

# Foxcub Fibre Optic Transceiver

Model B06-074-1xx

## Installation Guide



## Introduction

The Abbey Systems Foxcub converts serial data between copper and fibre-optic forms. The copper interface is RS-232, RS-485, IRIG-B or Abbey Systems Intermodule Bus, depending on the variant. The fibre-optic interface is either 1mm plastic optic fibre (POF), or glass using 'ST' connectors.



Although the fibre optic transmitters used in the Foxcub are LED based and 'eye safe', users are cautioned not to look directly into any fibre optic port or cable. Infrared light is not visible.

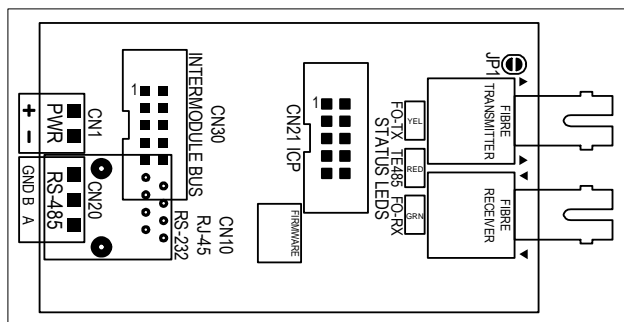


Fig.1 Physical Layout

Variant Part Codes		
Wire Interface	Plastic Fibre	Glass Fibre
RS-485	B06-074-111	B06-074-121
RS-232	B06-074-112	B06-074-122
Intermodule Bus	B06-074-113	B06-074-123

## Mounting

Foxcub can be mounted on 'G' style or 'top hat' style DIN rail and occupies 46mm of space.

Cable clearances must be taken into account. Check your fibre manufacturer's minimum bend radius specification.

## Powering

All variants require a 10.0V to 36.0V DC power source.

-1x1 (RS-485) variants must be powered via CN1.

-1x2 (RS-232) variants can be powered through CN10 via pin 1 or through CN1. Powered serial ports are available on the Topcat & Topcat II RTU families.

-1x3 (IMB) variants are normally powered through CN30 from the RTU.

Current consumption is less than 30mA at 12V, and less than 20mA at 24V for all variants.

## Indicators

LED	Colour	Description
FO-TX	Yellow	Data is being received from the RTU and transmitted on the fibre interface.
TE485	Red	Only used on RS-485 and IMB variants. Indicates when the RS-485 transmitter to the RTU is active. So will illuminate the same time as FO-RX
FO-RX	Green	Data is being received from the fibre interface and transmitted to the RTU

## RS-485 Interface (-1x1 Variants)

This is via CN20 as shown in Fig.1. A data is sometimes called ‘data+’ or ‘non-inverted data’, and B ‘data-’ or ‘inverted data’. There is no terminating resistor on the Foxcub, and no external resistor should be required for cable runs under 50m and data rates under 115kbps.

The Foxcub’s power supply is not isolated from the RS-485 GND rail.

## RS-232 Interface (-1x2 Variants)

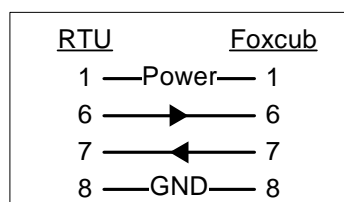


Fig.2 RS-232 Cable

CN10 is a straight through RJ-45 connection to an Abbey Systems RTU. Limit the cable length to 5m max.

Power can be supplied through pin1, or CN1 as normal if this is not available.

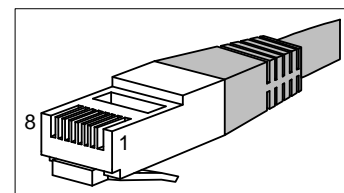


Fig.3 RJ45 Pins

## Intermodule Bus Interface (-1x3 Variants)

Connect an Abbey Systems intermodule bus cable to CN30. The Foxcub will draw power from the  $V_{BUS}$  rail of the RTU. A second Foxcub may be used at the other end of the optic fibre to form an isolated intermodule bus ‘bridge’.

## Plastic Fibre Interface (-11x Variants)

The Plastic Optical Fibre (POF) use 660nm (visible red) light and accept an un-terminated 1mm (2.2mm OD) plastic fibre.

They use a threaded collar clamp and the ends must be a neat, flat cut to ensure a good optical connection.

## Glass Fibre Interface (-12x Variants)

These use ST termination (spring loaded bayonet) and support glass multi mode fibre with core/cladding diameters of 50/125 $\mu$ m, 62.5/125 $\mu$ m, 100/140 $\mu$ m and 200 $\mu$ m HCS, using unmodulated infrared light (820nm).

## Fibre Transmit Power Jumper

JP1 on the Foxcub selects the fibre-optic transmitter’s optical power level. By default, the copper track across JP1 bridges it closed, selecting a transmit power of 0dB (60mA into the transmitter LED). Cutting this track reduces the optical transmit power to -3dB (half power) and reduces the Foxcub’s current consumption, but this option is not normally used.

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