domat
control system

Evo2   Free programmable room controller

Summary

EVO2 is a free programmable room controller with Linux operating system. It contains an embedded room temperature sensor, relative humidity and CO_2 sensors are optional. For communication it is possible to use Ethernet or RS485 interfaces. It can be controlled using touch screen (3,5") or a knob with push function. As of today, the EVO2 has no available user application. There is a SDK (Software Development Kit) for application development in C++ provided with the device. Qt 4.8 libraries are supported.

Application

- **systems with fancoils, convectors, floor and radiator heating, AHUs, air conditioning units.**
- **control of boilers, DHW, heating circuits, building controls in general**
- **monitoring of room temperature and humidity**
- **with a SCADA system: temperature, humidity and status recording, remote control.**

Function

The free programmable room controller EVO2 contains ARM processor with Linux operating system. It is based on a high performance platform for user application development. The system is open and it is possible to create customized user interfaces, control programs, data collection applications, or to manage other processes. As of today, the EVO2 has no available user application. There is a SDK (Software Development Kit) for application development in C++ provided with the device. Qt 4.8 libraries are supported.

The EVO2 is available with temperature sensor, temperature and humidity sensor, or temperature, humidity and CO_2 sensor.

Communication possibilities are through Ethernet and galvanically separated RS485. There are also USB connector. Number of AI/AO/DI/DO is according to customer demand. Limitation is given by the size of the flush-mounted box which must host all terminals. A typical configuration is 4 inputs or outputs. The default IO combination is 2x DI and 2x DO.

As a HMI, a touch capacitive screen (3,5") and a knob (turn and push) can be used.

Installation on wall in a flush-mounted box (diameter 60 mm).

Technical data	Supply voltage	9 V – 32 V DC; max 3 W
	Communication	
	Ethernet	1x Ethernet 10/100BaseT (Or/Wh, Gr/Wh, Or, Gr)
		Wire colour according to EIA/TIA T568B
	RS485	1x RS485 (K+, K-)
		galvanically insulated, insulating voltage 1 kV
	Digital inputs	
	Number	2 inputs for potential-free contacts (dry contact)
	Voltage	12 V DC
	Current	5 mA
	Digital outputs	
	Number	2x high side photo MOS
	Voltage	24 V DC
	Current	0,4 A
		AC1, common use, non-inductive load, according to
		EN 60947-4-1
	Temperature sensor (all types)	
	Measuring range	0 – 50 °C (±0,5 K)
	Humidity sensor (t+rH, t+rH+CO_2 only)	
	Measuring range	10 – 90 % rH (20 – 80 % ± 4,5 %)
	CO_2 sensor (t+rH+CO_2 only)	
	Measuring range	0 – 5000 ppm; measuring method NDIR
		Measuring accuracy 50 ppm, 3 % measured value
	Display	3,5" (resolution 480x800); colour TFT LCD/LED backlight; view angle H:160/V:160; contrast ratio 500(TYP); luminance (cd/m^2) 500(TYP)
	Front panel	capacitive touch

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Button	1x turn and push knob
Hardware	ARM Cortex A8, 500 MHz, 256 KB FLASH, 128 MB DD3 DRAM
Housing	See below
Protection degree	IP21 (EN 60529)
Operating temperature	0 – 50 °C; 5 – 95 % relative humidity; non-condensing gases and chemically non-aggressive conditions
Storage conditions	-20 – 60 °C; 5 – 95 % relative humidity; non-condensing gases and chemically non-aggressive conditions
Terminals	screw terminals M2, maximum wire cross-section 1,5 mm^2
Standards regarding conformity	EMC EN 61000-6-2 ed.3:2005, EN 55022 ed.3:2010
	EN 60950-1 ed.2:2006 + A11:2009 + A12:2011 + A1:2010 + A2:2014
	EN 50581:2012
EU legislation	Council Directive 2006/95/EC, health and low voltage equipment safety
	Council Directive 2004/108/EC, electromagnetic compatibility
	Council Directive 2011/65/EC, certain hazardous substances in electrical and electronic equipment

Terminals
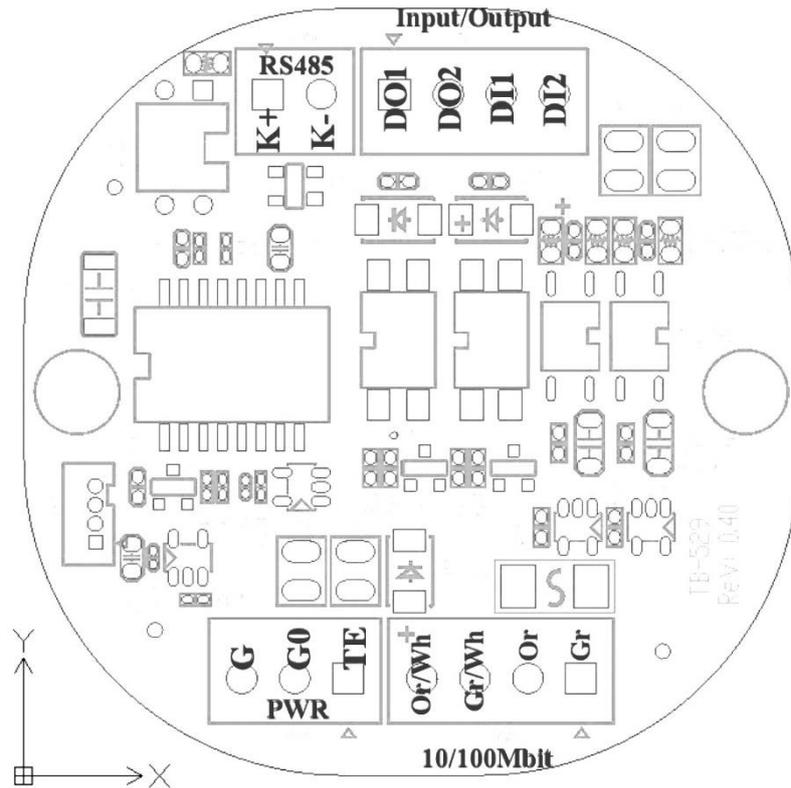
Terminals and connectors:

RS485	serial line RS485, terminals K+, K-
DO1	relay output 1, against G0
DO2	relay output 2, against G0
DI1	digital input 1, against G0
DI2	digital input 2, against G0
G	power
G0	power
TE	optional connection for shielding
Or/Wh	orange/white stripe, network interface 10/100 Mbit
Gr/Wh	green/white stripe, network interface 10/100 Mbit
Or	orange solid, network interface 10/100 Mbit
Gr	green solid, network interface 10/100 Mbit

Dimensions
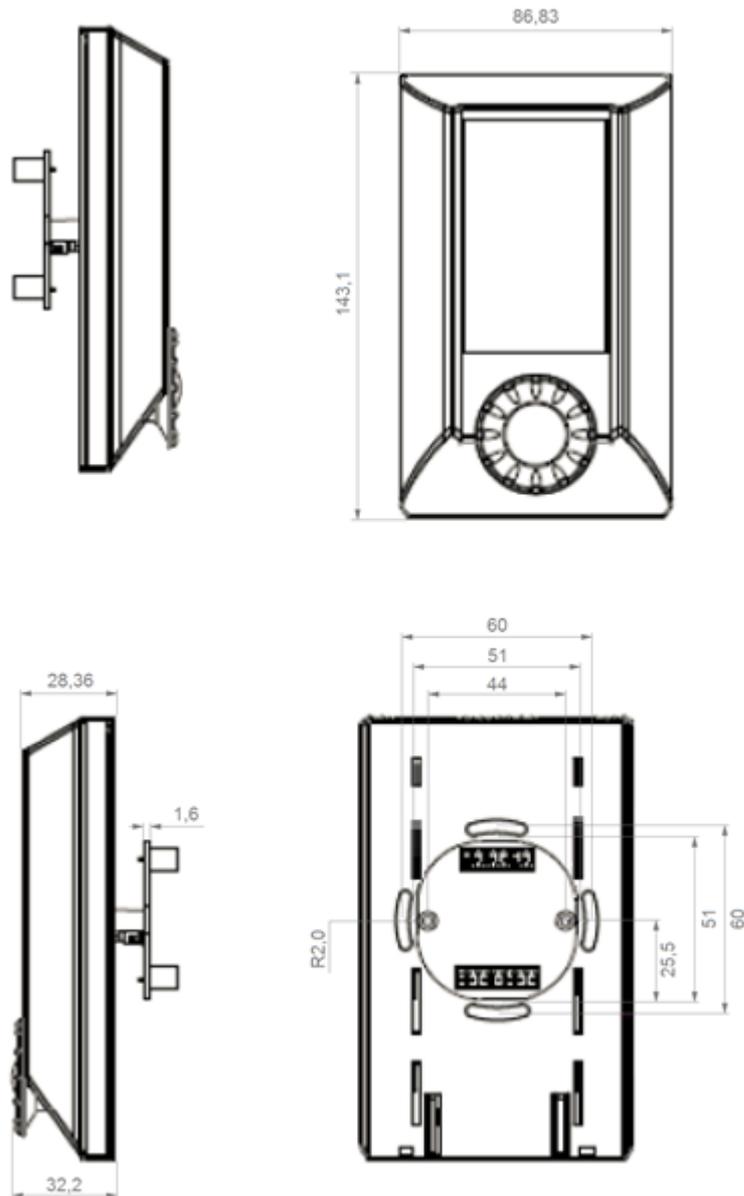
Dimensions are in *mm*.

RoHS notice   The device contains a non-rechargeable battery which backups the real-time clock and part of the memory. After the device is not operable, please return it to the manufacturer or dispose of it in compliance with local regulations.

Changes in versions

06/2016 — First datasheet version.
06/2016 — Technical data revision.
12/2016 — Added a scheme with dimensions.