

- Non-blocking architecture
- Advanced L2 features
- Support for Multicast (IGMP Snooping, MVR)
- Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)
- Uninterruptible power supply from a rechargeable battery<sup>1</sup>



MES1428



MES2428

The access switches provide end users connection to networks of large enterprises, small and mid-sized businesses and service providers via Fast and Gigabit Ethernet interfaces.

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

### Uninterruptible power<sup>1</sup>

The MES2428B switches can be equipped with a rechargeable battery to ensure power supply in case of the 230 V primary network connection loss. The switches are equipped with a power supply unit which allows the battery to be charged when 230 V power is available. Power supply redundancy system makes it possible to monitor the state of the primary network and notify of a power type switching.

### Technical features

|                                                   | MES1428                                                                                         | MES2428  | MES2428B    |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------|
| Interfaces                                        |                                                                                                 |                                                                                             |             |
| 10/100BASE-TX (RJ-45)                             | 24                                                                                              | —                                                                                           | —           |
| 10/100/1000BASE-T (RJ-45)                         | —                                                                                               | 24                                                                                          | 24          |
| Combo 10/100/1000BASE-T/<br>100BASE-FX/1000BASE-X | 4                                                                                               | 4                                                                                           | 4           |
| Input dry contacts                                | —                                                                                               | —                                                                                           | —           |
| Console port RS-232 (RJ-45)                       | 1                                                                                               |                                                                                             |             |
| Performance                                       |                                                                                                 |                                                                                             |             |
| Bandwidth                                         | 12.8 Gbps                                                                                       | 56 Gbps                                                                                     | 56 Gbps     |
| Throughput for 64-byte packets <sup>2</sup>       | 9 MPPS                                                                                          | 41.658 MPPS                                                                                 | 41.658 MPPS |
| Buffer memory                                     | 512 KB                                                                                          |                                                                                             |             |
| RAM (DDR3)                                        | 256 MB                                                                                          |                                                                                             |             |
| ROM (SPI Flash)                                   | 32 MB                                                                                           |                                                                                             |             |
| MAC table                                         | 8192                                                                                            |                                                                                             |             |
| ARP table                                         | 1000                                                                                            |                                                                                             |             |
| VLAN table                                        | 4094                                                                                            |                                                                                             |             |
| L2 Multicast groups<br>(IGMP Snooping)            | 509                                                                                             |                                                                                             |             |
| SQinQ rules number                                | 128 (ingress), 256 (egress)                                                                     |                                                                                             |             |
| MAC ACL rules                                     | 381                                                                                             |                                                                                             |             |
| IPv4, IPv6 ACL rules                              | 227/128                                                                                         |                                                                                             |             |
| L3 interfaces                                     | 20 VLANs, up to 5 of IPv4 addresses per VLAN,<br>up to 300 of IPv6 GUA for all VLANs in summary |                                                                                             |             |
| Link Aggregation Groups (LAG)                     | 8 groups, up to 8 ports in one LAG                                                              |                                                                                             |             |
| Quality of Service (QoS)                          | 8 egress queues per port                                                                        |                                                                                             |             |
| Jumbo frames                                      | maximum packet size is 10000 bytes                                                              |                                                                                             |             |

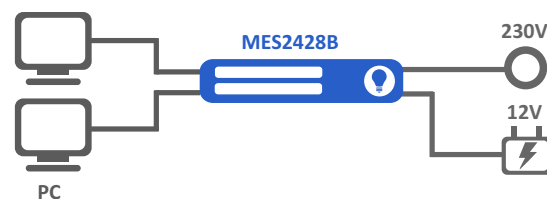
<sup>1</sup>Only for MES2428B.

<sup>2</sup>Values are given for one-way transmission.

 — the device complies with CE requirements.

## Technical features of redundant power supply\* (MES2428B)

|          | Battery capacity,<br>Ah | Battery life,<br>h | Battery charge<br>time, h |
|----------|-------------------------|--------------------|---------------------------|
| MES2428B | 12                      | ≈8                 | ≈13                       |
|          | 17                      | ≈12                | ≈19                       |
|          | 20                      | ≈15                | ≈23                       |



\* Note:  
 – Specifications are given for environment temperature +25 °C;  
 – It is recommended to use batteries with a capacity of at least 12 Ah for MES2428B.

## 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 per 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 features

- STP (Spanning Tree Protocol, IEEE 802.1d)
- RSTP (Rapid Spanning Tree Protocol, IEEE 802.1w)
- MSTP (Multiple Spanning Tree Protocol, IEEE 802.1s)
- 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)

### 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
- MLD Snooping fast-leave
- IGMP Querier
- MVR

### Link Aggregation functions

- Link Aggregation Groups (LAG)
- LACP
- LAG Balancing Algorithm

### Service functions

- Virtual Cable Testing (VCT)
- Optical transceiver diagnostics

### IPv6

- 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 entries
- Port-based authentication IEEE 802.1x
- 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

## Features and capabilities (continued)

### Access control lists (ACL)

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

### Quality of service (QoS) and rate limiting

- Port rate limiting (shaping, policing)
- IEEE 802.1p Class of Service (CoS)
- Queue scheduling algorithms: Strict Priority (SP)/Weighted Round Robin (WRR)
- IEEE 802.1p priority for management VLAN
- ACL-based traffic classification
- ACL-based CoS/DSCP mark assignment
- 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)

### Time synchronization

- Simple Network Time Protocol (SNTP)

### Monitoring functions

- Interface statistics
- CPU utilization monitoring per task and per queue
- RAM usage monitoring
- Temperature monitoring
- TCAM monitoring

### Main management functions

- Configuration file download and upload via TFTP/SFTP
- Automated backup of configuration file via TFTP/SFTP
- Simple Network Management Protocol (SNMP)
- Command Line Interface (CLI)
- Web interface
- Syslog
- 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+ clients
- Telnet server and client
- SSH server and client
- Macro commands

- Input commands logging via TACACS+
- DHCP autoprovision
- DHCP Relay (support for IPv4)
- DHCP Relay Option 82
- PPPoE Circuit-ID tag adding
- Flash File System
- Debug commands
- Rate limit of traffic to CPU
- Password encryption
- Ping (support for IPv4/IPv6)
- Traceroute
- IPv4/IPv6 static routes support
- Support for several versions of configuration files

### Uninterruptible power supply<sup>1</sup>

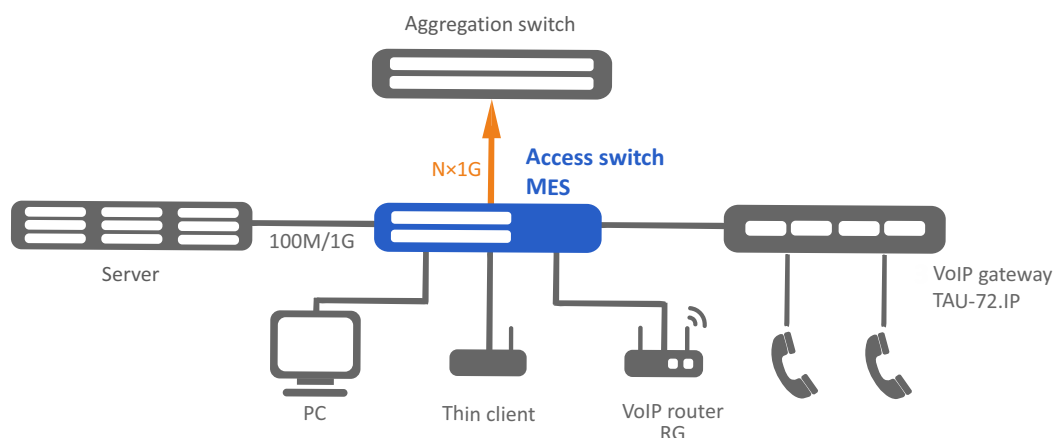
- Automatic switching to 12 V rechargeable battery when the primary power supply (230V) fails, and vice versa
- 12 V battery charging when operating from 230 V primary power supply
- Power supply type monitoring (SNMP)
- Notification of switching from one type of power to another
- Battery connection indication
- Low battery alarm
- Short circuit protection

### 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
- RFC 791 IP
- RFC 792 ICMv4
- 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

<sup>1</sup>Only for MES2428B.

## Use case



## Physical parameters

|                                                              | MES1428 AC             | MES1428 DC  | MES2428 AC             | MES2428 DC  | MES2428B                              |
|--------------------------------------------------------------|------------------------|-------------|------------------------|-------------|---------------------------------------|
| Physical specifications and environmental parameters         |                        |             |                        |             |                                       |
| Power supply <sup>1</sup>                                    | 110–250 V,<br>50–60 Hz | 18–72 V     | 110–250 V,<br>50–60 Hz | 18–72 V     | 100–240 V AC,<br>50–60 Hz;<br>12 V DC |
| Input current                                                | 0.15–0.1 A             | 0.6–0.15 A  | 0.3–0.1 A              | 1.2–0.3 A   | 0.7–0.2 A;<br>2.0 A                   |
| Maximum power consumption                                    | 10 W                   | 11 W        | 18 W                   | 18 W        | 45 W                                  |
| Maximum power consumption<br>(without battery charge)        | —                      | —           | —                      | —           | 20 W                                  |
| Heat dissipation                                             | 10 W                   | 11 W        | 18 W                   | 18 W        | 23 W                                  |
| Hardware support for<br>Dying Gasp                           | yes                    | no          | yes                    | no          | no                                    |
| Operating temperature                                        | from -20 to +50 °C     |             |                        |             |                                       |
| Storage temperature                                          | from -40 to +70 °C     |             |                        |             |                                       |
| Cooling                                                      | passive                |             |                        |             |                                       |
| Maximum acoustic noise<br>level from the front/rear<br>panel | 33 dB/33 dB            | 33 dB/33 dB | 33 dB/33 dB            | 33 dB/33 dB | 33 dB/33 dB                           |
| Operating humidity                                           | no more than 80 %      |             |                        |             |                                       |
| Form factor                                                  | 19", 1U                |             |                        |             |                                       |
| Dimensions<br>(W × H × D)                                    | 430 × 44 × 178 mm      |             |                        |             |                                       |
| Weight                                                       | 2.26 kg                |             | 2.35 kg                |             |                                       |

<sup>1</sup>MES1428 AC and MES2428 AC can use a DC power supply with a range of 120–370 V.

— the device complies with CE requirements.

## Ordering information

| Name             | Description                                                                                                                                  |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| MES1428 AC       | Ethernet switch MES1428, 24 ports of 10/100BASE-TX, 4 ports of Combo 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 110–250 V AC               |
| MES1428 DC       | Ethernet switch MES1428, 24 ports of 10/100BASE-TX, 4 ports of Combo 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 18–72 V DC                 |
| MES2428 AC       | Ethernet switch MES2428, 24 ports of 10/100/1000BASE-T, 4 ports of Combo 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 110–250 V AC           |
| MES2428 DC       | Ethernet switch MES2428, 24 ports of 10/100/1000BASE-T, 4 ports of Combo 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 18–72 V DC             |
| MES2428B         | Ethernet switch MES2428B, 24 ports of 10/100/1000BASE-T, 4 ports of Combo 10/100/1000BASE-T/100BASE-FX/1000BASE-X, L2, 100–240 V AC, 12 V DC |
| Related software |                                                                                                                                              |
| ECCM-MES1428_AC  | ECCM-MES1428_AC option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES1428_AC    |
| ECCM-MES1428_DC  | ECCM-MES1428_DC option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES1428_DC    |
| ECCM-MES1428B    | ECCM-MES1428B option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES1428B        |
| ECCM-MES2428_AC  | ECCM-MES2428_AC option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES2428_AC    |
| ECCM-MES2428_DC  | ECCM-MES2428_DC option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES2428_DC    |
| ECCM-MES2428B    | ECCM-MES2428B option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES2428B        |

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## About Eltex



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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.