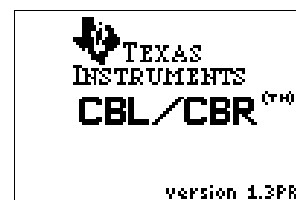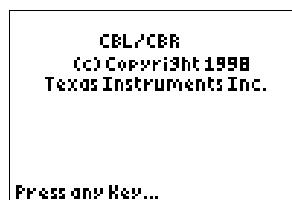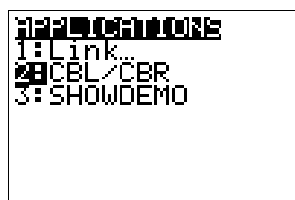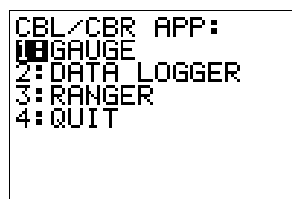# Appendix C

## CBL/CBR APPS

### Introduction

This book has several activities that require the use of the CBL™/CBR™ application built in to the TI-73. This section contains a brief explanation of each part. All applications, except the CBR, use the light, voltage, temperature, motion probes, and the CBR. The CBR APP is only for the CBR. Only one probe may be used at a time. To get to these options, press APPS and select **2:CBL/CBR** from the **APPLICATIONS** menu.

```
APPLICATIONS
1:Link…
2:CBL/CBR
3:SHOWDEMO
```

```
CBL/CBR
(c)Copyright 1998
Texas Instruments Inc.



Press any Key…
```

```
TEXAS
INSTRUMENTS
CBL/CBR (TM)


version 1.3PR
```

### Using the GAUGE APP

This option operates like the Multimeter option on the CBL. With gauge you may collect "point" data and then store it in a list, while associating each data point with a name in a categorical list. All four probes may be used with this application.

**1.** Select **1:GAUGE** from the **CBL/CBR APP:** menu.

```
CBL/CBR APP:
1:GAUGE
2:DATA LOGGER
3:RANGER
4:QUIT
```
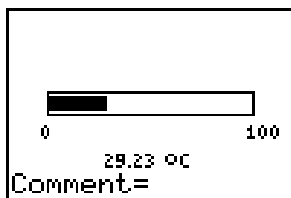
2. Complete the setup screen.

   a. Identify the **PROBE**, the **TYPE** of display (Bar or Meter), and set the range of values for the y-axis (the values collected by the probe, not the time which is the x-axis variable).

   b. Select the preferred **UNITS** (some probes only have one option here).

   c. If you want **DIRECTION**, make the appropriate selection.
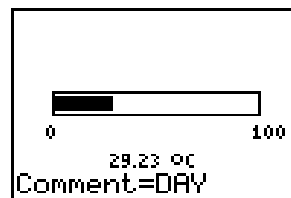
   d. Highlight the **GO** line and press ENTER.



3. If you select **Sonic** and ask for directions, you will be prompted to tell if you are using the **CBR** or the **CBL**. As the **GAUGE** is working the values detected will appear on the Bar or Meter. When the reading has stabilized, or when it is at the value you want, press ENTER on the TI-73. At this time you will be prompted for a **Comment**. Select the Text Editor (2nd [TEXT]) or just key in a number and press ENTER. When finished collecting data, press CLEAR to return to the setup menu and then 2nd [QUIT] to get to the **CBL/CBR APP** menu. Select **4:QUIT** when you are finished. If you run the **GAUGE** option again, with the same probe, the lists of data from the previous experiment will be erased.





Each probe sets up a pair of lists as shown below.

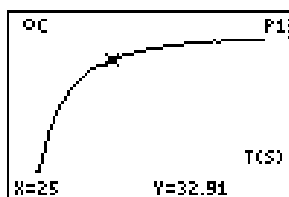| Probe | List for Comment | List for Data |
|---|---|---|
| Temperature | ∟TCMNT | ∟TEMP |
| Light | ∟LCMNT | ∟LIGHT |
| Voltage | ∟VCMNT | ∟VOLT |
| Motion | ∟DCMNT | ∟DIST |

## *Using the DATA LOGGER APP*

**1.** Select **2:DATA LOGGER** from the **CBL/CBR APP**: menu.

```
CBL/CBR APP:
1:GAUGE
2:DATA LOGGER
3:CBR
4:QUIT
```

**2.** Complete the setup screen:

   **a.** Identify the **PROBE**, the **#SAMPLES** desired, and set **INTRVAL (SEC)** as the number of seconds between data points. Note that the product of the number of samples and the interval will be the length of the experiment in seconds.

   **b.** Select the preferred **UNITS** (some probes only have one option here).

   **c.** Pick the **PLOT** type with **RealTime** indicating that you will see the graph of the data as it is collected (note some limitations on the time interval here).

   **d.** If you want **DIRECTION**, make the appropriate selection.

   **e.** Highlight the **GO** line and press ENTER.

```
PROBE:Temp Light
 Volt Sonic
#SAMPLES:77
INTRVL(SEC):7
UNITS:°C °F
PLOT:RealTime End
DIRECTNS: On Off
GO...
```

**3.** If you select **Sonic** and ask for directions, you will be prompted to tell if you are using the **CBR** or the **CBL**. As the experiment progresses, your CBL will display values as they are collected. Your calculator will either be blank, or it will be plotting points on a graph. If you are using the CBR as a standalone, you will not see any values, except maybe on the TI-73 (depending on the type of plot selected). You may trace on this graph to explore the data when the collection time is finished.

```
°C                    P1:


                        T(S)
X=25          Y=32.91
```

**4.** Press ENTER to return to the setup screen and 2nd [QUIT] to return to the **CBL/CBR APP** menu. Select **4:QUIT** to leave the application. If you wish to repeat the experiment, losing the data from the previous run, press ENTER on the **GO** option from the setup screen after making any adjustments to

the settings, or the experiment. The data will be stored in lists as noted in the previous section, with the additional list for time in seconds (ₗ**TIME**).

```
PROBE:TEMP Light
 Volt Sonic
#SAMPLES:77
INTRVL(SEC):7
UNITS: °C °F
PLOT:RealTme Ent
DIRECTNS: On Off
GO...
```

```
CBL/CBR APP:
1:GAUGE
2:DATA LOGGER
3:CBR
4:QUIT
```

## Using the CBR APP

This application is the same as the program **CBR** that can be loaded from the CBR™. If you select to run it from the **CBL/CBR APP** menu, it will create the program in your program listings that then can be deleted or run from that location at a later time.

1. Select **3:RANGER** from **CBL/CBR APP** and follow the prompts (press ⌈ENTER⌉) to get to the **MAIN MENU** menu of the **CBR** program.

```
CBL/CBR APP:
1:GAUGE
2:DATA LOGGER
3:RANGER
4:QUIT
```

```
TEXAS INSTRUMENTS

RANGER (V1.00)


PRESS [ENTER]
```

```
MAIN MENU
1:SETUP/SAMPLE
2:SET DEFAULTS
3:APPLICATIONS
4:PLOT MENU
5:TOOLS
6:QUIT
```

2. From this point each option on the menu will lead you to different actions as explained in the *Getting Started with CBR*™ manual that came with your CBR. This option creates data in the more traditional lists (**L**1, **L**2, **L**3, and **L**4).