

Addressable RS-485 to RS-232 Converter

Description

The T-5258 is a small Addressable RS-485 to RS-232 Converter that solves the problem of how to connect multiple RS-232 devices to a single network or PC COM port. The T-5258 is the missing link that provides the address recognition logic that is required to operate an RS-232 device on a network while converting two-wire RS-485 signals to RS-232 levels. Data flow is fully bi-directional so the addressed RS-232 device can be queried and respond to the host computer. The T-5258 may also be connected to the PC's COM port and used as a Smart RS-232 to RS-485 converter to drive the RS-485 network.

T-5258 Usage

Use the T-5258 to connect RS-232 devices to a single serial source over a 485 network as shown in the right-hand side of Figure 1. The T-5258 also provides 1,500 volts of isolation to protect the other network devices. Also use the T-5258 as a Smart RS-232 to RS-485 Converter (see Figure 1) to drive the 485 network from a PC COM port. The T-5258 automatically tristates the transmitter and frees the lines when not transmitting data.

Typical Connections

The T-5258 is housed in a small light-weight plastic case that mounts on all DIN rails. Its DE-9S female connector connects to the serial device or PC COM port with a short 9-pin cable. The two RS-485 lines connect to a screw terminal strip on the top of the converter. The lines from the power adapter also connect to the same terminal strip.

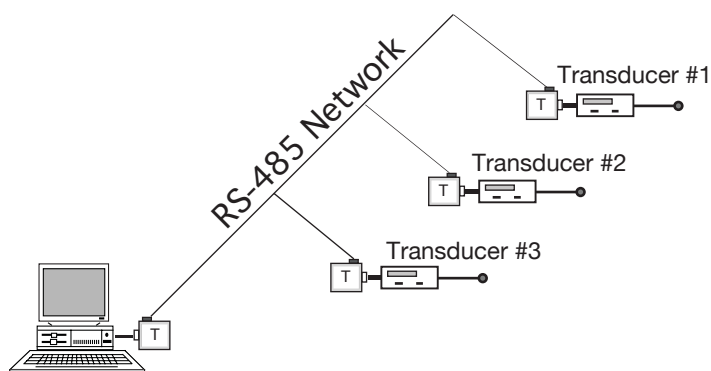


Figure 1 - Using T-5258s to control multiple serial transducers over a single RS-485 Network



T-5258 Addressable Converter

Setup

Setting up a T-5258 is very simple. One switch is used to select binary or ASCII data and to set the converter address. A second switch lets you switch in a RS-485 terminator and/or a bias network.

The built-in terminator and bias networks save time and provide secure data transmission. Two-wire RS-485 networks operate in a half-duplex fashion and should have a bias network at one end to hold the lines in the mark state when nothing is being transmitted and the transmitters are not driving the lines. If the lines are not pulled to the mark state, then the receivers may accidentally input noise as data characters or fail to correctly receive the first character.

Operation

The T-5258 Converters are initialized by transmitting a string of U's so they can detect the baud rate followed by a turn-on command to each converter. The user can query the status of each converter to verify system readiness. All ASCII strings intended for a specific device are preceded by an STX character and the device's address number. For binary data, the STX character is replaced by a unique 6 byte string. The converter removes the address characters and only passes correctly addressed data strings to the RS-232 device.

- Provides the network address logic for RS-232 devices
Connects an RS-232 devices to a two-wire RS-485 network.
- Address range handles up to 63 devices
Large network capability
- Automatic baud rate selection.
Simple setup and flexibility.
- Includes broadcast mode.
Simultaneously send common commands to all devices.
- 1500 volt optical isolation.
Protects computer from power spikes or damaged devices.
- LEDs display address state and RX/TX data flow.
Simplifies troubleshooting.
- Includes 115 VAC power adapter.
Nothing more to buy

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T-5258: SPECIFICATIONS

Serial Interface

Serial signals conform to EIA Specifications for RS-232 single or RS-485 differential signals.

Baud Rates: Auto sensing
300 to 115,200 baud

Data Bits 8 bits

Parity No parity

Stop Bits 1 stop bit

Data Transfer Two-wire half-duplex point-to-point or multi-drop operation

Transmission Distance
1.8 km (6,000 ft) at 115.2 kbaud
3.6 km (12,000 ft) at 56 kbaud

Address Sequence
For ASCII data use STX (hex 02) + address
For Binary data use HeAdEr + address

Turn-on, off Commands
Turn-on STX Addr T
Turn-off STX Addr F

Acknowledge Query
Query STX addr A
Response A addr

RS-422 vs RS-485 Signals

RS-422 was defined first and is typically associated with four-wire networks. RS-485 came out later and is typically thought of as being two-wire networks. The number of wires in the network is not associated with the signal type. The signal levels are the same for both types but RS-485 drivers have more power and can drive up to 32 loads. Most manufacturers now use RS-485 drivers for two and four-wire networks.

RS-232 Connections

A DE-9S (female) connector contains the following RS-232 signals. Use DE-9 serial cable with straight through connections to connect to a DTE device like a PC COM Port.

TABLE 1 - RS-232 SIGNAL PINOUTS

Pin	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	RI

RS-485 Connections

The RS-485 signal pair uses two positions on the five position, screw terminal strip on the top of the converter. A shield terminal is also provided for shielded cables. Daisy-chain multiple converters to minimize signal reflections.

Physical

Size, L x W x H
80 x 25 x 75 mm
(3.15 x 1.0 x 2.95 inches)

Weight:
85 gr. (0.187 pounds)

DIN Mounts:
32 x 15 mm, EN50035
35 x 7.5 mm, EN50022
15 x 5 mm, EN50045

Connectors:
RS-232 DE-9S (female)
RS-485 Screw terminal strip

Isolation:
1500 volts from RS-232 to RS-485 ports.

Diagnostic LEDs:
Addressed, Power, RxD and TxD

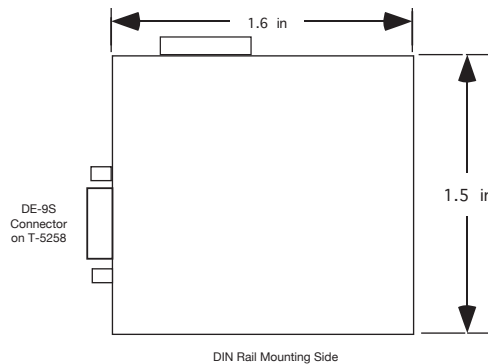
Temperature:
Operation 0° C to +50° C
Storage -20° C to +70° C

Humidity:
15-90% RH without condensation

Power:
Unregulated +9 to +24 Vdc
50 mA@ 12 Vdc (typical)

Included Accessories

Instruction Manual
Power Adapter for 115 Vac power.



T-5258 Outline Dimensions

ORDERING INFORMATION

Addressable RS-485 to RS-232 Converter with US 115 VAC power adapter

Part Number

T-5258