IEPE EMULATOR I - Testing tool for IEPE front-ends

IEPE EMULATOR I is designed as a tool for testing IEPE amplifiers (***D**evice **U**nder **T**est*).
Areas of application are the cases in which no calibrated test stand (shaker) is available or the test is to be carried out with a sensor-independent signal source.

Connections

Power:	Power supply ~~±15 VDC~~ **new: 15 VAC**, ca. 0.3W
Input:	Signal input ±10 VAC max., Ri = 20 kOhm (e.g.. function generator)
Output:	Signal output ±10 VAC with offset aprox. 12VDC (with correct mA-selection on the rotary switch) BNC - inner terminal = positive IEPE-port, BNC-GND = negative IEPE-port Banana jack - red = positive IEPE-port, black = negative IEPE-port Output BNC and banana jacks are connected in parallel.
Note:	The negative output (BNC-GND / black banana jack) is <u>not identical</u> to the input BNC-GND. These two ports <u>must not</u> be connected together!

Rotary switch

The rotary switch is set to the same value [mA] at which the IEPE amp (*DUT*) supplies the IEPE sensors.
The sensor replacement resistors - selected by the rotary switch - provide an offset voltage of approx. +12 VDC (half of the nominal IEPE excitation voltage of 24 VDC).
This results in a dynamic range of at least ±10 VAC.

Excitation current of IEPE-amp (*DUT*)	
0.5 mA:	R = 24 kOhm
1 mA:	R = 12 kOhm
2 mA:	R = 6 kOhm
4 mA:	R = 3 kOhm
8 mA:	R = 1.5 kOhm
12 mA:	R = 1 kOhm
16 mA:	R = 750 Ohm
20 mA:	R = 600 Ohm

Example: Rotary switch selection 4mA - the sensor replacement resistor is 3kOhm: 3k * 4mA = 12 VDC offset.

Operation

To test the IEPE amp (*DUT)* please follow these instructions:

- Select the suitable excitation current [mA]
- Connect the *DUT* to the output connectors (BNC or banana jacks)
- Connect the supplied power supply (230 VAC / 15 VAC) to the 2-pin. power socket
- Connect a symmetrical AC test signal (e. g. sine or triangle from function generator) to the input BNC
- Optional: Connect a scope to the output BNC for monitoring the effective input signal of the *DUT*

Bandwidth

The input signal of the IEPE EMULATOR I is symmetrically coupled to the *DUT* by large capacities. The result is a bandwidth of

→ lower cut-off frequency (-3dB) approx.. 0.3 Hz
→ upper cut-off frequency (-3dB) approx. 25 kHz

Important note

IEPE EMULATOR I and the supplied plug or desktop power supply are designed for laboratory or office use and not in humid and / or dusty environment or operate at temperatures higher than 70° C.