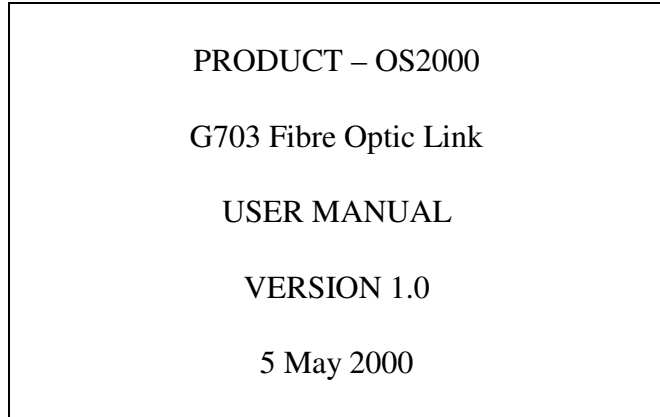


Os2000_u
 Author : W.D.
 Issue 1.1



Product: OS2000 \		Model:	
Serial Number:		JOB No :	
TEST	CRITERIA	RESULT	
Power Supply	+5V, +10V & -10V		
Free Running Rate	16,384MHz ±10Hz		
PLL Voltage	Vdc @16,384MHz		
Jitter Acceptance	5UI @ 100Hz		
Frequency Tolerance	50 PPM		
LED Indicators	Functional		
Alarm	Functional		
B.E.R	No Errors in 8 Mins		
Optic TX Level	- dB		
Optic RX Level	- dB		
Power Budget	dB		

Date: Tested By:

USER MANUAL

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1 PRODUCT DESCRIPTION

1.1 General

The OS2000 is suitable to extend a 2 Mbps (E1) ITU G703 data link over fibre. The unit is housed in a small metal enclosure. The unit is compact and can fit three next to each other in a 19" rack with a height of 1U.

1.2 Basic System Description

The unit is equipped with a intelligent alarm monitor system. This makes the localising of a fault conditions easy.

Local and remote loopback facilities are included to provide additional test facilities.

The alarm system sends messages from the one unit to the other unit by CMI encoding of the G703 data channel and these messages and then transmitting the encoded data over the fibre.

All alarm and status conditions are relayed from one unit to the other. These conditions are indicated on the front panel of the unit. This gives the technician an instant overview of the systems status when a fault should occur.

A dipswitch on the front panel selects local and remote loopback. Local loopback will route the data received by the unit at the 'traffic in' port through the decoder and directly encode it again and transmit it back to the 'traffic out' port. No jitter removing is introduced. Remote loopback will route the data received at the 'traffic in' port through the optics to the remote unit where it is again routed straight back to the local unit and transmitted back to the 'traffic out' port. The front panel will indicate when either of the loopback selections are active, both locally or remote.

The unit is modular in design and can thus be upgraded with different optics or power supply. The distance over which the system can operate is determined by the fibre interface used. The power supply can be replaced by removing the power supply module and fitting the required module. Either 220VAC, 110VAC or 48VDC. Other voltages can be supplied on request.

The unit conforms to the (ITU) G.703 line-driving format defined by the International Telecommunications Union. (Formerly known as CCITT)

Features

- Compact.
- No external framing devices required.
- 75E and 120E I/O (selectable)
- Potential free Alarm Contact

1.3 Indications

Local

Traffic In Fail	- Condition of the Incoming G703 data.
AIS Received	- Alarm Indication Signal is Set.
TX Optic Fail	- Transmit Optic Failed, Alarm Activated.
RX Optic Fail	- Receive Optic Failed, Alarm Activated.
Remote Req Loopback	- Remote Unit is in Remote Loopback.
Loopback Selected	- Loopback is Selected Locally

Remote

Traffic In Fail	- Condition of Remote Incoming G703 data.
AIS Received	- Alarm Indication Signal is Set at Remote.
TX Optic Fail	- Transmit Optic Deteriorating, Alarm Act.
RX Optic Fail	- Receive Optic Failed, Alarm Active.
Remote Loopback-	Remote is in Remote Loopback Mode.
Remote in Loopback	- Remote Unit is in Local Loopback Mode.

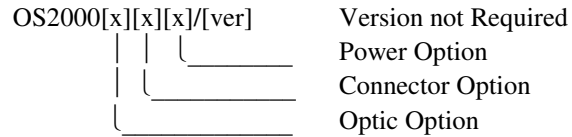
1.4 Other Features

Should the traffic in signal fail the equipment will automatically send an AIS signal to the remote site and the data speed will be at the centre of the Frequency tolerance.

Should the optic signal fail or be corrupted the output of the unit at the Traffic out socket will send an AIS signal and the data speed will be at the centre of the frequency tolerance.

2 PRODUCT STOCK CODES

2.1 Model Number Description



2.2 Optic Options

Stock Code	Optic Option	Connector Option	Wave Length	Fibre Mode	Power Budget	Budget Dist	Launch Level	RX Sense
A	850sr	ST or SMA	850nm	Multi-mode	10dB	3,5Km	-17dB	-27dB
B	1300mr	ST or SMA	1300nm	Multi-mode	10dB	12Km	-20dB	-32dB
C	1300mrsm	ST or FC	1300nm	Multi-mode Single-mode	15dB 12dB	16Km 24Km	-17dB -20dB	-32dB -32dB
D	1300lr	ST or FC	1300nm	Multi-mode Single-mode	26dB 23dB	26Km 46Km	-17dB -20dB	-43dB -43dB
E	1300laser	ST or FC	1300nm	Multi-mode Single-mode	36dB 33dB	36Km 66Km	-7dB -10dB	-43dB -43dB

2.3 Optic Connector Options

Stock Code	Optic Connector
A	SMA
B	ST
C	FC

2.4 Power Supply Options

Stock Code	Power Supply
A	220 VAC
B	110 VAC
C	48 VDC
D	24 VDC
E	220/110 VAC

3 PREPARATION FOR USE

3.1 Unpacking

Each OS4004 is shipped factory tested, and packed in a protective packaging.

Inspect the packaging for any visual damage.

The manufacturer is not liable for damage during shipment.

3.2 Installation

Before installation commences check the following:

- Input voltage supply rating of the equipment
- Link loss is within the power budget of the equipment

Connect the unit to earth at the earth tag provided at the back of the unit.

3.3 Fibre Connection

Connect the optic fibres. Make sure of the direction of connection.

The one fibre must be connected to 'TX' locally and 'RX' at the remote side and visa versa.

Be careful not to bend the fibres to sharp.

3.4 Configure unit for 75Ω operation

To configure the unit for 75Ω operation take out J1 and insert J2 and J6 on the PCB inside the unit. Connect the two BNC cables to the unit, taking note of the direction as indicated on Figure 1.

3.5 Configure unit for 120Ω operation

To configure the unit for 120Ω operation insert J1 and take out J2 and J6 on the PCB inside the unit. Connect the cables to the 120Ω connector as indicated on Figure 2.

Connect as follow using numbers seen on Figure 2:

- 1 - Negative of Traffic Out
- 2 - Positive of Traffic Out
- 3 - Earth
- 4 - Negative of Traffic In
- 5 - Positive of Traffic In

Then insert this connector as indicated on Figure 1.

4 OPERATOR'S INSTRUCTION

The unit needs no operator intervention to function.

If a fault arises, it is necessary to observe the alarm indications and to perform such procedures as first line maintenance as described in the proceeding chapter.

5 MAINTENANCE INSTRUCTIONS

No routine maintenance is required on this equipment.

5.1 First Line Maintenance

5.1.1 *Instrument and tools required*

Optic power meter
Multi-meter.
2Mbps G703 data test set.

5.1.2 *Maintenance Procedure*

When arriving at a suspect unit it is always necessary to ensure that the unit has been correctly coupled and to note the alarm conditions of the equipment.

First observe the power indicator.

If the power indicator is off, check the supply voltage.

Then check the mains fuse at the back of the unit underneath the mains plug. Replace a faulty fuse with those of the correct value only.

Next observe the alarm conditions. 'Traffic in fail' will indicate the loss of received data. check your data source. Remote 'Traffic in fail' will indicate if the remote unit input data is present.

AIS received will indicate that the data signal received at traffic in has its alarm signal set. Similarly Remote AIS received will indicate that the data received at traffic in on the remote unit has its alarm signal set.

'Transmit Data Fail' will indicate that the transmit optic signal has failed. It is possible that the optic card has failed. This card can easily be replaced by opening the box and undoing the one screw that holds the card in place. Should this not help then no on site remedy can be given for this problem. Replace the unit and return it to the supplier for repair.

'Optic receive fail' will indicate when no signal is received from the optic cable. Check the remote optic transmit power and the local optic receive power level. These should be within the specified limits. a Quick test will be to loop a short optic cable from the optic transmitter to the optic receiver. Observe the optic receive alarm, should it remain 'on' then the unit is faulty. It is possible that the optic card has failed and should replacing this card not rectify this problem then the unit must be returned for repair.

Remote 'Optic receive fail' performs the same as above and the same procedure as above should be performed at the remote unit.

'Remote request loopback', 'Loopback selected', 'Remote loopback', 'Remote in loopback' indications will indicate the status of these conditions and should any of these conditions prevail the unit will not be able to send data end to end. The condition must first be rectified by switching the condition to the off state on the dip switches at both ends of the link.

In order to test the link, connect a G703 data test set to the local unit. At the remote site the data must be externally looped straight back into the unit. Should a problem be experienced the loopback

facilities can be utilised. Select local loopback on the dip switches on the front panel of the equipment. The traffic in fail alarm must be extinguished. The 'Loopback selected' indication must light up. Data must be received by the data tester. This will test the data receive, decode, encode and transmit signals of the local unit. To test the next stage of the link deselect local loopback and select remote loopback. The 'Remote loopback' indication will light up. This will now test the local unit completely and will also test the optic interface of the remote unit. If the unit passes this test then it can safely be assumed that the optic link is in order. With both local and remote loopback deselected the link should operate over the external data loopback at the remote site. If the test is successful then the link is considered operational.

If all these tests have been done and the unit is still not operational the supplier must be notified.

6 SPECIFICATIONS

6.1 Electrical Characteristics

Power Supply

Power Connector -	3 Pin Mains Plug
Supply Voltage -	220VAC
Supply Current -	150mA
Power Dissipation -	35Watt (max)

Data Specifications

E1 Data Connectors -	120E (5 Pin Screw Connector) or 75E BNC Female Connector
E1 Industry Specification -	G.703 ITU Recommendation
E1 Encoding Format -	CMI Encoded

6.2 Optical Characteristics

Connector -	ST or SMA
Transmission Wavelength -	850nm or 1300nm
Reception Wavelength -	850nm or 1300nm
Responsivity -	7 mV/μW Typical or 13mV/μW
Fibre Compatibility -	50/125 μm diameter
Minimum Receive Level -	-30dB

6.3 Physical Characteristics

Overall Unit Dimensions -	Depth - 190 mm Width - 127 mm Height - 38 mm
Weight -	1 kg (max)

7 Figures

Figure 1.

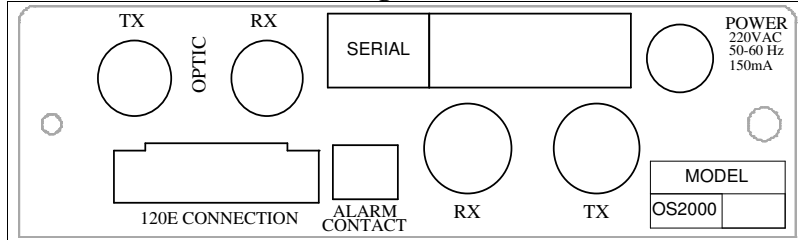


Figure 2.

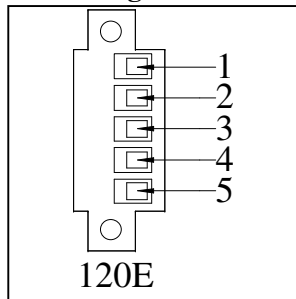
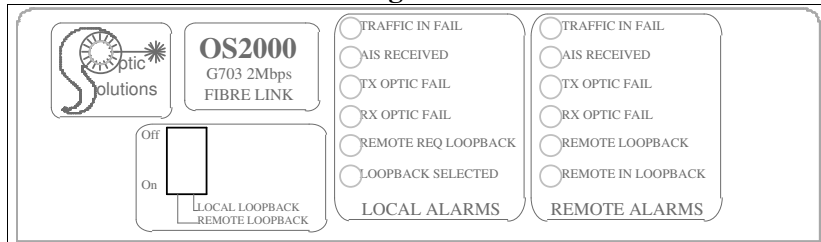


Figure 3.



8 Contact Details

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