



Contractor Series Light Sources and Power Meters are rugged test instruments designed with a simple user interface and backed by an industry-leading 5-year warranty. Both single-mode and multimode kit options provide tools for measuring network insertion loss, continuity checks, and fiber identification.







CSS1-SM Laser Source



CSM1 Power Meter

#### **Features**

- Palm-sized rugged, dependable tools
- Industry-leading 5-year warranty
- Cost-effective, easy to use
- Auto-off to maximize battery life on Power Meter
- Large readable in bright or 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

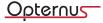
### **CSS1-MM LED Source**

- 850 nm and 1300 nm LED output from single test port
- 50 μm and 62.5 μm mandrels included
- **Test Tones** (2000, 1000, 330, 270 Hz) for fiber identification
  - Use power meters when technician has fiber end access

### **CSS1 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

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Specifications are subject to change without notice.





### **Contractor Series Models**

| POWER METER MODELS CALIBRATED WAVELENGTHS (nm) |  | CALIBRATED WAVELENGTHS (nm)       | TARGET APPLICATIONS                 |
|--|--|-----------------------------------|-------------------------------------|
| CSM1-3   |  | 850, 1300, 1310, 1490, 1550, 1625 | Single-mode Measurements            |
| CSM1-4   |  | 850, 980, 1310, 1490, 1550, 1625  | High Power Single-mode 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 |          | LIGHT SOURCE | DYNAMIC RANGE (dB)  |  |
|---|----------|--------------|---|--|
| CKS-3   | SM       | CSM1-3       | CSS1-SM 70 @ 1310/1550 nm, on 9/125 single-mode fiber   |  |
| CKM-3   | MM       | CSM1-3       | CSS1-MM 40 @ 850/1300 nm, on 62.5/125 multimode fiber   |  |
| CKSM-2  | SM<br>MM | CSM1-3       | CSS1-SM 60 @ 1310/1550 nm, on 9/125 single-mode fiber CSS1-MM 40 @ 850/1300 nm. on 62.5/125 multimode fiber |  |

## Specifications <sup>a</sup>

| OPTICAL SPECIFICATIONS: CSM1 POWER METER |  |                          |  |
|--|--|--------------------------|--|
| MODEL                                    | CSM1-3 CSM1-4  |                          |  |
| Calibrated Wavelengths                   | 850, 1300, 1310, 1490, 1550, 1625 nm 850, 980, 1310, 1490, 1550, 1625 nm |                          |  |
| Detector Type                            | InGaAs Filtered InGaAs   |                          |  |
| Measurement Range                        | +6 to -70 dBm +26 to -50 dBm   |                          |  |
| Tone Detect Range                        | +6 to -50 dBm  | +6 to -30 dBm            |  |
|  | +6 to -45 dBm for 850 nm   | +6 to -25 dBm for 850 nm |  |
| Accuracy <sup>b</sup>                    | ± 0.3 dB   |                          |  |
| Resolution                               | 0.01 dB  |                          |  |
| Measurement Units                        | dB, dBm, μW  |                          |  |

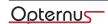
| OPTICAL SPECIFICATIONS: CSM1 LIGHT SOURCE |   |  |  |                                 |
|---|---|--|--|---------------------------------|
| MODEL                                     | CSS1-SM (Single Port)   |  | CSS1-MM (Single-Port)                      |                                 |
| Wavelength                                | 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                            | o 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   |  |  |                                 |

| 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) without boot |                    |                    |
| Weight                 | 0.29 kg (0.65 lb) without boot                        |                    |                    |

### Notes:

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

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### **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   |
|--|--|
| CKS-3-cc (cc = FC or SC)               | Single-Mode Test Kit. Available with FC or SC connectors adapters.             |
| CKM-3                                  | Multimode Test Kit. Available with SC connector adapters.                      |
| CKSM-2                                 | Single-mode and Multimode Test klt. 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                      |
| CSM1-3-cc (cc = *)                     | InGaAs Detector for single-mode applications.                                  |
| CSM1-4-cc (cc = *)                     | High Power InGaAs Detector for single-mode applications.                       |

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

### **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 |
| TZ  | 8800-00-0202 |
| LC simplex  | 8800-00-0225 |
| E-2000  | 8800-00-0221 |
| 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 |





# **Recommended Products**



### **OFI-BIPM Optical Fiber Identifier**

- World class signal sensitivity
- Trigger lock, positive stop for optimum detection
- Integrated optical power meter option



#### One-Click® Cleaners

- Patented single-action
- Variety of sizes and types
- Low cost per clean

### Qualifications

| CATEGORY            | REGULATION/STANDARD | QUALIFICATION  |
|---------------------|---------------------|--|
| CE Marking          | EU                  | Compliant to relevant EU Directives on health, safety, and environmental protection, and certified with CE marking     |
|                     | IEC                 | Compliant to IEC 61010-1 for safety requirements for electrical equipment  |
|                     | EN                  | Compliant to EN 61010-1 for safety requirements for electrical equipment   |
|                     | IEC                 | Compliant to IEC 61326-1 for EMC requirements for electrical equipment   |
| Safety/EMC/EMI      | EN                  | Compliant to EN 61326-1 for EMC requirements for electrical equipment  |
|                     | EN                  | Compliant to EN 55011 for EMC requirements for industrial, scientific and medical equipment                            |
|                     | FDA                 | Compliant to code of federal regulations FDA 21 CFR 1040.10 and 1040.11 on laser products                              |
|                     | IEC                 | Compliant to IEC 60825-1 for safety of laser products  |
| RoHS                | EU                  | Compliant to EU regulations Directive 2011/65/EU (RoHS 2) and Directive 2015/863 (RoHS 3)                              |
|                     | TIA                 | Compliant to TIA-568.3-D for test and measurement requirements for premises optical fiber cabling and components*      |
|                     | IEC                 | Compliant to IEC 11801 for test and measurement requirements for optical fiber cabling for use within premises*        |
|                     | EN                  | Compliant to EN 50173 for test and measurement requirements for optical fiber cabling for use within premises*         |
|                     | AS/NZS              | Compliant to AS/NZS 3080 for test and measurement requirements for optical fiber cabling for use within premises*      |
| Test Method         | TIA                 | Compliant to TIA-526-7 for test procedures for installed optical fiber cable plant                                     |
| rest ivietnoa       | TIA                 | Compliant to TIA-526-14 for test procedures for installed optical fiber cable plant*                                   |
|                     | IEC                 | Compliant to IEC 14763-3 for systems and methods for the inspection and testing of installed optical fiber cabling*    |
|                     | AS/NZS              | Compliant to AS/NZS 14763.3 for systems and methods for the inspection and testing of installed optical fiber cabling* |
|                     | IEC                 | Compliant to IEC 61280-4-1 for test procedures for installed optical fiber cable plant*                                |
|                     | IEC                 | Compliant to IEC 61280-4-2 for test procedures for installed optical fiber cable plant                                 |
| Generic Requirement | IEC                 | Compliant to IEC 61315 for requirements on calibration of fibre-optic power meters                                     |

<sup>\*</sup> A complementary encircled flux mode conditioner may be needed to comply with encircled flux launch conditions for testing multimode optical fiber cabling and components.

Contact Sales@AFLglobal.com to schedule a demonstration or learn how to buy.

Visit www.AFLglobal.com/Test to learn more about Contractor Series light sources and power meters.

International Sales and Service Contact Information available at www.AFLglobal.com/Test/Contacts



