Soil Moisture Meter

TRS-II

User Manual

Please read this manual carefully before use

1. Exploitation background of the instrument

Moisture is an important component of soil, it is important for the growth of crops. China is a country which is short of water resource, and 70% of the water resource is used by agriculture. While 90% of the agricultural used water is by irrigation, however, only an average of 43% of the irrigation water is successful used, In China, the corresponded farm produce output by per unit of water is far lower than that of developed countries, so there is a great water saving potential in China. Farmland information measurement and accurate irrigation is an indiscerptible factor of fine agriculture, by the fast and accurate soil moisture measurement to know the farmland information is not only in favor of water saving irrigation, but also good for promoting the quantity and quality of crop output by accurate irrigation.

The currently used moisture measuring method is drying and weigh up method which is characterized by its accuracy and low requirement of instruments, however, the measurement time is too long and the measurement must be carried out inside of the laboratory, thus the method couldn't be used for the continuous and longtime online measurement of soil information, therefore, the method can't meet with the requirement of fine agriculture.

Consequently, The Soil Moisture Meter is developed to meet with the farmland information measurement needs of modern agriculture.

2. Technical parameter

2.1 Main controller

Working power: DC 5V~12V

Working current: <5mA（backlight off）   <80mA（backlight on）

Weight: 500g

Size (L*W*H): 160mm×75mm×30mm

Working temperature: -40℃～80℃

Relative humidity: ≤95%RH

Storage capacity: up to 120000 groups

2.2 Soil moisture sensor

Working power: DC 5V~12V

Working current: ≤200uA

Weight: 600g

Size (L*W*H): 185mm×60mm×60mm

Working temperature: -40℃～80℃

Relative humidity: ≤95%RH

Measuring accuracy: ±0.2%

Measuring range: 0%～100%

3. Function & Operation

The front panel of the main controller is made up of LCD displayer and function keys.
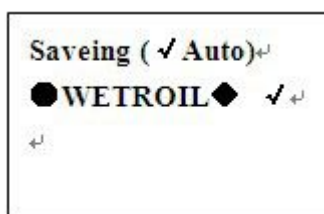
3.1 Display window

Shown as follows:

• There are 2 storage modes---H or A. H means save by hand. A means save automatically.

• 125 means group number

• ● means the storage space is full.

3.2 Menu function

▲ Saving Set

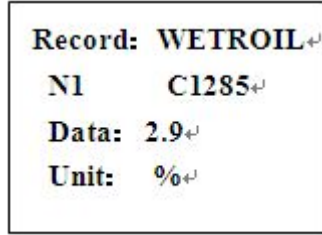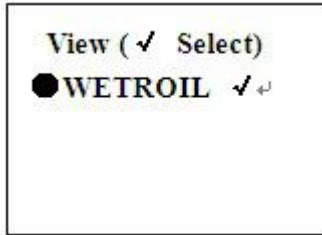◆ means the current option, √ means save automatically.

▲ Reset USB

This function is only used for uploading datum. So there is no use in this type of machine.

▲ Delete Record

Select this item, press "OK" button, select or cancel delete option. After choosing, press "Function" button, choose Yes, No or Cancel.

▲ View Record

View (✓ Select)	Record: WETROIL
●WETROIL ✓	N1 C1285
	Data: 2.9
	Unit: %

Select this item, press "Ok" button. C1285 means there are 1285 datum in the current option. N1 means the current data is the first recorded data. Press "Function" button to go back to the main interface.

▲ Add Option

Searching···

Select this item, the instrument will search sensors connected to the main controller. After finishing searching, it will go back to the main interface.

▲ Language

Select this item, press up button, down button, "OK" button, you can choose languages-----English or Chinese.

▲ Date Time

09-01-11

00:05:30

Select this item, press "OK" button, you can change time through up button, down button and Function button. Function button: shift the position. Up button & Down button: change the number.

▲ Shut Down

Shuting Down...

Thank you!

Select this item, press "OK" button to shut down the main controller.

▲ About

Just tell the version of the program.

3.3 Operation

3.3.1 Install 4 pieces of NO. 5 batteries into the main controller or connect the power adapter.

3.3.2 Connect the soil moisture sensor to the main controller.

3.3.3 Press "Function" button. Select "Add Option" through up button or down button. Press "OK" button. The main controller will search the sensor immediately.

3.3.4 After the main controller searched the soil moisture sensor, you can set according to the above "Menu function" part.

3.3.5 Insert the soil moisture sensor into the soil. Pay attention, hold the bottom of the sensor and vertically insert it to the soil. Make sure the sensor should be totally inserted into the soil. You can check the datum on the main controller.

3.3.6 After finishing measurement, pull out the soil moisture sensor and clean it. Turn off the power of the main controller.

4. Attentions

4.1 The metal sensor pinhead must be inserted thoroughly into the soil, or the measured data might be incorrect. (See chart 1)

4.2 The plastic part of the pinhead shouldn't be buried into the soil to avoid the entry of moisture into the sensor which might cause short circuit of the inner signal processor.

4.3 The soil should be dug into the needed depth at first if you want to measure the correspondent depth soil moisture. (See chart 2)

4.4 While inserting the pinhead, hold the plastic part of the sensor tightly and insert the pinhead uprightly to avoid bending and damaging the pinhead. (See chart 3)

4.5 When the measurement is finished, you must hold on the plastic parts of the sensor to remove. Do not pull the wires of the sensor. (See chart 4)

4.6 After finished, please use soft cloth to clean the sensor, don't put it into the water because it will cause the short circuits.
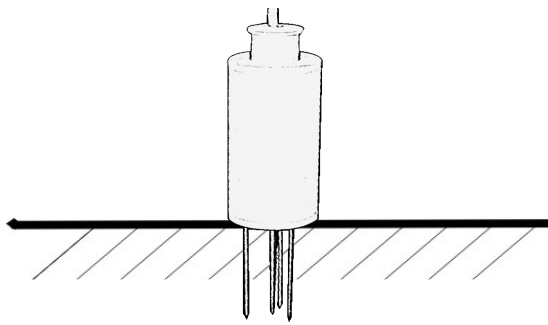
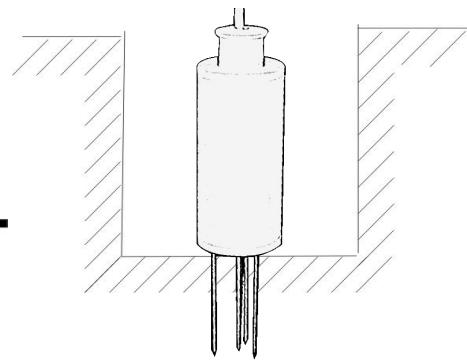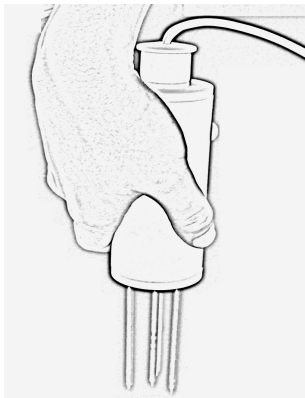Chart 1: insert the pinhead thoroughly into the soil   Chart 2: dig hole before measure

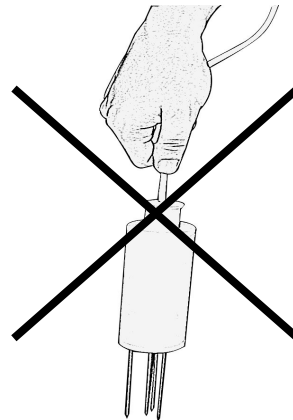Chart3: hold the sensor tight while pulling out or inserting   Chart 4: Wrong way

5. Software Use

The software interface is in the back page.

The concerning setting is according to the default mode：serial COM1, baud rate9600, parity bit NONE, data bits 8, stop bit 1,serial port is in the open state, just the small picture is in the red state by the left of Close serial" press.

After the main machine of moisture meter connectting with computer correctly, press the "F2" key on the meter to transmit the date. The right of the software shows the recorded figure, the pattern of recording is:

0000   3.1
Record No.   Moisture figure

Press the key "empty receiving area" at the left of software interface to delete the figure.

Press the key "save display data" at the left of software interface to keep the figure into the specified path.

In the software data display area, users can edit the data and also can do the text editting according to self's need and add some noted information.

Pressing the key " save display data" can save the data in the specific path on computer in the form of text. If wanting to change the path, press the key " alter" to choose the path you want.

6. Accessory

Name	Quantity
Main controller	1
Soil moisture sensor	1
Power adaptor	1
User manual	1