

rdc232Enet User Manual

ISOLATED DEVICE SERVER

Introduction

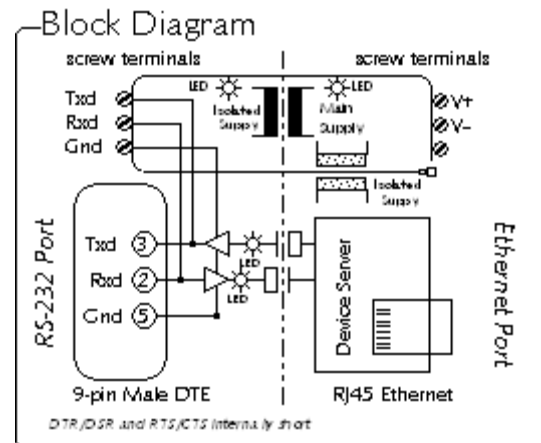
Serial communications (RS-232, RS-422 and RS-485) are cost-effective, reliable and time-tested protocols for data transfer. They are used in millions of manufacturing, banking, industrial and security applications that require serial-based peripheral device such as: bar code scanners, printers, CNC machines, security cameras, process equipment and card readers. Effectively and efficiently using data from a stand-alone serial device can be difficult however, as access is available only to the computer to which it is physically connected via local COM port. A device server offers a better solution by IP-enabling the serial device, connecting it to an Ethernet LAN or WAN. It can then be accessed from any computer on the network, just as if it were attached to a local serial COM port at each PC authorized to access it.

The rdc232Enet Isolated device server brings network connectivity safely and easily. It is designed to connect industrial devices with serial interface to an Ethernet network using the TCP/IP protocol family (TCP for transparent stream and UDP for datagram applications).

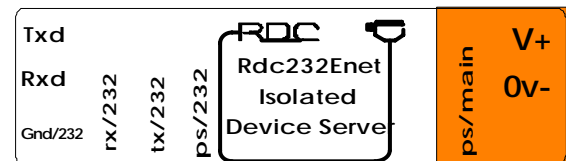
Product Overview

1. Serial Interface
DB9 male (DTE interface) & screw terminal block at the top (Txd, Rxd and SGnd)
2. Network Interface
RJ45 (10/100BaseT) connector
Supports 10/100 Mbps over Ethernet
3. Isolation
2.5 KV optical isolation between RS-232 port and network port (RJ45)
2.5 KV galvanic isolation between RS-232 port, RJ45 Port and the power supply
4. Hardware and IP address
Six-bytes MAC address & default IP set to 0.0.0.0 (DHCP enabled)

5. Surge Protection
600W transient suppresser diodes installed on RS-232 port (600w for 1ms with less than 1psec response to overvoltage)
6. Network Protocols
The supported standards are:
TCP, UDP, ARP, ICMP, DHCP, SNMP, HTTP, SMTP and SSL/TLS

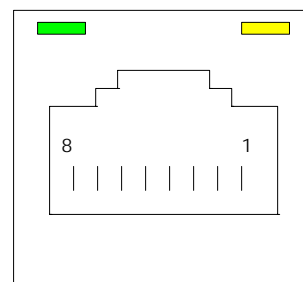


7. User Indication (Top Side)



Green LEDs PS/main and PS/232 denote main power and isolated power respectively. Yellow LEDs Rx/232 and Tx/232 flicker when data is entering or leaving the RS-232 interface.

8. User Indication (RJ45 Side)



Green LED
 On 10/100Base-T network link present
 Off 10/100Base-T network link not present

Yellow LED
 On Network traffic detected
 Off No network traffic detected

Configuration

Network Configuration

1. Setting the IP address

The unit has to be configured over the network, but first, its IP address has to be set. It is recommended to configure the unit in a network that has a DHCP server. This is because the initial IP for the unit is set to 0.0.0.0.

If a DHCP server is available, then refer to the next section to log in.

Otherwise, refer to the following steps to assign a temporary IP address over the network.

- (i) Go to the dos prompt.
- (ii) Use the ARP command to set the desired IP address using the MAC address of the unit, which is printed on the product label.

For example, with a MAC address of 00-40-9d-23-62-03 and a desired IP of 192.168.2.33, the command is:

For DOS systems,
Arp -s 192.168.2.33 00-40-9d-23-62-03

For Unix systems,
Arp -s 192.168.2.33 00:40:9d:23:62:03

Note: In order for the ARP command to work in windows, the ARP table on the PC must have at least one IP address defined other than its own. If there is no other entry beside the local machine, **ping** another IP machine on your network to build the ARP table. Once there is at least one entry in the ARP table, use the above command to ARP an IP address to the unit.

Go to the next section to attempt to log in. If the device discovery program is unable to detect the unit, repeat the Arp procedure. Remember to set the unit to a fixed IP after logging in.

2. Logging In

To access the unit, use the digi device discovery program (must be installed from the CD). The discovery program will list the mac and IP addresses of all rdc devices servers within the network. Double-clicking on the appropriate mac address will open a login screen. Use the following information for the initial login :

Username : root
 Password : dbps

At this point, the user has full control over the unit.

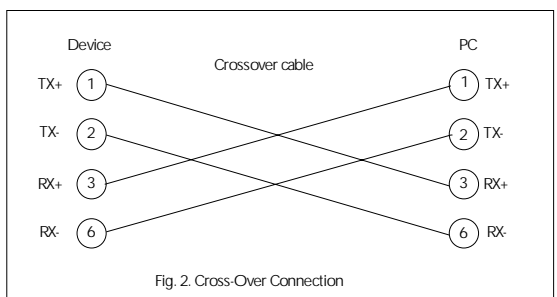
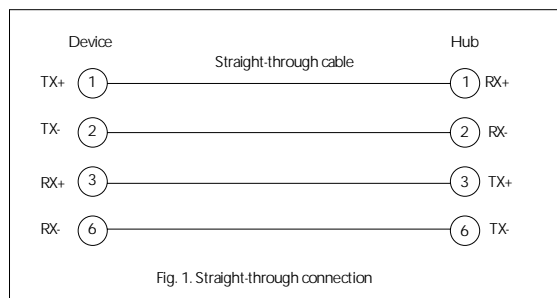
3. Serial Configuration

Following the network configuration, select the serial interface configuration to set the parameters for the serial comm.

Installation

1. Network Connection

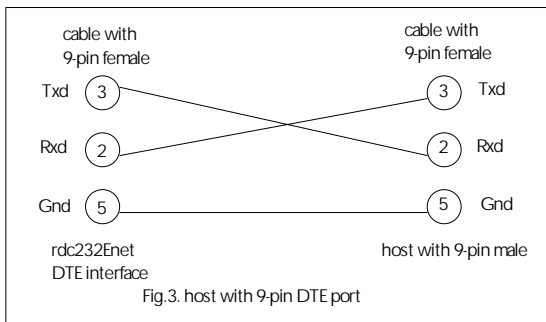
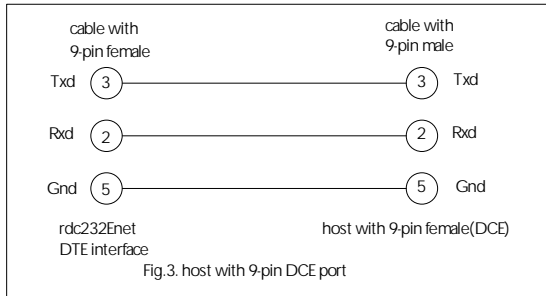
There are two types of UTP Ethernet cable connections. One is the straight type and the other is Crossover type as can be seen in the following figures:



Note: A pair of twisted wires must be used to connect a set of transmitter pins to their corresponding receiver pins. DO NOT use a wire from one pair and another wire from a different pair.

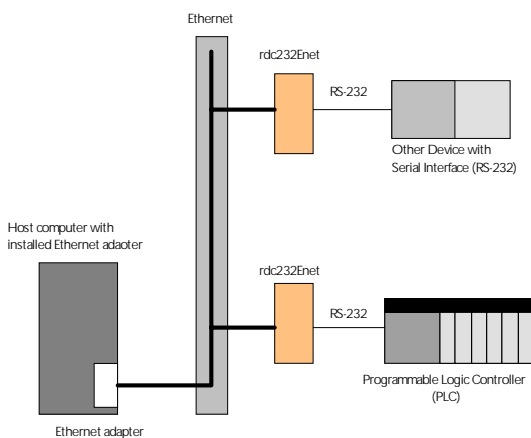
2. Serial Connections

The rdc232Enet has one 9-pin male (DTE) connector like the standard 9-pin "AT" port of a computer. Refer to the cable connections below when connecting to another DTE or DCE port.



Note: Standard RS-232 interface devices cannot be damaged by reverse wiring or short-circuits to ground. But be warned that some low-cost devices use transistors to approximate a RS-232 signal and this built-in protection may not be there.

Application Example



Technical Specification

RS-232 port description

- 3-wire Signal: Txd, Rxd, SGnd
 Working voltage range: +/- 9vdc
 Max voltage range: +/- 15vdc
 Max surge: +/- 25vdc.
- Duplex: Half or Full-duplex
 No configuration required
- Speed: Up to 230,400bps, configuration required via Web browser.
- Connector: DB9 male (DTE interface)

Network interface description

- Integrated 802.3 compliant 10/100 Mbit network interface
- Robust on-board TCP/IP stack with comprehensive protocol support: TCP, UDP, DHCP, SNMP, SSL3.0/TLS1.0, HTTP, SMTP, ICMP, IGMP, ARP.
- Easy configuration through user-friendly and fully customizable web interface.
- Embedded web server with support for custom java applets (applet space:512KB).
- Universal IP address assignment for seamless network integration.
- Secure web-based configuration using password protection and HTTPS encryption
- FCC Part 15, Class B/EN 55011, Class B compliant
- Connector: RJ45

Isolation (Per ISO/IEC 9549)

- Serial port to network port: 2.5Kv (optical, 5Kv test).
- Serial port to Supply: 2.5Kv (galvanic, 3Kv test)
- Network port to Supply: model "-2p": none
 model "-3p": 2.5Kv.
- Encapsulant; 14,000v per mm.

Power Supply

- rdc232Enet-5v; 5vdc +/-5% 400mA
- rdc232Enet-dv; 9 to 36vdc; 2.5W

Environmental

- Ambient Operating Temperature:
-20C to +65C
- Ambient Storage Temperature:
-40C to +100C
- Relative Humidity:
10 to 90%, non condensing
- Casing: fungus and termite resistant, self-extinguishing, per UL94V2.

Mechanical Dimensions

- Height, Width, Depth (See drawing).
- Weight: 130g.
- Terminal Capacity: 2.5mm strand (12AWG)
4.0mm solid (12AWG)
- Mounting Rail: DIN EN 50022 (35mm sym)
DIN EN 50025 (32mm asym)

Note: removal from DIN EN 50025 rail is difficult.

