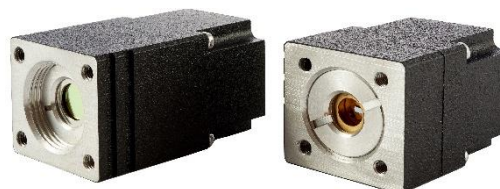


## SIP series

**SIP** is a series of ultra-small transimpedance, AC or DC coupled preamplifiers. It is designed to operate with either biased or non-biased detectors. It is compatible with uncooled detectors in TO39 package (SIP-TO39) or thermoelectrically cooled detectors in TO8 package (SIP-TO8). SIP is dedicated for OEM applications and requires external heatsink (MHS-2). There is a possibility to adjust gain (devices with a frequency bandwidth up to 100 MHz).

### Features

- Very small size
- Frequency bandwidth up to 250 MHz
- Adjustable gain as an option



SIP-TO8

SIP-TO39

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

Parameter	Typical value	Conditions, remarks
Low cut-off frequency $f_{lo}$ , Hz	DC, 10, 100, 1k, 10k	
High cut-off frequency $f_{hi}$ , Hz	100k, 1M, 10M, 100M, 250M	
Transimpedance $K_i$ , V/A	up to 100k	tunable
Transimpedance range $K_{i\ max}/K_{i\ min}$	up to 5	dependent on $f_{hi}$
Output impedance $R_{out}$ , $\Omega$	50	
Output voltage swing $V_{out}$ , V	$\pm 10$ $\pm 2$ $\pm 1$	$f_{hi} \leq 1\ \text{MHz}, R_L = 1\ \text{M}\Omega^*)$ $1\ \text{MHz} < f_{hi} \leq 10\ \text{MHz}, R_L = 1\ \text{M}\Omega^*)$ $10\ \text{MHz} < f_{hi} \leq 250\ \text{MHz}, R_L = 50\ \Omega^*)$
Output voltage offset $V_{off}$ , mV	max $\pm 20^{**})$	
Power supply voltage $V_{sup}$ , V	$\pm 15$ $\pm 9$	$f_{hi} \leq 1\ \text{MHz}$ $f_{hi} > 1\ \text{MHz}$
Power supply current $I_{sup}$ , mA	max $\pm 50$	no detector biasing
Ambient operating temperature $T_a$ , $^\circ\text{C}$	10 to 30	
Signal output socket	MMCX	
Power supply and TEC control socket	AMP2x4 (male)	AMPMODU 2x4
Mounting hole	none	
Fan	no	external heatsink necessary

<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.

### Types of VIGO detectors that can be integrated with SIP-TO8 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

### Types of VIGO detectors that can be integrated with SIP-TO39 preamplifier

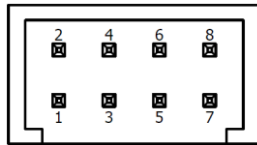
- **Photoconductive**  
PC
- **Photoconductive optically immersed**  
PCI
- **Photovoltaic**  
PV, PVA
- **Photovoltaic optically immersed**  
PVI, PVIA
- **Photovoltaic multiple junction**  
PVM
- **Photovoltaic multiple junction optically immersed**  
PVMI

### Code description

Type	$f_{lo}$ , Hz	$f_{hi}$ , Hz	Detector package	Gain adjustment
SIP	DC	100k	TO8 TO39	G <sup>*)</sup> (with gain adjustment) NG (without gain adjustment)
	10	1M		
	100	10M		
	1k	100M		
	10k	250M		

<sup>\*)</sup> Only for SIP preamplifier with  $f_{hi} \leq 100\ \text{MHz}$ .

### Power supply and TEC control socket AMPMODU 2x4 (male)



Function	Symbol	Pin number
Power supply input (-)	$-V_{sup}$	1
Thermistor output/Not connected	TH2/N.C.	2 <sup>*)</sup>
Data pin/Ground	DATA/GND	3 <sup>**)</sup>
TEC supply input (-)/Not connected	TEC-/N.C.	4 <sup>*)</sup>
Ground	GND	5
Thermistor output/Not connected	TH1/N.C.	6 <sup>*)</sup>
Power supply input (+)	$+V_{sup}$	7
TEC supply input (+)/Not connected	TEC+/N.C.	8 <sup>*)</sup>

<sup>\*)</sup> N.C. – only for SIP-TO39 version.

<sup>\*\*)</sup> GND – only for SIP-TO39 version.

### Included accessories

- **MMCX-BNC, AMP2x4-DB9** cables

### Dedicated accessories for SIP-TO8

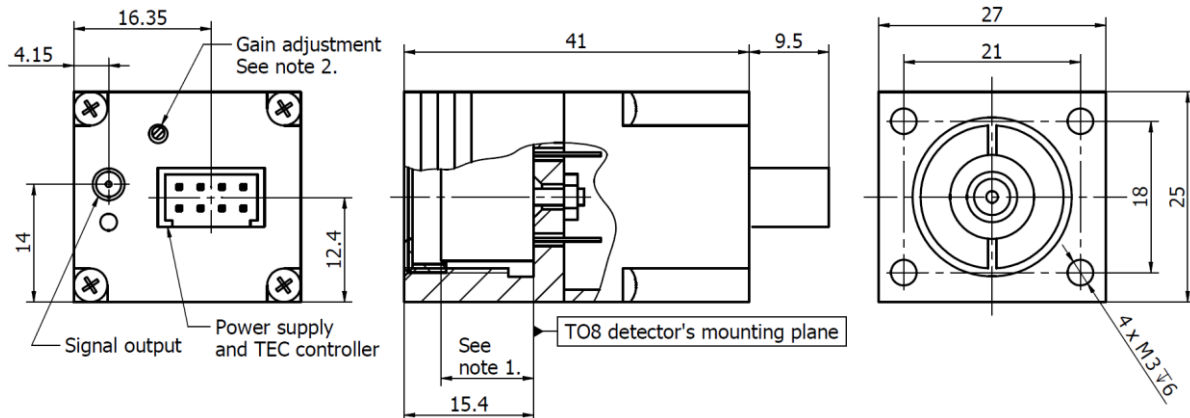
- **PTCC-01-BAS** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- **PTCC-01-ADV** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- **PTCC-01-OEM** TEC controller + **USB: TypeA-MicroB, KK2-POWER** cables
- **MHS-2** heatsink

### Dedicated accessories for SIP-TO39

- **PPS-03** preamplifier power supply + **AC adaptor**

### Mechanical layout, mm

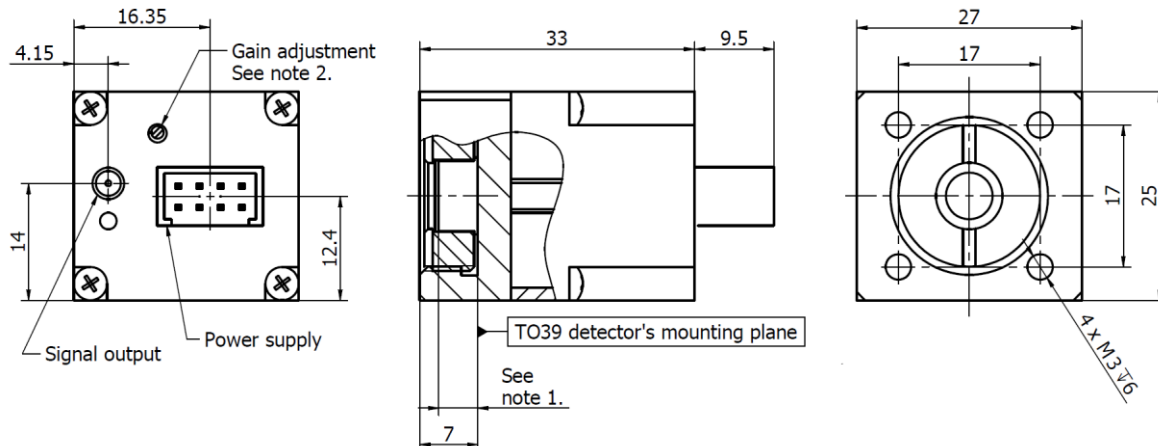
#### SIP-TO8



Notes:

1. TO8 detector dimensions in the "TO8 technical drawing".
1. Only for SIP-xx-xx-TO8-G version.

#### SIP-TO39



Notes:

1. TO8 detector dimensions in the "TO39 technical drawing".
2. Only for SIP-xx-xx-TO39-G version.