THORLABS

QTH10(/M)
Quartz Tungsten-Halogen Lamp

User Guide



Table of Contents

Chapter 1 Warning Symbol Definitions 1
Chapter 2 Safety 2
Chapter 3 Description 3
3.1. Product Overview ***3***
3.2. Mechanical Description ***3***
3.3. Power Supply ***3***
3.4. Bulb Alignment and Replacement ***3***
Chapter 4 Specifications 4
Chapter 5 Mechanical Drawing 5
Chapter 6 Regulatory 6
Chapter 7 Thorlabs Worldwide Contacts 7

Chapter 1 Warning Symbol Definitions

Below is a list of warning symbols you may encounter in this manual or on your device.

Symbol	Description
	Direct Current
	Alternating Current
	Both Direct and Alternating Current
	Earth Ground Terminal
	Protective Conductor Terminal
	Frame or Chassis Terminal
	Equipotentiality
	On (Supply)
	Off (Supply)
	In Position of a Bi-Stable Push Control
	Out Position of a Bi-Stable Push Control
	Caution: Risk of Electric Shock
	Caution: Hot Surface
	Caution: Risk of Danger
	Warning: Laser Radiation
	Caution: Spinning Blades May Cause Harm

Chapter 2 Safety

All statements regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly.

WARNING

This product is Risk Group 1 for IR Radiation.

WARNING

This lamp is a special-purpose product for laboratory use and is not suitable for household room illumination.

WARNING

Any addition of focusing optics may result in increasing the radiation hazard from the lamp. Always wear eye protection when working with the lamp.

WARNING

This lamp emits IR radiation. Skin exposure to IR radiation can be avoided by wearing long-sleeved clothing around the lamp.

WARNING

Do not operate with the optic or the rear end cap removed.

WARNING

Do not touch the bulb's surface with your bare hands. If the bulb's surface shows signs of fingerprints or dirt, clean carefully with alcohol.

WARNING

Always make sure equipment is switched off before mounting the lamp.

WARNING

Do not look directly at the light source during operation.

WARNING

Handle with care during use, as impact will severely shorten lamp life.

WARNING

If the lamp is used with a bulb not purchased from Thorlabs, Thorlabs is not responsible for any adverse effects from radiation exposure.

Chapter 3 Description

3.1. Product Overview

The QTH10(/M) Quartz Tungsten-Halogen Lamp offers stable output and broadband, incoherent illumination in the visible and near-IR portions of the spectrum. It is a general-purpose lab tool with several convenient features, including a heat sink, internal SM2 (2.035"-40) threading for compatibility with our Ø2" lens tubes, and an 8-32 (M4) tapped hole for compatibility with our Ø1/2" posts. Two externally SM2-threaded end caps and a condensing lens (item # ACL5040U) are included. The front end cap (item # SM2CP2) has a knurled edge that allows it to be removed by hand, while the rear end cap requires the use of the SPW801 spanner wrench. Note that the unit should not be operated with the rear end cap and optic removed.

3.2. Mechanical Description

The QTH10(/M) has a 10 W, 12 V quartz tungsten-halogen bulb in the middle, an ACL5040U condensing lens on one end, and an SM2-threaded end cap on the other end. The housing is compatible with our TR series posts. Internal SM2 threads on both sides of the housing permit different lenses, lens tubes, or other SM2-compatible optomechanics to be attached.

The halogen bulb has a G4 2-pin base. By loosening a setscrew behind the end cap with a 0.05" (1.3 mm) hex key, the bulb height may be adjusted.

3.3. Power Supply

The QTH10(/M) requires a 12 VDC power input. We recommend using the universal AC/DC power supply that is included with the unit for best performance.

3.4. Bulb Alignment and Replacement

Alignment Notes

For the best imaging quality, the filament should be oriented perpendicular to the optical axis. To achieve this, use a 0.05" (1.3 mm) hex key to loosen the setscrew holding the bulb in place. Looking down the optical axis of the lamp, rotate the filament to be parallel to the optical axis, then back to perpendicular. This is a clear way to determine the filament's alignment.

In addition, for high imaging quality, the optical axis should go through the center of the perpendicularly oriented filament. The use of an alignment plate, such as Thorlabs' LMR2AP for SM2 Lens Tubes, will help determine when the image is centered.

Bulb Replacement

We strongly recommend the use of gloves (such as latex or cotton gloves) when replacing the bulb in order to prevent skin oils from being deposited on the glass.

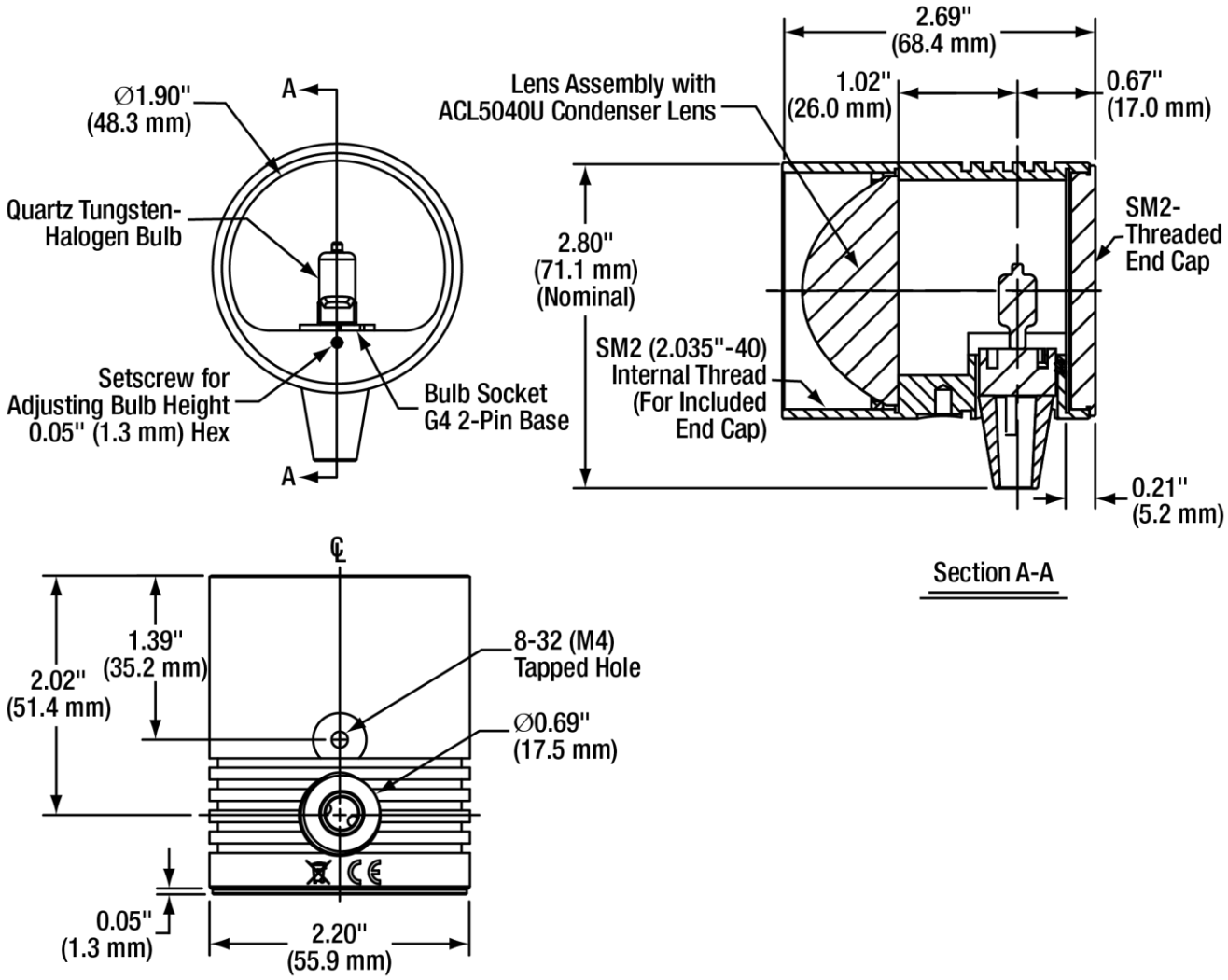
1. Remove the power cord from the AC outlet.
2. Unthread the SM2 end cap. Allow sufficient time for the unit to cool. CAUTION: Bulb and surfaces may be extremely hot!
3. Loosen the setscrew with a 0.05" (1.3 mm) hex key and pull the socket out of the housing.
4. Remove the bulb from the socket and insert the new bulb into the socket. Press firmly to ensure that pins are fully seated.
5. Insert the socket back into the housing. Align the filament, then tighten the setscrew.
6. Thread the SM2 end cap back onto the housing.

Chapter 4 Specifications

Specifications	
Bulb Manufacturer	Plusrite
Base	G4 2-Pin
Bulb Type	Quartz Tungsten-Halogen Bulb
Optical Output Power[1]	50 mW (Typical)
Color Temperature	2800 K
Rated Life (Hours)	2000
Bulb Voltage	12 V
Bulb Power	10 W
Included Optics	ACL5040U
Included Power Supply	Voltage Input: 90 - 264 VAC, 50 - 60 Hz Voltage Output: 12 VDC Output Connector: 2.1 mm ID x 5.5 mm OD x 9.5 mm Long (Female)
Dimensions (L × W × H)	70.1 mm x 55.9 mm x 71.9 mm (2.76" x 2.20" x 2.83")

[1]Measured by focusing the output beam after the ACL5040U Condenser Lens onto an S302C Thermal Power Sensor with a Ø2", 90° protected silver off-axis parabolic mirror (6" reflected focal length).

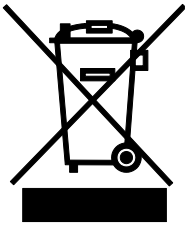
Chapter 5 Mechanical Drawing



Chapter 6 Regulatory

As required by the WEEE (Waste Electrical and Electronic Equipment Directive) of the European Community and the corresponding national laws, Thorlabs offers all end users in the EC the possibility to return “end of life” units without incurring disposal charges.

- This offer is valid for Thorlabs electrical and electronic equipment:
- Sold after August 13, 2005
- Marked correspondingly with the crossed out “wheelie bin” logo (see right)
- Sold to a company or institute within the EC
- Currently owned by a company or institute within the EC
- Still complete, not disassembled and not contaminated



Wheelie Bin Logo

As the WEEE directive applies to self-contained operational electrical and electronic products, this end of life take back service does not refer to other Thorlabs products, such as:

- Pure OEM products, that means assemblies to be built into a unit by the user (e. g. OEM laser driver cards)
- Components
- Mechanics and optics
- Left over parts of units disassembled by the user (PCB’s, housings etc.).

If you wish to return a Thorlabs unit for waste recovery, please contact Thorlabs or your nearest dealer for further information.

Waste Treatment is Your Own Responsibility

If you do not return an “end of life” unit to Thorlabs, you must hand it to a company specialized in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.

Ecological Background

It is well known that WEEE pollutes the environment by releasing toxic products during decomposition. The aim of the European RoHS directive is to reduce the content of toxic substances in electronic products in the future.

The intent of the WEEE directive is to enforce the recycling of WEEE. A controlled recycling of end of life products will thereby avoid negative impacts on the environment.

Chapter 7 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at **www.thorlabs.com/contact** for our most up-to-date contact information.



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