

R012

RS232 – RS485 data converter



Summary

R012 is a RS232 to RS485 multi-speed half-duplex physical level converter with galvanic separation at both ends and power part. The device is equipped with a microcontroller which controls the data flow switching. This converter is a successor of the previous types M010, M011 and M012.

Applications

- domat I/O modules link to PC
- any RS232 to RS485 conversion where galvanic separation is required

Functions

The RS485 bus supports half-duplex communication. For automatic flow control, a microcontroller is used which is controlled by the CTS or DSR signals (DSR as default). The communication speed of both channels must be equal and is to be set by DIP switches under the front panel of the converter. There are LEDs at the front panel to indicate power presence and RS485 data flow.

For the RS485 connection is used 2-pole connector. The line is protected against overvoltage. In case the converter is used as the last in line, a terminating resistor may be employed by connecting DIP switch accessible behind the K connector.

For the RS232 connection, a CANON 9M (pins) connector is used. For PC connection, use nullmodem (cross) cable with CANON 9F (holes) at both ends. System **domat** only uses RxD, TxD, and GND signals for communication.

Technical data

Supply voltage	10...35 V DC, 14...24 V AC, any polarity
Consumption	1.5 W
Communication	
RS485	K+, K- communication asynchronous, 1200...115200 bit / s bits 8 or 9, 1 stop bit max. bus length to 1,200 meters galvanically isolated, isolation voltage 1 kV
Default settings	bus end OFF, 8, 9600 (suitable for I / O modules domat)
RS232	CANNON 9 male system domat only uses RxD, TxD, and GND signals. 1200...115200 bit/s bits 8 or 9, 1 stop bit galvanically isolated, isolation voltage 1 kV
Data flow control	auto, CTS, or DSR
Dimensions	see below
Operating environment	
Ambient conditions	-5...40 °C; 5...95 % relative humidity; non-condensing gases and chemically non-aggressive conditions (according EN 60721-3-3 climatic class 3K3)
Storage conditions	-5...45 °C; 5...95% relative humidity; non-condensing gases and chemically non-aggressive conditions (according EN 60721-3-1 climatic class 1K3)
Standards Compliance	EMC EN 61000-6-2 ed.3: 2005, EN 55022 ed.3: 2010 (industrial environment) electrical safety EN 60950-1 ed.2: 2006 + A11: 2009 + A12: 2011 + A1: 2010 + A2: 2014 Restriction of Hazardous Substances EN 50581: 2012

Terminals and settings



Terminals and connectors

G	power
G0	power
TE	optional connection for shielding
RS232	serial link RS232; CANNON 9 male (1- DCD, 2 - RXD, 3 - TXD, 4 - DTR, 5 - GND, 6 - DSR, 7 – RTS, 8 - CTS)
RS485	serial link RS485; terminals K+, K-

LED indication

TxD	red LED – RS485 transmitting data (flashing: transmitting data; OFF: no data traffic)
RxD	green LED – RS485 receiving data (flashing: transmitting data; OFF: no data traffic)
PWR	green LED – power (ON: power OK; OFF: no power applied, weak or damaged power supply, ...)

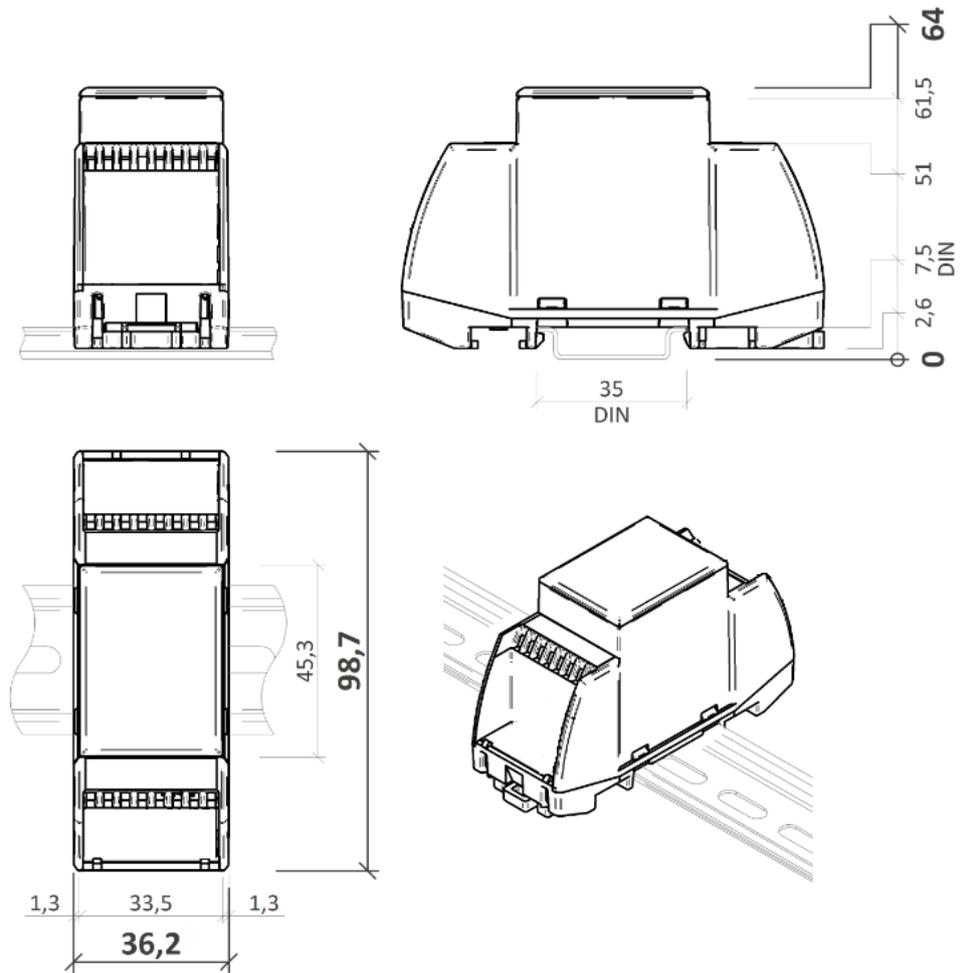
DIP switches

BUS END	(DIP1 under the RS485 terminal) ON = bus end; the first and last devices on bus should have bus end ON
SW 1, 2, 3	After removing the cover, you can adjust the speed of the serial line by the DIP switches. After setting required communication parameters switch device power OFF/ON.

	SW1	SW2	SW3
1 200 bps	OFF	OFF	OFF
2 400 bps	ON	OFF	OFF
4 800 bps	OFF	ON	OFF
9 600 bps (default)	ON	ON	OFF
19 200 bps	OFF	OFF	ON
38 400 bps	ON	OFF	ON
57 600 bps	OFF	ON	ON
115 200 bps	ON	ON	ON

SW 4	Number of bits OFF 8 bits / ON 9 bits. If parity (Even/Odd) is used, it is necessary to switch ON DIP SW 4 (9 bits)!
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Dimensions



Dimensions are in *mm*.

**Changes in
versions**

12/2016 – First datasheet version.

05/2018 – Change technical data.

08/2021 – Stylistic adjustments, change of logo.