

**RS232- RS485 DUAL CONVERTER (90-270 VCA, DIN RAIL)**

**INTRODUCTION**

The device converts electric signals from RS232 line in two RS485 branches. It is possible to connect up to 32 devices for each branch (max 64 devices). The two line sections (RS232 and RS485) are optically and galvanically isolated from each other and from power supply as well. The device automatically handles bidirectional data flow in 485 line (switch S1 in auto position) and after each transmitted message, assures 2 bytes guard time after last bit transmitted before line releasing. This operation is compatible with Mod bus RTU protocol devices and with all devices whose response messages occur after the two bytes guard specified time (ie. after 1 ms at 19200 bit/s).

It's possible to set, opening the frontal cover:

- Auto / Man functioning;
- baud rate used;
- termination resistances.

All the devices are subjected to 1 year warranty period except in all those cases of bad handling and uncorrect wiring.

**C1-33 DESCRIPTION**

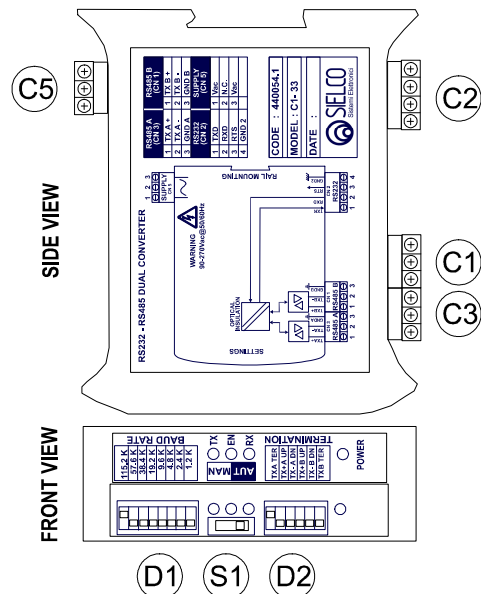


Fig 1 - C1-33 layout

- C1 Connectors for 485 line connection branch B
- C2 Connectors for RS232 line connection
- C3 Connectors for 485 line connection branch A
- C5 90-270Vac@50/60Hz supply connector.
- D1 Dipswitch baud rate selector (from 1.2 to 115Kbit/sec).
- D2 Dipswitch to set line termination resistances (tab. 4).

**S1** Auto/Man selector: in manual position output line is hold/released according to RTS (driver controlled) signal. In auto position line is hold at the first bit transmitted and the release occurs after two bytes guard time from the last bit transmitted. In RS485 line a baud rate must be selected (dipswitch D1) when S1 is set in auto position (see table 3).

- Led PW** Lights when power is on.
- Led TX** Lights during bit transmission (1 states).
- Led RX** Lights during bit receiving (1 states).
- Led EN** Lights while line is keeping hold (RS485).

**POWER**

C1-33 is a rear mounting device (DIN rail) with a 90-270Vac supply. Connect power supply to C5 screws 1, and 3.

Device consumption about 5VA.

**SEGNALI**

• **PC to C1-33 connection**  
If your PC COM port is provided with a 9 contacts D type male connector use a four wire cable according to table 1.  
If your PC COM port is provided with a 25 contacts D type male connector use a four wire cable according to table 1.

PC COM n°		C1-33 Con. C2		PC COM n°		C1-33 Con. C2	
Con. 9 Poli		Con. C2		Con. 25 Poli		Con. C2	
2	RXD	1	TXD	2	RXD	1	TXD
3	TXD	2	RXD	3	RXD	2	TXD
5	GND	4	GND	4	RTS	3	RTS
7	RTS	3	RTS	7	GND	4	GND

Tab 1 - RS232-C1-33 wiring (9 Poles and 25 Poles)

- **RS485 cable**  
Use a shielded cable with a twisted pairs according EIA RS-485. Suggested cable type: Belden 9841  
Maximum line attenuation: 6 dB  
Maximum line capacitance: 100 nF  
Cable wiring according to table 2

RS485 side B		RS485 side A	
n°	C1-33 Con C1	n°	C1-33 Con C3
1	TX+ / RX+	1	TX+ / RX+
2	TX- / RX-	2	TX- / RX-
3	GND	3	GND

Tab 2 - C1-33 - devices wiring (dual RS485)

Max number of parallel devices (with both terminated ends): 32  
The cable shield can be connected to C1-33 ground (screw n°3 of C3 and screw n°6 of C1) and, through a 100 ohm, to field ground to avoid ground loops as specified in fig. 3.

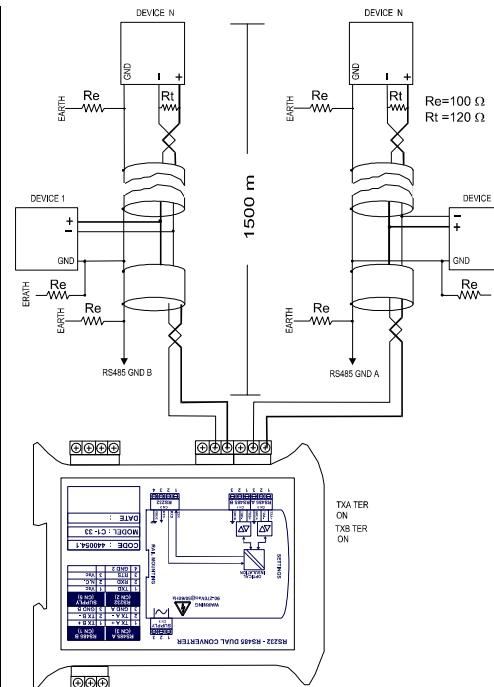
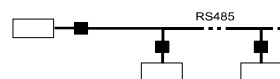


Fig 3 - Dual RS485 wiring example

**APPLICATIONS**

The C1-33 converter can be employed in the following configurations:

- 1) in RS232 point to point connection, to increase the distance and quality of transmission;
- 2) in RS232-RS485 multipoint connections with a single RS 232 master device (PC or PLC);
- 3) for networking RS232 units, where one RS232 master unit must be connected with a plurality of RS232 slave units. A proper working requires that the device number initialization be done for individual slave unit by slave software together with filtering of unwanted messages



**SETTINGS**

- Case 1) 2) e 3)
- Set switch S1 in Auto position..
- Set D1 according to the used baud rate (the baud rate must be the same for all devices).
- Be sure that the used protocol is conform to the guard time specified.
- Termination resistances can be set only in master and far end slave device according to table 4.

N.B. Keep the RS485 derivative connections as short as possible (max. 1.5 m).

**LINE TERMINATIONS**

It's possible to set line terminations independently for both RS485 transmission branches without removing the cover (TXA for RS485 branch A e TXB for RS485 branch B)..

- Set dipswitches D2 (TXA+ UP, TXA- DN, TXB+ UP, TXB- DN) for biasing of RS485 line in case 1, 2 and 3 (limited to master and far end slave device).
- Set line terminations by dipswitch D2 (TXA TER RS485 branch A, TXB TER RS485 branch B) (120 ohm in parallel between the line wires) according to the following table

Baud rate	Distance(m)			
	0	50	100	1500
1.2 Kbit/s	ON			
2.4 Kbit/s	ON			
4.8 Kbit/s	ON			
9.6 Kbit/s	OFF	ON		
19.2 Kbit/s	ON			
38.4 Kbit/s	ON			
57.6 Kbit/s	ON			
115.2 Kbit/s	ON			

Tab 4 - Line terminations

Be sure that symmetrically termination resistances have been set also at the corresponding far end.