Soil Moisture Sensor (SLT500*)

Irrigation Management: This allows for precise watering, reducing water waste and preventing over- or under-irrigation, which can lead to crop stress or disease.

Nutrient Management: The sensor allows for efficient monitoring and adjustment of nutrient levels in the soil. Farmers can accurately determine their plants' nutrient needs and optimize fertilization accordingly to prevent over- or under-fertilization.

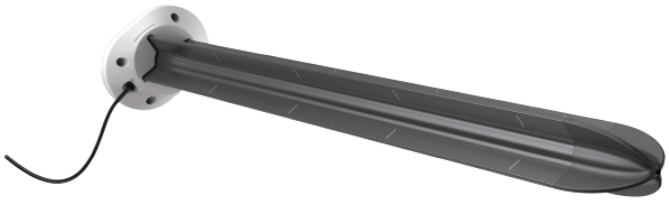
Yield Enhancement: Soil moisture sensors are crucial for improving crop yields. By maintaining optimal soil moisture levels throughout the growing season, farmers can ensure that plants receive the right amount of water for healthy growth, ultimately leading to higher crop yields and improved agricultural productivity.

Frost Protection: Monitoring soil temperature is critical for frost protection. A sensor that measures soil temperature can inform farmers of potential frost risks in a timely manner, allowing them to take protective measures to safeguard their crops.

Technical Details

Value	Range	Resolution	Accuracy
Water Content Organic Soil	0 - 60 %	0.10 %	+/- 3 %
Water Content Artificial Soil	0 - 96 %	0.10 %	+/- 3 %
EC	0 - 5 dS/m	0.001 dS/m	+/- 3 %
Soil Temperature	-20 - 60 °C	0.0625 °C	+/- 1.0 °C

Soil Moisture Profile Probe



Depth Analysis for Effective Irrigation: Such a soil sensor can monitor moisture content and temperature at various soil depths. This allows farmers to optimize plant water supply based on specific conditions in different soil layers. It can enhance irrigation efficiency and reduce water waste. For instance, plants in shallower soil layers experiencing drought conditions may receive a higher dose of water, while in deeper layers with sufficient moisture, less irrigation is needed. This contributes to increased crop yields and conservation of water resources.

Technical Details

Value	Range	Resolution	Accuracy
Water Content	0.00 - 0.70 m3/m3	0.001 m3/m3	+/- 0.05 m3/m3
Soil Temperature	-20 - 60 °C	0.03 °C	+/- 0.5 °C

Matrix Potential Sensor

Irrigation Management: Continuous monitoring of water tension potential in the soil allows farmers to determine the optimal timing for irrigation. They can supply water when the soil reaches a specific tension potential, enabling more efficient irrigation and preventing water wastage.

Drought Monitoring: Matrix Potential sensors are valuable for the early detection of drought conditions in the soil. They enable farmers to identify dry conditions before they cause plant damage and take early countermeasures.

Root Health: Water tension potential in the soil directly impacts the health of plant roots. These sensors allow continuous monitoring to ensure soil conditions are suitable for the growth of healthy roots. Deviations can prompt adjustments to maintain root health.

Technical Details

Value	Range	Resolution	Accuracy
Water Potential	0 - -100.000 kPa	0 kPa	+/- (10% of reading + 2kPa) from -100 to - 5 kPa
Soil Temperature	-40 - 60 °C	0.10 °C	+/- 1 °C

Hydroponic Sensor

Water Level Control: The sensor monitors the water level in the hydroponic system, allowing for precise control to ensure that plant roots receive sufficient but not excessive irrigation.

Nutrient Control: Measurement of the EC (electrical conductivity) level is used to monitor the nutrient concentration in the nutrient solution. Adjusting the EC level allows plants to receive the necessary nutrients for optimal growth.

Temperature Monitoring: Monitoring water temperature in hydroponic systems is crucial, as extreme temperatures can impact plant growth. The sensor ensures continuous monitoring and enables temperature regulation.

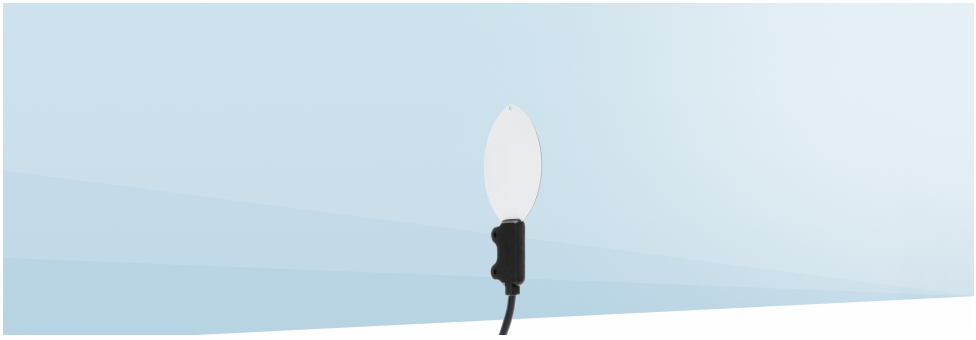
Nutrient Optimization: Based on the measured data, nutrient delivery can be adjusted in real-time to meet the needs of the plants, promoting healthy growth and higher yields.

Disease Prevention: Changes in EC levels and temperature can indicate issues. A hydroponic sensor allows for early detection of such changes and the implementation of measures to prevent diseases.

Technical Details

Value	Range	Resolution	Accuracy
Water Depth	0 - 10,000 mm	1 mm	+/- 0.25% of full scale at 20 °C
Temperature	-40 - 60 °C	0.10 °C	+/- 1 °C
Bulk Electrical Conductivity (EC)	0 - 120 dS/m	0.001 dS/m	+/- 0.01 dS/m

Leaf Wetness Sensor



Disease Prevention: A Leaf Wetness Sensor is a crucial tool for disease prevention. Monitoring leaf moisture conditions allows farmers to keep track of moisture levels conducive to the development of fungal diseases such as mildew or rust. Early warnings enable appropriate countermeasures to be taken to prevent disease spread.

Irrigation Optimization: A Leaf Wetness Sensor can aid in making irrigation more efficient. When leaves are sufficiently moist, it may not be necessary to apply additional irrigation. This saves water and resources by allowing more precise irrigation.

Quality Control: In some agricultural products, especially in viticulture, leaf moisture can influence the quality of the harvest. A Leaf Wetness Sensor can help ensure that leaf

moisture levels fall within specific thresholds to guarantee the desired crop quality.

Technical Details

Value	Range
Operating Temperature Range	-40 - 60 °C

Weather Station

Weather Monitoring: A Weather Station enables continuous monitoring of environmental factors such as precipitation, temperature, humidity, air pressure, and wind speed. These data are valuable for weather forecasting, meteorological studies, and general weather monitoring.

Irrigation Control: In agriculture, the Weather Station is often employed for irrigation management. By measuring soil temperature and humidity, it can assist in determining the optimal timing for irrigation to enhance water usage efficiency.

Environmental Monitoring: The Weather Station is also suitable for environmental monitoring purposes. It can be used in scientific studies to capture microclimate data, ecological investigations, and environmental monitoring projects.

Climate Research: Researchers employ the Weather Station in climate research projects to collect precise weather data and analyze climatic changes.

Emergency Management: The Weather Station can be used in emergency and disaster scenarios to monitor and predict weather conditions, allowing timely responses to natural disasters such as storms or floods.

Technical Details

Value	Range	Resolution	Accuracy
Solar Radiation	0 - 1750 W/m2	1 W/m2	+/- 5 %
Precipitation	0 - 400 mm/h	0.017 mm	+/- 5 %
Relative Humidity (RH)	0 - 100 % RH	0.1% RH	+/- 1.5 % RH
Air Temperature	-50 to 60 °C	0.10 °C	+/- 0.60 °C
Humidity Sensor Temperature	-40 to 50 °C	0.10 °C	+/- 1.0 °C
Vapor Pressure	0 - 47 kPa	0.01 kPa	+/- 0.2 kPa
Barometric Pressure	1 - 120 kPa	0.01 kPa	+/- 0.05 kPa at 25 °C
Horizontal Wind Speed	0 - 30 m/s	0.01 m/s	The greater of 0.3 m/s or 3% of measurement
Wind Gust	0 - 30 m/s	0.01 m/s	The greater of 0.3 m/s or 3% of measurement
Wind Direction	0 - 359 °	1 °	+/- 5 °
Tilt	-90° to 90°	0.1°	+/- 1 °
Lightning Strike Count	0 - 65,535 strikes	1 strike	Variable
Lightning Average Distance	0 - 40 km	3 km	Varialbe

Climate Sensor

Temperature and Humidity Control: Climate sensors assist in monitoring temperature and humidity in greenhouses and indoor farms. By maintaining optimal conditions, plants can grow faster and healthier.

Disease Prevention: A climate sensor can detect early signs of moisture and temperature fluctuations that could indicate the development of plant diseases. This enables a quicker response to disease prevention.

Irrigation Control: Based on the measured data, irrigation can be adjusted in real-time. This leads to a more efficient use of water resources and prevents over- or under-irrigation.

Technical Details

Value	Range	Resolution	Accuracy
Relative Humidity (RH)	0 - 100 %	0.10 % RH	Variable
Temperature	-40.00 - 80.00 °C	0.1 °C	+/- 0.20 °C
Vapor Pressure	0 - 47 kPa	0.01 kPa	Variable
Barometric Pressure	1 - 120 kPa	0.01 kPa	+/- 0.05 kPa at 25 °C