

## CHAPTERS

## Power Meters

## Detectors

Beam  
Characterization

## Polarimetry

Electronics  
Accessories

## SECTIONS

## Power Meters

## Touch Screen Meter

## Digital Meter

## Analog Meter

Compact Sensor  
Interface

## Dual-Channel Meter

## Photodiode Sensors

## Thermal Sensors

## Pyroelectric Sensors

## Field Service

## C-Series General-Purpose Pyroelectric Energy Sensors



## Features

- Operating Range from 185 nm to 25  $\mu\text{m}$
- Energy Measurements from 10  $\mu\text{J}$  to 2 J
- Flat Response Over Wavelength Range
- Large Sensor Areas
- Connect to C-Series Energy Meters or Oscilloscope via a BNC Connection
- NIST- and PTB-Traceable Data Stored in Sensor Connector
- Isolating Post Adapters Included
- ES120C is 30 mm Cage System Compatible
- Custom Sensors Available through Technical Support

The ES100C series of general-purpose energy sensors can be used for detection in the 185 nm to 25  $\mu\text{m}$  range. A black coating on the sensor provides high, flat absorption over the spectrum, allowing it to measure energies from 3  $\mu\text{J}$  to 2 J. These sensors are available with an  $\varnothing 11$  mm,  $\varnothing 20$  mm, or  $\varnothing 45$  mm aperture. When using pyroelectric energy sensors, it is best to fill ~80% of the aperture with your beam. We individually calibrate these sensors and have stored NIST- and PTB-traceable data on EEPROM inside the C-Series connector. When connected to a C-Series energy meter, this calibration data is automatically downloaded by the meter for highly accurate measurements.

## Meter Compatibility

Our energy sensors are compatible with our C-Series energy meters, which currently include the PM200, PM100D, PM100USB, and PM320E. They can also be used with an oscilloscope via a BNC connection (1 M $\Omega$ ), but the signal will only be indicative of the responsivity of the sensor and not the calibrated power measurements. A BNC to C-Series DB9 adapter is included with each sensor.

## Mechanical

Each sensor features an 8-32 threaded hole for post mounting, typically with a  $\varnothing 1/2$ " TR post (see page 93). For sensitive applications, we have included electrostatic insulating adapters with all of our energy sensors. A metric threading adapter for mounting on an M4 x 0.7 threaded post is included.

## C-Series Connectors

Thorlabs' C-Series sensors use our red DB9 connectors, which provide better data transmission (via internal chip) to our meters than our previous sensors. These connectors firmly connect to a meter without threading screws, allowing for quick sensor exchanges.

Have you seen our...

Compatible Power  
Meters

See pages 1548 – 1559

ITEM #	ES111C	ES120C	ES145C
Wavelength Range	185 nm – 25 μm		
Optical Energy Range	10 μJ – 150 mJ	100 μJ – 500 mJ	500 μJ – 2 J
Repetition Rate (Max)	40 Hz	30 Hz	
Energy Density (Max)	0.15 J/cm²		
Power Density (Max)	8 MW/cm²		
Average Power (Max)	0.15 W	0.5 W	
Resolution*	100 nJ		1 μJ
Measurement Uncertainty	±5%		
Detector Type	Standard Pyroelectric Energy Sensor		
Thermal Time Constant	20 ms		
Laser Types	Low Energy YAG and CO <sub>2</sub> , Pulsed Diode, Ruby, Small Excimer		
Aperture	Ø11 mm	Ø20 mm	Ø45 mm
Cable Length	1.5 m		
Mounting	8-32 Threaded Hole, M4 Adapter Included		
Lens Tube Compatibility	N/A		
Cage Compatibility	N/A	30 mm	N/A
Console Compatibility**	PM200, PM100D, PM100USB, PM320E, Future C-Series Energy Meters, and Oscilloscopes		

\*Measured with PM100D console

\*\*Not backwards compatible.

ITEM #	\$	£	€	RMB	DESCRIPTION
ES111C	\$ 1,200.00	£ 864.00	€ 1,044.00	¥ 9,564.00	C-Series Pyroelectric Sensor, 185 nm – 25 $\mu\text{m}$ , 10 $\mu\text{J}$ – 150 mJ
ES120C	\$ 1,250.00	£ 900.00	€ 1,087.50	¥ 9,962.50	C-Series Pyroelectric Sensor, 185 nm – 25 $\mu\text{m}$ , 100 $\mu\text{J}$ – 500 mJ
ES145C	\$ 1,450.00	£ 1,044.00	€ 1,261.50	¥ 11,556.50	C-Series Pyroelectric Sensor, 185 nm – 25 $\mu\text{m}$ , 500 $\mu\text{J}$ – 2 J
CAL-S200	\$ 170.00	£ 122.40	€ 147.90	¥ 1,354.90	Recalibration Service for S300, S200, ES200 and ES100