SIGNALLING CONVERTERS

LONIIS
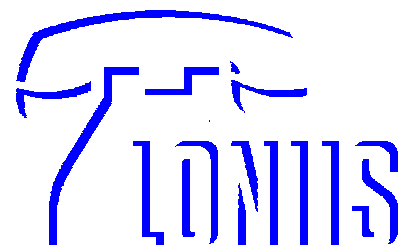
Signalling converters via analog and digital trunks of the PSTN of the Russian Federation

Type of KPS	Input	Output	Description
KPS 3x2/a1	3-wire trunk with decade dialling	2-wire subscriber line with DTMF	up to 8 lines(analog)
KPS 3x2/a2	3-wire trunk with decade dialling	2-wire line DID with DTMF	up to 8 lines(analog)
KPS 3xE&Ma1	3-wire trunk with decade dialling	4-wire trunk as E&M with R1 protocol	up to 8 lines(analog)
KPS E&Mx3a2	4-wire trunk as E&M with R1 protocol	3-wire trunk with decade dialling	up to 8 lines(analog)
KPS E&Mx3a3	4-wire trunk as E&M with R1 protocol	3-wire trunk with decade dialling and ANI	up to 8 lines(analog), group ANI
KPS3x1KPS1x3	3-wire trunk with decade dialling	4-wire trunk as E&M with inductive code signalling	up to 4 both-way trunks(analog)rural
KPSR1.5xR2/d1	E1 with line signalling 2CAS and register signalling 2 from 6	E1 with line signalling R2 and register signalling DTMF	Digital,30 channels, with group ANI
KPSR1.5xR2/d3	E1 with line signalling 2CAS and register signalling 2 from 6	E1 with line signalling R2 and register signalling DTMF	Digital,30 channels with indiv. ANI transmission
KPSR1.5xR2/m2	E1 with line signalling 2CAS and register signalling 2 from 6	E1 with line signalling R2 and register signalling MFC	Digital,30 channels,group ANI
KPSR1.5xR2/m4	E1 with line signalling 2CAS and register signalling 2 from 6	E1 with line signalling R2 and register signalling MFC	Digital,30 channels,with indiv. ANI transmission
KPS ISM	Primary rate access as Euro-DSS-1	CCS#7 system MTP,ISUP-R protocol	Digital,30 channels
KPS CSM	E1 with line signalling 2CAS and register signalling 2 from 6	Primary rate access as Euro-DSS-1	Digital,30 channels with indiv. ANI transmission
KPS USM	E1 with line signalling 2CAS and register signalling 2 from 6	CCS#7 system MTP,ISUP-R protocol	Digital,30 channels with indiv. ANI transmission
KPS RSM	E1 with line signalling 1CAS (Norka, inductive code) and register signalling 2 from 6	CCS#7 system MTP,ISUP-R protocol or Primary rate access as Euro-DSS-1	Digital,30 channels with indiv. ANI transmission
KCP15x30	Digital stream 1.024 Mbps	Digital stream 2.048 Mbps	Digital,30 channels

Converters of signalling protocols are stand-alone network modules, which provide interworking of different signalling systems in analog and combined analog/digital telephone networks of the Russian Federation and CIC.

Contents

KPS 2/3A

KPS 2/3A signalling converter allows to connect a PABX of small capacity having two-wire subscriber lines for connection to CO to three-wire trunk for provision DID to subscribers of a small ATE from the side of UTN during incoming call.

Features

KPS 2/3A converter receives information about a called subscriber number from the side of three-wire line in decade code, provides support of standard signalling protocol via three-wire trunk, seizure of two-wire subscriber line and transmission of number in DTMF code.

Number of digits, received by the converter from the UTN side of and transmitted one to PABX side is specified in every individual case.

Three-wire local trunk lines (TL) and toll trunk lines (TTL) outgoing from CO are used for connection to the converter. The converter is connected to mini-ATE to a two-wire subscriber line.

Technical parameters

The converter is designed on the base of mini-PC. Cards are made in geometrical sizes of micro-PC (122x112 mm), ones use 62-pin connector , geometrically compatible with ISA connector of a system bus of micro-PC.

- ◆ Maximum capacity: 8 TL, TTL
- ◆ Type of interface: three-wire TL with decade code (Guide Document on the PSTN p. 7.13, 7.14) and two-wire subscriber line with DTMF (ITU-Q.23)
- ◆ Number of calls processed simultaneously: 8
- ◆ Power supply: not more than 30 W
- ◆ Permissible temperature range of operation: 10 C*-40 C*
- ◆ Sizes: 316x150x190
- ◆ Weigh: not more than 3 kg
- ◆ Supply voltage: -48V or -60V

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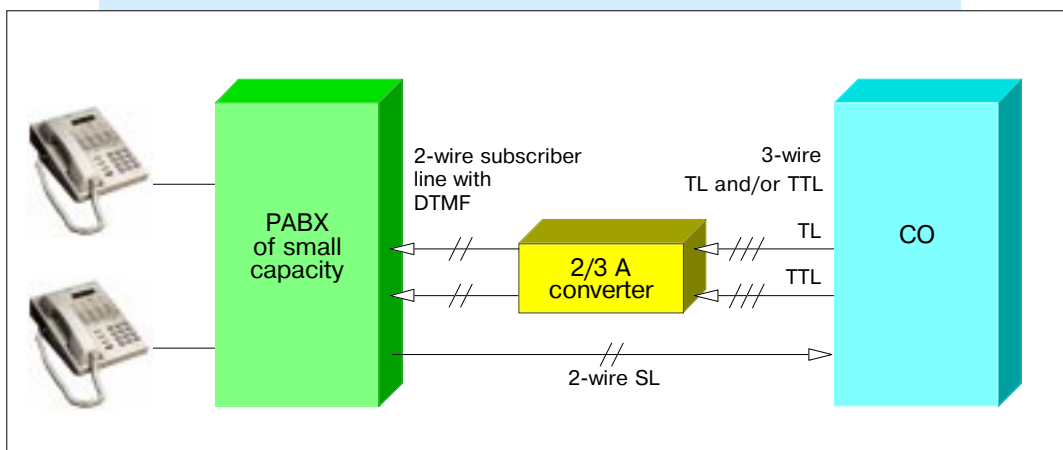
KPS 2 (DID)/3A

KPS 2 (DID)/3A converter signalling is a device, allows to connect a PABX of small capacity, which has two-wire trunks with DID protocol for communication with CO, to three-wire trunk for providing of a direct incoming dialing to small ATE subscribers from the side of UTN during incoming call.

Features

KPS2(DID)/3A converter receives information about a called subscriber number from the side of a three-wire line in decade code, provides support of standard signalling protocol via three-wire trunk protocol, seizure of two-wire trunk and transmission of number in DTMF code.

Number of digits, received by the converter from the UTN side of and transmitted ones to the PABX side is specified in every individual case.

Three-wire local trunk lines (TL) and toll trunk lines (TTL) outgoing from CO are used for connection to the converter. The converter is connected to mini-ATE to two-wire trukns with DID protocol.

Technical parameters

The converter is designed on the base of micro-PC. Cards are made in geometrical sizes of micro-PC (122x112 mm), ones use 62-pin connector , geometrically compatible with ISA connector of a system bus of micro-PC.

♦ Максимальная емкость: 8 СЛ, СЛМ

♦ Maximum capacity: 8 TL, TTL

♦ Type of interface: three-wire TL with decade code (Guide Document on the PSTN p. 7.13, 7.14) and two-wire trunk line with DTMF (ITU-Q.23)

♦ Number of calls processed simultaneously: 8

♦ Power supply: not more than 30 W

♦ Permissible temperature range of operation: 10 C*-40 C*

♦ Sizes: 316x150x190

♦ Weigh: not more than 3 kg

♦ Supply voltage: -48V or -60V
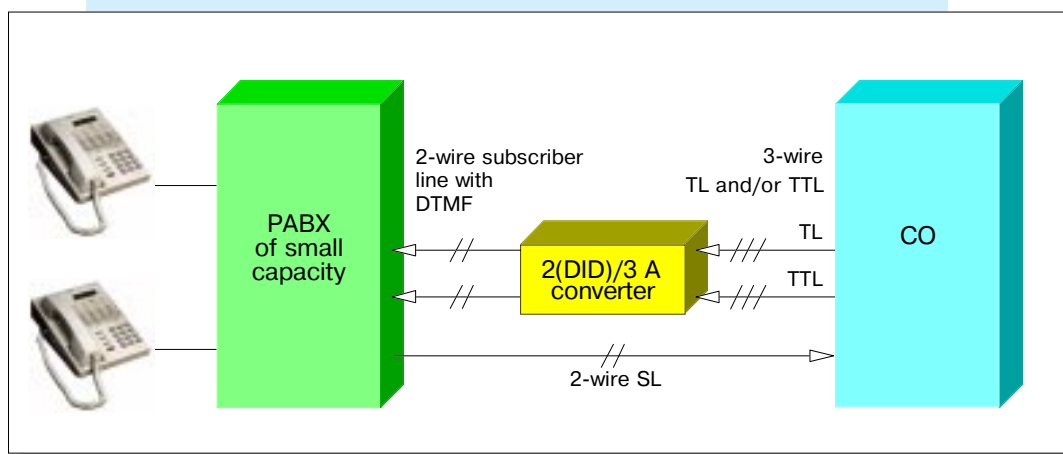
KPS&M (V)/3A

KPS E&M(V)/3A converter is a device, allows to provide interworking between ATEs with three-wire physical trunks and a PABX with E&M(V) interface.

Features

Signalling protocols converter supports set-up of the following calls types:

- ♦ incoming local connection with PABX subscribers;
- ♦ outgoing local connection;
- ♦ outgoing connection to ATTE (with group ANI functions providing);

Converter provides a support of:

- ♦ signalling protocol via three-wire TL;
- ♦ E&M(V) signalling protocol;
- ♦ group ANI functions via three-wire TL during outgoing call.

A quantity of number digits, translated by converter to both directions, are not limited.

Technical parameters

A speech path from the E&M side is connected in two-wire terminal mode.

- Maximum capacity: 8 TLs

- Type of interface: three-wire TL with decade code (Guide Document on the PSTN p. 7.13) and E&M type V

- Number of calls processed simultaneously: 8

- Power supply: not more than 30 W

- Permissible temperature range of operation: 10 C*-40 C*

- Weigh: not more than 3 kg

- Supply voltage: -48V+-5%
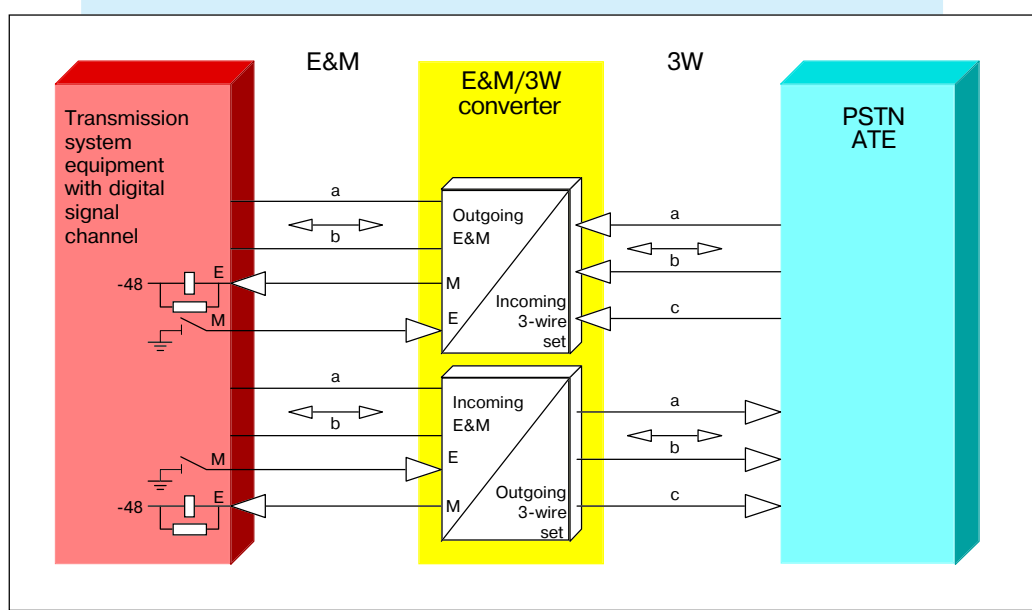
KPS E&M I/3A

KPS E&M I/3A signalling converter allows to provide interworking between ATE of rural telephone network with E&M interface ("inductive code") and ATE with three-wire trunks.

Features

The signalling converter is intended for providing of the following calls types: ♦

incoming local connection;

incoming toll connection;

outgoing local connection;

outgoing local connection to ATTE.

The converter provides support of:

signalling protocol via three-wire TL;

E&M signalling protocol ("inductive code") with TL using in both-way mode.

Quantity of number digits translated by the converter is limited in direction to ATE therefore converter should memorize number of a called ATE subscriber for realization of "Recall" function during incoming toll connection to ATE.

Technical parameters

For connection to the converter 3-wire local trunks incoming and outgoing from ATE and 4-wire terminals E&M from a rural ATE are used, and ones are used in both-way mode.

A speech path from the E&M side is connected in two-wire terminal mode.

- Maximum capacity: 4 E&M, 8 (3A)
- Type of interface: three-wire TL with decade code (Guide Document on the PSTN p. 7.13) and E&M "inductive code"
- Number of calls processed simultaneously: 4
- Power supply: not more than 30 W
- Permissible temperature range of operation: 10 C*-40 C*
- Weigh: not more than 3 kg
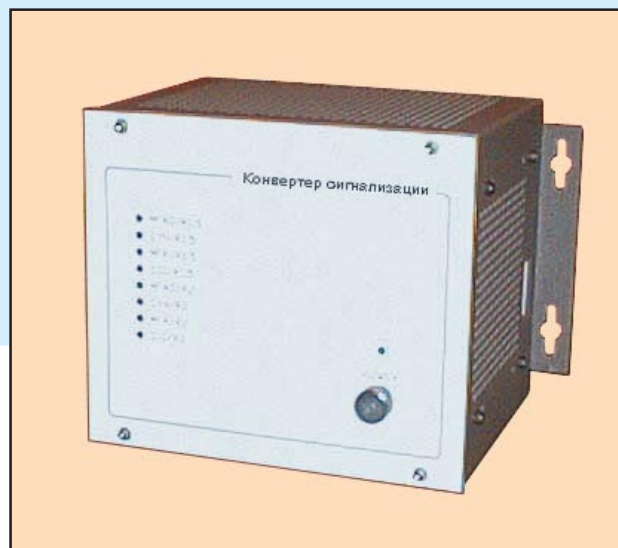- Supply voltage: -48V+-5%
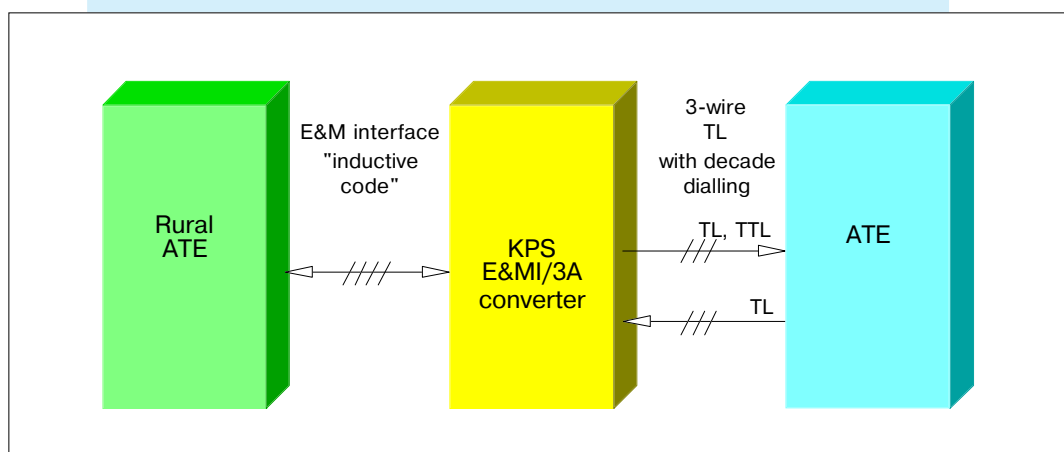
KPS R2 DTMF/ R1.5 MFS

KPS R2 DTMF/R1.5 MFS signalling converter fulfills conversion from R2 DTMF/R1.5 MFS signalling protocol (used in European Telephone Networks) into line signalling protocol via two dedicated signal channels of a digital trunk with register signalling by 2 from 6 multifrequency code by pulse shuttle method (used in the PSTN of the RF).

Features

The signalling converter provides interconnection of ATE, using pointed above protocols during set-up of the following connections types to ATE, realizing R 1.5 MFS protocol:

- ♦ outgoing local via TL
- ♦ incoming local via TL
- ♦ outgoing to ATTE (via OTL)
- ♦ incoming from ATTE (via TTL)

Technical parameters

The device is mounted in the enclosure of micro-PC. It has influence on common view of the device, its design and arrangement of control points.

- ♦ Capacity: 1 digital link
- ♦ Type of interface: A (ITU-T G.703)
- ♦ Input impedance : 120 Om
- ♦ Type of signalling: R2 DTMF (ITU-T Q.400-Q.490), R 1.5 MFS (Guide Document on the PSTN p. 7.18, 7.19)
- ♦ transmission rate of a switching port: 9 600 kbit/s
- ♦ Synchronization: external
- ♦ Code HDB-3
- ♦ Traffic intensity: 0,7 Erl/channel
- ♦ Power supply : not more than 30 W
- ♦ Permissible temperature range of operation: 10 C*-40 C*
- ♦ Weigh: not more than 3 kg
- ♦ Digital signal delay time: 250 mcs

The device supplies from common AC network with supply voltage 220 V or station DC power supply source with voltage -60V or -48V (depending on modification of the device) with a grounded positive pole.
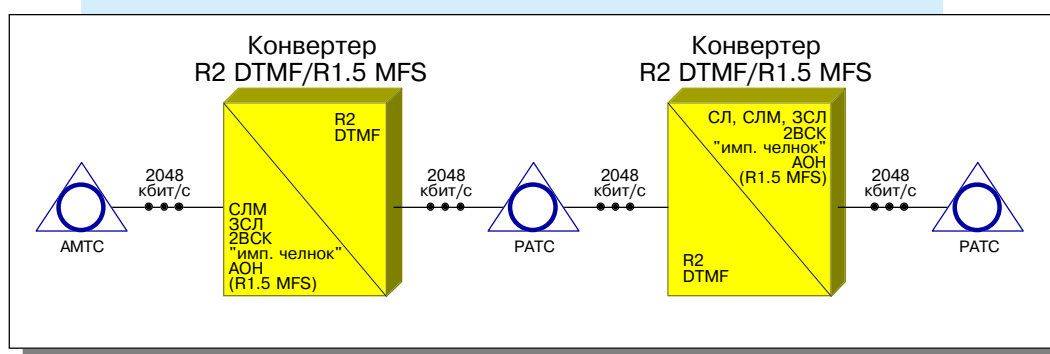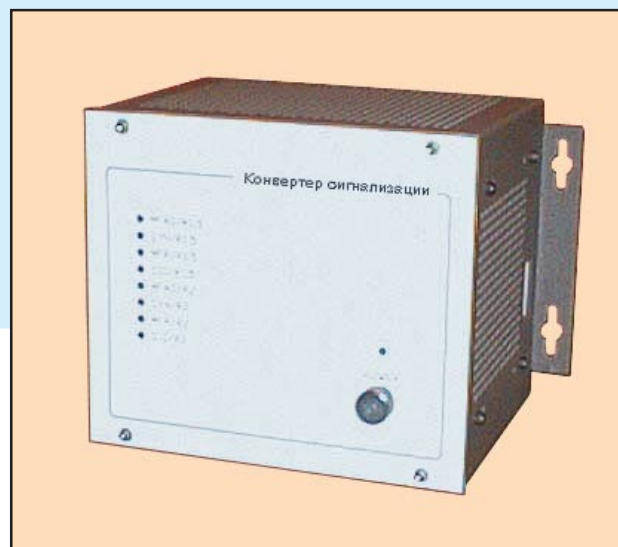
KPS R2 MFC/ R1.5 MFS

KPS R2 MFC/R1.5 MFS signalling converter fulfills conversion from R2 MFC signalling protocol (used in European Telephone Networks) into line signalling protocol via two dedicated signal channels of a digital trunk with register signalling by 2 from 6 multifrequency code by pulse shuttle method (used in the PSTN of the RF).

Features

The signalling converter provides interconnection of ATE, using pointed above protocols during set-up of the following connections types to ATE, realizing R 1.5 MFS protocol:

♦ outgoing local via TL

♦ incoming local via TL

♦ outgoing to ATTE (via OTL)
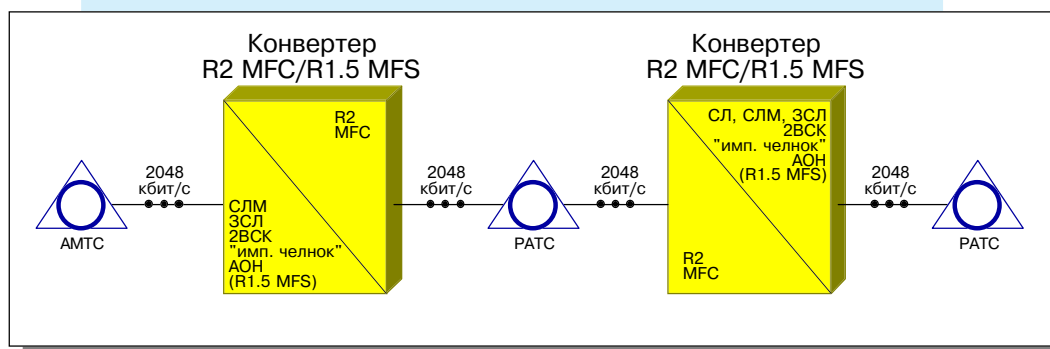
♦ incoming from ATTE (via TTL)

Technical parameters

The device is mounted in the enclosure of micro-PC. It has influence on common view of the device, its design and arrangement of control points.

- ◆ Capacity: 1 digital link
- ◆ Type of interface: A (ITU-T G.703)
- ◆ Input impedance : 120 Om
- ◆ Type of signalling: R2 MFC (ITU-T Q.400-Q.490), R 1.5 MFS (Guide Document on the PSTN p. 7.18, 7.19)
- ◆ Transmission rate of a switching port: 9 600 kbit/s
- ◆ Synchronization: external
- ◆ Code HDB-3
- ◆ Traffic intensity: 0,7 Erl/channel
- ◆ Power supply : not more than 30 W
- ◆ Permissible temperature range of operation: 10 C*-40 C*
- ◆ Weigh: not more than 3 kg
- ◆ Digital signal delay time: 250 mcs

The device supplies from common AC network with supply voltage 220 V or station DC power supply source with voltage -60V or -48V (depending on modification of the device) with a grounded positive pole.

15

Конвертер
R2 MFC/R1.5 MFS

Конвертер
R2 MFC/R1.5 MFS

R2
MFC

СЛ, СЛМ, ЗСЛ
2ВСК
"имп. челнок"
АОН
(R1.5 MFS)

2048
кбит/с

2048
кбит/с

2048
кбит/с

2048
кбит/с

АМТС

СЛМ
ЗСЛ
2ВСК
"имп. челнок"
АОН
(R1.5 MFS)

РАТС

R2
MFC

РАТС

ISM

ISM signalling converter provides conversion from CCS#7 protocol (used as interexchange ISDN protocol for communication between urban ATEs, urban ATEs and ATTEs ect). into DSS1 signalling protocol (used for connection to CO of ISDN terminal equipment and an access network equipment of types, including PABX with ISDN functions, concentrators ect).

The signalling converter provides interconnection of ATEs, used pointed above protocols during set-up of all types of connections to ATE, realizing DSS1.

Features

- conversion of CCS#7 <-. DSS1;
- control of level 1 PCM links state from the side of CCS#7 using
- control of level 1 PCM links state from the side of DSS1 using
- reception and processing of link level commands (level 2) of DSS1- setting and support of link state
- reception and processing of 2,3 MTP commands level -- setting and support of link state
- reception and processing of 3 DSS1 level messages, necessary for providing of base call and conversion ones to corresponding ISUP commands
- reception and proccessing of ISUP commands, necessary for providing of base call and conversion ones to corresponding ISUP messages.
- providing of supplementary services DDI,CLIP, CLIR, COLP, COLR, SUB, MCI, USS-type 1.
- providing of access from an external terminal for control and maintenance as locally (via RS-232 interface) as through a modem (built-in, external)

Technical parameters ♦

Quantity of DSS1 links	1 or 2
Quantity of CCS7 links	1 or 2
Type of interfaces	G.703
Input impedance	120 Ohm
Type of signalling	CCS7, DSS1
Synchronization	External
Code	HDB3
Digital signal time delay	250 mcs
Signalling system DSS1	ETS 300 011 (level 1)
	ETS 300 125 (level 2)
	ETS 300 102 (level 3)
	ETS 300 092: CLIP.
	ETS 300 093: CLIR.
	ETS 300 097: COLP.
	ETS 300 098: COLR.
	ETS 300 130: MCID.
	ETS 300 061: SUB.
	ETS 300 064: DDI.
Signalling system CCS7	National specifications of Russia: MTP, ISUP-R, ITU-T G.703 (level 1)
Protocol conversion	ITU-T, Q.699
Permitted temperature range of operation	from 0 C to 40 C
Constructive	1) 88x490x430 (for installlation into 19" rack)
	2) 120x230x410
Power supply	1) 60/48 V DC
	2) 220 V AC

Scope

This converter may be used for organization of interworking between PABXs, supporting CCS7 protocol, and systems, using primary rate access lines with DSS1 protocol (ETSI version) for interface with CO (PABXs with ISDN functions, concentrators and ISDN multiplexers).
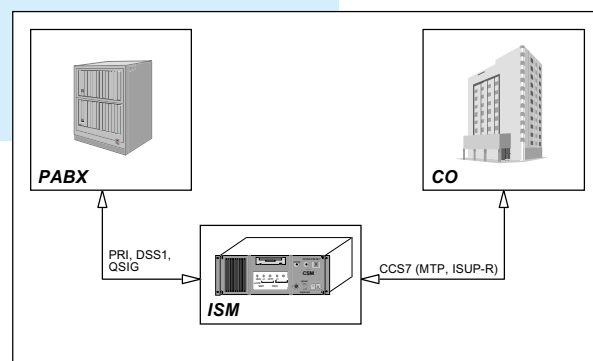
CSM

CSM signalling protocol converter is a device, which fulfills conversion from DSS1 protocol into 2CAS signalling. Using of the converter allows to connect PABX, supporting interface of primary ISDN access with DSS1 to CO, supporting 2CAS (decade code, pulse shuttle, ANI).

The signalling converter provides interconnection of ATE and PABX, using pointed above protocols during set-up of all call types.

Features

♦ conversion of CCS#7 <-> DSS1;

♦ control of level 1 PCM links state from the side of 2CAS using

♦ control of level 1 PCM links state from the side of DSS1 signalling system using

♦ reception and processing of link level commands (level 2) of DSS1- setting and support of link state

♦ reception and processing of 2, 3 MTP commands level -- setting and support of link state

♦ reception and processing of 3 DSS1 level messages, necessary for providing of base call and conversion ones to corresponding ISUP commands

♦ reception and processing of ISUP commands, necessary for providing of base call and conversion ones to corresponding ISUP messages.

♦ providing of supplementary services DDI,CLIP, CLIR, COLP, COLR, SUB, MCI

♦ providing of access from an external terminal for control and maintenance as locally (via RS-232 interface) as through a modem (built-in, external)
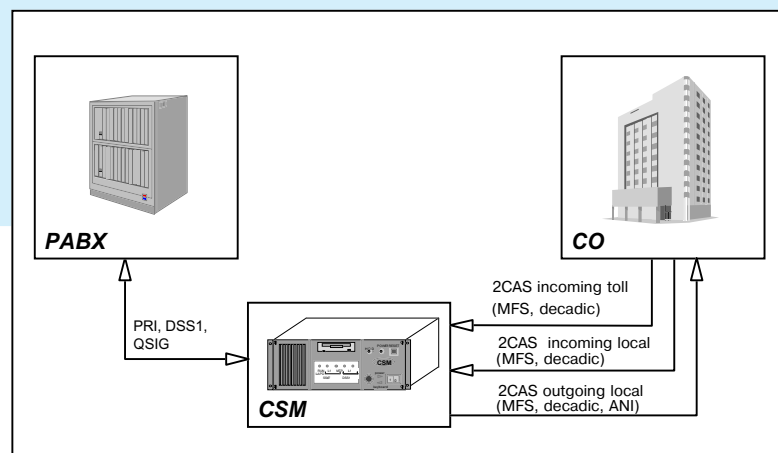
Technical parameters

Quantity of DSS1 links	1 or 2
Quantity of 2CAS links	1 or 2
Type of interfaces	A ITU-T G.703
Input impedance	120 Ohm
Type of signalling	DSS1, 2CAS (pulse shuttle, decade code, ANI)
Synchronization	External
Code	HDB3
Digital signal time delay	250 mcs
Signalling system DSS1 standards	According to ETSI
Signalling system 2CAS PSTN	According to National specifications on the
Permitted temperature range of operation	from 0 C to 40 C
Constructive	1) 88x490x430 (for installation into 19" rack) 2) 120x230x410
Power supply	1) 60/48 V DC 2) 220 V AC

Scope

The converter can be used for organization of interconnection between ATEs, supported 2CAS signalling (decade code, pulse shuttle, ANI) and systems used primary rate access lines with DSS1 protocol (version ETSI) for interface with CO (PABX with ISDN functions, concentrators and ISDN multiplexers).

PABX

CO

PRI, DSS1, QSIG

CSM

2CAS incoming toll (MFS, decadic)

2CAS incoming local (MFS, decadic)

2CAS outgoing local (MFS, decadic, ANI)

USM

USM signalling converter is a device which provides conversion from CCS#7 signalling protocol to 2CAS signalling protocol. Using of this converter allows to interexchange ATEs, one of them supports CCS7 signalling (MTP, ISUP) and other - 2CAS signalling protocol (decade code, "pulse shuttle", ANI).

The signalling converter provides interconnection of ATEs used pointed above protocols during set-up of all types of connections.

Features

- ♦ conversion of 2CAS <-> CCS7
- ♦ control of level 1 PCM links state from the side of 2CAS using
- ♦ control of level 1 PCM links state from the side of CCS7 using
- ♦ reception and processing of 2, 3 MTP commands level - setting and support of link state
- ♦ reception and processing of 2CAS messages level and their conversion to corresponding ISUP messages
- ♦ reception and processing of ISUP messages level and their conversion to corresponding 2CAS messages
- ♦ support of supplementary services DDI, CLIP, MCID
- ♦ providing of access from an external terminal for control and maintenance as locally (via RS-232 interface) as through a modem (built-in, external)
- ♦ ANI request for incoming calls is supported

Technical parameters

Quantity of 2CAS links	1 or 2
Quantity of CCS7 links	1 or 2
Quantity of CCS7 D-channels	1 or 2
Type of interfaces	G.703, ITU-T symmetrical, 120 Ohm
Input impedance	120 Ohm
Type of signalling	CCS7 (MTP, ISUP), 2CAS («pulse shuttle», decade code, ANI)
Synchronization	External
Code	HDB3
Digital signal time delay	250 mcs
Signalling system 2CAS	According to National specifications on the PSTN
Signalling system CCS7	National Specifications of Russia: MTP, ISUP-R ITU-T G.703 (level 1)
Permitted temperature range of operation	from 0 C to 40 C
Constructive	1) 88x490x430 (for installation into 19" rack) 2) 120x230x410
Power supply	1) 60/48 V DC 2) 220 V AC

Scope

This converter may be used for organization of interworking between ATEs supporting CCS7 protocol and systems supporting of 2CAS protocol.
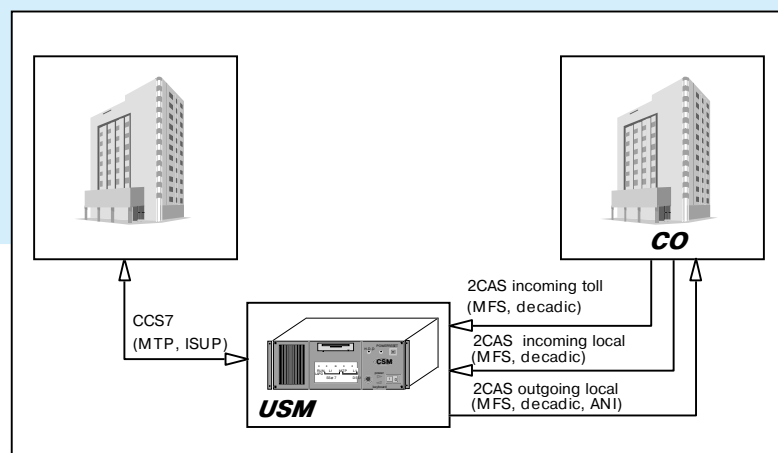
RSM

RSM signalling converter is a device which provides conversion from CCS#7 or DSS1 signalling protocol to 1CAS signalling protocols. RSM allows to organize interworking between systems supporting specific russian rural signalling and PABXs supporting DSS1 (Euro-ISDN - ETSI version) or QSIG (ETSI/ECMA version) or COs supporting CCS#7. Converter allows to adopt systems being installed to existing old environment without any modifications.

Features

♦ conversion of 1CAS<->CCS#7 or 1CAS<->DSS1

♦ control of level 1 PCM links state from the side of 1CAS using

♦ control of level 1 PCM links state from the side of CCS7 or DSS1 using

♦ reception and processing of 2, 3 MTP commands level - setting and support of link state

♦ reception and processing of 1CAS messages level and their conversion to corresponding ISUP messages

♦ reception and processing of ISUP messages level and their conversion to corresponding 1CAS messages

♦ support of supplementary services DDI, CLIP

♦ providing of access from an external terminal for control and maintenance as locally (via RS-232 interface) as through a modem (built-in, external)

♦ 1CAS "Norka" and "inductive code" signallings supporting

♦ ANI request for incoming calls is supported

Technical parameters

Quantity of 1CAS links	1 or 2
Quantity of CCS7/DSS1 links	1 or 2
Quantity of CCS7 D-channels	1
Type of interfaces	G.703, ITU-T symmetrical, 120 Ohm
Input impedance	120 Ohm
Type of signalling	CCS7 (MTP, ISUP), 1CAS "Norka" - "pulse shuttle", decade code, ANI 1CAS inductive code
Synchronization	External
Code	HDB3
Digital signal time delay	250 mcs
Signalling system 1CAS	According to National specifications on the PSTN
Signalling system CCS7	National Specifications of Russia: MTP, ISUP-R ITU-T G.703 (level 1)
Signalling system DSS1	ETSI standards
Permitted temperature range of operation	from 0 C to 40 C
Constructive	1) 88x490x430 (for installation into 19" rack) 2) 120x230x410
Power supply	1) 60/48 V DC 2) 220 V AC

Scope

This converter may be used for organization of interworking between ATEs supporting CCS7 protocol and systems supporting of 2CAS protocol.

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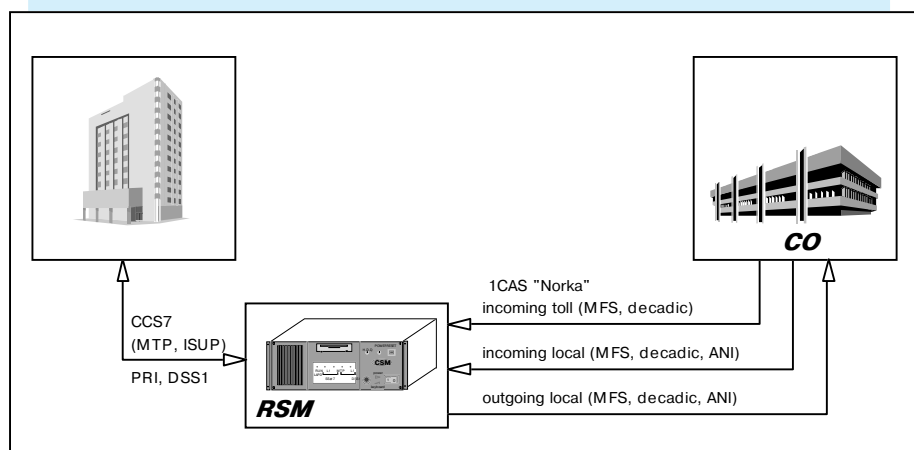
KPC 30/15

Scope

A digital stream converter (KPC 30/15) is used for conversion from two line stream 1024 kbit/s of PCM-15 transmission system into standard stream 2048 kbit/s with PCM-30. KPC can be used for interfacing of digital transmission systems of rural communication PCM-15/30 "KEDR" with electronic exchanges with connection through a standard unit of line link terminals of the pointed above equipment.
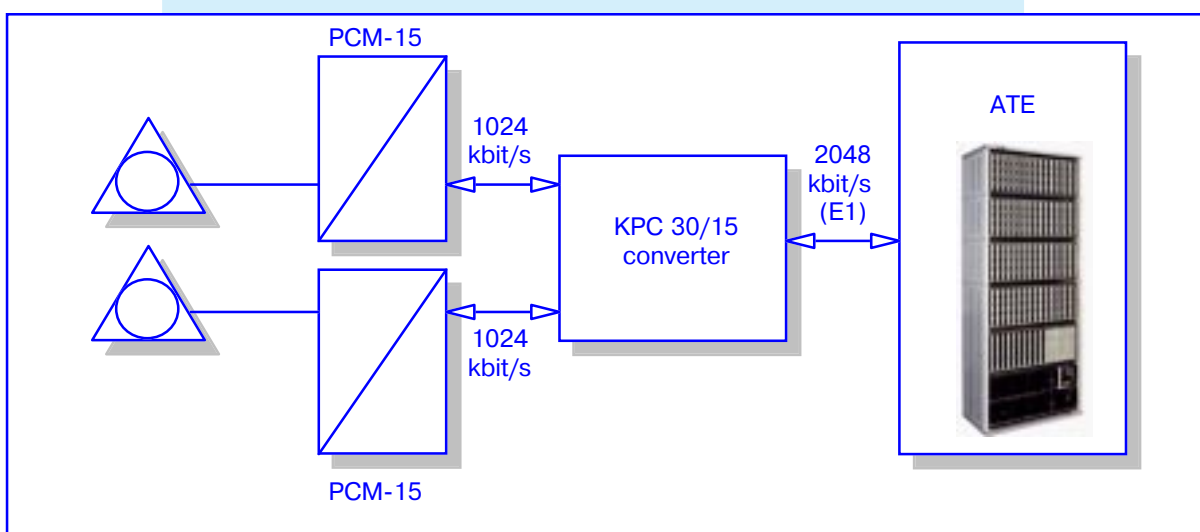
Features

KPC 30/15 processes incoming digital streams and forms outgoing digital streams, providing synchronous unification of voice frequency TS of two PCM-15 15-channel streams into30-channel stream PCM-30 and division of time slots in backward direction. Additionally, it is provided corresponding processing and transfer of service and signal information stream into corresponding times slots.

Main part of KPC 15/30 functions is realized by means of software. It allows to adapt ones for the concrete requirements.

Technical parametersи

- ♦ PCM-15 interface parameters meet to parameters of BUK interface of "KEDR" equipment (3a2.133.331).

- ♦ Parameters of PCM-30 interface meet to requirements CCITT G.703 and G.711.

- ♦ Stream synchronization - external from an electronic exchange or internal at Alarms with accuracy of frequency support not less than $50*10^{-6}$.

- ♦ Power supply - station battery - 60V; power voltage - not more than 5 W.

- ♦ Time of operation - not less than 20000 h.

PCM-15
1024 kbit/s
KPC 30/15 converter
2048 kbit/s (E1)
ATE
1024 kbit/s
PCM-15