RSC232 Communication Converter

Installation and Operation Manual

LIMITED WARRANTY

The manufacturer offers the customer a 24-month functional warranty on the instrument for faulty workmanship or parts from date of dispatch from the distributor. In all cases, this warranty is valid for 36 months from the date of production. This warranty is on a return to factory basis.

The manufacturer does not accept liability for any damage caused by instrument malfunction. The manufacturer accepts no responsibility for the suitability of the instrument to the application for which it was purchased. Failure to install, set up or operate the instrument according to the instructions herein will void the warranty.

For additional information regarding installation, operation or maintenance of this equipment, contact the manufacturer or your local representative or distributor.

IMPORTANT

Please read this manual thoroughly before performing installation and take note of the following precautions. Failure to observe precautions can result in serious or even fatal injury or damage to equipment.

Ensure that all incoming AC power and other power sources are turned OFF before performing any work on the unit.

Check that your unit is equipped with the appropriate power supply before connecting the unit to the power source.

Do not connect the unit to a power source if it is damaged.

Do not expose the unit to rain or moisture.

Contents

BG0274 Rev. A5

1. General

The RSC232 Converter is for conversion of single-ended RS-232 signals to differential RS-422/RS-485 signals, and vice versa. Applications include controlling devices over relatively large distances, and communication with several devices via 1 link (point to multipoint). See Figure 1 below.
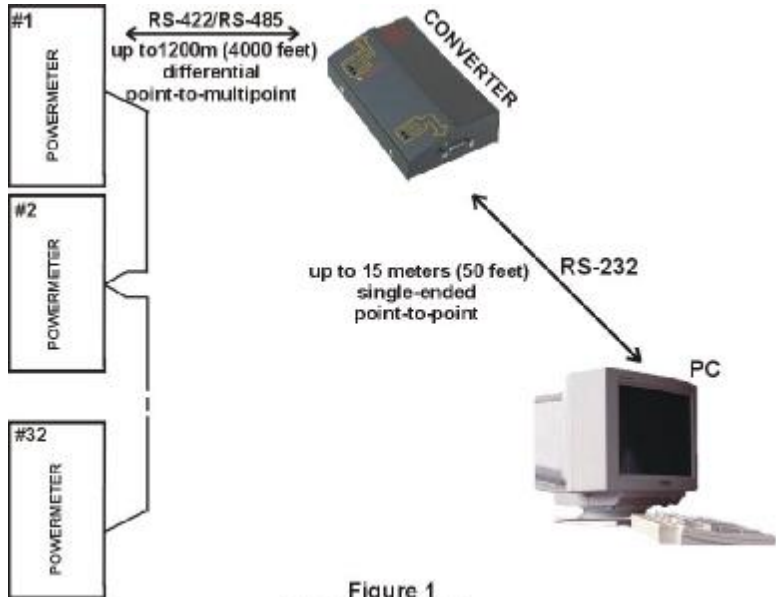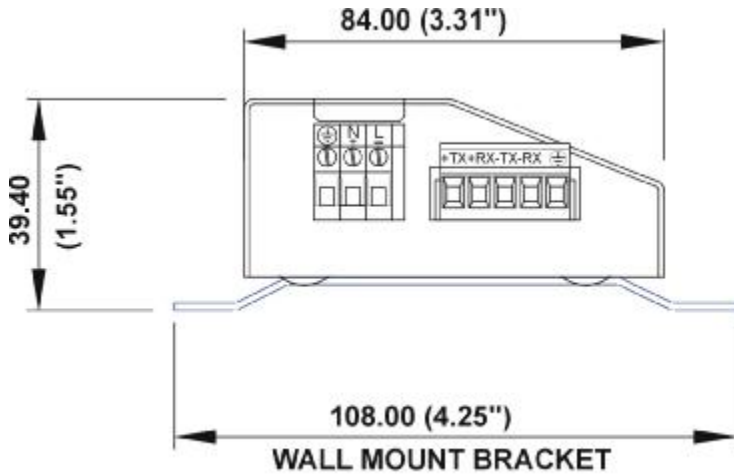

Figure 1
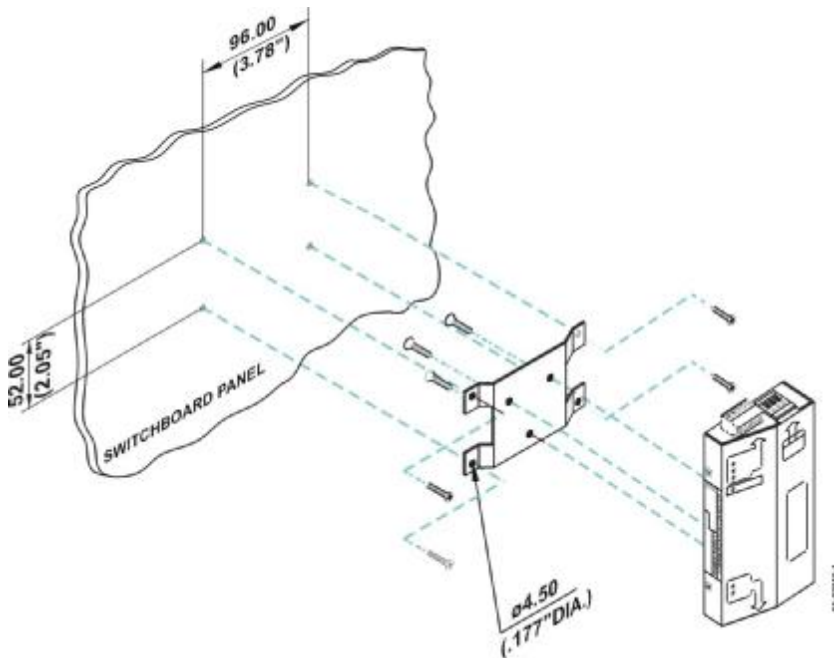RSC232 Description

Features

- automatic data detection (no need for external RTS)
- 2000 V RMS isolation
- user-selectable modes and baud rates
- powered from Power Supply AC/DC (80-265) V RMS or low DC (10-72) V
- LED indicators for communication status
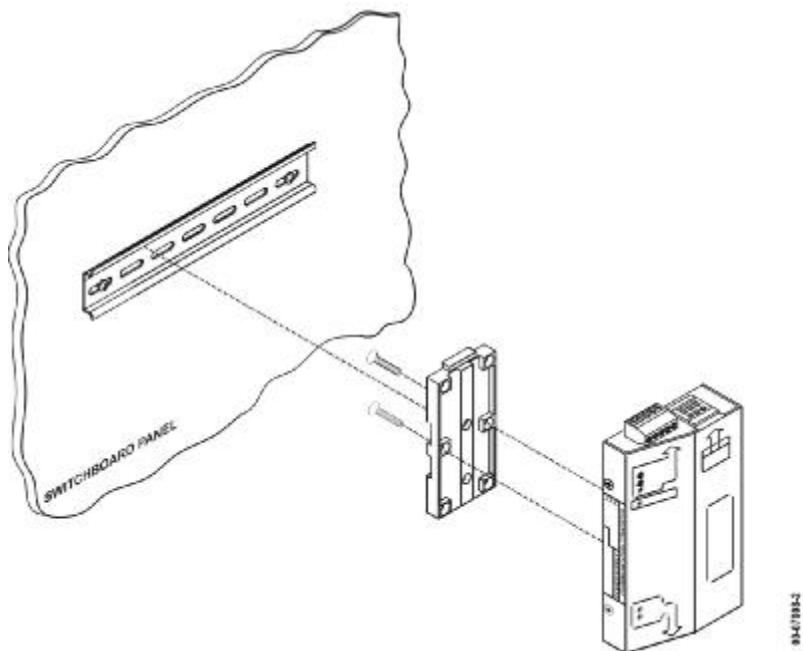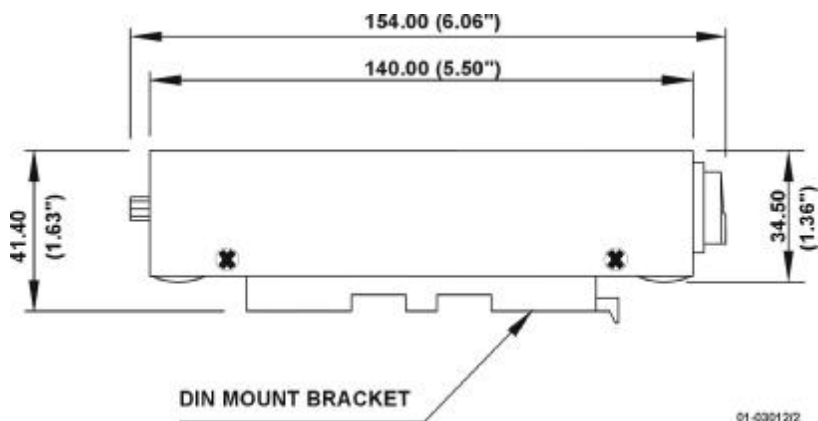
2. Mechanical Installation - Wall Mount: 2 options

2.1 Panel

84.00 (3.31")

39.40 (1.55")

108.00 (4.25")

WALL MOUNT BRACKET

03-08001

96.00 (3.78")

52.00 (2.05")

SWITCHBOARD PANEL

ø4.50 (.177"DIA.)

1-03010-1

2.2 DIN Rail

154.00 (6.06")

140.00 (5.50")

41.40 (1.63")

34.50 (1.36")

DIN MOUNT BRACKET

01-03012/2

SWITCHBOARD PANEL

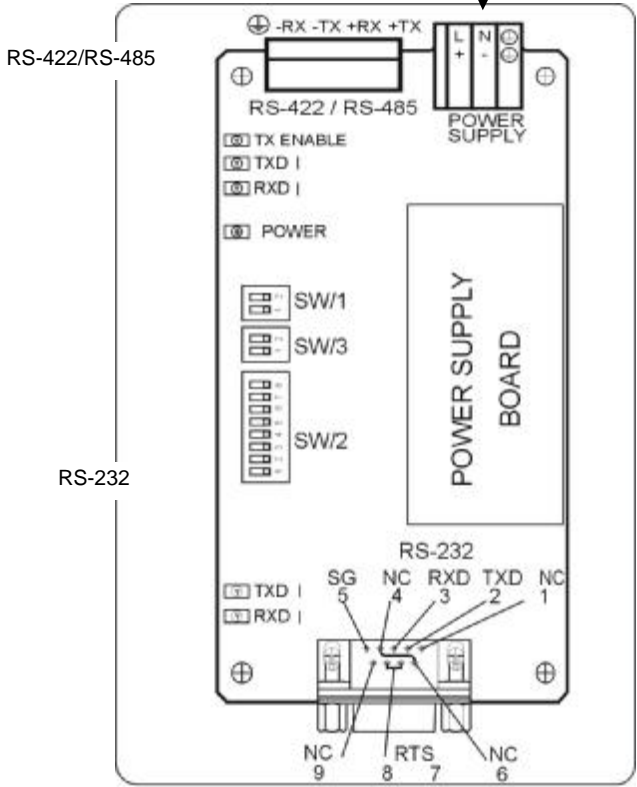01-07935-2

3. Electrical Installation
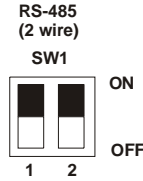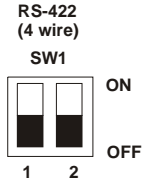
3.1 Power Supply

This label is located on the inside of the converter cover.
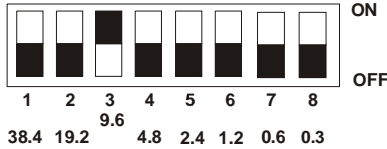
3.2 Setting the Dip Switches

To change the dip switch setting, remove the screws on the side of the converter and open the cover. Change the setting by sliding the switch.

SW1: RS-422/RS-485   **Default**

RS-422
(4 wire)

SW1

ON

OFF

1   2

RS-485
(2 wire)

SW1

ON

OFF

1   2

SW2: Baud Rate (kbit per second)

ON

OFF

1   2   3   4   5   6   7   8

Baud rate:
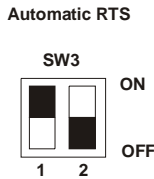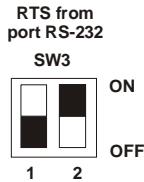
9.6

38.4 19.2   4.8 2.4 1.2 0.6 0.3

NOTE

Only one switch, for the appropriate baud rate, can be ON; all others must be OFF.

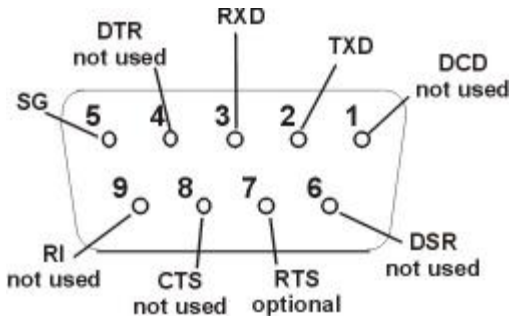**The baud rate is set at the default of 9,600 bps as shown.**

SW3: RTS (request to send) Mode

Default

RTS from
port RS-232

SW3

ON

OFF

1   2

Automatic RTS

SW3

ON

OFF

1   2

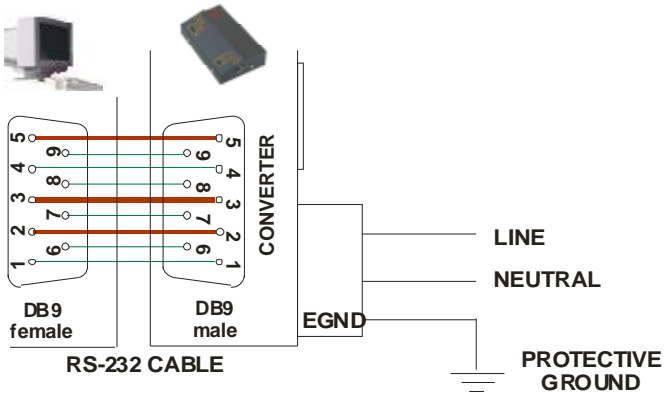---

3.3 RS-232 Pinouts

RS-232 connector: DB9 female as DCE

DTR
not used

RXD

TXD

DCD
not used

SG

5   4   3   2   1

9   8   7   6

RI
not used

CTS
not used

RTS
optional

DSR
not used

3.4 Wiring

Converter to PC

LINE

NEUTRAL

EGND

PROTECTIVE
GROUND

DB9 female

DB9 male

CONVERTER

RS-232 CABLE

Converter to Powermeter

SGND SHIELD

-Rx
-Tx
+Rx
+Tx

RS-422:
4 wires to
communication line

SGND SHIELD

-Tx, -Rx
(negative)

+Tx, +Rx
(positive)

RS-485:
2 wires to
communication line

Converter to Modem

MODEM

DB9 male

DB9 male

CONVERTER

RS-232 CABLE

MODEM

DB25 male

DB9 male

CONVERTER

RS-232 CABLE

6
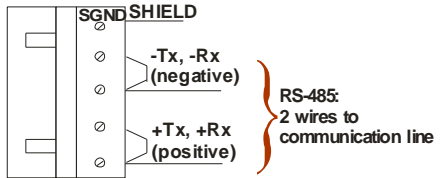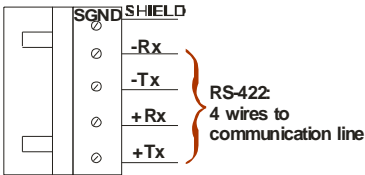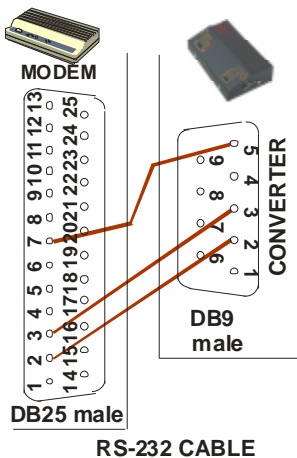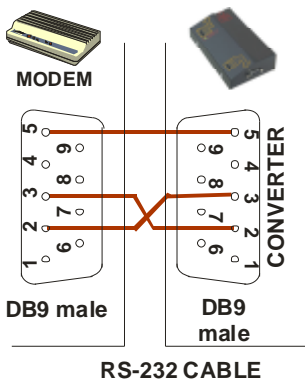
4. Multi-drop Operation Mode

More than two devices (up to 10 for RS-422 or up to 32 for RS-485) can be linked together to communicate with one another through several converters or through one converter and several RS-422/RS-485 ports of any other slave devices.
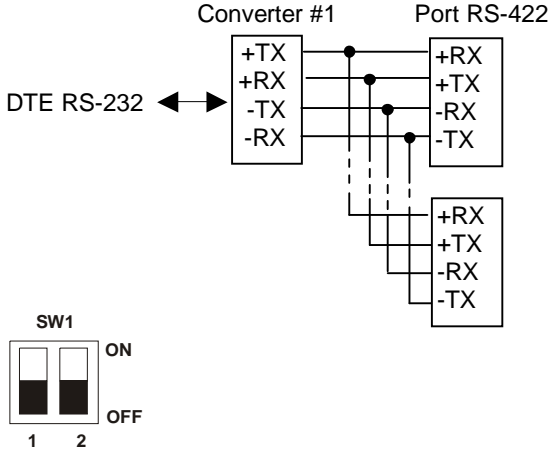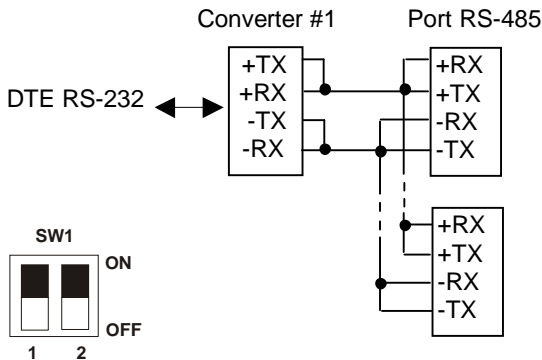
4-wire Full Duplex - RS422

2-wire Half Duplex - RS485

NOTE: Make sure to set SW3 correctly (automatic or non-automatic RTS)

5. LED Indicators - located on the top of the converter

LED	Indication When Lit
Power	Power supply on
TXD / RXD	Transmission from RS-232 port to RS-422/RS-485 port
TXD / RXD	Transmission from RS-422/RS-485 port to RS-232 port
TX enable	Transmit enabled to RS-422/RS-485 port

6. Impedance Matching and Termination Resistors

When an electrical signal travels through two different resistance junctions in a transmission line, the mismatch will sometimes cause signal reflection. Signal reflection causes signal distortion, which in turn will contribute communication errors. The solution to this problem is to establish the same impedance at the line ends as in the line itself by terminating them with resistors.

It is normally sufficient when the value of the termination resistor equals the characteristic impedance of the transmission line. The resistors should be added near the receiving side (between +RXD and -RXD of the converter, and between +RXD and -RXD of the remote site).

Note: The suggested termination resistor for an AWG #26 cable is 100 ohm. The suggested termination resistor for a phone cable is 600 ohm.

7. Specifications

Power Supply: ACDC (standard)
             12 V DC (optional)
           24 VDC   "
           48 VDC   "
	85-265 VAC / 88-290 VDC, 50mA
	9.6-19 VDC, 200mA
	19-37 VDC, 100mA
	37-72 VDC, 50mA

Data Rate	300 bps to 115,200 bps
Distance: RS422/RS-485 RS232	up to 4000 ft (1.2 Km) up to 50 ft (15 meters)
RS-232 DB type female connector	supports TXD, RXD, DTR, DSR, RTS, CTS, GND232
RS-422/RS-485 Terminal Block Connector	supports +TX, +RX, -TX, -RX, GND422
Power Terminal Block Connector	supports L \ + (Line), N\ - (Neutral), GND

Switches: SW1
             SW2
             SW3
	full/half duplex mode
	baud rate selection
	RTS mode

Isolation Protection:	power input to PWRGND, 2000V RMS RS-422/RS-485 to RS-232, up to 2000V RMS
Standards	UL1244, CE
LED Indicators	Power RS-422/RS-485 TX Enable RS-232 TXD RS-422/RS-485 TXD Enable RS-232 RXD RS-422/RS-485 RXD Enable