

H40 light source

Broadband calibrated light source



Fig. 1. H40 calibrated light source



Fig. 1. H40 light source with optional CRAD1545 collimator

BASIC INFORMATION:

H40 is a single channel broadband halogen light source that emits light of approximately 2856K spectrum in wide spectral band from about 400nm to about 2000 nm. Technically, H40 can be treated as a simplified version of multi channel DAL/SAL light source without LED channels and with modified light emitter. Diameter of light emitter in H40 sources is the same as in DAL/Sal sources (40 mm) but there are two important changes: a) Lambertian source at emission at angles up to 60°, b)ability to cooperate with bright collimators of low F-number (ratio of focal length to aperture can be as low as one).

The second change means that by using additional bright collimators (CRAD series) an apparent aperture of the light source can be increased (typically up to 200mm) while still keeping sufficient emission angle. Practically it means that H40 light source cooperating

with a series of bright CRAD refractive collimators makes possible calibration of VIS-NIR cameras or SWIR cameras with optics as big as 200mm (or more).

Intensity of the halogen bulb is regulated using an opto-mechanical attenuator that changes light intensity but does not change light color temperature.

H40 light source offers extremely high dynamic range, continuous regulation of light intensity (ability to simulate both ultra night conditions and day conditions) achieved keeping compact design. The source cooperates with external light meter that indicates current luminance of light source (manual version) or with PC set (computerized version).

The H40 light source can be optionally supported by a set of external spectral filters. All these features

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make H40 light source an unique solution on international market.

The H40 light source can be used as a standard source of visible, NIR and SWIR light. Typical applications are systems for testing testing visible/NIR

imagers (night vision devices, image intensifier tubes, ICCD cameras, color CCD cameras, monochrome CCD cameras and SWIR cameras.

FEATURES

- Extremely high dynamic range and continuous regulation of luminance that enable over million of different luminance levels. Typical sources enable step luminance regulation or enable continuous regulation but for much smaller luminance range.
- Wide spectral band from VIS band to SWIR band
- Spectrum of H40 light source resemble well spectrum of standard greybody of 2856K color temperature
- H40 can be offered in both manual and computerized version.

CALIBRATION

H40 light source is a broadband light source that emits light from visible to short wave infrared band. This light source is calibrated in two main ways:

1) in cd/m^2 units but with additional information about spectrum

b) in W/m^2 units for spectral bands determined by used spectral filters.

Typical spectrum of H40 light source is shown below in Fig.2. Spectrum of different H40 light sources can differ from typical but Inframet always delivers detail data on real spectrum in form of drawing and table. This data enables users of H40 light source to calculate source radiance in W/m^2 units for any spectral band (if differ from bands determined by filters delivered by Inframet.

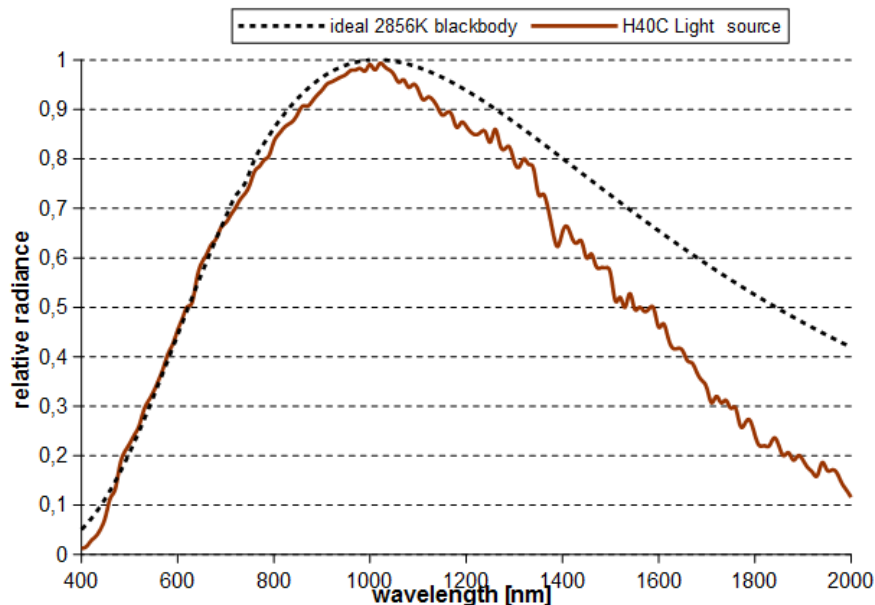


Fig. 2. Typical spectrum of H40 calibrated light source

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SPECIFICATIONS

<i>Parameter</i>	<i>Value</i>
Light source	special halogen bulb (porous tungsten)
Light source diameter	40 mm (can be increased to 150mm using C series collimator)
Emission spectral band	350nm to 2200nm;
Calibrated spectral band	400nm to 1700nm
Color temperature of halogen bulb	2856K \pm 200K
Luminance range	0.1mcd/m ² - 10 000 cd/m ²
Regulation type	Continuous
Regulation method	Opto-mechanical attenuator
Regulation resolution	0.1mcd/m ² (at low intensity range)
Temporal stability	<1%
Stabilization time	<90 sec
Spectral filters	Three filters: a)only visible, b)only NIR and SWIR, c)only SWIR
Dimensions	Source module:37x49x29cm; Meter module: 19x9x29 cm
Mass	Source module: 12 kg Meter module: 1.5 kg

*specifications are subject to change without prior notice

VERSIONS

H40 light source can be delivered in form of a two main versions:

1. H40M- manual version where light intensity is regulated manually and the source cooperates with additional external light meter,
2. H40C - computerized version where light intensity is controlled from PC that works also as a display to present light intensity.

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