

ACS 570-15/17

IR LED Calibration Standard

Key features at a glance

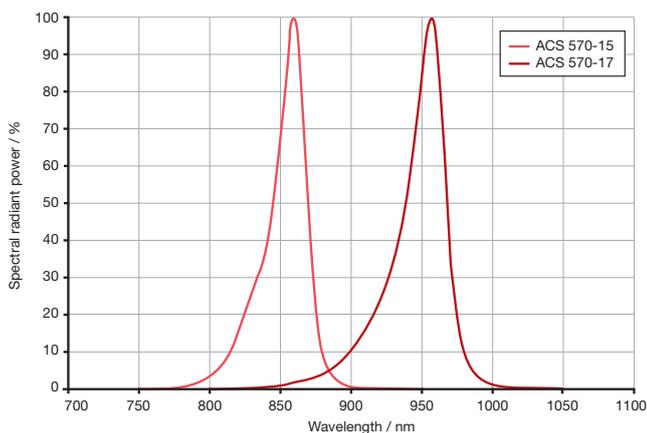
- ▲ Reference value for radiant flux in infrared (IR) region
- ▲ Available for typical peak wavelengths 860 nm and 950 nm
- ▲ Maximum operational reliability when used with PSU 10 unit



The IR LED Calibration Standard ACS 570-15/17 from Instrument Systems GmbH is a highly stable infrared source based on LED technology. It is available in two versions with typical peak wavelengths of 860 nm (ACS 570-15) and 950 nm (ACS 570-17). As a service, Instrument Systems provides reference values for radiant flux.

\\ FUNCTIONALITY

The infrared LED inside the ACS 570-15/17 is actively temperature-stabilized by a TEC element. The generated heat is transferred to the surroundings by a heat sink and an integrated electrical fan. A constant operating temperature ensures stable and reproducible radiant power of the LED. The IR LED Calibration Standard is operated at a current of 250 mA and the temperature is regulated to 35 °C. Specially developed software is used for the control. Instrument Systems ISO 17025 accredited test laboratories provide reference values for radiant flux (registration number D-PL-19052-01-00). All reference values, the spectrum, and all relevant operating parameters are stored inside the ACS 570-15/17. In addition, the expired operation time is tracked and logged in the device.



▲ Typical spectral curves for IR LED calibration standards.

\\ PSU 10 & TEC CONTROLLER

The IR LED Calibration Standard is best operated with the specially developed PSU 10 power supply unit and TEC controller, which provides two functionalities for controlling the ACS 570-15/17.

Firstly, the PSU 10 includes a power source which supplies a steady LED current of 250 mA to ensure constant optical radiant power. In addition, this module supplies power to the fan built into the ACS 570-15/17. Secondly, the TEC controller ensures that the LED temperature is kept constant at 35 °C. The PSU 10 is connected to a computer with an USB link and controlled via the PSU-ACS-Control software. The Windows 7/10 operating systems are supported. The corresponding program libraries are available for the Windows and OS X operating systems (.dll and .dylib) for direct control. Alternatively, a Keithley 24xx can be used as a current source and an Arroyo 5305 as TEC controller.



▲ PSU 10 power supply unit.

\\ TECHNICAL SPECIFICATIONS

IR calibration standard ACS 570-15/17	ACS 570-15	ACS 570-17
Typical radiant flux [mW]	25 - 40	45 - 70
Typical average radiant intensity $I_{e,B}$ [mW/sr]	45 - 70	70 - 100
Peak wavelength	Typically 860 nm	Typically 950 nm
Full width at half maximum	Typically 25 nm	Typically 30 nm
Operating current and accuracy	250 mA \pm 0.1 mA	
Operating temperature at control point and accuracy	35 °C \pm 0.05 °C	
Stabilization time of radiant flux and radiant intensity	< 0.2 % / 12 h and 0.5 % / 100 h	
Temperature dependency of radiant flux and radiant intensity	< 0.15 % / 10 K	< 0.25 % / 10 K
Turn-on stabilization time	< 240 s	
Recommended recalibration interval	After 100 operating hours or one year after last calibration	
Connections	D-sub, 25-pin (ACS 570 to PSU 10); USB (PSU 10 to PC) Alternative with adapter cable ACS 570-9 to Keithley / Arroyo	

Instrument Systems is continually working to develop and improve its products. Technical changes, errors or misprints do not constitute grounds for compensation. The company's terms of delivery and payment apply in all other respects.

\\ ORDERING INFORMATION

Order number	Description
ACS-570-15	IR-LED calibration standard for radiant flux (860 nm); socket with 25 mm \emptyset
ACS-570-17	IR-LED calibration standard for radiant flux (950 nm); socket with 25 mm \emptyset
ACS-570-9	Adapter cable for connecting ACS 570-x series of high-power LED calibration standards to a current source and TEC control unit (Keithley/Arroyo)
Power sources and temperature controllers	
PSU10-100	Combined power supply (0-18 V, 0-1000 mA) and TEC Controller (+/-19 V, +/-10 A) for LED calibration standards; incl. connector cables and control software for Windows
W-110	Keithley 2400 Sourcemeter
W-210	Arroyo Instruments TEC Source temperature controller, model 5305
Determination of reference values	
CAL-517	Factory calibration of radiant flux of IR calibration LEDs with certificate