ICP EMULATOR I - Testing tool for IEPE (ICP®) front-ends (Device Under Test)

ICP EMULATOR I is designed as a tool for testing IEPE (Device UnderTest) amplifiers.
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 14 to 15 VAC, approx. 2 W
Input:	Signal input ± 10VAC max., Ri = 20 kOhm
Output:	Signal output ±10VAC 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 not identical to the input BNC-GND. These two ports must not 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 *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 / 14 to 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 ICP 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

ICP 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.