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Improved Hydra II Probe Tester and Configuration Tool
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This document describes the operation of our improved test and configuration program for Hydra II SDI-12 soil probes. This CR1000 program is released today as SDIConfigure.CR1, and is intended for use in testing and configuring Hydra II Soil Probes.

The program operates on one Hydra II program at a time. It will:

- Discover a probe's SDI-12 ID
- Modify a probe's SDI-12 ID
- Display a probe's self-calculated parameters, and its raw voltages

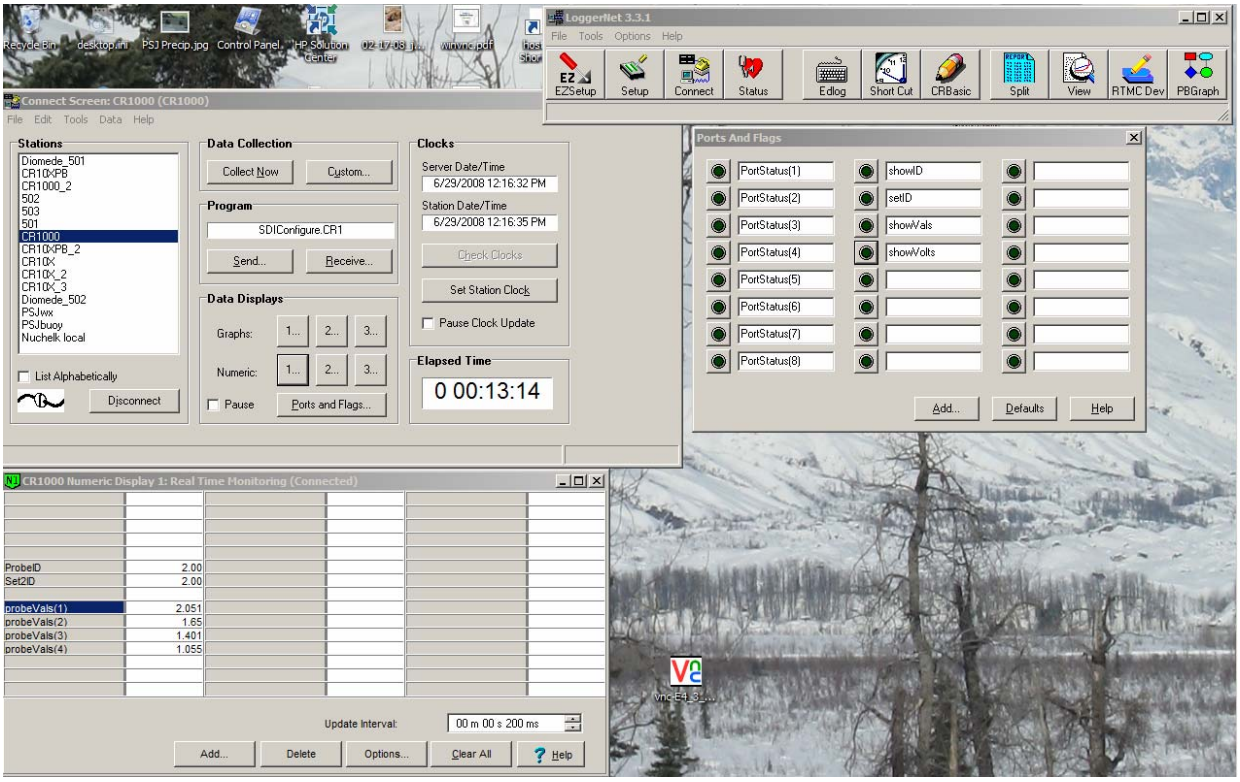
The program responds only to CR1000 flags (Boolean Variables) as follows:

- **showID** – Discover the SDI-12 ID of the probe connected to C1. The probe's ID will be displayed in the variable named **ProbeID**.
- **setID** – Modify the SDI-12 ID of the probe connected to C1. The probe's ID will be changed to the ID in the numeric variable named **Set2ID**. Upon completion, the value of **ProbeID** should be the same as **Set2ID**.
- **showVals** – Display the self-calculated parameters generated by the probe connected to C1. The values are displayed in the array named **probeVals** in the following order: DegC, DegF, Moisture, Salinity, Conductivity.
- **showVolts** – Display the four probe voltages generated by the probe connected to C1. The values are displayed in the array named **probeVals** in order (V1,V2,V3,V4,V5).

This program will discover probes with IDs in the range of 0 through 9 only, and will set IDs only in the range of 0 through 9.

LoggerNet Setup for Hydra2Configure

1. Setup the CR1000 in LoggerNet, and verify that LoggerNet can connect to the CR1000. Remember that CR1000s use PakBus addressing. If you are not sure what PakBus ID your CR100 is assigned, use CSI's Device Configurator to discover its ID.
2. Use the LoggerNet Connect panel to connect to the CR1000.
3. Send the Hydra2Config.CR1 file to the CR1000.
4. Open a Numeric Data Display by clicking Numeric 1 button in the Connect Screen.
5. In the Numeric Display, Click the Add button, then drag the **Public** variables to the display panel. The following variables should be visible in the Numeric Display Panel: **ProbeID, Set2ID, probeVals(1) through ProbeVals(5)**.
6. Open the Ports and Flags Panel by clicking the Ports and Flags button on the Connect Screen.
7. In the Ports and Flags Panel, click the Add Button, then drag the **Public** variables to the Ports and Flags Panel. The following Flag variables should now be visibile within the Ports and Flags Panel: **showID, setID, showVals, showVolts**. The Hydra2Configure functions are activated by clicking the buttons on the Ports and Flags Panel associated with these flag variables.



Hydra2Configure Functions Step-By-Step

For all functions, begin by connecting a **single** Hydra II SDI-12 probe as follows:

Wire	**CR10X Panel**
Red	12V
Blk	G
Blu	C1

Probe ID Discovery (showID)

1. Connect the probe as above.
2. Open the Numeric Display.
3. Open the Ports/Flags panel.
4. Click the **showID** flag.
5. Momentarily, input location named **ProbeID** may change to -99.
6. After a few seconds, **ProbeID** will change to the probe's SDI-12 ID, and the probe's self-calculated soil parameters will be displayed in the **probeVals** array.

Modify a Probe's SDI-12 ID (SetID)

1. Connect the probe as above.
2. Open the Numeric Display.
3. Edit the input location named **Set2ID** to the numeric ID to assign to the probe.
4. Open the Ports/Flags panel.
5. Click flag variable, **setID**.
6. After a few seconds, **ProbeID** will change to the value you placed in **Set2ID**, and the probe's self-calculated soil parameters will be displayed in the **probeVals** array.

Display a Probe's Raw Voltages (showVolts)

1. Connect the probe as above.
2. Open the Numeric Display.
3. Open the Ports/Flags panel.
4. Click flag variable, **showVolts**.

5. After a few seconds, **ProbeID** will change to the probe's SDI-12 ID, and the probe's raw voltages will be displayed in the **probeVals** array.

CR1000 Numeric Variables:

ProbeID SDI-12 Device ID discovered by the program
Set2ID Edit this location, then press F2 to set a new SDI-12 ID

probeVals The sensor output array. The content of probeVals varies as follows:
When **showVals** is clicked, the array values are loaded as:

probeVals(1) = DegC	The sensor temperature in degrees C
probeVals(2) = DegF	The sensor temperature in degrees F
probeVals(2) = Moisture	The sensor calculated soil moisture in fraction form
probeVals(3) = Salinity	The sensor calculated soil salinity
probeVals(4) = Conductivity	The sensor calculated soil conductance

When **showVolts** is clicked, the array values are loaded as:

ProbeVals(1) = V1
ProbeVals(2) = V2
ProbeVals(3) = V3
ProbeVals(4) = V4
ProbeVals(5) = V5