PA-3000

Portable 3-channel IEPE signal conditioner

Front Panel

1. Self-diagnostic indicators
2. Power supply indcators (low battery indicator and charging indicator)
3. Gain selection keys and overload indicators
4. Filter selection keys
5. Outputs designation
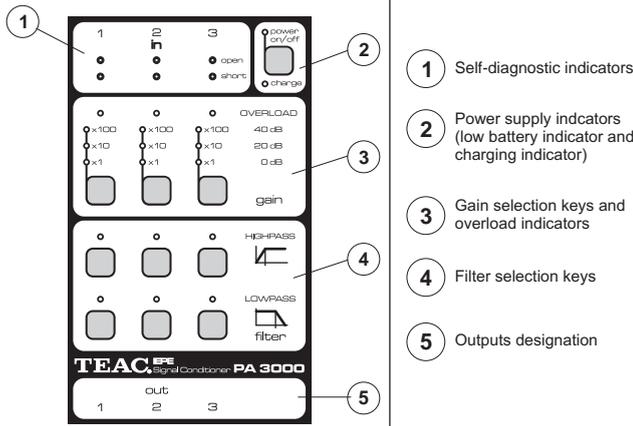
Internal Battery

The conditioner is equipped with the built-in rechargeable battery allowing for its autonomous operation.
In order to turn the conditioner on (while the external power is not connected), press the **POWER ON/OFF** button. Once the module turned on, the diode **POWER** remains illuminated.
To turn the conditioner off, press again the **POWER ON/OFF** button.

Battery Level Indicator

Low battery is indicated by flickering **POWER** diode. In this case the conditioner should be connected to the external power supply.

Illuminated **CHARGE** diode indicates that battery is being properly charged.

> ⚠ **WARNING**
> **Blinking CHARGE diode signals a problem with the charging circuity.**
> **Contact the MAINTENANCE department!**

Setting up the conditioner through RS232* *option

RS232 serial link and Hyper Terminal program are used to communicate with the module.
Once the program is launched the following parameters should be set:
  - Baud Rate - 9600
  - port number - COM1, COM2, …
  - number of bits - 8
  - parity - NO
  - stop bit - 1
  - data transfer control NO

In order to read out the set-up of the PA-3000 module, type in the following command:
#<module address>? For example: *#2?*

\# - start-of-message character
2 device address (to distinguish between several modules working in the RS485 network
  NOT AS STANDARD OPTION)

In case when only one module is connected then any address in the range <0 - 9> may be used.

After pressing the CR (Enter) key, the module configuration is displayed.
It looks, for example, like this:

#2?
PARAMETERS:

ADRESS: 2

CHANNEL 1:	CHANNEL 2:	CHANNEL 3:
K= 100	K= 1	K= 10
FDP: OFF	FDP: ON	FDP: ON
FGP: ON	FGP: OFF	FGP: ON

In order to change the set up of the instrument the following command should be typed in:
#Address <09>,Channel <13>,Gain<13>,FDP<1,0>,FGP<1,0>

For example:
#3,2,3,0,1

\#- start-of-message character
3- device address (to differentiate the modules working in the RS485 network.
  In case when only one module is connected, then any address in the range <0-9> may be used)

2- channel two (any one of three available channels may be selected: 1, 2, 3)

3- x100 gain, (1 = x1, 2 = x10, 3 = x100)

0- FDP OFF (this parameter is used to turn ON and OFF low pass filter: 0- OFF, 1- ON)

1- - FGP ON (this parameter is used to turn ON and OFF high pass filter: 0- OFF, 1- ON)

External power supply

Connecting the external power supply automatically turns the conditioner ON and, if necessary, starts charging the batteries.
The illuminated **POWER** diode indicates proper operation of the instrument, and, if the batteries are being charged, the diode **CHARGE** is shinning.

IT IS IMPOSSIBLE TO OVERCHARGE THE BATTERIES the battery charging is controlled by the built in charger.

WARNING!
The POWER ON/OFF button is inactive during the operation with the external power supply.

The conditioner is turned off automatically once the external power supply is disconnected.

Self-diagnostics

The conditioner is capable of performing the self-diagnostics of the measurement channels. The self-diagnostic circuitry will indicate whether the measurement channel is short-circuited or open (for example, if the connection cable or the transducer are broken).

- **Short-circuit in the sensor line** is indicated by a flashing **SHORT** diode in the defective channel

- **Open sensor line** is indicated by a flashing **OPEN** diode in the broken channel

Setting up the gain

In PA-3000 it is possible to set up the gain of the conditioned signal. The gain is set up with the button **GAIN,** independently for each channel. The following settings are available:

x1 (0dB) x10 (20dB) x100 (40dB)

The selected gain is indicated by the illumination of the corresponding diode.

> ⚠ **EXCEEDING THE ALLOWED LEVEL OVERLOAD**
> The **OVERLOAD** diode indicates that for a given gain value the allowed level is exceeded.
> One should set up such a gain value that the signal level does not exceed the measurement range.

Filtering the signal

The **FILTER** buttons include into the measurement channel the high-pass or low-pass filters. The corresponding diode is illuminated when a given filter is turned on. The cut-off frequencies are the following:

low-pass filter:	1 kHz
high-pass filter:	10 Hz

Filters can be switched on independently for each channel.

Specifications

Input/output channels	3/3
Input type	IEPE 4 mA/20V with improved settling characteristics
Indicators for input	open and short and overload per channel
Input impedance	100 KOhm AC-coupled
Output impedance	100 Ohm
Input gain	1, 10, 100 (0 dB, 20 dB, 40 dB)
SNR	> 90 dB (10 Hz – 22 KHz)
Distortion	< 0,1%
Gain error	< 0,5%
Gain drift	< 50 ppm/°C
Output range	15 Vpp
Offset error	< 10 mV on output (DC-coupled)
Filters	12 dB/oct, individually selectable on/off
High pass filter	10 Hz or custom
Low pass filter	1 KHz or custom
Battery	NiMh with internal charging, duration approx.10 h
Control interface	RS232 using 3,5 mm jack to sub-D cable
Power supply	12V / 200 mA DC
Housing	extruded aluminium with dirt and moisture repelling membrane keypad
Dimensions	196mmx 110mmx 45mm(l xwx h)
Weight aprox.	850 g
operating temperature	0 °C – 50 °C
storage temp	-10 °C – 60 °C
AC/DC adaper and RS232 cable are supplied with the unit	

Contact

www.roga-instruments.com