USER GUIDE
Book 1.
(Modes 0 to 1b).

Sinar Technology BeanPro Moisture Analyser.
Model 6070-BeanPro.

Model 6070-BeanPro Moisture Ananlyser.

CONTENTS: Page

1.0 Introduction:

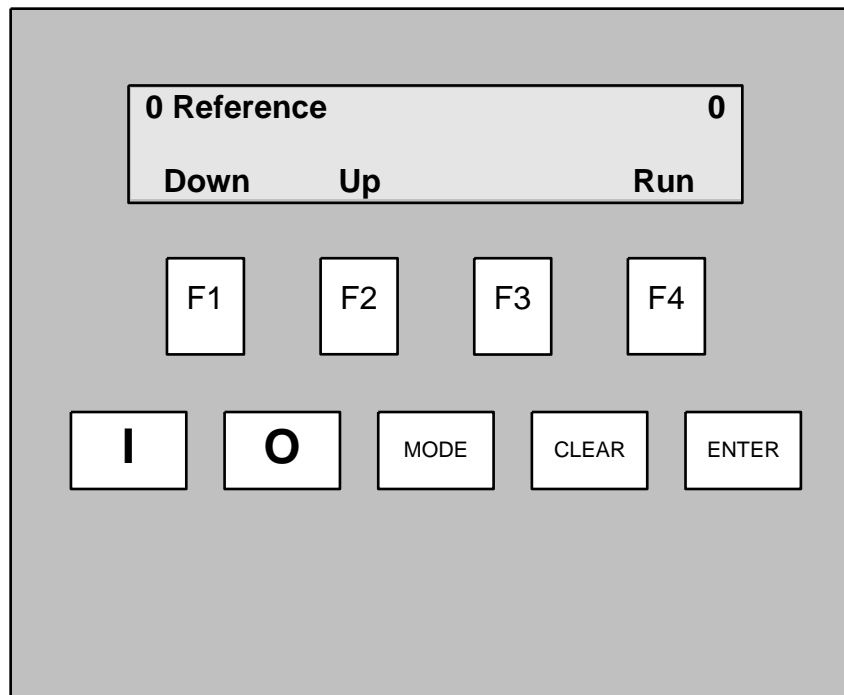Thank you for choosing the SINAR TECHNOLOGY BeanPro.

The Sinar™ 6070 BeanPro Moisture Analyser houses the latest moisture measuring technology in a compact, portable package. It has been designed to provide fast moisture results using whole crop samples. In addition to % moisture content, the BeanPro simultaneously measures and displays the free flow bulk density in grams per litre and sample temperature.

The BeanPro is a battery powered moisture analyser with only one operator mode making the instrument extremely quick and easy to use.

The BeanPro can store up to twenty-five different crop calibrations. Contact Sinar Technology or your Sinar agent if your calibration requirements change.

The RS232 port on the side of the instrument can transmit time, date, moisture and temperature data to a serial printer, data logger or PC. This data can be used to generate your own quality assurance files.
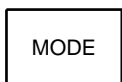
2.0   6070 BeanPro Display Layout.

```
┌─────────────────────────────────────────────┐
│   ┌───────────────────────────────────────┐  │
│   │ 0 Reference                         0 │  │
│   │                                       │  │
│   │    Down       Up            Run       │  │
│   └───────────────────────────────────────┘  │
│                                               │
│      ┌────┐   ┌────┐   ┌────┐   ┌────┐        │
│      │ F1 │   │ F2 │   │ F3 │   │ F4 │        │
│      └────┘   └────┘   └────┘   └────┘        │
│                                               │
│   ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐│
│   │  I   │ │  O   │ │ MODE │ │ CLEAR│ │ ENTER││
│   └──────┘ └──────┘ └──────┘ └──────┘ └──────┘│
│                                               │
└─────────────────────────────────────────────┘
```

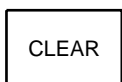BeanPro front panel layout.

Keypad Functions.

F1 — The "F" or function keys action the command shown in the display window above each function key.

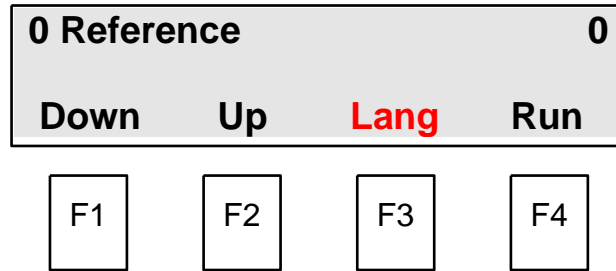MODE — The "MODE" key is used to step through the user modes, mode 0, 1 and 1b.

CLEAR — The "CLEAR" key is used to clear wrongly entered numerical data allowing you to start again.

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

3.0 Mode 0, Display Description.

```
┌─────────────────────────────────────┐
│ 0 Reference                    0     │
│                                      │
│  Down      Up      Lang     Run      │
└─────────────────────────────────────┘
    ┌────┐   ┌────┐   ┌────┐   ┌────┐
    │ F1 │   │ F2 │   │ F3 │   │ F4 │
    └────┘   └────┘   └────┘   └────┘
```

Mode 0 screen.

0 Reference.

Denotes that the 0 Reference curve is currently selected. This curve is used when a Code 0 reading is required for calibration purposes.

0

Shows the number of the selected mode. Press the MODE key to step through the modes.

Down/Up (F1 & F2).

Used to step through the crop calibrations (curves) installed in the BeanPro.
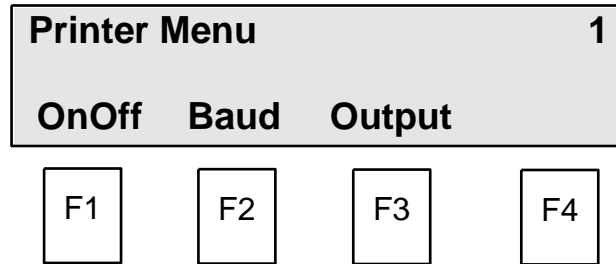
Lang (optional)

If your unit is programmed with more than one language, "Lang" will be visible above the F3 key. To change languages, press and hold the F3 key.

Run. (F4).

Used to take a moisture reading.

4.0   Mode 1, Display Description.

```
┌─────────────────────────────────────────┐
│ Printer Menu                          1  │
│                                          │
│ OnOff    Baud    Output                  │
└─────────────────────────────────────────┘
   ┌─────┐  ┌─────┐  ┌─────┐    ┌─────┐
   │ F1  │  │ F2  │  │ F3  │    │ F4  │
   └─────┘  └─────┘  └─────┘    └─────┘
```

Mode 1 screen.

Printer Menu

Denotes: Printer Menu has been selected.

1

Shows the number of the selected mode. Press the MODE key to step through the modes.

OnOff (F1).
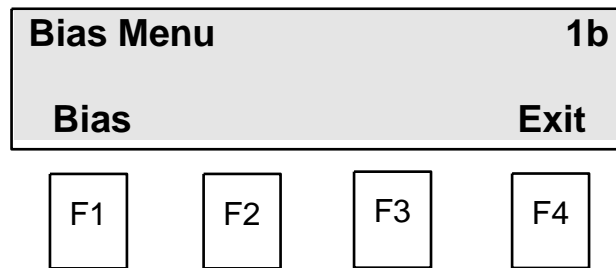
Used to switch the printer option on or off.

Baud (F2).

Selects the communication speed (300 or 4800) between the instrument and serial printer. The factory default setting is 300 baud.

Output (F3).

With the printer switched on, this feature allows a unique batch number to be printed each time a measurement is taken. Once set, the number increments by 1 for each subsequent test.

5.0   Mode 1b, Display Description.

```
┌─────────────────────────────────────┐
│  Bias Menu                      1b   │
│                                      │
│    Bias                      Exit    │
└─────────────────────────────────────┘
    ┌────┐   ┌────┐   ┌────┐   ┌────┐
    │ F1 │   │ F2 │   │ F3 │   │ F4 │
    └────┘   └────┘   └────┘   └────┘
```

Mode 1b screen.

Bias Menu.

Denotes Bias mode has been selected.

1b

Shows the number of the selected Mode. Press the MODE key to step through the modes.

Bias (F1).

Used to alter the displayed moisture reading for a specific crop calibration.

Exit. (F4).

Used to exist and save the entered data.

Using your Bean-Pro Moisture Analyser.

6.0   System Power Up.

Your first power up.
Press the **"I"** key. The BeanPro powers up in mode 0 showing "**0 Reference"** in the display. Use the "**Up**" (**F2**) key to step through the crop calibrations.

Ongoing power up's
The Bean-Pro remembers the last selected crop calibration. On power up, the Bean-Pro returns to the previously selected calibration.
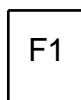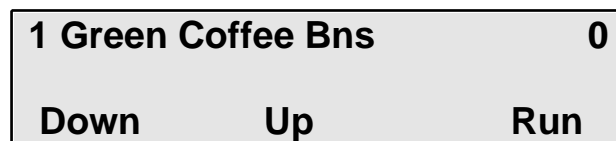Always check the correct crop is selected before carrying out a test.

```
┌─────────────────────────────────┐
│ 0 Reference                  0   │
│                                  │
│ Down      Up            Run      │
└─────────────────────────────────┘
```

Mode 0 screen.

Warning – Do not rotate the measuring cell while putting on or removing from the instrument.

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

Using the **Down** (**F1**) or **Up** (**F2**) key, step through the crop calibrations until the required calibration is displayed. One key press indexes one crop position.

```
┌─────────────────────────────────┐
│ 1 Green Coffee Bns           0   │
│                                  │
│ Down           Up       Run      │
└─────────────────────────────────┘
```

```
┌──────┐    ┌──────┐
│ F1   │    │ F2   │
└──────┘    └──────┘
```

Mode 0 screen.

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

8.0   Loading the sample.

The BeanPro is supplied with –

- 1off Loading Hopper
- 1off Beaker
- 1off Strike off blade

We strongly recommend the use of all of the above items to achieve the maximum accuracy from your machine.

Method:
Over fill the beaker with sample.

Strike off flush using the stainless-steel wiper provided.

Place the *closed* loading hopper on the 3 support posts around the measuring bowl. Pour the sample from the beaker into the loading hopper.
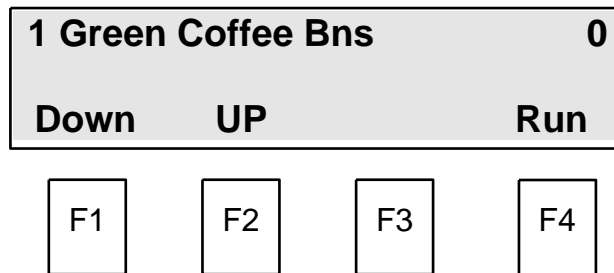

Steady the hopper with one hand and give an upwards tap to the slider with the other. The slider will snap open dropping the sample into the measuring bowl.
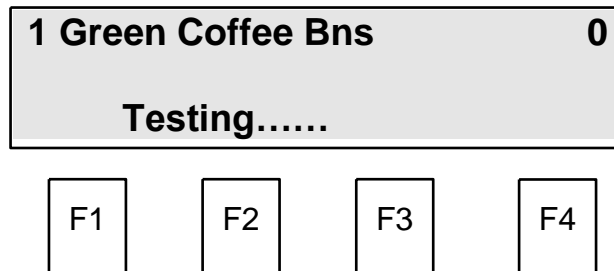
Remove the hopper from the machine.

9.0   Taking a measurement. (Mode 0, F4).

With the sample loaded press and release the **Run** (**F4**) key.

1 Green Coffee Bns			0
Down	**UP**		**Run**

F1	F2	F3	F4

Mode 0 screen.

The display will change showing the selected crop on the top line and **Testing….** on the bottom.

1 Green Coffee Bns	0
Testing……	

F1	F2	F3	F4

After approx 3 seconds the results are displayed.

1	**H20**	**g/l**	**degC**	0
	10.2	**760**	**21.4**	**Run**

F1	F2	F3	F4
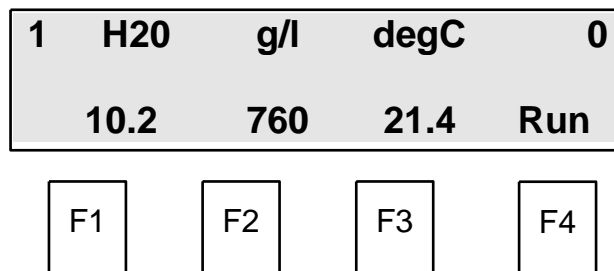
To continue testing with the same crop remove the measuring cell, empty and replace.
Refill the measuring bowl with sample, see Section 8.
Press and release the **Run** (**F4**) key.

10.0 Mode 1. Printer Menu.

This mode is used to set up a printer.

```
┌─────────────────────────────────┐
│ Printer Menu                  1 │
│                                 │
│  OnOff   Baud    Batch    Log   │
└─────────────────────────────────┘
   ┌────┐  ┌────┐  ┌────┐  ┌────┐
   │ F1 │  │ F2 │  │ F3 │  │ F4 │
   └────┘  └────┘  └────┘  └────┘
```

By pressing **OnOff (F1)** the display changes to:

```
┌─────────────────────────────────┐
│ Printer Switched            On  │
│                                 │
│   On     Off            Exit    │
└─────────────────────────────────┘
   ┌────┐  ┌────┐  ┌────┐  ┌────┐
   │ F1 │  │ F2 │  │ F3 │  │ F4 │
   └────┘  └────┘  └────┘  └────┘
```
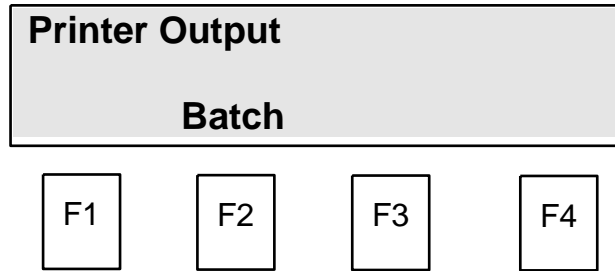
By selecting either **On (F1)** or **Off (F2)** the printer output can be turned on or off.
Once selected press **Exit (F4)** to save and exit the screen.

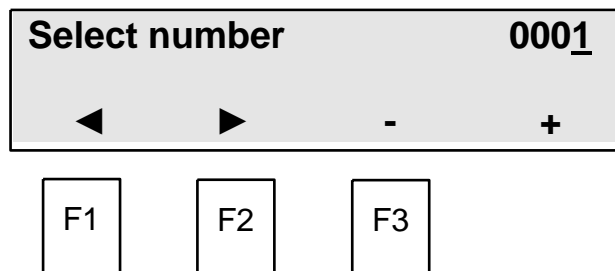By pressing **Baud (F2)** from the printer menu the display changes to:

```
┌─────────────────────────────────┐
│ Baud Rate =                 300 │
│                                 │
│   300     4800          Exit    │
└─────────────────────────────────┘
   ┌────┐  ┌────┐  ┌────┐  ┌────┐
   │ F1 │  │ F2 │  │ F3 │  │ F4 │
   └────┘  └────┘  └────┘  └────┘
```

By selecting either **300 (F1)** or **4800 (F2)** the printer output speed can be selected.
Once selected press **Exit (F4)** to save and exit the screen.

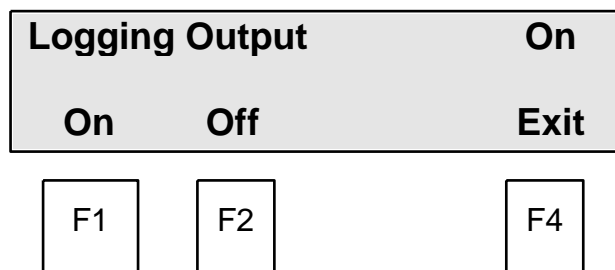By pressing **Batch (F3)** from the printer menu the display changes to:

```
┌─────────────────────────────────────┐
│ Printer Output                      │
│                                     │
│              Batch                  │
└─────────────────────────────────────┘
```

| F1 | F2 | F3 | F4 |

By pressing **Batch (F2)** from the Printer Output menu the display changes to:

```
┌─────────────────────────────────────┐
│ Select number              0001     │
│                                     │
│    ◄         ►          -        +  │
└─────────────────────────────────────┘
```

| F1 | F2 | F3 |

F1 and **F2** move the flashing curser to the left or right. **– (F3)** and **+(F4)** index the number above the flashing curser up or down.
When the correct number is displayed press the **ENTER** key to save and exit the screen.

By pressing **Log (F4)** from the printer menu the display changes to

```
┌─────────────────────────────────────┐
│ Logging Output              On      │
│                                     │
│   On        Off            Exit     │
└─────────────────────────────────────┘
```
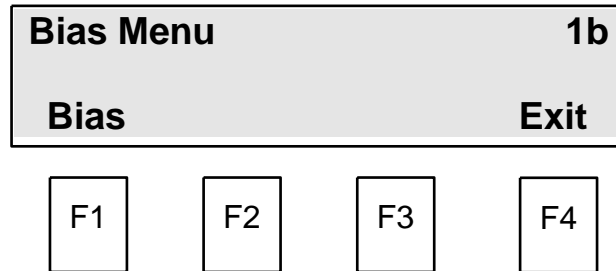
| F1 | F2 | F4 |

By turning the Log output On, measurement data is output to the connector on the side of the instrument.

Use the **F1** and **F2** keys to turn the mode on or off. To exit the mode, press the F4 key.
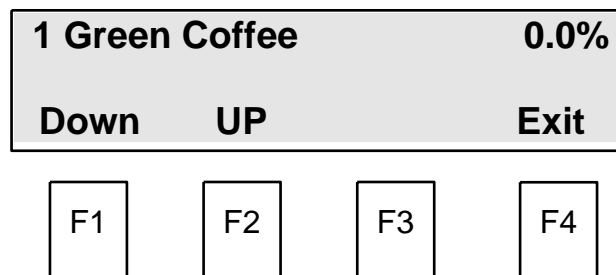
11.0 Mode 1b, Bias menu.

The bias function is used if the moisture reading needs to be adjusted in line with the reference method or another piece of equipment. The bias should only be used if the readings are too high or too low by a constant amount over a varying moisture range.
The bias menu enables you to independently enter a bias or offset to each selected crop calibration.

```
┌─────────────────────────────────┐
│ Bias Menu                    1b │
│                                 │
│   Bias                     Exit │
└─────────────────────────────────┘

   ┌────┐   ┌────┐   ┌────┐   ┌────┐
   │ F1 │   │ F2 │   │ F3 │   │ F4 │
   └────┘   └────┘   └────┘   └────┘
```

By pressing **Bias (F1)** the display changes to:-

```
┌─────────────────────────────────┐
│ 1 Green Coffee             0.0% │
│                                 │
│ Down      UP               Exit │
└─────────────────────────────────┘

   ┌────┐   ┌────┐   ┌────┐   ┌────┐
   │ F1 │   │ F2 │   │ F3 │   │ F4 │
   └────┘   └────┘   └────┘   └────┘
```

The display shows that calibration number 1, Green Coffee has been selected for adjustment. This calibration selection is made in Mode 0. See Section 7, Selecting a calibration.
All bias values will be factory set to zero on shipment.

By pressing the **F1** or **F2** keys the required +ve or –ve bias value can be displayed. A positive value will increase the displayed moisture value, a negative value to reduce it. Each press of the key increases or decreases the value by 0.1%.

When the correct bias value is displayed, press the **Exit (F4)** key to save and return to Mode 1b.

Your bias value for the selected crop has now been stored.

12.0 Protected Modes.

When in Mode 1b, by pressing the MODE key again the display changes to.

> **Password Required for**
> **Higher Modes**

Followed by:

> **Enter Password   000**
>
> **◀   ▶   -   +**

The modes beyond this point are protected by a password.
Please speak with your supervisor to gain access.

If the wrong password is entered the display changes to:

> **Sorry, wrong !**

and then returns to the Mode 0 screen.

> **0 Reference   0**
>
> **Down   Up   Run**

| F1 | F2 | F3 | F4 |

APPENDIX 1

REPLACEMENT OF BATTERIES

Battery Low indicator

Should the batteries begin to fail, a warning signal will appear when the instrument is switched on.

<div align="center">

* * * W A R N I N G ! * * *
B a t t e r y   L o w ! ! !

</div>

To replace the batteries:

- remove the sample cell from the instrument.
- unscrew the battery cover from the underside of the instrument.
- remove the old batteries and replace with four standard 1.5V alkaline batteries (Size C, MN 1400 or equivalent).

BE SURE TO INSERT BATTERIES THE CORRECT WAY AROUND - AS MARKED IN BATTERY BOX - replace the battery cover and screw into position.

Important! Always use alkaline batteries. If you are not going to use the moisture analyzer for some time, remove the batteries from the instrument.

If the optional (factory fitted) 1900-6358 6v Power Kit is fitted the correct DC voltage to operate the FP is provided from a 115v to 240v Power supply.

APPENDIX 2

Technical Specification

Dimensions:	325mm x 164mm x 120mm
Weight:	2.1kg
Construction:	HD Polyurethane Foam Injection Moulding
Operating Environment:	5°C to 40° C ; 41° to 104° F
Storage Temperature:	-20° C to +55° C ; -4° F to 131° F
Humidity:	Up to 95% non condensing
Display:	Alphanumeric 2 x 20 characters
Power Supply:	Four C size 1.5V alkaline batteries or Optional 12v Power Kit.
Processor:	Intel 80C31 Microprocessor
Memory:	32K. EPROM and 32K. RAM
Password:	Factory default - 226
Measurement Range:	1-40% moisture, wet basis (depending on application)
Printer Output:	RS232C, 300 or 4800 Baud
Accuracy:	Manufactured in accordance with ISO 7700/1, OIML International tolerances for Class 1 meters
Weight balance:	Measures and corrects for weights between 115-240 grams
Temperature Correction:	Thermistor sensor. The correction is software programmable
Cell volume:	290 ml.

APPENDIX 3

ERROR CODE SUMMARY

Error Code	Explanation	Recommended Action
Err.0	Sample weight too low	Use large sample (greater than 115g)
Err.1	Sample cell not correctly mounted	Remount the sample cell firmly on to the interface
Err.2	Capacitance reading is too high (over 100)	Check hardware. If necessary, scale down capacitance by changing byte 28
Err.3	Capacitance reading is too high at low moisture	Check hardware. If necessary, scale down capacitance by changing byte 28
Err.4	High moisture reading at low capacitance reading	Check hardware. If necessary, this can be rectified by shifting the calibration
Err.5	Capacitance reading is too low for the calibration curve (i.e. %MC would be negative)	Check hardware. Check calibration curve
Err.6	Communication error in RS232	Check cable and start again
batt	Battery low indicator	Replace the batteries