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 optically 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 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-222 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 x 54mm x 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

<table>
<thead>
<tr>
<th>ATC-107</th>
<th>RS-422 Device</th>
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<tbody>
<tr>
<td>T+</td>
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<tr>
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<td>T+</td>
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3.22 ATC-107 connecting RS-485 Device

RS-458 mode

<table>
<thead>
<tr>
<th>ATC-107</th>
<th>RS-485 Device</th>
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<tbody>
<tr>
<td>485+</td>
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