TC-642 RS-232/TTL TRANSLATOR CARD
FUNCTIONAL DESCRIPTION

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The TC-642 is a bi-directional TTL to RS-232 level translator interface, used to transmit and receive data in EIA standard RS-232 levels (+/-5 to +/-12 Volts unbalanced). RS-232 is used for relatively short length (less than 50'), low to medium speed data communications with devices designed to the RS-232 protocol. All common baud rates of up to 38,400 baud are supported by the Triad TC-3518 Serial Communications Controller.

Four DB-9F connectors are provided for the RS-232 input and output connections. A second RS-232 transmitter (driver) is available for each port and can be jumper-strapped to provide a handshake/level output (driven by the DSR output of the respective UART), or as a second transmit data signal with identical TX data. An auxiliary receiver is available on each port that may be strapped to the CTS of the corresponding UART. This signal may be used to control flow to the external device.

A dual 13 (26 pin) IDC header connector is used to connect the TC-642 to a TC-3518 Multi-Port Serial card via the TC-636 Backplane Assembly. The header can be installed in one of two positions on the TC-642, allowing the card to use either channels 1-4 (lower position) or channels 5-8 (upper position) of the TC-3518 Serial card.

Power is provided via a six pin .1" KK molex style connector. Only +5 VDC and common are used.

The TC-642 is electrically and mechanically interchangeable with the TC-644 RS-422 level translator, with the exception of the signal data levels and P1-P4 peripheral port connector pin assignments. Thus, either or both interface modules can be used for up to eight serial ports per TC-3518 communications interface.

The interface is designed to mount directly to the back panel of a 19" x 5.25" (three rack unit) card frame.

Physical Dimensions:
4.5" x 2.5" printed circuit board assembly

Power Requirements:
+5V @ 50 MA
+/- 12 VDC @ 50 MA.

Related Documents:
(included)

DATA PIN ASSIGNMENTS

J1: Connector which interfaces to the TC-3518 (8 Channel Serial Communications card) via the TC-636 Backplane. This is a 13 * 2 Header and special attention should be noted in that in a configuration where two TC-642s are installed (i.e. CTU) this connector will be offset in its installed location on the circuit board. The second TC-642 in which J1 is offset will be referenced as a TC-642B.

TC-642a J1 Ports 1 - 4

Pin 1. Connects to pin 1 (TX1 Input) of U2a (26LS31)
Pin 2. Connects to pin 1 (TX2 Input) of U5a (26LS31)
Pin 3. Connects to pin 2 (RX1 Output) of U1a (74HC04)
Pin 4. Connects to pin 6 (RX2 Output) of U1c (74HC04)
Pin 5. Connects to pin 1 (HS1) of JP2 (3 pin jumper)
Pin 6. Connects to pin 1 (HS2) of JP4 (3 pin jumper)
Pin 7. Connects to pin 9 (TX3 Input) of U2c (26LS31)
Pin 8. Connects to pin 9 (TX4 Input) of U5c (26LS31)
Pin 9. Connects to pin 4 (RX3 Output) of U1b (74HC04)
Pin 10. Connects to pin 8 (RX4 Output) of U1d (74HC04)
Pin 11. Connects to pin 1 (HS3) of JP3 (3 pin jumper)
Pin 12. Connects to pin 1 (HS4) of JP5 (3 pin jumper)
Pin 24. Connects to ground

TC-642b J1 Ports 5 - 8

Pin 13. Connects to pin 1 (TX1 Input) of U2a (26LS31)
Pin 14. Connects to pin 1 (TX2 Input) of U5a (26LS31)
Pin 15. Connects to pin 2 (RX1 Output) of U1a (74HC04)
Pin 16. Connects to pin 6 (RX2 Output) of U1c (74HC04)
Pin 17. Connects to pin 1 (HS1) of JP2 (3 pin jumper)
Pin 18. Connects to pin 1 (HS2) of JP4 (3 pin jumper)
Pin 19. Connects to pin 9 (TX3 Input) of U2c (26LS31)
Pin 20. Connects to pin 9 (TX4 Input) of U5c (26LS31)
Pin 21. Connects to pin 4 (RX3 Output) of U1b (74HC04)
Pin 22. Connects to pin 8 (RX4 Output) of U1d (74HC04)
Pin 23. Connects to pin 1 (HS3) of JP3 (3 pin jumper)
Pin 24. Connects to pin 1 (HS4) of JP5 (3 pin jumper)

JUMPER OPTIONS

JP2: Is used to either select the TXB output signal, which can either be a handshake output, or a duplicate of the TXA output data.

Pin 1. Connects to J1 (HS1 from the TC-3518)
Pin 2. Connects to pin 7 (TXB Input) of U2b (26LS31)
Pin 3. Connects to pin 1 (TXA Input) of U2a (26LS31)

JP3: Is used to either select the TXB output signal, which can either be a handshake output, or a duplicate of the TXA output data.

Pin 1. Connects to J1 (HS3 from the TC-3518)
Pin 2. Connects to pin 15 (TXB Input) of U2d (26LS31)
Pin 3. Connects to pin 9 (TXA Input) of U2c (26LS31)

JP4: Is used to either select the TXB output signal, which can either be a handshake output, or a duplicate of the TXA output data.

Pin 1. Connects to J1 (HS2 from the TC-3518)
Pin 2. Connects to pin 7 (TXB Input) of U5b (26LS31)
Pin 3. Connects to pin 1 (TXA Input) of U5a (26LS31)

JP5: Is used to either select the TXB output signal, which can either be a handshake output, or a duplicate of the TXA output data.

Pin 1. Connects to J1 (HS4 from the TC-3518)
Pin 2. Connects to pin 15 (TXB Input) of U5d (26LS31)
Pin 3. Connects to pin 9 (TXA Input) of U5c (26LS31)

Standard configuration is to jumper pin 2 to 3 on JP2, JP3, JP4, and JP5, although the TXB outputs are not used in standard configurations.

JP6: Power Connector

Pin 1. +5 VDC
Pin 2. Ground
Pin 3. +12 VDC
Pin 4. -12 VDC
Pin 5. N/C
Pin 6. N/C

I/O PORTS

P1 Pin Assignment DB9F Mounted on reverse side of strip card

Pin 1.		Connects to Frame Ground
Pin 2.	RXD	Received Data from external device
Pin 3.	TXD	Transmit Data to external device
Pin 4.		
Pin 5.	N/C	
Pin 6.		
Pin 7.	Com	Signal Common
Pin 8.	N/C	
Pin 9.		

P2 Pin Assignment DB9F Mounted on reverse side of strip card

P3 Pin Assignment DB9F Mounted on reverse side of strip card

P4 Pin Assignment DB9F Mounted on reverse side of strip card

Note that this is a "standard" pin assignment for all Triad RS-232 ports. A cross ("null modem") connection should be made between RX and TX data lines to interconnect devices. This is different than the IBM DB-9 pin assignment.