

# TeraXion

## ClearSpectrum™

# TDCMX-SM Slope-Matched Tunable Dispersion Compensator



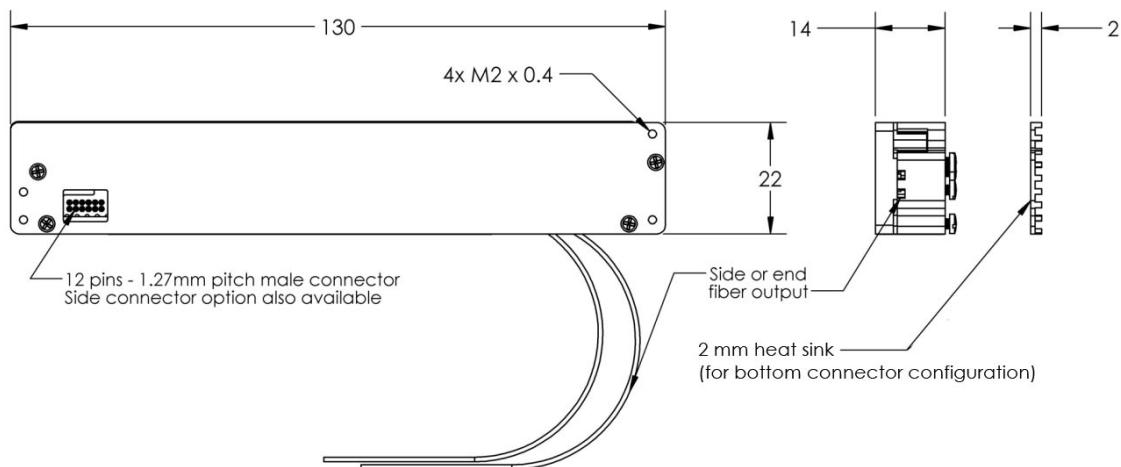
**The ClearSpectrum™ TDCMX-SM is the only G.652 slope-matched tunable chromatic dispersion compensator on the market that provides adjustable, simultaneous compensation for all channels across the entire C-band, all within a single device.** The revolutionary TDCMX-SM is built on TeraXion's established dispersion-compensation technology that has been providing reliable operation for over 15 years. This "single part number" solution reduces cost-per-bit (\$/bit) by enabling customers to use intensity-modulation direct-detection at 100 Gb/s over distances up to 80 km.

System vendors who serve communication and internet service providers (CSP & ISP) are seeking ways to increase data rates in next-generation DWDM access networks. This is particularly true for data-center interconnect (DCI)/enterprise, fiber-to-the-premises (FTTx), and 5G X-Haul networks operating with intensity modulation direct detection (IMDD) modulation formats such as PAM-4.

## Top 5 Features

- **Tunable:** The TDCMX-SM provides highly accurate, dynamically adjustable chromatic dispersion compensation over a large range of dispersion values (from 0 to 80 km with the same module).
- **Low-Latency:** The TDCMX-SM features a latency of less than 25 ns, a reduction of over 1 000x compared to dispersion compensating fiber (DCF), making it the perfect choice for time-sensitive networks.
- **G.652 Slope-Matched:** The TDCMX-SM compensates for the chromatic dispersion slope of the fiber, resulting in a precise, homogeneous residual dispersion for every channel of the C-band.
- **Multi-Channel:** TDCMX-SM features full C-band coverage, either on a 50 GHz or 100 GHz grid.
- **Compact:** The ClearSpectrum™ TDCMX-SM has dimensions of only 130 x 22 x 14 mm.

### Module Dimensions



### 50 GHz Simultaneous Multi-Channel Solution

Parameters	Specifications		Units
Channel Grid	50		GHz
Channel Grid Tuning Range	± 30		GHz
Compensation Range	0 to 40	40 to 80	km
Operation Bandwidth	ITU± 13	ITU± 11	GHz
Typical -3 dB Bandwidth	34	30	GHz
Slope-Matching Error	≤ 25	≤ 35	ps/nm
Phase Ripple Std Deviation	≤ 0.1	≤ 0.13	rad
Dispersion Accuracy	≤ 2	≤ 2.5	km

### 100 GHz Simultaneous Multi-Channel Solution

Parameters	Specifications		Units
Channel Grid	100		GHz
Channel Grid Tuning Range	± 55		GHz
Compensation Range	0 to 40	40 to 80	km
Operation Bandwidth	ITU± 29	ITU± 20	GHz
Typical -3 dB Bandwidth	68	50	GHz
Slope-Matching Error	≤ 20	≤ 35	ps/nm
Phase Ripple Std Deviation	≤ 0.12	≤ 0.15	rad
Dispersion Accuracy	≤ 2	≤ 3	km

## General Specifications

Parameters		Units
Insertion loss	<6	dB
Polarization-dependent loss	≤0.5	dB
Polarization mode dispersion	≤1	ps
Maximum input power	<27	dBm
Control interface	I <sup>2</sup> C	
Voltage	5	V
Typical power consumption	3	W
Typical response time	10	s
Electrical connector		
Bottom connector	12-pin, 1.27 mm pitch male	
Side connector	10-pin, 2 mm pitch male	
Fiber output	End (90°) or side (30°)	
Heat sink <sup>(1)</sup>	2	mm
Operating temperature	-5 to 70	°C
Storage temperature	-40 to 85	°C
RoHS compliant	Yes	

(1) For bottom electrical connector only

### Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at [info@teraxion.com](mailto:info@teraxion.com)

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