

818E Series Energy Detectors



- Measurement range in joules
- Broad UV-VIS-IR spectral response
- High repetition rates
- NIST-traceable calibration

If you need to measure the energy from a pulsed laser, Newport's 818E Series Pulsed Energy Detectors provides you with a selection that will meet even the most demanding energy measurement needs. Short pulse, long pulse and fast acting versions are available with square apertures of 3.7, 12, 25 and 50 mm. Choose from among air cooled for low power or heat sink versions for higher powers.

All Short and Long Pulse detectors come with a DB15 connector and internal EEPROM for storing factory calibration data, making them compatible with Newport's new model 1935-C and 2935-C Series (see page 1131) Optical Meter and model 1918-C (see page 1136) and 842-PE Handheld Power/Energy Meters (see page 1138). When using with Newport's 1835-C or 2835-C Power Meters, use the adaptor cable 818P-DIN (ordered separately). Fast acting versions have a DB15 connector and require the use of the 818P-BNC adapter cable when connecting to an oscilloscope or the above referenced power meters. The 818P-BNC adapter cable (ordered separately) can also be used to connect calibrated versions of the 818P series detectors to an oscilloscope.

All 12mm aperture 818E detectors have a 8-32 tapped hole and all other 818E Series detectors have a 1/4-20 tapped hole for post or plate mounting. For very high-energy applications, optional diffuser/attenuators are available. See the Specifications Tables for complete information on the energy levels attainable both with and without the attenuators. The 818E Series detectors are calibrated without the attenuator only.

Compatible Energy Meters

- 842-PE
- 1918-C
- 1935-C/2935-C

Specifications

Short & Long Pulse Series (3.7 and 12 mm)

Model	818E-0.3-04-S	818E-03-12-L	818E-05-12-L
Spectral Range (μm)		0.19 - 20	
Pulse Energy, Maximum - w/o Attenuator ⁽¹⁾ (J)	0.016		0.84
Pulse Energy, Maximum - w/ Attenuator ⁽¹⁾ (J)			3.36
Noise Equivalent Energy ⁽²⁾ (μJ)	1		2
Responsivity, Approximate (V/J)	150		60
Maximum Repetition Rate (Hz)	1200		300
Max. Pulse Width (μs)	100		400
Rise Time (μs)	200		550
Accuracy (%)	± 3		± 3
Repeatability (%)	<0.5		<0.5
Maximum Average Power (W)	0.3	3	5
Active Area (cm^2)	0.11	1.4	1.4
Cooling Method	Air	Air	Heat Sink
Dimensions (L x W x D) [in. (mm)]	0.79Dia. x 1.18L (20Dia. x 30L)	1.4 x 1.4 x 0.55 (36 x 36 x 14)	1.6 x 1.6 x 1.3 (40 x 40 x 33)
Weight [lb (kg)]	0.044 (0.020)	0.19 (0.087)	0.26 (0.12)

(1) With DA Diffuser/Attenuator

(2) Nominal value, actual value depends on electrical noise in the measurement system

Short & Long Pulse Series (25 and 50 mm)

Model	818E-05-25-S	818E-10-25-S	818E-05-25-L	818E-10-25-L	818E-10-50-S	818E-20-50-S	818E-10-50-L	818E-20-50-L
Spectral Range (μm)	0.19 - 20							
Pulse Energy, Maximum - w/o Attenuator (J)	3.7			15				
Pulse Energy, Maximum - w/ Attenuator ⁽¹⁾ (J)	20			75				
Noise Equivalent Energy ⁽²⁾ (μJ)	4			15				
Responsivity, Approximate (V/J)	10			3				
Maximum Repetition Rate (Hz)	800		300		500		200	
Max. Pulse Width (μs)	150		400		225		675	
Rise Time (μs)	200		550		300		900	
Accuracy (%)	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3
Repeatability (%)	<0.5							
Maximum Average Power (W)	5	10	5	10	20	10	20	
Active Area (cm^2)	6.25	6.25	6.25	6.25	25	25	25	25
Cooling Method	Air	Heat Sink	Air	Heat Sink	Air	Heat Sink	Air	Heat Sink
Dimensions (L x W x D) [in. (mm)]	2.0 x 2.0 x 0.55 (50 x 50 x 14)	2.0 x 2.0 x 2.1 (50 x 50 x 52.1)	2.0 x 2.0 x 0.55 (50 x 50 x 14)	2.0 x 2.0 x 2.07 (50 x 50 x 52.5)	3.0 x 3.0 x 0.59 (75 x 75 x 15)	3.0 x 3.0 x 1.8 (75 x 75 x 45)	3.0 x 3.0 x 0.59 (75 x 75 x 15)	3.0 x 3.0 x 1.8 (75 x 75 x 45)
Weight [lb (kg)]	0.26 (0.12)	0.411 (0.187)	0.26 (0.12)	0.411 (0.187)	0.460 (0.209)	0.744 (0.338)	0.460 (0.209)	0.744 (0.338)

(1) With DA Diffuser/Attenuator

(2) Nominal value, actual value depends on electrical noise in the measurement system

Fast Acting Series⁽¹⁾

Model	818E-0.3-04-F	818E-03-12-F	818E-05-12-F	818E-05-25-F	818E-10-25-F	818E-10-50-F	818E-20-50-F
Spectral Range (μm)	0.19 - 2.5						
Pulse Energy, Maximum - w/o Attenuator (J)	0.027	0.35		1.6		6.25	
Pulse Energy, Maximum - w/ Attenuator ⁽²⁾ (J)	0.85		4.8		22		
Noise Equivalent Energy ⁽³⁾ (μJ)	1	1.2		2		10	
Responsivity, Approximate (V/J)	200	100		20		4	
Maximum Repetition Rate (Hz)	6000			6000		4000	
Max. Pulse Width (μs)	10						
Rise Time (μs)	20						
Accuracy (%)	± 3						
Repeatability (%)	<0.5						
Maximum Average Power (W)	0.3	3	5		10		20
Active Area (cm^2)	0.11	1.4		6.25		25	
Cooling Method	Air		Heat Sink		Air		Heat Sink
Dimensions (L x W x D) [in. (mm)]	0.79D x 1.18L (20D x 30L)	1.4 x 1.4 x 0.55 (36 x 36 x 14)	1.6 x 1.6 x 1.3 (40 x 40 x 33)	2.0 x 2.0 x 0.55 (50 x 50 x 14)	2.0 x 2.0 x 2.1 (50 x 50 x 52.1)	3.0 x 3.0 x 0.59 (75 x 75 x 15)	3.0 x 3.0 x 1.8 (75 x 75 x 45)
Weight [lb (kg)]	0.044 (0.020)	0.19 (0.087)	0.26 (0.12)	0.26 (0.12)	0.411 (0.187)	0.460 (0.209)	0.744 (0.338)

(1) Fast Acting Series detectors work with 1935-C/2935-C, 1918-C, 841-PE and 842-PE power meters or an oscilloscope

(2) Nominal value, actual value depends on electrical noise in the measurement system

Ordering Information

Model	Description
818E-10-50-S	Energy Detector, Short Pulse, 50 mm Aperture, 10 W, Air Cooled
818E-20-50-S	Energy Detector, Short Pulse, 50 mm Aperture, 20 W, Heatsink
818E-10-50-L	Energy Detector, Long Pulse, 50 mm Aperture, 10 W, Air Cooled
818E-20-50-L	Energy Detector, Long Pulse, 50 mm Aperture, 20 W, Heat Sink
818E-10-50-F	Energy Detector, Fast Acting, 50 mm Aperture, 10 W, Air Cooled
818E-20-50-F	Energy Detector, Fast Acting, 50 mm Aperture, 20 W, Air Cooled
818E-05-25-S	Energy Detector, Short Pulse, 25 mm Aperture, 5 W, Air Cooled
818E-10-25-S	Energy Detector, Short Pulse, 25 mm Aperture, 10 W, Heat Sink
818E-05-25-L	Energy Detector, Long Pulse, 25 mm Aperture, 5 W, Air Cooled
818E-10-25-L	Energy Detector, Long Pulse, 25 mm Aperture, 10 W, Heat Sink
818E-05-25-F	Energy Detector, Fast Acting, 25 mm Aperture, 5 W, Air Cooled, Uncalibrated
818E-10-25-F	Energy Detector, Fast Acting, 25 mm Aperture, 10 W, Air Cooled
818E-03-12-L	Energy Detector, Long Pulse, 12 mm Aperture, 3 W, Air Cooled
818E-05-12-L	Energy Detector, Long Pulse, 12 mm Aperture, 5 W, Heat Sink
818E-03-12-F	Energy Detector, Fast Acting, 12 mm Aperture, 3 W, Air Cooled, Uncalibrated
818E-05-12-F	Energy Detector, Fast Acting, 25 mm Aperture, 5 W, Heat Sink, Uncalibrated
818E-0.3-04-S	Energy Detector, 3.7 mm Aperture, 0.3 W, BNC Output, Uncalibrated
818E-0.3-04-F	Energy Detector, Fast Acting, 3.7 mm Aperture, 0.3 W, BNC Output, Uncalibrated
818E-DA-12	Diffuser / Attenuator, for 818E Series Energy Detectors with 12 mm Aperture
818E-DA-25	Diffuser / Attenuator, for 818E Series Energy Detectors with 25 mm Aperture
818E-DA-50	Diffuser / Attenuator, for 818E Series Energy Detectors with 50 mm Aperture
818E-DG-12	Diffuser / Attenuator with Grid for UV, for 818E Series Energy Detectors with 12 mm Aperture
818E-DG-25	Diffuser / Attenuator with Grid for UV, for 818E Series Energy Detectors with 25 mm Aperture
818E-DG-50	Diffuser / Attenuator with Grid for UV, for 818E Series Energy Detectors with 50 mm Aperture
818P-BNC	DB15 to BNC Adapter (for use with DVM or Scope)
818P-DIN	DB15 to DIN Adaptor (for use with 1835-C or 2835-C power meters)