Measurement Specifications

Water Potential

Range: –85 to +50 kPa

Resolution: 0.0012 kPa

Accuracy: ±0.15 kPa

Temperature

Range: –30 to +60 °C

Resolution: ±0.01 °C

Accuracy: ±0.1 °C between –20 and +40 °C (±1 °C outside of this range)

Communication Specifications

Output

DDI serial and SDI-12 communications protocol
- 3- or 4-wire cable version (Figure 3 in Integrator Guide).
- RS-485 4-wire cable version (Figure 5 in Integrator Guide).

Modbus RTU and tensioLINK serial communications protocol
- 3- or 4-wire cable version (Figure 4 in Integrator Guide).
- RS-485 4-wire cable version (Figure 6 in Integrator Guide).

Data Logger Compatibility

METER ZL6 and EM60 data loggers or any data acquisition system capable of 4.0- to 28.0-VDC power and serial interface with SDI-12 and/or RS-485 interface, Modbus RTU, or tensioLINK.

Physical Specifications

Dimensions

Diameter: 2.5 cm (0.98 in)

Length: 40.0 cm (15.75 in)
80.0 cm (31.50 in)
120.0 cm (47.24 in)

Materials

Ceramic: Al_2O_3 , bubble point 1,500 kPa

Shaft: PMMA

Corpus: POM GF

Refilling Tubes: Stainless steel

Installation Angle

10° to 80° from horizontal (downward)
–10° to –80° from horizontal (upward)

Operating Temperature Range

Minimum: –30 °C (0 °C for water-filled tensiometer)

Typical: NA

Maximum: 50 °C

Cable Length

5 m (standard)
75 m (maximum custom cable length)

NOTE: Contact Customer Support if a nonstandard cable length is needed.

Cable Diameter

Stereo Plug 4.2 ±0.2 mm (0.16 ±0.01 in) with minimum jacket of 0.8 mm (0.031 in)
M12 Plug 5.5 ±0.2 mm (0.22 ±0.01 in) with minimum jacket of 1.0 mm (0.039 in)

Connector Size

3.50 mm (diameter)
14.4 mm (diameter M12)

Connector Types

Stereo plug connector or stripped and tinned wires
4-pin M12 connector or stripped and tinned wires

Conductor Gauge

Stereo Plug 22-AWG / 24-AWG ground wire
M12 Plug 22-AWG

Electrical and Timing Characteristics

Supply Voltage Power to Ground

Minimum: 4.0 V

Typical: 12.0 V

Maximum: 28.0 V

Digital Input Voltage (Logic High)

Minimum: 1.6 V

Typical: 3.3 V

Maximum: 5.0 V

Digital Input Voltage (Logic Low)

Minimum: -0.3 V

Typical: 0.0 V

Maximum: 0.9 V

Digital Output Voltage (Logic High)

Minimum: NA

Typical: 4.0 V

Maximum: NA

Power Line Slew Rate

Minimum: 1.0 V/ms

Typical: NA

Maximum: NA

Current Drain (During Measurement)

Minimum: 18.0 mA

Typical: 25.0 mA

Maximum: 30.0 mA

Current Drain (While Asleep)

Minimum: .03 mA

Typical: .05 mA

Maximum: 0.9 mA

Power Up Time (DDI Serial)

Minimum: 125 ms

Typical: 130 ms

Maximum: 150 ms

Power Up Time (SDI-12)

Minimum: 125 ms

Typical: 160 ms

Maximum: 175 ms

Measurement Duration

Minimum: 60 ms

Typical: 65 ms

Maximum: 70 ms

Other

BARO Module

When using the METER tensiometers TEROS 31 and TEROS 32 in combination with a non-METER data logger, a highly accurate barometric compensation is needed to get the most precise soil water potential measurement. The BARO Module can be used as a stand-alone sensor for measuring atmospheric pressure at a measuring site. It is also available with different connectors, so the BARO Module can be connected directly in between a tensiometer and a data logger. The BARO Module can also act as a digital/analog converter to connect a tensiometer with serial output to a data logger with analog input channels. The logger obtains a barometric compensated analog matric potential signal. The BARO Module can be used for varied logger communications: SDI-12, Modbus, tensioLINK, analog voltage signal.

Compliance

EM ISO/IEC 17050:2010 (CE Mark)
2014/30/EU and 2011/65/EU
EN61326-1:2013 and EN55022/CISPR22