



INSTRUCTION MANUAL (EN)

SMART PRO 2

AIR RECOVERY AND TREATMENT UNITS CONTROL

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DESCRIPTION

The Smart Pro 2 control system has been specially designed for more complex recovery units and air handling units, allowing full management and monitoring of their operation with all functionalities and accessories, such as free-cooling/free-heating management, fixed or variable speed fans, control of heating or cooling coils by water or refrigerant (direct expansion), and electric heating coils. It also enables filter clogging monitoring, time scheduling, and constant airflow or air quality control.

The controller features an integrated display that allows for simple and intuitive operation and monitoring of the unit. Its elegant remote display design enables remote visualization and control of the unit's operation.

INSTALLATION

As with any equipment, the Smart Pro 2 control system must be properly installed, commissioned, and periodically checked to ensure correct operation from the start-up phase and throughout the equipment's service life. The recommendations indicated below should be followed whenever applicable to the equipment in question.

Warnings

- The power supply network to which the device will be connected must comply with the applicable standards in force.
- The device must be properly connected to an effective earth (ground) connection, if applicable, as required by current electrical safety regulations. In case of doubt, request that the network be inspected by qualified professionals.
- The device must be installed and used only in accordance with current regulations and for the purpose for which it was designed. Installing or using it differently, or with non-approved accessories, may be dangerous.
- The manufacturer cannot be held responsible for any damage resulting from incorrect installation, use, or maintenance and/or repairs carried out by unqualified personnel.
- Read this manual carefully and completely before using the equipment.
- Always use the electrical wiring diagram supplied with the equipment.
- Keep this manual and the equipment's electrical diagram for future reference.

MAINTENANCE

The Smart Pro 2 control system requires periodic inspection to ensure proper performance of the function for which it was designed. The frequency of these inspections depends on the environmental conditions in which the equipment operates and the number of operating hours. Therefore, the indications below should be considered as general guidelines.

Operations to be carried out:

- Check the tightness and condition of all electrical connections.
- Verify that the temperature sensor readings are correct.
- Verify that the humidity sensor readings are correct.
- Verify that the airflow/pressure sensor readings are correct.
- Verify that the CO₂ or VOC sensor readings are correct.
- Check that the damper and actuator are operating correctly.
- Check that the pressure switches are operating correctly.
- Check that the heating/cooling coil valves are operating correctly.
- Check that all safety systems, namely the safety thermostats of the electric heating coils, are functioning properly.
- Check the tightness of all screws.
- Inspect the condition of cables and electrical connections, replacing them if necessary.
- Verify that the equipment is operating correctly.
- Perform general cleaning.

Maintenance frequency: Semi-annual.

EQUIPMENT WARRANTY

ARFIT guarantees this product against all manufacturing defects for a period of two (2) years from the date of purchase.

Warranty service will only be provided upon presentation of the purchase document, proving that the equipment is within the warranty period.

If, during the warranty period, the product presents issues resulting from manufacturing defects, ARFIT or its Authorized Technical Service Centers will, free of charge, carry out repairs at their facilities or (at ARFIT's discretion) replace the product or provide the customer with replacement components for the defective parts under the following conditions.

ARFIT reserves the right, at its sole discretion, to replace components of defective products or low-value products either with new components/products or with refurbished/recycled ones.

This warranty covers the equipment only and does not include any costs or losses resulting from equipment downtime, which are expressly excluded.

Warranty Exclusions

- Parts subject to natural wear.
- Parts prone to deterioration or breakage, such as belts, filters, fuses, etc.
- Failures caused by improper, abusive, careless, or negligent use, lightning strikes, flooding, humidity, falls, impacts, accidents, or transport damage.
- Failures caused by using the equipment for purposes other than those intended.
- Failures resulting from handling, modification, or repair of the equipment by unauthorized persons or service centers, or from the use of improper parts or accessories.
- Failures caused by incorrect or illegal installation (voltage, water pressure, or others), power supply anomalies, or disregard for the installation and operation instructions.
- Aesthetic wear or deterioration resulting from use, color fading, oxidation, or corrosion of the unit or its components.
- Any repair carried out does not extend the warranty period nor entitle the customer to any compensation.

The warranty will be void if:

- The equipment's nameplate has been tampered with or altered.
- False information is provided.
- The equipment is not accompanied by the purchase document.
- The equipment has been handled, modified, or repaired by unauthorized persons or service centers.
- Inspection or maintenance operations have not been performed, or have been performed by unauthorized technicians.

INTRODUCTION

The Smart Pro 2 controller is a compact controller with a digital display and an integrated web server.

The controller includes the following components:

- Keypad (T);
- Display (D);
- LED indicators (L);
- Connectors (S).

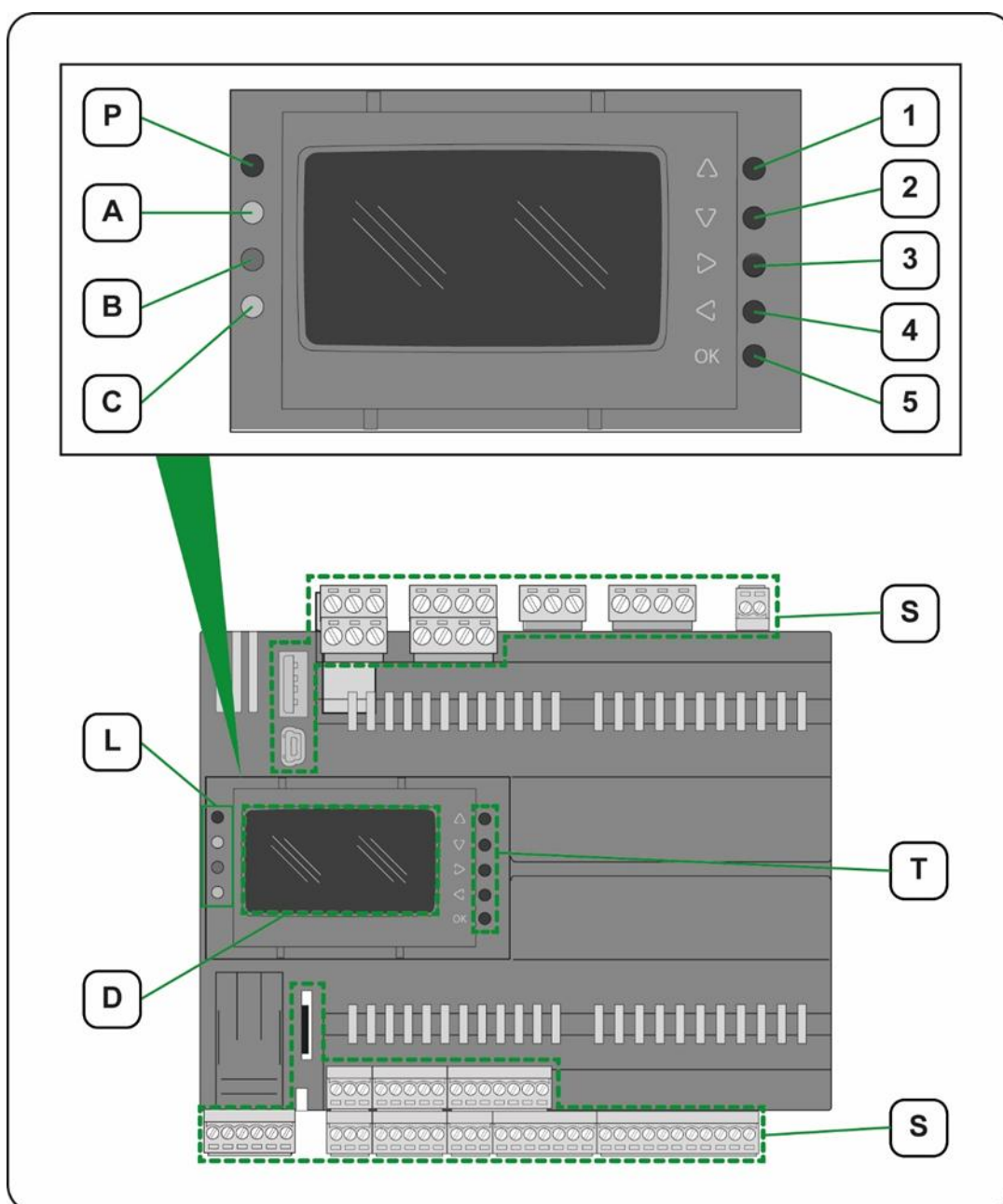


Image 1

Buttons

controller includes the following components:

Δ - UP – allows scrolling through fields and increasing/changing parameter values.

▽ - DOWN – allows scrolling through fields and decreasing/changing parameter values.

▷ - RIGHT – allows moving the cursor to the right in edit mode, selecting the next field, and viewing the next page in the parameter list.

◁ - LEFT – allows moving the cursor to the left in edit mode, selecting the previous field, viewing the previous page in the parameter list; when pressed and held, it exits the edit mode without saving changes and returns to or exits the current page.

OK - OK – executes the function of the selected field, confirms values in edit mode, and selects fields within edit mode.

The Display (D) allows the user to view and navigate the menus.

Indicators LED

There are four LEDs (L) that can have the states shown in the following table:

LED	Color	Status	Description
P	Green	ON	Controller powered
		OFF	Controller not powered
A	Red	OFF	No alarms present
		ON	At least one active alarm
		Flashing	At least one resettable alarm
B	Yellow	ON	Receiving data via USB port or writing to data log
C	Green	OFF	Unit in OFF state
		ON	Unit in ON state
		Flashing	Unit in Standby state

Table 1

NOT: The unit is in Standby mode when it is in the ON state, but no control regulation is active.

Connectors

The connectors (S) allow the connection of the following:

- Power supply;
- Inputs/Outputs;
- Communication ports;
- MicroSD.

refer to the electrical wiring diagram when making electrical connections.

Integrated display

To facilitate information visualization, the controller includes several symbols, whose meanings are described below.

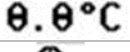
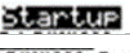
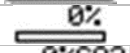
Symbol	Description
	Unit status (ON/OFF)
	Operating mode (Summer/Winter/Auto)
	Alarms (Visible only when an alarm is active)
	Operating profile change (Economy/Comfort/Night)
	Control temperature (Supply or return air, depending on the mode)
	Annual or weekly profile
	Start-up mode (Normal or Fast)
	Display of active components (from left to right): heat recovery, cooling actuator, heating actuator, fans, and dehumidification
	Control by centralized management system
	Active data logging
	Current temperature setpoint
	Current humidity setpoint
	Current air quality setpoint

Table 2

MAIN FEATURES

When the controller is initialized, the following menu is displayed:

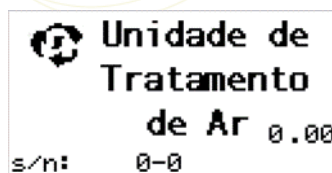


Image 2

When any key is pressed from this menu, the main menu is accessed.

- The main menu shown below refers to the case in which the unit is in the ON state.



Image 3

- The main menu shown below refers to the case in which the unit is in the OFF state.

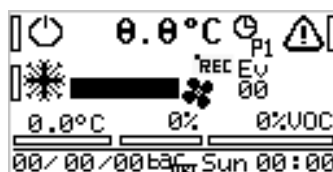


Image 4

NOTE: The icons displayed in the main menu depend on the configuration of each unit.

The parameters that can be adjusted from this menu are as follows:

Name	Value	Min	Max	Unit	Description
Unit On/Off		—	—	—	Start/stop command for the unit
Unit Mode	0 = Summer 1 = Winter 2 = Automatic	0	2	—	Changes the unit mode between Summer/Winter/Automatic
Unit Eco Mode	1 = Economy 2 = Comfort 3 = Night	1	3	—	Changes the unit mode between Economy/Comfort/Night
Control Type	0 = Supply 1 = Return (Direct) 2 = Return (Cascade)	0	2	—	Temperature sensor used for regulation
Modbus On/Off		—	—	—	Enables unit On/Off via Modbus

Unit Status	0=OFF 1=STANDBY 2=RUN	0	2	—	Indicates the current operating state of the unit
Control Temperature		—	—	°C	Indicates the temperature used by the unit for control (Supply or Return)
Current Setpoint		—	—	°C	Indicates the current temperature setpoint of the unit (depends on Summer/Winter and Comfort/Economy mode)
Control Humidity		—	—	%R.H.	Indicates the humidity value used by the unit for control (Supply or Return)
Air Quality		—	—	%/ppm	Indicates the air quality level

Table 3

To select one of the screen icons, press the UP, DOWN, RIGHT, or LEFT keys.

The selected icon will invert its color — changing from black on a white background to white on a black background.

When the OK key is pressed, the function associated with the selected icon is executed.

Access to the “Ação” page, described below, is provided when the corresponding symbol  is selected.

NOTE: If the unit is in Standby mode, the key allows you to:

- Turn OFF the unit using the “Off” key;
- Turn ON the unit using the “Sobrepor” key.

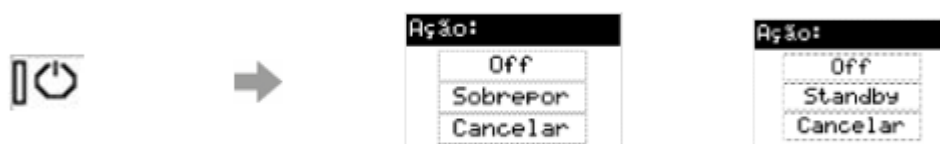


Image 5

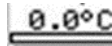
The temperature setpoint menu, described below, is accessed when the corresponding symbol  is selected.



Image 6

The humidity setpoint menu, described below, is accessed when the symbol  is selected.



Image 7

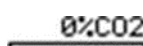
The air quality setpoint menu, described below, is accessed when the symbol  is selected.



Image 8

NOTE: Some of the menus described above display, in the upper right corner, the number of the current page compared with the total number of pages. To change the page currently displayed, press the LEFT and RIGHT keys.

Hold down the UP key for two seconds to access the “Eventos” menu.



Image 9

Hold down the RIGHT key for two seconds to access the “Configurações de Utilizador” menu.



Image 10

Hold down the LEFT key for two seconds to access the initial menu.



Image 11

Keypad Lock

If no key is pressed for more than one hour, the keypad is automatically locked.

When the keypad is locked, the following message is displayed:



To unlock the keypad, hold down the UP key; in this case, the keypad lock will automatically reactivate after 5 minutes of inactivity.

To disable the keypad lock, hold down the LEFT key; in this case, the keypad lock will automatically reactivate after 60 minutes of inactivity.

MAIN FEATURES

The pages of the “Configurações de Utilizador” menu are dynamic and are only visible if the functionalities associated with them are available in the unit.

The menus that can be accessed from this page are as follows:

Menu	User	Manufacturer	Reference in This Manual
A-UTA	Yes	Yes	Unit Status
B-Clock and Events	Yes	Yes	Clock and Events
C-Languages	Yes	Yes	Languages
D-Alarms	Yes	Yes	Alarms
E-User Settings	Yes	Yes	User Settings
F-I/O	Yes	Yes	I/O
G-Password	Yes	Yes	Password

Table 4

NOTE: The messages that may appear on the display are shown below.

- When values are outside the permissible range.
- As confirmation messages.

Values out of range

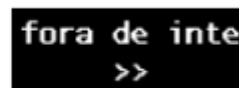
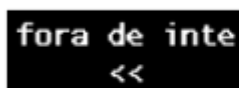


Image 12

Confirmation message

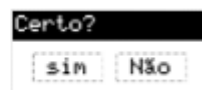
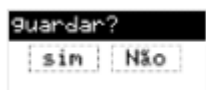


Image 13

Unit Status

The “A-UTA” menu shown below allows the user to manage the main parameters of the unit.

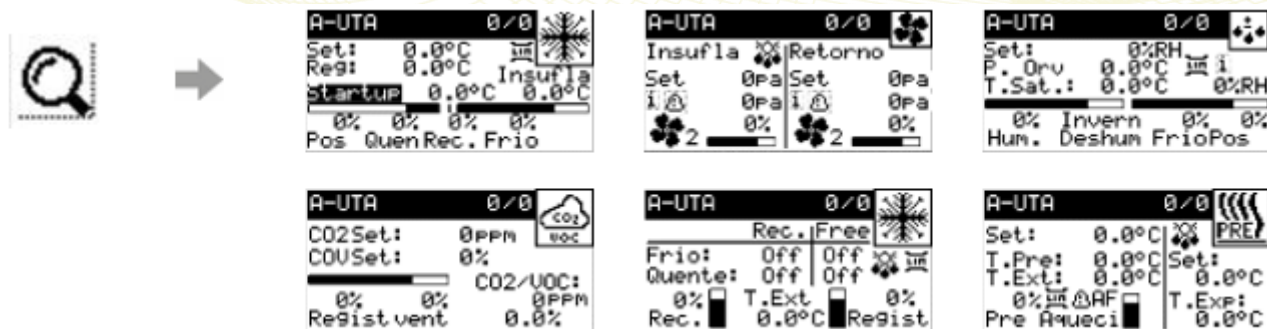


Image 14

The parameters associated with this menu are as follows:

Name	Value	Unit	Description
Mode	0 = Summer; 1 = Winter; 2 = Auto	—	Indicates the current operating mode of the unit (Summer / Winter / Automatic)
Temperature Setpoint		°C	Indicates the current temperature setpoint
Supply Air Temperature		°C	Indicates the current supply air temperature
Post-Heating		%	Indicates the status of the output assigned to post-heating
Heating		%	Indicates the status of the output assigned to heating
Heat Recovery		%	Indicates the status of the output assigned to recovery
Cooling		%	Indicates the status of the output assigned to cooling
Heating Control		%	Indicates the current heating demand from the PID
Cooling Control		%	Indicates the current cooling demand from the PID
Minimum Temperature Limit		%	Indicates the minimum temperature limit
Maximum Temperature Limit		%	Indicates the maximum temperature limit
Maximum Pre-Heating Limit		%	Indicates the maximum pre-heating temperature

			limit
Supply Pressure/Flow Setpoint		Pa-m3/h	Indicates the current supply pressure/airflow setpoint
Return Pressure/Flow Setpoint		Pa-m3/h	Indicates the current return pressure/airflow setpoint
Supply Pressure/Flow		Pa-m3/h	Indicates the current supply pressure/airflow
Return Pressure/Flow		Pa-m3/h	Indicates the current return pressure/airflow
Supply Fan Control		%	Indicates the current fan speed demand from the PID (supply)
Return Fan Control		%	Indicates the current fan speed demand from the PID (return)
Supply Fan Speed		%	Indicates the output status assigned to the supply fan
Return Fan Speed		%	Indicates the output status assigned to the return fan
Fan Defrost		—	Indicates whether the fan is in defrost mode
Defrost Speed Reduction		%	Indicates the speed reduction applied to the fan during defrost
Humidity Setpoint		%R.H.	Indicates the current humidity setpoint
Dew Point		°C	Indicates the current dew point temperature
Saturation Temperature		°C	Indicates the current saturation temperature
Humidification Control		%	Indicates the current humidification demand from the PID
Dehumidification Control		%	Indicates the current dehumidification demand from the PID
Humidifier		%	Indicates the status of the output assigned to the humidifier
Fresh Air Humidity		g/Kg	Indicates the current fresh air humidity
Return Air Humidity		g/Kg	Indicates the current return air humidity
Maximum Humidity Limit		%	Indicates the maximum humidity limit
VOC Setpoint		%	Indicates the current air quality (VOC) setpoint

CO ₂ Setpoint		ppm	Indicates the current air quality (CO ₂) setpoint
Air Quality Control		%	Indicates the current air quality demand from the PID
Fresh Air Temperature		°C	Indicates the current fresh air temperature
Fresh Air Damper		%	Indicates the status of the output assigned to the fresh air damper
Recovery (Cooling)		—	Indicates the recovery status (associated with cooling)
Recovery (Heating)		—	Indicates the recovery status (associated with heating)
FreeCooling		—	Indicates the FreeCooling status
FreeHeating		—	Indicates the FreeHeating status
Actuators OFF FH/FC		—	Actuators disabled by FreeHeating/FreeCooling
Bypass Control		%	Indicates the current FreeHeating/FreeCooling demand from the PID
Defrost Damper		—	Indicates the status of the defrost damper
Pre-Heating Setpoint		°C	Indicates the current pre-heating temperature setpoint
Pre-Heating Temperature		°C	Indicates the current pre-heating temperature
Pre-Heating		%	Indicates the status of the output assigned to pre-heating
Exhaust Air Temperature Setpoint		°C	Setpoint for the exhaust air temperature used for heat exchanger defrost
Exhaust Air Temperature		°C	Indicates the current exhaust air temperature
Defrost with Pre-Heating		—	Indicates whether defrost with pre-heating is enabled

Table 5

Clock and Events

The “B-Relógio & Eventos” menu shown below allows the user to set the clock and configure the unit’s operating schedules.



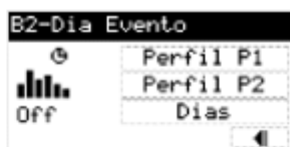
Image 15

The parameters associated with this menu are as follows:

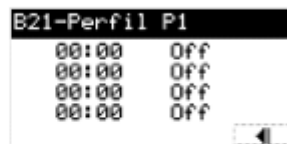
Nome	Valor	Min	Max	Descrição
Seconds	—	0	59	Seconds value to update
Minutes	—	0	59	Minutes value to update
Hour	—	0	23	Hour value to update
Day of the Week	—	0	6	Day of the week to update
Day of the Month	—	1	31	Day of the month to update
Month	—	1	12	Month to update
Year	—	10	99	Year to update
Update	0 = Current;			
1 = Update;				
Daylight Saving Time		—	—	Enable daylight saving time

Table 6

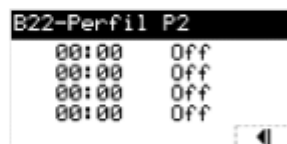
Evento Dia



Perfil P1



Perfil P2



Dias

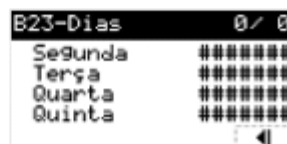


Image 16

The parameter associated with the “B2-Dia Evento” menu is as follows:

Name	Value	Min	Max	Description
Events		—	—	Enable time-based events

Table 7

The parameters associated with the “B21-Perfil P1” menu are as follows:

Name	Value	Min	Max	Description
Event 1 Time – Profile 1		00:00	23:59	Time of event 1 in profile 1
Event 1 Mode – Profile 1	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 1 in profile 1
Event 2 Time – Profile 1		00:00	23:59	Time of event 2 in profile 1
Event 2 Mode – Profile 1	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 2 in profile 1
Event 3 Time – Profile 1		00:00	23:59	Time of event 3 in profile 1
Event 3 Mode – Profile 1	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 3 in profile 1
Event 4 Time –		00:00	23:59	Time of event 4 in profile

Profile 1				1
Event 4 Mode – Profile 1	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 4 in profile 1

Table 8

The parameters associated with the “B22-Perfil P2” menu are as follows:

Name	Value	Min	Max	Description
Event 1 Time – Profile 2		00:00	23:59	Time of event 1 in profile 2
Event 1 Mode – Profile 2	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 1 in profile 2
Event 2 Time – Profile 2		00:00	23:59	Time of event 2 in profile 2
Event 2 Mode – Profile 2	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 2 in profile 2
Event 3 Time – Profile 2		00:00	23:59	Time of event 3 in profile 2
Event 3 Mode – Profile 2	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 3 in profile 2
Event 4 Time – Profile 2		00:00	23:59	Time of event 4 in profile 2
Event 4 Mode – Profile 2	0 = Off; 1 = Economy; 2 = Comfort; 3 = Night	0	3	Mode of event 4 in profile 2

Table 9

The parameters associated with the “B23-Dias” menu are as follows (divided by page):

Pág	Nome	Valor	Min	Max	Descrição
1/2	Monday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Monday
1/2	Tuesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Tuesday
1/2	Wednesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Wednesday

1/2	Thursday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Thursday
2/2	Friday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Friday
2/2	Saturday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Saturday
2/2	Sunday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	4	Profile for Sunday

Table 10

Evento Anual

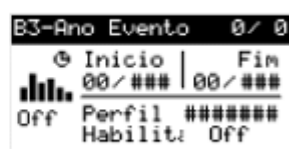


Image 17

The parameters associated with the “B3-Ano Evento” menu are as follows (divided by page):

Page	Name	Value	Min	Max	Unit	Description
Annual Events	—	—	—	—	Enable annual events	
1/15	Annual Profile 1	1 = P1;				
	2 = P2;					
	3 = 24h On;					
	4 = 24h Off	1	4	—	Annual event profile 1	
1/15	Annual Event 1	0 = Off;				
	1 = On	0	1	—	Enable annual event 1	
1/15	Event 1 Start Day	—	1	31	Day	Start day of event 1
1/15	Event 1 Start Month	—	1	12	Month	Start month of event 1
1/15	Event 1 End Day	—	1	31	Day	End day of event 1
1/15	Event 1 End Month	—	1	12	Month	End month of event 1

2/15	Annual Profile 2	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 2		
2/15	Annual Event 2	0 = Off;				
1 = On	0	1	—	Enable annual event 2		
2/15	Event 2 Start Day	—	1	31	Day	Start day of event 2
2/15	Event 2 Start Month	—	1	12	Month	Start month of event 2
2/15	Event 2 End Day	—	1	31	Day	End day of event 2
2/15	Event 2 End Month	—	1	12	Month	End month of event 2
3/15	Annual Profile 3	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 3		
3/15	Annual Event 3	0 = Off;				
1 = On	0	1	—	Enable annual event 3		
3/15	Event 3 Start Day	—	1	31	Day	Start day of event 3
3/15	Event 3 Start Month	—	1	12	Month	Start month of event 3
3/15	Event 3 End Day	—	1	31	Day	End day of event 3
3/15	Event 3 End Month	—	1	12	Month	End month of event 3
4/15	Annual Profile 4	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 4		
4/15	Annual Event 4	0 = Off;				
1 = On	0	1	—	Enable annual event 4		

4/15	Event 4 Start Day	—	1	31	Day	Start day of event 4
4/15	Event 4 Start Month	—	1	12	Month	Start month of event 4
4/15	Event 4 End Day	—	1	31	Day	End day of event 4
4/15	Event 4 End Month	—	1	12	Month	End month of event 4
5/15	Annual Profile 5	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 5		
5/15	Annual Event 5	0 = Off;				
1 = On	0	1	—	Enable annual event 5		
5/15	Event 5 Start Day	—	1	31	Day	Start day of event 5
5/15	Event 5 Start Month	—	1	12	Month	Start month of event 5
5/15	Event 5 End Day	—	1	31	Day	End day of event 5
5/15	Event 5 End Month	—	1	12	Month	End month of event 5
6/15	Annual Profile 6	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 6		
6/15	Annual Event 6	0 = Off;				
1 = On	0	1	—	Enable annual event 6		
6/15	Event 6 Start Day	—	1	31	Day	Start day of event 6
6/15	Event 6 Start Month	—	1	12	Month	Start month of event 6
6/15	Event 6 End Day	—	1	31	Day	End day of event 6
6/15	Event 6 End Month	—	1	12	Month	End month of event 6
7/15	Annual Profile 7	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile		

				7		
7/15	Annual Event 7	0 = Off;				
1 = On	0	1	—	Enable annual event 7		
7/15	Event 7 Start Day	—	1	31	Day	Start day of event 7
7/15	Event 7 Start Month	—	1	12	Month	Start month of event 7
7/15	Event 7 End Day	—	1	31	Day	End day of event 7
7/15	Event 7 End Month	—	1	12	Month	End month of event 7
8/15	Annual Profile 8	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 8		
8/15	Annual Event 8	0 = Off;				
1 = On	0	1	—	Enable annual event 8		
8/15	Event 8 Start Day	—	1	31	Day	Start day of event 8
8/15	Event 8 Start Month	—	1	12	Month	Start month of event 8
8/15	Event 8 End Day	—	1	31	Day	End day of event 8
8/15	Event 8 End Month	—	1	12	Month	End month of event 8
Annual Events	—	—	—	—	Enable annual events	
1/15	Annual Profile 1	1 = P1;				
2 = P2;						
3 = 24h On;						
4 = 24h Off	1	4	—	Annual event profile 1		
1/15	Annual Event 1	0 = Off;				
1 = On	0	1	—	Enable annual event 1		
1/15	Event 1 Start Day	—	1	31	Day	Start day of event 1
1/15	Event 1 Start Month	—	1	12	Month	Start month of event 1
1/15	Event 1 End Day	—	1	31	Day	End day of event 1

Table 11

Languages

The “C-Idiomas” menu shown below allows the user to change the program language.



Image 18

Alarms

The “D-Alarmes” menu shown below allows the user to manage alarms.

In this menu, the user can view active alarms and alarm history.

Active Alarms



Image 19

The alarms associated with the “D1-Alarmes” menu are as follows (divided by page):

Name	Value	Description
Reset Alarms		Sends a command to reset all alarms
A01 – Supply Air Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the supply air temperature sensor
A02 – Return Air Temperature	0 = Inactive; 1 = Active;	Error in the return air temperature sensor

Sensor	2 = Manual Reset	
A03 – Fresh Air Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the fresh air temperature sensor
A04 – Exhaust Air Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the exhaust air temperature sensor
A05 – Pre-heating Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the pre-heating temperature sensor
A06 – Saturation Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the saturation temperature sensor
A07 – Anti-freeze Temperature Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the anti-freeze temperature sensor
A08 – CO ₂ Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the CO ₂ sensor
A09 – Supply Pressure Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the supply pressure sensor
A10 – Return Pressure Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the return pressure sensor
A11 – Supply Humidity Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the supply humidity sensor
A12 – Return Humidity Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the return humidity sensor
A13 – VOC Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the VOC sensor
A14 – Fresh Air Humidity Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the fresh air humidity sensor
A26 – Supply Airflow Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the supply airflow sensor
A27 – Return Airflow Sensor	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the return airflow sensor
A28 – Supply Airflow Sensor 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the second supply airflow sensor
A29 – Return Airflow Sensor 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in the second return airflow sensor
A30 – Supply Fan	0 = Inactive; 1 = Active;	Supply fan alarm

	2 = Manual Reset	
A31 – Return Fan	0 = Inactive; 1 = Active; 2 = Manual Reset	Return fan alarm
A32 – Fire	0 = Inactive; 1 = Active; 2 = Manual Reset	Fire alarm
A33 – Door Open	0 = Inactive; 1 = Active; 2 = Manual Reset	Door open alarm
A34 – Anti-freeze	0 = Inactive; 1 = Active; 2 = Manual Reset	Anti-freeze alarm
A35 – Supply Airflow	0 = Inactive; 1 = Active; 2 = Manual Reset	Supply airflow alarm
A36 – Return Airflow	0 = Inactive; 1 = Active; 2 = Manual Reset	Return airflow alarm
A37 – Humidifier	0 = Inactive; 1 = Active; 2 = Manual Reset	Humidifier alarm
A38 – Pre-heater	0 = Inactive; 1 = Active; 2 = Manual Reset	Pre-heater alarm
A39 – Heater	0 = Inactive; 1 = Active; 2 = Manual Reset	Heater alarm
A40 – Post-heater	0 = Inactive; 1 = Active; 2 = Manual Reset	Post-heater alarm
A41 – Heat Recovery	0 = Inactive; 1 = Active; 2 = Manual Reset	Heat recovery alarm
A42 – Filter 1	0 = Inactive; 1 = Active; 2 = Manual Reset	Filter 1 clogged
A43 – Filter 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Filter 2 clogged
A44 – Filter 3	0 = Inactive; 1 = Active; 2 = Manual Reset	Filter 3 clogged
A45 – Filter 4	0 = Inactive; 1 = Active; 2 = Manual Reset	Filter 4 clogged
A46 – Supply Fan 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Second supply fan alarm
A47 – Return Fan 2	0 = Inactive; 1 = Active;	Second return fan alarm

	2 = Manual Reset	
A48 – Supply Airflow 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Second supply airflow alarm
A49 – Return Airflow 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Second return airflow alarm
A50 – Condensing Unit	0 = Inactive; 1 = Active; 2 = Manual Reset	Condensing unit alarm
A51 – Clock	0 = Inactive; 1 = Active; 2 = Manual Reset	System clock alarm
A52 – Fan Maintenance	0 = Inactive; 1 = Active; 2 = Manual Reset	Fan maintenance alarm
A53 – Fan Modbus Configuration	0 = Inactive; 1 = Active; 2 = Manual Reset	Modbus communication error due to incorrect fan configuration
A54 – Supply Fan Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication error with supply fan
A55 – Return Fan Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication error with return fan
A56 – Supply Fan 2 Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication error with second supply fan
A57 – Return Fan 2 Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication error with second return fan
A58 – Filter 5	0 = Inactive; 1 = Active; 2 = Manual Reset	Filter 5 clogged
A59 – Humidifier Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication error with humidifier
A60 – Log Error	0 = Inactive; 1 = Active; 2 = Manual Reset	Data logging error
A61 – CAN Expansion 1	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in first CAN expansion module
A62 – CAN Expansion 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Error in second CAN expansion module
A66 – Condensing Unit 2	0 = Inactive; 1 = Active; 2 = Manual Reset	Second condensing unit alarm
A67 – Condensing Unit 3	0 = Inactive; 1 = Active;	Third condensing unit alarm

	2 = Manual Reset	
A68 – Condensing Unit 4	0 = Inactive; 1 = Active; 2 = Manual Reset	Fourth condensing unit alarm
A99 – Supply Fan 1b Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication alarm with supply fan 1b
A100 – Supply Fan 1c Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication alarm with supply fan 1c
A101 – Return Fan 1b Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication alarm with return fan 1b
A102 – Return Fan 1c Communication	0 = Inactive; 1 = Active; 2 = Manual Reset	Communication alarm with return fan 1c

Table 12

Histórico



Image 20

The “D2-Histórico” page allows the user to view the list of the last 50 alarms.

Name	Value	Min	Max	Description
Alarm Code	0 = ---; 1 = A01 – Supply Air Temperature Sensor; 2 = A02 – Return Air Temperature Sensor; 3 = A03 – Fresh Air Temperature Sensor; 4 = A04 – Exhaust Air Temperature Sensor; 5 = A05 – Pre-heating Temperature Sensor; 6 = A06 – Saturation Temperature Sensor; 7 = A07 – Anti-freeze Temperature Sensor; 8 = A08 – CO ₂ Sensor; 9 = A09 – Supply Pressure Sensor; 10 = A10 – Return Pressure Sensor; 11 = A11 – Supply Humidity Sensor; 12 = A12 – Return Humidity Sensor; 13 = A13 – VOC Sensor; 14 = A14 – Fresh Air Humidity Sensor; 26 = A26 – Supply Airflow Sensor; 27 = A27 – Return Airflow Sensor; 28 = A28 – Supply Airflow Sensor 2; 29 = A29 – Return Airflow Sensor 2; 30 = A30 – Supply Fan; 31 = A31 – Return Fan; 32 = A32 – Fire; 33 = A33 – Door Open; 34 = A34 – Anti-freeze; 35 = A35 – Supply Airflow; 36 = A36 – Return Airflow; 37 = A37 – Humidifier; 38 = A38 – Pre-heater; 39 = A39 – Heater; 40 = A40 – Post-heater; 41 = A41 – Heat Recovery;	0	106	Selected alarm history

	42 = A42 – Filter 1 Clogged; 43 = A43 – Filter 2 Clogged; 44 = A44 – Filter 3 Clogged;			
Alarm Code	45 = A45 – Filter 4 Clogged; 46 = A46 – Supply Fan 2; 47 = A47 – Return Fan 2; 48 = A48 – Supply Airflow 2; 49 = A49 – Return Airflow 2; 50 = A50 – Condensing Unit; 51 = A51 – Real-Time Clock; 52 = A52 – Fan Maintenance; 53 = A53 – Fan Modbus Configuration; 54 = A54 – Supply Fan Communication; 55 = A55 – Return Fan Communication; 56 = A56 – Supply Fan 2 Communication; 57 = A57 – Return Fan 2 Communication; 58 = A58 – Filter 5 Clogged; 59 = A59 – Humidifier Communication; 60 = A60 – Log Error; 61 = A61 – CAN Expansion 1; 62 = A62 – CAN Expansion 2; 66 = A66 – Condensing Unit 2; 67 = A67 – Condensing Unit 3; 68 = A68 – Condensing Unit 4; 99 = A99 – Supply Fan 1b Communication; 100 = A100 – Supply Fan 1c Communication; 101 = A101 – Return Fan 1b Communication; 102 = A102 – Return Fan 1c Communication	0	106	Selected alarm history
Alarm Date		—	—	History: Date of the alarm
Alarm Time		—	—	History: Time of the alarm
Alarm Status		—	—	History: Alarm status (X=1 Reset, X=2 Active, X=3 Awaiting reset)
Number of Alarms		—	—	History: Number of alarms stored
Reset		—	—	History: Reset request

Table 13

User Settings

The “E-Ajustes Utilizador” menu shown below allows the user to adjust various operating parameters.



Image 21

In this menu, you can adjust the parameters of the following submenus:

- E1 – SETPOINTS
- E2 – OPERATING HOURS
- E3 – DATA LOGGER
- E4 – WEBSERVER
- E5 – CONTROLLERS

Setpoints

The “E1-Setpoints” menu shown below allows the management of setpoints.



Image 22

The parameters of the “E1-Setpoints” menu are as follows (divided by page):

Page	Name	Min	Max	Unit	Description
1/6	Summer Setpoint	Minimum Temperature Setpoint	Maximum Temperature Setpoint	°C	Temperature setpoint in summer mode
1/6	Summer Economy Setpoint	Summer Setpoint	Maximum Temperature Setpoint	°C	Temperature setpoint in summer mode – economy profile
2/6	Winter Setpoint	Minimum Temperature Setpoint	Maximum Temperature Setpoint	°C	Temperature setpoint in winter mode
2/6	Winter Economy Setpoint	Minimum Temperature Setpoint	Winter Setpoint	°C	Temperature setpoint in winter mode – economy profile
3/6	Auto Setpoint	Minimum Temperature Setpoint	Maximum Temperature Setpoint	°C	Temperature setpoint in automatic mode
3/6	Automatic Temperature Differential	0	—	°C	Temperature differential required for heating/cooling

					changeover in automatic economy mode
4/6	Dehumidification Setpoint	Minimum Humidity Setpoint	Maximum Humidity Setpoint	%R.H.	Dehumidification setpoint (comfort)
4/6	Dehumidification Economy Setpoint	Minimum Humidity Setpoint	Maximum Humidity Setpoint	%R.H.	Dehumidification setpoint in economy profile
5/6	Humidification Setpoint	Minimum Humidity Setpoint	Maximum Humidity Setpoint	%R.H.	Humidification setpoint (comfort)
5/6	Humidification Economy Setpoint	Minimum Humidity Setpoint	Maximum Humidity Setpoint	%R.H.	Humidification setpoint in economy profile
6/6	CO ₂ Setpoint	0	2000	ppm	Air quality setpoint (CO ₂)
6/6	VOC Setpoint	0	100	%	Air quality setpoint (VOC)

Table 14

Operating Hours

The “E2-Horas Funcionamento” menu shown below allows the user to view the operating hours for fans and condensing units.

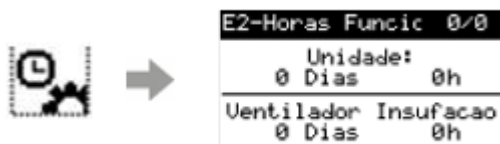


Image 23

The parameters of the “E2-Horas Funcionamento” menu are as follows (divided by page):

Page	Name	Unit	Description
1/5	Unit Operating Days	days	Number of operating days of the unit
1/5	Unit Operating Hours	hours	Number of operating hours of the unit
1/5	Supply Fan Operating Days	days	Number of operating days of the supply fan
1/5	Supply Fan Operating Hours	hours	Number of operating hours of the supply fan
2/5	Supply Fan 2 Operating Days	days	Number of operating days of the second supply fan
2/5	Supply Fan 2 Operating Hours	hours	Number of operating hours of the second supply fan
2/5	Return Fan Operating Days	days	Number of operating days of the return fan
2/5	Return Fan Operating Hours	hours	Number of operating hours of

			the return fan
3/5	Return Fan 2 Operating Days	days	Number of operating days of the second return fan
3/5	Return Fan 2 Operating Hours	hours	Number of operating hours of the second return fan
3/5	Condensing Unit Operating Days	days	Number of operating days of the condensing unit
3/5	Condensing Unit Operating Hours	hours	Number of operating hours of the condensing unit
4/5	Condensing Unit 2 Operating Days	days	Number of operating days of the second condensing unit
4/5	Condensing Unit 2 Operating Hours	hours	Number of operating hours of the second condensing unit
4/5	Condensing Unit 3 Operating Days	days	Number of operating days of the third condensing unit
4/5	Condensing Unit 3 Operating Hours	hours	Number of operating hours of the third condensing unit
5/5	Condensing Unit 4 Operating Days	days	Number of operating days of the fourth condensing unit
5/5	Condensing Unit 4 Operating Hours	hours	Number of operating hours of the fourth condensing unit

Table 15

Data logger

The “E3-Data Logger” menu shown below allows data logging.



Image 24

The parameters of this menu are as follows:

Page	Name	Value	Min	Max	Description
---	Enable Logging		—	—	Start data logging
---	Start Month		1	12	Start month of logging – file export to USB
---	End Month		1	12	End month of logging – file export to USB
---	Start Year		0	99	Start year of logging – file export to USB
---	End Year		0	99	End year of logging – file export to USB

Table 16



Image 25

The parameters of the “E31-Opções microSD” menu are as follows:

Page	Name	Value	Min	Max	Description
---	microSD Status	0 = Not present; 1 = Unsafe removal; 2 = Unmounted; 3 = Mounted	0	3	Indicates the current status of the microSD card
---	microSD Error		—	—	microSD card error
---	microSD Information	0 = ...; 1 = Remove microSD; 2 = Ready to remove/mount;	0	8	Information on the current state of the microSD card

		3 = Ready for logging; 4 = ...; 5 = Insert microSD; 6 = Remove microSD; 7 = Repeat command; 8 = Not mounted			
---	microSD Counter		—	—	Presence counter of the microSD card

Table 17

Webserver

The “E4-Web Server” menu shown below allows the management of parameters related to the web server.



Image 26

The parameters of this menu are as follows:

Page	Name	Description
---	User	User ID
---	Password	User password

Table 18

Controllers

The “E5-Reguladores” menu shown below allows the management of the controllers.

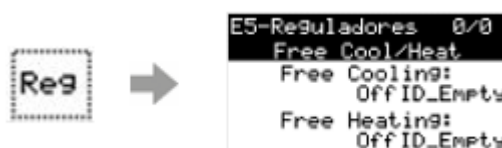


Image 27

The parameters of this menu are as follows (divided by page):

Page	Name	Value	Min	Max	Unit	Description
1/7	FreeCooling Configuration	0 = Disabled; 1 = Mixing Damper; 2 = Heat	0	2	—	Enables FreeCooling

		Recovery 0 = Disabled; 1 = Mixing Damper; 2 = Heat Recovery				
1/7	FreeHeating Configuration		0	2	—	Enables FreeHeating
2/7	Minimum FreeCooling Temperature		-20.0	20.0	°C	Minimum fresh air temperature at which FreeCooling is possible
2/7	FCH Proportional Band		1.0	10.0	°C	Proportional band for Free Cooling/Heating
3/7	Free Cooling/Heating Timeout		0	180	min	Time period during which the actuators remain off, allowing temperature regulation only by Free Cooling/Heating
3/7	FCH Differential		1.0	10.0	°C	Required difference between fresh air and setpoint for Free Cooling/Heating to activate
4/7	FCH Hysteresis		0.2	5.0	°C	Hysteresis for Free Heating/Cooling
4/7	-----					
5/7	Enable Fast Heating/Cooling		—	—	—	Enables the fast heating/cooling function
5/7	Fast Heating/Cooling Timeout		1	—	Min	Timeout for the fast heating/cooling mode
6/7	Fast Cooling Setpoint		-50.0	50.0	°C	Minimum fresh air temperature required to enable fast cooling
6/7	Fast Cooling Supply Setpoint		-50.0	50.0	°C	Minimum return air temperature required to enable fast cooling when control is by supply air
7/7	Fast Heating Setpoint		-50.0	50.0	°C	Maximum fresh air temperature required to enable fast heating
7/7	Fast Heating Supply Setpoint		-50.0	50.0	°C	Maximum return air temperature required to enable fast heating when control is by supply air

Table 19

I/O

The “F-I/O” menu shown below allows the management of the controller’s inputs and outputs.

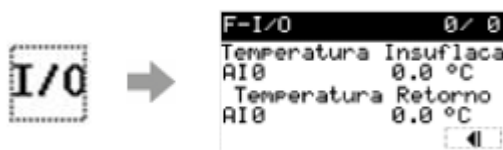


Image 28

The input/output states in this menu are as follows (some elements will only be visible if they are present in the unit).

Name	Value	Unit
Supply Air Temperature	—	°C
Supply Pressure	—	Pa
Supply Humidity	—	%
Return Air Temperature	—	°C
Return Pressure	—	Pa
Return Humidity	—	%
Fresh Air Temperature	—	°C
Fresh Air Humidity	—	%
Supply Airflow	—	m³/h
Return Airflow	—	m³/h
CO ₂	—	ppm
VOC	—	%
Exhaust Air Temperature	—	°C
Pre-heating Temperature	—	°C
Saturation Temperature	—	°C
Anti-freeze Temperature	—	°C
Supply Fan Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Flow Switch	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Fan 2 Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Flow Switch 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Fan Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Flow Switch	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Fan 2 Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Flow Switch 2	0 = 0V; 1 = 24V; 2 = Disabled	—
On/Off Input 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Fire Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating/Cooling Mode	0 = 0V; 1 = 24V; 2 = Disabled	—

Door Open	0 = 0V; 1 = 24V; 2 = Disabled	—
Anti-freeze Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Humidifier Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Pre-heater Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Post-heater Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Heat Recovery Wheel Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Filter 1 Clogged	0 = 0V; 1 = 24V; 2 = Disabled	—
Filter 2 Clogged	0 = 0V; 1 = 24V; 2 = Disabled	—
Filter 3 Clogged	0 = 0V; 1 = 24V; 2 = Disabled	—
Filter 4 Clogged	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Heater Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 2 Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 3 Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 4 Alarm	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit Defrost	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 2 Defrost	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 3 Defrost	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 4 Defrost	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Fan	—	%
Return Fan	—	%
Fresh Air Damper	—	%
Bypass Damper	—	%
Cooling Modulation	—	%
Heating Modulation	—	%
Pre-heating	—	%
Post-heating	—	%
Heat Recovery Wheel	—	%
Humidifier	—	%
Condensing Unit	—	%
Condensing Unit 2	—	%
Condensing Unit 3	—	%

Condensing Unit 4	—	%
Supply Fan	0 = Off; 1 = On; 2 = Inactive	—
Return Fan	0 = 0V; 1 = 24V; 2 = Disabled	—
On/Off State	0 = 0V; 1 = 24V; 2 = Disabled	—
Alarm State	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating/Cooling Mode	0 = 0V; 1 = 24V; 2 = Disabled	—
Fresh Air Damper	0 = 0V; 1 = 24V; 2 = Disabled	—
Bypass Damper	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Damper	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Damper	0 = 0V; 1 = 24V; 2 = Disabled	—
Pre-heating Pump	0 = 0V; 1 = 24V; 2 = Disabled	—
Post-heating Pump	0 = 0V; 1 = 24V; 2 = Disabled	—
Cooling Pump	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 3	0 = 0V; 1 = 24V; 2 = Disabled	—
Condensing Unit 4	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating Pump	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating Step 1	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating Step 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Heating Step 3	0 = 0V; 1 = 24V; 2 = Disabled	—
Pre-heating Step 1	0 = 0V; 1 = 24V; 2 = Disabled	—
Pre-heating Step 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Pre-heating Step 3	0 = 0V; 1 = 24V; 2 = Disabled	—
Post-heating Step 1	0 = 0V; 1 = 24V; 2 = Disabled	—
Post-heating Step 2	0 = 0V; 1 = 24V; 2 = Disabled	—

Post-heating Step 3	0 = 0V; 1 = 24V; 2 = Disabled	—
Humidifier	0 = 0V; 1 = 24V; 2 = Disabled	—
Heat Recovery Wheel	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Fan 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Fan 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Supply Damper 2	0 = 0V; 1 = 24V; 2 = Disabled	—
Return Damper 2	0 = 0V; 1 = 24V; 2 = Disabled	—

Table 20

Password

The “G-Password” menu shown below allows password configuration.



Image 29

The parameters of this menu are as follows.

Page	Name	Default	Description
---	Password	0	Enter password
---	Password Level	—	Indicates the current password level
---	Password Reset	0	Requests password reset

Table 21

There are two security levels: Level 1 for the user and Level 2 for the manufacturer.

The default password for accessing Level 1 is “123”.

Access to Level 2 is only possible when the unit is turned OFF.

WEBSERVER

The webserver is a web application that allows intuitive configuration of the air handling unit (AHU) or heat recovery unit. The webserver is divided into the following screens:

- Home Page
 - Settings
 - Weekly Schedule
 - Event Schedule
- Status
 - I/O
 - Alarms
- Logs
 - Recorded Files
 - Trends

The Home Page allows the user to configure and manage the main functions of the unit, such as turning it ON/OFF and switching between Summer/Winter modes. It also enables the monitoring of the components installed in the unit.

Home Page

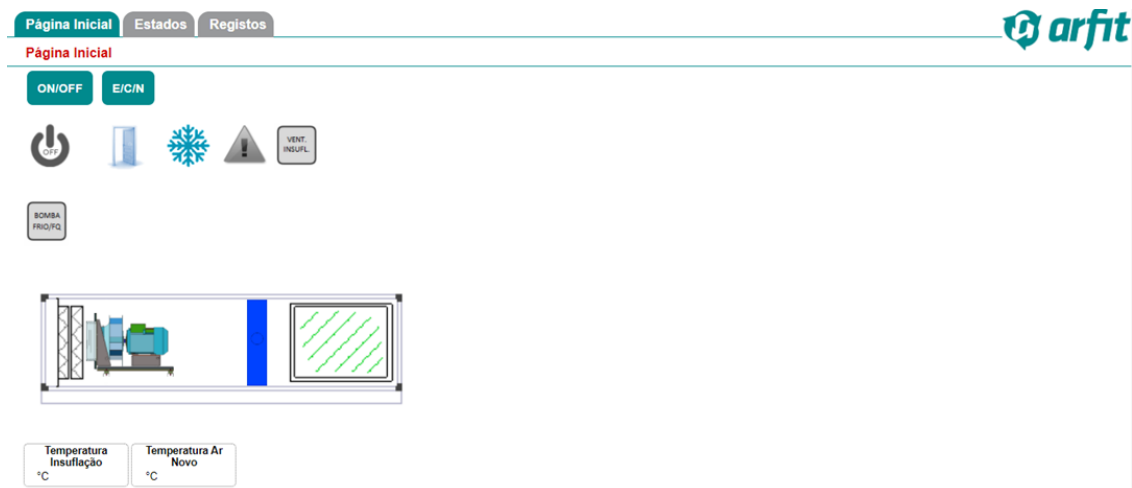


Image 30



Image 31

The “Configurações” page allows the configuration of setpoints.

Página Inicial

Estados

Registos



Página Inicial > Configurações

Auto

Nome	Valor	Un
Conforto:		°C
Diferencial Modo Económico:		°C

Verão

Nome	Valor	Un
Conforto:		°C
Económico:		°C

Inverno

Nome	Valor	Un
Conforto:		°C
Económico:		°C

Desumidificação

Nome	Valor	Un
Conforto:		%R.H.
Económico:		%R.H.

Humidificação

Nome	Valor	Un
Conforto:		%R.H.
Económico:		%R.H.

Qualidade do Ar

Nome	Valor	Un
CO2:		ppm
VOC:		%

Ventilador de Insuflação

Nome	Valor	Un
Setpoint de Caudal:		m3/h
Setpoint de Pressão:		Pa
Velocidade Nominal:		%

Ventilador de Retorno

Nome	Valor	Un
Setpoint de Caudal:		m3/h
Setpoint de Pressão:		Pa
Velocidade Nominal:		%

Image 32

Weekly Schedule

The “Agenda Semanal” page allows the configuration of weekly operating profiles.

Página Inicial

Estados

Registos



Página Inicial > Agenda Semanal

Definição do Perfil Semanal

Habilitar:	Não
Segunda:	Perfil 1
Terça:	Perfil 1
Quarta:	Perfil 1
Quinta:	Perfil 1
Sexta:	Perfil 1
Sábado:	Perfil 1
Domingo:	Perfil 1

Definições do Perfil P1

Evento 1:		Off
Evento 2:		Off
Evento 3:		Off
Evento 4:		Off

Definições do Perfil P2

Evento 1:		Off
Evento 2:		Off
Evento 3:		Off
Evento 4:		Off

Definições de Data e Hora

Data:			
Hora:			

Atualizar

Image 33

Event Schedule

The “Agenda de Eventos” page allows the configuration of annual operating profiles.

Página Inicial

Estados

Registos



Página Inicial > Agenda de Eventos

Definições de Eventos

Habilitar: Não

Evento 1

Off

Perfil 1

01

Jan

-

01

Jan

Evento 2

Off

Perfil 1

01

Jan

-

01

Jan

Evento 3

Off

Perfil 1

01

Jan

-

01

Jan

Evento 4

Off

Perfil 1

01

Jan

-

01

Jan

Evento 5

Off

Perfil 1

01

Jan

-

01

Jan

Evento 6

Off

Perfil 1

01

Jan

-

01

Jan

Evento 7

Off

Perfil 1

01

Jan

-

01

Jan

Evento 8

Off

Perfil 1

01

Jan

-

01

Jan

Evento 9

Off

Perfil 1

01

Jan

-

01

Jan

Evento 10

Off

Perfil 1

01

Jan

-

01

Jan

Evento 11

Off

Perfil 1

01

Jan

-

01

Jan

Evento 12

Off

Perfil 1

01

Jan

-

01

Jan

Evento 13

Off

Perfil 1

01

Jan

-

01

Jan

Evento 14

Off

Perfil 1

01

Jan

-

01

Jan

Evento 15

Off

Perfil 1

01

Jan

-

01

Jan

Image 34

STATUS I/O

The “IOs” page allows the monitoring of the current status of the controller’s inputs and outputs.

Página Inicial

Estados

Registos

arfit

Estados > IOs

Entradas Analógicas

Nome	Valor	Un
------	-------	----

Entradas Digitais

Nome	Valor
------	-------

Saídas Digitais

Nome	Valor
------	-------

Saídas Analógicas

Nome	Valor	Un
------	-------	----

Image 35

Alarms

The “Alarmes” page allows monitoring of active alarms and the alarm history.

[Página Inicial](#)[Estados](#)[Registos](#)

Estados > Alarmes

Alarmes Ativos

Código do Alarme

Estado

Reset Alarmes

Histórico de Alarmes

Código do Alarme

Estado

Alarme Pedido

Código do Alarme

Estado

Data do Alarme

Hora do Alarme

Número de Alarmes Registados

LOGS

Recorded Files

The “Ficheiros Registados” page allows the user to view and download the recorded files.



Image 37

Trends

The “Tendências” page allows the visualization of the variables contained in the loaded file.

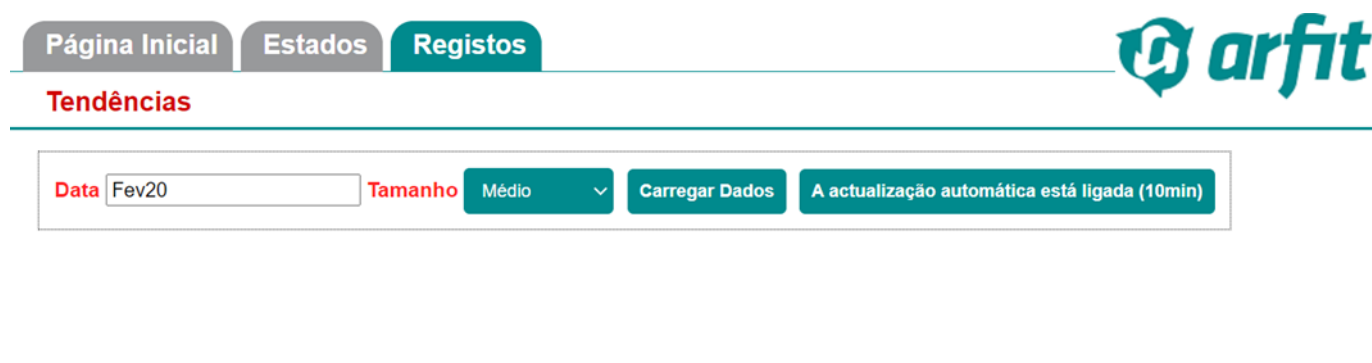


Image 38

REMOTE DISPLAY

The Smart Pro 2 controller is available with a remote touch screen display, which allows remote control and monitoring of the air handling unit (AHU) or heat recovery unit via a web browser using the Webserver.

The connection between the remote display and the Smart Pro 2 controller is made through a network cable with RJ45 connectors, in addition to the power supply for the display.

The remote display is intended for indoor installation only and must not be installed outdoors or exposed to weather conditions.

The remote display includes the following components:

- Status LED (A)
- Hook (B)
- Ethernet Port (C)
- Power Connector (D)
- USB Port (E)

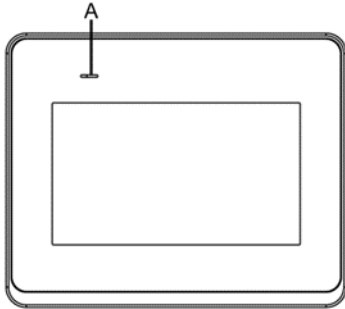
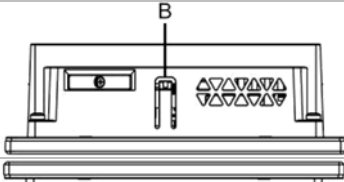
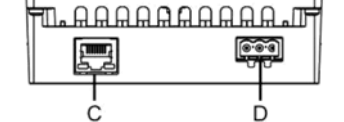
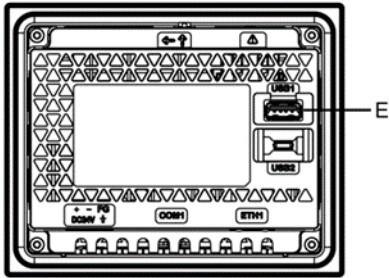
View	Description
Front	
Top	
Bottom	
Back	

Table 22

The LED (A) can have the states shown in the following table:

Color	State	Description
Green	On	Operating
	Flashing	Backlight off (Standby mode)
Orange	Flashing	Software initialization
Red	On	Display powered
-	Off	Display not powered

Table 23

The remote display is supplied preconfigured; however, when necessary, its settings can be changed as indicated below.

Electrical Connections

All electrical connections must be carried out by qualified personnel.

Terminal blocks for electrical connections are located inside the electrical panel.

Always refer to the electrical wiring diagram when making the connections.

Startup Settings

After powering on the display, follow the steps below to configure the screen and the web browser.

Step	Action
1st	Connect the display to the controller.
2nd	Power on the display.
3rd	The password entry screen will appear. Enter the default password "Admins".  NOTES: • For security reasons, change the password after the first login. • To restart the device, press button (1). • After the fifth failed password attempt, instead of displaying the configuration menu, the web browser home page will appear.
4th	The configuration menu will appear.

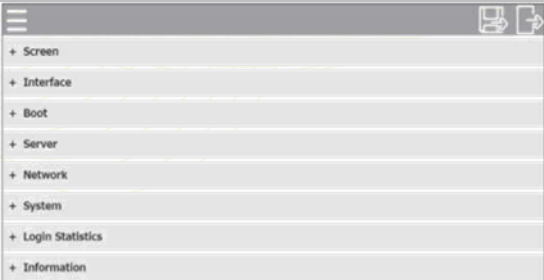
			
5th	Change the password through “System → Password”.		
6th	In “Network”, configure the IP address of the display and other network settings.		
7th	In “Server”, you can register the web server address of other devices and select the server that will automatically appear on startup.		
8th	Press “Save & Reboot” to save the settings and restart the device.		

Table 24

Settings Menu

This section contains the following submenus:

Menu	Reference in this manual
Screen	Screen
Interface	Interface
Boot	Boot
Server	Server
Network	Network
System	System
Login Statistics	Login Statistics
Information	Information
Save Changes	Save Changes

Table 25

Screen

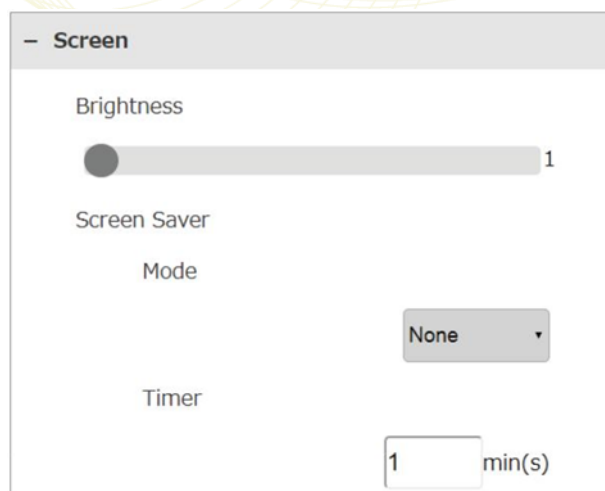


Image 39

Parameter	Description
Brightness	Adjusts the screen brightness from 1 (bright) to 16 (dark). The default setting is [1].
Screen Saver	Configures what happens to the screen after the time defined in "Timer". The default setting is [None]. [None] – No effect on the screen. [Backlight Off] – Turns off the backlight.
Timer	Indicates the time required to activate the Screen Saver after the last user action. This time can vary between 1 and 30 minutes.

Table 26

Interface

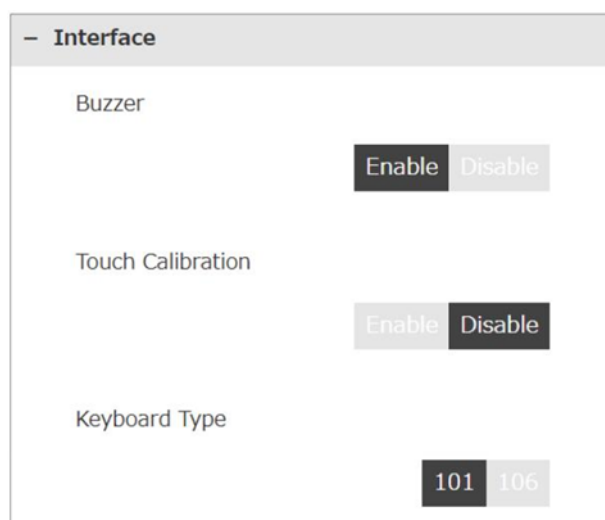


Image 40

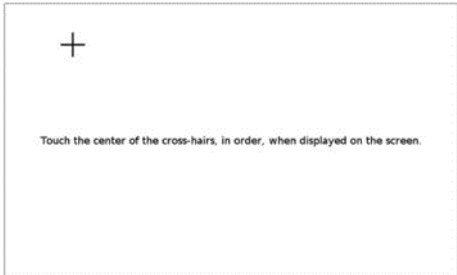
Parameter	Description
Buzzer	Enables or disables the audible signal that sounds when the user operates the touch screen. The default setting is [Enable].
Touch Calibration	If [Enable] is selected, the calibration screen will appear after the device restarts. Follow the on-screen instructions to perform calibration. The default setting is [Disable]. 
Keyboard Type	Indicates the type of keyboard connected via USB. The default setting is [101]. [101] – Alphanumeric keyboard. [106] – Japanese keyboard.

Table 27

Boot

– Boot

Mode

Image ▾

Data

Load

Delay Time

0 sec(s)

Show Progress Bar

Enable Disable

Image 41

Parameter	Description
Mode	Configures the screen status at startup. To display an image, select [Image]. If no image is desired, select [None]. The default setting is [Image].
Data	When the [Mode] parameter is set to [Image], press the [Load] button to upload an image from a USB storage device. The image must meet

	the following criteria: • Maximum size: 16 MB • Format: .png • Resolution: 2048×2048 • File name: BootImg.png
Delay Time	Indicates the delay (from 1 to 60 seconds) before the home page appears after startup.
Show Progress Bar	Enables or disables the progress bar displayed during startup. The default setting is [Enable].

Table 28

Server

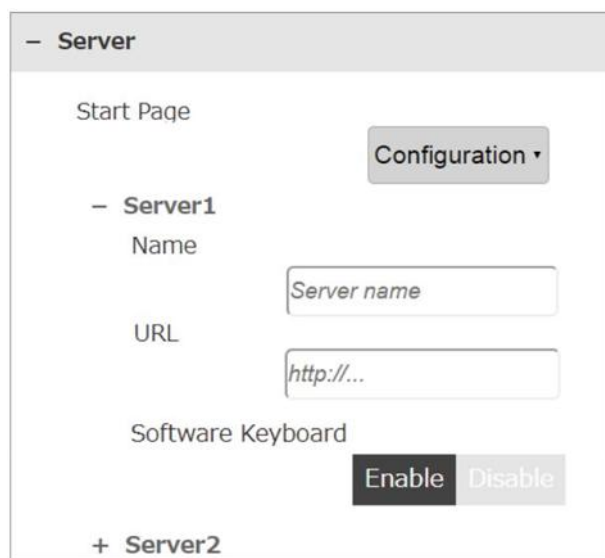


Image 42

Parameter	Description
Mode	Configures the screen status at startup. To display an image, select [Image]. If no image is desired, select [None]. The default setting is [Image].
Start Page	Selects the initial page displayed when the device starts. The default setting is [Configuration].
Server List	Registers web servers of devices connected to the display. Up to 10 servers can be registered. [Name] – Maximum of 32 characters. [URL] – Maximum of 256 characters. [Software Keyboard] – Enables or disables the on-screen keyboard.

Table 29

Network

DHCP

Enable

Disable

IP Address

192.168.0.1

Subnet Mask

255.255.255.0

Default Gateway

DNS Settings

Auto

Manual

DNS Server

MAC Address

Image 43

Parameter	Description
DHCP	Select [Enable] to automatically obtain the IP address from a DHCP server on the same intranet.
IP Address Subnet Mask	Indicates the static IP address and subnet mask of the display.
Default Gateway	Indicates the IP address of the default gateway.
DNS Settings DNS Server	Indicates how to obtain the IP address from a DNS server. When [Auto] is selected, the IP address is set automatically. When [Manual] is selected, enter the DNS server IP address in the [DNS Server] field. The default setting is [Manual].
MAC Address	Displays the MAC address of the display.

Table 30

System

New Password

Confirm Password

Change

Load Default

Reset

Back Up Configuration

Backup

Restore Configuration

Restore

Update System

Update

Image 44

Parameter	Description
DHCP	Select [Enable] to automatically obtain the IP address from a DHCP server on the same intranet.
Password	Allows you to change the password. The following character types are allowed (spaces are not permitted): - Character length: 6 to 32 - Lowercase letters: a–z - Uppercase letters: A–Z - Numbers: 0–9 - Special characters
Load Default	Restores factory settings. Note: The startup image and password are not affected.
Backup Configuration	Saves the current settings. Insert a storage device into the USB Type-A port and press this button. The settings are saved in the file "WTCONF0D.DAT".
Restore Configuration	Restores the settings saved on the storage device.
Update System	Updates the system using files stored on a USB device. The required files are "WEBOS0D.SYS" and "BOOTLD0D.SYS", which must be located in the root directory of the device.

Table 31



Image 45

Parameter	Description
Current Usage	Indicates the total operating time from the first startup of the display up to the current access to the configuration menu.
Previous Usage	Indicates the total operating time from the first startup of the display up to the previous access to the configuration menu.
No. of failed login	Indicates the number of failed login attempts to the configuration menu since the last successful login.
Export Log Data	Saves the login record. Insert a storage device into the USB Type-A port and press this button. The log is saved in the file "WTLOG0D.CSV".
Check Exported Log Data	Verifies whether the exported log file has been tampered with. Press this button to check — [Good] is displayed if the data is intact, and [Invalid] indicates an attempt to alter the exported file.

Table 32

Information

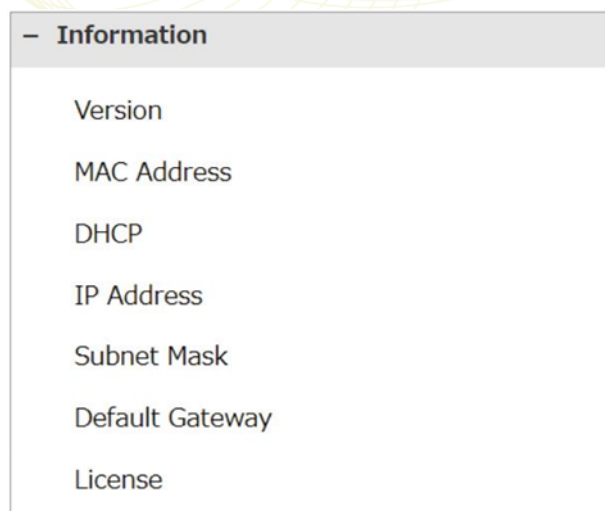


Image 46

Parameter	Description
Version/Network/License Information	Displays the version of the system installed on the display, the network information, and the details of the license used on this display.

Table 33

Save Settings

To save the changes made, press the “Save & Reboot” button shown below.

To exit without saving the changes, press the “Exit Without Saving” button.

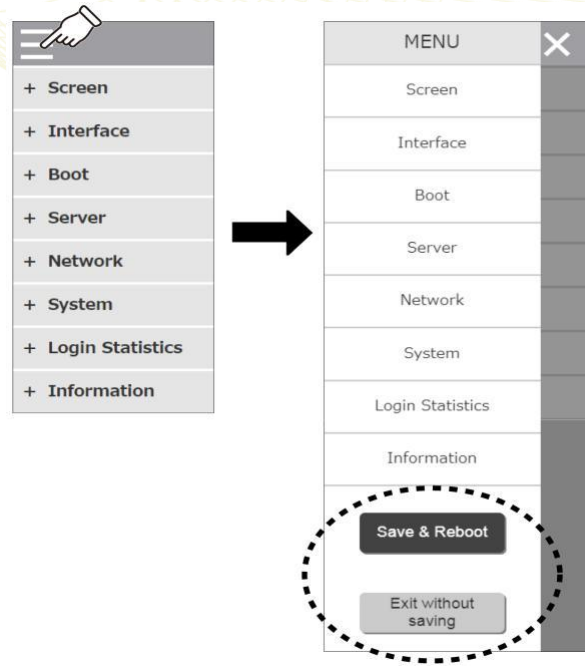


Image 47

You can also use the following buttons to perform the same functions:

- 1 – Save changes;
- 2 – Exit without saving.

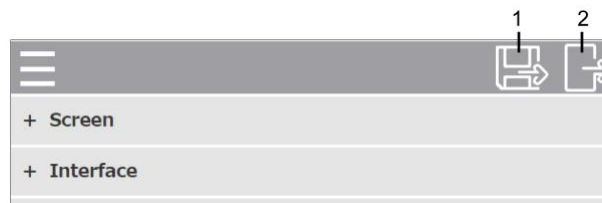


Image 48

Web Browser

This display uses a web browser to show the pages associated with the web servers to which the display is connected through the intranet.

When the browser icons are not being used, the top bar remains hidden.

Swipe down from the top of the screen to display the bar.

N°	Description
1	Displays the URL of the web server when the page has no title.
2	Goes to the previous page.
3	Goes to the next page.
4	Icon visible while a page is loading — press the button to stop the process.
5	Refreshes the current page.
6	Returns to the home page.
7	Press this button to display submenu A.
8	Press this button to display submenu B, where you can change the web server.
9	Press this button to display submenu C, where you can adjust the zoom level from 25% to 500%. The default setting is 100%. C-1 is the reset button.
10	Displays the version of the system installed on the display, the network information, and the license details used on this display.
11	Displays the settings menu.
12	Displays the selected web server.
13	Tap the screen to show these buttons used for page scrolling.

Recommendations

Cable Type	Maximum Distance to Display
1 Power Cable 3x1.5 mm ² (24V DC supply)	100m*
1 UTP CAT6 Cable (communication)	

Arfit Climatização S.A.

*Note: If the 24V DC power supply for the display is provided locally (by the client), the distance may be greater. Please contact our technical support for more information.

Dimensions

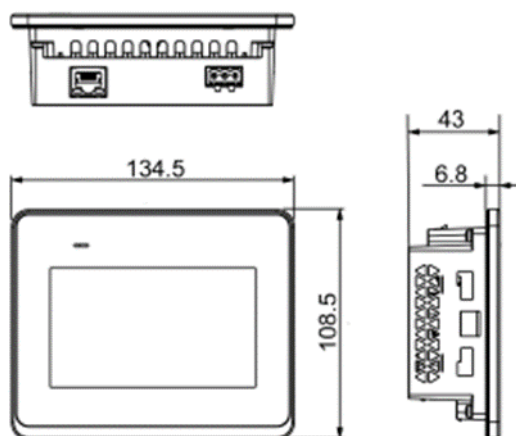


Image 50

ALARMS

In the event of an alarm, an alert message will appear on the display.

A contact is available for remote alarm signalling — please refer to the electrical diagram.

Below is the list of alarms managed by the controller.

Before clearing any alarm, the root cause must be identified and resolved.

Description	Action	Reset	Delay
A01 – Supply Air Temperature Probe	Forced unit shutdown	Automatic	—
A02 – Return Air Temperature Probe	Forces regulation from supply probe; disables winter dehumidification	Automatic	—
A03 – Fresh Air Temperature Probe	Disables FreeCooling/FreeHeating and heat recovery	Automatic	—
A04 – Exhaust Air Temperature Probe	Disables recovery and defrost	Automatic	—
A05 – Preheating Temperature Probe	Disables preheating actuators	Automatic	—
A06 – Saturation Temperature Probe	Disables dew point dehumidification	Automatic	—
A07 – Anti-Freeze Temperature Probe	Disables anti-freeze alarm; opens all valves if unit is ON	Automatic	—
A08 – CO ₂ Probe	Disables air quality regulation	Automatic	Delay
A09 – Supply Pressure Sensor	Uses return sensor if available; otherwise operates at fixed speed	Automatic	Delay
A10 – Return Pressure Sensor	Uses supply sensor if available; otherwise operates at fixed speed	Automatic	Delay
A11 – Supply Humidity Probe	Disables dehumidification	Automatic	Delay
A12 – Return Humidity Probe	Disables dehumidification and humidification	Automatic	Delay
A13 – VOC Probe	Disables air quality regulation	Automatic	Delay
A14 – Fresh Air Humidity Probe	Disables winter dehumidification	Automatic	Delay
A26 – Supply Airflow Sensor	Forces unit shutdown if no backup fans are available	Manual	Delay after fans
A27 – Return Airflow Sensor	Forces unit shutdown if no backup fans are available	Manual	Delay after fans
A28 – Supply Airflow Sensor 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A29 – Return Airflow Sensor 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A30 – Supply Fan	Forces unit shutdown if no backup fans are available	Manual	—
A31 – Return Fan	Forces unit shutdown if no backup fans are available	Manual	—
A32 – Fire Alarm		Manual	—

A33 – Door Open	Forced unit shutdown	Manual	—
A34 – Anti-Freeze Alarm	Forced unit shutdown (only active in heating mode)	Automatic	Delay if preheating enabled
A35 – Supply Airflow Alarm	Forces unit shutdown if no backup fans are available	Manual	—
A36 – Return Airflow Alarm	Forces unit shutdown if no backup fans are available	Manual	—
A37 – Humidifier	Disables humidification	Manual	—
A38 – Preheater	Disables preheater	Manual	—
A39 – Heater	Disables heater	Manual	—
A40 – Post-Heater	Disables post-heater	Manual	—
A41 – Heat Recovery	Disables heat recovery	Manual	—
A42 – Filter 1 Clogged	---	Manual	—
A43 – Filter 2 Clogged	---	Manual	—
A44 – Filter 3 Clogged	---	Manual	—
A45 – Filter 4 Clogged	---	Manual	—
A46 – Supply Fan 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A47 – Return Fan 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A48 – Supply Airflow 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A49 – Return Airflow 2	Forces unit shutdown if main fans are unavailable	Manual	Delay after fans
A50 – Condensing Unit	Disables condensing unit	Manual	—
A51 – Real-Time Clock	Disables time and event scheduling	Manual	—
A52 – Fan Maintenance	Forced unit shutdown	Automatic	—
A53 – Modbus Fan Configuration	Forced unit shutdown	Manual	—
A54 – Supply Fan Communication	Forces unit shutdown if no backup fans are available	Manual	—
A55 – Return Fan Communication	Forces unit shutdown if no backup fans are available	Manual	—
A56 – Supply Fan 2 Communication	Forces unit shutdown if no backup fans are available	Manual	—
A57 – Return Fan 2 Communication	Forces unit shutdown if no backup fans are available	Manual	—
A58 – Filter 5 Clogged	---	Manual	—
A59 – Humidifier Communication	Stops humidification request	Manual	—
A60 – Logging Error	Disables data logging	Manual	—
A61 – CAN Expansion 1	Forced unit shutdown	Manual	—
A62 – CAN Expansion 2	Forced unit shutdown	Manual	—
A66 – Condensing Unit 2	Disables condensing unit 2	Manual	—
A67 – Condensing Unit 3	Disables condensing unit 3	Manual	—
A68 – Condensing Unit 4	Disables condensing unit 4	Manual	—
A99 – Supply Fan 1b	Forces unit shutdown if no backup	Manual	—

Communication	fans are available		
A100 – Supply Fan 1c Communication	Forces unit shutdown if no backup fans are available	Manual	
A101 – Return Fan 1b Communication	Forces unit shutdown if no backup fans are available	Manual	
A102 – Return Fan 1c Communication	Forces unit shutdown if no backup fans are available	Manual	
A103 – Supply Fan 2b Communication	Forces unit shutdown if no backup fans are available	Manual	
A104 – Supply Fan 2c Communication	Forces unit shutdown if no backup fans are available	Manual	
A105 – Return Fan 2b Communication	Forces unit shutdown if no backup fans are available	Manual	
A106 – Return Fan 2c Communication	Forces unit shutdown if no backup fans are available	Manual	

Table 36

NOTE: The following alarms do not interrupt the unit's operation:

- A42 – Filter 1 Clogged
- • A43 – Filter 2 Clogged
- • A44 – Filter 3 Clogged
- • A45 – Filter 4 Clogged
- • A58 – Filter 5 Clogged

NOTE: For alarms with delay, the alarm is only generated after the triggering event occurs.

NOTE: For alarms with delay after fans, the alarm can only be activated once the fans are running.

A contact for remote alarm signalling is available — please refer to the electrical diagram.

Electrical Connections

All electrical connections must be carried out by qualified personnel.

The electrical panel includes terminals for making the necessary electrical connections.

Always refer to the electrical wiring diagram before performing any electrical connections.

INTENDED USE

This controller and remote display are designed for the control of air handling units (AHU) or heat recovery units, regulating their operation. They must not be used for any other application.

COMMUNICATION PROTOCOLS

This controller is equipped with a communication port, allowing integration with centralized management systems.

The available communication protocols are:

- Modbus RTU
- Modbus TCP
- Bacnet

Modbus RTU / modbus TCP

The basic communication parameters for Modbus via the RS485 interface are as follows:

Parameter	Value
Address	1
Baud. Rate	9600
Parity	"odd"
Stop Bit	1
Data Bit	8

Table 37

The available variables may vary depending on the unit configuration. Below are listed the most relevant variables.

Note:

- If the format is XXX.Y, divide the register value by 10.
- If the format is XXX.YY, divide the register value by 100.

Modbus Register	Name	Data Type	Unit	Format	RW	Description
16744	Auto Setpoint	Signed 16-bit	°C	XXX.Y	RW	Temperature setpoint in automatic mode
16749	Summer Setpoint	Signed 16-bit	°C	XXX.Y	RW	Temperature setpoint in summer mode
16750	Winter Setpoint	Signed 16-bit	°C	XXX.Y	RW	Temperature setpoint in winter mode
16751	Summer Economy Setpoint	Signed 16-bit	°C	XXX.Y	RW	Summer temperature setpoint — economy profile
16752	Winter Economy Setpoint	Signed 16-bit	°C	XXX.Y	RW	Winter temperature setpoint — economy profile
16755	Dehumidification Setpoint	Signed 16-bit	%R.H.	—	RW	Dehumidification setpoint
16756	Dehumidification Economy Setpoint	Signed 16-bit	%R.H.	—	RW	Dehumidification setpoint — economy profile
16757	Humidification Setpoint	Signed 16-bit	%R.H.	—	RW	Humidification setpoint
16758	Humidification Economy Setpoint	Signed 16-bit	%R.H.	—	RW	Humidification setpoint — economy profile
16759	VOC Setpoint	Signed 16-bit	%	—	RW	Air quality setpoint (VOC)
16760	CO ₂ Setpoint	Signed 16-bit	ppm	—	RW	Air quality setpoint (CO ₂)
16884	Supply Pressure Setpoint	Signed 16-bit	Pa	—	RW	Supply pressure setpoint
16885	Return Pressure Setpoint	Signed 16-bit	Pa	—	RW	Return pressure setpoint
16892	Supply Airflow Setpoint	Signed 32-bit	m ³ /h	—	RW	Supply airflow setpoint
16894	Return Airflow Setpoint	Signed 32-bit	m ³ /h	—	RW	Return airflow setpoint
9301	Modbus On/Off	Boolean	—	—	RW	Enable unit On/Off via Modbus
9302	Unit Status	0=OFF; 1=STANDBY; 2=RUN	—	—	R	Indicates the current unit status
19501	Operating Mode	0=Summer; 1=Winter; 2=Automatic	—	—	R	
9304	Unit Mode	1=Economy; 2=Comfort; 3=Night	—	—	R	Indicates the current user mode
9305	Unit Alarm	Boolean	—	—	R	Indicates whether the unit is in alarm
9306	Regulation Temperature	Signed 16-bit	°C	XXX.Y	R	Temperature used for control (Supply or Return)
9307	Current Setpoint	Signed 16-bit	°C	XXX.Y	R	Indicates the current temperature setpoint of the unit (depends on Summer/Winter and Comfort/Economy mode)
9318	Regulation	Signed 16-bit	%R.H.	—	R	Indicates the humidity used

	Humidity					for regulation by the unit (Supply or Return)
9319	Air Quality	Signed 16-bit	%/ppm	—	R	Indicates the air quality value
9350	Unit On/Off	Boolean	—	—	RW	Start/stop command of the unit via web/Modbus
9351	Unit Mode	0=Summer; 1=Winter; 2=Automatic	—	—	W	Change the operating mode (Summer/Winter/Automatic) via web/Modbus
9352	Unit Eco Mode	1=Economy; 2=Comfort; 3=Night	—	—	W	Change the comfort profile (Economy/Comfort/Night) via web/Modbus
9720	Supply Air Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the current supply air temperature – Analog Input
9721	Return Air Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the current return air temperature – Analog Input
9722	Fresh Air Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the current fresh air temperature – Analog Input
9723	Exhaust Air Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the current exhaust air temperature – Analog Input
9724	Pre-Heating Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the pre-heating temperature – Analog Input
9725	Saturation Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the saturation temperature – Analog Input
9726	Anti-Freeze Temperature	Signed 16-bit	°C	XXX.Y	R	Indicates the anti-freeze protection temperature – Analog Input
9727	VOC Sensor	Signed 16-bit	ppm	—	R	Indicates the air quality (VOC) – Analog Input
9728	CO ₂ Sensor	Signed 16-bit	%	XXX.Y	R	Indicates the air quality (CO ₂) – Analog Input
9729	Supply Pressure	Signed 16-bit	pa	—	R	Indicates the supply pressure – Analog Input
9730	Return Pressure	Signed 16-bit	pa	—	R	Indicates the return pressure – Analog Input
9731	Supply Humidity	Signed 16-bit	%	XXX.Y	R	Indicates the supply air humidity – Analog Input
9732	Return Humidity	Signed 16-bit	%	XXX.Y	R	Indicates return air humidity – Analog Input
9733	Fresh Air Humidity	Signed 16-bit	%	XXX.Y	R	Indicates fresh air humidity – Analog Input
9734	Supply Airflow	Signed 32-bit	m ³ /h	—	R	Indicates supply airflow – Analog Input
9736	Return Airflow	Signed 32-bit	m ³ /h	—	R	Indicates return airflow – Analog Input
9745	Supply Fan Thermal Alarm	0 = 0V; 1 = 24V;	—	—	R	Thermal alarm of supply fan – Digital Input

		2 = Not used				
9746	Return Fan Thermal Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Thermal alarm of return fan – Digital Input
9747	On/Off	See "Supply Fan Thermal Alarm"	—	—	R	Start/stop signal – Digital Input
9748	Fire Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Fire alarm – Digital Input
9749	Mode	See "Supply Fan Thermal Alarm"	—	—	R	Heating/cooling mode selection – Digital Input
9750	Door Open	See "Supply Fan Thermal Alarm"	—	—	R	Door open signal – Digital Input
9751	Anti-Freeze Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Anti-freeze protection alarm – Digital Input
9752	Supply Flow Switch	See "Supply Fan Thermal Alarm"	—	—	R	Supply flow switch – Digital Input
9753	Return Flow Switch	See "Supply Fan Thermal Alarm"	—	—	R	Return flow switch – Digital Input
9754	Humidifier Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Humidifier alarm – Digital Input
9755	Pre-Heater Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Pre-heater alarm – Digital Input
9756	Post-Heater Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Post-heater alarm – Digital Input
9757	Thermal Wheel Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Thermal wheel (heat recovery) alarm – Digital Input
9758	Clogged Filter 1	See "Supply Fan Thermal Alarm"	—	—	R	Filter 1 pressure switch – Digital Input
9759	Clogged Filter 2	See "Supply Fan Thermal Alarm"	—	—	R	Filter 2 pressure switch – Digital Input
9760	Clogged Filter 3	See "Supply Fan Thermal Alarm"	—	—	R	Filter 3 pressure switch – Digital Input
9761	Clogged Filter 4	See "Supply Fan Thermal Alarm"	—	—	R	Filter 4 pressure switch – Digital Input
9762	Supply Fan 2 Thermal Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Thermal alarm of supply fan 2 – Digital Input

		Alarm"				
9763	Return Fan 2 Thermal Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Thermal alarm of return fan 2 – Digital Input
9764	Supply Flow Switch 2	See "Supply Fan Thermal Alarm"	—	—	R	Supply airflow switch 2 – Digital Input
9765	Return Flow Switch 2	See "Supply Fan Thermal Alarm"	—	—	R	Return airflow switch 2 – Digital Input
9766	Condensing Unit Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Condensing unit alarm – Digital Input
9767	Heater Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Heater alarm – Digital Input
9768	Condensing Unit 2 Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Condensing unit 2 alarm – Digital Input
9769	Condensing Unit 3 Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Condensing unit 3 alarm – Digital Input
9770	Condensing Unit 4 Alarm	See "Supply Fan Thermal Alarm"	—	—	R	Condensing unit 4 alarm – Digital Input
9771	Condensing Unit 1 Defrost	See "Supply Fan Thermal Alarm"	—	—	R	Defrost signal of condensing unit 1 – Digital Input
9772	Condensing Unit 2 Defrost	See "Supply Fan Thermal Alarm"	—	—	R	Defrost signal of condensing unit 2 – Digital Input
9773	Condensing Unit 3 Defrost	See "Supply Fan Thermal Alarm"	—	—	R	Defrost signal of condensing unit 3 – Digital Input
9774	Condensing Unit 4 Defrost	See "Supply Fan Thermal Alarm"	—	—	R	Defrost signal of condensing unit 4 – Digital Input
9775	Clogged Filter 5	See "Supply Fan Thermal Alarm"	—	—	R	Filter 5 pressure switch – Digital Input
9778	Supply Fan	0 = Off; 1 = On; 2 = Not used	—	—	R	Start command of supply fan – Digital Output
9779	Return Fan	See "Supply Fan"	—	—	R	Start command of return fan – Digital Output
9780	On/Off	See "Supply Fan"	—	—	R	Unit On/Off status – Digital Output
9781	Alarm	See "Supply Fan"	—	—	R	Unit alarm signal – Digital Output
9782	Mode	See "Supply Fan"	—	—	R	Current operating mode of the unit – Digital Output

9783	Outside Dampers	See "Supply Fan"	—	—	R	Open command for outside dampers – Digital Output
9784	Bypass Damper	See "Supply Fan"	—	—	R	Close command for bypass damper – Digital Output
9785	Supply Damper	See "Supply Fan"	—	—	R	Open command for supply damper – Digital Output
9786	Return Damper	See "Supply Fan"	—	—	R	Open command for return damper – Digital Output
9787	Pre-Heating	See "Supply Fan"	—	—	R	Pre-heating command – Digital Output
9788	Post-Heating	See "Supply Fan"	—	—	R	Post-heating command – Digital Output
9789	Cooling	See "Supply Fan"	—	—	R	Cooling command – Digital Output
9790	Cooling – Stage 1	See "Supply Fan"	—	—	R	1st cooling stage – Digital Output
9791	Cooling – Stage 2	See "Supply Fan"	—	—	R	2nd cooling stage – Digital Output
9792	Cooling – Stage 3	See "Supply Fan"	—	—	R	3rd cooling stage – Digital Output
9793	Cooling – Stage 4	See "Supply Fan"	—	—	R	4th cooling stage – Digital Output
9794	Heating	See "Supply Fan"	—	—	R	Heating command – Digital Output
9795	Heating – Stage 1	See "Supply Fan"	—	—	R	1st heating stage – Digital Output
9796	Heating – Stage 2	See "Supply Fan"	—	—	R	2nd heating stage – Digital Output
9797	Heating – Stage 3	See "Supply Fan"	—	—	R	3rd heating stage – Digital Output
9798	Pre-Heating – Stage 1	See "Supply Fan"	—	—	R	1st pre-heating stage – Digital Output
9799	Pre-Heating – Stage 2	See "Supply Fan"	—	—	R	2nd pre-heating stage – Digital Output
9800	Pre-Heating – Stage 3	See "Supply Fan"	—	—	R	3rd pre-heating stage – Digital Output
9801	Post-Heating – Stage 1	See "Supply Fan"	—	—	R	1st post-heating stage – Digital Output
9802	Post-Heating – Stage 2	See "Supply Fan"	—	—	R	2nd post-heating stage – Digital Output
9803	Post-Heating – Stage 3	See "Supply Fan"	—	—	R	3rd post-heating stage – Digital Output
9804	Humidifier	See "Supply Fan"	—	—	R	Humidification command – Digital Output
9805	Thermal Wheel / Heat Recovery	See "Supply Fan"	—	—	R	Heat recovery (thermal wheel) command – Digital Output
9806	Supply Fan 2	See "Supply Fan"	—	—	R	Start command for supply fan 2 – Digital Output
9807	Return Fan 2	See "Supply Fan"	—	—	R	Start command for return fan 2 – Digital Output

9808	Supply Damper 2	See "Supply Fan"	—	—	R	Open command for supply damper 2 – Digital Output
9809	Return Damper 2	See "Supply Fan"	—	—	R	Open command for return damper 2 – Digital Output
9820	Supply Fan	Signed 16-bit	%	XXX.Y	R	Speed control of supply fan – Analog Output
9821	Return Fan	Signed 16-bit	%	XXX.Y	R	Speed control of return fan – Analog Output
9822	Outside Dampers	Signed 16-bit	%	XXX.Y	R	Control signal for outside dampers – Analog Output
9823	Bypass Damper	Signed 16-bit	%	XXX.Y	R	Control signal for bypass damper – Analog Output
9824	Cooling	Signed 16-bit	%	XXX.Y	R	Cooling control signal – Analog Output
9825	Heating	Signed 16-bit	%	XXX.Y	R	Heating control signal – Analog Output
9826	Pre-Heating	Signed 16-bit	%	XXX.Y	R	Pre-heating control signal – Analog Output
9827	Post-Heating	Signed 16-bit	%	XXX.Y	R	Post-heating control signal – Analog Output
9828	Thermal Wheel	Signed 16-bit	%	XXX.Y	R	Heat recovery control signal – Analog Output
9829	Humidifier	Signed 16-bit	%	XXX.Y	R	Humidification control signal – Analog Output
10018	FreeCooling	Boolean	—	—	R	FreeCooling status
10019	FreeHeating	Boolean	—	—	R	FreeHeating status
10020	Actuators Off FH/FC	Boolean	—	—	R	Actuators disabled by FreeHeating/Cooling
10022	Cold Recovery	Boolean	—	—	R	Cold recovery status
10023	Heat Recovery	Boolean	—	—	R	Heat recovery status
10024	Defrost with Fan	Boolean	—	—	R	Defrost process using supply fan
10025	Defrost with Dampers	Boolean	—	—	R	Defrost process using dampers
10026	Defrost with Pre-Heating	Boolean	—	—	R	Defrost process using pre-heating

Table 38

Bacnet

Objects related to the Bacnet communication protocol are as follows:

Name	Type	Instance	Allows modification
Supply Air Temperature	AI	0	Y
Return Air Temperature	AI	1	Y
Fresh Air Temperature	AI	2	Y
Exhaust Air Temperature	AI	3	Y
Preheating Temperature	AI	4	Y
Saturation Temperature	AI	5	Y

Anti-Freeze Temperature	AI	6	Y
CO ₂ Sensor	AI	7	Y
VOC Sensor	AI	8	Y
Supply Pressure	AI	9	Y
Return Pressure	AI	10	Y
Supply Humidity	AI	11	Y
Return Humidity	AI	12	Y
Fresh Air Humidity	AI	13	Y
Supply Airflow	AI	14	Y
Return Airflow	AI	15	Y
Spare	AI	16	Y
Temperature Setpoint – Summer Mode	AV	17	Y
Temperature Setpoint – Winter Mode	AV	18	Y
Temperature Setpoint – Summer Economy Mode	AV	19	Y
Temperature Setpoint – Winter Economy Mode	AV	20	Y
Temperature Setpoint – Automatic Mode	AV	21	Y
Humidification Setpoint	AV	22	Y
Dehumidification Setpoint	AV	23	Y
Humidification Setpoint – Economy Mode	AV	24	Y
Dehumidification Setpoint – Economy Mode	AV	25	Y
CO ₂ Setpoint	AV	26	Y
VOC Setpoint	AV	27	Y
Dampers Position	AI	28	Y
Supply Fan Speed	AI	29	Y
Return Fan Speed	AI	30	Y
Cooling Actuator	AI	31	Y
Heating Actuator	AI	32	Y
Preheating Actuator	AI	33	Y
Post-Heating Actuator	AI	34	Y
Heat Recovery Actuator	AI	35	Y
Humidification Actuator	AI	36	Y
Unit On/Off	BV	0	N
Unit Alarm	BV	1	N
Unit Stop Alarm	BV	2	N
Fire Alarm	BV	3	N
Alarm Reset	BV	4	N
Unit Mode (0=Summer / 1=Winter / 2=Automatic)	MSV	0	N
Unit Eco Mode (1=Economy / 2=Comfort / 3=Night)	MSV	2	N
Current Mode (0=Summer / 1=Winter / 2=Automatic)	MSI	1	N
Unit Status	MSV	3	N

Table 39

RECYCLING



When the equipment reaches the end of its service life, it must be removed, separated, and disposed of in accordance with the applicable regulations.

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