

## Description

TOCS® is a compact quick-testing benchtop system for characterization of a wide range of various materials to obtain both, the thermal conductivity and diffusivity, within few minutes.

## Technical Specification

### System

System type	Benchtop material characterization system		
Footprint (w × d)	54 × 40	cm <sup>2</sup>	
Height	17	cm	
Weight	12	kg	
Power supply	230 / 50 / 100	VAC / Hz / W	



### Measurement conditions

		Default chip stage		Heatable chip stage		
		min	max	min	max	
Excitation frequency	single channel	10	40 000	10	40 000	Hz
	triple channel	10	12 000	10	12 000	Hz
Sample temperature	Chip stage in temperature chamber	-10	80	-10	80	°C
	Heating by chip stage	no heating		250		°C
Heating rate		no heating		60		K/min

### Measurement

Methodology	bi-directional 3 $\omega$ (three-omega) method	
Output	Thermal conductivity	W/(m·K)
	Thermal diffusivity	m <sup>2</sup> /s
Resolution	0.01 cm <sup>2</sup> K/W	

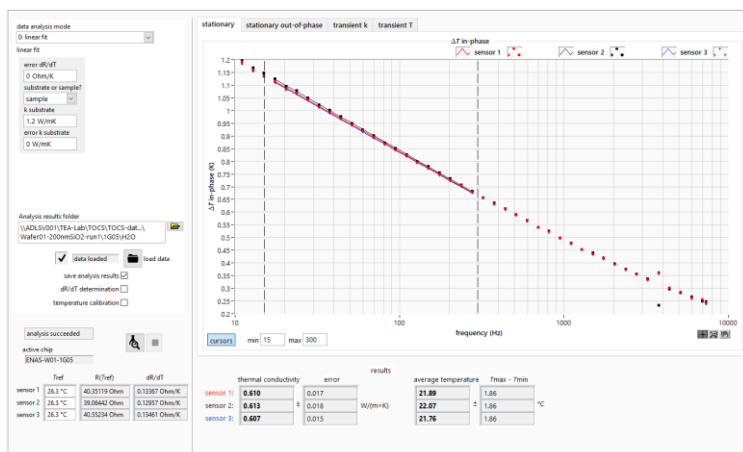
### Sample properties

	min	max	
Size (round, diameter)	1	8	mm
Thickness	0.01		mm
Thermal conductivity	0.05	500	W/(m·K)
Thermal diffusivity	0.1	100 000	10 <sup>-9</sup> m <sup>2</sup> /s

### Measurement accuracy

Thermal conductivity	± 1	%
Thermal diffusivity	± 5	%

### Software screenshots



### Key features

- » Quick measurement
- » Compact and all-in-one
- » Re-usable & disposable test chips
- » External & movable chip stage
- » Compatibility with any arbitrary 3-omega measurement structure

### Key output material and compound properties

- » Thermal conductivity
- » Thermal diffusivity

### Key testing schemes

- » Quick test series
- » Regular quality screening
- » Temperature dependency
- » Process structure property correlation
- » In-situ curing monitoring
- » In-situ aging investigation

### Scope of samples

- » Low to high viscous material
- » Polymers
- » Thermal interface material
- » Pastes and greases
- » Gap pads and gap filler
- » Adhesive and cured material
- » Mold compound & underfiller