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HVAC ENGINEERING

Air Curtains

Controller Manual



VTS



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Oceania Solutions Group are proud of our extensive portfolio and experience within HVAC industry. From industrial applications through to commercial air conditioning installations for tropical and high humidity environments.

Operating throughout Australia, New Zealand and the South Pacific Islands, we provide engineered technical data and commercial support for a wide range of HVAC solutions.

Our experienced team of HVAC professionals work hand-in-hand with market leading suppliers of HVAC solutions and equipment.

With international accreditation from Eurovent, CTI, AHRI, TÜV and AMCA, our products are rigorously tested and certified, meeting Australian and New Zealand standards and regulations.

Partnering with trusted international suppliers, we are available to provide an engineered solution for your next project.

Manual

HMI WING HY is a control panel, dedicated for all types of WING EC curtains. It has an interface with RTU Modbus protocol for easy integration with building management systems (BMS). It is characterised by very easy and intuitive operation due to the comfortable, practical keypad and backlit screen.

HMI WING HY controller has been made from electronic materials of the highest class. The panel is adapted for continuous operation with 230 V AC single-phase power supply. Due to the well-thought design, the controller is installed in a very easy manner on a special mounting bracket in the Ø60 mm flush mounting box. The mounting bracket enables easy installation and removal of the panel. Electric wires are connected directly to the terminal block, located at the back of the controller. The panel enables three-position regulation of rotational speed of the fans with EC motors, as well as three-position regulation of the heating power.

Due to the integrated thermostat and temperature sensor as well as as programmer function, the controller enables to define operating parameters in the weekly schedule (on working days/at weekend, with 4 heating periods per 24 hours).

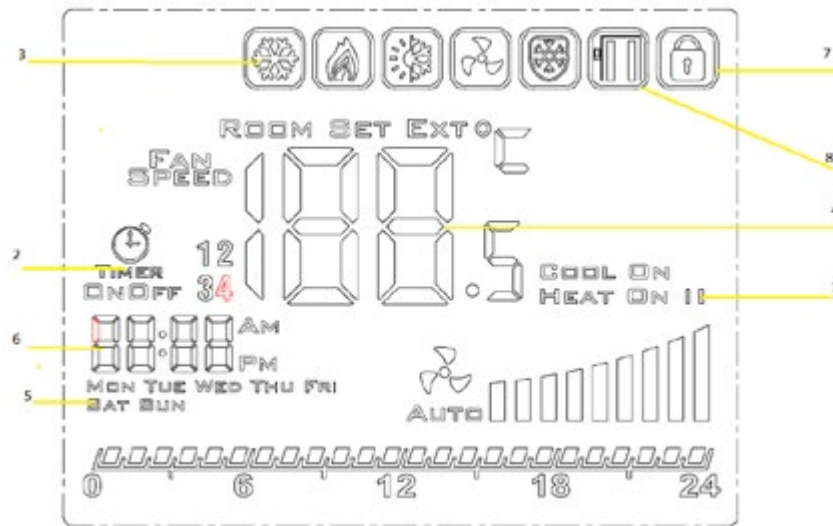
The installation of an external door sensor enables the selection of one of three modes of automatic operation:

- Door (default one): heating with the air supply or only the air supply, maintenance of set temperature. Active only with open door.
- Room: heating with the air supply or only the air supply (air supply activated manually), maintenance of the set temperature. Active regardless of the status of the door sensor.
- Door + room: heating with the air supply or only the air supply, maintenance of the set temperature. Active, depending on the status of the door sensor.

HMI WING HY controller optimises the operation of the curtains, ensuring their continuous and reliable operation, and well-thought functions of the device enable significant power efficiency.

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No.	Function	Set point
1	Heating mode: Operation of single heater coils sections Operation of two heater coils sections	Function A1 [^] or [v]
2	Calendar-based work: Yes No	Function AE [^] or [v]
3	Operating mode: heating ventilation; heating + ventilation	Function A3 [^] or [v]
4	Temperature display: ROOM (current temp.), SET (set temp.) EXT (based on external temperature sensor) 	Function A1 [^] or [v]
5	Day of the week MON TUE WED THU FRI SAT SUN	Hold [Set]+[v]
6	Hour, minute 	Hold [Set]+[v]
7	Screen lock 	Hold [v]
8	Screen lock 	n/a

Explanation of the operating modes:

- Speed I: Programmable value in the range of 15-80%.
- Speed II: Programmable value in the range of 15-90%.
- Speed III: Programmable value in the range of 15-100%.


Press to change the fan speed.

The values of the individual gears can be set from the advanced settings A: function A5, A6 and A7.

AntiFrost (): Frost protection of the heater medium. If the temperature falls below the set point, two-way valve opens. The function works even with deactivated controller or out of the working time set according to the calendar provided that controller is connected to a 230VAC power supply.

Programming mode

You may enter the advance settings A by holding the buttons () for 5 seconds with the deactivated controller. You may go to the next set point by pressing the [Set] key. The values can be changed using [^] and [v] buttons. You may leave the programming mode by pressing any other button.

No.	Function	Set point
IP	Communication Modbus RTU - address	1 ... 254
A0	Modes of automatic operation: room [0], door [1], door+room [2]	selection [0, 1, 2]
A1	Regulation of the heating power level: without heating [0], first level [1], second level [2], third level [3]	Selection [0, 1, 2, 3]
A2	Temp. sensor calibration	max. $\pm 8^{\circ}\text{C}$ with the step of 0.5°C
A3	Heating mode: Heating [0], ventilation [1], heating+ventilation [2]	Selection [0, 1, 2]
A4	Hysteresis of differential adjuster	0.5/1/2
A5	First speed value	15-80%
A6	Second speed value	15-90%
A7	Third speed value	15-100%
A8	Fan speed delay	30....200s
A9	Backlight time	5....600s
AA	Door optimum	0, +1, +2, +3
AB	Door sensor logic	NO [0], NC [1]
AC	Mim. Fan speed during cooling down	45-100%
AD	Min. fan speed	Only display
AE	Calendar-based work	No [0], Yes [1]
AF	Time mode	12h [1]; 24h [0]
B0	Buttons blockade	selection
B1	Extra heating time	0....90s
Bo	Default settings	Hold 

You may enter the advance settings C by holding the buttons [Set] for 5 seconds with the deactivated controller. You may go to the next set point by pressing the [Set] key. The values can be changed using [^] and [v] buttons. You may leave the programming mode by pressing any other button.

No.	Function	Set point
C0	Temperature units	$^{\circ}\text{C}/^{\circ}\text{F}$
C1	Min. Temperature	5....15 $^{\circ}\text{C}$
C2	Max. Temperature	16....40 $^{\circ}\text{C}$
C3	Communication Modbus RTU – speed	2400/4800/9600 kbps.
C4	Communication Modbus RTU – parity	None/ odd/ even

BMS connection (wires)

B	RS 485 B
A	RS 485 A

Ao	Analog output
GND	Analog gnd. output
DS	Temperature sensor
DS	Temperature sensor

L	230 V AC L
N	230 V AC N
H1	Heating
H2	Cooling

Calendar programming



When the controller is switched on, pressing the [Set] button for a longer time (approx. 5 seconds) will activate the function of weekly programming. You may go to the next set point by pressing the [^] key. The value of specific set points is made using [Set], [^] and [v] buttons. The calendar is programmed for each day of the week individually. In both cases, there is a possibility of programming a maximum of four heating periods during 24 hours. The programming takes place in the time scope referring to the time when a given function is to be activated. Leaving the calendar programming mode is possible by pressing power button.

Function 'Door Optimum'

The AA function in the advanced settings A allows to program the "Door optimum" function.

- "+0" – no increase of fan speed after door opening detection
- "+1" – increase by +1 of fan speed after door opening detection
- "+2" – increase by +2 of fan speed after door opening detection
- Function "Door Optimum" dependent on others functions that were set up:
- When device is working in room mode function "Door Optimum" doesn't have influence on parameters of air curtains because only temperature parameter is relevant.
- When device is working in door mode or door + room mode function "Door Optimum" influence on parameters of air curtains. Door opening detection is followed by increasing fan speed by the value that was set up in "Door Optimum". Door closing detection is followed by reducing fan speed by the value that was set up in "Door Optimum".

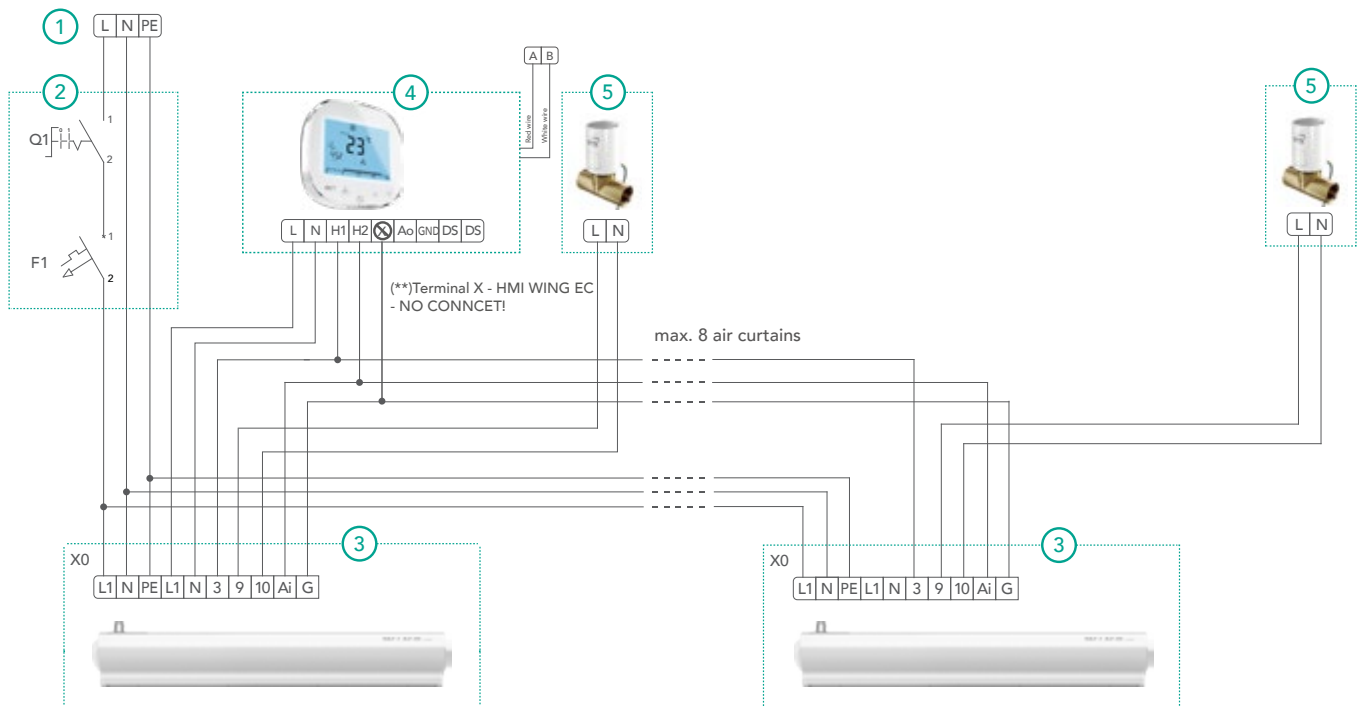
Suggested electric wires

- L, N : 2x1 mm²
- H, C : 2x1 mm²
- AO, GND : 2x0.5 mm² LIYCY
- External temperature sensor: 2x0.5 mm² LIYCY

Type	control panel, adjuster
Temperature measurement	-10°C ... +99°C ; NTC10K
Operation of the device	Physical buttons of the keypad Advance settings A: Holding the [] buttons for 5 seconds with deactivated device Advance settings B: Holding the [Set] buttons for 5 seconds with deactivated device
Calendar function	Programming weekly calendar (each day's separate programming)
Communication	Modbus RTU protocol
Speed of transmission	2400/4800/9600 bps
Outputs	1 analogue output 0-10V (8 bit, I _{max} = 20 mA) 2 relay outputs (250 VAC, AC1 500 VA for 230 VAC)
Power supply	230 V AC
Power consumption	1.5 VA
Display	backlit, graphic LCD (white captions, blue background)
Structure	ABS + Plexiglas
Dimensions (W x H x D)	86 mm x 86 mm x 17 mm
Installation	in a standard Ø60 mounting box on a mounting bracket
Weight	150g



Electrical wiring diagram

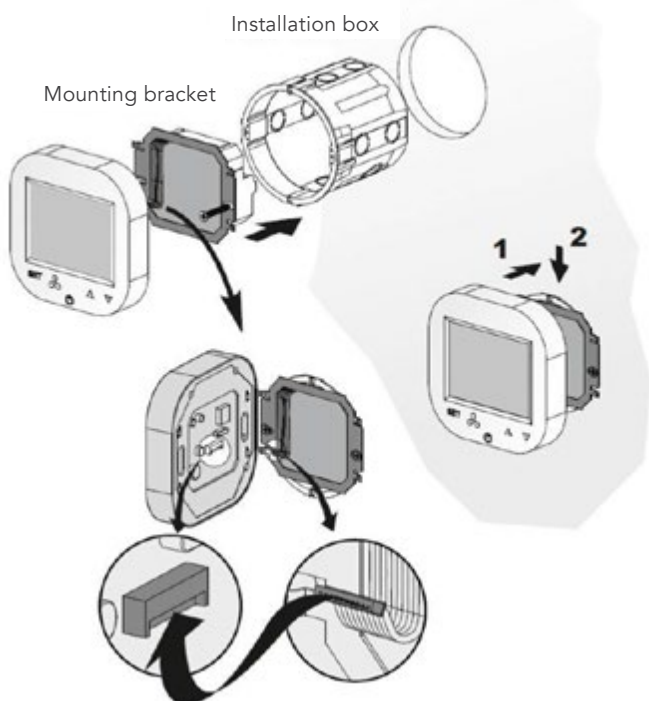


1. Power supply 230V/50 Hz
2. Main switch, fuses
3. WING W100/150/200
4. HMI WING EC controller

5. Valve with actuator

All EC air curtains are characterised by ease and simplicity of connection

Installation diagram



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