



Features

- Compact size
- Wide bandwidth up to 1GHz
- Precise I-V conversion
- Detector biasing possibility up to +800 mV
- Low current noise
- Co-operation with high-resistance detectors
- Effective cooling up to 4-stage TE coolers

Applications

- Laser technology
- Fast laser pulse measurements
- Telemetry
- Sighting systems
- Free space optics

Description

FIP is the high speed transimpedance, AC coupled preamplifier. It is dedicated for high speed infrared measurements.

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

Preamplifier Specification

Parameter	Symbol	Unit	Typical Value	Conditions, Remarks
Input Noise Voltage Density	e_n	$\frac{nV}{\sqrt{Hz}}$	1.1 ¹⁾	$f_o = 100 \text{ kHz}^{2)}$
Input Noise Current Density	i_n	$\frac{pA}{\sqrt{Hz}}$	5 ¹⁾	$f_o = 100 \text{ kHz}^{2)}$
Low Cut-Off Frequency	f_{lo}	Hz	1k, 10k	3 dB
High Cut-Off Frequency	f_{hi}	Hz	1G	3 dB
Transimpedance	K_i	$\frac{V}{A}$	8.5×10^3	
Output Impedance	R_{out}	Ω	50	
Output Voltage Swing	V_{out}	V	± 0.8	$R_L = 50 \Omega^{3)}$
Power Supply Voltage	V_{sup}	V	+12 -5	
Power Supply Current	I_{sup}	mA	+100 -50	no detector biasing
Dimensions	-	mm×mm×mm	45×89.5×48.5 45×91×48.5 45×92.5×48.5	width×depth×height - with 2TE width×depth×height - with 3TE width×depth×height - with 4TE

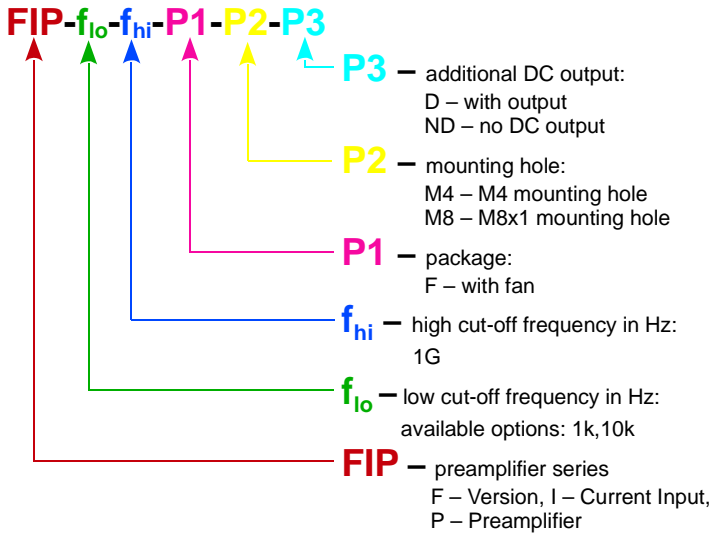
Electrical characteristics @ $T_a = 20 \text{ }^\circ\text{C}$

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

Preamplifier Code Description

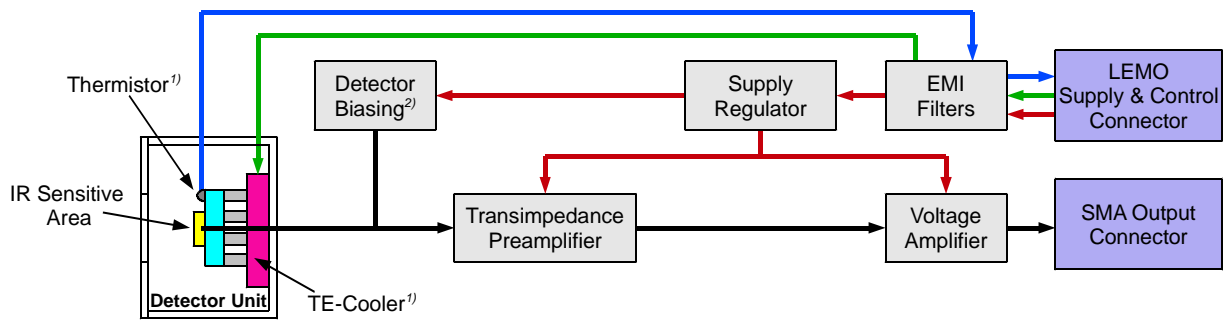


The preamplifier can be integrated with following types IR detectors:

Detector Type	Description
PC-2TE, PC-3TE, PC-4TE	photoconductive
PCI, 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

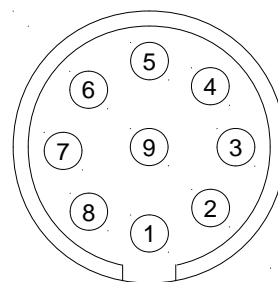


¹⁾ Only for TE-cooled detectors
²⁾ Only for biased detectors

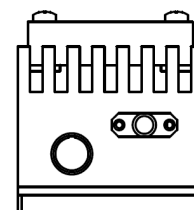
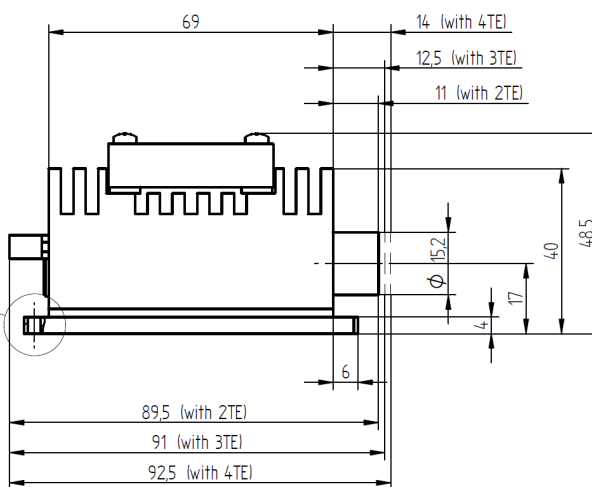
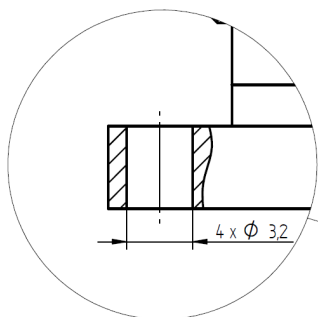
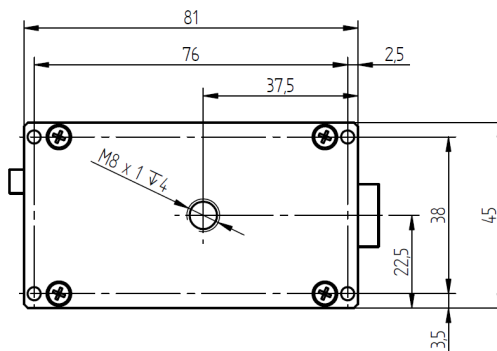
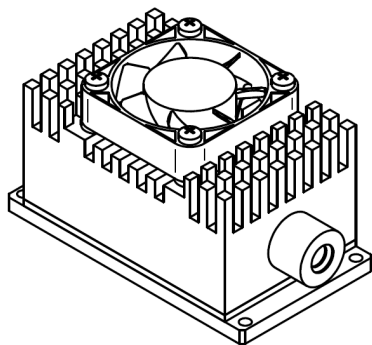
Power Supply and TEC Control Connector

Pin number	Symbol	Function
1	FAN+	FAN (+)
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

LEMO Connector Female



Physical Dimensions [mm]



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	DRB-1
Power Supply Adaptor	Power Cable	Power Cable	Power Cable	Base Mounting System
DRB-2	MP	PH	STA-8x1-4	
Base Mounting System	Mounting Post	Post Holder	Special Thread Adapter	