ELTEX
Integrated networking solutions

— **Bandwidth up to 236 Gbps**
— **Non-blocking architecture**
— **Advanced L2 features**
— **L3 switch**
— **Support for Multicast (IGMP Snooping, MVR)**
— **Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)**
— **Front-to-back cooling**
— **Up to 8 devices in a stack**

The Ethernet access switch provides end users connection to networks of large enterprises, small and mid-sized businesses and service providers via 1G/10G interfaces.

The switch supports physical stacking, Virtual Local Area Networks (VLAN), multicast groups and advanced security functions.

Technical features

Interfaces	
10/100/1000BASE-T (RJ-45)	8
1000BASE-X (SFP)/10GBASE-R (SFP+)	11
Console port RS-232 (RJ-45)	1
Performance	
Bandwidth	236 Gbps
Throughput for 64-byte packets[1]	175.5 MPPS
Buffer memory	2 MB
RAM (DDR3)	512 MB
ROM (SPI Flash)	64 MB
MAC table	32768
ARP entries	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	765
IPv4/IPv6 ACL rules	640/320
L3 IPv4 Unicast routes	2048
L3 IPv6 Unicast routes	512
VRRP routers	32
L3 interfaces	20 VLANs, up to 5 of IPv4 addresses for each VLAN, up to 512 of IPv6 GUA for all VLANs in summary
Link Aggregation Groups (LAG)	64 groups, up to 8 ports in one LAG
Quality of Service (QoS)	8 egress queues per port
Jumbo frames	maximum packet size is 12288 bytes

[1] Value is given for one-way transmission.
[2] Mac-based VLAN and SQinQ share hardware resources.

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 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+
— 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 features
— IGMP proxy (RFC 4605)
— IGMP proxy fast-leave

L3 features
— Static IPv4, IPv6 routes
— RIPv1/2, OSPFv2/3
— VRRP

Link Aggregation functions
— Static LAG
— Dynamic LAG (LACP)
— LAG Balancing Algorithm

Service functions
— Virtual Cable Test (VCT)
— Optical transceiver diagnostics

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

Security functions
— DHCP Snooping
— DHCP Option 82
— MAC-based authentication, Port Security, static MAC entries
— IEEE 802.1x based interface authentication
— Guest VLAN
— DoS attacks 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 support
— IPv6 RA Guard support

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

[1]Not supported in current firmware version.

Features and capabilities (continued)

Quality of service (QoS) and rate limiting
— Port rate limiting (shaping)
— Rate limiting (policing) in accordance with sr-TCM and tr-TCM
— IEEE 802.1p Class of Service (CoS)
— Queue scheduling algorithms: Strict Priority/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)

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
— Simple Network Time Protocol (SNTP)
— 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+ clients (Terminal Access Controller Access Control System)
— Telnet client, SSH client
— Telnet server, SSH server
— Macro commands
— Input commands logging via TACACS+ protocol
— DHCP auto configuration
— DHCP Relay (support for IPv4)
— DHCP Relay Option 82
— DHCP Server
— PPPoE Circuit-ID tag adding
— Flash File System
— Debug commands
— CPU traffic limiting
— Password encryption
— Ping (support for IPv4/IPv6)
— IPv4/IPv6 static routes support
— Support for several versions of configuration file

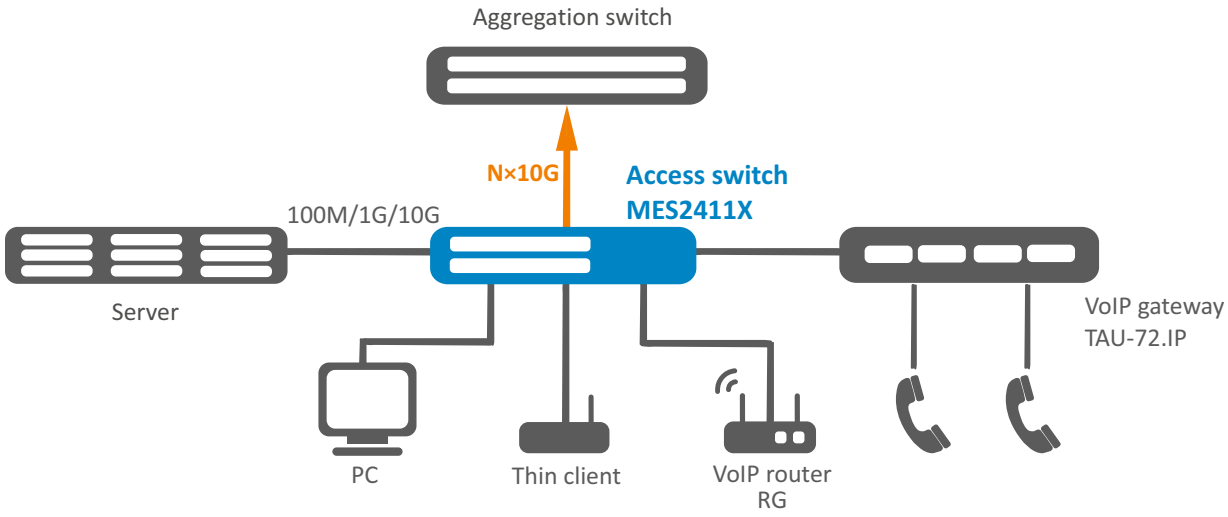
Monitoring functions
— Interface statistics
— CPU utilization monitoring per task and per queue
— RAM usage monitoring
— Temperature monitoring
— TCAM monitoring

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
— 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

Physical specifications

Physical specifications and environmental parameters	
Power supply[1]	100–240 V AC, 50–60 Hz
Maximum power consumption	35 W
Heat dissipation	35 W
Input current	0.45–0.15 A
Dying Gasp support	no
Operating temperature	from -20 to +50 °C
Storage temperature	from -40 to +70 °C
Operating humidity	no more than 80 %
Cooling	active, 2 fans
Form factor	19", 1U
Dimensions (W × H × D)	430 × 44 × 203 mm
Weight	2.57 kg

Use case



Ordering information

Name	Description
MES2411X	Ethernet switch MES2411X, 8 ports of 10/100/1000BASE-T, 11 ports of 1000BASE-X/10GBASE-R, L3, 100–240 V AC
	Related software
ECCM-MES2411X	ECCM-MES2411X option of Eltex ECCM system to manage and monitor Eltex network elements: 1 network element MES2411X

[1]It is possible to use a DC power supply with a range of 120–370 V.

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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 integrability into the Customer's infrastructure are the priority growth areas of the company.