
OPTICAL

SYSTEMS

DESIGN

OPERATOR MANUAL

OSD461/OSD463

FM VIDEO

FIBER OPTIC MODEM PAIR

OPTICAL SYSTEMS DESIGN

OSD461/OSD463

FM VIDEO

FIBER OPTIC MODEM PAIR

Document No.

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OPTICAL SYSTEMS DESIGN

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1 TECHNICAL SUMMARY

1.1 BRIEF DESCRIPTION

1.1.1 APPLICATIONS

- ▲ Very high performance surveillance systems where high resolution or long transmission distances are required
- ▲ Industrial process monitoring
- ▲ Medical image transmission
- ▲ Multiple video trunks

1.1.2 FEATURES AND BENEFITS

- ▲ Bandwidth of 10MHz
- ▲ Complete end-to-end isolation
- ▲ Extends wideband video transmission to at least 5km on multimode and 50km on singlemode
- ▲ Safe transmission in hazardous environments
- ▲ Higher quality video than with coax or twisted pair
- ▲ More secure than coaxial cable
- ▲ Immune to electrical interference environments

1.1.3 PRODUCT DESCRIPTION

The OSD461/OSD463 pair is a fiber optic transmission system for CCTV quality video signals ideal for use in security monitoring systems. The OSD461 is fiber optic video transmitter and the OSD463 fiber optic video receiver.

The OSD461 transmitter unit consists of an optical transmitter section that transmits FM modulated video signal.

The OSD463 receiver unit consists of a high-performance optical FM receiver for incoming video. The unit provides a constant video output level that is independent of link loss.

The OSD461 and OSD463 are available in two physical configurations: card or stand-alone case. The card versions are designed to fit the 3RU-high 19" OSD370 or OSD350 chassis, which allows multiple OSD card products to be conveniently powered from and located in the one chassis. The stand-alone case versions are intended for isolated use and require an external DC or AC power source. The OSD461 is normally supplied in the standalone case configuration for mounting at each camera location, while the OSD463 is normally supplied as a card to allow multiple receiver units to be powered from and contained in the OSD370 or OSD350 chassis.

The OSD461/OSD463 pair can be used with any standard multimode optical fiber, and is available optionally for singlemode fiber use.

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1.2 TYPICAL CONFIGURATION

FIGURE 1 below indicates a typical set-up for an OSD461/OSD463.

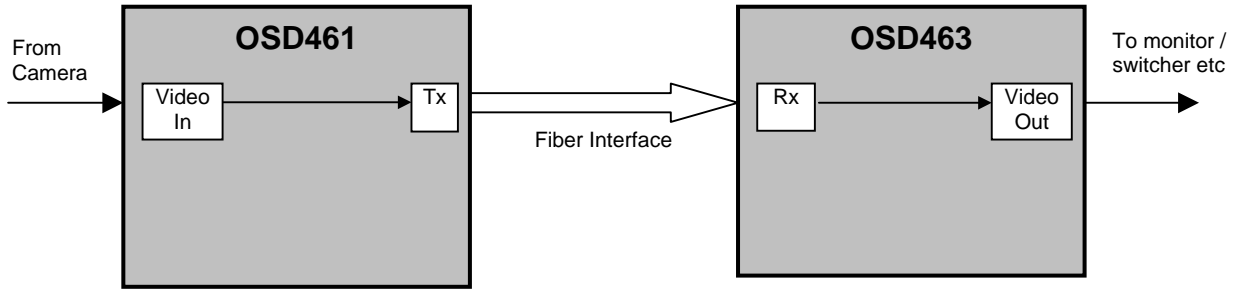


FIGURE 1: OSD461/OSD463 CONFIGURATION

1.3 PRODUCTS AND OPTIONS

There are various standard configuration options available for the OSD461/OSD463 pair as identified in Table 1 below.

OSD461/463 L C (example only)

1
2

TABLE 1: PRODUCTS AND OPTIONS

1

ITEM	DESCRIPTION
-	Multimode version
L	Singlemode version
LD1	-10dBm 1310nm laser version
LD2	-5dBm 1310nm laser version

2

ITEM	DESCRIPTION
-	Card version (3RU high chassis mount for OSD370)
C	Stand-alone case version (clamshell case)

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1.4 TECHNICAL SPECIFICATIONS

Table 2 below shows Technical Specifications for the OSD461/OSD463.

TABLE 2: TECHNICAL SPECIFICATIONS

NO	SPECIFICATION	PERFORMANCE
1	Input/Output Impedance	75Ω
2	Input/Output Levels	1Vp-p
3	Connector	BNC
4	Bandwidth	5Hz to 10MHz ± 1dB
5	Weighted Signal to Noise Ratio	>60dB at -25dBm received optical power >50dB at -35dBm received optical power
6	Transmitter Wavelength	850 ± 40nm (1300nm optional for L version) 800 to 900nm (1270 to 1580nm for OSD463L)
7	Transmitter Coupled Power	>-15 to -11dBm into 62.5/125um multimode fiber >-15 to -12dBm into 9/125um singlemode fiber (OSD461L only)
8	Receiver Sensitivity	<-30dBm for >50dB video SNR
9	Receiver Saturation	>-10dBm
10	Optical Connectors	ST standard, others optional
11	Power Requirements (card)	+9V to +18VDC or AC at 100mA max
12	Dimensions of Module (mm)	104W x 104D x 25H
13	Weight of Module	350g
14	Dimensions of card (mm)	25W x 208D x 100H
15	Weight of Card	200g
16	Indicator	Tx Signal Present (OSD461) Rx Signal Present (OSD463)
17	Operating Temperature	-20°C to 75°C
18	Relative Humidity	0 to 95% non-condensing
19	Chassis Current Consumption (CCC)	0.10Amp

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2 INSTALLATION AND OPERATION

2.1 INTRODUCTION

This section outlines the methods required to install and operate the OSD461/OSD463 successfully. It should be studied carefully if damage to the equipment or poor results are to be avoided.

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 evident, return the unit with the packaging to your supplier immediately.


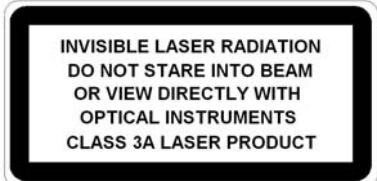
2.2 INSTALLATION

2.2.1 WARNING AND PRECAUTIONS

ELECTROMAGNETIC COMPATIBILITY

WARNING: This is a **Class A 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

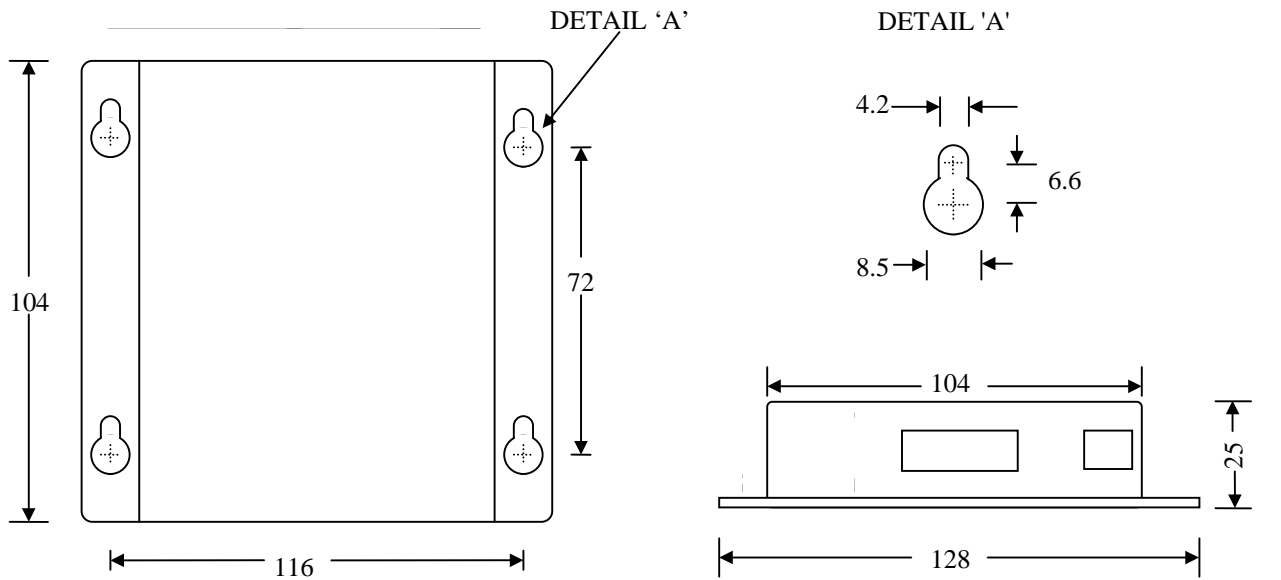
Class 1	Class 3A
The multimode version of the OSD461 is a Class 1 LED product . Wavelength of 850nm and <-8dBm power output.	The singlemode and WDM versions of the OSD461 are Class 3A laser products . Wavelength of 1310nm and <+5dBm power output or wavelength of 1550nm and <+7dBm power output.
	

- ▲ 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.

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2.2.2 OSD461/OSD463 DRAWINGS AND DIMENSIONS

The OSD461/OSD463 stand-alone version should be mounted on an even surface and secured by means of M4 or smaller screws. Figure 3(a,b) are an outer case and card drawings showing the required mounting dimensions.



(a) Standalone Case Version

(b) Card Version

FIGURE 2: OSD461/OSD463 DIMENSIONS

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2.2.3 POWER SUPPLY CONNECTIONS

It is important to read the following information for proper operation and avoid damage to the unit.

The OSD461/OSD463 card version is powered from the OSD370 chassis.

The OSD461/OSD463 module requires external DC or AC power. The acceptable voltage range is +9 to +18V DC or AC, with maximum current output of 100mA. Power should be connected to the 2 way socket located at the back of the case. Take care to connect DC power with the correct polarity: Pin 2 is 0V and Pin 1 is positive for DC power.

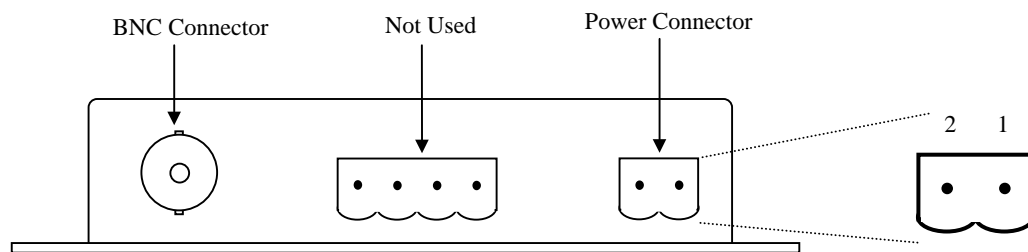


FIGURE 3: OSD461/OSD463 CASE REAR VIEW AND PIN CONNECTION DIAGRAM

2.2.4 OSD461 CONNECTIONS

For the stand-alone version, connect the OSD461 to an appropriate power source. For card versions, install the unit into the OSD370 chassis. Once the power source is switched on, check that the indicators illuminate. Check that the "Laser" indicator is illuminated green. If it is red, there may be a problem with the unit and it should not be used.

Connect a BNC terminated RG59 cable from the camera to the OSD461. If the camera is operating properly the "Video Present" indicator should change from red to green.

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 unit's 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. Connect the optical plugs on the optical cable to the receptacles located on the side of the case or on the front panel of the card version.

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2.2.5 OSD463 CONNECTIONS

For the stand-alone version, connect the OSD463 to an appropriate power source. For card versions, install the unit into the OSD370 chassis. Once the power source is switched on, check that the indicators illuminate.

Connect a BNC terminated RG59 cable from the OSD463 to the video monitor/switcher.

Connect the optical plugs on the optical cable to the receptacles located on the side of the case or on the front panel of the card version. If the received optical power is sufficient the "Link OK" indicator will change from red to green. If a video signal is being received the "Video Present" indicator should be green; if no video signal is being received this indicator will be red.

2.2.6 INDICATORS

The indicator function of the OSD461/OSD463 pair is summarized in Table 3 and Table 4. Figure 4 and Figure 5 show the LED allocation and their display function.

TABLE 3: OSD461 INDICATOR FUNCTION

OSD461	INDICATOR COLOR	
	GREEN	RED
INDICATOR NAME		
Laser	Normal Laser Operation	Laser or Laser Driver Fault
Video Present	Video Input Signal Detected	No Video Input Signal Detected

TABLE 4: OSD463 INDICATOR FUNCTION

OSD463	INDICATOR COLOR	
	GREEN	RED
INDICATOR NAME		
Video Present	Received Video Signal Detected	No Received Video Signal Detected
Link OK	Optical power O.K.	Low Optical power

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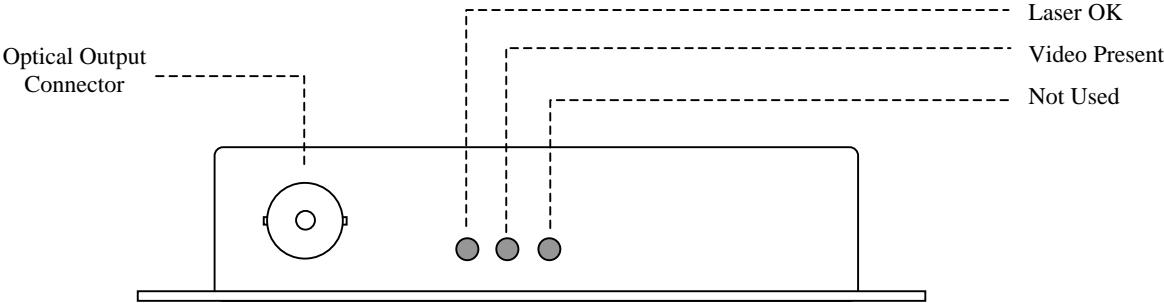


FIGURE 4: OSD461 INDICATORS

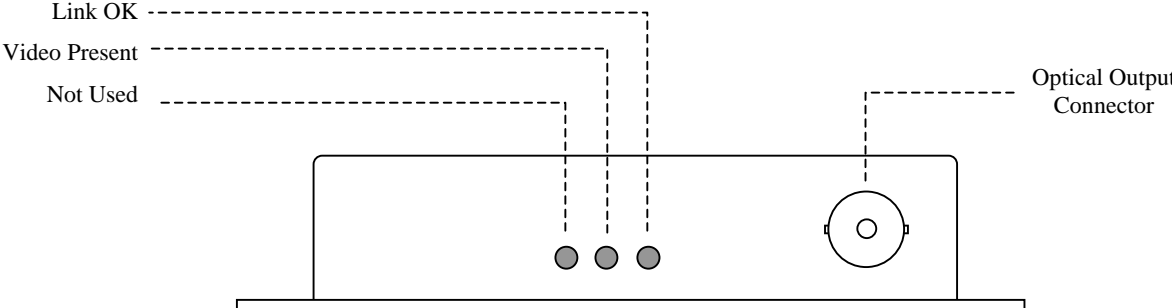


FIGURE 5: OSD463 INDICATORS

3 MAINTENANCE

3.1 INTRODUCTION

The following section outlines the fault-finding procedure for the OSD461/OSD463. Please take note of the following:

- ▲ Personnel without appropriate training should not attempt any maintenance except that outlined in Section 3.2.
- ▲ 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.

3.3 ROUTINE MAINTENANCE

- ▲ There is no routine maintenance required with the OSD461/OSD463.

4 WARRANTY

Thank you for purchasing equipment designed, manufactured and serviced by Optical Systems Design (OSD). OSD 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 REPAIRS

Optical Systems Design reserves the right to repair or replace faulty modules/units. Please obtain a "Return Material Authorisation" (RMA) form and number before returning goods. Goods must be returned in adequate packing material to Optical Systems Design, Warriewood or its nominated authorised representative, for all repairs.

4.2.1 WARRANTY REPAIRS

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

4.2.2 OUT-OF-WARRANTY REPAIRS

OSD 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 OSD will have a 3-month warranty from the date of dispatch.

4.2.3 SITE REPAIRS

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

4.2.4 EXCLUSIONS

This warranty does not apply to defects caused by unauthorized modifications, misuse, abuse or transport damage to the equipment. All modifications to OSD's standard product will need written authorization and will be charged at normal repair rates. All modifications are to be carried out by OSD Technicians. Warranty is void if unauthorized removal and/or tampering with serial number and/or repair labels is evident.

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