

Linear Variable Displacement transducer (LVDT)

Dendrometer



What can the LVDT detect?

Detection of **drought stress** before wilting symptoms are visible.

How do you use the LVDT?

Place the **sensor against the stem**. Connect with a **data logger** and follow-up the growth and shrinkage of the stem during the day. Place at least **3 sensors scattered around the field** to reach a conclusion. Initial calibration is needed before installation.

Scientific background & interpretation of the results

When the stem swells or shrinks, the displacement transducer changes position, disturbing a magnetic field and altering the electrical signal. The change in electrical signal is a measure of stem growth and shrinkage.

If plant experiences drought stress:

- ➔ Potentially more loss of water during the day
- ➔ More shrinkage of stem diameter ↓
- ➔ Displacement transducer will push out = lower electrical signal

Pros & Cons

- + fast, accurate, continuous measurement, result can be interpreted by grower
- relatively expensive, one system is not enough to monitor in practice, time-consuming installation and calibration, training necessary, datalogger required

Price range: € 6000 - 12000

Company: Solartron Metrology (Dimed)

More information?

<https://solartron.cdstore.com/manufacture/solartron/lvdt-linear-variable-displacement-transformer/dc-mini-series>

<https://www.solartronmetrology.com/products/displacement-sensors/miniaturedisplacement>