

SUNIX Quick Installation Guide

RS-232 to RS-422/RS-485 Serial Converting Board

STD1105S - Phoenix terminal block

STD1109S - DB9 Male

Ver.1

Please visit <https://www.sunix.com> with product model for detail and latest manual update

Introduction

The STD1105S / STD1109S is a compact serial converting board designed to be installed inside a PC chassis. It connects directly to the motherboard's RS-232 port and converts the signals to RS-422 or RS-485, allowing external devices to communicate with the PC over longer distances or multi-drop networks.

The board features 2 KV surge protection compliant with IEC61000-4-5 Level 3 and ESD protection up to ± 15 KV air / ± 8 KV contact, ensuring reliable operation in industrial environments. It is certified to meet international safety and EMC standards, including CE, FCC, VCCI, and BSMI, making it suitable for global deployment.

Ideal for industrial PCs, embedded systems, and control equipment, the STD1105S / STD1109S provides reliable serial communication while preserving the PC's existing RS-232 ports for other uses.

Features

- Internal RS-232 to RS-422/RS-485 conversion, connecting directly to the motherboard
- Supports full-duplex RS-422 and half-duplex RS-485
- High-speed data transfer up to 921.6 kbps
- RS-485 Auto Flow Control
- Compact designed for easy installation in small PC chassis, preserving existing RS-232 ports for other uses
- 2 KV surge protection compliant with IEC61000-4-5 Level 3
- ESD protection: ± 15 KV air / ± 8 KV contact discharge
- Certified to meet CE, FCC, VCCI, and BSMI standards
- Operating temperature: -40°C to +85°C, suitable for industrial environments

Specification

Input	RS-232	Auto Flow Control	RS-485
Output	RS-422/485	Green	CE(RoHS)
Baud rate	300bps to 921.6kbps	PCB Dimension	38 x 40 mm
Termination	No external resistor required	No. of Port	1-port
Signals	RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485: Data+, Data-, GND	Operating Environment	
Power	RS-232 port-powered or external 12V	Temperature	-40°C to 85°C (-40°F to 185°F)
Protections	ESD ± 15 KV Air / ± 8 KV Contact 2KV Surge	Humidity	5% to 95% RH
EMC	UKCA/ CE/ FCC/ VCCI/ BSMI	Storage Environment	
		Temperature	-40°C to 85°C (-40°F to 185°F)

PCB Connector	STD1109S	RS-232 Wafer H1x6 pitch 2.0 RS-422/485 DB9 Male
	STD1105S	RS-232 Wafer H1x6 pitch 2.0 RS-422/485 Terminal Block 5 pins

Pin Assignment

RS-232 (H1x6 pin header) RS-422/485 (Terminal Block 5 pins) RS-422/485 (DB9M)

H1x6	RS-232
1	RxD
2	TxD
3	RTS
4	DTR
5	GND
6	12V in

Cable plug reference

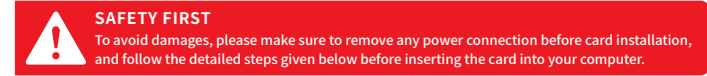
Terminal: WF-2.0-20006-PT

Receptacle housing: WF-2.0-20006-Y (1x6P, PH= 2.0mm)

TB-5	RS-422	RS-485
1	TxD-	Data-
2	TxD+	Data+
3	RxD+	
4	RxD-	
5	GND	GND

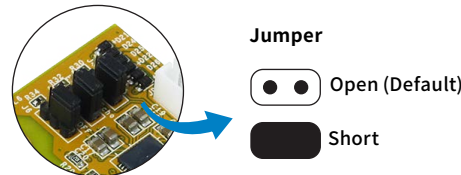
DB9M	RS-422	RS-485
1	TxD-	Data-
2	TxD+	Data+
3	RxD+	
4	RxD-	
5	GND	GND
6		
7		
8		
9		

1. Power Supply

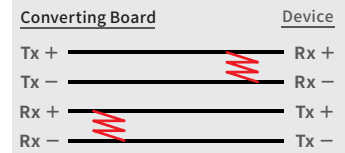


This unit is powered through the computer's RS-232 port when no external power is connected. If the RS-232 port cannot provide sufficient power, the unit requires an external 12V power source from the computer.

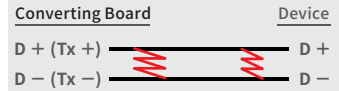
2. Termination Resistor Configuration



Working model with termination resistor:
RS-422 or 4-Wire RS-485



Working model with termination resistor:
2-Wire RS-485



3. Configuring Mode

This product allows users to select different operating modes for various applications. Use the jumpers on the board to configure the desired mode before operation.

Jumper	Pin1&2	Pin2&3	Default
J4	RS-422	RS-485	RS-485
J5	Echo	NonEcho	NonEcho
J6	Term ON	Term OFF	OFF

4. Configuration for RS-422/RS-485 4-wire

This connection is used for 1:1 (Point to Point) or 1:N (Multi-Drop) full-duplex communication.(Max. 32 units)

* When using RS-422/RS-485 4-wire interface, both point to point and multi-drop mode are automatically supported.

* When using RS-422 multi-drop mode, output signal line does not have to be opened and closed on the host side since it is "dedicated" line. On the other hand for terminal side, it always has to open and close the signal line when it sends or receives communication data. This is done automatically by hardware so the application program does not have to control this.

5. Configuration for RS-485 2-wire / 4-wire

This connection is used for N:N half-duplex communication.(Max. 32 units)

* 2-wire / 4-wire RS-485 is a bus connection. There is no classification of host or terminal; all devices are considered terminal, so output signal lines must be opened and closed when data is sent or received. This is done automatically by hardware so the application program does not have to control this.

6. Non-echo/Echo Mode Setting

Echo: Select 2-wire RS-485 echo mode. Data from RS-232 TXD is sent to another device through RS-485 TRX+/TRX- and at the same time received back through RS-232 RXD like an echo. So data sent through TXD can be checked with data received by RXD.

Non Echo: Select 2-wire RS-485 non-echo mode. Data sent through TXD is sent to another device but is not received by RXD. Data sent cannot be checked.

7. Transmission distance per transmission speed

RS-422, 4-wire RS-485 without external power adapter

RS-422, 4-wire RS-485 with external power adapter

2-wire RS-485 echo mode without external power adapter

distance (m) baud rate)	100	300	600	900	1200
9600	0	0	0	0	0
19200	0	0	0	0	0
38400	0	0	0	0	0
57600	0	0	0	0	0
115200	0	0	0	0	0
230400	0	0	0	0	0
460800	0	0	0	0	0
921600	0	0	X	X	X

2-wire RS-485 non-echo mode without external power adapter

2-wire RS-485 non-echo mode with external power adapter

2-wire RS-485 echo mode with external power adapter

distance (m) baud rate)	100	300	600	900	1200
9600	0	0	0	0	0
19200	0	0	0	0	0
38400	0	0	0	0	0
57600	0	0	0	0	0
115200	0	0	0	0	0
230400	0	0	0	0	0
460800	0	0	0	0	0
921600	0	0	0	X	X

* These result can change according to communication line quality and communication circumstances.

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771-QSTD11XS0-S01

