Quick Start Guide

OSD2890

L2/3 MANAGED 24 x 10/100/1000BASE-T

& 4 x 10G SFP ETHERNET SWITCH

INDEX 1

1	INTRODUCTION	4
2	TECHNICAL SUMMARY	4
2.1	BRIEF DESCRIPTION	4
2.1.1	OVERVIEW	4
2.1.2	111121011101.0	
2.1.3		
2.2	TECHNICAL SPECIFICATIONS	
	INSTALLATION	
	OSD2890 FRONT AND REAR PANELS	
4.1	FRONT PANEL	
4.2	REAR PANEL	
	POWER SUPPLY CONNECTIONS	
	LED INDICATORS	
	FITTING SFP CONNECTORS	
	CLI OVERVIEW	
8.1	CONNECT TO CLI	
8.2	CLI COMMAND FOR IP CONFIGURATION	
	VERVIEW1	
8.3	DEFAULT SETTING	-
8.4	LOG INTO THE SWITCH	
8.5	GUI OVERVIEW	
8.6	IP CONFIGURATION	
8.7	USERS AUTHENTICATION	
8.8	SAVE CONFIGURATION TO START-UP	
8.9	Port Speed Setting	
	WARRANTY	
9.1	WARRANTY PERIOD	
9.2	REPAIRS	
9.2.1		
9.2.2 9.2.3		
9.2.3 9.2.4		
9.2.4	EACLUSIONS	/

FIGURE 1: FRONT PANEL	7
FIGURE 2: REAR PANEL	7
FIGURE 3: POWER CONNECTION	7
FIGURE 4: FITTING/REMOVING SFP CONNECTORS	9
FIGURE 4: FITTING/REMOVING SFP CONNECTORS	9

TABLE 1: TECHNICAL SPECIFICATIONS	5
TABLE 2: LED FUNCTION	8

OSD2890 QUICK START GUIDE

1 INTRODUCTION

Thank you for choosing the OSD2890 28-Port (24x1G + 4x10G) L2/L3 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

2.1.1 OVERVIEW

The OSD2890 is an L2/L3 managed 24 port 10/100/1000BASE-T and 4 port 10G SFP Ethernet Switch. Please see OSD2890 datasheets for options available.

2.1.2 APPLICATIONS

- Any network utilising a mix of copper and fiber
- ▲ Industrial IP communications

2.1.3 FEATURES AND BENEFITS

- ▲ Complies with IEEE802.3i/802.3u/802.1ab 10/100/1000Base-T, IEEE802.3z 1000Base-LX, IEEE802.3ae 10GBaseXX standards
- ▲ Supports RSTP/STP/ ITU-TG.8032 Ethernet Ring Protection Switching for Ethernet redundancy Supports Loop Protection
- ▲ IP Multicast Filtering through IGMP Snooping V2
- ▲ Supports port-based VLAN and Private VLAN
- ▲ QoS with eight priority levels
- ▲ Virtual USB console, Telnet, SNMP V1, V2c & V3 and Web Browser
- ▲ Full wire-speed forwarding rate
- ▲ Supports IEEE802.1x Security
- ▲ IEEE802.3ab Link Layer Discovery Protocol

- Self-healing Gigabit Ethernet backbone networks
- ▲ Four 10G SFP trunk/uplink ports
- Static and LACP link Aggregation
- A Port speed control and Port mirroring
- ▲ 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▲ Operates over the temperature range of -20 to +60°C
- Redundant DC powering and optional redundant AC powering
- ▲ Optional IEEE 802.3af/at PoE (OSD2890P)
- System log and remote firmware upgrading
- ▲ Intelligent thermal protection
- ▲ L3 compliant switch, including functions like: Universal Plug and Play (UPnP), IPv4/IPv6 L3 static routing, RFC2328 OSPFv2 dynamic routing, RFC-1812 L3 checking (version, IHL, checksum), etc.

PAGE 4

OSD2890 QUICK START GUIDE

2.2 TECHNICAL SPECIFICATIONS

TABLE 1: TECHNICAL SPECIFICATIONS

SPECIFICATION		PERFORMANCE				
Electrical Data Interface		IEEE802.3i/802.3u/802.3ab, 10/100/1000Base-T Ethernet				
Electrical Data Co	onnector	RJ45 on the fixed copper ports for OSD2890 and OSD2890P				
OSD2890P PoE		IEEE802.3af: 47 to 55V _{DC} @ 0.35Amp maximum IEEE802.3at: 47 to 55V _{DC} @ 0.70Amp maximum				
Configuration Con	nnector	Mini USB console Port				
Alarms		Four: 2 for Power Supply Status, 2 user definable via the GUI				
Alarm Interface		4 opto-isolated relay drivers via two 4-way 3.5mm terminal blocks				
Control		System reset				
Optical Port Conn	ector	Dual LC on 2-fiber SFP modules or SC on 1-fiber SFP modules				
Trunk/Uplink Por Interface	ts Optical	IEEE802.3ae for 10GBASE-SR (MM: 300m), 10GBASE-LR (SM: 10km), 10GBASE_ER (SM: 40km), 10GBASE_ZR (SM: 80km), IEEE802.3z 1000Base-Lx/Sx				
		Half or full duplex for 10/100				
Operating Mode		Full duplex for 1G, 2.5G and 10G				
Operating Mode		Store-and-Forward				
		Half-duplex back-pressure and IEEE802.3x full-duplex flow control				
		1 x power				
		24 x 10/100/1000Base-T: Link Activity				
Indicators		24 x 10/100/10001000Base-T: Speed				
		4 x 10G Link/Activity/Speed				
		24 x 10/100/1000Base-T: PoE (OSD2890P only)				
SFP Options		See OSD Datasheets #1010000X and #10210G00X for full details on available optical SFP modules				
Operating Temper	ature	-20°C to +60°C				
Relative Humidity	1	5 to 95% non-condensing				
	OSD2890DC	10 to $36V_{DC}$ @ 45VA Max via one 4-way 5.08mm terminal block				
Power	OSD2890AC	90 to $264V_{AC}$ @ 50VA Max via integrated IEC power inlet module				
Requirements	OSD2890DAC	90 to $264V_{AC}$ @ 55VA Max via two integrated IEC power inlet modules				
	OSD2890P	47-57 V_{DC} @ 50VA Max (without PoE) & @ 450VA Max (with PoE0 via one 4-way 5.08mm terminal block				
OSD2890P PoE Power Budget		600W maximum				
Dimensions of Mo	odule (mm)	440W x 300D x 44H				
Weight (kg)		4.9 for OSD2890, 5.1 for OSD2890P				
		102289006				

102289006

PAGE 5

OSD2890 QUICK START GUIDE

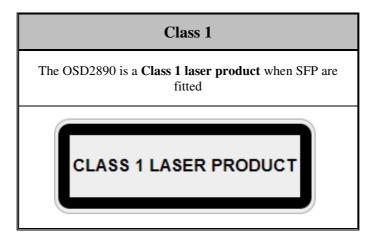
3 INSTALLATION

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.



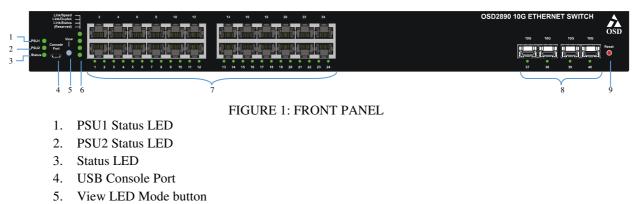
PRECAUTIONS

- ▲ 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.
- A Protective eyewear should be worn in the vicinity of laser equipment.

OSD2890 QUICK START GUIDE

4 OSD2890 FRONT AND REAR PANELS

4.1 FRONT PANEL



- 6. View mode LEDs indicators
- 7. 24 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



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

5 Power Supply Connections

There are various power options for the OSD2890. Refer to Table 1 Power Options (Figure 3 has OSD2890AC version shown). Power is connected to the rear of the unit.

Fuse: 1A 250V Anti-Surge, 5x20mm.



FIGURE 3: POWER CONNECTION

PAGE 7 DOC ID: 10118002
OSD2890 QUICK START GUIDE

6 LED Indicators

TABLE 2: LED FUNCTION

LED	Function
PSU 1	• Red – PSU 1 Not connected or faulty
1501	• Green – PSU 1 On
	• Red – PSU 2 Not connected or faulty
PSU 2	• Green – PSU 2 On
	Off – PSU 2 not available/fitted
Status	Red – Standby/Initialization Mode
Status	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
	The Copper Port Status LED will indicate different information. Speed Mode:
	• Green – 1Gbps
	• Yellow – 100MBps
	• Off – No Connection
	• Blinking – Traffic
Copper Port Status	Duplex Mode:
LED	• Green – Full Duplex
	• Yellow – Half Duplex
	Off – No Connection Status Mode:
	Green – Connection established
	• Off – No Connection
	The Fiber Port Status LED will indicate different information. Speed Mode:
	• Green – 1Gbps or 10Gbps
	• Yellow – 100MBps
	• Off – No Connection
Fiber Port Status LED	Duplex Mode:
	• Green – Full Duplex
	Off – No Connection Status Modes
	 Status Mode: Green – Connection established
	 Off – No Connection

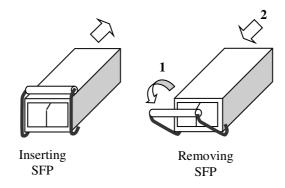
OSD2890 QUICK START GUIDE

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

PAGE 9

OSD2890 QUICK START GUIDE

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.

Open File - Security Warning Image: Comparison of the section of	Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi Welcome to the InstallShield Wizard for Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 The InstallShield Wizard will copy Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 The InstallShield Wizard will copy Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 The InstallShield Wizard will copy Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 Kext Cancel
Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi	Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi X License Agreement Please read the following license agreement carefully.
Setup will install Silicon Laboratories CP210xVCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 in the following folder. To install to this folder, click Next. To install to a different folder, click Browse and select another folder.	END-USER LICENSE AGREEMENT IMPORTANT: READ CAREFULLY BEFORE AGREEING TO TERMS
Destination Folder c:\\MCU\CP21Dx\\Windows_XP_S2K3_Vista_7	SILICON LABORATORIES INC., SILICON LABORATORIES INTERNATIONAL PTE. LTD., AND THEIR AFFILIATES (COLLECTIVELY, "SILICON LABS") HAVE DEVELOPED CERTAIN MATERIALS (E.G., DEVELOPMENT TOOLS, EXAMPLE CODE, EMBEDDABLE CODE, DLLS, SOFTWARE/COMPUTER PROGRAMS AND OTHER THIRD PARTY PROPRIETARY MATERIALS (I.G., DEVELOPMENT TOOLS, EXAMPLE CODE, MAY USE IN CONJUNCTION WITH SILICON LABS' MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END USER LICENSE DESCRIPTION FUNCTION WITH SILICON LABS' MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END USER LICENSE O I accept the terms of the license agreement O I do not accept the terms of the license agreement
InstallShield	InstallShield
< Back Next > Cancel	< Back Next> Cancel
Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi	Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/
Choose Destination Location Select folder where setup will install files.	InstallShield Wizard Complete
Setup will install Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 in the following folder. To install to this folder, click Next. To install to a different folder, click Browse and select another folder.	The InstallShield Wizard has successfully copied the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vist27 vb.1.00 to your hard driver. The driver installer listed below should be executed in order to install drivers or update an existing driver.
	Click. Finish to complete the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 setup.
Destination Folder c:\WEU\CP210x\Windows_XP_S2K3_Vista_7 Browse	

OSD2890 QUICK START GUIDE

Next > Cancel

< Back

PAGE 10

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K Back Finish

Cancel

n Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/ InstallShield Wizard Complete	Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vist
Silicon Laboratories CP210x USB to UART Bridge Driver Installer Silicon Laboratories Silicon Laboratories CP210x USB to UART Bridge Installation Location: Driver Version 6.1 C:\Program Files\Silabs\MCU\CP210x\ Change Install Location Install Cancel	Silicon Laboratories CP210x USB to UART Bridge Driver Installer
< Back Finish Cancel	< Back Finish Cancel

- 1. Connect the Console Port on OSD2890 (Mini USB) to PC with USB cable.
 - Using HyperTerminal or similar, set up the following parameters.
 - Baud Rate: 115200
 - Data Bits: 8

2.

- 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

O0:00:01 Stage 1 booted

O0:00:02 Loading stage2 from NAND file 'fw2cdUiH'

O0:00:21 Overall: 20004 ms, ubifs = 1714 ms, rootfs 18253 ms of which xz = 0 ms of which untar = 0 ms

O0:00:27 Starting application...

Using existing mount point for /switch/

Press ENTER to get started

Username: admin

Password:

#
```

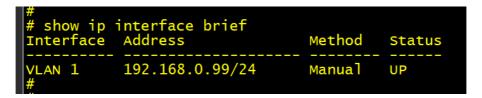
8.2 CLI COMMAND FOR IP CONFIGURATION

The Command Line Interface (CLI) is a useful tool for checking link status and debugging link connections. To enable the use of CLI the OSD2890 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 OSD2890 can be implemented

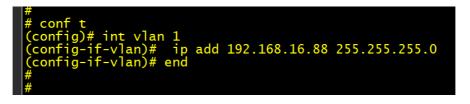
PAGE 11

OSD2890 QUICK START GUIDE

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



• *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



• *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.



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

OSD2890 QUICK START GUIDE

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".

				Qt	ž
Sign in http://192.16 Your connect	58.0.99 tion to this site is not private				
Username	admin				
Password					
		Sign in	Cancel		

8.5 GUI OVERVIEW

→ C ③ 192.168.0.99

This Quick Start Guide will only show a few main or important features to get the user running the OSD2890 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.

PAGE 13

OSD2890 QUICK START GUIDE

8.6 IP CONFIGURATION

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

Configuration System Information IP NTP Time Log P Configuration Mode Host V No DNS server DNS server No											
DNS Server 3 No DNS server DNS Proxy											
IP Interfaces											
	DHCPv4				IPv4			DHCPv6		IPv6	
Delete VLAN Enable Type IfMac AS	CII HEX	Hostname	Fallback	Current Lease	Address	Mask Length	Enable	Rapid Commit	Current Lease	Address	Mask Length
1 Auto 🔻 Port 1 🔻			0		192.168.0.99	24					
Add Interface IP Routes Delete Network Mask Length Gateway Distance(IP) Add Route	/4) / Next Hop VLAN(II	Pv6)									

Save Reset

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.

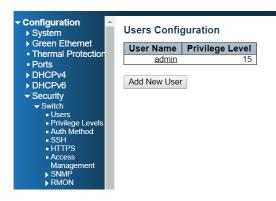
PS: All configuration changes must be saved otherwise all the changes will be lost after rebooting!

PAGE 14

OSD2890 QUICK START GUIDE

8.7 USERS AUTHENTICATION

In the tree map on the left, expand the **Configuration** \rightarrow **Security** \rightarrow **Switch** \rightarrow **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 🗸			

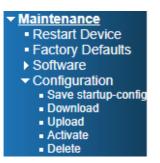
Cancel Save Reset

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

OSD2890 QUICK START GUIDE

SAVE CONFIGURATION TO START-UP 8.8

In the treemap below, expand the Maintenance \rightarrow Configuration \rightarrow Save startup-config



Save Running Configuration to startup-config

Please note: The generation of the configuration file may be time consuming, depending on the amount of non-default configuration.

Save Configuration

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

8.9 PORT SPEED SETTING

The port speed settings for the OSD2890 is auto mode for copper port and 10G for SFP port. On the tree map below expand Configuration \rightarrow Ports.

- Configuration																			
- N	S	yster	n																
	۰G	reen	Etherne	et															
			-I Desta	-41-															
		nerm	al Prote	CUC	n														
	D	orts																	
		Unto																	
Dent O	o mfi er	uration																	
		-	Speed	Adv	Duplex			Adv s	speed			Flow Control			PFC		Maximum	Excessive	F
Port	Link	Current	Configured	Fdx	Hdx	10M	100M		2.5G	5G	10G		Curr Rx		Enable	Priority	Frame Size	Collision Mode	Leng
*			• •													0-7	10240	<> ▼	
1	۲	Down	Auto 🔻		¥	V		•	1	×.	1		×	×		0-7	10240	Discard •	
2	٠	Down	Auto 🔻		1	1			1	1	1		×	×		0-7	10240	Discard V	
3	۲	Down	Auto 🔻		•			1	1	1	1		×	×		0-7	10240	Discard v	
4	٠	Down	Auto 🔻			1			1	1	1		×	×		0-7	10240	Discard V	
5	۲	Down	Auto 🔻						1	1	1		×	×		0-7	10240	Discard V	
6	۲	Down	Auto 🔻						2	2	1		×	×		0-7	10240	Discard V	
7	۲	Down	Auto 🔻						1	1	1		×	×		0-7	10240	Discard V	
8	٠	Down	Auto 🔻	1	1	1	•	1	1	1	1		×	×		0-7	10240	Discard 🔻	
9	۲	Down	Auto 🔻						1	1	1		×	×		0-7	10240	Discard V	
10	٠	Down	Auto 🔻		1			1	1	1	1		×	×		0-7	10240	Discard V	
11	۲	1Gfdx	Auto 🔻		•	V	•		1	×.	1		×	×		0-7	10240	Discard ¥	
12	۲	Down	Auto 🔻						1	1	1		×	×		0-7	10240	Discard 🔻	
13	۲	Down	Auto 🔻				•		1	1	1		×	×		0-7	10240	Discard •	
14	٠	Down	Auto 🔻				1		1	1	1		×	×		0-7	10240	Discard V	
15	۲	Down	Auto 🔻				•	1	1	1	1		×	×		0-7	10240	Discard •	
16		Down	Auto 🔻				•		1	1	1		×	×		0-7	10240	Discard V	
17	٠	Down	Auto 🔻		۲				1	1	1		×	×		0-7	10240	Discard •	
18		Down	Auto •		•				1	1	1		×	×		0-7	10240	Discard V	
19	۲	Down	Auto 🔻			S	•		1	×.	Ø		×	×		0-7	10240	Discard •	
20	•	Down	Auto •		•				1	1	1		×	×		0-7	10240	Discard T	
21	۰	Down	Auto •		۲	•	•		1	×.	1		×	×		0-7	10240	Discard •	
22	•	Down	Auto 🔻				1	1	1	1	1		×	×		0-7	10240	Discard 🔻	
23	٠	Down	Auto 🔻		•	1	1	1	1	1	1		×	×		0-7	10240	Discard •	
24	٠	Down	Auto 🔻		1		•	•	1	1	1		×	×		0-7	10240	Discard V	
25	۲	Down	10Gbps FDX •		1			1	Ø	×.	1		×	×		0-7	10240		
26	•	Down	10Gbps FDX •	1	1		1	1	1	1	1		×	×		0-7	10240		
27	۲	Down	10Gbps FDX •		1		×.	1	1	×.	Ø		×	×		0-7	10240		
		Down	10Gbps FDX •	1	1		1	1	1	1	1		x	x		0-7	10240		

Save Reset

PAGE 16

OSD2890 QUICK START GUIDE

DOC ID: 10118002

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.

PAGE 17

OSD2890 QUICK START GUIDE

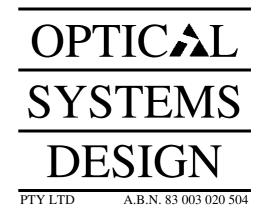
PAGE 18

OSD2890 QUICK START GUIDE

PAGE 19

OSD2890 QUICK START GUIDE

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