OPTICAL SYSTEMS DESIGN

USER MANUAL

OSD8100

PROTECTION SWITCH

CONTROLLER SYSTEM

Document No. 101078 Revision 01

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1 SYSTEM CONFIGURATION

1.1 TYPICAL CONFIGURATION

Figure 1 below indicates the system set-up using OSD8100. Each OSD860T transmitter is sending two video and data at different wavelengths (1490nm, 1510nm, 1530nm, 1550nm, 1570nm). The OSD251 (marked on the block diagram as⊕) adds the video and data information along the line. At the OSD8100 input, all wavelengths are arriving to the optical inputs A and B. The video and data signal then splits up at the CWDM and the wavelengths are separated respectively. The signal is then analysed by the sensor card and determines which signal, A or B is present. The present signal is then transferred to the optical switch and the output of the OSD8100. If both A and B signals are present, the OSD8100 defaults the output to Channel A input. Each received wavelength is then connected to the OSD860R receiver for de-multiplexing the video and data. If a signal is not present on both A and B inputs, an alarm will be activated.

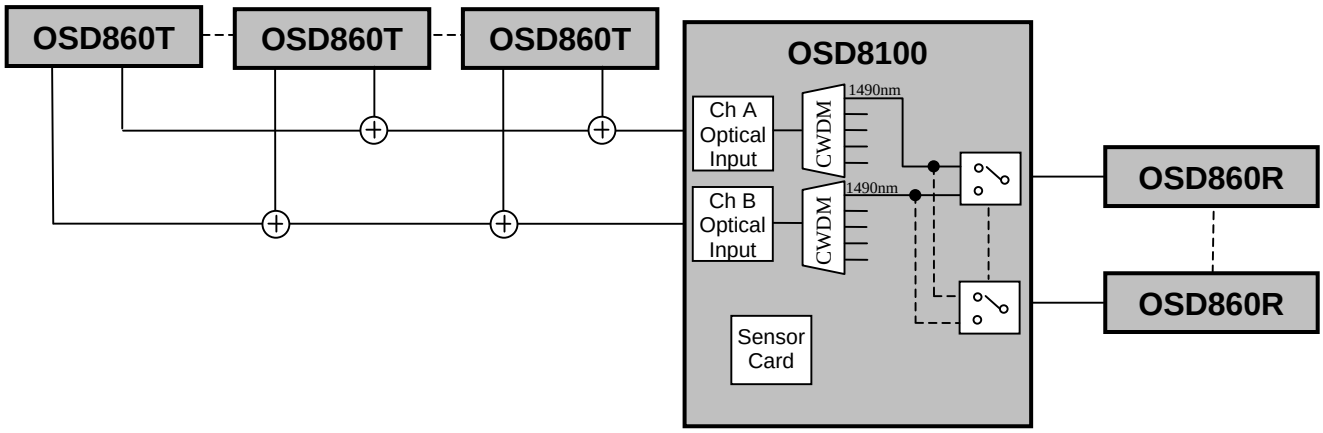


FIGURE 1: OSD8100 SYSTEM CONFIGURATION

1.2 PIN ASSIGNMENTS

Pin assignments for the Copper Relay Switching DB25F connector (Figure 2) is shown in Table 1 below. The connector is located on the back of the OSD8100 unit and is accessible from the rear of the OSD370 or OSD350 chassis.

TABLE 1: PIN ASSIGNMENT

Relay Channel	Function	Pin Number
1	Common	2
	NO	15
	NC	14
2	Common	16
	NO	4
	NC	3
3	Common	5
	NO	18
	NC	17
4	Common	19
	NO	7
	NC	6
5	Common	8
	NO	21
	NC	20
Ground		1

Notes; - NO = Normally Open
- NC = Normally Closed
- Pins 9, 10, 11, 12, 13, 22, 23, 24, 25 are not used

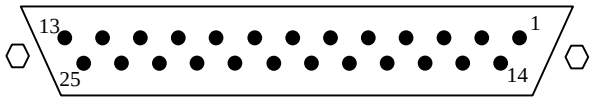


FIGURE 2: DB25F CONNECTOR PINOUT

2 INSTALLATION AND OPERATION

2.1 OSD8100 DRAWINGS AND DIMENSIONS

The OSD8100 is designed to be inserted into an OSD370 or OSD350 chassis and secured by means of captivated screws. Extra care should be taken in inserting and removing the OSD8100 to/from the chassis. There are numerous fiber cables carefully wrapped and secured and should not be handled in any form. Take extra care and precaution not to get any fiber cable caught on the chassis rails.

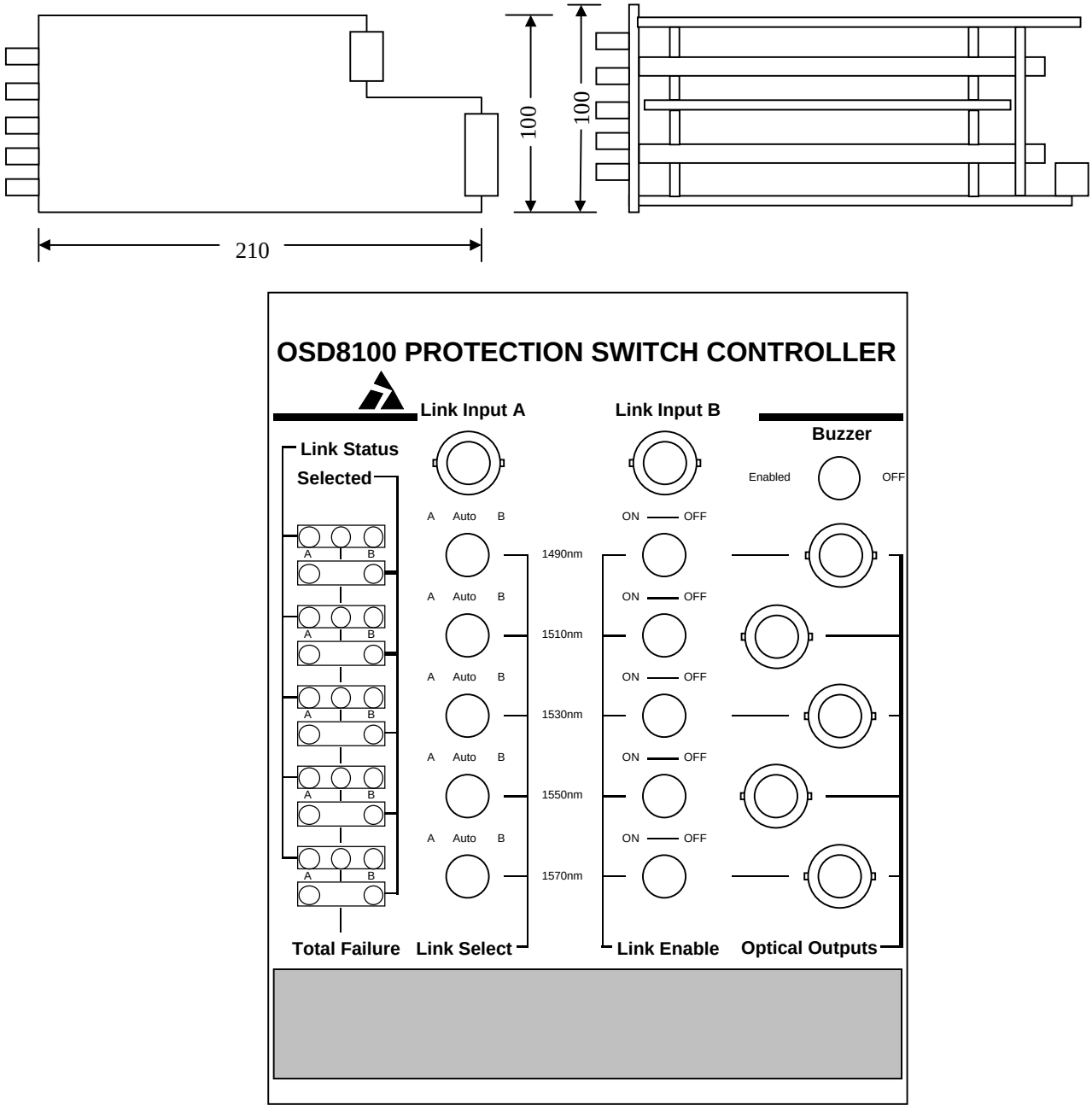


FIGURE 3: OSD8100 MOUNTING DIMENSIONS AND FRONT PANEL

2.2 OSD8100 CONNECTIONS

2.2.1 POWER SUPPLY CONNECTIONS

The OSD8100 is powered from the OSD370 or OSD350 chassis and is connected via the DB9 connector. The OSD8100 should be fixed into the OSD370 (or OSD350) chassis using the captivated screws.

2.2.2 OPTICAL CONNECTIONS

Connect the primary OSD860 multiplexed optical signal to Link Input A on the OSD8100.

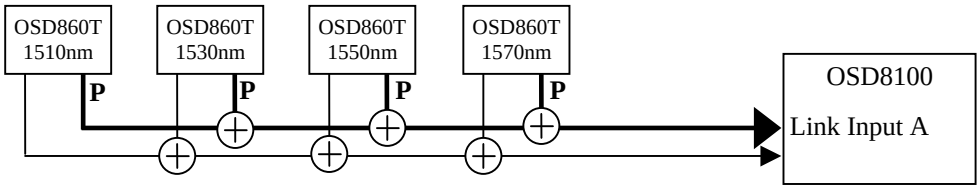


FIGURE 4: PRIMARY OPTICAL INPUT SIGNAL CONNECTION

⊕ OSD251

P Primary

S Secondary

Connect the secondary OSD860 multiplexed optical signal to Link Input B on the OSD8100.

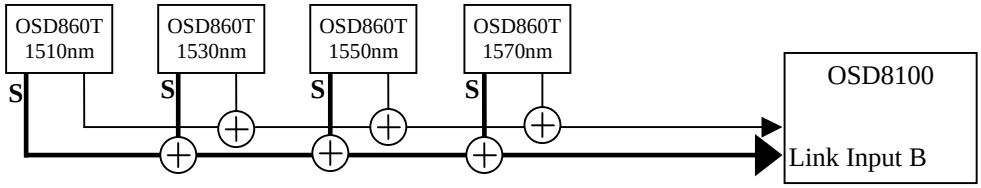


FIGURE 5: SECONDARY OPTICAL INPUT SIGNAL CONNECTION

Connect the OSD8100 optical outputs from the OSD8100 to the OSD860R receiver boards

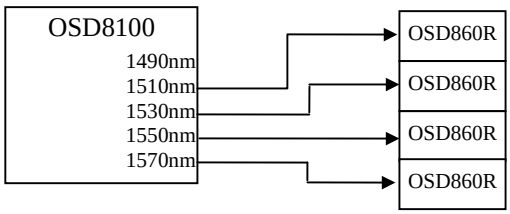


FIGURE 6: OPTICAL OUTPUT SIGNAL CONNECTION

The optical fiber cable must be terminated with ST optical connectors. 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.

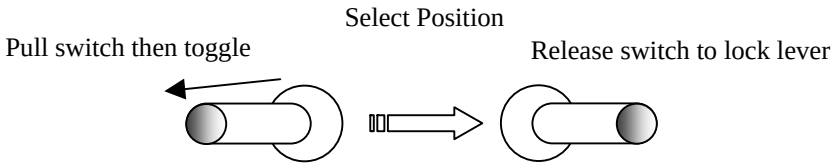
If it is necessary to clean the cable connectors, use isopropyl alcohol and lint free tissue to remove contamination.

2.3 OSD8100 SWITCH FUNCTIONS

There are three main toggle switch functions;

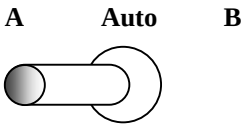
1. Link Select – five switches, one per wavelength channel (1490nm to 1570nm)
2. Link Enable – five switches, one per wavelength channel (1490nm to 1570nm)
3. Buzzer – one switch

Note: All switches are Lockable Lever type. To toggle the switch position the switch handle needs to be pulled out first before toggling the switch.



2.3.1 LINK SELECT SWITCH

There is one switch per wavelength allowing the user to manually select the incoming optical signal from either the Primary (**A**) channel, Secondary (**B**) channel, or Auto.



A Mode

Sets the optical output signal from primary input signal only for the corresponding wavelength selected. Note: Auto Detect mode is disabled.

B Mode

Sets the optical output signal from secondary input signal only for the corresponding wavelength selected. Note: Auto Detect mode is disabled.

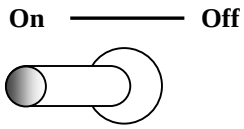
Auto Mode

Sets the unit to auto-detect mode. The OSD8100 detects the presence of both primary and secondary input signal (see LED indicator section for more information). If both primary and secondary signals are present, the OSD8100 defaults the output from the primary (**A**) optical input. If the signal from the primary (**A**) is not present, the OSD8100 will switch the optical signal to the secondary (**B**) optical input. If neither the primary signal nor secondary signal is present an audible alarm will sound and the "Total Failure" LED (See LED indicator section for more information) will blink corresponding to the wavelength link.

The switch should be set to the **Auto** position to detect the presence of signal on either the primary channel (**A**) or secondary channel (**B**).

2.3.2 LINK ENABLE SWITCH

There is one switch per wavelength allowing the user to manually disable any channel that is not required or not used. This will prevent the audible alarm from sounding and LEDs indicating errors for the wavelength channel(s) not being used.



On Mode

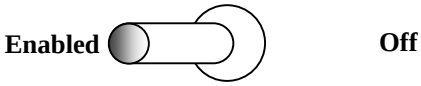
Enables the wavelength channel.

Off Mode

Disables the wavelength channel from any operation (ie channel select, auto, alarm). The optical signal being received from the primary channel (**A**) will still be on the outputs even with the switch set to off mode as this is the default setting. All LEDs corresponding to the wavelength channel will be off.

2.3.3 BUZZER SWITCH

The buzzer switch allows the user to disable the audible alarm in the event that both primary (**A**) and secondary (**B**) inputs are not present. The corresponding LED(s) will still blink indicating the wavelength channel not being detected (See LED section for more information).



Enabled Mode

Enables the audible alarm. Audible alarm will only sound when both primary (**A**) and secondary (**B**) inputs corresponding to the wavelength channel(s) are not detected.

Off Mode

Disables the audible alarm only from sounding when both primary (**A**) and secondary (**B**) inputs corresponding to any or all the wavelength channel(s) not detected.

2.4 OSD8100 LED FUNCTION

There are three main LED indicator functions for each wavelength channel (1490nm to 1570nm);

1. Link Status
2. Selected
3. Total Failure

Note: This manual will describe the function for one wavelength channel as all wavelength channels will operate in the same manner.

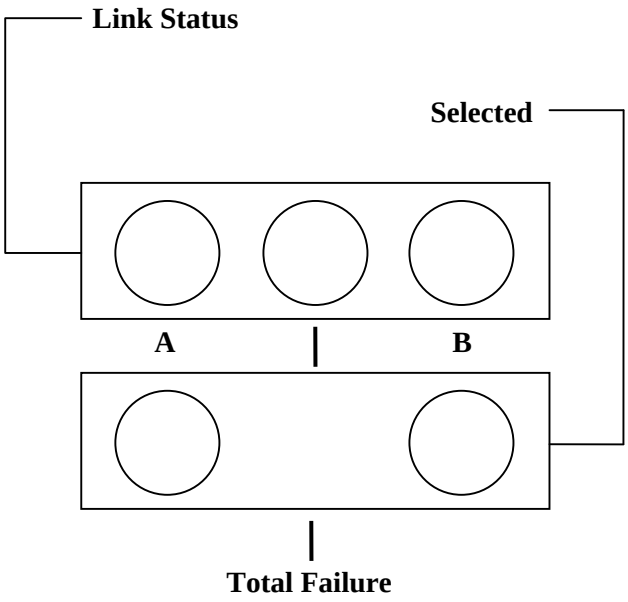
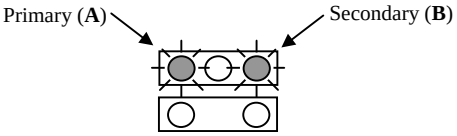


FIGURE 7: LED INDICATORS

2.4.1 LINK STATUS

The Link Status LED indicates the presence of the primary (**A**) and/or secondary (**B**) optical signal at the input to the OSD8100. Left side indicates the primary (**A**) channel and right side indicates the secondary (**B**) channel.



Green – Optical input signal detected on corresponding input channel.

Red – Optical signal not detected on corresponding input channel.

2.4.2 SELECTED

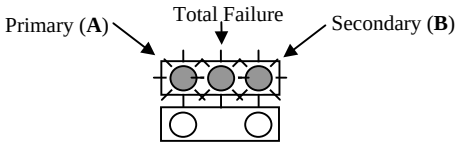
The Selected LED indicates which optical input channel is selected and transmitted to the optical output on the corresponding wavelength channel. Left side indicates the primary (**A**) channel and right side indicates the secondary (**B**) channel.

A Green – Primary (**A**) optical input signal transmitted through to the corresponding wavelength output channel. Note: Secondary (**B**) LED will be off.

B Green – Secondary (**B**) optical input signal transmitted through to the corresponding wavelength output channel. Note: Primary (**A**) LED will be off.

2.4.3 TOTAL FAILURE

The Total Failure LED indicates if both primary (**A**) and secondary (**B**) optical inputs are not present. In this state, both primary (**A**) and secondary (**B**) Link Status LEDs will be red.



Off – Normal operation with both or either primary (**A**) or secondary (**B**) inputs being transmitted to the corresponding wavelength output.

Red Blinking – Both primary (**A**) and secondary (**B**) inputs are not detected. Both primary (**A**) and secondary (**B**) Link Status LEDs will be red. If the buzzer switch is enabled (See switch function section), an audible alarm will also sound.

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Printed in Australia