

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} , Ω	50	
Output voltage swing V_{out} , V	± 10 ± 1	$f_{hi} \leq 1\ \text{MHz}$, $R_L = 1\ \text{M}\Omega^{*)}$ $f_{hi} > 1\ \text{MHz}$, $R_L = 50\ \Omega^{*)}$
Output voltage offset V_{off} , mV	max $\pm 20^{**)}$	
Power supply voltage V_{sup} , V	± 15 ± 9	$f_{hi} \leq 1\ \text{MHz}$ $f_{hi} > 1\ \text{MHz}$
Power supply current I_{sup} , mA	max ± 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

^{*)} R_L – load resistance

^{**)} 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

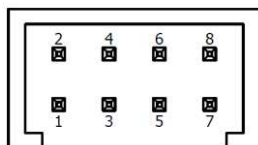
- **Photoconductive**
PC
- **Photoconductive optically immersed**
PCI
- **Photovoltaic**
PV, PVA
- **Photovoltaic optically immersed**
PVI, PVIA
- **Photovoltaic multiple junction**
PVM
- **Photovoltaic multiple junction optically immersed**
PVMI

Code description

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

^{*)} 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 ^{*)}
Data pin/Ground	DATA/GND	3 ^{**)}
TEC supply input (-)/Not connected	TEC-/N.C.	4 ^{*)}
Ground	GND	5
Thermistor output/Not connected	TH1/N.C.	6 ^{*)}
Power supply input (+)	$+V_{sup}$	7
TEC supply input (+)/Not connected	TEC+/N.C.	8 ^{*)}

^{*)} N.C. – only for SIP-TO39 version.

^{**)} GND – only for SIP-TO39 version.

Included accessories

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

Dedicated accessories for SIP-TO8

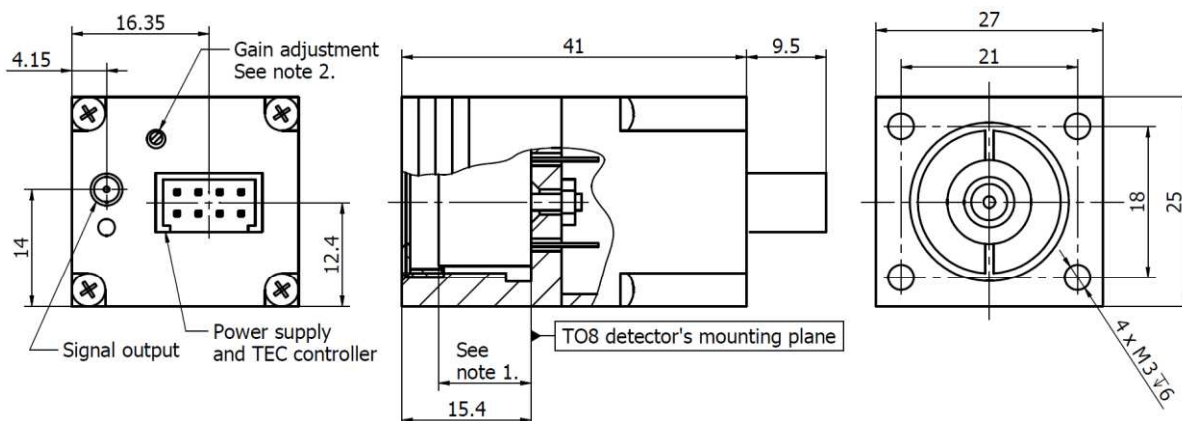
- **PTCC-01-BAS** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- **PTCC-01-ADV** TEC controller + **USB: TypeA-MicroB** cable + **AC adaptor**
- **PTCC-01-OEM** TEC controller + **USB: TypeA-MicroB, KK2-POWER** cables
- **MHS-2** heatsink

Dedicated accessories for SIP-TO39

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

Mechanical layout, mm

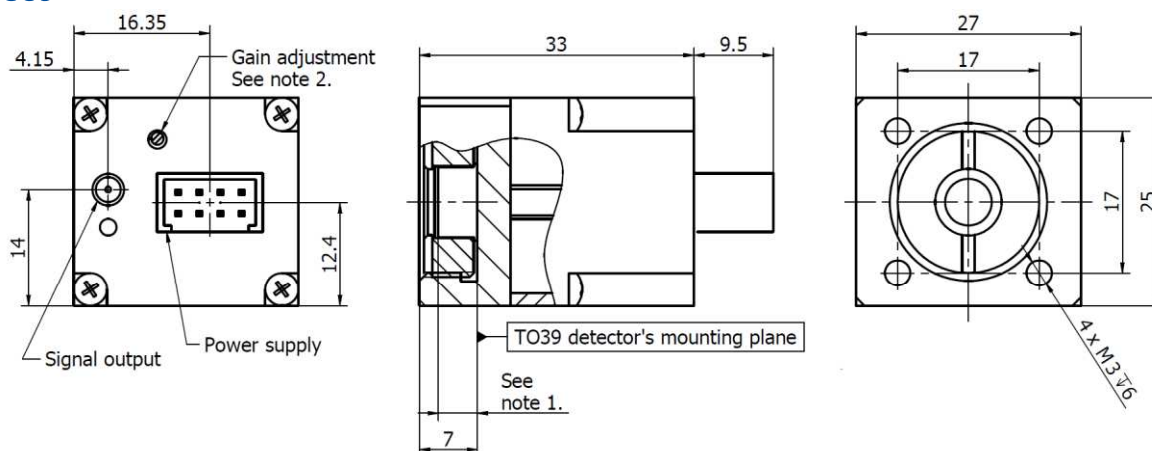
SIP-TO8



Notes:

1. TO8 detector dimensions in the "TO8 technical drawing".
3. 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.