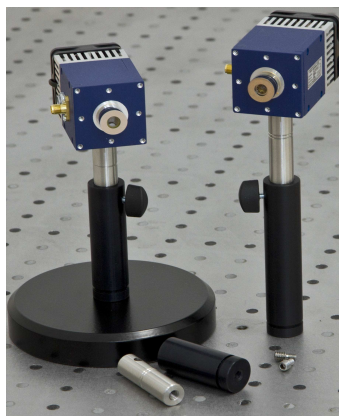




Example Configuration with Lens
(see: Recommended Accessories)



Example Assembling
(see: Recommended Accessories)

Features

- Compact size
- High signal-to-noise ratio
- Bandwidth up to 250 MHz
- Dedicated for operation with 2-, 3- and 4-stage TE cooled detectors
- Custom configuration upon request
- Additional accessories available

Applications

- Contactless temperature measurement
- Free space optical communication
- Laser radiation detection
- Gas analysis
- Fourier spectroscopy
- Fire, flame and human body detection
- Pyrometers, scanners
- Nondestructive material testing
- OEM applications

Description

MIP is the transimpedance, AC or DC coupled preamplifier. It is dedicated for BenchTop applications. Package type F is equipped with fan and does not require additional heat sink. Package type NF requires additional heat dissipation (provided by user).

MIP preamplifier is designed for operation with either biased or non-biased cooled detectors.

Preamplifier Specification

Parameter	Symbol	Unit	Typical Value	Conditions, Remarks	
Input Noise Voltage Density	e_n	$\frac{nV}{\sqrt{Hz}}$	0.97 – 8.0 ¹⁾	$f_o = 10 \text{ kHz}^{2)}$	
Input Noise Current Density	i_n	$\frac{nV}{\sqrt{Hz}}$	0.02 – 3.5 ¹⁾	$f_o = 10 \text{ kHz}^{2)}$	
Low Cut-Off Frequency	f_{lo}	Hz	DC 10 to 10k	DC coupling set AC coupling set	
High Cut-Off Frequency	f_{hi}	Hz	100k to 250M		
Transimpedance	K_i	$\frac{V}{A}$	up to 20 ⁵⁾		
Output Impedance	R_{out}	Ω	50		
Output Voltage Swing	V_{out}	V	±10 ±2 ±1	$f_{hi} \leq 1 \text{ MHz}, R_L = 1 \text{ M}\Omega^{3)}$ $1 \text{ MHz} < f_{hi} \leq 20 \text{ MHz}, R_L = 1 \text{ M}\Omega^{3)}$ $20 \text{ MHz} < f_{hi} \leq 250 \text{ MHz}, R_L = 50 \Omega^{3)}$	
Output Voltage Offset	V_{off}	mV	max ±20 ⁴⁾		
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	
Dimensions	-	mm×mm×mm	40×81.3×40	width×depth×height - with 2TE width×depth×height - with 3TE width×depth×height - with 4TE	MIP package F
			40×82.8×40		
			40×84.3×40		
			40×55.5×40		
40×57×40					
40×58.5×40					

Electrical characteristics @ $T_a = 20 \text{ }^\circ\text{C}$

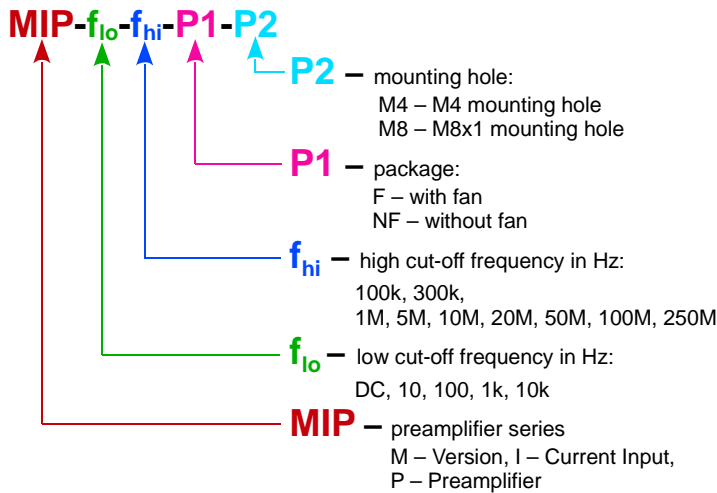
¹⁾ The preamplifier noise may significantly reduce the system performance in some situations.
This happens for large capacitance detectors operating at high frequencies

²⁾ f_o – noise measurement frequency

³⁾ R_L – load resistance

⁴⁾ Measured with equivalent resistor at the input instead of the detector. It's to avoid the environmental thermal radiation's impact

Preamplifier Code Description

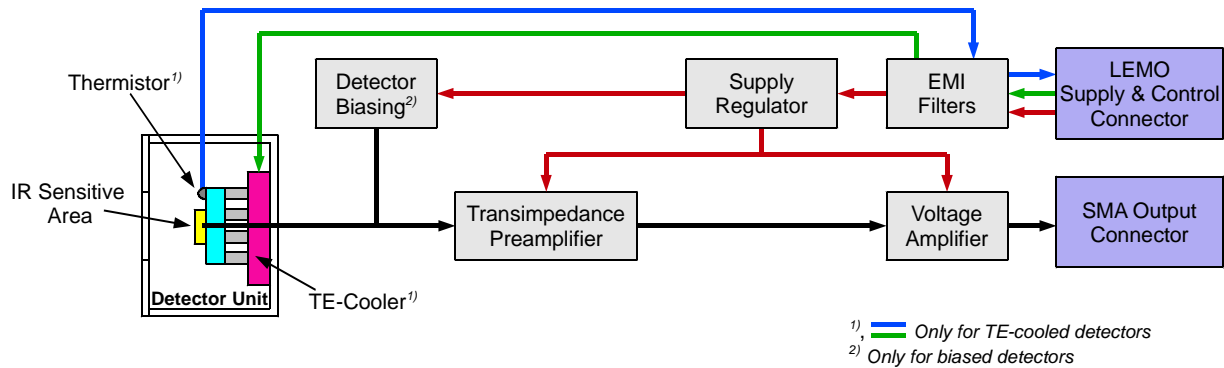


The preamplifier can be integrated with following types IR detectors:

Detector Type	Description
PC-2TE, PC-3TE, PC-4TE	photoconductive
PCI-2TE, PCI-3TE, PCI-4TE	photoconductive, optically immersed
PV-2TE, PV-3TE, PV-4TE	photovoltaic
PVI-2TE, PVI-3TE, PVI-4TE	photovoltaic, optically immersed
PVM-2TE, PVM-3TE, PVM-4TE	multiple heterojunction photovoltaic
PVMI-2TE, PVMI-3TE, PVMI-4TE	multiple heterojunction photovoltaic, optically immersed

Symbol -2TE, -3TE, -4TE means 2-, 3- or 4-stage TEC integrated with detector

Schematic Diagram

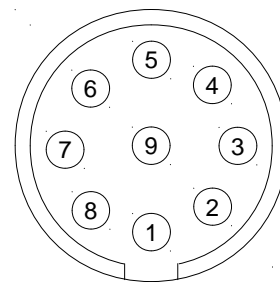


Power Supply and TEC Control Connector

Pin Number	Symbol	Function
1 ¹⁾	FAN+/GND	FAN (+)/power ground
2	TH2	thermistor output (2)
3	TEC-	TEC supply input (-)
4	-V _{sup}	power supply input (-)
5	GND	power ground
6	+V _{sup}	power supply input (+)
7	TEC+	TEC supply input (+)
8	TH1	thermistor output (1)
9	N.C.	not connected

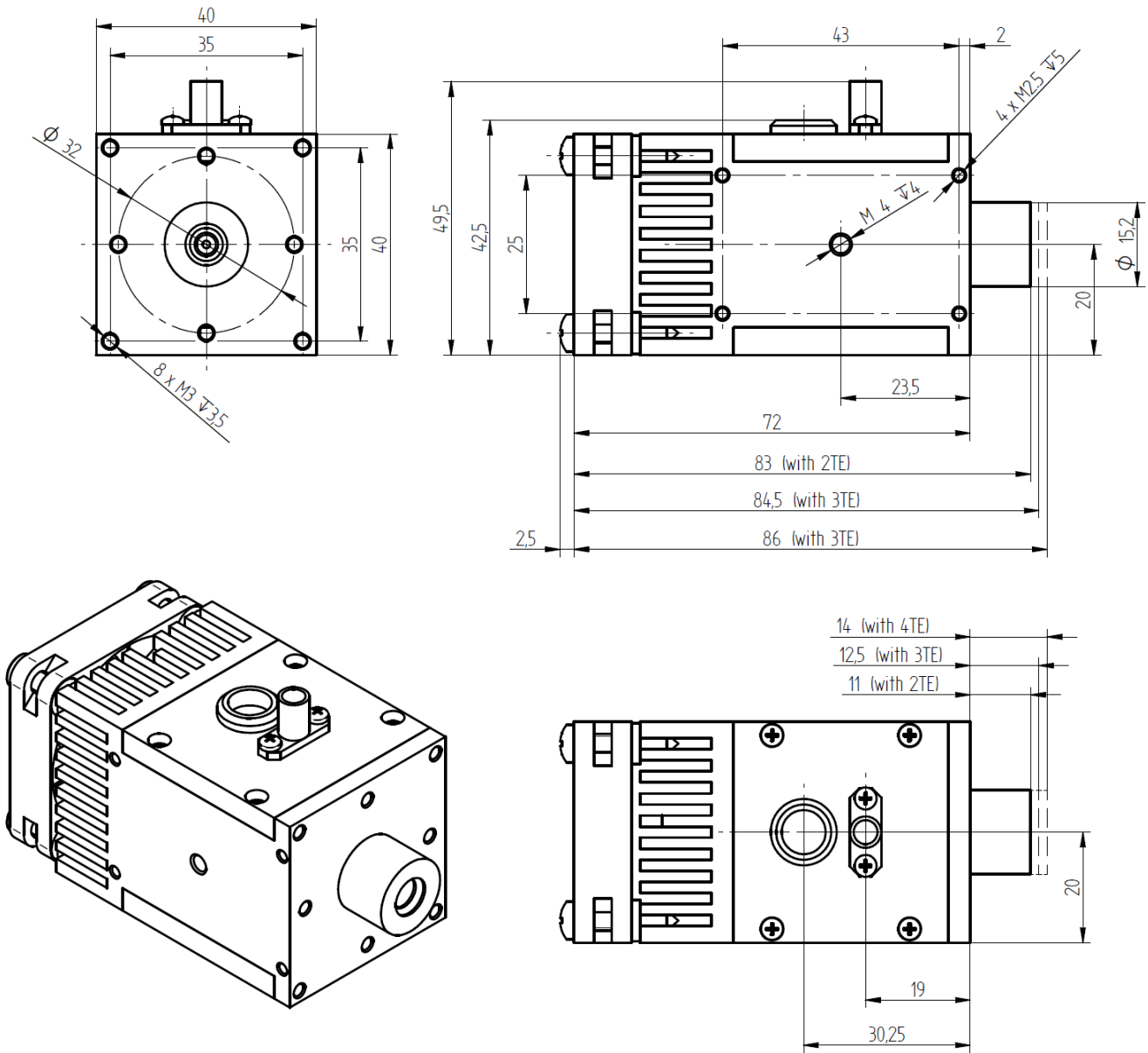
¹⁾ GND for MIP with package NF

LEMO Connector Female

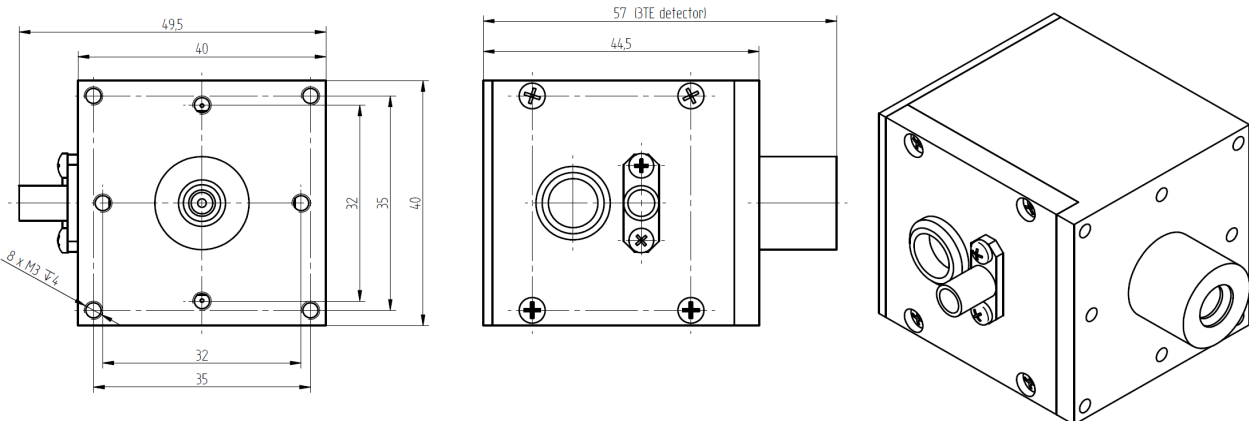


Physical Dimensions [mm]

MIP package F



MIP package NF



Recommended Accessories

PTCC-01-OEM	PTCC-01-BAS	PTCC-01-ADV	STCC-04	MTCC-01
Programmable "Smart" TEC Controller – OEM	Programmable "Smart" TEC Controller – Basic	Programmable "Smart" TEC Controller – Advanced	Standard TEC Controller	Miniature TEC Controller
MPPS-01	SMA-BNC	SMA-SMA	LEMO-DB9	LEMO-DUBOX2x5
Preamplifier Power Supply	Signal Output Cable	Signal Output Cable	TEC and Supply Cable	TEC and Supply Cable
LEMO-AMP2x4	AMP1x6-MIC5	AMP1x6-POWER	KK2-POWER	USB: TypeA-MicroB
TEC and Supply Cable	Power Supply Cable	Power Supply Cable	Power Supply Cable	Cable for PC Connection
AC Adaptor	Power Cable EU	Power Cable UK	Power Cable US	EL-1
Power Supply Adaptor	Power Cable	Power Cable	Power Cable	Accessory Lens with Mount
DRB-1	DRB-2	MP	PH	STA-8x1-4
Base Mounting System	Base Mounting System	Mounting Post	Post Holder	Special Thread Adapter