ELTEX
Integrated networking solutions

— **Non-blocking switching fabric**
— **Advanced L2 features**
— **L3 switches**[1]
— **Support for Multicast (IGMP Snooping, MVR)**
— **Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)**

MES24xx series switches with PoE support provide end users connection to networks of large enterprises, small and mid-sized businesses and service providers via 1G/10G interfaces.

The switches support Virtual Local Area Networks (VLAN), multicast groups, and have advanced security functions.

**MES2408P**

**MES2428P**

**MES2408CP**

## Technical features

| | MES2408CP | MES2408P | MES2408PL | MES2428P | MES2424P | MES2448P | MES2420-48P |
|---|---|---|---|---|---|---|---|
| **Interfaces** | | | | | | | |
| 10/100/1000BASE-T PoE/PoE+ | 8 | 8 | 8 | 24 | 24 | 48 | 48 |
| 100BASE-FX/1000BASE-X (SFP) | – | 2 | 2 | – | – | – | – |
| 1000BASE-X (SFP)/10GBASE-R (SFP+) | – | – | – | – | 4 | 4 | 4 |
| Combo 10/100/1000BASE-T/ 100BASE-FX/1000BASE-X | 2 | – | – | 4 | – | – | – |
| Console port RS-232 (RJ-45) | 1 | | | | | | |
| **Performance** | | | | | | | |
| Bandwidth | 20 Gbps | 20 Gbps | 20 Gbps | 56 Gbps | 128 Gbps | 176 Gbps | 176 Gbps |
| Throughput for 64-byte packets[2] | 14.88 MPPS | 14.88 MPPS | 14.88 MPPS | 41.658 MPPS | 95.2 MPPS | 130.95 MPPS | 130.95 MPPS |
| Buffer memory | 512 KB | 512 KB | 512 KB | 512 KB | 1.5 MB | 2 MB | 2 MB |
| RAM (DDR3) | 256 MB | 256 MB | 256 MB | 256 MB | 512 MB | 512 MB | 1 GB |
| ROM (SPI Flash) | 32 MB | 32 MB | 32 MB | 32 MB | 64 MB | 64 MB | 64 MB |
| MAC table | 8192 | 8192 | 8192 | 8192 | 16384 | 32768 | 32768 |
| ARP table | 1000 | | | | | | |
| VLAN table | 4094 | | | | | | |
| L2 Multicast groups (IGMP Snooping) | 509 | 509 | 509 | 509 | 1023 | 4094 | 4094 |
| L3 Multicast groups (IGMP Proxy) | – | – | – | – | 512 | 2048 | 2048 |
| SQinQ rules | 128 (ingress), 256 (egress) | 128 (ingress), 256 (egress) | 128 (ingress), 256 (egress) | 128 (ingress, 256 (egress) | 1024 (ingress[3]), 512 (egress) | 2048 (ingress[3]), 1024 (egress) | 2048 (ingress[3]), 1024 (egress) |
| MAC ACL rules | 381 | 381 | 381 | 381 | 509 | 766 | 766 |
| IPv4/IPv6 ACL rules | 219/128 | 219/128 | 219/128 | 219/128 | 384/192 | 640/320 | 640/320 |

[1] For MES2424P, MES2448P, MES2420-48P.
[2] Values are given for one-way transmission.
[3] Mac-based vlan and SQinQ share common hardware resources.

## Technical features (continued)

| | MES2408CP | MES2408P | MES2408PL | MES2428P | MES2424P | MES2448P | MES2420-48P |
|---|---|---|---|---|---|---|---|
| L3 IPv4 Unicast routes | – | – | – | – | 496 | 2048 | 2048 |
| L3 IPv6 Unicast routes | – | – | – | – | 124 | 512 | 512 |
| VRRP routers | – | – | – | – | 32 | 32 | 32 |
| L3 interfaces | 20 VLANs, up to 5 IPv4 addresses in each VLAN, up to 300 IPv6 GUA for all VLANs | | | | 20 VLANs, up to 5 IPv4 addresses in each VLAN, up to 124 IPv6 GUA for all VLANs | 20 VLANs, up to 5 IPv4 addresses in each VLAN, up to 512 IPv6 GUA for all VLANs | |
| Link Aggregation Groups (LAG) | 8 groups, up to 8 ports in one LAG | | | | 24 groups, up to 8 ports in one LAG | | |
| QoS | 8 egress queues per port | | | | | | |
| Jumbo frames | maximum packet size is 10000 bytes | | | | maximum packet size 12288 bytes | | |

## Features and capabilities

### Interface features
— Head-of-line blocking (HOL) protection
— Auto MDI/MDIX
— Jumbo frames
— Flow Control (IEEE 802.3X)
— Port mirroring (SPAN, RSPAN)

### MAC table
— Independent learning mode on each VLAN
— MAC Multicast Support
— Configurable aging time of MAC addresses
— Static MAC Entries
— MAC change events monitoring per ports
— MAC Flapping

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

### L2 Multicast features
— Multicast profiles
— Static Multicast groups
— IGMP Snooping v1,2,3
— IGMP Snooping fast-leave
— IGMP Proxy-report
— IGMP authorization via RADIUS
— MLD Snooping v1,2[1]
— MLD Snooping fast-leave[1]
— IGMP Querier
— MVR

### L2 features
— 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+[2]
— STP Root Guard
— STP Loop Guard
— STP BPDU Guard
— BPDU Filtering
— Spanning Tree Fast Link option
— Layer 2 Protocol Tunneling (L2PT)
— Loopback Detection (LBD)
— Port isolation
— Storm Control for different types of traffic (broadcast, multicast, unknown unicast)
— ERPS (G.8032v2)[2]

### L3 Multicast features[2]
— IGMP proxy (RFC 4605)
— IGMP proxy fast-leave

### L3 features[2]
— Support for static IPv4 and IPv6 routes
— Support for dynamic routing protocol RIPv1/2, OSPFv2/3
— Support for VRRP

### Link Aggregation functions
— LAG
— LACP
— LAG Balancing Algorithm

### Service functions
— Virtual cable test (VCT)
— Optical transceiver diagnostics

[1] Not supported by MES2448P, MES2420-48P current firmware version.
[2] Only for MES2424P, MES2448P, MES2420-48P.
CE — the device complies with CE requirements.

## Features and capabilities (continued)

### IPv6 support
— IPv6 Host
— Dual-stack IPv4, IPv6

### Security functions
— DHCP Snooping
— DHCP Option 82
— IP Source Guard
— Dynamic ARP Inspection (Protection)
— MAC-based authentication, Port Security, static MAC addresses
— IEEE 802.1x based authentication per ports
— Guest VLAN
— DoS attacks prevention
— Traffic segmentation
— DHCP clients filtering
— BPDU attacks prevention
— PPPoE Intermediate Agent
— DHCPv6 Snooping
— IPv6 Source Guard
— IPv6 ND Inspection
— IPv6 RA Guard

### Access control lists (ACL)
— 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

### Quality of Service (QoS) and rate limiting
— Shaping, policing
— Support for IEEE 802.1p Class of Service
— Strict Priority/Weighted Round Robin (WRR)
— ACL-based traffic classification
— ACL-based CoS/DSCP marking
— DSCP to CoS remarking
— CoS to DSCP remarking
— ACL-based VLAN assignment

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

### Main management functions
— Download and upload of configuration file via TFTP/SFTP
— Automated backup of configuration file via TFTP/SFTP
— Simple Network Management Protocol (SNMP)
— Command Line Interface (CLI)
— Web interface
— Syslog
— SNTP (Simple Network Time Protocol)
— Traceroute
— LLDP (IEEE 802.1ab) + LLDP MED
— Two 802.1Q headers traffic control
— Commands Authorization using TACACS+ server
— IPv4/IPv6 ACL support for device control
— Switch access management – privilege levels for users
— Management interface blocking
— Local authentication
— IP addresses filtering for SNMP
— RADIUS and TACACS+ (Terminal Access Controller Access Control System) clients
— Telnet client, SSH client
— Telnet server, SSH server
— Macro commands
— Input commands logging via TACACS+ protocol
— DHCP auto configuration
— DHCP Relay (IPv4 support)
— DHCP Relay Option 82
— DHCP server[1]
— PPPoE Circuit-ID tag adding
— Flash File System
— Debug commands
— CPU traffic limiting
— Password encryption
— Ping (IPv4/IPv6 support)
— IPv4/IPv6 static routing
— Support for several versions of configuration file

### Monitoring functions
— Interface statistics
— CPU utilization monitoring per task and per queue
— RAM usage monitoring
— Temperature monitoring
— TCAM monitoring

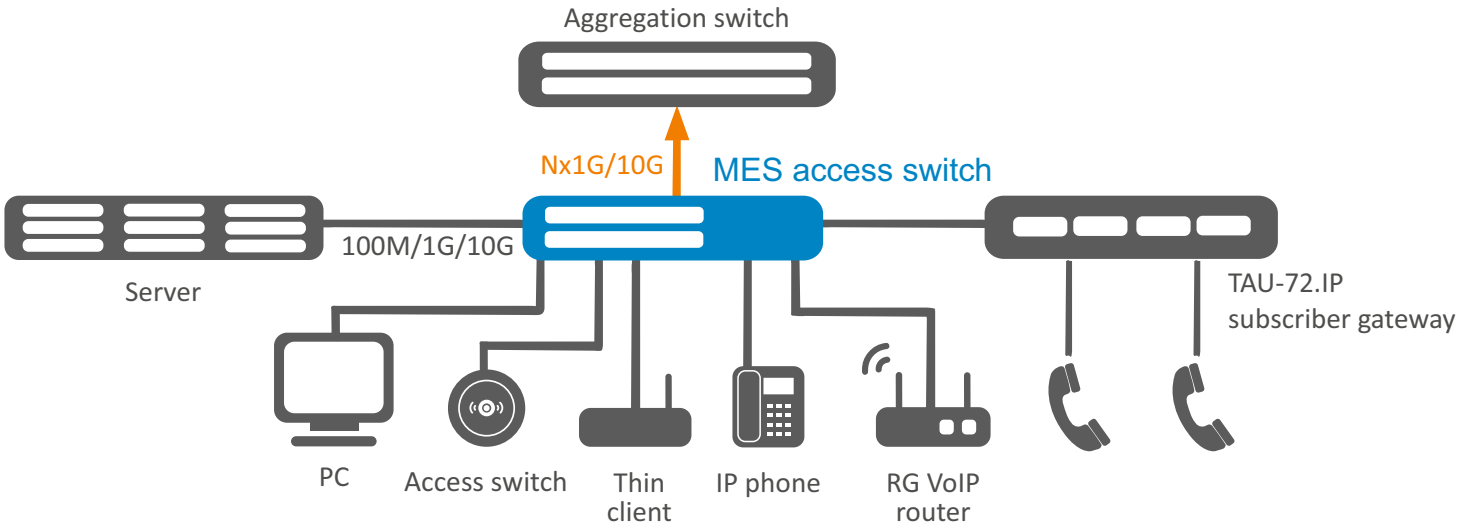
### MIB/IETF
— RFC 1065, 1066, 1155, 1156, 2578 MIB Structure
— RFC 1212 Concise MIB Definitions
— RFC 1213 MIB II
— RFC 1215 MIB Traps Convention
— RFC 1493, 4188 Bridge MIB
— RFC 1157, 2571-2576 SNMP MIB
— RFC 1901-1908, 3418, 3636, 1442, 2578 SNMPv2 MIB
— RFC 2465 IPv6 MIB
— RFC 2737 Entity MIB
— 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 for TCP
— RFC 4113 MIB for UDP
— RFC 3289 MIB for Diffserv
— RFC 2620 RADIUS Accounting Client MIB
— RFC 768 UDP

[1] Only for MES2424P, MES2448P, MES2420-48P.

## Features and capabilities (continued)

— RFC 791 IP
— RFC 792 ICMPv4
— RFC 2463, 4443 ICMPv6
— RFC 793 TCP
— RFC 2474, 3260 Definition of the DS field in the IPv4 and IPv6 Headers
— 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

| | MES2408CP | MES2408P | MES2408PL | MES2428P AC | MES2428P DC | MES2424P | MES2448P | MES2420-48P |
|---|---|---|---|---|---|---|---|---|
| **Physical specifications and environmental parameters** | | | | | | | | |
| Power | 110–250 V AC, 50–60 Hz | 176–250 V AC, 50–60 Hz or 36–72 V DC | 110–250 V AC, 50–60 Hz | 176–264 V AC, 50–60 Hz | 36–72 V DC | 176–264 V AC, 50–60 Hz | 176–264 V AC, 50–60 Hz (up to 2 hot-swappable power supplies) | 100–240 V AC, 50–60 Hz 36–72 V DC (up to 2 hot-swappable power supplies) |
| Input current | 1.4 A–0.6 A | 1.6 A–1.1 A 7.8 A–3.9 A | 0.8 A–0.4A | 2.4 A–1.6A | 12.5 A–6.3 A | 2.4 A–1.6 A | 4.7 A–3.2 A | 10 A–5 A |
| Maximum power consumption (including PoE) | 150 W | 275 W AC 280 W DC | 80 W | 420 W | 450 W | 420 W | 820 W | 1600 W |
| PoE budget | 120 W | 240 W | 65 W | 370 W | 370 W | 370 W | 720 W | 1450 W |
| Heat dissipation | 30 W | 35 W AC 40 W DC | 15 W | 50 W | 80 W | 50 W | 100 W | 160 W |
| Hardware support for Dying Gasp | yes | no | no | yes | no | yes | no | no |
| Operating temperature[1] | from -20 °C to +50 °C | from -20 °C to +50 °C | from -20 °C to +50 °C | from -20 °C to +50 °C | from -20 °C to +50 °C | from -20 °C to +50 °C | from -10 °C to +50 °C | from -10 °C to +50 °C |
| Storage temperature | from -40 °C to +70 °C | | | | | | | |
| Cooling | passive | passive | passive | 2 fans | 2 fans | 2 fans | 4 fans | 4 fans |
| Operating humidity | no more than 80 % | | | | | | | |
| Form factor | 19", 1U | | | | | | | |
| Dimensions (W × H × D), mm | 310 × 44 × 177 | 430 × 44 × 178 | 310 × 44 × 177 | 430 × 44 × 204 | 430 × 44 × 305 | 430 × 44 × 225 | 440 × 44 × 447 | 440 × 44 × 490 |
| Weight | 2.16 kg | 2.69 kg | 1.9 kg | 3.27 kg | 3.27 kg | 3.36 kg | 7.46 kg | 9.55 kg |

[1] For MES2408CP and MES2408P DC: when operating devices at temperatures above 45 °C it is necessary to use industrial SFP transceivers.
CE — the device complies with CE requirements.

## Ordering information

| Name | Description |
|---|---|
| **MES2408CP** | Ethernet switch MES2408CP, 8 ports of 10/100/1000BASE-T (PoE/PoE+), 2 Combo ports of 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 110–250 V AC |
| **MES2408P AC** | Ethernet switch MES2408P AC, 8 ports of 10/100/1000BASE-T (PoE/PoE+), 2 ports of 100BASE-FX/ 1000BASE-X, L2, 176–250 V AC |
| **MES2408P DC** | Ethernet switch MES2408P DC, 8 ports of 10/100/1000BASE-T (PoE/PoE+), 2 ports of 100BASE-FX/ 1000BASE-X, L2, 36–72 V DC |
| **MES2408PL** | Ethernet switch MES2408PL, 8 ports of 10/100/1000BASE-T (PoE/PoE+), 2 ports of 100BASE-FX/ 1000BASE-X, L2, 110–250 V AC |
| **MES2428P AC** | Ethernet switch MES2428P AC, 24 ports of 10/100/1000BASE-T (PoE/PoE+), 4 Combo ports of 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 176–264 V AC |
| **MES2428P DC** | Ethernet switch MES2428P DC, 24 ports of 10/100/1000BASE-T (PoE/PoE+), 4 Combo ports of 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 36–72 V DC |
| **MES2424P** | Ethernet switch MES2424P, 24 ports of 10/100/1000BASE-T (PoE/PoE+), 4 ports of 1000BASE-X/ 10GBASE-R, L3, 176–264 V AC |
| **MES2448P** | Ethernet switch MES2448P, 48 ports of 10/100/1000BASE-T (PoE/PoE+), 4 ports of 1000BASE-X/ 10GBASE-R, L3 |
| **MES2420-48P** | Ethernet switch MES2420-48P, 48 ports of 10/100/1000BASE-T (PoE/PoE+), 4 ports of 1000BASE-X/ 10GBASE-R, L3 |
| **Related products** | |
| **PM380-220/56** | Power module PM380-220/56, 176–264 V AC, 380 W, for MES2448P switches |
| **Related software** | |
| **ECCM-MES2408CP** | ECCM-MES2408CP option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2408CP |
| **ECCM-MES2408P** | ECCM-MES2408P option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2408P |
| **ECCM-MES2408P_DC** | ECCM-MES2408P_DC option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2408P DC |
| **ECCM-MES2408PL** | ECCM-MES2408PL option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2408PL |
| **ECCM-MES2428P_AC** | ECCM-MES2428P_AC option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2428P AC |
| **ECCM-MES2428P_DC** | ECCM-MES2428P_DC option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2428P DC |
| **ECCM-MES2424P** | ECCM-MES2424P option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2424P |
| **ECCM-MES2448P** | ECCM-MES2448P option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2448P |
| **ECCM-MES2420-48P** | ECCM-MES2420-48P option of Eltex ECCM control system to manage and monitor Eltex network elements: 1 network element MES2420-48P |

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About ELTEX

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