADO: Checked: R.C.C.
APROBADO: Approved: H.L.A.
HOJA N°: Sheet Nr: 3 **DE:** Of: 3

POWER SUPPLY
400V±5/3Ph+N/50-60Hz
In=1,16A
Pt=600W

X1 L1   1   2
X1 L2   3   4
X1 L3   5   6
X1 N   7   8
X1 PE

PE

I1
12A

CS
NTC

OPTIONAL
SEF-026   J22
           J20
O Grey
O Green
O White
O Yellow
O Shield

SEF-029.1   BACnet
                 ModBus TCP/IP

SEF-030.1   1:GND
                 2:A+
                 3:B+
                 ModBus RTU

I(A)
0,4...0,63A
0,4...0,63A
0,4...0,63A
0,1...0,16A
0,1...0,16A
0,1...0,16A

U1   1 3 5
     I>
     2 4 6

MPCB-IN01
0..10V   J1
(RED BOARD)
4..20mA   J2
           P2

J06 J10   J4 J5

SEF-025.1
J9

SEF 027.1

fisair

HMI

J8

(STAGES)
SEF-32.1
J9

J53

J9

J26

IN1   IN2   IN3   H1

J18   J19   J20   J21

T1 T2 T3   L3 L2 L1   N L3 L2 L1
J6   J7   J8

SEF-028.1

J9

J12   J13   J14   J15   J16   J17   J22   J23   J24   J25   J10   J11

+ 24Vdc −   + − PE   Free   NO COM NC NO COM NC NO   NO   230V   PE U V W

NO COM NC   NO COM NC

250V-6A AC1
REMOTE STATUS SIGNALS

S1 S2

Feed Back   HWL   LWL

EV1

1
2   M   3

MV1

PE   N   L
PE   UV
OPTIONAL

P(W)
340W
240W
125W
90W
60W
50W

U V W
M
P(W)

fisair
air humidity control

| Nº PLANO: Dwg Nr: | E09490 | TIPO: Type: | CCB2.0/CCE2.0 | DENOMINACIÓN: Denomination: | Esquema eléctrico Wiring diagram | DIBUJADO: Drawn: | S.F.B. | APROBADO: Approved: | H.L.A. |
| REVISION: Review: | E | CONEXIÓN: Supply: | 400V±5%/III+N/50-60Hz | | | COMPROBADO: Checked: | H.L.A. | HOJA Nº: Sheet Nr: 1 | DE: Of: 3 |

Columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Rows: A B C D E F G H I J

ETAPA S1   ETAPA S2   ETAPA S3   ETAPA S4   ETAPA S5

EV1   EV2   EV3   EV4   EV5

+ − PE   + − PE   + − PE   + − PE   + − PE

A B C   A B C   A B C   A B C   A B C
J1   J2   J3   J4   J5

POWER SUPPLY
230V±5/1Ph+N/50−60Hz

(ETAPAS)
SEF−32.1

J8
A ──── X1.L1
B ──── X1.N
C   NO CONECTA
D ──── X1.PE

J9

J9

SEF−028.1

J18   J19   J20   J21   J9   J26   T1 T2 T3   L3 L2 L1   N L3 L2 L1
                                                J6   J7   J8

J9

J12   J13   J14   J15   J16   J17   J22   J23   J24   J25   J10   J11
                                    Free   ⚠   ▷   ∿   PE U V W
+ 24Vdc −   NO COM NC NO COM NC NO   NO   230V

	fisair		Nº PLANO: Dwg Nr:	E09490	TIPO: Type:	CCB2.0/CCE2.0	DENOMINACIÓN: Denomination:	Esquema eléctrico Wiring diagram	DIBUJADO: Drawn:	S.F.B.	APROBADO: Approved:	H.L.A.
	air humidity control		REVISION: Review:	E	CONEXIÓN: Supply: 400V±5%/III+N/50−60Hz				COMPROBADO: Checked:	H.L.A.	HOJA Nº: Sheet Nr: 2	DE: Of: 3

Nombre / Name	Descripción. / Description.	Posición / Position	Nombre / Name	Descripción. / Description.	Posición / Position	Nombre / Name	Descripción. / Description.	Posición / Position
I1	Seccionador. / Isolator switch.	1A2	Mv1	Válvula de drenaje / Drain valve	1I4	MPCB–IN01	Tarjeta para control externo por Voltaje o corriente. / Voltage/Current Board external control	1D.3
U1	Protección magnetotérmica. / Motor circuit breaker.	1B14	HWL	Detector de nivel máximo / High water level swith	1I5	SEF–32.1	Tarjeta Etapas S1 a S5. / Level Board S1 to S5. (Opcional)	1D.11
F2	Protección fusible de alimentación auxiliar. / Auxiliary supply fuse.	2F6	LWL	Detector de nivel mínimo / Low water level swith	1I6	EV1–EV5	Electroválvula Etapas S1 a S5. / EV. Levels S1 to S5 (Opcional)	2B1–2B9
F3	Protección fusible de Ev1. / Ev1 fuse.	2F7	SEF–025.1	CPU / CPU	1C6			
F4	Protección fusible de Mv1. / Mv1 fuse.	2F7	SEF–026	Transmisor de conductividad. (Opcional) / Conductivity sensor	1B6			
F5	Protección fusible de lampara UV. / UV Lamp fuse.	2F9	SEF–027.1	Inteface de estados y teclado. / HMI. (keyboard & bright synoptic)	1B9			
H1	Conexión remota para puesta en marcha en modo Auto.. / Remote conection for turn-on the humidifier in AUTO.	1D5	SEF–028.1	Interface de potencia y conexión. / Power and conectivity interface	1F*			
RL1	Relé para moto-bomba. / Pump relay.	2E10	TRF1	Fuente de voltaje / Voltage Source	2E7			
RL3	Relé para válvula de drenaje. / Drain valve relay.	2E8	SEF–029.1	Tarjeta Interface Modbus–TCP/IP (Opcional) / ModBus–TCP/IP interface Cardboard.	1B4			
RL8	Relé para válvula de llenado. / Fill valve relay.	2F8	SEF–030.1	Tarjeta Interface Modbus/RTU (Opcional) / ModBus/RTU interface Cardboard.	1B9			
M	Moto-bomba. / Pump motor.	1J16	CS	Conductivímetro (Opcional) / Conductivemeter	1C.4			
Ev1	Válvula de llenado. / Fill valve.	1I3						

fisair air humidity control	N° PLANO: / Dwg Nr: **E09490**	TIPO: / Type: **CCB2.0/CCE2.0**
	REVISION: / Review: **E**	CONEXIÓN: / Supply: 400V±5%/III+N/50–60Hz

DENOMINACIÓN: / Denomination:	Esquema eléctrico / Wiring diagram	DIBUJADO: / Drawn: S.F.B.	APROBADO: / Approved: H.L.A.
		COMPROBADO: / Checked: H.L.A.	HOJA N°: / Sheet Nr: 3 DE: / Of: 3

POWER CONSUMPTION
230V±5/1Ph+N/50-60Hz

In=0,67A
Pt=600W

X1 L1 5 6
X1 N   7 8
X1 PE

I1
12A

PE
14E.2

CS
NTC

OPTIONAL
SEF-026
○ Grey
○ Green
○ White
○ Yellow
○ Shield
J22
J20

SEF-029.1 — BACnet ModBus TCP/IP

SEF-030.1 — 1:GND 2:A+ 3:B+ ModBus RTU

S1

N

ME (M)

I(A)
0,63...1A
0,63...1A
0,4...0,63A
0,4...0,63A
0,4...0,63A
0,4...0,63A

U1
1 3 5
I>
2 4 6

MPCB-IN01
(RED BOARD)
0..10V — J1
4..20mA — J2
P2
J9

J06 J10   J4 J5
SEF-025.1
J53

SEF 027.1
fisair
HMI
J8

(STAGES)
SEF-32.1
J9

PE
2B.2

IN1   IN2   IN3   H1
9E.1
9E.1
J18   J19   J20   J21

J9

J26

SEF-028.1

T1 T2 T3   L3 L2 L1
J6   J7
N L3 L2 L1
J8

J9
J12   J13   J14   J15   J16   J17   J22   J23   J24   J25   J10   J11
+ 24Vdc —   Free   ⚠   ▷   ∿   230V   PE U V W
                                              NO COM NC NO COM NC NO   NO

EV1

Feed Back   HWL   LWL

250V-6A AC1
REMOTE STATUS SIGNALS

OPTIONAL
PE   N   L
IPE   UV

P(W)
340W
240W
125W
90W
60W
50W

U   W
M
P(W)

MV1

fisair air humidity control	Nº PLANO: Dwg Nr: E11327	TIPO: Type: CCB2.0/CCE2.0	DENOMINACIÓN: Denomination: Esquema eléctrico Wiring diagram	DIBUJADO: Drawn: S.F.B. — APROBADO: Approved: H.L.A.
	REVISION: Review: A	CONEXIÓN: Supply: 230V±5%/I+N/50-60Hz		COMPROBADO: Checked: S.F.B. — HOJA Nº: Sheet Nr: 1 DE: Of: 3

ETAPA S1 — EV1 — + − PE — J1 — A B C

ETAPA S2 — EV2 — + − PE — J2 — A B C

ETAPA S3 — EV3 — + − PE — J3 — A B C

ETAPA S4 — EV4 — + − PE — J4 — A B C

ETAPA S5 — EV5 — + − PE — J5 — A B C

(ETAPAS)
SEF−32.1

POWER SUPPLY
230V±5/1Ph+N/50−60Hz

J8
A — X1.L1
B — X1.N
C
D — X1.PE

J9
J26

SEF−028.1

J18   J19   J20   J21

J6 — T1 T2 T3
J7 — L3 L2 L1
J8 — N L3 L2 L1

J9

J12 — + 24Vdc −
J13
J14
J15
J16
J17
J9
J22 — (Free) — NO COM NC
J23 — (⚠) — NO COM NC
J24 — (▷) — NO
J25 — (∼) — NO
J10 — 230V
J11 — PE U V W

fisair — air humidity control	N° PLANO: / Dwg Nr:	E11327	TIPO: / Type:	CCB2.0/CCE2.0	DENOMINACIÓN: / Denomination:	Esquema eléctrico / Wiring diagram	DIBUJADO: / Drawn: S.F.B.	APROBADO: / Approved: H.L.A.
	REVISION: / Review:	A	CONEXIÓN: / Supply: 230V±5%/I+N/50−60Hz				COMPROBADO: / Checked: S.F.B.	HOJA N°: / Sheet Nr: 2 — DE: / Of: 3

Top ruler: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Side labels: A B C D E F G H I J

Panel labels: I1, U1, U1, S1, ME

Nombre Name	Descripción. Description.	Posición Position	Nombre Name	Descripción. Description.	Posición Position	Nombre Name	Descripción. Description.	Posición Position
I1	Seccionador. *Isolator switch.*	1A2	Mv1	Válvula de drenaje *Drain valve*	1I4	MPCB-IN01	Tarjeta para control externo por Voltaje o corriente. Voltage/Current Board external control	1D.3
U1	Protección magnetotérmica. *Motor circuit breaker.*	1B14	HWL	Detector de nivel máximo *High water level swith*	1I5	SEF-32.1	Tarjeta Etapas S1 a S5. Level Board S1 to S5. (Opcional)	1D.11
F2	Protección fusible de alimentación auxiliar. *Auxiliary supply fuse.*	2F6	LWL	Detector de nivel mínimo *Low water level swith*	1I6	EV1-EV5	Electroválvula Etapas S1 a S5. EV. Levels S1 to S5. (Opcional)	2B1-2B9
F3	Protección fusible de Ev1. *Ev1 fuse.*	2F7	SEF-025.1	CPU *CPU*	1C6	ME	Ventilador de refrigeración Cooling Fan	1C.11
F4	Protección fusible de Mv1. *Mv1 fuse.*	2F7	SEF-026	Transmisor de conductividad. (Opcional) *Conductivity sensor*	1B6	S1	Termostato Ventilador Refrigeración Thermostat Cooling Fan	1B.11
F5	Protección fusible de lampara UV. *UV Lamp fuse.*	2F9	SEF-027.1	Inteface de estados y teclado. *HMI. (keyboard & bright synoptic)*	1B9			
H1	Conexión remota para puesta en marcha en modo Auto.. *Remote conection for turn-on the humidifier in AUTO.*	1D5	SEF-028.1	Interface de potencia y conexión. *Power and conectivity interface*	1F*			
RL1	Relé para moto-bomba. *Pump relay.*	2E10	TRF1	Fuente de voltaje *Voltage Source*	2E7			
RL3	Relé para válvula de drenaje. Drain valve relay.	2E8	SEF-029.1	Tarjeta Interface Modbus-TCP/IP (Opcional) ModBus-TCP/IP interface Cardboard.	1B4			
RL8	Relé para válvula de llenado. Fill valve relay.	2F8	SEF-030.1	Tarjeta Interface Modbus/RTU (Opcional) ModBus/RTU interface Cardboard.	1B9			
M	Moto-bomba. *Pump motor.*	1J16	cs	Conductivímetro Conductivemeter (Opcional)	1C.4			
Ev1	Válvula de llenado. *Fill valve.*	1I3						

fisair - air humidity control

| N° PLANO: *Dwg Nr:* | E11327 | TIPO: *Type:* | CCB2.0/CCE2.0 | DENOMINACIÓN: *Denomination:* | Esquema eléctrico *Wiring diagram* | DIBUJADO: *Drawn:* | S.F.B. | APROBADO: *Approved:* | H.L.A. |
| REVISION: *Review:* | A | CONEXIÓN: *Supply:* 230V±5%/I+N/50-60Hz | | | | COMPROBADO: *Checked:* | S.F.B. | HOJA Nº: *Sheet Nr:* 3 DE: *Of:* 3 | |