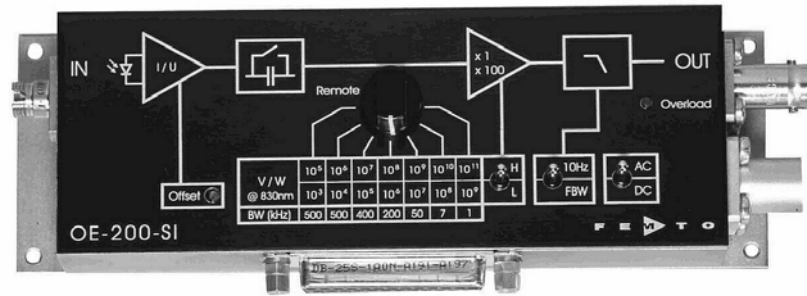
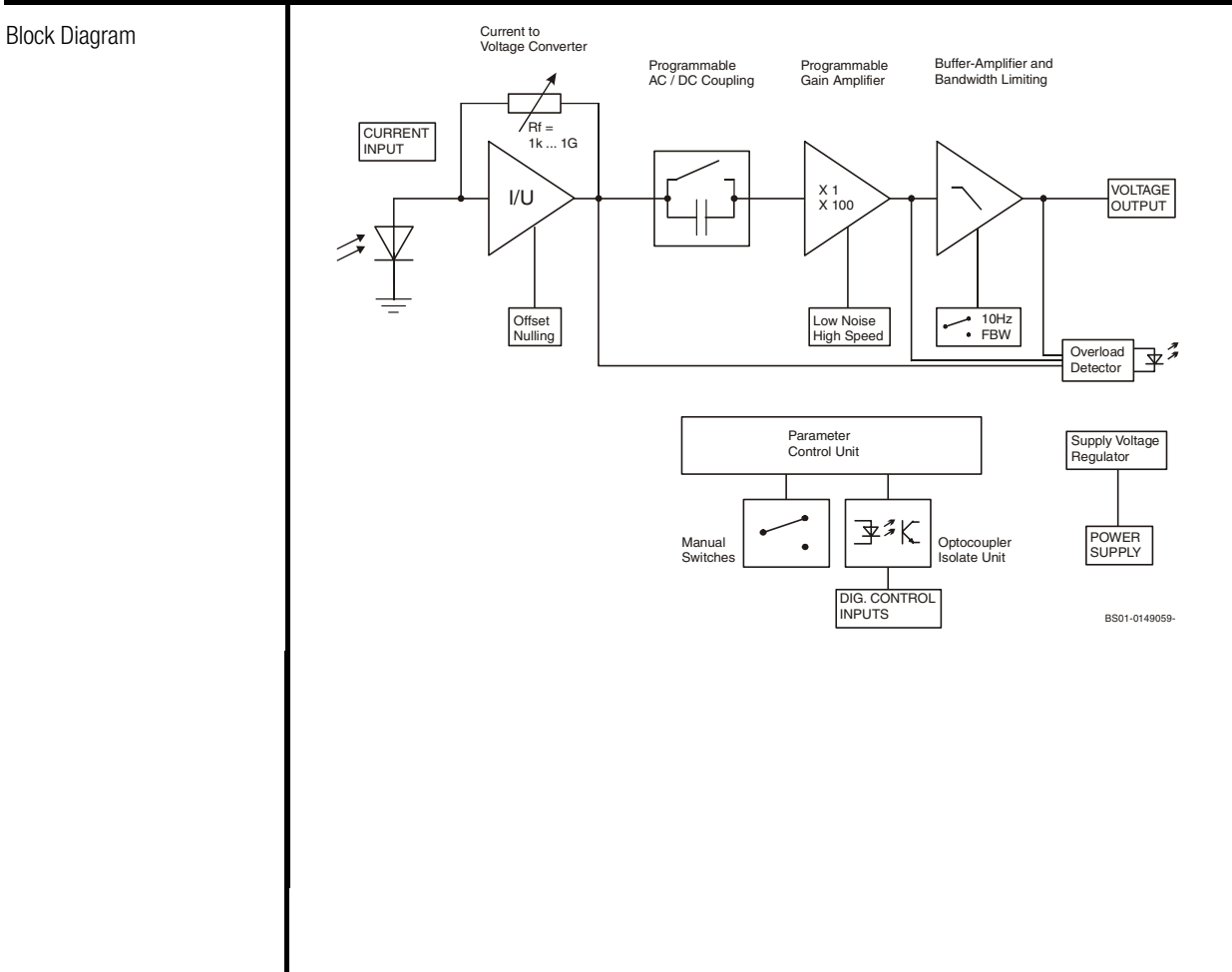


Variable-Gain Photoreceiver - Fast Optical Power Meter



Features	<ul style="list-style-type: none"> • Si PIN Detector, Ø 1.2 mm Active Diameter, FC, ST or SMA Fiber Receptacle • Spectral Range 320 - 1060 nm • Conversion Gain Switchable from 1×10^3 to 1×10^{11} V/W • Calibrated at 830 nm, Traceable to NIST Standards • Bandwidth up to 500 kHz • Local and Remote Control
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Applications	<ul style="list-style-type: none"> • Fast Optical Power Meter • Spectroscopy • General-Purpose Opto-Electrical Measurements • Optical Receiver for Use with Lock-In Amplifiers
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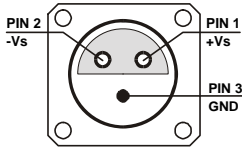


BS01-0149059-

Variable-Gain Photoreceiver - Fast Optical Power Meter

Specifications	<i>Test Conditions</i>	<i>V_s = ± 15 V, T_a = 25°C</i>						
Gain	Conversion Gain	1 x 10 ³ ... 1 x 10 ¹¹ V/W (@ 830 nm)						
	Gain Accuracy	± 5 % electro-optical (P _{opt} ≤ 1 mW), traceable to NIST						
	Gain Drift	see table below						
Frequency Response	Lower Cut-Off Frequency	DC / 1 Hz, switchable						
	Upper Cut-Off Frequency	up to 500 kHz (see table), switchable to 10 Hz						
	Gain Flatness	± 0.1 dB						
	Gain Accuracy	± 1 % electrical, between settings						
Input	NEP	see table						
	Max. cw-Saturation Power	see table						
	Dark Current Compensation	± 1 nW, adjustable by offset trimpot and external control voltage						
Detector	Detector	Si PIN photodiode in FC, ST or SMA fiber receptacle						
	Active Area	Ø 1.2 mm						
	Spectral Response	320 – 1060 nm						
	Sensitivity	0.6 A/W (@ 830 nm)						
	Dark Current	2 pA typ.						
Performance Depending on Gain Setting	Gain Setting (Low Noise) (V/W)	10 ³	10 ⁴	10 ⁵	10 ⁶	10 ⁷	10 ⁸	10 ⁹
	Upper Cut-Off Frequency (- 3 dB)	500 kHz	500 kHz	400 kHz	200 kHz	45 kHz	7 kHz	1.2 kHz
	Rise / Fall Time (10% - 90%)	700 ns	700 ns	900 ns	1.8 µs	8 µs	50 µs	300 µs
	NEP (√Hz, @100 Hz)	37 pW	4.3 pW	850 fW	240 fW	80 fW	26 fW	10 fW
	Offset Current Drift (°C)	60 nW	6 nW	0.6 nW	51 pW	5.1 pW	0.8 pW	0.6 pW
	Gain Drift (°C)	0.008%	0.008%	0.008%	0.01%	0.01%	0.01%	0.02%
	cw-Saturation Power	2 mW	1 mW	0.1 mW	10 µW	1 µW	0.1 µW	10 nW
	Gain Setting (High Speed) (V/W)	10 ⁵	10 ⁶	10 ⁷	10 ⁸	10 ⁹	10 ¹⁰	10 ¹¹
	Upper Cut-Off Frequency (- 3 dB)	500 kHz	500 kHz	400 kHz	200 kHz	45 kHz	7 kHz	1.2 kHz
	Rise / Fall Time (10% - 90%)	700 ns	700 ns	900 ns	1.8 µs	8 µs	50 µs	300 µs
	Min. NEP (√Hz, @100 Hz)	24 pW	3.3 pW	830 fW	240 fW	80 fW	26 fW	10 fW
	Offset Current Drift (°C)	60 nW	6 nW	0.6 nW	51 pW	5.1 pW	0.8 pW	0.6 pW
	Gain Drift (°C)	0.008%	0.008%	0.008%	0.01%	0.01%	0.01%	0.02%
	cw-Saturation Power	0.1 mW	10 µW	1 µW	0.1 µW	10 nW	1 nW	0.1 nW
	Output	Output Voltage	± 10 V (@ 10 kΩ load)					
Output Impedance		50 Ω (terminate with > 10 kΩ load for best performance)						
Max. Output Current		± 30 mA						
Indicator LED	Function	Overload						
Digital Control	Control Input Voltage Range	Low: - 0.8 ... + 1.2 V, High: 2.3 ... + 12 V						
	Control Input Current	0 mA @ 0V, 1.5 mA @ + 5 V, 4.5 mA @ + 12V						
	Overload Output	non active: 0 V, max. -1 mA, active: 5.1 V, max. 7 mA						
Ext. Offset Control	Control Voltage Range	± 10 V						
	Offset Control Input Impedance	20 kΩ						

Variable-Gain Photoreceiver - Fast Optical Power Meter

Specifications (continued)	<p>Power Supply</p> <p>Supply Voltage $\pm 15\text{ V}$ Supply Current $+ 150 / -100\text{ mA}$ (depends on operating conditions, recommended power supply capability minimum 250 mA) Stabilized Power Supply Output $\pm 12\text{ V}$, max. 150 mA, $+ 5\text{ V}$, max. 50 mA</p> <p>Case</p> <p>Weight 320 g (0.74 lbs) Material AlMg4.5Mn, nickel-plated</p> <p>Temperature Range</p> <p>Storage Temperature $-40 \dots +80\text{ }^\circ\text{C}$ Operating Temperature $0 \dots +60\text{ }^\circ\text{C}$</p>
Absolute Maximum Ratings	<p>Max. cw-Power (averaged) 20 mW Control Input Voltage $- 5\text{ V} / + 16\text{ V}$ Power Supply Voltage $\pm 22\text{ V}$</p>
Connectors	<p>Input optical, FC, ST or SMA fiber receptacle</p> <p>Output BNC</p> <p>Power Supply</p> <p>LEMO series 1S, 3-pin fixed socket Pin 1: $+ 15\text{ V}$ Pin 2: $- 15\text{ V}$ Pin 3: GND</p> <div style="text-align: center;">  </div> <p>Control Port</p> <p>Sub-D 25-pin, female, qual. class 2 Pin 1: $+12\text{ V}$ (stabilized power supply output) Pin 2: -12 V (stabilized power supply output) Pin 3: AGND (analog ground) Pin 4: $+5\text{ V}$ (stabilized power supply output) Pin 5: digital output: High = overload Pin 6: signal output (connected to BNC) Pin 7: NC Pin 8: input offset control voltage Pin 9: DGND (ground for digital control pins 10 - 14) Pin 10: digital control input: gain, LSB Pin 11: digital control input: gain Pin 12: digital control input: gain, MSB Pin 13: digital control input: AC/DC Pin 14: digital control input: high speed / low noise Pin 15 - 25: NC</p>
Available Models	<p>OE-200-SI-FC FC receptacle, calibrated at 830 nm OE-200-SI-ST ST receptacle, calibrated at 830 nm OE-200-SI-SMA SMA receptacle, calibrated at 830 nm</p>

Variable-Gain Photoreceiver - Fast Optical Power Meter

Remote Control Operation

General

Remote control input bits are opto-isolated and connected by a logical OR function to the local switch settings. For remote control set the corresponding local switches to "Remote", "AC" and "H" and select the desired setting via a bit-code at the corresponding digital inputs. Mixed operation, e.g. local AC/DC setting and remote controlled gain setting, is also possible.

The switch setting "FBW / 10 Hz" of the lowpass signal filter is not remote controllable.

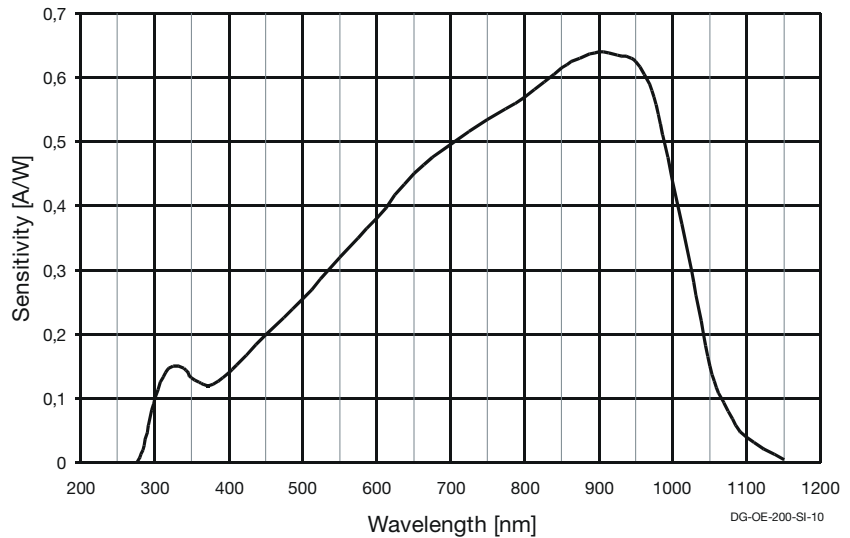
Gain Setting

Low Noise Gain (V/W) Pin 14=High	High Speed Gain (V/W) Pin 14=Low	Pin 10 LSB	Pin 11	Pin 12 MSB
10^3	10^5	Low	Low	Low
10^4	10^6	High	Low	Low
10^5	10^7	Low	High	Low
10^6	10^8	High	High	Low
10^7	10^9	Low	Low	High
10^8	10^{10}	High	Low	High
10^9	10^{11}	Low	High	High

AC/DC Setting

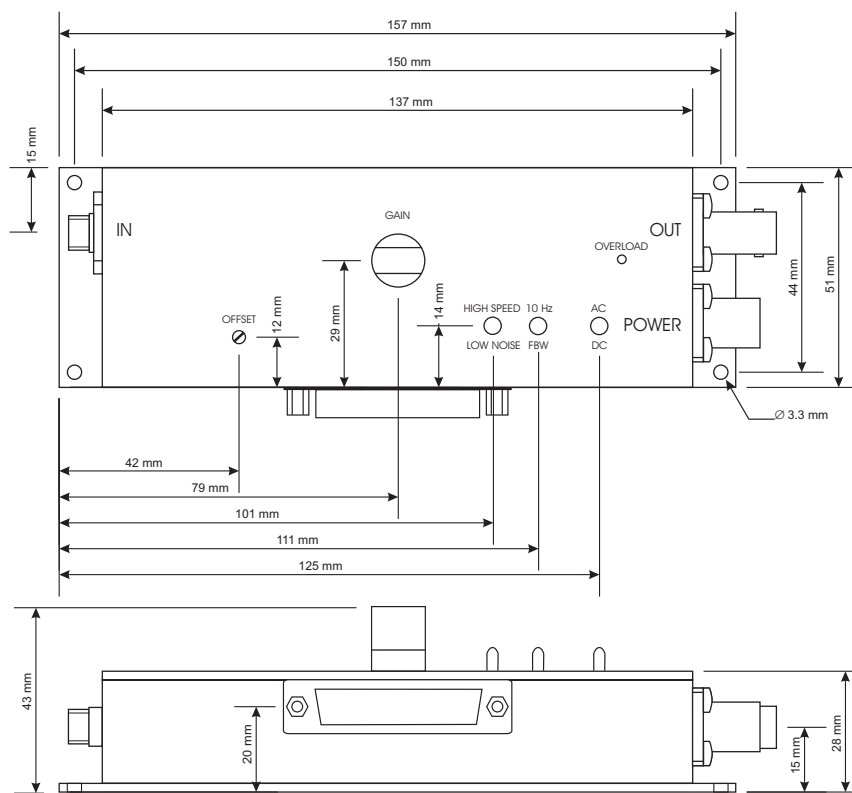
Coupling	Pin 13
AC	Low
DC	High

Spectral Response



Variable-Gain Photoreceiver - Fast Optical Power Meter

Dimensions



DZ-OE-200-11

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