CHARACTERISTICS	
Dimensions	72 x 45 x 105 mm (h, l, d)
Isolation	SC232-3 : NO SC232-4 : YES 2500 V
Electrical security	EN 60950
Power supply	9 to 40 VDC (min and max voltage)
Consumption	50 mA at 24 VDC
Operating Temperature	-20°C / + 60°C dry air
RS485 Interface	■ 2-wire RS485 on a screw block ■ Number of subscribers : 32
Type of data transmitted	■ Asynchronous data ■ All data rates / frames up to 500 Kb/s
Configuration	By switch Line polarisation and matching

HVS.
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RS232 / RS485 Converter

Non isolated converter : Reference SC232-3
Isolated converter : Reference SC232-4
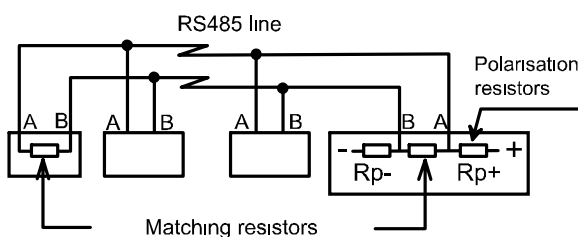
Document ref. : 9011909-01

Connection to the RS485 line

32 subscribers maximum, can be connected to the RS485 line.
If we call the two wires of one line «wire A» and «wire B», you should take care to connect «wire A» to RS485 signal «A» of each subscriber, and wire B to RS485 signal «B» of each subscriber.

Polarisation and matching of the RS485 line

The RS485 line must end with a matching resistor (or an impedance) at each one of its ends.
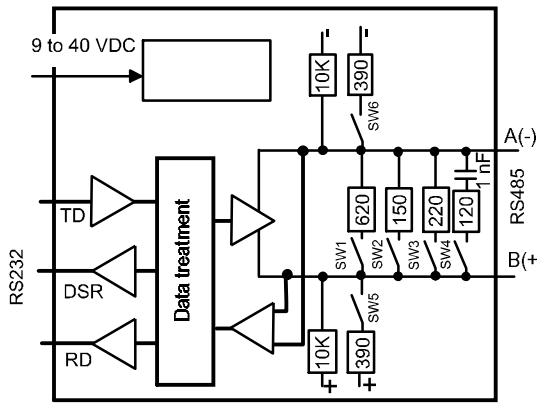It must also be polarised by 2 polarisation resistors.
The norms relative to each protocol (Profibus, modbus..) define the value of the matching and polaristation resistors as well as the way to implement the polarisation resistors (either on each subscriber or only on each end of the line).
The switches allow the activation of the matching and polarisation resistors; the main uses are shown below.
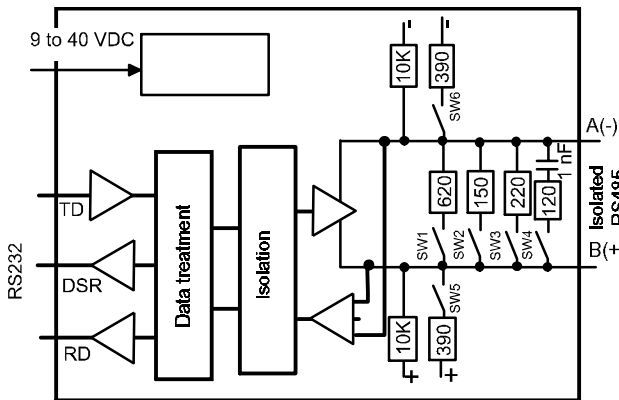
The RS232 / RS485 converters, SC232-3 and SC232-4, allow the conversion of a RS232 interface into an RS485 interface. The SC232-4 provides an optically isolated RS485 interface; the SC232-3 is not isolated.
No configuration of the data rate or character frame is required.
No RS232 signal is required to control the RS485 bus.

Pin . Signal		
1	B(+)	RS485 polarity B
2	A(-)	RS485 polarity A
3	RD	RS232 Data reception
4	DSR	RS232 Data Set Ready - Always closed
5	GND	Signal Ground
6	TD	RS232 Data emission
7	POWER +	9 to 40 VDC supply voltage
8	POWER -	O V

Switches	
1	620 Ω Line matching resistor
2	150 Ω Line matching resistor (Profibus DP type A / Modbus)
3	220 Ω Line matching resistor (Profibus DP type B)
4	120 Ω Line matching resistor + 1 nF (Unitelway)
5	390 Ω Polarisation resistor on B (+)
6	390 Ω Polarisation resistor on A (-)

RS485 line — Polarisation resistors — Matching resistors

SC232-3 : RS232 / RS485 non isolated converter

SC232-4 : RS232 / RS485 isolated converter

RS232 Interface

RS232 Signals
The RS232 signals RD / TD and, if needed,DSR have to be connected to the screw block.
The DSR signal (Output of the converter) is permanently closed.

Data rate and frame
The SC232 detects automatically the data rate and character frame.
No configuration is required.

RS485 control
No RS232 signal is necessary to control the RS485 interface.

PROFIBUS DP Polarisation / matching of RS485 line
The 2 converters on each end of the line :
> Switch 2 or 3 placed ON
> Switches 5 and 6 ON
> All others OFF

Other convertors on the line :
> All switches OFF

MODBUS Polarisation / matching of RS485 line
The 2 converters on each end of the line :
> Switch 2 placed ON
> Switches 5 and 6 ON
> All others OFF

Other converters on the line :
> All switches OFF

UNITELWAY Polarisation / matching of RS485 line
The 2 converters on each end of the line :
> Switch 4 placed ON
> All others OFF

Other converters on the line :
> All switches OFF

Power Supply
The power supply voltage must be between 9 and 40 VDC.
Using a voltage above 40 VDC is destructive.
The circuit board is equipped with a device protecting it against an inversion of the voltage polarity and a fuse which automatically renews itself.
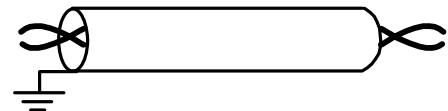
RS485 interface

Line cable
It must be a «twisted pair» with a characteristic impedance of 120 Ω. The range of transmission will increase the larger the diameter of the cable and the lower the mutual capacitance between the two wires.

Cable shield
To avoid signal disruption, the twisted pair should be equipped with a shield.
The shield must only be connected to earth at one end.

Maximum common mode allowed
The RS485 interface of the SC232-3 converter is protected against transient overvoltages but is not isolated. **The maximum common mode allowed for the SC232-3 is 7 Volt.**

Where distances are large, or where the measurement of the common mode voltage is impossible the SC232-4 should be used.
The maximum common mode voltage allowed for the SC232-4 is 2500 Volt.