

RDCV

Residential HVAC controller



The RDCV series are residential HVAC controllers used to control EC-fans, actuators, lighting or other applications with an analog (0–10 VDC / 0–20 mA / PWM) signal. They feature a wide supply voltage range 110–230 VAC / 50–60 Hz and a variable control output signal between an adjustable minimum and maximum level. The controller can work in 2 modes. In Automatic mode it is a demand-based controller with adjustable setpoint that can be connected to a broad range of Sentera sensors. In Manual mode, the RDCV works as a full-featured potentiometer. The settings are easily adjustable either via a 3-button interface equipped with a 7-Segment LED display, via our 3SModbus software application or via the Sensistant configurator.

Key features

- User-friendly menu using a 3-digit, 7-segment display with 3-button keyboard interface
- Extended menu via 3SModbus software application or Sensistant configurator
- Selectable output: analog / digital (PWM)
- Adjustable minimum and maximum output values
- Suitable for inset or surface mounting
- 2 operating modes: Manual or Automatic (in combination with a sensor)
- Adjustable setpoint for temperature, Relative humidity, CO₂, Air quality, differential pressure
- Setpoint for PI control or direct control with fixed hysteresis
- Display can be toggled between measured value and output value
- User can manually override the output value for a fixed time
- Compatible with all Sentera sensors with Modbus RTU communication
- Stepless output or output in 2–10 steps
- Adjustable start output value or start output step
- Display can be toggled between output value and step
- Modbus RTU (RS485) communication for integration with BMS

Automatic mode features

Manual mode features



Technical specifications

Inrush current	Max. 15 A (100 VAC) Max. 25 A (240 VAC)	
No-load (stand-by) power	110 VAC / 60 Hz < 1,1 W 230 VAC / 50 Hz < 1,2 W	
Load resistance	0–10 VDC mode ≥ 10 kΩ 0–20 mA mode ≤ 500 Ω PWM mode ≥ 10 kΩ	
Output	0–10 VDC	Min: 0–8 VDC Max: 4–10 VDC
	0–20 mA	Min: 0–16 mA Max: 8–20 mA
	0–100 % PWM	Min: 0–80 % PWM Max: 20–100 % PWM
Selectable PWM output	Open collector Internally supplied (12 VDC)	
Protection standard	IP44 / IP54 (according to EN 60529)	
Ambient conditions	Temperature	-10–40 °C
	Rel. humidity	5–80 % rH (non-condensing)

Modbus registers



The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters. Designed to be used in combination with PDM or DPOM modules.



The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:
<https://www.sentera.eu/Downloads/Index/ENG>

You can find register maps in the mounting instructions. Download them from:
<https://www.sentera.eu/Product/Index/>

Article codes

	Supply voltage, Us	Enclosure
RDCV9-AD-WH	110–230 VAC ±10 % / 50–60 Hz	White
RDCV9-AD-BK	110–230 VAC ±10 % / 50–60 Hz	Black (anthracite)

Area of use

- Manual control for HVAC applications
- Demand based control for HVAC applications
- For indoor use only

Wiring and connections

L	Line, power supply (110–230 VAC ±10 % / 50–60 Hz)
N	Neutral, power supply (110–230 VAC ±10 % / 50–60 Hz)
Ao	Analog / digital output (0–10 VDC / 0–20 mA / PWM)
GND	Ground
A	Modbus RTU (RS485), signal A
/B	Modbus RTU (RS485), signal /B
Connections	Cable cross section: max. 2,5 mm ²

Caution: If an AC power supply is used with any of the units in a Modbus network, the GND terminal should NOT BE CONNECTED to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and / or the computer!

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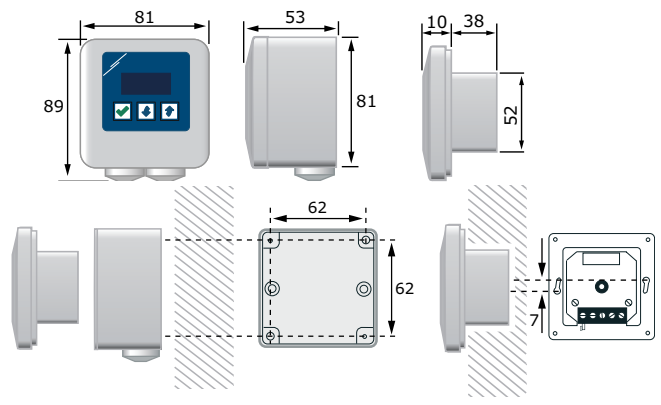


Standards

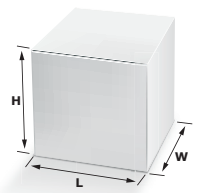
- Low Voltage Directive 2014/35/EC
- EMC Directive 2014/30/EC: EN 61000-6-2: 2005/AC:2005, EN 61000-6-3:2007/A1:2011/AC:2012, EN 61326-2-3:2013
- WEEE 2012/19/EC
- RoHS Directive 2011/65/EC



Fixing and dimensions

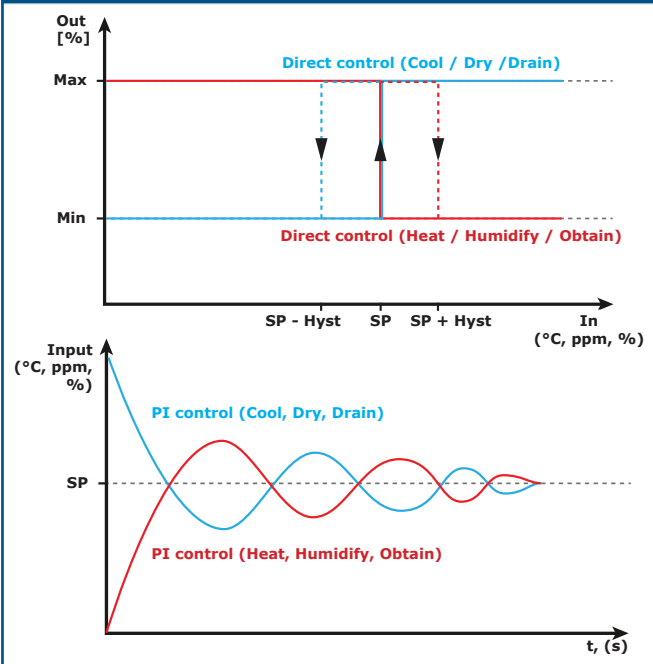


Packaging



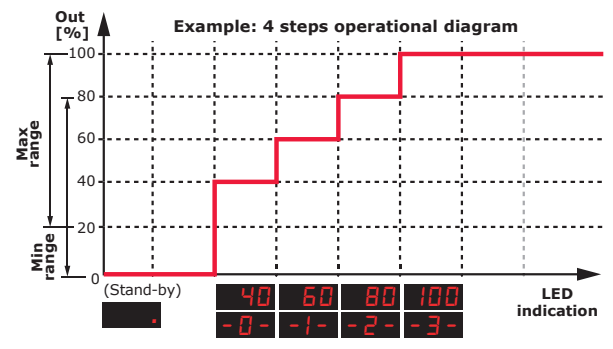
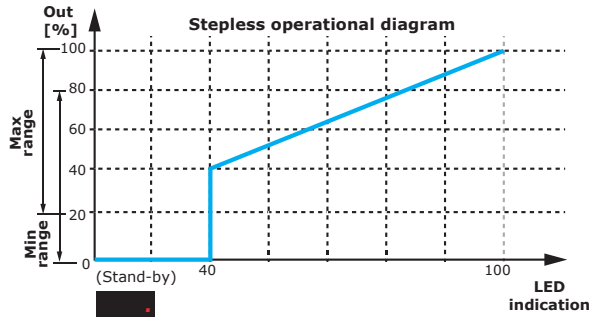
Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
RDCV9-AD-WH	Unit (1 pc.)	95	85	70	0,12 kg	0,15 kg
RDCV9-AD-BK	Carton (10 pcs.)	492	182	84	1,20 kg	1,63 kg
	Box (60 pcs.)	590	380	280	7,2 kg	9,55 kg

Operational diagrams



Automatic mode

* PI control can require adjustment of parameters, depending on the local circumstances.



Manual mode

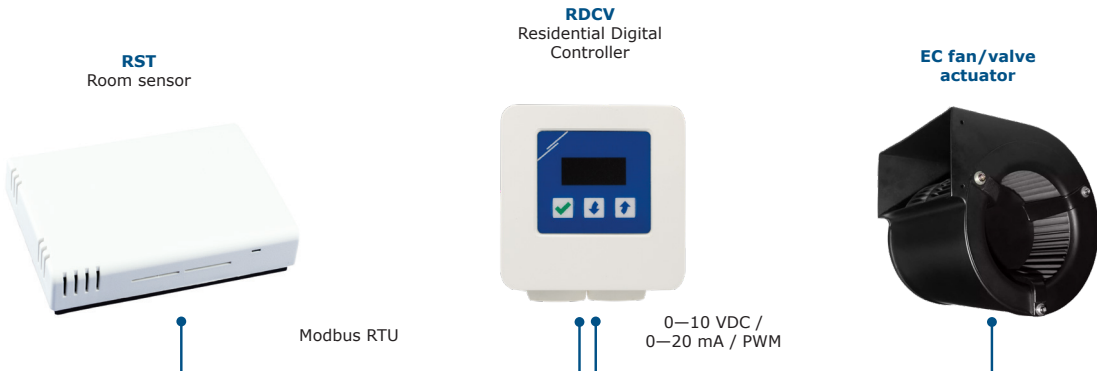
* In the examples Umin is set to 40 % and Umax to 100 %

Legend	
DP	Decimal point - OFF / Stand-by
0—100	Output value in percentage of Us
Min	Minimum output value (0—80 % of the output range)
Max	Maximum output value (20—100 % of the output range), Max. ≥ Min. + 20 %
Out	Output value



Application examples

Automatic mode



Manual mode

