

Industrial L3/L2 Managed Gigabit Switch

ON-8528-4XF / ON-8528-4XFL

The Optech Network Solutions ON-8528-4XF / ON-8528-4XFL is an industrial-grade modular managed Ethernet switch designed for mission-critical industrial, utility, power-substation, renewable-energy, and other demanding OT networking applications.

The platform provides three modular Ethernet interface slots and four 10G SFP+ uplink ports, supporting flexible copper and fiber network configurations. It combines high-capacity Gigabit switching with advanced network management, redundancy, security, precision time synchronization, and industrial networking functions.

The series is available in two software/functionality variants:

- ON-8528-4XF — Layer 3 Managed Version
- ON-8528-4XFL — Layer 2 Managed Version

Both models use the same modular hardware platform, while Layer 3 routing capabilities are available on the ON-8528-4XF version. The supplied source identifies the original variants in the same product family.

Benefits

- 95 Mpps forwarding rate
- Layer 2 switching functions
- Advanced Layer 3 routing on ON-8528-4XF
- X-Ring Pro and X-Chain network redundancy
- PRP and HSR support with appropriate module configuration

Features

- Industrial-grade modular managed Ethernet switch
- 3 × modular Ethernet interface slots
- Up to 24 Gigabit Ethernet ports
- 4 × 10G SFP+ uplink ports
- Modular copper and fiber interface options
- 128 Gbps switching capacity

Applications

- Optical Fiber Distribution
- Telecom Networks
- FTTx Networks
- Outside Plant (OSP) installations

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- Fiber Distribution
- Fiber Termination
- Fiber Splicing and Protection

Technical Specification

Model Variants	ON-8528-4XF / ON-8528-4XFL
Network Layer	ON-8528-4XF: Layer 3 / ON-8528-4XFL: Layer 2
Ethernet Interface	3 × Modular Ethernet Interface Slots
10G Uplink Ports	4 × 10G SFP+
Maximum Gigabit Ports	Up to 24 Gigabit Ethernet Ports
Console Port	RJ45, RS-232
Relay Output	2-Pin Terminal Block
USB Port	Type-A
Power Interface	2 × Power Supply Module Slots
DRAM	256 MB
Flash Memory	128 MB
Switching Capacity	128 Gbps
Forwarding Rate	95 Mpps
Maximum IGMP Groups	1024
Maximum Static VLANs	256
VLAN ID Range	1–4094
MAC Address Table	32K
Jumbo Frame	10 KB
Packet Buffer	32 Mbits
Priority Queues	Up to 8
Enclosure	Metal Shell and Die-Casting
Protection Class	IP30
Installation	1U 19-inch Rack Mount
Dimensions (W × H × D)	438 × 44 × 363.5 mm
Weight	5.5 kg
Operating Temperature	-40°C to +85°C*
Storage Temperature	-40°C to +85°C

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Relative Humidity	5–95% RH, Non-Condensing
Maximum Power Consumption	75 W
High-Voltage Power Input	110/220 VAC/VDC
Low-Voltage Power Input	24/48 VDC
Protection	Over-Current and Reverse-Polarity Protection

Layer 2 Features	**Network Security**	**Network Management**
ON-8528-4XF / ON-8528-4XFL provides:	The ON-8528-4XF / ON-8528-4XFL provides:	The series supports:
Static Link Aggregation	IEEE 802.1X authentication	SNMP v1/v2c/v3
IEEE 802.3ad LACP	Port-based authentication	Web GUI
IEEE 802.1Q Tag-Based VLAN	MAC-based authentication	Telnet
Protocol-Based VLAN	RADIUS	SSH 2.0
IEEE 802.1ad VLAN Stacking	TACACS+	RMON
GVRP	Multiple user accounts	Standard MIB
GMRP	User privilege management	Private MIB
MAC/IP Subnet VLAN	IP Source Guard	IPv4 / IPv6 management
Private VLAN	DHCP Snooping	DHCP Client
Voice VLAN	ARP spoofing protection	DHCP Server
Port Mirroring	L2/L3 ACL	DHCP Relay
IGMP Snooping v1/v2/v3	Static MAC security	DHCP Option 82
MLD Snooping	MAC violation notification	NTP Client
STP	Loop detection and prevention	DNS Client
RSTP	Broadcast storm control	Syslog
MSTP	Unknown multicast storm control	TFTP
	Unknown unicast storm control	HTTP firmware upgrade
		Dual firmware image
		OAM and diagnostic functions

Layer 3 Features	**QoS**	**Network Redundancy**
ON-8528-4XF	Supports traffic prioritization and Quality:	Supports network redundancy including:
Static Routing	Weighted Round Robin (WRR)	X-Ring Pro
RIP v1/v2	Strict Priority (SP)	X-Chain
OSPFv2	IEEE 802.1p-based Class of Service	STP
VRRP	IP TOS	RSTP
PIM-SM	DSCP	MSTP
IPv4 routing	Port Priority	PRP
IPv6 routing	Ingress Rate Limiting	HSR
Routing table support	Egress Rate Limiting	

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Industrial & Power Utility Features	Precision Time Synchronization & TSN	SFP / SFP+ Support
Key functions include:	The series supports:	Listed transmission distances vary by transceiver, from approximately 400 m up to 80 km for the referenced 10G and Gigabit transceiver options. These distances are dependent on the selected SFP/SFP+ module and fiber configuration.
IEC 61850-oriented network functions	IEEE 1588v2 PTP	
GOOSE QoS	Boundary Clock	
SMV QoS	Transparent Clock	
MMS	IEEE C37.238 Power Profile	
C37.238 Power Profile	IEEE 802.1AS	100/155 Mbps
IEEE 1588v2	IEEE 802.1Qci	1.25 Gbps
TSN	IEEE 802.1CB	10 Gbps
PRP/HSR	IEEE 802.1Qbv	
Network redundancy	IEEE 802.1Qbu	**Supported fiber configurations:**
Industrial Ethernet switching	IEEE 802.3br	
		Multimode
		Single-mode
		Bi-directional
		LC duplex
		LC simplex

Power	Three modular Ethernet interface slots. The supplied source identifies as:
Supports two power-supply module slots.	
	Gigabit SFP Module
High-Voltage Power Module	
	8 × 100/1000Base SFP ports
Input: 110/220 VAC/VDC	
Operating range: 90–264 VAC	**Gigabit Ethernet Module**
DC operating range: 88–370 VDC	
	8 × 10/100/1000Base-TX ports
Low-Voltage Power Module	
Input: 24/48 VDC	
Operating range: 24–48 VDC	
The system also provides:	
Over-current protection	
Reverse-polarity protection	

Physical & Environmental Specifications	
The switch is designed with a metal shell and die-cast construction for industrial deployment.	
Parameter	**Specification**
Enclosure	Metal Shell and Die-Casting
Protection Class	IP30
Installation	1U 19-inch Rack Mount
Dimensions	438 × 44 × 363.5 mm
Weight	5.5 kg
Operating Temperature	-40℃ to +85℃*
Storage Temperature	-40℃ to +85℃
Relative Humidity	5–95%RH, Non-Condensing

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Applications	Standards & Compliance
The ON-8528-4XF / ON-8528-4XFL can be deployed in:	The supplied source references a broad range of Ethernet, industrial, substation, EMC, environmental, railway and cybersecurity standards, including:
Electrical substations	
Power generation facilities	
Renewable energy installations	IEEE 802.3
SCADA networks	IEEE 802.3u
Industrial automation networks	IEEE 802.3ab
Utility OT networks	IEEE 802.3z
Industrial Ethernet backbones	IEEE 802.3ae
Critical infrastructure networks	IEEE 802.3x
Industrial control systems	IEEE 802.1D
Fiber communication networks	IEEE 802.1w
Mission-critical data centers	IEEE 802.1s
High-availability network infrastructures	IEEE 802.1p
	IEEE 802.1Q
	IEEE 802.1X
	IEEE 802.3ad
	IEC 61850-3
	IEEE 1613
	IEC 62443-4-1
	IEC 62443-4-2

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