Atop Technologies, Inc.

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

SS100 Series

Hardware Installation Guide

Version 1.1
Updated in November, 2019

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

Model Name: SS100, SS100-iso

Product	RS232	RS232/485	Isolation Voltage	Power Connector
SS100	DB9	TB-6	N/A	TB
SS100-ISO	DB9	TB-6	3000 VDC at RS232	TB

Product Content

■ 1 unit of SS100 or SS100-ISO
■ User Guide

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 5 pins
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 (DSR, CTS)
■ 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
■ 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.

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

TB5 RS422/485 pinout

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

DB9 RS232 pinout

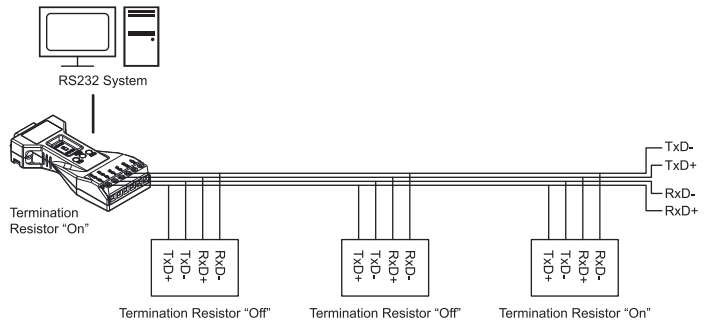| Pin	1	2	3	4	5	6	7	8	9
RS-232	-	TxD	RxD	DSR	GND	-	CTS	-	-

Dimension

Top View   Side View   Back View
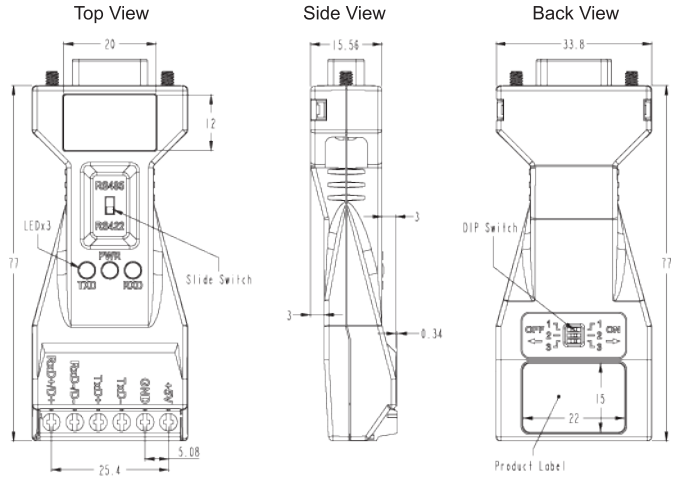
Installation

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.

RS232 System

Termination Resistor "On"

TxD-
TxD+
RxD-
RxD+

RxD-
RxD+
TxD-
TxD+
Termination Resistor "Off"

RxD-
RxD+
TxD-
TxD+
Termination Resistor "Off"

RxD-
RxD+
TxD-
TxD+
Termination Resistor "On"

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

RS232 System

Termination Resistor "On"

D-
D+

D+
Termination Resistor "Off"

D+
Termination Resistor "Off"

D+
Termination Resistor "On"
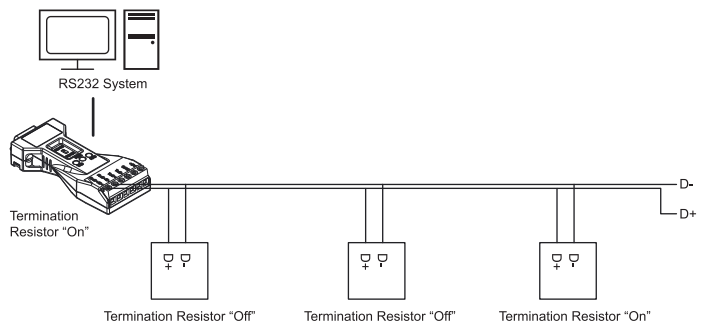
Baud Rate and Cable Lengths

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

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. —