ELTEX
Integrated Networking Solutions

— **Bandwidth up to 128 Gbps**
— **Non-blocking architecture**
— **L2 Advanced features**
— **4 × 10G in base configuration**
— **L3 switches**
— **Support for Multicast (IGMP Snooping, MVR)**
— **Advanced security functions (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)**
— **Hot-swappable redundant power supplies**
— **Passive cooling**

MES3400I-24 industrial switch is designed for organization of the secure data transmission networks on sites where it is necessary to meet the requirements for ensuring resistance to temperature influences. The switch has 10/100/1000BASE-T Gigabit ports operating on a speed of 10G. The distinctive features of the switch are passive cooling and hot-swappable redundant power supplies.

Technical features

Interfaces	
10/100/1000BASE-T (RJ-45)	24
1000BASE-X (SFP)/10GBASE-R (SFP+)	4
Console port RS-232 (RJ-45)	1
USB 2.0	1
Performance	
Bandwidth	128 Gbps
Throughput for 64 bytes[1]	95.2 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 (IGMP Snooping)	4094
L3 Multicast-rрупп (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 routers	32
L3 interfaces	20 vlan, up to 5 IPv4 addresses in each vlan, up to 512 IPv6 GUA for all vlan
Link Aggregation Groups (LAG)	24 groups, up to 8 ports per LAG
Quality of Service (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.

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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)
– Stacking

MAC address functions
– Independent learning mode per VLAN
– MAC Multicast Support
– Configurable aging time of MAC addresses
– MAC change events monitoring per ports
– Static MAC Entries
– MAC Flapping

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 groups
– Static Multicast groups
– IGMP Snooping v1,2,3
– IGMP Snooping fast-leave
– IGMP proxy-report
– IGMP authorization through 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)
– 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 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-routing
— 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
— Dual-stack IPv4, IPv6

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 attack prevention
— PPPoE Intermediate agent
— IP Source Guard
— Dynamic ARP Inspection
— 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
    — EEE 802.1p
    — VLAN ID
    — EtherType
    — DSCP
    — IP type
    — TCP/UDP port number
    — User Defined Bytes

Quality of Service (QoS) and rate limiting
— Shaping
— Rate limiting according to sr-TCM and tr-TCM policing algorithms
— IEEE 802.1p Class of Service (CoS)
— Strict Priority/Weighted Round Robin (WRR)
— IEEE 802.1p priority tagging for VLAN management
— ACL-based traffic classification
— ACL-based CoS/DSCP assignment
— DSCP to CoS, CoS to DSCP remarking
— ACL-based VLAN assignment

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

Management functions
— Configuration file download and upload via TFTP/SFTP
— Configuration file backup via TFTP/SFTP
— SNMP
— Command Line Interface (CLI)
— Web interface
— Syslog
— SNTP (Simple Network Time Protocol)
— Traceroute
— LLDP (IEEE 802.1ab) + LLDP MED
— Two IEEE 802.1Q headers traffic control
— Commands authorization using TACACS+ server
— IPv4/IPv6 ACL support for device control
— Access control — privilege levels
— Management interface blocking
— Local authentication
— IP addresses filtering for SNMP
— RADIUS, TACACS+ (Terminal Access Controller Access Control System) client
— Telnet, SSH client
— Telnet, SSH server
— Macrocommands
— Input commands logging via TACACS+ protocol
— DHCP auto configuration
— DHCP Relay (support for IPv4)
— DHCP Relay Option 82
— DHCP server
— Adding PPPoE Circuit-ID tag
— Flash File System
— Debugging commands
— CPU traffic limiting mechanisms
— Password encryption
— Ping (IPv4/IPv6)
— IPv4/IPv6 static routing
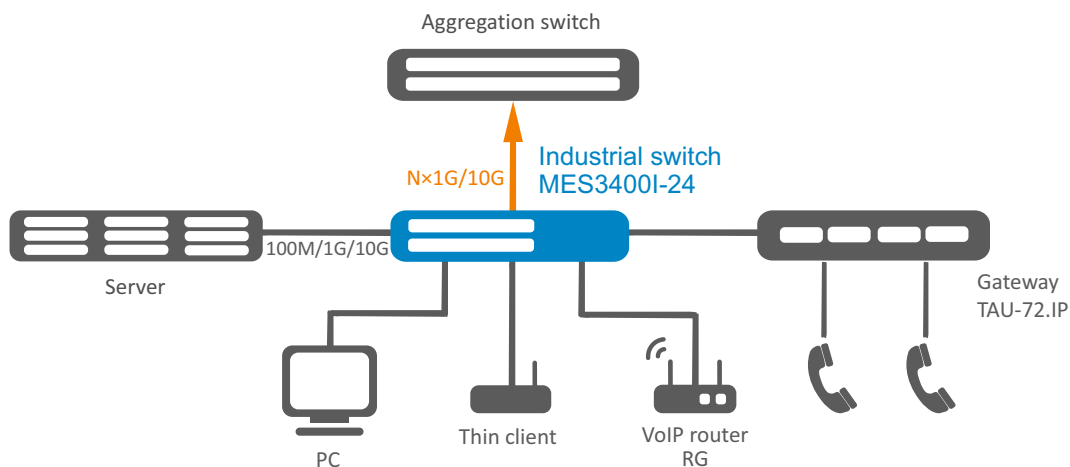— Support for several versions of configuration file

Monitoring functions
— Interface statistics
— Task- and traffic type-based CPU utilization monitoring
— RAM 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 Differentiated Services Field (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

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Use case

Aggregation switch

N×1G/10G

Industrial switch
MES3400I-24

100M/1G/10G

Server

PC

Thin client

VoIP router
RG

Gateway
TAU-72.IP

Physical parameters

Physical parameters and environmental features	
Power supply	100–240 V AC, 50–60 Gz; 36–72 V DC Power supply options: – 1 AC/DC power supply – 2 hot-swappable AC/DC power supplies
Input current	0.2–0.4 A
Maximum power consumption	32 W
Heat dissipation	32 W
Operating temperature	from -40 to +60 $^\circ$C
Storage temperature	from -40 to +70 $^\circ$C
Cooling	passive
Operating humidity	no more than 80 %
Form factor	19", 1U
Dimensions (W × H × D)	430 × 44 × 278 mm
Weight	5.2 kg

Ordering information

Name	Description
MES3400I-24	MES3400I-24 Industrial switch, 24×10/100/1000BASE-T (RJ-45), 4×1000BASE-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-MES3400I-24	ECCM-MES3400I-24 option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES3400I-24

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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.