INFRAPLEX 2005

Infrared Simultaneous Interpretation System
User Manual

DIGITON Ltd.

INFRAPLEX 2005

Infrared Simultaneous Interpretation System

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Contents

1. GENERAL INFORMATION

1.1. INTRODUCTION

INFRAPLEX 2005 infrared simultaneous interpretation system (Diagram 1) is the indispensable technical background equipment of multi-lingual meetings, conferences. The voice of the interpreters, is forwarded from the microphone of the interpreter unit through the central unit of the system to the relevant language channels with the aid of infrared radiation to the infrared receiver units to the participants.

The language or floor voice selected with the aid of the channel selector can be heard through the headphone that is connected to the receivers. Its volume can be set with the aid of the volume regulator of the unit. Thanks to the size of the receiver and infrared signal, the system allows not only free sitting order and mobility during the meeting, but it also provides protection against unauthorised eavesdropping efforts as well.

The simple cabling of the system and the mechanical design of the units are advantageous for both mobile arrangements and fixed installations. Configuring, programming the interpreter units is technically simple, the management and the display system of the interpreter units are ergonomic and fully compliant with the international standards.

1.2. GENERAL SYSTEM CHARACTERISTICS

The core equipment of the system is the central unit PEP 3001. The external analogue devices dealing with floor loudening (e.g. microphone, mixer, amplifiers, loudspeakers) and the units that take care of voice recording and playing back are connected to this central unit. The analogue devices are connected through standard connecting interfaces and levels, with traditional (point-to-point) cabling.

The internal wired units of the system - the AYP 3001, AYP 3002 infrared radiators and the HEP 303 interpreter units – are connected to the central unit through chain-like (series) concatenation. The infrared radiators communicate with central unit PEP 3001 through a coaxial wire, while the interpreter units communicate with the core equipment through 4x2 twisted twin-wires. The output connector of the last – serially concatenated - interpreter unit must be closed by a closing element in all the cases.

The infrared radiators have radiation characteristics of an opening angle of 60° with a cone-like start, the axis direction effective range of the radiators is either 90 m (in the case of unit AYP 3001) or 140 m (in the case of unit AYP 3002). In the general set-up the radiated space is 250-450 m^3 in the case of unit AYP 3001 and 450-700 m^3 in the case of unit AYP 3002. Naturally the sound reflecting and damping properties of the room may significantly influence these radiation characteristics.

The participants may select from 7 audio channels with the aid of infrared receivers AYP 307, which means 6 interpreted languages and the floor voice. The floor voice can be always heard on channel 0, while the numbering of the rest of the language channels corresponds to the language numbering configuration of the interpreter units.

An important accessory of the system is charging-storing case ETT 350, which ensures on one hand the storing and transportability of the 50 infrared receivers, and on the other hand it also takes care of the charging of the 9 V Ni-MH accumulators inserted into the receivers.
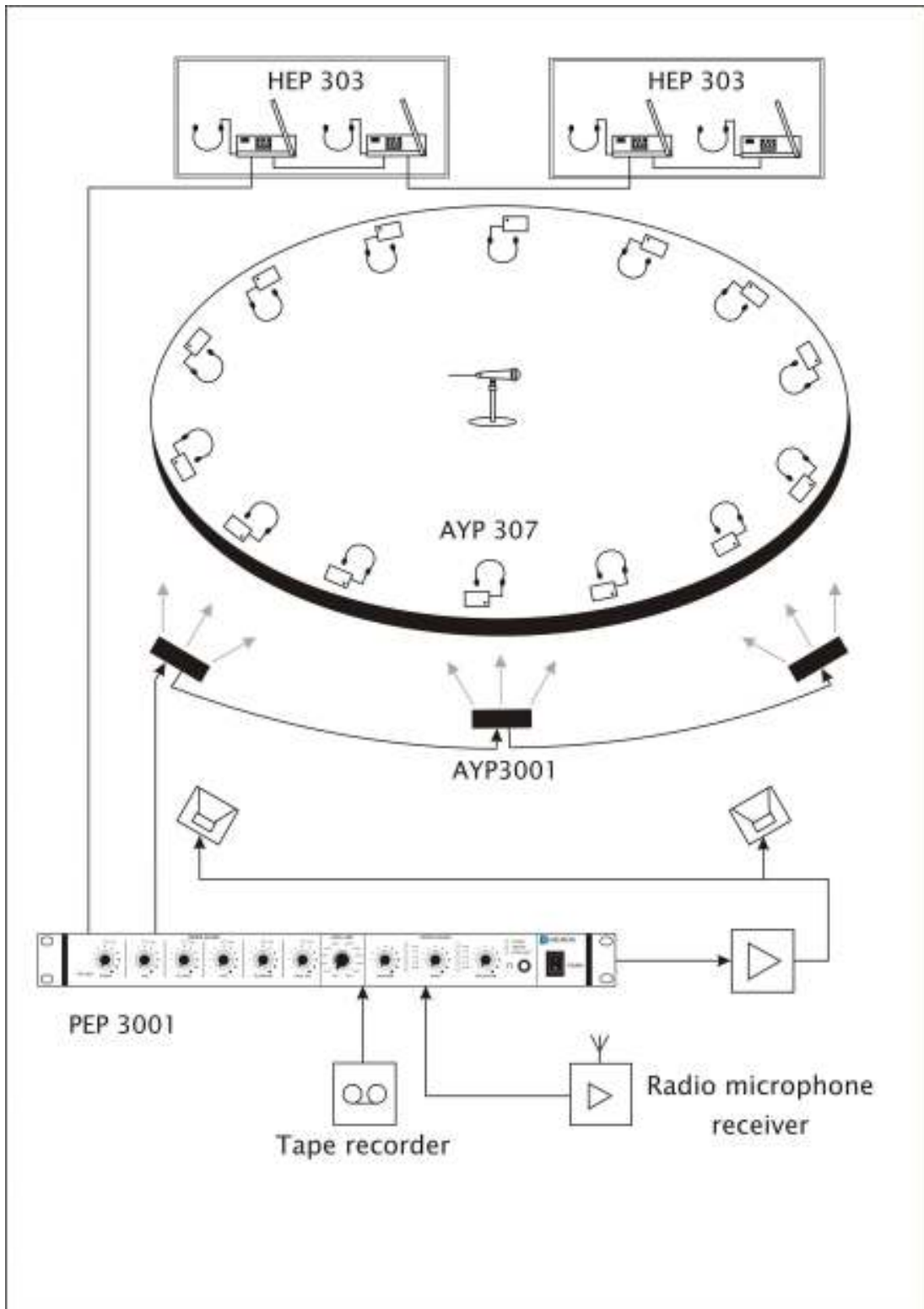
Diagram 1 – Overview drawing of the arrangement of the elements of interpreter system
INFRAPLEX 2005

1.3. INTERPRETATION TECHNICAL SYSTEMS AND APPLICATIONS

The interpretation system with its incorporated controlling automatic mechanisms, managing and displaying interfaces is suitable for implementing different types of interpretation logical arrangements. These may be the following:

1.3.1. *System with one relay interpreter*

The basis of the system is the relay interpreter (Interpreter 1), who is able to translate from all the possible speaker languages of the conference to a common selected "relay" language, from which the rest of the interpreters interpret for the participants (Diagram 2.a). From the aspect of the interpreters the units do not have to be managed and the output does not have to be changed, if there is no speaker speaking the relay language. In the case of a "relay" language speech, the output of the relay interpreter has to be switched to the relay language speaker. The arrangement is simple, the interventions are minimal, in spite of this, this system is rarely used, because it raises high demands as regards the relay interpreter.

1.3.2. *System with chains of interpreters*

The logical connection of the interpreters is established through the common languages (Diagram 2.b). To one common language 2 interpreters are connected. In the case of a speech kept in an other language than the required one, by switching the input channels or the "relay" the interpreter executes direct translation from one of the common languages. The system in spite of its seemingly simple arrangement demands from the interpreters certain kind of management skills and several interventions, and the final setting time strongly depends on the manual connecting reactions.

1.3.3. *System with one relay language*

This most frequently used logical structure is shown on Diagram 2.c. In this case the interpreters are selected in such a manner, that each has to know a common language that is known by the others as well. This is generally the mother tongue of the country that hosts the conference, since finding mother tongue speaking interpreters is usually the easiest. The common connecting language is the "relay" language or channel. It is sufficient if the interpreters switch the input languages in the configured system between the "floor voice" and the "relay" channel, and to set the output. The period needed for logically setting up the system is short, and the management tasks of the interpreters are simple.

1.3.4. *System with several relay languages*

It can be interpreted as the combination of the chain (2.b) and the relay (2.c) arrangements also, since several interpreters are connected to several relaying languages (See Diagram 2.d). In the case of this version it is needed to manually switch between the inputs and the "relay", and to manually switch the output. It needs increased attention both in the course of configuring and in the course of management.

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A1/B

A1 A2 An

Interpreter 1

A1/B

B

B RELAY language

B
Interpreter 2.

B
Interpreter 3.

B
Interpreter n.

B/C1

B/C2

B/Cn

C1

C2

Cn

Diagram 2.a.

A/B   Interpreter 1.

B/C   Interpreter 2.

C/D   Interpreter 3.

Diagram 2.b.

Interpreter 1.   A/C

B/C   Interpreter 2.

C RELAY language

Interpreter 3.   D/C

E/C   Interpreter 4.

Diagram 2.c.

Interpreter 1.   A/R1

B/R1   Interpreter 2.

RELAY1 language (R1)

Interpreter 3.   R1/R2

RELAY2 language (R2)

Interpreter 4.   R2/C
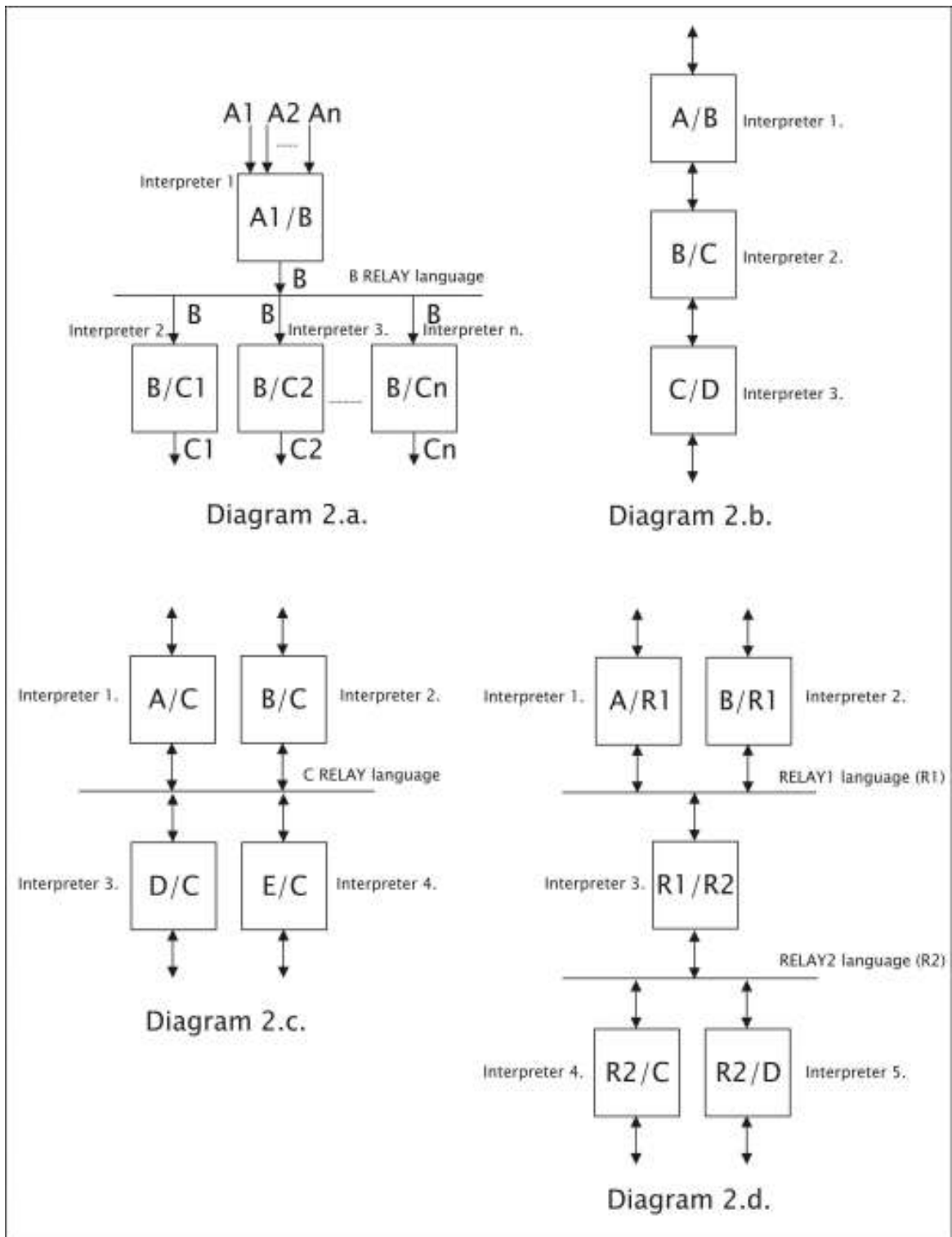
R2/D   Interpreter 5.

Diagram 2.d.

Diagram 2 – Technical systems for interpretation

2. SYSTEM ELEMENTS

2.1. CENTRAL UNIT PEP 3001

2.1.1. *General introduction*

Central unit PEP 3001 is the core element of interpretation system **INFRAPLEX 2005**, and it has to be included in all the configurations. It is the task of the unit to synchronise the system and to generate the floor voice. One PEP 3001 unit can manage maximum 400 participant and interpreter units, with the relevant system arrangement. Through the analogue inputs of the unit it is also possible to mix the signals of external audio sources to the floor voice, and from its outputs it is possible to forward the signal of the floor voice channel to an external amplifier or to a voice recording equipment. There are two coaxial outputs on the device, which are for driving the infrared radiators.

The central unit, in addition to the above, controls speech selection, voting and indicates the *"SLOWLY PLEASE"* request of the interpreters to the speakers The central unit manages also the "waiting list", including the units withouth free channels.

When a busy channel is freed, the first unit of the waiting list is included among the units that got the word.

However, it has to be noted, that the functions mentioned in the previous paragraph operate only if the delegate units of conference system **ICN 2005** are also connected to the system.

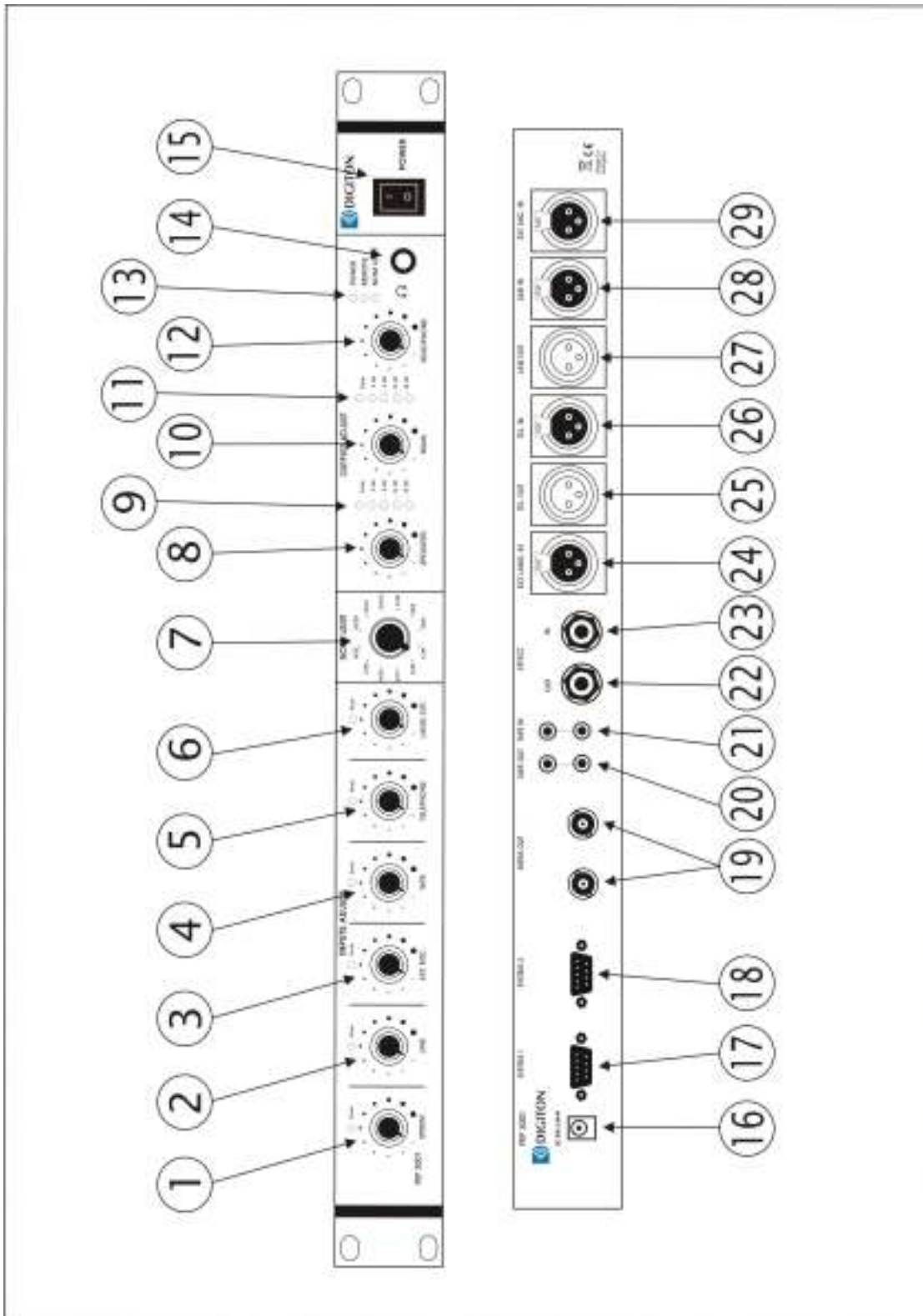Diagram 3 of the next page contains the overview drawing of unit PEP 3001.

Diagram 3 – Overview drawing of central unit PEP 3001

The following table contains the functions and the role of those managing and displaying tools, and the connectors of central unit PEP 3001 that are marked in Diagram 3.

Number	Name
1	„SYSTEM" – volume regulator of the system
2	„LINE" – volume regulator of the line level input
3	„EXT. MIC." – volume regulator of the external microphone input
4	„TAPE" – volume regulator of the tape recorder input
5	„TELEPHONE" – volume regulator of the phone input
6	„LANG. EXT." – volume regulator of the external language input
7	„NOM LIMIT" – switch for setting the number of microphones that may be switched on simultaneously
8	„SPEAKERS" – volume of the signal that goes to the loudspeakers of the units
9	Outgoing control meter of the signal that goes to the loudspeakers that are incorporated into the units
10	„MAIN" – volume regulator of the line level output
11	Outgoing control meter of the line level output
12	„HEADPHONE" – volume regulator of the headphone output
13	Status indicating LEDs
14	Headphone connector
15	„POWER" – supply voltage main switch (it has a function only when ETP 315 is used)
16	„DC 30V" – supply voltage connector for connecting unit ETP 315)
17	„SYSTEM 1" – system connector
18	„SYSTEM 2" – system connector
19	„INFRA OUT" – coaxial outputs to the infrared radiators
20	„TAPE OUT" – output for a voice recording device
21	„TAPE IN" – input for a voice recording device
22	„EFFECT OUT" – output for connecting an external device
23	„EFFECT IN" – input for connecting an external device
24	„EXT. LANG. IN" – connector of external language input
25	„TEL. OUT" – connector of phone output
26	„TEL. IN" – connector of phone input
27	„LINE OUT" – connector of line level output
28	„LINE IN" – connector of line level input
29	„EXT. MIC. IN" – input connector of external microphone

2.1.2. *Operation guide*

Starting up the operation of the central unit – after connecting power unit ETP 315 – is done with switch marked „*POWER*" (15), which is indicated by led marked „*POWER*" (13) of the device. After switching on, LEDs „*REMOTE*" and „*NOM LIMIT*" (13) flash alternatively on the front panel of the central unit for some seconds – during the period of synchronising –, then after completing synchronisation both go out.

During operation the flashing of LED marked „*REMOTE*" (13) indicates data transmission, while the flashing of LED marked „*NOM LIMIT*" (13) indicates a synchronisation error.

Unit PEP 3001 also contains a 6 channel analogue mixer, the block scheme of which is presented in Diagram 4 on the next page. The signal entered through the inputs of the mixer („*SYSTEM*", „*LINE*", *EXT. MIC.*", „*TAPE*", „*TELEPHONE*") can be mixed to the collecting bar (*"NORMAL BUS"*) of the floor voice with volume regulators (1-5) that belong to these inputs. The Floor Voice generated this way on one side is forwarded to channel 0 of the PPM modulator of the unit, and on the other side it appears on outputs marked „*LINE OUT*" (27) and „*TAPE OUT*" (20) of the device.

The volume regulator of mixer marked „*SYSTEM*" (1) regulates the aggregated signal of the switched on microphones of the conference system, which signal is subsequently forwarded to the *collecting bar* (*"NORMAL BUS"*) of the floor voice. The level of the floor voice signal (*"FLOOR"*) that is forwarded from here to the built-in loud-speakers of the conference system can be regulated with volume regulator marked „*SPEAKERS*" (8). The level of the signal forwarded to the loudspeakers – that may be controlled with control meter (9) located next to the regulator – has to be set in such a manner that the red colour LED should flash only for a short while even in the case of louder voices.

The level of the floor voice signal appearing on output marked „*LINE OUT*" (27) can be set to the value desired with the volume regulator marked „*MAIN*" (10) located on the front panel, and this can be also visually checked on the control meter (11) that is located next to the regulator. The level of the outgoing signal has to be set in such a manner, that the red colour LED of the control meter should flash for a very brief time only in the case of each loud voice, and it should not be lit continuously. This output can be used for controlling the floor loudspeakers of the given room.

With the aid of the headphone connected to the headphone socket (14) of the front panel, the floor voice ("FLOOR") can be checked acoustically as well. The volume of the signal forwarded to the headphone can be set to the desired value with the aid of the volume regulator "HEADPHONE" (12) that is located next to the connector.

The central unit is capable of receiving external phone lines as well. However, a special connecting cable is needed for this, prepared for this purpose. The signal that goes to the headphone of the handset of the phone device has to be introduced to input „*TEL. IN*" (26) of unit PEP 3001, the volume of which can be set with volume regulator marked „*TELEPHONE*" (5). And the signal of the microphone output marked „*TEL. OUT*" (25) of the central unit has to be introduced to the input of the handset of the receiving phone device.

It is also possible to mix the input signals of PEP 3001 to an „*EFFECT BUS*", and from the „*EFFECT BUS*" to forward the mixed signal to an external unit (e.g. feedback supressor) through connector „*EFFECT OUT*" (22). The signal given out to the external unit can be re-entered into the central unit with the aid of connector „*EFFECT IN*" (23).
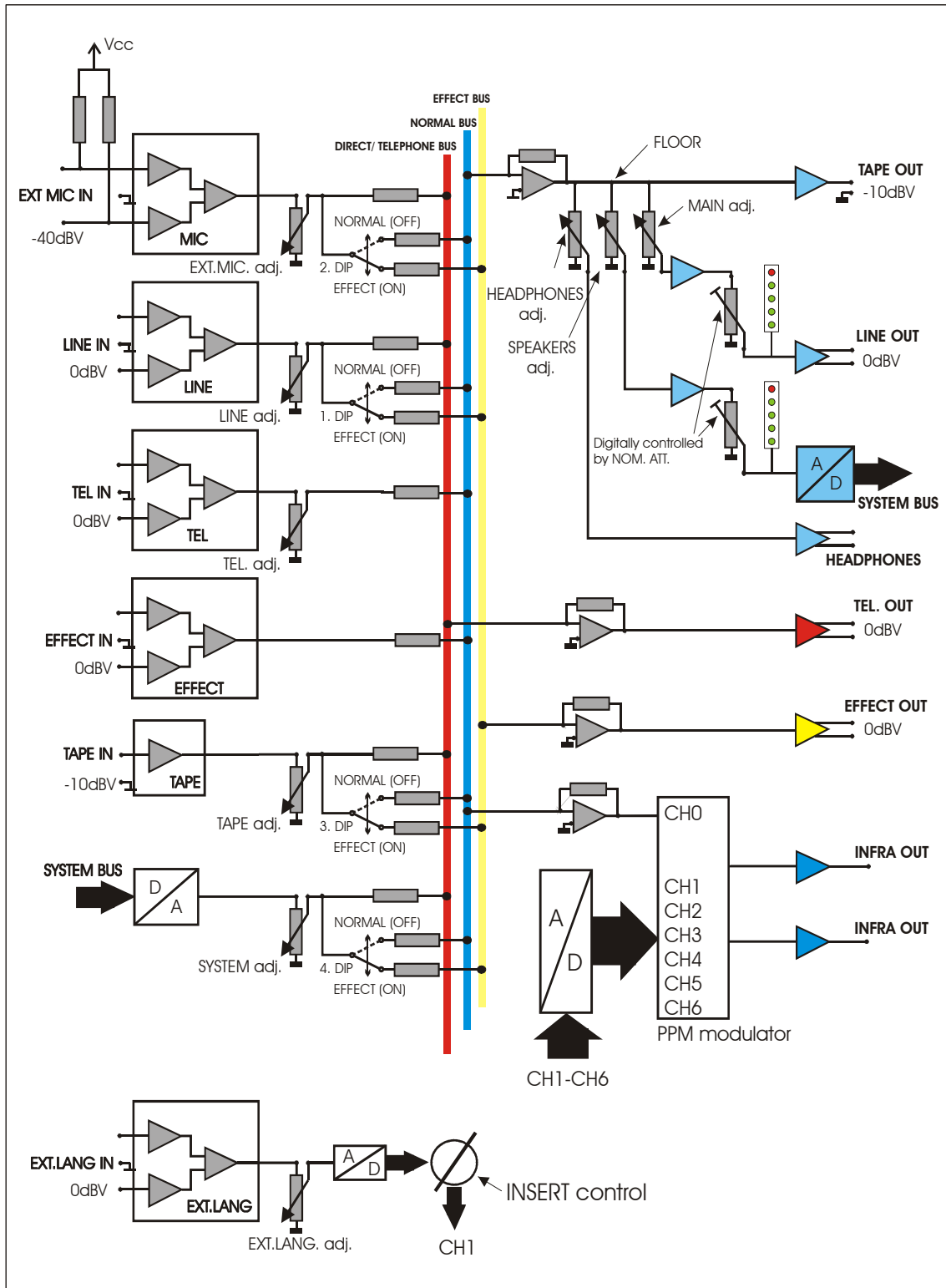
Diagram 4 – Block scheme of the analogue part of central unit PEP 3001

The volume level of the external language entered into input marked „*EXT. LANG. IN*" (24) can be set to the desired value with volume regulator marked „*LANG. EXT.*" (6). The signal connected here appears on language channel 1, if this function is switched on with DIP switch 7 located at the bottom of the device.

Information related to the other cables that are to be connected to unit PEP 3001 (system cable and coaxial cable) is included in Section 3.

2.1.3. *Power supply*

The power supply voltage of the system is ensured by the following power units:
- When using unit ETP 315, the power supply voltage gets into the system through central unit PEP 3001, the power supply voltage provided this way ensures the power supply of maximum 15 units through 2 different branches.
- In the case of unit ETP 370 the power supply voltage goes directly to the system cable, which ensures the power supply of maximum 70 units through maximum 3 branches.
- With using several ETP 370 units it is possible to establish a system that consists of maximum 400 units.

2.1.4. *System arrangement and control*

Only one PEP 3001 unit can be used in the system. The PEP 3001 central unit has two system cable connectors („*SYSTEM 1*" *and* „*SYSTEM 2*"), which allows the installation of the units on two branches. Both branches have to be continuous and neither can be made up of only the own elements of system **INFRAPLEX 2005** and their connecting cables.

The PEP 3001 central unit is capable of executing the following basic controlling tasks itself:
- The number of simultaneously switched microphones can be set („*NOM LIMIT*")
- 2 different automatic word giving methods can be selected
- Managing voting started by the Chairman
- Controlling the infra-modulator

2.1.5. *DIP switches*

The DIP switches located at the bottom of the device and their functions are included in the following table.

Number of the switch	Name	Switch setting	
		Off	On
1	LINE IN	for „*NORMAL BUS*"	for „*EFFECT BUS*"
2	EXT. MIC. IN	for „*NORMAL BUS*"	for „*EFFECT BUS*"
3	TAPE IN	for „*NORMAL BUS*"	for „*EFFECT BUS*"
4	SYSTEM BUS IN	for „*NORMAL BUS*"	for „*EFFECT BUS*"
5	SYSTEM BUS OUT	NOM damping off	NOM damping on
6	LINE OUT	NOM damping off	NOM damping on
7	EXT. LANG.	Switched off	Switched on
8	Word giving method	Automatic 1	Automatic 2

The names included in the above table have the following meanings:

„NORMAL BUS"/„EFFECT BUS"
It can be selected with DIP switches of serial numbers 1–4 in such a manner that the signals of inputs *„LINE IN"*, *„EXT. MIC. IN"*, *„TAPE IN"* and *„SYSTEM BUS IN"* should be forwarded to either the *„NORMAL BUS"* or the *„EFFECT BUS"*.

NOM damping:
If it is switched on, then it changes the volume of the loudspeakers of the delegate units depending on the number of active microphones, in order to avoid acoustic pop noise (as the number of active microphones increases it reduces the volume of the loudspeakers of the delegate unit). With switch 5 this attenuation is introduced on output marked *„SYSTEM BUS OUT"* that is at the signal that is forwarded to the built-in loudspeakers of the delegate units, while with switch 6 for example NOM attenuation can be activated on output *„LINE OUT"* (27) that is for amplifying the floor voice.

EXT. LANG:
When DIP switch 7 is switched on, the signal forwarded to input connection marked *„EXT. LANG. IN"* (24) is introduced to channel 1 of the system, while if it is switched off, then channel 1 can be used for the interpreted languages.

Word giving methods
With DIP switch 8 it is possible to select from the following two different ways of giving the word:
Automatic 1:
The microphone of the word asking participant is immediately and automatically switched on, if there is an available free channel within the system. Otherwise, if there is a lower priority speaker, then the word will be taken away from the that lower priority speaker, which has talked for the longest, and in the rest of the cases the word asking participant is introduced into the waiting list.
Automatic 2:
The microphone of the word asking participants is immediately and automatically switched on, if there is a free channel available within the system. Otherwise, if there is an identical or lower priority speaker, then the word is taken away from the one that has talked for the longest, and in the rest of the cases the word asking participant is introduced into the waiting list.

2.1.6.   *Technical data*

Height	:	44 mm (1 HE)
Width	:	482 mm (19")
Depth (with connectors)	:	108 mm
Mass	:	1450 g

Parameter	Minimum	Nominal	Maximum	Measurement unit
DC parameters				
Power voltage	16	48	55	V
Power uptake	3	-	4	W
Inputs parameters				
„*LINE IN*" input level	-	0	+6	dBu
„*LINE IN*" impedance	-	20	-	kOhm
„*TELEPHONE IN*" input level	-	0	+6	dBu
„*TELEPHONE IN*" impedance	-	20	-	kOhm
„*EFFECT IN*" input level	-	0	+6	dBu
„*EFFECT IN*" impedance	-	20	-	kOhm
„*TAPE IN*" input level	-	-10	-4	dBu
„*TAPE IN*" impedance	-	20	-	kOhm
„*EXT. LANG IN*" input level	-	0	+6	dBu
„*EXT. LANG IN*" impedance	-	20	-	kOhm
„*EXT. MIC. IN*" input level	-	-40	-34	dBu
„*EXT. MIC. IN*" impedance	-	20	-	kOhm
„*EXT. MIC. IN*" input noise level to the value desired with an 150 Ω drive (E.I.N.)	-	-124	-	dBu
Outputs parameters				
„*LINE OUT*" output level	-	0	+6	dBu
„*TELEPHONE OUT*"output level	-	0	+6	dBu
„*EFFECT OUT*" output level	-	0	+6	dBu
„*TAPE OUT*" output level	-	-10	-4	dBu
Load impedance for outputs	-	1	-	kOhm
Relation of signal-noise at the outputs (EXT. MIC. volume reduced)	88	90	-	dB
Frequency range (-3dB)	20	-	20000	Hz
Headset output parameters				
Power	-	90	200	mW
Load impedance	8	32	-	Ohm
Frequency range (-3dB)	45	-	22000	Hz
Signal-noise ratio	70	-	-	dB

2.1.7. <u>Connectors</u>

Power supply voltage

Type of connector: DC power connector

Number of contacts	Function
1	VCC
2	GND

Audio frequency inputs and outputs

LINE IN, TEL. IN, EXT. LANG. IN, EXT. MIC. IN
Type of connector: XLR socket

Number of contacts	Function
1	GND
2	Audio -
3	Audio +

LINE OUT, TEL. OUT
Type of connector: XLR plug

Number of contacts	Function
1	GND
2	Audio -
3	Audio +

EFFECT IN, EFFECT OUT
Type of connector: 6.3 mm stereo jack socket

Number of contacts	Function
1	GND
2	Audio -
3	Audio +

TAPE IN, TAPE OUT
Type of connector: RCA socket

Number of contacts	Function
1	GND
2	Audio

HEADPHONE - headset connector
Type of connector: 6.3 mm stereo jack socket

Number of contacts	Function
1	GND
2	Right
3	Left

System cable connector

SYSTEM 1, SYSTEM 2
Type of connector: D-SUB9 socket

Number of contacts	Function
1	GND
2	CAN+
3	VCC
4	CAN-
5	GND
6	Returning Digital data +
7	Returning Digital data -
8	Forwarded Digital Data +
9	Forwarded Digital Data -

Coaxial cable connector

INFRA OUT
Type of connector: BNC

Number of contacts	Function
1	PPM data signal
2	GND

2.2. CHANNEL DECODER PEP 3006

2.2.1. *General introduction*

The task of the channel decoder PEP 3006 is to decode all the 31 digital channels of the **INFRAPLEX 2005** interpreter system into the analog format. The unit asures this way the possibility of listening and recording simultaneously all translated languages. The languages appear in RCA connectors marked *"CH0-CH30"* on the backboard of the unit in analog format. Tape recorder and multichannel digital soundrecorder can be connected to these lines level sound frequency outputs.

Aditionaly there is an analog line output *"EXT LINE"* on wich the preset channel can be selected.

Using the connected headphones the channels of the system can be checked acoustically.

The power supply of PEP 3006 is assured via system cables, it is not demanded another external power supply source.

Important! For an adequate working the channel decoder has to be connected to the „*SYSTEM 2*" plug of PEP 3001 basic unit.

One of the possible configurations of the system is showed in diagram 11, section 3.

The channel decoder is built in a standard house (as the basic unit) to be inserted in rack case.

The diagram 5 on the next page shows the overview drawing of channel decoder PEP 3006.
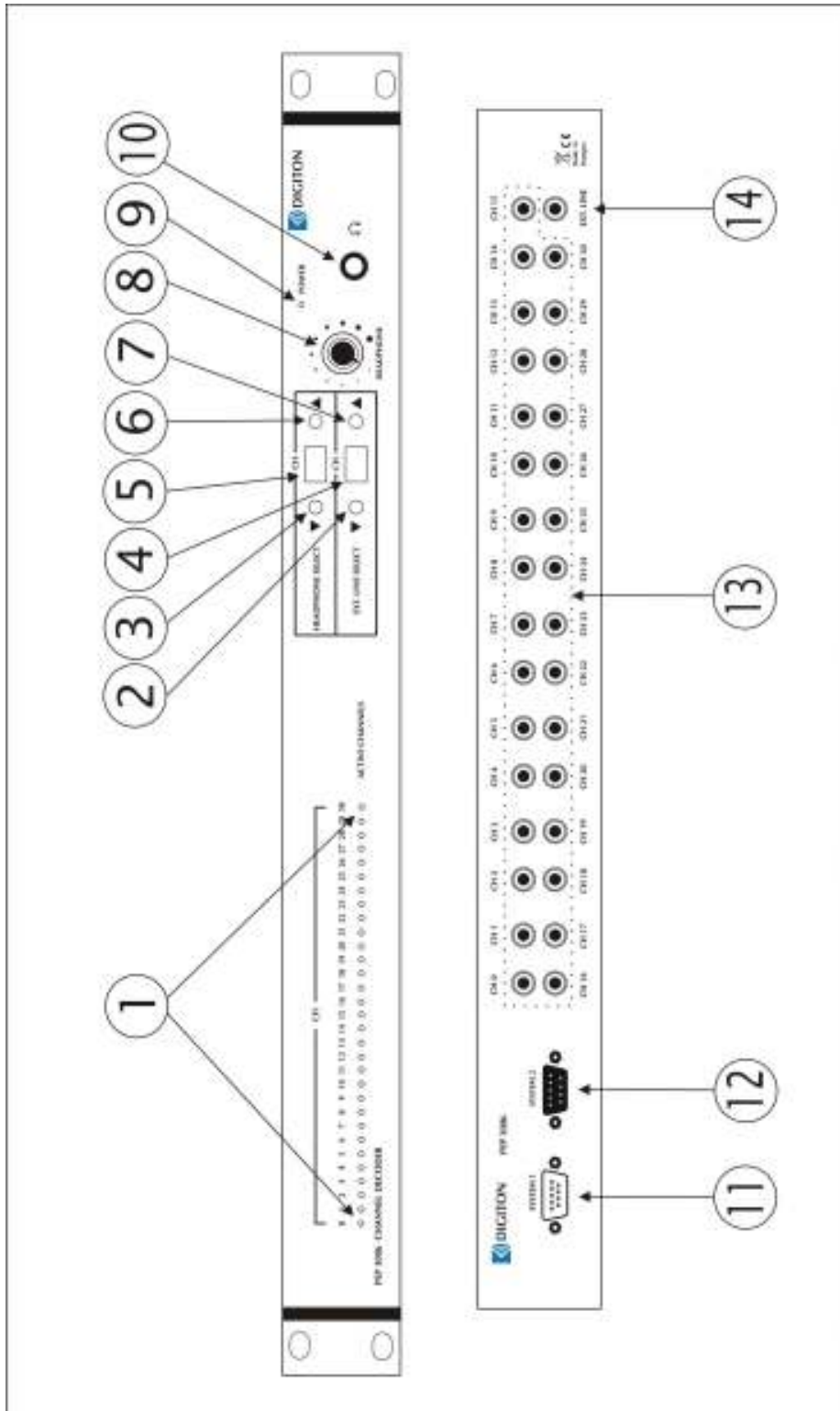
Diagram 5 - Overview diagram of channel decoder unit PEP 3006

The following table contains the name and function of those operator and display components and connectors of channel decoder PEP 3006, which are marked in Diagram 5.

Number	Name
1	„ACTIVE CHANNELS" –green LED indicating the active channel
2	„EXT. LINE SELECT" – external line channel selecting "down" button
3	„HEADPHONE SELECT" – headphones channel selecting "down"button
4	External line („EXT. LINE") two digits channel number display
5	Headphones („HEADPHONE") two digits channel number display
6	„HEADPHONE SELECT" – headphones channel selecting "up" button
7	„EXT. LINE SELECT" – external line channel selecting "up" button
8	„HEADPHONE" – volume regulator of the headphones output
9	„POWER" –green LED indicating switched on status
10	Headphones connector
11	„SYSTEM 1" – system connector (plug)
12	„SYSTEM 2" – system connector (socket)
13	„CH0 – CH30" – sound analog output
14	„EXT. LINE" – external line output

2.2.2. *Operation guide*

Similary to the other units of the system, the connection of the PEP 3006 is possible with dasy chain of the system cable via the „SYSTEM 1" and „SYSTEM 2" connectors. The only main difference is that the PEP 3006 has to be connected directly to „SYSTEM 2" output of PEP 3001.

After swiching on the system, a green „POWER" LED (9) on the front side of the unit shows the swich on status.

The green „ACTIVE CHANNELS" LED (1) on the left part of the front side of the unit shows the active channels used momently.The channels used by interpreter and delegate units are displayed at the same time.

The volume of the headphones connected to the headphone output (10) on the right part of the unit can be set to the adequate level with volume regulator of the output (8). By pressing up and down the headphones channel selector buttons (3) and (6) marked "HEADPHONES SELECT" is possible to listen the desired channel. The number of the selected channel is visible on the two digits display, between the two press-buttons (5).

The signal wich appears on the „EXT LINE" (14) output of the unit can be adjustable by pressing down respectively up the external channel selecting buttons (2) or (7) marked -„„„EXT LINE SELECT". The chosed number of channels appears on the twoo digits display (4) between the buttons.

In case of pressing the channel sellector buttons (3,4 and 6,7) longer the number of the choosed channel is changing continuously up or down depending on the pressed buttons.

2.2.3. _Technical data_

Height	:	44 mm (1 HE)
Width	:	482 mm (19")
Depth (with connectors)	:	108 mm
Weight	:	1150 g

Parameter	Minimum	Nominal	Maximum	Dimension
DC parameters				
Power voltage	16	48	55	V
Power uptake	2		3	W
Line level output parameters				
Output level	-	0	+6	dBu
Frequency range (-3dB)	20	-	20000	Hz
Signal noise ratio (S/N)	70	-	-	dB
Distortion (THD)	-	-	0,1%	dB
Headset output parameters				
Power	-	90	200	mW
Load impedancy	8	32	-	Ohm
Frequency range (-3dB)	45	-	20000	Hz
Signal noise ratio	70	-	-	dB

2.2.4. _Connectors_

Audio frequency outputs:

CH0 – CH30, EXT. LINE
Type of connector: RCA socket

Number of contacts	Function
1	GND
2	Audio

HEADPHONE – headset connector
Type of connector: 6,3 mm stereo jack socket

Number of contacts	Function
1	GND
2	Right channel
3	Left channel

System cable connectors:
SYSTEM 1, SYSTEM 2
Type of connectors: D-SUB9 plug, D-SUB9 socket
See the PEP 3001 connector description as the same number of contacts (section 2.1.7).

2.3. INTERPRETER UNIT HEP 303

2.3.1. *General introduction*

Interpreter unit HEP 303 is used in systems **INFRAPLEX 2005** and **ICN 2005**. It is for ensuring the technical conditions that are needed for interpreters working in the interpreter booth. Its task is on one side to forward the floor voice or the voice of an other interpreter to the headphone of all the interpreters or to the loudspeakers that are incorporated into the interpreter unit, and on the other side to transmit the text translated by the interpreters to the relevant system channel with the aid of the incorporated microphone.

According to the international prescriptions two interpreter units have to be installed into an interpreter booth in order to allow the continuous working of two interpreters. Naturally the system is capable of operation even if there is 1 interpreter unit used in each booth.

In system **ICN 2005** the interpreters can send a *„SLOWLY PLEASE"* signal to the speaker, whenever they are not able to follow the pace of the speech. In addition to this, the interpreters may also send a help asking *Call* to the conference controlling units PEP 3002 or PEP 3004, whenever they need technical assistance.

The detailed description of the interpreter unit, its operation and programming are covered in the following sections.

2.3.2. *Operation guide*

In systems **INFRAPLEX 2005** and **ICN 2005**, the interpreter units and the central units can be interconnected with the system cables via 9 pole D-SUB connectors (17) located at the back sides. The units are concatenated serially starting with the central unit (PEP 3001). However, at the last unit a closing element has to be used in all the cases.

Diagram 6 on the following page contains the overview drawing of the operating and displaying tools, and connectors of the interpreter unit.
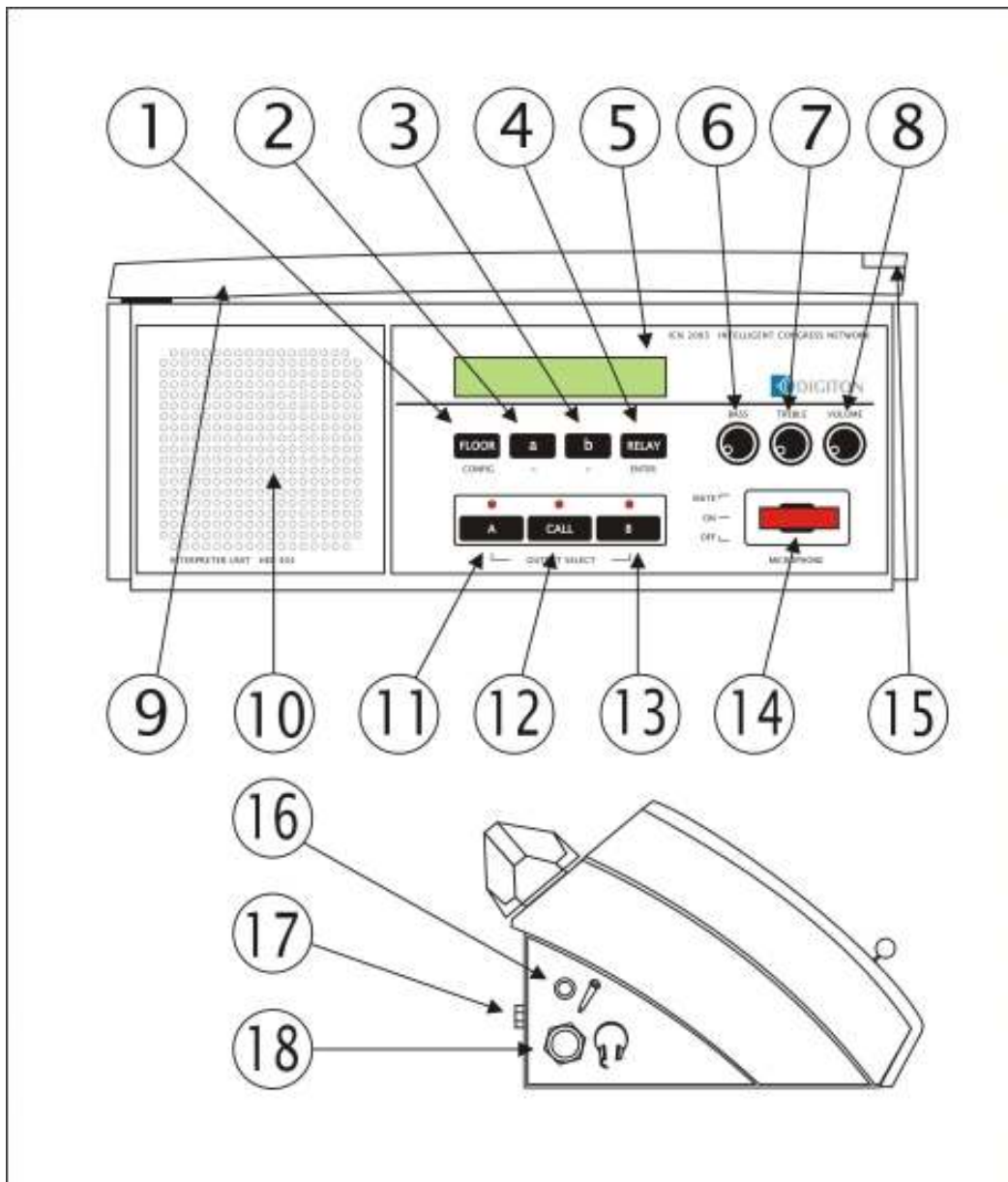
Diagram 6 – Overview drawing of interpreter unit HEP 303

The legends of the markings of the above drawing are included in the following table.

Number	Name
1	*„FLOOR"* – button for selecting the channel of the floor voice
2	*"a"* – button for selecting the channel of the freely configurable language that is forwarded to the headphone of the interpreter
3	*"b"* - button for selecting the channel of the freely configurable language that is forwarded to the headphone of the interpreter
4	*„RELAY"* – button for selecting the channel of the relay language
5	Backlit graphic LC display
6	*„BASS"* – bass regulator
7	*„TREBLE"* – treble regulator
8	*„VOLUME"* – volume regulator
9	Microphone arm
10	Built-in loudspeaker
11	*"A"* – output selecting button
12	*„CALL"* – help calling button (pressing for a longer period) *„SLOWLY PLEASE"* - Slower! button (when pressed for a short time)
13	*"B"* – output selecting button
14	*„MICROPHONE"* – three position microphone switch
15	LED at the end of the microphone arm: Green colour – microphone switched on (switch in position *„ON"*) Red colour – momentary muting (switch in position *„MUTE"*) Not lit – microphone switched off (switch in position *„OFF"*)
16	Connector of external microphone input (3.5 mm jack socket)
17	*„SYSTEM"* - System cable connector (9 pole D-SUB plug-socket)
18	Connector of headphone output (6.3 mm jack socket)

The 4 press buttons *„INPUT SELECT"* (1-4) located next to each other in the centre of the interpreter unit are for selecting the signal going to the headphone of the interpreter – it can be either the floor voice or the voice of an other interpreter. By pressing button *„FLOOR"* (1) it is possible to select the floor voice, and by pressing buttons marked „a" (2) and „b" (3) it is possible to select the signal of a channel that is programmed in advance, while by pressing button *„RELAY"* (4) it is possible to select the signal of the relay channel for the headphone that is connected to headphone connector (18) of the interpreter unit. The volume of the signal appearing in the headphone can be set to the desired level with the aid of volume regulator (8) that is located on the front panel, while the voice tone can be set with the bass (6) and treble (7) tone regulators also located here.

If the headphone of the interpreter is not connected to the device, then the channel to be interpreted will be broadcast through the built-in loudspeaker (10) of the interpreter unit, and its volume and tone can be set with the aid of the turn-buttons mentioned above.

It has to be noted, that the above mentioned press buttons „INPUT SELECT" (1-4) in the operation mode of programming the interpreter units do have other functions, the detailed description of which can be found in section 2.3.4.-2.3.5.

The interpretation of the interpreter is forwarded through the microphone located in the microphone arm (9) and by pressing button "A" (11) or "B" (13) of the Output Selector („OUTPUT SELECT") to a channel of the system that is determined in advance. An external electret microphone may be also connected to the device through the jack connector (16) located on the side of the unit, in which case the own microphone of the interpreter unit is disconnected.

The headphone is an accessory of interpreter unit HEP 303, for this reason it is not necessary to order it separately. At the same time the interpreter units can be ordered - if needed – with headsets as well (unit type HEP 303HS). Connecting the headset is done with the aid of the external microphone (16) and headphone connectors (18) located on the side of the unit.

Information assisting the work of the interpreters is displayed on the graphic, backlit LC display (15) located on the front panel of the interpreter unit, its default layout is shown in the following diagram:

```
>>> ENG <<<  OUT        HUN


>FLOOR<      GER       FRA        HUN
```
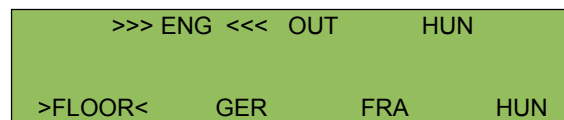
The top line provides information about the statuses of the outputs. On the two sides of the OUT label located in the middle, the abbreviation of the languages that are allocated to output channels marked "A" and "B" set in advance can be seen in the case of the example ENG and HUN, languages are set). In the switched on status of the microphone ">>> .... <<<" appears at the currently active output channel. Simultaneously, the LED located above the switched on output select button is also lit. Switching the outputs can be done by pressing the output selecting press buttons "A" (11) and "B" (13).

The following abbreviations may appear on the display: FLO = Floor (floor voice), EXT = External language (the signal given to the input „EXT. LANG. IN" of unit PEP 3001) or the abbreviations of the languages spoken at the conference (e.g. HUN = Hungarian, ENG = English, FRA = French, etc.). When programming the interpreter units a language has to be allocated to each used channel number.

In the bottom line of the display the abbreviations of the languages that may be selected by the interpreter for its own headphone can be seen. Selection can be done with buttons marked "INPUT SELECT" (1) – (4). The name of the currently active channel is highlighted as > ..... <.

In the bottom part of the right side of the front panel of the interpreter unit there is a 3 position microphone switch (14) marked "MICROPHONE". In its bottom position marked *„OFF"* the microphone is switched off. In this case the LEDs located at the end of the microphone arm (9) and above the output selecting buttons (11 and 13) are not lit. In its middle position marked *„ON"* the microphone is switched on and LED (15) located at the end of the microphone arm (9) is lit with green light, and at the same time the LED located above the active output selecting switch is also lit. In its top position *„MUTE"* – which cannot be set permanently - the microphone remains active, however, its signal is not connected to the output channel. This function can be used for momentarily muting the channel (cough button). In this position the LED located in the microphone arm is lit with a red light.

The languages or their abbreviations that are preprogrammed into the device are included in the following table:

Language		Language	
in English	**abbreviation**	**in English**	**abbreviation**
ALBANIAN	„ALB"	ITALIAN	„ITA"
ARABIC	„ARA"	JAPANESE	„JPN"
ARAMAIC	„ARC"	KURDISH	„KUR"
ARMENIAN	„ARM"	LATVIAN	„LAV"
AZERBAIJANI	„AZE"	LITHUANIAN	„LIT"
BULGARIAN	„BUL"	MACEDONIAN	„MAC"
CHINESE	„CHI"	MALTESE	„MLT"
CROATIAN	„CRO"	NORWEGIAN	„NOR"
CZECH	„CES"	POLISH	„POL"
DANISH	„DAN"	PORTUGUESE	„POR"
DUTCH	„DUT"	ROMANIAN	„RUM"
ENGLISH	„ENG"	RUSSIAN	„RUS"
ESTONIAN	„EST"	SERBIAN	„SER"
FINNISH	„FIN"	SLOVAK	„SLO"
FRENCH	„FRA"	SLOVENIAN	„SLV"
GEORGIAN	„GEO"	SPANISH	„SPA"
GERMAN	„GER"	SUMERIAN	„SUX"
GREEK	„GRE"	SWEDISH	„SWE"
HEBREW	„HEB"	TIBETAN	„TIB"
HUNGARIAN	„HUN"	TURKISH	„TUR"
ICELANDIC	„ISL"	UKRAINIAN	„UKR"
IRISH	„GAI"		"

2.3.3. *Preparatory steps for programming the interpreter unit*

The interpretation system that matches the best the character and the site of the conference has to be selected before starting actual programming. The most widely used solution is interpretation with one special selected language, where the interpreters interpreting do have a common language, which is called the "relay" language (see Point 1.3.3).

First the 31 audio channels available in the system have to be allocated (from number „0" to number „30"). Channel „0" is always reserved for the floor voice. The channels may be allocated one by one to the languages interpreted starting with number „1", since the speaker units of the conference system occupy the channels downwards from channel „30". The output of each active speaker unit is connected to a separate audio channel, which means that the number of channels available for interpretation depends on the maximum number of microphones that may be switched on simultaneously („*NOM LIMIT*"). In other words, the distribution of the channels between interpretation and the conference system is theoretically arbitrary, however, their total number can be maximum 30, since one channel is always reserved for the floor voice (,,0").

System **INFRAPLEX 2005** in its default setup does not contain delegate units. Therefore, in the default case all the 30 channels are available for transmitting the languages interpreted.

Important! It is possible to select Channel „1" for the purpose of transmitting interpreted languages only if DIP switch 7 located on the bottom of central unit PEP 3001 – for switching the external language input („*EXT. LANG.*") - is in its switched-off position. If this connector is in its switched-on condition, then the signal introduced to connector marked „*EXT. LANG. IN*" is forwarded to channel „1" of the interpretation system.
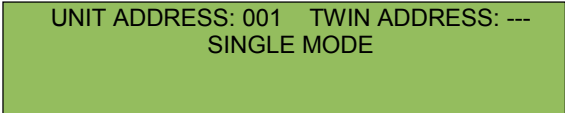
After allocating the languages used at the event to certain channels, it has to be decided whether in the interpreter booth one (single mode) or two (twin mode) interpreters will work simultaneously, which basically determines the way the interpreter units are to be programmed.

After determining the above and checking the cabling of the system, the power unit (ETP 315) has to be connected to the network. Subsequently the system has to be switched on with the power switch of central unit PEP 3001. After switching on, text „*System starting…*" appears on the display, after a couple of seconds – after the synchronisation of the system – the interpreter unit is reset to its basic position (see Section 2.3.2).

2.3.4. *Programming the interpreter unit when interpreters work alone (single mode)*
Step 1

When the microphone switch is in its switched off position *(,,OFF")*, then with pressing buttons „*FLOOR+CALL+RELAY*" (1+4+12) simultaneously, it is possible to enter the service menu of the interpretation unit. The following text appears on its display:

```
UNIT ADDRESS: 001    TWIN ADDRESS: ---
              SINGLE MODE
```

In this operation mode it is possible to set the address of the given unit („*UNIT ADDRESS*"). This address is used by the units when they communicate with each other. Setting the address is done with the aid of buttons „*FLOOR*" (1) and „*a*" (2). When pressing button „*FLOOR*" (1) once, the address to be given to the given unit is reduced with one, and when pressing button „*a*" (2) it is increased with one. The desired address can be set by keeping these buttons pressed down continuously, since till the releasing of the buttons the address either increases or decreases continuously, depending on which of the buttons is pressed down.

Important! The interpretation units always have to have consequent addresses starting with 1, and their addresses have to be different from each other, since otherwise the system will not operate properly.

It is possible to step to the next point of the service menu with button marked „*B”* (13).

Step 2

It is possible to enter the next point of the service menu by pressing button marked „*B”* (13). In this case the following text appears on the display of the interpreter unit:

> OUT A NUM.: 001   LANG.MNEMONIC: ENG

It is possible to set here the number of the channel to which output marked „*A”* („*OUT A NUM”)* of the given interpreter unit should be forwarded to, with setting the language that is to be forwarded though this channel.

Setting the channel numbers belonging to output „*A”* („*OUT A NUM”)* is done with the aid of buttons „*FLOOR” (1) and „a”* (2), in a manner that is completely identical with the previously described one. The abbreviated name of the language („*LANG. MNEMONIC”)* that belongs to the given output „*A”* can be given with the aid of buttons „*b”* (3) and „*RELAY”* (4).

The list of languages of the interpreter unit that are programmed in advance and which may be set is included in the Table that is located at the end of Section 2.3.2.
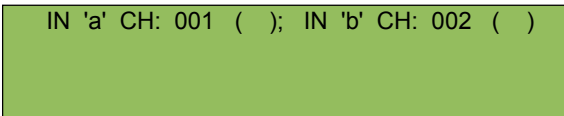
Step 3

By pressing button marked „*B”* (13) again it is possible to move to the next item of the service menu, where it is possible to set the number of the channel to which output marked „*B”* („*OUT B NUM”)* is to be forwarded, with setting the language that is to be forwarded through this channel. The process of setting is completely identical with the version that was described in previous step 2, however, output „*B”* has to be the same as the relay language ("RELAY"), the common language of the interpreters. Thus this means that in the case of each interpreter unit output marked „*B”* has to be programmed to the same channel and to the same language if there is one relay language.

It is possible to enter the next item of the service menu with button marked „*B”*(13), while it is possible to step backwards with button marked „*A”* (11).

Step 4

It is possible to move to the next point of the service menu by pressing button marked „*B”* (13) again, where the following text appears in the display of the interpreter unit:

> IN 'a' CH: 001 (   ); IN 'b' CH: 002 (   )

At this item we may allocate one channel each to the input selecting buttons marked „*a*" (2) and „*b*" (3), in a manner that is completely identical with the above described procedure. However, here only the channel numbers have to be given, since the language allocated to the given channel is automatically entered by the system.

If needed it is possible to step backwards with button marked „*A*" (11).

At this point the programming of the interpreter unit is completed, it is possible to exit the service menu with pressing button marked „*CALL*" (12) or by setting the microphone switch (14) into its middle position.
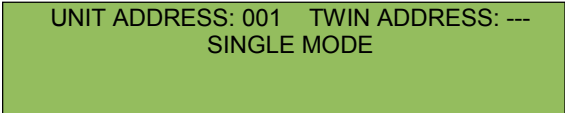
Otherwise, the service menu can be exited from under any of the menu items. When exiting the unit saves the current setting and on the occasion of the next start up the system will start its operation with these saved settings.

Important! In case the microphone is switched on (when the switch is set to its middle position – „*ON*") it is not possible to enter the service menu.

2.3.5. *Programming the interpreter unit in the case of interpreters working in pairs (twin mode)*

Step 1

When the microphone switch is in its off position *(„OFF"),* by pressing buttons marked „*FLOOR+CALL+RELAY*" (1+4+12) simultaneously it is possible to enter the service menu of the interpreter unit, on the display of which at this point the following text appears:

```
UNIT ADDRESS: 001    TWIN ADDRESS: ---
            SINGLE MODE
```

It is possible to set in this operation mode the own address of the given unit (*„UNIT ADDRESS"*), which address is used by the units when they communicate with each other. Setting the address is done with the aid of buttons „*FLOOR*" (1) and „*a*" (2). Pressing button „*FLOOR*" (1) once decreases the address to be given to the system with one, while pressing button „*a*" (2) increases it with one. The desired address can be set also by pressing these buttons continuously, since the address either increases or decreases continuously until the moment the given button is released, depending on which of the buttons is pressed.

After setting it is possible to exit the service menu either by press button „*CALL*" (4) or by setting the microphone switch to its middle position. The same operation has to be repeated with all the other of the interpreter units.

Important! The interpreter units have to always have consequently numbered addresses, starting with one, and each has to have a different address, because otherwise the system will not operate properly.
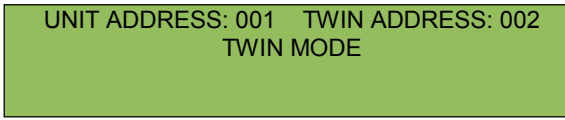
The interpreter units operating as twins have to be programmed always with subsequent numbering, in such a way that the odd number has to be the smaller one in a given pair belonging together (e.g.: 1-2, 3-4, 5-6, etc.).

If in the interpreter system that operates with twin interpreters there is such a language pair as well, which is interpreted by a single interpreter, then its own address should be the next odd number, and the subsequent even number has to be left out.

Step 2

If the setting described under step one has been executed on all the units, then programming is to be continued on the first interpreter unit by entering the service menu again by pressing buttons marked *„FLOOR+CALL+RELAY"* (1+4+12) simultaneously. Naturally in order to enter the service menu the microphone switch has to be in switched off status in this case as well.

On the display of the interpreter unit again the diagram introduced in step 1 of this section can be seen, however, at the own address (*„UNIT ADDRESS"*) the value that has been previously set and saved is displayed. Subsequently button *„b"* (3) or *„RELAY" (4)* should be pressed, when next to the *„TWIN ADDRESS"* the twin address differing from the own address with one is displayed and at the same time in the second line of the display label *„TWIN MODE"* appears.

```
UNIT ADDRESS: 001    TWIN ADDRESS: 002
                 TWIN MODE
```

In the case of those interpreter units, where the own address is odd, the twin address will be one higher. However, in the case of an even own address the twin address will be one less, which excludes the possibility of accidental "chain pairing", which would case failing operation.

Step 3

In the case of interpreter units that have odd own addresses, the contents of step 2-4 of Section 2.3.4 should be followed.

In the case of interpreter units that have even own addresses it is already not possible to enter the next menu item, in their case it is possible to exit the service menu by pressing press button *„CALL"* (4). In this case the additional settings are automatically uploaded from the twin unit.

2.3.6. *Using the interpreter unit*

After switching on the system the text *„System starting…"* appears on the display for a couple of seconds, then - after synchronisation - the main menu appears.

After switching the interpreter unit on, output marked *„A"* will be automatically activated, which is indicated by the red LED located above the output selection button. However, the output of the interpreter unit is forwarded to this channel only if the microphone switching button is set to its middle position (*„ON"*), in which case the green LED located at the end of the microphone arm is also lit.

If the switches of both of the twin units are in the middle position (*„ON"* – microphone switched on), then from the two units first the microphone of that unit will be active, which has a smaller address (*„UNIT ADDRESS"*). On the front panel of this unit the LED located above the selected and switched on output selection button (*„A"* or *„B"*) and also the green LED located in the microphone arm are lit simultaneously. On its belonging twin unit the LED located above the same output selection button flashes, indicating that in spite of the fact that the microphone is switched on, right now it is not broadcasting, it is not active, but the active one is its pair. Naturally, in this case the green LED of the microphone arm is not lit either.

Transferring the word between the interpreters is done by the non active interpreter by pressing one of the output selecting buttons (marked „A" or „B"), practically the one above which the LED flashes. By this the interpreter takes over the word and replaces the interpreter, who talked till then, which is also indicated by the continuous lighting of the LED located above the output selection button and also by the lighting of the green LED located in the microphone arm. At the replaced interpreter the green LED of the microphone arm is going out, and the LED located above the output selection button starts to flash. Taking the word back by the replaced interpreter can be initiated by him/her by pressing output selection button that is on his/her own unit.

Transferring the word between two interpreter units can be also done by setting the microphone switch of the active unit to position switched off („OFF"), in this case the working interpreter gives the word himself to the other interpreter. In this case taking the word back can be done by switching on the switched off microphone again („ON" position).

Selecting the output is completely parallel between the twins, which means that output changing is also indicated by the LED that is located above the output selection switches of the twin unit („A" and „B").

Important! The system allows the switching on of only the microphone of one of the twin units simultaneously at all times.

The interpreters may select a signal from among 4 different input signals („FLOOR", „a", „b" and „RELAY") with the aid of output selecting switches „INPUT SELECT" (1 – 4). Selecting the input – that is selecting the signal that is transmitted to the headphone of the interpreters – is done separately, that is, it is not programmed parallel.

If the interpreter understands the language of the speaker, then he selects the floor voice marked „FLOOR" for his own headphone and interprets to output „A" or „B". If he/she selected output „B", this means that such a speaker speaks on the floor voice, who speaks the language selected for output „A". However, in this case no one interprets (talks) for the channel that belongs to output „A", for this reason the unit relays the floor voice automatically to output „A", in order to prevent the listeners of this language to have to switch to the floor voice with the channel selector. When selecting output „B" the unit switches the input selector ("INPUT SELECT") automatically to the floor voice („FLOOR").

If the interpreter does not understand the language of the speaker, then the common relay language of the interpretation has to appear on channel „RELAY". Therefore by pressing input selection button „RELAY" (4) the interpreter selects for his headphone the relay language, simultaneously with which the output of the unit is automatically switched to channel „A", since in such cases he cannot talk to output „B" (RELAY), since he is listening to that.

In the case of conference system **ICN 2005**, the interpreter can send a „SLOWLY PLEASE" indication to the speaker, if the speaker speaks to fast for him/her. This indication can be initiated by pressing button marked „CALL" (12) of the interpreter unit once, for a moment. In this case the green LED built-into the microphone arm of the delegate unit of the speaker starts to flash, together with the red LED located above press button „CALL" of the interpreter unit. At the same time on the display of the interpreter unit the text „SENDING SLOWLY PLEASE" appears. The signal automatically is terminated after about 5 seconds, but naturally the interpreter may restart it by repeatedly pressing button marked „CALL" (12). It is possible to stop the signal before its due termination time with button marked „CALL" (12).

In a system **ICN 2005** that is completed with conference controllers PEP 3002 or PEP 3004 the interpreters may also ask help (e.g.: technical problems, a glass of water, etc.). For this purpose button marked „*CALL*" (12) of the device has to be pressed down for about 3 seconds continuously. The relevant signal appears on the display of unit PEP 3002 or on the monitor of unit PEP 3004. At the same time on the display of the interpreter desk the text „*CALLING TECHNICAN*" also appears and the red LED located above button „*CALL*" is also continuously lit. For withdrawing the signal, button „*CALL*" has to be again pressed down for 3 seconds continuously.

2.3.7. *Technical data*

Height	:	86 mm
Width	:	310 mm
Depth (with connectors)	:	125 mm
Mass	:	1000 g

Parameter	Minimum	Nominal	Maximum	Measurement Unit
DC parameters				
Power voltage	10	48	55	V
Power uptake	-	1,5	3	W
Microphone parameters				
Frequency range (-3dB)	100	-	16000	Hz
Signal-noise relation (with short-circuited input, measuring the digital signal)	60	-	-	dB
Loudspeaker output parameters				
Power	-	0,3	1,2	W
Frequency range (-3dB)	45	-	22000	Hz
Signal-noise relation	70	-	-	dB
Headphone output parameters				
Power	-	180	250	mW
Loading impedance	8	32	-	Ohm
Frequency range (-3dB)	45	-	22000	Hz
Signal-noise relation	70	-	-	dB

2.3.8. *Connectors*

Headphone connector

Connector type: 6.3 mm stereo jack socket

Number of contacts	Function
1	GND
2	Right
3	Left

External microphone connector
Connector type: 3.5 mm stereo jack socket

Number of contacts	Function
1	GND
2	Right
3	Left

SYSTEM – system cable connector
Connector type: D-SUB9 socket, D-SUB9 plug

Number of contacts	Function
1	GND
2	CAN+
3	VCC
4	CAN-
5	GND
6	Returning Digital Data +
7	Returning Digital Data -
8	Forwarded Digital Data +
9	Forwarded Digital Data -

2.4. INFRARED RADIATORS AYP 3001 AND AYP 3002

The infrared radiators are connected to the output marked *„INFRA OUT"* - having 2 BNC connectors - of the central unit PEP 3001 with 50 Ohm coaxial cabling and serial concatenation. The PPM system modulated time-multiplex outputs of the central unit can drive an arbitrary number of radiators, however, the inputs and outputs of the radiators (*„IN"* and *„OUT"*) cannot be exchanged. Connector marked *„IN"* is an input for receiving the signals, while connector marked *„OUT"* is for driving the next radiator concatenated serially. The difference between units AYP 3001 and AYP 3002 is not only in their mechanical dimensions, but there is a close to two and a half times performance or radiation range difference between them as well.

The infrared radiators need mains power supply (230V, 50Hz). For this reason it is necessary to build out a mains connector in the vicinity of each radiator.

Important! The infrared radiators do not have a mains switch. Therefore in the case of fixed installation it is necessary to build out a power network, protected with a small circuit-breaker that may be switched off from the technical room.

Accessories of the infrared radiators include the holding frame needed for mounting it to the side wall or the ceiling, with the aid of which it is possible to install the radiators in an axis oriented direction.

The layout of the indicating and connecting devices of the infrared radiators is shown on Diagram 7 of the following page.
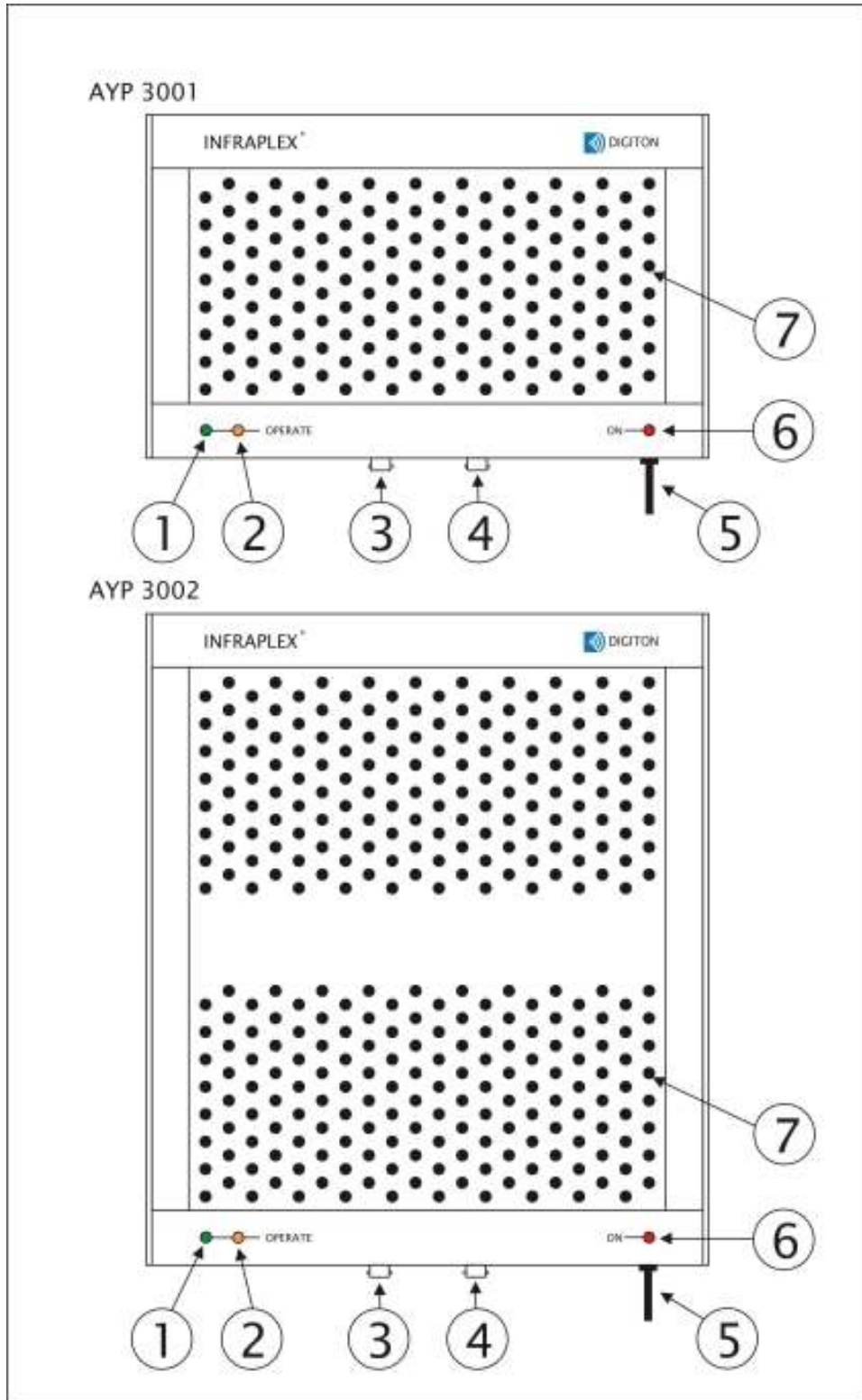
Diagram 7 – Overview drawing of infrared radiators AYP 3001 and AYP 3002

The following table contains the legend of Diagram 7.

Number	Name – function
1	„OPERATE" green LED - indicates the existence of the controlling signal
2	„OPERATE" yellow LED - indicates the operation of the main power unit
3	„IN" - input coaxial connector (BNC)
4	„OUT" - output coaxial connector (BNC)
5	Network connecting cable
6	„ON" red LED - indicates the operation of the electronics
7	Infrared light radiating diodes

Technical data:

Name	AYP 3001	AYP 3002
„IN" - input -	0-5 V / 50 Ohm	0-5 V / 50 Ohm
„OUT" - output -	0-5 V / 50 Ohm	0-5 V / 50 Ohm
Power voltage	230 VAC 50 Hz	230 VAC 50 Hz
Power drawn from the power network	20 W	40 W
Radiated power	10 W	18 W
Radiated volume	300-450 m^3	450-750 m^3

2.5. INFRARED RECEIVER UNIT AYP 307

The infrared receiver is for receiving and decoding the modulated infrared signals radiated by the infrared radiator. The receiver is suitable for receiving 7 different audio frequency channels, and it is installed into a small and light plastic housing.

The following Diagram 8 includes the overview drawing of the receiver and the location of its connecting and operating devices.
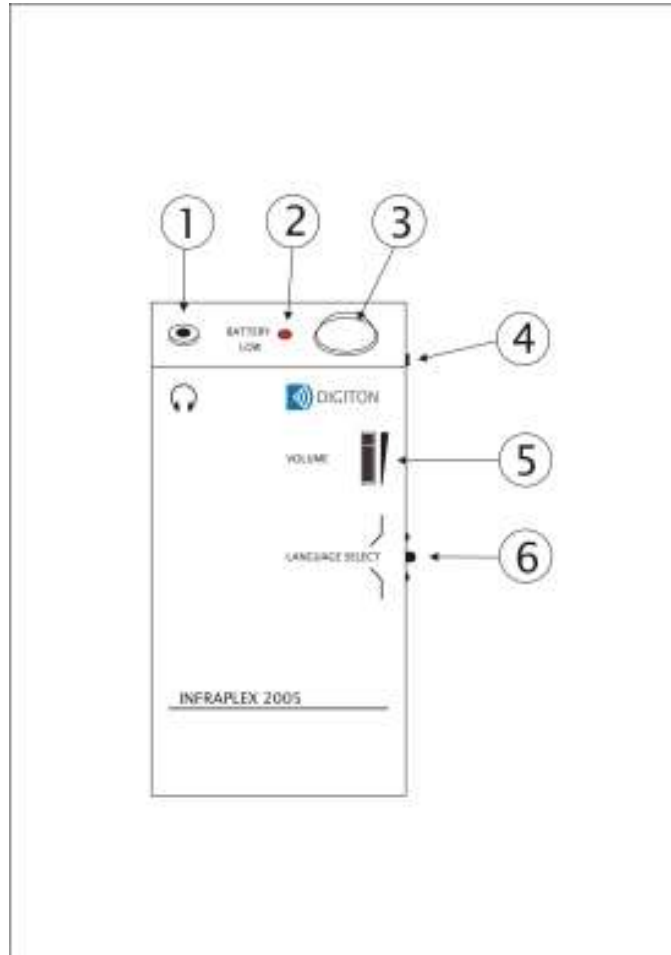
Diagram 8 – Overview drawing of infrared unit AYP 307

The legend of Diagram 8 is included in the following table.

Number	Name
1	3.5 mm stereo jack socket for connecting the headphone
2	*"BATTERY LOW"* – red LED indicating the discharging of the accumulator
3	Plastic collecting lens
4	*"ON"* – switch-on button
5	*"VOLUME"* – volume regulating potentiometer
6	*"LANGUAGE SELECT"* – channel selecting switch

By pressing the switch-on button (4) located at the side of the device it is possible to start up the device. With the aid of the headphone - delivered as an accessory of the infrared receiver - connected to the jack connector (1) of the unit it is possible to listen to the language that is set with the channel selection switch (6). Its volume can be set to the adequate level with the aid of the volume regulator located on the front panel. In case of lacking radiation signal the device switches itself off within about 30 seconds.

The plastic collecting lens (3) of the infrared receiver is for receiving the infrared radiation. Therefore, it should be never covered.

Important! The receiver automatically switches off itself if covered for a longer period (30 seconds). In this case for using it again it has to be switched on in the manner described above.

The power supply of the receiver is ensured by a 9 V Ni-MH (type 6F22) accumulator, the approaching discharging of which is indicated by the flashing of the red LED (2) of the receiver. In the interest of avoiding the complete discharging of the accumulator and thus destroying the accumulator, the receiver automatically switches itself off, if the voltage of the accumulator goes below a certain level.

Charging the inside accumulators – without taking out from the receivers – is possible by using the charging-storing case ETT 350 as described in the following Chapter 2.6.

The completely charged accumulator ensures a continuous operation period of about 8-10 hours for the receiver depending on the volume set. It is also possible to use 9 V batteries instead of the accumulators. However, we do not recommend this, because the replacement of the batteries requires significant time and financial investments.

Important! The accumulators included in the receivers should be always stored in charged condition, because the lifespan of the accumulators that are stored in discharged condition is significantly reduced. It is advisable to charge about each 1-2 months the - previously already charged - accumulators of the receivers that are not used for a longer period, since due to self-discharging the accumulators may be discharged even when being switched off.

Technical data:

Height	:	136 mm
Width	:	70 mm
Depth	:	28 mm
Mass	:	140 g

Main technical parameters	
Number of channels	7
Receiving angle range	140°
Power supply	9 V NiMH accumulator
Headphone output parameters	
Transmission frequency range (-3dB)	100 - 5100 Hz
Power	50 mW
Impedance	32 - 64 Ohm
Interference between the channels	60 dB
Signal-noise relation	70 dB
Harmonic distortion (THD+N)	3,2 %

2.6. CHARGING-STORING CASE ETT 350

The robust, lockable charging-storing case of type ETT 350 is suitable for storing, transporting 50 infrared units, and for charging the accumulators that are included in these units. A separate regulating electronic unit takes care of charging the accumulator of each receiver placed into the drawers, and therefore the charging of each of the accumulators is automatically switched off when the level of full charging is reached to prevent accumulator overcharging.

The overview drawing of the charging and storing case and the distribution of its operating and connecting devices are shown on Diagram 9.
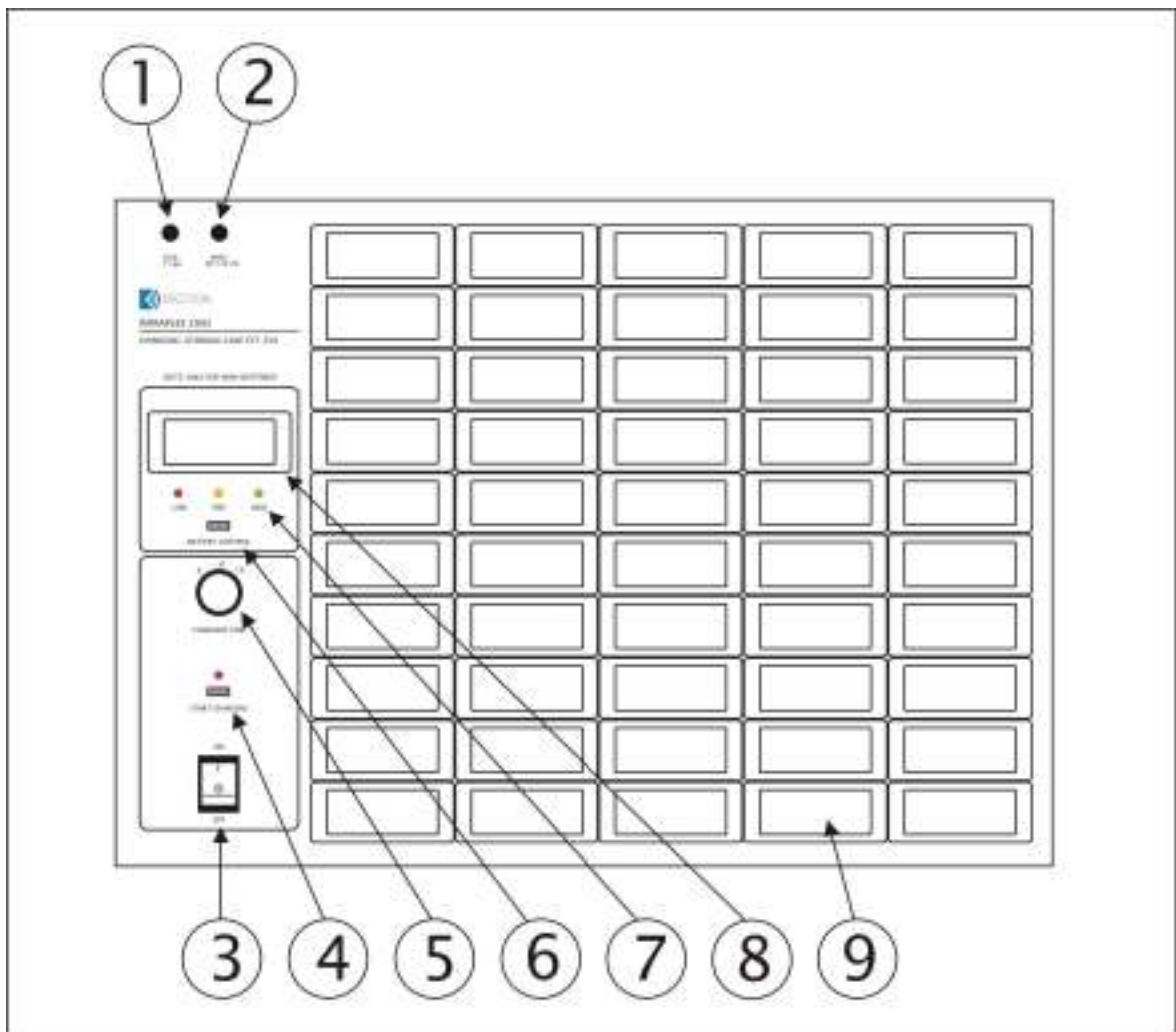

Diagram 9 – Overview drawing of charging-storing case ETT 350

The legend of Diagram 9 is included in the following table.

Number	Name
1	„FUSE T1,6A" - fuse (1,6A)
2	„DC 12V 2A" - power voltage connector
3	„ON-OFF" - mains switch
4	„START CHARGING" - charging starter press button
5	„CHARCING TIME" - switch for setting the charging time
6	„BATTERY CONTROL" - switch-on button of the control drawer
7	LEDs indicating the charged level of the accumulator „LOW" red LED – low accumulator voltage „MID" yellow LED – medium accumulator voltage „HIGH" green LED – high accumulator voltage
8	Control drawer
9	Charging drawers

For charging the accumulators of the receivers placed into the charging-storing case, first the output of the mains power unit - ensuring 12 V uniform voltage, delivered as an accessory - has to be connected to the power voltage connector of the case (2), then the power unit has to be plugged into a 230 V mains socket. Subsequently, it is possible introduce electricity into the case with main switch (3), and then charging can be started by pressing button (4). It is practical to set the charging time to 16 hours with switch marked (5), since the electronic unit automatically switches off charging in the case of completely charged accumulators. Naturally other times (4 or 8 hours) can be also set.

Next to the power voltage connector (2) there is a 1,6A electric fuse (1).

With the aid of the checking drawer (8) it is possible to check the accumulator of the selected receiver. After inserting the infrared receiver to be examined and pressing button „BATTERY CONTROL" (6) LEDs of colour red labelled „LOW", of colour yellow labelled „MID" (medium) and of colour green labelled „HIGH" provide information on the charged status of the given accumulator.

If even after pressing the control button for about 3-4 seconds the green colour LED is lit, then the accumulator can be considered to be charged. It is not practical to press the control button for a longer period, because it may lead to the fast discharging of the accumulator.

Important! The accumulators inside the receiver should be always stored in charged condition, because the lifespan of accumulators that are stored in discharged condition is reduced significantly. It is advisable to recharge about each 1-2 months the – previously charged - accumulators of receivers not used for a longer time, because due to self-discharging the accumulators are discharged even when being switched off.

3. PLACING, CABLING AND SETTING UP THE UNITS OF THE SYSTEM

The unpacked units of the interpretation system have to be placed first into the room or in the case of a fixed installation system they have to be mounted to their appropriate place.

The most important task is to select the place of the infra-radiators well. It is a basic consideration - in this regard - that the room should be radiated as much as possible with infrared light. In order to achieve this, it is most practical to place the infra-radiators into the corners of the room in a height of minimum 3 meters and to turn them in the direction of the facing corner. The holding assembly delivered as an accessory with the infra-radiators allows the mounting of the radiator to the side-wall or to the ceiling and turning it around an axis. Mounting the radiators may be done with inserting a right angle holding element as well (it is not an accessory), which ensures the setting of the radiator in any arbitrary direction.

Important! In order to determine the number of pieces and places of the radiators that are needed to irradiate the room adequately, it is advisable to ask the advice of either the manufacturer or the dealer, since this is a complex task, which requires extensive experience and taking into consideration many different aspects.

From the output marked *„INFRA OUT"* of the central unit PEP 3001 placed into the technical room, with one or two 50 Ohm (RG 59 type) coaxial cables, the multiplex controlling signal containing the 7 channels has to be forwarded to the radiators, which are concatenated consequently one by one.

Depending on the layout of the room and the cabling possibilities, it is practical to connect the radiators located on one side to one of the *„INFRA OUT"* outputs, while the radiators located on the other side to the other *„INFRA OUT"* output, in such a manner that the difference between the lengths of the cables going to the radiators should be the least possible. The coaxial cables needed for the radiators (DK 003-..) are items that are not accessories and have to be ordered separately.

Important! When concatenating the radiators to the controlling cable, the cable arriving from the central unit should be always connected to input marked *„IN"*, while the cable going to the next radiator should start from the output marked *„OUT"*.

The infra-radiators require mains power (230 V, 50 Hz) supply as well, for this reason it is necessary to build out a mains network connection in the vicinity of each radiator in all the cases.

Important! The infra-radiators do not have a mains power switch, for this reason, in the case of fixed installation, it is needed to build out such a mains network for them that may be switched off from the technical room.

The – factory produced – system cables going to the interpreter units are starting out from the output marked *„SYSTEM 1"* and/or *„SYSTEM 2"* of the central unit. The interpreter units are concatenated in an arbitrary setup – depending on the layout of the room – to one or two branches one after the other, in such a manner that the freely left connector of the last interpreter unit of the given branch has to be closed with a closing element. A closing element has to be placed into the unused output connector of the central unit as well. The connectors located on the system cable - in the interest of incidental slipping off and secure contact - have to be fixed in all the cases with the screws attached to them. These screws may be tightened manually to the units of the system.

Important! In the lack of closing elements the system is not synchronised and therefore it is unable to operate. In this case and if the system cables are wrongly connected, on the display of the units the following text appears *„RING ERROR, CHECK CABLES!"* and at the same time all the indicating lights of the units are lit.

IMPORTANT! In the switched on status of the system cabling should not be done at all. Disconnecting and connecting the cables under voltage may cause the failing of the devices.

After completing the above, it is practical to connect one of the independent outputs of the mixing desk of floor amplification - which means the floor voice *(„FLOOR")* for the interpretation system - to the input marked *„LINE OUT"* (28) of the central unit. Naturally the different broadcasting sources can be connected to the other inputs of unit PEP 3001 as well.

After connecting, fixing and checking all the above mentioned cables, the output of power unit (ETP 315) of the system has to be connected to connector marked *„DC 30V"* (16) of the central unit, then the power unit has to be connected to the mains. Starting up the operation of the system is done with switch marked *„POWER"* (15). Switching on is indicated by LED marked *„POWER"* (13) of unit PEP 3001. After switching on − during synchronisation − LEDs called *„REMOTE"* and *„NOM LIMIT"* (13) flash in an alternating manner on the front panel of the central unit for a couple of seconds, then after synchronisation both LEDs go out.

The text *„SYSTEM STARTING..."* can be seen on the display of the interpreter unit until synchronisation is not done. This text disappears after the passing of the couple of seconds of synchronisation, and instead of it the basic diagram of the interpreter unit appears.

This means that the system is capable of operation, and − if it is needed - programming the interpreter units can be started according to the description given in Sections 2.3.3-2.3.5. Programming is not always needed, since the interpreter units when switched on always display the condition that was last programmed.

It is practical to install notice-boards in the room for the participants, in order to provide information as regards which language can be heard on which channel.

One of the possible layouts of the elements of the interpreter system **INFRAPLEX 2005** is demonstrated in the following Diagram 10. In this layout the floor voice is generated by 2 cordless microphones and mixers. The other output of the mixer also controls the performance amplifiers of floor voice loudening, which drive the voice radiators that are located in the room. The drawing of the cabling of this system is presented on Diagram 11.

In the above-mentioned diagram the channel decoder PEP 3006 is not an unconditionally requested component of the system, only if all translated languages must be recorded.
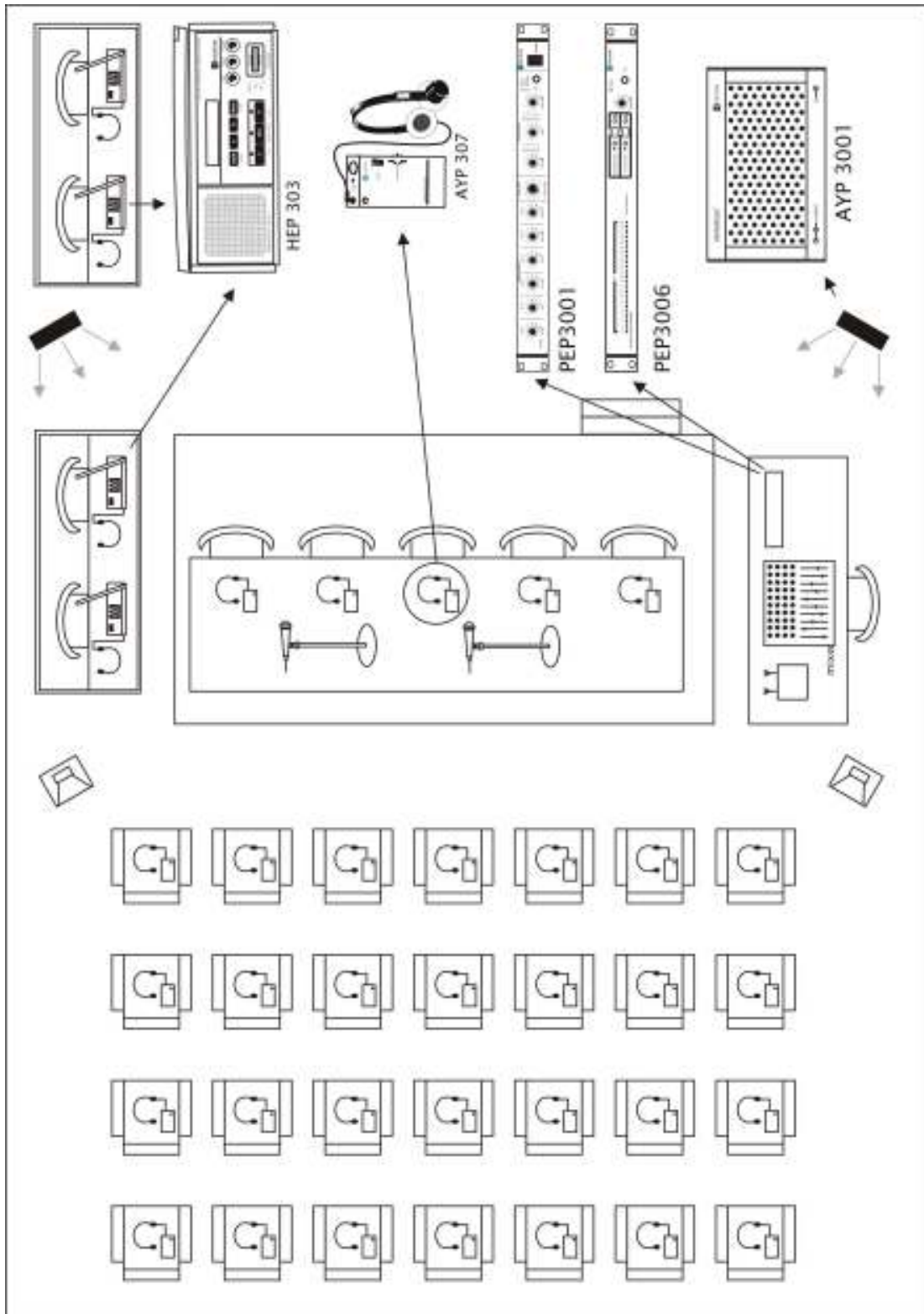
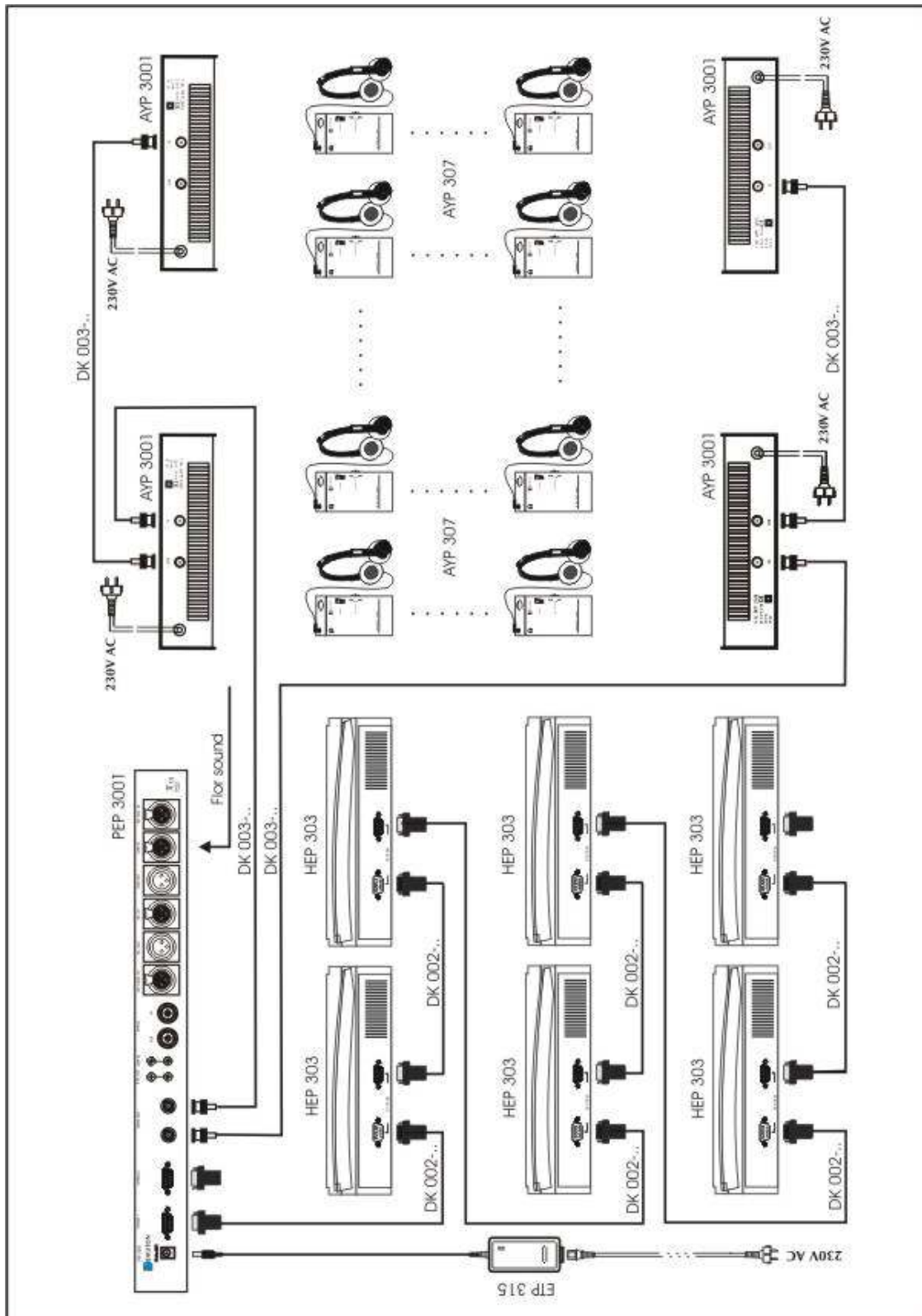*Diagram 10 - Overview drawing of interpreter system* **INFRAPLEX 2005**

Diagram 11 – Cabling drawing of interpreter system **INFRAPLEX 2005**

4. CO-OPERATION WITH CONFERENCE SYSTEM ICN 2005

In case systems **INFRAPLEX 2005** and **ICN 2005** are operated jointly, the floor voice needed for the interpretation system is generated by the conference system. The floor voice generated by the conference system goes automatically to the input of the interpretation system.

In the two systems the PEP 3001 central unit is shared, for this reason only one such device is needed. Naturally the interpreter units are also shared and the distribution of the interpreted languages is also the same, for this reason in the two systems on the same channel always the same language can be heard.

When listening to the interpreted languages through the delegate units, the delegate units have to be complemented with headphones, which have to be connected to the headphone outputs of the devices.

In order to ensure the power voltage of the two systems, power supply unit ETP 370 has to be used, if the total number of interpreter and delegate units exceeds 15.

Information concerning the installation, cabling and commissioning of conference systems **INFRAPLEX 2005** and **ICN 2005** are included in the User Manual of the relevant systems.

One of the possible layout versions of the units of the interpretation and conference systems **INFRAPLEX 2005** and **ICN 2005** is presented in Diagram 12, while the drawing of the complete cabling of a system of such an arrangement is presented in Diagram 13.
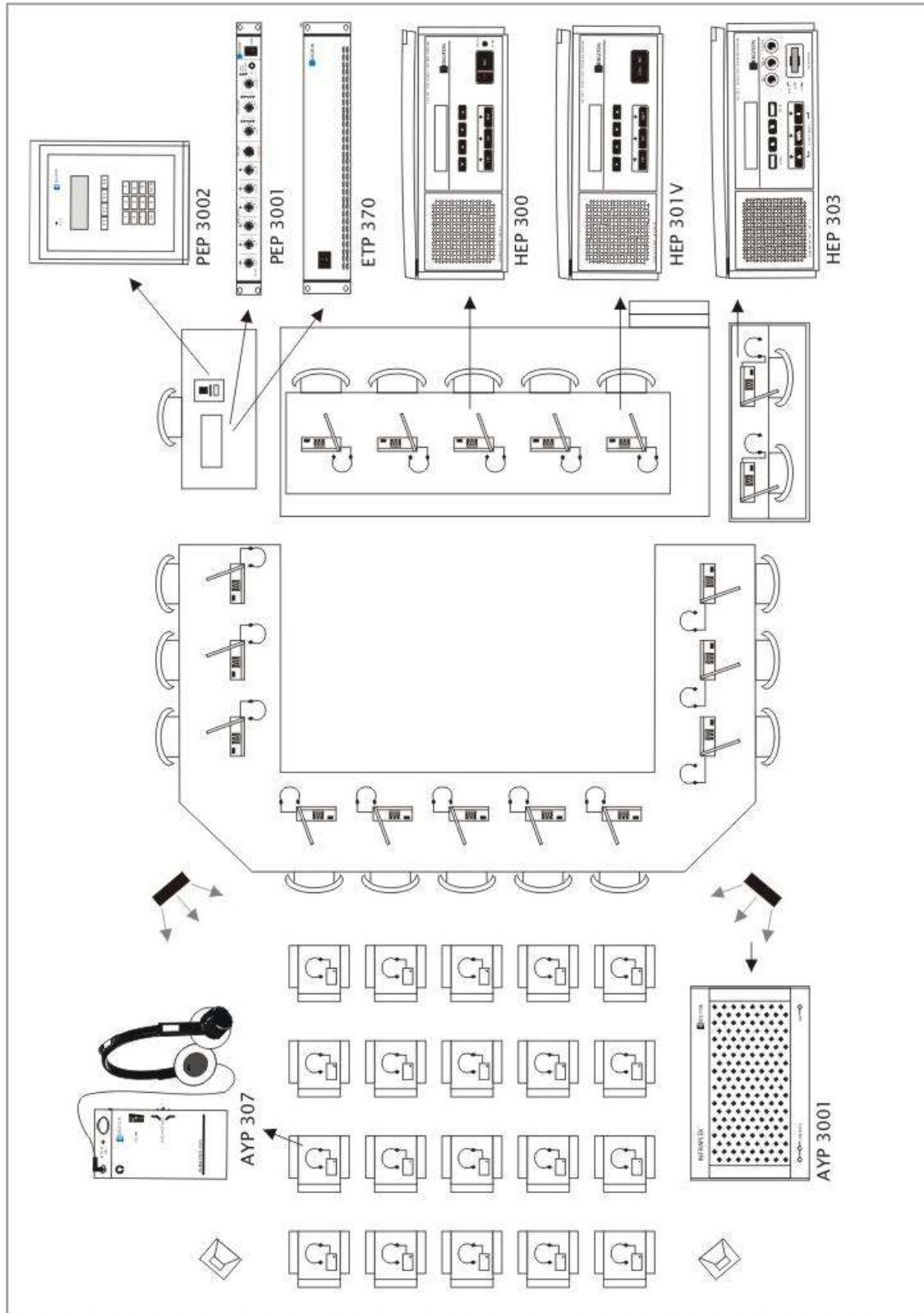
Diagram 12 – Installation drawing of interpretation and conference systems
INFRAPLEX 2005 *and* **ICN 2005**
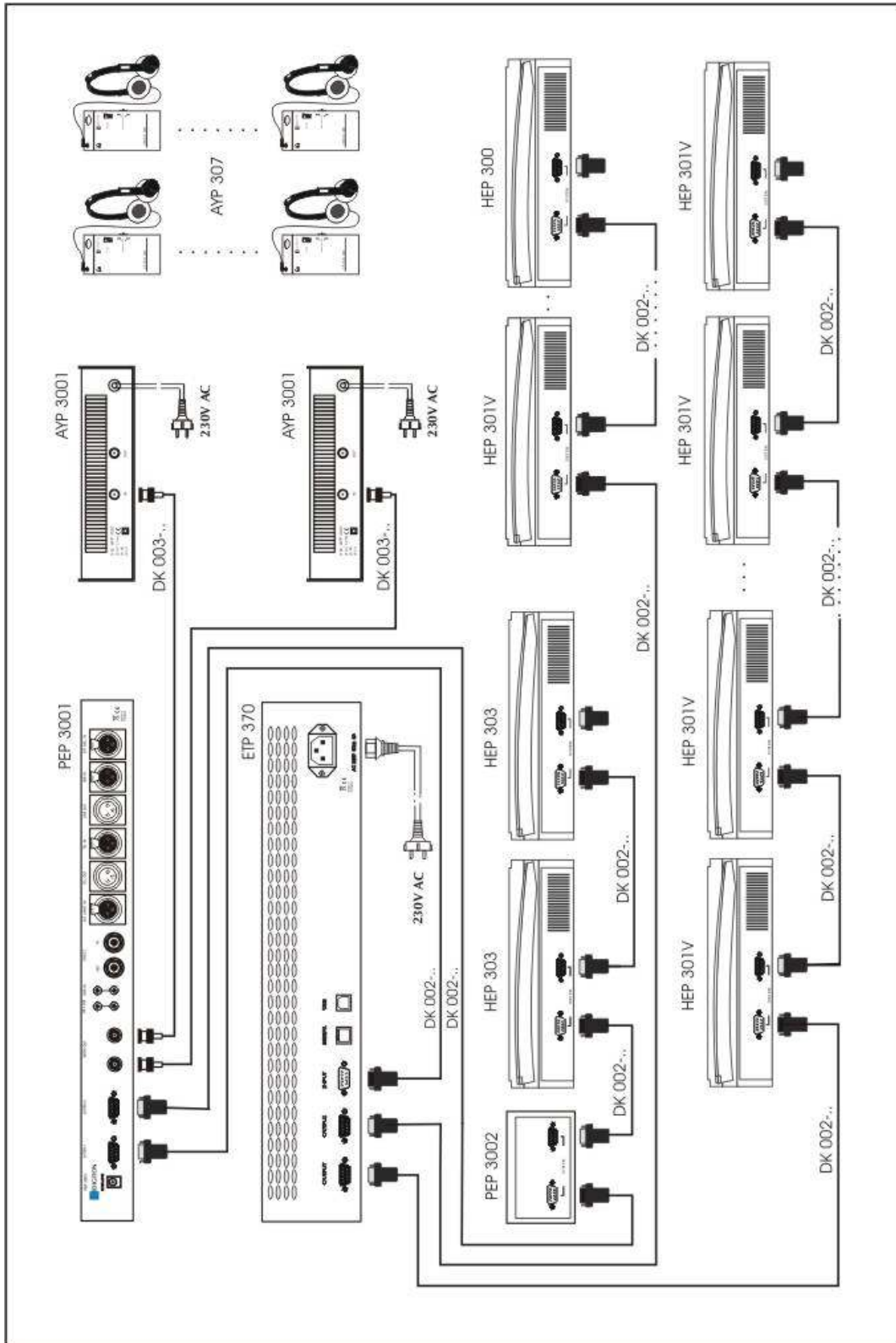
Diagram 13 - Cabling drawing of interpretation and conference systems
INFRAPLEX 2005 *and* **ICN 2005**