

C Therm – Thermal Conductivity Analyzer



Manufacturer: C-Therm Technologies Ltd.

Model: Trident

Trident Controller Specifications:

Input power	110 to 230 VAC
Construction	Manufactured in ISO 9001 compliant facility Modular Architecture
Test Methods Available	Modified Transient Plane Source (MTPS) Transient Line Source (TLS) Transient Plane Source (TPS)
Temperature	15 °C to 80 °C
Relative Humidity	Up to 95%, non-condensing
Standards	FCC CSA CE Calibrated to ISO 17025
Reliability	MTBF \geq 4000

Test Methods:

Test Methods	MTPS	TLS Needle	Flex TPS
Recommended applications	Aerogels, Automotive, Batteries, Composites, Insulation, Explosives, Geological, Liquids, Metals, Nanomaterials, Metal Hydrides, Nuclear, Phase Change Materials (PCMs), Polymers, Rubber, Thermal Interface Materials (TIMs), Thermoelectric	Polymer Melts, Semi-Solids, & Soil. (Not suitable for lower viscosity fluids due to convection.)	Cement/Concrete, Metal Sheets, Polymers & Porous Ceramics
Thermal Conductivity Range	0 to 500 W/mK	0.1 to 6 W/mK	0.005 to 2000 W/mK
Thermal Diffusivity Range	0 to 300 mm ² /s*	Not applicable	up to 1200 mm ² /s
Heat Capacity Range	Up to 5 MJ/m ³ K*	Not applicable	Up to 5 MJ/m ³ K
Thermal Effusivity Range	5 to 40,000 Ws ^{1/2} /m ² K	Not applicable	Not applicable
Temperature Range	-50° to 200°C -With option to extend to 500°C	-55° to 180°C -With option to extend to 300°C	-50° to 300°C
Precision	Better than 1%	Better than 3%	Better than 2%
Accuracy	Better than 5%	Stated for °20C ± (3% + 0.02) W/mK	Better than 5%
Test Time	0.8 to 3 seconds	1 to 4 minutes	10 to 180 seconds
Sensor Size	18 mm diameter	150 mm length	6 mm, 13 mm and 30 mm diameter sensors available
Minimum Sample Size	Solids: Min. diameter of 18 mm Min. thickness is dependent on the thermal conductivity. For materials under 1 W/mK a min. thickness of 1 mm is suggested. Liquids & Powders: 1.25 mL	80 mL	Requires two identical samples. The diameter of the samples should be 2.5X sensor diameter (e.g. 6 mm sensor requires sample diameter of 15 mm) Thickness should be at minimum the same diameter as the sensor

			(e.g. 6 mm sensor requires 6 mm thick samples.)
Maximum Sample Size	Unlimited	Unlimited	Unlimited
International Standards	ASTM D7984	ASTM D5334, D5930, and IEEE 442-1981	ISO 22007-2, GB/T 32064