



Modulus MB10 Bias Controller



The Modulus MB10 is a bench-top controller for the automatic closed-loop control of all three bias voltages of an IQ optical modulator. Typically, the I and Q legs of the modulator are maintained at their “null” position, whilst the parent interferometer is maintained at quadrature. However, the controller can be set for other bias positions, if desired. Low-frequency “pilot tones” are used to detect the status of the optical field at the modulator output, and the bias voltages are continuously adjusted to maintain the optimum bias point. A Graphical User Interface (GUI) is used to set-up and, if desired, monitor the controller during use. Bias, substrate and photodiode connections are made using a standard D-type connector on the unit front-panel. DC power (+5 V) and USB connections are made at the rear-panel.

Features

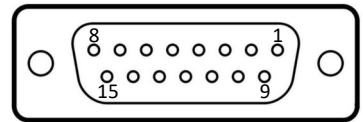
- ⇒ Compact bench-top design
- ⇒ Convenient graphical user interface
- ⇒ Pilot tone operation
- ⇒ Arbitrary bias points possible
- ⇒ Customisable operating modes for specific devices
- ⇒ Optional internal photodiode
- ⇒ Use within housing or as open board
- ⇒ Usable as test equipment or as part of a demo / evaluation system
- ⇒ High reliability design for eventual use in extreme environments, e.g. space (future option)

Mechanical information:

- 126 x 106 x 56 mm bench-top enclosure (optional)
- 15-way D-type connector for modulator connection
- Rugged USB B-type connector for connection to PC
- 2.1 x 5.5 mm barrel socket for DC supply input
- Power (green) and comms (red) LEDs on front-panel
- Protective rubber feet on base

Connector pin-out:

(view towards front of enclosure)



Pin	Function	Pin	Function
1	GND	9	Vsub
2	NC	10	NC
3	Pbias+	11	Pbias-
4	NC	12	GND
5	Qbias+	13	Qbias-
6	Ibias+	14	Ibias-
7	GND	15	PD anode
8	PD cathode		

Parameter	Value	Units	Comments
DC input voltage	+4.0 to +5.5	V	At rear “barrel” connector
DC input current	0.18 typ, 0.3 max.	A	Allow 0.6 A at start up
Substrate supply	+12	V	Output to modulator
Bias voltage range	-20 to +20	V	Differential
	-10 to +10	V	Single-ended
Photocurrent ranges	0.25 to 3.5	mA	At min. loss in PD path.
	3.5 to 15		Ranges selectable via GUI.
	10 to 40		
	15 to 50		

Unit is designed to comply with EN 61326-1:2021 (EMC), EN 61010-1:2010 (Safety), Restriction of Hazardous Substances (RoHS 2011/65/EU as amended by Directive EU 2015/863) and UK RoHS Regulations 2012, Waste Electrical and Electronic Equipment (WEEE 2012/19/EU), REACH Regulation (EC) No 1907/2006 and UK REACH Regulations.



Designed and manufactured in
the United Kingdom

TerOpta Ltd
info@teropta.com
www.teropta.com