S2000-PI

RS-232 TO RS-485 CONVERTER / RS-485 REPEATER WITH GALVANIC ISOLATION

Version 1.02

INSTRUCTION MANUAL

DESCRIPTION

RS-232 to RS-485 Converter / RS-485 Repeater with Galvanic Isolation S2000-PI is designed to convert RS-232 communication signal levels into correct electric signals required by RS-485 or to be used as a repeater to increase RS-485 system to greater than standard limitations, along with galvanic isolation and protecting the line against short circuit failures. S2000-PI can be powered via a USB port of a PC or by external power supply.

RS-232 to RS-485 Converter / RS-485 Repeater S2000-PI is designed for round-the-clock operation.

SPECIFICATIONS

Power Supply	From a PC (USB Port)	+5 V
	From an External Supply	10 ÷ 28 V
Maximum Current Rating		
	From a PC	160 mA
	From a 12 V External Supply	120 mA
	From a 24 V External Supply	60 mA
Jumper-Selectable Baud Rate		300/600/1200/2400/4800/9600/19200/38400/57600/115200 Bd
Operating Temperature Range		–40 C to +55 C
Relative Humidity		up to 93% (for +40 C)
Overall Dimensions		156 mm × 107mm × 39 mm
Weight		about 0.2 kg

STANDARD DELIVERY

S2000-PI Converter/Repeater	1 pc.
Instruction Manual	1 pc.
S2000-PI to PC Connection Cable	1 pc.
Wood Screws	3 pcs.
Wall Plugs	3 pcs.
DIN 7982 Flat Head Tapping Screw with Cross Drive 2.2×6.5	1 pc.
Package	1 pc.

S2000-PI OPERATIONAL PRINCIPLES

The S2000-PI operation is based on transmitting data from one connected line to another, with data direction being detected automatically. The LED of the line through which data are communicated at the moment is being lit in green. The S2000-PI can operate with one of several baud rates. The baud rate is set by Baud Rate Jumper in accordance with the table at the right.

The S2000-PI provides protecting the RS-485 line against a short circuit failure: a long logic zero, if occurred due to the short circuit failure, is not transmitted from one line to another. As soon as logic high has been detected within the line, normal operation of the line is recovered. If a long logic zero has been detected within a line, the LED associated with this line begins to light steady in red.

Baud Rate, Bd	Jumper Position
300, 600, 1200	“1200”
2400	“2400”
4800	“4800”
9600	“9600”
19200	“19200”
38400	“38400”
57600	“57600”
115200	“115200”

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WIRING THE S2000-PI

In order to use the S2000-PI as an RS-232-to-RS-485 converter, connect it to a PC by means of the cable provided as shown in Figure 1. Otherwise, if you need the S2000-PI to operate as an RS-485 repeater, connect RS-485 lines to the S2000-PI as demonstrated in Figure 2.

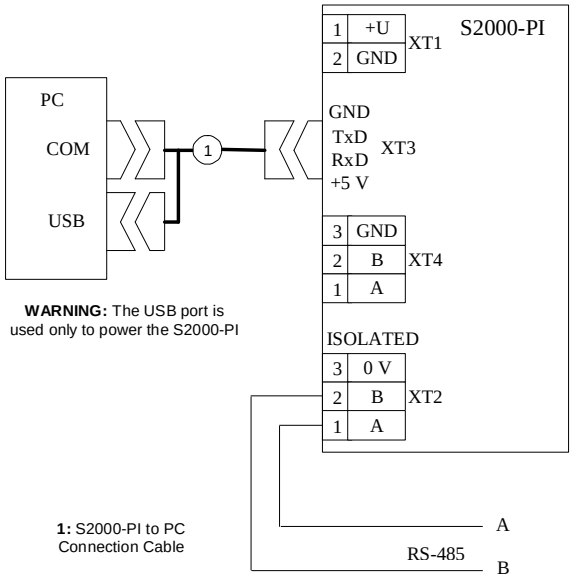


Figure 1. Connecting the S2000-PI in the RS-232/RS-485 Interface Converter Mode

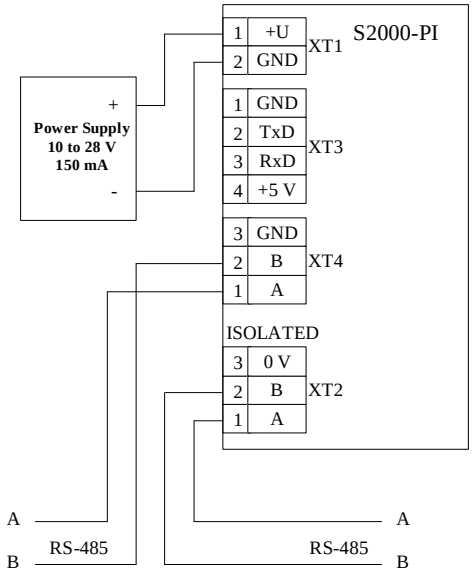


Figure 2. Connecting the S2000-PI in the RS-485 Interface Repeater Mode

MOUNTING THE S2000-PI

The S2000-PI is to be attached by three woodscrews to a wall at any convenient place or hanged on a DIN rail as shown in Figure 3.

OPERATING THE S2000-PI

Before getting started, adjust the S2000-PI by setting it Baud Rate Jumper to a required position (see Figure 4).
If the S2000-PI is designed to operate as an RS-232-to-RS-485 converter, select the EOL resistance which is to be connected into the isolated RS-485 interface line by means of Isolated Line Terminator Connection Switch (see Figure 4). The resistance of the load resistors being connected can be 120 ohm, 150 ohm, or 620 ohm. The table which specifies how switch positions match with connected resistors is shown on the device PCB. If, otherwise, the device is designed to operate as an interface repeater, load resistors are to be connected only if the C2000-PI is the end device in the interface line. Please disconnect load resistors for the interface lines which are not in use.
It is recommended to connect the 620 ohm resistor if the baud rate is set as 9600 baud and the 120 ohm resistor for higher baud rates.
After all the switches and the jumper have been set properly and wiring has been completed, the S2000-PI can be powered up and operate.

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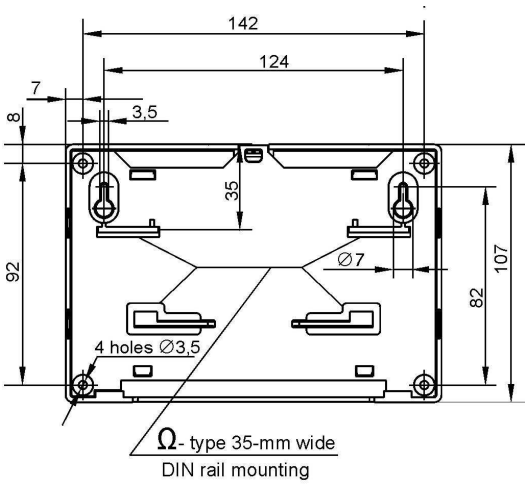


Figure 3: S2000-PI Overall and Mounting Dimensions

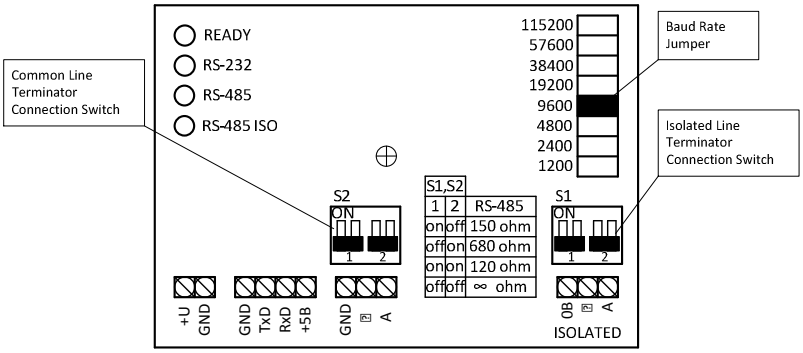


Figure 4: S2000-PI Layout

S2000-PI LED INDICATION

The READY indicator is lit steady in green when the S2000-PI is powered.
The LEDs RS-232, RS-485, and RS-485 ISO indicate the statuses of RS-232 line, common RS-485, and isolated RS-485 lines correspondently. These indicators are lit in green when the data are being received from a corresponding line, while being lit in red means a long logic zero in a relevant line.

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