OPTICAL
SYSTEMS
DESIGN

OPERATOR MANUAL

OSD8865

DIGITAL TRIPLE VIDEO

FIBER OPTIC RECEIVER

INDEX 1

1 TECHNICAL SUMMARY

1.1 BRIEF DESCRIPTION

1.1.1 OVERVIEW

The OSD8865R is a three-channel high-quality fiber optic digital video receiver. The OSD8865R operates with up to three OSD8815T single channel digital video transmitters or the OSD8810 Micro Video transmitter module. Using the OSD8865R can provide up to three one-way reception of PAL, NTSC or SECAM video.

The OSD8865R incorporates three high performance optical digital receivers for incoming video signals. The unit provides constant video output level which is independent of link loss.

The OSD8865R is available as a card version and is 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 OSD8865R can be used with any standard multimode or singlemode optical fiber.

1.1.2 APPLICATIONS

- ▲ Very high performance surveillance systems where high resolution or long transmission distances are required
- ▲ Safe city CCTV system video transmission
- ▲ Transportation communication systems

1.1.3 FEATURES AND BENEFITS

- ▲ 3 video receivers built on one card
- ▲ Broadcast quality 10 bit video, bandwidth of 10MHz.
- ▲ Performance is maintained at the same high quality over all link lengths
- ▲ Adjustment-free receiver operation
- ▲ Works with OSD8815T or OSD8810 over an operating range of at least 3km on multimode fiber, 30km on singlemode fiber with greater than 100km possible with optional optical devices
- ▲ Provide many channels of video reception in a compact 19" rack mounting configuration (usually in control room)

1.2 TYPICAL CONFIGURATION

Figure 1 below indicates the typical set-up for an OSD8865R system. Note: The OSD8810 Micro Transmitter Module can be used in place of the OSD8815T.

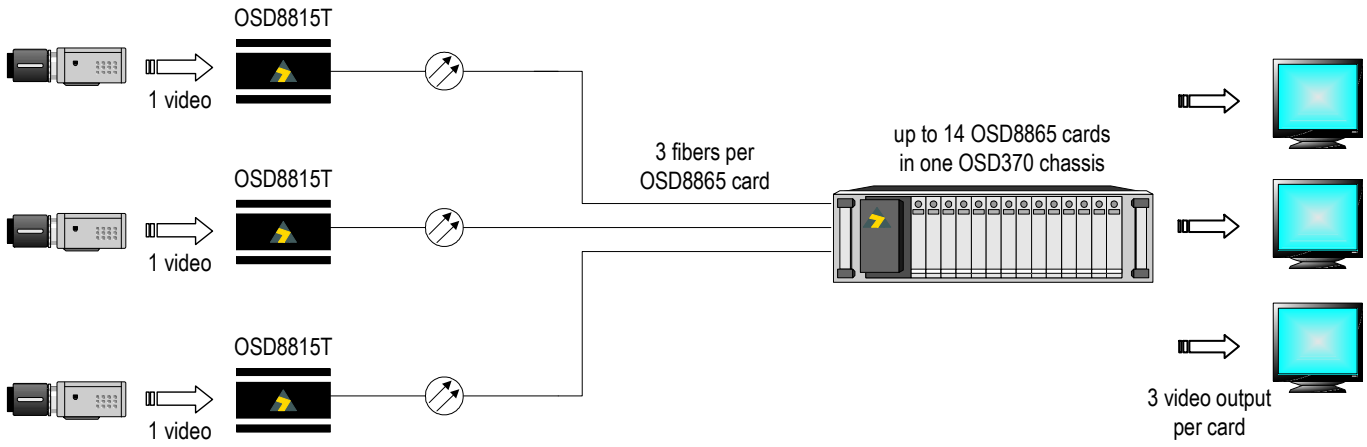

FIGURE 1: OSD8865R TYPICAL CONFIGURATION

1.3 TECHNICAL SPECIFICATIONS

Table 1 below provides Technical Specifications for the OSD8865R.

TABLE 1: TECHNICAL SPECIFICATIONS

SPECIFICATION	PERFORMANCE
Number of Channels	3
Output Impedance	75Ω
Output Levels	1Vpp nominal
Output Interface	Composite via BNC connector
Video Bandwidth	5Hz to 10MHz ± 1dB
Signal to Noise Ratio (Weighted)	> 65dB at all receive levels over full dynamic range
Linearity	<0.7% Differential Phase (DP) <0.7° Differential Gain (DG)
Number of Fibers	3
Operating Wavelength	1250nm - 1610nm
Receiver Sensitivity	<-28dBm
Receiver Saturation	>-3dBm
Link Distance (with OSD8815T)	> 3km multimode (fiber bandwidth limited) > 30km singlemode (fiber loss limited)
Optical Connectors	ST standard, others optional
Dimensions (mm)	25W x 208D x 100H (card)
Weight	200g
Power Requirements	+9 to 24V_{DC} @ < 5VA
Indicators	Video Present x 3 Receive Signal OK x 3
Operating Temperature	-20°C to +75°C
Relative Humidity	0 to 95% non-condensing
Chassis Current Consumption (CCC)	0.40 Amp

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NOTES:

Other combinations of receiver types and sensitivity levels are possible. Contact OSD for details.

2 INSTALLATION AND OPERATION

2.1 INTRODUCTION

This section outlines the methods required to install and operate the OSD8865R 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 (From OSD8815T or OSD8810)**

WARNING: **Laser Safety:** Class 1 Laser Product per IEC/EN 60825-1:20011 standard.

Class 1
The OSD8865R has no laser transmitter but receives laser transmission from **Class 1 laser products.**


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 OSD8865R DRAWINGS AND DIMENSIONS

The OSD8865R is designed to be inserted into a chassis and secured by means of captivated screws.

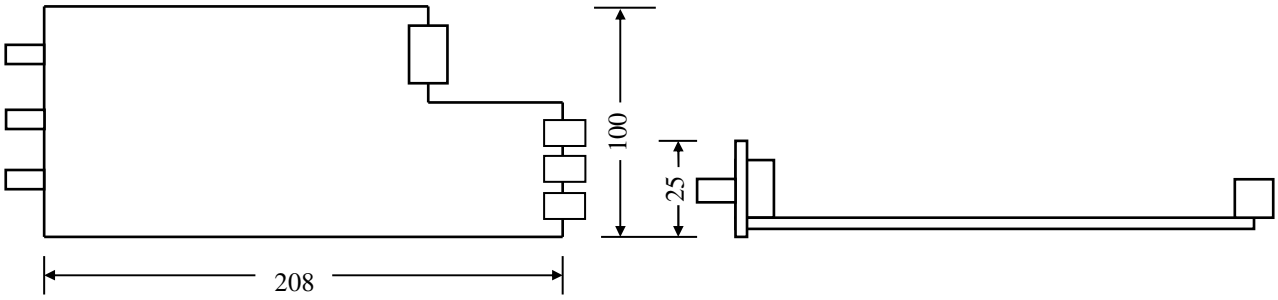

FIGURE 2: OSD8865R MOUNTING DIMENSIONS

2.2.3 POWER SUPPLY CONNECTIONS

The OSD8865R is powered from the OSD370 or OSD350 chassis. DC power to the OSD8865R is connected via the DB9 connector. The OSD8865R should be fixed into the OSD370 (or OSD350) chassis using the captivated screws. The card can be plugged in or out of the OSD370 (or OSD350) chassis with power on or off.

2.2.4 OTHER CONNECTIONS

The video-input signal (eg. from camera) is connected to the video input BNC connector on the OSD8815T or OSD8810. The video output signal (eg. to monitor) is connected from the video output BNC connector on the OSD8865R.

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 OSD8865R OPERATION

2.3.1 OPERATION

When using the OSD8865R for the first time, check that the unit is in good condition with no visible damage.

Insert the OSD8865R in an appropriate slot on the OSD370 or OSD350 chassis and check that the indicators illuminate accordingly on power up (see Table 2).

Plug in the optical connectors of the optical cable. If the set-up is connected correctly, the OSD8865R "Receive Signal OK" LED will change from ‘Red’ to ‘Green’.

To connect a video signal, connect a BNC terminated coaxial cable from the camera to the OSD8815T or OSD8810T.

Connect a BNC terminated coaxial cable between the BNC socket on the rear of the OSD8865R and the video monitor or switcher. If a video signal is being received the “Video Present” indicator on the OSD8865R should be ‘Amber’; if no video signal is being received this indicator will not be illuminated.

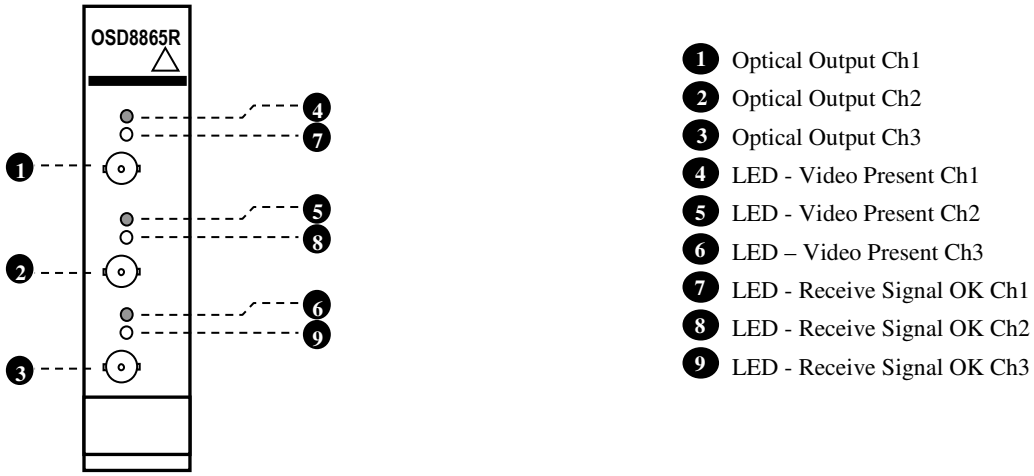

FIGURE 3: OSD8865R FRONT PANEL VIEW

2.3.2 OSD8865R INDICATORS

TABLE 2: OSD8865R INDICATOR FUNCTION

INDICATOR	PARAMETER	LED COLOUR	FUNCTION
VIDEO PRESENT Ch1 to Ch3	Video Input Status	Off	No video signal present
		Amber	Video signal present
RECEIVE SIGNAL OK Ch1 to Ch3	Link Status	Red	No optical signal received
		Green	Optical Signal received

3 MAINTENANCE

3.1 INTRODUCTION

The following section outlines the fault-finding procedure for the OSD8865R modems. 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.
- Check that the video signals are connected to the modem correctly and that the OSD8865R modem has been terminated correctly to any external equipment.
- Inspect the optical connectors for any contamination and clean using isopropyl alcohol and a lint free tissue if any contamination is detected.
- Check that any external termination resistors are connected if the system configuration requires them.

3.3 ROUTINE MAINTENANCE

- There is no routine maintenance required with the OSD8865R.

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 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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