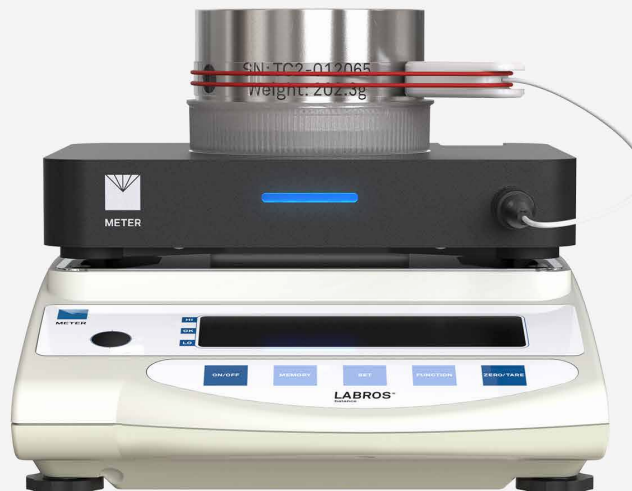




**METER**  
ENVIRONMENT



# VARIOS

Automated thermal dryout curves

## THERMAL CONDUCTIVITY—SIMPLIFIED

Constructing a thermal dryout curve is a painstaking process with the potential for human error. Time and effort go into acquiring and setting up the right components, plus you spend hours mixing samples, taking measurements, and fitting the data into a curve. What if you could have something more accurate, more reliable—and more automated? You can. Introducing VARIOS.

## ENGINEERED FOR ACCURACY

VARIOS was specifically designed to create thousands of thermal dryout curves for the 400 mile Suedlink underground cable installation in Germany. So it's engineered to be accurate, affordable, and low maintenance. It combines legendary TEMPOS and HYPROP technology to measure thermal conductivity as a function of soil water content. And it's easy. Just insert the needle into a saturated soil sample, and put it on the balance. VARIOS automatically makes hundreds of precision thermal conductivity measurements while the water evaporates from the sample. The mean water content is calculated based on a continuous recording of the sample weight change. Powerful software does all the calculations, visualization, and fitting automatically, reducing the possibility of error.

## FEATURES

- Automated measurement saves time and effort
- Continuous and precise weight measurements make it possible for a direct correlation between thermal conductivity and water content
- Ability to define relevant parameters for your specific application
- Two measurement methods: continuous and point by point
- All in-one, user-friendly data acquisition and evaluation software
- Conforms to industry standards IEEE 442-2017 and ASTM D5334
- Reliable measurement with short heating phases and low heating power
- Temperature measurement accuracy  $\pm 0.1$  °C and resolution 0.01 °C
- High measurement accuracy and wide range of application with adjustable measurements
- Heating power and time can be optimized for specific materials/properties
- Can perform parallel weight measurements

## SPECS

<b>Thermal Conductivity</b>	Range: TC-S70 sensor 1.3–10.3 [W/m] TC-S100 sensor 0.8–6.0 [W/m] Accuracy: $\pm 5\%$
<b>Temperature Sensor</b>	Storage/Drying Range: $-50$ to $+120$ °C Operation Range: $-40$ to $85$ °C Resolution: $0.01$ °C Accuracy: $\pm 0.1$ °C
<b>Heater Current</b>	Range: $20$ – $200$ mA Resolution: $10$ $\mu$ A Accuracy: $\pm 0.05\%$
<b>Heater Power</b>	Range: $0.5$ – $20$ W/m (depending on sensor needle) Resolution: $20$ mW/m Accuracy: $\pm 0.1\%$
<b>Power Requirements</b>	$12$ V / $1$ A
<b>Computer Compatibility</b>	Microsoft® Windows® 10 operating system or newer
<b>Dimensions</b>	Length: $162.0$ mm ( $6.38$ in) Width: $185.0$ mm ( $7.28$ in) Height: $30.0$ mm ( $1.18$ in)
<b>TC-S70 Sensor Dimensions</b>	Length: $114.0$ mm ( $4.49$ in) Width: $19.4$ mm ( $0.76$ in) Height: $13.25$ mm ( $0.52$ in)
<b>TC-S100 Sensor Dimensions</b>	Length: $144.0$ mm ( $5.67$ in) Width: $19.4$ mm ( $0.76$ in) Height: $13.25$ mm ( $0.52$ in)
<b>Connection to Computer</b>	USB
<b>Weighing Range</b>	$2,200$ g
<b>Readout</b>	$0.01$ g
<b>Reproducibility</b>	$0.01$ g
<b>Linearity</b>	$0.01$ g
<b>Adjustment</b>	Internally
<b>Compliance</b>	EM ISO/IEC 17050:2010 (CE Mark)