



The D103 is an amplified extended InGaAs photoreceiver with a 10 position switchable gain and an additional low pass filter for the detection of light in the spectral range 900–2500nm. An integrated temperature controller maintains the D103 temperature at -25°C for low noise operation. The D103 can drive both high impedance and 50Ω loads. Three mounting holes allowing pure rotation of the diode, eliminating unwanted translation during mounting.

The D103 has 8-32 tapped mounting holes. The European version has M4 mounting holes.

At high gain the D103 provides lower bandwidth due to the finite gain bandwidth product of its operational amplifiers.

Features	Low noise switchable photoreceiver with extended InGaAs-PIN -diode	
Applications	General Opto-Electronic Measurements Spectroscopy, OEM applications	
Specifications	Parameter	Value
Detector	Material	Extended InGaAs-PIN
	Diameter	0.3 mm
	Spectral Response	900-2500 nm
	Conversion	0.9 A/W
Gain	10 position rotary switch	2x10 <sup>7</sup> , 6x10 <sup>6</sup> , 2x10 <sup>6</sup> , 6.2x10 <sup>5</sup> , 2.1x10 <sup>5</sup> , 6.2x10 <sup>4</sup> , 2.1x10 <sup>4</sup> , 6.6x10 <sup>3</sup> , 2.1x10 <sup>3</sup> , 6.6x10 <sup>2</sup> V/A
Frequency response		90 kHz, 270 kHz, 500 kHz, 1.5 MHz, 4.5 MHz, 8 MHz, 8 MHz, 10 MHz, 10 MHz, 10 MHz
Low pass filter	10 position rotary switch	10 MHz, 3 MHz, 1 MHz, 300 kHz, 100 kHz, 30 kHz, 10 kHz, 3 kHz, 1 kHz, 300 Hz
On / Off switch	Toggle switch	
Input	NEP	Down to 2 pW/√Hz at the highest gains
	Max. Input Power	20 mW CW
Output	Impedance	50 Ω
	Noise (RMS)	Less than 2 mV, less than 10 mV at the three highest gains
	Offset	Adjustable externally
	Voltage	0-10 V, 0-5 V at 50 Ω load
	Connector	SMB
Dimensions	W x H x D	50.8 x 50.8 x 80.0 mm
Weight		350 g
Power supply	Cable with banana plug	± 15 V @ 200 mA; +5 V @ 1.5 A
Storage Temp	-20 to 80 °C	
Operating Temp	0 to 40 °C	

## Power supply requirements

We recommend using a linear regulated power supply for optimal results. Switched power supplies are known to have significant ripple, which could deteriorate the D103 performance. The banana plugs for the power supplies have the following colours:

Black:	- 15 V
Green:	Ground
Blue:	+ 5 V
Red:	+ 15 V

The D103 can use power supplies between +/- 12 V and +/-16 V without performance degradation.

If using a +5 V power supply for high current operation, voltage should not exceed 6 V. Above 6 V, the temperature control circuit will produce too much heat load for successful temperature stabilisation.

## Temperature stabilisation

The TEC status LED is located on the back panel of the D103. The LED can show one of the three colours: green, yellow and red. Colour assignments are specified below:

Green:	Diode temperature too low and outside the allowable temperature range
Yellow:	Diode temperature locked to set point and within the allowable temperature range
Red:	Diode temperature too high and outside the allowable temperature range

If the LED does not show yellow within one minute , the D103 should be returned for repair.