DE-1T-SDI12
Dendrometer
Quick Start Guide

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Introduction

The DE-1 Dendrometer is a highly precise incremental LVDT-based sensor for monitoring micro-variations of trunk radius in micron range.

The sensor includes a linear displacement transducer (LVDT) mounted on a special rod with threaded end. When the rod is anchored inside the trunk, the LVDT rod follows movement of the trunk surface. The output signal follows the variation of distance between trunk surface and the anchored end of the rod.
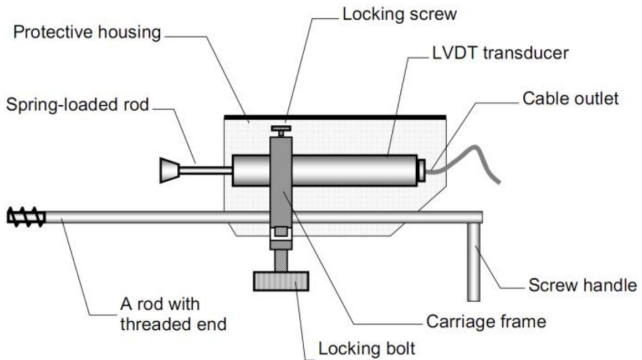
The probe is connected by a standard 0.5-meter cable to the waterproof box with the signal conditioner inside. A signal conditioner provides excitation of the LVDT and production of standard linear output signal.

Interface: SDI12.

Installation

- In trees with rough bark over the cambium, rasp it away and pare down carefully an area of about 6 L × 5 W cm^2. In caulis and species with smooth bark, no preparation may be needed.
- Drill the hole with the 3.3 — 3.5 mm bits. It is recommended to drill slowly using a wood drill set to a low torque to prevent excessive tearing of wood fibers along the length of hole. The depth of hole must be 3 cm min. and 9 cm max.
- Free the locking bolt and remove the rod from the carriage frame.
- Carefully screw the rod into the tree. If there is difficulty in insertion, clear the hole carefully with the drill bit.
- Once the rod is implanted, set the sensor on the rod and adjust its position until the butt of spring-loaded rod touches the trunk.
- Readjust the sensor when its readings become close to 0 or 10 mm.

Connection

The sequence and correctness of the connection must be observed! The shield shall be grounded at the data loggers side or connected to the 'minus' contact of the power source.

Connection order

1	White	Ground
2	Black	Shield
3	Yellow	SDI12 Input/Output
4	Red	Power 5 to 24 Vdc

Data reading

In accordance with SDI12 Standard (version 1.3).

Decimal data format: XXXXX (microns).

Power supply

The sensor is to be powered from an external regulated power supply with 5 to 24 Vdc @ 12 mA output voltage.

Specifications

Measurement range	0 to 10 mm
Trunk diameter range	Above 6 mm
Temperature effect	< 0.02% total stroke/°C
Excitation time	200 ms
Output	SDI12
Power supply	from 5 to 24 Vdc
Current consumption	5 mA typ. 12 mA max.

| Operating temperature | 0 to 50°C |

| Overall dimensions | 90 W × 60 H × 23 D mm | | Carrying rod | 160 L × 4 ⌀ mm| | Threaded end | 10 L × 5 ⌀ mm |

| Protection index | IP64 | | Cable length between probe and signal conditioner | 0.5 m |

Customer Support

If you ever need assistance with your sensor, or if you just have questions or feedback, please e-mail at support@phyto-sensor.com. Please include as part of your message your name, address, phone, and fax number along with a description of your problem.

Bio Instruments S.R.L.

20 Padurii St., Chisinau MD-2002
REPUBLIC OF MOLDOVA
Tel.: +373-22-550026
info@phyto-sensor.com
phyto-sensor.com