

# AvaLight-HAL-CAL-Mini and AvaLight-DH-CAL Calibrated Light Sources

## AvaLight-HAL-CAL-Mini



- Field calibration
- Visible and optional NIR range
- Built-in diffuser
- Versatile

Calibrating your spectrometer has never been easier: the AvaLight-HAL-CAL-Mini and AvaLight-DH-CAL are NIST traceable calibrated light sources which measure absolute spectral intensity.

The AvaLight-HAL-CAL-Mini is a compact, affordable light source. It is calibrated for the visible range (350-1095 nm). Optionally, an extended calibration for the near-infrared spectral range (1100-2500 nm) can be ordered. It has a built-in diffuser, a cosine corrector with SMA adapter and comes with a calibration file in ASCII format.

Calibration can be done using the AvaSoft software.

The AvaLight-HAL-CAL-ISPxx-Mini is a special version of the AvaLight-HAL-CAL-Mini, which enables coupling any of Avantes' AvaSphere-xx-IRRAD integrating spheres to the lightsource (xx=30, 50 or 80) for calibration. This source is supplied with a special bottom plate to stabilize the AvaSphere. The AvaLight-HAL-CAL-Mini and AvaLight-HAL-CAL-ISPxx-Mini include a power supply.

## AvaLight-DH-CAL



For calibrations in the ultraviolet and visible range (200-1099 nm), the AvaLight-DH-CAL is the best solution. This source can be used with all AvaSpec spectrometers to calibrate for absolute spectral intensity. It is supplied with a built-in diffuser, a cosine corrector (CC-VIS/NIR) with SMA adapter and a CD-ROM containing the calibration

files in ASCII format.

Two calibration files are included: one for irradiance calibration over the full range (200-1099 nm) and one over the visible and near infrared range (350-1099 nm). For the first file, both the deuterium and the halogen bulb should be used during calibration. The second file is to be used with only the halogen light. The halogen only spectrum provides a smoother black body calibration spectrum for the longer wavelengths.

For a more balanced spectrum across the 200-1100 nm range, Avantes offers the AvaLight-DH-BAL-CAL. For ultraviolet range calibration only (200-400 nm), the AvaLight-D-CAL is the right choice.

The calibration files can be imported in the AvaSoft-IRRAD application software, for

intensity calibration which turns your spectrometer into a spectroradiometer.

The AvaLight-DH-CAL-ISPxx is a special version of these calibrated light sources, meant to facilitate coupling of the AvaSphere-xx-IRRAD integrating spheres to the light source. (xx is 30, 50 or 80). The AvaLight-DH-CAL, AvaLight-DH-BAL-CAL and AvaLight-D-BAL-CAL all include a power supply.

- Flexible calibration
- Ultraviolet and visible range
- Built-in diffuser and cosine corrector

## Technical Data

	AvaLight-HAL-CAL-Mini	AvaLight-DH-(BAL)-CAL
<b>Calibration use</b>	Irradiance $\mu\text{W cm}^{-2} \text{ nm}^{-1}$	Irradiance $\mu\text{W cm}^{-2} \text{ nm}^{-1}$
<b>Calibrated surface</b>	CC-VIS/NIR or AvaSphere	CC-VIS/NIR or AvaSphere
<b>Wavelength Range</b>	350-1095 nm / 1100-2500 nm*	200-1099 nm
<b>Calibration Repeatability</b>	$\pm 0.5 \%$	$\pm 1.0\%$
<b>Calibration Relative Uncertainty to NIST standard</b>	$\pm 5.0\%$ (350-1100 nm) $\pm 3.5\%$ (1100-1950 nm) $\pm 5.0\%$ (1950-2500 nm)	$\pm 10\%$ (200-240 nm) $\pm 9\%$ (240-350 nm) $\pm 10\%$ (350-400 nm) $\pm 9.5\%$ (400-1100 nm)
<b>Calibration valid for</b>	60 hrs	60 hrs
<b>Warm-up Time</b>	Ca. 15 min.	Ca. 30 min.
<b>Bulb Output</b>	170 $\mu\text{W cm}^{-2} \text{ nm}^{-1}$ (@800 nm)	80 $\mu\text{W cm}^{-2} \text{ nm}^{-1}$ (@215 nm) 5 $\mu\text{W cm}^{-2} \text{ nm}^{-1}$ (@800 nm)
<b>Power requirement</b>	12 V / 2.08A	100-240 VAC
<b>Dimensions</b>	150 x 78 x 37 mm	315 x 165 x 140 mm

\* optional extended range NIR calibration

## Ordering Information

<b>AvaLight-HAL-CAL-Mini</b>	• NIST traceable Halogen Lamp with CC- VIS/NIR diffuser, incl. PS-12V/2.08A
<b>AvaLight-HAL-CAL-ISP30-Mini</b>	• NIST traceable Halogen Lamp for use with AvaSphere-30-IRRAD, incl. PS-12V/2.08A and special sphere holder bottom plate
<b>AvaLight-HAL-CAL-ISP50-Mini</b>	• As AvaLight-HAL-CAL-ISP30-Mini for use with AvaSphere-50-IRRAD
<b>AvaLight-HAL-CAL-ISP80-Mini</b>	• As AvaLight-HAL-CAL-ISP30-Mini for use with AvaSphere-80-IRRAD
<b>HL-Recal</b>	• AvaLight-HAL-CAL recalibration service 350-1095 nm
<b>HL-Recal-NIR</b>	• AvaLight-HAL-CAL extended or recalibration service 1100-2500 nm
<b>AvaLight-D-CAL</b>	• NIST traceable UV Deuterium Lamp with CC-VIS/NIR diffuser, -SR fibers recommended
<b>AvaLight-DH-CAL</b>	• NIST traceable UV/VIS Deuterium/Halogen Lamp with CC-VIS/NIR diffuser, -SR fibers recommended
<b>AvaLight-DH-BAL-CAL</b>	• As AvaLight-DH-CAL, but balanced UV/VIS Deuterium/Halogen
<b>AvaLight-DH-CAL-ISP30</b>	• NIST traceable UV/VIS Deuterium/Halogen Lamp for use with AvaSphere-30-IRRAD, incl. special sphere holder bottom plate, -SR fibers recommended
<b>AvaLight-DH-CAL-ISP50</b>	• As AvaLight-DH-CAL-ISP30 for use with AvaSphere-50-IRRAD
<b>AvaLight-DH-CAL-ISP80</b>	• As AvaLight-DH-CAL-ISP30 for use with AvaSphere-80-IRRAD
<b>DH-Recal</b>	• AvaLight-DH-CAL recalibration service 200-1099 nm
<b>AvaSoft-IRRAD</b>	• Irradiance add-on software, to be ordered with AvaSoft-Full



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