Instrument Systems
KONICA MINOLTA Group

# ACS 570-24/26/28

## UV LED Calibration Standard


### Key features at a glance

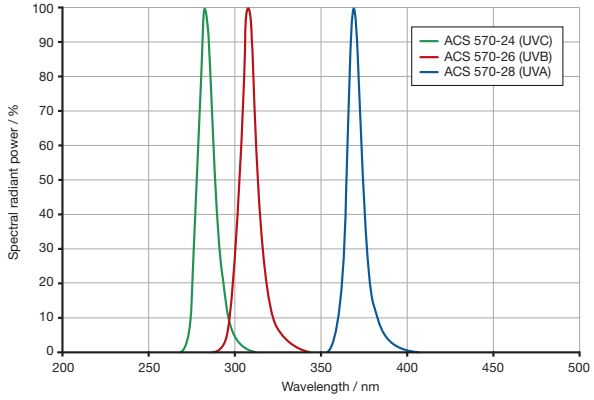
- Reference value for radiant flux in ultraviolet (UV) region
- Available for typical peak wavelengths 280, 305, and 365 nm
- Extremely low measurement uncertainties (k=2) with 4.5% (UVC), 3.5% (UVB) and 2% (UVA)
- Maximum operational reliability by use with PSU 10 unit

The ACS 570 UV LED Calibration Standard from Instrument Systems is a highly stable ultraviolet source based on LED technology. It is available in three versions with typical peak wavelengths 280 nm (ACS-570-24), 305 nm (ACS-570-26), and 365 nm (ACS-570-28). Instrument Systems provides reference values for radiant flux as a service. UV LED Standards can be used for absolute calibration and monitoring of UV measurement equipment such as integrating spheres.

## \\ FUNCTIONALITY

The UV LED inside the ACS 570-24/26/28 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. The UV 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 (registration number D-PL-19052-01-00) provide reference values for radiant flux. Reference values, the spectrum, and all relevant operating parameters are stored inside the ACS 570. In addition, the expired operation time is tracked and logged in the device.




*Typical spectral curves for UV LED calibration standards*

## \\ PSU 10 POWER SUPPLY UNIT

The UV LED Calibration Standard is best operated with the PSU 10 power supply unit and TEC controller, which provides two functionalities for controlling the ACS 570.

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.

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 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 as can be used as a current source and an Arroyo 5305 as TEC controller.


*PSU 10 power supply unit.*

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## \\ TECHNICAL SPECIFICATIONS

| ACS 570 UV calibration standard | ACS-570-24 | ACS-570-26 | ACS-570-28 |
|---|---|---|---|
| Typical irradiance @ 300 mm distance [mW/m²] | 180 – 200 | 280 – 300 | 670 – 690 |
| Typical radiant flux [mW] | 40 – 60 | 65 – 70 | 54 – 56 |
| Expanded measurement uncertainty (k=2) | 4.5 % | 3.5 % | 2 % |
| Typical peak wavelength | 278 nm ± 3 nm | 306 nm ± 3 nm | 367 nm ± 3 nm |
| Typical centroid wavelength | 280 nm ± 3 nm | 308 nm ± 3 nm | 369 nm ± 3 nm |
| Operating current and accuracy | 250 mA ± 0.1 mA | | |
| Operating temperature at control point and accuracy | 35 °C ± 0.05 °C | | |
| Maximum relative change over the ON time | < 0.2 % / 12 h and 1 % / 100 h | | |
| Temperature dependency of the calibration value | < 0.3 % / 10 K | < 0.2 % / 10 K | < 0.2 % / 10 K |
| Turn-on stabilization time | < 240 s | | |
| Recommended recalibration interval | One year after last calibration | | |
| Connections | D-sub, 25-pin (ACS 570 to PSU 10); USB (PSU 10 to PC)<br>Alternative with adapter cable ACS-570-9 to Keithley / Arroyo | | |

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The company's terms of delivery and payment apply in all other respects.

## \\ ORDERING INFORMATION

| Order number | Description |
|---|---|
| ACS-570-28 | UVA-LED calibration standard (~365 nm) in socket with 25 mm Ø |
| ACS-570-26 | UVB-LED calibration standard (~305 nm) in socket with 25 mm Ø |
| ACS-570-24 | UVC-LED calibration standard (~280 nm) in socket with 25 mm Ø |
| 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-523 | Factory calibration of radiant flux of UV-LED calibration standards with certificate |

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