

## Contractor Series Light Sources and Power Meters

**5 YEAR WARRANTY**

Contractor Series Light Sources and Power Meters are rugged test instruments designed with intuitive simple user interface allowing technicians to focus on installing and maintaining fiber networks. Both single-mode and multimode kit options provide tools for measuring network insertion loss, continuity checks, and fiber identification.



CSS1-MM LED Source

CSS1-SM Laser Source



CSM1 Power Meter

### Features

- Palm-sized rugged, dependable, tools backed with 5-year warranty
- Cost-effective, easy to use
- Auto-off time out feature to maximize battery life
- Large sunlight readable display. Backlight for dim conditions

### Applications

- Link loss measurements
- Certify SM and MM links to industry standards
- Continuity check and fiber identification prior to fusion splicing

### CSM1 Power Meter

- Four models provide wide wavelength and power level ranges
- Stores optical references for each calibrated wavelength
- Auto-detects Test Tones for use in fiber identification
- Optical input port accepts a variety of thread-on adapter caps

### CSS1-SM Laser Source

- 1310 nm and 1550 nm LASER output from single test port
- Output port accepts UCI threaded adapters (FC, SC, ST, LC) for flexibility and access to launch fiber for cleaning and inspection

### CSS1-MM LED Source

- 850 nm and 1300 nm LED output from single test port
- 50  $\mu$ m and 62.5  $\mu$ m mandrels included

### CSM1 Sources Transmit:

- **CW** continuous wave output (DC)
- **Test Tones** (2000, 1000, 330, 270 Hz) for fiber identification
  - Use power meters when technician has fiber end access
  - Use OFI (optical fiber identifier) for mid-span testing

## Contractor Series Light Sources and Power Meters

### Contractor Series Models

POWER METER MODELS	CALIBRATED WAVELENGTHS (nm)		TARGET APPLICATIONS	
CSM1-4	850, 980, 1310, 1490, 1550, 1625		High Power Single-mode Measurements	
CSM1-3	850, 1300, 1310, 1490, 1550, 1625		Single-mode Measurements	
CSM1-2	850, 1300, 1310, 1550		Mixed Multimode and Single-mode Measurements	
CSM1-1	660, 780, 850		Plastic Optical Fiber Measurements	
LIGHT SOURCES MODELS	FIBER TYPE	WAVELENGTHS (nm)	TARGET APPLICATIONS	
CSS1-SM	SM	1310, 1550	SM Networks, LAN/WAN Testing	
CSS1-MM	MM	850, 1300	Ethernet, Token Ring, and FDDI Fiber Links	
LOSS TEST KITS MODELS	FIBER TYPE	POWER METER	LIGHT SOURCE	DYNAMIC RANGE (dB)
CKSM-2	SM	CSM1-2	CSS1-SM	60 @ 1310/1550 nm, on 9/125 single-mode fiber
	MM		CSS1-MM	40 @ 850/1300 nm, on 62.5/125 multimode fiber
CKS-2	SM	CSM1-2	CSS1-SM	60 @ 1310/1550 nm, on 9/125 single-mode fiber
CKS-3	SM	CSM1-3	CSS1-SM	70 @ 1310/1550 nm, on 9/125 single-mode fiber
CKM-2	MM	CSM1-2	CSS1-MM	40 @ 850/1300 nm, on 62.5/125 multimode fiber

### Specifications <sup>a</sup>

OPTICAL SPECIFICATIONS: CSM1 POWER METER				
MODEL	CSM1-4	CSM1-3	CSM1-2	CSM1-1
Calibrated Wavelengths	850, 980, 1310, 1490, 1550, 1625 nm	850, 1300, 1310, 1490, 1550, 1625 nm	850, 1300, 1310, 1550 nm	660, 780, 850 nm
Detector Type	Filtered InGaAs	InGaAs	Germanium (Ge)	Silicon (Si)
Measurement Range	+26 to -50 dBm	+6 to -70 dBm	+6 to -60 dBm	+6 to -70 dBm
Tone Detect Range	+6 to -30 dBm +6 to -25 dBm for 850 nm	+6 to -50 dBm +6 to -45 dBm for 850 nm	+6 to -50 dBm +6 to -45 dBm for 850 nm	+6 to -45 dBm
Accuracy <sup>b</sup>	± 0.3 dB			
Resolution	0.01 dB			
Measurement Units	dB, dBm, µW			
OPTICAL SPECIFICATIONS: CSM1 LIGHT SOURCE				
MODEL	CSS1-SM (Single Port)		CSS1-MM (Single-Port)	
Wavelength	1310 nm ±20 nm	1550 nm ±20 nm	850 nm ±20 nm	1300 nm +40/-60 nm
Spectral Width (max)	5 nm	5 nm	35 nm	170 nm
Emitter Type, Safety Class	Laser, Class I FDA 21 CFR 1040.10 & 1040.11, IEC 60825-1: 2007-03		LED, Class I FDA 21 CFR 1040.10 & 1040.11, IEC 60825-1: 2007-03	
Output Power	≥0.0 dBm into 9/125 fiber		≥-20.0 dBm into 62.5/125 fiber	
Output Stability <sup>c</sup>	±0.05 dB over 1 hour; ±0.15 dB over 8 hours		±0.1 dB over 1 hour; ±0.15 dB over 8 hours	
Tone Output	2000, 1000, 330, 270 Hz		N/A	
GENERAL SPECIFICATIONS				
MODEL	CSM1	CSS1-SM	CSS1-MM	
Output Connector	Supports Most Industry Standard Connectors	SC, FC, ST, LC	SC Fixed	
Power	2 AA batteries,	2 AA batteries,	2 AA batteries,	
Battery Life	>300 hours	75 hours (typical)	30 hours (typical)	
Operating Temperature	-10 °C to 50 °C, 90 % RH (non-condensing)			
Storage Temperature	-30 °C to 60 °C, 90 % RH (non-condensing)			
Size (H x W x D)	14.0 x 8.1 x 3.8 cm (5.5 x 3.2 x 1.5 in)			
Weight	0.29 kg (0.65 lb)			

#### Notes:

- All specifications at 25 °C unless otherwise specified.
- Accuracy measured at 25 °C and -10 dBm per N.I.S.T. standards.
- After typical 30 second warm up.

## Contractor Series Light Sources and Power Meters

### Ordering Information

Each Contractor Series Kit ships with adapter caps for all included instruments, AA alkaline batteries, user guide, and carry case with room for optional cleaning supplies (see below). Fiber mandrels (50 micron and 62.5 micron) are included with CKSM-2 and CKM-2 kits.

When purchased separately, CSM1 power meters and CSS1 light sources ship with connector adapter, AA alkaline batteries, user guide, and carry case. Fiber mandrels (50 micron and 62.5 micron) are included with CSS1-MM units.

Test jumpers are required for operation (purchased separately). Test jumpers with a variety of connector styles and fiber types and adapter caps for most common connectors may be purchased from AFL.

### Models and Configurations

MODEL NUMBER	INCLUDES
CKSM-2	Single-mode and Multimode Test klt. Available with SC connector adapters.
CKS-2-cc (cc = FC or SC)	Single-Mode Test Kit. Available with FC or SC connectors adapters.
CKS-3-cc (cc = FC or SC)	Single-Mode Test Kit. Available with FC or SC connectors adapters.
CKM-2	Multimode Test Kit. Available with SC connector adapters.
CSS1-SM-cc (c = FC, SC, ST, or LC)	Single-mode LASER Source. Available with FC, SC, ST, or LC connector adapters.
CSS1-MM	Multimode LED Source. Available with SC connector adapter..
CSM1-4-cc (cc = *)	High Power InGaAs Detector for single-mode applications.
CSM1-3-cc (cc = *)	InGaAs Detector for single-mode applications.
CSM1-2-cc (cc = *)	Germanium Detector for Multimode/Single-mode applications.
CSM1-1-cc (cc = *)	Silicon Detector for Plastic Optical Fiber Measurements.

\* For CSM1 power meters, cc = FC, SC, ST, LC, 2.5 mm, 1.25 mm. Other connector styles are available; see accessories section.

### Accessories

The following accessories will help maximize your Contractor Series performance and provide flexibility to interface to many industry standard connectors.

#### Optional Cleaning Supply Packages – Sized to Fit in CK Carry Cases

Accurate test results require clean optical connectors – cleaning kits below are designed to support optical loss testing. A great accessory for maintaining new test equipment measurement integrity!

DESCRIPTION	INCLUDES	AFL NO.
Wet Cleaning Kit	8500-10-0016MZ, Cletop-SB or cleaning exposed ferrules (jumper ends). CCTS-25-0900MZ, connector Cleaning Tips for 2.5 mm ferrule in adapters or sockets (SC, FC, ST in adapters), Blue (40 sticks). CCTS-12-0900MZ, connector Cleaning Tips for 1.25 mm ferrule in adapters or sockets (LC, MU in adapters), Green (40 sticks). FCC2-00-0900, optical quality Cleaning Fluid for fiber connector end faces.	8500-20-0900
Dry Cleaning Kit	8500-10-0016MZ, Cletop-SB for cleaning exposed ferrules (jumper ends). 8500-10-0024MZ, ACT-01 2.5 mm adapter cleaning tips (Qty = 200).	8500-20-0901

## Contractor Series Light Sources and Power Meters

### CSS1-SM Single-mode Light Source Accessories

DESCRIPTION	AFL NO.
FC UCI connector adapter	2900-50-0002MR
SC UCI connector adapter	2900-50-0003MR
ST UCI connector adapter	2900-50-0004MR
LC UCI connector adapter	2900-50-0006MR
Universal flip-top dust cap for UCI outputs	8800-00-0072PR

### CSM1 Power Meter Adapter Caps

DESCRIPTION	AFL NO.
2.5 mm Universal (accepts FC, SC, and ST ferrules)	8800-00-0214
1.25 mm Universal (accepts LC and MU ferrules)	8800-00-0224
FC	8800-00-0200
SC	8800-00-0209
ST	8800-00-0202
LC simplex/duplex	8800-00-0225
E-2000	8800-00-0221
MU simplex	8800-00-0226
2.5 mm open Universal, Accepts SC duplex, OptiTap connector	8800-00-0219
SMA	8800-00-0203
D4	8800-00-0201
Biconic	8800-00-0204
DIN 47256	8800-00-0211
Radial PFO/VFO	8800-00-0212
1,000 mm bare fiber (Plastic Fiber – POF)	8800-00-0223
HP-HFBR-45XX universal (Plastic Fiber – POF)	8800-00-0271PR



### International Sales and Service Contact Information

Available at [www.AFLglobal.com/Test/Contacts](http://www.AFLglobal.com/Test/Contacts)