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SCIENTECH®

NEW Astral Series S

Calorimeter Measurement Systems



The MEASURE of Confidence

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Astral Series S

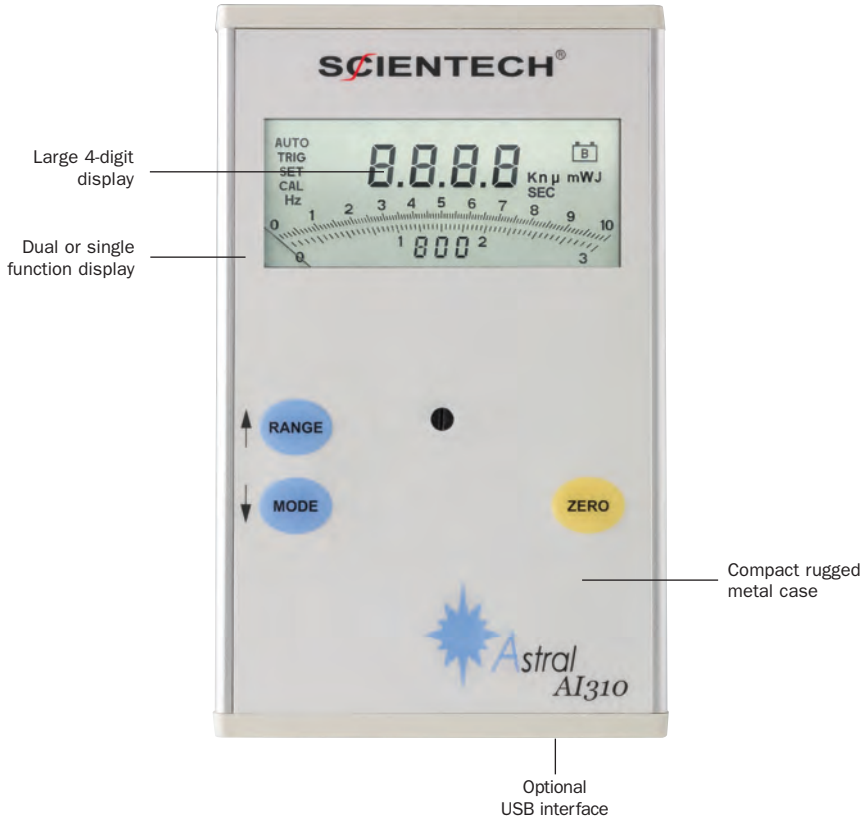
Scientech is introducing our new line of calorimeter laser measurement systems utilizing our new intelligent detector technology. Designed to be very robust, these new systems consist of a handheld meter and your choice of thermal detectors including 8mm, 16mm, 25mm, 50mm, 100mm, and 200mm aperture models. Also new is our optional field calibration tool which will allow you to easily calibrate these systems without having to send them back to the factory for annual calibrations.

The Astral Series S AI310 or AI310D indicators are compact, portable, handheld devices in a rugged, metal case. The AI310 marries both a 4-digit LCD display along with a true analog needle meter movement. The needle makes laser tuning a cinch with no possible misinterpretation of digits. Or you may choose the AI51D which is the digital only version of the AI51. Either meter can be powered by the standard wall mounted power supply/battery charger, the optional USB data interface, or the optional battery. Optional meter accessories include a lithium-poly battery, a non-skid weighted base mounting system, a soft case, a hard sided carrying case, and a USB data interface with drivers.

The Astral Series S detectors are available in either surface or volume absorbing models which sport apertures from 8mm to 200mm. The surface absorbing models are ideal for measuring CW lasers while the volume absorbing models are designed for pulsed lasers using either the watts mode or single pulse energy mode. Some large aperture models will measure up to 1000 joules of single pulse energy.

Each detector also comes with a NIST traceable calibration certificate to insure that you are getting the most accurate laser measurement possible. Standard equipment for the detectors includes a 1.27cm diameter x 8.9 cm long mounting post for easy mounting to optical tables. Some models also include an aperture extension for blocking out unwanted environmental light sources. Optional accessories for the detectors include electric substitution heater coils for field calibration, carrying cases, fiber optic adapters, bases, and an isoperibol enclosure for 25mm aperture models when measuring below 30mW.

Special FEATURES



S SERIES FEATURES

- Power or engery measurements
- Compact size
- NIST traceable
- Microprocessor controlled
- AC power adapter/recharger
- Simple user interface
- Extended range

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SERIES S Specifications

ASTRAL™ SERIES S CALORIMETER SECIFICATIONS

Model	AC2500S	AC25FXS	ACX25FXS	AC2501S	ACX2501S	AC2504S	AC25UVS	AC5000S	AC50FXS	ACX50FXS	AC5001S	ACX5001S	AC5004S	AC50UVS
Type of Absorber	Surface	Surface	Surface	Volume	Volume	Volume	Volume	Surface	Surface	Surface	Volume	Volume	Volume	Volume
Aperture Dia.	25.4 mm	25.4 mm	8 mm	25.4 mm	8 mm	25.4 mm	25.4 mm	50.8 mm	50.8 mm	16 mm	50.8 mm	16 mm	50.8 mm	50.8 mm
Spectral Response	.25-35 µm	.193-26 µm	.4-2 µm	.266-1.2 µm	.4-1.2 µm	.85-4.2 µm	.193-.36 µm	.25-35 µm	.193-26 µm	.4-2 µm	.266-1.2 µm	.4-1.2 µm	.85-4.2 µm	.193-.36 µm
Max Avg Power	10W							30W						
Min Avg. Power	1mW when installed in an Isoperibol Enclosure							40mW						
Noise Level	10µW or µJ							400µW or µJ						
Max P.D.	200W/cm²	6KW/cm²	48KW/cm²	Note 1	Note 2	Note 4	Note 3	200 W/cm²	6 kW/cm²	48 kW/cm²	Note 1	Note 2	Note 4	Note 3
Max P.P.D.	1 MW/cm²	Note 15	Note 16	Note 5	8.5 GW/cm²	Note 7	Note 6	1 MW/cm²	Note 15	Note 16	Note 5	8.5 GW/cm²	Note 7	Note 6
Max Single Pulse	30J							100J						
Max E.D.	Note 8	Note 9	Note 10	Note 11	Note 12	Note 14	Note 13	Note 8	Note 9	Note 10	Note 11	Note 12	Note 14	Note 13
Precision	<1%							<1%						
Accuracy	±3%							±3%						
Response Time	3 secs when connected to a Scientech Indicator in watts mode							3 secs when connected to a Scientech Indicator in watts mode						
Dims DxL – in.	3.8 x 2.2	3.8 x 2.2	3.8 x 3.8	3.8 x 2.2	3.8 x 3.8	3.8 x 2.2	3.8 x 2.2	4.8 x 2.3	4.8 x 2.3	4.8 x 3.9	4.8 x 2.3	4.8 x 3.9	4.8 x 2.3	4.8 x 2.3
cm	9.5 x 5.6	9.5 x 5.6	9.5 x 9.7	9.5 x 5.6	9.5 x 9.7	9.5 x 5.6	9.5 x 5.6	12.1 x 5.8	12.1 x 5.8	12.1 x 10.0	12.1 x 5.8	12.1 x 10.0	12.1 x 5.8	12.1 x 5.8
Weight – lbs/kg	1.5 / 0.7	1.5 / 0.7	1.7 / 0.8	1.5 / 0.7	1.7 / 0.8	1.5 / 0.7	1.5 / 0.7	2.9 / 1.3	2.9 / 1.3	3.1 / 1.4	2.9 / 1.3	3.1 / 1.4	2.9 / 1.3	2.9 / 1.3

ASTRAL™ SERIES S LARGE APERTURE CALORIMETER

Model	360401S	380401S	380402S	384UV5S	360801S	380801S	380802S	388UV5S
Type of Absorber	Surface	Volume	Volume	Volume	Surface	Volume*	Volume	Volume
Aperture Dia.	100mm				200mm			
Min Beam Dia.	5cm				7.5cm			
Spectral Response	.25 - 35µm	.266 - 1.2µm	9 -11µm	.193 - .36µm	.25 - 35µm	.266 - 1.2µm	9 -11µm	.193 - .36µm
Max Avg. Power	50W with full illumination of absorbing surface				100W with full illumination of absorbing surface			
Min Avg. Power	150mW				700mW			
Noise Level	1.5mW or mJ				70mW or mJ			
Max P.D.	200W/cm²	Note 17	4W/cm²	Note 3	200W/cm²	Note 18	4W/cm²	Note 3
Max P.P.D.	1MW/cm²	Note 19	100MW/cm²	Note 6	1MW/cm²	Note 20	100MW/cm²	Note 6
Max Single Pulse	300J				1000J	500J	1000J	1000J
Max E.D.	Note 8	Note 21	4J/cm²	Note 13	Note 8	Note 22	4J/cm²	Note 13
Precision	<1%				<1%			
Accuracy	±5%				±5%			
Response Time	5 seconds when connected to a Scientech Indicator in watts mode				5 seconds when connected to a Scientech Indicator in watts mode			
Dims DxL - in/cm	6.0 x 8.0 / 15.2 x 20.3				9.0 x 10.0 / 22.9 x 25.4			
Weight - lbs/kg	6 / 2.7				16.3 / 7.3			

* This is a segmented absorber



ASTRAL™ SERIES S AI310 METER SPECIFICTIONS

Model	AI310	AI310D
Display	4 digit LCD & analog needle	4 digit LCD
Operating Temp	5ºC to 40ºC	
Power Requirements	100-240VAC, 50-60Hz, 0.6A	
Case	Metal	
Battery	Optional lithium poly, PN11640	
Mounting System	Optional	
Dimensions (LxWxD)	6.3 x 4.2 x 1.5 in / 16.0 x 10.7 x 3.8 cm	
Weight	1.0 lbs / 0.5kg	



NOTES

Note 1	AC2501S, AC5001S	30W/cm²@1064nm, 23W/cm²@532nm, 8.5W/cm²@355nm, 175mW/cm²@266nm
Note 2	ACX2501S, ACX5001S	Note 1 specs x 8 for 400nm to 1.2µm
Note 3	AC25UVS, AC50UVS, 384UV5S, 388UV5S	50W/cm²@355nm
Note 4	AC2504S, AC5004S	35W/cm²@1064nm
Note 5	AC2501S, AC5001S	100GW/cm²@1064nm, 78GW/cm²@532nm, 29GW/cm²@355nm, 580MW/cm²@266nm
Note 6	AC25UVS, AC50UVS, 384UV5S, 388UV5S	Repetitive pulses: 101MW/cm²@355nm; Single pulses: 3.5GW/cm²@355nm
Note 7	AC2504S, AC5004S	125GW/cm²@1064nm
Note 8	AC2500S, AC5000S, 360401S, 360801S	Max J/cm² = 1,000 x (pulse width)$^{1/2}$ to a max of 200J/cm²
Note 9	AC250FXS, AC50FXS	Max J/cm² = 4,950 x (pulse width)$^{1/2}$ to a max of 12.3J/cm²
Note 10	ACX25FXS, ACX50FXS	Max J/cm² = 39,600 x (pulse width)$^{1/2}$ to a max of 36.9J/cm²
Note 11	AC2501S, AC5001S	Repetitive pulses: 4.1J/cm²@1064nm, 3.2J/cm²@532nm, 1.2J/cm²@355nm, 24mJ/cm²@266nm Single pulses: 8J/cm²@1064nm, 6.2J/cm²@532nm, 2.3J/cm²@355nm, 46mJ/cm²@266nm
Note 12	ACX2501S, ACX5001S	Note 11 specs x 8 for 400nm to 1.2µm
Note 13	AC25UVS, AC50UVS, 384UV5S, 388UV5S	Repetitive pulses: 1.1J/cm²@355nm; Single pulses: 40J/cm²@355nm
Note 14	AC25004S, AC5004S	Repetitive pulses: 4.8J/cm²@1064nm; Single pulses: 10J/cm²@1064nm
Note 15	AC25FXS, AC50FXS	Max p.p.d.: 70MW/cm²@1064nm pulse
Note 16	ACX25FXS, ACX50FXS	Max p.p.d.: 560MW/cm²@1064nm pulse
Note 17	380401S	27W/cm²@1064nm, 21W/cm²@532nm, 7.7W/cm²@355nm, 158mW/cm²@266nm
Note 18	380801S	13.5W/cm²@1064nm, 10.5W/cm²@532nm, 3.85W/cm²@355nm, 79mW/cm²@266nm
Note 19	380401S	90GW/cm²@1064nm, 71GW/cm²@532nm, 27GW/cm²@355nm, 530MW/cm²@266nm
Note 20	380801S	45GW/cm²@1064nm, 35.5GW/cm²@532nm, 13.5GW/cm²@355nm, 265MW/cm²@266nm
Note 21	380401S	Repetitive pulses: 3.7J/cm²@1064nm, 2.9J/cm²@532nm, 1J/cm²@355nm, 20mJ/cm²@266nm Single pulses: 7J/cm²@1064nm, 5.6J/cm²@532nm, 2.1J/cm²@355nm, 41mJ/cm²@266nm
Note 22	380801S	Repetitive pulses: 1.85J/cm²@1064nm, 1.45J/cm²@532nm, 0.5J/cm²@355nm, 10mJ/cm²@266nm Single pulses: 3.5J/cm²@1064nm, 2.8J/cm²@532nm, 1.05J/cm²@355nm, 20.5mJ/cm²@266nm

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Optional ACCESSORIES



Mounting System

This sturdy mounting system has a moldable. weighted, rubber base with a non-slip surface, ball mounts, and an Astral Series S cradle. The system will hold the Astral Series S meter up to 12 inches vertically above your working surface in an upright position. The ball mounts let you reposition the meter to accommodate any viewing angle you desire. You can also readily remove the Astral Series S meter for safekeeping at the end of the day.

Bases



These bases will hold the Astral Series S Detector upright on your working surface. Base 11788, which is a slotted base, will bolt down to your optical bench. Base 301019 will work on any surface.



Calabration Tool

Digital field calabration tool to be used with optional calorimeter electric substitution heater coils.



Lithium Battery



The battery can be easily installed either in the field or at the factory. It is a rechargeable, lithium-poly Battery with in-use time of 12 hours before needing recharging. Charging time is one hour.

Fiberoptic Holder and Adapters

The fiberoptic holder and adapters provide direct fiber hookup to the Astral calorimeter. Adapters that accept SMA, ST, FC, DIN, E2000 connectors or any 2.5 mm ferrule are available.



Model 301-LCCA Carrying Case

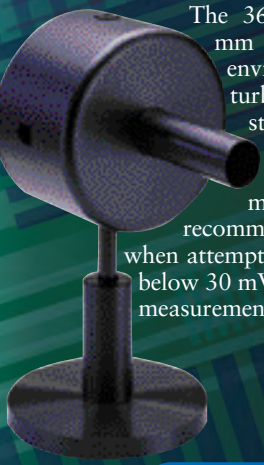
The Model 301-LCCA carrying case is designed to embrace the AI310 indicators along with Astral calorimeters, Vector pyroelectric detectors, and Ultra calorimeters as well as bases, cables, and power cords.

9663 Carrying Case (soft)



Soft carrying case with belt loops for the AI310 meters.

Model 36-0203A Isoperibol™ Enclosure



The 36-0203A isolates the 25 mm Astral calorimeters from environmental thermal disturbances which affect the stability of the calorimeter output when attempting low power and energy measurements. Scientech recommends using this enclosure when attempting power measurements below 30 mW and single pulse energy measurements below 30 mJ.

Model 301-020R Photodiode Detector



The high speed photodiode detector is designed for use with the 25 mm Astral calorimeters as an attachment to the calorimeter aperture. Energy scattered back from the calorimeter's absorber when struck by an energetic pulse provides an attenuated sample of the incident laser pulse sufficient to activate the silicon diode. This provides a temporal profile of the laser pulse when viewed on an oscilloscope. An internal battery eliminates all wires except the coaxial cable to the sampling oscilloscope.

USB
USB interface

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