Operations Manual

PDT-NSM-7208-MP-SF-I

Revision 1.0 – March 2024

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1. Revision History

Date	Rev	By	Comments	Checked	Date
07/03/2024	01	JF	Initial Release	SC	07/03/2024

2. Abbreviations

Abbreviation	Description
AP	Access Point
CCA	Copper Clad Aluminium
DC	Direct Current
EEE	Energy Efficient Ethernet
IEEE	Institute of Electrical and Electronic Engineers
IP	Internet Protocol
MTBF	Mean Time Between Failures
PD	Power Device
PoE	Power over Ethernet
PSU	Power Supply Unit

3. Safety Information

3.1 General Safety Information

⚠WARNING

Only trained and authorised personnel should be permitted to work on this equipment. It is assumed that those using this guide are competent to work on equipment of this nature and will take appropriate precautions when working with the fault analysis guide.

All devices should be inspected upon receipt for signs of physical damage, which may in turn, affect operational performance, or the overall safety of the unit. Any damaged items should be returned to Parallax Digital Technologies Ltd for safety checks.

Parallax Digital Technologies accepts no responsibility for any injury or loss caused by unsafe or inadequate working practices, or for work carried out by an unauthorised third party.

To prevent possible danger, damage, and bodily harm when handling the equipment, please observe all warnings, cautions notices contained in this section. Failure to heed the following danger, warnings, and cautionary statements could lead to serious injury or death.

Users should not look into the Fiber Optic Port sockets when power is applied to the device.

3.2 DC Power Supply

⚠WARNING

The Unit should be mains-fed using a DC Power Supply using an appropriately rated cable assembly, which is protected internally at the power supply device itself. If the device is to be fed from an alternative power source, then the appropriate circuit protection device should be used to ensure that the supply circuit is interrupted, in the event that a fault in the device causes too much current to flow into it, causing an unsafe condition.

4. Packing List

The following items are included in the shipping carton:

- 1 x PDT-NSM-7208-MP-SF-I Managed Industrial Ethernet Switch
- 1 x DIN Rail Mounting Kit (Fitted)
- 1 x Screw Terminal Power Connector
- Operation & Maintenance Manual (May be electronically supplied)
- Declaration of Conformity (May be electronically supplied)

5. Product Overview

The PDT-NSM-7208-MP-SF-I is a Small Form Factor Industrial Managed PoE Switch, supporting 8 x 10/100/1000 BASE-T PoE+ RJ45 Ports, 2 x 100/1000 BASE-X auto-detecting SFP Port, to allow fiber connectivity using 1 or 2 core, Single or Multi-Mode fiber.

The unit is designed for harsh industrial conditions and environments and has an operating voltage range of 48-57VDC. The Web GUI allows for control of the unit, locally, or across a deployed network, and the device uses a Realtek chipset.
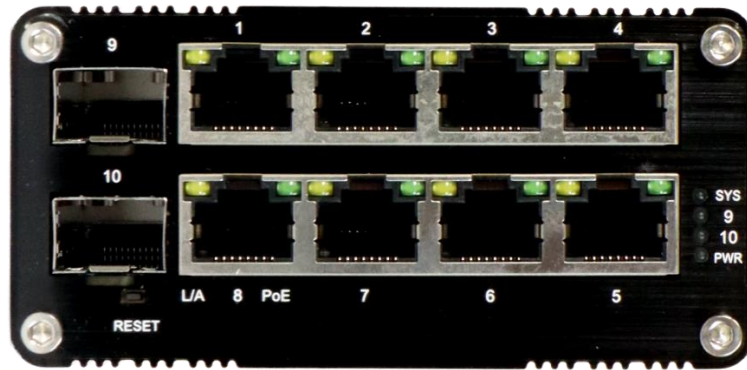
 The unit is housed in a rugged aluminium case, and the device has a wide operating temperature range, to allow it to be used in a wide variety of applications.

A typical application setup can be seen in the following diagram:
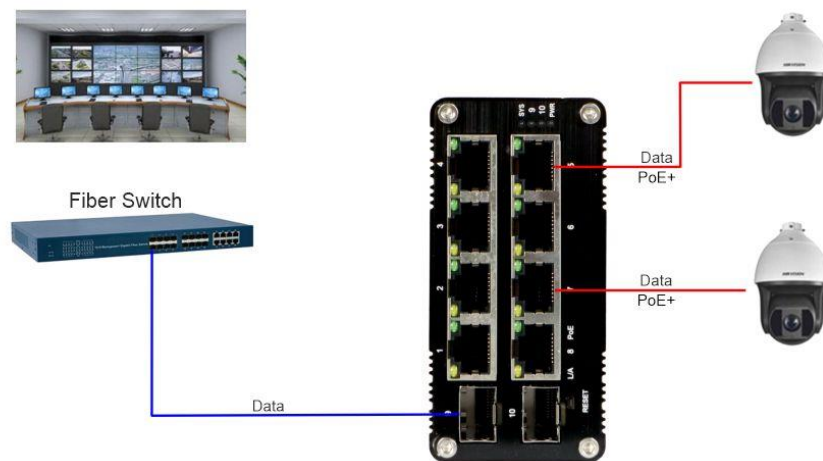
6. Connectors and Indicators

Front Panel

6.1 LED Indicators

The Front Panel LEDs display the status of the switch and the associated port connections as indicated in the table below:

| LED	Name	Colour	State	Status
PWR	Power	Green	OFF	Unit Power Off
			ON	Unit Power On
L/A	Link Activity	Green	OFF	No Connection
			Flashing	Connection
SYS	System	Green	OFF	OS Not Running
			ON	OS Running
9/10	Fiber Connection	Green	ON	Fiber Connected
			OFF	Fibre Not Connected

6.2 RJ45 Ports

The Front Panel has 8 RJ45 Ports and all are PoE+ compatible, with each port capable of supplying 30W each.

6.3 SFP Ports

The Front Panel has 2 SFP Ports and all are capable of Full/Half Duplex Modes, and Auto-MDI/MDIX functionality; each can support single or dual core, single-mode or multi-mode fiber.

6.4 Power Supply Connector

The device is designed to be supplied by a +48VDC power supply but can operate in the range +48-57VDC. When using a dual power supply feed method, the device will run with the voltage supply that is the highest and will fail over to the other supply, if the voltage drops below the backup level. Power is supplied via a 4-pin terminal block connector with the following pinout:
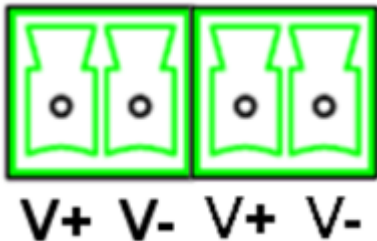
Pin	Group	Input
1	PWR 1	GND
2		+48-57VDC
3	PWR 2	GND
4		+48-57VDC

Power Supplies should provide over-current and short-circuit protection, and should have a capacity rating to meet the required output current for the device plus any PoE powered device requirements.

6.5 PoE Compatibility

| Model No	IEEE 802.3af	IEEE 802.3at	IEEE 802.3bt
PDT-NSM-7208-MP-SF-I	●	●	

The PoE output for this model is compatible with PoE and PoE+ Standards, as can be seen in the table above.

6.6 Reset Button

The device can be reset back to factory default configuration settings using the Reset Button. Hold the reset button down for 5-10secs and the device lights will begin to flash, then release the button and the switch will reboot and will be reconfigured to factory settings.

7. Installation Procedures

7.1 DIN Rail Installation
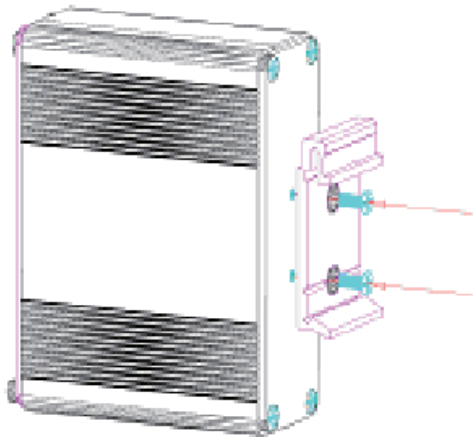
Attach the DIN Rail Bracket (if not fitted) to the switch case using the screws supplied
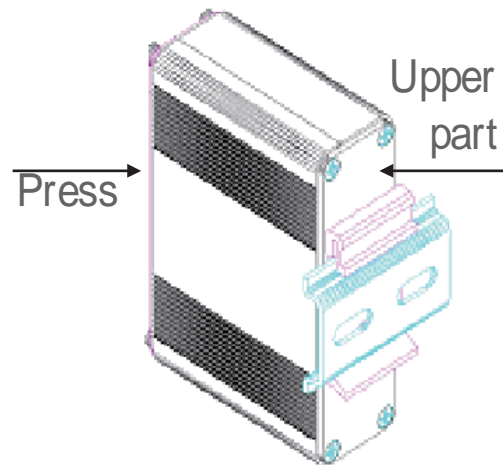
Clip the upper edge of the bracket onto the DIN Rail and push to latch the bottom strip

8. Connection and Setup

8.1 Inspection Checks

Please inspect the unit to ensure that there is no damage to the external casing which could cause a malfunction of the device or cause a safety critical fault. Any damaged units should be returned to Parallax Digital Technologies for inspection and testing.

Please ensure that the DC Cables are securely fastened in the terminal block, and that the terminal block is correctly inserted into the switch power connector housing.

8.2 RJ45 Connections

Ensure all required RJ45 Ports are connected correctly using CAT5e cable or better to the client devices. The Uplink port should be connected to the host device or network, and the access ports TP1-4 are available for other devices or connections. All cables should be solid copper and not CCA.

8.3 SFP Connections

Ensure all required Fiber Ports are connected correctly using a compatible 1Gbps SFP Module and ensure the LC connector of the patch cord is connected to the LC port on the SFP module.

8.4 Power Up

The Unit will automatically power up as soon as DC power is applied to the device. The Power Light will be illuminated and after approximately 1 second, all of the other LEDs will flash on and off to complete the initialization sequence. Following this, the Port Status LEDs will display the current state of each of the ports.

8.5 PC Setup Connection

The default IP address for the switch is 192.168.1.6, so you should ensure that your PC is setup correctly to communicate with the switch. From your Network Settings Menu, you can adjust the IPV4 configuration to use a Manual IP address in the appropriate subnet 192.168.1.x where x can be of the value 1-254, but not have a value of 6. The subnet mask should be set at 255.255.255.0. You can enter the switch IP address into your browser and access the Web GUI host menu on the switch, from which you can make configuration changes.

9. Physical Dimensions
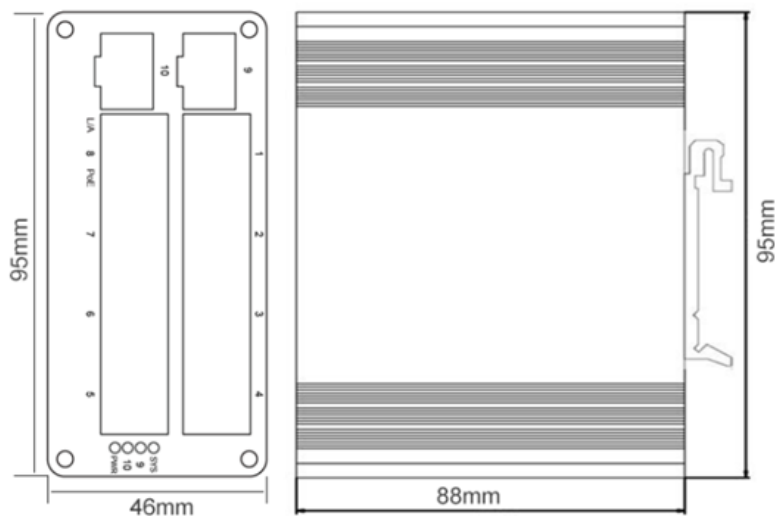
10.   Hardware Specification

ETHERNET

Standards	IEEE 802.3 Ethernet
	IEEE 802.3u Fast Ethernet
	IEEE 802.3az Energy Efficient Ethernet
	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet Plus
Forwarding and Filtering Rate	14,880pps (10Mbps)
	148,800pps (100Mbps)
	1,488,000pps (1000Mbps)
Packet Buffer	1 Mb
Packet Length	10KB
MAC Address Table	4K
Exchange Property	Backplane Bandwidth 20Gbps
	Packet Forwarding Rate 14.88Mbps

INTERFACE

Wired	8 x 10/100/1000 PoE+ RJ45
Optical	2 x SFP 1000 BASE-X

PoE

Standard	IEEE 802.3af/ 802.3at
Port	RJ45
Power Pin Assignment	4/5 (+) 7/8 (-)
PoE Budget	240W

ENVIRONMENTAL

Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +85°C
Relative Humidity	5% - 95% non-condensing
MTBF	200,000 hours

ELECTRICAL

Operating Voltage	+48-57VDC (Redundant - Terminal Block)
Power Consumption	5W Without PoE Load – 245W with Max PoE
Short-Circuit Protection	Auto-Reset
Reverse Polarity	Protected

MECHANICAL

Dimensions	95mm x 88mm x 46mm
Weight	0.36 kg
Casing	Aluminium
Mounting	DIN Rail

INDICATORS

PWR	Power
L/A	Link/Activity
PoE	PoE Status
SYS	OS Status

CERTIFICATION

Electrical Safety	EN 62368-1:2020+A11:2020
Emissions	EN 55032:2015+A1:2020
Radiated Immunity	EN 55035:2017+A1:2020
Harmonic Emissions	EN 61000-3-2:2014
Fluctuations and Flicker	EN 61000-3-3:2013
Electro-Static Discharge	EN 61000-4-2:2009
Electromagnetic Field Immunity	EN 61000-4-3:2010
Electrical Fast-Transients	EN 61000-4-4:2012
Surge	EN 61000-4-5:2014+A1:2017
Conducted Immunity	EN 61000-4-6:2014
Power Frequency Magnetic Field	EN 61000-4-8:2010
RoHS	IEC 63000:2018

SOFTWARE

Redundancy Protocols	STP/RSTP
Multicast Support	IGMP/ Snooping V1/V2/V3
VLAN	IEEE 802.1Q 4K
QoS	1Q, ACL, DSCP, CVLAN, SVLAN
	DA, SA, Port Priority, Queue Weight
Diagnostic & Maintenance	Port Mirroring, Syslog, Ping
Management	Web GUI
Security	Broadcast/Multicast Storm Protection
	MAC Filtering, MAC Constraints

For all technical enquiries regarding this product, please contact our technical support team using the following email address:

support@parallaxdigital.co.uk