

SERIAL LINK INTERFACE

USER GUIDE

MODELS ILPH RS 232 / RS 422 - RS 485 ISOLATED - 24-48 VDC
 MODELS ILPH RS 232 / RS 422 - RS 485 ISOLATED - 115-230 VAC

Part/Number	24-48 VDC	Black body ENT	0084 333.15
	24-48 VDC	Grey body ABB V0	1SNA 684 333 R2300
	115-230 VAC	Black body ENT	0084 334.16
	115-230 VAC	Grey body ABB V0	1SNA 684 334 R2400

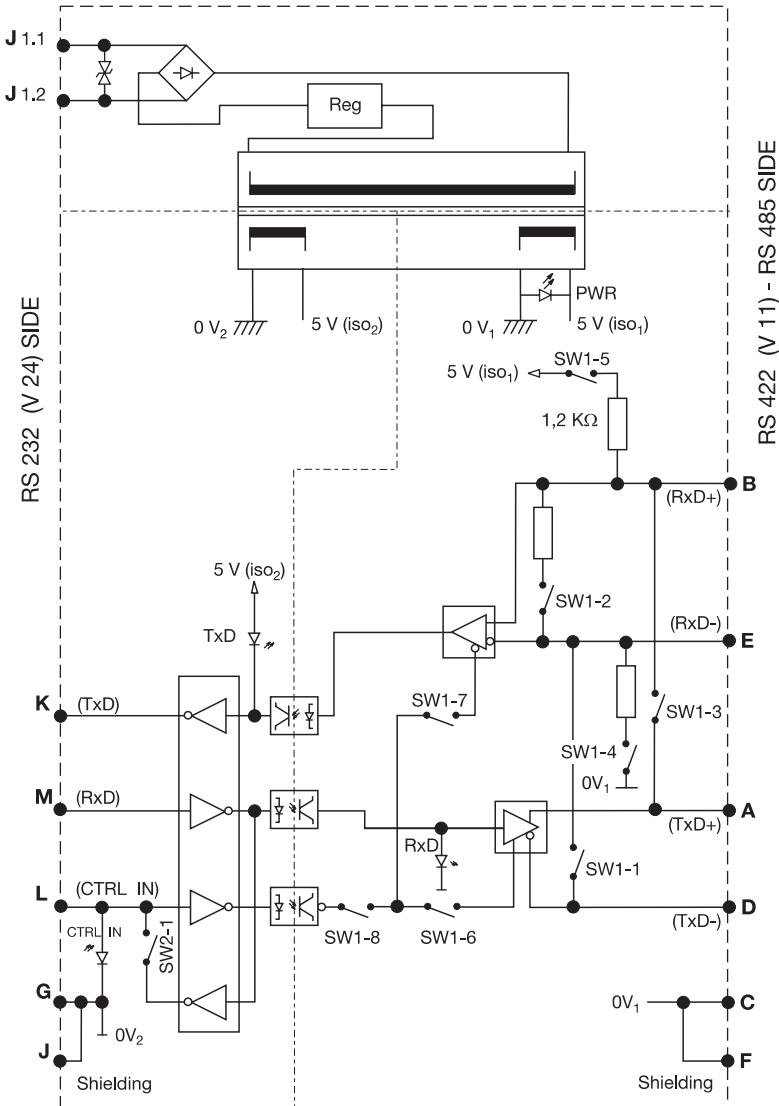
1. GENERAL

Interface between an RS 232 serial link and an RS 422 or RS 485 with a triple insulation (1,5 kVAC) between the 2 serial interfaces and between each and power supply.

Extend transmission distance beyond the 15 m limit of the RS 232 serial link, to cross "noisy" environments, to isolate the 2 systems, to perform multipointing (network) etc.

Large supply voltage range from 24 to 48 VDC and 115 to 230 VAC.

2. SCHEMATIC DIAGRAM



3. TECHNICAL SPECIFICATIONS

3.1 POWER SUPPLY

	0084 333.15 1SNA 684 333 R2300	0084 344.16 1SNA 684 344 R2400
Voltage	24 to 48 VDC	115 to 230 VAC (50/60 Hz)
	-15 ... +20%	-15 ... +15%
Overvoltage protections	8 kV	8 kV
(1,2/50 µs wave)		
Protection against reverse polarity	Diodes	
Gradually voltage variations	Conform to IEC 1131-2	Conform to IEC 1131-2
Micro-cuts capability	Conform to IEC 1131-2	Conform to IEC 1131-2
Maximum supply power	0,8 W	0,8 W
Connections	Removal screw connectors	
Voltage Indicator	1 yellow LED	

3.2 RS 232 LINK

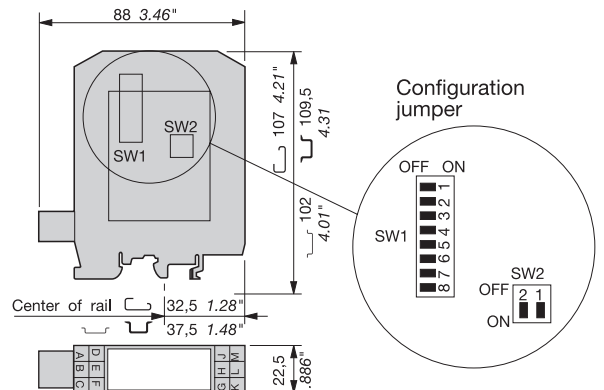
Reference norms	EIA/TIA 232E (RS 232 revision) UIT-T V28 and UIT-T V24
Maximum binary data rate	20 kbit/s
Maximum capacity allowed by emitters	2500 pF
Connections	Screw type connections.
Traffic indicator	3 x green LED (RxD, TxD, CTRL-IN)
Overvoltage protection (1,2/50 µs wave)	8 kV
Galvanic isolation :	
- between power supply and RS 232	1,5 kVAC
- between RS 422 - RS 485 and RS 232	1,5 kVAC

3.2 RS 422 - RS 485 LINK

Reference norms	EIA 485 and compatible EIA 422-A / UIT-T V11
Transmitter can communicate with up to 32 receivers simultaneously	
Maximum binary data rate	20 kbit/s
Connections	Screw type connections.
Overvoltage protection (1,2/50 µs wave)	1,5 kV
Galvanic isolation :	
- between power supply and RS 485	1,5 kVAC
- between RS 232 and RS 422 - RS 485	1,5 kVAC

3.3 PHYSICAL CHARACTERISTICS

EM Compatibility	
- Electrostatic discharge	8 kV in air (IEC 1000-4-2 level 3, like IEC 801-2)
- Radiated Electromagnetic field	10 V/m (IEC 1000-4-3 level 3, like IEC 801-3)
- Radiated RFI	EN 55022 Class B
- Conducted RFI	1 kV (IEC 1000-4-4 level 3, like IEC 801-4)
Operating temperature	0 to 40° C
Operating humidity	5 to 95 %
Storage temperature	-25 to +80° C
Box serie 11000 ABB Entelec	snaps onto DIN 1 or 3 rail



4. CONFIGURATION

4.1 LINE AMPLIFIER CONFIGURATION

Configuration of amplifiers of the RS 422 - RS 485 (Receiver, transmitter) line provides greater flexibility of use. The various configurations can be selected using the switches located inside the box.

4.1.1 RS 485 LINK ON ONE PAIR

Place SW1-1, SW1-3, SW1-6, SW1-7 and SW1-8 in position ON.

The Receiver and the Transmitter are activated alternately (never at the same time) depending on the status of the CTRL IN signal.

CTRL IN STATUS	ACTION ON RS 485
0 logic (+3V ≤ U ≤ +25V)	Transmitter active / Receiver inactive
1 logic (-25V ≤ U ≤ -3V)	Transmitter inactive / Receiver active
High impedance	Transmitter inactive / Receiver active

NOTE : For RS 232 products controlling the RTS (REQUEST TO SEND), signal, connect RTS to CTRL IN. Otherwise, place SW2-1 in position ON.

4.1.2 RS 485 LINK ON TWO PAIRS

Place SW1-1, SW1-3, SW1-7 in position OFF. Place SW1-6, SW1-8 in position ON.

Receiver permanently active. Transmitter controlled by the CTRL IN signal (see table 4.1.1 for Transmitter operation as a function of CTRL IN).

4.1.3 RS 422 LINK ON TWO PAIRS

Place SW1-1, SW1-3, SW1-7 and SW1-8 in position OFF. Place SW1-6 in position ON.

The Transmitter and Receiver are both permanently active.

4.2 POLARIZATION OF THE RS 422 - RS 485 LINE

The line must always be polarized. The ILPH is used to polarize the reception channel :

Place SW1-4 and SW1-5 in position ON.

4.3 ADAPTING THE RS 422 - RS 485 LINE

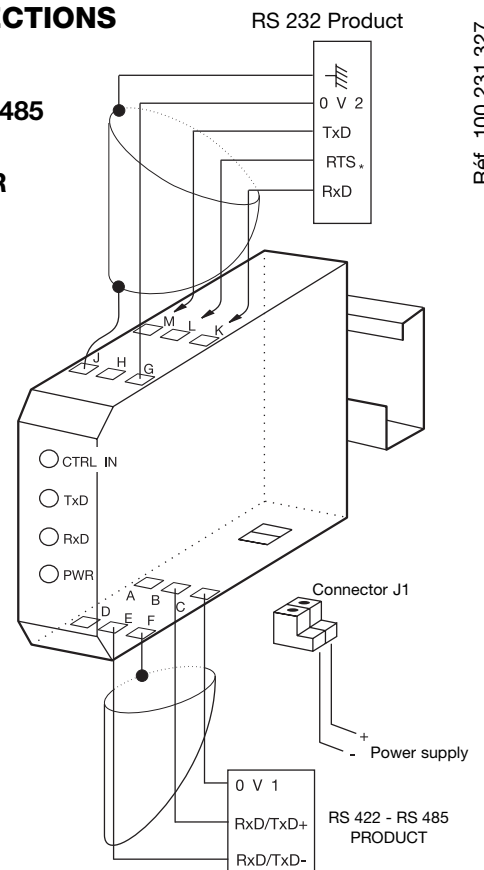
The line must always be adapted to the level of the reception channel of each subscriber forming the end of the bus.

The ILPH is used to adapt the reception channel by setting the switch SW1-2 correctly :

- SW1-2 in position ON ⇒ Line adaptation, $R_t = 120 \Omega$ (general case)
- SW1-2 in position OFF ⇒ No line adaptation, $R_t = \infty$

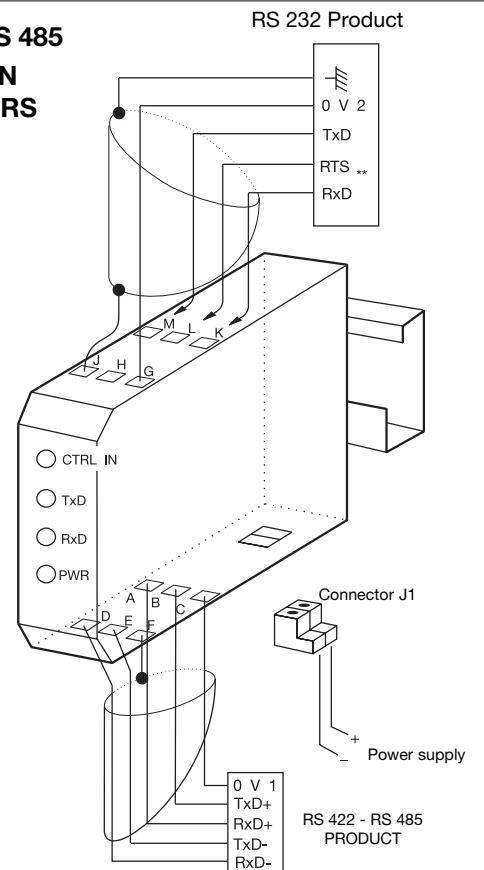
5. CONNECTIONS

RS 422 - RS 485 LINK ON ONE PAIR



*NOTE : If the RTS signal is not generated, place SW2-1 in position ON.

RS 422 - RS 485 LINK ON TWO PAIRS



**NOTE : Only to be connected for RS 485 - 2 pairs (of no use for RS 422 - 2 pairs). If the RTS signal is not generated, place SW2-1 in position ON.