

# OPTICAL CHANNEL MONITOR BASED ON PLANAR LIGHTWAVE CIRCUIT TECHNOLOGY

Enablence's APMUX is an optical channel monitor designed for fast optical power detection of individual channels on a multiplex of DWDM wavelengths. The device is based on an arrayed waveguide grating based on our patented CVD system. Arrayed photodetectors are integrated into the package along with an internal temperature controller for automatic ITU grid alignment. An electric pin array serves as the output of the device.



## BENEFITS

- Scalable up to 80 Channels
- Channel spacing of 50, 100 or 200 GHz
- Athermal AWG

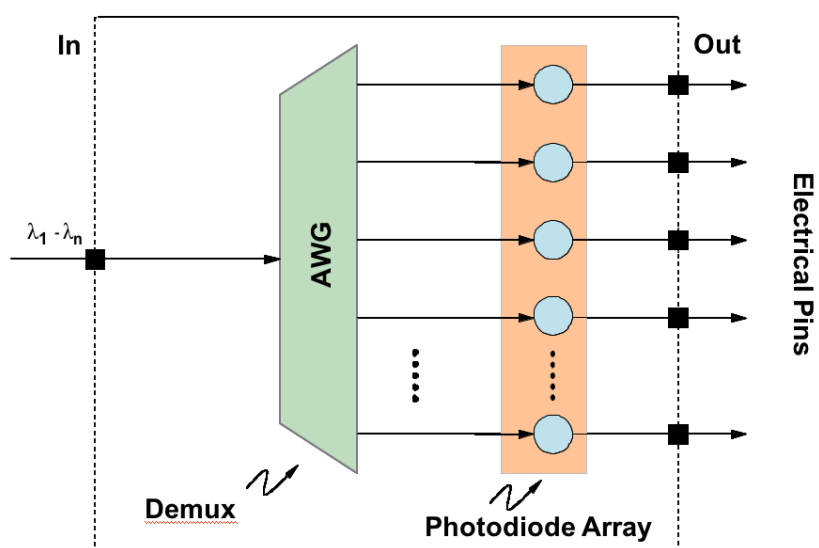
## FEATURES

- Environmentally stable PLC Technology
- Simultaneous monitoring of a multiplex of DW wavelengths
- Telcordia-qualified packaging techniques
- Internal Temperature Controller for AWG

## APPLICATIONS

- Feedback control signal for power balancing at DWDM metro or terminal nodes

## OPTICAL SCHEMATIC



## OPTICAL SPECIFICATIONS

Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
Number of Channels	-	48			-	
Channel Spacing	-	100			GHz	
Channel Frequencies	$f_c$	196.150 to 191.450			THz	Frequencies can be modified to match custom requirements
Wavelength Accuracy	$\Delta\lambda_c$	-0.04		+0.04	nm	Offset from ITU grid
ITU Band	PB	-100		+100	pm	Centered at each ITU Channel Frequency, $f_c$
Insertion Loss	IL			5.50	dB	Maximum in ITU Band
Insertion Loss Uniformity	$\Delta IL$			1.5	dB	Over all channels
Polarization Dependent Loss	PDL			0.5	dB	Maximum within ITU Band
1dB Passband	$\delta_{1dB}$	0.40			nm	Measure 1dB down from min IL
3dB Passband	$\delta_{3dB}$	0.60			nm	Measure 3dB down from min IL
Adjacent Channel Crosstalk	AX			-23	dB	Maximum within ITU Band
Non-Adjacent Channel Crosstalk	NX			-25	dB	Maximum within ITU Band
Total Crosstalk	TX			-23	dB	Cumulative sum of all AX and NX
Return Loss	RL	45			dB	
Warm-up time	$t_w$			10	min	
Temperature Set-Point	$T_{sp}$	72		85	C	Temperature set-point provided on device datasheet

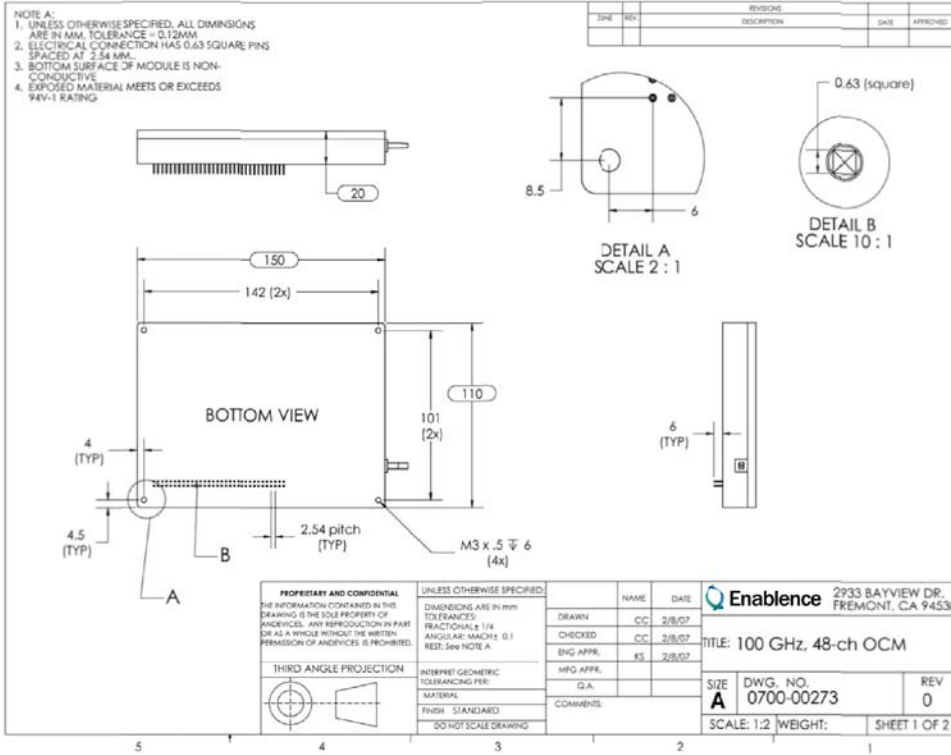
## PHOTO DETECTOR (PD) SPECIFICATIONS

Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
PD Material	-	InGaAs			-	
PD Spectral Response	-	C-Band			-	
PD Responsivity	R <sub>pd</sub>	0.7			A/W	Responsivity of PD alone
OCM Responsivity	R <sub>ocm</sub>	0.3		0.55	A/W	Responsivity of PD including IL of AWG
Dark Current	D <sub>pd</sub>			6	nA	@ 70C, -5V bias
Cutoff Frequency	f <sub>ct</sub>	100		1.5	MHz	
PD Monitor Accuracy	-	-0.5		+0.5	dB	for optical input of +16 to -4 dBm
	-	-1.0		+1.0	dB	for optical input of -4 to -22 dBm
Line Monitor Response	-		~100		V/W	
Monitor Response Bandwidth (from DC)	-			1	Mhz	

## ELECTRICAL SPECIFICATIONS

Parameters	Symbol	Specifications			Units	Comments
		Min	Typ	Max		
Voltage	V	4.75		5.25	V	At room temperature
Current	I <sub>max</sub>			2.5	A	
Power Consumption	-			5	W	Worst-case (i.e. case @ -5C)
	-			10	W	During warm-up (i.e. cold start)
RS-232	Baud Rate	-	9600		-	
	Bits	-	8		-	
	Parity	-	1		-	
Monitor Response Bandwidth (from DC)	-			1	Mhz	

## MECHANICAL DRAWING



For more information  
 visit [www.enablence.com](http://www.enablence.com)

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