Model ATC-107
RS-232 to RS-422/485 Isolated Interface Converter
User's Manual

1.0 General Description

The ATC-107 is a series of a bi-directional interface converters, Models ATC-107 optically isolate and convert unbalanced, full or half-duplex RS-232 signals to 0ptically isolated, balanced, full or half duplex RS-422 or RS-485 signals at baud rates up to 115.2 kbps. These units also surge suppress the RS-422/485 lines. They feature Send Data Control circuitry so no software control of handshake lines is required in RS-485 mode. ATC -107 has built-in isolators for high voltage (2500V) protection. it provides Point-to-Point, Multi drop and Simplex Operations. The ATC-107 can be powered from the DC 9V, 200mA power adapter, One slide switches are used to configure its operation mode.

2.0 Specifications

2.1 Interface

Conforms to EIA /RS-232 and RS-422/485 standards.

2.2 Connectors and signals

The ATC-107 has a DB-25 female connector on the RS-232 side and a terminal block connector on the RS-422/485 side

RS-232 Side:

Connector: DB-25 Female.

Signals：ATC-107 will be connected into a DTE interface.

Use Pins 3 (TXD)、2 (RXD) and 7 (Near side ground) .

Use Pin 2、4、 20 to power from ATC-107 RS-232 side.

RS-422/485 Side:

RS-422 Connector: 4 position terminal   block：(1)T+，(2)T-、(3)R-、(4)R+.

RS-485 Connector: 4 position terminal block: (1)485+，(2)485-.

Signals: Dual-duplex or Half-duplex two-wire/four-wire operation only.

2.3 Data Rate :

300 to 115.2 KBPS, up to 1.2km at 38.4 KBPS.

2.4 Sending Control

The ATC-107 can use handshake lines to power the converter, no handshaking is required to control the RS-422/RS-485 driver. the RS-485 driver is automatically enabled during each spacing state on the RS-232 side. During the marking or idle state, the RS-485 driver is disabled and the data lines are held in the marking state by the 4.7K Ohm pull-up and pull-down resistors.

2.5 Operating Distance

Data Rate (KBPS)：	38.4	19.2	9.6	4.8
Maximum Distance (km)：	1.2	2.0	2.5	3.5

(using 24 AWG wire)

2.6 Power

At the RS-422/485 side，ATC-107 is powered by an external power supply (+9VDC to +12VDC@200mA) by a AC/DC adapter. At the RS-232 side It powered by RS-232 signals TXD,RTS or DTR ,We only need one of these signals, the ground signals in two sides are different.

2.7 Switches:

RS-422/RS-485 switch selectable for RS-422/485 operation mode. If you set ATC-107 to RS-422 mode，ATC-107 can convert the TD and RD signals of RS-232 into balanced Dual –duplex RS-422 signals. If you set ATC-107 to RS-485 mode，ATC-107 can convert the TD and RD signals of RS-232 into balanced Half –duplex RS-485 signals.

2.8 LED light

One LED indicates sending data to (RED) or receiving data from (GREEN) RS-422/485 bus.

2.9 Isolation :

Optical Isolation is rated at 2500V.

2.10 Dimensions :

79mm × 54mm × 20mm

2.11 Environment :
0* to 50* C，5% to 95% relative humidity.
3.0 Installation
3.1 RS-232 and RS-485 Interface
In the RS-232 side:
The RS-232 interface is a DB-25 female connector， It can be plug into a DTE interface.
In the RS-422/485 side:
Screw Terminals-The ATC-107 is supplied with 4 screw terminals marked 1(T+)/(485+)、2(T-)/(485-)、3(R-)、4(R+)、.
3.2 Connection Diagram
3.21 ATC-107 connecting RS-422 Device/(Four wire RS-485)

RS-422/(Four wire RS-485)mode

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ATC-107              RS-422 Device
(1)  T+ -------------------- R+
(2)  T- -------------------- R-
(3)  R- -------------------- T-
(4)  R+ -------------------- T+
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3.22 ATC-107 connecting RS-485 Device

RS-458 mode

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ATC-107              RS-485 Device
(1)  485+ ---------------- 485+
(2)  485- ------------------485-
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