

ClearSpectrum™ CDE Chromatic Dispersion Emulator



The ClearSpectrum™ CDE is an ultra-compact chromatic dispersion emulator that uses TeraXion's fiber Bragg grating (FBG) technology to emulate the chromatic dispersion of hundreds or thousands of kilometers of fiber within the volume of a single half 1U 19-inch rack module. The modules have an ultra-low insertion loss and can be cascaded several times to emulate hundreds of thousands of picoseconds per nanometer of dispersion with no external power required.

TeraXion developed the ClearSpectrum™ CDE as a space-saving and cost effective solution for researchers who need to emulate the chromatic dispersion of hundreds or even thousands of kilometers of fiber. The ultra-low insertion loss also reduces the number of amplifiers required for long-haul emulation, trimming expenses while saving laboratory space.

Top 5 Features

- **Low Insertion Loss:** the ClearSpectrum™ CDE significantly reduces the accumulated insertion loss caused by hundreds or thousands of kilometers of transport fiber, thus reducing the number of amplifiers needed when emulating very long fiber links.
- **Cost-effective:** the ClearSpectrum™ CDE eliminates the cost of purchasing and storing large fiber spools and reduces the number of amplifiers needed for long-haul transmission emulation.
- **Wide Bandwidth:** the CDE supports bandwidths as high as 350 GHz.
- **Massive Dispersion Levels:** dispersion emulation as high as 45,000 ps/nm per module. CDE modules can be cascaded to emulate submarine networks dispersion levels.
- **Ultra-compact:** the ClearSpectrum™ CDE is available as either half 1U 19-inch rack-mountable or benchtop modules.



Single-channel Wide-bandwidth Chromatic Dispersion Emulator

Parameters	CDE-CHxxx+15000 15 000 ps/nm			CDE-CHxxx+10000 10 000 ps/nm		Units
	A	A+B	A+B+C	A		
Output						
Dispersion Emulation Level	5 000	10 000	15 000	10 000		ps/nm
Dispersion Accuracy	≤ 2	≤ 2	≤ 2	≤ 2		%
Insertion Loss	≤ 4	≤ 7	≤ 10	≤ 7		dB
Channel Wavelength ⁽¹⁾	Any wavelength in the C-band					
Operation Bandwidth	350					GHz

(1) L-band available on request

Multi-channel Chromatic Dispersion Emulator

General Specifications

Parameters	Values	Units
1 st Channel	196.3	THz
Last Channel	191.3	THz
Operation Bandwidth (OBW)	100 GHz Channel Grid 200 GHz Channel Grid	50 70 GHz

100 GHz Channel Grid / 50 GHz OBW / 3-output CDE

Parameters	DCML-C0100+10000 10 000 ps/nm ⁽¹⁾			DCML-C0100+30000 30 000 ps/nm			DCML-C0100+45000 45 000 ps/nm			Units
	A	A+B	A+B+C	A	A+B	A+B+C	A	A+B	A+B+C	
Output										
Dispersion Emulation Level	3 333	6 666	10 000	10 000	20 000	30 000	15 000	30 000	45 000	ps/nm
Dispersion Accuracy	≤ 3	≤ 3	≤ 3	≤ 3	≤ 2	≤ 2	≤ 3	≤ 2	≤ 2	%
Insertion Loss	≤ 5	≤ 9	≤ 12	≤ 12	≤ 24	≤ 36	≤ 16	≤ 32	≤ 48	dB

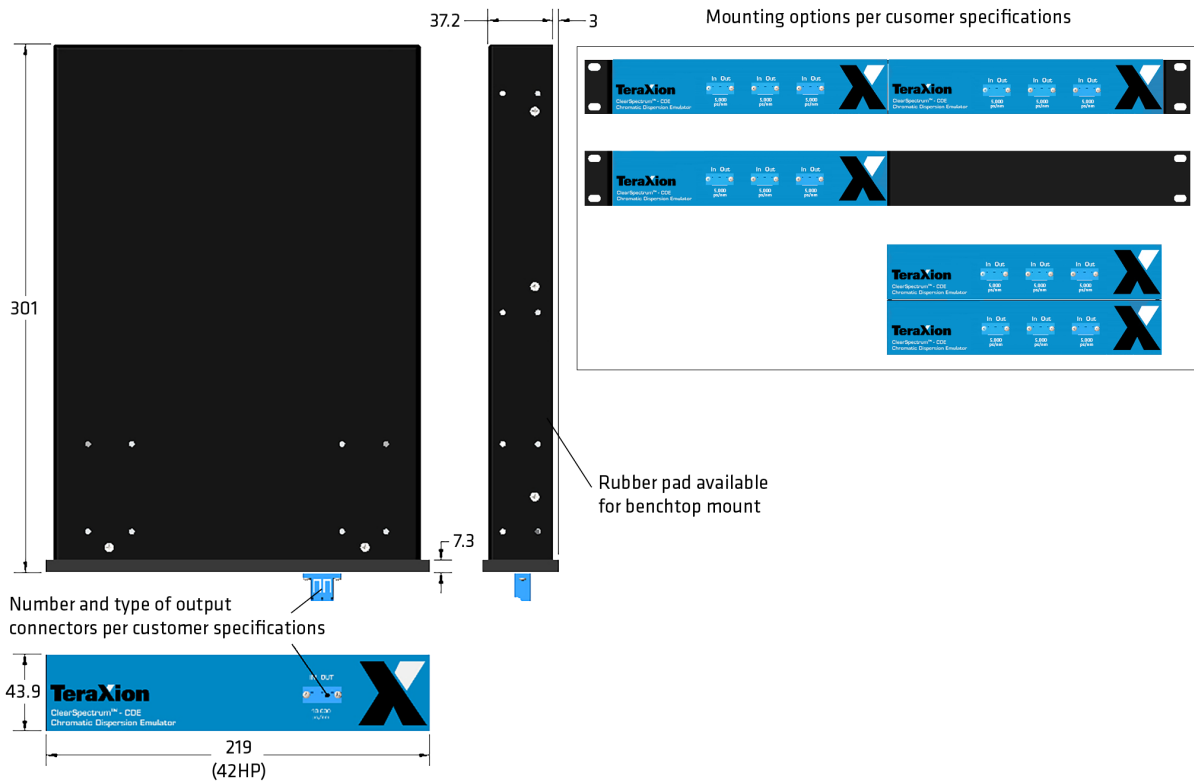
(1) Single output at 10 000 ps/nm available for DCML-C0100+10000

200 GHz Channel Grid ⁽¹⁾ / 70 GHz OBW / 3-output CDE

Parameters	DCML-C2200+15000 15 000 ps/nm			Units
	A	A+B	A+B+C	
Output				
Dispersion Emulation Level	4 500	9 000	15 000	ps/nm
Dispersion Accuracy	≤ 3	≤ 3	≤ 3	%
Insertion Loss	≤ 7	≤ 12	≤ 20	dB

(1) Choice of odd or even channels

Module Dimensions



Environmental and Mechanical Specifications

Parameters	Values	Units
Operating Temperature	10 to 40	°C
Storage Temperature	-40 to 85	°C
Output Connectors ⁽¹⁾	LC-UPC	
Module Dimension	1U for half 19-inch rack	
Mounting Options for Single Unit ⁽²⁾	Benchtop or rack-mount brackets	
Mounting Options for Multiple Units ⁽²⁾	Benchtop stacking brackets or side-by-side 1U rack-mount brackets	
RoHS Compliance	Yes	

(1) Other connectors available on request

(2) Mechanical drawing available on request

Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at info@teraxion.com

TeraXion

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