

**Low-Noise Photoreceiver
Variable-Gain Module with InGaAs-PD in F-SMA**

Features

- Compact 63 x 58 x 19 mm
- Optical Input for F-SMA Fiber
- Switchable Gain of $10^5 / 10^6 / 10^7$ V/A

Applications

- Measurement of Near Infrared Radiation with high Dynamic Range

The A149-001-03 is a low-noise preamplifier module with optical input. The build-in InGaAs photodiode (1A358) in a F-SMA receptacle receives near infrared radiation via optical fiber.

The module offers high gain/bandwidth with low noise in a compact housing. Gain Switching is realized without moving parts, allowing fast and wearless operation.

Selected Gain	10^5	10^6	10^7
Gain $\pm 2\%$	10^5 V/A	10^6 V/A	10^7 V/A
Bandwidth $\pm 10\%$	DC – 500 kHz	DC – 450 kHz	DC – 400 kHz
Input Current Noise (typ.)	700 fA/ $\sqrt{\text{Hz}}$ @ 20 kHz	200 fA/ $\sqrt{\text{Hz}}$ @ 20 kHz	70 fA/ $\sqrt{\text{Hz}}$ @ 20 kHz
Integrated Output Noise (typ.)	0.5 mVpp	1 mVpp	5 mVpp

Common Characteristics	
Input Bias Current incl. InGaAs-PD (typ.)	10 pA
Input Bias Current Drift	$\times 2 / 10^\circ\text{C}$
Output Offset Voltage max.	1 mV
Output Offset Voltage Drift max.	50 $\mu\text{V} / ^\circ\text{C}$
Output Voltage Range	10 V (>10 k Ω Load)
Output Impedance	50 Ω

Common Characteristics	
Max. Output Current	10 mA
Power Supply Voltage	± 15 V
Power Supply Current	+35 / -20 mA typ.
Shield	Tin-Plated Steel
Weight	50 g
Storage Temperature	-20 .. +80 °C
Operating Temperature	10 .. 40 °C

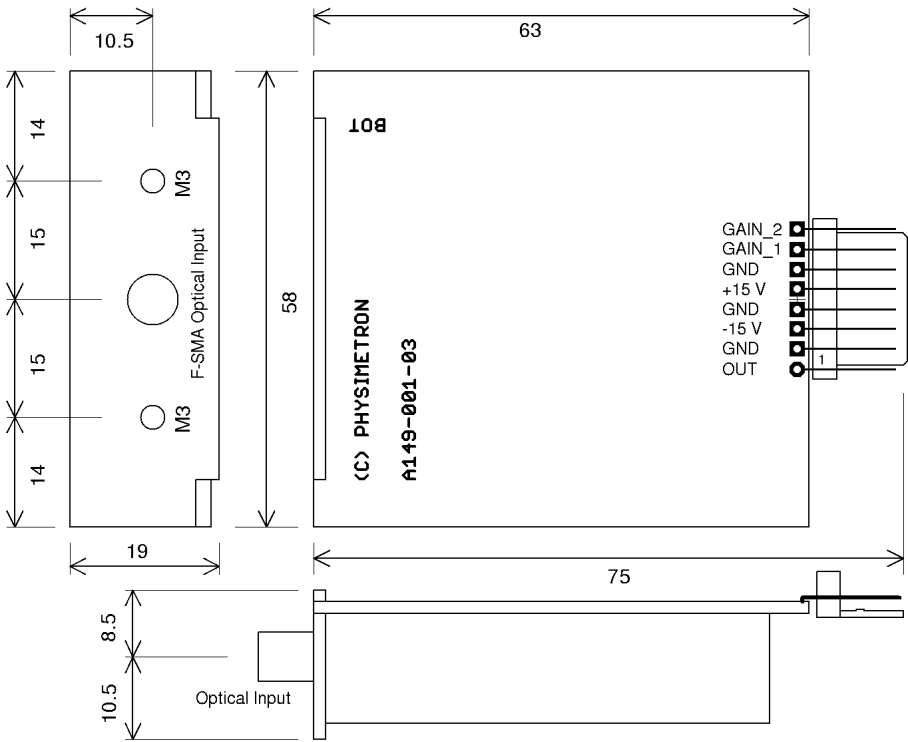
All characteristics are for ±15 V power supply and 25 °C ambient temperature.

Absolute Maximum Ratings	
Optical Input Power	2 mW
Power Supply Voltage	± 20 V
Control Input Voltage (Pin 7 and 8)	-4 / +18 V

Connections	
Optical Input	InGaAs-PD (1A358) in F-SMA Connector
Output and Power Supply	8 Pin Header (2.54 mm Pitch): Pin 1 = Output Pin 2 = Ground Pin 3 = -15 V Negative Supply Pin 4 = Ground Pin 5 = +15 V Positive Supply Pin 6 = Ground Pin 7 = Gain Control Input 1 Pin 8 = Gain Control Input 2

Gain Selection		
Control Inputs Pin 7 and 8 are CMOS Logic compatible. They are terminated to Ground with 70 kΩ		
Logic Low Voltage Range		0 ... 1 V
Logic High Voltage Range		4 ... 15 V
Level Pin 8	Level Pin 7	Gain
L	L	10^7
L	H	10^5
H	L	10^6
H	H	not defined

Dimensions



A149-001-03 Dimensions are in mm