# 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 µm and 62.5 µm mandrels included

## 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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## 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<br>MM | CSM1-2 | CSS1-SM<br>CSS1-MM | 60 @ 1310/1550 nm, on 9/125 single-mode fiber<br>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 [a]

| 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<br>+6 to -25 dBm for 850 nm | +6 to -50 dBm<br>+6 to -45 dBm for 850 nm | +6 to -50 dBm<br>+6 to -45 dBm for 850 nm | +6 to -45 dBm |
| Accuracy [b] | ± 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 [c] | ±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:**

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.

# 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 kIt. 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).<br>CCTS-25-0900MZ, connector Cleaning Tips for 2.5 mm ferrule in adapters or sockets (SC, FC, ST in adapters), Blue (40 sticks).<br>CCTS-12-0900MZ, connector Cleaning Tips for 1.25 mm ferrule in adapters or sockets (LC, MU in adapters), Green (40 sticks).<br>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).<br>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