

PiCUS Tension

Prevent dry stress in trees with PiCUS Tension



Monitoring soil water tension as a measure of plant water availability

Easy, remote monitoring available through the PiCUS Cloud enabling you to water your trees efficiently and resource-friendly.

The PiCUS Tension is a sensor that is inserted into the soil at the location of the tree. Up to six positions measure the suction tension, allowing conclusions to be drawn about the water availability for the plants.

The measurement results are stored in the PiCUS Cloud. Drought is detected before damage occurs, and irrigation can be made more efficient thanks to measurement monitoring.



Individually configured for a variety of applications

The PiCUS Tension can be equipped with up to six robust sensors, different cable lengths, and radio standards.

Hardware

Depending on the application, the following components can be individually configured when ordering:

- Number of sensors: 1-6 pieces
- Cable lengths: 1.5; 3 or 10 meters, individual cable lengths available upon request
- Above-ground or underground installation with optional cable protection designed to reduce the risk of damage from mowing, vandalism, or wildlife
- Radio standard: LTE or LoRaWAN®
- Transmitter unit reusable by battery and sensor replacement
- SIM card usable worldwide
- SIM card with 500 MB included data volume

Data Analysis

When using the LTE radio standard, the measurement data is stored in the PiCUS Environmental Cloud and can be viewed daily via the PEC app or the browser-based application. The location of the cloud server is at IML Electronic in Rostock. This expands the evaluation of measurement information through individual export functions. With the LoRaWAN® equipment variant, the measurement data is sent from the PiCUS Tension to the user's own LoRaWAN® network and can be retrieved there.



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Automatic irrigation management measures the tree's water availability

Easy handling, simple installation, and immediate measurement results distinguish the PiCUS Tension.

Installation & Handling

The PiCUS Tension sensors can be installed directly at the site during the planting of young trees or retrospectively on mature trees that are particularly at risk or worth preserving. If desired, the sensor elements can be placed at different depths or positions around the tree. The central electronics can be attached above ground, for example on the planting stake of a young tree, or buried in the ground. The sensors can be positioned correctly with the help of an auger and the IML installation aid.

Measurement variables

The soil water tension indicates the force with which water is held in the pores of the soil, that is, how much force plants must exert to access the water. The lower the soil water tension, the easier the water is available for plants. When the soil water tension is high, water is hardly available for plants.

In addition to the soil water tension, the current temperature in the transmitting unit is also measured and displayed in the graph.

The recorded data is stored in the PiCUS cloud every 12 hours. The data can be accessed with the PiCUS app or WebGIS.

The location of the tree is also registered, and the map view allows for a clear representation of all sensors in use.

This way, tree owners and responsible parties can always see the water availability of their trees and control the watering measures as needed.

The measured suction pressure of the Tension is given with the pF value and additionally assigned the colors of a traffic light scale for better clarity.

PiCUS Tension evaluation:

The overall result of the Tension is the soil water tension, expressed as a pF value.

pF value

■ 4,2	Irreversible damage, dying off
■ 4,0	Dry damage to be expected
■ 3,5	Severe drought stress
■ 3,0	Mild drought stress
■ 2,5	Water available
■ 1,8	Plenty water available

Innovative irrigation system

By combining a water tank and appropriate control technology, the PiCUS Tension can automate tree irrigation

Holistic solution

In combination with the irrigation system and appropriate configuration, the system is capable of automatically performing irrigations for up to three years without battery replacement. In case of rainwater, a decentralized cistern is filled. The central unit regulates the valve based on the evaluation of the Tension system and thus carries out the watering. The level indicator enables remote monitoring of the amount of water in the tank.

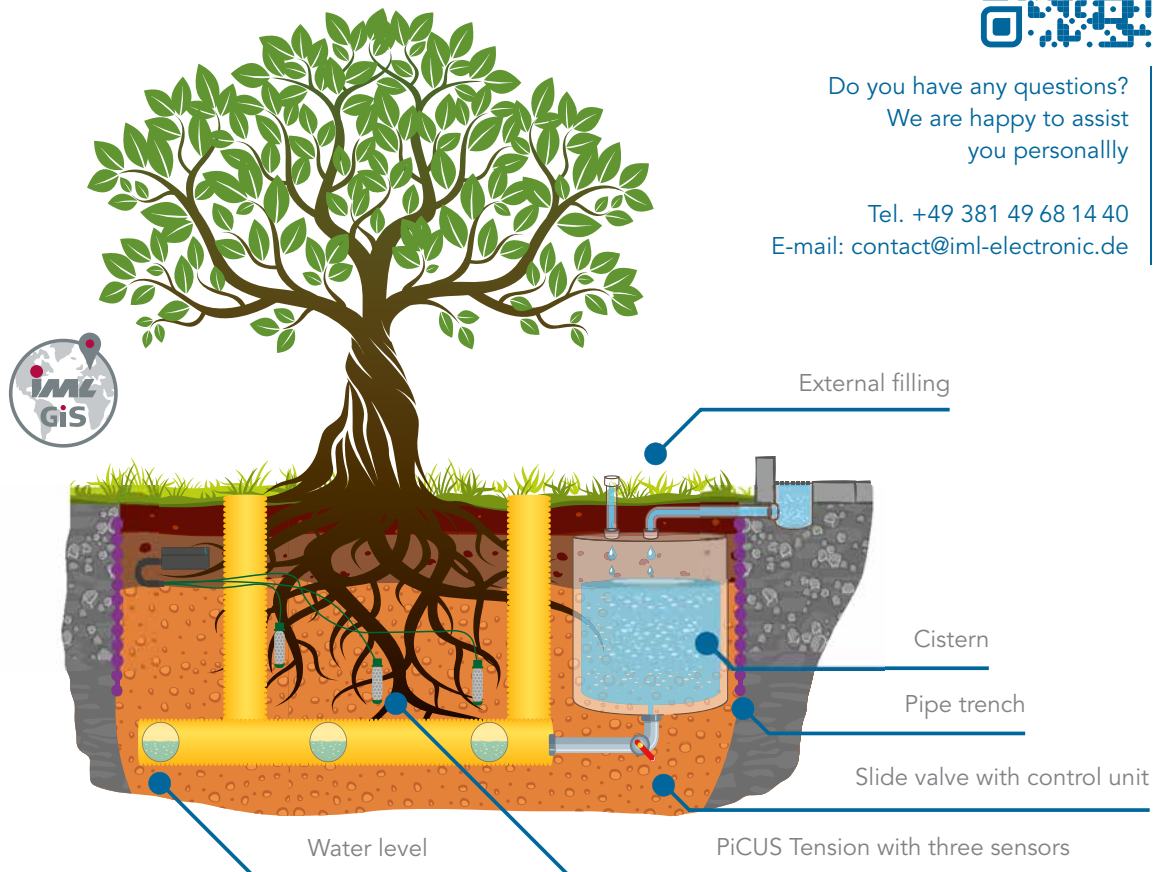
All components are arranged in a maintenance-friendly way and are manufactured or completed by IML Electronic GmbH. This enables us to implement specific customer requirements at short notice. The system was developed in collaboration with the city of Rostock.

Further information
via QR-code!



Do you have any questions?
We are happy to assist
you personally

Tel. +49 381 49 68 14 40
E-mail: contact@iml-electronic.de





With Passion and Precision

IML Instrumenta Mechanik Labor Electronic GmbH
Erich-Schlesinger-Str. 49d
18059 Rostock | Germany

Phone: +49 381 49681440
E-mail: contact@iml-electronic.de
Web: www.iml-electronic.com