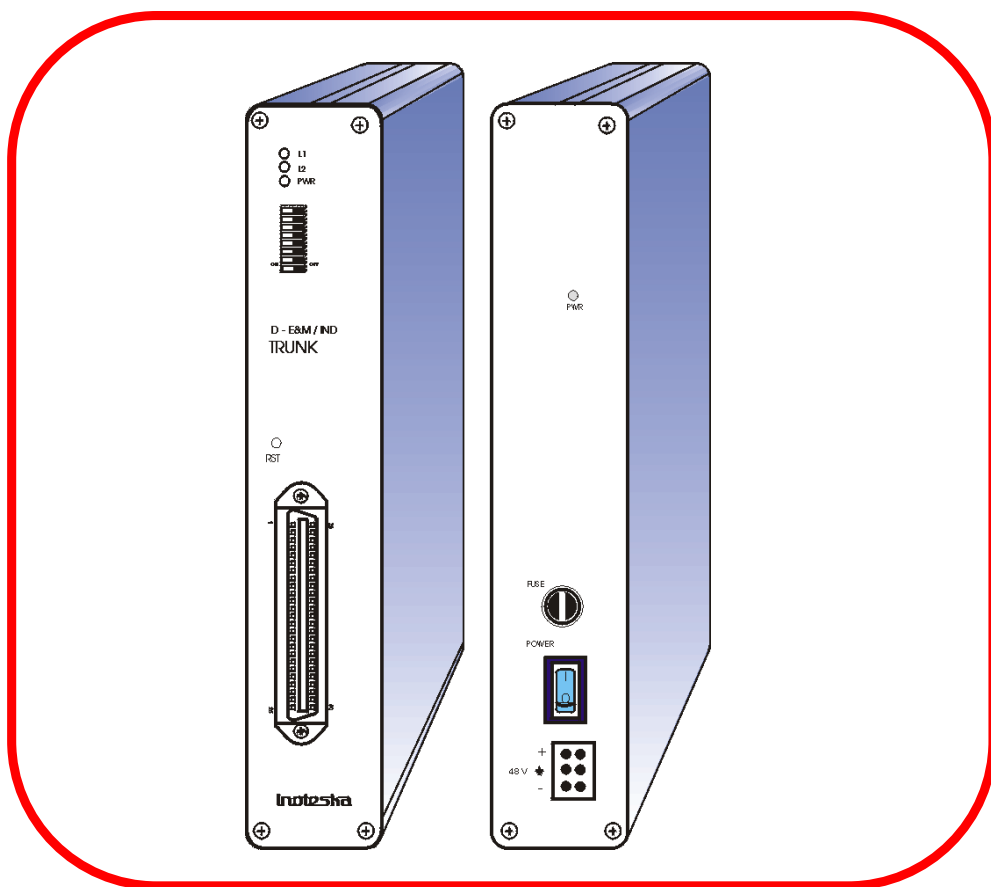




inoteska

CONVERTER IDTMF/INDUCTIVE PRODUCT DOCUMENTATION



CONTENTS

1. General	.....	2
2. Device description	.....	3
3. Device function	.....	4
4. Mechanical assembly	.....	5
5. Connecting and setting-up	.....	7
6. Technical parameters	.....	12
7. Converter DC/DC	.....	13
8. Rack assembly	.....	14

1. GENERAL

Name:	Signalling converter IDTMF, E&M / Inductive
Type nomenclature:	ITX 422 43, ITX 422 43.2 (rack cards), ITX 482 43, ITX 482 43.2
Manufacturer:	INOTESKA, s.r.o.
Placement:	in supervised areas
Dimensions:	ITX 482 43 : 43.5 x 237 x 220 mm (h x w x d) ITX 482 43.2 : 55 x 237 x 220 mm (h x w x d)
Operational conditions:	0° C to 55° C, 20% to 75% relative atmospheric humidity
Storage:	-10° C to 60° C, 20% to 75% relative atmospheric humidity

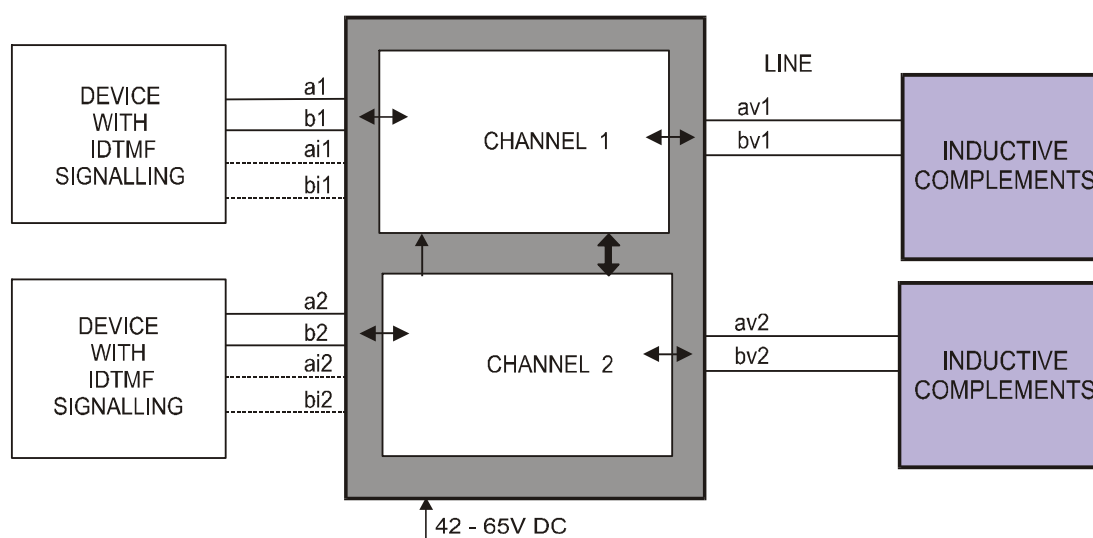
Basic parameters:

- ◆ dual signalling converter IDTMF, E&M / Inductive
- ◆ input/output - IDTMF signalling
 - 2-wire
 - 4-wire
- ◆ input/output - E&M signalling pulsed or permanent
 - 2-wire
 - 4-wire
- ◆ input/output to conducting - inductive signalling
 - 2-wire
- ◆ PbX power supply - 42 to 65 V DC, current $I_{max} = 1A$
Note: When switching on, build-up current is higher.
- ◆ wires are connected by connectors
- ◆ wall mounting or desktop placement
- ◆ Possibility of placement to the 19" rack 6U
- ◆ pulse signalling range – to the line with resistance max. 3000 Ohm

2. DEVICE DESCRIPTION

Signalling converter IDTMF, E&M / inductive is used for the connection of device with IDTMF signalling to the device with inductive signalling or for connection of PbX with E&M signalization to the device with inductive signalling.

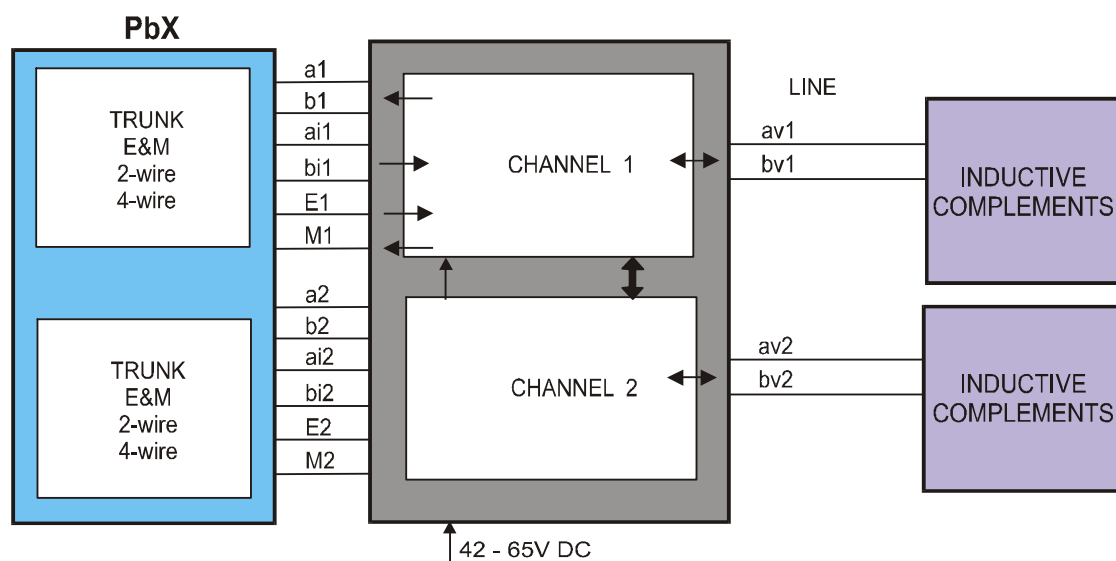
The board contains also protective elements against overvoltage on the tip and ring wire. Voice circuits do not bring the attenuation into the voice path. Voice path is divided into the incoming and outgoing direction. Device contains DC/DC converter, which generates from the input voltage $-48V$ to the voltage $\pm 12V, +5V$.



Converting IDTMF signalling to inductive

3. DEVICE FUNCTION

Signalling converter is connected in the PBX to the trunks with E&M signalling. Connection to the line is two-wire. Line signalling is inductive. Converter can cooperate on the line with another devices using inductive signalling.



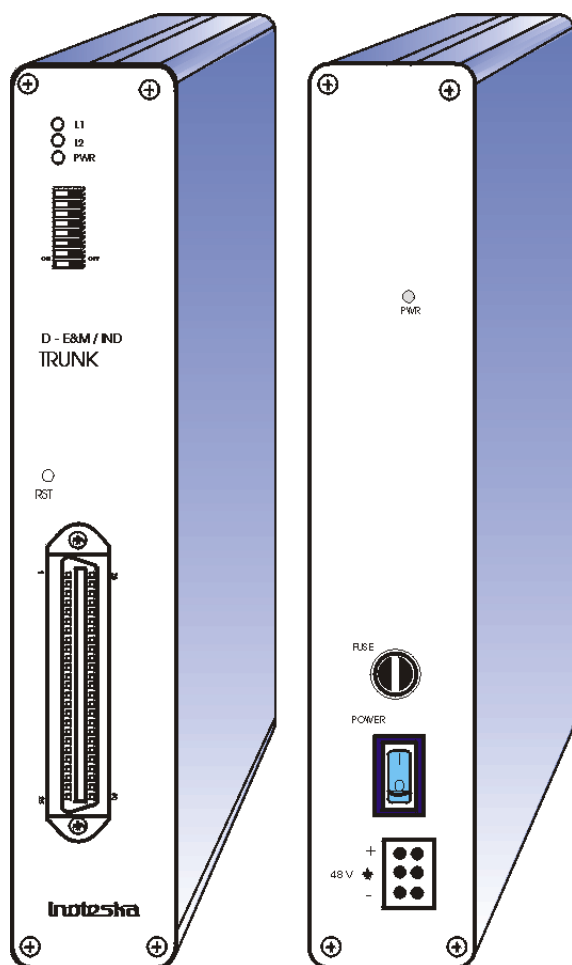
Converting E&M signalling to inductive

ITX 482 43, ITX 422 43 – for short haul up to 5 km.
 ITX 482 43.2, ITX – for long haul over 5 km.

4. MECHANICAL ASSEMBLY

- Desktop version – ITX 482 43, ITX 482 43.2
- 19“ Rack 6 U high – ITX 422 43, ITX 422 43.2

Desktop version ITX 482 43



Signalling elements:

LED diodes:

L1 – 1.channel status

L2 - 2. channel status

PWR – device power supply

- a) Diode permanently on - channel is occupied
- b) Diode flashes - error status (channel is not set, error on the channel ...)

Switches on the front panel SW 2:

- | | | |
|----------------------------------|--------------------------|--------------------------|
| 1 - E&M signalling | 0 - pulse | 1 - permanent |
| 2 - Signalling | 0 - IDTMF | 1 - E&M |
| 3 - Seizure/release confirmation | 0 - without confirmation | 1 - with confirmation |
| 4 - Unused | | |
| 5 - Dial to the line | 0 - DTMF | 1 - pulse |
| 6 - Dial to the PbX | 0 - DTMF | 1 - pulse |
| 7 - Diagnostics | 0 - no | 1 - yes |
| 8 - Status | 0 - SLAVE (Controlled) | 1 - MASTER (Controlling) |

0 - OFF

1 - ON

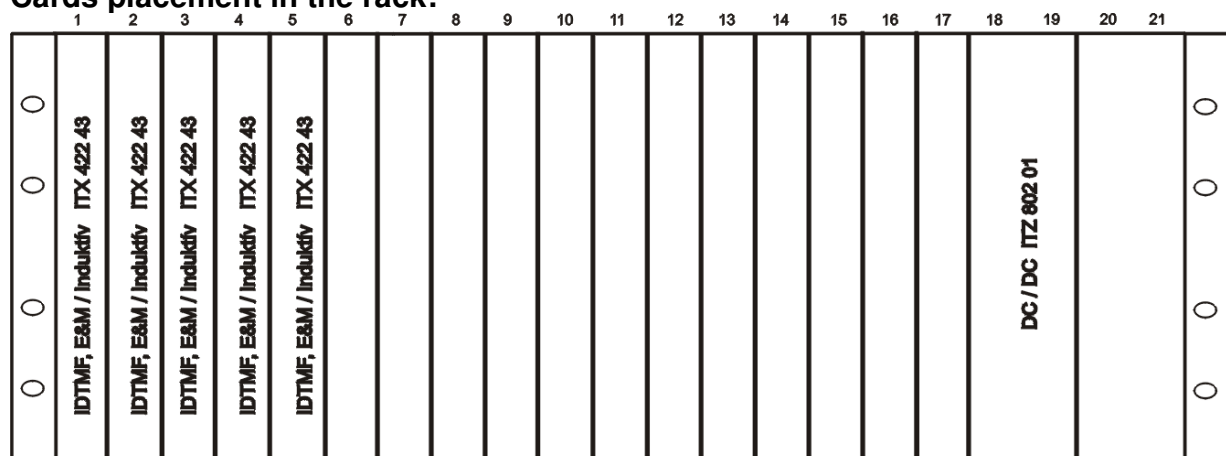
19" Rack 6U version – ITX 422 43

It is possible to insert the individual trunk cards to the 19" rack 6U high to build up a multiple converter.

Max. 16 optional cards 4 HP (TE) wide can be placed to the rack ITP 222 01.

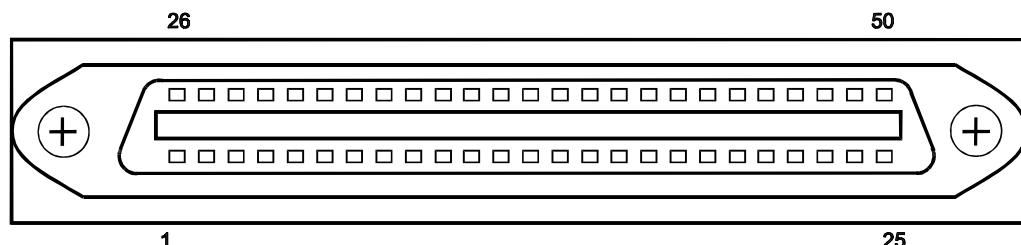
Code	Description	Multiple	Width HP (TE)
ITX 422 43	E&M, IDTMF / Inductive card	dual	4
	<i>Optional positions</i>		16x4=64
ITX 802 01	DC / DC 25, 6U converter	-	8
	Last free position behind power supply	-	8
ITP 222 01	Rack 19", 6U	-	84

Cards placement in the rack:



5. CONNECTING AND SETTING-UP

Connector J 4 for card ITX 482 43 / ITX 422 43:



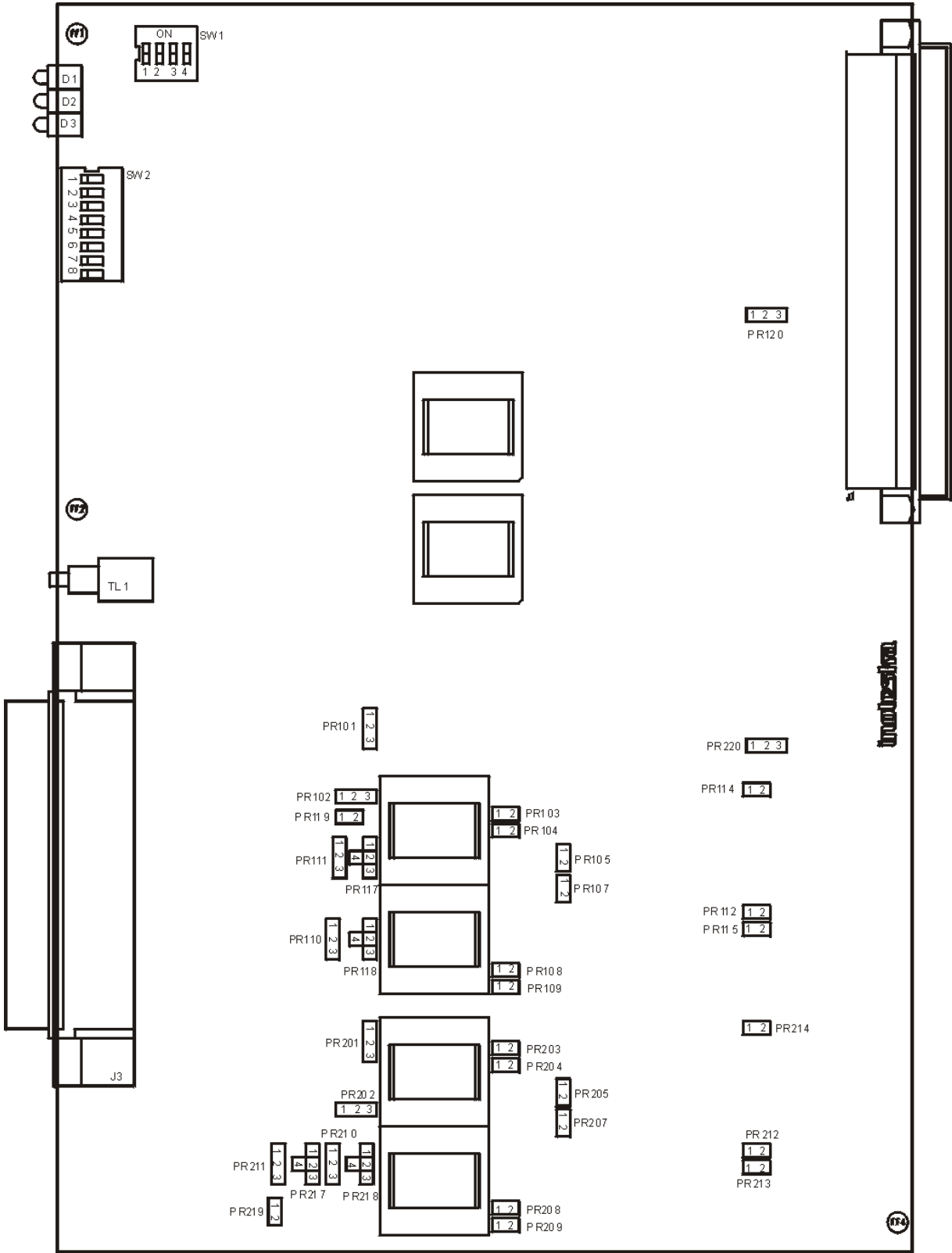
IND/E&M		IND/IDTMF		IND/E&M		IND/IDTMF	
1 -				26 -			
2 -				27 -			
3 -				28 -			
4 -				29 -			
5 -				30 -			
6 -				31 -			
7 -				32 -			
8 - E2	red			33 - M2	green		
9 -				34 -			
10 - av2	red	av2		35 - bv2	orange	bv2	
11 - a2	red	a2		36 - b2	blue	b2	
12 - ai2	white	ai2		37 - bi2	grey	bi2	
13 -				38 -			
14 - ai1	white	ai1		39 - bi1	brown	bi1	
15 -				40 -			
16 - E1	white			41 - M1	green		
17 -				42 -			
18 - av1	white	av1		43 - bv1	orange	bv1	
19 - a1	white	a1		44 - b1	blue	b1	
20 -				45 - FOH		FOH	
21 -				46 -			
22 -				47 -			
23 -				48 -			
24 -				49 -			
25 -				50 -			

avx, bx	- line	- inductive signalling
ax, bx	- PbX	- voice to E&M for two wire
		or output from ITX 422 43 for four wire
aix, bix	- PbX	- voice input to the ITX 422 43 for four wire
Ex	- PbX	- input of E&M signalling to ITX 422 43
Mx	- PbX	- output of E&M signalling from ITX 422 43

where x is 1 or 2

Jumpers layout:





Switch SW 1

- 1 – not used
- 2 - ON
- 3 – reserve ON
- 4 - reserve ON

Jumpers:

E&M, IDTMF

1. Pn	2-wire	4-wire	2. Pn	2-wire	4-wire
PR101	1-2	2-3	PR201	1-2	2-3
PR102	1-2	2-3	PR202	1-2	2-3
PR103	1-2	disc.	PR203	1-2	disc.
PR104	1-2	disc.	PR204	1-2	disc.

HW setting:

PR108	1-2
PR109	1-2
PR110	2-3
PR111	2-3

PR208	1-2
PR209	1-2
PR210	2-3
PR211	2-3

Attenuation:

	0 dB	+3dB	
PR105	disc	1-2	in the way from E&M (IDTMF) to line 1. TRUNK
PR107	disc	1-2	in the way from line to E&M (IDTMF) 1. TRUNK
PR205	+3dB		in the way from E&M (IDTMF) to line 2. TRUNK
PR207	+3dB		in the way from line to E&M (IDTMF) 2. TRUNK

Transmitting of IDTMF mark:

	- 6dB	0dB	+6dB
PR114	disc.	1-2	1-2
PR115	disc.	disc.	1-2
PR214	disc.	1-2	1-2
PR215	disc.	disc.	1-2

Receiving of IDTMF mark:

	0dB	+6dB
PR112	disc.	1-2
PR212	disc.	1-2

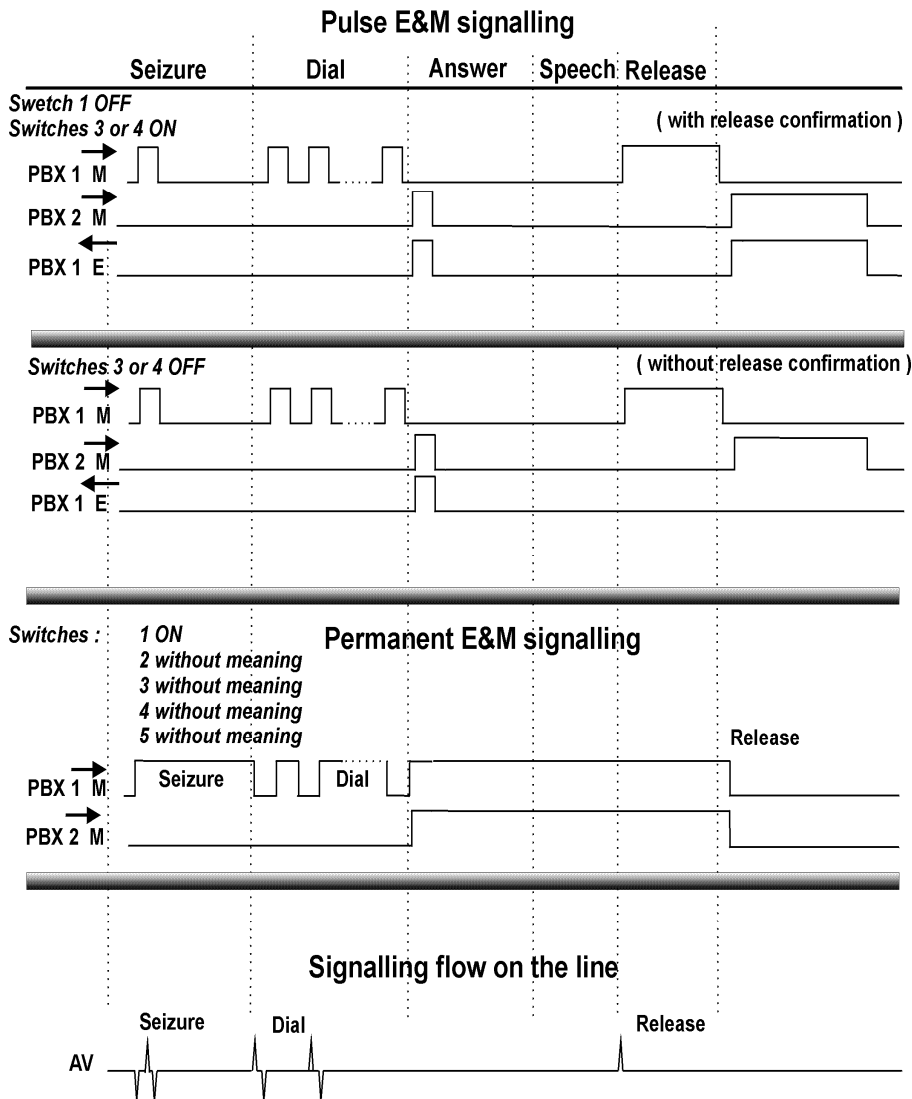
Transmitting of inductive mark:

	Normal	Increased
PR119	disc.	1-2
PR219	disc.	1-2

E&M

	-48V	-12V
PR120	2-3	1-2
PR220	2-3	1-2

disc. – disconnected jumper



6. TECHNICAL PARAMETERS

Power supply requirements:

- -40V to -64V DC, - input current less than 0,3A

Pulse E & M signalling timing:

Seizure: 150 ms or 70 ms
Release: 600 ms
Dial: impulse - 60 ms, pulse spacing - 40 ms

Transmission parameters:**Inserted attenuation**

Value of the inserted attenuation (measured by the frequency 800 Hz and input level of signal 0dB) is 0,5dB + - 0,7dB.

Asymmetry attenuation

Asymmetry attenuation is better than the values stated below.

50 - 300 Hz	26 dB
300 - 600 Hz	40 dB
600 - 3400 Hz	46 dB

Reflection attenuation

Reflection attenuation is higher than 12 dB in the range of 300 - 600 Hz and 18dB in the range of 600 - 3400 Hz, by the input level 0 dB.

Psophometric noise

Average value of the psophometric noise (measured in the point with the zero relative level of the voice signal) does not exceed the value of -67 dB.

Signalling marks and dial

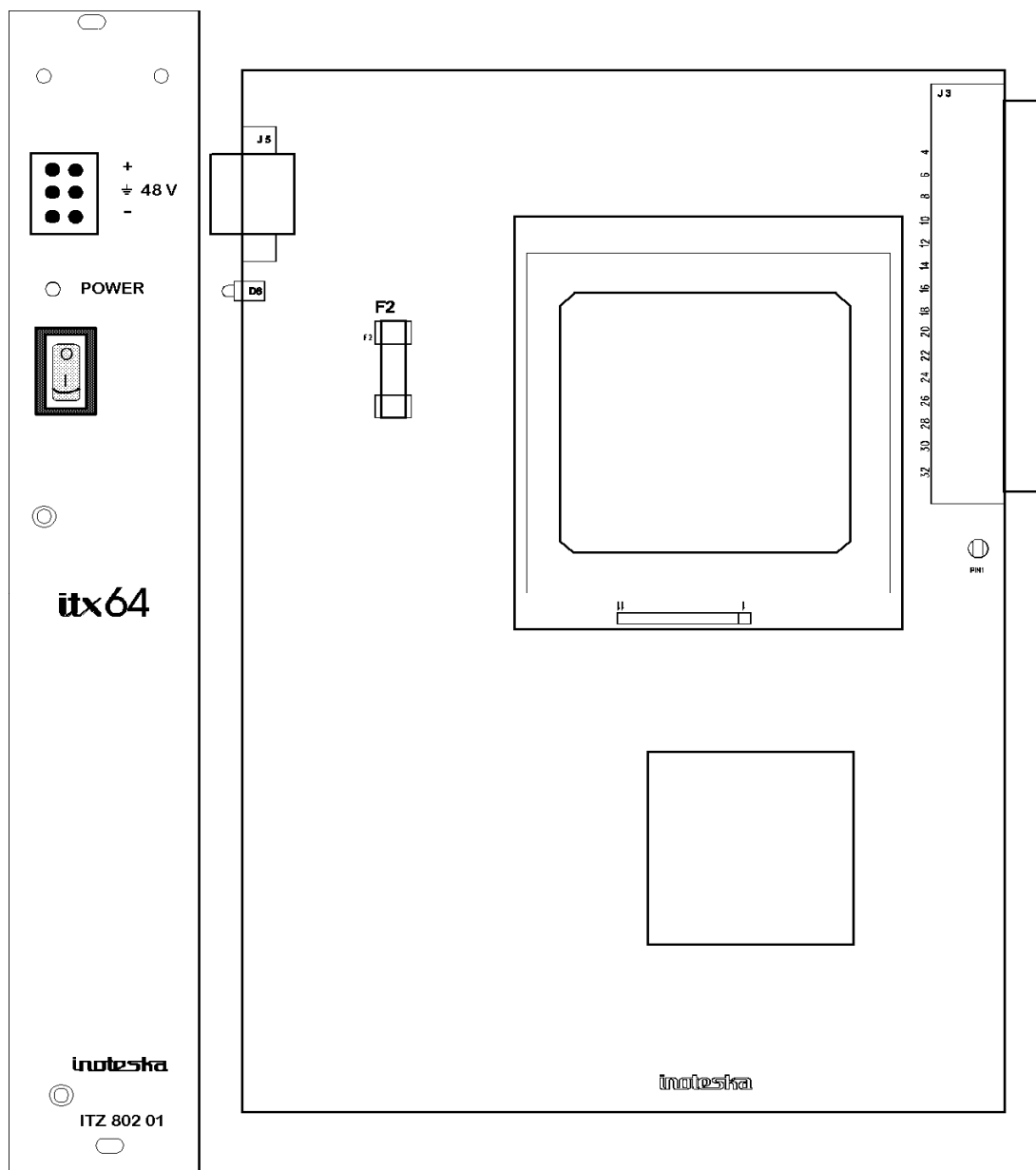
Transmitter: Transmitting marks have the max. level 140 V.

Receiver: Evaluates the marks on the line from the level 8V.

7. CONVERTER DC / DC

ITZ 802 01 contains two DC / DC converters:

1. DC / DC1 → - 48V / 5V, 5A
2. DC / DC2 → - 48V / +12V, 1.5 A
→ - 48V / - 12V, 1.5 A

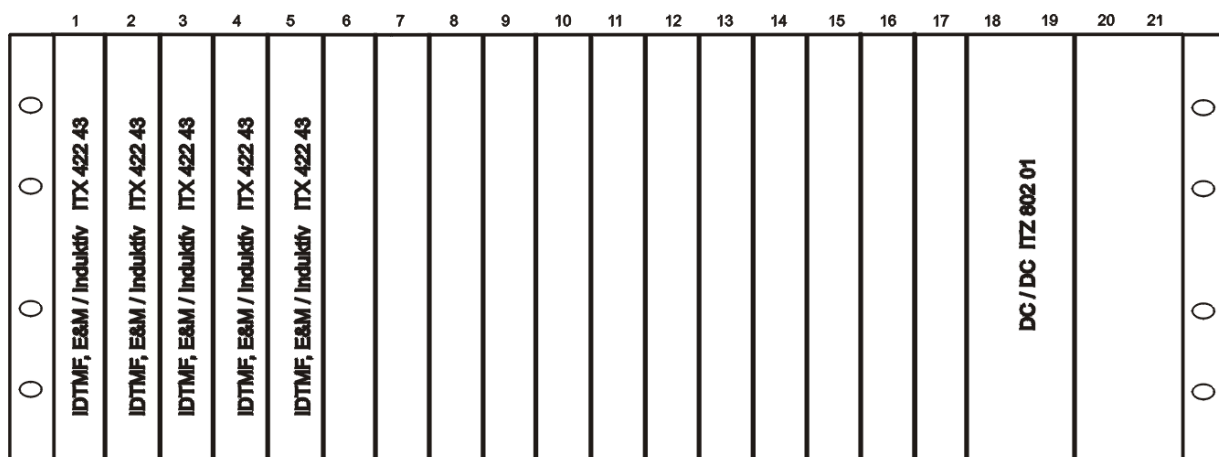


Fuse F2: T2.5A

8. RACK ASSEMBLY

ITP 222 01 consists of 19" rack 6 U high and patchboard.

The cards placement in the rack



Cards can be in optional positions from 1st to 17th.