

# MP-2 Thermal Conductivity

Portable thermal conductivity meter for **liquids, solids, pastes, and powders.**

Conforms to ISO and ASTM Standards



Transient Plane Source (TPS-4)



Transient Hot Wire (THW)



Transient Line Source (TLS)

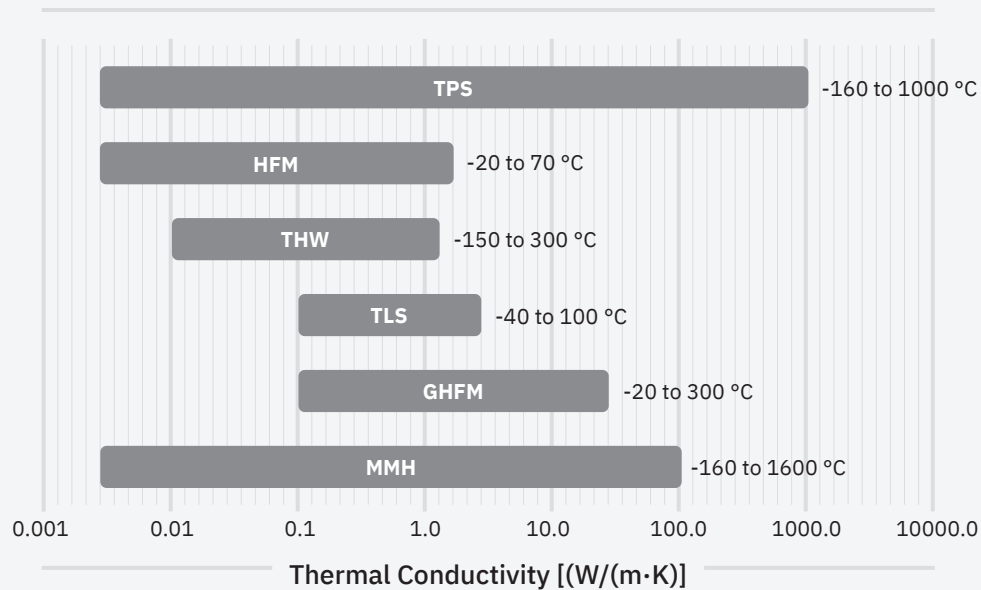


Transient Hot Wire - Solids (THW-S)



Thermal Effusivity (TPS-EFF)





- MP-1** (Measurement Platform)
- MP-1: TPS (Transient Plane Source)
  - MP-1: THW (Transient Hot Wire)
- TPS-2** (Transient Plane Source)
- HFM-100** (Heat Flow Meter)
- HFM-50** (Heat Flow Meter)
- THW-L1** (Transient Hot Wire)
- GHFM-01** (Guarded Heat Flow Meter)
- MMH-1600** (Monotonic Heating)

- MP-2** (Measurement Platform)
- MP-2: TPS (Transient Plane Source)
  - MP-2: THW (Transient Hot Wire)
  - MP-2: TLS (Transient Line Source)
- TLS-100** (Transient Line Source)
- HFM-25** (Heat Flow Meter)
- THW-L2** (Transient Hot Wire)
- GHFM-02** (Guarded Heat Flow Meter)
- TPS-EFF** (Transient Plane Source)

Thermtest has been advancing the measurement of thermal conductivity, thermal diffusivity, and specific heat since 2005. With more than 2000 satisfied customers worldwide, our unique combination of advanced thermal conductivity instrumentation for the laboratory, portable meters for the field, and accessories enables us to provide ideal solutions to fit any material testing application and budget.



## Thermal Conductivity **MP-2**

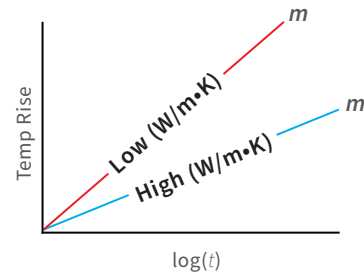
Thermal conductivity Measurement Platform – 2 (MP-2) users benefit from the convenience and accuracy gained when using primary testing methods. The MP-2 controller auto-detects the connected sensor and loads corresponding testing parameters. Measurements are easily performed with the smart on-board software and transferred to computer with an included Windows utility program.

# Measurement Platform-2 Features

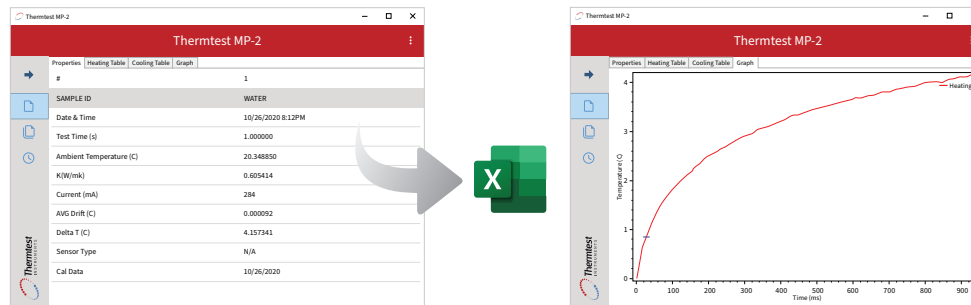


# Featured Measurement Platform-2 Capabilities

The MP-2 is an advanced meter with unique selection of transient thermal conductivity sensors for a variety of applications, with a focus on primary measurements. The transient thermal conductivity sensors share similar principles of operation. The sensor wire is heated using a constant current source ( $q$ ), and the temperature rise is recorded by monitoring the change in electrical resistance of the wire (TPS and THW) or by a resistance temperature detector device (TLS). For samples of high thermal conductivity, the lower the slope; for samples of low thermal conductivity, the higher the slope.



For convenience, the auto-testing function can be programmed on-board or with the MP-2 Windows utility software. Additional on-board, and utility features include the ability to review, save or delete, and export results to Excel. To maximize portability, power can be supplied by battery or USB cable. Informative screen icons keep users informed about power status and testing progress.



- Primary Measurement Sensors
- Economical, Smart, and Accurate
- Portable and Lab Instruments
- Multi-Sensor
- Auto-Test and Export
- ASTM and ISO Compliant

## MP-2 Sensors

Sensors	Materials
TPS-4	Solids, Pastes and Powders
THW-L3	Liquids and Pastes
TLS 50 mm	Rock and Concrete
TLS 100 mm	Soils and Polymers
TLS 150 mm	Soils and Polymers
TLS 100 mm - vCp	Soils and Polymers
THW-S	Insulation and Soft Materials
TPS-EFF	Textiles and Fabrics

# TPS-4 and THW-L3



Materials	Polymers and Composites
Measurement Capabilities	0.03 to 5 W/m·K
Thermal Conductivity	Bulk Properties
Measurement Time	10 and 20 seconds
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	10 to 40°C
Minimum Sample Size	35 mm diameter or square
Maximum Sample Size	Unlimited
Sensor Diameter	12.8 mm Diameter
Test Method	Transient Plane Source (TPS)

Materials	Liquids, Pastes, and Powders
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.01 to 1 W/m·K
Measurement Time	1 second
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	10 to 40°C
Minimum Sample Size	15 mL
Largest Sample Size	Unlimited
Standards	ASTM D7896-19



[thermtest.com/applications/tps-4](http://thermtest.com/applications/tps-4)

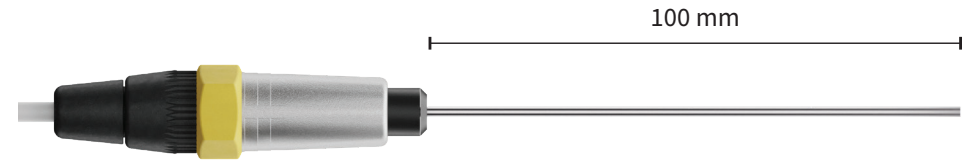


[thermtest.com/applications/thw-l3](http://thermtest.com/applications/thw-l3)

# Transient Line Source (TLS 50 and 100 mm)



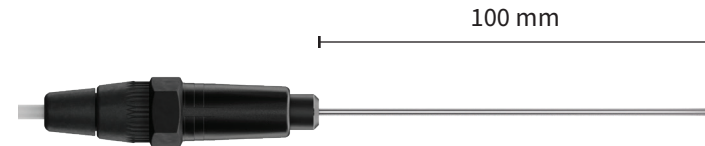
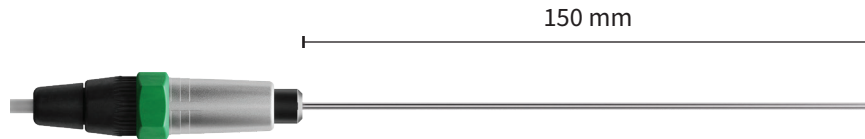
Materials	Concrete, Rock, and Polymers
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.3 to 5 W/m•K
Thermal Resistivity	0.2 to 3.3 mK/W
Measurement Time	3 min.
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	-40 to 100°C
Minimum Sample Size	50 mm in length, 50 mm diameter
Largest Sample Size	Unlimited
Standards	Modified ASTM D5334-22



Materials	Soils, Pastes, Powders, and Solids
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.1 to 5 W/m•K
Thermal Resistivity	0.2 to 10 mK/W
Measurement Time	3 min.
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	-40 to 100°C
Minimum Sample Size	100 mm in length, 50 mm diameter
Largest Sample Size	Unlimited
Standards	ASTM D5334-22, IEEE 442-1981



# TLS 150 mm and 100 mm - vCp



Materials	Soils, Pastes, Powders, and Solids
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.1 to 3 W/m•K
Thermal Resistivity	0.3 to 10 mK/W
Measurement Time	3 min.
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	-40 to 100°C
Minimum Sample Size	150 mm in length, 50 mm diameter
Largest Sample Size	Unlimited
Standards	ASTM D5334-22, IEEE 442-2017

Materials	Soils, Pastes, Powders, and Solids
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.1 to 5 W/m•K
Reproducibility	± 2%
Accuracy	± 5%
Thermal Diffusivity	0.05 to 1.5 mm <sup>2</sup> /s
Accuracy	± 10%
Volumetric Specific Heat	Up to 2.5 MJ/m <sup>3</sup> K
Accuracy	± 15%
Temperature Range	-40 to 100°C
Minimum Sample Size	100 mm in length, 50 mm diameter
Largest Sample Size	Unlimited
Standards	ASTM D5334-22





# TPS-EFF and THW-S



Materials	Textiles, Fabrics and Solids
Measurement Capabilities	1-Dimensional
Thermal Conductivity	35 to 1700 W/s/m <sup>2</sup> K
Measurement Time	2 and 10 seconds
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	-10 to 50°C
Minimum Sample Size	35 mm diameter x thickness dependent on Effusivity
Maximum Sample Size	Unlimited
Moisture Range	0 to 90% (non-condensing)
Sensor Diameter	30 mm
Test Method	Transient Plane Source (TPS)
Standards	ASTM D7984-16



[thermtest.com/applications/tps-eff](http://thermtest.com/applications/tps-eff)



Materials	Insulation and Soft Materials
Measurement Capabilities	Bulk Properties
Thermal Conductivity	0.01 to 2 W/m•K
Measurement Time	< 5 seconds
Reproducibility	± 2%
Accuracy	± 5%
Temperature Range	10 to 40°C
Minimum Sample Size	50 mm x 10 mm
Largest Sample Size	Unlimited
Standards	N/A



[thermtest.com/applications/thw-s](http://thermtest.com/applications/thw-s)

# Sensor Comparison



**TPS-4**  
Transient Plane Source

0.03 to 5 W/m•K  
Thermal Conductivity

10 to 40°C  
Temperature Range

± 5%  
Accuracy



**THW-L3**  
Transient Hot Wire - Liquids

0.01 to 1 W/m•K  
Thermal Conductivity

10 to 40°C  
Temperature Range

± 5%  
Accuracy

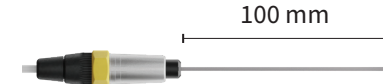


**TLS 50 mm**  
Transient Line Source

0.3 to 5 W/m•K  
Thermal Conductivity

-40 to 100°C  
Temperature Range

± 5%  
Accuracy

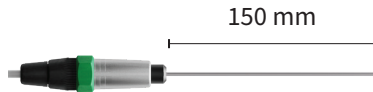


**TLS 100 mm**  
Transient Line Source

0.1 to 5 W/m•K  
Thermal Conductivity

-40 to 100°C  
Temperature Range

± 5%  
Accuracy

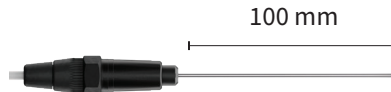


**TLS 150 mm**  
Transient Line Source

0.1 to 3 W/m•K  
Thermal Conductivity

-40 to 100°C  
Temperature Range

± 5%  
Accuracy



**TLS 100 mm - vCp**  
Transient Line Source

0.1 to 5 W/m•K  
Thermal Conductivity

-40 to 100°C  
Temperature Range

± 5%  
Accuracy



**THW-S**  
Transient Hot Wire - Solids

0.01 to 2 W/m•K  
Thermal Conductivity

10 to 40°C  
Temperature Range

± 5%  
Accuracy



**TPS-EFF**  
Transient Plane Source

35 to 1700 W√s/m²K  
Thermal Conductivity

-10 to 50°C  
Temperature Range

± 5%  
Accuracy



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