

- Bandwidth up to 176 Gbps
- Non-blocking architecture
- Advanced L2 functions
- 4 ports of 10G in basic configuration
- L3 switch
- Multicast support (IGMP Snooping, MVR)
- Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)
- Hot-swappable redundant power supplies
- Dual ventilation system
- Front-to-back cooling



The new generation switches can be used in service provider networks as aggregation or transport switches. They ensure high performance due to the interfaces operating at data rates of 10 Gbps or 1 Gbps. MES aggregation switches' feature set includes advanced L2 functions, static routing, dynamic routing, redundant and hot swappable power supplies.

Technical features

Interfaces	
10/100/1000BASE-T (RJ-45)	48
1000BASE-X (SFP)/10GBASE-R (SFP+)	4
Console port RS-232 (RJ-45)	1
Performance	
Bandwidth	176 Gbps
Throughput for 64 bytes ¹	130.95 MPPS
Buffer memory	2 MB
RAM (DDR3)	1 GB
ROM (SPI Flash)	64 MB
MAC table	32768
ARP table	1000
VLAN table	4094
L2 Multicast groups (IGMP Snooping)	4094
L3 Multicast groups (IGMP Proxy)	2048
SQinQ rules	2048 (ingress ²), 1024 (egress)
MAC ACL rules	766
IPv4/IPv6 ACL rules	640/320
L3 IPv4 Unicast routes	2048
L3 IPv6 Unicast routes	512
VRRP routes	32
L3 interfaces	20 VLANs, up to 5 IPv4 addresses in each VLAN, up to 512 IPv6 GUA in total for all VLANs
Link Aggregation Groups (LAG)	24 groups, up to 8 ports in one LAG
QoS	8 egress queues per port
Jumbo frames	12288 bytes

¹ Values are given for one way transmission.

² MAC-based VLAN and SQinQ share hardware resources.

Features and capabilities

Interface functions

- Head-of-line blocking (HOL) protection
- Auto MDI/MDIX
- Jumbo frames
- Flow control (IEEE 802.3X)
- Port Mirroring (SPAN, RSPAN)

MAC table functions

- Independent learning mode per VLAN
- MAC Multicast Support
- Configurable aging time of MAC addresses
- Static MAC Entries
- MAC change on ports
- MAC Flapping logging

VLAN functions

- Voice VLAN
- IEEE 802.1Q
- Q-in-Q
- Selective Q-in-Q
- GVRP
- MAC-based VLAN
- Protocol-based VLAN

L2 Multicast functions

- Multicast profiles
- Static Multicast groups
- IGMP Snooping v1,2,3
- IGMP Snooping fast-leave
- IGMP Proxy-report
- IGMP authorization via RADIUS
- IGMP Querier
- MVR

L2 functions

- STP (Spanning Tree Protocol, IEEE 802.1d)
- RSTP (Rapid Spanning Tree Protocol, IEEE 802.1w)
- MSTP (Multiple Spanning Tree Protocol, IEEE 802.1s)
- Rapid-PVST+
- STP Root Guard
- STP Loop Guard
- STP BPDU Guard
- BPDU Filtering
- Spanning Tree Fast Link option
- Loopback Detection (LBD)
- Port isolation
- Storm Control for different types of traffic (broadcast, multicast, unknown unicast)
- Layer 2 Protocol Tunneling (L2PT)
- ERPS (G.8032v2)

L3 Multicast functions

- IGMP proxy (RFC 4605)
- IGMP proxy fast-leave

L3 functions

- Static IPv4, IPv6 routes
- Dynamic routing protocols RIPv1/2, OSPFv2/3
- VRRP

Link Aggregation functions

- LAG
- LACP
- LAG Balancing Algorithm

Service functions

- Virtual Cable Testing (VCT)
- Optical Transceiver Diagnostics

IPv6 support

- IPv6 Host
- IPv4, IPv6 Dual stack

Security functions

- DHCP Snooping
- DHCP Option 82
- MAC-based authentication, MAC address limitation, Static MAC entries
- Port-based authentication IEEE 802.1x
- Guest VLAN
- DoS attack prevention
- Traffic segmentation
- DHCP clients filtering
- BPDU attacks prevention
- PPPoE Intermediate agent
- IP Source Guard
- Dynamic ARP Inspection
- DHCPv6 Snooping
- IPv6 Source Guard
- IPv6 ND Inspection
- IPv6 RA Guard

ACL (Access Control Lists)

- L2-L3-L4 ACL (Access Control List)
- IPv6 ACL
- ACL based on:
 - Switch port
 - IEEE 802.1p
 - VLAN ID
 - EtherType
 - DSCP
 - IP Protocol type
 - TCP/UDP port number
 - User Defined Bytes

QoS (Quality of Service)

- Shaping
- Policing according to sr-TCM and tr-TCM
- IEEE 802.1p Class of Service
- Scheduling algorithms: Strict Priority/Weighted Round Robin (WRR)
- Setting the IEEE 802.1p priority for VLAN management
- ACL-based traffic classification
- ACL-based CoS/DSCP assignment
- DSCP to CoS/CoS to DSCP remarking
- ACL-based VLAN assignment

Features and capabilities (continued)

OAM

- IEEE 802.3ah, Ethernet OAM
- IEEE 802.3ah Unidirectional Link Detection (UDLD)

Management functions

- Download and upload of configuration file via TFTP/SFTP
- Automatic backup of configuration file via TFTP/SFTP
- SNMP
- Command Line Interface (CLI)
- Web interface
- Syslog
- NTP (Simple Network Time Protocol)
- Traceroute
- LLDP (IEEE 802.1ab) + LLDP MED
- Processing traffic management with two IEEE 802.1Q headers
- Authorization of entered commands using TACACS+ server
- IPv4/IPv6 ACL support for device management
- Access control — privilege levels
- Management interface blocking
- Local authentication
- IP addresses filtering for SNMP
- RADIUS, TACACS+ clients (Terminal Access Controller Access Control System)
- Telnet, SSH client
- Telnet, SSH server
- Macrocommands
- Logging of input commands via TACACS+
- DHCP autoconfiguration
- DHCP Relay (IPv4 support)
- DHCP Relay Option 82
- DHCP server
- Adding PPPoE Circuit-ID tag
- Flash File System
- Debugging commands
- Rate limit of traffic to CPU
- Password encryption
- Ping (IPv4/IPv6 support)
- IPv4/IPv6 static routes
- Support for multiple versions of configuration file

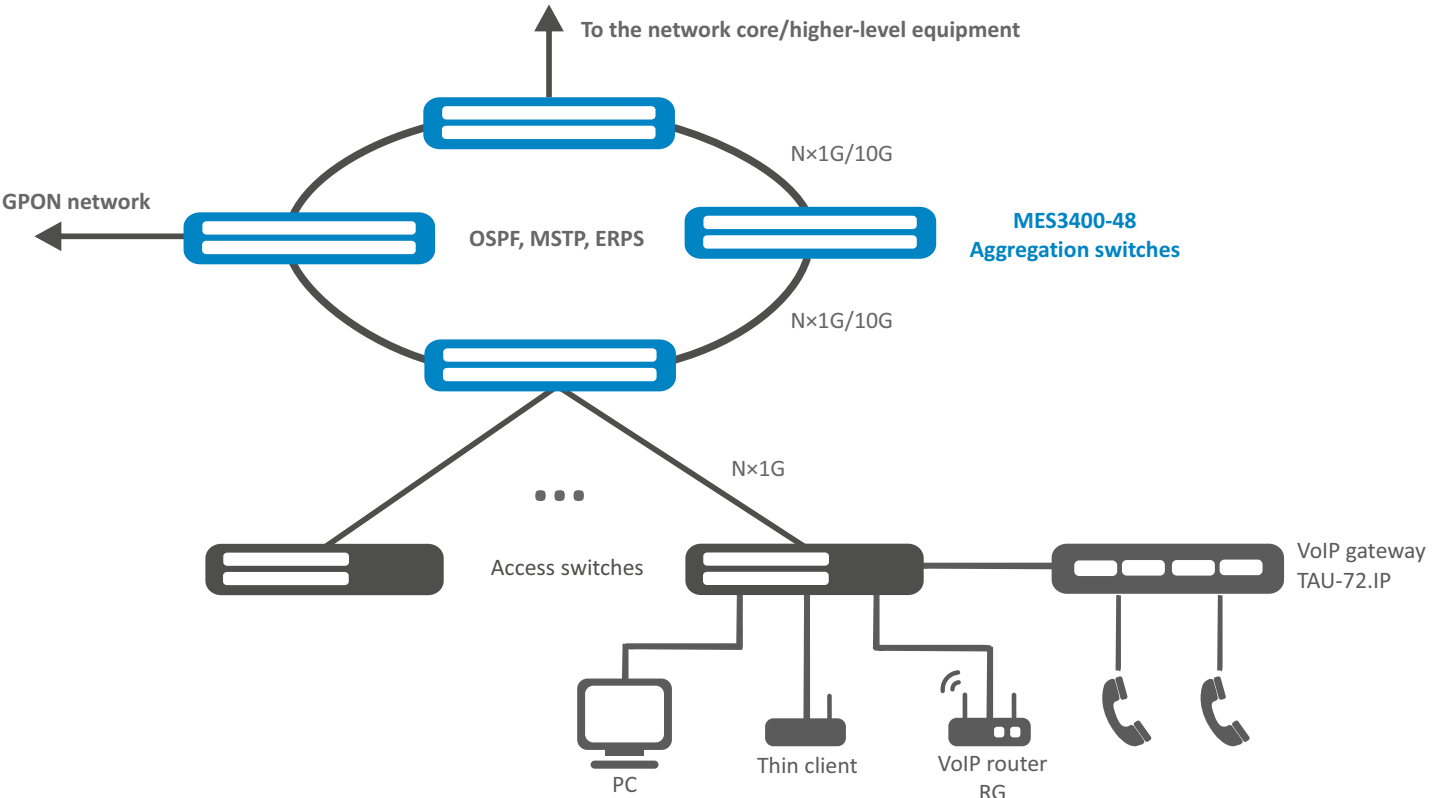
Monitoring functions

- Statistics of interfaces
- CPU utilization monitoring per task and per traffic type
- RAM utilization monitoring
- Temperature monitoring
- TCAM monitoring

MIB/IETF

- RFC 1065, 1066, 1155, 1156, 2578 MIB Structure
- RFC 1212 Concise MIB Definitions
- RFC 1213 MIB II
- RFC 1215 MIB Traps Convention
- RFC 1493, 4188 Bridge MIB
- RFC 1157, 2571-2576 SNMP MIB
- RFC 1901-1908, 3418, 3636, 1442, 2578 SNMPv2 MIB
- RFC 2465 IPv6 MIB
- RFC 2737 Entity MIB
- RFC 4293 IPv6 SNMP Mgmt Interface MIB
- Private MIB
- RFC 1398, 1643, 1650, 2358, 2665, 3635 Ether-like MIB
- RFC 2668 802.3 MAU MIB
- RFC 2674, 4363 802.1p MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC 4022 MIB для TCP
- RFC 4113 MIB для UDP
- RFC 3289 MIB для Diffserv
- RFC 2620 RADIUS Accounting Client MIB
- RFC 768 UDP
- RFC 791 IP
- RFC 792 ICMPv4
- RFC 2463, 4443 ICMPv6
- RFC 793 TCP
- RFC 2474, 3260 DS field in the IPv4 and IPv6 header
- RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC 2571, RFC 2572, RFC 2573, RFC 2574 SNMP
- RFC 826 ARP
- RFC 854 Telnet
- IEC 61850

Use Case



Physical parameters

Physical parameters and environmental features	
Power supply	100–240 V AC, 50–60 Hz; 36–72 V DC
Maximum power consumption	52 W
Heat dissipation	52 W
Input current	0.6–0.3 A for AC 1.3–0.6 A for DC
Hardware support for Dying Gasp	no
Operating temperature	from -10 to +45 °C
Storage temperature	from -40 to +70 °C
Cooling	active, Front-to-Back, 4 fans
Operating humidity	no more than 80 %
Form factor	19", 1U
Dimensions (W × H × D)	440 × 44 × 330 mm
Weight	5.6 kg

Ordering information

Name	Description
MES3400-48	MES3400-48 Ethernet aggregation switch, 48 ports of 10/100/1000BASE-T (RJ-45), 4 ports of 1000BASE-X (SFP)/10GBASE-R (SFP+), L3
Related products	
PM160-220/12	PM160-220/12 power module, 100–240 V AC, 160 W
PM100-48/12	PM100-48/12 power module, 36–72 V DC, 100 W
Related software	
ECCM-MES3400-48	ECCM-MES3400-48 option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES3400-48

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ELTEX Enterprise is a leading Russian developer and manufacturer of communication equipment with 30 years of history. Complete solutions and their seamless integrability into the Customer's infrastructure are the priority growth areas of the company.