



| | |
|------------|---------------------|
| REV | 00 |
| Date | 11-2023 |
| Supersedes | D-EOMAH3110-23_00EN |

Operating Manual
D-EOMAH3110-23_00EN

MODULAR T AIR HANDLING UNIT

ATB

Table of Contents

| | | |
|--------|---|----|
| 1 | About this document | 4 |
| 1.1 | Revision History | 4 |
| 1.2 | Notice | 4 |
| 2 | Safety Information | 5 |
| 3 | Introduction | 6 |
| 3.1 | Basic Control System Diagnostic | 6 |
| 3.2 | Room Interface | 6 |
| 3.2.1 | Room Unit Interface | 7 |
| 3.2.2 | LCD | 8 |
| 3.3 | Password | 8 |
| 4 | Control Functions | 10 |
| 4.1 | Dampers | 11 |
| 4.1.1 | Outside and Exhaust air dampers | 11 |
| 4.1.2 | Supply and Return air dampers | 11 |
| 4.1.3 | Mixing, Outside and Exhaust dampers | 12 |
| 4.1.4 | All dampers | 12 |
| 4.1.5 | Base Unit | 12 |
| 4.2 | Coils | 12 |
| 4.2.1 | External Pre-heating coil | 12 |
| 4.2.2 | Main coil DX or Water | 13 |
| 4.2.3 | Water main coil | 14 |
| 4.2.4 | Post-heating coil | 14 |
| 4.2.5 | Internal Coil | 15 |
| 4.3 | External coil | 15 |
| 4.4 | Filters | 15 |
| 4.4.1 | Base Unit | 16 |
| 4.4.2 | Outdoor air Pre-filter | 16 |
| 4.4.3 | Supply air Filter | 16 |
| 4.5 | Optional Node#3 | 16 |
| 4.5.1 | Electrical pre-heating | 16 |
| 4.5.2 | Electrical post-heating | 16 |
| 4.5.3 | Supply air humidity | 17 |
| 4.5.4 | Additional Outdoor air temperature probe | 17 |
| 4.5.5 | Additional Supply air temperature probe | 17 |
| 4.5.6 | Pressure transducer for outdoor air pre-filter | 17 |
| 4.5.7 | Pressure transducer for supply air filter | 17 |
| 4.5.8 | Pressure transducer for AHU pressure control on supply air duct | 17 |
| 4.6 | Optional on the electric panel | 17 |
| 4.6.1 | ERQ | 17 |
| 4.6.2 | Humidifier | 17 |
| 4.6.3 | Outdoor, Exhaust, Supply and Return Dampers | 17 |
| 4.6.4 | Water coils pumps | 17 |
| 4.6.5 | Frost switch | 17 |
| 4.6.6 | Pol 822 | 18 |
| 4.6.7 | Pol 895 | 18 |
| 4.6.8 | Water coils valves | 18 |
| 4.6.9 | Outdoor air humidity probe | 18 |
| 4.6.10 | Return air humidity probe | 18 |
| 4.6.11 | CO2 probe | 18 |
| 4.7 | Other Function | 18 |
| 4.7.1 | AHU General Alarm | 18 |
| 4.7.2 | AHU Run | 18 |
| 4.7.3 | Cool/Heat Status (Output) | 19 |
| 4.7.4 | Fire Alarm | 19 |
| 4.7.5 | Comfort/Economy | 19 |
| 4.7.6 | Unit Enable Switch | 19 |
| 4.7.7 | Cool/Heat Status (Input) | 19 |

| | | |
|-----|--------------------------|----|
| 5 | Main Menu screen..... | 20 |
| 5.1 | LCD/Web interface..... | 20 |
| 5.2 | Actual status | 20 |
| 5.3 | Mode | 21 |
| 5.4 | Supply/Return temp | 22 |
| 5.5 | HMI Switch | 23 |
| 5.6 | Input/Output | 23 |
| 5.7 | Setpoint | 26 |
| 5.8 | Settings | 28 |
| 5.9 | About Unit | 33 |
| 6 | Alarm | 35 |
| 6.1 | Alarm list | 35 |
| 6.2 | Restore Alarm | 35 |

1 ABOUT THIS DOCUMENT

1.1 Revision History

| Name | Revision | Date | Scope |
|--------------------|----------|----------------|---------------|
| D-EOMOAH00903-21EN | 1 | September 2023 | First edition |

1.2 Notice

© 2014 Daikin Applied Europe, Cecchina, Roma. All rights reserved throughout the world □ □ The following are trademarks or registered trademarks of their respective companies:

| | | |
|--------------------------|---|------------|
| MicroTech 4 | from Daikin Applied Europe | |
| Before starting | This document refers to the following components: | |
| Application range | Microtech 4 | Controller |
| Users | Users of this document are intended to be: | |
| | - AHU users | |
| | - Sales staff | |
| Conventions | MicroTech 4 further in this document and when proper will be referred to as "MicroTech" | |

2 SAFETY INFORMATION

Observe all safety directions and comply with the corresponding general safety regulations in order to prevent personal injury and damage to property.

- Safety devices may not be removed, bypassed or taken out of operation.
- Apparatus and system components may only be used in a technically fault-free state. Faults that can affect safety must be rectified immediately.
- Observe the required safety instructions against excessively high contact voltages.
- The plant may not be in operation if the standard safety devices are out of operation or if their effects are influenced in some other way.
- All handling that affects the prescribed disconnection of the protective extra-low voltage (AC 24 V) must be avoided.
- **Disconnect the supply voltage before opening the apparatus cabinet. Never work when the power is on!**
- Avoid electromagnetic and other interference voltages in signal and connection cables.
- Assembly and installation of system and plant components may only be performed in accordance with corresponding installation instructions and instructions for use.
- Every electric part of the system must be protected against static charging: electronic components, open printed circuit boards, freely accessible connectors and apparatus components that are connected with the internal connection.
- All equipment that is connected to the system must be CE marked and comply with the Machine Safety Directive.

3 INTRODUCTION

This operating manual provides the basic information that allows the control of the Daikin Air Handling Unit (AHU).

Modular T AHUs are used for air conditioning and air handling in terms of pressure and temperature level control.

3.1 Basic Control System Diagnostic

Unit controller, extension modules and communication modules are equipped with two status LED, BSP and BUS, to indicate the operational status of the devices. The "BUS" LED indicates the status of the communication with the controller. The meaning of the two status LED is indicated below.

- MAIN CONTROLLER

- BSP LED

| LED Color | Mode |
|---------------------|---|
| Solid Green | Application running |
| Solid Yellow | Application loaded but not running (*) or BSP Upgrade mode active |
| Solid Red | Hardware Error (*) |
| Flashing Green | BSP startup phase. The controller needs time for starting. |
| Flashing Yellow | Application not loaded (*) |
| Flashing Yellow/Red | Fail safe mode (in case that the BSP upgrade was interrupted) |
| Flashing Red | BSP Error (software error*) |
| Flashing Red/Green | Application/BSP update or initialization |

(*) Contact Service.

- EXTENSION MODULES

- BSP LED

| LED Color | Mode |
|--------------------|--------------------|
| Solid Green | BSP running |
| Solid Red | Hardware Error (*) |
| Flashing Red | BSP Error (*) |
| Flashing Red/Green | BSP upgrade mode |

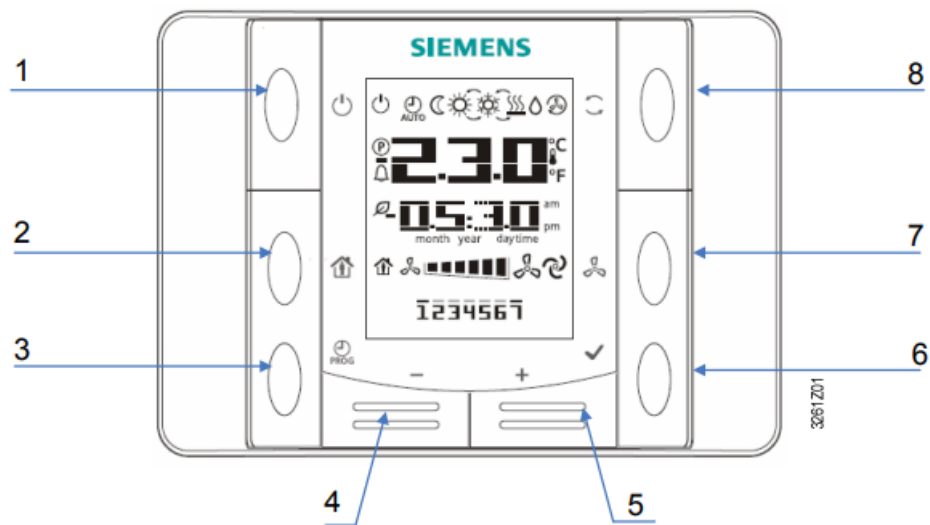
- BUS LED

| LED Color | Mode |
|--------------|---|
| Solid Green | Communication running, I/O working |
| Solid Yellow | Communication running but parameter from the application wrong or missing, or incorrect factory calibration |
| Solid Red | Communication down (*) |

3.2 Room Interface

Unit has 2 different human machine interfaces (HMI from here on), one is a 822 default, the other is POL895 or POL871, these have a lcd that can be plugged in the HMI port on controller (Th). Explanation of hot points on both is explained here down:

3.2.1 Room Unit Interface

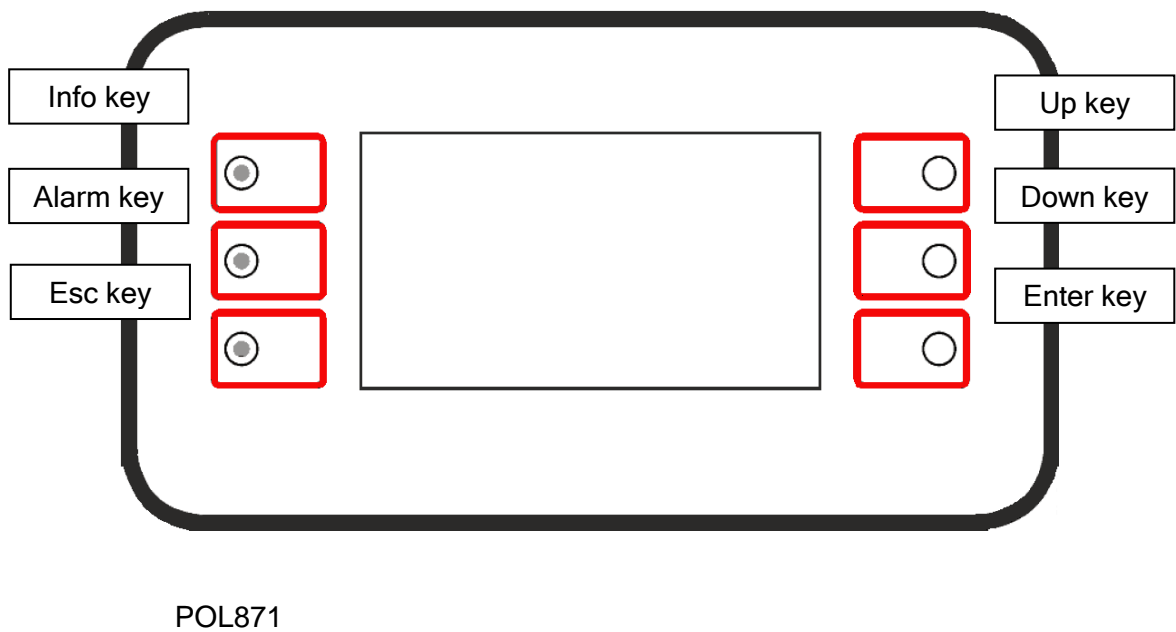
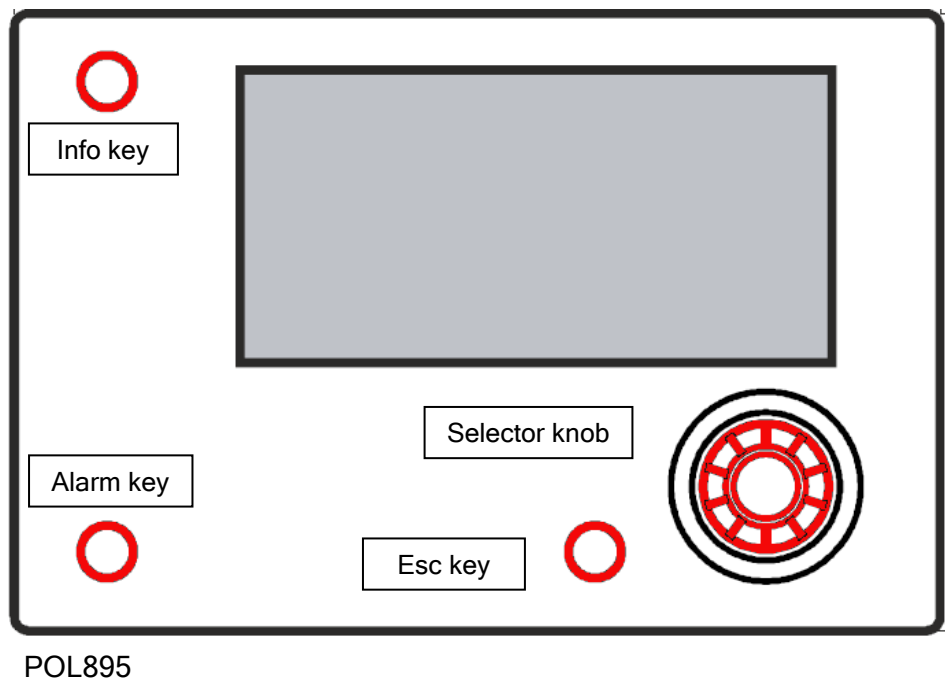


POL 822

Legend

| No. | Icon | Name | Functions |
|-----|------|-----------------|---|
| 1 | | ON/OFF | Button for power on or power off |
| 2 | | Presence | Button for entering/ex programmed. |
| 3 | | Program | Button for Time Sched date/time setting, while programming (for POL822. |
| 4 | - | Minus | Button for set-point adjustment, each operation of the Minus (-) button reduces the set point by 0.1 °C/0.5 °F or 0.5 °C/1.0 °F which is defined in controller's setting. |
| 5 | + | Plus | Button for set-point adjustment, each operation of the Plus (+) button increases the set point by 0.1 °C/0.5 °F or 0.5 °C/1.0 °F which is defined in controller's setting. |
| 6 | ✓ | OK | Button for confirmation of date/time and scheduler settings (for POL822.60/XXX only). |
| 7 | | Fan | Button for fan speed, t by controller. By press selected clockwise in ; selected manually is ir screen. |
| 8 | | Mode | Button for 3 energy m omy. By pressing Mo HMI-SG between the current mode manuall symbol on the screen |

3.2.2 LCD



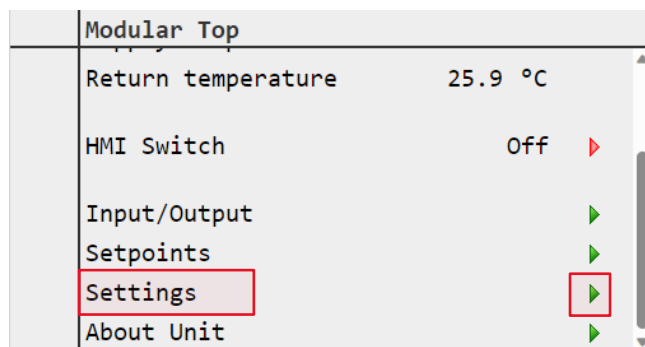
All HMIs except POL 822 allow navigation through the application pages, the available data can change, the LCD shows additional data to configure optional items such as BMS configuration, some of the additional values are protected with different level passwords to prevent wrong parameterizations to unauthorized users. To select the voice the user must click on green triangle (web interface) or pushing knob POL895 or Enter key POL871.

3.3 Password

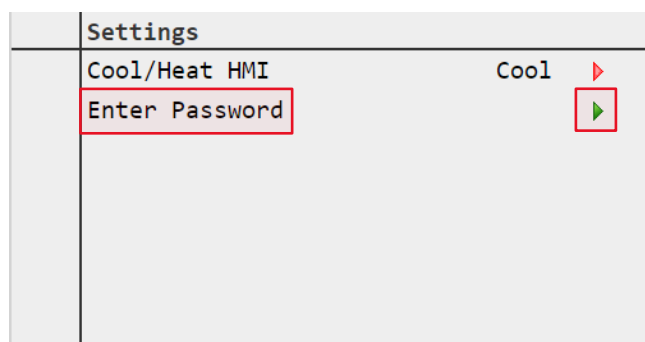
Different level of password are available in the application, at each level different parameters are accessible. Summary of password and access level in the table below

| Level name | Level index | Password |
|------------|-------------|----------|
| End user | -- | -- |
| User | 6 | 5321 |
| Service | 4 | 2526 |

To access password input page select "Settings" from main menu as shown below:



Select "Enter Password" to show menu with "Login"



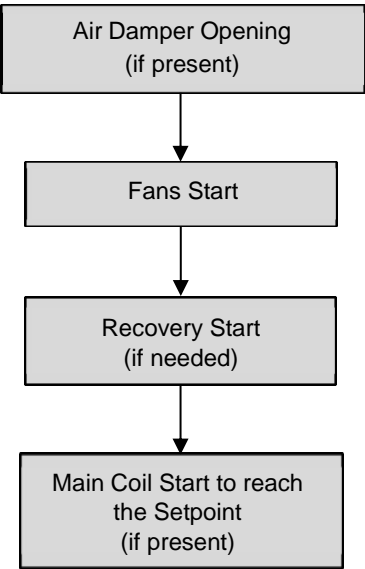
Select "Entry" and use the needed value as reported in table at the beginning of the chapter



4 CONTROL FUNCTIONS

This section describes the main control functions available in Daikin Modular T Air Handling Units. The activation sequence of the devices installed in Daikin AHU for thermoregulation control is showed below.

- On the Base Unit the fans will be free to start immediately, while if you have dampers the fans will wait for the minimum opening before starting.
- Fan speed is monitored with an algorithm that evaluate the differential pressure reading the pressure difference between the zone before the fan and the fan impeller, this placement allows us to control the machine in constant air flow, the system will adjust the fan speed to reach the setpoint and keep it as stable as possible.
- While reaching the setpoint the system will start treating the air with the heat recovery unit by-pass.
- If coils are present, the algorithm will start the control loops on Temperature and/or Humidity to meet the demand.
Treatment control can be done on the supply temperature or the return temperature.



The start-up sequence is performed to meet the desired pressure/airflow and temperature setpoints as efficiently as, so as to keep energy consumption low.

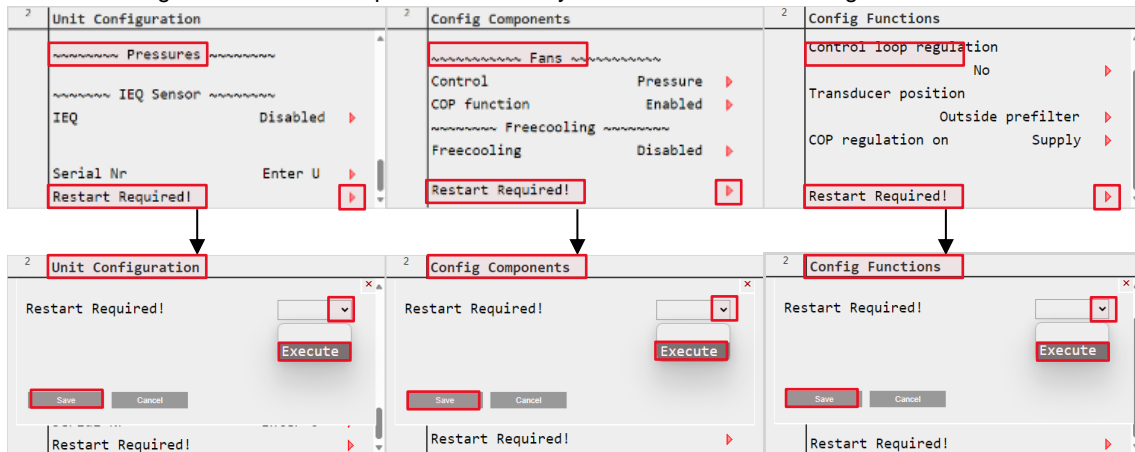
The Modular T is sold in its standard configuration and is dedicated to air exchange with heat exchanger with By-pass and external air filter, but there are various possibilities for configuration by adding the various Optional.

For activation of the various components go, after putting the password in Settings, to the AHU Configuration, Unit Configuration, Config Components and Config Function.

| | | |
|---|-------------------|--------|
| 2 | Settings | |
| | AHU Configuration | ▶ |
| | Communication | ▶ |
| | Daikin On Site | ▶ |
| | Main Regulation | ▶ |
| | Side Regulation | ▶ |
| | Options | ▶ |
| | Cool/Heat HMI | Heat ▶ |
| | Enter Password | ▶ |

| | | |
|---|--------------------|---|
| 2 | AHU Configuration | |
| | Unit Configuration | ▶ |
| | Config Components | ▶ |
| | Config Functions | ▶ |
| | Config Save / Load | ▶ |

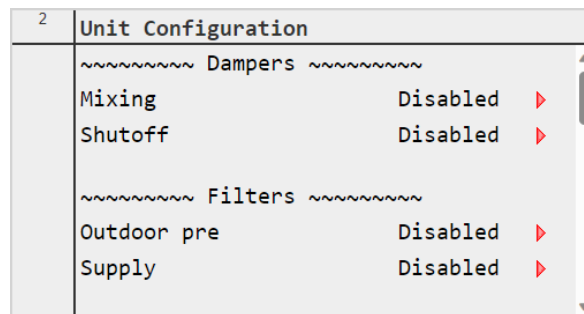
Remember to go to the "Restart required!" item after you have made all the changes in each individual menu.



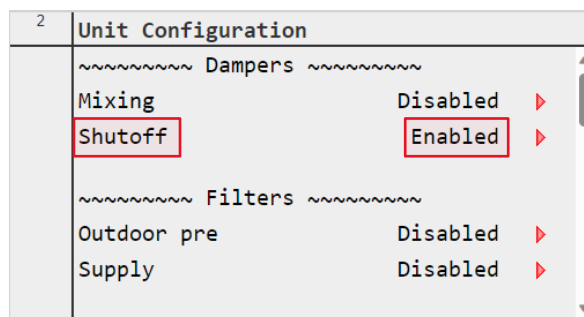
You can also restart with each individual change for each menu.

4.1 Dampers

Base Unit

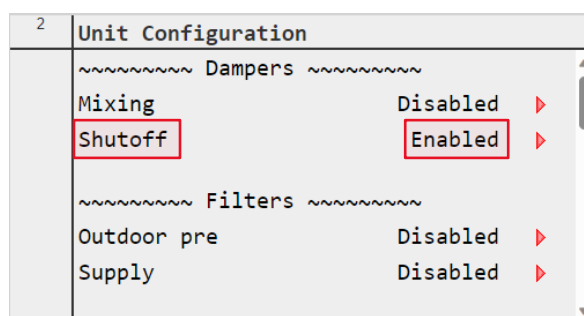


4.1.1 Outside and Exhaust air dampers



Which allow exclusion of AHU from direct and coming from outside ducts. Shutoff Damper, wire on terminals 13-14 and 15-16.

4.1.2 Supply and Return air dampers



Which allow the exclusion of AHU from direct and coming from indoor ducts. Shutoff Damper, wire on terminals 13-14 and 15-16.

4.1.3 Mixing, Outside and Exhaust dampers

| | |
|---------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Dampers ~~~~~ | |
| Mixing | Enabled ▶ |
| Shutoff | Disabled ▶ |
| ~~~~~ Filters ~~~~~ | |
| Outdoor pre | Disabled ▶ |
| Supply | Disabled ▶ |

Which allow the software to determine whether it is convenient to use return air, outside air or mix the two. Outdoor and Exhaust modulating Dampers, wire on terminals 38-39-40 and 41-42-43.
Mixing Damper, if is 5, 6 or 7 size wire on blue three-way connector on Node#1, if is 3 or 4 size wire on blue three-way connector on Node#2.

4.1.4 All dampers

| | |
|---------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Dampers ~~~~~ | |
| Mixing | Enabled ▶ |
| Shutoff | Enabled ▶ |
| ~~~~~ Filters ~~~~~ | |
| Outdoor pre | Disabled ▶ |
| Supply | Disabled ▶ |

4.1.5 Base Unit

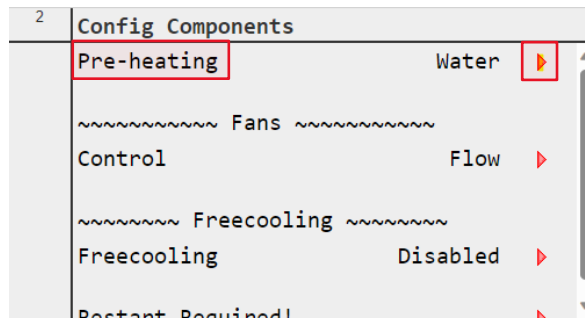
| | |
|------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Pre ~~~~~ | |
| External coil | Disabled ▶ |
| ~~~~~ Post ~~~~~ | |
| Internal coil | Disabled ▶ |
| External coil | Disabled ▶ |

4.2 Coils

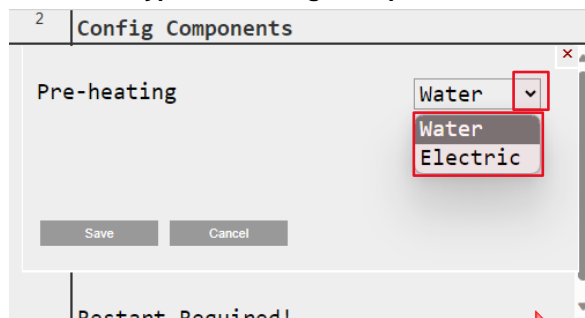
4.2.1 External Pre-heating coil

| | |
|------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Pre ~~~~~ | |
| External coil | Enabled ▶ |
| ~~~~~ Post ~~~~~ | |
| Internal coil | Disabled ▶ |
| External coil | Disabled ▶ |

Enable coil on Unit Configuration
This Coil can be either Electric or Water, it is used to raise the inlet temperature of the AHU before the heat recovery.
D-EOMAH3110-23_00EN- 12/37

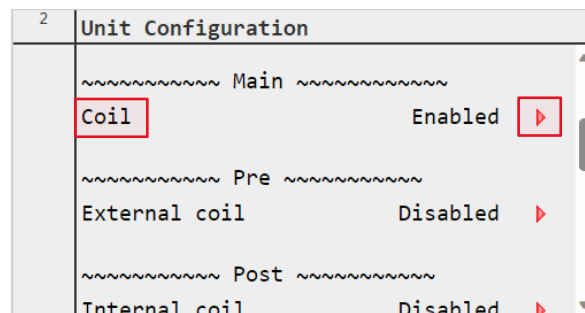


Select coil type on → Config. Components

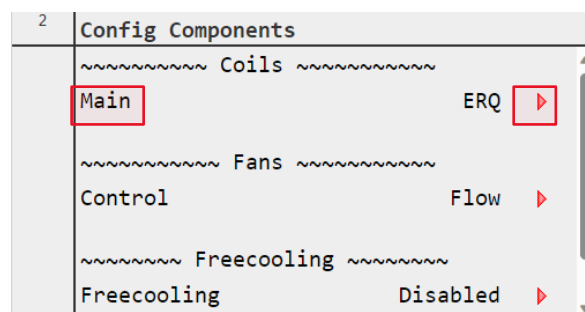


When selecting Electric Pre-heat you need to install the additional Outdoor temperature sensor on the duct before the Pre-heat coil and wire it to Node#3 on the black three-way connector as shown in the wiring diagram.

4.2.2 Main coil DX or Water



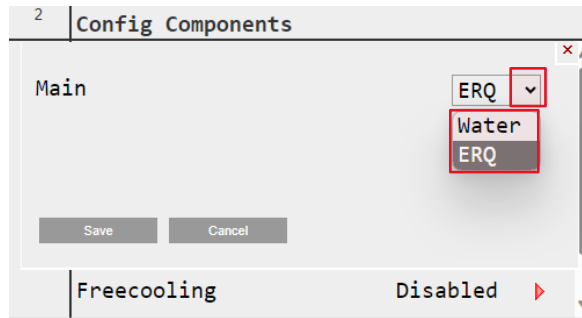
Enable coil on → Unit Configuration



Select coil type on

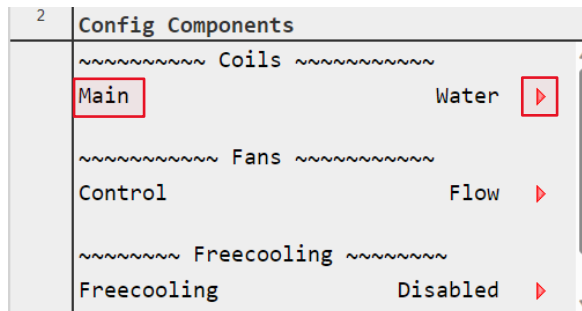
Config. Components.

For DX solution, it provides the installation of our ERQ, maximum one circuit.

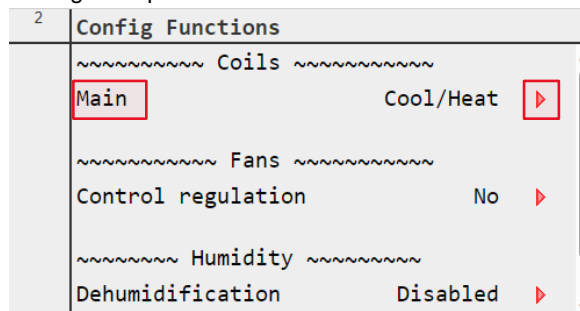


4.2.3 Water main coil

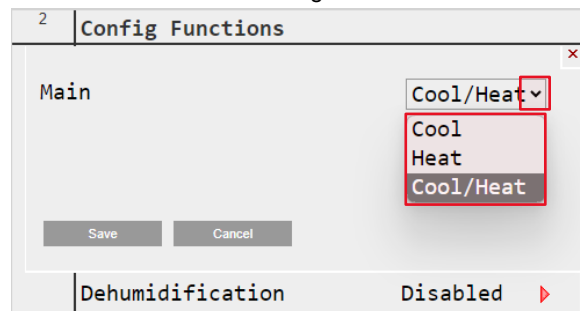
For the water solution through the software, you can decide whether to have a heat only, cool only or a combined water coil.



Select coil type on
Config. Components.



Select coil function on Config. Function



These coils are used to treat the air and reach the temperature setpoint.

4.2.4 Post-heating coil

Can be either Electric or Water coil, the Electric one is a duct coil mounted externally to the AHU and can only be a Post-heating coil, while the Water coil is mounted internally to the unit on the slides just after the supply fan (Attention! If you install the water coil you cannot install the Supply filter) and can be used either as a Post or Heat water coil if you have provided a main cold water only coil.

4.2.5 Internal Coil

2

Unit Configuration

~~~~~ Post ~~~~~

Internal coil

Enabled

▶

External coil

Disabled

▶

~~~~~ Humidity ~~~~~

Outdoor

Disabled

▶

Supply

Disabled

▶

Return

Disabled

▶

Enabled Internal coil on Unit Configuration

2

Config Functions

Post-heating

Post

▶

~~~~~ Fans ~~~~~

Control regulation

No

▶

~~~~~ Humidity ~~~~~

Dehumidification

Disabled

▶

Refract. Required!

Select coil Function on Config. Function

2

Config Functions

Post-heating

Post

Post

Heat

Post/Heat

Save

Cancel

Select the type of internal coil installed.

4.3 External coil

Enable External coil on Unit Configuration. This coil is used to supplement heat during heating when the main coil cannot reach in setpoint and/or for dehumidification.

2

Unit Configuration

~~~~~ Post ~~~~~

Internal coil

Disabled

▶

External coil

Enabled

▶

~~~~~ Humidity ~~~~~

Outdoor

Disabled

▶

Supply

Disabled

▶

Return

Disabled

▶

When you enable the external coil you selecting Electric Post-heat, when you make this choice you need to install the additional Supply temperature sensor on the duct after the Post-heat coil and wire it to Node#3 on the green three-way connector as shown in the wiring diagram

4.4 Filters

4.4.1 Base Unit

| | |
|---------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Filters ~~~~~ | |
| Outdoor pre | Disabled ▶ |
| Supply | Disabled ▶ |
| ~~~~~ Main ~~~~~ | |
| Coil | Disabled ▶ |
| ~~~~~ Pre ~~~~~ | |

4.4.2 Outdoor air Pre-filter

| | |
|---------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Filters ~~~~~ | |
| Outdoor pre | Enabled ▶ |
| Supply | Disabled ▶ |
| ~~~~~ Main ~~~~~ | |
| Coil | Disabled ▶ |
| ~~~~~ Pre ~~~~~ | |

Connect using a flexible tube to the + and - of P1 of Node#3.

4.4.3 Supply air Filter

| | |
|---------------------|--------------------|
| 2 | Unit Configuration |
| ~~~~~ Filters ~~~~~ | |
| Outdoor pre | Disabled ▶ |
| Supply | Enabled ▶ |
| ~~~~~ Main ~~~~~ | |
| Coil | Disabled ▶ |
| ~~~~~ Pre ~~~~~ | |

Connect using a flexible tube to the + and - of P2 of Node#3.

Return air Filter→It's always active

4.5 Optional Node#3

The optional node is used to manage some components that can be added to the unit configuration, is sold with its connecting cable, use terminals 61 to 66 following the following coloring:

- M-Black
- G-Red
- A-White
- B-Brown
- REF-Green
- SHLD-Black (shrink-wrap)

The Components are:

4.5.1 Electrical pre-heating

Explain in Pre-heating coil section

4.5.2 Electrical post-heating

Explain in Post-heating coil section

4.5.3 Supply air humidity

| | | | |
|---|-------------------------|----------|---|
| 2 | Unit Configuration | | |
| | ~~~~~ Humidity ~~~~~ | | |
| | Outdoor | Disabled | ▶ |
| | Supply | Enabled | ▶ |
| | Return | Disabled | ▶ |
| | Humidifier | Disabled | ▶ |
| | ~~~~~ Air quality ~~~~~ | | |
| | Return | Disabled | ▶ |

Wire the cables on green three-way connector

4.5.4 Additional Outdoor air temperature probe

Explain in Pre-heating coil section

4.5.5 Additional Supply air temperature probe

Explain in Post-heating coil section

4.5.6 Pressure transducer for outdoor air pre-filter

Explain in section 7.1 (Filters)

4.5.7 Pressure transducer for supply air filter

Explain in section 7.2 (Filters)

4.5.8 Pressure transducer for AHU pressure control on supply air duct

Install the pressure outlet on the duct after the supply fan and connect it using a flexible tube to the + of P1 or P2 of Node#3, select by the interface which transducer you have connected it to and change fan control type from Airflow to Pressure.

4.6 Optional on the electric panel

Other components can be installed directly on the X1 terminal block of the control panel and can be enable on Unit Configuration:

4.6.1 ERQ

Wire ON/OFF on 7-8 terminals, Alarm on 28-29, Signal on 34-35 and the Defrost on 55-56, follow the wiring diagram. Enabling at section 2.3-2.2

4.6.2 Humidifier

| | | | |
|---|-------------------------|----------|---|
| 2 | Unit Configuration | | |
| | ~~~~~ Humidity ~~~~~ | | |
| | Outdoor | Disabled | ▶ |
| | Supply | Disabled | ▶ |
| | Return | Disabled | ▶ |
| | Humidifier | Enabled | ▶ |
| | ~~~~~ Air quality ~~~~~ | | |
| | Return | Disabled | ▶ |

Wire ON/OFF on 9-10 terminals, Alarm on 30-31 and Signal on 36-37.

4.6.3 Outdoor, Exhaust, Supply and Return Dampers

Explain in Dampers section

4.6.4 Water coils pumps

Explain in Coils section

4.6.5 Frost switch

Is always enabled, if you have a unit with a post and/or heat water coil just connect the component on terminals 22-23

(Warning! 230V is present) of terminal block X1 to enable the function.

4.6.6 Pol 822

Wire component on terminals 24-25

4.6.7 Pol 895

Wire component on terminals 24-25

4.6.8 Water coils valves

Explain in Coils section

4.6.9 Outdoor air humidity probe

| | | | |
|---|-------------------------|----------|---|
| 2 | Unit Configuration | | |
| | ~~~~~ Humidity ~~~~~ | | |
| | Outdoor | Enabled | ▶ |
| | Supply | Disabled | ▶ |
| | Return | Disabled | ▶ |
| | Humidifier | Disabled | ▶ |
| | ~~~~~ Air quality ~~~~~ | | |
| | Return | Disabled | ▶ |

Wire components on terminals 44-45-46.

4.6.10 Return air humidity probe

| | | | |
|---|-------------------------|----------|---|
| 2 | Unit Configuration | | |
| | ~~~~~ Humidity ~~~~~ | | |
| | Outdoor | Disabled | ▶ |
| | Supply | Disabled | ▶ |
| | Return | Enabled | ▶ |
| | Humidifier | Disabled | ▶ |
| | ~~~~~ Air quality ~~~~~ | | |
| | Return | Disabled | ▶ |

Wire components on terminal 47-48-49.

4.6.11 CO2 probe

| | | | |
|---|-------------------------|----------|---|
| 2 | Unit Configuration | | |
| | ~~~~~ Air quality ~~~~~ | | |
| | Return | Enabled | ▶ |
| | ~~~~~ Pressures ~~~~~ | | |
| | ~~~~~ IEQ Sensor ~~~~~ | | |
| | IEQ | Disabled | ▶ |

Wire components on terminal 50-51-52.

4.7 Other Function

4.7.1 AHU General Alarm

Free changeover contact to remote the alarm status of the unit.

4.7.2 AHU Run

Free changeover contact to have an enabling.

4.7.3 Cool/Heat Status (Output)

Free contact that changes depending on the type of treatment of the unit.

4.7.4 Fire Alarm

Connection for a possible fire detection component.

4.7.5 Comfort/Economy

Provision for a switch to change all set points (must have set comfort set points).

4.7.6 Unit Enable Switch

Provision for a remote switch to enable the unit.

4.7.7 Cool/Heat Status (Input)

Provision for a switch to change the type of treatment of the unit.

5 MAIN MENU SCREEN

The unit is sold without its own on-board interface. the parameters can be accessed in various ways, via web interface if the unit is connected to the network, via Pol 895 with which you have the possibility to access the various menus of the AHU depending on the password entered and with Pol 822 which it only allows you to read the temperature of the environment where it is installed, turn the AHU ON/OFF, change the temperature set point and change the hot/cold status of the unit (if set by the HMI on the control).

5.1 LCD/Web interface

Through Main Menu screen the user can read main important information necessary for monitoring the AHU status. In particular, the user can:

- Control the AHU status
- Read main values
- Switch unit Off/On
- Change the AHU Setpoint
- Access to the I/O overview menu
- Access settings
- About Unit
- Restore alarm conditions

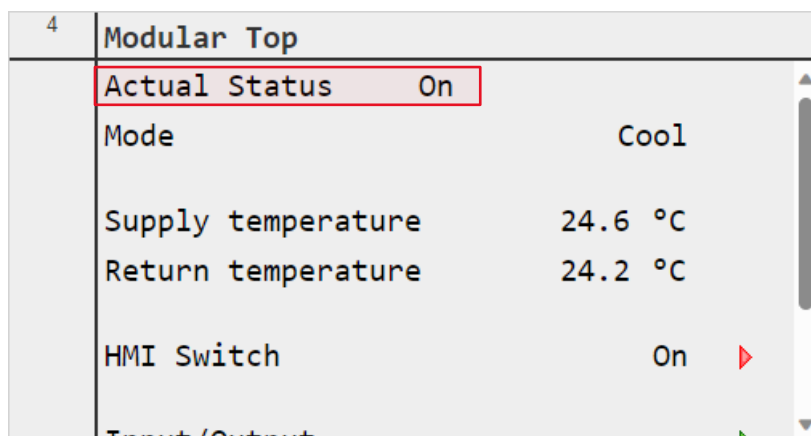
Next chapters will describe any item of the main menu. In the following table the user can find all the items of the main menu screen and the section where it is described.

| Main Menu item | Section |
|--------------------------------|---|
| Actual status | Display the actual status of the AHU. (Chapter 6) |
| Mode | Display the type of treatment Cool or Heat (Chapter 7) |
| Supply/Return temp | Display actual supply, return temperature used to regulate treatment system. (Chapter 8) |
| HMI switch | Change the unit status from OFF to On and vice versa.(Chapter 9) |
| Input/Output | Allow user to access menu that shows all the input/output values of the AHU.(Chapter 10) |
| Setpoints | Allow user to access menu that shows unit setpoints. (Chapter 11) |
| Settings | Allow user to access menu that shows all unit settings (up to the password input). (Chapter 12) |
| About unit | Allow user to access information about control system of the AHU. (Chapter 13) |
| Restore alarm condition | Allow user to reset alarms once the problem is fixed. (Chapter 14) |

5.2 Actual status

This item displays the actual status of the AHU. All possible status are reported in the table below.

HMI Path: Main page -> Actual status .



| Main Menu item | Value | Description |
|----------------|--|---|
| Actual status | <ul style="list-style-type: none"> - Off by fire alarm - Off by alarm - Off by DI switch - Off by BMS - Off - On | <ul style="list-style-type: none"> – Off by fire alarm: Highest priority alarm, the unit is switched off immediately. – Off by alarm Unit is switched off due to alarms that doesn't allow the system to work in safety condition. – Off by DI switch The unit is switched off by the selector on the electrical panel. – Off by BMS The unit is switched off by BMS command. – Off The unit is switched off by HMI command – On The unit is witched on and operational |

On status follows a priority chain according to the following table:

| HMI switch | Panel switch | BMS | Unit actual status |
|------------|--------------|-----|---|
| Off | X | X | Off |
| On | Off | X | Off |
| On | On | Off | Off (if BMS enabled) On (if BMS disabled) |
| On | On | On | On |

The "X" value means that whichever state doesn't affect the unit actual status.

5.3 Mode

This item displays the mode of the AHU. the possible mode are cool or heat.

| | |
|---|---------------------------------|
| 4 | Modular Top |
| | Actual Status On |
| | Mode Cool |
| | Supply temperature 24.6 °C |
| | Return temperature 24.2 °C |
| | HMI Switch On ▶ |
| | Treat / Output |

5.4 Supply/Return temp

This item (read-only) displays the actual average supply air temperature value used to regulate the AHU.

HMI Path: Main page -> Supply temp

| | |
|---|---------------------------------|
| 4 | Modular Top |
| | Actual Status On |
| | Mode Cool |
| | Supply temperature 24.6 °C |
| | Return temperature 24.2 °C |
| | HMI Switch On ▶ |
| | Treat / Output |

The probe will monitor the temperature value and the system will use the temperature to ensure the setpoint is maintained.

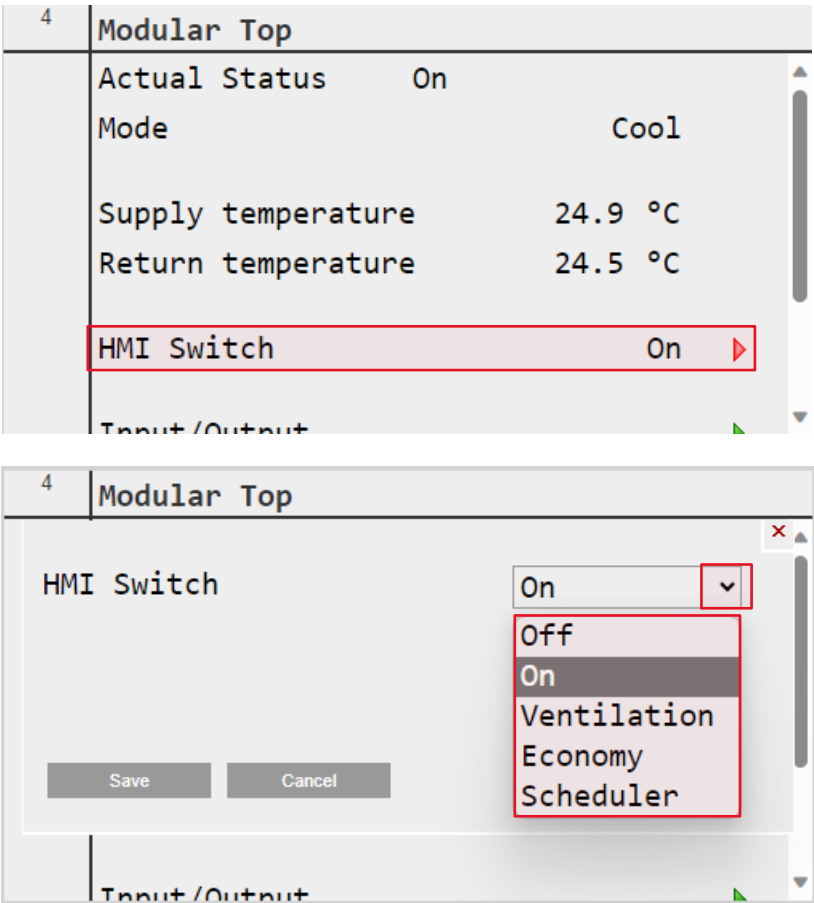
The system will be able to provide optimized commands to correct any deviation from the temperature set point with all the treatment systems envisaged, increasing or decreasing the signal sent to the treatment system.

The same applies to the return probe if selected as the control temperature.

5.5 HMI Switch

This item displays and allows you to set the status of the AHU.

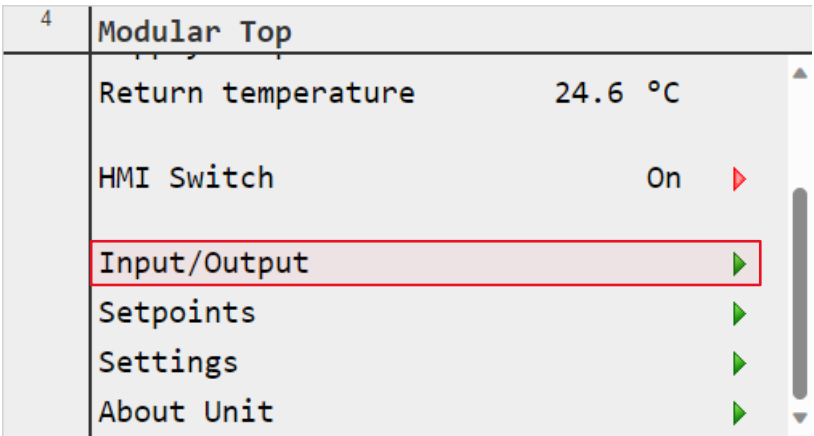
HMI Path: Main Menu -> HMI Switch



5.6 Input/Output

This menu (read-only) allow to access submenus of read values throughout the application.

HMI Path: Main Menu -> Input/Output



Selecting “Input/Output” a menu shows the access to sub menus dedicated to different signals of the system as explained below:

| | |
|---|-------------------|
| 4 | Input / Output |
| | Analog Inputs ▶ |
| | Analog Outputs ▶ |
| | Digital Inputs ▶ |
| | Digital Outputs ▶ |

Select "Analog Inputs" to show probes and transducers values.

| | |
|---|--------------------------|
| 4 | Analog Inputs |
| | ~~~~~ Temperatures ~~~~~ |
| | Outdoor 24.8 °C |
| | Supply 25.0 °C |
| | Return 24.6 °C |
| | Exhaust 24.6 °C |
| | ~~~~~ Fans ~~~~~ |
| | Supply pressure 520.7 Pa |

Scroll down to show remaining values.

| | |
|---|------------------------------|
| 4 | Analog Inputs |
| | ~~~~~ Fans ~~~~~ |
| | Supply pressure 528.0 Pa |
| | Supply pressure opt 250.6 Pa |
| | Return pressure 476.7 Pa |
| | Flow supply 3216m3/h |
| | Flow return 3056m3/h |
| | ~~~~~ Filters ~~~~~ |

| | |
|---|--------------------------|
| 4 | Analog Inputs |
| | ~~~~~ Filters ~~~~~ |
| | Outdoor pressure 22.0 Pa |
| | Return pressure 5.0 Pa |
| | ~~~~~ Recuperator ~~~~~ |
| | Pressure 11.4 Pa |

| | |
|--|-------------------------|
| | Analog Inputs |
| | ~~~~~ Recuperator ~~~~~ |
| | Pressure 4.5 Pa |
| | ~~~~~ Humidity ~~~~~ |
| | Outdoor 0.0 %rH |
| | Supply 46.5 %rH |
| | Return 0.0 %rH |

| | |
|---|-------------------|
| 4 | Input / Output |
| | Analog Inputs ▶ |
| | Analog Outputs ▶ |
| | Digital Inputs ▶ |
| | Digital Outputs ▶ |

Select "Analog Outputs" to show coil and fans values.

| | |
|---------------------|----------------|
| 4 | Analog Outputs |
| ~~~~~ Dampers ~~~~~ | |
| Recovery | 100.0 % |
| ~~~~~ FANS ~~~~~ | |
| Supply | 76.3 % |
| Return | 58.1 % |

When you enable the components the various sections will be created, scroll to view all.

| | |
|-----------------|----------------|
| 4 | Input / Output |
| Analog Inputs | ▶ |
| Analog Outputs | ▶ |
| Digital Inputs | ▶ |
| Digital Outputs | ▶ |

Select "Digital Inputs" to show alarms and switch status.

| | |
|--------------------------|----------------|
| 4 | Digital Inputs |
| ~~~~~ Frost Switch ~~~~~ | |
| Frost switch | Passive |
| ~~~~~ Alarms ~~~~~ | |
| Fire | Passive |
| ~~~~~ Switch ~~~~~ | |
| Unit | Off |

Scroll down to show remaining values.

| | |
|--------------------|----------------|
| 4 | Digital Inputs |
| ~~~~~ Alarms ~~~~~ | |
| Fire | Passive |
| ~~~~~ Switch ~~~~~ | |
| Unit | Off |
| Economy | Comfort |
| Cool/Heat | Cool |

| | |
|-----------------|----------------|
| 4 | Input / Output |
| Analog Inputs | ▶ |
| Analog Outputs | ▶ |
| Digital Inputs | ▶ |
| Digital Outputs | ▶ |

Select "Digital Outputs" to show command and switch

| 4 | Digital Outputs |
|---|---------------------------------------|
| | ~~~~~ Switch ~~~~~ |
| | Unit run Passive |
| | Global alarm Passive |
| | Cool/Heat Passive |

When you enable the components, the various sections will be created, scroll to view all.

5.7 Setpoint

This menu allows the user to access all setpoints used to control AHU.

HMI Path: Main Menu -> Setpoints

| 4 | Modular Top |
|---|---------------------------------------|
| | Return temperature 24.6 °C |
| | HMI Switch On ▶ |
| | Input/Output ▶ |
| | Setpoints ▶ |
| | Settings ▶ |
| | About Unit ▶ |

Selecting "Setpoints" a page allows to change all setpoints values, used by the system to target regulation algorithm.

| Setpoints |
|--|
| ~~~~~ Temperatures ~~~~~ |
| Main cool 20.0 °C ▶ |
| Main heat 22.0 °C ▶ |
| Supply min 12.0 °C ▶ |
| Supply max 35.0 °C ▶ |
| ~~~~~ Fans ~~~~~ |

This setpoint is used to regulate the treatment system modulation by a PI algo using supply/return temperature as feedback.

if the regulation temperature is the return one you will have four setpoints (as in the image) if instead you regulate on the supply, you will only have the first two setpoints.

Four stacked dialog boxes for temperature setpoints:

- Main cool:** 20.0 °C
- Supply min:** 12.0 °C
- Main heat:** 22.0 °C
- Supply max:** 35.0 °C

Each dialog box contains a 'Save' button (highlighted with a red rectangle) and a 'Cancel' button.

When adjusting on the return temperature we need to set the desired temperature on the Main cool or Main heat item after which we need to set the threshold below which we do not want to go in case of Cool (supply min) on the supply temperature and the threshold above which we do not want to go in case of Heat (supply max) also on the supply temperature.

This allows us to adjust the temperature within a range between the return and supply temperatures. This type of regulation is used to avoid excessive temperature changes and to have high energy savings.

Setpoints

~~~~~ Fans ~~~~~

|             |           |   |
|-------------|-----------|---|
| Supply flow | 3900 m3/h | ▶ |
| Return flow | 3900 m3/h | ▶ |

This setpoint is used to set the air flow or pressure you want for the environment and keep the fan as stable as possible. Set both air flow.

**Supply flow**

3900 m3/h

Save Cancel

**Setpoints**

~~~~~ Fans ~~~~~

| | | |
|-----------------|----------|---|
| Supply pressure | 250.0 Pa | ▶ |
|-----------------|----------|---|

~~~~~ Enthalpy ~~~~~

~~~~~ Filters ~~~~~

This setpoint is used to set the pressure you want for the environment and keep the fan as stable as possible.

Attention! to set the pressure you must change the tubes configuration on the supply and return Fans of base unit as per the instructions.

You can also enable the COP function if you have node#3 by connecting the + of DP1 or the of DP2, as required, to the pressure tap mounted on the supply duct. This function will adjust on the supply pressure and, thanks to the

algorithm, manage the speed of the return fan. The setpoint displayed will be only that of the supply pressure.

| | |
|----------------------|------------|
| 2 | Setpoints |
| ~~~~~ Humidity ~~~~~ | |
| Main humidification | 50.0 %rH ▶ |
| Supply min | 30.0 %rH ▶ |
| Supply max | 80.0 %rH ▶ |
| ~~~~~ Fans ~~~~~ | |
| Supply pressure | 250.0 Pa ▶ |

If the humidifier and humidity probes are enabled, you can be set the humidification setpoint and the minimum and maximum supply humidity thresholds.
This control loop has the same operation as the temperature loop. this allows us to have high energy saving and excellent accuracy on the regulation.

| | |
|---------------------|------------|
| 4 | Setpoints |
| ~~~~~ Filters ~~~~~ | |
| Warning threshold | |
| Return | 150.0 Pa ▶ |
| Outdoor | 150.0 Pa ▶ |
| Fault threshold | |
| Return | 300.0 Pa ▶ |
| Outdoor | 300.0 Pa ▶ |

This setpoint is used to set the pressure difference you want to report on each activated filter. the first is just a warning, the second is a fault that stop the AHU.

5.8 Settings

This menu, up to the password level, allows the user to access submenus for communication channel.

HMI Path: Main Menu -> Settings

| | |
|----------------------------|-------------|
| 4 | Modular Top |
| Return temperature 24.6 °C | |
| HMI Switch | On ▶ |
| Input/Output | ▶ |
| Setpoints | ▶ |
| Settings | ▶ |
| About Unit | ▶ |

Selecting settings and log with needed password to access different menu as show below:

Menu with User level password.

| | | |
|---|----------------|--------|
| 6 | Settings | |
| | Communication | ▶ |
| | Options | ▶ |
| | Cool/Heat HMI | Cool ▶ |
| | Enter Password | ▶ |

Menu with Service level password.

| | | |
|---|-------------------|--------|
| 4 | Settings | |
| | AHU Configuration | ▶ |
| | Communication | ▶ |
| | Daikin On Site | ▶ |
| | Main Regulation | ▶ |
| | Side Regulation | ▶ |
| | Options | ▶ |
| | Cool/Heat HMI | Cool ▶ |
| | Enter Password | ▶ |

Select "Communication" to access different channel parametrization.

| | | |
|---|-------------------|--------|
| 4 | Settings | |
| | AHU Configuration | ▶ |
| | Communication | ▶ |
| | Daikin On Site | ▶ |
| | Main Regulation | ▶ |
| | Side Regulation | ▶ |
| | Options | ▶ |
| | Cool/Heat HMI | Cool ▶ |
| | Enter Password | ▶ |

| | | |
|---|----------------------------------|---|
| 4 | Communication | |
| | IP-Config. 010 . 039 . 002 . 036 | ▶ |
| | IO-Module bus | ▶ |
| | Process bus | ▶ |
| | Communic.modules | ▶ |

Select "IP-Config." to access configuration of IP address of the control system.

| | | |
|---|---------------|-------------------------|
| 4 | Tcp Ip Config | |
| | DHCP | Enabled ▶ |
| | Act Ip | 010 . 039 . 002 . 036 |
| | Act Msk | 255 . 255 . 255 . 000 |
| | Act Gwy | 010 . 039 . 002 . 002 |
| | Gvn Ip | 192 . 168 . 001 . 042 ▶ |
| | Gvn Msk | 255 . 255 . 255 . 000 ▶ |
| | Gvn Gwy | 192 . 168 . 001 . 001 ▶ |
| | Primarv D | 10.39.148.17 ▶ |

Select "DHCP" to enable or disable the service.

| | |
|-----------------------------|-------------------------|
| 4 | Tcp Ip Config |
| Gvn Ip | 192 . 168 . 001 . 042 ▶ |
| Gvn Msk | 255 . 255 . 255 . 000 ▶ |
| Gvn Gwy | 192 . 168 . 001 . 001 ▶ |
| Primary D | 10.39.148.17 ▶ |
| Secondary | 0.0.0.0 ▶ |
| MAC | 00-A0-03-EF-92-00 ▶ |
| After modification of value | |
| Restart Required! | ▶ |

Scroll down to show remaining values.
In case of DHCP disabled use Gvn (given) fields to assign specific IP values to the control system.
MAC is the mac address of the POL688 (control system) of the unit.

| | |
|------------------|-------------------------|
| 4 | Communication |
| IP-Config. | 010 . 039 . 002 . 036 ▶ |
| IO-Module bus | ▶ |
| Process bus | ▶ |
| Communic.modules | ▶ |

Select "Communic.modules" to access configuration of additional comm modules if present.

| | |
|-----------------------------|----------------------|
| 4 | Comm.module overview |
| After use default or | |
| After modification of value | |
| Restart required ! | ▶ |

In presence of a connected module, specific menu will appear to allow parametrization (communication setting) of every single module installed.

| | |
|-------------------|----------|
| 4 | Settings |
| AHU Configuration | ▶ |
| Communication | ▶ |
| Daikin On Site | ▶ |
| Main Regulation | ▶ |
| Side Regulation | ▶ |
| Options | ▶ |
| Cool/Heat HMI | Cool ▶ |
| Enter Password | ▶ |

Select "Daikin On Site" to access cloud connection if available.

| | |
|-------------------|----------|
| 4 | Settings |
| AHU Configuration | ▶ |
| Communication | ▶ |
| Daikin On Site | ▶ |
| Main Regulation | ▶ |
| Side Regulation | ▶ |
| Options | ▶ |
| Cool/Heat HMI | Cool ▶ |
| Enter Password | ▶ |

Select "Main Regulation" to adjust the loop timing of some features.

| | | |
|---|----------------------------|---|
| 4 | Main Regulation | ▶ |
| | ~~~~~ Recovery ~~~~~ | |
| | Time defrost 10.0 min | ▶ |
| | Temp defrost 2.0 °C | ▶ |
| | Delay defrost 150.0 s | ▶ |
| | Frost OK | ▶ |
| | Multi defrost 2.0 s | ▶ |
| | Defrost supply thr 25.0 °C | ▶ |

| | | |
|---|----------------------|---|
| 4 | Main Regulation | ▶ |
| | ~~~~~ Main ~~~~~ | |
| | Cool loop KP 1.0 | ▶ |
| | Cool loop TI 120.0 s | ▶ |
| | Heat loop KP 1.0 | ▶ |
| | Heat loop TI 120.0 s | ▶ |

| | | |
|---|---------------------|---|
| 4 | Main Regulation | ▶ |
| | ~~~~~ Dampers ~~~~~ | |
| | Hum loop KP 1.0 | ▶ |
| | Hum loop TI 120.0 s | ▶ |

| | | |
|---|--------------------|---|
| 4 | Settings | |
| | AHU Configuration | ▶ |
| | Communication | ▶ |
| | Daikin On Site | ▶ |
| | Main Regulation | ▶ |
| | Side Regulation | ▶ |
| | Options | ▶ |
| | Cool/Heat HMI Cool | ▶ |
| | Enter Password | ▶ |

Select "Options" to access menu.

| | | |
|---|----------------------------|---|
| 4 | Options | ▶ |
| | Language Selection English | ▶ |
| | Cool/heat kind HMI | ▶ |
| | Enable BMS Disabled | ▶ |
| | Time Scheduler | ▶ |
| | Clock settings | ▶ |

Select "Language Selection" to change language of HMI if available.

| | | | |
|---|--------------------|----------|---|
| 4 | Options | | ▶ |
| | Language Selection | English | ▶ |
| | Cool/heat kind | HMI | ▶ |
| | Enable BMS | Disabled | ▶ |
| | Time Scheduler | | ▶ |
| | Clock settings | | ▶ |

Select "Cool/Heat kind" to access menu.

| | | |
|--|---------|---|
| 4 | Options | ▶ |
| Cool/heat kind HMI ▼ | | |
| <div> HMI Panel switch BMS Outdoor temperature Regulation temperature </div> | | |
| <div> Save Cancel </div> | | |

Select the season change input mode.

| | | | |
|---|--------------------|----------|---|
| 4 | Options | | ▶ |
| | Language Selection | English | ▶ |
| | Cool/heat kind | HMI | ▶ |
| | Enable BMS | Disabled | ▶ |
| | Time Scheduler | | ▶ |
| | Clock settings | | ▶ |

Select "Enable BMS" to access menu that Allow to enable or disable BMS functionality (Off / On of the unit). from emote).

| | | | |
|---|--------------------|----------|---|
| 4 | Options | | ▶ |
| | Language Selection | English | ▶ |
| | Cool/heat kind | HMI | ▶ |
| | Enable BMS | Disabled | ▶ |
| | Time Scheduler | | ▶ |
| | Clock settings | | ▶ |

Select "Time Scheduler" and "Clock Settings" to program the start-up and shutdown of the unit by time slots and days of the week.

5.9 About Unit

This menu allows user to access page with information about unit software.

HMI Path: Main Menu -> About unit

| About Unit | |
|------------------|-------------------|
| Serial Nr | Enter Unit Serial |
| Unit Size | Size#7 |
| Application info | |
| Modular T | |
| Software version | 2.00.A |
| BSP | 11.48 |
| Act Ip | 10.39.2.36 |

This page shows useful information to note while contacting service in case of need. Single information are explained below:

| About Unit | |
|------------------|-------------------|
| Serial Nr | Enter Unit Serial |
| Unit Size | Size#7 |
| Application info | |
| Modular T | |
| Software version | 2.00.A |
| BSP | 11.48 |
| Act Ip | 10.39.2.36 |

Serial numb” show the specific serial number of the unit.

| About Unit | |
|------------------|-------------------|
| Serial Nr | Enter Unit Serial |
| Unit Size | Size#7 |
| Application info | |
| Modular T | |
| Software version | 2.00.A |
| BSP | 11.48 |
| Act Ip | 10.39.2.36 |

“Software version:” shows the application release running on the unit control system.

| About Unit | |
|------------------|-------------------|
| Serial Nr | Enter Unit Serial |
| Unit Size | Size#7 |
| Application info | |
| Modular T | |
| Software version | 2.00.A |
| BSP | 11.48 |
| Act Ip | 10.39.2.36 |

“BSP” shows the release of the operating system running on the unit control system.

| About Unit | |
|------------------|-------------------|
| Serial Nr | Enter Unit Serial |
| Unit Size | Size#7 |
| Application info | |
| Modular T | |
| Software version | 2.00.A |
| BSP | 11.48 |
| Act Ip | 10.39.2.36 |

“Act IP” show the actual IP address of the control system board.

6 ALARM

6.1 Alarm list

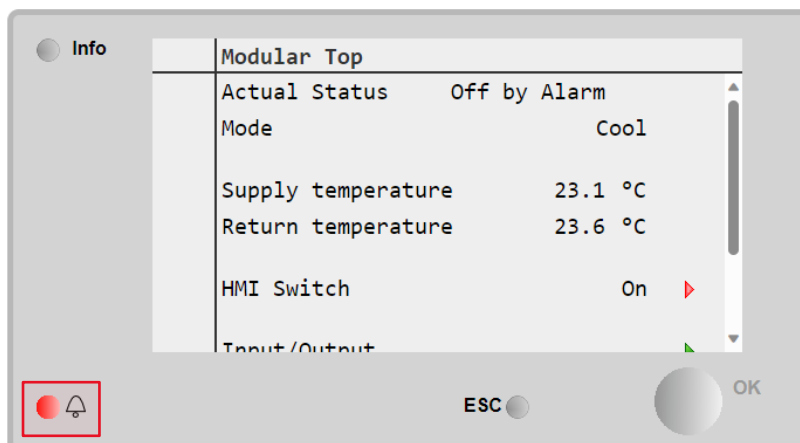
| Alarms | | Class | High Limit | Low Limit |
|----------------|--------------------------------------|-------|------------|-----------|
| Type | Name | | | |
| Digital Inputs | PreHeating electrical alarm | WA1 | | |
| | Combine pump alarm | WA1 | | |
| | ERQ alarm | WA1 | | |
| | Humidifier alarm | WA1 | | |
| | Fire alarm | FL1 | | |
| | Post heathing pump alarm | WA1 | | |
| | Post Heathing electrical alarm | WA1 | | |
| Analog inputs | Outdoor temperature | WA1 | 80 °C | - 20 °C |
| | Outdoor temperature optional | WA1 | 80 °C | - 20 °C |
| | Supply temperature | FL1 | 80 °C | - 20 °C |
| | Supply temperature optional | FL1 | 80 °C | - 20 °C |
| | Return temperature | WA1 | 80 °C | - 20 °C |
| | Exhaust temperature | WA1 | 1000 Pa | 0 Pa |
| | Outdoor pre-filter optional pressure | WA1 | 1000 Pa | 0 Pa |
| | Outdoor filter pressure | WA1 | 1000 Pa | 0 Pa |
| | Supply fan pressure | FL1 | 1000 Pa | 0 Pa |
| | Supply fan pressure optional | FL1 | 1000 Pa | 0 Pa |
| | Return fan pressure optional | FL1 | 1000 Pa | 0 Pa |
| | Supply filter pressure optional | WA1 | 1000 Pa | 0 Pa |
| | Return filter pressure | WA1 | 1000 Pa | 0 Pa |
| | Return fan pressure | FL1 | 1000 Pa | 0 Pa |
| | Outdoor humidity | WA1 | 100 %r.H | 0 %r.H |
| | Supply humidity | WA1 | 100 %r.H | 0 %r.H |
| | Return humidity | WA1 | 100 %r.H | 0 %r.H |
| | Return CO2 | WA1 | 2000 ppb | 0 ppb |
| Communication | FAN | FL1 | | |
| | Node#1 | FL1 | | |
| | Node#2 | FL1 | | |
| | Node#3 | FL1 | | |

| Legend | | |
|--------|---------|---|
| WA1 = | Warning | The unit will continue to work by reporting the alarm. |
| FL1 = | Fault | The unit will stop operation as it is a critical alarm. |

6.2 Restore Alarm

This menu allows the user to reset alarms once the problem is fixed.

HMI Path: Main Menu -> Red blinking bell



This page shows everything about the alarms and allows reset once the problem is fixed. To access the reset, you must enter one of the passwords described in the previous chapters.

Select "Alarm list" to open the page where all the alarms are shown.

| | | | |
|---|----------------|----|---|
| 4 | Alarming | | ▶ |
| | Alarm list | 3 | ▶ |
| | Alarm history | 15 | ▶ |
| | Alarm-snapshot | 0 | ▶ |
| | Advanced | | ▶ |
| | Event history | 0 | ▶ |

The number next to the green triangle means the number of alarms present.

| | | | |
|---|-------------------------------|--|---|
| 4 | Alarm list | | ▶ |
| | Acknowledge | | ▶ |
| | + Return humidity: config err | | ▶ |
| | + Outdoor humidity: config er | | ▶ |
| | + Humidifier: config error | | ▶ |

Select "Acknowledge" to open the page where you can execute the reset command select execute and press save.

4

Alarm list

▶

Acknowledge

Execute

Execute

Save

Cancel

If the problem has been solved the alarm will disappear from the list.

| | | | |
|---|----------------|----|---|
| 4 | Alarming | | ▶ |
| | Alarm list | 3 | ▶ |
| | Alarm history | 15 | ▶ |
| | Alarm-snapshot | 0 | ▶ |
| | Advanced | | ▶ |
| | Event history | 0 | ▶ |

Select "Alarm history" to view the list of actions taken for each alarm.

| | | | |
|---|-------------------------------|----|---|
| 4 | Alarm history | | ▶ |
| | Entries | 15 | |
| | - Recovery pressure: OK | | ▶ |
| | + Return humidity: config err | | ▶ |
| | + Outdoor humidity: config er | | ▶ |
| | + Recovery pressure: com faul | | ▶ |
| | + Humidifier: config error | | ▶ |
| | - Recovery pressure: OK | | ▶ |
| | + Recovery pressure: com faul | | ▶ |

Scroll to view all list.

The present publication is drawn up by of information only and does not constitute an offer binding upon Daikin

Applied Europe S.p.A.. Daikin Applied Europe S.p.A. has compiled the content of this publication to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content, and the products and services presented therein. Specification are subject to change without prior notice. Refer to the data communicated at the time of the order. Daikin Applied Europe S.p.A. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication. All content is copyrighted by Daikin Applied Europe S.p.A..

DAIKIN APPLIED EUROPE S.p.A.

Via Piani di Santa Maria, 72 - 00040 Ariccia (Roma) - Italia Tel: (+39)

06 93 73 11 - Fax: (+39) 06 93 74 14

<http://www.daikinapplied.eu>