Energy Head with Broadband Coating

ES312C



Description

The ES312C is a pyroelectric sensor that directly transforms a radiation energy pulse with a high repetition rate of up to 250 Hz into voltage pulses, independent of the wavelength of the incidence radiation.

The aperture diameter of ES312C is 12 mm. For best performance it is recommended to choose a sensor with an area slightly larger than the beam's cross section. The active sensor area is coated with a black absorber layer, which possesses an almost constant absorption in the wavelength range from 185 nm to 25 µm. An EEPROM located in the BNC to DE-9 mating adapter (included) stores the spectral response calibration parameter required to provide an accurate energy reading. Please find the calibration parameter also on the included Certificate of Calibration.

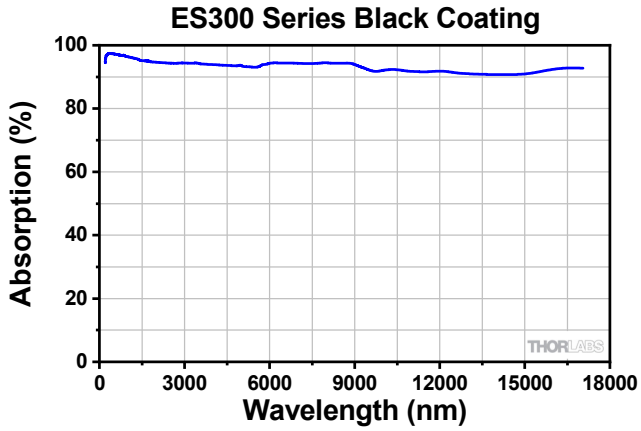
The housing of the ES312C features a combined 8-32 and M4 mounting thread to accommodate both metric and imperial posts and post holders. For attaching fiber adapters or other optics, the SM1 external aperture thread is compatible with Thorlabs accessories with an internal SM1 thread.

The ES312C can directly connect to an oscilloscope with 1 MΩ input resistance via the BNC connector.

Specifications

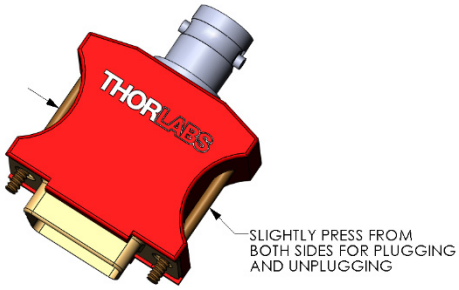
Technical Specifications	
Detector Type	Pyroelectric Sensor
Energy Range	100 µJ - 1 J
Resolution	1 µJ
Wavelength Range	185 nm - 25 µm
Max. Repetition Rate (@ 1 MΩ Load Resistor)	250 Hz
Coating	Black Broadband
Detector Size (Active Area)	113.1 mm^2
Input Aperture	Ø12 mm (0.47")
Distance Frontface to Detector	2 mm (0.08")
Measurement Uncertainty	+/- 5% @ 185 nm - 25 µm
Linearity	+/- 1%
Max. Average Power	0.5 W
Max. Power Density (Pulse Width)	8 MW/cm^2 (10 ns Pulse)
Max. Pulse Energy Density (Pulse Width)	80 mJ/cm^2 (10 ns Pulse)
Thermal Time Constant	2 ms
Cooling	Convection
Aperture Thread	SM1
Connector Cable Length	1.5 m (60")
Connector	BNC Male / DE-9 Male, Adapter Included
Post	#8-32 and M4 Combi Mounting Thread
Sensor Dimensions	Ø38 mm x 15 mm
Weight	0.09 kg
Compatible Consoles	PM100D, PM400
Compatible Interfaces	PM103, PM103A, PM103U, PM100USB

Typical Performance Plots

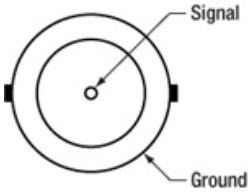


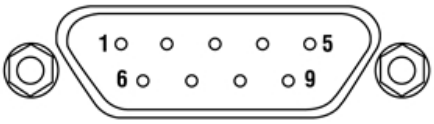
Included Adapter

BNC Male / DE-9 Male Adapter



Pin Assignment





PIN Assignment DE-9	
2	EEPROM Data
3	Pyroelectric Sensor Ground
5	Pyroelectric Sensor +
6	EEPROM Ground
7	Present: Sensor Recognition
1, 4, 8, 9	N.C.

Available Accessories

The ES312C is compatible to the Thorlabs imperial and metric post and post-holder series. Thorlabs accessories with an internal SM1 thread, for example fiber adapters or lens tubes, fit the SM1 external aperture thread.

Cleaning and Maintenance

There are no serviceable parts in the ES312C head. The housing may be cleaned by wiping with a soft damp cloth. The sensor on the pyroelectric heads cannot be cleaned. Gently blow off any debris using compressed air. If any scratches of other signs of damage remain on the sensor area, contact Thorlabs service department for repair or replacement. If you suspect a problem with your ES312C please call Thorlabs and an engineer will be happy to assist you.

As long as the sensor has not been exposed to excessive optical power, the calibration should be very stable over long periods of time (well over a year). However, the detector should be calibrated once a year to ensure accuracy. Please contact Thorlabs via the Recalibration Service Website:
https://www.thorlabs.de/thorproduct.cfm?partnumber=CAL-THPY

