

## PIP series

**PIP** is a series of programmable “smart” preamplifiers. Due to the modern internal configuration, it offers extreme flexibility combined with superior signal parameters and high reliability. Built-in voltage monitor allows to check and optimize the working conditions (supply voltages, detector bias voltage, first and last stage output voltage offset etc.).

There is also possible to change the gain, coupling (AC/DC), optimize the first stage transimpedance and manually or automatically suppress the voltage offset.

Optimized parameters are stored into the internal EEPROM memory and automatically loaded after the power is on. Reset to default settings is available at any time. For detection module safety detector bias adjusting is blocked by default. User can request to enable this option while ordering.

For proper operation PTCC-01 TEC controller is required.



### Specification ( $T_a = 20^\circ\text{C}$ )

Parameter	Typical value	Conditions, remarks
Low cut-off frequency $f_{lo}$ , Hz	DC/10	user configurable by software
High cut-off frequency $f_{hi}$ , Hz	150k/1.5M/20M 1.5M/15M/200M	user configurable by software
Transimpedance $K_i$ , V/A	2.5k – 150k 0.5k – 30k	digitally adjustable first stage transimpedance = 1 k $\Omega$ first stage transimpedance = 5 k $\Omega$
Output impedance $R_{out}$ , $\Omega$	50	
Output voltage swing $V_{out}$ , V	$\pm 1$	$R_L = 50 \Omega^*)$
Output voltage offset $V_{off}$ , mV	max $\pm 20^{**})$	
Ambient operating temperature $T_a$ , $^\circ\text{C}$	10 to 30	
Signal output socket	SMA	
Power supply and TEC control socket	LEMO (female)	ECG.0B.309.CLN
Mounting hole	M4	
Fan	yes	

<sup>\*)</sup>  $R_L$  – load resistance

<sup>\*\*)</sup> Measured with equivalent resistor at the input instead of the detector, it is to avoid the environmental thermal radiation impact.

### Parameters configurable by the user

- Output voltage offset
- Gain (in 40 dB range)
- Bandwidth  
150 kHz/1.5 MHz/20 MHz  
1.5 MHz/15 MHz/100 MHz
- Coupling AC/DC
- Detector's parameters (temperature, reverse bias etc.)

### Types of VIGO detectors that can be integrated with PIP preamplifier

- Photoconductive**  
PC-2TE, PC-3TE, PC-4TE
- Photoconductive optically immersed**  
PCI-2TE, PCI-3TE, PCI-4TE
- Photovoltaic**  
PV-2TE, PVA-2TE, PV-3TE, PV-4TE
- Photovoltaic optically immersed**  
PVI-2TE, PVIA-2TE, PVI-3TE, PVI-4TE
- Photovoltaic multiple junction**  
PVM-2TE
- Photovoltaic multiple junction optically immersed**  
PVMI-2TE, PVMI-3TE, PVMI-4TE

### Included accessories

- SMA-BNC, LEMO-DB9** cables

### Dedicated accessories

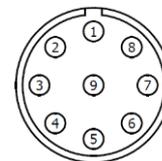
- PTCC-01-BAS** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- PTCC-01-ADV** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- PTCC-01-OEM** TEC controller + **USB: TypeA-MicroB**, **KK2-POWER** cables
- OTA** optical threaded adapter
- DRB-2** base mounting system

### Code description

Type	$f_{lo}$	$f_{hi}$
<b>PIP</b>	<b>UC*</b> (DC/10 Hz)	<b>LS*</b> (150 kHz/1.5 MHz/20 MHz)
		<b>HS*</b> (1.5 MHz/15 MHz/200 MHz)

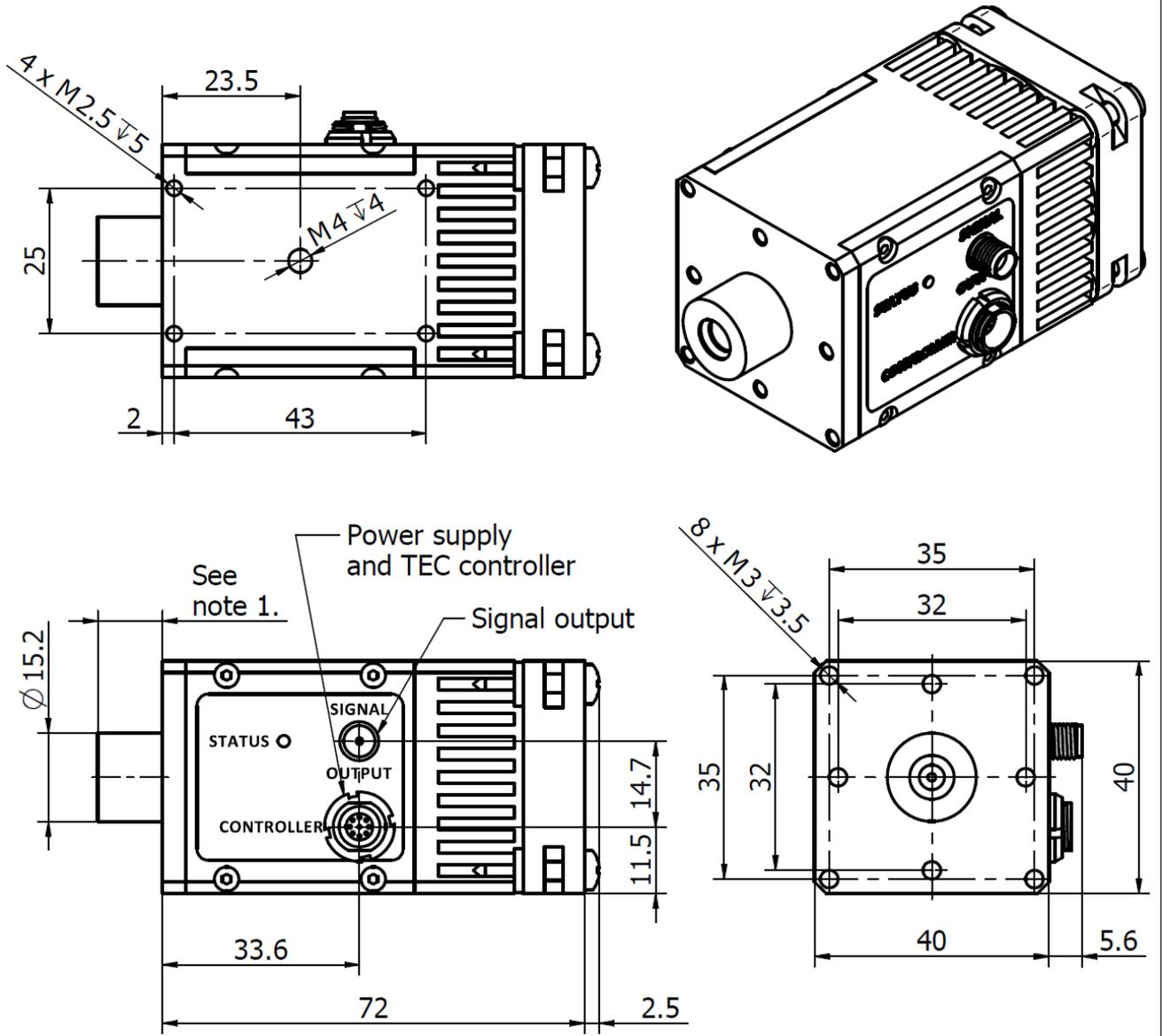
<sup>\*)</sup> User configurable by software.

### Power supply and TEC control socket LEMO (female) ECG.0B.309.CLN



Function	Symbol	Pin number
Fan and programmable preamp internal logic auxiliary supply	FAN+	1
Thermistor output (2)	TH2	2
TEC supply input (-)	TEC-	3
Power supply input (-)	$-V_{sup}$	4
Ground	GND	5
Power supply input (+)	$+V_{sup}$	6
TEC supply input (+)	TEC+	7
Thermistor output (1)	TH1	8
Bidirectional data pin	DATA	9

**Mechanical layout, mm**



- Notes:
1. TO8 detector dimensions in the "TO8 technical drawing".