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**Operating Manual**

**D-EOMAH00510-21\_00EN**

## **MODULAR-LIGHT AHU**

**Original instructions**

**CE**

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### **1. UNIT 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.

### **2. INTRODUCTION**

This manual provides basic information that allows the control of the Daikin Modular-Light Air Handling Unit (AHU). AHUs are used for air conditioning and air handling in terms of temperature, humidity and CO2 level control.

There are two types of Modular-Light AHU, based on the direction of supply air flow of the main module seen from the electrical panel, namely **Right-Hand Side** and **Left-Hand Side** layouts. The coils used to produce cooling or heating are installed in separate modules.

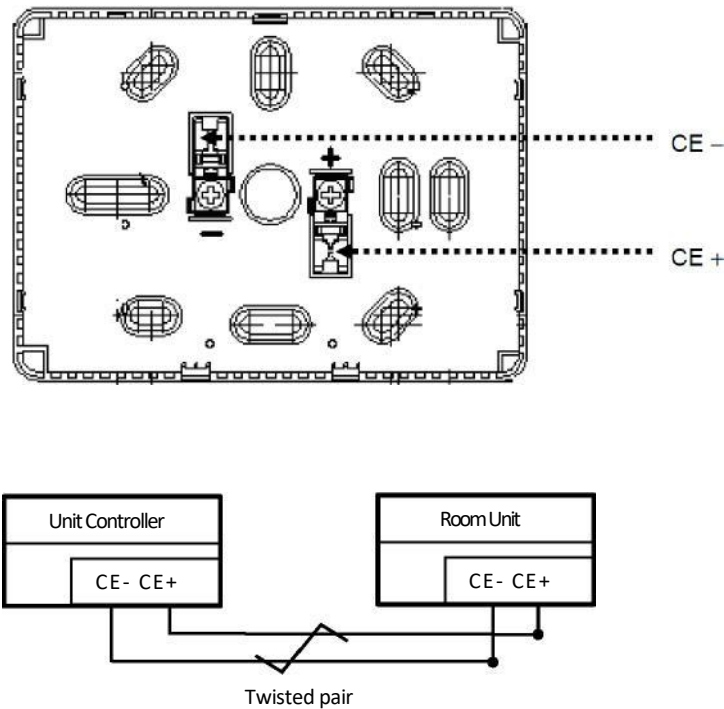
### 3. USER INTERFACE: ROOM UNIT

This section shows the functionalities of the user interface, the Room Unit module, that is used to measure room temperature and to manage main control functions of the unit:

- Unit state changeover
- Cool/Heat mode changeover
- Temperature control
- Fan speed control
- Occupancy mode enabling
- Date/time and time scheduler setting
- Alarms management

#### 3.1 Mounting instructions

The Room Unit receives its power from the connected controller via the 2-wire interface (low voltage, SELV). The Room Unit must be connected to the main unit with an unscreened two-core twisted pair cable.



Following some advices for the correct mounting and operation:

- The unit should not be mounted in recesses, shelving, behind curtains or doors or above or near direct heat sources.
- Avoid direct sun and draught.
- The conduit must be sealed on the device side, as currents of air in the conduit can affect the sensor reading.
- The admissible ambient conditions must be observed.

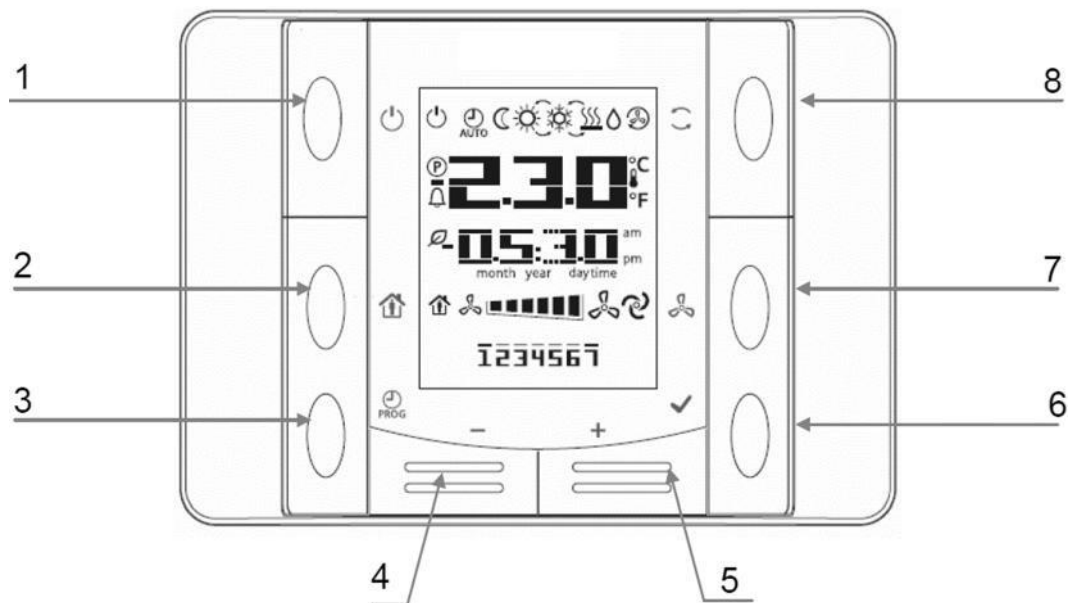
- Local installation regulations must be observed.
- After an interruption of the connection to the 2-wire interface, parameter initialization will restart.



**NOTE!** The equipment is not protected against accidental connection to AC

### 3.2 Button Overview

The Room Unit interface has the following operating elements:



**(1) On/Off**

- Unit state changeover

**(2) Home**

- Enabling/Disabling of Occupancy mode & main page return button

**(3) Program**

- Set date/time and time scheduler

**(4) Minus - (5) Plus +**

- Adjust temperature setpoint and menu navigation

**(8) Cool/Heat Mode**

- Switch between Cooling (Summer) and Heating (Winter) mode

**(7) Fan Speed**
















- Change the supply and return fan speed control mode

**(6) OK**

- Confirm button and alarm management

### 3.3 Display Overview

The table below explains all the symbols available on the display:

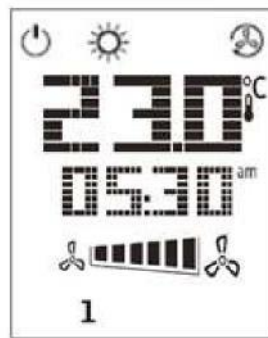
Display	Meaning
	Room temperature value
	Time
	Day of the week 1=Monday 2=Tuesday Ecc...
	Fan speed visualization
	Fan speed control mode set to Auto
	On/Off state of the unit. The icon is: 1.On- when the unit is On, Ventilation or Economy state 2.Off- when the unit is Off 3. Blinking- when the unit is in Test mode or in off state by Panel Switch
	Unit control mode set to Auto. The actual unit state and relative icons (On, Off, Ventilation or Economy) are based on Time Scheduler settings.
	Economy mode active
	Ventilation mode active
	occupancy mode active
	Dehumidification control active
	Heating mode (Winter)
	Cooling mode (Summer)
	Unit Cool/Heat (Summer/Winter) mode changeover set to Auto
	Unit is in alarm (see Alarm section for further info)

Two examples of main screen display:

Economy mode, cooling



Ventilation mode, heating






### 3.4 Operating instructions



#### Unit State changeover

This button allows the user to change unit actual operating state. To change unit state follow these steps:




1. Press the On-Off button 
2. Navigate through the different available states by pressing + or – buttons:
  - Auto = **unit follows time scheduler settings**
  - On = **unit on with nominal setpoints**
  - Off = **unit off**
  - **Ventilation = only fan active, no heat/cool control**
  - Economy = **unit on with economy setpoints**
3. Confirm the change of state by pressing for at least 1 second the OK button 
4. To return to the main screen page without taking any action, either press the Home  button or wait for 5 seconds

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#### Occupancy mode

Occupancy is a function that allows to run the unit for fixed period even if it is “Off” via time scheduler. This time period can be configured during unit commissioning.

To activate/deactivate the Occupancy function follow these steps:

1. Press the Home button 
2. Navigate through the different available states by pressing + or – buttons (Off, On)
3. Confirm the change of state by pressing for at least 1 second the OK button 
4. To return to the main screen page without taking any action, either press the Home button  again or wait for 5 seconds



## Date and Time settings

To change the date and time displayed on the main screen follow these steps:

1. Press PROG button . Time will start blinking, then set the hour with the + and -



2. By pressing the OK button ✓ the hour is saved and minutes blink, then set minutes with + and

3. By pressing the OK button ✓ minutes are saved and the entire time blinks, then set the time display format (12/24 hour) with + or -



display format is saved and the year blinks, then set the

4. By pressing the OK button ✓ the display format is saved and the year blinks, then set the decided year with + and -



5. By pressing the OK button ✓ the year is saved, and the display shows month/day, with month blinking, then set the month with the + and -



6. By pressing the OK button ✓ month is saved and day blinks, then set the day with the + and -

7. By pressing the OK button ✓ month and day are saved, the display returns to the time



8. By Pressing PROG button  the display returns to normal view

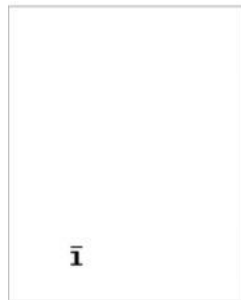
The display automatically returns to normal view when the PROG button is not pressed within one minute.

### Time Scheduler settings

The scheduler is working with 7 weekdays and 6 switches can be set up for each day. By setting up the switch, the user can set a time point and select one operation in **Auto** mode.

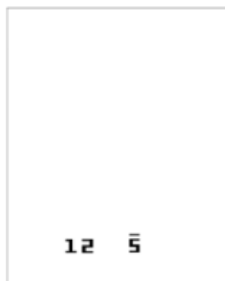
To set the time scheduler follow these steps:

1. Hold PROG button  to enter time scheduler setting. In time scheduler,  button is used to cancel, while OK button ✓ to confirm.



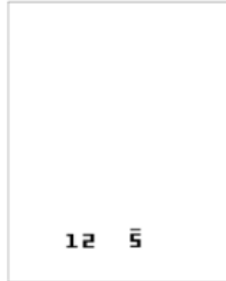
2. Pressing button + or -, the number of corresponding weekdays will blink on screen. Holding button + or -, cursor will keep moving on the weekdays in a cyclic way.

3. When cursor moves onto one weekday, pressing ✓ button will select this number or deselect it. When one weekday is selected, the day will be displayed on screen constantly. More than one weekday can be selected.





4. When cursor reaches the end of the week (i.e. 7) by pressing button + or the beginning of the week (i.e. 1) by pressing button -, all the selected weekdays will be displayed on screen with their indicators blinking. Pressing ✓ once will confirm them all.



5. After the confirmation of weekdays, pressing + or - again will jump to the following view. The first line is number of operation; the second line is time setting, the invalid time "--:--" is used to add a switch.





6. Press button + and - to set up time point and select an operation and press ✓ to confirm the input. The operation codes are the following:

- 0 = off
- 1 = On
- 2 = Ventilation
- 3 = Economy

In any parts of time area, press ✓ when the cursor is located on "--" without a number is selected, the switch will be deleted, and it will go back to viewing switch.



7. in scheduler setting, pressing  button will go back to the previous page. User can press this button to exit the setting step by step. The time scheduler setting page is automatically closed if no operation was performed for 1 minute, and all changes made after pressing  button will not be saved.

### Temperature setpoint control

The buttons + or – are used to define Heat/Cool temperature setpoint.

By single pressing + or – buttons on main screen, the actual setpoint is being displayed. Every other press increases/decreases the temperature setpoint of 0.1°C.

A long press of the + buttons show the actual temperature offset determined with the room unit from the main setpoint.


### Fan speed control


This button allows the user to change actual control mode for Supply and Return fan. To change fan speed control mode, follow these steps:

1. Press ventilation button 

2. Navigate through the different available states by pressing + or – buttons:

- Auto= unit follows nominal fan setpoints
- Speed 1\*= unit follows fixed speed 1 value
- Speed 2\*= unit follows fixed speed 2 value
- Speed 3\*=unit follows fixed speed 3 value

3. Confirm the change of state by pressing for at least 1 second the OK button 


4. To return to the main screen page either press the Home button  or wait 5 seconds

**\*NOTE! If unit is in "Pressure Control" mode, only AUTO fan control mode will be available.**


### Cool/Heat changeover


This button allows the user to change Unit Cool/Heat state (Summer/Winter state).


To change the Cool/Heat state follow these steps:

1. Press the Cool/Heat changeover button 


2. Navigate through the different available states by pressing + or – buttons (Cool, Heat)



3. Confirm the change of state by pressing for at least 1 second the OK button 

4. To return to the main screen page without taking any action, either press the Home button  or wait for 5 seconds

**NOTE! When icon  appears on the Room Unit main screen, this means that the Summer/Winter change source on the main controller has been set on Auto during the commissioning phase and Summer/Winter cannot be changed via Room Unit.**

### 3.5 Alarms

When the alarm icon  appears on the interface, an alarm has occurred on the unit. In order to check unit status and actual alarm code, the user must go to the alarm code screen page.

A long press of the OK button  will get the user on the alarms code screen page. Another long press of the OK button  will attempt to reset the alarm, if possible. Please contact your local Daikin service representative if you need additional support.

The alarm code consists of four slots. The first two represents the alarm type, with the following meanings:

- FL -> Fault alarm **(unit stops)**
- OP -> Operation alarm **(unit keeps running)**

The other part of the string represents the numeric code of the alarm. For a complete list of alarm code, check the following table:

Alarm code	Alarm String	Description
OP01	Filter alarm	Supply or Return filter dirty: differential pressure switch of the filters detected an high pressure difference pressure between input and output of the filter. Check filters status.
OP02	Air quality (CO2) sensor alarm	CO2 percentage too high: measured value of CO2 is out the allowable range or error condition on the air quality sensor (not connected or broken).
FL04	Supply fan alarm	Error condition on Supply fan: Supply fan has detected a failure. Check fan status.
FL05	Return fan alarm	Error condition on Return fan: Return fan has detected a failure. Check fan status.
FL06	Heating/Cooling Coils alarm	Error condition on Heating/Cooling coils: one or more heating/cooling coils have detected a failure. Check their status.
FL07	Heat Recovery freeze alarm	Heat Recovery freeze alarm active: unit heat recovery freeze protection has intervened to prevent damage to the device and has turned off the unit. After a time period, the unit will automatically reset the alarm and start again.

Alarm Code	Alarm String	Description
FL09	Fire alarm	Fire alarm active: fire detector device detected fire presence. Unit enters fire mode.
FL11	Supply temperature sensor fault	Supply temperature sensor error: measured temperature out of the allowable range or error condition on the temperature sensor (not connected or broken).
FL12	Return temperature sensor fault	Return temperature sensor error: measured temperature out of the allowable range or error condition on the temperature sensor (not connected or broken).
FL13	Outside temperature sensor fault	Outside temperature sensor error: measured temperature out of the allowable range or error condition on the temperature sensor (not connected or broken).
FL14	Exhaust temperature sensor fault	Exhaust temperature sensor error: measured temperature out of the allowable range or error condition on the temperature sensor (not connected or broken).
FL15	Supply fan sensor fault	Supply fan pressure sensor error: measured pressure out of the allowable range or error condition on the pressure sensor (not connected or broken).
FL16	Return fan sensor fault	Return fan pressure sensor error: measured pressure out of the allowable range or error condition on the pressure sensor (not connected or broken).

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