

MAP-220C Light Direct Chassis

Solve Your Optical Test Needs with a Compact, 2-slot Mainframe

■ 제품소개



소형, 2U, 2 슬롯 MAP-220C LightDirect 샷시 메인 프레임은 일반적인 Fiber-Optic lab 사용을 위해 설계되었으며 소규모 광학 제조업체 테스트 스테이션 배치 활용도가 높습니다. 고정 장치 버전만큼 효율적이며 비용도 효율적이지만 유연성과 모듈성을 유지하므로 필요할 때 필요한 응용 프로그램을 구축할 수 있습니다.

■ 주요기능

- 컴팩트 한 2 슬롯 벤치 톱 구성
- 랙 마운트로 변환 가능 - 2 RU 높이, 19 인치 병렬 배열(Side-By-Side) 형식(두개가 하나로 구성)
- GPIB 옵션을 갖춘 LXI 호환 인터페이스
- 자체 용량 성 터치 스크린
- 현장 교체가 가능한 컨트롤러 / 전원 공급장치 모듈
- 광범위한 MAP-200 광학 테스트 모듈과 호환 가능
- 네트워크를 통해 데스크탑 또는 노트북을 사용한 원격제어 가능.
- Passive : 삽입손실, Polar Dependent Loss, 반사손실
- MAP-200 LightDirect Module Family
 - **광 소스**(텔레콤 밴드 파장 : 850, 1300, 1310, 1490, 1550, 1625nm) : 시스템 로드 또는 연속성 측정, 삽입 손실 및 테스트 스테이션 캘리브레이션 테스트에 사용.
 - **파워메타** : 네가지 고유한 성능 범위로 모듈 당 1개 2개 또는 4개의 파워 헤드를 가지며 모든 어플리케이션에 사용. +27 dBm 입력 파워를 지원하는 모델은 110dBm 다이내믹 레인지의 버전을 필요로 합니다.
 - **광스위치** : 스위치는 1x2, 2x2 및 1x4에서 1x64에 이르기까지 다양하며 내부 파워 모니터링, 방향 모니터링 및 파워 트리밍 옵션을 제공합니다.
 - **감쇠기(Attenuators)** : 모듈 당 1 개, 2 개 또는 4 개의 가변 광 감쇠기 (VOA)가 내장되어 있으며 내부 파워메타의 유무에 상관없이 업계에서 가장 컴팩트 한 모듈 형 솔루션입니다.



■ Specifications

MAP-220 Parameter	Description
Capacity	2 modules
Controller	
CPU	ARM AM335x
Operating system	Linux
Internal storage	4GB user flash storage
Interfaces	
Remote interface	USB, GPIB (optional), Ethernet 10/100/1000Base-T
USB device capability	Mouse, keyboard, memory stick
Display	Internal display
Ports	
USB host ports	2 rear
LAN	1 rear
GPIB	1 rear(optional)
Automation	
Driver type	IVI-compliant
Driver compatibility	LabVIEW, LabWindows™, Visual C++, Visual Basic
Accessibility	Multi-user sharing support
Electrical and Safety	
Power	100 to 240 V AC, 50/60 Hz, auto-switching (field-replaceable as part of the power supply controller module)
Power consumption	160 VA
Local interlock	Software controlled
Dimensions (W x H x D)3	220 x 88.2 x 387 mm (8.66 x 3.47 x 15.24 in)
Weight	Benchtop: 8 kg (17.6 lb)
Display dimensions (H x W)	3.5-inch color screen
Resolution	320 x 240 resolution

Attenuation(감쇠기)				
Parameter	Single mode		Multi mode	
Insertion loss at minimum attenuation	<1.0 dB	<1.7 dB	<1.5 dB	<2.2 dB
Maximum input power (Standard power/High power option)	+23dBm/+33dBm		+23dBm/+27dBm	
Wavelength range	1260 to 1650 nm		750 to 1350 nm	
Attenuation range	70 dB		65 dB	
Attenuation flatness	±0.04 dB from 0 to 30 dB		N/A	
Attenuation slew rate (nominal)	25 dB/s typical		20 dB/s typical	
Attenuation setting resolution	0.001 dB		0.001 dB	
Attenuation accuracy	±0.1 dB		±0.1 dB	
Attenuation repeatability	±0.01 dB		±0.01 dB	
Closed loop output power range (In-line power monitor option)	N/A	-49 to +11dBm at 1310/1550 ±15 nm	N/A	-40 to +5dBm at 850/1310 ±15 nm
Relative power meter uncertainty	N/A	±0.03 dB	N/A	±0.03 dB
Power setting repeatability	N/A	±0.015 dB	N/A	±0.015 dB
Power setting resolution	N/A	0.001dBm	N/A	0.001dBm
Polarization dependent loss (from 0 to 25 dB)	<0.08 dB	<0.15 dB	N/A	N/A
Return loss	>55 dB typical APC/45 dB typical PC		>30 dB typical (PC connector)	
Shutter isolation	100 dB typical			
Warm up time	30 minutes			
Calibration period	2 years			

Operating temperature	0 to 50°C
Storage temperature	-30 to 60°C
Operating humidity (relative, noncondensing)	<90% at 23°C, <20% at 50°C

Optical Power Meter Module(mOPM-B1)			
Parameters	General Purpose	Premium Performance	High Power
Detector type	InGaAs	TEC InGaAs	Filtered InGaAs
Detector size	2 mm	3 mm	2 mm
Wavelength range	800 – 1650 nm	750 – 1700 nm	800 – 1630 nm
Fiber type ¹	SMF and MMF with NA 0.27 (maximum core size 62.5µm)		
Dynamic range	+11dBm to -70dBm	+11dBm to -80dBm	+27dBm to -45dBm
Uncertainty at reference condition ²	± 2.5% (800 – 1510 nm) ± 2.4% (1510 – 1600 nm) ± 2.7% (1600 – 1635 nm)	± 2.2% (800 – 1510 nm) ± 2.3% (1510 – 1600 nm) ± 2.5% (1600 – 1635 nm)	± 3.9% (800 – 960 nm) ± 3.6% (960 – 1300 nm) ± 3.7% (1300 – 1510 nm) ± 3.8% (1510 – 1600 nm) ± 4.0% (1600 – 1635 nm)
Total uncertainty ³	± 3.2% ±5pW (800 – 900 nm) ± 5.2% ±5pW (900 – 960 nm) ± 3.1% ±5pW (960 – 1510 nm) ± 3.1% ±5pW (1510 – 1600 nm) ± 3.8% ±5pW (1600 – 1635 nm)	± 3.0% ±1pW (800 – 1510 nm) ± 3.1% ±1pW (1510 – 1600 nm) ± 3.4% ±1pW (1600 – 1635 nm)	± 4.6% ±100pW (800 – 900 nm) ± 7.9% ±100pW (900 – 960nm) ± 3.9% ±100pW (960 – 1300 nm) ± 4.4% ±100pW (1300 – 1510 nm) ± 4.5% ±100pW (1510 – 1600 nm) ± 5.2% ±100pW (1600 – 1635 nm)
Linearity (at 23 ± 5°C)	± 0.010 dB ±5pW	± 0.010 dB ±1pW	±0.010 dB ±100pW (for -45dBm to +10dBm) ± 0.03 dB(for +10dBm to +27dBm)
Noise (peak to peak) ⁴	2pW	1pW	50pW
Return loss	>55 dB typ		
Relative uncertainty due to polarization ⁵	<±0.015 dB	<±0.01 dB	<±0.07 dB
Maximum number of channels (Panel mount)	1, 2, or 4	1, 2, or 4	1, 2, or 4
Sampling time	4µs (250 kHz)		
Averaging time	20µs to 5 s		
Buffer size	100000 points		
Supported connectors ⁷	FC, ST, SC, MT-RJ, LC, E2000, MU, MTP, Bare Fiber		
Recalibration period	1 year		
Warm-up time	30 minutes		
Operating temperature	5 to 40°C		
Humidity	15 – 80% relative humidity, noncondensing		
Dimension (W x H x D)	4.06 x 13.26 x 37.03 cm (1.6 x 5.22 x 14.58 in)		
Weight	1.2 kg (2.65 lb)		

1. For 62.5µm core fiber, additional uncertainty of 1%(PC) or 2%(APC) must be added due to overfill of 2 mm detector
2. Fiber SMF-28, T=23±5°C, Spectral width of source< 6 nm, optical power on detector= -20dBm
3. SMF 28, N/A of fiber ≤ 0.27, temperature, humidity and power range per table
4. 1 second averaging time, 300 consecutive measurements (300s), T=23 ± 5°C
5. All states of polarization, constant power, straight connector, T=23 ± 5°C. WL=1550 nm ±30 nm, MPMHP at WL=1310 nm.
6. For 900 – 960 nm only, uncertainty indicated is for 15 — 35°C
7. Note that MT connector size prevents the use of adjacent channels; therefore, a 4 channel cassette only allows 2 MT input at a time.

MAP Broadband Source(mBBS-A1)		
Parameter	C-Band 50mW Output Power	C-Band 100mW Output Power
Operating wavelength range	1527 to 1568 nm	1525 to 1568 nm
Total optical power (minimum) ¹	50 mW	100 mW
Spectral gain flatness (maximum) ²	1.8 dB	1.8 dB
Total output power stability	0.02 dB	
Output isolation (minimum)	45 dB	
Operating temperature	0 to 50°C	
Storage temperature	-30 to 60°C	
Humidity	Maximum 95% RH non-condensing from 0 to 45°C	
Dimensions (W x H x D)	4.06 x 13.26 x 37.03 cm (1.6 x 5.22 x 14.58 in)	
Weight	2.3 kg (5.07 lb)	

1. Measured at 1550 nm at 23°C after one hour warm-up
2. Flatness range 1529 to 1565 nm for C-band model

MAP Tunable DBR Laser(mTLG-A1)		
Parameter	C-Band	L-Band
Wavelength		
Tuning range	191.30 to 196.10 THz, 1528.77 to 1567.13 nm	186.35 to 190.95 THz, 1570.01 to 1608.76 nm
Accuracy ^{1,2,3}	±2 GHz (± 0.016 nm)	
Stability 15 minutes ^{1,2,3}	±0.005 nm Typ	
Stability 24 hours ^{1,2,3}	±0.01nm Typ	
Channel spacing	25 GHz	
Power		
Setting range ⁴	7 to 13 dBm	7 to 11 dBm
Stability 15 minutes ^{1,2,3}	±0.005 dB Typ	
Stability 24 hours ^{1,2,3}	±0.03dB Typ	
Resolution	<0.1 dB Typ	
Spectral Properties		
Linewidth ⁵	≤5 MHz	
SMSR	40dB min, 45 dB Typ	38 dB min, 45 dB Typ
RIN	-140 dB/Hz Typ; -135 dB/Hz Max	-138.5 dB/Hz Typ; -133.5dB/Hz Max
Other		
Fiber type	Polarization maintaining fiber; Slow axis aligned with connector key	
Supported connectors	FC/APC	
Warm-up time	1 hour	
Operating temperature	10 to 40°C	
Humidity	<80% RH, 10 to 40°C non-condensing	
Dimension	4.06 x 13.26 x 37.03 cm (1.6 x 5.22 x 14.58 in)	
Weight	1.3 kg (2.95 lb) maximum (varies with configuration)	

1. At full power.
2. After 1-hour warm-up.
3. Constant temperature within 25 ±3°C.
4. Power at max setting: >12 dBm for C-band and >10 dBm for L-band.
5. Natural (instantaneous) linewidth of the laser; with self-homodyne measurements indicated linewidth is typically 50-100 MHz.