Contents

Overview

- The **Control-it ™ 5005** and **5255** are manual RS232 to RS422 converters that allows your PC to communicate with remote devices 1.8km away at 115.2k baud or 3.6km at 56k baud via a RS232 serial port.

Workings of RS422 explained

- When using only the manual converter in a multipoint system, the transmit lines of the salve units need to be enabled. This will be accomplished by either controlling RTS or using the automatic converters. Automatic converters will enable the transmit line after sending data, else the line is getting held by all units and no data can be transmitted by any salve unit.

Features

- Fully isolated, therefore safe to use on any Laptop or PC.
- Runs on a single power supply.
- RS422 transmitter can handle up to 32 modules.
- Four LED indicators - POWER, RTS (ready to send), RXD (receive data) and TXD (transmit data) – provide valuable status information.
- Jumper settings for line termination.
- DIN rail mounting with universal foot for symmetrical and asymmetrical rails.

General Description

Control-it™5255 case markings and led lights

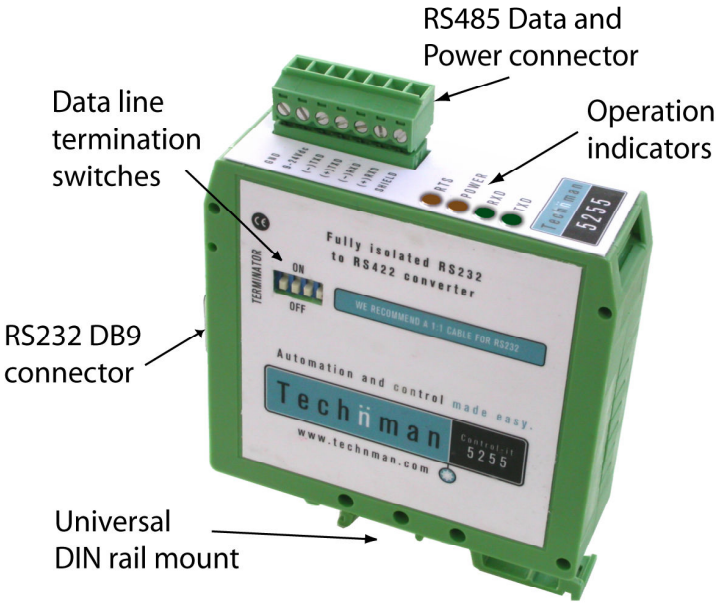


Figure 1

The **Control-it ™ 5255** comes in a DIN rail mountable, flame-retardant case for use within standard electrical cabinets.

Control-it™ 5255 Block diagram

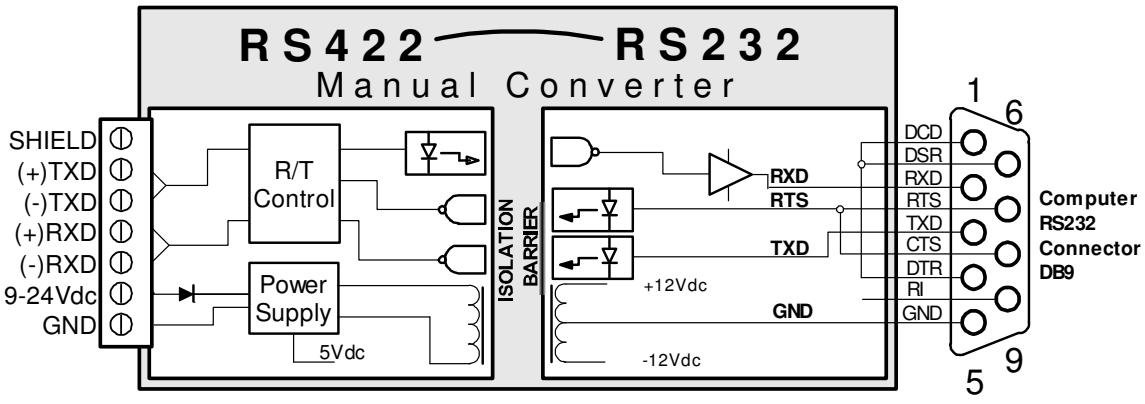


Figure 2 - Control-it™ 5255 block diagram.

LED indicator functions

RXD LED shows data flow to the RS232 device (e.g. your PC).

TXD LED shows data flow from the RS232 device.

POWER LED indicates if power is applied to the RS485 side. This will light up as soon as power is applied.

RTS LED indicates flow control. LED is lit when **5255** is enabled to transmit.

Quick Test

This test is designed to give you a quick indication that the computer is communicating with the converter.

1. Plug converter into serial port COM1 & apply power (9-24Vdc) to the RS422 side.
2. Go into DOS mode and type the following: **copy con: com1:**
3. Press the **ENTER** key
4. Press the U key 10 times, followed by **CTRL Z**.
5. Watch the TXD light as you press the **ENTER** key. The typed characters will be sent to COM1 and the TXD light on the Converter lights up momentarily.

Installation

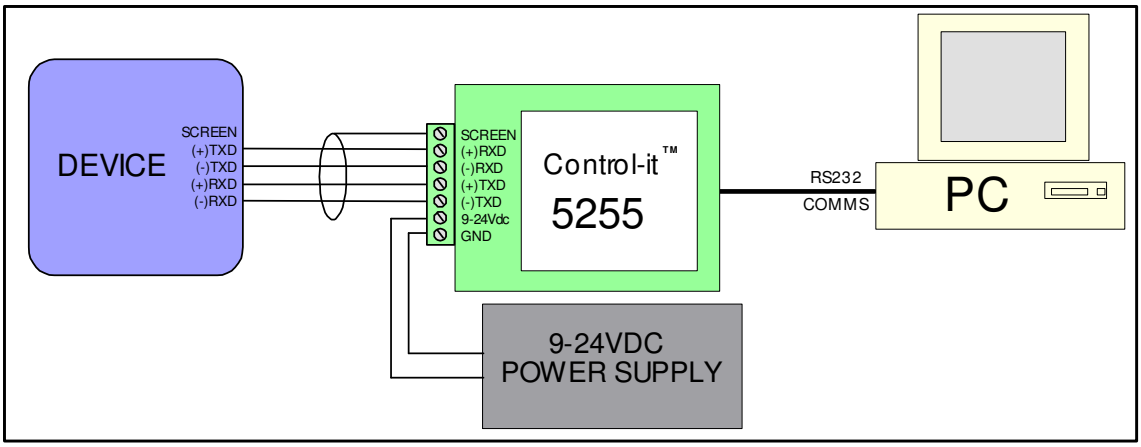


Figure 3

1. Connect the DB9 connector to a **COM** port on your PC.
2. Move the termination switches to ON.
3. Wire the RS422 connector to your device as per figure 3. Refer to table 1 for data line connection details.

Data Line Connections	
Converter	Device
(-)TXD	(-)RXD
(+)TXD	(+)RXD
(-)RXD	(-)TXD
(+)RXD	(+)TXD

Table 1 – Data line connections.

- We recommend a **shielded, four core, twisted pair** data cable. **Do not** remove more than 100mm of shield from each end of the cable when connecting to devices. Connect shield to ground at **one point only**.
- For short wire communication, such as bench-top or laboratory set-ups, no screened data cable is necessary between the **Control-it ™ 5255** converter and your device, unless it is in an electrically noisy environment.

- If the cable is longer than 100m, move the termination switches to ON position on the **first and last unit only**.

4. Connect the power supply (9 - 24Vdc) to the converter and the **POWER** light will come on.

Make sure 24V does not get connected to the RS422 terminals.

Installation when used with multiple devices

Up to 32 devices can be connected on the one network.

Installation is essentially the same as described on page 5, with a few additional considerations.

1. Always connected devices in 'daisy-chain', as shown in figure 4, with each device connected in a row. Never connect devices in a 'star', as each branch will create unwanted reflections, leading to data errors.

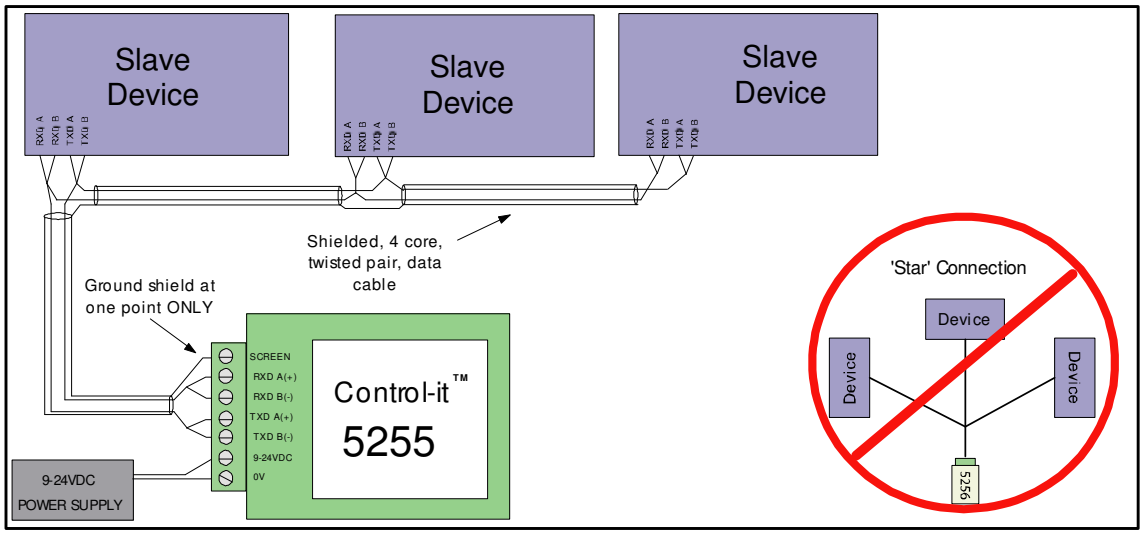


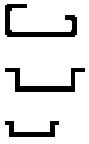
Figure 4 – Connection of a multi-drop network in 'Daisy-chain' configuration considerations.

2. Connect slave data lines like-to-like, i.e. (+)TXD to (+)TXD etc., then to converter as per table 1 (page 5).

3. If more than one **Control-it ™ 5255** is used, the termination switches must be set correctly.

- Move the switches on the converters at the extreme ends of the line to ON.
- Move the switches on all other converters to OFF.

Specifications

Case Dimensions		80 x 25 x 75 mm (3¼ x 1 x 3”)
Weight		85g (3ozs)
DIN mount 		32 x 15mm, EN50035 35 x 7.5mm, EN50022 15 x 5mm, EN50045
Storage temperature		-20° to 70° C (-4° to 158° F)
Operating temperature		0° to 50°C (32° to 122° F)
Humidity		15 to 90% relative non condensing
Transmission Distance		1.8km (6000 feet) at 115.2k baud
		3.6km (12000 feet) at 56k baud
Isolation Voltage		1500V max transient[1]
Power		9-24Vdc regulated or unregulated 35mA at 12Vdc on RS485 side
Connectors	RS232	DB9 female for RS232
	RS485	Plug-able screw terminal connector. 0.2 - 2.5mm^2 (AWG 24 -12)
Operating mode		4 wire full duplex point-to-point or Multi-drop
Data rates		0 to 115200 bps
Indicator lights		TXD, RXD, POWER & RTS

[1] EN 60950 : 1992

Declaration of Conformity 2002

Manufacturer's Name: Technman Electronics Ltd
Manufacturer's Address: PO Box 302 107
North Harbour, Auckland 1311, New Zealand

declares that the product
Product name: Control-it 5000 Series Distributed Input/ Output System
Model numbers: 5001, 5005, 5006, 5007, 5020, 5030, 5040, 5050, 5100, 5101, 5255, 5256, 5258
Product options: All
conforms to the following product specifications:

Safety Regulations: Low Voltage Directive 73/23/EEC 22 July 1993 and the UK Electrical Equipment Safety Regulations 1994.
EN 60950:1992+A1+A2+A3- Primary Circuit/ Double insulation
Model 5020- Primary circuit/ Reinforced insulation
Except when these modules are incorporated into a larger mechanical device, in which case a responsible person must ensure that all appropriate safety regulations are met.

EMC Regulations: EMC Directive 89/336/EEC 3 May 1989 and 92/31/EEC 28 April 1992, article 10.1.
EN 55022:1998 Class A Device
EN 55024:1998 I.T. Equipment
EN 50082-2:1995 Generic Industrial Device

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:
Low Voltage Directive 73/23/EEC
EMC Directive 89/336/EEC

The product was tested in a typical configuration with a personal computer system.

For compliance information contact:

Director
Technman Electronics Ltd.
PO Box 302 107
North Harbour
Auckland 1311
New Zealand.

or

Quality Assurance Director
Amplicon Liveline Ltd
Centery Industrial Estate
Hollingdean Road
Brighton
UK BN2 4AW

WARNING
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

NOTES