Маком-МХ
flexible multiplexer

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Маком-МХ flexible multiplexer is designed to compose primary digital stream with 2048 Kbps data rate (E1 link) from analog voice signals and signals of digital interfaces (DS0), electronic cross switching of digital channels with 64 Kbps rate (DS0), to cross-connect 64 Kbps digital channels, to transmit E1 digital streams on IP network, SHDSL lines, and to convert physical interfaces and different signaling systems up to maximum of 48xE1 streams.

Also it is used as subscriber access node via V5.2 protocol based on central processor ЦПМ.

Architecture

Equipment has a scalable architecture. All cards are installed into 19" 3U84TE form-factor rack-mount shelf.

Power supply unit (БП) and a central processeing unit (ЦП91 or ЦПМ) are mandatory and are installed into shelf at any equipment configuration.

ЦП91 and ЦПМ cards implement switching of main digital and signaling channels, convert all kinds of signaling protocols, manage operation of all peripheral cards.

Required channels connection is provided by means of different types of peripheral cards of any types can be installed in 19" rack-mount shelf. Up to 16 cards of any types can be installed in one shelf by 16 slots.

Configuration and monitoring

Configuration and monitoring is realized by personal computer which can be connected while equipment is installed or configured. The software enables to configure the equipment with/without connection to the multiplexer, to change parameters in online mode, to control the multiplexer state and to give signals at emergency conditions.

Remote configuring and monitoring is also accessible via E1 streams. It enables to combine several multiplexers into a single network and to remote control their operation by computer, connected to any multiplexer of this network.

Interface types

- Digital E1 interfaces (HDB3/AMI)
- Digital PCM-15 1024 Kbps interfaces (NRZ, HDB3, AMI)
- FXS 2-wire physical lines for connection to subscriber ends devices with loop signaling
- FXO 2-wire physical lines connected to digital exchange subscriber line cards
- 3-wire physical tie lines with local battery signaling
- 2-/4-/6- wire ends of voice band channel of analog system transfer equipment
- 2-wire physical lines of MB system
- Digital asynchronous V.24 interfaces
- Digital asynchronous V.24, V.11, V.35, V.36, X.21 interfaces
- Digital codirectional 64 Kbps (G.703.1) interfaces
- С1-И interfaces
- Telegraph interfaces
- Ethernet 10/100 Base-T
- Fiber-optic communication line (E1+Ethernet)
- Digital SHDSL interfaces

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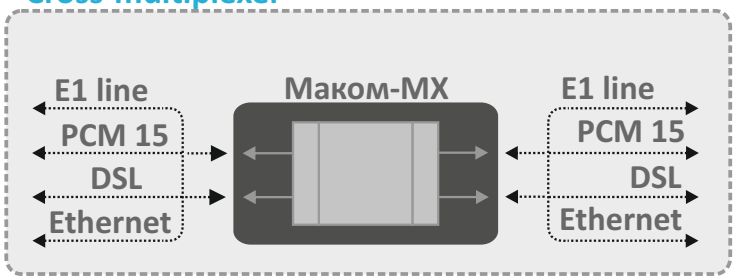
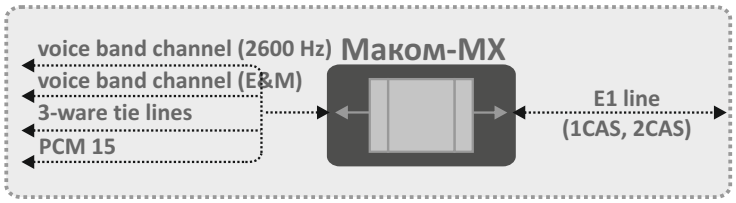
Typical application diagram

Cross-multiplexer



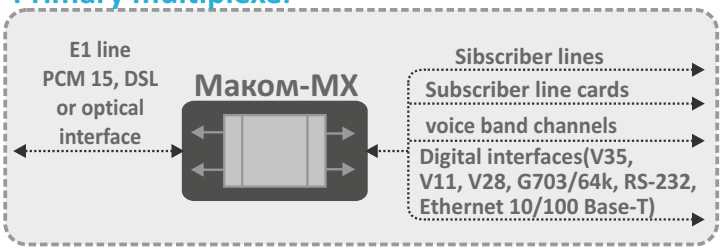
Equipment operates as cross switch - electronic data crossing 64 Kbps and n x 64 Kbps, which is contained into channel time slots of signals 2048 Kbps and 1024 Kbps, to any outgoing channel time slots of outgoing signals 2048 Kbps and 1024 Kbps. Maximum quantity of formed by equipment E1 digital lines is 32.

Protocol converter



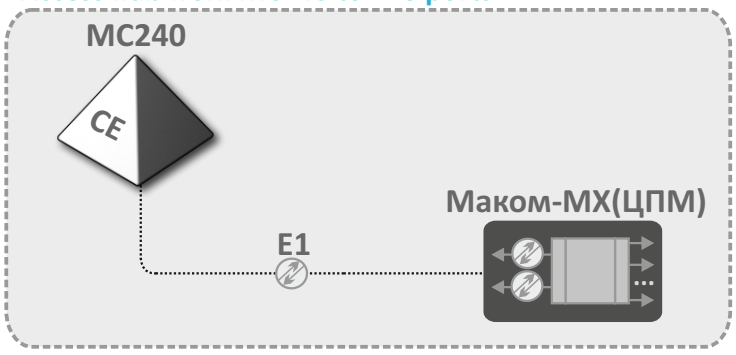
Equipment enables to convert tone signaling protocols of voice band channels (2600 Hz) into the signaling protocols of 2CAS E1 line and inversely (not more than 60 voice band channels).

Primary multiplexer



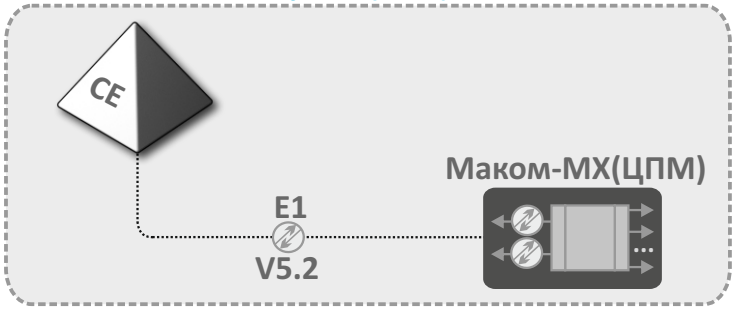
In Termination Multiplexer mode the equipment enables to connect devices via analoq and digital interfaces and also to connect to remote devices by E1 lines , PCM-15 or optical cable according to TDMoIP technology.

Access hub from MC240 to 128 ports



Subscriber access hub is used for connection remote subscribers to central telephone exchange. Additional telephone exchange installation or laying of great number of lines at a long distance is not profitable in a number of cases. Instead of that, the remote subscribers are connected to access hub, that is installed near these subscribers and connected to exchange via multi-channel lines. Since in each moment of time not all remote subscribers need telephony, it is possible to manage with less number of the channels.

Access hub to 128 ports (V5.2)



Central processor (ЦПМ) application enables Маком-МХ to arrange access hub from telephone exchange (БКП-М) or other exchange by V5.2 protocol.

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Information for order

Description	Part number	Note
19” 3U84TE form-factor rack-mount shelf 3U	**Маком-МХ**	Rack-mount shelf with a built-in cross-board for mandatory and peripheral cards installation
Central processor unit*	**ЦП91**	Control and channel switching
Central processing unit*	**ЦПМ**	Control and channel switching, capability to install 4E1 sub-card, it enables to arrange subscriber access node from MC240 exchange (ЦКП-М) and any other exchange by V5.2 protocol or MC240 exchange (ЦПЕ) by special protocol
Power supply unit*	**МХ-БП24/60**	Secondary DC power supply unit with voltage: 24...60 V
Digital interface sub-card	**М4Е1**	4 digital interfaces by G.703, 2048 Kbps, it is installed on ЦПМ board
Digital trunk card	**4Е1**	4 digital interfaces by G.703, 2048 Kbps
Subscriber line card	**8АК**	8 interfaces to connect to subscriber devises with loop signaling and capability of AK and AL remote testing
Central office line card	**4АЛ**	4 interfaces to connect 2 wire phisical lines to exchange subscriber interfaces
Digital subscriber line card SHDSL	**2DSL2**	2 digital SHDSL interfaces at 11,4 Mbps rate per each pair
Remote power supply unit	**1DP**	Remote powering up to 6 regenerators by SHDSL line at one side, 1-and 2 pair modes
Optical interface card	**8ToP-2FG**	Optical interface converter for 8 E1+1 Gbps Ethernet transmission, 2 rails for SFP modules installation
PCM 15 digital trunk card	**4И15**	It is designed for interfaces between PCM-15 channel time slots and any interfaces of peripheral cards, 4 ports
Magneto interface card	**4МБ**	4 local battery system interface card, 4 ports
Module of asynchronous V.11/V.24/V.35 interfaces, 2 ports	**2VS**	It is designed for synchronous data transmission at rate N*64 Kbits. with E1 line (or PCM-15). Physical interfaces are installed from list: RS-530, RS-530A, V.11 (X.21), V.35, RS-449/V.36, RS-232
Module of asynchronous V.24 interface, 4 ports	**4V24**	It is designed asynchronous data transmission with E1 flow (or PCM-15)
Module of digital interfaces	**4С64**	4 interfaces of main digital channel (digital signal 0) , 4 ports
Voice commpression card	**АДИКМ**	ADPCM card is designed for voice signals conversion, 64 Kbits PCM by G.711 A law, to ADPCM signals at 32 Kbits or 16 Kbits by G.723 with further compressed signals switching to E1 channel slots. Maximum channel quantity, converted by ADPCM is 64
Three-wire tie line card	**4СЛУ**	Is designed for connection of central exchange to electromechanical type exchange by 3-wire phisical lines with line signaling by battery means by SLM protocol
Voice band channel cards	**4ТЕМ** **4ТЧУ** **4ТЧА**	4 interfaces for connection to 2-/4-/6-wire ends of voice band channels – with fine adjustment level control – with fine adjustment level control and current control in a phantom circuit
Data transmsstion card	**LAN**	Interface for connection to data transmission equipment, 10/100 Base-T embedded L2, up to 8 routes
Telegraph interface card	**4ТЛГ**	4 interfaces for transmission of telegraph signals in E1 or PCM-15 channel slots

*Base cards are installed into rack-mount shelf at any equipment configuration

For technical support for products of Eltex Enterprise Ltd. you may get in contact with our specialists in technical support service. On our web site you may find manuals and software for our products or consult with engineers in technical forum:

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