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Data Sheet

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THORLABS

ThorLabs MX10B 12.5 Gb/s Max Digital Reference Transmitter, C-Band Laser, Limiting Amplifier

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The MX10B provides a fully integrated digital reference optical transmitter for high-speed fiber-optic test, combining a tunable C-band internal laser, LiNbO₃ Mach-Zehnder intensity modulator, and a user-adjustable limiting RF amplifier rated to 12.5 Gb/s maximum bit rate. 12.5 Gb/s digital optical reference transmitter for BER and transceiver testing; C-band modulated optical stimulus with automatic VOA/power-monitor stabilization; external laser or external driver loop-back configurations; lab and production fiber-optic digital characterization. The MX10B provides a fully integrated digital reference optical transmitter for high-speed fiber-optic test, combining a tunable C-band internal laser, LiNbO₃ Mach-Zehnder intensity modulator, and a user-adjustable limiting RF amplifier rated to 12.5 Gb/s maximum bit rate. 12.5 Gb/s digital optical reference transmitter for BER and transceiver testing; C-band modulated optical stimulus with automatic VOA/power-monitor stabilization; external laser or external driver loop-back configurations; lab and production fiber-optic digital characterization.



MODEL

ThorLabs MX10B

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

MX10B

LISTING

<https://aumictechlabs.com/products/mx10b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Thorlabs MX10B is a high-speed digital reference transmitter for C-Band optical communication systems and testing applications. It integrates a Mach-Zehnder intensity modulator, limiting RF amplifier, integrated bias controller, and variable optical attenuator into a single user-configurable platform. Supporting data rates to 12.5 Gb/s, the MX10B generates precision modulated optical signals for RZ, NRZ, and OOK formats across research, development, and manufacturing environments. The device combines a tunable C-Band internal laser (1527.6–1565.5 nm, 13.5 dBm typical output) with proven lithium niobate modulator technology and accepts external optical sources from 1250 nm to 1610 nm.

Technical Specifications

Maximum bit rate: 12.5 Gb/s Internal laser: C-Band tunable, 1527.6–1565.5 nm; L-Band and 1310 nm fixed variants available Internal laser output power: 13.5 dBm (typical) External input wavelength range: 1250–1610 nm Modulator type: Mach-Zehnder intensity modulator RF amplifier gain: 34 dB Small-signal bandwidth: 7 GHz Low-frequency cutoff: 100 kHz RF amplifier output swing: 3 V to 7 V (user-adjustable) RF optical extinction ratio: 13 dB (typical maximum) Half-wave voltage: 5.5 V Return loss (electrical): –10 dB (typical) Linewidth: 10 kHz Polarization extinction ratio: 18 dB Insertion loss: 5 dB at 1550 nm; 7 dB at 1310 nm (typical) Power monitor insertion loss: 0.1 dB (typical)

Key Features

Integrated bias controller with manual and automatic operation modes Variable optical attenuator for automatic or manual power control Support for RZ, NRZ, and OOK modulation formats Intuitive touchscreen interface with USB and RS-232 remote control External modulator driver capability via RF loop-back connection

Typical Applications

High-speed optical signal generation for component testing Digital transmission research and development Optical communication system validation Manufacturing test and quality assurance

Compatibility & Integration

External optical sources spanning 1250–1610 nm integrate directly. Remote control via USB or RS-232 enables system integration. CAD files in PDF, DXF, Solidworks, eDrawing, and Step formats support mechanical design workflows.

Features & description

From manufacturer datasheet

Features

- Digital (limiting) amplifier reference transmitter
- Maximum bit rate / usable bandwidth 12.5 Gb/s
- Internal tunable C-band laser (ITU grid; dither stabilization class)
- Typical internal laser output approximately 13.5 dBm
- External laser input 1250–1610 nm; max optical input 20 dBm (22 dBm absolute max)
- Optical output power class 8.5 dBm at 1550 nm
- RF optical extinction ratio 13 dB (at 12.5 Gb/s)
- Modulator V_{π} approximately 5.5 Vpp; insertion loss approximately 5 dB at 1550 nm
- RF amplifier gain 34 dB; output swing user-adjustable 3 to 7 V
- Amplifier RF input typical 400 mVpp (digital mode)
- Small-signal bandwidth approximately 7 GHz; LF cutoff 100 kHz
- Touchscreen control; USB and RS-232; VOA and power monitors

MX10B Characteristics / Specifications

PARAMETER	VALUE
Model	MX10B
Manufacturer	Thorlabs
Instrument Type	Digital Reference Optical Transmitter
Max Bit Rate	12.5 Gb/s
Amplifier Type	Digital (limiting)
Internal Laser	Tunable C-band
External Laser Wavelength	1250 to 1610 nm
Optical Output Power	approximately 8.5 dBm at 1550 nm
Extinction Ratio	13 dB (at 12.5 Gb/s)
RF Amplifier Gain	34 dB
Related Variants	MX10B-LB (L-band); MX10B-1310; MX40B series
Alias	MX10B Standard Operating Conditions Use key-switch interlock for internal laser. Prefer PM FC/PC narrow-key fiber for laser/modulator ports. Observe RF absolute-max input 4 Vpp and optical absolute-max 22 dBm. Allow warm-up before extinction-ratio and power-stability measurements.
Bandwidth	12.5 Gb/s - Internal tunable C-band laser (ITU grid; dither stabilization class) - Typical internal laser output approximately 13.5 dBm - External laser input 1250–1610 nm; max optical input 20 dBm (22 dBm absolute max) - Optical output power class 8

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

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Model	MX10B
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Instrument Type	Digital Reference Optical Transmitter
Max Bit Rate	12.5 Gb/s
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Standard Operating Conditions

Use key-switch interlock for internal laser. Prefer PM FC/PC narrow-key fiber for laser/modulator ports. Observe RF absolute-max input 4 Vpp and optical absolute-max 22 dBm. Allow warm-up before extinction-ratio and power-stability measurements.

Operational Notes

Confirm C-band laser option on faceplate-not L-band or 1310 nm variants. Alias MX10B.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.