



AEV ITB 201

Dual Telephone Hybrid



Guarantee

The equipment is warranted for a period of 2 years from the date of invoice (exworks). The warranty does not cover faults provoked by carelessness, natural causes and parts subject to wear. In addition, the cost of labour and shipment is not covered. The warranty will be voided if the equipment is mishandled.

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Feedback

AEV welcomes your comments on our products. Your suggestions may be extremely useful to develop new equipment and manuals and this will be of benefit to you too! Let us have your comments on our products and we will be pleased to read them.
Send your information by e-mail to the following address::info@aev.eu

Technical Support

If you require technical support, contact AEV SERVICE giving a clear and concise account of your specific problem. Quote the serial number of your equipment by referring to the AEV nameplate attached to the equipment itself as this is the most important piece of information to be provided.

Factory Service

If problems arise while the equipment is being installed, consult this manual and check that the installation is being carried out properly. If the problems still cannot be solved, call the AEV SERVICE Department for further information. If the problem is a minor one we can a telephone call will probably suffice. If, on the other hand, the equipment is to be shipped to AEV for service or repairs, the AEV SERVICE Dept. will accept it only if the RMA return authorisation number has been provided. This number must be included in the shipping documents. We also recommend providing a detailed description of the fault which has occurred, the type of service needed and (if required) the name of the employee at the AEV SERVICE Dept. you have spoken to. No repairs will be made if the cost of shipment is charged to AEV. In this case, we will not accept the delivery.

Shipping Instruction

When shipping the equipment to AEV, use the original package in order to be certain that it will be fully protected during handling. If you need the original package, call us for a new one.

If you ship the equipment in a different packing container, take care to provide a double package by interposing padding material between the two containers in order to fully protect the equipment during shipment. The package should be marked "FRAGILE" in red.

IMPORTANT: Carefully read this paragraph as it contains important instructions concerning operator safety and directions regarding the installation, operation and maintenance of the equipment.

Failure to observe the safety instructions and information given in this manual **constitutes an infringement of the safety rules and design specifications provided for this piece of equipment. Futurcom. declines all responsibility** if any one of the safety rules given herein is not observed. **Futurcom declines all responsibility** if the end-user resells the product.

- Keep this manual with the utmost care and close at hand so that it can be consulted whenever needed
- After unpacking the equipment, check it for condition.
- Avoid banging the equipment.
- The packing material (plastic bags, polystyrene, nails, etc.) must never be left within the reach of the children, as **these items are potential sources of danger**.
- Do not use the equipment in places where the temperature is not within the recommended range, as specified by the manufacturer.
- Before connecting the equipment, make sure the nameplate specifications correspond to the mains electricity supply (the nameplate is located on the equipment enclosure).
- Do not remove the sticker from the equipment as it contains important specifications and the relevant serial number.
- To join the equipment to the mains supply, use the power cord purchased with the equipment.
- The equipment must be used only for the purpose it was designed for.
- Abuse or misuse of the equipment is **extremely dangerous** for people, pets and property. The manufacturer declines all responsibility for damage and injury resulting from **improper use** and **mishandling**.
- Certain basic safety rules must be observed when using electrical equipment, in particular:
 - Never touch the equipment with wet and/or damp hands or other parts of the body.
 - Keep the equipment away from drops of water or sprinkling systems.
 - Never use the equipment near high heat sources or explosive material.
 - Do not introduce any extraneous matter into the equipment.
 - Do not allow children or untrained people to use the equipment.

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Telephone hybrid

A telephone hybrid is a system that provide the connection between a telephone line and an audio equipment. Actually, this is not a simple connection since the telephone line characteristics require special techniques to ensure good audio quality and high immunity to interference. The frequency response of a normal telephone line is set between 100 Hz and 3-4 KHz in order to guarantee an acceptable reproduction of the human voice. A telephone hybrid must have a much wider bandwidth, in order to adapt itself to the quality of any line and to avoid further limitations to the system. Unfortunately telephone lines suffer often of intense disturbances, noise, crackling, fading etc. Furthermore they are often sources or conductors of static charge and overvoltage, that are able to destroy circuits which have been imprudently connected to them. In addition, the resistive and capacitive behaviour of lines is not uniform, and thus barely repeatable, and clearly the transmitted audio quality will vary with time. It is therefore necessary to take particular care in the design of line-audio interfaces in order to avoid significant degradation of the bandwidth or rejection of induced interference. The interface must also ensure complete electrical isolation between the line section and that connecting to the audio equipment.

Another problem arises during a telephone connection between a remote correspondent and an interviewer or DJ; the DJ's voice will be transmitted down the telephone line and, since the same line is used for transmission and reception, will be received again with delay with respect to the original. It will be re-amplified and looped back resulting in whistles and Larsen effects. Antilocal circuits are fitted to remedy this by identifying those audio components which tend to enter into the loop and eliminating only the part which re-enters. This is particularly necessary for Meetings

General Features

AEV ITB-201 MKII is a studio telephone hybrid. It is designed in a 19", 1 unit rack mount. ITB-201 MKII allows the connection of 2 phone lines individually commutable during transmission. By means of an extra telephone, to be plugged into 2 special connectors, you may call or receive on both lines. The calls are visualized by leds and announced by a ringer. ITB-201 MKII was specially designed to solve all interfacing problems between lines and any Mixer having no telephone module. It allows to call or receive private communications or to pass them over to the antenna without having to use additional headsets or microphones. It is easy to install and requires no special instruments. ITB-201 MKII has an available output to record phone conversation both privately and in antenna.

Installation

AEV ITB-201 MKII telephone hybrid has been designed and manufactured to conform to current safety standards. The unit should only be installed by competent personnel and in compliance with operator safety requirements and the environmental specification. Great care should be taken in making earth and ground connections to the unit and associated equipment. As for any electronic apparatus, adequate ventilation for cooling must be ensured in order to guarantee operating temperatures within the limits defined in the Technical Specifications section.

This is particularly important in the case of rack mounting or installation in confined or poorly ventilated locations. It is advisable to leave a space between each unit and adjacent units

(above and below) even if mounted in a ventilated rack. If well connected to the rack's ground and earth connections, the unit will be immune to interference including RF, as long as the high frequency units have been correctly connected. The AEV ITB-201 MKII is anyhow fitted with RF filters on its inputs in order to eliminate annoying interference. Gas discharge tubes are fitted to the telephone lines to guarantee immunity from static charges or over-voltage.

General Description

Front Panel



1 2 3 4 5 6 7 8 9 10

- | | |
|---------------------------|--|
| 1) HOOK LIN 1 | Hooks line 1 (equivalent to pick up the handset) |
| 2) LINE SELECTION | Selects the line to be put on air |
| 3) HOOK LIN 2 | Hooks line 2 (equivalent to pick up the handset) |
| 4) BUZZER OFF/ON | Buzzer enable Button |
| 5) LIN ADJ | Antilocal effect adjustment trimmer |
| 6) STAND BY | Stand By phone line Button |
| 7) RECEIVE | Adjusts the phone line receiving level |
| 8) MIX | Adjusts the phone line transmission level Rx and / or Tx |
| 9) SEND | Adjusts the phone line transmission level |
| 10) POWER | Power Led |

Rear Panel



- | | |
|---------------------|---|
| 1 AC POWER | Line power socket |
| 2 SEND | Audio input |
| 3 REC | Phone call recording output |
| 4 RECEIVE | Audio output |
| 5 TEL LINE 2 | Service telephone connection (connector RJ45) |
| 6 TEL SET 2 | Telephone line connection (connector RJ45) |
| 7 TEL LINE 1 | Service telephone connection (connector RJ45) |
| 8 TEL SET 1 | Telephone line connection (connector RJ45) |
| 9 REMOTE | Remote function connector (DB9) |

Connections to mixer and lines

The connection of the AEV ITB-201 MKII to 2- wire telephone lines is made by inserting the telephone cable into the corresponding socket on the ITB-201 MKII using a standard telephone line connector.

Other telephonic equipment may be connected by inserting a standard connector in the appropriate ITB-201 MKII socket. This additional equipment is useful for making calls and checking the line. Connection is optional.

The mixer output should be connected to the hybrid's TX TEL input, whilst the line return RX TEL can be connected to an input connected to the CUE of the same mixer.

WARNING: TAKE GREAT CARE IN CONNECTING LOOP-BACKS TO THE MIXER. FAILURE TO DO SO CAN GENERATE HUM, ECHOES AND "TUBE" EFFECTS.

Line Hook

To hook a line it is necessary to lift the (HOOK switch on the front panel).

Adjusting Levels

Once the line has been hooked, adjust the TX and RX level by injecting a 1 KHz test signal, or a "standard" signal, and calibrate the levels for a near zero reading on the mixer.

Line Compensation

Once the telephone line is busy, it is possible to carry out an optimization through the Line Compensation potentiometer (A.L.E.). The fine adjustment is obtained by injecting a TX signal and receiving a minimum RX signal.

Hanging-Up

Lowering the HOOK switch on the front panel releases the line.

Technical Data

AUDIO LEVELS

Input level (SEND 1/2)	± 12 dBm
Input impedance	>10 KΩ Electronically Balanced
Connector	XLR female
Output level (RECEIVE 1/2)	0 dBm
Output impedance	100 Ω Electronically Balanced (max load 600 Ω)

Hybrid Circuit

Input/output balanced and floating.

Impedance	600 Ω
RX Level	- 20 ÷ 0 dBm
TX Level	- 8 dBm
Hybrid null	- 40 dB Full Band (on urban telephon line)
Frequency response	230 ÷ 3400 Hz
Distortion	0.8 %

GENERAL DATA

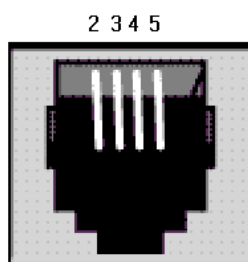
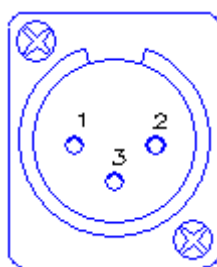
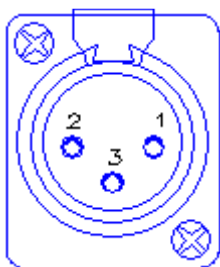
Power supply	87 a 254 V 50/60 Hz 10 VA
Dimension	19" Rackmount 1 Unity
Weight	2.0 Kg

Attentino: All cables should not be more than 3 meters length.

Connection

SEND: 1-GROUND
2-INPHASE
3-RETURN

RECEIVE: 1-GROUND
2-INPHASE
3-RETURN



2 WIRE: 2-N.C.
3-TEL. SET / TEL. LINE
4-TEL. SET / TEL. LINE
5-N.C.

REMOTE CONNECTOR

2 - Hook 1	(active low TTL input : internal pull-up 4K7)
3 - 1 / 2 SEL	(active low TTL input : internal pull-up 4K7)
4 - Hook 2	(active low TTL input : internal pull-up 4K7)
9 - Rem 1	(active low TTL input : internal pull-up 4K7)

5 -	+ 5 Volt (50 mA max)
1 -	GND
6 -	GND
7 -	LED 1 (50 mA max)
8 -	LED 2 (50 mA max)