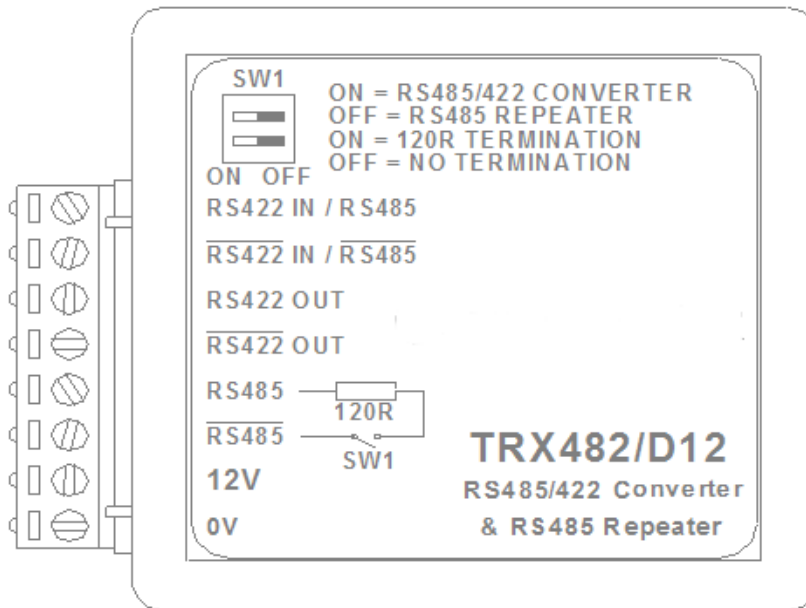


MOLYNX SYSTEMS



TRX482/D12 RS485/422 Converter & RS485 Repeater



INSTALLATION INSTRUCTIONS

Before attempting to connect or operate this product, please read these instructions completely

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Whilst every effort has been made to ensure that all information contained in this document is correct at the time of publication, due to our policy of continuous product improvement, the company reserves its right to change any information contained herein without notice.

Williams Electronics Limited trading as MOLYNX Systems.

IMPORTANT NOTE

Please thoroughly read these Instructions before installing the TRX482/D12.

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About This Manual

This manual describes the following equipment:

TRX482/D12	RS485/422 Converter & RS485 Repeater.
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Health & Safety Notice

Ensure that the unit is suitable for the application and the environment for which it is intended.

Take particular care that inter-connected equipment is fully compatible with each other and suitable for such use.

Only suitably trained personnel, using the correct tools and recognised safe working practices, should install this equipment.

All installation work must be carried out in accordance with local and national codes of practice.

Ensure that power is removed from the unit before attempting installation.

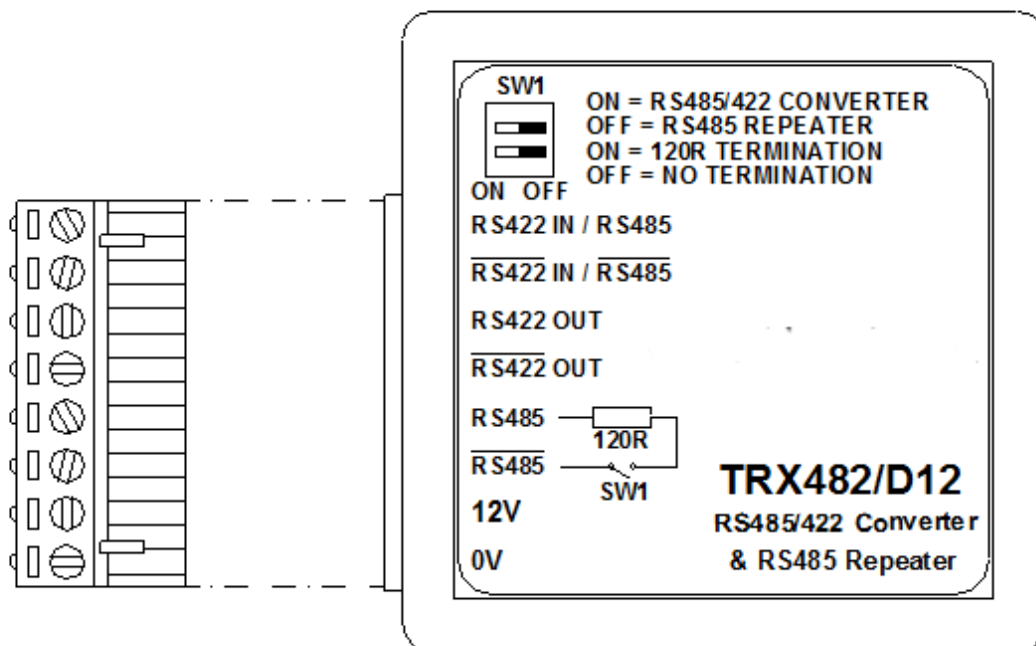
All cables should be of the correct type, as specified by national and local standards and codes of practice.

Connect the unit to a SLVE 12V DC supply.

Introduction

General Description

- The TRX482/D12 is designed to aid the networking of large installations, or those affected by electrical noise, by receiving and regenerating RS485 communication data signals, thus effectively extending the maximum line length between devices on a network to more than 1000m.
- In addition, the TRX482/D12 may be used to convert between RS485 (2-wire) and RS422 (4-wire) networks. This is useful if a device with an RS422 interface (such as a fibre optic transceiver) needs to be connected to an RS485 master (such as a Molynx telemetry controller). If necessary, a second TRX482/D12 can be used to convert from RS422 back to RS485.



RS485/RS422 Communication

- RS485 is an electrical specification for multi-drop half duplex (bi-directional) communication between equipment, using two wires.
- RS422 is an electrical specification for point-to-point (unidirectional) communication between equipment, using two wires. Two separate RS422 links (four wires) can be used to provide full duplex (bi-directional) communication.
- The recommended maximum line length for both RS485 and RS422 communication is approximately 1000m, and the recommended maximum number of devices on a multi-drop (RS485) network is 32.
- The correct choice of cable is crucial to reliable communications, especially over larger distances. The recommended cable is twisted pair, Belden 8205.
- All networks (point-to-point or multi-drop) MUST ALWAYS be terminated with 120 Ohms at the two furthest ends of the network, that is, the two points that are connected to each other by the longest continuous electrical path.
- For further information on the RS485 and RS422 specifications, please refer to the relevant standards.

Contents Of Package

The product should reach you in perfect working order. If the unit is damaged in any way or if the supplied kit is incomplete, please contact Williams Electronics Ltd. immediately.

1 x TRX482/D12 unit.

1 x Installation Instruction INS00021.

Before Starting Installation

1. Ensure that the contents of the package are correct.
2. Read all of these instructions.
3. Save these instructions for later use.
4. Ensure that the correct tools are used when installing – see below.

Suggested Tools

The following tools are suggested for installation of a TRX482/D12 unit:

- Flat bladed (4mm max.) electrical screwdriver.

Installing the TRX482/D12

Important Notes

PLEASE NOTE:

- Although the TRX482/D12 can be used to convert between 4-wire RS422 and 2-wire RS485, there is no protocol or timing control inside the unit, and so the RS422 part of the network must be operated in half-duplex mode.
- It is critical that the polarity of the RS485 and RS422 signals is observed throughout the network, as the TRX482/D12 will not function correctly if the lines are 'double inverted', i.e. one side of TRX482/D12 connections are swapped then swapped back the other side of the converter.
- When connecting to the TRX482/D12, ensure the connector screws are tight and the wire ends are in good condition. Use good quality twisted-pair cable, such as Belden 8205, for data wiring.

Connections

There are eight connectors on the removable terminal block:

Label	Function	Termination
RS422 IN / RS485	RS422 receiver input (+) or RS485 extended network data (+)	120R permanent *
RS422 IN / RS485	RS422 receiver input (-) or RS485 extended network data (-)	120R permanent *
RS422 OUT	RS422 driver output (+)	120R permanent *
RS422 OUT	RS422 driver output (-)	120R permanent *
RS485	RS485 network data (+)	120R switched via SW1.2
RS485	RS485 network data (-)	120R switched via SW1.2
12V	+12V DC @ 280mA max.	N/A
0V	Supply Ground	NA

* To keep to the termination rules, any permanently terminated port should not be connected in the middle of a network, only at one end.

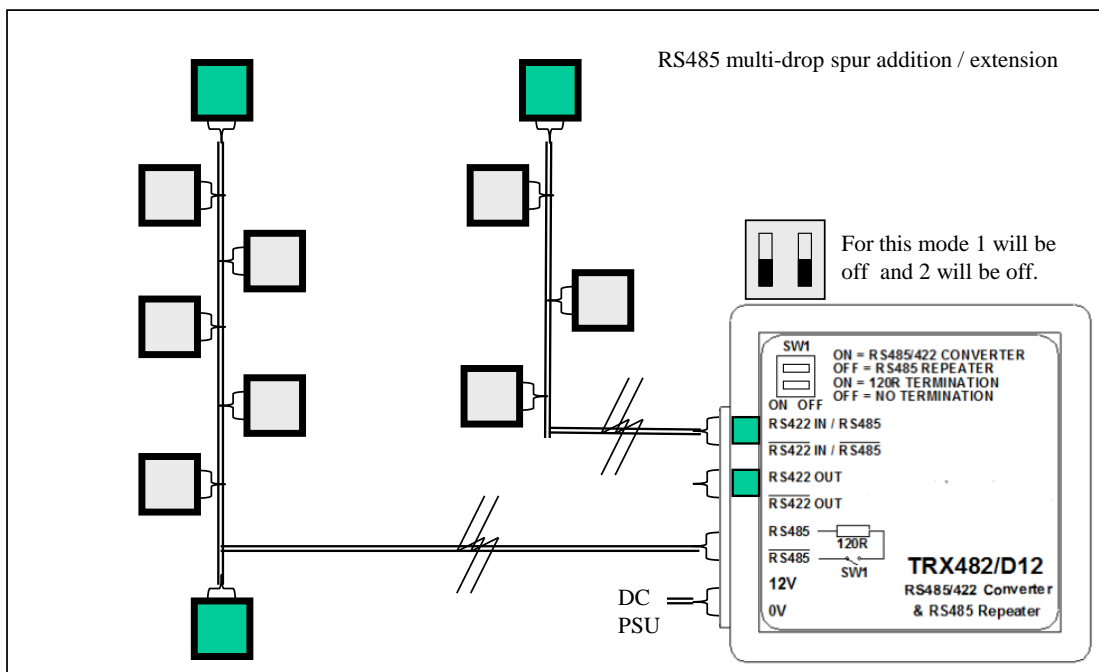
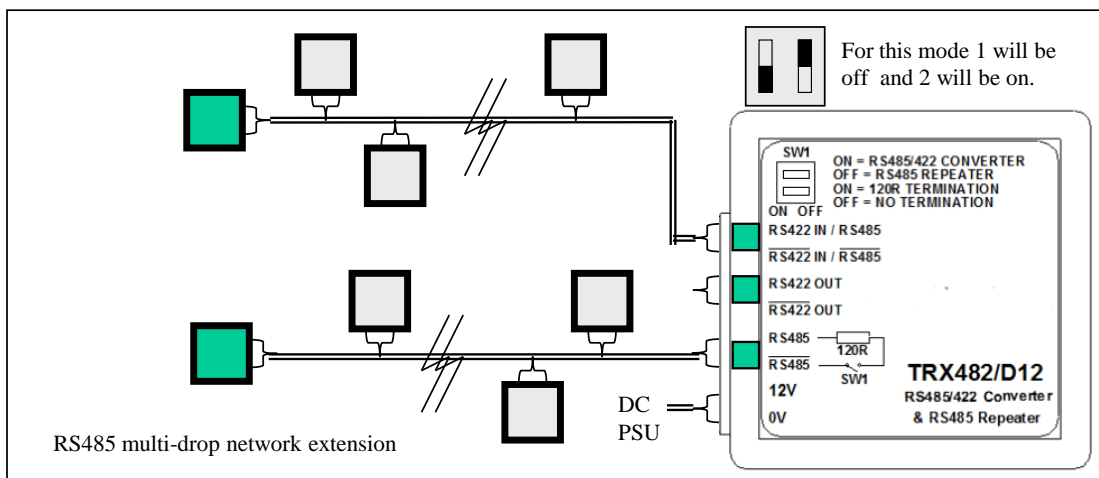
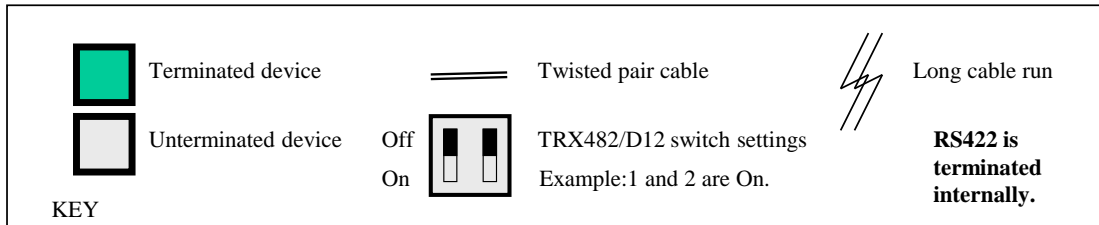
SW1 Switches

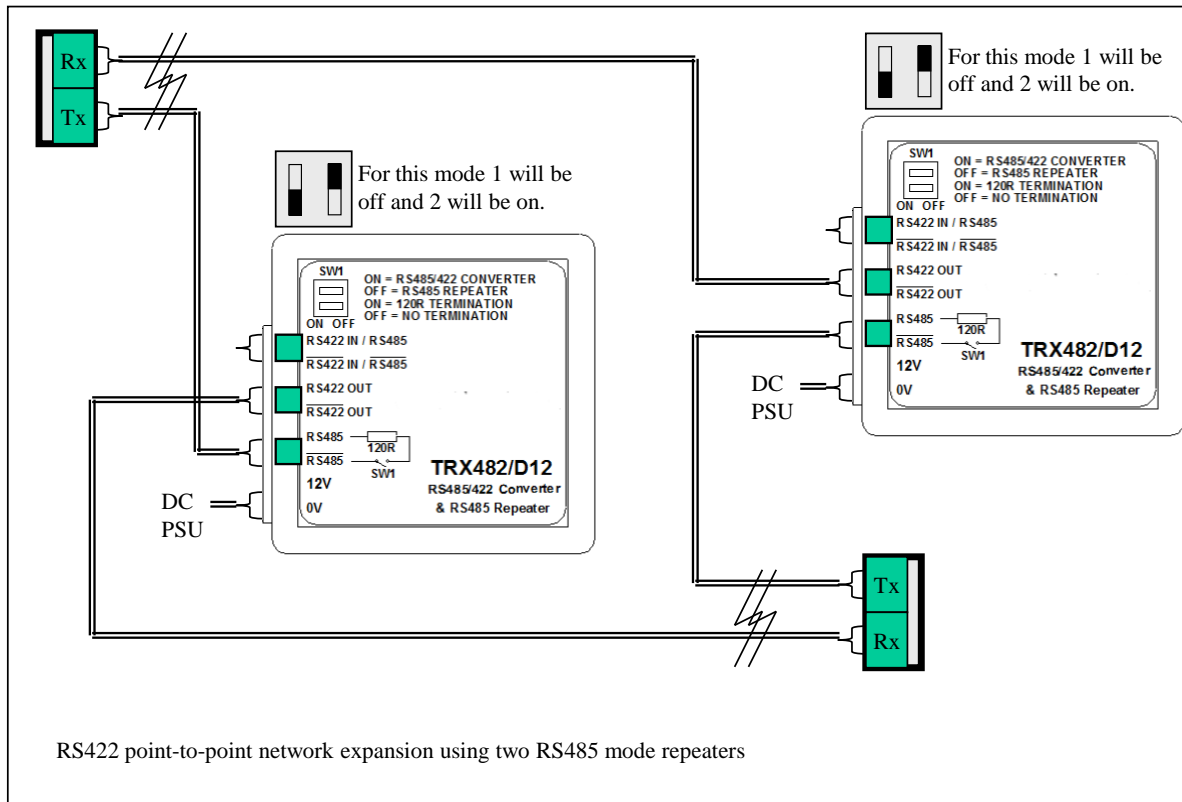
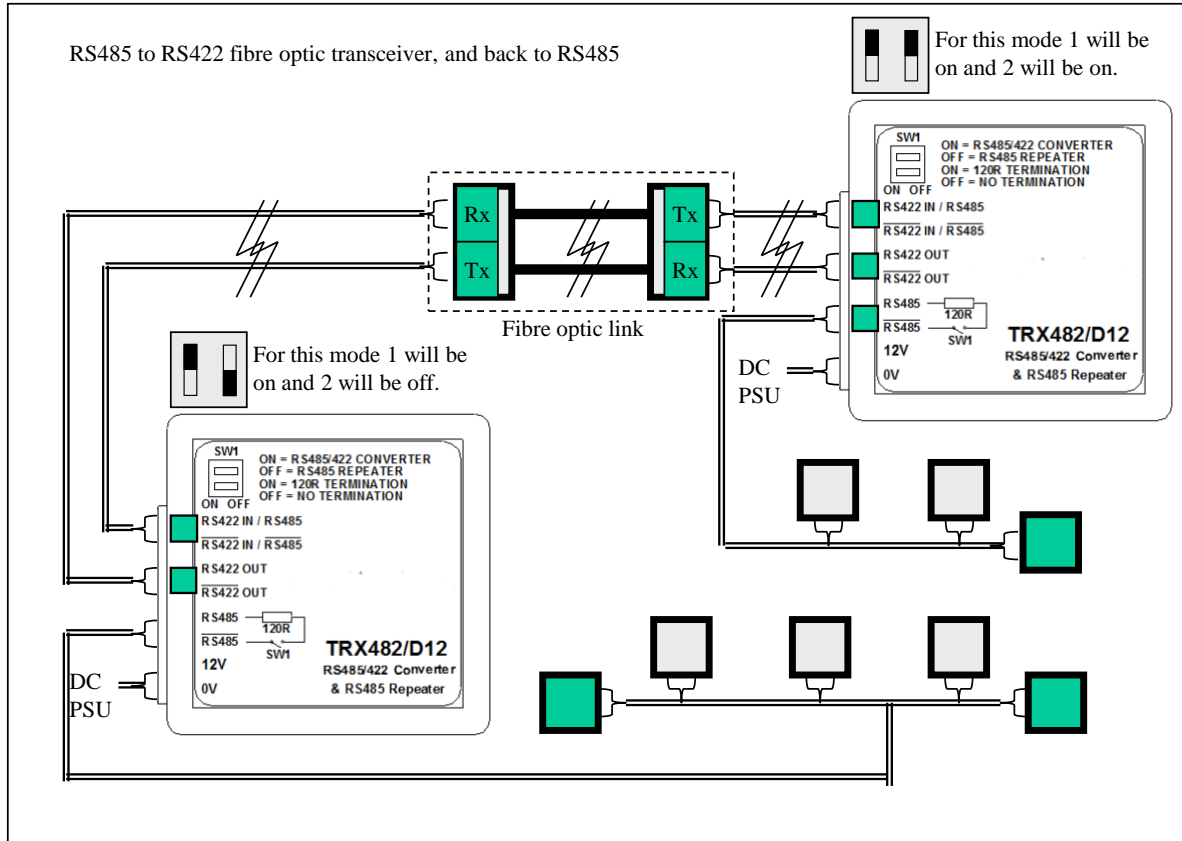
SW1 has two switches which are ON in the 'down' position and OFF in the 'up' position:

Switch SW1	Position	Function
1	OFF	RS485 repeater mode
	ON	RS485 / RS422 converter mode
2	OFF	No termination on RS485 network port
	ON	120R termination on RS485 network port

Configuration Examples

The following schematic block diagrams illustrate how the TRX482/D12 can be used in communication networks.





Specifications

External dimensions	79 x 67 x 28mm (with terminal block); 69 x 67 x 28mm (without)
Material	General purpose ABS plastic, non-weatherproof
Weight	85g
Data parameters	9k6 baud typical, 64k baud max; no hardware flow control
Termination	120R switchable (SW1.2), 120R permanent
Power	12V DC, +/- 10%, 280mA max.
Input standards	EIA-RS485; EIA-RS422
Output standards	EIA-RS485; EIA-RS422
Operating temperature	0 - 40°C
Operating humidity	Up to 90% non-condensing
Recommended cable	Belden 8205

Note: All specifications are subject to change without prior notice.

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