

ROU - ROOM OPERATING UNIT

ROU is an advanced room unit designed to be used with the middle roof control units. The basic room unit includes temperature measurement. Other measurements like humidity, CO₂ or PIR can be bought as options.

The unit has a 3,5" (320 x 240 px) touch screen colour display. The backlight level is adjustable. Temperature set point, fan speed and occupy information can be changed by using the display buttons.

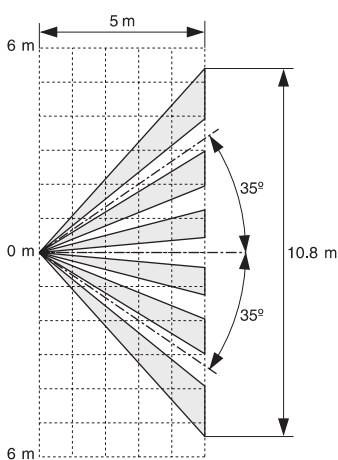


The room operating unit communicates with the control unit via Modbus communication. The cable between the room unit and control unit should be 2 x twisted pair or equivalent.

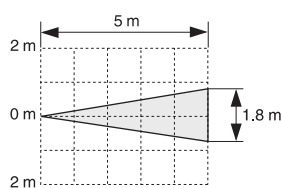
NOTE: The device can work as a master or a slave in Modbus network.

PIR detection coverage (ROU-PIR-opt option)

Horizontal



Vertical



Technical data:

Supply	24 Vac/dc
Temperature measurement	
Range	0...50 °C
Accuracy (25 °C)	±0.5 °C
Humidity measurement (RH option)	
Range	0...100 % rH
Accuracy (25 °C)	typ. ±2 % rH (20...80 % rH) max. ±3 %rH
CO ₂ measurement (CO ₂ option)	
Range	0...2000 ppm
Accuracy (25 °C)	typ. ±40 ppm +3 % from reading (ABCLogic™)
Long term stability / year	< 2 % FS (ABCLogic™)
Time constant	< 2 min
Operating conditions	
temperature	5...40 °C
humidity	0...85 % rH (non-cond.)
Wiring terminals	1,5 mm ²
Housing	ABS plastic, IP20
Dimensions (w x h x d)	
ROU-S	100 x 105 x 20 mm
ROU-F	100 x 105 x 30 mm

Ordering guide:

Model	Product number	Description
ROU-S	1150380	room operating unit (surface mounting)
ROU-F	1150390	room operating unit (flush mounting)
ROU-PIR-opt	1150381	PIR option for ROU-S/ROU-F
ROU-S-CO ₂ -opt	1150382	CO ₂ option for ROU-S
ROU-RH-opt	1150383	humidity option for ROU-S/ROU-F

C221 CONTROL UNIT

C221 is a versatile control unit specifically designed for individual room temperature, VAV and zone control applications. The control unit can be connected to any system that supports Modbus RTU protocol by using the RS-485 connection. The bus is galvanically isolated from the controller's other electronics. Bus end termination and polarisation are built in and can be activated with dip switches.

The control unit settings and output functions can be changed by using the buttons and display on room unit E201/E202 or a configuration unit H203.

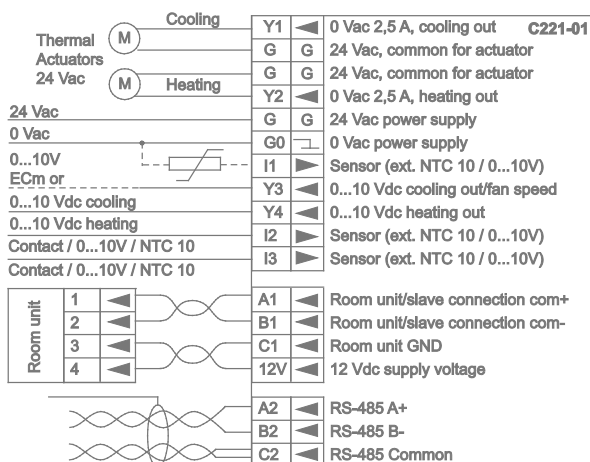
The controller has two programmable 24 Vac and two 0...10 Vdc outputs. One 0...10 V output has functions for EC motor or FCYR 3 relay fan speed control. The 0...10 Vdc output can be set to continuous control or with 3 different voltages.

Temperature is detected with an internal sensor on a room unit or external NTC10 sensor. The controller input functions can be set for 0...10 V temperature, CO₂, or set point and also external temperature sensor, occupancy sensor, condensation sensor and external switch for operation mode control.

The control unit has day, night and save operating modes. The operating modes can be controlled by an external card switch or PIR occupancy detector.

Control unit can be used in dry surroundings mounted in a fan coil unit or above the ceiling.

Wiring:



Technical data:

Supply	24 Vac (22...26 V), < 2 VA
Set point	19...25 °C
Accuracy (measuring inaccuracy)	±0.5 °C
Dead zone	
day mode	1 °C
night mode	4 °C
save mode	8 °C
Proportional band	
heating	1,5 °C
cooling	1 °C
Integration time	20 minutes
Outputs	2 x 24 Vac, 2 A (max 2 A of total load for both)
Inputs	2 x 0...10 Vdc, 10 mA
	3 x 0...10 Vdc, resistive or contact/switch functions
Operating conditions	
temperature	5...40 °C
humidity	0...85 % rH (non-cond.)
Wiring terminals	1,5 mm ² , jackable
Housing	ABS plastic, IP44
Dimensions (w x h x d)	80 x 122 x 40 mm

Ordering guide:

Model	Product number	Description
C221-01	1155050	Control unit

C222 CONTROL UNIT

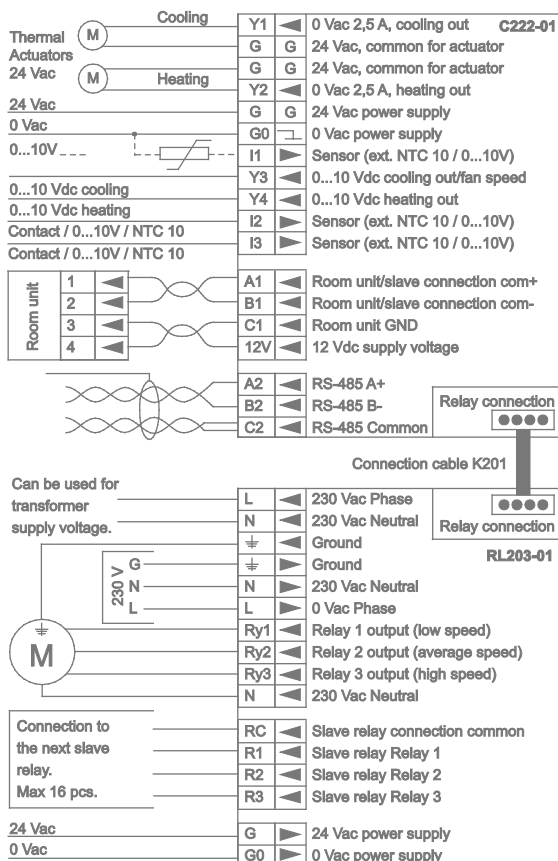
C222 is a versatile control unit specifically designed for individual room temperature, VAV and zone control applications. The control unit can be connected to any system that supports Modbus RTU protocol by using the RS-485 connection. The bus is galvanically isolated from the controller's other electronics. Bus end termination and polarisation are built in and can be activated with dip switches.

The control unit settings and output functions can be changed by using the buttons and display on room unit E201/E202 or a configuration unit H203. The controller has two programmable 24 Vac, two 0...10 Vdc outputs and a control port for relay RL203

Temperature is detected with an internal sensor on a room unit or external NTC10 sensor. The controller input functions can be set for 0...10 V temperature, CO₂, or set point and also external temperature sensor, occupancy sensor, condensation sensor and external switch for operation mode control. The control unit has day, night and save operating modes.

Control unit can be used in dry surroundings mounted in a fan coil unit or above the ceiling.

Wiring:



Technical data:

Supply	24 Vac (22...26 V), < 2 VA
Set point	19...25 °C
Accuracy (measuring inaccuracy)	±0.5 °C
Dead zone	
day mode	1 °C
night mode	4 °C
save mode	8 °C
Proportional band	
heating	1,5 °C
cooling	1 °C
Integration time	20 minutes
Outputs	2 x 24 Vac, 2 A (max 2 A of total load for both)
	2 x 0...10 V, 10mA
Inputs	3 x 0...10 Vdc, resistive or contact/switch functions
Operating conditions	
temperature	5...40 °C
humidity	0...85 % rH (non-cond.)
Wiring terminals	1,5 mm ² , jackable
Housing	ABS plastic, IP44
Dimensions (w x h x d)	80 x 122 x 40 mm

Ordering guide:

Model	Product number	Description
C222-01	1155060	control unit
RL203	1183100	relay unit
K201	1155071	control cable 15cm

C230 CONTROL UNIT

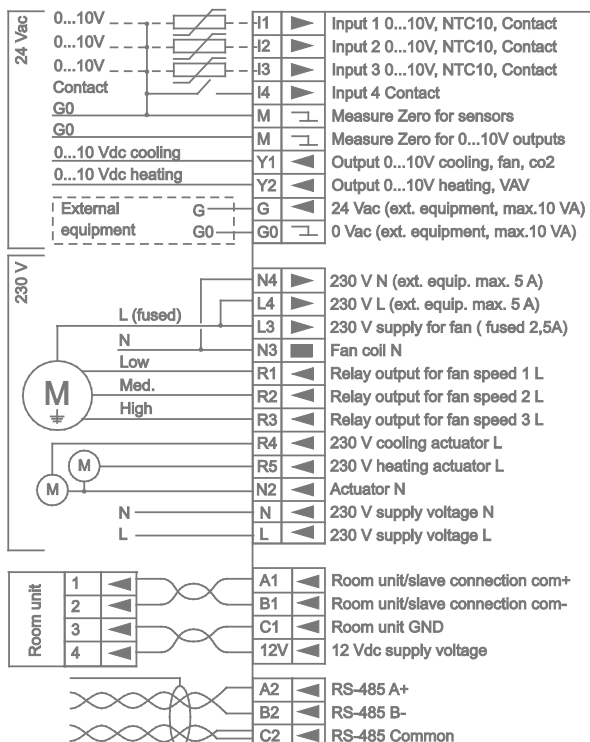
C230 is a versatile control unit specifically designed for individual room temperature, fan coils, VAV and zone control applications. The control unit can be connected to systems that support Modbus RTU protocol (RS-485). The bus is galvanically isolated from the controller's other electronics. Bus end termination and polarisation are built in and can be activated with jumpers, and the Modbus address can be changed with dip switches.

The control unit settings and output functions can be changed by using the buttons and display on room unit E202 or a configuration unit H203. The controller has two programmable 230 Vac, two 0...10 Vdc outputs and three relays for fan speed control or damper actuators.

Temperature is detected with an internal sensor on a room unit or external NTC10 sensor. The controller input functions can be set for 0...10 V temperature, CO₂, or set point, and external temperature sensor, occupancy sensor, condensation sensor and external switch for operation mode control. The control unit has day, night and save operating modes.

The control unit can be mounted hidden in a fan coil unit or above a false ceiling.

Wiring



Technical data

Supply	230 Vac (207...257 V), < 10 VA
Set point	19...25 °C
Dead zone	in day mode 1 K in night mode 4 K in save mode 8 K
Proportional band	heating 1,5 K cooling 1 K
Integration time	20 minutes
Inputs	3 x 0...10 Vdc, resistive or contact/switch functions 1 x contact/switch for operation mode selection
Outputs	2 x 230 Vac, 400 mA 2 x 0...10 V, 10 mA 3 x relays for fan coils 2,5 A 24 Vac, 10 VA transformer output for external equipment. 230 Vac, 2,5 A output for external equipment.
Input inaccuracy	<0.5 V
Operating conditions	temperature 0...50 °C humidity 0...85 % RH (non cond.)
Wiring terminals	1,5 mm ²
Housing	ABS/PC plastic, IP20
Dimensions (w x h x d)	200 x 120 x 53 mm

Ordering guide:

Model	Product number	Description
C230	1155110	control unit
H203	1155051	configuration tool

CONTROLLER SELECTION GUIDE

		Controller																
		HLS 16	HLS 21	HLS 33	HLS 44	HLS 44-V	HLS 44-3P	HLS 44-6W	HLS 44-BAC	HLS 45	PDS 2	R102	RS102	R222	PDS 2.2	HS 2.2-M	C221	C222
Application	4-pipe fan coil unit control			•	•	•	•	•	•			•	•	•			•	•
	2-pipe fan coil unit control									•								
	Floor heating	•	•							•								
	Floor heating/cooling	•								•								
	Chilled beam	•	•	•	•	•	•	•	•	•		•	•				•	•
	Heating radiator control	•	•	•	•	•	•	•	•	•		•	•	•			•	•
	Domestic water temperature control										•							
	Air handling unit control										•							
	6-way valve control							•				•	•				•	•
	Universal controller														•	•		
Middle roof installation										•				•		•	•	
Actuator	Thermal	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	3-point			•			•			•	•			•	•			
	0...10 V			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Function	Control stages	1	2	2/3	2/3	2/3	2/3	2/3	2/3	1/2	1	2/2	2/1	2/2	1	1	2/2	2/2
	Control modes	P	P	P	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI
	3-speed fan control with FCY 3				•	•	•	•	•	•				•			•	
	EC fan control				•	•	•	•	•	•			•	•				
	VAV control			•	•	•	•	•	•	•				•			•	•
	Summer/winter	•								•								
	CO ₂ based ventilation control				•	•	•	•	•	•							•	•
	Lighting control on/off					•												
	Modbus				•	•	•	•		•	•			•	•	•	•	•
	BACnet								•									