

# TeraXion

An indie Semiconductor Company

## 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 picometers 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.

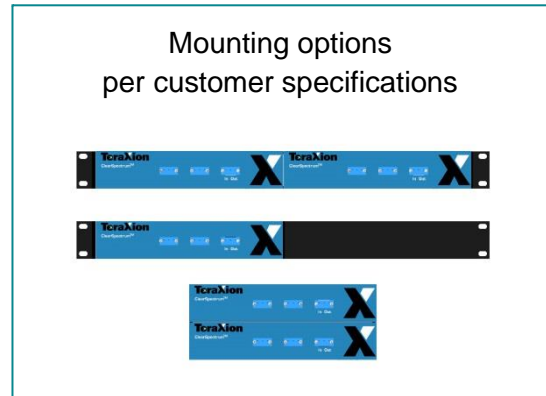
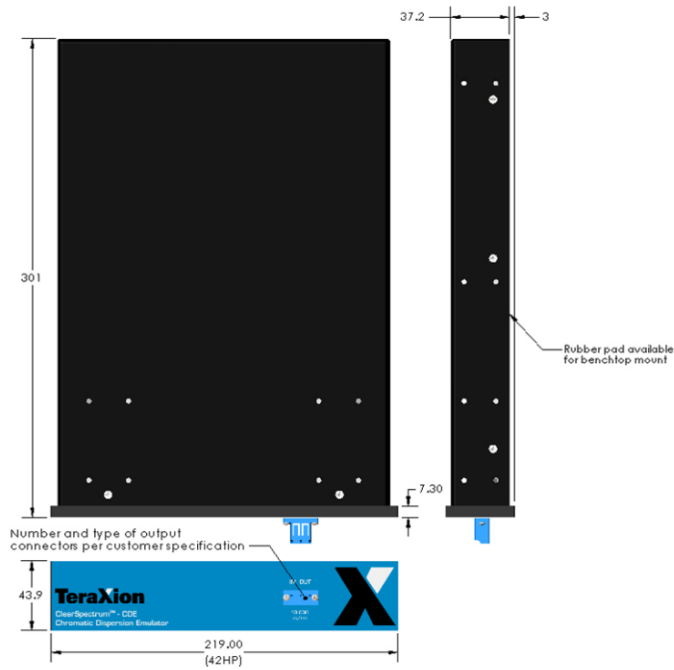
**Wide bandwidth:** the CDE supports bandwidths as high as 350 GHz.

**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.

# ClearSpectrum™ – CDE Chromatic Dispersion Emulator

## Module Dimensions



## Single-channel wide-bandwidth chromatic dispersion emulator

### General Specifications

Parameters	Units
Channel Wavelength <sup>(1)</sup>	Any wavelength in the C-band
Operation Bandwidth	350 GHz

(1) L-band available on request

### 10 000 ps/nm double-output CDE

Parameters	Output A	Outputs A+B	Units
Dispersion Emulation Level	5 000	10 000	ps/nm
Dispersion Accuracy	≤ 3	≤ 2	%
Insertion Loss	≤ 4	≤ 7	dB

### 15 000 ps/nm single-output CDE

Parameters	Units
Dispersion Emulation Level	15 000 ps/nm
Dispersion Accuracy	≤ 2 %
Insertion Loss	≤ 10 dB

## Multi-channel chromatic dispersion emulator

### General Specifications

Parameters		Units
1 <sup>st</sup> Channel	196.3	THz
Last Channel	191.3	THz
Operation Bandwidth (OBW)		
	100 GHz channel grid	50 GHz
	200 GHz channel grid	64 GHz

### 100 GHz channel grid/ 3-output CDE

Parameters	DCML-C0100+10000 10 000 ps/nm <sup>(1)</sup>			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 <sup>(1)</sup>/ 64 GHz OBW / 3-output CDE

Parameters	DCML-C2200+15000 15 000 ps/nm			Units
Output	A	A+B	A+B+C	
Dispersion Emulation Level	4 500	9 000	15 000	ps/nm
Dispersion Accuracy	3	3	3	%
Insertion Loss	6	12	20	dB

(1) Choice of odd or even channels

Environmental and Mechanical Specifications

Parameters		Units
Operating temperature	10 to 40	°C
Storage temperature	-40 to 85	°C
Output connectors <sup>(1)</sup>	LC-UPC	
Module dimension	Standard 1U for half 19-inch rack	
Mounting options for single unit <sup>(2)</sup>	Benchtop ou rack-mount brackets	
Mounting options for multiple units <sup>(2)</sup>	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](mailto:info@teraxion.com)



teraxion.com  
 2716 rue Einstein  
 Québec, Québec, CANADA G1P 4S8  
 +1 (877) 658-8372 / [info@teraxion.com](mailto:info@teraxion.com)

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