

OPERATOR MANUAL

OSD330T/OSD330R RGB/VGA

VIDEO TRANSMISSION SYSTEM

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1 TECHNICAL SUMMARY

1.1 BRIEF DESCRIPTION

1.1.1 OVERVIEW

The OSD330 is a video transmission system designed for distribution of very high resolution RGB/VGA signals. The OSD330 enables RGB/VGA signals to be transmitted over distances far greater than would be possible using coaxial cables.

The OSD330 is available as a self-contained module, as a eurocard which plugs into OSD370 chassis, as a 1RU rack mounting enclosure, or as a table top mounting standalone case.

The OSD330 operates over three optical fibers. It's optionally available to operate over just one fiber. Both single mode (SMOF) and multimode fibers (MMOF) can be used with good return loss optical connectors. OSD330 will operate with up to 30km of SMOF and with 2km of standard low cost multimode fiber optic cable.

1.1.2 APPLICATION

- ▲ Very high resolution RGB/VGA video signals with any standard sync configuration over three multimode or singlemode fibers
- ▲ Medical image transmission
- ▲ Multiple video trunks requiring extremely high resolution
- ▲ Large CCTV systems with many tielines or remote cameras

1.1.3 FEATURES AND BENEFITS

- ▲ 3 video transmitters/card (OSD330T)
- ▲ 3 video receivers/card (OSD330R)
- ▲ Bandwidth of 150MHz per colour
- ▲ Extends RGB/VGA transmission to at least 2km on multimode and 30km on singlemode fiber
- ▲ Operates on both multimode and single mode fiber: just one system covers every situation

OPTICAL SYSTEMS DESIGN

- ▲ Can use Sync-on-Green (SoG), composite sync (CS) or separate Horizontal and Vertical sync (HS+VS)
- ▲ AGC on all three colours ensures automatic colour balance and Plug-and-Play setup
- ▲ Supports display systems at up to 1600x1200 pixels at scan rates up to 128kHz
- ▲ Safe transmission through any environment
- ▲ Immune to electrical interference and provides complete end-to-end isolation

1.2 TYPICAL CONFIGURATION

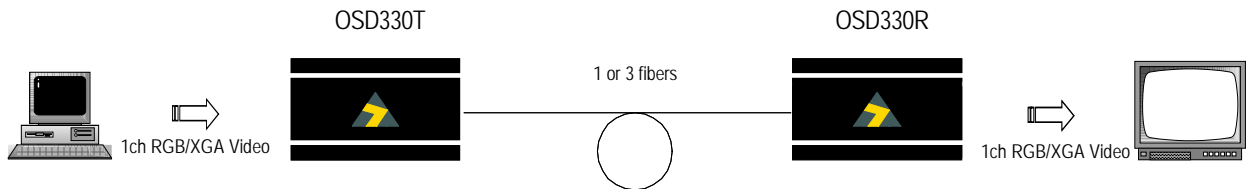


Figure 1: OSD330 System in Point to Point Network

1.3 PRODUCT OPTIONS

The standard configuration options available for the OSD330 are described in Table 1.

OPTION	DESCRIPTION
T	Fiber Optic Transmitter
R	Fiber Optic Receiver
C	Stand-alone Case, powered by mains 240VAC/110VAC
U	1RU 19" rack mounting Case, powered by mains 240VAC/110VAC
M	Module Case, powered by external +12VDC PSU
-	Eurocard designed to fit the 3RU-high 19" OSD370 chassis
1 x N	Single fiber operation, N = 1, 2, ...6. where N is the number of optical splitter outputs

Table 1: OSD330 Configuration Option Mnemonics

OPTICAL SYSTEMS DESIGN

OSD330 T U 1 X 6 (example only)

1
2
3
4

1

ITEM	DESCRIPTION
T	Fiber Optic Transmitter
R	Fiber Optic Receiver

2

ITEM	DESCRIPTION
C	Stand-alone Case, powered by mains 240VAC/110VAC
U	1RU 19" rack mounting Case, powered by mains 240VAC/110VAC
M	Module Case, powered by external +12VDC PSU
-	Eurocard designed to fit the 3RU-high 19" OSD370 chassis

3

ITEM	DESCRIPTION
1	Single fiber operation
-	Three fiber operation

4

ITEM	TRASMITTER ONLY
6	6 optical outputs
N	Number of optical outputs

OPTICAL SYSTEMS DESIGN

1.4 TECHNICAL SPECIFICATIONS

NO.	SPECIFICATION	PERFORMANCE
ELECTRICAL		
1	Number of Video Channels	3
2	Video Input/Output Impedance	75Ω
3	Video Input/Output Levels	700mV _{pp} nominal
4	Receiver AGC Technique	Sync tips on all 3 channels
5	Connectors	High Density 15 pin D Type (1) BNC (5)
6	System Bandwidth	10Hz – 150MHz over 100 metres of MMOF 10Hz – 120MHz over 1km of MMOF 10Hz – 100MHz over 2km of MMOF 10Hz – 150MHz over 30km of SMOF
7	Weighted Signal to Noise Ratio	>50dB at –20dBm peak received optical power
INDICATORS		
8	OSD330T Transmitter	(3) Individual RGB Video Signals Present Green if true / Red if false (1) Sync Signals Present Green if true / Red if false Green-Red blink in SoG mode
9	OSD330R Receiver	(3) Individual RGB Video Signals Received Green if true / Red if false (1) Power Indicator (Green)
OPTICAL		
8	Number of Fibers	3 or 1
9	Transmitter wavelength	1310nm (standard) or other wavelengths depending on requirement
10	Transmitter coupled power	-10dBm (standard) or other depending on configuration
11	Receiver sensitivity	<-20dBm peak for 50dB weighted SNR
12	Receiver saturation	>-9dBm peak
13	Optical link budget	10dB (multimode or singlemode)
14	Optical Connectors	SC standard, others optional (consult OSD)

OPTICAL SYSTEMS DESIGN

NO.	SPECIFICATION	PERFORMANCE
PHYSICAL		
15	Operating Temperature	-20 to 55°C
16	Relative Humidity	0 to 95% non-condensing
Card Version		
17	Power Requirements	+12V @ 700mA OSD330T @ 900mA OSD330R
18	Dimensions(mm)	208D x 50W x 100H
19	Weight	300g
Module Version		
20	Power Requirements	+11 to 16VDC @ 1A max
21	Dimensions(mm)	130D x 215W x 56H
22	Weight	1.6kg
Standalone Version		
23	Power Requirements	115/230VAC ±15%
24	Dimensions(mm)	215W x 215D x 56H
25	Weight	3.0kg
1RU Version		
26	Power Requirements	115/230VAC ±15%
27	Dimensions(mm)	480W x 215D x 44H
28	Weight	3.0kg

1.5 PRODUCT DESCRIPTION

The OSD330 is a high performance fiber optic video transmission system. It is designed primarily to be interfaced with a video graphics card on the transmitter side and a VGA monitor on the receiver side. The OSD330 can work with both positive and negative sync polarities. This means there is a fully transparent link to the VGA display. The OSD330 with its high bandwidth has no visible picture degradation for screen resolutions exceeding 1600x1200 pixels.

The OSD330 can operate with RGB signal sources that have separate horizontal and vertical external sync signals (Hsync and Vsync), external composite sync (Csync), or Sync-on-Green (SoG). There is a provision to switch sync signal terminations between 300 and 75 Ohms.

Irrespective of the sync format receiver maintains standard output level on all three colour output signals over the optical operating range.

The OSD330 is available in four physical configurations: card, module, 1RU, stand alone box. The card versions are designed to fit the 3RU-high 19" OSD370 chassis, which allows multiple OSD card products to be conveniently powered from and located in the one chassis. The module case versions are intended for isolated use and require an external power source.

The OSD330 can be used in point to point or star network configurations. The OSD330 can be used with both singlemode and multimode fibers. Wavelength Division Multiplexing (WDM) is available to allow the use of a single fiber optical link.

There are LED indicators that provide feedback about link and signal status. Power fail/Loss of signal alarm is available out of the receiver.

2 INSTALLATION AND OPERATION

2.1 INTRODUCTION

This section outlines how to install and operate the OSD330 fiber optic video transmission system. It should be studied carefully to avoid damage to the equipment or poor results.

This equipment has been fully tested prior to dispatch and is ready for immediate operation. However, it is advisable to check for external transportation damage before operation. If damage is present, return the unit in its original packaging to the supplier immediately.


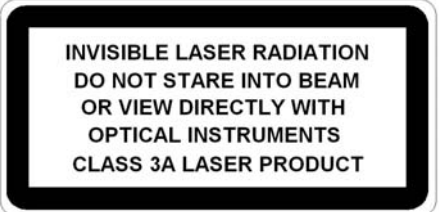
2.2 INSTALLATION

2.2.1 WARNING AND PRECAUTIONS

ELECTROMAGNETIC COMPATIBILITY

WARNING: This is a **Class 3A** product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

OPTICAL OUTPUT OPERATION

Class 3A	
The singlemode and WDM versions of the OSD330 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 of the precautionary measures during servicing 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 fibers. 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.

2.2.2 POWER SUPPLY CONNECTIONS

The OSD330 card version is powered from the OSD370 chassis. DC power in the OSD330 card version is connected via a DB9 connector. The card version of the OSD330 should be fixed into the OSD370 chassis using the captivated screws and can be plugged in or out of the OSD370 chassis with power on or off.

The OSD330 module requires external DC power. The voltage range of the OSD330 is +11V to +16V with a maximum current requirement of 1A. Power should be connected to the power socket located at the back of the case. DC power should be connected as indicated in Table 2.

External Power Pin	Specification
Pin 1	+11V to +16V DC
Pin 2	Ground

Table 2: DC Power Connection

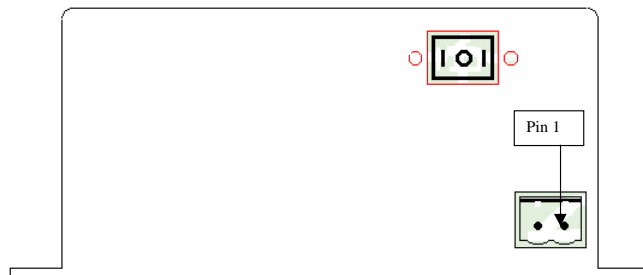


Figure 2: OSD330 Module Case Power Supply Connection

The OSD330 in 1RU 19" rack mounting case and stand-alone case both use standard IEC cable to connect to mains power. The power switch is located near to IEC socket.

2.2.3 OPTICAL CONNECTIONS

The optical fiber cable must be terminated with the appropriate optical connector. Before connection, inspect the ends of the connectors to ensure that no dust or dirt is present as it could contaminate the modem connector and result in poor performance.

If it is necessary to clean the cable connectors, use isopropyl alcohol and lint free tissue to remove contamination.

2.3 OPERATION

When using the OSD330 for the first time, check that the unit is in good condition with no visible damage. If a card version is used, insert it in an appropriate slot on the OSD chassis and check that the indicators illuminate accordingly on power up. If a module version (OSD330C) is used, connect the unit to an appropriate power source and check that the indicators illuminate accordingly on power up.

Plug in the signal source. Check that the “Power” indicator is illuminated green. If it is not illuminating, there may be a problem with the unit and it should not be used. The three channel LED indicators will be illuminated green. If sync signal is present the fourth LED will illuminate green as well. Unless the SoG option is selected in which case the LED will blink red/green.

Connect the optical cables to the receptacles. When the remote OSD330 transmitter is active the receiver will indicate the presence of signal. If optical power is within the receiver operating range LEDs will illuminate green.

2.3.1 INDICATOR FUNCTIONS

The indicator functions of the OSD330 are summarised in the tables below.

INDICATOR	RED	GREEN	LIGHT OFF
POWER	POWER ON / NO SYNC	POWER ON / SYNC PRESENT ALTERNATING RED/GREEN SoG MODE	POWER OFF
RED CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF
GREEN CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF
BLUE CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF

Table 3: OSD330T Indicator Function

INDICATOR	RED	GREEN	LIGHT OFF
POWER	POWER ON / NO SYNC	POWER ON / SYNC PRESENT	POWER OFF
RED CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF
GREEN CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF
BLUE CHANNEL	NO SIGNAL	VIDEO PRESENT	POWER OFF

Table 4: OSD330R Indicator Function

2.3.2 OSD330T MODE SWITCH FUNCTION DESCRIPTION

There are four lever switches at the front of the unit. Switch identifying numbers are on the switch body. Numbering order left to right. Two switch positions possible: open and closed. When switch is up it is open. Select appropriate sync operating modes at transmitter and receiver using information provided in the tables below.

SWITCH	OPEN	CLOSED	FUNCTION
1	OPEN		VS signal termination 300 Ohms.
		CLOSED	VS signal termination 75 Ohms.
2	OPEN		HS or CS signal termination 300 Ohms.
		CLOSED	HS or CS signal termination 75 Ohms.
3	OPEN		External sync mode selection: separate horizontal (HS) and vertical sync (VS). Operation of standard VGA link. This switch has no effect in SoG mode.
		CLOSED	External sync mode selection: composite sync (CS). This switch has no effect in SoG mode.
4	OPEN		SoG mode disabled. For normal operation with VGA graphics card keep this in open position.
		CLOSED	SoG mode enabled. When this switch is closed receiver will allow transmitted sync pulses through green channel's output.

Table 5: OSD330T Switch Settings

2.3.3 OSD330R MODE SWITCH FUNCTION DESCRIPTION

SWITCH	OPEN	CLOSED	FUNCTION
1	X	X	Reserved for future function. Position of this switch currently has no effect on unit operation.
2	X	X	Reserved for future function. Position of this switch currently has no effect on unit operation.
3	OPEN		Output sync mode selection: separate horizontal (Hsync) and vertical sync (Vsync). Operation of standard VGA link.
		CLOSED	Output sync mode selection: composite sync (Csync).
4	OPEN		SoG mode disabled. For normal operation with VGA graphics card keep this in open position.
		CLOSED	SoG mode enabled. When this switch is closed receiver will allow transmitted sync pulses through green channel's output.

Table 6: OSD330R Switch Settings

2.3.4 OSD330 FRONT AND REAR PANELS



Figure 3: OSD330TU Front Panel



Figure 4: OSD330TU Front Detail View

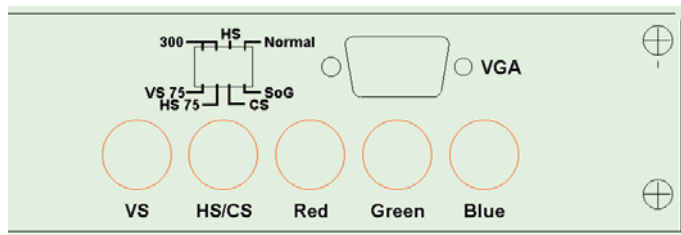


Figure 5: OSD330TU Rear Detail View

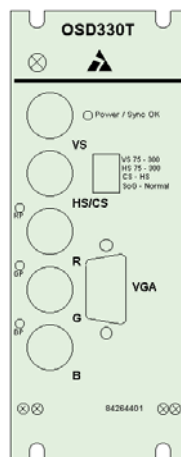


Figure 6: OSD330T Card Front Panel

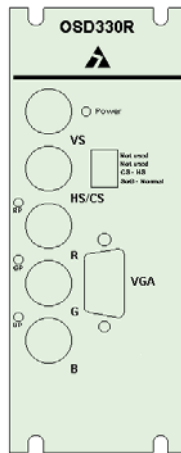


Figure 7: OSD330R Front Panel

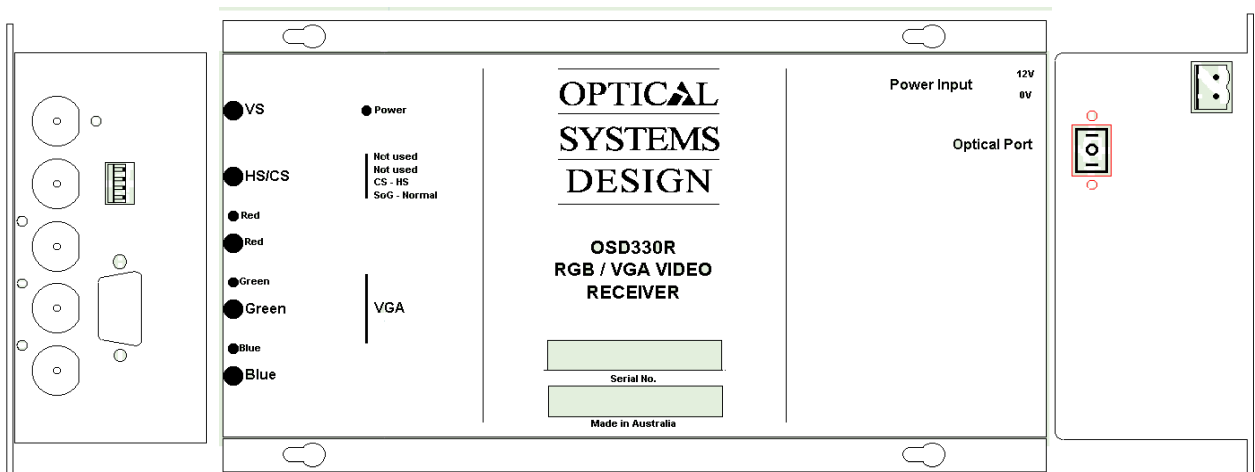


Figure 8: OSD330R Module Case

3 MAINTENANCE

3.1 INTRODUCTION

The following section outlines the fault-finding procedures for the OSD330.

Please take note of the following:

- ▲ Personnel without appropriate training should not attempt any maintenance except that outlined below.
- ▲ If further maintenance is attempted you are warned that every care should be taken to ensure that internal measurements made while the equipment is operational are taken carefully as some components within the unit are expensive and may be damaged by failure of any portion of their support circuitry.
- ▲ Some components within the unit are Electrostatic (ES) sensitive and Electrostatic Discharge (ESD) precautions should be taken when performing maintenance upon the unit.

3.2 EXTERNAL INSPECTION

Visually check for the following:

- ▲ Check that the correct power source is connected to the power socket.
- ▲ Inspect the optical connectors for any contamination and clean using isopropyl alcohol and a lint free tissue if any contamination is detected.
- ▲ Refer to Table 3 for indicator functional description and check for normal system function – the indicators can be used for basic system diagnosis.
- ▲ Check that the optical power level out of the transmitter is consistent with specifications and the received power level is greater than the specified receiver sensitivity.

If all the above points have been checked and you are still experiencing operational problems, contact OSD or its nominated authorised representative and obtain a Return Materials Authorisation form, to arrange return of goods to OSD for repair/replacement.

3.3 ROUTINE MAINTENANCE

No routine maintenance is required for this equipment.

4 WARRANTY

Optical Systems Design warrants that at the time of shipment, its products are free from defects in material and workmanship and conforms to specifications. Our warranty conditions are outlined below:

4.1 WARRANTY PERIOD

For warranty period, please call your local OSD distributor.

4.2 ALL REPAIRS

Optical Systems Design reserves the right to repair or replace faulty modules/units. Please obtain an Optical Systems Design "Return Material Authorisation" form and number before returning goods.

Goods must be returned in adequate packaging material to Optical Systems Design, or its nominated authorised representative, for all repairs.

4.3 WARRANTY REPAIRS

Return shipments to Optical Systems Design shall be at customer's expense and freight back to the customer will be at Optical Systems Design's expense.

4.4 OUT-OF-WARRANTY-REPAIRS

Optical Systems Design reserves the right to repair or replace any faulty goods. Freight costs and insurance for both journeys are met by the user. All equipment repaired by Optical Systems Design will have a 3 month warranty from the date of dispatch.

4.5 SITE REPAIRS

By agreement site repairs may be undertaken for which out of pocket, accommodation and travel expenses will be charged.

4.6 EXCLUSIONS

This warranty does not apply to defects caused by unauthorised modifications, misuse, abuse or transport damage to the equipment.

All modifications to Optical Systems Design standard products will need written authorisation.

All modifications are to be carried out by Optical Systems Design and will be charged at normal repair rates.

Warranty is void if unauthorised removal and/or tampering with serial number and/or repair labels is evident.