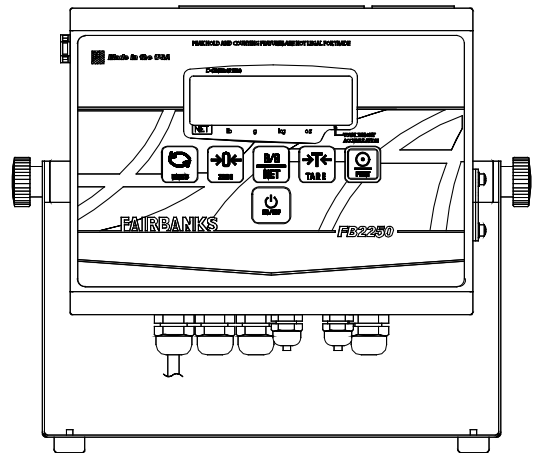
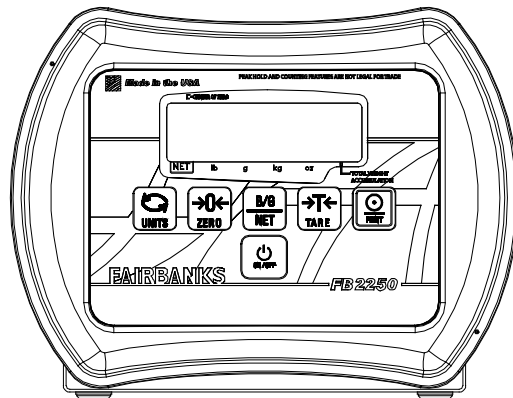




# FB2250 Series Instrument PC2250 Utility Software



# Amendment Record

## FB2250 Series Instrument PC2250 Utility Software Document 51214

Manufactured by **Fairbanks Scales Inc.**

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Revision 1	03/2009	Released Manual
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Revision 3	06/2009	Added MC Approval, IP69K, and Panel Mount Models
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Revision 15	10/2019	Added 4-20mA "Warning" information
Revision 16	02/2020	Updated Accessories > Fieldbus links
Revision 17	08/2020	Updated Weight Accumulation

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---

# SECTION 1: GENERAL INFORMATION

---

## 1.1. Model Descriptions

The FB2250 is a general-purpose weighing instrument that can be used with a wide variety of platforms and load receivers and is available in nine (9) different configurations.

MODEL	PART NO.
• FB2250 Series ABS, AC Power	29250
• FB2250 Series ABS, AC/Battery Power	29561
• FB2250 Series SS, AC Power	29251
• FB2250 Series SS, AC/Battery Power	29562
• FB2250 Series SS, AC Power, No Bracket	29563
• FB2250 Series SS, AC/Battery Power, No Bracket	29564
• FB2250 Series SS, AC Power, No Bracket, IP69K	29013
• FB2250 Series SS, AC Power, IP69K	28990
• FB2250 Series, AC Power, Panel Mount	29803

## 1.2. Main Product Features

Major features of the Instrument include the following.

- Push-button programming and calibration.
- Program data is stored in battery supported RAM and backed up in flash memory.
- The battery should be replaced every 12 months.
- The FB2250 series instrument features a large one-inch high green backlit LCD weight display, which can be tilted up or down to accommodate different lighting conditions. Microprocessor controlled design allows the instrument to be rapidly programmed at installation to meet the specific requirements of the application.
- The obtainable accuracy meets Handbook 44 requirements, and the instrument is approved for commercial application up to 10,000 divisions. A maximum of 100,000 displayed divisions can be programmed for non-commercial applications.
- A computer utility software program PC2250 is available, via download from Fairbanks Intranet for programming via computer, and is required for certain features such as custom ticket formatting.

## 1.2. Main Product Features, Continued

- The PC2250 software utility program can also upload and modify the instruments set-up, configuration, and calibration. Saved information can be downloaded from a computer to the FB2250 Series in the event of a catastrophic failure.
- The instrument provides two (2) serial communication ports to provide communication to various types of peripheral devices for RS232, RS422, RS485, and 20mA data outputs.
- Optional accessories include a 4-20mA analog output, Bluetooth® serial adapter, and five different fieldbus devices; PROFIBUS®, DeviceNet™, ControlNet™, Modbus® and ETHERNET/IP.

## 1.3. Specifications

### 1.3.1. Instrument Approvals

• CC	09-023
• MC	AM-5720
• ETL	ETL Listed
• Conforms to ANSI/UL STD 60950-1	
• Certified to CAN/CSA C22.2 STD NO. 60950-1-03	

### 1.3.2. Specifications

• ENCLOSURE	ABS, Black NEMA 1, Stainless Steel NEMA 4X Desk and Wall Mount
• DISPLAY	6 digits, 1 inch LCD, Green Backlight
• FRONT PANEL KEYS	On/Off, Units, Zero, B/G, Net, Tare and Print
• UNITS	lbs, oz, kg, g and lbs/oz, or custom
• GRADUATION SIZE	0.0001 to 50
• AD CONVERSION	66 per second
• LOAD CELL EXCITATION	5 Volts DC
• SENSITIVITY	1µv/d (microvolt/division)
• LOAD CELLS	Eight (8) 350 ohm or Sixteen (16) 1000 ohm
• DISPLAYED DIVISIONS	10,000d Commercial and 100,000d Non-Commercial
• CAPACITIES	Programmable to 999999



## 1.3. Specifications, Continued

### 1.3.3. Settings

• Zero Range	2 % or 100%
• Auto Zero Tracking	OFF, 0.5, 1 or 3 divisions
• Balance	OFF, 0.5, 1 or 3 divisions
• Filter	Slow, Cattle, Standard, and Fast
• Display Update Rate	0.2, 0.4, and 0.8 seconds

### 1.3.4. Weight Accumulator

• Capacity	Up to <b>99,999 accumulations</b> , or <b>999,999 totaled weight units</b> . – Printed or viewed
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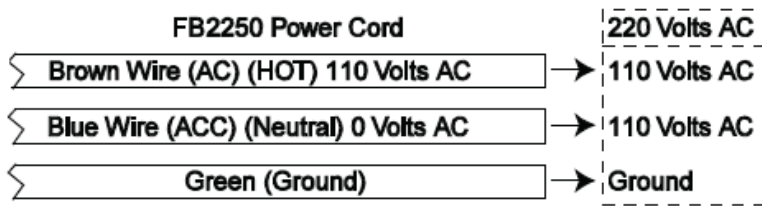
### 1.3.5. Outputs

• PORT 1	Bidirectional Serial Port. Settings include <b>OFF, RS232, RS422, and RS485</b> . RS232 has 30+ updates a second
• PORT 2	Port 2 is used to interface to the <b>PC2250 program</b> , OR to provide <b>20mA passive, RS232, RS422*</b> , or <b>RS485</b> .

\*Port should be set to RS485. Note jumper and wiring connections listed in **Section 5:Serial Communication Wiring**.

### 1.3.6. AC Operation

The FB2250 is designed to operate from **80 to 260 volts AC, 50 to 60 Hertz** with **Auto Switching** capability.

<ul style="list-style-type: none"> <li>• 110 Volt AC Operation             <ul style="list-style-type: none"> <li>○ The FB2250 is factory wired for 110 VAC and requires a three-prong grounded outlet.</li> </ul> </li> <li>• 220 Volt AC Operation             <ul style="list-style-type: none"> <li>○ Rewire the power cord according to the following diagram:</li> </ul> </li> </ul>
<p><b>FB2250 Power Cord</b></p> 
<ul style="list-style-type: none"> <li>• 1.5 watts maximum</li> <li>• The FB2250 is designed to operate from 80 to 260 volts AC, 50 to 60 Hertz</li> </ul>

### 1.3.7. DC Models

• Batteries	Five (5) Size "D" Alkaline batteries @ 1.5 Volts DC each.
• Battery Life	<p>Battery usage time can be adversely affected by battery storage, battery capacity and battery brand.</p> <p>To maximize battery life, serial Ports 1 and 2 should be switched <b>OFF</b>, if not used.</p> <p>(1) 350Ω load cell, Back Light = OFF, RS232 ports = OFF.....55 hours</p> <p>(4) 350Ω load cell, Back Light = ON, RS232 ports = OFF.....16 hours</p> <p>(4) 350Ω load cell, Back Light = OFF, RS232 ports = OFF.....33 hours</p>
• Internal Battery	• Should be replaced every 12 months using Panasonic CR 1220 3V or equivalent.

### 1.3.8. Out of Range Warnings

• HiCAP	Scale input is over capacity
• -----	Displayed weight exceeds 6 digits
• Sleep Mode	Settings include OFF, 1, 2, 5, 10, 20, and 30 minutes
• Time and Date	Battery Maintained

### 1.3.9. External Printers

• <b>Tape Printers</b> – Citizens IDP 3550 and Epson Model TM-U220 Tape Printers
• <b>Serial Form Printers</b> – Okidata 184 & 186 Serial Form Printer
Okidata 420 Serial Form Printer
• <b>Ticket Printers</b> – Epson Models TM-U295, TM-U590 Ticket Printers

### 1.3.10.Environment

• Temperature	-10°C to + 40°C (+14°F to + 104°F)
• Storage Temp.	-40°C to + 60°C (-40°F to + 140°F)

### 1.3.11.PC2250

<ul style="list-style-type: none"> <li>• Computer software utility program is available for download using the Fairbanks Intranet.</li> <li>• PC2250 is required for setting certain aspects of programming, such as custom Units and custom ticket formatting.</li> </ul>
--

## 1.3. Accessories

Optional accessories include the following.

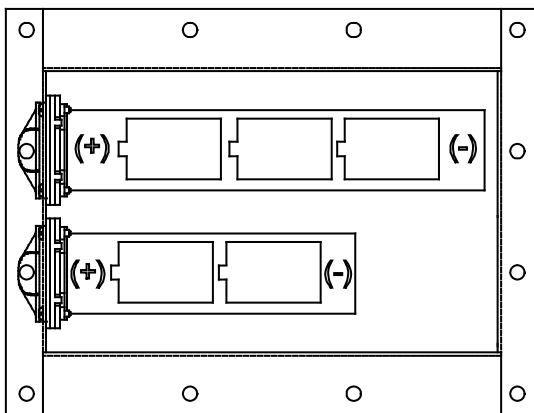
FIELDBUS DEVICES				
• DeviceNet™	• ControlNet™	• PROFIBUS®-DP	• Modbus®	• ETHERNET/IP

4-20MA ANALOG CURRENT LOOP OUTPUT	
• 16 bit Resolution and Monotonicity	• 0.01% Non-Linearity
• Isolated 4mA to 20mA	• Front Panel Programmable or via PC2250 utility software program

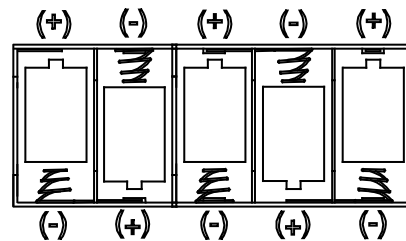
BLUETOOTH® TECHNOLOGY INTERFACE
<ul style="list-style-type: none"> <li>Utilizes either Port 1 or Port 2 Serial Output. RS232 serial Interface to Bluetooth Interface. Range 100 meters (328 feet).</li> <li>The Bluetooth option will operate either as a Client or Server depending on which device the FB2250 is connected.               <ul style="list-style-type: none"> <li>If connected to a printer, the FB2250 will be a <b>Server</b>.</li> <li>If connected to a PC, the Instrument will be a <b>Client</b>.</li> </ul> </li> </ul>

## 1.4. Battery Installation

STAINLESS STEEL ENCLOSURE



ABS ENCLOSURE



Stainless Steel Instrument: Unscrew the black plastic end caps and insert 5 alkaline “D” cells as shown above.

ABS Instrument: Unscrew the two large knurled screws on the back of the Instrument and remove the battery cover. Insert 5 alkaline “D” cells as shown above.

Industrial "D" Size battery Energizer EN95 or equivalent is recommended for maximum operating time.

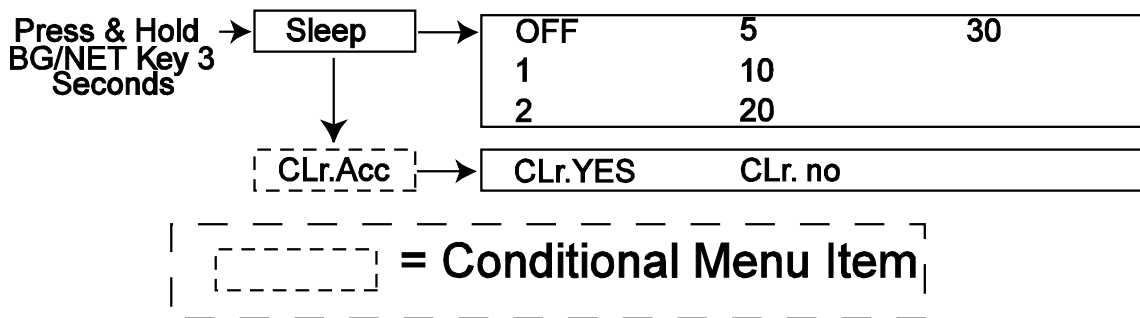
## 1.5. Powering up the FB2250

Press the ON / OFF Key for 1 to 2 seconds. The Instrument will display “888888” followed by a “1234567890” character display moving from right to left, followed by the revision of software. Upon completing the warm-up, the FB2250 will display the actual weight on the scale.

To turn the FB2250 off, press the **ON / OFF** key for 1 to 2 seconds.

## 1.6. Flow Charts

Dashed line boxes used in the flowchart indicate that the menu item availability is dependent upon programming performed elsewhere. For example, “clearing the accumulator” will not be available if accumulation has not been enabled.

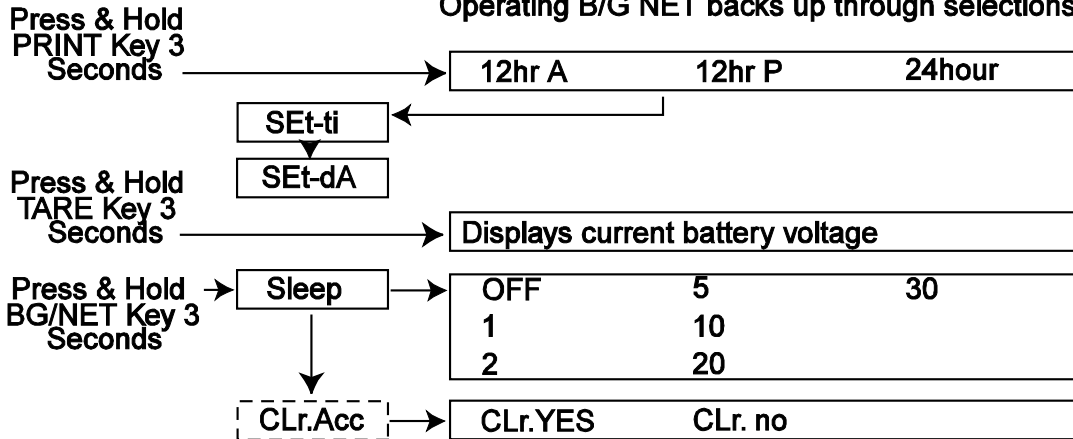


# SECTION 2: FRONT PANEL PROGRAMMING

## 2.1. Front Panel Programming Parameters

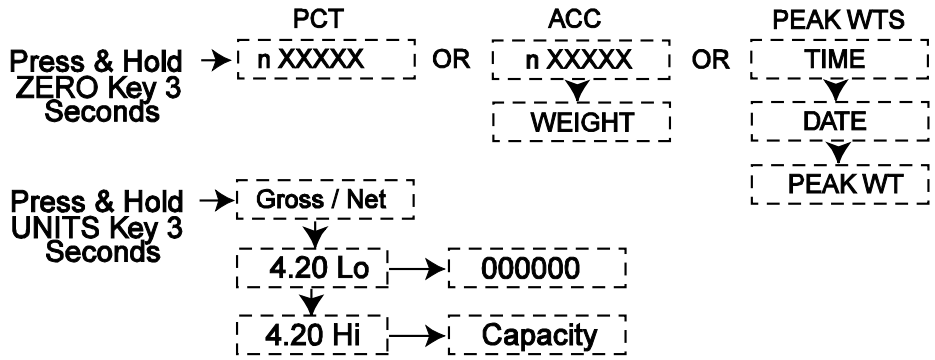
### Front Panel Programming

Operating ZERO enters the change Mode  
 Operating UNITS scrolls through the selections  
 Operating ZERO saves the change  
 Operating B/G NET backs up through selections



**NOTE** Press Zero key will Clear the Accumulator/Total Register/ Peak Weight parameters and set the Instrument to the Net/Gross Mode

**NOTE** Press Units key will not Clear the Accumulator/Total Register/ Peak Weight parameters and set the Instrument to the Net/Gross Mode



## 2.2. Front Panel Programming

### 2.2.1. Programming and Setting Time

1. Press and hold the **PRINT** key for three (3) seconds.
2. Current Time Format will display:
  - **12hr A** – 12 hour clock, currently AM.
  - **12hr P** – 12 hour clock, currently PM.
  - **24 hour** – Military time, (1:00 PM = 1300 hours).
3. Press the **ZERO** key to edit or **UNITS** key to skip.
  - Press the **UNITS** key to toggle through the available selections.
  - Press the **ZERO** key to enter the selection.
4. The display indicates **Set-ti**, and then shows the current time in **HHMMSS** format.
5. Press the **ZERO** key to edit or **UNITS** key to skip.
  - The Hour digits will blink.
  - Press **UNITS** key to increment to the **hour setting**.
  - Press **ZERO** key.
  - The Minutes digits will blink.
  - Press **UNITS** key to increment to the **minutes setting**.
  - Press **ZERO**.
  - The Seconds digits will blink.
  - Press **UNITS** to increment to the **seconds setting**.
  - Press **ZERO** to enter the time settings.
6. When complete, Program will advance to programming the date.

### 2.2.2. Programming the Date

1. **Set-dA** displays, followed by the current date setting in **MM-DD-YY** format.
2. Press the **ZERO** key to edit or **UNITS** key to skip.
  - The Month digits will blink.
  - Press **UNITS** key to increment to the desired month setting.
  - Press the **ZERO** key to advance to the day setting.
  - The Day digits will blink.
  - Press **UNITS** key to increment to the desired day setting.
  - Press the **ZERO** key to advance to the year setting.
  - The Year digits will blink.
  - Press **UNITS** key to increment to the desired year setting.
  - Press the **ZERO** key to save the date setting.
3. When complete, the FB2250 will return to the weight mode.

### 2.2.3. Display Battery Voltage

1. Press and hold the **TARE** key for three (3) seconds.
  - The battery current or power supply voltage displays
    - **8.3 VDC nominal**
2. When **TARE** key is released, the FB2250 will return to the weight mode.

### 2.2.4. Programming the Sleep Function

This function serves to prolong battery life by turning off the Instrument. When there is no activity, the **Sleep Mode** activates according to the programmed time frame. Activity is when weight is applied to the scale exceeding the motion band setting, pressing a key, or receiving a polling request on a communication port.

1. Press and hold the **BG/Net** key for three (3) seconds.
2. The display will indicate **SLEEP**, and then display the current setting.
  - Settings in minutest include **OFF, 1, 2, 5, 10, 20, 30.**
3. Press the **ZERO** key to edit or **UNITS** key to skip.
  - Press **UNITS** key to scroll through available settings.
  - Press **ZERO** key to enter the selection.
4. When complete, the FB2250 will return to the weight mode, if the Accumulator function is not active.

### 2.2.5. Clearing the Accumulator

The Accumulator(s) to be cleared depend on whether the **Operating Mode** is programmed to **Accumulation** or **Piece Count and Total**. (See Section 3.5 [Operating Mode](#) for details)

- Press and hold the **BG/Net** key for three (3) seconds.
  - Press **UNITS** key until **CLr.ACC** displays on the Instrument.
1. Press the **ZERO** key to edit or **UNITS** key to skip.
    - Press **UNITS** key to toggle the available settings.
      - **CLr.YES** (Clear the Accumulator)
      - **CLr.NO** (Do NOT Clear the Accumulator)
    - Press the **ZERO** key to enter the selection.
  2. When complete, the FB2250 will return to the weight mode.

## 2.2.6. Display Operating Mode Data

**NOTE:** These options are conditional upon programming the **Operating Mode** (See Section 3.5 [Operating Mode](#) for details)

1. Press and hold the **ZERO** key for three (3) seconds.
2. Depending upon how the FB2250 was programmed in the **Operating Mode**, one of these conditions will occur:
  - **ACCUMULATION:**
    - The display will alternate between the number of Gross weight Accumulations "**n**" and the total Gross weight Accumulated for thirty (30) seconds, and then return to the **Weigh Mode**.
      - The caret (v) above the printed *Total Weight Accumulated* legend of the display will be seen.
    - Press the **B/G NET** key
      - The display will alternate between the number of Net weight Accumulations "**n**" and the total Net weight Accumulated for thirty (30) seconds, and then return to the **Weigh Mode**.
      - The caret (v) above the printed *Total Weight Accumulated* and *NET* legends of the display will be seen.
  - **PIECE COUNT** or **PIECE COUNT AND TOTAL:**
    - After completing an initial piece sampling
      - When in the NET Weigh Mode (with container), the number of pieces "**n**" on the scale at the time the key is pressed will be displayed for 30 seconds.
      - When in the Gross Weigh Mode (without container), the number of pieces "**n**" on the scale at the time the key is pressed will be displayed for 30 seconds.
  - **PEAK HOLD STABLE** or **PEAK HOLD UNSTABLE;** displays time, date, and peak weight, then times out to the Weigh Mode in thirty (30) seconds.
3. Pressing the **UNITS** key will skip time out and immediately exit to the Weigh Mode.

## 2.2.7. 4-20mA Output Setup

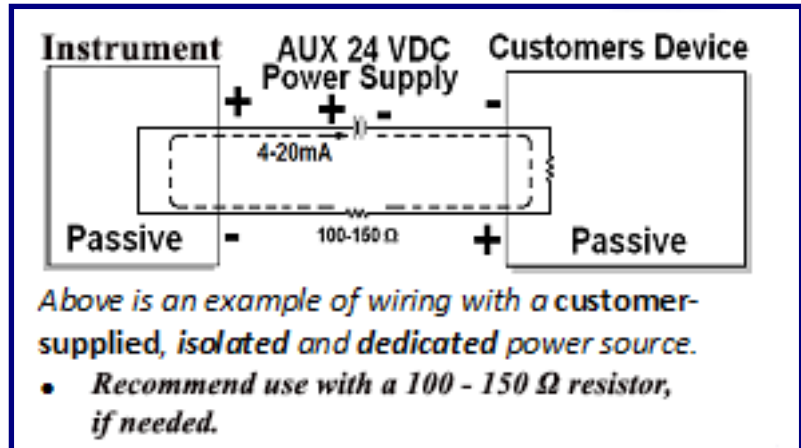
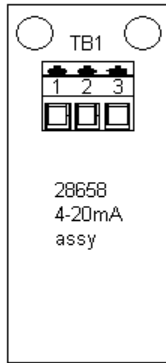
**WARNING:** Do not physically install the 4-20mA card until the instrument is configured and calibrated (weight) to the platform.

The 4-20mA analog output is passive, therefore it requires the receiving element to supply the loop with a dedicated, isolated power source from 7-24V DC. The output is linear throughout the range from 4mA to 20mA and can be programmed to increase (upweigh) or decrease (downweigh) as weight is increased.



Connections are as follows:

Pin 1	+ 4-20mA
Pin 2	- 4-20mA



### 2.2.8. Programming the 4-20mA Analog Output Weighing Mode

Setting up the **4-20mA Option** depends on how it is enabled and configured.

1. Press and hold **UNITS** for three (3) seconds.
2. **4-20** displays, followed by the current setting
  - **GROSS** or **NET**.
  - The 4-20mA analog output will track the selection.
  - It will continue to track the selection regardless of the active weight display mode of the FB2250.
3. Press the **ZERO** key to edit or the **UNITS** key to skip.
  - Press the **UNITS** key to toggle the available settings.
  - Press **ZERO** to enter the selection.

When complete, Program will advance to programming the 4-20mA 4mA setting.

### 2.2.9. Programming the 4mA Weight Value

1. **4.20 Lo** displays, followed by the current setting.
2. If the output needs fine-tuned, use the **TARE** or **PRINT** keys to adjust. **Adj Lo** displays.
3. Press **ZERO** to return to the weight settings.
4. Press the **ZERO** to edit or press the **UNITS** key to skip.

- a. The most significant digit will be blinking, operate the **UNITS** key to increment the number.
- b. When the desired value has been obtained, Press the **ZERO** key.
- c. The next less significant digit will then blink, operate the **UNITS** key to increment the number.
- d. Repeat steps b and c until the least significant digit has been completed.

*This weight value will result in a **4mA Output**.*

5. When complete, the program will advance to the 20mA menu.

### **2.2.10. Programming the 20mA Weight Value**

1. **4.20 Hi** displays, followed by the current setting.
2. If the output needs fine-tuned, use the **TARE** or **PRINT** keys to adjust. **Adj Hi** displays.
3. Press **ZERO** to return to the weight settings.
4. Press the **ZERO** key to edit or press the **UNITS** key to skip.
  - a. The most significant digit will be blinking, operate the **UNITS** key to increment the number.
  - b. When the desired value has been obtained, Press the **ZERO** key.
  - c. The next less significant digit will then blink, operate the **UNITS** key to increment the number.
  - d. Repeat steps b and c until the least significant digit has been completed.

*This weight value will result in a **20mA Output***

5. When complete, the FB2250 will return to weigh mode.

---

**NOTE:** Fine tune adjustment is available in firmware version 2.04 and after.

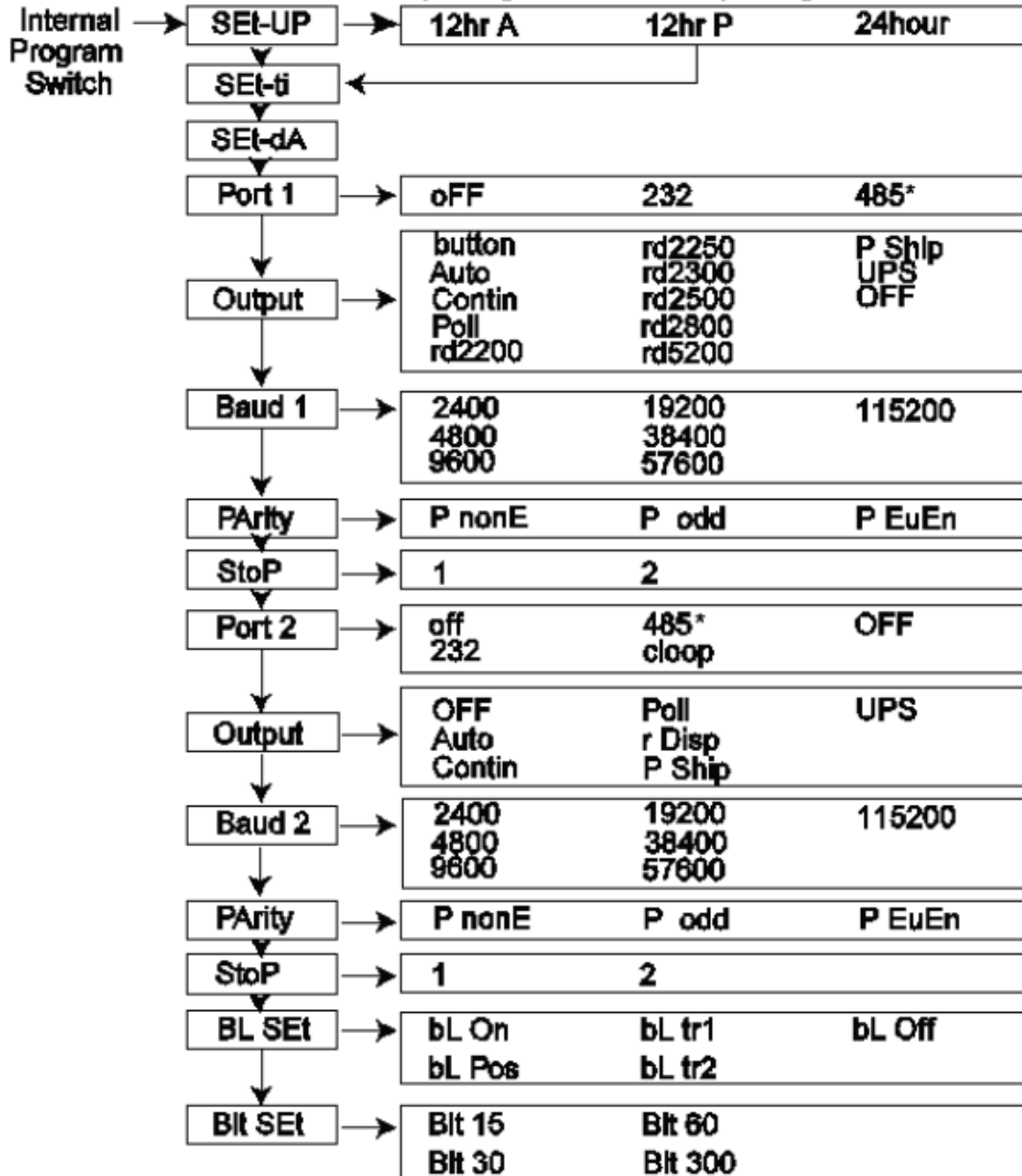
---

# SECTION 3: OPERATION

## 3.1. Setup Menu Programming Parameters – Version 2.0+

### Set-up Menu Version 2.0 +

Operating ZERO enters the change Mode  
 Operating UNITS scrolls through the selections  
 Operating ZERO saves the change  
 Operating B/G NET backs up through selections



\* RS485 is selected when RS422 output is required. Reference wiring and jumper connections in **Section 5: Serial Communication Wiring**.

## 3.2. Setup Menu Programming

1. Press the **INTERNAL PROGRAM SWITCH** until **Setup** displays.
2. Press the **UNITS** key.

### 3.2.1. Programming and Setting Time

1. The current display format setting will display
  - **12hr A** – 12 hour clock, currently AM.
  - **12hr P** – 12 hour clock, currently PM.
  - **24 hour** – Military time (1:00 PM = 1300 hours).
2. Press the **ZERO** key to edit or **UNITS** key to skip.
  - Press the **UNITS** key to toggle through the available selections.
  - Press the **ZERO** key to save the selection.
3. **Set-ti** displays, followed by the current time setting in **HHMMSS** format.
4. Press the **ZERO** key to edit or **UNITS** key to skip.
  - The Hour digits will blink.
  - Press **UNITS** key to increment to the **hour setting**.
  - Press **ZERO** key.
  - The Minutes digits will blink.
  - Press **UNITS** key to increment to the **minutes setting**.
  - Press **ZERO**.
  - The Seconds digits will blink.
  - Press **UNITS** to increment to the **seconds setting**.
  - Press **ZERO** to enter the time settings.
5. When complete, the program will advance to Programming the Date.

### 3.2.2. Programming the Date

1. **Set-dA** displays, followed by the current date setting in **MM-DD-YY** format.
2. Press the **ZERO** key to edit or **UNITS** key to skip.
  - The Month digits will blink.
  - Press **UNITS** key to increment to the desired month setting.
  - Press the **ZERO** key to advance to the day setting.
  - The Day digits will blink.
  - Press **UNITS** key to increment to the desired day setting.
  - Press the **ZERO** key to advance to the year setting.
  - The Year digits will blink.
  - Press **UNITS** key to increment to the desired year setting.
  - Press the **ZERO** key to save the date setting.
3. When complete, the program will advance to Port 1.

### 3.2.3. Programming Port 1

1. **Port 1** displays, followed by the current protocol setting.
  - OFF – com port is not active.
  - rS232 – using RS232 protocol
  - rS485 – using RS485 or RS422 protocol
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** to select an option.
3. When complete, the program will advance to Port 1 output.

---

**NOTE:** See [Section 5.2. TB4 Connections, COM1 \(A\), COM2 \(B\), and COM2 \(C\)](#)

---

### 3.2.4. Programming the Port 1 Output Type

1. **Output** displays, followed by the current output type setting:
  - **Button** -Using the Print key.
  - **Auto**- Activated by stable weight above 10d, reset by return to half of printed weight.
  - **Contin** -Continuous Output. Once every display update rate.
  - **Poll** -Demand Output by receipt of CR or programmed poll character
  - **Rd2200** -Remote Display for FB2200
  - **Rd2250** -Remote Display for FB2250/55
  - **Rd2300** -Remote Display for 2300
  - **Rd2500** -Remote Display for 2500
  - **Rd2800** -Remote Display for 2800
  - **Rd5200** -Remote Display for 5200
  - **P Ship** -Used for FedEx Shipping Software
  - **UPS** -Used for UPS Shipping Software
  - **OFF** -Output is not active
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** to select an option.
3. When complete, the program will advance to Port 1 Baud Rate.

### 3.2.5. Programming Port 1 Baud Rate

1. **Baud 1** displays, followed by the current baud rate setting.
  - 2400
  - 4800
  - 9600
  - 19200
  - 38400
  - 57600
  - 115200
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 1 Data Bits.

### 3.2.6. Programming Port 1 Data Bits

1. **d-bitS** displays, followed by the current data bits setting:
  - 8
  - 7
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 1 Parity Setting.

### 3.2.7. Programming Port 1 Parity Setting

1. **Parity** displays, followed by the current parity bit setting:
  - **P None** – no parity bit
  - **P Odd** - odd parity bit
  - **P Even** – even parity bit
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 1 stop bits.

### 3.2.8. Programming Port 1 Stop Bits

1. **Stop** displays, followed by the current stop bits setting:
  - 1
  - 2
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2.

### 3.2.9. Programming Port 2

1. **Port 2** displays, followed by the current protocol setting:
  - **OFF** – com port is not active
  - **rS232** - Using RS232 protocol
  - **rS485** - Using RS485 or RS422 protocol
  - **Cloop** Using 20mA Current Loop (passive)
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2 Output.

### 3.2.10. Programming the Port 2 Output Type

1. **Output** displays, followed by the current output type setting:
  - **Auto** - Activated by stable weight above 10d, reset by return to half of printed weight.
  - **Contin** - Continuous Output. Once every display update rate.
  - **Poll** - Demand Output by receipt of CR from external source.
  - **r Disp** – 1600 Series Remote Display output format
  - **P Ship** - Used for Fed Ex Shipping Software
  - **UPS** - Used for UPS Shipping Software
  - **OFF** - output is not active.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2 baud rate.

### 3.2.11. Programming Port 2 Baud Rate

1. **Baud 2** displays, followed by the current baud rate setting.
  - 2400
  - 4800
  - 9600
  - 19200
  - 38400
  - 57600
  - 115200
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2 Data Bits.

### 3.2.12. Programming Port 2 Data Bits

1. **d-bitS** displays, followed by the current data bits setting:
  - 8
  - 7
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2 Parity Setting.

### 3.2.13. Programming Port 2 Parity Setting

1. **Parity** displays, followed by the current parity bit setting:
  - **P None** – no parity bit
  - **P Odd** - odd parity bit
  - **P Even** – even parity bit
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Port 2 stop bits.



### 3.2.14. Programming Port 2 Stop Bits

1. **Stop** displays, followed by the current stop bits setting:
  - 1
  - 2
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Back light options.

### 3.2.15. Programming the Back Light Options

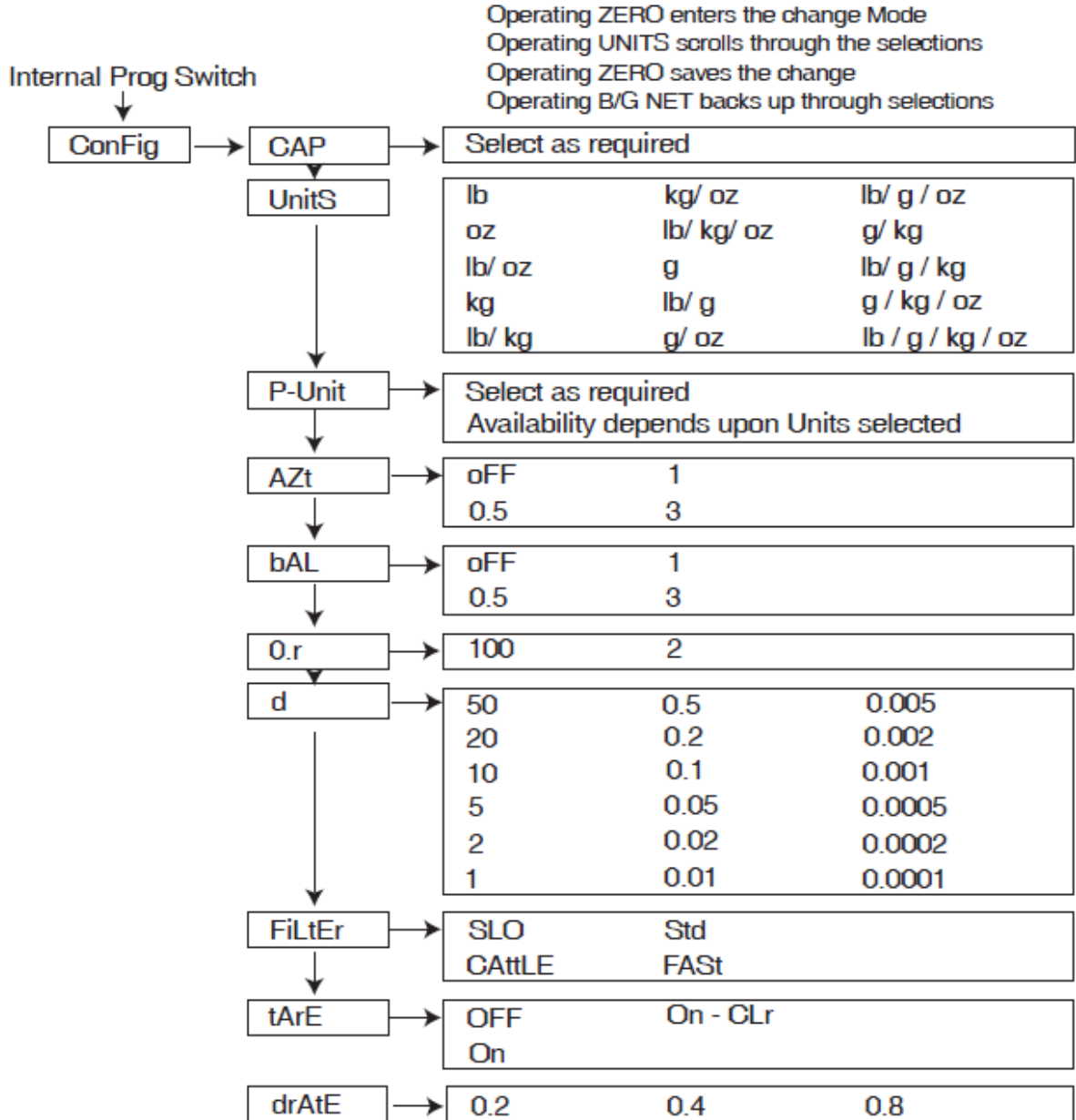
1. The current setting displays:
  - **bL On** - Back light always **ON**.
  - **bL POS** - Back light only on with a positive weight on the scale, otherwise off.
  - **bL tr1** - Back light **ON** with a positive weight on the scale until weight has been stable for the amount of time selected at the following program step.
  - **bL tr2** - Back light **ON** with a positive weight until returned to zero and stable for the amount of time selected at the following program step.
  - **bL OFF** - Back light always **OFF**.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Back light timing.

### 3.2.16. Programming the Back Light Timing

1. The current setting displays:
  - **bLt 15** - back light remains illuminated 15 seconds
  - **bLt 30** - back light remains illuminated 30 seconds
  - **bLt 60** - back light remains illuminated 60 seconds
  - **bLt 300** - back light remains illuminated 300 seconds
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to Configuration Menu.

### 3.3. Configuration Menu Programming Parameters

## ConFig Menu



## 3.3. Configuration Menu Programming Parameters, Continued

1. Press the **INTERNAL PROGRAM SWITCH** until **ConFig** is displayed.
2. Press the **UNITS** key.

### 3.3.1. Programming the Scale Capacity

1. **CAP** displays, followed by the current scale capacity setting with a caret symbol (V) located above the printed unit legend of the display representing the current primary unit setting.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Most significant digit will blink
  - Press **UNITS** key to scroll through available settings.
  - Press **ZERO** key to enter and advance to next digit
  - Repeat the process until the least significant digit is selected.
3. When complete, the program will advance to scale units.

---

**NOTE:** Capacity can be up to six (6) displayed digits (i.e. 999999). All six digits must be entered to advance to the next parameter.

---

### 3.3.2. Programming the Scale Units

1. **UnitS** displays, and the current setting with a caret symbol (V) above the printed unit(s) legend of the display.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - The caret will automatically move to the choices.
  - Available selections include any single or combinations of:
    - lb - pounds
    - kg - kilograms
    - oz - ounces
    - g - grams
  - Press **ZERO** key to save the selection.
3. When complete, the program will advance to programming primary unit.

---

#### NOTES:

1. **lb-oz** and **custom** units are also available but can only be programmed with the PC2250 software utility (see [Section 7.](#))
2. The **lb-oz** and **custom unit** settings cannot be used as the **Primary Unit** in the FB2255. **They are not legal for trade.**
3. When using **lb-oz**, the FB2250 must be calibrated in **lb** or **oz**, and not **lb-oz**.

4. When programming for **lb-oz**, the division size must be 0.2 or smaller; 0.5 or higher will not convert to lbs/oz, the instrument will display dashes.
  5. When **lb-oz** units are active, both the lb and oz caret symbols are on.
  6. When **custom** units are active, all caret symbols are off.
- 

### 3.3.3. Programming the Primary Unit

This option sets up the **Unit** parameter for scale capacity, calibration, and the default unit when the instrument is powered up.

1. **P-Unit** displays, and the current Primary Unit setting with a caret symbol (v) above the printed unit legend of the display.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - The caret will automatically move to the choices.
  - Available selections include:
    - lb - pounds
    - kg - kilograms
    - oz - ounces
    - g - grams
  - Press **ZERO** key to save the selection.
3. When complete, the program will advance to programming AZT.

### 3.3.4. Programming the Automatic Zero Tracking Band

This option maintains **ZERO** when small amounts of material are placed on the scale, such as rain, snow, debris, etc.

1. The current AZT setting displays:
  - **AZt .off** – function is not active.
  - **AZt 0.5** - Half of a division / increment / graduation
  - **AZt 1** - One division / increment / graduation
  - **AZt 3** - Three divisions / increments / graduations
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the Motion Band.

### 3.3.5. Programming the Motion Band

This option defines the range that weight must be stable before the scale can be zeroed and the print function can generate a ticket.

1. The current motion band setting displays:

- **bAL .off** – function is not active.
  - **bAL 0.5** - Half of a division / increment / graduation
  - **bAL 1** - One division / increment / graduation
  - **bAL 3** - Three divisions / increments / graduations
2. Press **ZERO** key to edit, or **UNITS** key to skip.
    - Press the **UNITS** key to scroll through available settings.
    - Press **ZERO** key to select an option.
  3. When complete, the program will advance to programming the Motion Band.

### ***3.3.6. Programming the Zero Range***

This option defines the percentage of scale capacity that can be “zeroed” off by pressing the **ZERO Key**.

1. The current zero range setting displays:
  - **O.r 100** - One hundred percent (100%) zero range
  - **O.r 2** - Two percent (2%) zero range
  - **Disabl** - Disables the **ZERO** key.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the Division Size.

### ***3.3.7. Programming the Division Size***

1. The current division size setting displays:
  - **d X**, where **X** is one of the following:
 

• 50	• 20	• 10	• 5	• 2
• 1	• 0.5	• 0.2	• 0.1	• 0.05
• 0.02	• 0.01	• 0.005	• 0.002	• 0.001
• 0.0005	• 0.0002	• 0.0001		
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the Division Size.

### ***3.3.8. Programming the Filter Setting***

This option compensates for the effects of motion, vibration, and wind currents.

1. **FiLteR** displays, followed by the current filter setting:

- **SLO** - Heavy filtering
  - **Cattle** - Very heavy filtering
  - **Stand** - Medium filtering
  - **FASt** - Light filtering
2. Press **ZERO** key to edit, or **UNITS** key to skip.
    - Press the **UNITS** key to scroll through available settings.
    - Press **ZERO** key to select an option.
  3. When complete, the program will advance to programming the Tare setting.

### ***3.3.9. Programming the Tare Setting***

This option determines whether or not the instrument will display the product's **Net Weight**, without the container's weight.

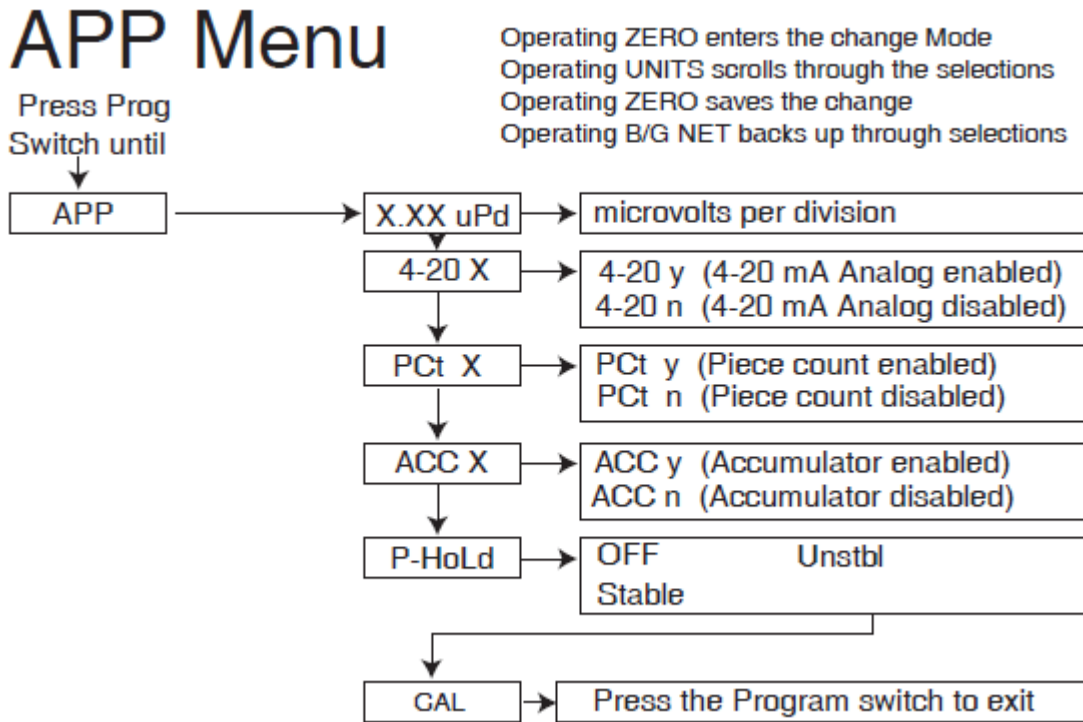
1. **tArE** displays, followed by the current **Tare** setting:
  - **OFF** - Tare is disabled.
  - **ON** - Tare is active.
  - **On-CLr** - Tare automatically clears when Gross Weight returns to ZERO.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the display update rate.

### ***3.3.10. Programming the Display Update Rate***

This option sets the allotted time between **Display Updates**.

1. **drAtE** displays, followed by the current update rate setting:
  - **0.2** - 200 milliseconds
  - **0.4** - 400 milliseconds
  - **0.8** - 800 milliseconds
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to the Application Menu.

### 3.4. Application Menu Programming Parameters



1. Press the **Internal Program Switch** until **APP** displays.
2. Press **UNITS** key.

#### 3.4.1. Microvolts Per Division

**X.XX uPd** displays where X.XX is the current **microvolts per division** for the FB2250.

#### 3.4.2. Programming the 4-20mA Analog Output

**WARNING:** Do not physically install the 4-20mA card until the instrument is configured and calibrated (weight) to the platform.

1. The current 4-20mA setting displays:
  - **4-20 n** – front panel access is disabled while the analog output continues to operate.
  - **4-20 Y** – front panel access is active while the analog output continues to operate.
2. Press the **UNITS** key to scroll through available settings. Press **ZERO** key to select an option.
3. When complete, the program will advance to programming piece count.
  - \* See [Section 2](#) for Front Panel Programming details

### 3.4.3. Programming the Piece Count Feature

1. The current piece count setting displays:
  - **Pct n** – feature is disabled (NO)
  - **Pct Y** – feature is active (YES)
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the accumulator.

---

**NOTE:** See sections **3.5.11. – 3.5.14.** for user operations of this feature.

---

### 3.4.4. Programming the Accumulator Feature

1. The current accumulator setting displays:
  - **ACC n** – feature is disabled (NO)
  - **ACC Y** – feature is active (YES)
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to programming the peak hold.

---

**NOTE:** See sections **3.5.8. – 3.5.10.** for user operations of this feature.

---

### 3.4.5. Programming the Peak Hold Feature

1. **P-Hold** displays, followed by the current peak hold setting:
  - **OFF** - feature is disabled.
  - **StAbLE** – peak hold when weight is stable
  - **UnStbL** – peak hold even when weight is unstable.
2. Press **ZERO** key to edit, or **UNITS** key to skip.
  - Press the **UNITS** key to scroll through available settings.
  - Press **ZERO** key to select an option.
3. When complete, the program will advance to the calibration menu.

---

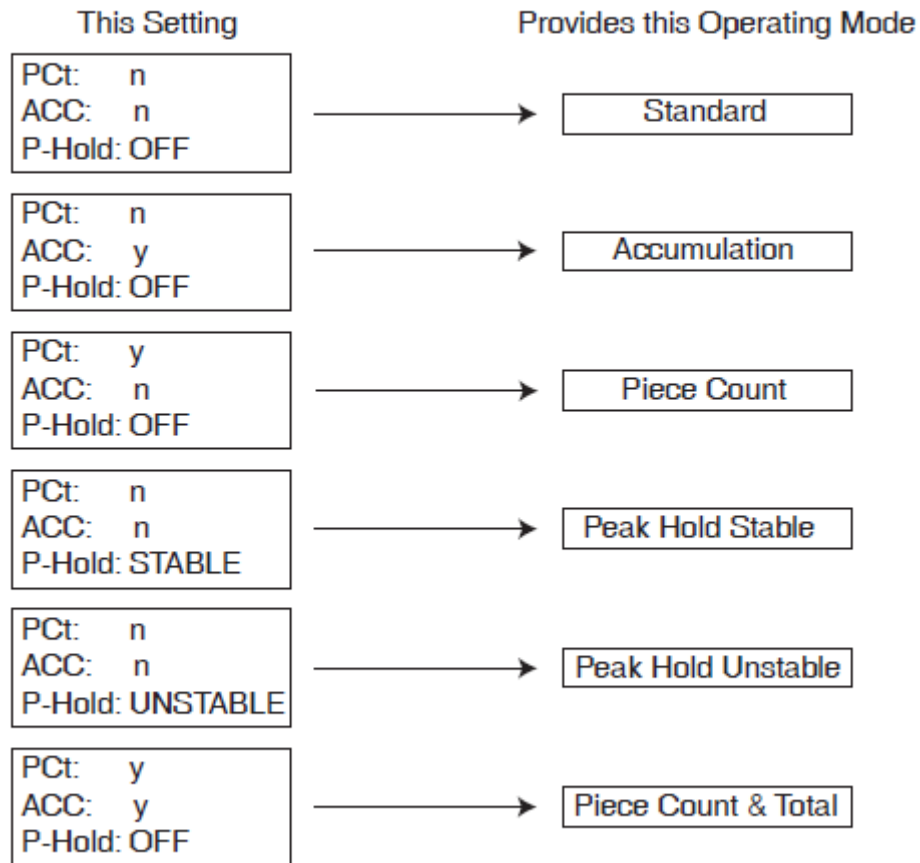
**NOTE:** See section **3.5.16.** for user operation of this feature.

---



### 3.5. Operating Mode

## Operating Mode



**NOTE:** See [Section 3.5. Operating Mode](#).

#### 3.5.1. Front Panel Key Functions

- ON/OFF** Turns the Instrument on or off.
- UNITS** Switches between pre-programmed selectable weight units.
- ZERO** Sets the display to zero, programmable: 2% or 100% of capacity.
- B/G – NET** Toggles between Gross and Net weights  
(only if a tare value has been entered greater than zero)

**TARE** automatically tares off displayed weight when key is pressed.

Depending on programmed selection, Tare weight will either:

- A. Be retained for reuse until changed or power is removed,
- or
- B. Automatically clear when Gross weight returns to Zero.

**PRINT** Simple RS232 output when key is pressed.



### 3.5.2. Operating Procedures

Press the **ON / OFF** Key for one to two (1 – 2) seconds. The Instrument will display “888888” followed by a “1234567890” character display moving from right to left, followed by the revision of software. Upon completing the warm-up, the FB2250 will either display zero, or it will display the actual weight on the scale.

The Zero function, Tare function, and AZT require the displayed weight to be stable before these functions will operate. The weight reading is stable if the variation in weight is less than the programmed bAL range.

### 3.5.3. Instrument Weighing Functions

The industry uses three terms to describe the apportionment of an object's weight. These terms are GROSS WEIGHT, TARE WEIGHT, and NET WEIGHT.

Example: A can of house paint is an object to be weighed. The empty can is the 'TARE' weight, the paint is the 'NET' weight, and together they equal the 'GROSS' weight.

$$\begin{aligned} \text{GROSS} &= \text{NET} + \text{TARE} \\ \text{GROSS} - \text{NET} &= \text{TARE} \\ \text{GROSS} - \text{TARE} &= \text{NET} \end{aligned}$$

### 3.5.4. Basic Weighing

Ensure platform is empty, turn the scale ON, press the ZERO key and the display indicates "0" and is ready for use.

### 3.5.5. Gross Weighing

**Follow these steps for Gross Weighing.**

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to "0".
3. Place container/object on scale.
4. Read the **Gross Weight** on the display.

### 3.5.6. Net Weighing

**Follow these steps for Net Weighing:**

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to "0".
3. Place container/object on scale (Tare weight).
4. Press the **TARE** key.
5. Place material in container or add objects (Net weight).
6. Read the **Net Weight** on the display. The caret (v) above the printed NET legend of the display will be seen.
7. To Exit; unload the scale and press the **TARE** key.

### 3.5.7. Gross/Tare/Net Weighing

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to “0”.
3. Place container/object on scale.
4. Press **TARE** key.
5. Place material in container or add objects.
6. Note the **Net Weight** on the display. The caret (v) above the printed NET legend of the display will be seen.
7. Press the **GROSS/NET** key to switch to read the **Gross Weight** on the display.
8. Press the **GROSS/NET** key to toggle back and forth between **Gross** and **Net** weight.
9. To Exit; unload the scale and press the **TARE** key.

## 3.6. Weight Accumulation

---

**Note:** For the following operations to function:

- The Accumulator parameter “ACC” must be set to “Y” (See [Section 3.7.4: Programming the Accumulator Feature](#))
  - When using PC2250 utility program, Operating Mode must be set to “Accumulation” (See [Section 8.6: Configuration](#)).
- 

### 3.6.1. Weight Accumulation

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to “0”.
3. (optional) If the weighment is going to require a Tare, place the object or container on the scale and press the **TARE** key.
4. Place material on the scale.
5. When the weight is stable, press the **B/G NET** key. The display alternates between the number of Accumulations “n” and the total weight Accumulated, either NET or Gross.
  - The caret will appear above *Total Weight Accumulated*. A caret will also appear above NET if a tare was entered.
6. Press the **UNITS** key to accept the weight, display will momentarily indicate “**ACCEPT**”, and return to the weigh screen.

**OR**

Press the **B/G NET** key to skip and return to the weigh screen.

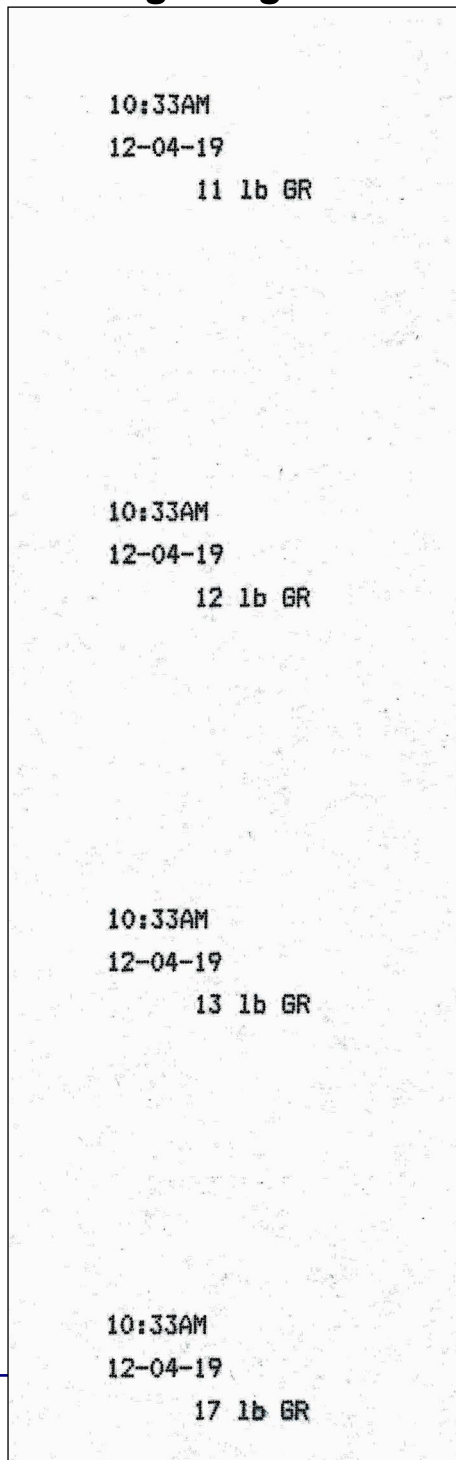
7. The scale must return to “0” **Gross Mode** before another accumulation can occur.
8. Repeat steps 3 through 7 for additional accumulations, up to 99,999 accumulations, or 999,999 totaled weight units.

---

**NOTE:** Gross and Net accumulations are stored and reported separately in the 2250, and the status of each weighment is determined by whether a Tare was initially entered.

---

### 3.6.2. Printing Weight Accumulations



1. Ticket formats can be edited through the PC225X web utility through COM 2 of the instrument.
2. If the desired print is a continuous output of the accumulating weights, the standard GNT ticket format can be used for a given printer. Autoprint can be used with this format, or the PRINT key can be pressed during each weighment. The ticket examples below demonstrate this format.

10:36AM  
12-04-19  
22 1b GR  
6 1b TA  
16 1b NT

10:37AM  
12-04-19  
19 1b GR  
6 1b TA  
13 1b NT

10:37AM  
12-04-19  
13 1b GR  
3 1b TA  
10 1b NT

3. If it is necessary to print a Total Accumulation on the ticket, the following settings can be activated in the ticket format section of the web utility, based on the desired printout:
- CNT GR: The number of Gross accumulations stored in the instrument
  - CNT NT: The number of Net accumulations stored in the instrument

- GR Acc: The total accumulated gross weight
- NT Acc: The total accumulated net weight

---

**NOTE:** Autoprint is not compatible with printing accumulated totals.

---

4. If a running total is required with a GNT ticket for each weighment, enable either **CNT GR** and **GR ACC** or **CNT NT** and **NT ACC**, depending on the type of weighment.
5. After completing *Step 6* of the weight accumulation procedure, press the **PRINT** key before removing objects from the scale. The full GNT ticket will print with the accumulated totals.

```

09:43AM
12-04-19
      80 lb GR

1 Items GR
      80 lb GR Total

09:44AM
12-04-19
      125 lb GR

2 Items GR
      205 lb GR Total

09:44AM
12-04-19
      95 lb GR

3 Items GR
      299 lb GR Total
  
```

```

10:28AM
12-04-19
      102 lb GR
       16 lb TA
       86 lb NT

1 Items NT
      86 lb NT Total

10:29AM
12-04-19
      103 lb GR
       12 lb TA
       91 lb NT

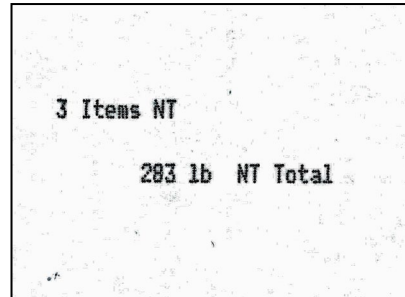
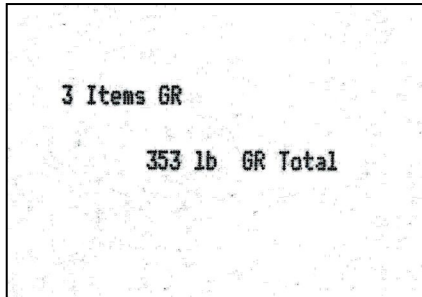
2 Items NT
      177 lb NT Total

10:30AM
12-04-19
      116 lb GR
       13 lb TA
      103 lb NT

3 Items NT
      281 lb NT Total
  
```

6. To print total accumulation only, deactivate the **Time**, **Date**, **Gross**, **Tare**, and **Net** fields in the web utility.

7. Press the **PRINT** key to print accumulated totals after completing the accumulation.



### 3.6.3. Number of Accumulations

1. Press and hold the **ZERO** key for three (3) seconds.
  - The display will alternate between the number of Gross weight Accumulations "**n**" and the total Gross weight Accumulated for thirty (30) seconds, then return to the **Weigh Mode**.
  - The caret (v) above the printed *Total Weight Accumulated* legend of the display will be seen.
2. Press the **B/G NET** key
  - The display will alternate between the number of Net weight Accumulations "**n**" and the total Net weight Accumulated for thirty (30) seconds, then return to the **Weigh Mode**.
  - The caret (v) above the printed *Total Weight Accumulated* and *NET* legends of the display will be seen.
3. Press the **B/G NET** key to alternate between Gross and Net accumulations or press the **UNITS** key at any time to exit immediately to the **Weigh Mode**.

### 3.6.4. Clearing the Accumulators

- Press and hold the **BG/Net** key for three (3) seconds.
  - Press **UNITS** key until **CLr.ACC** displays on the Instrument.
1. Press the **ZERO** key to edit or **UNITS** key to skip.
    - Press **UNITS** key to toggle the available settings.
      - **CLr.YES** (Clear the Accumulator)
      - **CLr.NO** (Do NOT Clear the Accumulator)



- Press the **ZERO** key to enter the selection.
2. When complete, the FB2250 will return to the weight mode.

### 3.6.5. Piece Counting

---

**NOTE:** For the following operation to function:

- The Piece Count parameter “Pct” must be set to “Y” (See Section [3.4.3. Programming the Piece Count Feature](#)), the Accumulator parameter “ACC” must be set to “n” (See Section [3.4.3. Programming the Piece Count Feature](#)) and the Peak Hold parameter “P-Hold” must be set to “n”
- 

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to “0”.
3. Place the empty weighing container on the Scale Platform.
4. Press the **TARE** key.
  - This stores the container weight only, placing the scale in the **Net Mode**.
  - “0” should display on the instrument and the caret (v) above the printed NET legend of the display will be seen.
5. Press the **B/G NET** key.
  - The Display prompts to “Add 1” number of sample parts to the container.
6. Pressing the **B/G NET** key repeatedly will prompt the user to; “Add 1”, “Add 5”, “Add 10”, “Add 25”, “Add 50”, or “Add 100” sample pieces.
7. Add the required sample pieces to the container, then press the **UNITS** key.
  - The Display will alternate between indicating the net weight and the number of sample pieces.
8. Continue to add the remaining pieces to the container.
  - The display will update and continue to alternate between the net **Weight** and **Number of Pieces**, including the original sample.
9. To Exit to the NET Weigh Mode, press the **B/G NET** key.

### 3.6.6. Piece Count and Total

---

**NOTE:** For the following operation to function:

- The Piece Count parameter “Pct” must be set to “Y” (See [Section 3.4.3.](#)), the Accumulator parameter “ACC” must be set to “Y” (See [Section 3.4.4.](#)) and the Peak Hold parameter “P-Hold” must be set to “n” (See [Section 3.4.5.](#))
- 

This feature enables the FB2250 to display the Count and **Net Weight** of the counted items, and to display the Total Count of accumulated items.

1. Unload the Scale.
2. Press the **ZERO** key, if required, to set scale to “0”.
3. Place the empty weighing container on the Scale Platform.
4. Press the **TARE** key.
  - This stores the container weight only, placing the scale in the **Net Mode**.
  - “0” should display on the instrument and the caret (v) above the printed NET legend of the display will be seen.
5. Press the **B/G NET** key.
  - The Display prompts to “Add 1” number of sample parts to the container.
6. Pressing the **B/G NET** key repeatedly will prompt the user to; “Add 1”, “Add 5”, “Add 10”, “Add 25”, “Add 50”, or “Add 100” sample pieces.
7. Add the required sample to the container, then press the **UNITS** key.
  - The Display alternates between indicating the net weight and the number of sample pieces.
8. Continue to add the remaining pieces to the container.
  - The display will update and continue to alternate between the net **Weight** and **Number of Pieces**, including the original sample.
9. Press the **B/G NET** key.
  - The Display will alternate between the “Total” legend and the total **Number of Pieces Accumulated** plus the current **number of pieces**.
  - Press the **B/G NET** key to return to step 6.
10. Press the **UNITS** key to save the new Total in the accumulator and return to the **NET Weigh Mode**.
  - To continue adding to the Total, repeat steps 1-10.
  - To reset the Total see [Section 3.5.13. Clearing the Accumulator](#).

### 3.6.7. Peak Weight

---

**NOTE:** For the following operation to function:

- Peak Hold parameter “P-Hold” must be set to “Y” and the Piece Count parameter “PCT” must be set to “n” and the Accumulator parameter “ACC” must be set to “n”
- 

The **Peak Weight** feature records the heaviest stable or unstable load placed on the scale, and the time and date it occurred. To display the current Peak Weight, perform the following:

1. Press and hold the **ZERO** key for three (3) seconds.
  - The display will show the **time** and then alternate between the **date** and **Peak Weight Value**, for thirty (30) seconds, then return to the **Weigh Mode**.

2. Press the **UNITS** key to end the process and immediately exit to the **Weigh Mode**.
  - To reset the Peak Weight value, see [Section 3.5.13. Clearing the Accumulators](#)

### ***3.6.8. Display Total Number of Pieces***

#### **Press the Zero key for 3 seconds**

Conditional upon programming the operating mode to accumulation, piece count, or piece count and total.

The FB2250 will display total number of pieces, weight, and time out (30 sec).

Conditional upon programming the operating mode to peak hold stable or peak hold unstable.

The FB2250 will display time, date, peak weight, and time out (30 seconds).

---

# SECTION 4: ACCESSORIES

---

## 4.1. Attaching an external power supply

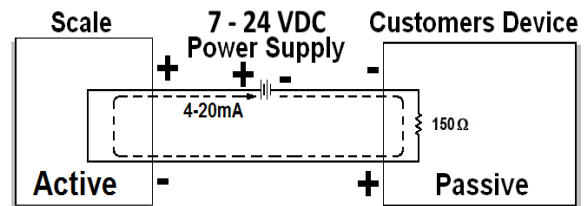
### 4.1.1. Requirements

**WARNING:** Do not physically install the 4-20mA card until the instrument is configured and calibrated (weight) to the platform.

---

If the device is passive, an auxiliary power supply must be used to supply the voltage for the current loop. Wire it as shown.

FB2250 Condition	4-20mA analog output
Weight behind zero	3.5 mA
Weight below 4.20 LO	3.5 mA
Weight at 4.20 LO	4.0 mA
Weight at 4.20 HI	20.0 mA
Weight above 4.20 HI	24 mA
Program Mode	Locked on last 4-20mA



- It is recommended to disable the **Sleep Mode** when the 4-20mA analog is used.
- **Loop Power** should be turned off whenever the FB2250 is turned off.

### 4.1.2. Programming the Weigh Mode that the Output Tracks

**Note:** Access to this feature is conditional and depends upon whether it is enabled in the **FB2250 Internal Programming**.

---

1. Press and hold the **UNITS** key for three (3) seconds.
2. The display will show **4-20**, followed by the current setting.
  - a. Gross
  - b. Net
3. (A) To keep the current setting, press the **UNITS** key.  
(B) To change the setting:
  - a. Press the **ZERO** key
  - b. Then use the **UNITS** key to toggle the available settings
  - c. Press the **ZERO** key to select the desired option.

**NOTE:** The **4-20mA Analog Output** will continue to track the selection regardless of the currently selected Weigh Mode.

---

4. When complete, the program will advance to the 4mA menu.

### 4.1.3. Programming the 4mA Weight Value

1. **4.20 Lo** displays, followed by the current setting.
2. Press the **ZERO** key to edit or press the **UNITS** key to skip.
  - a. The most significant digit will be blinking, operate the **UNITS** key to increment the number.
  - b. When the desired value has been obtained, Press the **ZERO** key.
  - c. The next less significant digit will then blink, operate the **UNITS** key to increment the number.
  - d. Repeat steps b and c until the least significant digit has been completed.

*This weight value will result in a **4mA Output**.*

3. When complete, the program will advance to the 20mA menu.

### 4.1.4. Programming the 20mA Weight Value

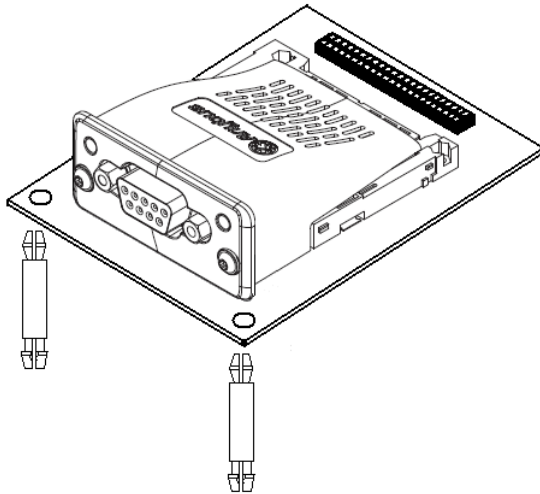
1. **4.20 Hi** displays, followed by the current setting.
2. Press the **ZERO** key to edit or press the **UNITS** key to skip.
  - a. The most significant digit will be blinking, operate the **UNITS** key to increment the number.
  - b. When the desired value has been obtained, Press the **ZERO** key.
  - c. The next less significant digit will then blink, operate the **UNITS** key to increment the number.
  - d. Repeat steps b and c until the least significant digit has been completed.

*This weight value will result in a **20mA Output***

3. When complete, the FB2250 will return to weigh mode.

## 4.2. Fieldbus

Fairbanks Scales offers five different fieldbus devices modules; PROFIBUS®-DP, ControlNet®, DeviceNet™, Modbus®, and ETHERNET/IP.



The fieldbus card is factory installed onto an adapter.

### 4.2.1. ETHERNET/IP Addressing

The ETHERNET/IP module uses Dynamic addressing using DHCP for address requests as the default. The data is transmitted continuously from this module. The IP address may be made static by downloading the IP Configuration Tool software from:

<https://www.anybus.com/support/file-doc-downloads/anybus-compactcom-30-series>

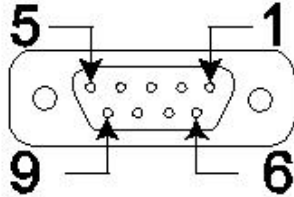
With this utility, it is possible to change the IP, Sub Net and Gateway addresses of an ETHERNET/IP Module. To change an address, double click on the IP address field and enter the changes.

**ETHERNET/IP** can be easily confused as a simple combination of EtherNet and the Internet Protocol. Instead, it is an **Industrial Application Layer Protocol** used for communication between industrial control systems and their components.

- Such components include Programmable Automation Controller, Logic Controller, or an I/O System.

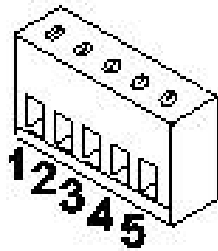
The “IP” in ETHERNET/IP is not an abbreviation for “Internet Protocol”, but instead, it stands for “**Industrial Protocol**”.

### 4.3. Fieldbus Connections



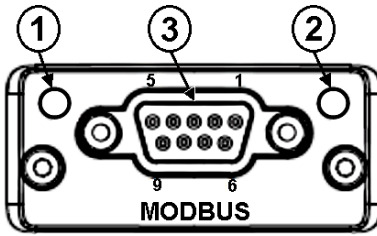
**PROFIBUS® DP**

Pin	Signal	Description
3	B Line	Positive RxD/TxD, RS485 level
4	RTS	Request to Send
5	GND	Ground (Isolated)
6	+5 Bus Output	+5V termination power (Isolated, short circuit protected)
8	A Line	Negative RxD/TxD, RS485 level



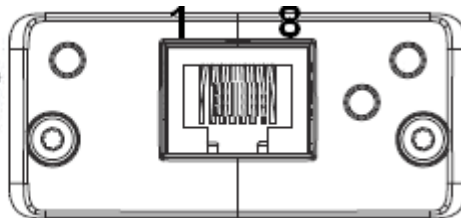
**DeviceNet™**

Pin	Signal	Description
1	V-	Negative bus supply voltage
2	CAN_L	CAN low bus line
3	SHIELD	Cable shield
4	CAN_H	CAN high bus line
5	V+	Positive bus supply voltage



**Modbus®**

<u>Pin</u>	<u>Signal</u>	<u>Description</u>
1	GND	Bus polarization, ground (isolated)
2	5V	Bus polarizatio power +5V DC (isolated)
3	PMC	Connect to pin #2 for RS-232 operation
5	B-LINE	RS-485 B-Line
7	RX	RS-232 Data Receive
8	TX	RS-232 Data Transmit
9	A-Line	RS-485 A-Line



**ETHERNET/ IP**

Use standard Cat 5 cable (RJ45)

Output data can be verified using the PC2250 utility.

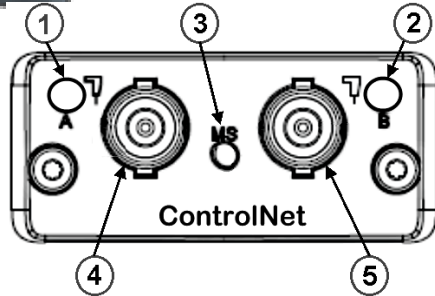


### 4.3. Fieldbus Connections, continued



#### ControlNet

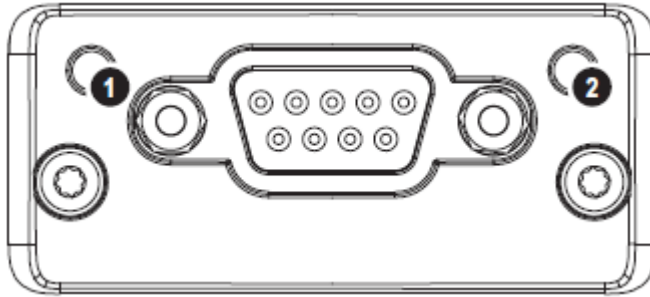
Uses a BNC connector cable.



Additional information available at:

<https://www.anybus.com/support/file-doc-downloads/anybus-compactcom-30-series>

## 4.4. PROFIBUS®-DP Diagnostic LEDs:



1: Operation Mode LED

2: Module Status LED

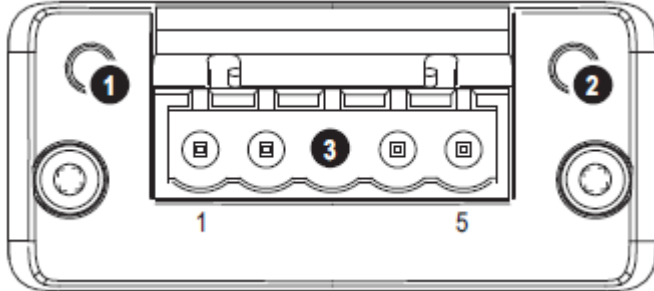
### Operation Mode LED

State	Description	Comments
Off	Not online / No power	-
Green	Online / Data exchange	-
Flashing Green	Online, clear	-
Flashing Red (1 flash)	Parameterization error	See Parameterization data handling
Flashing Red (2 flashes)	PROFIBUS configuration error	See Configuration data handling

### Module Status LED

State	Description	Comments
Off	No power or not initialized	Module state="SETUP" or NW_INIT"
Green	Initialized	Module has left the NW_INIT state
Flashing Green	Initialized, diagnostic event(s) present	Extended diagnostic bit is set
Red	Exception error	Module state = EXCEPTION

### 4.5. DeviceNet™ Diagnostic LEDs:



- 1: Network Status LED
- 2: Module Status LED
- 3: DeviceNet™ connector

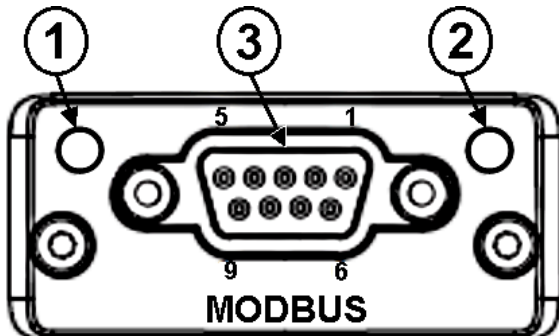
#### Network Status LED

State	Description
Off	Not online / No power
Green	Online, one or more connections established
Flashing Green (1 Hz)	Online, no connections established
Red	Critical link failure
Flashing Red (1 Hz)	One or more connections timed out
Alternating Red/Green	Self-test

#### Module Status LED

State	Description
Off	No power
Green	Operating in normal condition
Flashing Green (1 Hz)	Missing/incomplete configuration / Device needs commissioning
Red	Unrecoverable fault(s)
Flashing Red (1 Hz)	Recoverable fault(s)
Alternating Red/Green	Self-test

### 4.6. Modbus® Diagnostic LEDs:



- 1: Communication LED
- 2: Device Status LED
- 3: Modbus® Interface

**Communication LED**

<u>State</u>	<u>Description</u>
Off	No power - OR - no traffic
Yellow	Frame reception or transmission
Red	A fatal error has occurred

**Device Status LED**

<u>State</u>	<u>Description</u>
Off	Initializine – OR – no power
Green	Module initialized, no error
Red	Internal error – OR –major unrecoverable fault
Red, Single flash	Communication fault or configuration error <b>Case 1:</b> Invalid settings in Network Configuration error <b>Case 2:</b> Settings in Network Configuration Object has been changed during runtime (i.e. the settings do not match the currently used configuration)
Red, Double flash	Application diagnostics available

**4.7. ETHERNET / IP Diagnostic LEDs:**



- 1: Network Status LED
- 2: Module Status LED
- 3: Link/Activity
- 4: Ethernet Interface (RJ 45) (Standard Cat 5 cable)

**Network Status LED**

<u>State</u>	<u>Description</u>
Off	Not online / No power
Green	Online, one or more connections established
Flashing Green	Online, no connections established
Red	Duplicate IP address, FATAL error
Flashing Red	One or more connections timed out

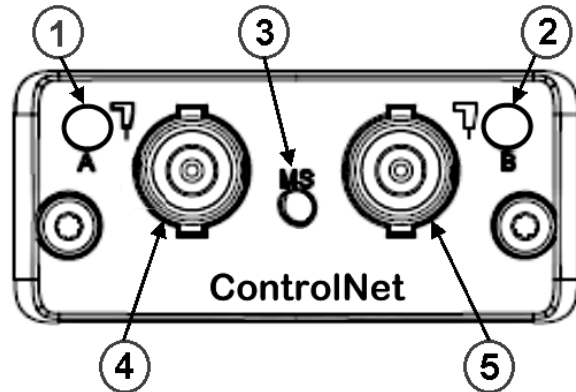
**Module Status LED**

<u>State</u>	<u>Description</u>
Off	No power
Green	Controlled by a scanner in Run state
Flashing Green	Not configured, or Scanner in idle state
Red	Major fault (EXCEPTION-state, FATAL error, etc.)
Flashing Red	Recoverable fault(s)

**LINK / Activity LED**

<u>State</u>	<u>Description</u>
Off	No link, no activity
Green	Link established
Green, flickering	Activity

**4.8. ControlNet**



No.	DESCRIPTION
1	Network Status LED <b>A</b>
2	Module Status LED
3	Network Status LED <b>B</b>
4	ControlNet Connector <b>A</b>
5	ControlNet Connector <b>B</b>

**Network Status LEDS**

<b><u>LEDS</u></b>	<b><u>State</u></b>	<b><u>Description</u></b>
A and B	Off	Not online / No power
	Flashing Red (1 Hz)	Incorrect node configuration, duplicate MAC ID etc.
	Alternating Red/Green	Self test of bus controller
	Red	Fatal event or faulty unit
A or B	Off	Channel is disabled
	Alternating Red/Green	Invalid link configuration
	<b>Flashing Green (1 Hz)</b>	Temporary errors (node self-corrects) or node is not configured to go online.
	<b>Green</b>	Normal operation
	<b>Flashing Red (1 Hz)</b>	Media fault or no other nodes on the Network

**Module Status LED**

<b><u>State</u></b>	<b><u>Description</u></b>
Off	No power
Green	Operating in normal condition, controlled by a <b>Scanner in RUN state.</b>
Flashing Green(1Hz)	The module has not been configured or the Scanner is in the <b>Idle state.</b>
Red	Unrecoverable fault(s), EXCEPTION,
Flashing Red(1Hz)	Media fault or no other nodes on the Network

# SECTION 5: SERIAL COMMUNICATION WIRING

## 5.1. JP3 Jumper Configuration:

JP3		JP3	RS232	RS485	RS422*	Port
1	2	1-2	out	120 Ω resistor	120 Ω resistor	Com1
3	4	3-4	out	in	out	Com1
5	6	5-6	out	in	out	Com1
7	8	7-8	out	in	out	Com2
9	10	9-10	out	in	out	Com2
11	12	11-12	out	120 Ω resistor	120 Ω resistor	Com2

120 ohm termination resistors required if the receiver is the last node of the network

## 5.2. TB4 Connections, COM1 (A), COM2 (B), and COM2 (C)

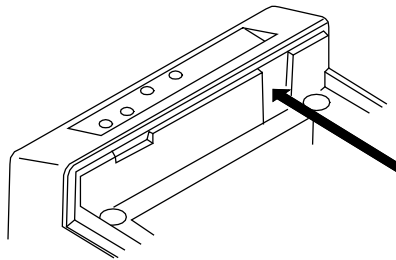
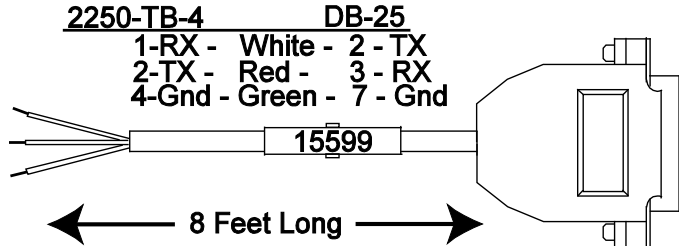
TB4 (A)	RS232		RS485	RS422*	PORT
1	Rx – Receive Data		(-) RS485	RS422 (-) Rx	COM1
2	Tx – Transmit Data		(-) RS485	RS422 (-) Tx	COM1
3	CTS – Clear-to-Send		(+) RS485	RS422 (+) RX	COM1
4	GND -- Ground		GND	GND	COM1
5	RTS – Ready-to-Send		(+) RS485	RS422 (+) Tx	COM1
TB4 (B)	RS232	DB9 ABS ONLY	RS485	RS422*	PORT
1	Rx – Receive Data	2	(-) RS485	RS422 (-) Rx	COM2
2	TX – Transmit Data	3	(-) RS485	RS422 (-) Tx	COM2
3	CTS – Clear-to-Send	8	(+) RS485	RS422 (+) Rx	COM2
4	GND – Ground	5	GND	GND	COM2
5	RTS – Ready-to-Send	7	RS485	RS422 (+) Tx	COM2
TB4 (C)	20MA		RS485	RS422	PORT
1	(+) TX – Transmit Passive, 20mA Output				COM2
2	(-) TX Passive, 20mA Output				COM2
3		(+) 7.5V Bluetooth® Technology Supply			

\*Port should be set to RS485.

# SECTION 6: PRINTER INSTALLATION

## 6.1. 3550 Tape Printer

Transmission	RS232
Baud Rate	9600
Data Bits	8
Stop Bit	1
OUTPUT	"BUTTON" for Print Key



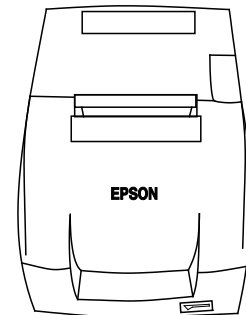
DS2	ON	OFF
1	X	
2	X	
3	X	
4		X
5	X	
6	X	
7		X
8		X

DS1	ON	OFF
1		X
2	X	
3	X	
4	X	
5		X
6		X
7		X
8	X	
9		X
10		X

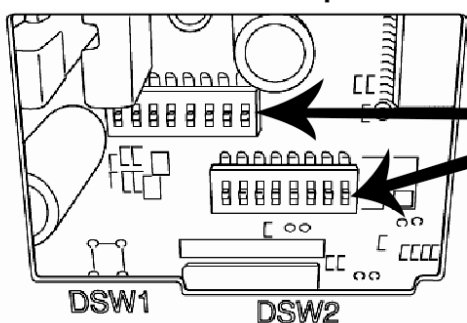
## 6.2. TM-U220 Tape Printer

This is the TM-U220 Tape Printer (non-DAT, white case).

Transmission	RS232
Baud Rate	9600
Data Bits	8
Stop Bit	1
OUTPUT	"BUTTON" for Print Key



Bottom of TM-U220 Tape Printer



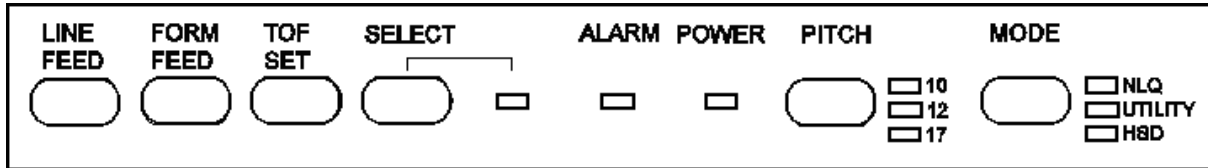
DS1	ON/OFF
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

DS2	ON/OFF
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF



### 6.3. Okidata 186 T Form Printer

The FB2250 should be programmed for RS-232, 9600 baud, 8 data bits, and 1 stop bit. The OUTPUT setting should be "BUTTON" for the Print key.



To change Menu Settings:

1. To enter MENU MODE, press and hold SELECT while turning on the printer. The "12" and "UTILITY" LEDs will blink.
2. With the printer in the Menu Mode, press SELECT to print the complete menu. The current default settings print out. It is recommended to use tractor fed paper. NOTE: The printed menu selections are different for each emulation mode.
3. Press LINE FEED to select the relevant group that needs to be changed (the group is the left-hand column on the Menu printout).
4. Press FORM FEED to select the relevant item within the selected group (the Item is the center column on the Menu printout).
5. Press TOF SET to cycle through the settings available for the item you want to change (the settings are the right-hand column on the Menu printout).
6. To continue making changes: press LINE FEED for the next group or press FORM FEED for the next item. Repeat as needed until you are finished changing settings.
7. Press PITCH and MODE together to save the changes and exit the Menu Mode.

**NOTES:**

Exiting the Menu Mode by turning off the printer will cancel any changed settings.

Printed menu changes per Printer Emulation Mode. If printer emulation mode is NOT set to ML, set this first, then reprint the menu. Then set menu as follows:

## 6.3. Okidata 186 T Form Printer, Continued

<b>(GROUP)</b> <b>(press LINE FEED to change)</b>	<b>(ITEM)</b> <b>(press FORM FEED to change)</b>	<b>(SET)</b> <b>(press TOF SET to change)</b>
Printer Control	Emulation Mode	ML
Font	Print Mode	Utility
Font	DRAFT Mode	SSD
Font	Pitch	10 CPI
Font	Proportional Spacing	No
Font	Style	Normal
Font	Size	Single
Symbol Sets	Character Set	Standard
Symbol Sets	Language Set	American
Symbol Sets	Zero Character	Slashed
Symbol Sets	Code Page	USA
Vertical Control	Line Spacing	6 LPI
Vertical Control	Skip Over Perforation	No
Vertical Control	Page Length	11"
Set-Up	Graphics	Bi-directional
Set-Up	7 or 8 Bits Graphics	7
Set-Up	Receive Buffer Size	128K
Set-Up	Paper Out Override	No
Set-Up	Paper Registration	0
Set-Up	7 or 8 Bits Data Word	8
Set-Up	Operator Panel Function	Full Operation
Set-Up	Reset Inhibit	No
Set-Up	Print Suppress Effective	Yes
Set-Up	Auto LF	No
Set-Up	Print DEL Code	Yes
Set-Up	Time Out Print	Invalid
Set-Up	Auto Select	No
Set-Up	Impact Mode	Normal
Parallel I/F	I-Prime	Buffer Print
Parallel I/F	Pin 18	+5v
Parallel I/F	Bi-Direction	Enable

### 6.3. Okidata 186 T Form Printer, Continued

Serial PCB Assy Switch Settings: (SW1) (\*\* indicates typical Fairbanks setting)

<u>Parity Type</u>	<u>Switch 1 (SW1)</u>
** Odd parity	<b>ON</b>
Even parity	OFF

<u>Parity</u>	<u>Switch 2 (SW1)</u>
** No parity	<b>ON</b>
With parity	OFF

<u>Data Bits</u>	<u>Switch 3 (SW1)</u>
** 8 Bits	<b>ON</b>
7 Bits	OFF

<u>Protocol</u>	<u>Switch 4 (SW1)</u>
Ready/Busy	ON
** X-ON, X-OFF	<b>OFF</b>

<u>Test Select</u>	<u>Switch 5 (SW1)</u>
** Circuit	<b>ON</b>
Monitor	OFF

<u>Mode Select</u>	<u>Switch 6 (SW1)</u>
** Print mode	<b>ON</b>
Test mode	OFF

<u>Busy Line Selection</u>	<u>Switch 7, 8 (SW1)</u>
SSD- Pin 11	OFF, ON
SSD+ Pin 11	OFF, OFF
** DTR- Pin 20	<b>ON, ON</b>
RTS- Pin 4	ON, OFF

(SW2) (\*\* indicates typical Fairbanks setting)

### 6.3. Okidata 186 T Form Printer, Continued

Transmission Speed	Switches 1, 2, 3 (SW2)
19,200 bps	ON, ON, ON
** 9,600 bps	<b>OFF, ON, ON</b>
4,800 bps	ON, OFF, ON
2,400 bps	OFF, OFF, ON
1,200 bps	ON, ON, OFF
600 bps	OFF, ON, OFF
300 bps	ON, OFF, OFF
110 bps	OFF, OFF, OFF

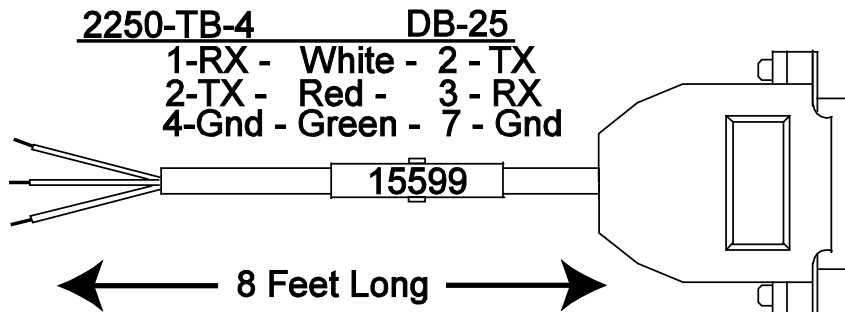
DSR Input Signal	Switch 4 (SW2)
Active	ON
** Inactive	<b>OFF</b>

Buffer Threshold	Switch 5 (SW2)
32 bytes	ON
** 256 bytes	<b>OFF</b>

Busy Signal Timing	Switch 6 (SW2)
** 200 ms minimum	<b>ON</b>
1 second minimum	OFF

DTR Signal	Switch 7 (SW2)
** Space after power on	<b>ON</b>
Space when printer is selected	OFF

Not Used	Switch 8 (SW2)
**	<b>OFF</b>



## 6.4. Okidata 420 Form Printer

The FB2250 should be programmed for RS 232, 9600 baud, 8 data bits, and 1 stop bit. The OUTPUT setting should be "BUTTON" for the Print key.

To change Menu Settings:

SEL						
SEL		LF	FF/LOAD	TEAR	PARK	QUIET
MENU	SHIFT	Micro Feed Down	Micro Feed Up			TOF
EXIT		GROUP	ITEM	SET	PRINT	
POWER	ALARM		MENU			

1. To enter MENU MODE, press and hold the SHIFT key while pressing the SELECT key. The "MENU" legend will be illuminated while in the menu mode.

2. With the printer in the Menu Mode, press PRINT to print the complete menu. The current default settings print out. It is recommended to use tractor fed paper.

NOTE: The printed menu selections are different for each emulation mode.

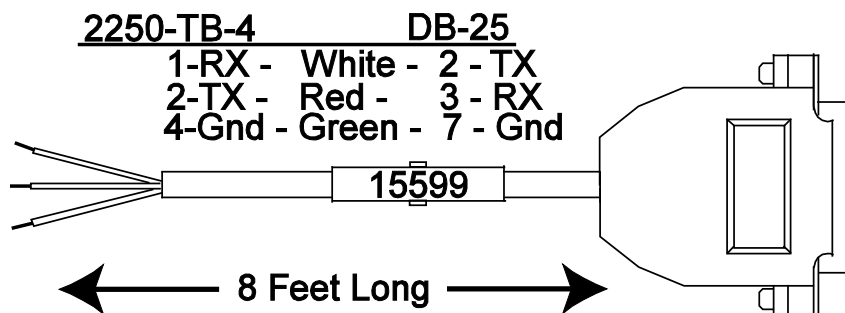
3. Press GROUP to select the relevant group that needs to be changed (the group is the left-hand column on the Menu printout).

4. Press ITEM to select the relevant item within the selected group (the Item is the center column on the Menu printout).

5. Press SET to cycle through the settings available for the item you want to change (the settings are the right-hand column on the Menu printout).

6. Press and hold the SHIFT key while pressing the SELECT key exit the Menu Mode.

Note: If you turn off the printer before exiting the menu mode, any changes will be lost.



## 6.4. Okidata 420 Form Printer, Continued

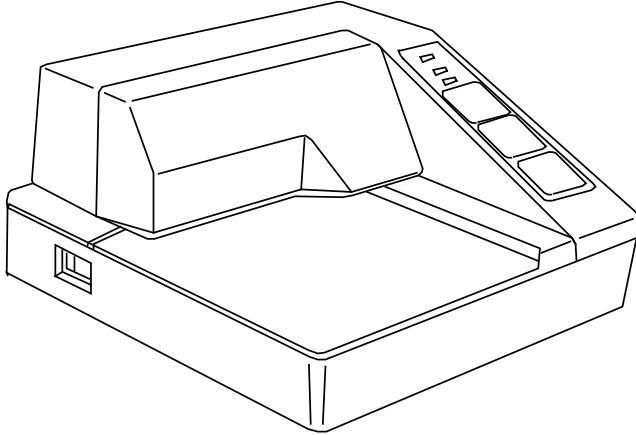
<b>(GROUP)</b> <b>(press LINE FEED to change)</b>	<b>(ITEM)</b> <b>(press FORM FEED to change)</b>	<b>(SET)</b> <b>(press TOF SET to change)</b>
Printer Control	Emulation Mode	IBM PPR
Font Font Font Font Font Font	Print Mode DRAFT Mode Pitch Proportional Spacing Style Size	Utility HSD 10 CPI No Normal Single
Symbol Sets Symbol Sets Symbol Sets Symbol Sets	Character Set Language Set Zero Character Code Page	Set 1 American Slashed USA
Rear Feed Rear Feed Rear Feed Rear Feed	Line Spacing Form Tear-off Skip Over Perforation Page Length	6 LPI Off No 11"
Bottom Feed Bottom Feed Bottom Feed Bottom Feed	Line Spacing Form Tear-off Skip Over Perforation Page Length	6 LPI Off No 11"
Top Feed Top Feed Top Feed Top Feed	Line Spacing Form Tear-off Skip Over Perforation Page Length	6 LPI Off No 11"

## 6.4. Okidata 420 Form Printer, Continued

Set-Up	Graphics	Uni-directional
Set-Up	Receive Buffer Size	64K
Set-Up	Paper Out Override	No
Set-Up	Print Registration	0
Set-Up	Operator Panel Function	Full Operation
Set-Up	Reset Inhibit	No
Set-Up	Print Suppress Effective	Yes
Set-Up	Auto LF	No
Set-Up	Auto Select	No
Set-Up	SI Select Pitch (10CP)	17.1 CPI
Set-Up	SI Select Pitch (12CPI)	12 CPI
Set-Up	Time Out Print	valid
Set-Up	Auto Select	No
Set-Up	Centering Position	DEFAULT
Set-Up	ESC SI Pitch	17.1 CPI
Set-Up	Power Saving	Enable
Set-Up	Power Save Time	5 Min
Parallel I/F	I-Prime	Buffer Print
Parallel I/F	Pin 18	+5v
Parallel I/F	Bi-Direction	Enable
Serial I/F	Parity	None
Serial I/F	Serial Data 7/8 Bits	8 Bits
Serial I/F	Protocol	X-On/X-Off
Serial I/F	Diagnostic Test	No
Serial I/F	Busy Line	SSD-
Serial I/F	Baud Rate	9600 BPS
Serial I/F	DSR Signal	Invalid
Serial I/F	DTR Signal	Ready on Pwr up
Serial I/F	Busy Time	200 ms

## 6.5. TM-U295 Ticket Printer

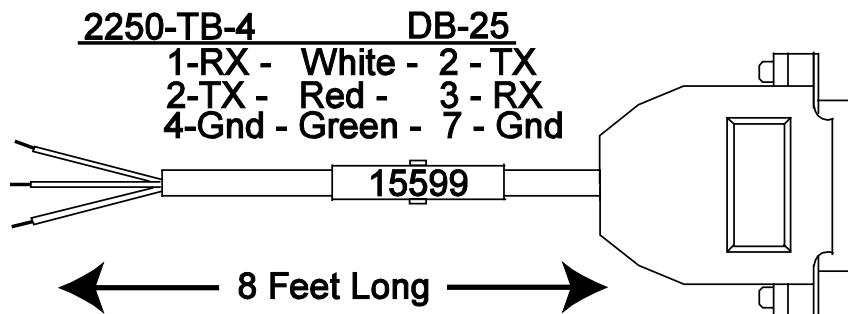
The FB2250 should be programmed for RS232, 9600 baud, 8 data bits, and 1 stop bit. The OUTPUT setting should be "BUTTON" for the Print key.



Set the printer's dip switches per the following:

1 and 3 on, the rest off.

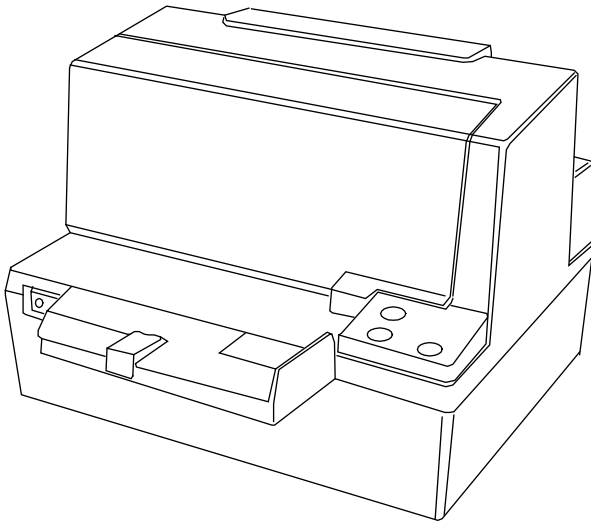
Cycle power to the printer after making switch changes.





## 6.6. TM-U590 Ticket Printer

The FB2250 should be programmed for RS232, 9600 baud, 8 data bits, and 1 stop bit. The OUTPUT setting should be "BUTTON" for the Print key.

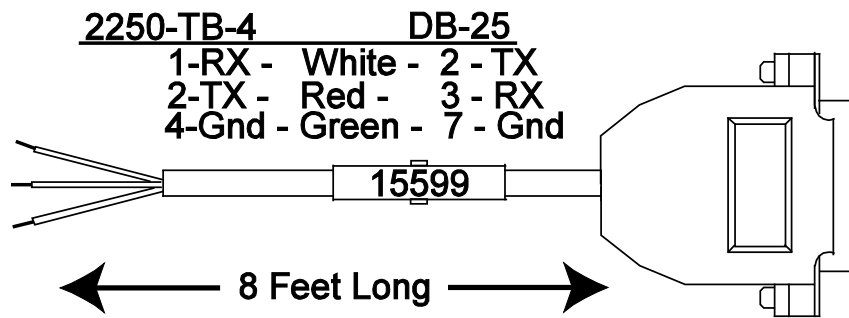


Set the printer's dip switches per the following:

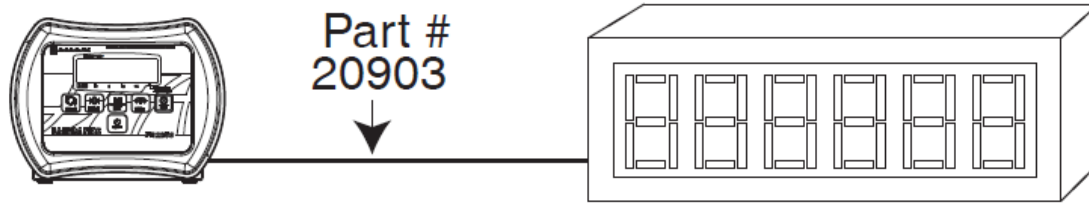
DSW 1: 1, 3, and 7 on only.

DSW 2: All off.

Cycle power to the printer after making switch changes.



## 6.7. 1600 Series Remote Display



Using the **20mA Serial Current Loop Output** will allow transmission distances up to **1000 cable feet**.

– **Interface Cable (20903)** is recommended.

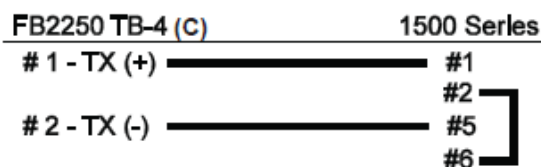
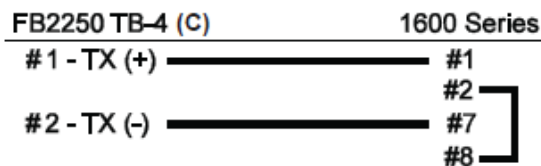
	Port 2
Protocol	<b>C-Loop</b>
Baud Rate	<b>9600</b>
Data Bits	<b>8</b>
Parity	<b>None</b>
Stop Bit	<b>1</b>
Output Type	<b>rDisp</b>

The 1600 Series remote display must be wired for **20mA Active** and programmed to match the FB2250.

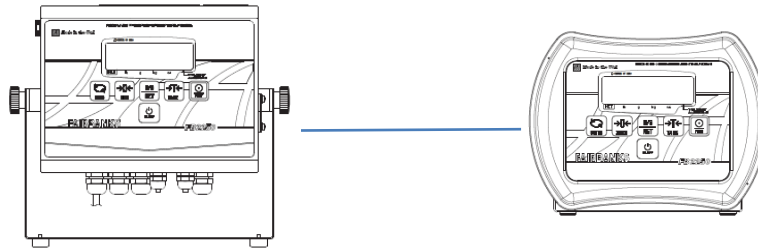
– Wiring to the FB2250: **TB4 (C)** to the **Remote Display** (see section 2.7 or 5.4).

1	Tx + Passive 20mA Output
2	Tx – Passive 20mA Output

Wire the 1600/1500 Series **Remote Display** to the FB2250 as shown in this diagram.



## 6.8. FB2250 Remote Display



	<b>FB2250 (Master)</b>	<b>FB2250 (Remote)</b>
Port	1 or 2	1
Protocol	RS232	RS232
Baud Rate	9600	9600
Data Bits	8	8
Parity	none	none
Stop Bit	1	1
Output Type	POLL	Rd2250

- See Sections starting at [3.2.3. Port 1](#) configuration programming.
- See Sections starting at [3.2.9. Port 2](#) configuration programming.
- See [Appendix III](#) for wiring information.
- See [Appendix IV](#) for Remote Display Active Keys information.

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Note: Remote Display will blank when connection to Master is terminated.

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# SECTION 7: PC2250 UTILITY SOFTWARE

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## 7.1. Introduction

The PC2250 utility software program can be used to set up and configure the FB2250. It is required in order to program certain features such as custom units and custom ticket vector programming. The F2250 uses port 2 to communicate to the computer.

## 7.2. Wiring

Computer DB9 Pin 3 (TX) ----- FB2250 TB4 Pin 6 (RX)  
Computer DB9 Pin 2 (RX) ----- FB2250 TB4 Pin 7 (TX)  
Computer DB9 Pin 5 (GND) ----- FB2250 TB4 Pin 9 (GND)

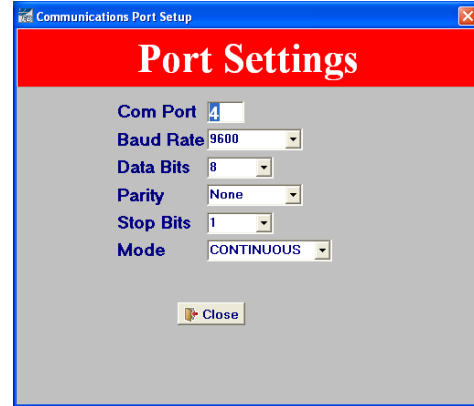
## 7.3. Communication Settings

1. Configure the FB2250 Port 2 as noted in Table 1 below:
  - a. Press and hold the Internal Program Switch until **SetUP** displays. (see section 3.2)
  - b. Use the UNITS key to scroll through each menu item until **Port 2** displays
  - c. See [Sections 3.5.9 – 3.5.14](#) for configuration instructions.
  - d. Exit to weigh mode.

Baud Rate	<b>9600</b>
Data Bits	<b>8</b>
Parity	<b>None</b>
Stop Bit	<b>1</b>
Mode	<b>Continuous</b>

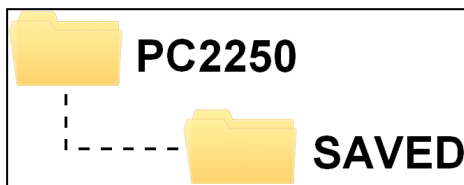
Table 1

2. On the PC Launch the **PC2250.exe** file.
  - An image of the FB2250 will display on the computer monitor.



3. Access the **COM Port Settings** of the computer by pressing **F2**.
4. Configure the Com Port connected to the FB2250 via the pop-up menu to match the settings in Table 1 above.
5. Close the pop-up menu when complete.
6. To the left side of the weight display, the legend “**CONNECTED**” with a rotating baton will be displayed.
  - The weight display will duplicate what is shown on the FB2250.
7. Left-clicking the mouse on any key will transmit that command to the FB2250.
  - This excludes the **PRINT key**.
  - The legend “**COMMAND SENT!**” will display at the right.
  - Mouse-clicking the **ON/OFF** key will terminate the PC2250 software program.

**Files**



The default folder for all saved/uploaded parameter files is PC2250\SAVED

## 7.4. Menu Bar

The PC2250 menu bar is located at the bottom of the display.



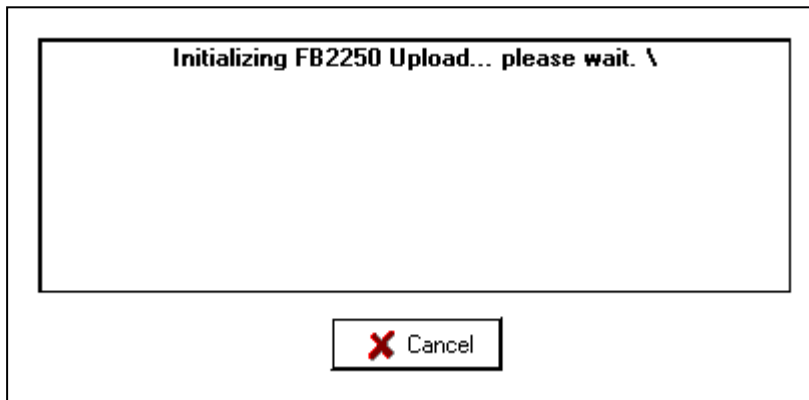
**NEW:** Loads the Parameters Menu with FB2250 default settings.

**OPEN:** Opens the SAVED folder to select a file.

**SAVE:** Saves the currently named file.

**SAVE AS:** Saves the current file and prompts for a file name.

**UPLOAD:** Uploads the current FB2250 settings to the PC2250.

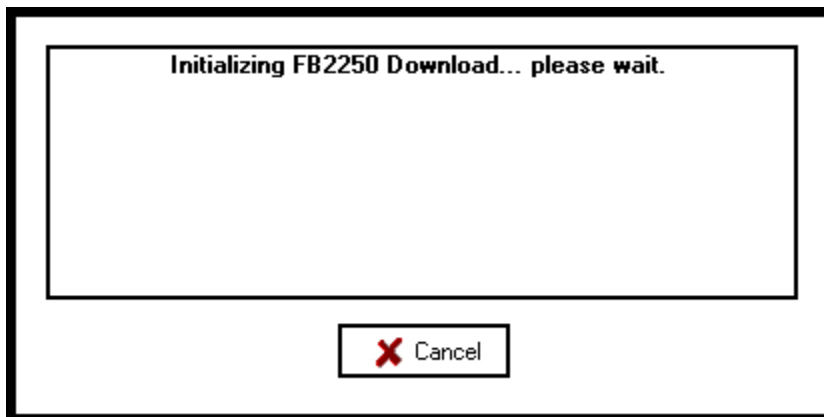


The FB2250 will display "PC". Press the Program switch inside the FB2250.

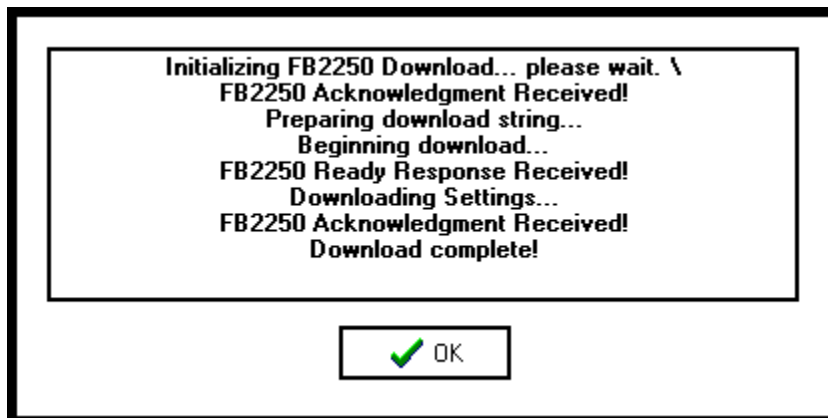


When complete, click the "OK" button.

**DOWNLOAD:** Downloads the current PC2250 settings to the FB2250.



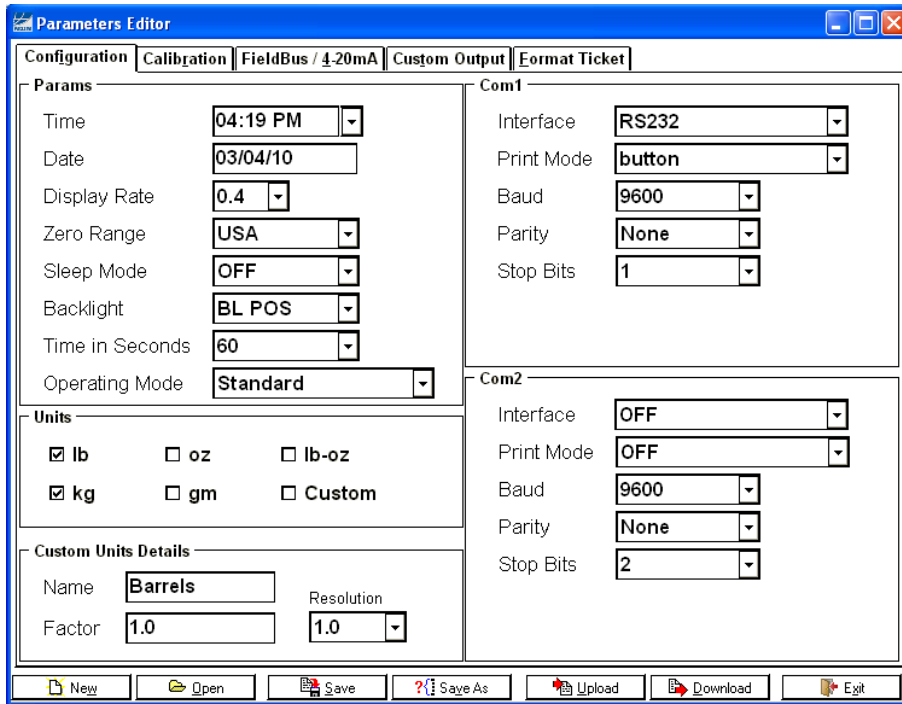
The FB2250 will display "PC". Press the Program switch inside the FB2250.



When complete, click the "OK" button.

**EXIT:** Closes the Parameter Editor.  
**Press or Click F4 to enter the Parameters Editor.**

## 7.5. Configuration



**Programming features is accomplished by using the mouse and:**

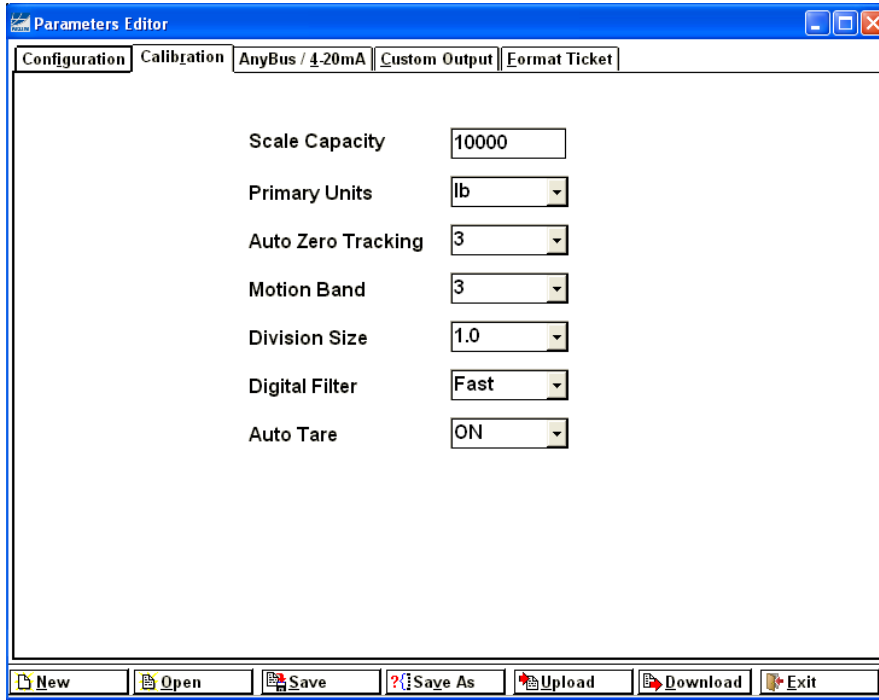
- Clicking the data item to highlight it, and then typing the replacement data.
- Clicking the drop down arrow and selecting an available item.
- Clicking to provide a checkmark, which indicates the selection is active.
- The custom unit factor is a conversion factor of the current primary weight data.

Custom Unit Programming example:

To convert lbs to dry barrels enter the conversion factor, resolution and custom legend, in the PC2250 program. The current primary weight will be multiplied by the conversion factor, rounded off to the custom resolution and printed with a custom legend.



## 7.6. Calibration



**Settings include:**

- Scale capacity
- Primary Units
- Auto Zero Tracking
- Motion Band (BAL)
- Division Size
- Digital Filter
- Auto Tare settings.

Actual test weight calibration is performed with the FB2250 front panel keys.

## 7.7. First time Connection Using PC225X PC Utility and FB225X ETHERNET TCP/IP option

1. With the FB225X connected to the ethernet network, launch the PC225X PC Utility from the PC on the same network as the FB225X.

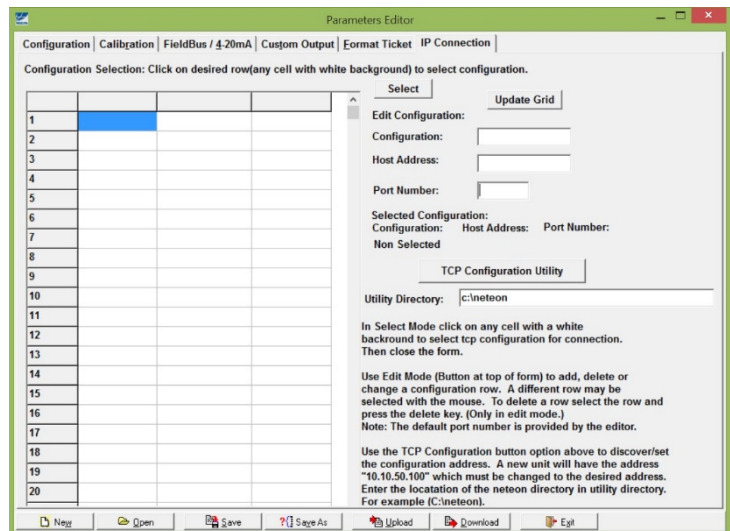
2. Change the interface from RS232 to TCP/IP by clicking on the button.

3. Select the PC Utility type based on the instrument you will be connecting to. Choose PC2250 or PC2255.

**NOTE: If the ethernet card has been previously configured, skip to step 23.**



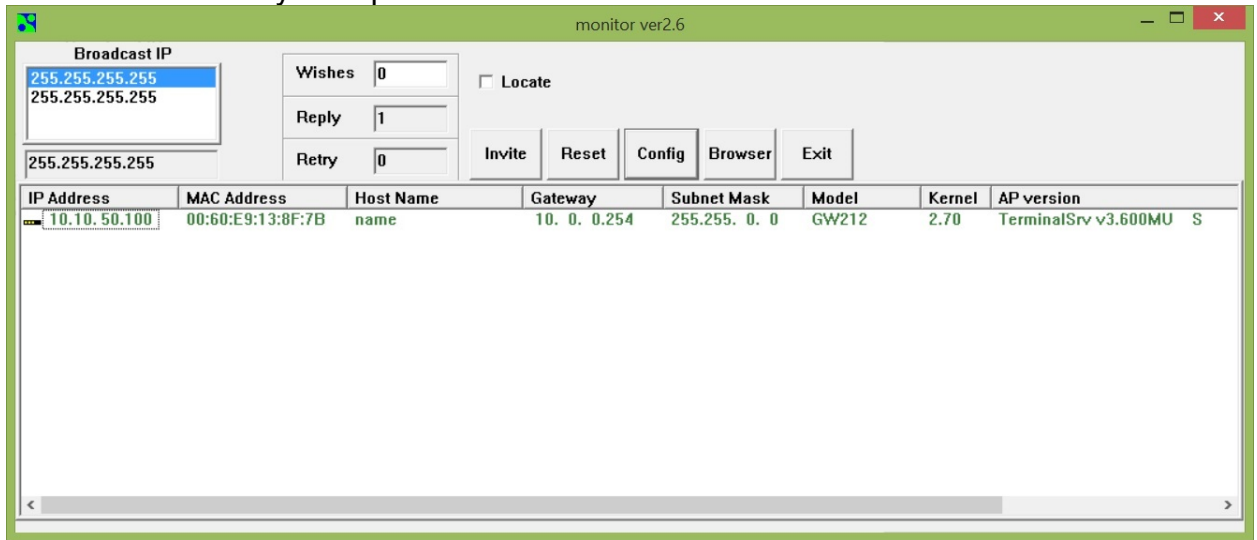
4. Click F4 to open the Configuration window.
5. Select the **IP CONNECTION** Tab.



6. Click the **TCP CONFIGURATION UTILITY** button.



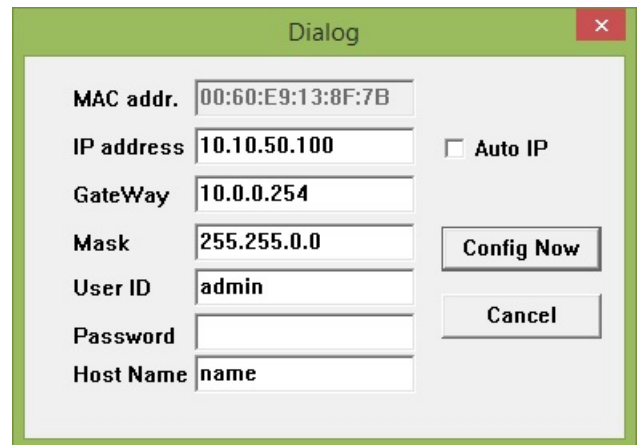
7. The NETEON Utility will open.



8. The default IP (10.10.50.100 or 10.0.50.100) of the ethernet device should show.

9. Highlight the IP address shown by clicking on it.

10. Select the **CONFIG** button. A new dialog box will open.



11. Obtain network setting details from the customer's IT personnel and enter the information in the dialog box.

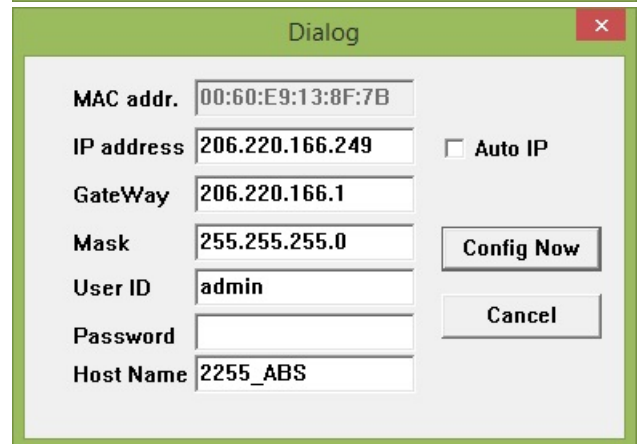
a. **NOTE:** AUTO IP sets the card to DHCP

12. Set the USER ID and PASSWORD

a. Default = admin with no password

13. Highlight the IP address shown by clicking on it.

14. Click the **CONFIG NOW** button to write the change to the ethernet card.

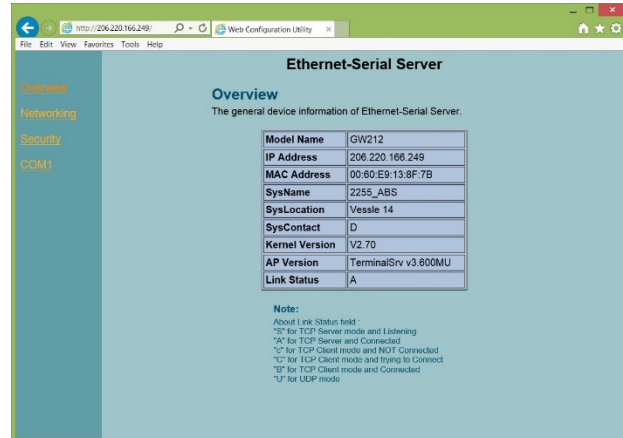


15. Click the **BROWSER** button.

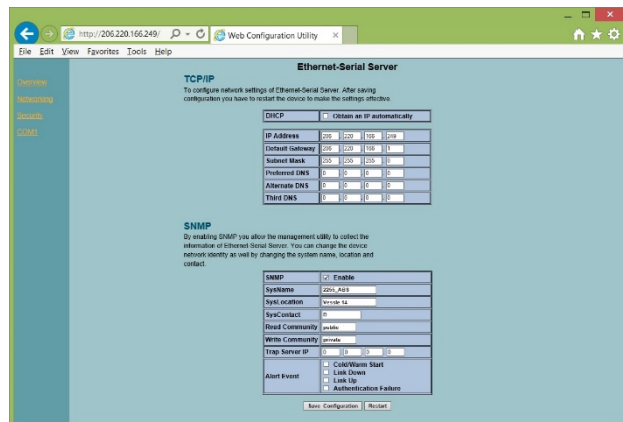


16. You will be prompted for the USER ID and PASSWORD previously entered.

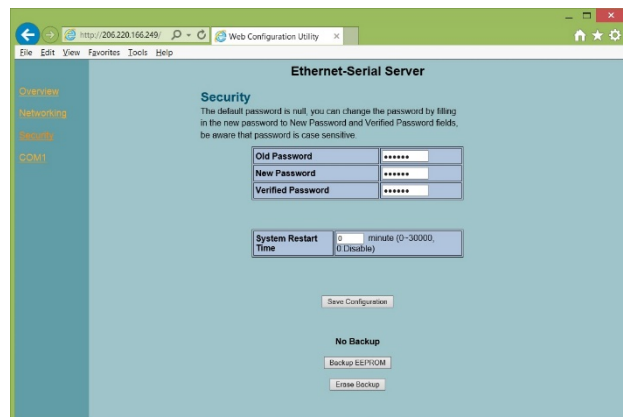
17. The **OVERVIEW** window will open showing the current addresses and settings for the ethernet card.



18. If additional network configuration is required, click the **NETWORKING** link.



19. To change the PASSWORD, click the **SECURITY** link.



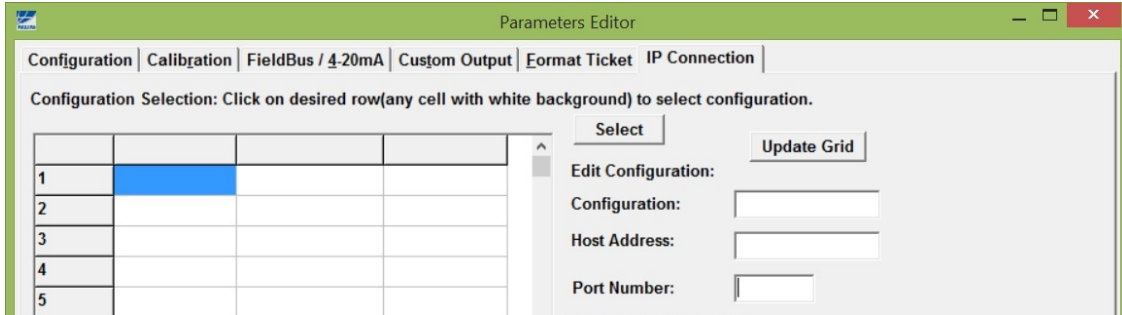
20. Do NOT make any changes under the COM1 link.

21. Close the browser window when you are done.

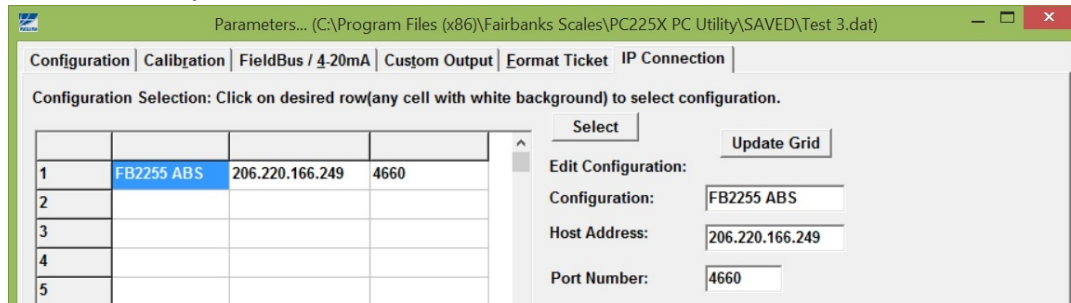
22. Click the **EXIT** button to close the configuration utility.



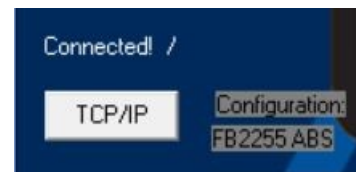
23. Return to the PC225X Utility and select the **IP CONNECTION** tab.
24. If the **SELECT** button is available, proceed to the next step, if it is not click on the **EDIT** button then proceed to the next step.
25. In the **CONFIGURATION** field, enter a human readable name to identify the FB225X instrument to connect to.



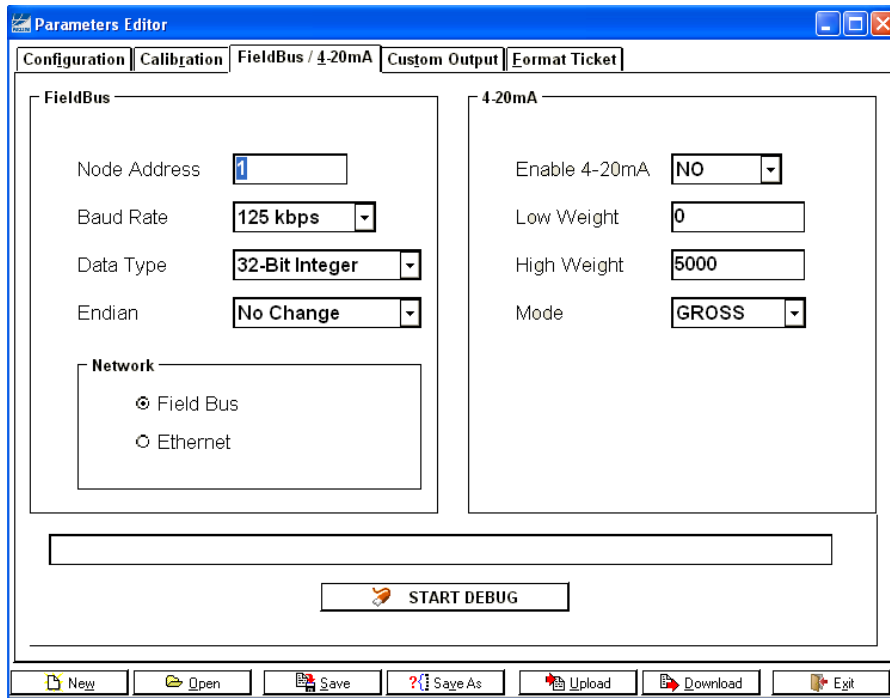
26. In the **HOST ADDRESS** field, enter the IP address for the FB225X being connected.
27. Default **PORT NUMBER** is 4660.
28. Once complete, select **UPDATE GRID**.



29. Save the PC225X Configuration file using the **SAVE AS** button.
30. Press **EXIT** to close the Configuration tool.
31. Weight should now display on the PC225X Utility.
32. The Utility will display the current IP Connect selected next to the TCP/IP button.
33. You can make Configuration changes, Upload and Download files from the PC225X Utility and the FB225X instrument.



## 7.8. Fieldbus



The **Anybus Module** is set up using the **PC2250 Program** and configures the following parameters listed below. The FB2250 will automatically detect the Anybus module installed. No additional programming is required except the following parameters if necessary. The remainder of the fieldbus configuration and programming is performed on the fieldbus network side by the customer's network personnel.

### **PORT 20**

As part of the ETHERNET IP specification, the fieldbus device uses Port 20. This port cannot be changed. This is to ensure other devices on the network are able to communicate with each other.

### **Node Address**

Enter the Node Address of the Module. This is typically furnished by the customer.

### **Baud Rate**

Most anybus modules can automatically detect the network speed by using the Auto Baud feature. DeviceNet uses 125 bps, 250bps or 500bps.

### **Data Type**

Data can be setup to output a 32 bit Integer word or a 32 bit floating point value.

## **Endian**

The endianness of module is determined by the network type but can be changed from Little Endian to Big Endian or vice versa by using the "Change Order" setting

### **Little Endian Format or Intel Order**

In little endian format, the least significant byte is stored first, followed by the next three more significant bytes. For example a 32bit value of 0x12345678 would be stored in Memory in Little Endian as;

Address + 0	0x78
Address + 1	0x56
Address + 2	0x34
Address + 3	0x12

### **Big Endian Format or Motorola Order**

In big endian format, the most significant byte is stored first, followed by the next three least significant bytes. For example a 32bit value of 0x12345678 would be stored in Memory in Big Endian as;

Address + 0	0x12
Address + 1	0x34
Address + 2	0x56
Address + 3	0x78

## **OUTPUT**

Data from the FB2250 comprises of three (3) 32bit words; Gross Weight, Tare Weight and a 32bit Status word

Gross and Tare weights can be selected as either a 32bit Integer or 32bit floating point word.

The Most significant byte indicates the Weigh Mode "G" for Gross and "N" for Net. The next order byte indicates; "O" Overcapacity, "M" Motion of the last command received. (See INPUT Commands)

The next order byte indicates the weight units; "l" pounds, "k" kilograms, "o" ounces and "g" grams.

The least significant byte indicates the number of decimal places if the weight output is selected to be a 32bit Integer word. If a Floating point word is selected this byte will be 0.

## **INPUT**

Single byte Commands can be sent from the network. Although the input is read as a 32 bit word only the least significant byte is used at this time. When the command is sent and recognized it is entered into the 32 bit status byte in the least significant command byte location. New commands can be transmitted after transmitting a NULL command.

### **Recognized Commands**

Print Stream (see Custom Format PC2250)

Print Format Stream; CR, SPACE, STX, ENQ or defined Poll Character

Tare: "A"

Print Ticket "p" / "P"

Zero "Z"

Change Gross Net Weigh Mode: "G"

Change Units: "U"

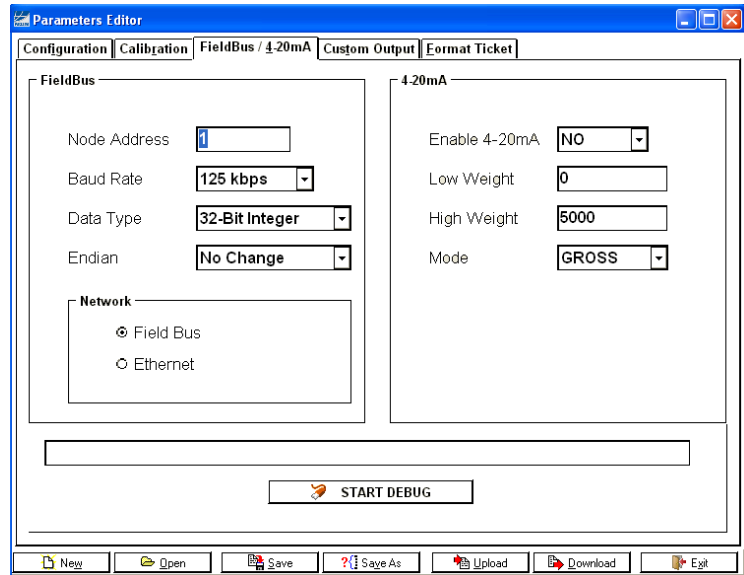
### **Debug**

- Data in the Anybus Module can be examined by clicking the **START DEBUG** button.
- It is stopped by clicking the **STOP DEBUG** button.
- The Start Debug and Stop Debug provides a verification of the FB2250 communicating with the fieldbus module by sending hexadecimal values which may be observed upon pressing start and stop debug.
- The **WRITE BUFFER** contains three 32-bit words.
  - **Gross Weight, Tare Weight** and the **Status Word** is the data sent to the Network.
- The Contents of the **READ BUFFER**, which is the data received from the network, is displayed as a 32-bit word.



## 7.9. 4-20mA

A point-to-point or multi-drop circuit mainly used in the process automation field to transmit signals from instruments in the field to a controller. It sends an analog signal from 4 to 20mA that represents 0 to 100% of the weight displayed at the instrument. As a current loop signal, the FB2250's 4-20ma output is a passive device which requires an **isolated and dedicated** power supply provided by others.



**Enable 4-20mA** – From the drop-down menu, select YES to enable the output.

**Low Weight** – Enter the weight value which represents the 4mA output signal.

**High Weight** – Enter the weight value which represents the 20mA output signal.

**Mode** – From the drop-down menu, select weight mode which the 4-20mA will track, Gross or Net.

---

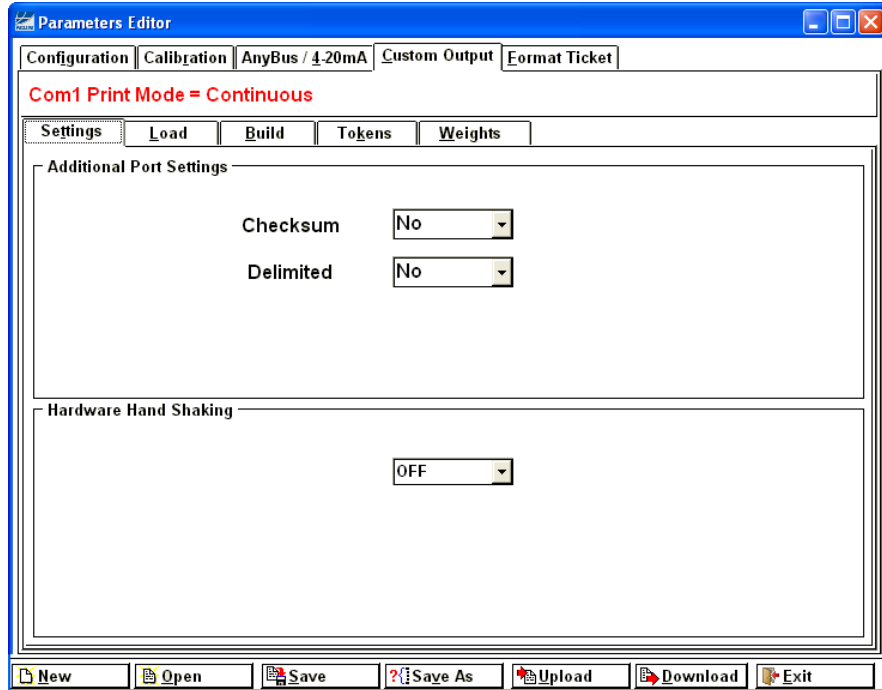
**WARNING:** Do not physically install the 4-20mA card until the instrument is configured and calibrated (weight) to the platform.

---

## 7.10. Custom Output: Settings

### Checksum:

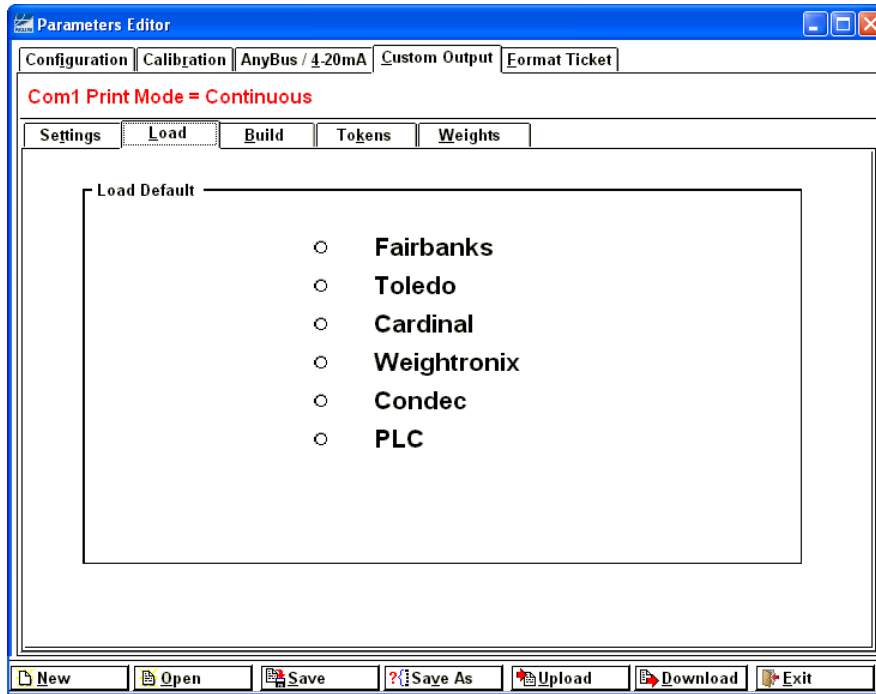
This setting determines whether a checksum character is enabled or not enabled. Checksum is an error detection method that checks the integrity of the entire string of data that is transmitted.



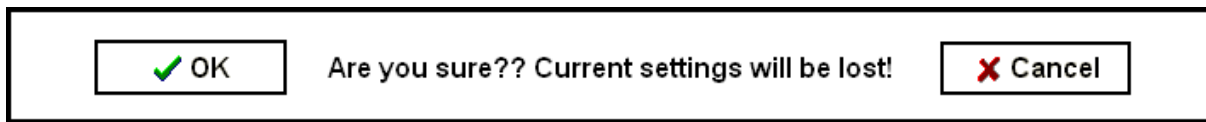
**Delimited:** This setting determines if a comma is added to the output string to separate data fields contained within the output string.

**Hardware handshaking:** No function. For future use.

## 7.11. Custom Output: Load



A variety of pre-packaged output strings is available, click the radio button to select.



Upon selection, confirm or cancel. Refer to Appendix for data output structures.

---

**NOTE:** *PLC is no longer used and not a valid selection.*

---

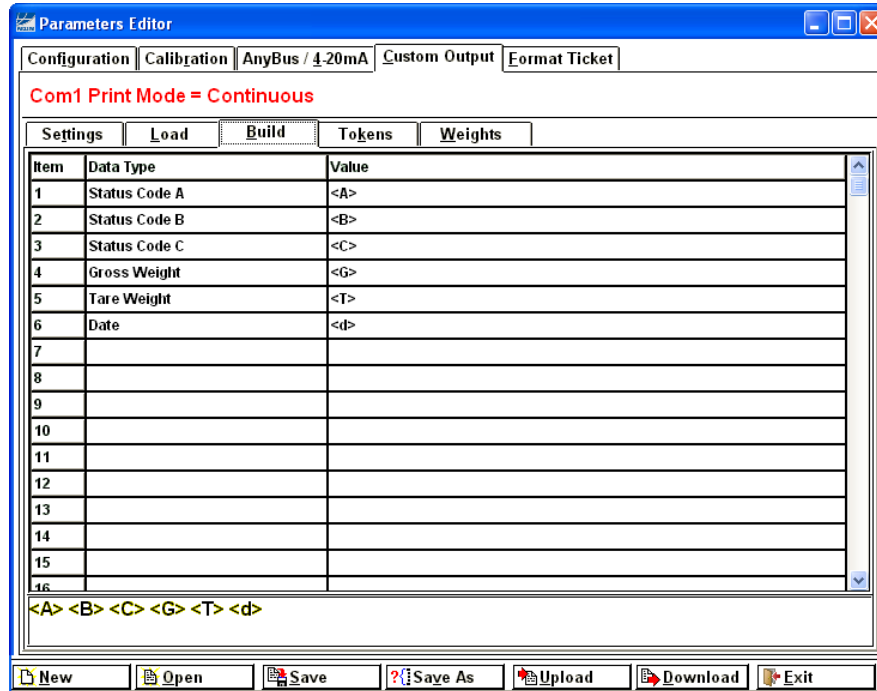
**NOTE for Rev 1.0 to 1.9:** When custom outputs are formatted for Port 1, the FB2250 Port 1 output must be set to **print F**.

**IMPORTANT NOTE:** Whenever custom outputs are programmed for Port 2, upon completion the power **MUST** be cycled to the FB2250 Instrument in order for them to take effect.

## 7.12. Custom Output: Build

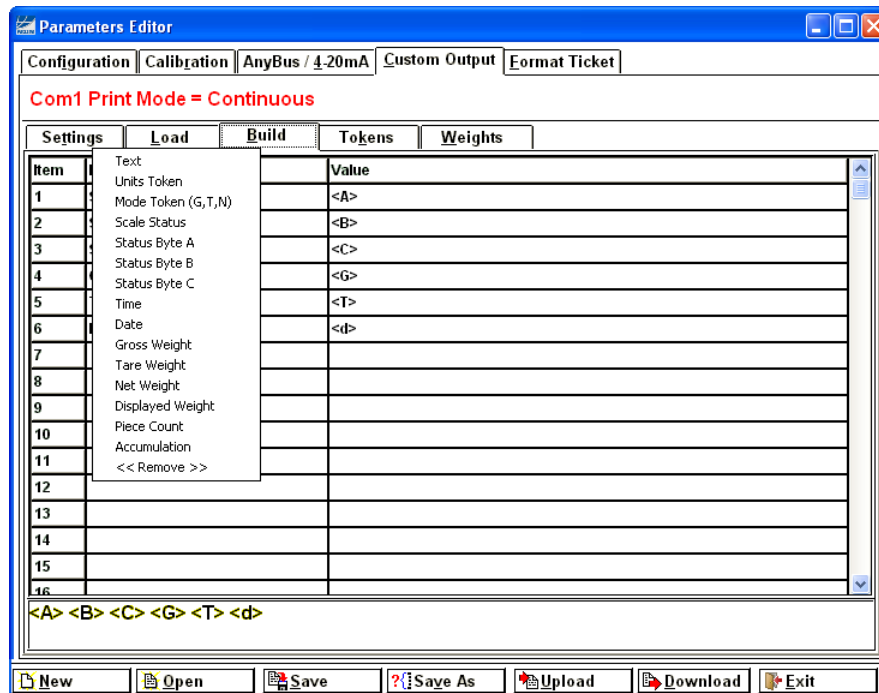
The data output string can be customized to suit the application requirements.

The current structure of the output string is displayed at the bottom, in order of transmission from left to right.

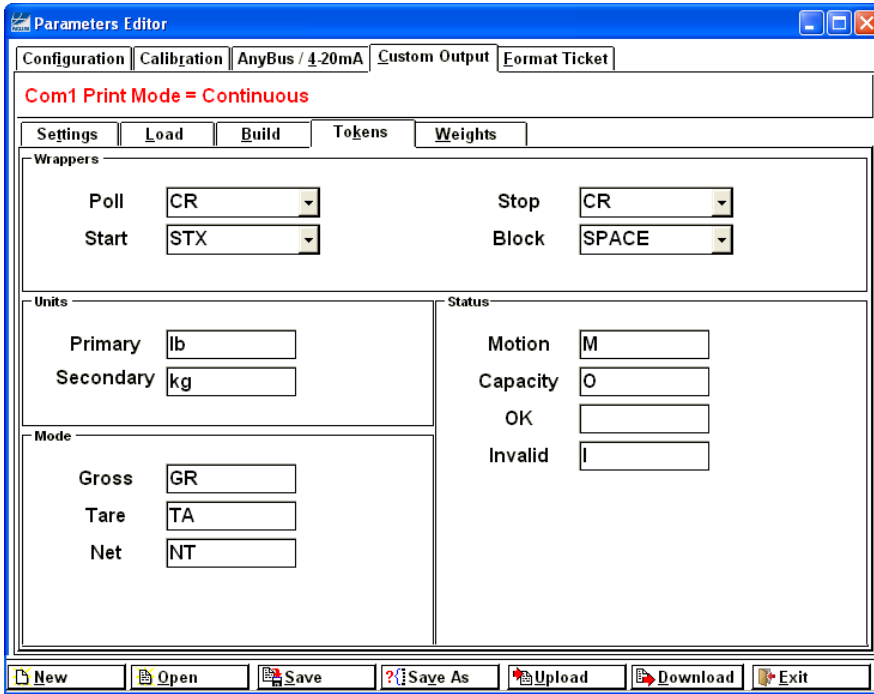


Changing data items is accomplished by right clicking the mouse in the selected "DATA TYPE" field.

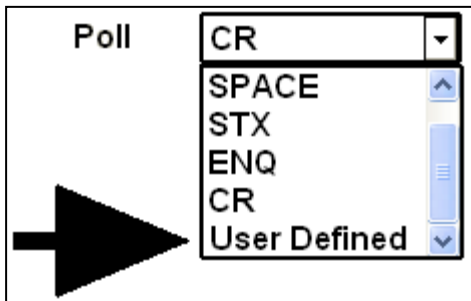
This will open a selection window containing many different data items.



## 7.13. Custom Output: Tokens



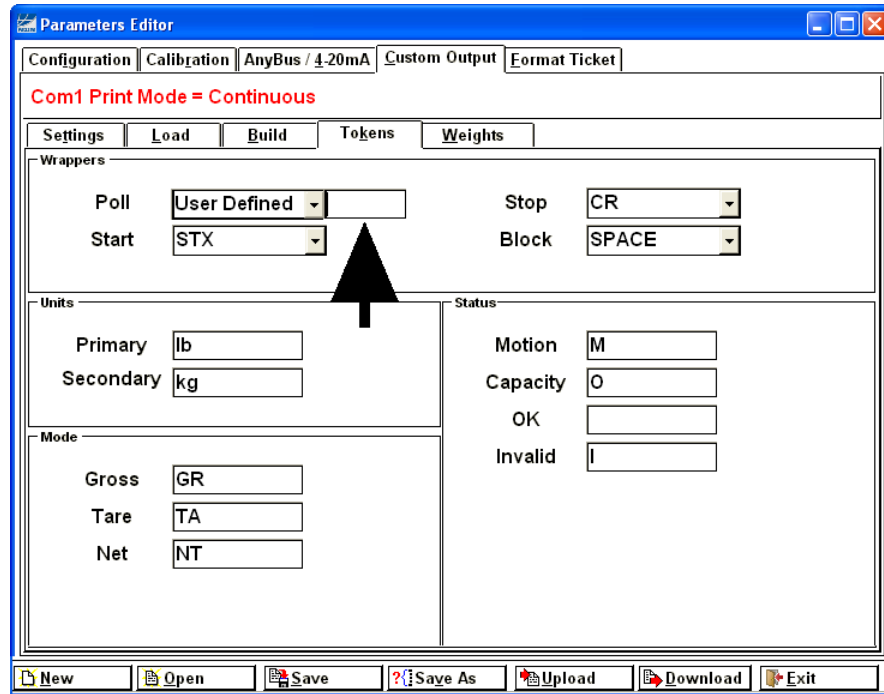
A wide variety of different characters can be selected for the polling character, as well as the start, stop, block, primary and secondary units, weighing mode, motion, and capacity characters.



For selection of a character not listed, select "USER DEFINED"

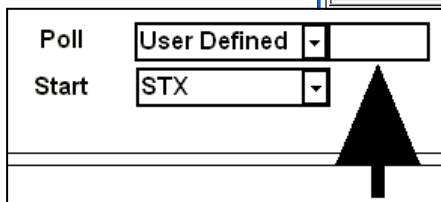
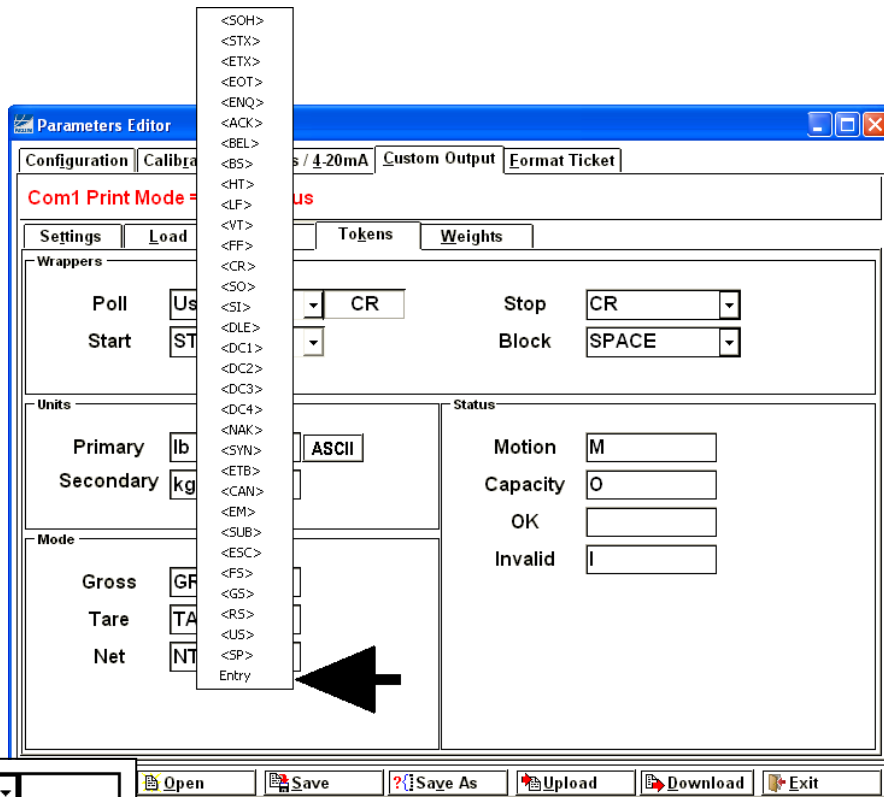
This will produce an additional data entry box as shown.

Selecting data items is accomplished by right clicking the mouse in the additional data entry box.



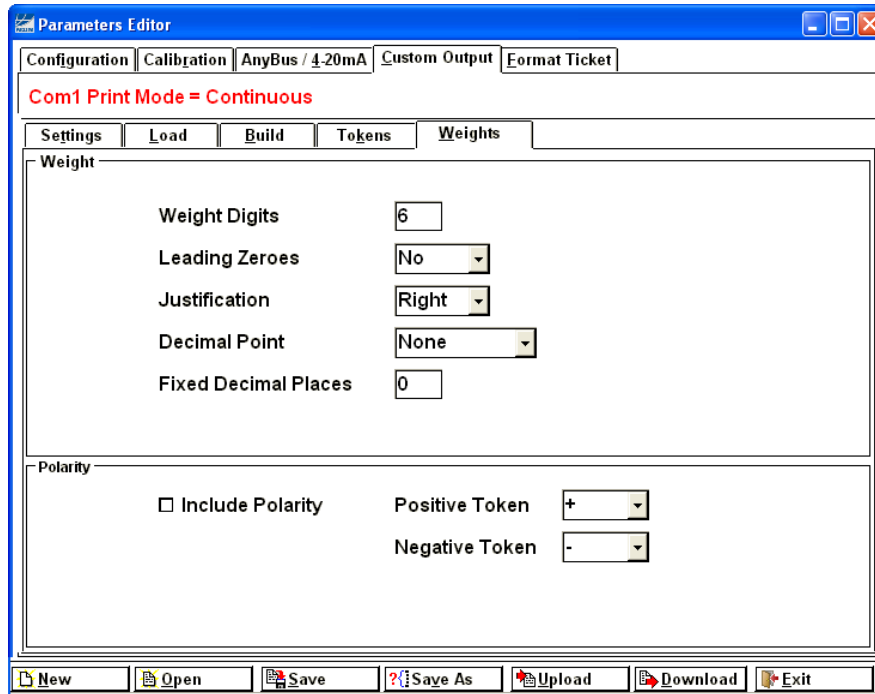
A selection such as <SOH> inserts a Start of Header character... otherwise known as a CTRL/A, or 0x01 HEX

For selection of a character not listed, select "Entry".



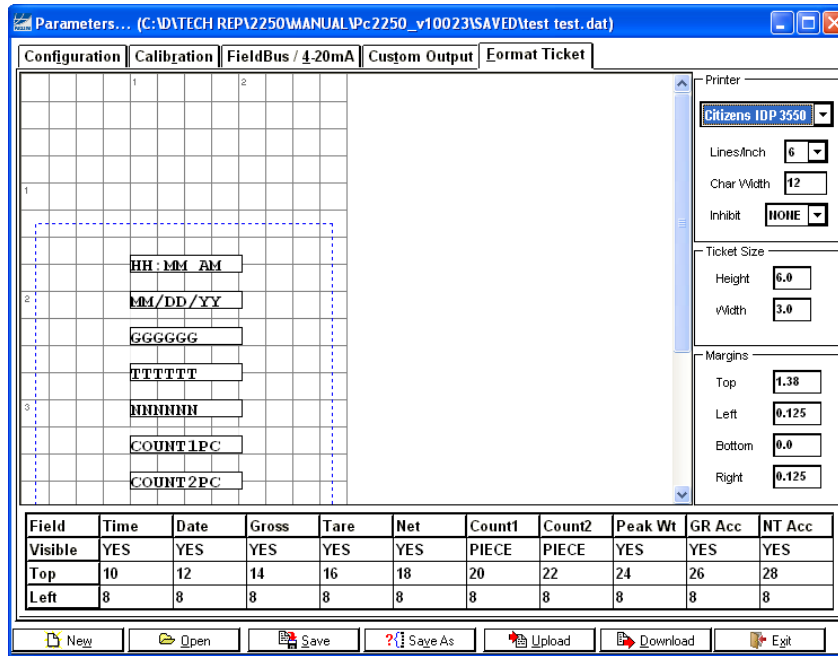
A Selection of Entry allows the user to enter a character using the keyboard, such as an 'A' or a '1'.

## 7.14. Custom Output: Weights



A variety of different settings is also available for the number of weight digits, whether leading zeroes are included or not, left or right justification, decimal point inclusion and type, decimal places, and positive and negative polarity designators.

## 7.15. Format tickets



- Formatting tickets is easily performed with this drag and drop interface.
  - The blue-dashes indicate the printable area of the ticket based on the ticket size and margins entered (by the user or by default).
1. Click on the drop down arrow to select the desired ticket **Printer**.
  2. Click on the drop down arrow for **INHIBIT** to select either NONE, HIGH, or LOW.
  3. Enter the **Ticket Size** and **Margins** in inches.
  4. Items can be removed or added from view and printing by right clicking the **VISIBLE** box under the parameter, and then selecting **NO** or **YES**.

- a. Count1 options include:
  - i. NO – not visible
  - ii. PIECE – number of pieces
  - iii. CNT GR. – Gross accumulated count
- b. Count2 options include:
  - i. NO – not visible
  - ii. PIECE – Total accumulated number of pieces
  - iii. CNT NT – NET accumulated count

Field	Time
Visible	YES
Top	6
Left	10

5. Click-and-hold on a data item in the ticket window to move it to a different location or manually change the numeric values for **TOP** and **LEFT**.

### NOTES:

- Although the **Lines/ inch** and **Char Width** settings are sent to the printer and stored, they are not being used at this time (possible future use).
- Legends such as **GROSS** cannot be disabled and are **always included**.



## 7.16. Printed Examples:

### ACCUMULATION

Field		Count1	Count2	Peak Wt	GR Acc	NT Acc
Visible		CNT GR	CNT NT	NO	YES	YES
Top		14	16	0	20	22
Left		2	2	0	2	2

\* See section [3.5.8. Weight Accumulation](#) (in Operation)

```

4 Items GR
 8333.4 lb GR Total

0 Items NT
 0.0 lb NT Total
    
```

Here you see a sample ticket with 4 gross accumulations stored.

```

0 Items GR
 0.0 lb GR Total

5 Items NT
8333.5 lb NT Total
    
```

Here you see a sample ticket with 5 NET accumulations stored. Note that the Tare weight is not shown.

```

2 Items GR
4166.7 lb GR Total

6 Items NT
9166.8 lb NT Total
    
```

Gross weight and NET weight can be accumulated simultaneously in the FB2250. Each Gross weight stored will be in its own register and each NET weight stored will be in its own register, completely independent from each other.



**PIECE COUNT**

Field	Time	Date	Gross	Tare	Net	Count1	Count2
Visible	YES	YES	YES	YES	YES	Piece	Piece
Top	2	2	6	8	10	14	16
Left	2	13	7	7	7	7	7

\* See section [3.5.14 Piece Counting](#) (in Operation)

Container weighs 5.0 lb.

5 pieces weigh 1.0 lb

Pieces cannot be accumulated.

When **PRINT** key was pressed, 5 pieces were still on the scale.

02:04PM	02-18-14
6.0 lb GR	
5.0 lb TA	
1.0 lb NT	
5 Pieces	
0 Total Pieces	

**PIECE COUNT and TOTAL**

Field	Time	Date	Gross	Tare	Net	Count1	Count2
Visible	YES	YES	YES	YES	YES	Piece	Piece
Top	2	2	6	8	10	14	16
Left	2	13	7	7	7	7	7

\* See section [3.5.15. Piece Count and Total](#) (in Operation)

Container weighs 5.0 lb.

5 pieces weigh 1.0 lb

13 pieces have been accumulated previously before step 10 has been completed.

After step 10 was completed and when **PRINT** key was pressed, 5 pieces were still on the scale.

02:04PM	02-18-14
6.0 lb GR	
5.0 lb TA	
1.0 lb NT	
5 Pieces	
18 Total Pieces	

**PEAK WEIGHT**

Field	Time	Date	Gross	Tare	Net	Count1	Count2	Peak Wt
Visible	YES	YES	YES	YES	YES	NO	NO	YES
Top	2	2	6	8	10	0	0	14
Left	2	13	7	7	7	0	0	2

\* See Section [3.5.16. Peak Weight](#) (in Operation)

Container weighs 5.0 lb

Item(s) in container weighs 11.0 lb

The peak weight applied to the scale to date was 18.0lb Gross weight and occurred on 02-17-14 @ 01:04PM

02:04PM	02-18-14
16.0 lb GR	
5.0 lb TA	
11.0 lb NT	
18.0 lb Peak Weight	
02-17-14 01:04PM	

---

# APPENDIX I: DATA OUTPUT FORMATS

---

## A. General Notes

- <CR> = means carriage return character
- <LF> = line feed character
- <SP> = space character
- <EOT> = end of transmission character
- <...> = used to indicate individual characters for clarity only (not present in data stream)

Power must be cycled after each output download otherwise the FB2250 will not save the downloaded data and will default to the previous setting.

## B. Fairbanks/ Toledo Continuous Output

<STX><A><B><C><WWWWW><TTTTTT><CR>

- A = Status Word A
- B = Status Word B
- C = Status Word C
- W = Displayed Weight
- T = Tare Weight

Leading zeroes are not suppressed. The Continuous Computer Output is an uninitiated, unrequested output that is transmitted at a fixed time interval.

## B. Fairbanks/ Toledo Continuous Output, Continued

Character String	Description
STX	Start of Text character : (02 Hex)
A	Status Word A
B	Status Word B
C	Status Word C
xxxxxx	Displayed Weight : x = Weight (6 characters if grad size does not have a decimal point.) (5 characters if the grad size does have a decimal point. The decimal point is not sent as part of the character string.
xxxxxx	Tare Value : x = Tare (6 characters if the grad size does not have a decimal point.) (5 characters if the grad size does have a decimal point. The decimal point is not sent as part of the character string
CR	Carriage Return Character : (0D hex)
CS	Checksum Character : If enabled, this character consists of the last eight bits of the binary sum of all characters transmitted up to this checksum character.

### Status Word A

Bit #	Decimal Point or Zero Location								
	x00	x0	x	x.x	x.xx	x.xxx	x.xxxx	x.xxxxx	
0	0	1	0	1	0	1	0	1	
1	0	0	1	1	0	0	1	1	
2	0	0	0	0	1	1	1	1	
	Increment Size								
Count by 1				Count by 2				Count by 5	
3	1				0				1
4	0				1				1
5	Always Logic 1								
6	Always Logic 0								
7	Parity Bit								



# B. Fairbanks/ Toledo Continuous Output, Continued

## Status Word B

Bit #	Description
0	Gross = 0
1	Positive = 0
2	In Range = 0
3	No Motion = 0
4	lb = 0
5	Always Logic 1
6	Normal = 0
7	Parity Bit

Net = 1  
 Negative = 1  
 Overcapacity = 1  
 Motion = 1  
 kg = 1  
 Power Up = 1

## Status Word C

Bit #	Description
0	Always Logic 0
1	Always Logic 0
2	Always Logic 0
3	Normal = 0
4	Always Logic 0
5	Always Logic 1
6	Normal = 0
7	Parity Bit

Print Switch Pushed = 1  
 Keyboard Tare = 1

## B. Cardinal 738 Continuous Scoreboard Output

**<CR><P><WWWWW><m><SP><U><SP><g><SPSP><ETX>**

W = Displayed weight

P = Polarity           + = Positive weight  
                              - = Negative weight

U = Units

lb = pounds

kg = kilograms

m = Motion or o = Overload

g = Gross; n = Net

SP = Space

Leading zeroes are not suppressed

## C. Weightronics WI-120 Continuous Output

**<G><P><WWWWW><SP><U><CR><LF>**

G = Gross; N = Net

P = Polarity           + = positive weight  
                              - = negative weight

U = Units

lb = pounds

kg = kilograms

SP = Space

Leading zeroes are not suppressed

## D. Condec Continuous Output

**<STX><P><WWWWWW><U><G><M><CR>**

P = Polarity                      space = positive weight  
   - = negative weight

W = Displayed weight

U = Units

L = pounds

K = kilograms

G = Gross; N = Net

M = Motion

Leading zeroes are suppressed

## E. Demand Output - Default

Activated by the receipt of a **<CR>**.

**Gross Weight – No Motion – decimal points included**

**<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <G>  
<R> <SP> <SP> <CR> <LF> <EOT>**

**Gross Weight – Motion – decimal points included**

**<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <g>  
<r> <SP> <SP> <CR> <LF> <EOT>**

**Net Weight – No Motion – decimal points included**

**<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <N>  
<T> <SP> <SP> <CR> <LF> <EOT>**



## F. Continuous Output - Default

Outputs once every display update rate cycle.

Continuous Output formatted output. **Same for Poll and Auto**

### Gross Weight – No Motion – decimal points included

<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <G>  
<R> <SP> <SP> <CR> <LF> <EOT>

### Gross Weight – Motion – decimal points included

<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <g>  
<r> <SP> <SP> <CR> <LF> <EOT>

### Net Weight – No Motion – decimal points included

<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <N>  
<T> <SP> <SP> <CR> <LF> <EOT>

### Net Weight – Motion – decimal points included

<SP> <W> <W> <W> <W> <W> <W> <SP> <|> <b> <SP> <SP> <n>  
<t> <SP> <SP> <CR> <LF> <EOT>

## G. PLC (Do not use.)

The PLC selection is no longer functional within the PC2250 software and should not be used or selected.

### General Information

The information below is automatically configured by the FB2250 and is provided as supplemental information only.

Continuous Output, transmitting data on every other A/D update

— Approximately 32 transmissions per second.

Baud Rate	<b>19,200</b>
Data Bits	<b>8</b>
Parity	<b>None</b>
Stop Bit	<b>1</b>
Mode	<b>Continuous</b>

The output string is **12 characters**, seen as “**wwwwwwuumm<eot>**” where,

**<wwwwww>** = Weight including decimal point and negative sign.

Negative sign precedes most significant digit and may be preceded by space characters.

**<uu>** = units “lb”, “kg”, “oz”, or “g “. “oz” may indicate ounces, or lb/ounces.

**<mm>** = mode “GR” or “NT” for stable weight, or “gr” or “nt” for motion.

**<eot>** = end of text.

Example 1: **Gross – lbs. – Weight Stable**

**<WWWWWWW> <l><b> <G> <R> <EOT>**

Example 2: **Gross – lbs. – Weight in Motion**

**<WWWWWWW> <l> <b> <g> <r><EOT>**

Example 3: **Net – kgs. – Weight Stable**

**<WWWWWWW> <k> <g> <N> <T> <EOT>**

Example 4: **Net – kgs. – Weight in Motion**

**<WWWWWWW> <k> <g> <n> <t> <EOT>**

---

**NOTE:** Once **FIELD BUS OPTIONS** have been programmed, the installing technician’s setup is complete.

Specialized tools available from: <https://www.anybus.com/support/file-doc-downloads/anybus-compactcom-30-series>

Interface of the **HMS COMMUNICATIONS** device, power supply to same device, and programming of the PLC is strictly the responsibility of the customer.

---

## H. UPS

- **Serial Data Output Format** for **UPS Worldship Software**.

*The instrument will transmit the following string of data.*

**Character Number**      1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

**String 1**

**Gross Weight:** X X X X . X X SP l/k b/g SP G/g R/r SP SP CR LF EOT

---

### NOTES:

- Characters denoted by “**X**” are characters **0-9**.
    - Leading zeroes are replaced with spaces (**SP**).
    - **Character 5** is a decimal point (**HEX 2E**).
  - Lower case “**l**” and “**b**” for **Avoirdupois Units**, or “**k**” and “**g**” for **Metrics Units**.
  - The first weight character will be a **minus (-)**, **HEX 2D**, If weight is negative.
  - Characters separated with a “**/**” denoted one of the characters will be transmitted.
    - Lower case **gr** in **characters 12** and **13** indicates scale motion.
    - Upper case indicates stable weight.
  - **EOT, HEX 04** is transmitted in “**HiCAP**” condition.
  - Transmission will occur when a **CR (Hex 0D)** carriage return is received.
-

# I. P Ship

- Serial Data Output Format for P Ship, used to interface to FedEx Shipping Programs.

All computer commands and scale responses are **ASCII Character Strings**, where:

**<CR>** is an ASCII carriage return (hexadecimal 0D)

**<LF>** is an ASCII line feed (hexadecimal 0A)

**<ETX>** is an ASCII End-Of-Text (hexadecimal 03)

**(STATUS)** is a two ASCII number representation of the scale status (in the form of hexadecimal 3x3x, where the bit pattern of the low nibbles, indicated by an "x", determine the actual status conditions)

COMPUTER RESPONSE	SCALE RESPONSE	COMMAND RESULT
W<CR>	<b>&lt;LF&gt;&lt;SP&gt;XXX.XXUU&lt;CR&gt;(STATUS)&lt;ETX&gt;</b>	Returns the weight and scale status in two ASCII digits.
S<CR>	<b>&lt;LF&gt;S(STATUS)&lt;CR&gt;&lt;ETX&gt;</b>	Returns the scale Status in two ASCII digits (defined in the following section)
Z<CR>	<b>No response</b>	Zeroes the scale
All Else	<b>&lt;LF&gt;?&lt;CR&gt;</b>	Unrecognizable command

Notes: In the scale response to "W<CR>":

- XXX.XX** = A five digit number with two digits to the right of the decimal point which is the displayed scale weight.
- SP** = An ASCII space (hexadecimal 20). In the event of a negative weight, an ASCII, "-" (hexadecimal 2D) is returned in this location.

## I. P Ship, Continued

3. **UU =** A two character weight identifier. If the scale is configured to weigh kilograms, a "KG" (uppercase letters) will be returned, if configured for pounds, "LB" (uppercase letters) will be returned.

4. The decimal point is returned by the scale as part of the ASCII string.

5. Interpretation of scale status digits

The high order nibble of each status byte has a value of 3 (0011 B). The low order nibble of the first and second bytes are defined as follows:

1st Byte: Bit 0 - High = scale is in motion  
          Low = scale is stable  
          Bit 1 - High = scale at zero  
          Low = scale not at zero  
          Bit 2 - Low = not used  
          Bit 3 - Low = not used

2nd Byte: Bit 0 - High = scale is below zero  
          Low = scale is not below zero  
          Bit 1 - High = scale is over capacity  
          Low = scale is not over capacity  
          Bit 2 - High = scale ROM program failure  
          Low = scale ROM okay  
          Bit 3 - High = faulty calibration data\*  
          Low = scale calibration okay

\*This is the result of an incorrect checksum

An example of the scale response to an "S" command would be:

**<LF>S20<CR><ETX>**

The following status conditions are in effect for this response:

- scale at zero
- scale is not below zero
- scale is not over capacity
- scale ROM okay
- scale calibration okay

# APPENDIX II: ASCII CHART

Char	Dec	Hex
NUL	0	0
SOH	1	1
STX	2	2
ETX	3	3
EOT	4	4
ENQ	5	5
ACK	6	6
BEL	7	7
BS	8	8
HT	9	9
LF	10	a
VT	11	b
FF	12	c
CR	13	d
SO	14	e
SI	15	f
DLE	16	10
DC1	17	11
DC2	18	12
DC3	19	13
DC4	20	14
NAK	21	15
SYN	22	16
ETB	23	17
CAN	24	17
EM	25	19
SUB	26	1a
ESC	27	1b
FS	28	1c
GS	29	1d
RS	30	1e
US	31	1f
SP	32	20

Char	Dec	Hex
!	33	21
"	34	22
#	35	23
\$	36	24
%	37	25
&	38	26
`	39	27
(	40	28
)	41	29
*	42	2a
+	43	2b
,	44	2c
-	45	2d
.	46	2e
/	47	2f
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3a
;	59	3b
<	60	3c
=	61	3d
	62	3e
?	63	3f
@	64	40
A	65	41

Char	Dec	Hex
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4a
K	75	4b
L	76	4c
M	77	4d
N	78	4e
O	79	4f
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5a
[	91	5b
\	92	5c
]	93	5d
^	94	5e
_	95	5f
a	96	60
b	97	61
	98	62

Char	Dec	Hex
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6a
k	107	6b
l	108	6c
m	109	6d
n	110	6e
o	111	6f
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7a
{	123	7b
	124	7c
}	125	7d
~	126	7e
DEL	127	7f

# APPENDIX III: FB2250 REMOTE DISPLAY WIRING

## RS232 INTERFACE WIRING (Master)

## FB2250/55 REMOTE DISPLAY

## FB2250\* REMOTE DISPLAY

MODEL	COM	CONNECT		COM	CONNECT		COM	CONNECT	
<b>FB2200 (ABS)</b>	1	3	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	1	5	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>FB2200 (SS)</b>	1	3	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	1	5	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>FB2255 or FB2250</b>	1	TB4(A)-2	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	1	TB4(A)-1	RX	1	TB4(A)-2	TX	1	TB4-2	TX
	1	TB4(A)-4	GND	1	TB4(A)-4	GND	1	TB4-4	GND
	2	TB4(B)-2	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	2	TB4(B)-1	RX	1	TB4(A)-2	TX	1	TB4-2	TX
	2	TB4(B)-4	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>FB2250*</b>	1	TB4-2	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	1	TB4-1	RX	1	TB4(A)-2	TX	1	TB4-2	TX
	1	TB4-4	GND	1	TB4(A)-4	GND	1	TB4-4	GND
	2	TB4-7	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	2	TB4-6	RX	1	TB4(A)-2	TX	1	TB4-2	TX
	2	TB4-9	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>2300</b>	1	TB4-1	TX	1	TB4(A)-1	RX	1	TB4-1	RX
	1	TB4-2	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>2500</b>	2, 3, 4 or 5	3	TX	1	TB4(A)-1	RX	1	TB4-1	RX
		5	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>2500 (SS)</b>	2, 3, 4 or 5	4	TX	1	TB4(A)-1	RX	1	TB4-1	RX
		8	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>2800</b>	A	TB3-2	TX	1	TB4(A)-1	RX	1	TB4-1	RX
		TB3-4	GND	1	TB4(A)-4	GND	1	TB4-4	GND
	B	TB2-2	TX	1	TB4(A)-1	RX	1	TB4-1	RX
		TB2-4	GND	1	TB4(A)-4	GND	1	TB4-4	GND
<b>5200A</b>	1 or 2	4	TX	1	TB4(A)-1	RX	1	TB4-1	RX
		5	RX	1	TB4(A)-2	TX	1	TB4-2	TX
		8	GND	1	TB4(A)-4	GND	1	TB4-4	GND

\* Old style with 28600 Main PCB.

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## APPENDIX IV: REMOTE DISPLAY ACTIVE KEYS

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INSTRUMENT	FB2250 ACTIVE FRONT PANEL KEYS
<b>FB2200</b>	No Active Keys
<b>FB2250</b>	Units, Zero, Gross Net, Auto Tare, Print *
<b>FB2255</b>	Units, Zero, Gross Net, Auto Tare, Print *
<b>2300</b>	No Active Keys
<b>2500 / FB2550</b>	No Active Keys
<b>2800</b>	No Active Keys
<b>5200A</b>	Units, Gross Net

\* The “master” FB225X must have the printer on COM 1 and COM 1 must be configured for **Button**. COM 2 of the “master FB225X must be configured for **Poll** and the FB225X acting as the remote display must be connected to COM 2 of the “master”.



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# APPENDIX V: REMOTE PC COMMANDS

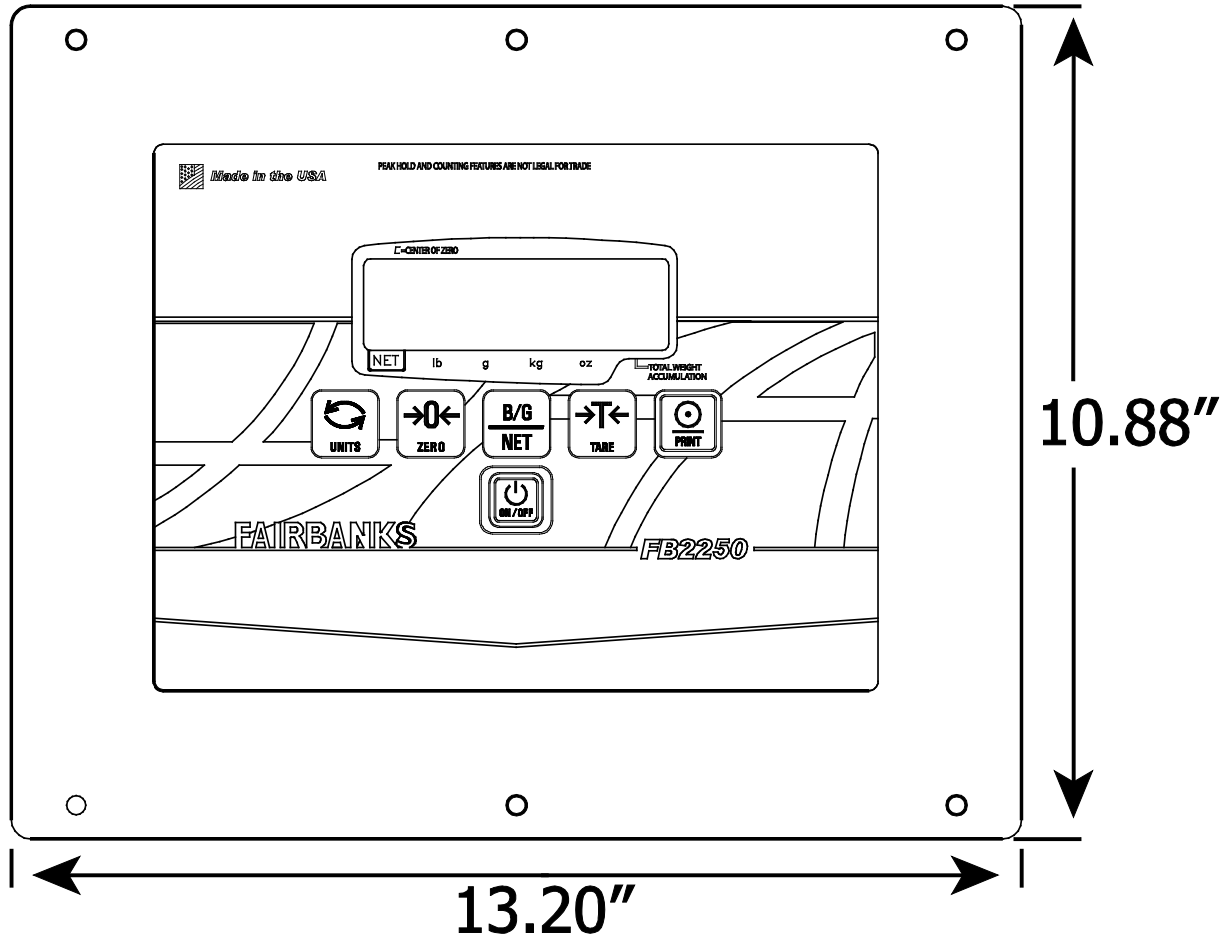
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Transmitting certain ASCII characters to the FB2250 will duplicate a key-press from a remote location via the RS 232 serial connection to Port 1. The baud rate, parity, and stop bits must match. The data bit length is 8 bits.

<b>ASCII CHARACTER</b>	<b>FUNCTION PERFORMED / COMMENTS</b>
<b>Z</b> (upper case)	Zero. Active in the Polled or Button Modes
<b>A</b> (upper case)	Tare (Auto Tare). Active in the Polled or Button Modes
<b>U</b> (upper case)	Change Units. Active in the Polled or Button Modes
<b>g</b> (lower case)	Toggle Gross / Net. Active in the Polled or Button Modes
<b>P</b> or <b>p</b> (either case)	'P' or 'p". Active in the Polled or Button Modes The output will be the same as if the instrument front panel switch is operated. This output is formatted via the PC2250 program, using the 'Format Ticket' tab and can include any of the field items and in the order prescribed.
<b>CR</b> (upper case)	Carriage Return. Active in the Polled Mode Output will be the displayed weight, either Net or Gross. If Motion then "GR" and "NT" are transmitted as "gr" and "nt". Both strings are terminated with; Carriage Return, Line Feed, End Of Transmission, <CR><LF><EOT>

# APPENDIX VI: FB2250 PANEL MOUNT DIMENSIONS

Panel Mount cutout dimensions are 11.0" x 9.0" x 3.25" minimum.





Manufactured by Fairbanks Scales Inc.

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# **FB2250 Series Instrument**

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**FB2250 / PC 2250  
Document 51214**