

Soil Moisture and EC Sensor Probe DSM 600

AFS AGRO FLOW SYSTEM GmbH

User manual



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INTRODUCTION

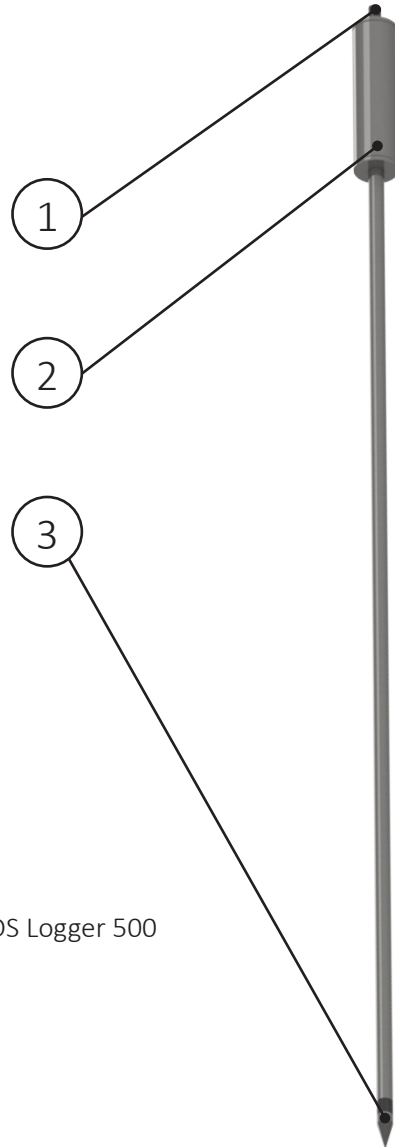
Thank you for choosing Soil Moisture and EC Sensor Probe DSM 600 of AFS AGRO FLOW SYSTEM Company. This manual will help familiarize you with the features, operations, and maintenance of the sensor. Please carefully read this manual before operating.

The soil moisture is one of the principal physical characteristics of the soil which determines its fertility. Soil moisture affects the soil salination, displacement, and efficiency of organic and mineral fertilizers, the degree of soil pollution with pesticides and other technogenic impact products. The soil salination is determined by measuring the electrical conductivity of the soil. Measuring the soil salination is, in fact, the measuring of inorganic salts dissolved in the water. All salts contain a water-soluble part, which by a certain has a negative effect on plant growth- soil salination appears. The soil salination is the result of low soil permeability.

Current information about soil moisture and electrical conductivity in the system of agricultural production management is necessary, first of all, for making operational decisions in the development of environmentally friendly technologies for growing crops with the aim of obtaining maximum yields. It means agrotechnical measures on the main and pre-sowing tillage, the expediency and timing of sowing crops, fertilizing, watering, etc.

Soil moisture and EC Sensor Probe 600 is the most efficient instrument for measuring volumetric water content in soil and soil salinity. It provides an opportunity to obtain data from its surface to a depth of 60 cm, with 5 cm step for the entire depth of the root system of agricultural plants.

DEVICE CONSTRUCTION



1. Screwed connection to DS Logger 500
2. Sensor housing
3. Measuring part

SENSOR CONNECTION

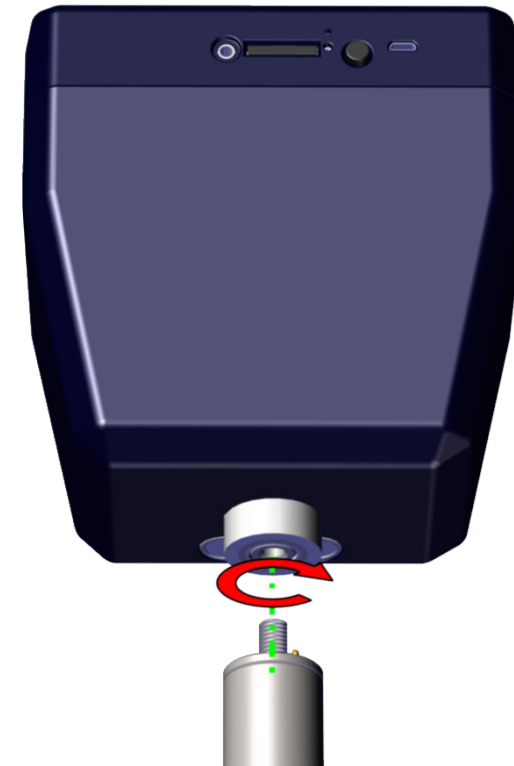


Figure 1

The sensor connects to the device with a threaded connection. Screw the sensor to the device (DS Logger 500), as shown in Figure 1, clockwise until it reaches the stop. The electrical connection of the sensor will be carried out automatically with the help of spring contacts.

SOIL PREPARATION FOR MEASUREMENTS

Use the depth reference plate. Choose an area of at least 50x50 cm without high vegetation, so that between the distance sensor on the bottom of the housing and depth reference plate there was free space.

Remove plant residues, stones, and surface soil crust. Level the surface and put the depth reference plate on it in the case of dynamic measurement of volumetric water content in the soil at different depths. In the case of a static measurement of VWC at a certain depth, the depth reference plate is not used (Figure 2).

Warning!

Do not press on the depth reference plate, do not throw a penetrometer with the connected sensor to prevent damages.

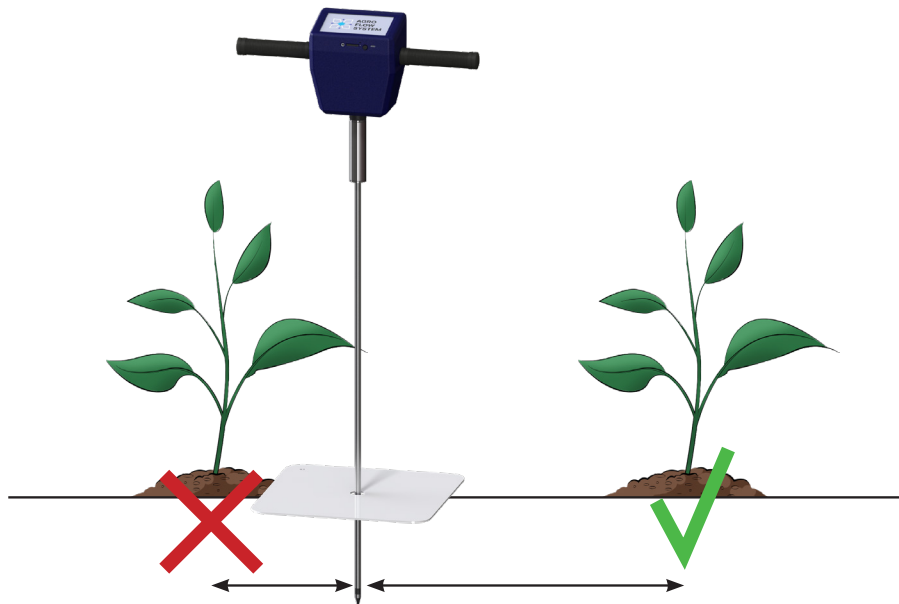


Figure 2

MEASUREMENTS

Move down the sensor already connected to the penetrometer with a pointed tip to the plate without pushing it into the ground. Turn on the required measurement mode on the penetrometer (according to the DS Logger 500 User Manual). Move the sensor to the hole in the middle of the depth reference plate, put pressure on the penetrometer with the constant speed at right angles to the plate, gradually pushing the measuring part in the ground.

If the process measurement becomes impossible due to the obstacle (solid rock, vegetable residues, etc.), do not try to put more efforts to overcome obstacles, and carefully remove the sensor from the ground and make one more measure as close as possible to the previous but not less than 10 cm.

OPERATING FEATURES

- Do not use the sensor on soils that contain a large amount of solid particles.
- Do not apply excessive load when measuring, in order to avoid sensor damages.
- Do not use the device for chemicals testing.
- After each measurement clean the measuring part of the sensor from the soil residues.
- Before connecting the sensor, check if contact rings and pins are clean. Any dirt should be removed.