Quick Start – Instructions for Stevens Hydra Data Reader

OPERATION

ON/OFF button: Pressing this button turns the moisture instrument ON. Pressing the same button again turns the instrument OFF.
When you turn ON, the LCD display shows the total memory used up for storage. For example, "Mem used 45". This means 45 used from 2000. The instrument has a memory Site numbers: from 1-255 and will log up to 2000 readings. Memory will not wrap, once it is full you must download to PC. Normally, you would have downloaded the data before using a large amount of memory. You should download your stored data to the PC and clear the memory often.

After a very brief Mem display, the meter shows "Ready to READ". Taking normal "READ" does not use memory, but after FUNCTION is pressed, then pressing READ uses memory (saves the data to memory). This is protected when the power is switched OFF.

The READ button: Once switched on, pressing the READ button activates a moisture (WFV) and Temperature reading. Units with the newer firmware will also display a second screen depicting the NACL (Total Salt Burden) and Soil Conductivity (Soil pore space salinity) as a 2nd output to this screen. Each press of the button activates a new reading.
The display shows 2 screens of 3 sets of data. Temperature (tF,tC), Water fraction by volume (WFV) and (NACL) Burden and (Conductivity) (Soil Pore Space Salinity). Details are in the STEVENS Manual. The < and > keys on the Data Reader select the type of soil you are testing, SAND, SILT or CLAY. It is therefore important to select the soil type before pressing READ.

The FUNCTION button: This DATA READER **stores** moisture readings. This is called "data logging". Pressing the FUNCTION button and then pressing the READ next will save the measurement to memory. When you press FUNCTION, the LCD meter shows (for example),
 "SILT at Site 1   FUNCTION cancels". The "cancels" means if you press FUNCTION again, the instrument will cancel and return to normal READ (no logging). But if you press READ, then moisture is saved to memory at "site 1".
At any time you can press the UP arrow button, or the DOWN arrow button to save to another location (site number).
When you press SIDE ARROW keys, the SILT will change to either SAND or change to CLAY.
When you log the data, the memory saves **site number, soil type, V1, V2, V3 and V4 readings**. Each time you READ and save the data, the meter will display "Wait, reading" for about 3 seconds, then display (for example) "Soil is CLAY Logged Site: 3" or similar, "Memory used 14" or similar, and then display Temperature, Water Fraction by Volume and NACL.

When you have finished storing readings, pressing FUNCTION returns to normal READS. Pressing ON/OFF again turns OFF the equipment. After you have downloaded to a file on your PC, the program "**Hyd_file.exe**" can be used to generate a new file of real data. This file provides data in more detail than the LCD display shows.
Note: "**Hyd_file.exe**" must run under DOS at the command prompt, not under windows.

DATA DOWNLOADING (using DOS program):

To download the data you need to turn on the instrument and be in the normal READ position (not logging).

A cable is provided to connect between the moisture reader and the RS232 connector of a PC. The software on the disk is called MICRO.EXE, and will run on any older computer and should work on most Windows 95 and 98 PCs. The lead needs to be in COM1 on the PC before running MICRO.EXE. The moisture instrument needs to be switched ON and in the normal READ mode. If you are running MICRO.EXE under Windows, don't forget to click the COMMS window itself to select this program.

Pressing the character **'m'** on the PC keyboard will produce a simple menu from the reader:
'd' downloads logged data,**'t'** displays current time & date,**'s'** sets the time & date
'm' displays this menu **x'** clears memory of logged data

If you see this menu, then you can download the data from the moisture reader's memory to a file on the PC. If you are running Windows, select the MICRO.EXE Window with the mouse. As a test, press 't' to see the logger's time and date. Press 'd' to see stored (logged data) on the screen. But to save the data to a file, press keys in this sequence:

 "Download to File" button Browse to your desired location then enter file name and <SAVE>. You will now have a text file of logged data.
To close the program itself, touch the "close" button.

Note: The program "HyperTerminal" in Windows 95/98 under "Accessories" can also be used to communicate & download the data from the instrument (if you are conversant with using software).

The data structure is: site number, soil type, V1, V2, V3, V4.

IMPORTANT:

After changing batteries you must clear the memory to 0.

Do **not** log data with the RS232 comms cable attached to the Hydra Reader.