

## MEN-6412 Series

Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch with USB Support

### Description

Offering Gigabit Ethernet in Compactable design, MEN-6412 Series Managed Layer 2+ Aggregation switch is an industrial small form-factor fiber switch operating in wide range temperature from -20°C~65°C specifically designed for harsh outdoor deployments. The switch is best suitable to provide extended reach fiber connectivity for buildings, small-offices as well as mobile back-haul applications serving vast number of small cell deployments.

Built with 4-slot Gigabit SFP, MEN-6412 Series immediately uplinks to the aggregation switches via its fiber ports, which provide high-bandwidth uplinks over variable distances. Extensive software features of the switch deliver high-quality, reliable yet simple-to-use experience to its users. It can be deployed in different networking topology with various reliable and easy-to-monitor features. Compiling with flexible and modular design, the switch is perfect for low density subscriber base with high ARPU, delivering the most demanding Ethernet services efficiently and profitably.



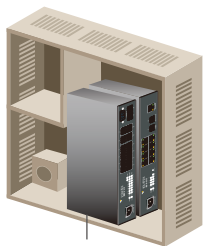
### Features Highlight

#### Robust Performance with Space-Conscious Design

Deploying multicast applications such as IPTV has never been easier than before with comprehensive multicast traffic functions, IGMP snooping and MVR, in the MEN-6412. IGMP snooping regulates multicast traffic in a given VLAN and MVR operates with hosts on different VLANs in a Layer 2 network. These features on isolate the multicast streams and significantly reduce traffic from streaming media and other bandwidth-intensive IP multicast applications for better bandwidth. Thereby, the MEN-6412 supports applications that use multi-traffic in large scale across the network, saves network bandwidth, reduces operational burden and enhances the overall network performance.

#### Extensive Security Features

The MEN-6412 Series implements several defense mechanisms such as ACL, DHCP snooping, ARP, IEEE 802.1X and Port Security to deliver robust network security and enables service providers to offer more stable services on a more secure network.



MEN-6412 Series

#### Last-Mile Investment Protection

It is critically important for ISPs to protect their last-mile infrastructure from device thefts to avoid delays in delivering network services and loss of your investment. Focusing on this on-field hassle, the MEN-6412 Series is designed with Device Lock feature, a feature that locks your device to your network and will not function in any network. This innovative feature reduces device thefts and provides a continuous network connectivity saving your infrastructure investments.

#### Efficient Network Monitoring and Proactive Capability

MEN-6412 Series is configured with both SNMP v1/v2c/v3 and RMON features which give enhanced approaches for real-time traffic analysis, remote monitoring and management of individual switches, this avoids high OPEX with increase in efficiency and performance. The switch is assimilated with intelligent e-mail alarm system and SNMP Trap functionality to detect system abnormality along with faster troubleshooting. In addition to this, the device maintains a system log for the subsequent analysis of abnormal and unwanted flaws.

#### Redundant Ring for Faster Network Recovery

Even few seconds of missed communications due to link failure can cause inconvenience and recovering it becomes very critical. Considering these threats, the MEN-6412 Series is designed with various ring protocols like STP, RSTP, MSTP, Xpress Ring and ERPS where the network failure is recovered in time scale of milliseconds. This ensures non-stop transmission of real-time Ethernet data.

#### Comprehensive Traffic Prioritization

Network applications need different levels of services delivered to them reliably without any transmission delays and interruptions. The MEN-6412 Series has comprehensive QoS mechanisms that assign priority to applications and send only specific dedicated traffic to them. In addition, bandwidth management functions of the switch allocate greater bandwidth for mission-critical communications. With increased control, administrators can prevent unpredictable errors and utilize the bandwidth more effectively.

## Specifications

Standards	
IEEE 802.3	10BASE-T
IEEE 802.3u	100BASE-TX
IEEE 802.3ab	1000BASE-T
IEEE 802.3u	100BASE-FX
IEEE 802.3z	1000BASE-SX/LX
IEEE 802.3	Nway Auto-negotiation
IEEE 802.3x	Flow Control
IEEE 802.3ad	Link Aggregation
IEEE 802.1AB	LLDP
IEEE 802.1ad	QinQ
IEEE 802.1D	STP
IEEE 802.1w	RSTP
IEEE 802.1s	MSTP
IEEE 802.1p	Class of Service
IEEE 802.1Q	VLAN Tagging
IEEE 802.1X	Port Authentication
IEEE 1588v2	PTP
Interface	
Ports	4 x 100FX/GbE Combos
	4 x 100FX/GbE SFP Slots
	4 x GbE SFP Slots
	1 x RJ45 Console Port
	1 x USB Port
LED Panel	PWR1, PWR2, POST, ALM, 1000, LNK/ACT
Features	
Performance	Jumbo frame Size: 10KBytes
	MAC Table Entries: 16K
	Active VLAN: 4K
	Switch Fabric: 24Gbps
	L2 Forwarding Rate: 17.9Mpps
Management	CLI, Telnet/SSH, HTTP/HTTps, SNMP v1/v2c/v3, SNMP Trap, MVLan, Firmware Upgradable, Configuration Backup/Restore, Syslog, Sntp, PTP, LLDP, UDLD, DHCP Client, DHCP Option 66/67/82, DHCP Relay, PPPoE IA, e-mail Alarm, Server Control, Mirroring, DDM, Dying Gasp
	STP/RSTP/MSTP, Xpress Ring, ERPS v1/v2, Dual Homing, LACP, Code Redundancy
VLAN	IEEE 802.1Q, GARP/GVRP, Port-based VLAN, MAC-based VLAN, IP-based VLAN, VLAN Translation, Protocol-based VLAN, QinQ
Traffic Control	IGMP snooping/Throttling/Proxy, MLD, MVR, QoS, Flow Control, Abnormal Traffic Detection, Rate Limit, Storm Control, Traffic Monitor, Port Isolation, Loop Detection, Static Route

## Note:

\* The SFP communication distance upon the request.

\* Industrial SFP with wide operating temperature from -40°C~85°C (-40°F~185°F) is available upon request.

\* Specifications subject to change without notice.

Features	
Security	ACL, SSH, Port-based 802.1x, TACACS+, Port Security, MAC Search, Refusal MAC, Sticky MAC, Static MAC, DHCP Snooping, DHCP Sever Screening, ARP Inspection, BPDU Guard/Filter, Root Guard, Management Host
Power	
Input Voltage	DC Jack: 15V/4A AC Adapter
	DC Terminal Block: 48V Dual Input
	Battery Terminal Block: 12V Battery
	AC Inlet: 100~240V AC, 50/60Hz (MEN-6412C)
Power Consumption	System: 18W, max
Mechanical and Environment	
Housing	Metal Case
Mounting	Desktop, Rack Mount (Optional)
Operating Temperature	-20°C~60°C (-4°F~140°F)
	-20°C~50°C (-4°F~122°F) (For LVD Certification)
Storage Temperature	-40°C~70°C (-40°F~158°F)
Operating Humidity	5 to 95% RH (non-condensing)
Storage Humidity	5 to 95% RH (non-condensing)
Weight	1.25 kg (2.76 lb)
Dimension (WxHxD)	268 x 44 x 128 mm (10.6 x 1.7 x 5 in)
Certifications	
Electromagnetic Compatibility	CE Mark FCC Class A EN 55032 (CISRP 32) Class A EN 61000-3-2/3
Ordering Information	
MEN-6412	Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch, w/ External Power Adapter
MEN-6412AB	Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch, w/ External Power Adapter, Battery Charge Function Included
MEN-6412D	Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch, w/ Internal DC Power
MEN-6412AD	Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch, w/ Internal DC Power + External Power Adapter
MEN-6412C	Managed 4 x FX/GbE Combo RJ45/SFP & 4 x FX/GbE SFP & 4 x GbE SFP Switch, w/ AC Power Input
Optional Accessories	
GBM-123TS	1000BASE-LX, Bi-Di SFP TX:1310/RX:1550, Single Mode, 10Km
GBM-123RS	1000BASE-LX, Bi-Di SFP TX:1550/RX:1310, Single Mode, 10Km
GBM-132TS	100BASE-FX, Bi-Di SFP TX:1310/RX:1550, Single mode, 20Km
GBM-132RS	100BASE-FX, Bi-Di SFP TX:1550/RX:1310, Single mode, 20Km

## Dimension

