



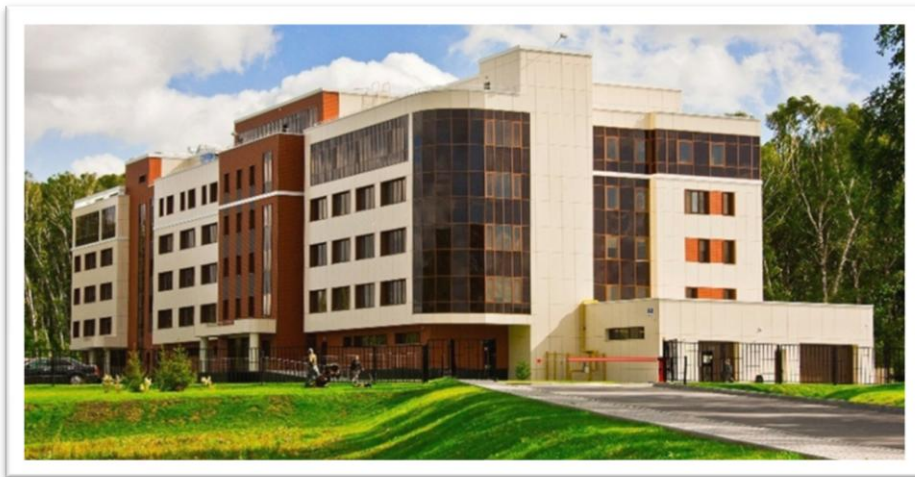
DEVELOPMENT AND PRODUCTION OF COMMUNICATION
EQUIPMENT



ELTEX ENTERPRISE

Russian designer and manufacturer of telecommunication equipment

- **25 years of experience** in designing and manufacturing telecommunication equipment
- More than **500 employees**
- **7 software development laboratories**
- **2 industrial complexes**
(Novosibirsk, Kazakhstan)
- **More than 30 partner companies** in Russia, CIS and Eastern Europe
- **More than 1500 client companies**
- Complete cycle of development, production and technical support
- Modern automated production
- All the equipment is designed by Eltex specialists

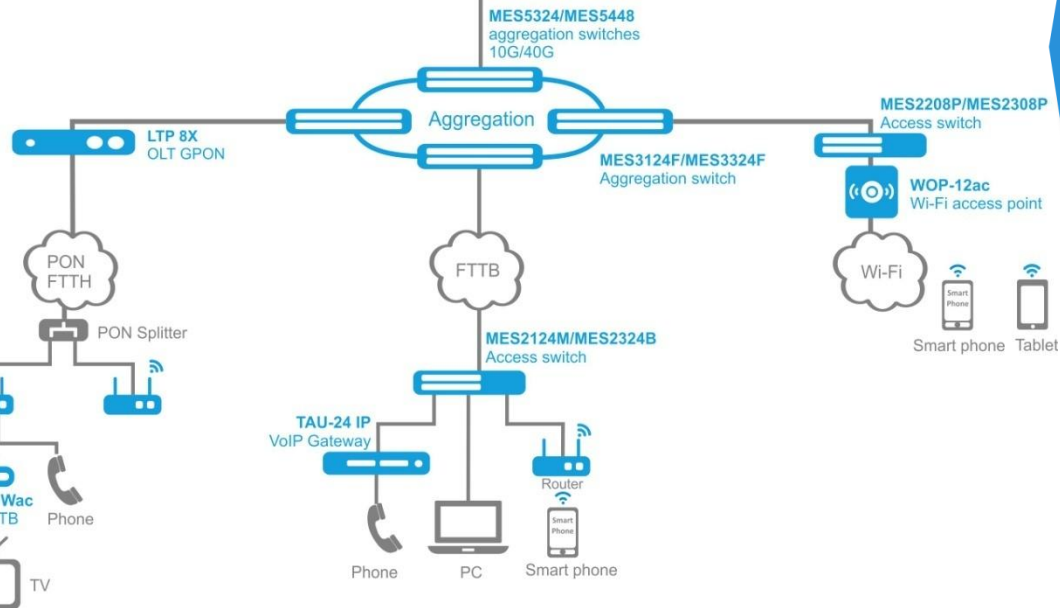
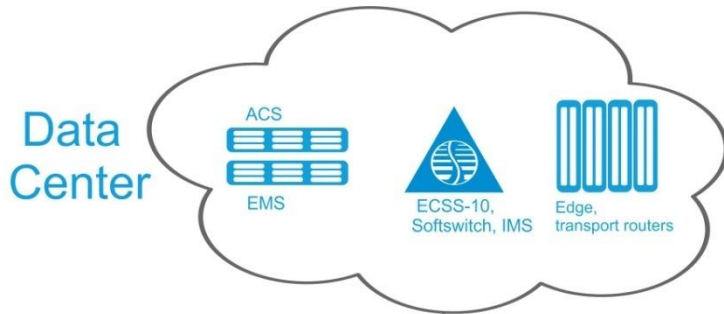


The industrial complex in Novosibirsk



The industrial complex in Kazakhstan

Eltex produces a wide range of solutions for **complex projects**



■ —Eltex equipment is colored in blue



GPON



Aggregation and access switches



Wi-Fi access points with controller



VoIP gateways and Softswitch



Home routers



Management systems



Edge/transport routers (development)



Eltex Enterprise implements a complete production cycle



1 Design



2 Manufacture



3 Maintenance



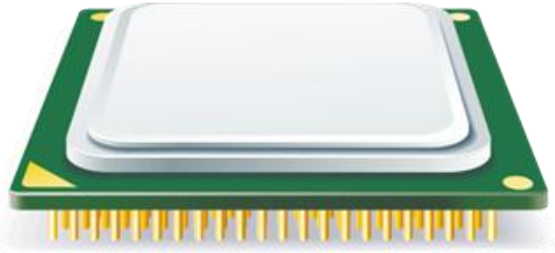
- Hardware
- Software

- Surface-mount technology
- Through-hole technology
- Assembling
- Software installation
- Serial production equipment testing

- Technical support
- Service center
- Software updating
- Warranty service and repair



INTEGRATION INTO GLOBAL TELECOMMUNICATION INDUSTRY



We develop high-tech solutions, integrated with advanced telecommunication equipment, together with leading chip-vendors.

The company strategic partners:





Realized projects

- 7 millions of PON OLT ports
- 2 millions of Ethernet ports
- 2 millions of VoIP ports
- 750 thousand of IPTV Set-top boxes
- 5 millions of TDM ports



Russia
CIS

Europe
Middle East

Southeast Asia
North America

Projects





Communication equipment
development and manufacture

Ethernet switches

Service routers

Wi-Fi access points

VoIP terminals

IP PBX / Softswitch

Corporate solutions

Industrial Internet

3G/LTE equipment



ETHERNET ACCESS SWITCHES

Fast Ethernet

MES1124M AC/DC



- 24 x 100M Eth
- 4 x 1G Combo
- L2
- 220V AC/48V DC
- Modified lightning protection

MES1124MB AC



- 24 x 100M Eth
- 4 x 1G Combo
- L2
- 220AC+12V – **rechargeable storage battery supply**
- Modified lightning protection

Gigabit Ethernet

MES2124M AC/DC



- 24 x 1G Eth
- 4 x 1G Combo
- L2
- 220AC/DC
- Modified lightning protection

MES2124MB AC/DC



- 24 x 1G Eth
- 4 x 1G Combo
- L2
- 220AC/DC+ 12V – **rechargeable storage battery supply**
- Modified lightning protection

MES2324/2324B



- 24 x 1G Eth
- **4 x 10G SFP/SFP+**
- L2+

MES2348B



- 48 x 1G Eth
- **4 x 10G SFP/SFP+**
- L2+
- **rechargeable storage battery supply**

MES2308



- 8 x 1G Eth
- 2 x 1G SFP
- 2 x 1G Eth
- L2+
- 220V AC



ETHERNET AGGREGATION AND DATA CENTERS SWITCHES

Fiber

MES2124F AC



- 24 x 1G SFP
- 4 x 1G Combo
- L2
- 220AC
- Modified lightning protection

MES2324FB AC



- 20 x 1G SFP
- 4 x 1G Combo
- **4 x 10G SFP/SFP+**
- L2+
- 220AC+ 12V – **rechargeable storage battery supply**

MES2208P AC



- 4 x 1G **PoE/PoE+**
- 4 x 1G Combo
- 2 x 1G Eth
- 2 x SFP
- L2
- 48V DC

MES2308P AC



- 8 x **PoE/PoE+**
- 2 x 1G SFP
- 2 x 1G Eth
- L2

MES2124P AC



- 24 x **PoE/PoE+**
- 4 x 1G Combo
- L2
- 220V AC

MES3508P AC



NEW!
2Q 2017

- 4 x GE **PoE/PoE+**
- 4 x GE
- 2 x 1G Combo
- L2
- Industrial **2Q2017**

NEW!

2Q 2017

MES2324P



- 24 x 1G Eth **PoE/PoE+**
- 4 x 10G SFP/SFP+
- L2
- 220V AC **2Q2017**

NEW!

2Q 2017

MES2348P



- 48 x 1G Eth **PoE/PoE+**
- 4 x 10G Eth/SFP
- L2
- 220V AC **2Q2017**

NEW!

2Q 2017

— *under development*



ETHERNET AGGREGATION AND DATA CENTERS SWITCHES

1 -> 10G

MES3324



- 24 x 1G Eth
- 4 x 10G SFP/SFP+
- L3

MES3324F



- 24 x 1G Eth
- 4 x 10G SFP/SFP+
- L3
- Analogue MES3124F
- New generation chip

MES3348F 3Q2017



- 48x1G SFP
- 4x40G QSFP
- L3
- New generation chip

MES3324P 3Q2017



- 24 x 1G Eth **PoE/PoE+**
- 4 x 10G SFP/SFP+
- Advanced L3 functions

MES3308F



- 4x1G SFP
- 4 x 1G Combo
- 2 x 10G **SFP/SFP+**
- L3
- 220V AC/ 48V DC, up to 2 power supplies

3Q2017

MES3316F



- 12x1G SFP
- 4 x 1G Combo
- 2 x 10G **SFP/SFP+**
- L3
- 220V AC/ 48V DC, up to 2 power supplies

3Q2017

MES3348



- 48x1G SFP
- 4x40G QSFP
- L3
- 32K MAC
- 220V AC/ 48V DC, up to 2 power supplies

3Q2017

10 -> 40G

MES5312



- 12 x 10G SFP+
- L3
- 32K MAC
- New generation chip

3Q2017

MES5324



- 24 x 10G SFP+
- 4 x 40G QSFP+
- L3
- 800 Gbps
- 64K MAC
- New generation chip

MES5448



- Data center switches
- 48 x 10G SFP+
- 4 x 40G
- L3
- 1,28 Tbps
- 128K MAC

NEW!

3Q 2017

— under development



EDGE, TRANSPORT ROUTERS

Features and capabilities

L3 protocols and functions

- IS-IS protocol for IPv4, IPv6
- Minutes of OSPFv2, OSPFv3
- Border Gateway Protocol 4 (BGP4, BGP4 +) Support ECMP
- Filtering routes (route maps, prefix lists)
- Support Non Stop Forwarding
- Support Graceful Restart
- Minutes of BFD for OSPF, IS-IS, BGP and static routes, BFD over LAG

Multicast

- PIM-SM/SSM

MPLS

- LDP
- L2VPN, VPWS
- RSVP

QoS

Application:

- Access router
- Edge router
- Transport router



ME5000

- 3.0 Tbps
- 15U
- up to 2 FMC /chassis
- Up to 12 LC /chassis
- LC 1GE, 10GE, 40GE, 100GE



ME5100

- 20x 10GBASE-R (SFP+)
- CPU Broadcom XLP308, 1500MHz, 8GB RAM
- 200 Gbps, 300Mpps
- Up to 250K MAC
- FIB 1M



ME5200

- 40x 10GBASE-R (SFP+), 4x 40GBASE-X (QSFP)
- CPU Broadcom XLP308, 1500MHz, 8GB RAM
- 800 Gbps, 720Mpps
- FDB 750K MAC, FIB 1M



Communication equipment
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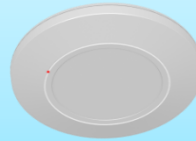
WI-FI ACCESS POINTS WITH CONTROLLER

Indoor WEP-12ac



1. 802.11ac
2. 2,4 and 5 GHz
3. MIMO 3x3:3
4. Seamless roaming(802.11r)
5. Up to 100 users

Indoor WEP-2ac



1. 802.11ac
2. 2,4 and 5GHz
3. **MIMO 2x2:2**
4. Seamless roaming(802.11r)
5. **Smart antenna mod.**
6. **ER modification (27dBm)**

Indoor WEP-22ac (3Q2017)



1. 802.11ac **Wave 2**
2. 2,4 and 5GHz
3. **MU -MIMO 4x4:4**
4. Seamless roaming(802.11r)
5. **Smart antenna**
6. **1024 QAM modification**

Outdoor WOP-12ac



1. 802.11ac
2. 2,4 and 5GHz
3. MIMO 3x3:3
4. Seamless roaming(802.11r)
5. Up to 100 users
6. Up to 6 external antennas
7. LR mod. For FBWA

Outdoor WOP-2ac



1. 802.11ac
2. 2,4 and 5GHz
3. **MIMO 2x2:2**
4. Seamless roaming(802.11r)
5. **Smart antenna mod.**
6. **ER modification (27dBm)**

Outdoor WEP-22ac (3Q2017)



1. 802.11ac **Wave 2**
2. 2,4 and 5GHz
3. **MU -MIMO 4x4:4**
4. Seamless roaming(802.11r)
5. **Smart antenna**
6. **1024 QAM modification**

Cluster



up to 64 access points

Carrier-class controller (WLC)



up to **10 000** access points

— Mass production

— In the blueprint stage



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Ethernet switches

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VP-12 and VP-12P IP phones



3Q2017



3Q2017

HD Voice


Programmable keypad

Autoprovision
(TR-069,DHCP)


2 SIP accounts

Power over Ethernet technology

128*64 dot matrix LCD display

 — Mass production

 — Under development

 — In the blueprint stage



Customer VoIP gateways

TAU-1M, TAU-2M



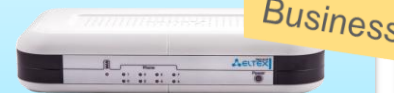
- 1/2 FXS ports
- 2 LAN FE ports
- 1 WAN FE port
- 1 USB

TAU-8.IP



- 8 FXS ports
- 1 WAN port
- 1 USB 2.0

TAU-4.IP



- 4 FXS ports
- 1 WAN port
- 1 USB 2.0

RG-1404GF-W



- 4 FXS ports
- 4 LAN 1G ports
- 1 WAN (SFP) 1G
- 1 USB
- Wi-Fi 802.11b/g/n (2,4 GHz)

TAU-16.IP, TAU-24.IP



- 16/24 FXS, SIP, H.323, H.248
- Office PBX mode
- Main SIP proxy backup
- Unified management system
- Line parameters measurement
- 220 AC/48 V DC

TAU-32M.IP



- Up to 32 FXS/FXO ports
- Module form-factor
- Line parameters measurement
- Current and voltage protection of ports
- 220 AC/48 V DC

TAU-36.IP, TAU-72.IP



- 36/72 FXS, SIP, H.323, H.248
- Office PBX mode
- Main SIP proxy backup
- Unified management system
- Line parameters measurement
- 220 AC/48 V DC



— Mass production



— Under development



— In the blueprint stage



Communication equipment
development and manufacture

Ethernet switches

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VoIP terminals

IP PBX / Softswitch

Corporate solutions

Industrial Internet

3G/LTE equipment



IP PBX / SOFTSWITCH

Enterprise PBX

SMG-200

SMG-500

4Q2017

4Q2017



up to
200 SIP-registrations

up to
500 SIP-registrations

VAS
for 200 subscribers

VAS
for 500 subscribers

16 lines (FXO)

up to 4 E1

High quality of Voice services

Service provider reliability

SORM by order №268

Service provider PBX

SMG-1016M

SMG-2016

ECSS-10



up to
2000 SIP-registrations

up to
3000 SIP-registrations

scaling

base VAS
for 1000 subscribers

base VAS
for 3000 subscribers

VAS

14 CPS

120 CPS

active-active backup

RADIUS routing

Multiservice solutions

Cyber attacks protection

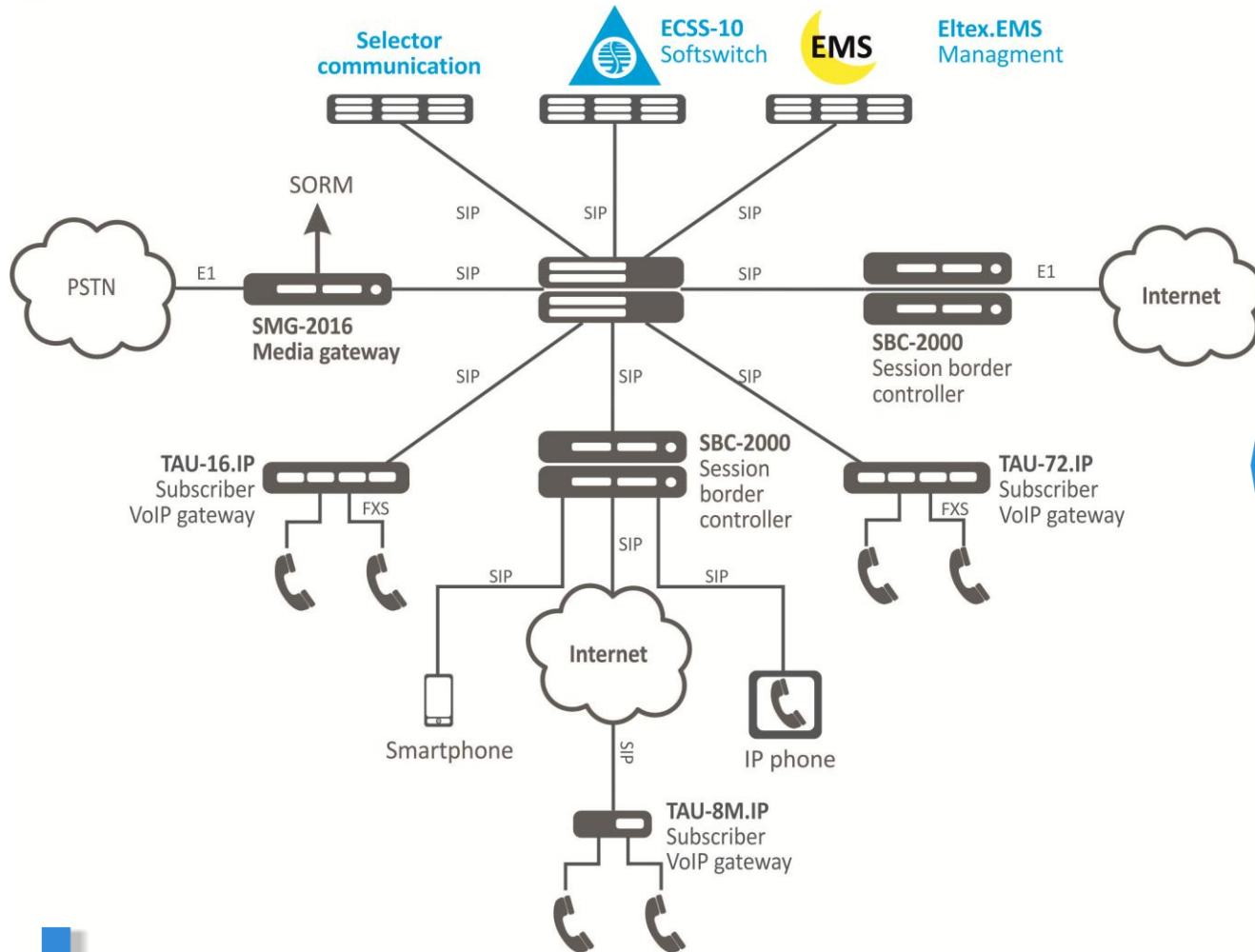
— Mass production

— Under development

— In the blueprint stage



The architecture of ECSS-10 Softswitch solution



- Full active-active backup
- Intuitive management interface
- Hot software updating
- Cross-platform software
- Linear scaling
- Adaptation to Customer requirements

The software and hardware of ECSS-10 system were developed and manufactured by Eltex Enterprise



CORPORATE TELEPHONE NETWORKS MODERNIZATION

Unified management and monitoring system Eltex.EMS

VoIP gateways



Softswitch



EMS



GPON OLT



Ethernet switches





**DEVELOPMENT AND PRODUCTION OF
COMMUNICATION EQUIPMENT**

Thank you for your attention!