COFFEE LABORATORY

USER GUIDE

Book 1.
(Modes 0 to 1a).

Sinar Drypro™
Model 7080-001 Multi Channel Moisture System.

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Sinar Drypro
Model 7080 Multi Channel Moisture Measuring System.

USER GUIDE.

CONTENTS:

1.0 Introduction:

Thankyou for choosing the SINAR Drypro™.

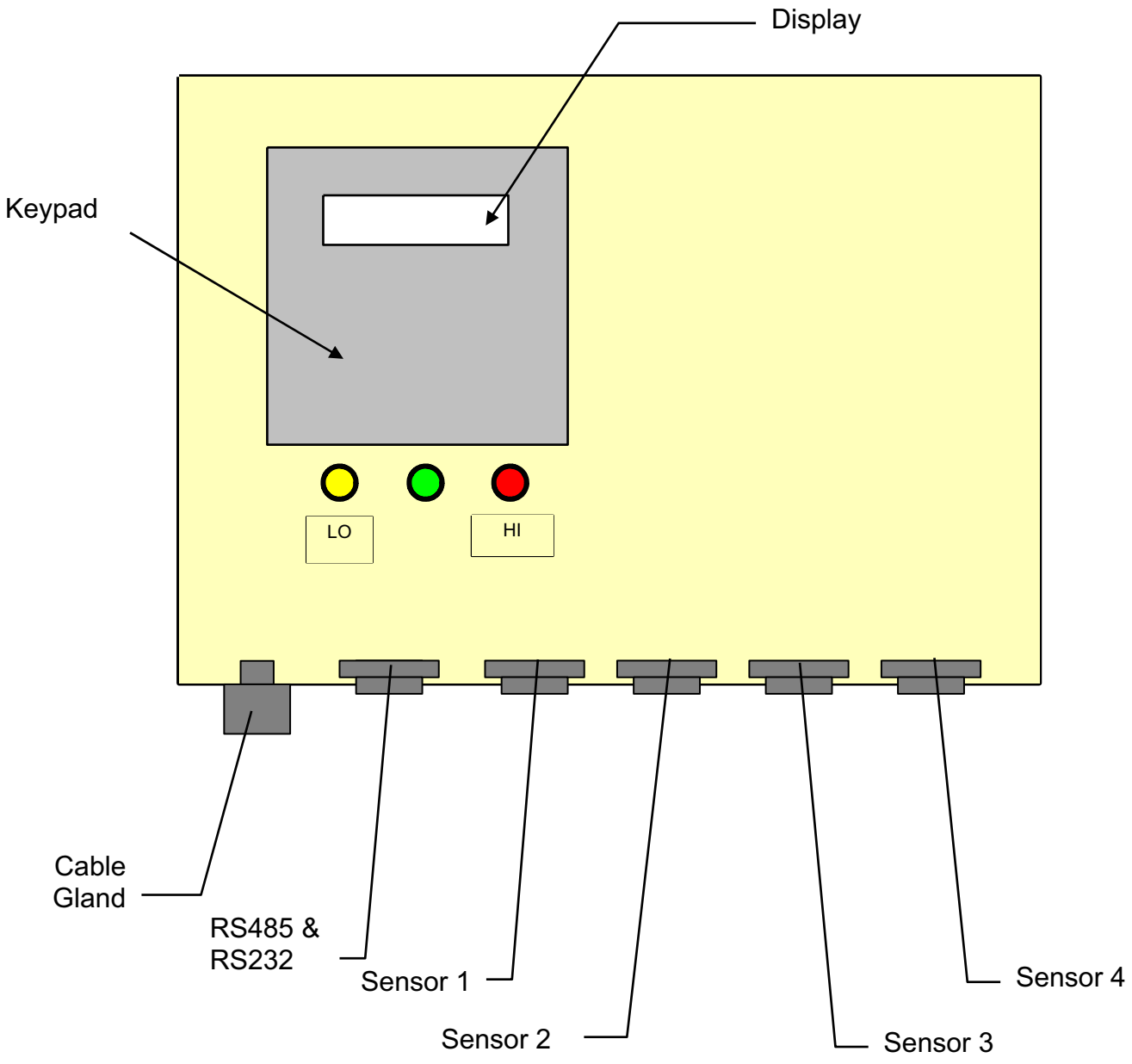
The Drypro™ is a mains powered single or multi sensor moisture measuring system.

There are only three operator modes, which make the Drypro™ quick to learn and easy to use. Once set up, the Drypro™ can give sequential moisture and temperature readings from each sensor installed.

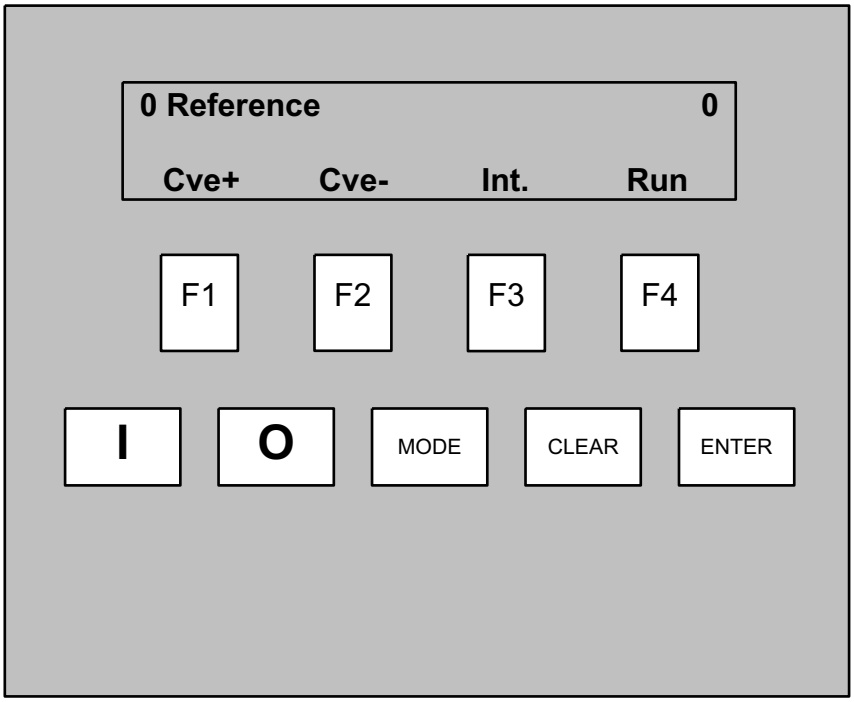
Your Drypro™ is supplied with seven crop calibrations as standard, but can store up to a maximum of twenty-five. Contact Sinar Technology, or your Sinar agent if your calibration requirements change.

The RS232 port can be used for the transmission of time, date, moisture and temperature data, to the Sinar Mlog™ data logging software. This data can be used to generate your own quality assurance files, and or quality files to be presented to your customer.

2.0 Drypro Display Unit layout.



3.0 Drypro Keypad and Display functions.



Drypro front panel layout.

Key Pad Functions.

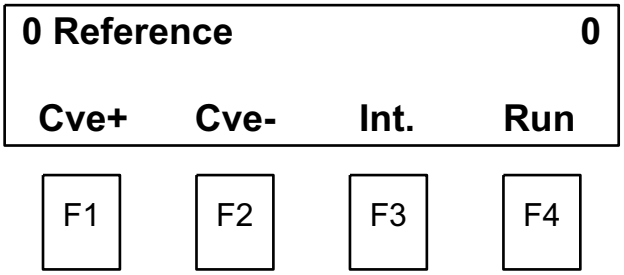
F1 — The “F” or function keys action the command shown in the display window above.

MODE — The “MODE” key is used to step through the user modes, mode 0, 1 and 1a.

CLEAR — The “CLEAR” key is used to select sensors if more than one sensor is installed.

ENTER — The “ENTER” key is used to enter all numerical data.

4.0 Mode 0, Display Description.



Mode 0 screen.

0 Reference.

Denotes that the 0 reference curve is currently selected. This curve is used when a capacitance, (code 0) reading is required for calibration purposes.

Cve+/Cve- (F1 & F2).

Used to step through the crop calibrations (curves) installed in the Drypro.

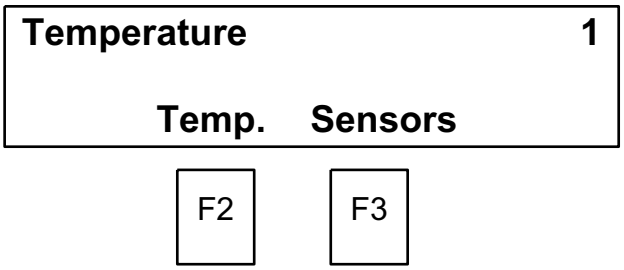
Int. (F3).

Used to configure the output time interval if you are outputting moisture data to a data logger or PC.
Continuous mode must be ‘ON’ to use this function. See RUN (**F4**).

Run. (F4).

Used to take a moisture reading.
If the **F4** key is held down, the Continuous mode can be turned ON or OFF.
(See section 12, “Running the System).

5.0 Mode 1, Display Description.



Mode 1 screen.

Temperature

Denotes: Temperature mode has been selected.

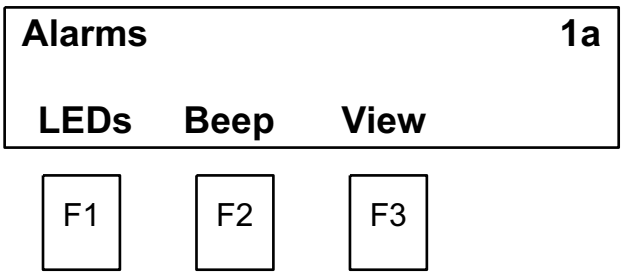
Temp. (F2).

Used to display the grain temperature at a selected sensor position.
See section 13.

Sensors. (F3).

Displays the sensors currently installed and wired to the display unit.
See section 14.

6.0 Mode 1a, Display Description.



Mode 1a screen.

Alarms.

Denotes Alarm mode has been selected.

LEDs. (F1).

Used to change the status of the front panel alarm lights.
See section 11.

Beep. (F2).

Used to change the status of the internal and external (optional) audible alarms.
See section 11.

View. (F3).

Used to show the overall alarm status of your Drypro system.
See section 11.

Using your Drypro moisture system.

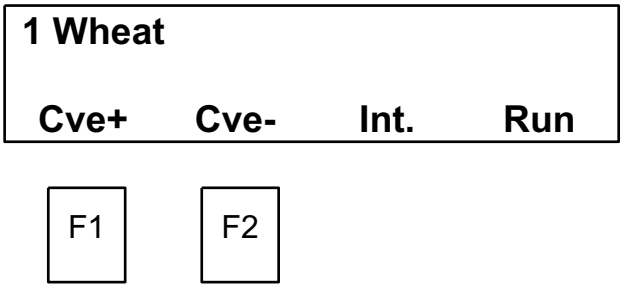
7.0 System Power Up.

Press the **"I"** key. The Drypro powers up in mode 0.
Note: The Drypro system remembers its last operation prior to power down. On power up, you may find the system in "**Continuous Run**" mode and displaying moisture readings. Press and hold the **MODE** key to interrupt the continuous reading.
See section 13.0**: "Interrupting A Continuous Reading"** for more details.

Mode 0 screen.

8.0 Selecting a Crop Calibration. (Mode 0, F1 & F2).

Using the **Cve+** (**F1**) key, step through the crop calibrations installed, until the required calibration is displayed. **Cve-** (**F2**) steps through the crop calibrations in the opposite direction. One press of the key indexes one crop calibration position.



Mode 0 screen.

The display shows the wheat calibration has been selected, and its curve number is 1.

9.0 Selecting a Sensor. (Mode 0,1 & 1a. Clear Key).

This procedure is carried out if your system has two or more sensors installed. You can

select any one sensor to provide your displayed moisture reading, or, by selecting the **ALL** command, the system will sequentially display the moisture values from all the sensors installed.

This menu can be entered from mode 0,1 or 1a.

Press the **CLEAR** key to display the **Cell number** screen.
If the displayed cell number is correct, press the **MODE** key to return to the mode 0 screen.

Cell number screen from mode 0.

If a change is required, press and *hold* the **CLEAR** key. Repeat until your required sensor number is displayed. If you require a reading from all the sensors installed, press and *hold* the **CLEAR** key until the **ALL** command is displayed.

Cell number screen from mode 0.

Press the **MODE** key to return to the mode 0 screen.

10.0 Changing the RS232 Output Time ***Int***erval, (Mode 0, F3).

Note: It is only necessary to enter this mode if you are outputting data to a chart

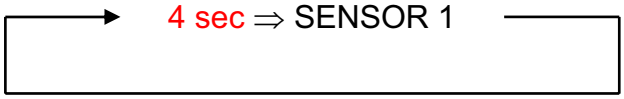
recorder or data logger.

Your Drypro takes a moisture reading every 4 seconds when **"Continuous mode"** is turned on (see Section 12)**.** If your system has 2 sensors installed and both sensors are selected for moisture measurement, there will be an initial 4 second delay, then a reading will be taken from sensor 1. 4 seconds later a reading will be taken from sensor 2. Then 4 seconds later a second reading is taken from sensor 1. The sequence then repeats.
The **Int** function does not affect the frequency of these moisture readings. "Int" is used to adjust the frequency of data being output via the RS232 or RS485 ports for data logging/recording purposes.

In mode 0, press the **Int** (**F3**) key to display the current time interval.

Mode 0, Int screen.

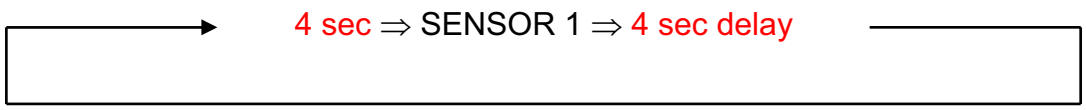
The display shows the interval is set to 1 and there is 1 sensor currently selected for moisture measurement. Therefore the data will be output every 4 seconds.



To alter the interval to 2. Press the **ENTER** key. Press **F4** to increase the interval. Press **ENTER** key again.

Continued.

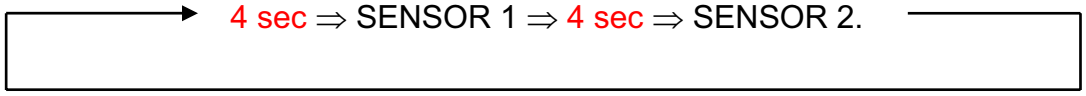
The display now shows the interval increased to 2. The time between output data has doubled to 8 seconds.



The next example is based on 2 sensors being selected for moisture measurement.

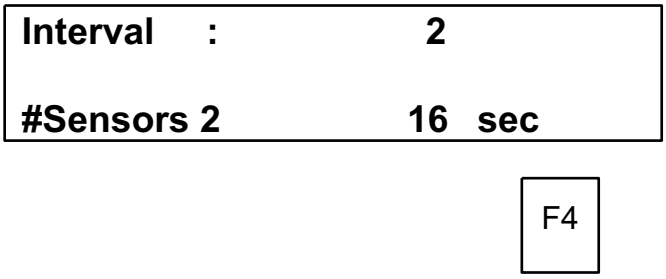
Interval	**:**	**1**
#Sensors 2		**8 sec**

With the time interval is set to 1 as shown, there will be a 4 second delay, sensor 1 will then output data, 4 seconds later sensor 2 will output data.
This gives a complete cycle time of 8 seconds, as displayed.

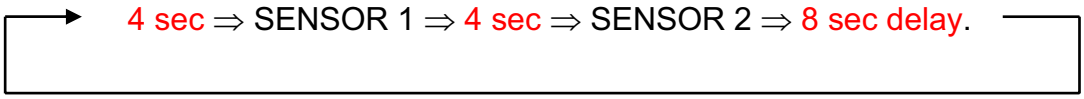


Continued.

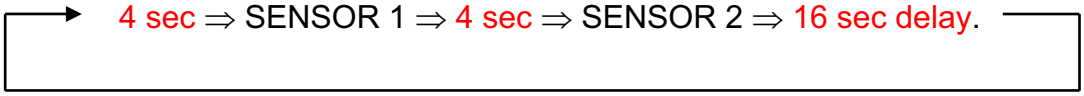
To alter the interval to 2. Press the **ENTER** key. Press the **F4** key to increase the interval. Press the **ENTER** key again.



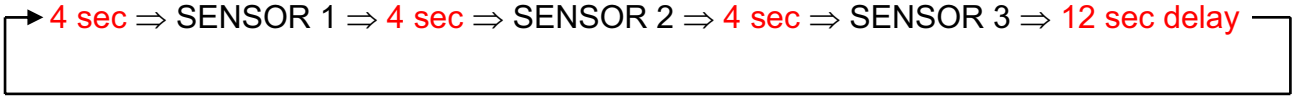
With the time interval set to 2 as shown, there will be a 4 second delay, sensor 1 will output data. 4 seconds later sensor 2 will output data. This gives an output cycle time of 8 seconds (2 x 4 sec). With the **Interval** set to 2, a further 8 second delay is added, making the total cycle time 16 seconds.



With the interval set to 3, the total cycle time would be increased to 24 seconds.



With 3 sensors selected and an interval of 2, the output pattern would look as follows :-



11.0 Changing the Alarm Configuration. (Mode 1a, F3).

Press **F3** in mode 1a, the screen below is displayed. The screen shows the alarm status for each calibration curve and each sensor installed.

Cv	Cell	Lo%	Hi%	L	B
1	1	8	14	B	H

Cv - Denotes the curve number i.e. 1 for example, could represent wheat.

Cell - Denotes the selected sensor. To select a different sensor, press and hold the **CLEAR** key repeatedly until the required sensor is displayed. Now press the **MODE** key followed by **F3**. You are now looking at the alarm data for the newly selected sensor.

Lo%- Denotes the low alarm set point. This value is stored as part of the crop calibration curve data and is not configurable through the Drypro front panel. The value is always in multiples of one percent.

Hi% - Denotes the high alarm set point. This value is also stored as part of the crop calibration curve data, and is not configurable through the Drypro front panel. The value is always in multiples of one percent.

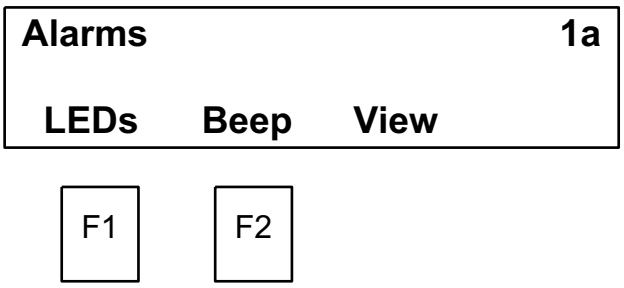
To alter either the **Lo** or **Hi** alarm set points contact your Drypro supplier.

L - Denotes the alarm LED status.

B - Denotes the internal alarm beeper status.

Continued.

To alter the LEDs and the internal Beeper configuration, press the **MODE** key to display the screen shown below.



Press **F1**.

When **F1** or **F2** is pressed, the status of the front panel LEDs, or the internal beeper is displayed. If the word **BOTH** is displayed, it denotes that the LEDs are active in both the high and low alarm conditions. By pressing and *holding* **F1** or **F2** the words **Off, Low** and **High** will be displayed in sequence.

Off - Denotes the alarms are turned off and will not be active in either the high or low alarm condition.

Low - Denotes the alarms are only active in the low alarm condition.

High - Denotes the alarms are only active in the high alarm condition.

Once the alarms are configured, press **F3** again to see all of the configuration data for the selected curve.

Continued.

To change curves, go to **MODE 0** by pressing the **MODE** key.

Use **F1** or **F2** to select the desired curve.

Go back to **MODE 1a** using the **MODE** key.

Press **F3** (View). You are now looking at the alarm configuration data for the newly selected curve.

External Alarms.

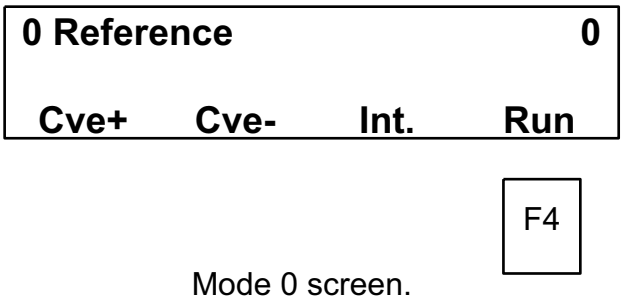
As well as the internal alarms, the Drypro also has 2 internal relay contacts which are *normally open* in a non alarm condition. In either a high or low alarm state the contacts close. The relay is wired to the terminal rail inside the Drypro display enclosure. A 12 volt 1A supply is provided across the terminals to drive an external flashing light or siren.
See inside the Drypro lid for wiring details.

NOTE:

When the internal beeper is set to "OFF", the internal relay is deactivated.

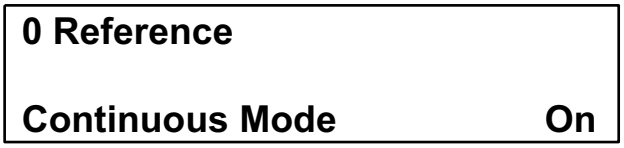
12.0 Running the System. (Mode 0, F4).

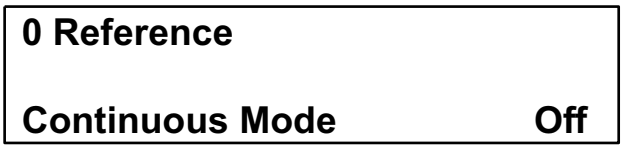
The **Run** (**F4**) command is used to take a moisture reading.



Mode 0 screen.

Press and *hold* the **F4** key, the display will change to show one of the following screens. Press and *hold* the **F4** key again, to switch between **Continuous Mode On** and **Off**.





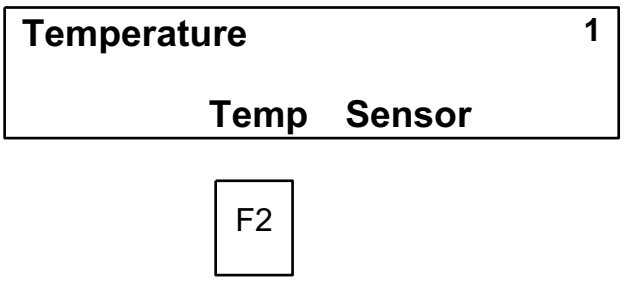
If **Continuous Mode, Off** is selected.
When the **Run** (**F4**) key is pressed, one moisture reading from the selected sensor will be taken.
If the cell selection is set to **All** and **F4** is pressed, (See section 9), a single reading will be taken from the next sensor in the sequence.

If **Continuous Mode, On** is selected.
When the **Run** (**F4**) key is pressed, continuous moisture readings will be taken.
Readings will be taken from the sensor or sensors selected. See section 9.

Press the **MODE** key to return to the **MODE 0** screen.

13.0 Taking a Temperature Measurement (Mode 1, F2).

Each Drypro sensor installed has its own temperature sensor. In mode 1 **F2** the temperature can be viewed.



Mode 1 screen.

Press the **F2** key to display the Temperature. Each time the **F2** key is pressed the temperature reading is updated.

Cell temperature screen.

If the temperature of a different sensor is required, press the **CLEAR** key and follow the procedure discussed in section 9 “Selecting a Sensor”.
Note: The **All** command cannot be used for displaying temperature.
When a new sensor has been selected, press the **F2** key to display the new sensor temperature.
Repeat this procedure for each sensor to be read.

Press the **MODE** key to return to the mode 0 screen.

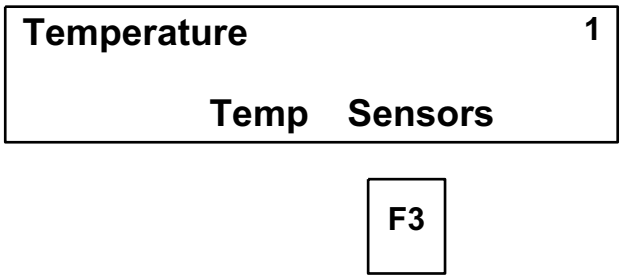
14.0 Viewing Cells installed (Mode 1, F3).

This command has two purposes:

1) To see how many sensors are connected to the display unit.

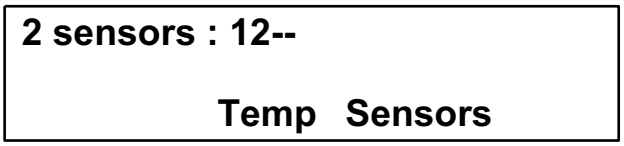
2) To check the cable link between the sensors and the display box.

Press the **F3** key.



Mode 1 screen.

The display changes to show the screen below .



1 and 2 denote that there are sensors connected to the sensor port 1 and 2 on the display box. The dashes denote nothing connected to ports 3 and 4.
If a dash appears where a sensor is installed, check the interconnecting wires between the display box and sensor. There is a fault.

Press the **MODE** key to return to the mode 1 screen.

15.0 Interrupting a Continuous Measurement.

If you wish to stop the Drypro from taking readings when in **Continuous Run** mode, press and *hold* the **MODE** key. The system may not stop immediately due to being part way through its cycle. Hold the **MODE** key until the system stops and returns to the

mode 0 screen.

Mode 0 screen.