

**OSD1270 SOLID STATE INTERLOCK  
OPTICAL DATA LINK MODULE (ODLM)**

**APPLICATIONS**

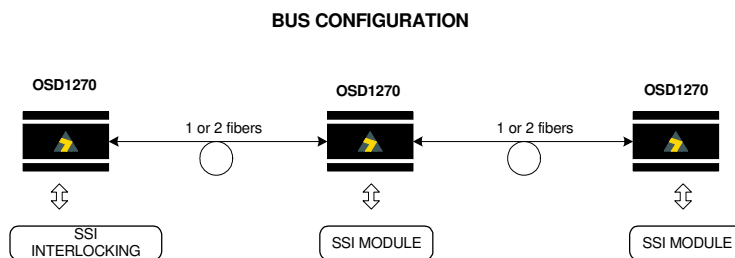
- ▲ Railway signalling systems based on the Solid State Interlocking system developed by British Rail



**FEATURES AND BENEFITS**

- ▲ Replaces the standard SSI Data Link Module (DLM) with a physically compatible unit that transmits the SSI signal over optical fibers as well as over copper
- ▲ Standard unit comes with dual Datalink interface so that it can simultaneously operate with two copper trackside datalinks and a fiber bus
- ▲ Available in a SSI + fiber only version for SSI networks where trackside datalink connectivity is not required
- ▲ Completely compatible with all SSI system elements such as TCPs, TFMs, etc
- ▲ Compatible with both multimode and singlemode fiber
- ▲ Extends module separation to several kilometres of multimode fiber and to over thirty kilometres of singlemode fiber. Distances of at least 100km are possible with optional optical devices
- ▲ Two fibers in each direction is standard but single fiber operation is optional
- ▲ Provides immunity to extreme electrical interference and complete end-to-end isolation
- ▲ Up to 63 units can be placed in a bus topology
- ▲ Link Alarm Output to monitor the optical or copper links
- ▲ Extremely robust electronics and packaging designed for the severe environments typical of railway applications

**TYPICAL APPLICATION DESIGN**



**ORDERING INFORMATION**

OSD1270      Multimode or singlemode redundant bus optical datalink module  
 Option ND      Fiber only version: ie no trackside datalink function  
 SFP Module      See OSD SFP datasheet # 10210004



# SPECIFICATIONS

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## ELECTRICAL

SSI data interface	Optically isolated 0 - 20mA current loop
Data and power connector	50-way ITT Cannon Trident bulkhead plug
Data rate	10kbps, Manchester coded
Bit error rate	$<1 \times 10^{-10}$
Datalink interface	Two 2 -wire balanced twisted copper pair Datalink1 interfaces via Pins P+R (Datalink 1) and Pins m+k (Datalink 2) of the 50-way Trident connector. Datalink 2 must be terminated by an internal 47Ω by the user if it is not used.

## OPTICAL

Optical Port Connector	SFP module (LC connectors for 2-fiber operation and SC for 1-fiber operation)
SFP Options	OSDSFP100LFX – 2-fiber, SFP Plug-in Transceiver @1310nm OSDSFP100WLFxA –1-fiber, SFP Plug-in Transceiver (Tx @1310nm, Rx @ 1550nm) OSDSFP100WLFxB –1-fiber, SFP Plug-in Transceiver (Tx @1550nm, Rx @ 1310nm)
Transmit Optical Power	-15 to -8dBm into singlemode fiber (See SFP datasheet #1021000X for options)
Receiver Sensitivity	<-33dBm
Receiver Saturation	>-3dBm
Standard Optical Link Budget	>18dB: >10km on multimode fiber @ 1310nm >30km on singlemode fiber @ 1310nm

**NOTE:** SFP modules to cover longer distances are also available. Contact OSD for a full listing of available options

## INDICATORS

Data to SSI	1 X Amber
Data from SSI	1 X Amber
Data to/from DataLink	1 X Amber
Receiver Optical Signal OK	2 X Green/Red (1 per port)
Receive Sync OK	2 X Green/Red (1 per port)
Laser OK	2 X Green/Red (1 per port)
Receive Data Present	2 X Amber (1 per port)
Receive Bit Error	2 X Red (1 per port)
Transmitter Switched to Local Crystal	2 X Red (1 per port)

## CONTROLS and MONITORING

Master/Slave Operation	User settable by means of a shorting plug used on the ODLM located at the SSI interlocking
Internal SSI Loopback Operation (Echo)	Normally enabled. Disabled by shorting Pin j to Pin h of 50-way Trident connector
Unused Datalink Termination	47Ω available via Pins p & k of the Trident connector (for Datalink 2 only)
Alarm Output	8-pin connector

## PACKAGING AND ENVIRONMENTAL

Dimensions (mm) excluding flanges and connectors	96W x 184D x 248H (Physically compatible with standard DLM)
Weight	2.1kg
Operating Temperature	-20 to +75°C
Relative Humidity	0 to 95% non-condensing
Power Requirements	90 to 264VAC @ 10VA