– **Bandwidth up to 176 Gbps**
– **Non-blocking architecture**
– **L3 switches**
– **4 ports of 10G**
– **Stacking up to 8 devices**
– **Multicast support (IGMP Snooping, MVR)**
– **Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)**

**MES2300-48P**

MES2300-24P, MES2300D-24P and MES2300-48P switches with PoE support provide end users connection to networks of large enterprises, small and middle-sized business and service providers via 1G/10G.

The switches functionality includes physical stacking, VLAN support, multicast groups, and advanced security features.

## Technical features

| | MES2300-24P AC | MES2300-24P DC | MES2300D-24P | MES2300-48P |
|---|---|---|---|---|
| **Interfaces** | | | | |
| 10/100/1000BASE-T (RJ-45) PoE/PoE+ | 24 | 24 | 24 | 48 |
| 10GBASE-R (SFP+)/1000BASE-X (SFP) | 4 | | | |
| Console port RS-232 (RJ-45) | 1 | | | |
| **Performance** | | | | |
| Bandwidth | 128 Gbps | | | 176 Gbps |
| Throughoutput for 64 bytes[1] | 94.49 MPPS | 94.49 MPPS | 95.2 MPPS | 130.95 MPPS |
| Buffer memory | 1.5 MB | | | 3 MB |
| RAM (DDR4) | 2 GB | | | |
| ROM (RAW NAND) | 512 MB | | | |
| MAC table | 16384 | | | |
| ARP table[2] | 1981 | | | |
| VLAN table | 4094 | | | |
| L2 Multicast groups | 2048 | | | |
| SQinQ rules | 1320 (ingress), 654 (egress) / 654 (ingress), 1320 (egress)[3] | | | |
| MAC ACL rules | 1974 | | | |
| IPv4/IPv6 ACL rules | 1974/987 | | | |
| L3 IPv4 Unicast routes[4] | 4063 | | | |
| L3 IPv6 Unicast routes[4] | 1014 | | | |
| L3 IPv4 Multicast (IGMP Proxy, PIM) routes[4] | 1981 | | | |
| L3 IPv6 Multicast (IGMP Proxy, PIM) routes[4] | 505 | | | |
| VRRP routers | 255 | | | |
| Maximum number of ECMP groups | 1024 | | | |
| ECMP routes | 8 | | | |
| VRF number | 16 (including default VRF) | | | |
| L3 interfaces | 2032 | | | |

[1] Values are given for one-way transmission.
[2] For each host in the ARP table, an additional entry is created in the switching table.
[3] There are 1974 rules in total. They are shared between ingress and egress rules in varying proportions, but no more than 1320 for each direction.
[4] IPv4/IPv6 Unicast/Multicast routes share hardware resources.

## Technical features (continued)

| | MES2300-24P AC | MES2300-24P DC | MES2300D-24P | MES2300-48P |
|---|---|---|---|---|
| Link Aggregation Groups (LAG) | 32, up to 8 ports in one LAG | | | |
| Quality of Service (QoS) | 8 egress queues per port | | | |
| Jumbo frames | 10240 bytes | | | |
| Stacking | 8 devices | | | |

# Features and capabilities

### Interface features
– Head-of-line blocking (HOL) protection
– Back Pressure
– Auto MDI/MDIX
– Jumbo Frames
– Flow Control (IEEE 802.3X)
– Port Mirroring (SPAN, RSPAN)
– Stacking

### MAC address functions
– Independent learning mode per VLAN
– MAC Multicast Support
– Configurable aging time of MAC addresses
– Static MAC Entries
– MAC Flapping

### VLAN support
– Voice VLAN
– 802.1Q
– Q-in-Q
– Selective Q-in-Q
– GVRP

### L2 Multicast functions
– Multicast profiles
– Static Multicast groups
– IGMP Snooping v1,2,3
– Host/port-based IGMP Snooping Fast Leave
– Pim-Snooping
– IGMP proxy-report
– IGMP authorization through RADIUS
– MLD Snooping v1,2
– 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, IEEE802.1s)
– PVSTP+
– RPVSTP+
– Spanning Tree Fast Link option
– STP Root Guard
– BPDU Filtering
– STP BPDU Guard
– Loopback Detection
– ERPS (G.8032v2)
– Flex-link
– Private VLAN
– L2PT (Layer 2 Protocol Tunneling)

### L3 functions
– IP routes
– RIPv2, OSPFv2, OSPFv3, IS-IS (IPv4 Unicast), BGP[1] (IPv4 Unicast, IPv4 Multicast)
– BFD protocol (for BGP)
– ARP (Address Resolution Protocol)
– Proxy ARP
– Policy-Based Routing (IPv4)
– VRRP
– Multicast dynamic routing protocols PIM SM, PIM DM, IGMP Proxy, MSDP
– ECMP Load Balancing
– IP Unnumbered
– GRE
– VRF lite

### Link Aggregation functions
– LAG group creation
– LACP
– LAG Balancing Algorithm
– MLAG (Multi-Switch Link Aggregation Group)

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

### Service functions
– VCT (Virtual Cable Testing)
– Optical transceiver diagnostics
– Green Ethernet

### Security functions
– Protection against unauthorized DHCP servers (DHCP Snooping)
– DHCP option 82
– IP Source Guard
– Dynamic ARP Inspection
– First Hop Security
– sFlow
– MAC-based authentication, Port Security, Static MAC entries
– Port-based authentication IEEE 802.1x
– Guest VLAN
– DoS attack prevention
– Traffic segmentation
– DHCP clients filtering
– BPDU attack prevetion
– NetBIOS/NetBEUI filtering

### Access Control Lists (ACL)
– L2-L3-L4 ACL (Access Control List)
– Time-Based ACL
– IPv6 ACL
– ACL based on:
  – Switch port
  – 802.1p priority
  – VLAN ID
  – EtherType
  – DSCP
  – Protocol type
  – TCP/UDP port number
  – User Defined Bytes

[1] BGP protocol support is provided under license.

## Features and capabilities (continued)

### Quality of Service (QoS)
– QoS statistics
– Shaping, policing
– IEEE 802.1p Class of Service
– Storm Control for different traffics (broadcast, multicast, unknown unicast)
– Bandwidth management
– Strict priority/Weighted Round Robin (WRR) scheduling algorithms
– Three marking colors
– ACL-based CoS/DSCP mark assignment
– ACL-based VLAN mark assignment
– Setting the IEEE 802.1p priority for management VLAN
– DSCP to CoS, CoS to DSCP remarking
– 802.1p DSCP mark assignment for IGMP

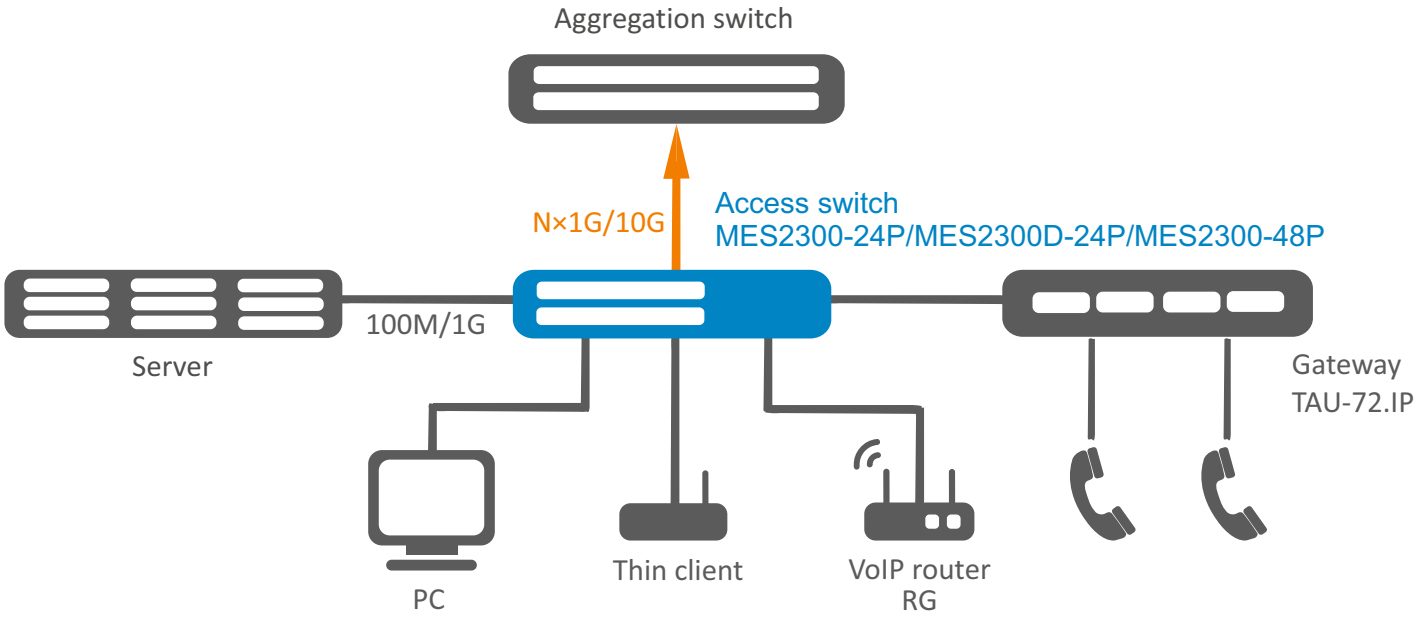
### OAM
– 802.3ah Ethernet Link OAM
– 802.3ah Unidirectional Link Detection

### Management functions
– Upload/download of configuration file and firmware via TFTP/SCP
– SNMP (Simple Network Management Protocol)
– CLI (Command Line Interface)
– Web interface
– Syslog
– SNTP (Simple Network Time Protocol)
– NTP (Network Time Protocol), NTP server, NTP peer-to-peer
– Traceroute
– LLDP (802.1ab) + LLDP MED
– LLDP (IEEE 802.1ab)
– TACACS+
– Switch access control — Privilege levels for users
– Management interface blocking
– Local authentication
– IP addresses filtering for SNMP
– RADIUS, TACACS+ (Terminal Access Controller Access Control System) clients
– SSH, Telnet server
– SSH, Telnet client
– SSL
– Macrocommands support
– CLI commands logging
– System log
– DHCP autoprovision
– DHCP Relay (Option 82)
– DHCP Option 12
– DHCP server
– Debugging commands
– Rate limit of traffic to CPU
– Password encryption
– Password recovery
– Ping (IPv4/IPv6)

### Monitoring functions
– Interface statistics
– RMON/SMON
– IP SLA
– CPU utilization monitoring per task and traffic type
– RAM (Random Access Memory)
– 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 1271, 1757, 2819 RMON MIB
– RFC 2465 IPv6 MIB
– RFC 2466 ICMPv6 MIB
– RFC 2737 Entity MIB
– RFC 4293 IPv6 SNMP Mgmt Interface MIB
– Private MIB
– RFC 3289 DIFFSERV MIB
– RFC 2021 RMONv2 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 2620 RADIUS Accounting Client MIB
– RFC 2925 Ping & Traceroute MIB
– RFC 768 UDP
– RFC 791 IP
– RFC 792 ICMPv4
– RFC 2463, 4443 ICMPv6
– RFC 4884 Extended ICMP to support Multi-Part Messages
– RFC 793 TCP
– RFC 2474, 3260 Definition of the DS field in the IPv4 and IPv6
– RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
– RFC 2571, RFC2572, RFC2573, RFC2574 SNMP
– RFC 826 ARP
– RFC 854 Telnet
– IEC 61850

## Use case




### Physical parameters

| | MES2300-24P AC | MES2300-24P DC | MES2300D-24P | MES2300-48P |
|---|---|---|---|---|
| **Physical parameters and environmental features** | | | | |
| Power supply | 200–240 V AC, 50–60 Hz | 36–72 V DC | 200–240 V AC, 50–60 Hz<br>Power supply options:<br>• one AC power supply<br>• two AC hot-swappable power supplies | 100–240 V AC, 50–60 Hz; 36–72 V DC<br>(up to 2 hot-swappable power supplies) |
| Input current | including PoE: 1.5–2.8 A<br>excluding PoE: 0.2–0.3 A | 14–6 A | 3.0–5.5 A for AC | 5–10 A for AC |
| Maximum power consumption (including PoE) | 445 W | 480 W | 850 W | 1600 W |
| PoE budget | 380 W | 380 W | 720 W | 1450 W |
| Heat dissipation | 65 W | 100 W | 130 W | 150 W |
| Dying Gasp support | no | | | |
| Operating temperature | from -20 to +50 °C | | | from -10 to +50 °C |
| Storage temperature | from -50 to +70 °C | | | |
| Operating humidity | no more than 80 % | | | |
| Cooling | 2 fans | 2 fans | 4 fans | 4 fans |
| Form factor | 19", 1U | | | |
| Dimensions (W × H × D) | 430 × 44 × 203 mm | 430 × 44 × 203 mm | 440 × 44 × 425 mm | 440 × 44 × 490 mm |
| Weight | 3.2 kg | 3.2 kg | 6.85 kg | 9.98 kg |

## Ordering information

| Name | Description |
|---|---|
| **MES2300-24P AC** | MES2300-24P AC Ethernet switch, 24×10/100/1000BASE-T (RJ-45) PoE/PoE+, 4×10GBASE-R (SFP+)/1000BASE-X (SFP), L3 |
| **MES2300-24P AC** | MES2300-24P DC Ethernet switch, 24×10/100/1000BASE-T (RJ-45) PoE/PoE+, 4×10GBASE-R (SFP+)/1000BASE-X (SFP), L3 |
| **MES2300D-24P** | MES2300D-24P Ethernet switch, 24×10/100/1000BASE-T (RJ-45) PoE/PoE+, 4×10GBASE-R (SFP+)/1000BASE-X(SFP), L3 |
| **MES2300-48P** | MES2300-48P Ethernet switch, 48×10/100/1000BASE-T (RJ-45) PoE/PoE+, 4×10GBASE-R (SFP+)/1000BASE-X (SFP), L3 |
| **Related products** | |
| **PM380-220/56** | PM380-220/56 power module, 176–264 V AC, 380 W, used in MES2300D-24P |
| **PM950-220/56** | PM950-220/56 power module, 100–240 V AC, 950 W, used in MES2300-48P |
| **PM950-48/56** | PM950-48/56 power module, 36–72 V DC, 950 W, used in MES2300-48P |
| **Related software** | |
| **ECCM-MES2300-24P** | ECCM-MES2300-24P option of Eltex ECCM management system for Eltex network elements management and monitoring: 1 network element MES2300-24P |
| **ECCM-MES2300D-24P** | ECCM-MES2300D-24P option of Eltex ECCM management system for Eltex network elements management and monitoring: 1 network element MES2300D-24P |
| **ECCM-MES2300-48P** | ECCM-MES2300-48P option of Eltex ECCM management system for Eltex network elements management and monitoring: 1 network element MES2300-48P |

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About Eltex

**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.