OPTICAL
SYSTEMS
DESIGN

Quick Start Guide

OSD2888

MANAGED 12 x 10/100/1000BASE-T

& 4 x 10G SFP ETHERNET SWITCH

INDEX 1

1 INTRODUCTION

Thank you for choosing the OSD2888 16-Port (12x1G + 4x10G) Managed Ethernet Switch. This Quick Start Guide is designed to guide you through the installation and basic software functions.

2 TECHNICAL SUMMARY

2.1 BRIEF DESCRIPTION

The OSD2888 is a managed 12 port 10/100/1000BASE-T and 4 port 10G SFP Ethernet Switch. Please see OSD2888 datasheets for options available.

2.2 APPLICATIONS

- ▲ Managed L3 switch for small to medium-sized Enterprise networks requiring high throughput
- ▲ Redundant and self-healing network
- ▲ Industrial IP communications for rugged environments
- ▲ Available with either DC or AC powering. The DC version has dual redundant inputs as standard whereas redundant AC powering is optional for the AC version

2.3 FEATURES AND BENEFITS

General
- L2 managed Ethernet switch
- ITU-TG.8032 Ethernet Ring Protection Switching
- CPU Memory 128MB
- User-friendly web browser based GUI
- CLI and SNMP management

Port Control
- Port speed, duplex mode, and flow control
- Port status -- link monitoring
- Port statistics -- MIB counters
- Port cable diagnostics

QoS
- Traffic classes (1, 2, or 4, 8 active priorities)
- Port default priority and user assigned priority
- Scheduler priority
- QoS control
- Storm control

L2 Switching
- IEEE 802.1D Bridge with auto MAC learning/aging
- IEEE 802.1Q static VLAN
- Private VLAN (static)
- 25Gbps switching backplane
- IEEE 802.1Q-2005–Rapid spanning tree (RSTP)

Security
- Port-based 802.1X
- Web and CLI authentication and authorization

OAM
- IEEE 802.3ad Link aggregation, static and LACP
- DHCP client
- IEEE 802.1ag Service OAM
- IEEE 802.3ah Link OAM

Multicasting
- IGMP Snooping (IGMPv2, IGMPv3)
- Multicast Listener Discovery (MLD) v1 and v2

Power Saving
- Ethernet energy efficient
  - – Link down power savings
  - – Scales power based on cable length
- Thermal protection

Management
- HTTP server
- Web management
- CLI console port
- Management access filtering
- System Log
- Software download through web
- SNMPv1/v2c/v3 Agent
- IEEE 802.1AB-2005 Link Layer Discovery, LLDP
- Configuration download or upload
- RFC 1213MIB II
- RFC 3621 LLDP-MED power
- RFC 3635 Ethernet-like MIB
- RFC 4188 Bridge MIB
- Private MIB framework
- IEEE 802.1 MSTP MIB
- IEEE 802.1AB LLDP MIB

2.4 TECHNICAL SPECIFICATIONS

TABLE 1: TECHNICAL SPECIFICATIONS

SPECIFICATION	PERFORMANCE
Electrical Data Interface	IEEE802.3i/802.3u/802.3ab, 10/100/1000Base-T Ethernet
Optical Data Interface	IEEE802.3z 1000Base-Lx/Sx
Copper Port Connector	RJ45 x 12
Optical Port Connector	SFP (LC or SC)
Console Connector	Mini-USB
Operating Mode	Half or full duplex for 10/100/1000 Full duplex for 1G Store-and-Forward Half-duplex back-pressure and IEEE802.3x full-duplex flow control
Optical Port Connectors	SFP x 4 for uplink/trunk ports
SFP Options	Short haul, long haul, single fiber operation, etc. Please consult OSD Datasheets #102100XX and #10210G0XX for 1G and 10G or contact OSD
Indicators	12 x 10/100/1000Base-T, 1000Base-X: Link/Activity/Speed 4 x 10G Link/Avctivity/Speed 1 x Power
Operating Temperature	-20°C to +75°C
Relative Humidity	5 to 95% non-condensing
Power Requirements	+10 to +36V_{DC} @ 30VA Max 90 to 264V_{AC} @ 40VA Max
Power Connector	4 way Terminal Block for DC powered version One IEC power inlet module for the standard AC powered version Two IEC power inlet modules for the optional redundant AC powered version
Dimensions of Enclosure (mm)	443W x 300D x 44H
Weight (kg)	5.1

102288802

3 INSTALLATION

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

WARNING: **Laser Safety:** Class 1 Laser Product (SFP) per IEC 60825-1:2014 standard.

Class 1
The OSD2888 is a **Class 1 laser product** when SFP are fitted


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.

4 OSD2888 FRONT AND REAR PANELS

4.1 FRONT PANEL

FIGURE 1: FRONT PANEL

1. PSU1 Status LED
2. PSU2 Status LED
3. Status LED
4. USB Console Port
5. View LED Mode button
6. View mode LEDs indicators
7. 12 x 10/100/1000M COPPER ports with Link/Speed/Status LED
8. 4 x 10G Trunk/Uplink SFP ports with Link/Speed/Status LED
9. Reset Button

4.2 REAR PANEL

FIGURE 2: REAR PANEL

10. PSU Alarm Output connector
11. Programmable Alarm Output Connector
12. Earth/Ground screw
13. PSU 1 Power Supply Input/Fuse/Switch

5 Power Supply Connections

Connect the IEC Power connectors to PSU 1 located on the rear of the unit.

The OSD2888 requires external 90 to 264V_{AC} @ 40VA Max power.

FIGURE 3: POWER CONNECTION

6 LED Indicators

TABLE 2: LED FUNCTION

LED	Function
PSU 1	• Red – PSU 1 Not connected or faulty • Green – PSU 1 On
PSU 2	• Red – PSU 2 Not connected or faulty • Green – PSU 2 On • Off – PSU 2 not available/fitted
Status	• Red – Standby/Initialization Mode • Green – Normal status
View Mode LED Indicators	Controlled by View LED Mode Button. Pressing the Mode button cycles the Copper Port Status LED indication. Speed Mode → Duplex Mode → Status Mode → Reserved
Copper Port Status LED	The Copper Port Status LED will indicate different information. Speed Mode: • Green – 1Gbps • Yellow – 100MBps • Off – No Connection • Blinking – Traffic Duplex Mode: • Green – Full Duplex • Yellow – Half Duplex • Off – No Connection Status Mode: • Green – Connection established • Off – No Connection
Fiber Port Status LED	The Fiber Port Status LED will indicate different information. Speed Mode: • Green – 1Gbps or 10Gbps • Yellow – 100MBps • Off – No Connection Duplex Mode: • Green – Full Duplex • Off – No Connection Status Mode: • Green – Connection established • Off – No Connection

7 Fitting SFP Connectors

Care should be taken when inserting/removing the SFP connectors from the SFP port as SFP modules are Electrostatic (ES) sensitive and Electrostatic Discharge (ESD) precautions should be taken when installing. Ensure that the SFP is fully engaged and latched into position.

Inserting SFP – Ensure that the SFP lever is in the locked position and insert into appropriate SFP port. Gently push the SFP until it locks into place. Remove plastic/rubber dust cap and fit appropriate fiber cable.

Removing SFP – Remove fiber connector. Pull the SFP lever down to unlock SFP from housing. Using the lever, gently pull the SFP out.

Fiber SFP

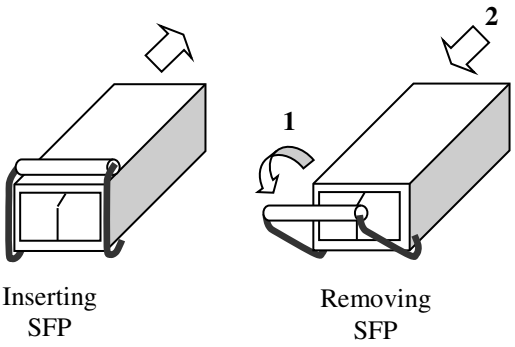
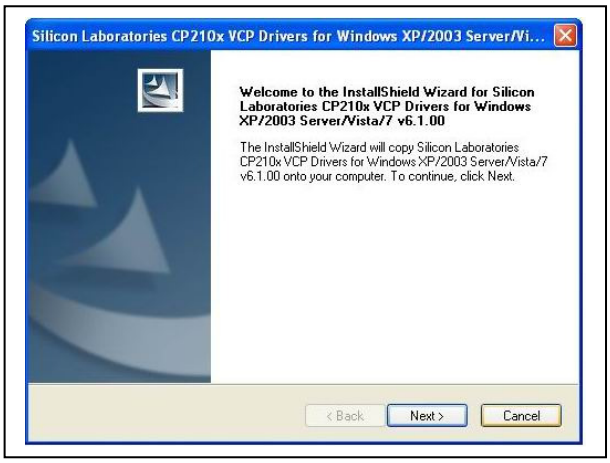


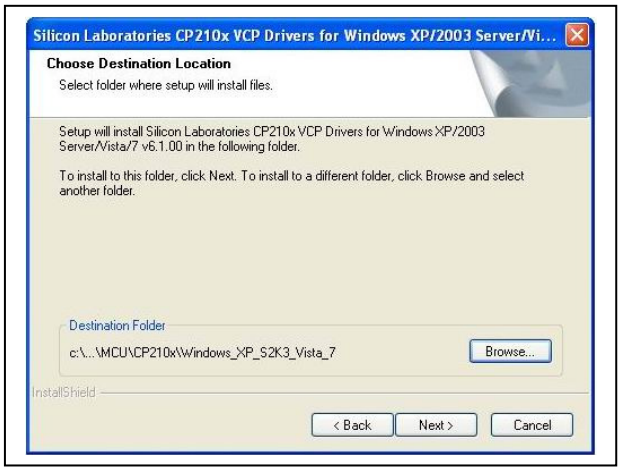
FIGURE 4: FITTING/REMOVING SFP CONNECTORS

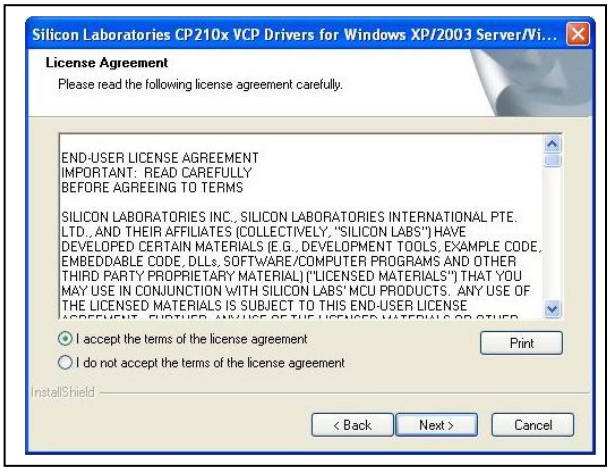
8 CLI OVERVIEW

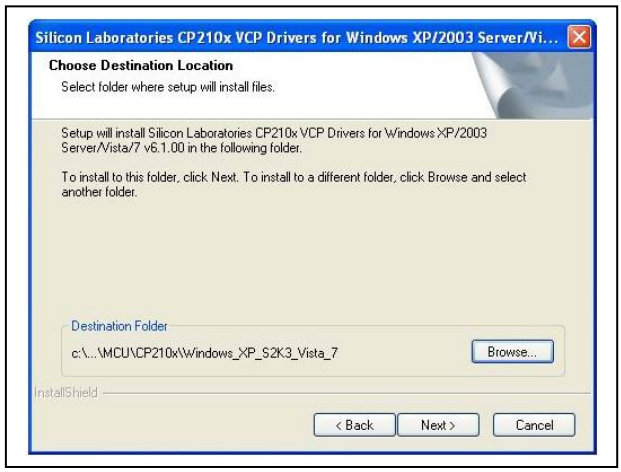
8.1 CONNECT TO CLI

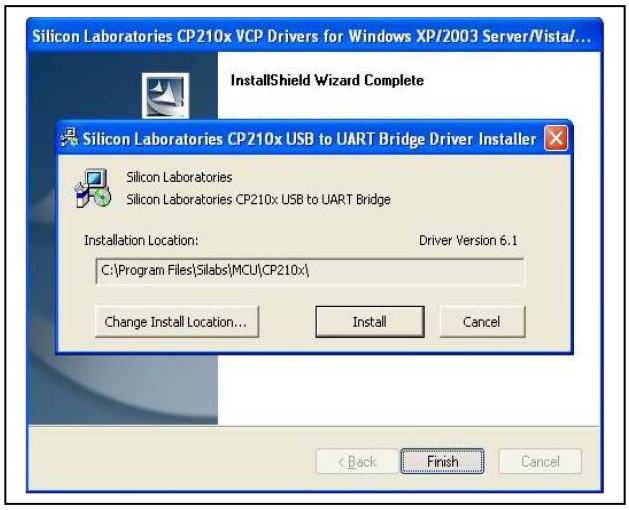
The Silicon Laboratories CP210x VCP Drivers is required to be installed on the PC before connecting the switch.

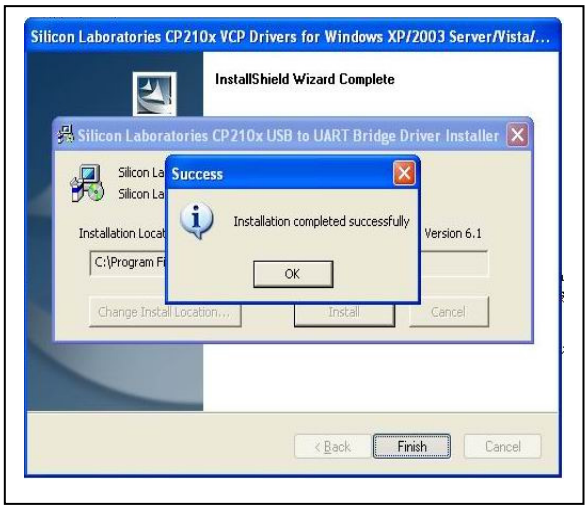












1. Connect the Console Port on OSD2888 (Mini USB) to PC with USB cable.
2. Using HyperTerminal or similar, set up the following parameters.
    - Baud Rate: 115200
    - Data Bits: 8
    - Parity: None
    - Stop Bits: 1
    - Flow Control: None
3. Check the link by pressing <ENTER>. The line should jump to the next line.
4. Using the Username and password to login the switch
    - **Default Username**: admin
    - **Default Password**: (None)

```
 Active fis: linux
00:00:01 Stage 1 booted
00:00:02 Loading stage2 from NAND file 'fw2CdUiH'
00:00:21 Overall: 20004 ms, ubifs = 1714 ms, rootfs 18253 ms of which xz = 0 ms of which untar = 0 ms
00:00:27 Starting application...
Using existing mount point for /switch/

Press ENTER to get started

Username: admin
Password:
#
#
```

8.2 CLI COMMAND FOR IP CONFIGURATION

The Command Line Interface (CLI) is a useful tool for checking link status and debugging link connections. To enable the use of CLI the OSD2888 must be connected to a PC with a USB port using a Mini-USB cable. Using a terminal emulation program such as Hyperterminal, a number of command lines specific to the OSD2888 can be implemented

- ***show ip interface brief***: Displays the current IP address and subnet mask.

```
#
# show ip interface brief
Interface  Address              Method   Status
---------- -------------------- -------- ------
VLAN 1     192.168.0.99/24      Manual   UP
#
```

- ***configure terminal -> interface vlan 1 -> ip address <IP address> <subnet mask>***: Setup the switch IP address. The following picture is an example of how to configure the device IP into 192.168.16.88

```
#
# conf t
(config)# int vlan 1
(config-if-vlan)#  ip add 192.168.16.88 255.255.255.0
(config-if-vlan)# end
#
#
```

- ***copy running-config startup- config***: Save the current configuration to start-up configuration. The configuration will be saved into Flash so that the desired configuration setup will be in effect at the next startup.

```
#
#
# copy runn star
Building configuration...
% Saving 2525 bytes to flash:startup-config
#
#
#
```

PS: All configuration changes must be saved otherwise all the changes will be lost after rebooting!

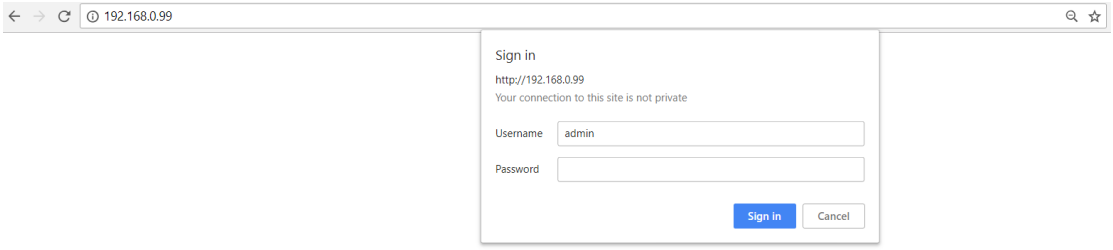
GUI Overview

8.3 DEFAULT SETTING

- IP Address: 192.168.0.99
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.0.1
- User Name: admin
- Password: (None)

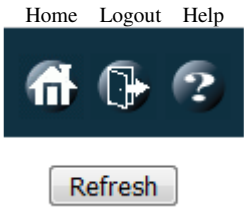
8.4 LOG INTO THE SWITCH

- Connect an Ethernet cable to any switch port from a PC. It may be necessary to change the PC's network IP address to connect to the switch. (i.e.: 192.168.0.2). Make sure the IP address of the PC and the switch in the same subnet.
- In a web browser, enter the URL 192.168.0.99.
- Enter the username (admin) and password (none/blank) and click "Sign In".



8.5 GUI OVERVIEW

This Quick Start Guide will only show a few main or important features to get the user running the OSD2888 successfully. On the top right hand of the GUI screen there are a few icons available to quickly navigate or obtain help for each GUI menu items.



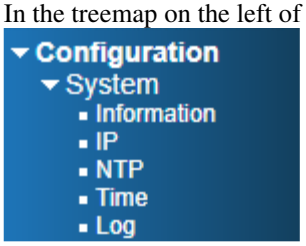
HOME: Clicking the Home button will exit any GUI current screen and display the panel status.

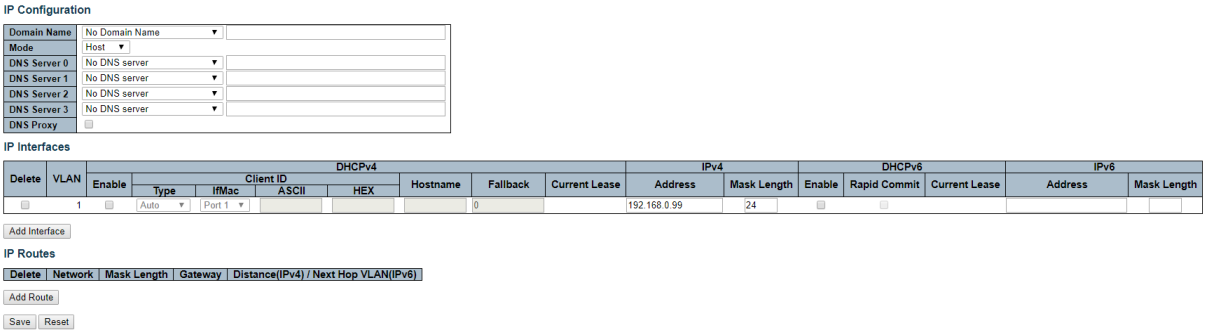
LOGOUT: Clicking the Logout button will logout the current user and close the windows session

HELP: Clicking the Help button will open a help window for the current open menu window and display all functions and input arguments for that page.

8.6 IP CONFIGURATION

In the treemap on the left of the GUI, expand the **Configuration → System → IP.**





Enter the **IPv4 address** and **Mask Length** in the table.

Choose the management VLAN ID to access that IP in **VLAN** table if VLAN function is required.

If multiple IP addresses are required, click **Add Interface** to add more IP interfaces.

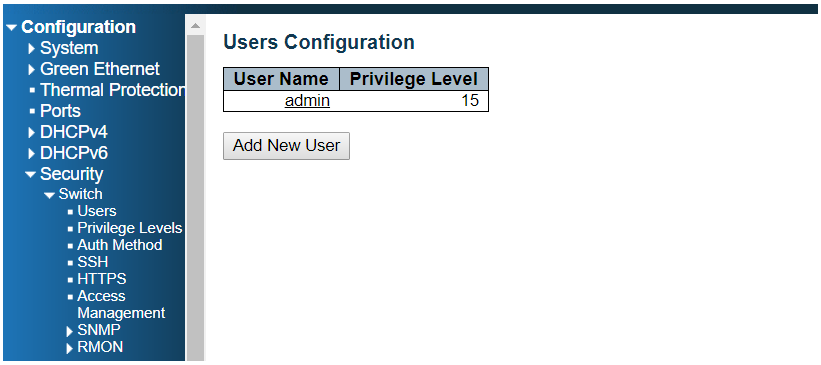
Click **Save** to save the configuration.

Use new IP address to access the switch.

PS: All configuration changes must be saved otherwise all the changes will be lost after rebooting!

8.7 USERS AUTHENTICATION

In the tree map on the left, expand the **Configuration → Security → Switch → Users**



Users Configuration

User Name	Privilege Level
admin	15

Add New User

Click **admin** to change the current admin account setting.

Edit User

User Settings	
User Name	admin
Change Password	No
Privilege Level	15

Save Reset Cancel

If multiple users are required, click **Add New User**

Add User

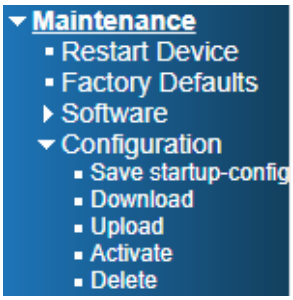
User Settings	
User Name	
Password	
Password (again)	
Privilege Level	0

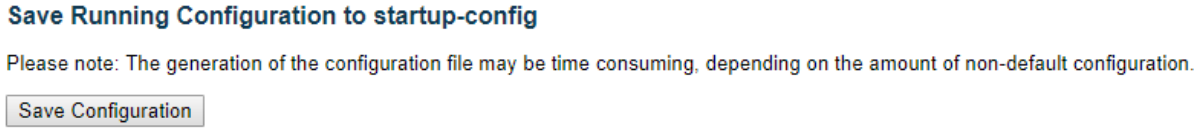
Save Reset Cancel

PS: All configuration changes must be saved otherwise all the changes will be lost after rebooting!

8.8 SAVE CONFIGURATION TO START-UP

In the treemap below, expand the **Maintenance → Configuration → Save startup-config**

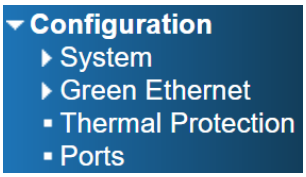




Click **Save Configuration** to save the configuration on start-up.

8.9 PORT SPEED SETTING

The port speed settings for the OSD2888 is auto mode for copper port and 10G for SFP port. On the tree map below expand **Configuration → Ports**.



Port Configuration

Port	Link	Speed		Adv Duplex		Adv speed						Flow Control			PFC		Maximum Frame Size	Excessive Collision Mode	Frame Length Check
		Current	Configured	Fdx	Hdx	10M	100M	1G	2.5G	5G	10G	Enable	Curr Rx	Curr Tx	Enable	Priority			
*			<>	☑	☑	☑	☑	☑	☑	☑	☑	☐			☐	0-7	10240	<>	☐
1		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
2		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
3		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
4		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
5		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
6		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
7		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
8		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
9		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
10		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
11		1Gfdx	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
12		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
13		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
14		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
15		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
16		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
17		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
18		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
19		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
20		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
21		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
22		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
23		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
24		Down	Auto	☑	☑	☑	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240	Discard	☐
25		Down	10Gbps FDX	☑	☑	☐	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240		☐
26		Down	10Gbps FDX	☑	☑	☐	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240		☐
27		Down	10Gbps FDX	☑	☑	☐	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240		☐
28		Down	10Gbps FDX	☑	☑	☐	☑	☑	☐	☐	☐	☐	✗	✗	☐	0-7	10240		☐

Save Reset

9 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:

9.1 WARRANTY PERIOD

For warranty period, please call your local OSD distributor.

9.2 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.

9.2.1 WARRANTY REPAIRS

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

9.2.2 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.

9.2.3 SITE REPAIRS

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

9.2.4 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.

Optical Systems Design Pty. Ltd.
7/1 Vuko Pl. Warriewood 2102
P.O. Box 891 Mona Vale
N.S.W. Australia 2103
Telephone: +61 2 9913 8540
Facsimile: +61 2 9913 8735
Email: sales@osd.com.au
Web Site: www.osd.com.au

OPTICAL
SYSTEMS
DESIGN
PTY LTD A.B.N. 83 003 020 504

Printed in Australia