OSD138 Universal Fibre Optic Data Modem

Item Number: 159-0251/4

Installation guide

Description

The following is the installation guide for the fibre optic modems into the Ampac FireFinder and FireFinder PLUS Fire Detection Control and Indicating Equipment (FDCIE).

The fibre optic modem used is an OSD138.

There are 4 kits available – which depend on the number of fibre connections available between FDCIE panels and the type of fibre (singlemode or multimode) available.

Item No	Description
159-0251	FireFinder/PLUS Fibre Optic Multimode 2 Core (5km max)
159-0252	FireFinder/PLUS Fibre Optic Multimode 1 Core (5km max)
159-0253	FireFinder/PLUS Fibre Optic Single Mode 2 Core (50km max)
159-0254	FireFinder Fibre/PLUS Optic Single Mode 1 Core (50km max)

Warning and Precautions

Optical Output Operation

The multimode version of the OSD138 is a **Class 1 LED product**. Wavelength of 850nm and <-8dBm power output.

The single mode and WDM versions of the OSD138 are **Class 3A laser products**. Wavelength of 1310nm and <+5dBm power output or wavelength of 1550nm and <+7dBm power output.

Precautions

➢ All service personnel should be provided training as to the hazards of direct viewing of laser radiation and the precautionary measures during serving of equipment.

➢ Areas where laser products are installed should be restricted in access to trained service personnel only and appropriate warning signs posted in the work area

➢ All laser apertures should be covered by protective covers when not connected to optical fibres. Never leave outputs uncovered.

➢ Laser equipment should be positioned above or below eye level where possible. Apertures should be positioned away from personnel

➢ Protective eyewear should be worn in the vicinity of laser equipment

Installation

Observe anti-static precautions at all times

1. Power down the FACP, disconnect the batteries

2. Mount the Modems in an appropriate position on the backpan. Observing all precautions

3. Connect 27VDC from an Aux Power connector inside the FDCIE system to the Power Connector of the OSD138 Modem. Note: Pin 1 +ve Pin 2 0V (see Figures 5 - 12). Note will depend on which OSD138 used

4. Connect the COMMS from the Network Interface Card (NIC) to the OSD Communication Connector. There are 3 different NIC configurations available – see following wiring diagrams

5. Set the Data mode control switch as outlined in the appropriate wiring diagram

6. Terminate the Optical Fibre with the appropriate optical connector. Before connection inspect the ends of the connectors to ensure no dust or dirt is present as it could contaminate the modem connector and result in poor performance. If it necessary to clean the cable connectors, use isopropyl alcohol and the lint free tissue to remove contamination.

7. Power up the FACP, connect the batteries and test.

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Fibre Modem Connection Details:

The OSD138 is available in 4 different configurations:

- Single mode with separate transmit and receive fibre interface (2 core)
- Multimode with separate transmits and receive fibre interface (2 core)
- Single mode with single fibre interface (1 core)
- Multimode with single fibre interface (1 core)

Single mode fibre is used for distances from upto 50kms, whereas multimode fibre is for distances upto 5kms typically.

Considering the 2 core (separate transmit and receive fibre interface) and 1 core (single fibre interface) configurations:
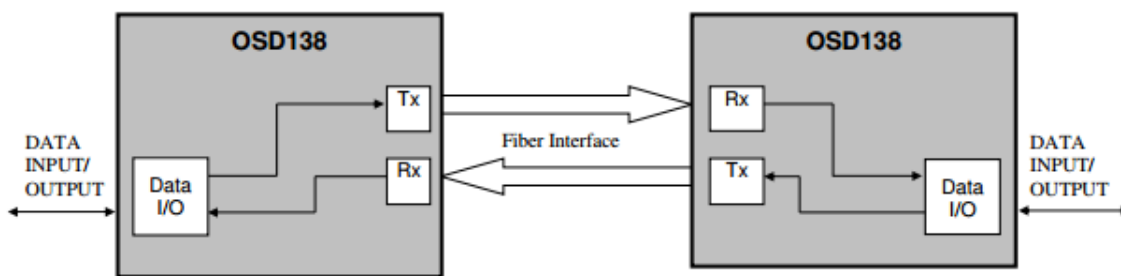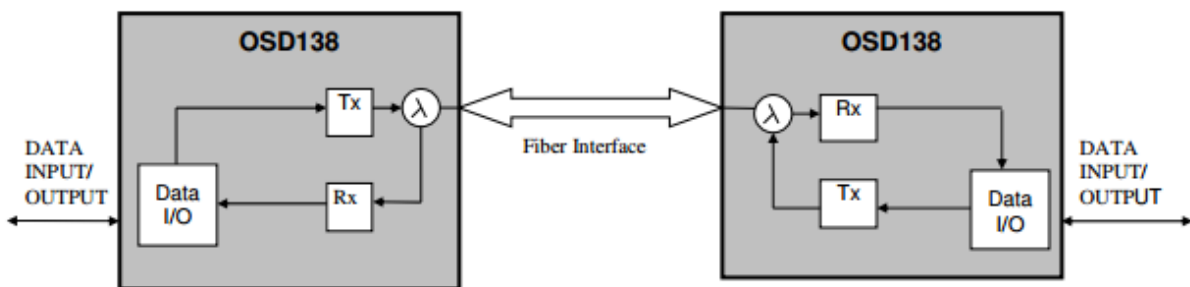

Modems with separate transmit and receive fibre interface (2 core)

With separate transmit and receive fibre interfaces, the same type of modems are used at each end of the link.

Multimode = OEM3029 = OSD138C
Single mode = OEM3032 = OSD138LC

Modems with single fibre interface (1 core)

With a single fibre interface, the modems at each end of the link must be a matched pair – transmit and receive frequencies must match for each direction.

Multimode = OEM3030 (OSD138C.WA) and OEM3031 (OSD138C.WB)
Single mode = OEM3033 (OSD138LC.WA) and OEM3034 (OSD138LC.WB)

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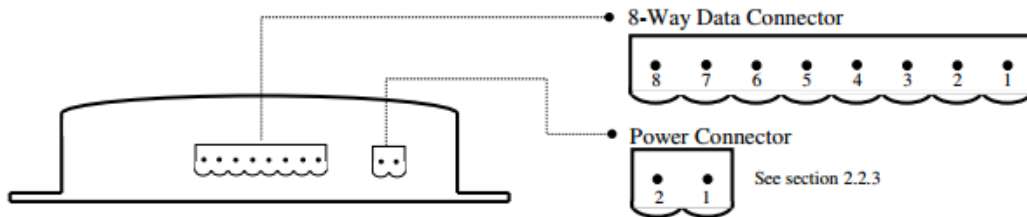# OSD138 Universal Fibre Optic Data Modem

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Fibre Modem Details:

Image of the OSD138

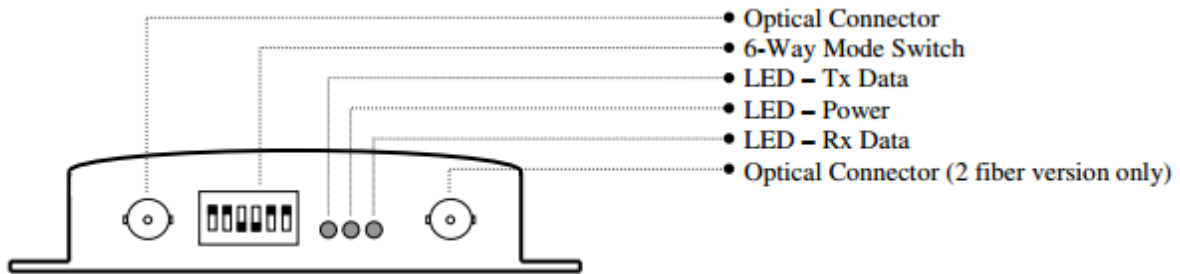Side view showing the connector and pin outs

Pinout of the interface connector

8 WAY DATA TERMINAL BLOCK	FUNCTION
1	RS422 INPUT + / RS485 (2W I/O, 4W INPUT +)
2	RS422 INPUT - / RS485 (2W I/O, 4W INPUT -)
3	GROUND
4	RS422 OUTPUT + / RS485 (4W OUTPUT +)
5	RS422 OUTPUT - / RS485 (4W OUTPUT -)
6	RS232 TRANSMIT
7	RS232 RECEIVE
8	GROUND

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Pinout of the power connector

External Power Pin	Specification
Pin 1	+11V to +35V DC or 22 to 28V AC
Pin 2	Ground

DIP switch and fibre interface layout

- Optical Connector
- 6-Way Mode Switch
- LED – Tx Data
- LED – Power
- LED – Rx Data
- Optical Connector (2 fiber version only)

Function of the LEDs

INDICATOR	AMBER	GREEN	LIGHT OFF
POWER	-	POWER ON	POWER OFF
Tx DATA	DATA TRANSMITTED	-	NO DATA TRANSMITTED
Rx DATA	DATA RECEIVED	-	NO DATA RECEIVED

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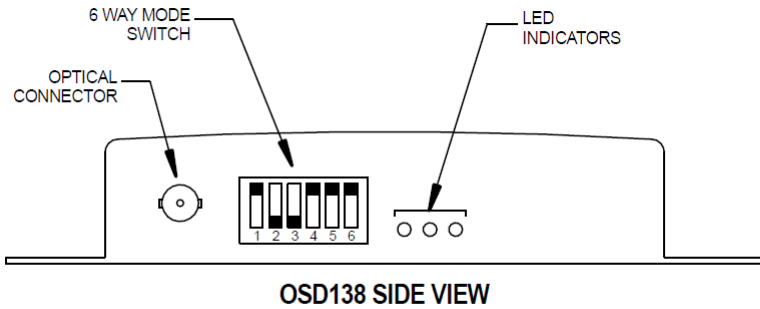## OSD138 Universal Fibre Optic Data Modem

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Wiring Details:

4 wire (RS422) Connection to the FireFinder Network Card (302-724)
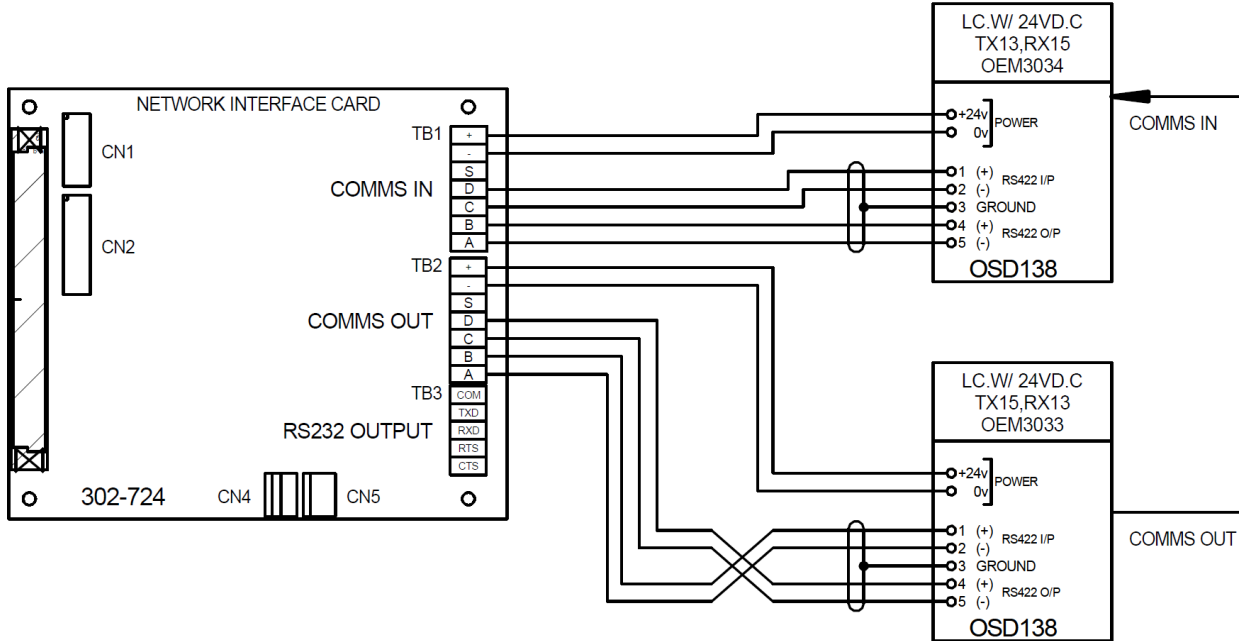
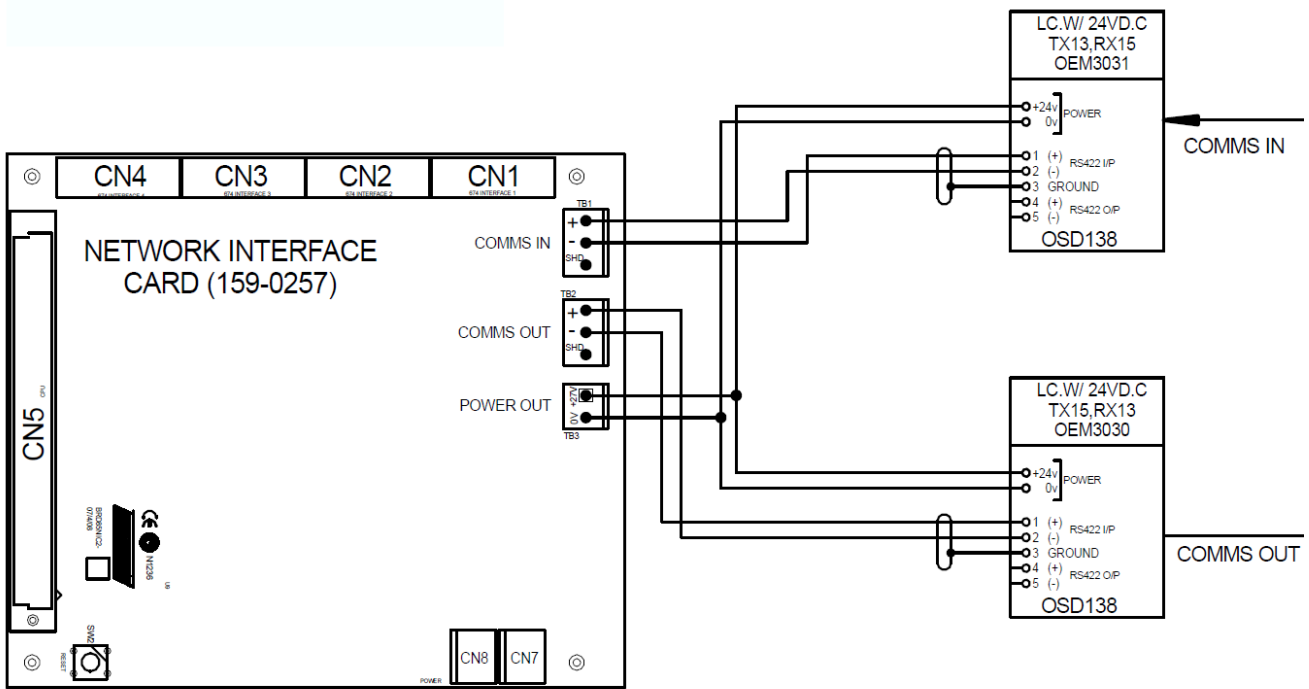
Switch settings to suit 4 wire RS422 connection.

OSD138 SIDE VIEW

DIP SWITCH SETTING FOR 4-WIRE NETWORK INTERFACE CARD

SWITCH	STATE	FUNCTION
SW 1	OFF	RS232/RS422
SW 2	ON	RS485 TURN AROUND TIME 30µs
SW 3	ON	
SW 4	OFF	
SW 5	OFF	NO BIAS RS485
SW 6	OFF	RS232/RS422 or 4 WIRE RS485

FRONT VIEW OF DATA MODE SWITCH

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2 wire (RS-485) Connection to the FireFinder Network Card (BRD85NIC2)

Switch settings to suit 2 wire RS485 connection.
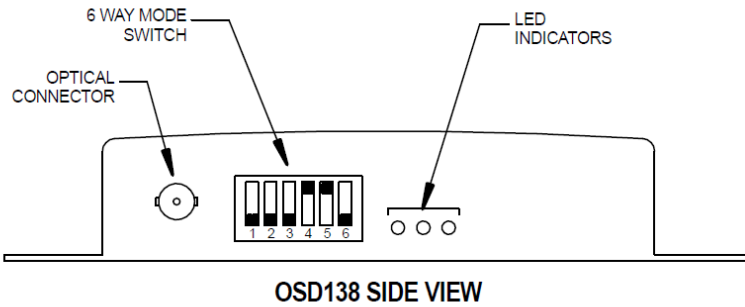
OSD138 SIDE VIEW
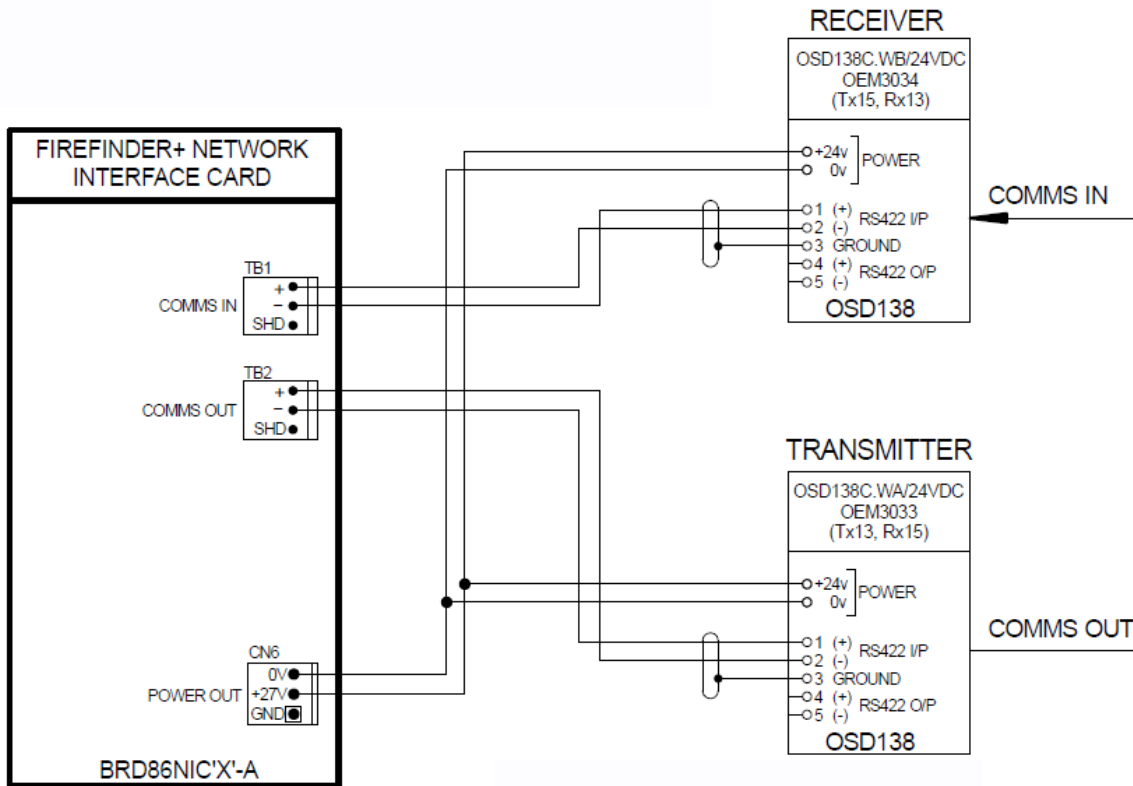
DIP SWITCH SETTING FOR 2-WIRE NETWORK INTERFACE CARD

SWITCH	STATE	FUNCTION
SW 1	ON	2 WIRE AND 4 WIRE RS485
SW 2	ON	RS485 TURN AROUND TIME 30µs
SW 3	ON	
SW 4	OFF	
SW 5	OFF	NO BIAS RS485
SW 6	ON	INVERSE RS232 OR 2WIRE RS485

FRONT VIEW OF DATA MODE SWITCH
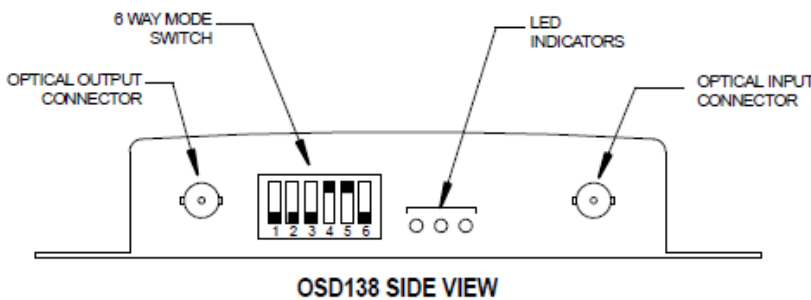
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2 wire (RS-485) Connection to the FireFinder PLUS Network Card (BRD86NICx-A)

Switch settings to suit 2 wire RS485 connection.

OSD138 SIDE VIEW

DIP SWITCH SETTING FOR 2-WIRE NETWORK INTERFACE CARD (BRD86NIC'X'-A)

SWITCH	STATE	FUNCTION
SW 1	ON	2 WIRE AND 4 WIRE RS485
SW 2	ON	RS485 TURN AROUND TIME 100µs
SW 3	OFF	RS485 TURN AROUND TIME 100µs
SW 4	ON	RS485 TURN AROUND TIME 100µs
SW 5	OFF	NO BIAS RS485
SW 6	ON	INVERSE RS232 OR 2WIRE RS485

FRONT VIEW OF DATA MODE SWITCH

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