



Features

- Compact size
- Easy to use
- High Signal/Noise ratio
- Bandwidth up to 250 MHz
- 2, 3 and 4 stage TE cooled detectors
- Additional accessories available
- Custom design upon request

Applications

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

Preamplifier Specification

Parameter	Symbol	Unit	Typical Value	Conditions, Remarks
Input Noise Current	i_n	pA/ $\sqrt{\text{Hz}}$	0.02 – 3.5*	MIPAC-F, MIPDC-F, fo=10kHz
Input Noise Voltage	e_n	nV/ $\sqrt{\text{Hz}}$	0.97 – 8.0*	MIPAC-F, MIPDC-F, fo=10kHz
Detector Capacitance	C_i	pF	≤ 100	
Low Cut-Off Frequency	f_{lo}	Hz	0	MIPDC-F
		Hz	10 to 10 ⁴	MIPAC-F
High Cut-Off Frequency	f_{hi}	MHz	0.1 to 250	MIPAC-F, MIPDC-F
Transimpedance	K_i	V/A	up to 10 ⁵	MIPAC-F, MIPDC-F
Output Impedance	R_{out}	Ω	50	
Output Voltage Swing	V_{out}	V	± 10	$f_{hi} \leq 300 \text{ kHz}, R_L=1\text{M}\Omega$
		V	± 10	$f_{hi} \leq 1\text{MHz}, R_L=1\text{M}\Omega$
		V	± 2	$f_{hi} \leq 5\text{MHz}, R_L=1\text{M}\Omega$
		V	± 2	$f_{hi} \leq 10\text{MHz}, R_L=1\text{M}\Omega$
		V	± 2	$f_{hi} \leq 20\text{MHz}, R_L=50\Omega$
		V	± 1	$f_{hi} \leq 50\text{MHz}, R_L=50\Omega$
		V	± 1	$f_{hi} \leq 100\text{MHz}, R_L=50\Omega$
		V	± 1	$f_{hi} \leq 250\text{MHz}, R_L=50\Omega$
Output Voltage Offset	V_{off}	mV	max. ± 20	MIPAC-F, MIPDC-F
Power Supply Voltage	V_{sup}	V	± 15	$f_{hi} < 1 \text{ MHz}$
		V	± 9	$f_{hi} \geq 1 \text{ MHz}$
Power Supply Current	I_{sup}	mA	max. ± 50	no detector biasing
Dimensions		mm	40 x 81.3 x 40	width x depth x height with 2TE
		mm	40 x 82.8 x 40	width x depth x height with 3TE
		mm	40 x 84.3 x 40	width x depth x height with 4TE

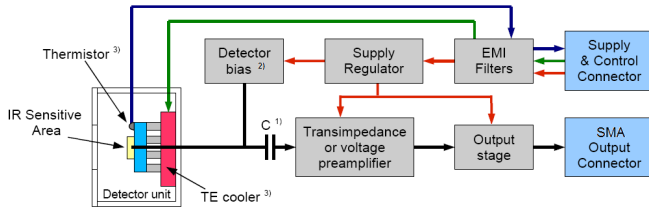
Electrical characteristics @ $T_a=20^\circ\text{C}$

*The preamplifier noise may significantly reduce the system performance in some situations, however. This happens for large capacitance detectors operating at high frequencies. See related documents for details.

Description

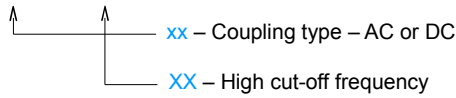
MIPAC-F The infrared detector is integrated with AC or DC coupled transimpedance preamplifier. High performance is achieved through individual matching of the IR detector to the preamplifier and good heat dissipation management.

Schematic Diagram

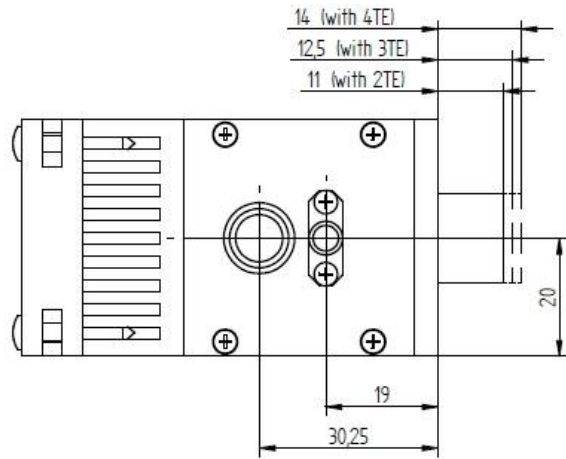
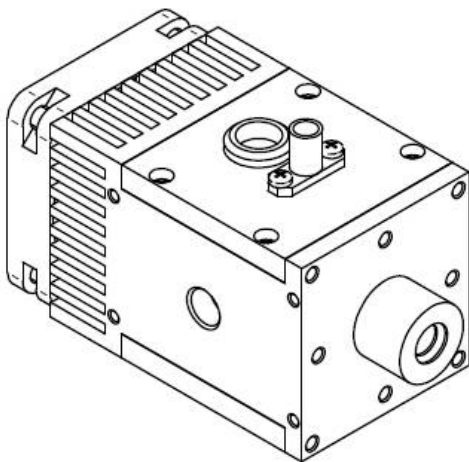
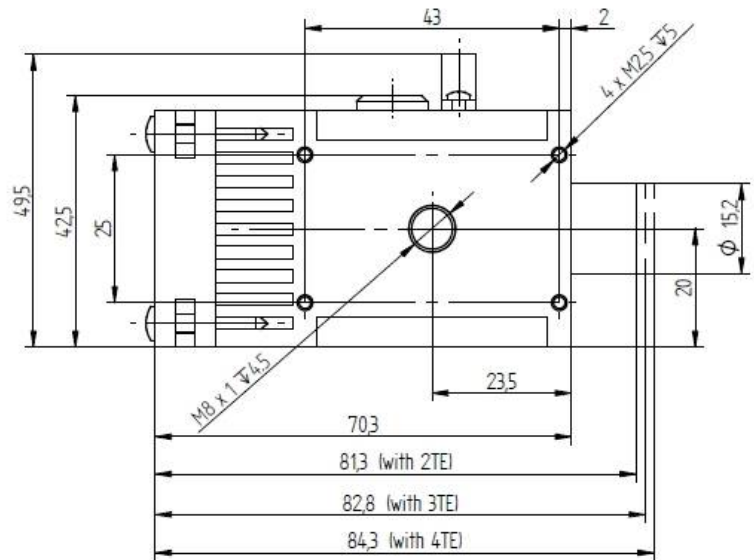
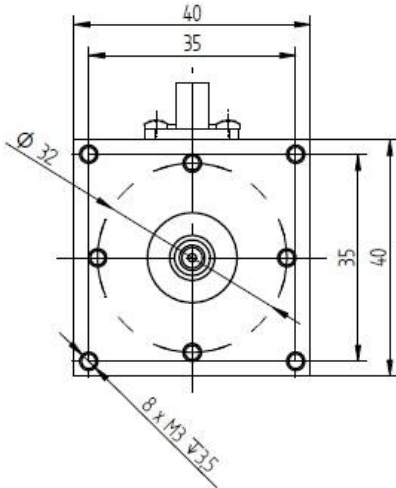


Preamplifier/Module Code Description

MIPxx-FXX



Dimensions



Module Type	Description
MIPAC-F-xx ¹⁾	Detector Module with AC Coupled Transimpedance Preamplifier
MIPDC-F-xx ¹⁾	Detector Module with DC Coupled Transimpedance Preamplifier

¹⁾symbol -xx means high cut off frequency: 0.1, 0.3, 1, 5, 10, 20, 50, 100, 250 MHz
The preamplifier can be integrated with following types of TE cooled 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

²⁾symbol -2TE means 2-stage TEC integrated with detector, symbol -3TE means 3-stage TEC, -4TE means 4 integrated with detector

RECOMMENDED ACCESSORIES

STCC-04	Standard Thermoelectric Cooler Controller
PPS-02	Preamplifier Power Supply