DATASHEET

UGT UMWELT GERÄTE TECHNIK
The Solutionists

SMT-100

SOIL MOISTURE AND TEMPERATURE SENSOR



The SMT-100 is a compact and robust sensor for measuring volumetric soil water content and soil temperature. The cost-effective sensor design combined with TDT measurement technology enables precise measurements with low sensitivity to salinity. The sensor is maintenance-free, frost-resistant, and suitable for long-term measurements. The relative permittivity can also be output.

MAIN FEATURES



- Cost-effective sensor design with high measurement accuracy
- Suitable for various soil types; soil-specific calibration is possible
- Fast response time and low sensitivity to salinity
- Analog interface with various voltage and current ranges or digital interface via RS485 or SDI-12
- Data output to external data loggers, PCs, or handheld meter
- Bus-capable: Multiple digital SMT-100 sensors can be operated via a shared data line using a single data logger
- Easy installation thanks to the flat design
- Horizontal or vertical installation; various installation depths are possible using standpipe extensions



ALSO AVAILABLE AS A SET WITH HANDHELD METER

The SMT-100 soil moisture sensor is available as a compact, complete set for field use. The set includes:

- SMT-100 soil moisture sensor with 3 m connection cable and robust connector with waterproof protective cap
- Handheld meter
- Transport case



AREAS OF APPLICATION

- Scientific soil and environmental research
- Precision agriculture and irrigation management
- Long-term soil moisture monitoring
- Measurements in soils with high electrical conductivity

Umwelt-Geräte-Technik GmbH: Eberswalder Str. 58 | 15374 Müncheberg | Phone: +49(0)33432-7559-0 | E-mail: info@ugt-online.de
Branch in Munich: Lindberghstr. 7a | 85399 Hallbergmoos | Phone: +49 811 124478-0 | E-mail: info-sued@ugt-online.de

V2026-11

TECHNICAL DATA

PARAMETERS	SPECIFICATIONS				
	SMT-100 digital		SMT-100 analog		
Total length	Approx. 182 mm				
Printed Circuit Board L x W x T	Approx. 113 x 30 x 1.6 mm				
Cable length	10 m (connection cable can be customized)				
Cable Material	Extremely durable polyurethane (PUR), notch-resistant				
Weight, including 10 m of cable	Approx. 255 g				
SOIL MOISTURE					
Measurement Methods	Based on TDT (Time Domain Transmission)				
Measurement Signal	Aymmetrical, bipolar differential				
Output Signal: Humidity and Temperature	Linear				
Measurement Range	0 ... 60% by volume (0 ... 100% by volume with limited accuracy)				
Accuracy in Generic Calibration	±3% vol. in mineral soils with an average salt content of 0 to 50% vol.				
Accuracy after specific calibration	±1% by volume				
Resolution	0.1% vol				
Ambient temperature	0 ... +80 °C / +60 °C				
TEMPERATURE					
Measurement range (extended temperature range available upon request)	-40 ... +80 °C		-40 ... +60 °C		
Accuracy	±0.2 °C		±0.8 °C		
Resolution	0.01 °C		0.2 °C		
INTERFACE / POWER SUPPLY					
Interface / Signal Output	RS485	SDI-12	0 ... 1 V	0 ... 10 V	4 ... 20 mA
Supply Voltage	4 ... 24 VDC		4 ... 24 V DC	12 ... 24 V DC	12 ... 28 V DC
Current Consumption in Sleep Mode	Approx. 5.3 mA	Approx. 0.8 mA	Approx. 4.8 mA		
Current Consumption: Peak Current (typical measurement duration: 10 s)	Approx. 5.3 mA	Approx. 13 mA	Approx. 20 mA		
Communication Protocols	UGTBus, Modbus RTU, ASCII, TBus	SDI-12			
Time until the output voltage stabilizes			<500 ms after power is applied		
Additional Measurement Values	Epsilon, supply voltage				
Internal measurement interval	About 1 measurement per second				
Analog Output Resistance			<100 Ohm		