QIP Series

FOUR CHANNEL PREAMPLIFIER

Example Assembling
(see: Recommended Accessories)

Features

- Very small size
- High signal-to-noise ratio
- Bandwidth up to 100 MHz
- Dedicated for operation with uncooled, quadrant geometry detectors
- Fully protected against exceeding supply voltage and reversing power supply polarity
- Custom configurations upon request
- Additional accessories available

Applications

- Laser beam positioning

Description

QIP is the four channel, transimpedance, AC or DC coupled preamplifier. It is dedicated for BenchTop or OEM applications and, in some cases, requires external heat sink (see Recommended Accessories).

QIP is designed to work with either biased or non-biased, uncooled , quadrant geometry 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 kHz[2)]
Input Noise Current Density	i_n	$\frac{nV}{\sqrt{Hz}}$	0.02 – 3.5[1)]	f_o = 10 kHz[2)]
Low Cut-Off Frequency	f_{lo}	Hz	DC 1k, 10k	DC coupling set AC coupling set
High Cut-Off Frequency	f_{hi}	Hz	100k to 100M	
Transimpedance	K_i	$\frac{V}{A}$	up to 2×10^5	
Transimpedance Range	$\frac{K_{i\ max}}{K_{i\ min}}$	-	up to 5	dependent on the high cut-off frequency
Output Impedance	R_{out}	Ω	50	
Output Voltage Swing	V_{out}	V	±10 ±1	$f_{hi} \le 1$ MHz, R_L = 1 MΩ[3)] 1 MHz < $f_{hi} \le 100$ MHz, R_L = 50 Ω[3)]
Output Voltage Offset	V_{off}	mV	max ±20[4)]	
Power Supply Voltage	V_{sup}	V	±15 ±9	$f_{hi} \le 1$ MHz 1 MHz < $f_{hi} \le 100$ MHz
Power Supply Current	I_{sup}	mA	max ±50	no detector biasing
Dimensions	-	mm×mm×mm	50×58.5×50	width×depth×height

Electrical characteristics @ T_a = 20 ºC

[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

QIP-f_{lo}-f_{hi}-P1

P1 – mounting hole:
M4 – M4 mounting hole
M8 – M8x1 mounting hole

f_{hi} – high cut-off frequency in Hz:
100k, 300k, 1M, 5M, 10M, 20M, 50M, 100M

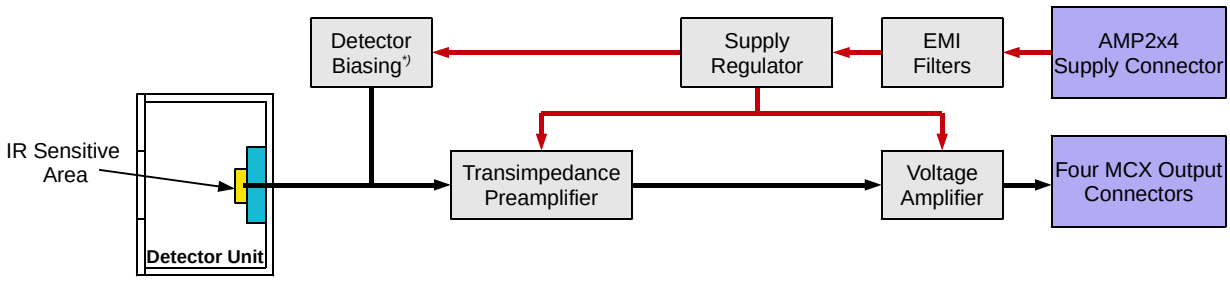
f_{lo} – low cut-off frequency in Hz:
DC, 1k, 10k

QIP – preamplifier series
Q – Quadrant, I – Current Input,
P – Preamplifier

The preamplifier can be integrated with following types IR detectors:

Detector Type	Description
PCQ	quadrant photoconductive
PVMQ	quadrant multiple heterojunction photovoltaic

Schematic Diagram

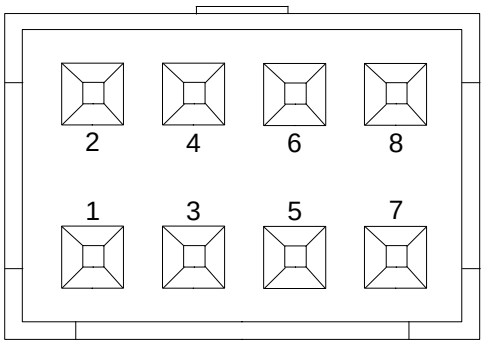


*) *Only for biased detectors*

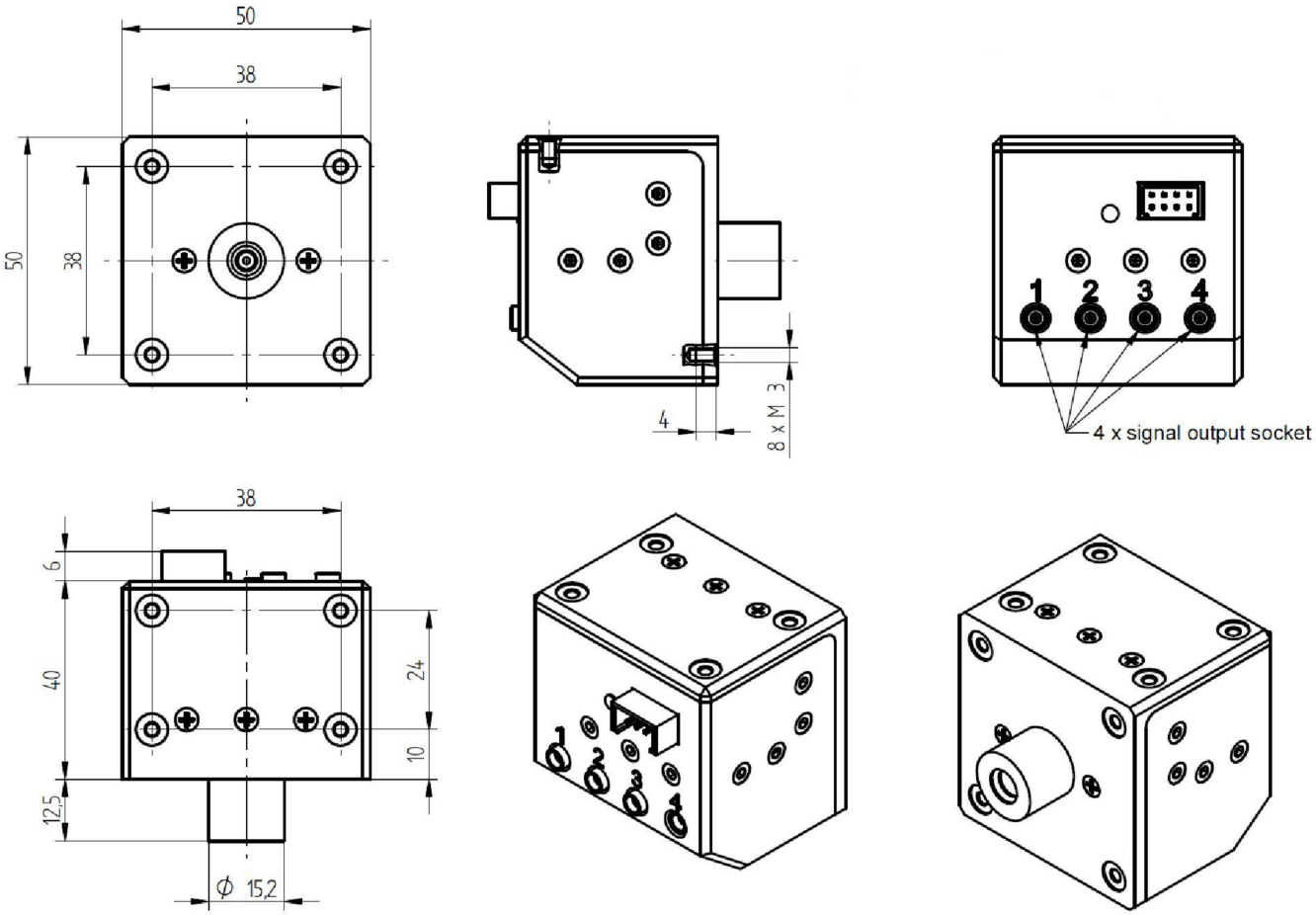
Power Supply Connector

Pin Number	Symbol	Function
1	$-V_{sup}$	**power supply input (–)**
2	N.C.	**not connected**
3	GND	**power ground**
4	N.C.	**not connected**
5	GND	**power ground**
6	N.C	**not connected**
7	$+V_{sup}$	**power supply input (+)**
8	N.C.	**not connected**

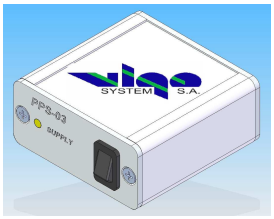
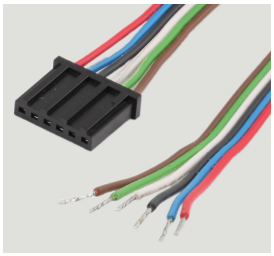
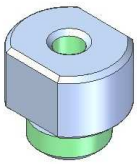
AMP2x4 Connector Male



Physical Dimensions [mm]



Recommended Accessories

MPPS-01	PPS-02	PPS-03	MCX-BNC	MCX-SMA
				
Preamplifier Power Supply	Preamplifier Power Supply	Preamplifier Power Supply	Signal Output Cable	Signal Output Cable
AMP2x4-MIC5	**AMP2x4-DB9**	**AMP2x4-POWER**	**AC Adaptor**	**Power Cable EU**
				
Power Supply Cable	Power Supply Cable	Power Supply Cable	Power Supply Adaptor	Power Cable
Power Cable UK	**Power Cable US**	**MHS-3**	**DRB-1**	**DRB-2**
		**AVAILABLE SOON**		
Power Cable	Power Cable	Additional Heat Sink	Base Mounting System	Base Mounting System
MP	**PH**	**STA-8x1-4**		
				
Mounting Post	Post Holder	Special Thread Adapter		