



AN1094 - Using Fibre Optics with Net2

Overview

Fibre optics have several advantages over normal RS485 wired communication:-

- Distance - They can be used over several miles without the need for a repeater.
- Capacity - A single fibre can replace 10 or more copper data lines.
- Security - Almost impossible to tap into.
- Interference - Immune to electrical noise / lightning damage.
- Safety - No possibility of electrical spark so ideal for sites with flammable liquids or gas.

They can be used as part of the site LAN using the TCP/IP protocol. They are then connected to a Net2 plus or via a TCP/IP converter to run an RS485 data line for Net2 Classic units.

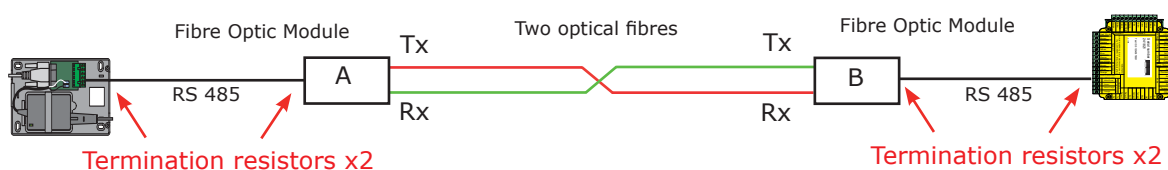
There are also interfaces on the market (e.g. GE Interlogix S710D) that convert directly from the fibre optic cable into RS485.

Fibre Optic to RS485 conversion

Fibre optic cable will normally be used to replace part of the RS485 data line. This could be from the PC location to the first ACU, bridge between buildings, link to a remote location or any combination of these.

Fibre cable should be considered as transparent links in the RS485 data line and should not have any noticeable effect on the operation of the system.

NOTE: Individual sections of RS485 wired data line must have pairs of terminating resistors at both ends. (some devices use links). Each wired section will need to be 60-80 ohms and is limited to 1,000 metres.



Typical Settings

Make sure that the module is set to RS-485, 4 wire, standard. All data Outputs (Tx) connect to data Inputs (Rx) on the following device but the polarity (+ or -) does not change.

RS485 converter		Fibre Converter A		Fibre Converter B		ACU	
RS485 out + (Tx +)	4	Orange	RS485 in + (Rx +)	RS485 out + (Tx +)	Orange	4	RS485 in + (Rx +)
RS485 out - (Tx -)	3	White/Orange	RS485 in - (Rx -)	RS485 out - (Tx -)	White/Orange	3	RS485 in - (Rx -)
RS485 in - (Rx -)	2	Green	RS485 out - (Tx -)	RS485 in - (Rx -)	Green	2	RS485 out - (Tx -)
RS485 in + (Rx +)	1	White/Green	RS485 out + (Tx +)	RS485 in + (Rx +)	White/Green	1	RS485 out + (Tx +)
Ground		Screen	Ground	Ground	Screen		Ground