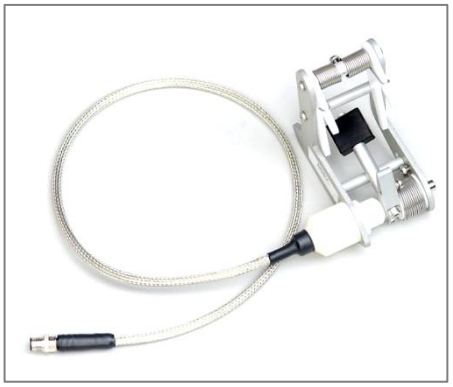
CLAMP DENDROMETER PDS40A

GENERAL DESCRIPTION



Clamp dendrometers are designed for the precise measurement of diameter changes in stems and branches. Their compact design enables easy and fast, non-invasive attachment to the measurement object. With a measurement range of 5 to 40 mm, they are suitable for measuring small stems and branches. The sensor is attached to the measurement object using three pressure levers, with the central measuring arm moving the rotary position sensor proportionally to the diameter of the measurement object. The contact pressure is designed to ensure stable positioning while minimizing the impact on plant tissue. The position sensor bearing is designed to minimize the effects of temperature and axial forces. The sensors are suitable for precise long-term measurements in the field and feature IP67 protection and an operating temperature range of −40 to 60 °C. The sensor requires minimal maintenance and energy.

MAIN FEATURES

- Sensing pivot concept
- Contact force up to 2 N
- Output signal: analog
- Stepless reading
- Operating range 5 to 40 mm
- Accuracy: ±2% full scale
- Temperature dependence better than 3 µm/K
- Easy and fast non-invasive fixing

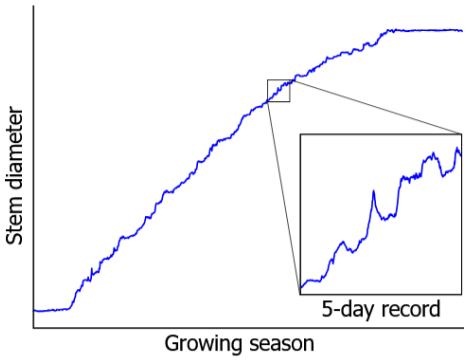
INSTALLATION NOTES

Sensor has to be placed on a relatively straight and regularly shaped stem (or branch) such a way that the plastic cover of electronic does not touch the measured object. The cable has to be fastened to the stem in order to avoid its influence on the sensor position. The label on the black plate on the jib must be visible - it must point outwards of the stem.

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

PRECISE STEM DIAMETER RECORDS

- no effect on plant growth
- efficient tool for field measurement
- comprises information about growth, water stress and freezing up of the stem
- Together with soil water potential, it allows for a realistic assessment of drought stress and tree response



TECHNICAL DATA

PARAMETERS	SPECIFICATIONS
Weight of the sensor	160 g
Measurement range	5 … 40 mm
Resolution	stepless reading
Accuracy	2% full scale
Output signal	Analog: Voltage range 1000 … 1700 mV
Contact force	1.5 … 2 N lateral levers, 2 … 3 N central measuring arm
Temperature dependence	better than 3 µm/K
POWER SUPPLY	
Supply voltage	5 … 16 V
Current consumption	0.75 mA
Connector	4-pin M8 connector
ENVIRONMENTAL CONDITIONS	
Protection class	IP67
Operating temperature	-40 … 60 °C
Operating humidity	0 … 100 %

CALIBRATION EQUATION

Sensor uses the most linear part of sensing potentiometer close to the middle of its range. The conversion formula from voltage output top millimeters (type A) is in the form:

$$Diameter\ [mm] = -57.2 + 0.0572 * Vout[mV]$$

The conversion formula for sensors type A is:

$$Diameter\ [mm] = \left(\frac{V}{Vmax} - 0.4\right) * A$$

where A = parameters written id the jib of the sensor.