Atop Technologies, Inc.

Compact plug-on RS-232 to RS-485/422 media converter

SS100 Series

Hardware Installation Guide

Version 1.2
Updated in July, 2020

Overview

The SS100 series provide complete signal conversion between RS232 and RS422/485, and without requiring an external power source (Noted it depend on device power output). It also supports both half-duplex 2-wire RS485 and full-duplex 4-wire RS422/485. There are two type of SS100 series, SS100 and SS100-ISO. SS100-ISO support 3kV isolation at RS232 side.

The maximum baud rate is 500Kbps for both RS232 and RS422/485 side. The operating temperature is -40 to 85 °C

Packing Check List

■ Media Converter x 1

■ Installation Guide with Warranty Card x 1

⚡ Never install or work on electrical or cabling during periods of lightning activity. Never connect or disconnect power when hazardous gases are present.

⚠ Warning:Hot Surface Do Not Touch. RESTRICTED ACCESS AREA: The equipment should only be installed in a Restricted Access Area.

🏠 This equipment should be installed indoor and not connect directly with equipment installed outdoor.

Specification

RS232 Side	
Connector	DB9 female
Signal Line	TxD, RxD, CTS, DSR, SG
Maximum Baud Rate	500Kbps
Protection	IEC61000-4-2 (ESD), IEC610004-4 (EFT), IEC61000-4-5 (Surge)

RS422 and RS485 Side	
Connector	Terminal block 6 Pins Terminal block 4 Pins (DC-Jack Models)
Signal Line	RS422: TxD-, TxD+, RxD-, RxD+, GND RS485-4 wire: TxD-, TxD+, RxD-, RxD+, GND RS485-2 wire: D+, D-, GND
Mode	RS422: Point to point Mode, Multi-Drop Mode RS485: Echo Mode, Non-Echo Mode
Data Control	Auto-toggling
Maximum Baud Rate	500Kbps
Protection	IEC61000-4-2 (ESD), IEC610004-4 (EFT), IEC61000-4-5 (Surge)
Terminal Resistor	Enable/Disable with dip-switch

Power

■ Power supply via RS232 port (RTS, DTR), by TB or DC Jack

■ Power input: 5 VDC

■ Power consumption: Non-ISO 115mW Max, ISO 220mW Max

Environment

■ Operating temperature: -40 to 85 °C

■ Storage temperature: -40 to 85 °C

■ Humidity: 5~95%, non-condensing

Standards and Certifications

■ EMC: EN55032/24, EN61000-6-4, EN61000-6-4, EN61000-3-2, EN61000-3-3

■ EMI: FCC Part 15B Class A

Installation

Supplying Power from RS232 Side

■ The connector of RS232 side is DCE mode, so it could be connected to computer or device with RS232 mode directly.

■ SS100 uses RS232 signal line to power up the unit. You may be able to use RTS/DTR to driven it. *Noted that SS100-ISO need to have external power supply.*

■ When there are many devices connected to RS422 or RS485 signal lines, we recommend that external power supply is necessary.

■ When the SS100 series is working fine, the PWR led will be on.

External Power Supply

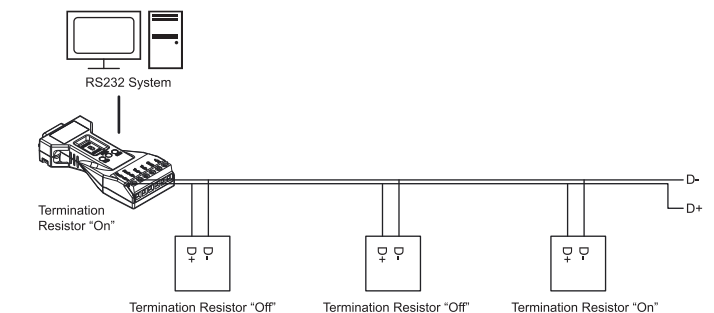■ There is a DC power connector at RS422/485 side. Please supply 5VDC power input.

RS422/485-4 wire Wiring (Master-Slave System)

The termination resistors should be enabled at the both ends of the cables; the master and the last salve.
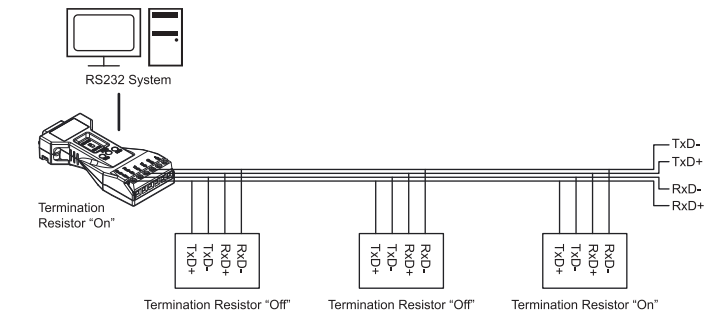
RS485-2 wire Wiring

The termination resistors should be enabled at the both ends of the cables; the master and the last salve.

LED Indicators

LED	Color	State	Description
PWR	Red	On	PWR is connected
		Off	PWR is disconnected
TXD	Green	Blinking	TXD is transmitting
		Off	TXD is not transmitting
RXD	Red	Blinking	TXD is transmitting
		Off	TXD is not transmitting

Selecting RS422 or RS485 Modes and Termination Resistor

	SW1	SW2	SW3
On	RS485 Echo Mode	Rx Termination Resistor	Tx Termination Resistor
Off	RS485 Non-Echo Mode	None	None

Pin Assignment

6-Pin Terminal Block for RS-422/485

Pin	1	2	3	4	5	6
RS-422 and 4-wire RS-485	RxD+	RxD-	TxD+	TxD-	GND	+5V
2-wire RS-485	D+	D-	-	-	-	-

4-Pin Terminal Block for RS232/485

Pin	1	2	3	4
RS-422 and 4-wire RS-485	RxD+	RxD-	TxD+	TxD-
2-wire RS-485	D+	D-	-	-

9-Pin Male D-sub Connector for RS-232

Pin	1	2	3	4	5	6	7	8	9
RS-232	-	TxD	RxD	DSR	GND	-	CTS	-	-

Mechanical Dimensions (Unit=mm)

Top View

SS100-DC Jack

SS100

Back View

Side View
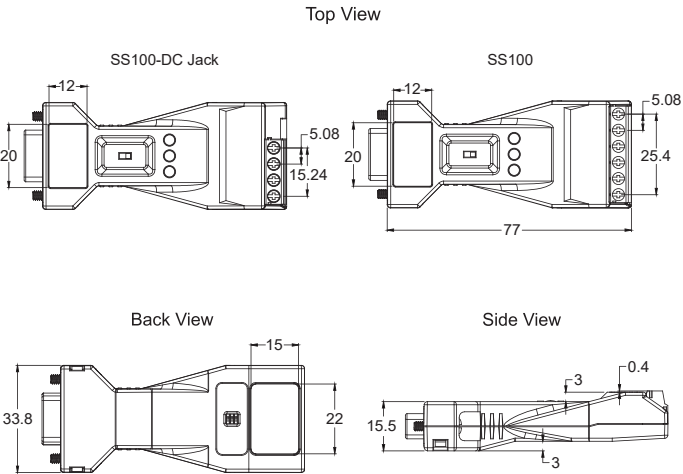
Baud Rate and Cable Lengths

Test Condition: Room temperature, CAT-5e UTP(Unshielded Twisted Pair) cable.

Speed(bps) \ Distance(m)	300	600	900	1200
9600	O	O	O	O
19200	O	O	O	O
38400	O	O	O	O
57600	O	O	O	O
115200	O	O	O	O
230400	O	O	O	X
460800	O	X	X	X

RS485-2 wire communication

Test Condition: Room temperature, CAT-5e UTP(Unshielded Twisted Pair) cable.

Speed(bps) \ Distance(m)	300	600	900	1200
9600	O	O	O	O
19200	O	O	O	O
38400	O	O	O	O
57600	O	O	O	X
115200	O	O	X	X
230400	O	O	X	X
460800	O	X	X	X

Noted that the performance might depend on the environment.

Warranty Policy

Warranty Conditions

Products supplied by Atop Technologies are covered in this warranty for sub-standard performance or defective workmanship. The warranty is not, however, extended to goods damaged in the following circumstances:
(a) Excessive forces or impacts
(b) War or an Act of God: wind storm, fire, flood, electric shock, earthquake
(c) Use of unqualified power supply, connectors, or unauthorized parts/kits
(d) Replacement with unauthorized parts

RMA and Shipping Costs Reimbursement

Customers shall always obtain an authorized "RMA" number from Atop before shipping the goods to be repaired to Atop. When in normal use, a sold product shall be replaced with a new one within 3 months after purchase. The shipping cost from the customer to Atop will be reimbursed by Atop.
After 3 months and still within the warranty period, it is up to Atop whether to replace the unit with a new one; normally, as long as a product is under warranty, all parts and labor are free of charge to the customers.
After the warranty period, the customer shall cover the cost for parts and labor.Three months after purchase, the shipping cost from the customer to Atop will not be reimbursed, but the shipping cost from Atop to the customer will be paid by Atop.

Limited Liability

Atop shall not be held responsible for any consequential losses from using Atop's product.

Warranty Period

Product Categories	Warranty	Product Categories	Warranty
Ethernet Switches	5 Years	DIN-Rail Power Supplies	3 Years
Wireless			
Serial Device Servers		Power Adaptors	1 Year
Modbus Gateways			
Media Converters		Antennas	
Embedded Device Servers			
PoE Injectors		Other Accessories	
Remote I/O			

The warranty certification will not be effective until an authorized stamp issued by Atop's overseas agents.

Purchase Date: /   /   (yyyy/mm/dd)

Serial Number

Atop Customer Services and Supports

1. Please contact your local dealers or Atop Technical Support Center at the following numbers.
   + 886-3-550-8137 (Atop Taiwan)
   + 86-21-6495-6232 (Atop China)

2. Please report the defected problems via Atop's Web site or E-mail account
   Web Site：www.atop.com.tw, e-mail：service@atop.com.tw
   Web Site：www.atop.com.cn, e-mail：service@atop.com.cn

— **Any changes to this material will be announced on Atop website.** —