

## ESR-10, ESR-12V, ESR-12VF, ESR-14VF

- Solution for small and middle-sized offices
- Flexible services configuration
- Interfacing with the equipment of leading manufacturers
- FXS ports for phone connection
- FXO port for connection redundancy
- Firewall and router functionality

### ESR-10, ESR-12V(F), ESR-14VF functional area

ESR-10, ESR-12V, ESR-12VF and ESR-14VF service routers are designed to be used in enterprise networks for small and middle-sized offices connection.

Firewall and router functionality provides security of different types of Internet connection.

ESR-12V, ESR-12VF, ESR-14VF have FXS ports to connect up to 3 analogue phones to an enterprise network without gateways. FXO port provides the redundancy of phone connection via analogue line if there is a lack of connection to central PBX.



### Typical tasks performed by service routers:

- Data routing
- Construction of secure network perimeter (Firewall)
- Filtering of network data by various criteria (including filtering by applications)
- Organization of secure network tunnels to combine different offices of a company
- Remote connection of staff members to office
- Management and distribution of Internet channel width in an office by using QoS
- Organization of redundant connection (wired or by means of 3G/LTE modem)
- User and limitations termination by BRAS bandwidth (IPoE)

## ESR-100/200/1000/1200/1700

- Scalable solution for different fields of application
- Flexible services configuration
- Interfacing with the equipment of leading manufacturers
- Hardware acceleration of data processing

### ESR-100/200/1000/1200/1700 functional area

The family of ESR routers is a universal hardware platform capable of performing a wide range of tasks related to network security, data encryption, user termination, etc. The lineup includes models that can be used in networks of various sizes - from small business networks to carrier networks and data centers.

### Performance

The key elements of ESR series are data processing hardware acceleration means that ensure a high level of performance. Hardware and software processing is distributed among the units of the device.

Technical features

	ESR-10	ESR-12V	ESR-12VF	ESR-14VF	ESR-100	ESR-200	ESR-1000	ESR-1200	ESR-1700	
<b>Common parameters</b>										
Packet processor	Broadcom NS+ (BCM58625)				Broadcom XLP104	Broadcom XLP204	Broadcom XLP316L		Broadcom XLP780	
<b>Interfaces</b>										
Combo 10/100/1000BASE-T/ 1000BASE-X	—				4	4	—	4	4	
Ethernet 10/100/1000BASE-T	4	8	8	8	—	4	24	12	—	
1000BASE-X	2	—	1	1	—		—			
10GBASE-R SFP+/1000BASE-X	—				—		2	8	8	
RS-232 (RJ-45)						1				
FXS	—	3		4	—			—		
FXO	—	1		—	—			—		
<b>Performance</b>										
Firewall/NAT/routing (1518V frames), Gbps/Kpps	1, 88				1.5, 125	2.3, 187	9.8, 808		40, 4900	
IPsec VPN (1456V frames), Gbps/Kpps	0.16, 14				0.5, 43	0.75, 64	3, 262		7.3, 1600	
GRE (1476V frames), Gbps/Kpps	0.8, 68				0.8, 66	1, 85	5, 428		—	
L2TPv3 (1476V frames), Gbps/Kpps	0.4, 34				0.5, 45	0.8, 68	3.1, 265		—	
<b>System characteristics</b>										
VPN tunnels	20				200	200	500			
Static routes	11k									
Amount of concurrent sessions	4k				256k	256k	512k			
VLAN table	up to 4k active VLAN according to 802.1Q									
BGP routes	800k				1.4M			2.8M		
OSPF routes	300k						500k			
RIP routes	10k									
MAC table	2k bridge entries						16k	128k		
FIB size	800k				1400k			1700k		
BRAS: HTTP/HTTPS processing rate, Mbps	—				260	400	2000		5000	
VRF Lite	32									

Physical parameters

	ESR-10	ESR-12V	ESR-12VF	ESR-14VF	ESR-100	ESR-200	ESR-1000	ESR-1200	ESR-1700
<b>Physical parameters and parameters of environment</b>									
Max. power consumption	9 W	27 W			20 W	25 W	75 W	85 W	250 W
Power supply	220V AC (by power adaptor)	220V AC +-20%, 50 Hz				220V AC +-20%, 50 Hz -36..-72V DC Up to 2 hot-swappable power sources			
Operating temperature	from 0 to +40 °C				from -10 to +45 °C				
Storage temperature	from -40 to +70 °C								
Operating humidity	80% max								
Storage humidity	from 10% to 95%								
Dimensions (mm)	430x352x44	267x160,5x43,6			310x240x44		430x352x44		440x490x88
Weight	1 kg			2.5 kg		3.6 kg	5.5 kg	12 kg	
Average service life	10 years								

Features and capabilities

**Plug-in interfaces**

- USB 3G/4G/LTE modem

**VPN clients**

- PPTP
- PPPoE
- L2TP

**VPN server**

- L2TP
- PPTP
- OpenVPN

**Tunneling**

- IP over GRE, Ethernet over GRE
- IPIP
- L2TPv3
- Logical Tunnel (inter VRF-lite routing)

**L2 functions**

- Packet switching (bridging)
- STP, RSTP, MSTP 802.1d (only ESR-1000)
- LAG/LACP (802.3ad)
- VLAN (802.1Q)
- Port Isolation (only ESR-1000, ESR-1200)
- Private VLAN Edge (PVE) (only ESR-1000, ESR-1200)
- Logical interfaces
- LLDP, LLDP MED
- VLAN based MAC

**L3 functions (IPv4/IPv6)**

- NAT, Static NAT, ALG addresses translation
- Static routes
- Dynamic routing protocols RIPv2, OSPFv2/v3, BGP
- Prefix-List
- VRF Lite
- Policy Based Routing (PBR)
- BFD for BGP, OSPF, static routes

**IP addressing management (IPv4/IPv6)**

- Static IP addresses
- DHCP client
- DHCP Relay Option 82
- Embedded DHCP server (options: 43, 60, 61, 150)
- DNS resolver

**Quality of Service (QoS)**

- Up to 8 priority queues per port
- L2 and L3 traffic prioritization (802.1p, DSCP, IP Precedence)
- Queues overload management RED, GRED
- Port prioritizing, VLAN
- Resources of priority remarking
- Policy enforcement (policing)
- Bandwidth management (shaping)
- Hierarchical QoS
- Session marking

**Network reliability assurance means**

- Dual homing (only ESR-1000)
- VRRP v2,v3
- Route tracking based on VRRP state
- WAN interfaces load balancing, data stream redirection, failover in case of evaluation of channel quality
- Firewall sessions backup

The feature set is available in 1.4.4 firmware version

<sup>1</sup>Activated by the license

## Features and capabilities

### BRAS (IPoE)<sup>1</sup>

- User termination
- White/black URL lists
- Limiting by traffic amount, by session time or by network applications
- HTTP/HTTPS Proxy
- HTTP/HTTPS Redirect
- Session accounting via Netflow protocol
- Interaction with AAA, PCRF
- Bandwidth management by offices, SSID and user sessions
- User authentication by MAC or IP address

### Network security functions

- Network interfaces zoning
- Zone isolation, Firewall, data filtering rules
- IPSec:
  - Policy-based and route-based modes
  - DES, 3DES, AES, Blowfish, Camelia encryption algorithms
  - IKE MD5, SHA-1, SHA-2 logs authentication
- Support for access control lists on the base of L2/L3 fields
- DoS/DDoS attacks defense
- Logging of attack events, rule triggering events
- Traffic filtering by applications

### Monitoring and control

- Standard SNMP MIB, RMONv1 support
- Access level management

- In-built Zabbix agent
- Authentication via local user database by means of RADIUS, TACACS+, LDAP protocols
- Protection from configuration errors, automatic configuration recovery. Ability to reset configuration to default settings
- CLI management interfaces
- Syslog
- System resources usage monitoring
- Ping, traceroute (IPv4/IPv6), displaying information of packets in the console
- Firmware update, upload and download of configuration via TFTP, SCP, FTP, SFTP
- NTP
- Netflow v5/v9/v10 (URL statistics export for HTTP, host for HTTPS)
- Local control - console RS-232 (RJ-45)
- Remote control (IPv4/IPv6) - Telnet, SSH
- Service/processes information displaying

### Service quality monitoring functions (SLA)<sup>1</sup>

- Integration with Wellink wiSLA
- Load testing of channel capacity: up to 150 Mbps
- TWAMP support: up to 100 simultaneous tests
- Reflector: TWAMP, UDP-Echo, L2
- Amount of simultaneously controlled services: minimum 100
- TCP, HTTP, DNS services monitoring: up to 100 simultaneous tests

<sup>1</sup>Activated by the license

## Дополнительные возможности маршрутизаторов ESR-12V, ESR-12VF, ESR-14VF

### VoIP protocols

- SIP

### Voice codecs

- G.711 a-law,  $\mu$ -law
- G.723.1
- G.729 (A/B)

### Fax transmission

- T.38 UDP Real-Time Fax
- a-law,  $\mu$ -law G.711 pass-through

### Voice standards

- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- AEC (echo cancellation, G.165, G.168 recommendations)

### DTMF

- DTMF signal detection and generation
- Transmission by INBAND, RFC 2833, SIP INFO

### Connection types

- Static IP address
- DHCP client

### Value Added Services

- Call Hold
- Call Transfer
- Call Waiting
- Call Forwarding on Busy (CFB)
- Call Forwarding on no Reply (CFNR)
- Call Forwarding Unconditional (CFU)
- Caller ID
- Caller ID Restriction (CLIR)
- Hotline/Warmline
- Call Group
- 3-Way conference

### VoIP features

- Inner connection switching
- Operation without SIP server
- Flexible numbering plan
- Port configuration profiles
- Settings apply without a reboot
- IMS (3GPP TS 24.623) support for Hold, CW, 3Way-conference, Hotline services management

## Ordering information

Name	Description
<b>ESR-10</b>	Service router ESR-10, 4xEthernet 10/100/1000BASE-T, 2x1000BASE-X (SFP), 1xRS-232 (RJ-45), 2xUSB2.0, 2GB RAM, 512MB NAND-Flash, 12V DC (220V AC by power adaptor)
<b>ESR-12<sup>1</sup></b>	Service router ESR-12, 8xEthernet 10/100/1000BASE-T, 1xRS-232 (RJ-45), 2xUSB2.0, 2GB RAM, 512MB NAND-Flash, 220V AC
<b>ESR-12V</b>	Service router ESR-12V, 8xEthernet 10/100/1000BASE-T, 1xRS-232 (RJ-45), 2xUSB2.0, 3xFXS, 1xFXO, 2GB RAM, 512MB NAND-Flash, 220V AC
<b>ESR-12VF</b>	Service router ESR-12VF, 8xEthernet 10/100/1000BASE-T, 1x1000BASE-X (SFP), 1xRS-232 (RJ-45), 2xUSB2.0, 3xFXS, 1xFXO, 2GB RAM, 512MB NAND-Flash, 220V AC
<b>ESR-14VF</b>	Service router ESR-14VF, 8xEthernet 10/100/1000BASE-T, 1x1000BASE-X (SFP), 1xRS-232 (RJ-45), 2xUSB2.0, 4xFXS, 2GB RAM, 512MB NAND-Flash, 220V AC
<b>ESR-100</b>	Service router ESR-100, 4xCombo 10/100/1000BASE-T/1000BASE-X SFP, 1xUSB 2.0, 1xUSB3.0, 1 slot for SD cards, 4GB RAM (8GB available upon the request), 1GB NAND-Flash 220V AC built-in power module
<b>ESR-200</b>	Service router ESR-200, 4x10/100/1000BASE-T, 4xCombo 10/100/1000BASE-T/1000BASE-X SFP, 1xUSB 2.0, 1xUSB3.0, 1 slot for SD cards, 4GB RAM (8GB available upon the request), 1GB NAND-Flash 220V AC built-in power module
<b>ESR-1000</b>	Service router ESR-1000, 24x10/100/1000BASE-T, 2x10GBASE-R SFP+, 2xUSB 2.0, 1 slot for SD cards, 4GB RAM (8GB available upon the request), 1GB NAND-Flash, 2 slots for 220V AC or 48V DC power modules
<b>ESR-1200</b>	Service router ESR-1200, 4xCombo 10/100/1000BASE-T/1000BASE-X, 8x10GBASE-R SFP+, 12x10/100/1000BASE-T, 2xUSB 2.0, 1 slot for SD cards, 4GB RAM (8GB available upon the request), 1GB NAND-Flash, 2 slots for 220V AC or 48V DC power modules
<b>ESR-1700</b>	Service router ESR-1700, 4xCombo 10/100/1000BASE-T/1000BASE-X, 8x10GBASE-R SFP+, 32GB RAM, 1GB SSD, 2 slots for 220V AC or 48V DC power modules

### Power blocks<sup>2</sup>

Device	Power block AC	Power block DC
<b>ESR-1000</b>	PM160-220/12	PM100-48/12
<b>ESR-1200</b>	PM160-220/12	PM100-48/12
<b>ESR-1700</b>	PM350-220/12_rev.B	PM350-48/12_2vX

<sup>1</sup>The model is available upon request

<sup>2</sup>Ordered separately

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### About EltexAlatau

**EltexAlatau** company is one of the first communication equipment manufacturers in Kazakhstan established in 2012. The main focus of the enterprise is a set of solutions and the opportunity of their seamless connection to the customer's infrastructure.