



# **Draft Sentinel Installation/Service and User Manual**

September 1999

**BERG COMPANY, LLC**

#### FCC Information:

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and, (2) this device must accept any interference received including interference that may cause undesired operation.

Note: The user is cautioned that any changes or modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate the equipment.

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Berg Part Number: 8002955

Printed in U.S.A.

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## General Safety Precautions

Review the following precautions to avoid injury and to prevent damage to the product.

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### Precautions

- To reduce the risk of electric shock, use only in a dry indoor location.
- To prevent the risk of electric shock connect the unit to a properly grounded power source using an IEC approved 3-pronged power cord. After installation of this equipment, access to the power cord and the mains power source receptacle must not be blocked or restricted.
- To avoid damage to the unit, be sure that the alternating current (AC) power supply in your area is appropriate for this equipment. Power requirements are detailed in the *Draft Sentinel Specifications* section of this manual.
- For technical information about this product contact your local Berg dealer or call the Berg Company at (608) 221-4281 between the hours of 8:00 A.M. and 4:30 P.M. C.S.T.

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# Safety Terms and Symbols

Review the following terms and symbols to avoid injury and to prevent damage to the product.

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## Terms in This Manual

These terms may appear in this manual:



**Warning.** Warning statements identify conditions or practices that could result in injury or loss of life.



**Caution.** Caution statements identify conditions or practices that could result in damage to this product or other property.

## Terms on the Product

These terms may appear on the product:

**Caution** indicates a hazard to property including this product.

## Symbols on the Product

The following symbols may appear on the product:



**Attention.** Consult accompanying documents.



SECTION

1

# Getting Started

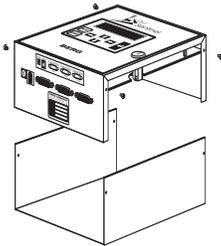
The general guidelines provided in this section can help you take the necessary steps to make each **Draft Sentinel** installation run as smoothly as possible.

<b>Draft Sentinel</b> System Components .....	1-2
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# Draft Sentinel System Components

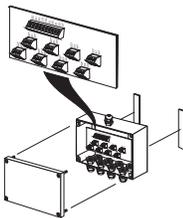
The **Draft Sentinel** dispensing system is designed to monitor up to 24 flow meters installed in the beverage lines of any bulk liquid (draft beer, wine, juice, soda). A **Draft Sentinel** system is composed of the following components.

## ECU (Electronic Control Unit)



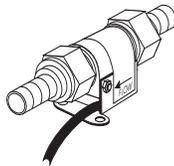
A compact, lightweight console with a backlit LCD readout and keypad that contains the “brains” of the system. One ECU can control 24 flow meters. The ECU records the volume measured by the flow meters and displays the totals in system reports. Security is maintained at the ECU through a key switch. The ECU may be connected to a computer with the use of **Beverage Manager** software.

## Flow meter J-Box



A junction box that can connect up to eight flow meters to the ECU through one cable. Using junction boxes saves installation time and reduces the number of cables required. Each ECU can be connected to 3 flow meter J-boxes.

## Flow meter



The flow meter is installed in the beverage line to monitor the volume of drinks poured. It operates with a turbine magnet with pulses based on volume. The ECU reads the flow meter to record the total volume dispensed through the line. The flow meter is usually installed in a section of the line inside the cooler.

## Beverage Manager Software



Provides convenient, protected access to setup and report data. Allows printing of system reports.

# Installation Game Plan and Checklist

Berg offers the following checklist to expedite your installation of a **Draft Sentinel** system. To help you locate information quickly, related tasks are grouped throughout the manual.

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## Getting Started Section 1

- 1. Gather customer setup information and make preliminary ordering plans.
- 2. Submit order to Berg, assemble required tools and materials and set installation date.
- 3. Perform any pre-installation setup of the **Draft Sentinel** ECU.

## Hardware Installation Section 2

- 4. Install the ECU.
- 5. Install flow meters.
- 6. Install and connect flow meter junction boxes.
- 7. Test each flow meter connection using **Flow Test**.
- 8. Set the ECU's time and date
- 9. Connect the ECU to a computer (if using software).

## Beverage Manager Software Section 3 (if using software)

- 10. Install the software.
- 11. Enter flow meter setup information.
- 12. Calibrate flow meters.

## Flow Meter Setup Section 4 (if not using software)

- (9). Enter brand names for each flow meter.
- (10). Calibrate flow meters.

## Country Setup Section 6 (if necessary)

- Change default country setup values.

# Gather Customer Setup Information

Sketch out a rough map of the proposed system's layout and size to clarify with the customer.

---

<b>Mounting Surfaces</b>	Determine the suitability of all equipment mounting surfaces. Check for available space, proximity to bartender and protection from moisture. Modify surfaces as necessary.
<b>Cable and Tubing Paths</b>	Determine the lengths and paths of cable and tubing. All cables must be a safe distance (12 in) from any high-current devices (transformers and dishwashers), any heat sources (water pipes, light bulbs) and any sharp objects. Note any impediment to cable and tubing paths and either relocate the impediment or modify the path.
<b>Draft Sentinel ECUs</b>	Order one ECU for every 24 flow meters. The ECU must be located within 500 ft (152.4 m) of any flow meters and within 5 1/2 ft (1.7 m) of a reliable AC outlet. The operating temperature range for the ECU is from 5° C to 40° C (41° F to 104° F).
<b>Power Supply</b>	If your AC power source is not 110-120VAC, 60 Hz, obtain one power supply per ECU. See the <i>Draft Sentinel Specifications</i> section for the specific requirements of the power supply.
<b>Flow Meters</b>	Order one flow meter for every beverage line. The flow meters must be located within 500 ft (152.4 m) of the ECU.
<b>Flow Meter J-Boxes</b>	Order one flow meter J-box for every 8 flow meters. If the flow meters are installed in beverage lines inside a cooler, the flow meter J-box is usually mounted on a wall inside the cooler.
<b>Computer (optional)</b>	If the system includes <b>Beverage Manager</b> software, plan the connection route between the ECU and the computer.
<b>Draft Sentinel Worksheet</b>	Make a copy of the <i>Draft Sentinel Worksheet</i> . Record the brand names for each line in the system. You don't need to match a flow meter number to each brand at this point. If you'll be using <b>Beverage Manager</b> software you can also record a price per unit for each brand. The price per unit is used to determine the retail value of the volume poured on detailed X and Z reports. You'll fill in the flow meter number, calibration amount poured and final meter count when you finish the system installation.



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# Tools and Materials Required

Berg offers the following list to help in your preparation for a **Draft Sentinel** installation.

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## Tools Required

- Small slotted screwdriver
- Large pair of pliers
- Small Phillips (#2 pt.) screwdriver
- Small needlenosed pliers
- Utility knife
- Fish tape
- Diagonal cutters
- Thermometer
- Small jeweler's screwdriver
- Tubing cutter
- Tubing clamps
- Beer nut wrench
- Wire stripper for 22 and 24 AWG wire
- Measuring cup
- Jacket for working in cooler

You may also need saws, drills, holesaws, and possibly other power tools. To be safe, you may want to bring all the tools you have.

## Materials Required

- Various flow meter fittings
- Tie-straps
- Cable hold-downs

It's best to have extra of these items—enough to cover a worst case scenario.

Berg offers a Beer Toolkit that includes a spanner wrench, thermometer, jeweler's screwdriver, tubing cutter, tubing clamps, flow meter fittings, tees for air tubing and splices for air tubing.

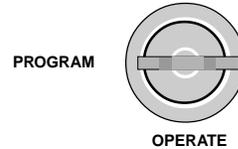
## Equipment Preparation

Make sure the **Draft Sentinel** equipment arrives at your shop a few days before you plan to install the system. Open the boxes and check to see you have everything you need. Also, verify nothing was damaged during shipping.

# ECU Menu

The LCD display on the ECU functions like a narrow window, highlighting your current position in a menu. You use the up and down arrows and the enter key to control your movement through the menus and to select your options.

**Key Switch** Turn the key to PROGRAM to use the ECU menus.



**Menu Buttons** Select a menu using either the **Setup** or **Report** button.



## Reading the Display



The display window on the ECU shows two lines of text at a time. The first line is normally a prompt asking you to take some action. For instance, Use ↑ and ENTER ↓ means use the up and down arrow keys to change your position in the menu and ENTER to select an option. The left and right arrows are used to move the cursor through the characters of an entry field.

## ECU Menus

```
Setup Menu
  Exit This Menu
  Flow Meter Setup
    Exit This Menu
    Flow Test
    Setup Brand 1
    Setup Brand 2
      ♦
      ♦
      ♦
    Setup Brand 24
  Set Time and Date
  Country Setup
    Exit This Menu
    Set Volume Unit
    Set Date Format
    Set Time Format

Report Menu
  Exit This Menu
  Z Report
  X Report
  Power Loss History
```



## Hardware Installation

Refer to this section for help with the following tasks:

Install the ECU .....	2-2
Insert Flow Meters in Beverage Lines .....	2-4
Install Flow Meter J-Box .....	2-6
Wire Flow Meter Cables to Flow Meter J-Boxes .....	2-8
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## Install the ECU

Locate the **Draft Sentinel** ECU in a location where moisture, unwanted access and heavy falling objects will not be a problem.

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### ■ To install the ECU:

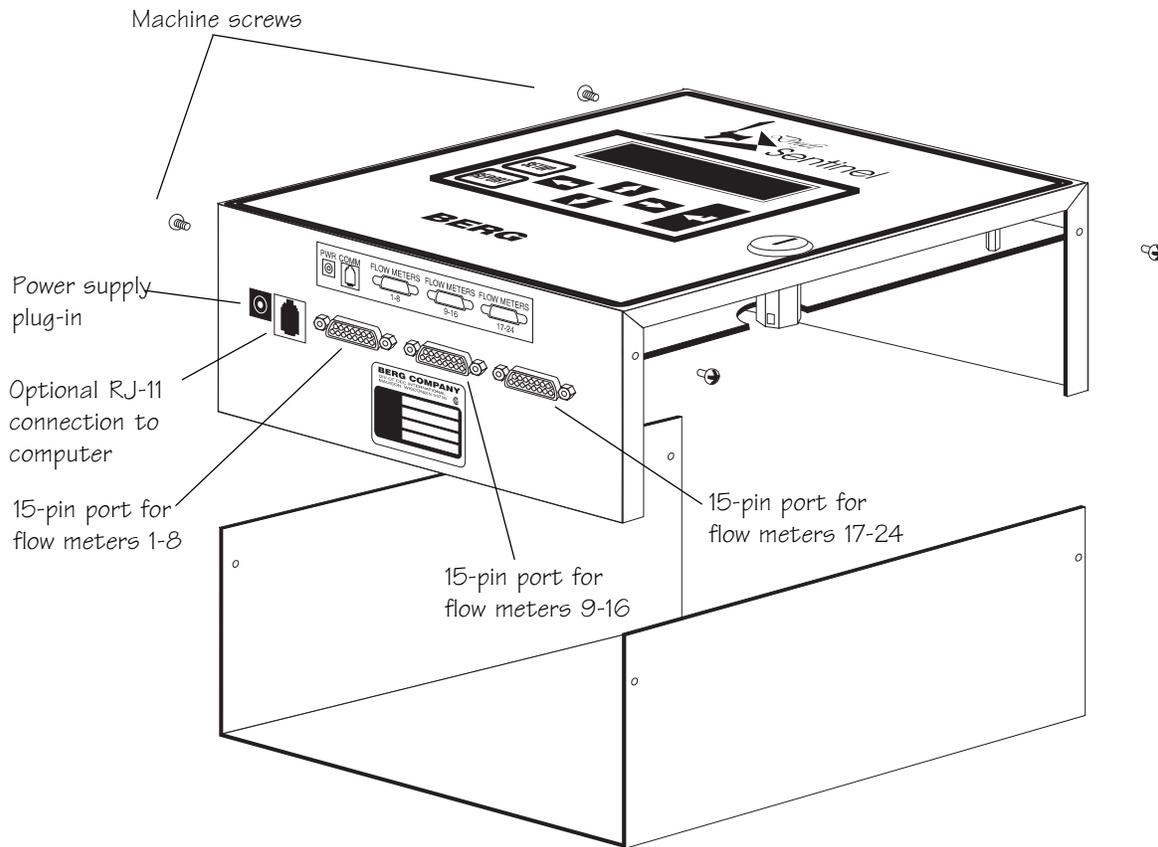
1. Choose a secure, dry location for the ECU.

The ECU must be located within 500 ft (152.4 m) of any flow meters and within 5 1/2 ft (1.7 m) of a reliable AC outlet. The operating temperature range for the ECU is from 5° C to 40° C (41° F to 104° F).

2. Set the ECU on a shelf or table or attach it to a wall.

To attach it to a wall, remove the 4 screws that hold the cover to the base and pull the stick-on feet off the base to reveal 4 mounting holes.

3. Plug the cable end of the power supply into the PWR port on the front of the ECU. (For power supply specifications, see the *Draft Sentinel Specifications* section.)
4. Plug the power supply into the AC outlet only when you've finished any wiring tasks, including wiring flow meter J-boxes.



Draft Sentinel ECU

## Insert Flow Meters in Beverage Lines

If you need to install specific flow meter numbers in specific beverage lines, number the cable ends of each flow meter to keep track of them. Alternatively, simply install any flow meter in any beverage line and then determine which flow meter goes with each brand at the ECU.

### ■ To insert flow meters:

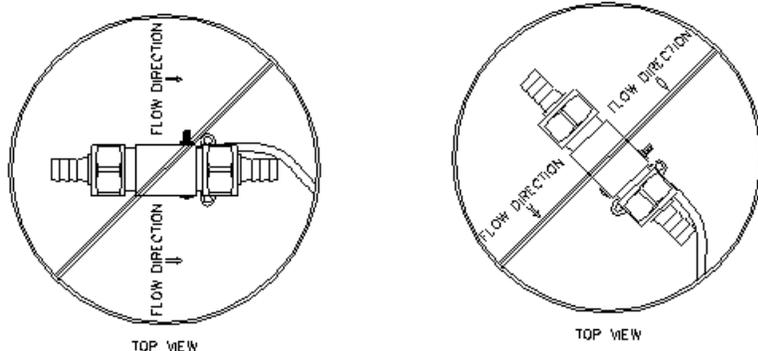
1. Make sure any spouts are closed and the door to the beverage cooler is closed.

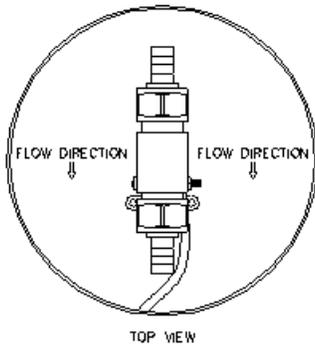
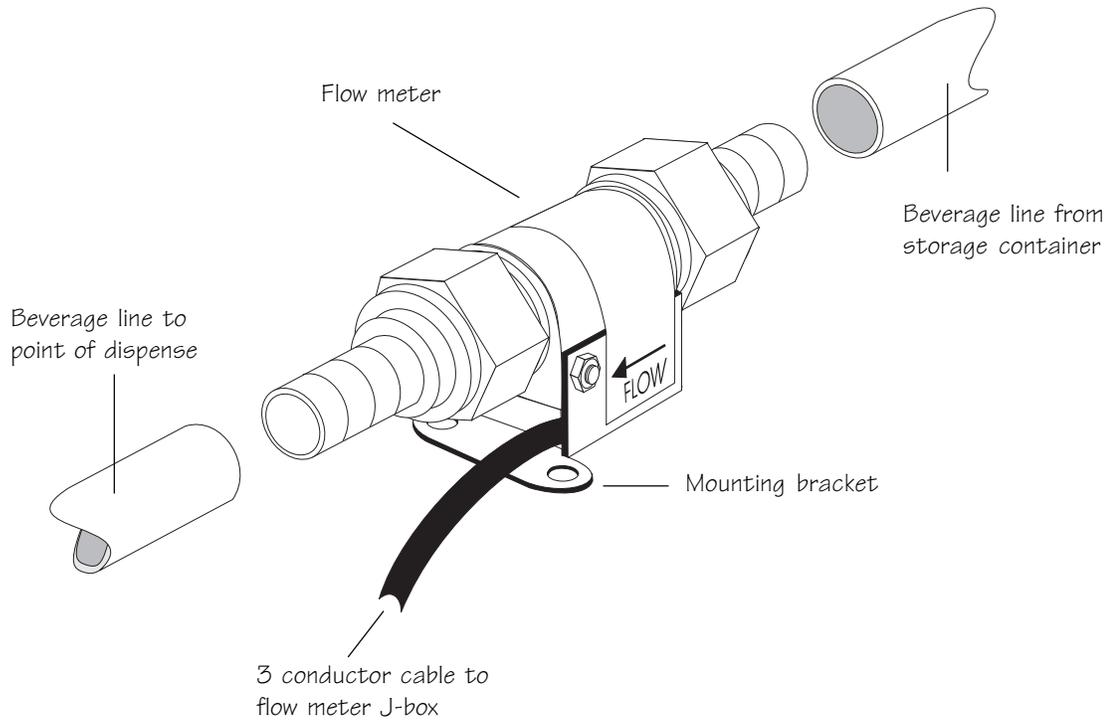
If you leave the cooler door open, the temperature of the beverage will rise which causes excess foaming and makes calibration difficult.

2. Turn off pressure to the beverage line.
3. Determine where to insert the flow meter in the line. Plan enough length in the line to secure the flow meter to the wall or other surface.
4. Cut the beverage line.
5. Install the flow meter into the beverage line. First slide clamps around each end of the cut line, then insert the flow meter and tighten the clamps. Make sure the flow meter is installed with the “flow” arrow pointing toward the end of the tube that goes to the spouts.
6. Mount the flow meter to the cooler wall (or other place) with #6 wood or sheet metal screws.

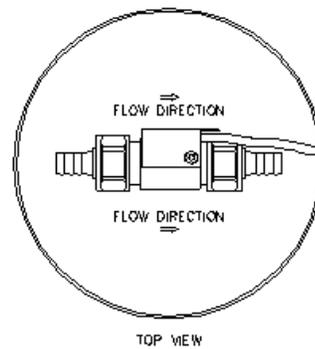
The flow meter is originally calibrated in a vertical position, so this is the preferred position for mounting.

You can mount the flow meter vertically on the wall or horizontally on a shelf. Do not mount the flow meter at a diagonal or any other angle. If you mount it horizontally, be sure the bracket is on the bottom or top of the flow meter and not the side.





Vertically mounted flow meter



Horizontally mounted flow meter

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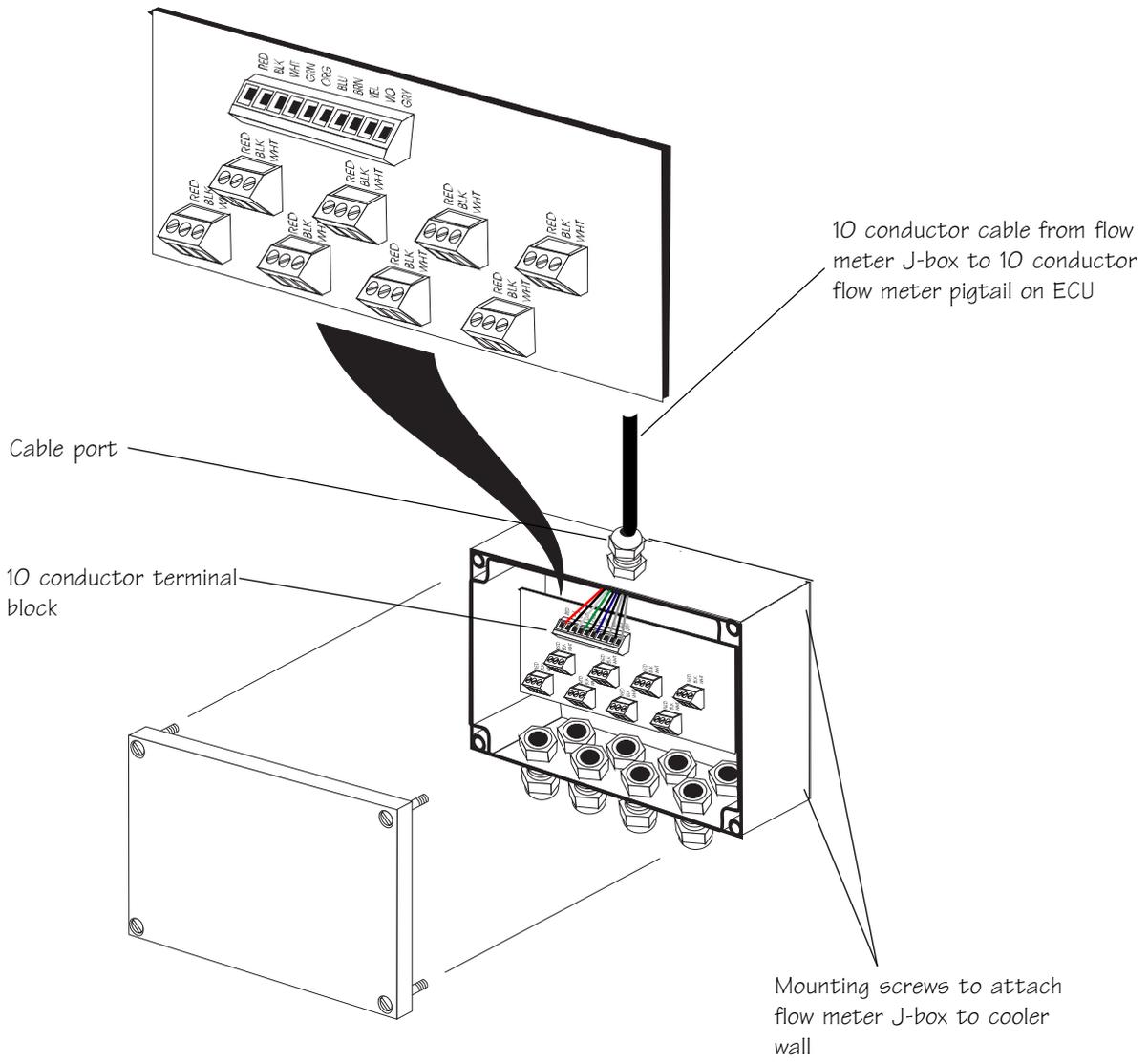
## Install Flow Meter J-Box

The flow meter J-box must be connected to the ECU with 10 conductor cable. If you are dealing with a draft system and beverage cooler operations, you may want to consult with the beverage distributor as you plan cabling routes through the walls of the cooler. Remember to keep the cooler door closed.

---

### ■ To install a flow meter J-box:

1. Run 10 conductor cable from the ECU to the flow meter J-box. Avoid heat sources, light sources, moisture, chemicals, appliances and sharp objects.
2. Carefully cut a small hole in the caulk or putty between the beverage lines and the wall of the cooler for inserting the 10 conductor cable. Repeat this step for the outside wall, or outside of the cooler. (We do not recommend drilling new holes in the cooler for running cables because you run the risk of breaking a coolant line.)
3. Fish the cable through the walls of the cooler, making sure you have enough cable at the flow meter J-box and at the ECU.
4. Seal the cables at the walls of the cooler with silicone sealant.
5. Remove the cover and mount the flow meter J-box using the four screws provided (or by some other means) making sure you miss any coolant lines if you drill.
6. Carefully strip approximately 3 in (7.6 cm) of outer insulation from the 10 conductor cable going to the flow meter J-box.
7. Carefully strip approximately 3/16 in (.5 cm) of insulation from each individual wire in the 10 conductor cable.
8. Remove the black cover from the single cable port on the outside of the flow meter J-box. Insert the 10 conductor cable through the port making sure the cable's outer insulation is in the connector. Tighten the connector.
9. Connect the individual wires of the 10 conductor cable to the 10 conductor terminal block inside the flow meter J-box. Loosen the terminal screws and match each color wire to its appropriate slot. Tighten the terminal screws.
10. Replace the cover on the flow meter J-box.



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## Wire Flow Meter Cables to Flow Meter J-Boxes

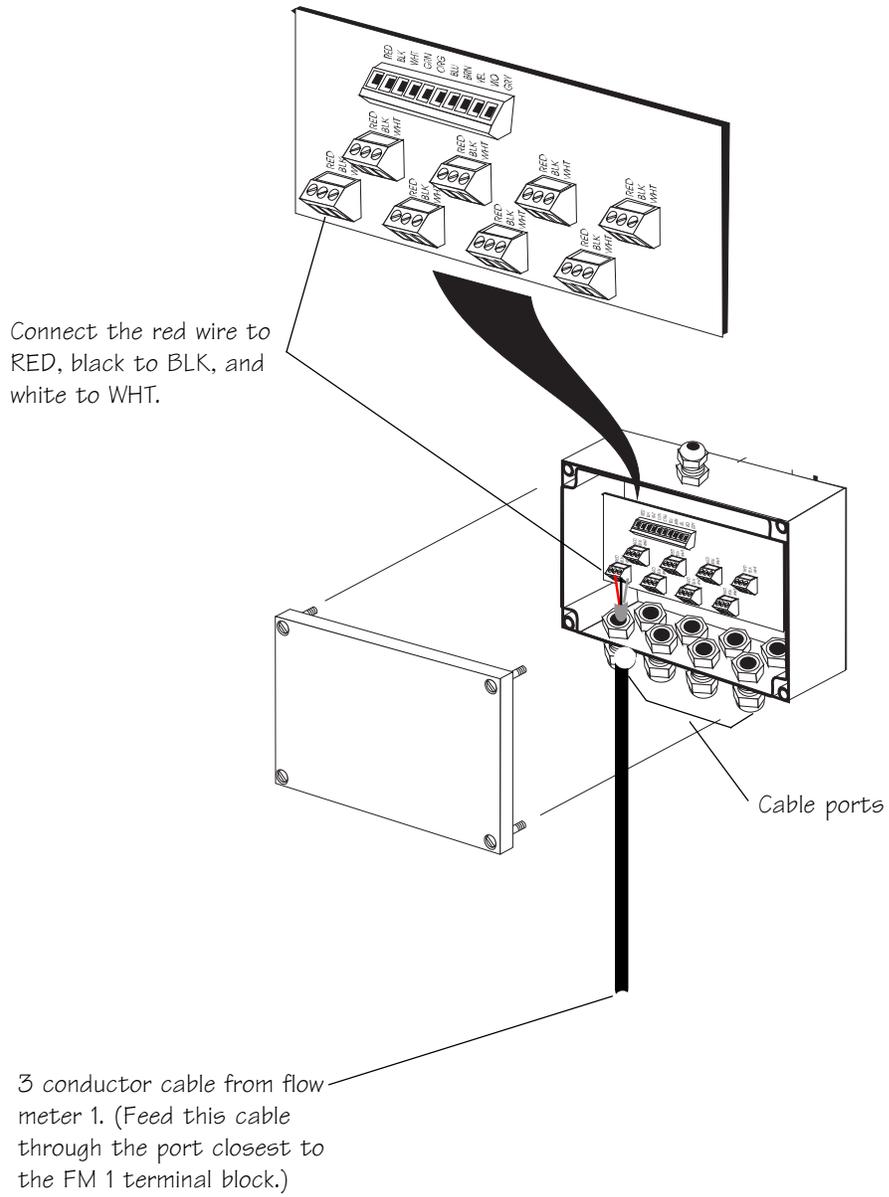
Typically, the flow meter J-box is mounted on a wall above the vertically mounted flow meters. Avoid moisture and unwanted access. Remember if you're working in a cooler to keep the door closed the entire time you're working inside so the temperature of the beverage won't rise.

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### ■ To wire flow meter cables to flow meter J-boxes:

1. Run the cables from the flow meter to the planned location of the flow meter J-box.
2. Remove the cover of the flow meter J-box by removing the four screws.
3. Carefully strip approximately 1.5 in (3.8 cm) of outer insulation from the end of the flow meter cables.
4. Carefully strip approximately 3/16 in (.5 cm) of insulation from the three individual wires in the flow meter cables.
5. Remove the black covers from the cable ports on the outside of the flow meter J-box. Insert the cable from flow meter 1 into the port that is closest to the terminal block labeled FM 1. Make sure that the cable's outer insulation is in the connector. Tighten the connector with a 3/4 in wrench until the cable is secure.
6. Loosen the terminal screws in the block labeled FM 1. Insert the red, black and white wires from the flow meter cable into the appropriate spaces on the terminal block. Tighten the terminal screws.

Repeat steps 5 and 6 for each flow meter installed, making sure flow meter 2 connects to the terminal block labeled FM 2, flow meter 3 connects to FM 3, and so on.



## Wire Flow Meter J-Box Cable to the ECU

You should already have a length of 10 conductor cable running from the flow meter J-box to the ECU.

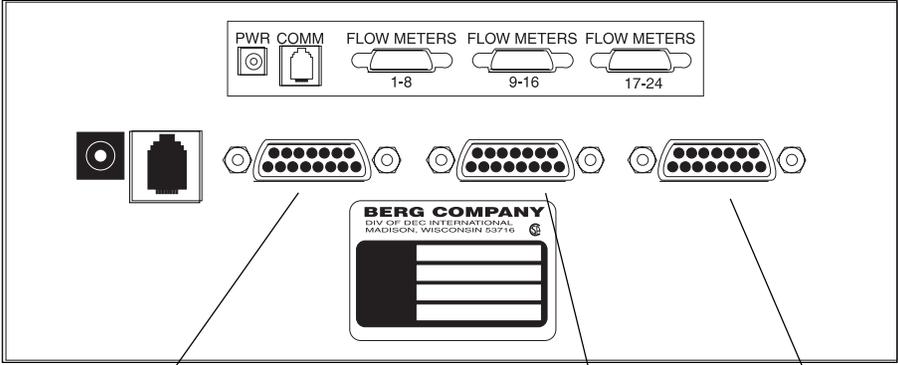
### ■ To wire flow meter J-box cables to the ECU:

1. Disconnect power from the ECU.
2. Splice the 10 conductor pigtail on the back of the ECU to the 10 conductor flow meter J-box cable using the Scotchlok connectors provided. This is a direct color-to-color splice. Connect white to white, green to green, orange to orange, etc. until all ten conductors are spliced.

Red	Power
Black	Ground
White	Flow Meter 1
Green	Flow Meter 2
Orange	Flow Meter 3
Blue	Flow Meter 4
Brown	Flow Meter 5
Yellow	Flow Meter 6
Violet	Flow Meter 7
Gray	Flow Meter 8

*It's very important to use Flow Test at this point to verify you have a flow meter correctly wired and installed in each beverage line and that you know which flow meter number goes with each brand. If you omit this test, any errors in installation will only cause trouble later on.*

3. Restore power to the ECU and verify your connections using **Flow Test** in the **Setup** menu. See *Flow Test* in this section.



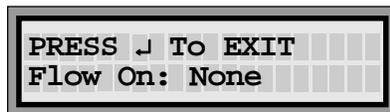
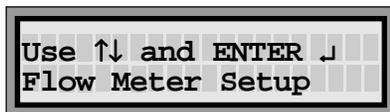
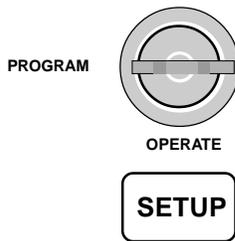
15-pin port for  
flow meters 1-8

15-pin port for  
flow meters 9-16

15-pin port for  
flow meters 17-  
24

# Flow Test

This test shows you which flow meter number registers the pour of a specific brand. Use it to verify the correct installation of flow meters and to determine which flow meter number corresponds to each brand. (Unless you need a specific flow meter number assigned to a specific brand, you can just install all the flow meters and then use Flow Test to determine which brand is brand 1, brand 2 and so on.)



## ■ To use flow test:

1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **SETUP**

2. Use the up and down arrow keys to display the **Flow Meter Setup** option and press ENTER(↵).

3. Use the up and down arrow keys to display the **Flow Test** option and press ENTER(↵).

4. Pour a drink of the brand you want to test. During the pour, the ECU window displays the flow meter number that registers the pour.

Write down the correct flow meter number for each brand on the *Draft Sentinel Worksheet*. (If the flow meter number is different than what you expected, you probably switched the wiring on a couple of flow meters.)

If the ECU window displays **None** during a pour, verify that a flow meter is installed in the line and that all wiring connections are correct.

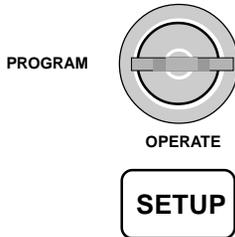
5. Press ENTER(↵) to exit the test. The display returns to the **Flow Test** option.

## Note

- ❑ You can now use the *Draft Sentinel Worksheet* to enter flow meter and brand setup information using **Beverage Manager** software or the ECU setup menu. See the *Beverage Manager Software* section or the *Flow Meter Setup* section.

# Set Time and Date

Once you've made all your connections and plugged in the ECU, use this menu item to establish the correct time and date for your system. The ECU keeps track of power losses using the time and date you set.

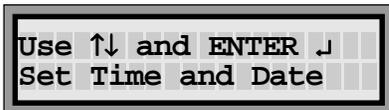


## ■ To set the ECU time and date:

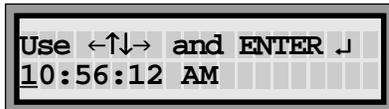
1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **SETUP**



2. Use the up and down arrow keys to display the **Set Time and Date** option and press ENTER(↵).



3. Use the up and down arrow keys to select the numbers of the correct time and press ENTER(↵).

The left and right arrow keys move the cursor through the time and date fields. To change AM to PM, cycle through the hour field.



4. Use the up and down arrow keys to select the numbers of the correct date and press ENTER(↵).

The display returns to the **Set Time and Date** option.

## Notes

- To change the time format from 12 hour to 24 hour notation see *Set Time Format* in the *Country Setup* section.
- To change the date format from MM/DD/YY to DD.MM.YY, see *Set Date Format* in the *Country Setup* section.

---

## Connect the ECU to a Computer

If you are installing **Beverage Manager** software to use with your **Draft Sentinel**, you need to provide a connection between a computer and the ECU. Connecting to a computer requires the RS-232 / RS-485 converter (Berg PN 8009344-North America or PN 8009345-International).

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### ■ To connect the ECU to a computer:

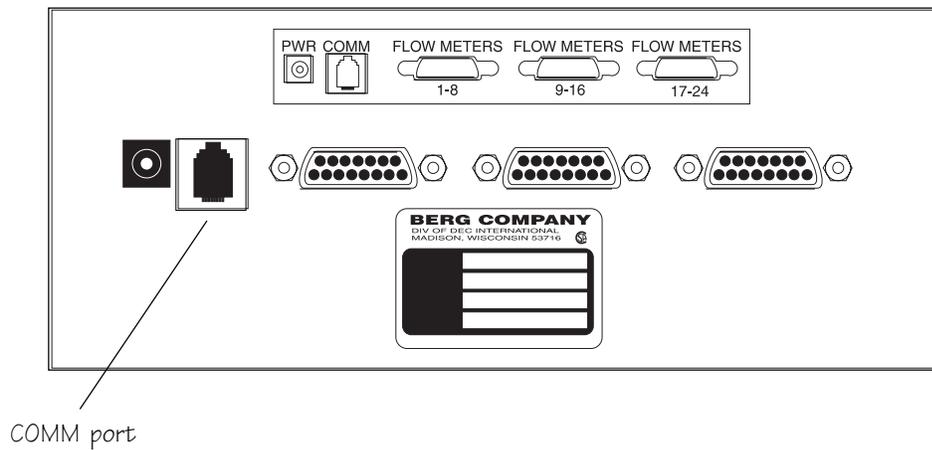
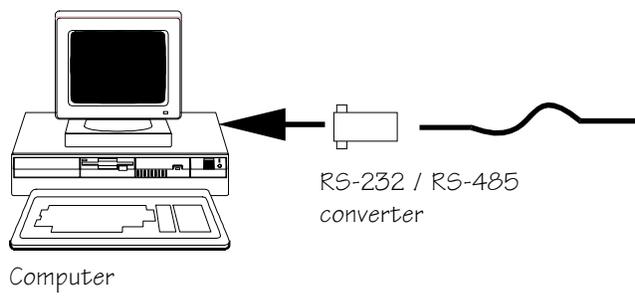
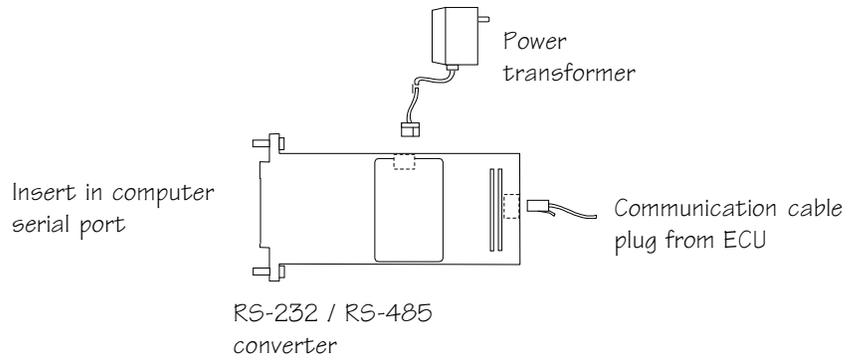
1. Plug the connector from the power transformer into the side of the RS-232 / RS-485 converter.
2. Plug the power transformer into the same buffered power strip used by the computer.
3. Insert the RS-232 / RS-485 converter into a serial port of the computer and secure it with the captive screws in the connector flanges.

If the converter does not fit in the serial port, insert a 9-to-25 pin adapter cable.

4. Insert the communication cable plug into the RJ-12 socket on the converter.
5. Insert the other end of the communication cable into the COMM port on the back of the ECU.

### Note

- See the *Beverage Manager Software* section for help with installing the software and using it to communicate with the ECU.





# 3 Beverage Manager Software

**Beverage Manager** software provides a convenient alternative to data entry at the ECU. To use the software, be sure you've installed a connection from the ECU to your computer. See *Connect the ECU to a Computer* in the *Hardware Installation* section. See the online help accompanying the software or use this section for help with the following tasks:

Install the Software .....	3-2
Communication Settings .....	3-4
Price and Volume Units .....	3-5
Select an ECU Type .....	3-6
Transfer Data between the ECU and the Computer .....	3-7
Flow Meter Setup .....	3-8
Print Setup Data .....	3-10
Calibrate Flow Meters .....	3-12
Generate Reports .....	3-14
Detailed Z Report .....	3-16
Detailed X Report .....	3-18
Power Loss Report .....	3-20
Prices and Portions Report .....	3-22
Generate a Variance Report .....	3-24
Export .....	3-26
Perform a Loopback Test .....	3-27
Perform a Communication Test .....	3-28

## Install the Software

**Beverage Manager** software comes with its own install program. Simply respond to its prompts for an easy software installation. To communicate with the **Draft Sentinel** ECU, your computer must be linked to the ECU using the converter assembly that comes with the software. See *Connect the ECU to a Computer* in the *Hardware Installation* section.

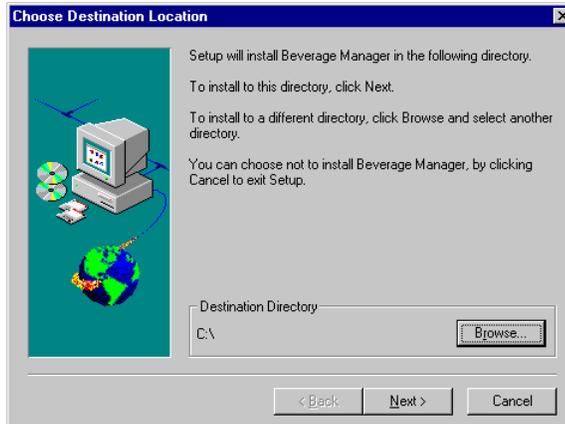
### ■ To install Beverage Manager software:



1. Close all other programs running under Windows.
2. Insert the **Beverage Manager** disk in a floppy disk drive.
3. Click **File** in Program Manager (Windows 3.1), or click **Start** (Windows 95, NT).  
Click **Run**.
4. Type **a:\setup** (where **a** is the floppy disk drive letter) and click **OK**.
5. Follow the instructions on your screen. Click **Next** to continue through the setup process or **Back** to return to a previous screen. Click **Cancel** to stop the setup process.



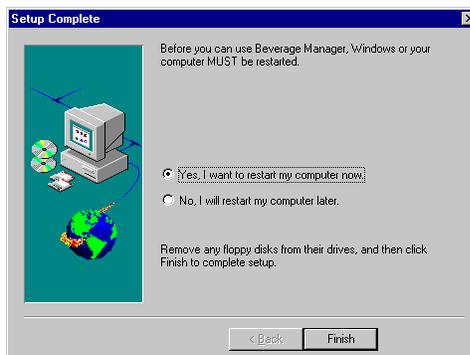
6. Enter the dealer's name and phone number for technical support and click **Next**. (The Berg Company name and phone number are used if you don't enter a dealer name.)



7. Click **Next** to accept the default destination directory (C:\BERGAB) for the software. If you prefer a different destination, enter a new directory.



8. Click **Next** to accept the program group or folder for the placement of **Beverage Manager** program icons. Or, if you prefer, enter a different group or folder.
9. Click **Finish** to complete the software installation.



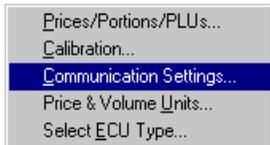
When setup is complete, double-click on the Beverage Manager icon in the Berg Beverage Manager folder to use the software.



You may be prompted to re-start your computer before you can run **Beverage Manager**. You can let the install program re-start your computer or do it yourself at a later time.

# Communication Settings

The number of the computer COM port that connects the ECU to the computer must be correctly entered in the software or communication can't take place.



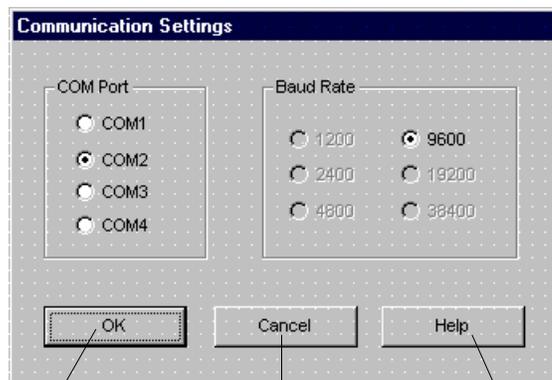
## ■ To change communication settings:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Communication Settings...**
3. Click the COM port your computer uses to communicate with the ECU.
4. Click **OK** to save your selections.

The software stores your selections, so you don't have to reset them each time you start the program.

## Notes

- The only baud rate for communicating with a Draft Sentinel ECU is 9600.
- You can test ECU/computer communication with the **Identify** button on the **Select ECU Type** screen. See *Select an ECU Type* in this section.



Click **OK** to save your choice and return to the main menu.

Click **Cancel** to return to the main menu without saving any changes.

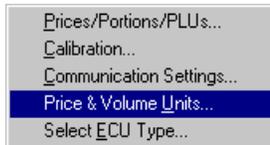
Click **Help** if you have questions.

# Price and Volume Units

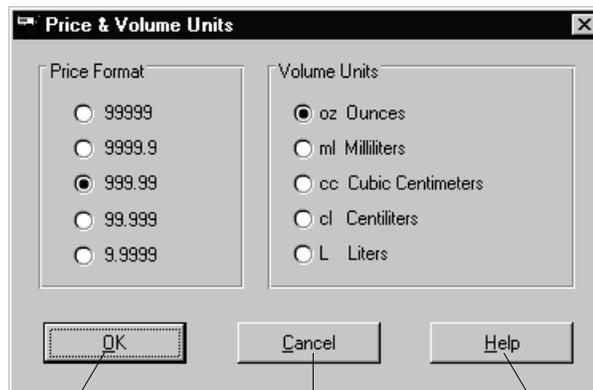
The volume unit at the computer must match the volume unit entered at the ECU. You can also enter a price format (used when you enter a price per unit for your brands).

## ■ To change price and volume unit settings:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Price & Volume Units...**
3. Click a price format (not necessary if you're not entering a price per unit for your brands).
4. Click the volume units used at the ECU.
5. Click **OK** to save your selections.



The software stores your selections, so you don't have to reset them each time you start the program.



Click **OK** to save your choice and return to the main menu.

Click **Cancel** to return to the main menu without saving any changes.

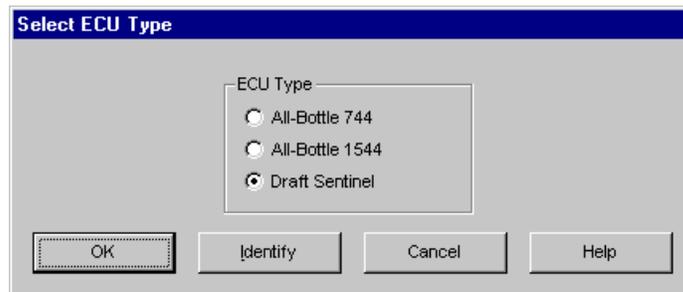
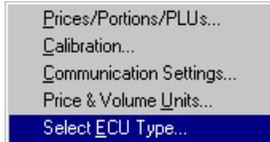
Click **Help** if you have questions.

## Select an ECU Type

You must specify your ECU type for the software to correctly access and transfer data to the ECU.

### ■ To select an ECU type:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Select ECU type...**



### Identify

If you have multiple types of ECUs in your system, click **Identify** to determine which type of ECU is connected to the COM port you've specified.

3. Click **Draft Sentinel**.
4. Click **OK** to save your selection.

The software stores your selection, so you don't have to reset it each time you start the program.

### Note

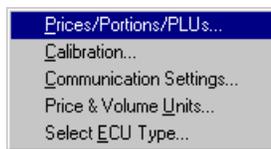
- You can use the **Identify** button to verify communication between the computer and ECU. Intentionally select a wrong ECU type and click **Identify**. If communication occurs, the correct ECU type will be selected. If no communication occurs, you'll see an error message.

# Transfer Data between the ECU and the Computer

An important part of entering data with **Beverage Manager** is getting data from the computer to the ECU and back again. Transferring data is easy, but it's important to understand which data you're working with at all times.

## ■ To transfer data from the ECU to the computer:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Prices/Portions/PLUs...**
3. Click **Read ECU**. 

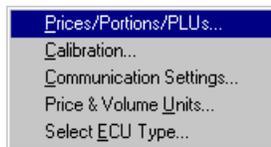


Wait while the data is transferred from the ECU to the computer.

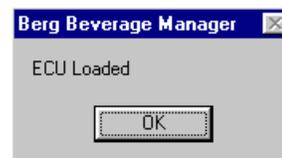
4. Enter or edit the correct data. See *Flow Meter Setup* in this section.

## ■ To transfer data from the computer to the ECU:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Prices/Portions/PLUs...**
3. Enter or edit the correct data. See *Flow Meter Setup* in this section.
4. Click **Load ECU**. 



Wait while the data is transferred from the computer to the ECU. The new data overwrites any data previously entered at the ECU or previously sent to the ECU from the computer.

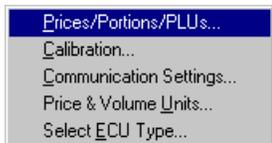


## Notes

- ❑ Communication settings, price format and volume units at the ECU and computer must match. See *Communication Settings* and *Price and Volume Units* in this section.
- ❑ You can't perform other operations in **Beverage Manager** while the data is being transferred.
- ❑ If you encounter difficulty communicating with the ECU, see the *Troubleshooting* section.

# Flow Meter Setup

**Beverage Manager** software provides one convenient table for entering all flow meter and brand data.



## ■ To enter flow meter and brand data:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Prices/Portions/PLUs...**
3. To enter data for the first time proceed with step 4.

To edit existing flow meter data in the ECU click **Read ECU**.

To edit a file you've previously saved at the computer click **Open** and enter the name of the file you want to edit.

4. Select the correct row and column in the table using arrow keys, the Tab key, the Enter key or a mouse.
5. Type the brand name that corresponds to each flow meter. The ECU only stores the first 10 characters of the brand name you enter.
6. Type the retail price per volume unit for each brand (optional). This price is used on sales reports to calculate the approximate retail value of the volume poured. (For example, if you usually charge \$1.20 for a 12 oz beer, enter .10 as the price per unit.)
7. Type the flow meter count for each flow meter. (This number is on the label of the flow meter.)
8. Click **Save** to save the flow meter data in a computer file. Enter the name you want to give the file and click **OK**.
9. Click **Load ECU** to download flow meter data to the ECU (see *Transfer Data between the ECU and the Computer* in this section).
10. Click **Print Prices and Portions** to print the flow meter entries you've made (see *Print Setup Data* in this section).

Click Close to return to the main menu.

Use the arrow keys, the Tab key, the Enter key or a mouse to move between rows and columns. If you make a mistake, use the Delete key to erase any amount currently highlighted.

Click Open to view a previously saved file.

Click Save to replace previous data in the file with the new data.

Click Save As... to save the file under a new name.

Flow Meter	Brand	Price per oz	Meter Count
1		0.00	0
2		0.00	0
3		0.00	0
4		0.00	0
5		0.00	0
6		0.00	0
7		0.00	0
8		0.00	0
9		0.00	0
10		0.00	0
11		0.00	0
12		0.00	0
13		0.00	0
14		0.00	0
15		0.00	0
16		0.00	0

Buttons: Open..., Save..., Save As..., Read ECU, Load ECU, Print Prices and Portions, Close, Help

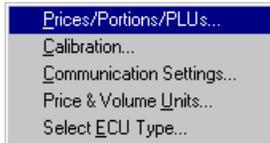
Click Read or Load the ECU to transfer data. Price format and volume units at the ECU and computer must match. You cannot perform other operations while the data is being transferred.

Click Print Prices & Portions for a report listing flow meter setup data.

Click Help if you have questions.

## Print Setup Data

You can print a copy of brand and flow meter data entered at the computer.



### ■ To print setup data:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Prices/Portions/PLUs...**
3. Perform the necessary steps to enter or edit the correct data. See *Flow Meter Setup* in this section.
4. To brand and flow meter data: Click **Print Prices & Portions**.

The flow meter data appears in a **Notepad** window. You can now treat the data as you would any other computer file (save, print, delete, etc.).

5. Click **File** on the menu bar.
6. Click **Print** to print the data.
7. Click **Save As...**, enter the name of the file and click **OK** to save the data.
8. To exit the **Notepad** window and return to the **Price/Portion/PLU Setup** screen, click **Exit** from the **File** menu.

### Notes

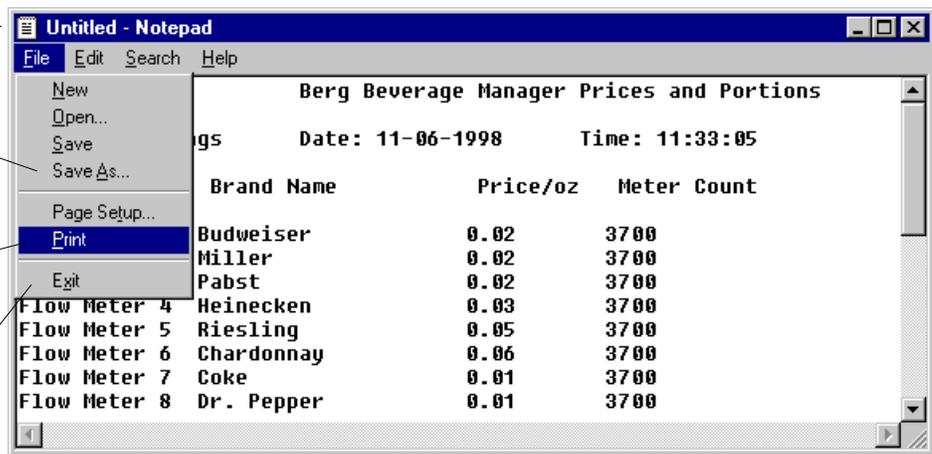
- The setup data printed from the **Notepad** window shows the current entries in the **Price/Portion/PLU Setup** screen. It does not reflect the current entries in the ECU unless you just performed a **Read ECU** or **Load ECU** and made no further changes to the **Setup** screen.
- The setup data reports are distinguished from other sales or ECU reports by the words "Current Settings" at the top of the report.

The Notepad window

Select Save As... to save the report to a new file.

Select Print to send the report to a printer.

Select Exit to return to the Setup screen.

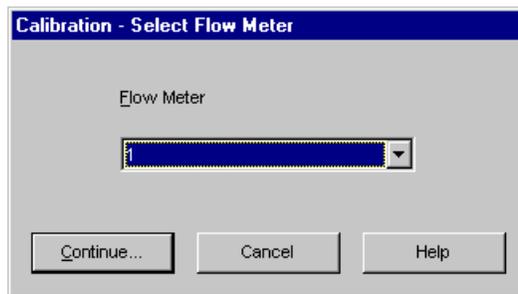
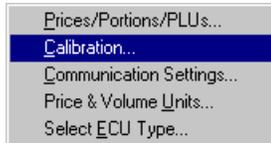


# Calibrate Flow Meters

Beverage Manager software performs the calibration equations for you when you enter the amount of your calibration pours.

## ■ To calibrate flow meters:

1. Click **Setup** on the **Beverage Manager** menu bar.
2. Click **Calibration...**



3. Select a flow meter number (**1-24**) to calibrate or select **All**.
4. Click **Continue...**

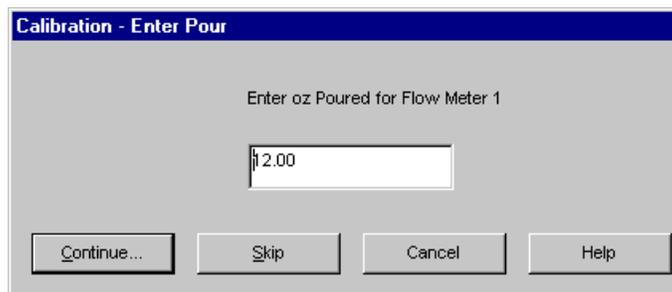


5. Click **OK** after reading the message about entering calibration mode.
6. Go to the appropriate spout and pour a large portion (Berg recommends at least 12 oz) into a measuring cup or graduated cylinder. Write down the exact amount poured. If you selected **All** flow meters, pour and record the amount poured for each brand.



*Draft Sentinel Worksheet*

Use the worksheet from the *Getting Started* section to record the amount poured and also the final meter count for each brand. Save the worksheet for future reference.

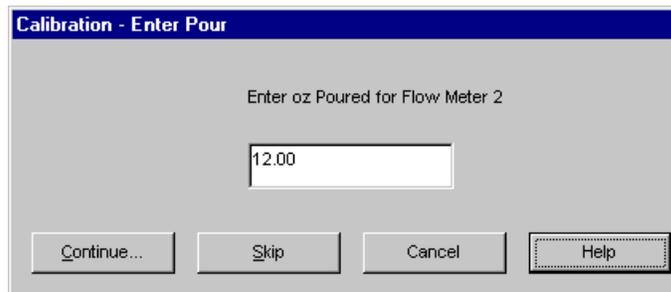


7. At the computer type the volume units you measured for the appropriate flow meter and click **OK** (or **Continue...** if you selected all flow meters).

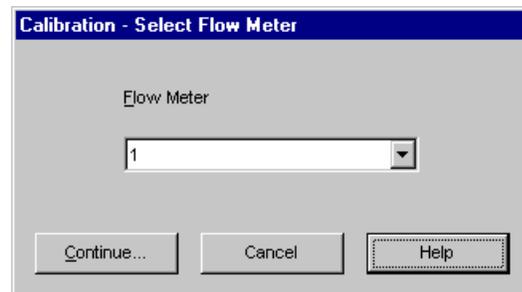
The volume units measured by the flow meter are displayed along with the new flow meter count automatically entered by the software.



8. Click **OK** after reading the new count.



9. If you selected **All** flow meters, repeat steps 7 and 8 for each flow meter.



10. If you selected a single flow meter number, repeat steps 3-8 for any other flow meter that needs to be calibrated.
11. Click **Cancel** to exit the calibration process.

#### Note

- ❑ If you're not satisfied with the level of accuracy obtained by the calibration process, perform the procedure again. The software calculates a new flow meter count each time you perform the steps. Each new flow meter count should increase the flow meter's level of accuracy.

## Generate Reports

The reports that can be generated from your **Draft Sentinel** ECU can also be generated with **Beverage Manager**. The software-generated X and Z reports provide the retail value of the amount poured in addition to the number of volume units. For detailed information on each report see *Detailed Z Report*, *Detailed X Report*, *Power Loss Report*, *Price/Portion Report* and *Generate a Variance Report* in this section.

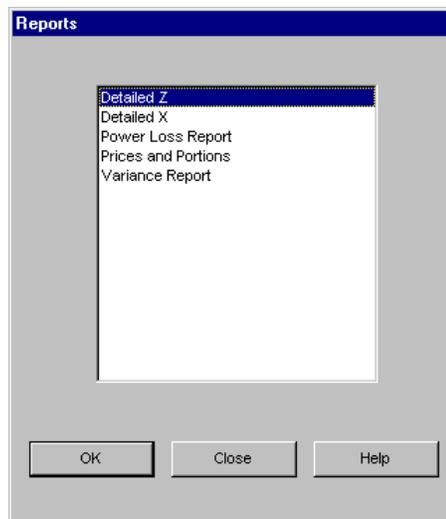
### ■ To generate reports:

1. Click **Reporting** on the **Beverage Manager** menu bar.
2. Click **Reports....**

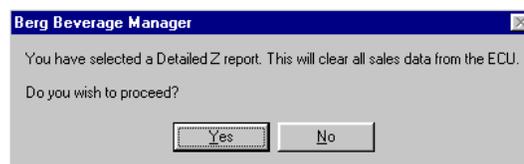


#### Prices and Portions

This report provides the same information as the Print Prices and Portions button on the Price/Portion/PLU Setup screen. It lists the current flow meter and brand settings at the ECU.



3. Select the report and click OK (or double-click).



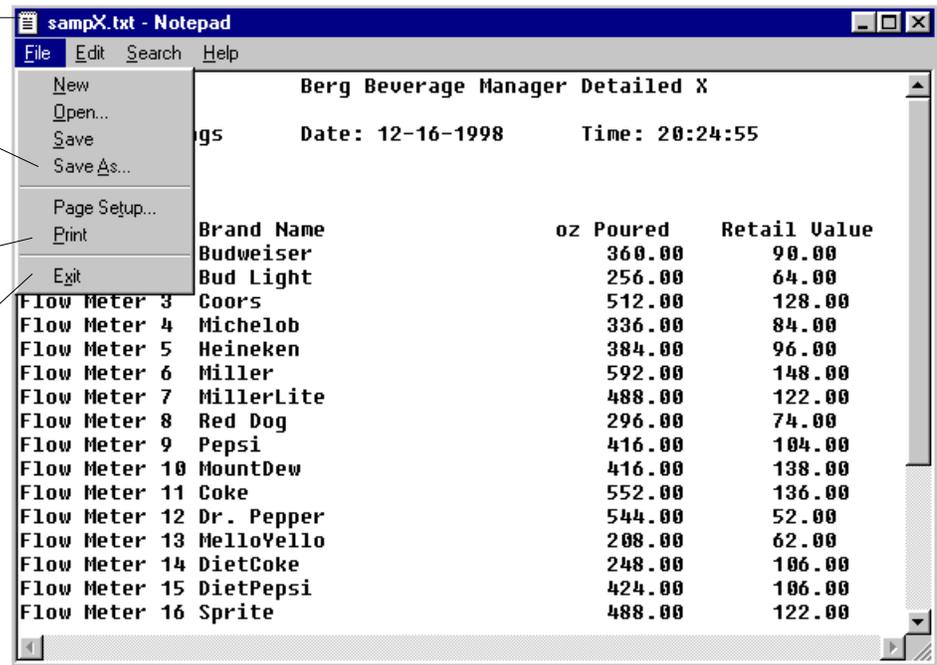
4. If prompted, click **Yes** to proceed with a Z report.
5. View the report in a **Notepad** window.

The Notepad window

Click Save As... to save the report to a new file.

Click Print to send the report to a printer.

Click Exit to return to the Reports screen.



■ **To print the report:**

1. Click **File** on the **Notepad** menu bar.
2. Click **Print**.

■ **To save the report in a new file:**

1. Click **File** on the **Notepad** menu bar.
2. Click **Save As...**
3. Type the name to give your file.
4. Click **OK**.

---

## Detailed Z Report

The Z report zeroes out all volume measurement and retail value totals at the ECU. Each Z report is numbered for easy tracking. The report also informs you if any power has been lost to the ECU since the last Z.

---

<b>Time and Date</b>	The <b>Time</b> and <b>Date</b> on the report are the time and date the report was run.
<b>Z Number</b>	<b>Z Number</b> is the number of times a Z report has been run.
<b>Power Lost since last Z</b>	If there has been a power loss at the ECU since the last Z report, you'll see this notification. If you want to see the exact date(s) and time(s) of the power loss(es), run a Power Loss History report.
<b>Flow Meter</b>	The first column lists the flow meter numbers.
<b>Brand Name</b>	The second column lists the brand names that correspond to each flow meter.
<b>Volume Units Poured</b>	The third column shows the total volume units measured by the flow meter for each brand since the last Z report.
<b>Retail Value</b>	The final column displays the retail value of the volume units poured for each brand. This value is the price per unit you entered for the brand multiplied by the total volume for the brand. To change the price per unit, see <i>Price and Volume Units</i> in this section.

# Sample Detailed Z Report

Berg Beverage Manager Detailed Z

Current Settings

Date: 11-07-1998

Time: 16:46:53

Z Number 5

Power Lost since last Z

Flow Meter	Brand Name	oz Poured	Retail Value
Flow Meter 1	Brand 1	272.00	68.00
Flow Meter 2	Brand 2	272.00	68.00
Flow Meter 3	Brand 3	456.00	114.00
Flow Meter 4	Brand 4	360.00	90.00
Flow Meter 5	Brand 5	592.00	148.00
Flow Meter 6	Brand 6	216.00	54.00
Flow Meter 7	Brand 7	224.00	56.00
Flow Meter 8	Brand 8	304.00	76.00
Flow Meter 9	Brand 9	432.00	108.00
Flow Meter 10	Brand 10	336.00	84.00
Flow Meter 11	Brand 11	512.00	128.00
Flow Meter 12	Brand 12	424.00	106.00
Flow Meter 13	Brand 13	472.00	118.00
Flow Meter 14	Brand 14	400.00	100.00
Flow Meter 15	Brand 15	552.00	138.00
Flow Meter 16	Brand 16	392.00	98.00
Flow Meter 17	Brand 17	592.00	148.00
Flow Meter 18	Brand 18	408.00	102.00
Flow Meter 19	Brand 19	200.00	50.00
Flow Meter 20	Brand 20	560.00	140.00
Flow Meter 21	Brand 21	376.00	94.00
Flow Meter 22	Brand 22	528.00	132.00
Flow Meter 23	Brand 23	560.00	140.00
Flow Meter 24	Brand 24	408.00	102.00

---

## Detailed X Report

The Detailed X report is identical to the Detailed Z report. However, the X report does not zero out any volume or retail value totals.

---

<b>Time and Date</b>	The <b>Time</b> and <b>Date</b> on the report are the time and date the report was run.
<b>Z Number</b>	<b>Z Number</b> is the number of the most recent Z report.
<b>Power Lost since last Z</b>	If there has been a power loss at the ECU since the last Z report, you'll see this notification. If you want to see the exact date(s) and time(s) of the power loss(es), run a Power Loss History report.
<b>Flow Meter</b>	The first column lists the flow meter numbers.
<b>Brand Name</b>	The second column lists the brand names that correspond to each flow meter.
<b>Volume Units Poured</b>	The third column shows the total volume units measured by the flow meter for each brand since the last Z report.
<b>Retail Value</b>	The final column displays the retail value of the volume units poured for each brand. This value is the price per unit you entered for the brand multiplied by the total volume for the brand. To change the price per unit, see <i>Price and Volume Units</i> in this section.

# Sample Detailed X Report

Berg Beverage Manager Detailed X

Current Settings      Date: 11-08-1998      Time: 13:09:58

Z Number 5  
Power Lost since last Z

Flow Meter	Brand Name	oz Poured	Retail Value
Flow Meter 1	Brand 1	552.00	138.00
Flow Meter 2	Brand 2	520.00	130.00
Flow Meter 3	Brand 3	560.00	140.00
Flow Meter 4	Brand 4	384.00	96.00
Flow Meter 5	Brand 5	440.00	110.00
Flow Meter 6	Brand 6	584.00	146.00
Flow Meter 7	Brand 7	232.00	58.00
Flow Meter 8	Brand 8	336.00	84.00
Flow Meter 9	Brand 9	456.00	114.00
Flow Meter 10	Brand 10	488.00	122.00
Flow Meter 11	Brand 11	304.00	76.00
Flow Meter 12	Brand 12	440.00	110.00
Flow Meter 13	Brand 13	264.00	66.00
Flow Meter 14	Brand 14	464.00	116.00
Flow Meter 15	Brand 15	384.00	96.00
Flow Meter 16	Brand 16	472.00	118.00
Flow Meter 17	Brand 17	296.00	74.00
Flow Meter 18	Brand 18	288.00	72.00
Flow Meter 19	Brand 19	520.00	130.00
Flow Meter 20	Brand 20	240.00	60.00
Flow Meter 21	Brand 21	472.00	118.00
Flow Meter 22	Brand 22	408.00	102.00
Flow Meter 23	Brand 23	400.00	100.00
Flow Meter 24	Brand 24	464.00	116.00

---

# Power Loss Report

This report details the exact date and time of the most recent power losses to the ECU.

---

**Time and Date** The **Time** and **Date** on the report are the time and date the report was run.

**Power Restored** The date and time of each power restoration is listed starting with the most recent occurrence.

**Power Lost** The date and time of each power loss is listed starting with the most recent occurrence.

# Sample Power Loss Report

## Berg Beverage Manager Power Loss Report

Current Settings            Date: 12-16-1998            Time: 20:24:55

Power Restored	12/7/98	3:57:17	AM
Power Lost	12/7/98	3:48:34	AM
Power Restored	12/4/98	4:11:28	AM
Power Lost	12/4/98	4:08:07	AM
Power Restored	12/2/98	6:15:55	PM
Power Lost	12/2/98	6:15:49	PM

---

## Prices and Portions Report

This report lists the current flow meter number, meter count and retail price per unit of each brand. The report lists the values currently loaded at the ECU.

---

<b>Time and Date</b>	The <b>Time</b> and <b>Date</b> on the report are the time and date the report was run.
<b>Flow Meter</b>	The first column lists the flow meter numbers.
<b>Brand Name</b>	The second column lists the brand names that correspond to each flow meter.
<b>Price per unit</b>	If you've entered a retail price per unit for your brands, the prices are listed. (This is an optional entry. The price per unit is used to figure the retail value of the volume poured.)
<b>Meter Count</b>	The current meter count for each flow meter is listed. This number determines the accuracy of the flow meter's calculation of volume.

# Sample Prices and Portions Report

## Berg Beverage Manager Prices and Portions

Current Settings      Date: 12/29/98      Time: 11:01:05 AM

Flow Meter	Brand Name	Price/oz	Meter Count
Flow Meter 1	Budweiser	0.12	3754
Flow Meter 2	Bud Light	0.12	3633
Flow Meter 3	Coors	0.12	3522
Flow Meter 4	Michelob	0.13	3564
Flow Meter 5	Heineken	0.14	3579
Flow Meter 6	Miller	0.12	3590
Flow Meter 7	MillerLite	0.12	3765
Flow Meter 8	Red Dog	0.12	3789
Flow Meter 9	Corona	0.13	3788
Flow Meter 10	DosEquis	0.13	3712
Flow Meter 11	Molson	0.13	3644
Flow Meter 12	LaBatts	0.13	3623
Flow Meter 13	Mooshead	0.13	3654
Flow Meter 14	Sam Adams	0.12	3678
Flow Meter 15	Killians	0.12	3721
Flow Meter 16	Berghoff	0.12	3543
Flow Meter 17	Pepsi	0.11	3662
Flow Meter 18	MountDew	0.11	3622
Flow Meter 19	Coke	0.11	3698
Flow Meter 20	Dr. Pepper	0.11	3764
Flow Meter 21	MelloYello	0.11	3745
Flow Meter 22	Diet Coke	0.11	3577
Flow Meter 23	Diet Pepsi	0.11	3752
Flow Meter 24	Sprite	0.11	3619

---

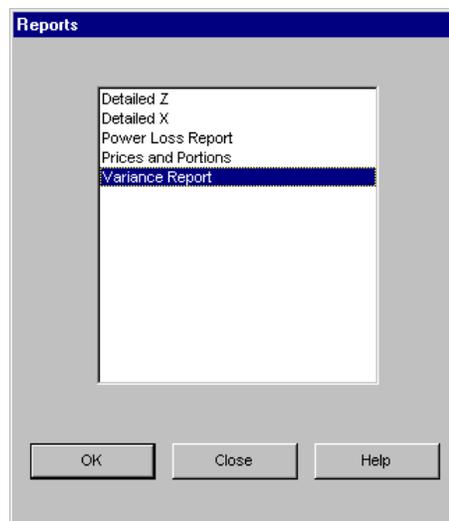
## Generate a Variance Report

To run this report you must enter the actual collected sales amount for each brand in the report. The software then calculates the difference between the sales recorded at the ECU and the sales recorded at the sales terminal. Any difference in the two amounts is shown and also figured as a percentage.

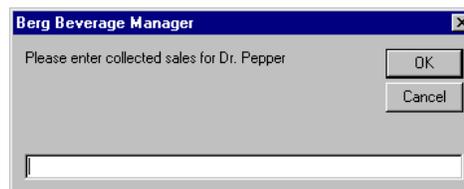
---

### ■ To generate a Variance report:

1. Be sure you've enabled the communication option at the ECU.
2. Select **Reports...** from the **Beverage Manager** menu bar.



3. Highlight **Variance Report** in the **Reports** list and click **OK**.



4. Type in the money collected at the sales terminal for the brand specified and click **OK**.
5. Repeat step 4 for each brand as prompted. (Click **Cancel** to exit the report at any time.)
6. View the report in a **Notepad** window.

# Sample Variance Report

## Berg Beverage Manager Variance Report

Current Settings      Date: 8/25/1999      Time: 1:20:43 PM

Power Lost since last Z

	Reported Sales	Collected Sales	Variance	Pct. Collected
Budweiser	106.32	100.00	-6.32	94.06
Bud Light	80.69	80.00	-0.69	99.14
Coors	71.47	70.50	-0.97	98.64
Michelob	63.93	62.00	-1.93	96.98
Heineken	68.25	66.00	-2.25	96.70
Miller	64.07	63.75	-0.32	99.50
MillerLite	45.24	44.00	-1.24	97.26
Red Dog	57.66	56.00	-1.66	97.12
Totals:	558.23	542.85	-15.38	97.24

### **Reported Sales**

*The total sales recorded at the ECU for each brand.*

### **Collected Sales**

*The total sales recorded at the sales terminal for the brand.*

### **Variance**

*The discrepancy between the reported sales and collected sales.*

### **Pct. Collected**

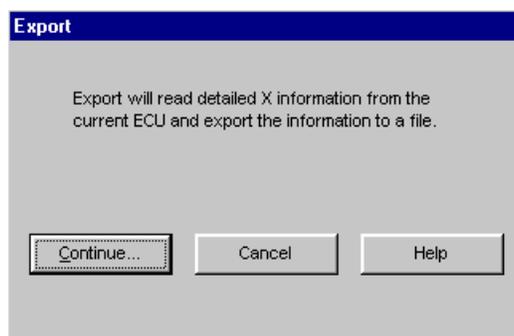
*The percentage of the sales amount recorded at the ECU that you actually collected at the sales terminal.*

# Export

You can export report data from a **Draft Sentinel** Detailed X report to other software applications. To do this you tell the software where to save the report to a file. Check the documentation of your other software applications for help with importing data.

## ■ To export:

1. Click **Reporting** on the **Beverage Manager** menu bar.
2. Click **Export...**



3. Click **Continue...**



### Export File Format

- Data in the export file is taken from current values at the ECU.
- The data on each line of the export file is listed in the following order: Flow meter number, brand name, Z number (of the most recently run Z report), volume poured, retail value.
- The delimiting character is a comma.
- Volume and retail values are formatted with the correct number of decimal places.

4. Select the folder where you want to save the export file.
5. Type a **Filename** for the export file. It will automatically be given a **.txt** extension. Click **Save**.

Wait for the file to be saved.

# Perform a Loopback Test

**Beverage Manager** software provides diagnostic tests to verify communication between the ECU and your computer. The loopback test verifies you have a working, accessible COM port on your computer. You must have a loopback tester (Berg PN 8009196) to perform this test. The tester comes with a cable and instructions.

## ■ To perform a loopback test:

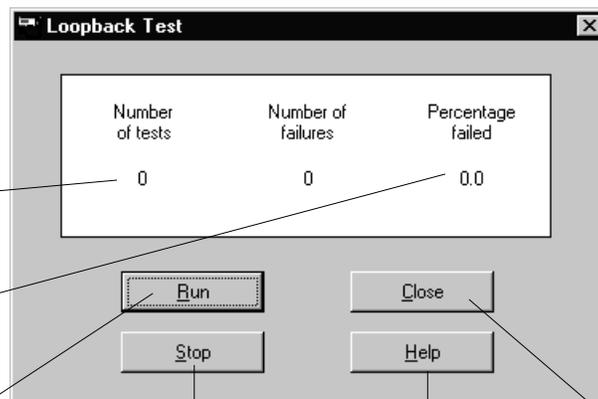
1. Click **Diagnostics** on the **Beverage Manager** menu bar.
2. Click **Loopback Test...**
3. Click **Run** to begin testing.
4. Unplug the RS-232/RS-485 converter from the COM port.

You should see failures. If you don't see errors BEFORE you connect the loopback tester, the COM port is not available. (Make sure you've specified the right COM port.)

5. Attach the loopback tester to the COM port.

If there are no errors, the COM port is OK. If there are errors, either the COM port is incorrectly specified or the port is defective.

6. You can continue testing by connecting the loopback tester at various points in the connection (before or after the converter or communication cable) to verify working equipment.
7. Click **Stop** to end the test.
8. Click **Close** to return to the main menu.



The number of tests run should increase quickly.

You'll most likely see 100% failures or none at all.

Click Run to begin the test.

Click Stop to stop the test.

Click Help if you have questions.

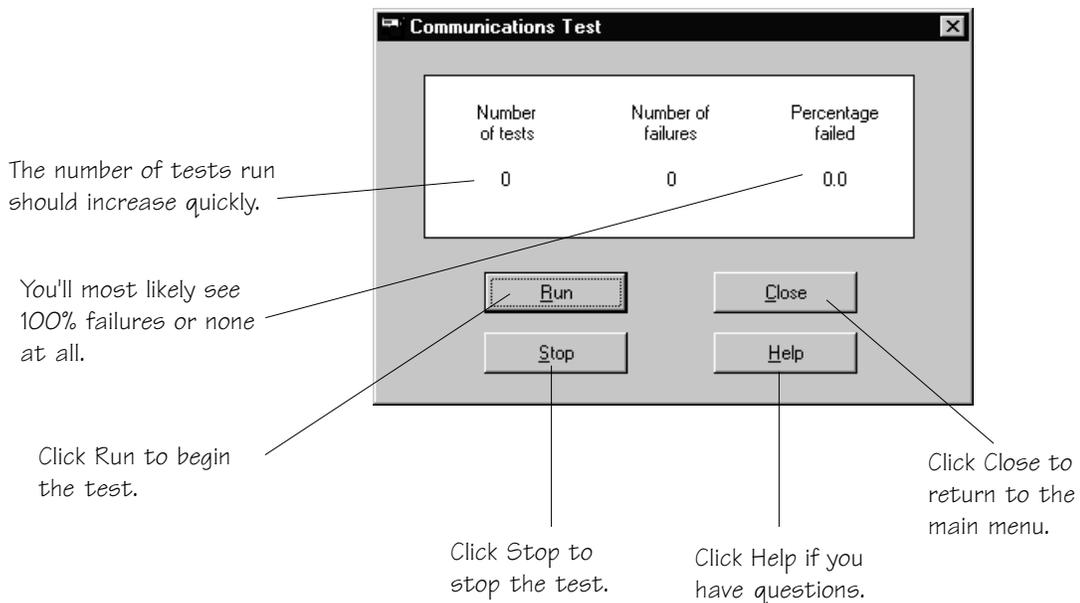
Click Close to return to the main menu.

## Perform a Communication Test

The communication test verifies the communication link between the ECU and your computer. It is very useful when you're troubleshooting a communication problem.

### ■ To perform a communication test:

1. Make sure the communication settings are correct at the ECU and the computer.
2. Click **Diagnostics** on the **Beverage Manager** menu bar.
3. Click **Communication Test...**
4. Click **Run** to begin testing.
5. Click **Stop** to end the test.
6. Click **Close** to return to the main menu.



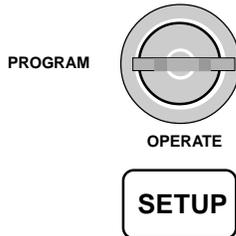
# 4 Flow Meter Setup

If you're not using **Beverage Manager** software, once the flow meters are installed you need to enter the correct brand name for each flow meter number at the ECU. Calibrating the flow meters is an important step in the installation process. You want the volume measured by the flow meters to correspond closely to the actual volume poured.

Set Up Brands .....	4-2
Calibrate Flow Meters .....	4-3

# Set Up Brands

You need to replace "brand 1", "brand 2", etc., with the names of the actual beverages used. Brand 1 corresponds to flow meter 1, brand 2 to flow meter 2, and so on.

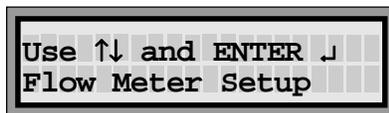


## ■ To set up brands:

1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

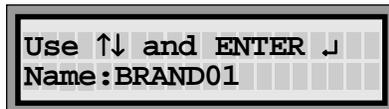
Menu Button: **SETUP**



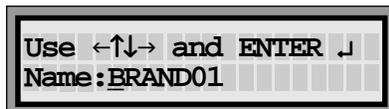
2. Use the up and down arrow keys to display the **Flow Meter Setup** option and press ENTER(↵).



3. Use the up and down arrow keys to display the **Set Up Brand(1-24)** option and press ENTER(↵).

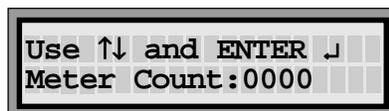


4. Press ENTER(↵) to move the cursor to the first character in the brand name.

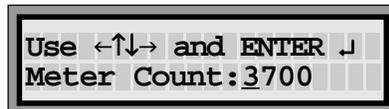


5. Key in the brand name (up to 10 characters) and press ENTER(↵). The ECU saves the brand name and removes the cursor.

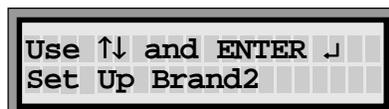
Use the left and right arrow keys to move the cursor through the brand name fields. Use the up and down arrow keys to choose each character of the name from a menu of characters. Menu characters include A-Z, a blank space, various symbols and 0-9.



6. Use the down arrow to display the **Meter Count** option and press ENTER(↵) to move the cursor to the first character in the meter count.



7. Press ENTER(↵) without entering a meter count to use the default count of 3700.  
If you need to enter a meter count, use the up and down arrow keys to select the correct numbers before pressing ENTER(↵). The display returns to the **Set Up Brand(1-24)** option.



8. Repeat steps 3-7 for each brand.
9. Use the up arrow to display the **Exit This Menu** option and press ENTER(↵).

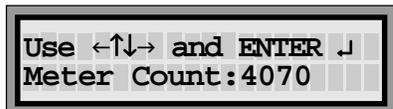
# Calibrate Flow Meters

Calibration is the process of checking the volume measurements recorded by the flow meters and refining their accuracy. It is an important step in the installation process.



Example:

$$\frac{11\text{oz}}{10\text{oz}} \times 3700 = 4070$$



## Flow Meter Count

The flow meter count represents the number of counts from the flow meter per ounce of beverage multiplied by 100.

### ■ To calibrate flow meters:

1. Run a Z report to set volume dispensed to zero. See *Z Report* in the *Reports* section.
2. Pour a generous portion (12 oz) of each beverage using a measuring cup or graduated cylinder. Record the exact amount of each pour.
3. Run another Z report to find the volume recorded by the ECU for each flow meter.
4. For each flow meter:

Divide the volume on the Z report by the actual volume poured. Multiply the result by the current flow meter count to determine a new flow meter count. (If you haven't entered a different flow meter count, the default count is 3700).

$$\frac{\text{recorded pour}}{\text{actual pour}} \times \text{current flow meter count} = \text{new count}$$

5. Enter the new flow meter count for each flow meter. See step 7 of *Set Up Brands* in this section.
6. Run a Z report when you've finished calibrating to clear the recorded pours.

### Note

- If you're not satisfied with the level of accuracy obtained by the calibration process, perform the procedure again. Calculate a new flow meter count each time you perform the steps. Each new flow meter count should increase the flow meter's level of accuracy.



# 5 Reports

If you're not using **Beverage Manager** software, refer to this section for help with the following tasks:

Z Report .....	5-2
X Report .....	5-3
Power Loss History .....	5-4

# Z Report

The Z report zeroes all volume measurements recorded at the ECU. Each Z report is numbered for easy tracking. Any power losses to the ECU are also recorded on the report.



## ■ To generate a Z report:

1. Access the Report Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **REPORT**



2. Use the up and down arrow keys to display the **Z Report** option and press ENTER(↵).

Wait for the report to be generated.



3. Use the up and down arrow keys to view the lines of the report. (**Exit This Menu** is the first line.)

The report informs you if any power losses have occurred.



Each Z report is numbered so you can tell if any reports are missing from your sequence.



Each brand is listed in the report with the total volume recorded for the brand since the last Z report. Record any data you want to save, since these totals will be zeroed out.



4. Use the up arrow key to display the **Exit This Menu** option and press ENTER(↵) when you're finished viewing the report.

You may or may not see this line.

<b>Z Report</b>	
<b>Exit This Menu</b>	
<b>(PWR Lst Since Last Z)</b>	
<b>Z NUM</b>	<b>3</b>
<b>Budweiser</b>	<b>100oz</b>
<b>Bud Light</b>	<b>97oz</b>
<b>Coors</b>	<b>88oz</b>
<b>Michelob</b>	<b>105oz</b>
<b>Heineken</b>	<b>93oz</b>
<b>Miller</b>	<b>87oz</b>
<b>MillerLite</b>	<b>101oz</b>
<b>Red Dog</b>	<b>93oz</b>

The report continues up to brand 24.

Sample Z Report

# X Report

The X report displays the same volume measurements as the Z report but it doesn't zero any totals. The Z number displayed is that of the most recent Z report.



## ■ To generate an X report:

1. Access the Report Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **REPORT**



2. Use the up and down arrow keys to display the **X Report** option and press ENTER(↵).

Wait for the report to be generated.



3. Use the up and down arrow keys to view the lines of the report. (**Exit This Menu** is the first line.)

The report informs you if any power losses have occurred.



The number of the last Z report is displayed.



Each brand is listed in the report with the total volume recorded for the brand since the last Z report.



4. Use the up arrow key to display the **Exit This Menu** option and press ENTER(↵) when you're finished viewing the report.



# Power Loss History

This report displays the date and time of the most recent power losses to the ECU. If the dates and times are not correct, you may need to reset the ECU's time and date. See *Set Time and Date* in the *ECU Setup* section.



## ■ To generate a power loss history report:

1. Access the Report Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **REPORT**



2. Use the up and down arrow keys to display the **Power Loss History** option and press ENTER(↵).

Wait for the report to be generated.



3. Use the up and down arrow keys to view the lines of the report. (**Use ↑↓ To View** is the first line.)

The report displays any power restorations and losses.





SECTION

6

# Country Setup

Refer to the tasks in this section if you need to change the default volume units, date format or time format for a Draft Sentinel ECU.

Country Setup Default Values .....	6-2
Set Volume Unit .....	6-3
Enter Date Format .....	6-4
Enter Time Format .....	6-5

---

## Country Setup Default Values

The Country Setup menu lets you define the volume units, date format and time format used for your system. (It's called "Country" setup because these formats are often determined by the country you live in.) The ECU comes with default values that you can use without making any changes in Country Setup.

---

### Country Setup Default Values

Volume Units:	oz
Date Format:	MM/DD/YY (01/31/99)
Time Format:	12 hour (02:45:00 PM)

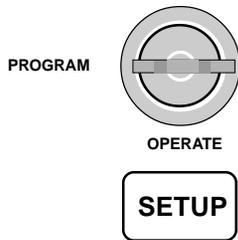
If you want to change any of these default values see the specific task headings that follow.

### Note

- When you're finished working in **Country Setup** and you want to return to the **Setup Menu**, use the up and down arrow keys to select **Exit this Menu** and press ENTER(↵).

# Volume Units

A **Draft Sentinel** system can measure the volume of beverage poured in metric or English units. The default unit is an ounce.



## ■ To change the volume units:

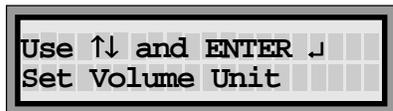
1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **SETUP**



2. Use the up and down arrow keys to display the **Country Setup** option and press ENTER(↵).



3. Use the up and down arrow keys to display the **Set Volume Unit** option and press ENTER(↵).

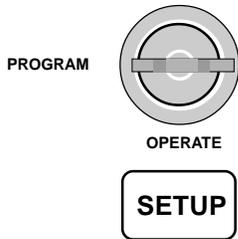


4. Use the up and down arrow keys to select ounces (oz), milliliters (ml), cubic centimeters (cc), centiliters (cl) or liters (L) and press ENTER(↵).

The display returns to the **Set Volume Unit** option.

# Set Date Format

Your customer can choose to display the date on system reports using a month/day/year or day.month.year notation. The default format is month/day/year.



## ■ To set the date format:

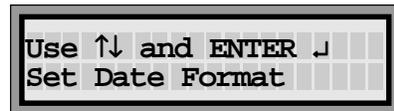
1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **SETUP**



2. Use the up and down arrow keys to display the **Country Setup** option and press ENTER(↵).



3. Use the up and down arrow keys to display the **Set Date Format** option and press ENTER(↵).

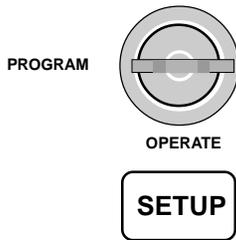


4. Use the down arrow key to select the DD.MM.YY (day.month.year) format or the up arrow to select the MM/DD/YY (month/day/year) format and press ENTER(↵).

The display returns to the **Set Date Format** option.

# Set Time Format

Time can be formatted using a 12 hour or 24 hour clock. The default format is the 12 hour format.



## ■ To set the time format:

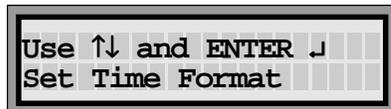
1. Access the Setup Menu on the system ECU.

Key Switch: **PROGRAM**

Menu Button: **SETUP**



2. Use the up and down arrow keys to display the **Country Setup** option and press ENTER(↵).



3. Use the up and down arrow keys to display the **Set Time Format** option and press ENTER(↵).



4. Use the down arrow key to select **24 Hour** (military notation) or the up arrow key to select **12 Hour** (standard PM notation) and press ENTER(↵).

The display returns to the **Set Time Format** option.



SECTION

# 7 Maintenance

Refer to information in this section for the following tasks:

Replace the ECU PROM Chip .....	7-2
Replace the ECU Battery .....	7-4
Clean the ECU .....	7-6

# Replace the ECU PROM Chip

Replacing the PROM chip is not difficult—it just requires a certain amount of care to protect the fragile pins on the sides of the chip.

## Beverage Manager Software

If you're using the software, save your flow meter setup information to a file so you can easily download it to the ECU once you've changed the PROM.

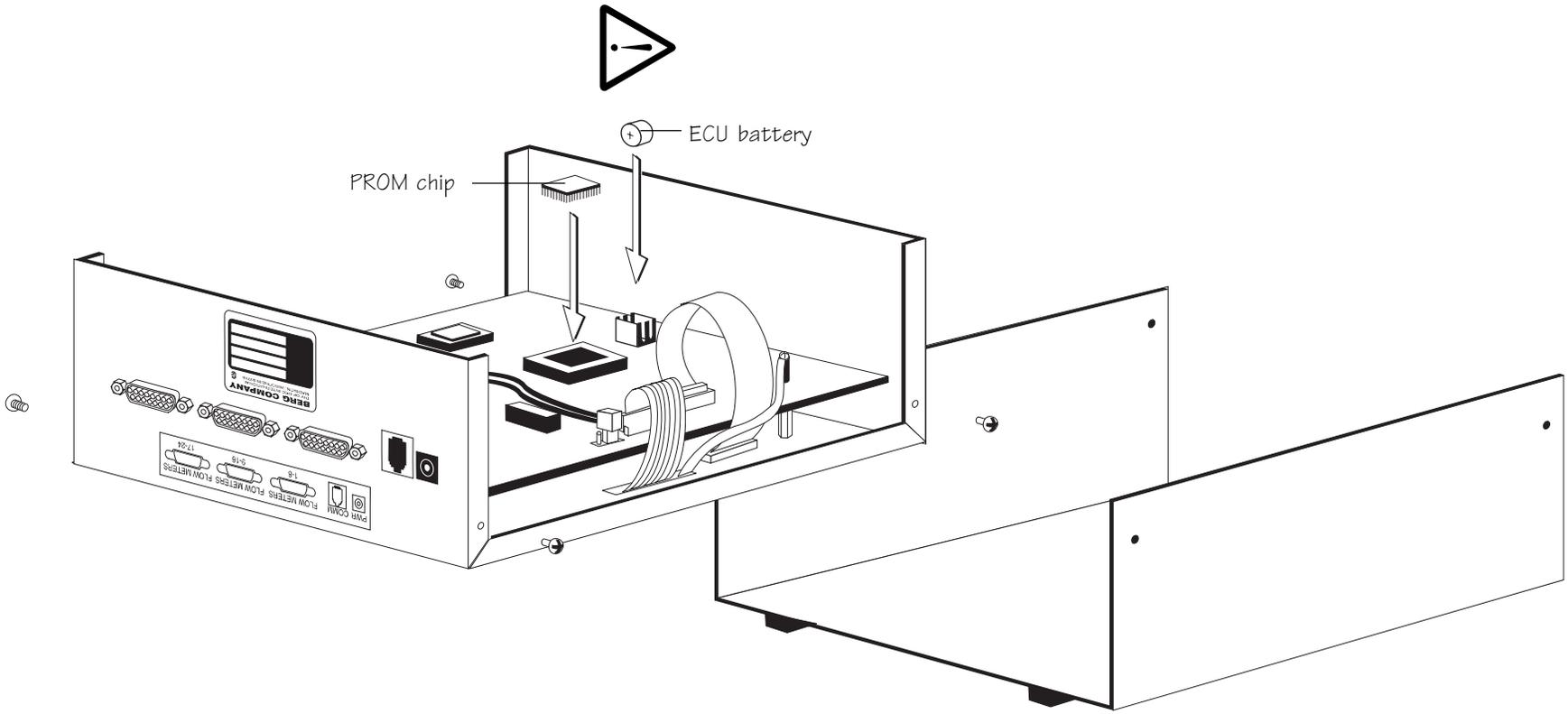
### ■ To replace a PROM chip in a Draft Sentinel ECU:

1. Run a Z report on the system to save the latest sales information. The Z report also gives you a record of the brand names corresponding to each flow meter.
2. If you haven't already done so, record the current entries from the **Setup** menu of the ECU on the *Draft Sentinel Worksheet*, so you can re-enter the correct data after replacing the PROM chip. You'll need to know the brand name and meter count for each flow meter.
3. Unplug the ECU.
4. Remove the cover of the ECU by loosening the four machine screws around its edge.
5. Remove the old PROM chip with the chip puller tool, 8004798, from your Berg Beer Toolkit. Note the orientation of the chip.
6. Insert the new PROM into the socket by aligning the angled corner of the chip with the top left corner of the socket. (It should match the orientation of the old chip.)

Be sure all PROM pins are aligned with the socket. Take care not to bend or damage any of the pins. Gently press straight down on the PROM until it locks into position.

7. Replace the cover on the ECU and tighten the four screws that secure it.
8. Plug in the ECU.
9. Using the information you saved, re-enter the setup data for the system using **Beverage Manager** software or the ECU **Setup** menu. Don't forget to reset the time and date.

If you need help see the *Beverage Manager Software* section or the *Flow Meter Setup* section.



## Replace the ECU Battery

If AC power to the ECU is constantly maintained, the lithium battery inside the ECU should provide years of service. The symptoms of a dying battery may include a "Memory Corrupt" message on the ECU display .

### Beverage Manager Software

If you're using the software, save your flow meter setup information to a file so you can easily download it to the ECU once you've changed the battery.

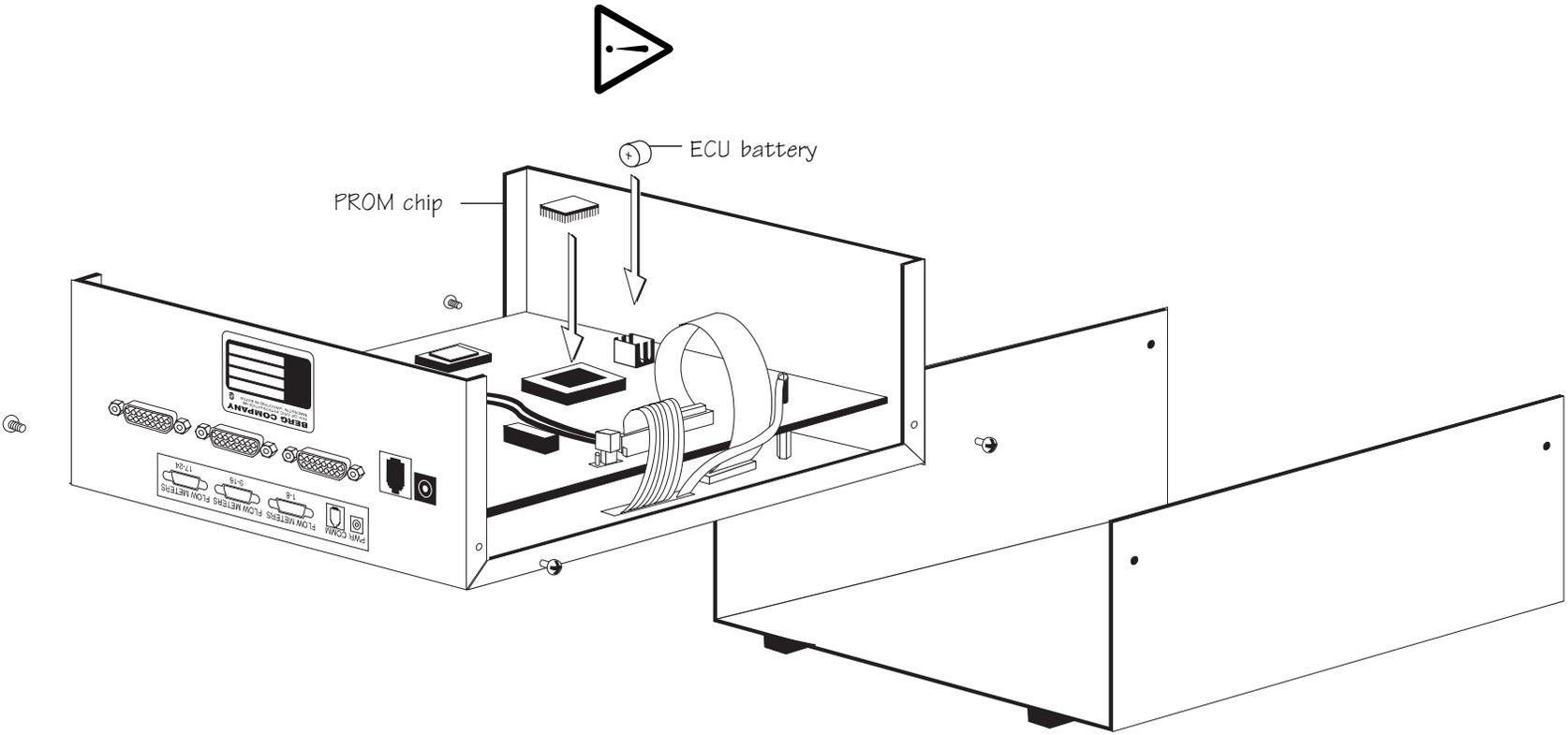
### ■ To replace the battery in a Draft Sentinel ECU:

1. Run a Z report on the system to save the latest sales information. The Z report also gives you a record of the brand names corresponding to each flow meter.
2. If you haven't already done so, record the current entries from the **Setup** menu of the ECU on the *Draft Sentinel Worksheet*, so you can re-enter the correct data after replacing the battery. You'll need to know the brand name and meter count for each flow meter. (You may not be able to do this if the entries are already corrupted.)
3. Unplug the ECU.
4. Remove the cover of the ECU by loosening the four machine screws around its edge.
5. Remove the old battery by inserting the tip of a small screwdriver under it and gently prying it from its socket.
6. Insert the new battery into the battery socket, being sure to align the positive "+" side of the battery with the positive "+" side of the socket. When fully inserted, the battery will be level with the ends of the socket.
7. Replace the cover of the ECU by tightening the four screws that secure it.
8. Plug in the ECU.
9. Using the information you saved, re-enter the setup data for the system using **Beverage Manager** software or the ECU **Setup** menu. Don't forget to reset the time and date.

### Caution:



Lithium is poisonous if swallowed. Be careful not to puncture the battery case when removing an old battery or inserting a new one. Lithium batteries are not rechargeable and should be properly disposed of upon removal. Replace an old battery with Berg PN 8007776, a Duracell DL1/3N, or a Sanyo CR 1/3N. For your safety use no substitutes without the expressed written consent of Berg Company. Dispose of used batteries according to the manufacturer's instructions.



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## Clean the ECU

The ECU is designed to protect the electronics inside from moisture, but bartenders should still be cautioned to avoid splashing water or drinks on the ECU. If a spill should occur on the outside housing of an ECU, use this procedure to clean it.

---

### ■ To clean the ECU:

1. Unplug the power cord from the ECU.
2. Wipe the outside of the ECU with a damp (not dripping) cloth or sponge.

### Notes

- Do not attempt any more thorough cleaning of an ECU, and absolutely do not attempt to clean any internal circuit boards or surfaces.
- If you think liquid may have found its way inside the ECU, call your Berg dealer immediately.

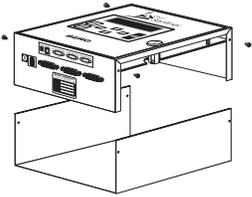


SECTION

# 8 Draft Sentinel Specifications

# Draft Sentinel Specifications

## Draft Sentinel ECU



Number of flow meters:	Up to 24
Number of draft brands:	Up to 24
Security:	Key lock
Enclosure:	Powder coated aluminum
Dimensions:	8 in (20.3 cm) H 7 in (17.8 cm) W 3 in (7.6 cm) D
Weight:	2.5 lbs (1.15 Kg)
Display:	LCD display 2 x 20
Keypad:	Up and down arrows and enter key
Other:	Memory - battery backup

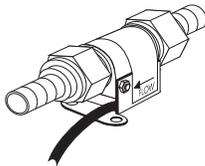
## Power Supply Requirements

Input voltage, connector and frequency:	As required by your locality
Unregulated DC output:	12VDC @ 800MA (0.8A)
Output power:	9.6VA MAX
Mating connector:	Switchcraft ST-700 type, 3.5mm DIA, positive tip

Any power supply you purchase for use with Berg's Draft Sentinel ECU must be a Class II supply meeting these specifications and must carry one or more of the following certifications, as required by your locality.

Certifications:	UL 1310; EN60742; IEC742; EN61558; CSA 22.2, No. 1010
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## Draft Sentinel Flow Meter



Location:	Installed in bulk beverage feed line
Type:	Turbine/magnet, pulses based on volume
Distance from console:	Up to 500 feet (152.5 m)
Sensor:	Hall effect
Dimensions:	1.2 in (30 mm) H 1.0 in (25 mm) W 2.4 in (61 mm) L
Weight:	0.13 lbs (.06 Kg)
Other:	■ 1 required per line ■ Uses 29/32 in (23 mm) std. beer coupling nuts & tailpieces ■ Long-life sapphire bearings

## Computer Interface



Minimum requirements to run Beverage Manager software:	
IBM compatible PC:	486 DX
Operating system:	Windows 3.1 or Windows 95
RAM:	8 MB
Video monitor:	Standard VGA resolution (640 x 480)
Available hard disk space:	3 MB
Available COM port:	At least one (switchbox if using server ID)

## Beverage Manager Software Features



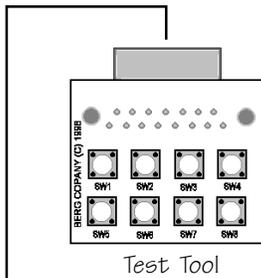
- Convenient flow meter and brand setup
- Simplified calibration process
- Calculates retail value of volume poured
- Access to printed reports

SECTION

# 9

## Troubleshooting

## Flow Test Tool

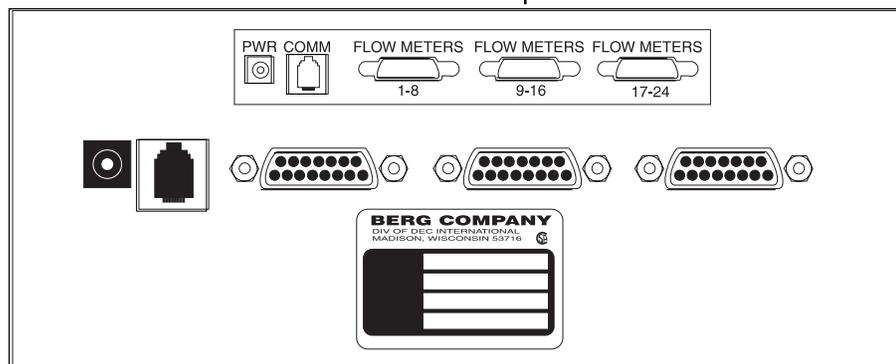


Use SW7 to test flow meter 15 when test tool is inserted in FLOW METERS 9-16.

- Use this tool to help troubleshoot whether a problem is in the ECU or in a flow meter.
- Select **Flow Test** on the ECU menu. (See *Flow Test* in the *Flow Meter Setup* section.)
- Replace a flow meter J-box cable with the test tool (in the 15-pin **Flow Meters** port on the front of the ECU).
- Press a white button on the test tool to simulate flow meter input. The buttons are numbered **SW1-8** to correspond to the 8 flow meters connected to a flow meter J-box.

For example, if you're testing flow meter 15, insert the tool in the **Flow Meters 9-16** port and press button **SW7**

- If the ECU registers the correct flow meter number, you know the ECU is working fine and the problem is somewhere in the flow meter or flow meter J-box.
- If the ECU doesn't register the correct flow meter number, the problem has to do with the ECU.



### ECU display window (LCD) is blank

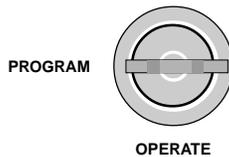


- Is the transformer plugged into both the wall outlet and the ECU?
- Is the ribbon cable from the LCD to the circuit board properly secured?
- Is the key switch in the correct position?

### ECU keypad does not respond

- Inside the ECU, is the cable connecting the keypad to the circuit board secure?

### Key switch does not respond



- Are the wires still connected to the key switch inside the ECU?
- Are these wires still connected properly to the main circuit board?





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