FB2255 Series Instrument

PC2255

PC Software Utility Program

51297

Rev. 1   01/2013
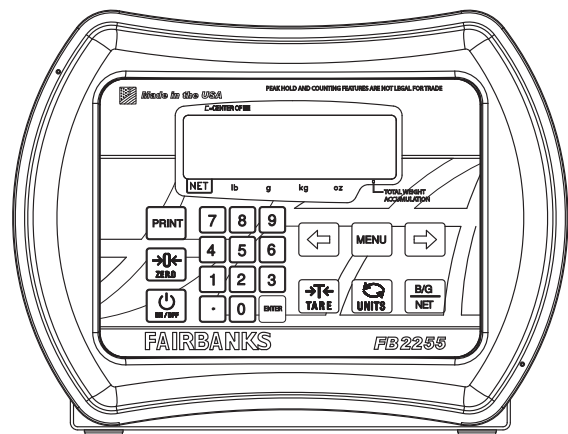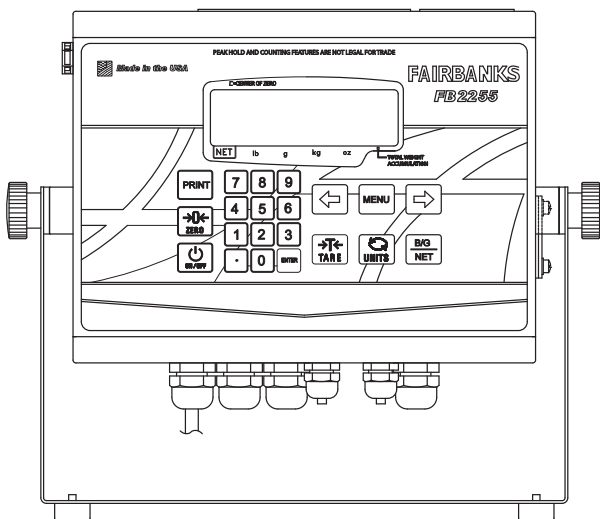
Amendment Record

FB2255

Document 51297

Manufactured by Fairbanks Scales Inc.

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Kansas City, Missouri 64106

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Section 1: General Information

1.1. Model Descriptions

The FB2255 is a general purpose weighing instrument that can be used with a wide variety of platforms and load receivers, and is available in eight (8) different configurations.

MODEL	PART NO.
• FB2255-1 Series ABS, AC Power	**32351**
• FB2255 Series ABS, AC/Battery Power with Bracket	**32449**
• FB2255-2 Series SS, AC Power	**32352**
• FB2255 Series SS, AC/Battery Power with Bracket	**32450**
• FB2255 Series SS, AC Power, No Bracket	**32451**
• FB2255 Series SS, AC/Battery Power, No Bracket	**32452**
• FB2255 Series SS, AC Power, No Bracket, IP69K	**32453**
• FB2255-K Series SS, AC Power, IP69K	**32352**

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 twelve (12) months.

- The FB2255 series instrument features a large one inch (1") 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 PC2255 is available, downloaded from Fairbanks Intranet for programming using the computer, and is required for certain features such as custom ticket formatting.

1.2. Main Product Features, Continued

- The PC2255 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 FB2255 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 4-20 mA Analog Output, a Bluetooth® serial adapter, and three different fieldbus devices; Profibus®, DeviceNet™, 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. BASIC SPECIFICATIONS

• ENCLOSURE	**ABS, Black NEMA 1, Stainless Steel NEMA 4X Desk and Wall Mount**
• DISPLAY	**6-digits, One inch (1") 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. STANDARD SETTINGS

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

1.3.4. WEIGHT ACCUMULATOR

• Capacity	**999,999 Weight Units** − Printed or viewed.

1.3.5. OUTPUTS

• PORT 1	Bidirectional Serial Port. Settings include **OFF, RS232**, RS422, and **RS485**. RS232 has 30+ updates a second
• PORT 2	Port 2 is used to interface to the **PC2255 program**, OR, Provide **20 mA passive, RS232**, **RS422**,or **RS485.**

1.3.6. PC2255

• Computer software utility program is available for your local Fairbanks Representative. • PC2255 is required for setting certain aspects of programming, such as custom Units and custom ticket formatting.

1.3.7. POWER REQUIREMENTS

• 117 volts AC +/- 10 % • 220 volts AC +/- 10 % • $\leq$ 0/2 volts AC between Neutral and Ground
• 1.5 watts maximum • The FB2255 is designed to operate from 80 to 260 volts AC, 50 to 60 Hertz

1.3. Specifications, Continued

1.3.8. DC MODELS

• Batteries	Five (5) Size "D" Alkaline batteries @ 1.5 Volts DC each.
• Battery Life	• Up to forty (40) Hours or greater with a maximum load of 4, 350 load cells and backlighting enabled. • Battery usage time can be adversely affected by battery storage, battery capacity and battery brand. • To maximize battery life, Serial Ports 1 and 2 should be switched **OFF**, if not used.
• Internal Battery	• Should be replaced every 12 months using Panasonic CR 1220 3V or equivalent.

1.3.9. 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

1.3.10. EXTERNAL PRINTERS

• Citizens IDP 3550 Tape Printer
• Okidata 184 & 186 Serial Form Printer
• Okidata 420 Serial Form Printer
• Epson Models TM-U295 and TM-U590 Ticket Printers

1.3.11. ENVIRONMENT

• Temperature	-10ºC to + 40ºC (+14ºF to + 104ºF)
• Storage Temp.	-40ºC to + 60ºC (-40ºF to + 140ºF)

1.4. Accessories

Optional accessories include the following.

FIELDBUS DEVICES			
• DeviceNet™	• ControlNet™	• Profibus®	• Ethernet/IP

4-20 MA ANALOG CURRENT LOOP OUTPUT	
• 16 bit Resolution and Monotonicity	• 0.01% Non-Linearity
• Isolated 4mA to 20mA	• Front Panel Programmable or via PC2255 utility software program

BLUETOOTH® TECHNOLOGY INTERFACE
• Utilizes either Port 1 or Port 2 Serial Output. RS232 serial Interface to Bluetooth Interface. Range 100 meters (328 feet).
• The Bluetooth option will operate either as a Client or Server depending on which device the FB2255 is connected.
– If connected to a printer, the FB2255 will be a **Server**.
– If connected to a PC, the Instrument will be a **Client**.

WARNING!

Absolutely no physical, electrical or program modifications other than selection of standard options and accessories can be made by customers to this equipment

Repairs are performed by Fairbanks Scales Service Technicians and Authorized Distributor Personnel ONLY!

Failure to comply with this policy voids all implied and/or written warranties

1.5.   AC Operation

The FB2255 is designed to operate from **80 to 260 volts AC, 50 to 60 Hertz**.

- 117 Volt AC Operation

- FB2255 is factory wired for 117 VAC and requires a three prong grounded outlet.

FB2255 ABS Power Cord	Connection
Brown/Black	AC (Hot) 117 VAC
Blue/White	ACC (Neutral) 0 VAC
Green/Green-Yellow	Ground

- 220 Volt AC Operation

The FB2255 has **Auto Switching** capability.

- Rewire the power cord according to the following diagram.

-
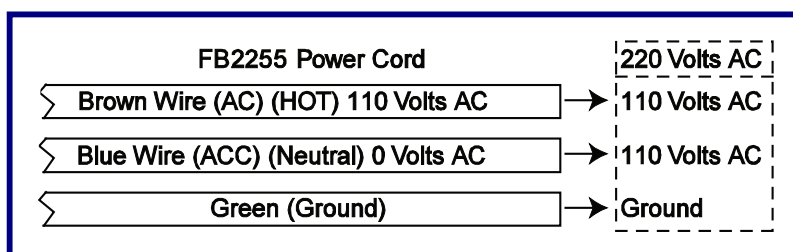
1.6.   Powering up the FB2255

1. Press and hold the **ON / OFF Key** for one to two (1 – 2) seconds.

   – The Instrument will display "**888888**", then a **"1234567890"** character display moving from right to left, followed by the revision of software.

   – Upon completing the warm-up, the FB2255 will display the actual weight on the scale.

2. Press and hold the **ON / OFF Key** for one to two (1 – 2) seconds to turn off the FB2255.

Section 2: User Operations

2.1. 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 • This apples only if a Tare Value has been entered greater than ZERO.
TARE	Automatically tares off displayed weight when key is pressed.
PRINT	Simple RS232 output when key is pressed.
0-9	Used for Programming and inputting manual tares.
MENU	Gains access to the sub-menus in the **Configuration Mode**.
ARROW KEYS	Used for scrolling through the menu selections.

Depending on programmed selection, **Tare Weight** *amount will do one of the following.*

• Be retained for reuse until changed, or if power is removed.

OR…

• Automatically clear when **Gross Weight** returns to **ZERO**.

2.2. Front Panel Programming Parameters

Follow these steps to program the Instrument.

2.2.1. SETTING THE TIME

1. Press and hold the **PRINT** key for three (3) seconds.

   – The display momentarily displays **Set-ti,** then shows the current time in **HHMMSS**.

2. Press the **RIGHT ARROW** key will scroll to **"12hr A", "Set-dA",** and then back to **Weigh Menu**.

3. When the current time setting is displayed, press the **MENU** key.

   – The most significant digit will erase.

4. Key the new time setting with the **0-9** keys.

5. Press **ENTER**.

6. At the **"12hr A"** prompt, press the **MENU** key.

7. Use the **ARROW KEYS** to toggle through the option noted below.

- **12hr A** – 12 hour clock, currently AM.
- **12hr P** – 12 hour clock, currently PM.
- **24 hour** – Military time (1:00 PM = 1300 hours).

8. Press **ENTER** to save the setting.

2.2.2. SETTING THE DATE

- **Set-dA** displays, followed by the current date setting.
- Date is entered in the **MM-DD-YY** format.

1. Press **Menu**.

   – The first two digits will blink.

   – The most significant digit will erase.

2. Key the new time setting with the **0-9** keys.

3. Press **ENTER**.

Press, hold **PRINT** for **3** seconds

↓

Press **RIGHT ARROW**

↓

Press **MENU**

↓

Enter **Time** with **0-9 Keys**

↓

Press **ENTER**

↓

Press **MENU**

↓

Enter **AM, PM, Mil. Time** with **ARROW Keys**

↓

Press **ENTER**

↓

Press **MENU**

↓

Enter **Date** with **0-9 Keys**

↓

Press **ENTER**
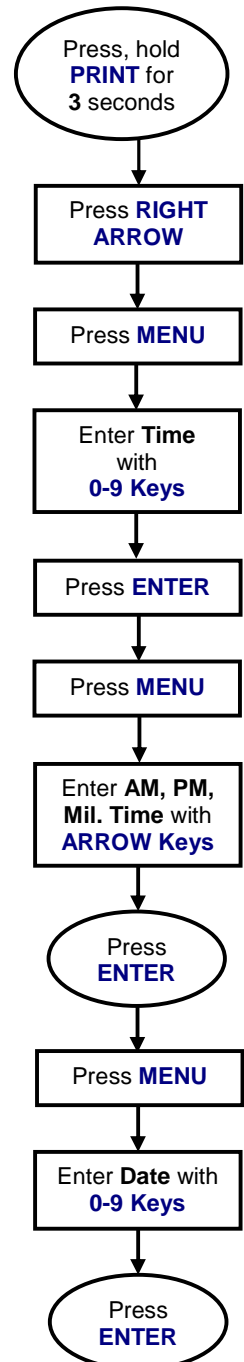
2.2.3.   CHECKING POWER SUPPLY / BATTERY VOLTAGE

1. Press the **TARE** key for **three (3) seconds**.

    – The battery current or power supply voltage displays
    – **8.3 VDC nominal**.

2.2.4.   PROGRAMMING THE SLEEP FUNCTION

1. Press and hold the **BG/Net** key for three (3) seconds.

    – The display will indicate **SLEEP,** and then display the current setting.
    – 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 balance setting, pressing a key, and receiving a polling request on a communication port.

2. Press **MENU**.

3. Use the **Arrow Keys** to toggle between the available options.

    – Selections in **minutes** include **OFF, 1, 2, 5, 10, 20, 30.**

4. Press **ENTER** to save the setting.

2.3. Operating Procedures

1. Press and hold the **ON / OFF** Key for two (2) seconds.

    – The Instrument will display **"888888"**, followed by **"1234567890"** character display moving from right-to-left, then the revision of software.
    – Once the warm-up is complete, the FB2255 displays the actual weight on the scale.

2. To turn the **FB2255** off, press the **ON / OFF** key for two (2) seconds.

• The **Zero. Tare** and the **AZT** functions 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**.

2.4. Gross, Tare and Net Weight

There are three terms used when weighing an object's or load's amount.

The **NET WEIGHT** (*product only*) is the **GROSS WEIGHT** (**total amount**) minus the **TARE WEIGHT** (*container only*)**.**

NET WEIGHT = Gross Weight – Tare Weight
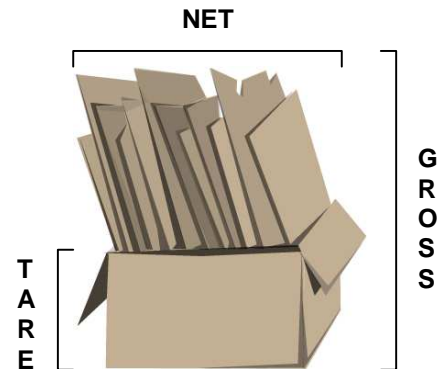
WORKING EXAMPLE

A full can of house paint is an object to be weighed. The empty can is the **TARE** weight. The paint is the **NET** weight. Together they equal the **GROSS** weight.

2.5. Basic Weighing

Follow these steps for **Basic Weighing**.

1. Empty the platform.

2. Turn the scale **ON**.

3. Press **ZERO**.
   - When the display indicates **"0",** it is ready for use.

2.6.   Gross Weighing

Follow these steps for **Gross Weighing***.*

1.   Press the **GROSS/NET** key, if required, to set display to GR (gross).

2.   Press the **ZERO** key, if required, to set scale to "0".

3.   Place container/object on scale (Tare weight).

4.   Read the **Gross Weight** on the display.

2.7.   Net Weighing

Follow these steps for **Net Weighing***.*

1.   Press the **GROSS/NET** key, if required, to set display to GR (gross).

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.

2.8.   Gross/Tare/Net Weighing

1.   Press the **GROSS/NET** key to display **GR** (Gross).

2.   Press the **ZERO** key, if required, to set scale to **"0".**

3.   Place container/object on scale, noting the weight.

4.   Press **TARE**.

5.   Place material in container or add objects.

6.   Note the **Net Weight** on the display.

7.   Press the **GROSS/NET** key to switch to **Gross.**

8.   Read the **Gross Weight** on the display.

2.9. Weight Accumulation

1. Place a weight on the Scale Platform.

2. After the weight is stable, press the **B/G NET** key until the display alternates between the number of Accumulations **"n"** and the Accumulated weight.

3. Press the **UNITS** key to accept the weight, (display will momentarily indicate "**ACCEPt**", or press the **B/G NET** key to skip and return to the weigh screen.

4. The scale must return to **"0" Gross Mode** before another accumulation can occur.

5. Repeat steps 1 through 4 for additional accumulations.

2.10. Number of Accumulations

1. Press and hold **ZERO** for three (3) seconds.

   – The display will alternate between the **Accumulated Piece Count** and the **Accumulated Weight** for thirty (30) seconds, then return to the **Weigh Mode**.

2. Press **UNITS** and exit immediately to the **Weigh Mode**.

   – Pressing the **UNITS** key will *not clear* the accumulator.

2.11. Clearing the Accumulators

1. Press and hold the **BG/Net** key for three (3) seconds.

   – The display will indicate "Sleep" and then display the current setting.

2. Press **Right Arrow** key**.**

   – "**CLr.ACC**" will display.

3. Press the **MENU** key, then the **Right Arrow** key to toggle the available settings.

   Available selections include the following settings.

   Clr.YES (Clear the Accumulator)   **CLr. NO** (**Do not** Clear the Accumulator)

4. Press **ENTER** to enter the selection.

2.12. Piece Counting

5. Place the empty weighing container on the Scale Platform.

6. Press **TARE.**

   – This stores the container weight the only, placing the scale in the **Net Mode**.
   – **"0 Net Weight"** should display on the indicator.

7. Press **B/G NET**.

   – The Display prompts to "**Add**" a number of sample parts to the container.

8. Pressing the **B/G NET** key repeatedly prompt the user to; "**Add 1**", "**Add 5**", "**Add 10**", "**Add 25**", **Add 50**, or "**Add 100**" parts.

9. Add the required sample to the container, then press **UNITS**.

   – The Display alternates between indicating the weight and the number of pieces.

10. Add the remaining parts to the container.

    – The display will update and continue to alternate between the **Weight** and **Number of Pieces**, including the original sample.

11. Press **B/G NET**.

    – Pressing the **B/G NET** key will skip adding the Current Piece to the Total Register and return to the Weigh Mode.

See the **Print Example** *below.*

```
09:52AM
03-11-09
     7.395 lb  GR
     1.000 lb  TA
     6.395 lb  NT
457 Pieces
457 Total Pieces
```

Place **Container** on Scale

↓

Press **TARE**
Tare stored.

↓

. Scale in **NET MODE**

↓

Press **B/G**

↓

Select sample size

↓

Add sample.

↓

Press **UNITS**

↓

Add remaining parts

↓

Press **B/G NET** to Exit
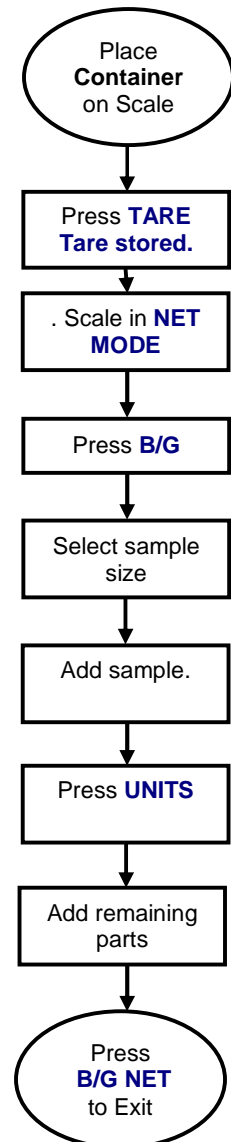
NOTES: *If the prompts do not occur, clear the* **Accumulator** *and start over.*
The operating mode must be set to **PIECE COUNT & TOTAL** *to function.*

2.13. Piece Count and Total

This feature enables the FB2255 to count and display the **Net Weight** of the counted items, and to display the total amount of those items.

1. Place the container on the scale platform.

2. Press **TARE** to calculate the container weight.

3. The Display should indicate **0 NET WEIGHT**.

4. Press the **B/G NET** key.

5. When the display prompts to **"Add",** add a number of sample parts to the Container.

6. Press **B/G NET** repeatedly until the display reads to; "**Add 1", "Add 5", "Add 10", "Add 25", Add 50",** or **"Add 100"** parts.

7. Add the required sample to the container.

   – The Display will alternate between the **Weight** and **Number of Pieces,** including the original sample.

8. Add the remaining parts to the container.

   – The Display will update and continue to alternate between the **Weight** and **Number of Pieces,** including the original sample.

9. Press **B/G NET**.

   – The Display will alternate between the **"Total"** legend and the **Total Number of Pieces Accumulated**.

10. Press **UNITS** to return to the **Weigh Mode**.

NOTE: *If the prompts do not occur, clear the* **ACCUMULATOR** *and start over.*

• *The* **Operating Mode** *must be set to* **Piece Count & Total** *to function.*

• *To reset* **Piece Count** *– see* **"CLEARING THE ACCUMULATOR".**

2.14. Peak Weight

The **Peak Weight** feature records the heaviest stable or unstable load t placed on the scale, and its time and date.

1. Press and hold **ZERO** for three (3) seconds.

    – The display will alternate between the **Peak Weight Value**, the **time** and **date** for thirty (30) seconds, then return to the **Weigh Mode**.

2. Press **UNITS** to end the process. and exit to the **Weigh Mode**.

    – Pressing the **UNITS** key will *not clear* the accumulator.

• Conditional upon programming the **Operating Mode** to **ACCUMULATION, PIECE COUNT, OR PIECE COUNT** and **TOTAL**.

• The FB2255 will display total number of **Pieces, Weight**, and **Time-out** [thirty (30) seconds].

• Conditional upon programming the **Operating Mode** to **PEAK HOLD STABLE** or **PEAK HOLD UNSTABLE**.

• The FB2255 will display **Time, Date, Peak Weight,** and **Time Out** [thirty (30) seconds].

Section 3: Serial Communication Wiring

Printed Circuit Board (31308)
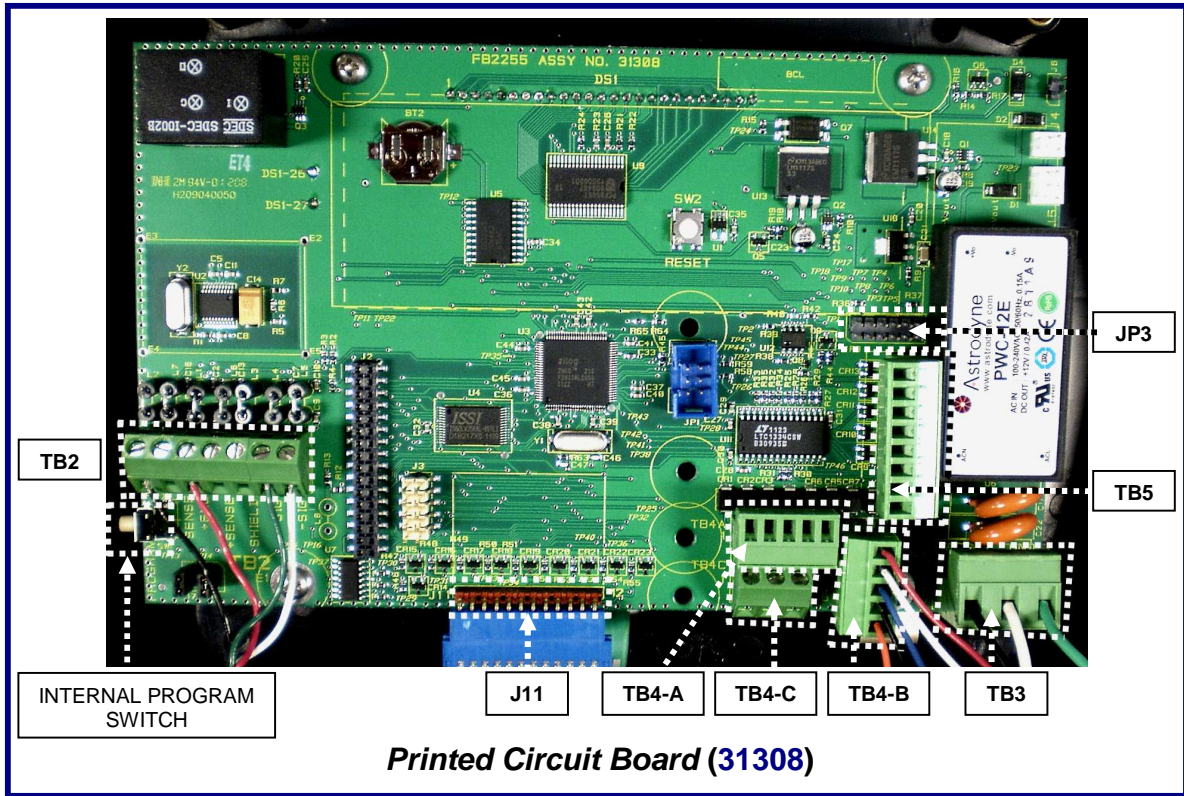
3.1. JP3 Jumper Configuration)

JP3	RS232	RS485	RS422*	PORT
1-2	Out	120 Ohm Resistor	120 Ohm Resistor	COM1
3-4	Out	In	Out	COM1
5-6	Out	In	Out	COM1
7-8	Out	In	Out	COM2
9-10	Out	In	Out	COM2
11-12	Out	120 Ohm Resistor	120 Ohm Resistor	COM2

*Port should be set to RS485.

NOTE: 120 ohm Termination Resistors *are required if the receiver is the last node on the network.*

3.2. TB4 Wiring 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	RS485	RS422*	PORT
1	Rx – Receive Data	(–) RS485	RS422 (–) Rx	COM2
2	TX – Transmit Data	(–) RS485	RS422 (–) Tx	COM2
3	CTS – Clear-to-Send	(+) RS485	RS422 (+) Rx	COM2
4	GND – Ground	GND	GND	COM2
5	RTS – Ready-to-Send	RS485	RS422 (+) Tx	COM2

TB4 (C)	20 MA	RS485	RS422	PORT
1	(+) TX – Remote Display Passive, 20 mA Output			COM2
2	(–) TX – Remote Display Passive, 20 mA Output			COM2
3	(+) 7.5V Bluetooth® Technology Supply			

*Port should be set to RS485.

3.3. TB5 Remote Switch Inputs

1	Ground	
2	Ground	
3	Ground	
4	Print	Connect to ground to perform programmed Print function
5	Tare	Connect to ground to Tare off Gross weight
6	B/G Net	Connect to ground to Select Gross/Tare displays
7	Zero	Connect to ground to Zero Platform Weight
8	Units	Connect to ground to change to alternate weight units

3.4. Remote Display Active Keys

INSTRUMENT	FB2255 ACTIVE FRONT PANEL KEYS
FB2200	No Active Keys
FB2255	Units, Zero, Gross Net, Auto Tare, Print
FB2255	Units, Zero, Gross Net, Auto Tare, Print
2300	No Active Keys
2500	No Active Keys
2800	No Active Keys
5200A	Units, Gross Net

Section 4: Input / Output

4.1. 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

FB2255-TB-4 (A)   DB-25
1-RX - White - 2 - TX
2-TX - Red -   3 - RX
4-Gnd - Green - 7 - Gnd
15599

◄— 8 Feet Long —►

Printer Cable (15599) *is used for both printers.*
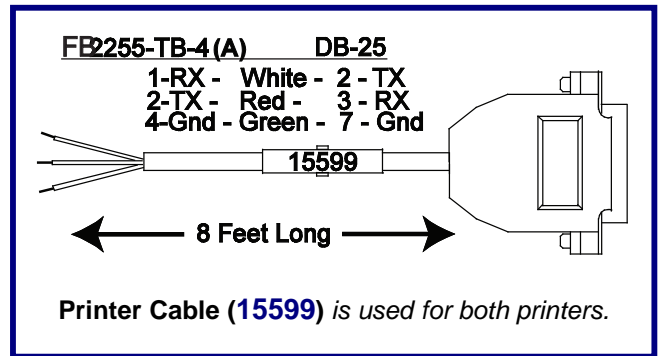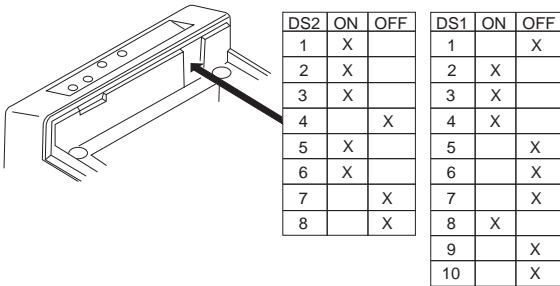
4.2. Okidata 186 T Form Printer

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

Switch 7 (SW2)	DTR Signal
** Space after power on	ON
Space when printer is selected	OFF
Switch 8 (SW2)	Not Used

4.2. Okidata 186 T Form Printer, Continued
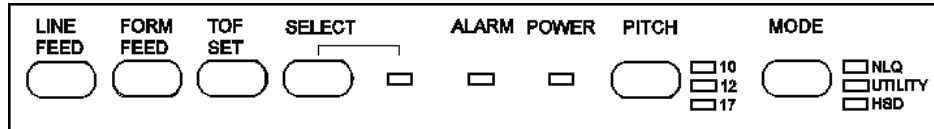
Follow these steps to change **Menu Settings***.*

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.**

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3. Press **LINE FEED** to select the relevant group 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 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 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.*

4.2. Okidata 186 T Form Printer, Continued

- Printed menu's changes according to the **Printer Emulation Mode**.

- If printer emulation mode is not set to **ML**, set this first, then reprint the menu.

GROUP (Press **LINE FEED** to change)	ITEM (Press **FORM FEED** to change)	SET (Press **TOF SET** to change)
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

4.2.   Okidata 186 T Form Printer, Continued

GROUP	ITEM	SET
Parallel I/F	I-Prime	Buffer Print
Parallel I/F	Pin 18	+5v
Parallel I/F	Bi-Direction	Enable

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

Parity Type	Switch 1 (SW1)
** Odd parity	ON
Even parity	OFF

Parity	Switch 2 (SW1)
** No parity	ON
With parity	OFF
Data Bits	Switch 3 (SW1)
** 8 Bits	ON
7 Bits	OFF

Protocol	Switch 4 (SW1)
Ready/Busy	ON
** X-ON, X-OFF	OFF

Test Select	Switch 5 (SW1)
** Circuit	ON
Monitor	OFF
Mode Select	Switch 6 (SW1)
** Print mode	ON
Test mode	OFF

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

(SW2) (** indicates typical Fairbanks setting)

4.2. Okidata 186 T Form Printer, Continued

Transmission Speed	Switches 1, 2, 3 (SW2)
19,200 bps	ON, ON, ON
** 9,600 bps	**OFF, ON, ON**
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	**OFF**
Buffer Threshold	Switch 5 (SW2)
32 bytes	ON
** 256 bytes	**OFF**

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

4.3. Okidata 420 Form Printer

Program the FB2255 the following settings.

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

FB2255-TB-4 (A)   DB-25
1-RX -   White - 2 - TX
2-TX -   Red -   3 - RX
4-Gnd - Green - 7 - Gnd
15599

← 8 Feet Long →

Printer Cable (15599) *is used for this printer.*
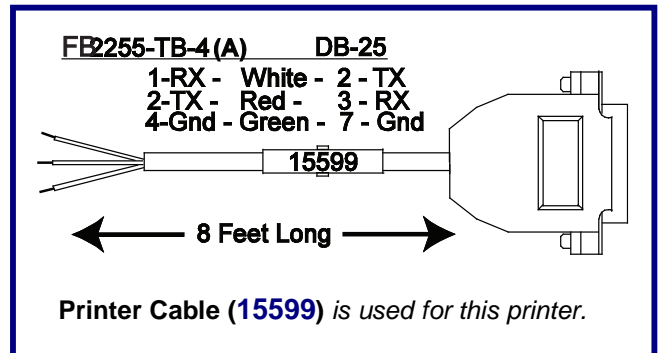
NOTE: *Always **restart the printer** after making any switch changes.*

	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.
   – Found on the left-hand column on the **Menu Printout**.

4. Press **ITEM** to select the relevant item within the selected group.
   – Found on the Item is the center column on the **Menu Printout**.

5. Press **SET** to cycle through the settings available for the item 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 to exit the **Menu Mode**.

4.3. Okidata 420 Form Printer, Continued

NOTE: *If the printer is turned off before exiting the* **MENU MODE**, *all changes will be lost.*

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

4.3. Okidata 420 Form Printer, Continued

GROUP	ITEM	SET
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

4.4. TM-U295 Ticket Printer

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

Set the dip switches to the following.

- **1** and **3** are **ON**.
- The rest are **OFF.**

NOTE: *Always restart the printer after making any switch changes.*

FB2255-TB-4 (A)   DB-25
1-RX -   White - 2 - TX
2-TX -   Red -   3 - RX
4-Gnd - Green - 7 - Gnd
15599

8 Feet Long

Printer Cable (15599) *is used for both printers.*
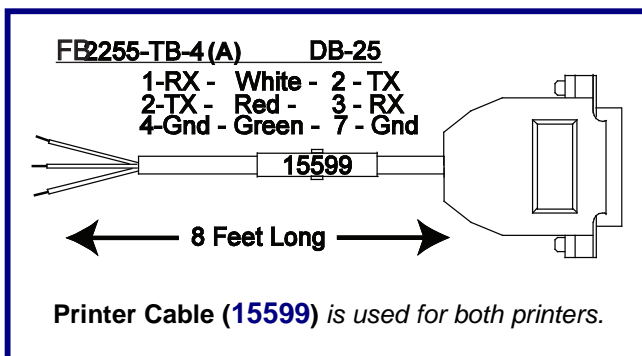
4.5. TM-U590 Ticket Printer

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

Set the dip switches to the following.

- DSW 1   • **1, 3** and **7** are **ON** only.
- DSW 2   • All are **OFF**.

4.6. Remote Display

Part #
20903
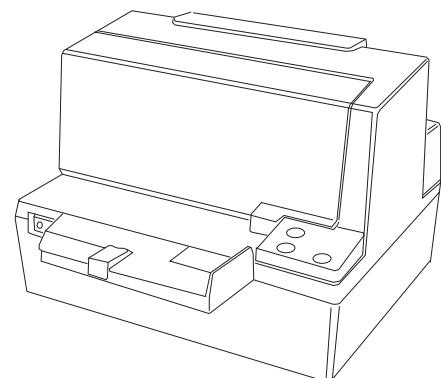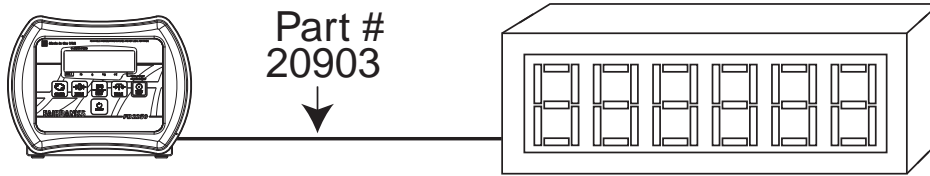
Using the **20 mA Serial Current Loop Output** will allow transmission distances up to **1000 cable feet**.

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

Port	**2**
	C-Loop
Baud Rate	**2400**
Parity	**Odd**
Stop Bit	**1**
Current	**Passive**

The remote display must be wired for **20 mA Active**, and programmed to match the FB2255.

– Wiring to the FB2255: **TB4 (C)** to the **Remote Display.**

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

Wire the **Remote Display** to the FB2255 as shown in this diagram.
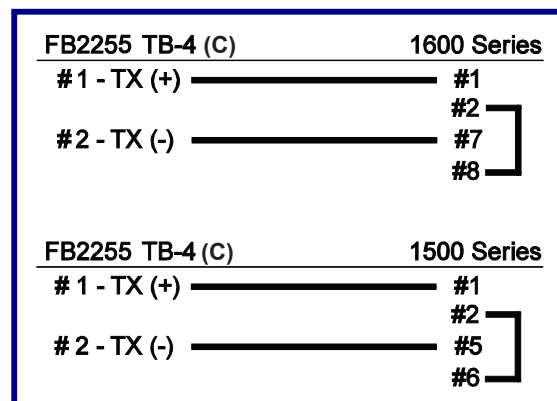
4.6.1.   PROGRAMMING THE 4-20MA ANALOG OUTPUT MODE

Access to this features is conditional, and depends upon whether it is enabled in the **FB2255 Internal Programming**.

1. Press and hold the **UNITS** key for three (3) seconds

NOTE*: If* **4-20mA Analog Output** *has been installed and programmed, setting* **4-20** *to* **NO** *in the* **APPS Menu** *will prevent access to it from the front panel while the analog output continues to operate.*

---

2. Select **GROSS** or **NET**.

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

3. Press **MENU**.

4. Press the **right arrow** key to toggle the available settings.

5. Press **ENTER** to select an option.

Available selections include the following.

- **Gross**
- **Net**

4.6.2.   PROGRAMMING THE 4mA WEIGHT VALUE

4.20 Lo displays, followed by the current setting.

1. Key in the correct **Weight Value** with the **0-9** keys.

2. Press **ENTER.**

This weight entry results in a **4mA Output***.*

4.6.3.   PROGRAMMING THE 20mA WEIGHT VALUE

4.20 Hi displays, followed by the current setting.

3. Key in the correct **Weight Value** with the **0-9** keys.

4. Press **ENTER.**

This weight entry results in a **20mA Output***.*

Section 5: Fieldbus/Bluetooth

5.1. Fieldbus Installation

Fieldbus is a general term that describes an all-digital two-way communications system that interconnects measurement and control equipment such as sensors, actuators and controllers.

– Fieldbus traces its beginnings in the automotive industry, where efforts to simplify and reduce wiring resulted in a multiplexed **C**ontroller **A**rea **N**etwork (**CAN**) system of modules installed at various points of a car

For example, many cars have multiple controls on the door, such as power-window, power-mirror, power-lock and power-seat controls.

– To eliminate the thick bundle of wires of the older method, a driver's-door module monitors all of the switches.
– If the driver presses the window switch, the door module closes a relay that provides power to the window motor.
– If the driver presses the switch to adjust the passenger-side mirror, the driver's door module sends a packet of data onto the communication bus of the car.
– This packet tells a different module to energize one of the power-mirror motors. In this way, most of the signals that leave the driver's door are consolidated onto the two wires that form the communication bus.

As time has progressed, many different Fieldbus types have been developed, each with different characteristics and specifications.

– Very simply, they serve as a **L**ocal **A**rea **N**etwork (**LAN**) for instrumentation used in automatic process control and manufacturing applications.
– The LAN is a digital, bi-directional, multi-drop, serial-bus communications network used to link field devices (often referred to as "Nodes"), such as controllers, transducers, actuators and sensors.

There are a number of different manufacturers that produce Fieldbus devices.

– Each produces different hardware interfaces, wiring and connector types, speed, and the amount of bytes of data that can be exchanged on the network, among other things.

Additionally, the current Fieldbus communications network is replacing the older 4-20mA Analog Signal.

- – The older 4-20 mA analog signal requires each device to have its own set of wires and its own connection points.
- – A Fieldbus eliminates this need as, generally, twisted pair wiring is used.
- – All devices on the network are now connected together.

Fairbanks Scales currently offers three different Fieldbus Devices: **DeviceNet**™**, ControlNet**™**, Profibus**®**,** and **Ethernet/IP.**

For more information and EDS files, see http://www.hms.se/default.shtml.

5.2. Fieldbus Connections

The term **FIELDBUS** usually describes an all-digital two-way communications system that interconnects measurement and control equipment such as sensors, actuators and controllers.

The **Fieldbus** assembly connects to the 32-pin header on the FB2255 main PCB Assembly.

It is provided with **two (2) standoffs** which support the right side of the card.
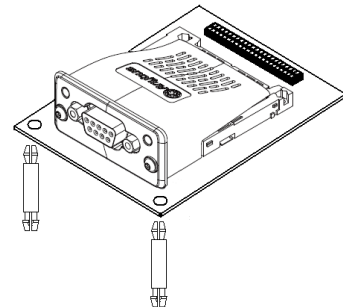
5.2.1.   OVERVIEW OF TERMS

There are currently **four (4) different of Fieldbus Interfaces** listed as standard accessories for the FB2550 Instrument.

- **DEVICE NET**™ **(29578)**
  - – A network system to interconnect control devices for data exchange.
  - – It uses a differential serial bus, called **Controller Area Network** (**CAN**), as the backbone technology and defines an application layer to cover a range of device profiles.

- **CONTROL NET**® **(31979)**
  - – An open control network in real-time, for high-throughput applications.

5.2.1.   OVERVIEW OF TERMS, CONTINUED

- **PROFIBUS**® **(29576)**

  – Non-powered two-wire (RS485) network, with **up to 126 nodes**, transferring a maximum of 244 data bytes per node per cycle.

- **ETHERNET/IP (29873)**

  – **Dynamic Host Configuration Protocol** (**DHCP**) is used for address requests.

  – The data is transmitted continuously from this module.

  – The IP address may be made static by downloading the **IP Configuration Tool Software.**

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**".
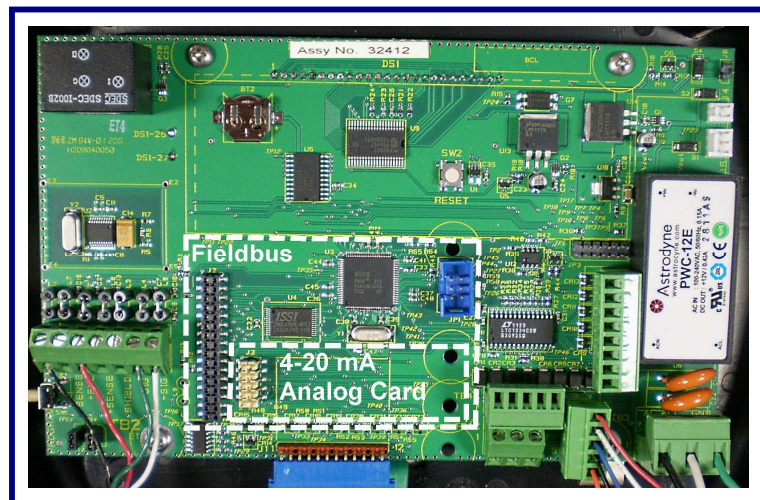
5.2.2.   DEVICENET (29578)

DEVICENET is a low-cost communications link that connects industrial devices to a network, eliminating expensive hardwiring.

- It is based on a broadcast-oriented, communications protocol the **CAN**.

- The **CAN Protocol** was originally developed by BOSCH for the European automotive market for replacing expensive wire harnesses with low-cost network cable.

- The **CAN Protocol** has fast response and high reliability for applications like anti-lock brakes and air bags.

DEVICENET also provides power to the network. This allows devices with limited power requirements to be powered directly from the network.

- This reduces connection points and physical size.

- The maximum network size is **up to 64 Nodes**, with message data packets **up to 8 bytes.**

Wire	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

NOTE: *Additional information and* **EDS files** *are available at the following website.* **http://www.hms.se/products/devicenet.shtml.**

5.2.2.   DEVICENET (29578), CONTINUED

NETWORK STATUS LED

STATE	INDICATION
OFF	Not online/ No power
GREEN	Online, one or more connection established
FLASHING GREEN (1 Hz)	Online, no corrections established
Red	Critical link failure
Flashing Red (1 Hz)	One or more connections timed out
Alternating Red/Green	Self-test

1 **NS**   = **Operation Mode** LED
2 **MS**   =   **Mode Status** LED
3 **Connection** = DeviceNet Connector
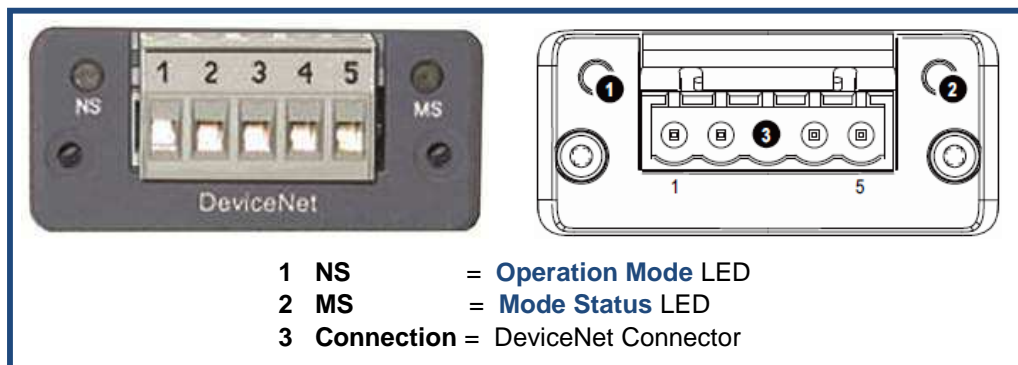
MODULE STATUS LED

STATE	INDICATION
OFF	No power
GREEN	Operating in normal condition
FLASHING GREEN (1 Hz)	Missing/Incomplete configuration/ Device needs commissioning
Red	Unrecovrerable fault(s)
Flashing Red (1 Hz)	Recoverale fault(s)
Alternating Red/Green	Self-test

5.2.3. *CONTROLNET* **(31979)**

CONTROLNET is an open control network running in "real-time", for high-throughput applications.

– It uses a **Control and Information Protocol** (**CIP**), combining the functionality of an I/O Network and a Peer-to-Peer Network.

– **CONTROLNET** is based on the **Producer/Consumer Model**, permitting all nodes on the network to simultaneously access the same data from a single source.

– Maximum of **99 nodes**, with no minimum distance between nodes

– The Control net card uses BNC connectors.

SPECIAL NOTES

For **signal redundancy**, both connectors should be used.

– If not, use either **Connector A** or **B**.

Network Status LED A and **Module Status LED** correspond to **LED 1** and **LED 2** in the instance attributes of the **Anybus Object**.

– They are available in the application interface, but the LED placement on the front does not conform to the standard **Anybus CompactCom** placement of **LED 1** and **LED 2**.
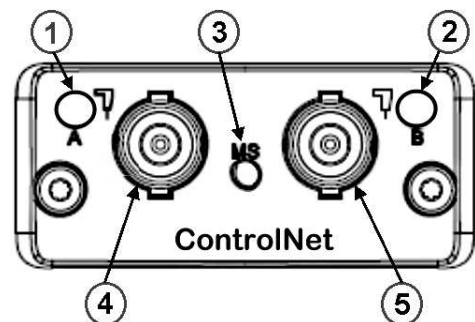
5.2.3. CONTROLNET (31979)*, CONTINUED*

NETWORK STATUS

LED	STATE	INDICATION
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
	Flashing Green (1 Hz)	Temporary errors (node self-corrects) or node is not configured to go online.
	Green	Normal operation
	Flashing Red (1 Hz)	Media fault or no other nodes on the Network

MODULE STATUS

STATE	INDICATION
OFF	No power
GREEN	Operating in normal condition, controlled by a **Scanner in RUN state.**
FLASHING GREEN (1 Hz)	The module has not been configured or the Scanner is in the **Idle state.**
Red	Unrecovrerable fault(s), EXCEPTION,
Flashing Red (1 Hz)	Media fault or no other nodes on the Network

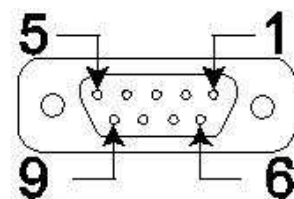| No.	DESCRIPTION
1	Network Status LED **A**
2	Module Status LED
3	Network Status LED **B**
4	ControlNet Connector **A**
5	ControlNet Connector **B**
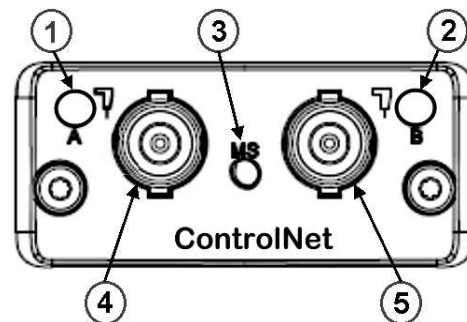
5.2.4.   PROFIBUS (29576)

PROFIBUS is one of the best-known industrial fieldBus protocols from Europe.

– It is an established standard, used in a wide range of applications as a multi-application communications link for industrial devices.

– The ProfiBus protocol was originally developed by a committee founded by the German government.

PROFIBUS utilizes a **non-powered two-wire (RS-485) Network**.

– A ProfiBus Network may have **up to 126 nodes**, transferring a maximum of **244 bytes data per node/ per cycle**.

– Baud (Communication) Rates are selectable, and overall end-to-end network distance varies with speed.

– The maximum standard Baud Rate is **12Mbps**, with a maximum distance of **100M (328ft),** and **1200M (3936 ft.)** at **93.75Kbps** without repeaters.

– **PROFIBUS** connects to a wide variety of field devices including the following:

   ▪ *Discrete and analog I/O Drives.*
   ▪ *Robots.*
   ▪ *HMI/MMI products.*
   ▪ *Pneumatic valves.*
   ▪ *Barcode readers.*
   ▪ *Weigh scales.*
   ▪ *Transducers.*
   ▪ *Flow measuring equipment.*

PIN	SIGNAL	DESCRIPTION
3	**B-Line**	Positive RxxD/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

5.2.4.   PROFIBUS **(29576)***, CONTINUED*

OPERATION MODE LED

LED STATE	DESCRIPTION
OFF	Not online or No power
Green	Online/ Data Exchange
Flashing Green	Online, clear
Flashing Red (1 flash)	Parameterization error
Flashing Red (2 flashes)	Profibus configuration error

MODULAR STATUS LED

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 events(s) present	Extended diagnostic bit is set
Red	Exception error	Module state = **EXCEPTION**
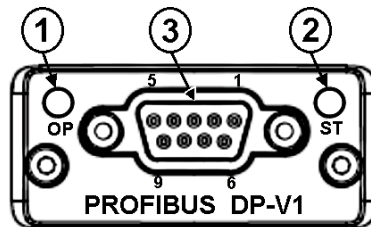
NO.	DESCRIPTION
1	Communication LED
2	Device Status LED
3	Profibus Interface

NOTE: *Additional information and* **EDS files** *are available at the following website.* **http://www.hms.se/default.shtm.**

5.2.5. ETHERNET / IP DIAGNOSTIC LEDS

The Ethernet/IP module uses Dynamic Addressing.

– **Dynamic Host Configuration Protocol** (**DHCP**) is used for address requests.

– The data is transmitted continuously from this module.

– The IP address may be made static by downloading the **IP Configuration Tool Software** from the following site:

http://www.hms.se/support/support.asp?PID=368&Product Type=Anybus-CompactCom.

1. Network Status LED
2. Module Status LED
3. Link/Activity
4. Ethernet Interface (RJ-45) (Standard Cat 5 Cable)
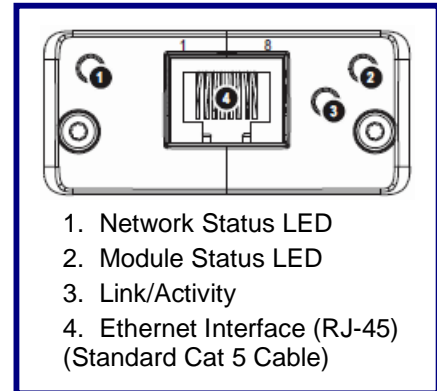
- Using this download, it is possible to change the IP, Sub Net and Gateway addresses of an Ethernet/IP Module.

- To change an address, double click on the IP address field and enter the changes.

Shown below is the **Network Status LED Chart**

STATE	DESCRIPTION
Off	Not online / No power
Green	Online, one or more connections established.
Flashing	Online, no connections established
Red	Duplicate IP address, FATAL error
Flashing Red	One or more connections timed out

Shown below is the **Module Status LED Chart**

STATE	DESCRIPTION
Off	No power
Green	Controlled by a scanner in Run state
Flashing Green	Not configures, or Scanner in idle state
Red	Major fault (EXCEPTION-state, FATAL error, etc.)
Flashing Red	Recoverable fault(s)

Shown below is the **Link / Activity LED Chart**

STATE	DESCRIPTION
Off	No link, no activity
Green	Link established
Flickering Green	Activity

For more information and EDS files, see http://www.hms.se/default.shtml.

5.3. Bluetooth® Technology Device

The Bluetooth® Option replaces direct wiring between two devices.

    – The Bluetooth® Interface uses either **Port 1** or **Port 2 Serial Output**.

    – RS232 Serial Interface to Bluetooth® Interface with a range of **100 meters** (**328 feet**).

The Bluetooth® Option operates either as a Client or Server, depending on its connecting device.

If its connected to a printer, the FB2255 will be a **Server**. If connected to a PC, it is a **Client**.
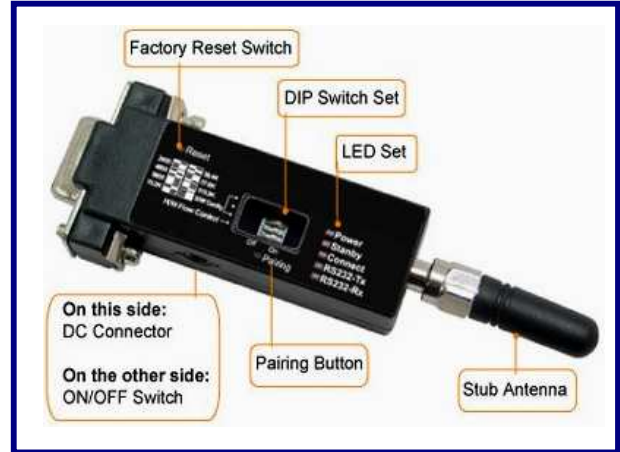
Shown below are some Bluetooth® *products with their features.*

MODEL NO.	MODEL NAME	DESCRIPTION
29515	Bluetooth® Accessory, **Class I**, for non-FB2255 device	• Power source required for non-FB2255 side of the connection. • 5 - 12 VDC, USB power cable provided. • PC interfacing software provided.
29639	AC Power adapter for Bluetooth® Accessory 29215	• For use if USB power cable not applicable.
29516	Bluetooth® Accessory, **Class I**, FB2255	• FB2255 provides power • RoHS compliant • Includes cable **29402**

The **Bluetooth® device** is supplied with a **DB-9 female connector**.

Shown below is the wiring code / color code to connect the **FB2255** *and the* **Bluetooth® Device**.

FB2255 TB 4	BLUETOOTH® DEVICE	FB SUPPLIED CABLE
Pin 1	Pin 2	Red
Pin 2	Pin 3	White
Pin 4	Pin 5	Black
Pin 13	Pin 9	Green

5.3. Bluetooth® Technology Device, Continued

Set the **4-position Dip Switch** on each device as shown below.
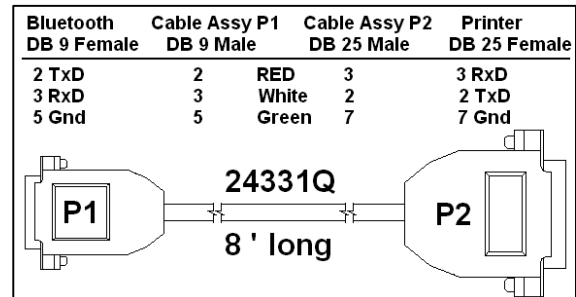
1,2,3	**ON**
4	**OFF**

Baud Rate	**9600**
Data Bits	**8**
Parity	**None**
Stop Bit	**1**

Follow these steps to installing the **Bluetooth® Devices**.

5. Turn on both Bluetooth® Devices with the **SLIDE SWITCH** on their sides.

6. Press the **RESET BUTTON** on each one.

7. Press the **PAIRING BUTTON** of **Device #1** for two (2) seconds

   – The **Standby LED** turns **OFF**.
   – The **Connect LED** blinks three (3) times every two (2) seconds.
   – Keep the power **ON**.

8. Press the **PAIRING BUTTON** of **Device #2** for two (2) seconds.

   – The **Standby LED** turns **OFF.**
   – The **Connect LED** blinks three (3) times every two (2) seconds.

9. Press the **Pairing Button** again for two (2) seconds until the **Connect LED** blinks every half (½) second.

- Wait for **Devices #1** and **#2** to connect to each other.

   – The **Connect LEDs** of both will be solid green.
   – This connection process takes about ten (10) seconds.
   – If any other Bluetooth® devices are nearby, it may take longer.

Bluetooth DB 9 Female	Cable Assy P1 DB 9 Male	Cable Assy P2 DB 25 Male	Printer DB 25 Female
2 TxD	2	RED 3	3 RxD
3 RxD	3	White 2	2 TxD
5 Gnd	5	Green 7	7 Gnd

P1   24331Q   P2
8 ' long

5.3. Bluetooth® Technology Device, Continued

10. Turn **Device #1 OFF,** and then back **ON**.

    – The **Connect LED** light blinks green twice every three (3) seconds.

11. Turn **Device #2 OFF,** and then back **ON**.

12. The **Connect LED** light blinks green once every second.

Configuration is now complete. Both devices are configured to make automatic connection to each other whenever they are powered on.

Section 6: PC2255 Utility Software

C A U T I O N

USING THIS PC2255 UTILITY PROGRAM CAN ALTER PROPER CALIBRATION AND USER FUNCTIONS.

OWNER ASSUMES ALL RISKS WHILE USING THIS PROGRAM!

THE CUSTOMER WILL BE RESPONSIBLE FOR ALL SERVICE DEPARTMENT COSTS TO RESTORE THE INSTRUMENT TO ITS PROPER OPERATIONS.

6.1. Introduction

- The PC2255 utility software program can be used to set up and configure the FB2255.

- It is required in order to program certain features, such as custom units and custom ticket vector programming.

- The FB2255 uses **Port 2** to communicate to the computer.

6.2. Communication Settings

1. Access the **COM Port Settings** of the computer by pressing **F2**.

The ***Standard Defaults*** are noted in the chart to the right.

2. Set **VERSION** setting to **match the FB2255**.

   – It displays at the warm-up screen of the Instrument.

3. Set the **FB2255 Port 2** to the same settings, and then exit from program mode.

Baud Rate	**9600**
Data Bits	**8**
Parity	**None**
Stop Bit	**1**
Mode	**Continuous**
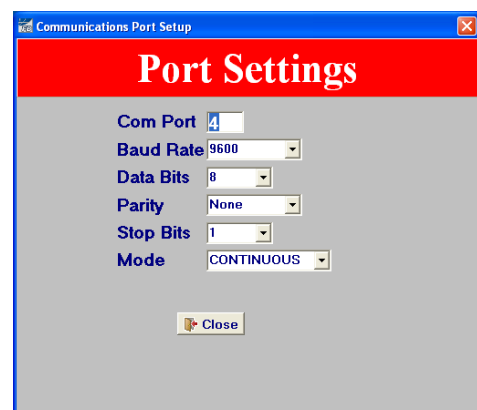
6.2. Communication Settings, Continued

1. Launch the **PC2255.exe** file.

   – An image of the FB2255 will display on the computer monitor.
   – The legend "**CONNECTED**" with a rotating baton will displayed.
   – The weight display will duplicate what is shown on the FB2255.

2. Left-clicking the mouse on any key to transmit that command to the FB2255.

   – This excludes the **PRINT key.**
   – The legend **"COMMAND SENT!"** will display at the right.
   – Mouse-clicking the **ON/OFF** key will terminate the PC2255 software program.
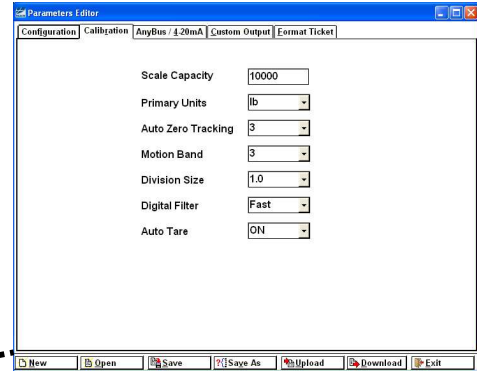
6.3. Communication Files

PC2250

SAVED

The default folder for all saved/uploaded parameter files is **PC2255\SAVED.**

Parameters Editor
Configuration	Calibration	AnyBus / 4-20mA	Custom Output	Format Ticket
Scale Capacity	10000
Primary Units	lb
Auto Zero Tracking	3
Motion Band	3
Division Size	1.0
Digital Filter	Fast
Auto Tare	ON
New	Open	Save	Save As	Upload	Download	Exit

6.4. Menu Bar

The PC2255 menu bar is located at the bottom of the display.

| New | Open | Save | Save As | Upload | Download | Exit |

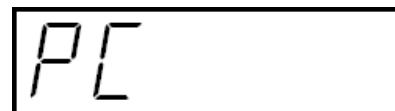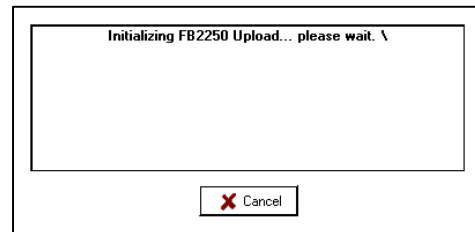| BUTTON	FUNCTION
NEW	Loads the Parameters Menu with FB2255 default settings.
OPEN	Opens the SAVED folder to select a file.
SAVE	Saves the currently named file.
SAVE AS	Saves the current file and prompts for a file name.
UPLOAD	Uploads the current FB2255 settings to the PC2255.
DOWNLOAD	Downloads the current PC2255 settings to the FB2255.
EXIT	Exits the program.

1. Press the **UPLOAD** button to retrieve the current FB2255settings to the PC2255.

    Initializing FB2250 Upload... please wait. \
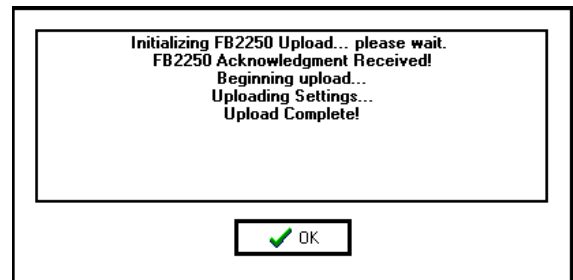
    X Cancel

    –   The FB2255 displays **"PC".**

2. Press the **INTERNAL PROGRAMMING SWITCH**.

    PC

6.4. Menu Bar, Continued

3. When the process is complete, click **OK**.

```
Initializing FB2250 Upload... please wait.
FB2250 Acknowledgment Received!
Beginning upload...
Uploading Settings...
Upload Complete!


        ✔ OK
```

4. Click the **DOWNLOAD** button to retrieve the current PC2255 settings to the FB2255.

```
Initializing FB2250 Download... please wait.




        ✘ Cancel
```
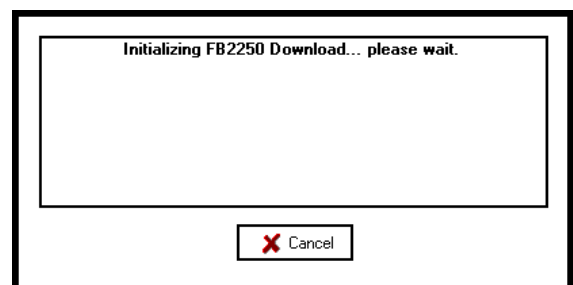
The FB2255 displays **"PC"**.

5. Press the **INTERNAL PROGRAMMING SWITCH.**

$$PC$$

6. When complete, click **OK**.

7. Press **EXIT** to close the **Parameter Editor**.

```
Initializing FB2250 Download... please wait. \
FB2250 Acknowledgment Received!
Preparing download string...
Beginning download...
FB2250 Ready Response Received!
Downloading Settings...
FB2250 Acknowledgment Received!
Download complete!


        ✔ OK
```

6.5. Configuration

1. Press **F4** to enter the **Parameters Editor**.
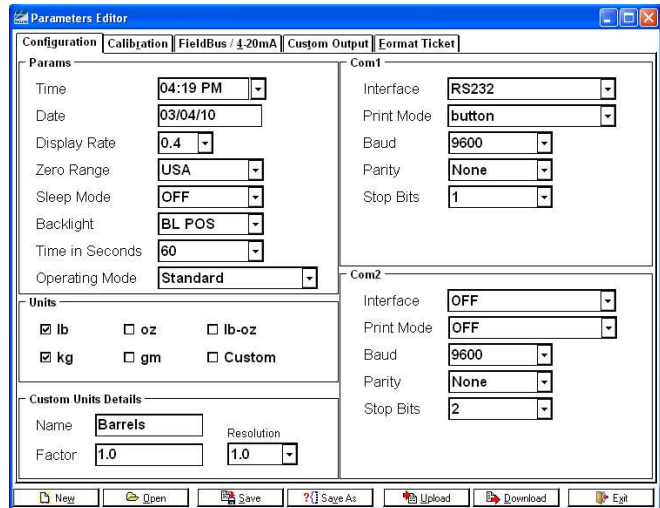
Use one of the following methods that apply to programming the features.

- Click on the data item to highlight it, then type in the replacement data.

- Click the drop down arrow and selecting an available item.

- Click on the checkmark to select the option(s).

- Input the custom unit factor to set the conversion factor of the current primary weight data.

CUSTOM UNIT PROGRAMMING EXAMPLE

To convert pounds to dry barrel units, enter the conversion factor, resolution and custom legend. The current **primary weight** will be multiplied by the **conversion factor**, rounded off to the **custom resolution** and printed with a custom legend.

6.6. Calibration

Settings from this window include the following options.

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

Actual test weight calibration is performed with the FB2255 front panel keys.
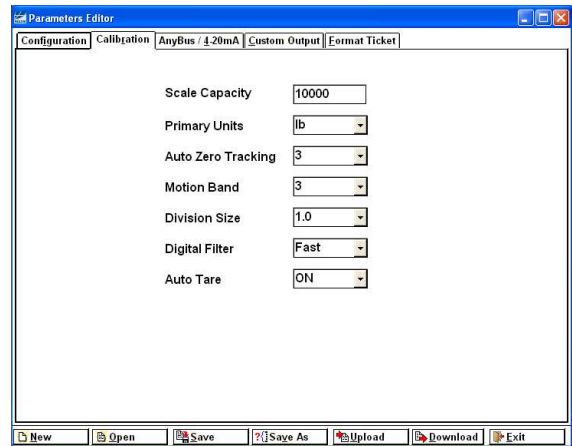
6.7. Fieldbus / 4-20 mA

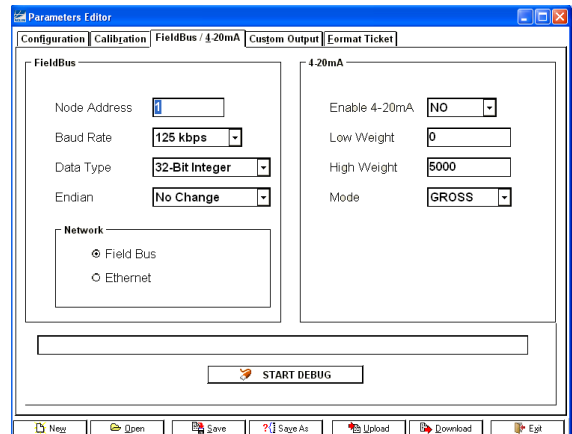The **Anybus** or **DeviceNet Module** is set up using the **PC2255 Program** and is supported by the following parameters.

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.
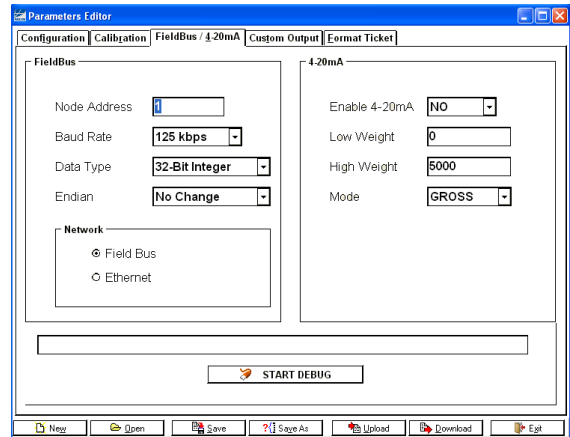- Device Net uses **125K bps, 250K bps** or **500K bps**.

6.7. Fieldbus / 4-20 mA, Continued

DATA TYPE

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

ENDIAN

The **Endianess** of a 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 shown below.

- **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 shown below.

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

6.7. Fieldbus / 4-20 mA, Continued

OUTPUT

Data from the FB2255 comprises of three (3) 32-bit words.

* **Gross Weight**

* **Tare Weight**

* **A 32bit Status Word**

* Gross and Tare weights can be selected as either a **32-bit Integer** or a **32-bit 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

* **"g"** grams.

The **Least Significant Byte** indicates the number of decimal places, if the weight output is selected to be a 32-bit 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 in this process.

– 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.

6.7. Fieldbus / 4-20 mA, Continued

RECOGNIZED COMMANDS

COMMAND	DESCRIPTION
Print Steam	*See* Custom Format PC2255.
Print Format Stream	**CR, SPACE, STX, ENQ** *or* **Defined Poll Character**
Tare	**"A"**
Print Ticket	**"p"** *or* **"P"**
Zero	**"Z"**
Change Gross Net Weight 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 **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.
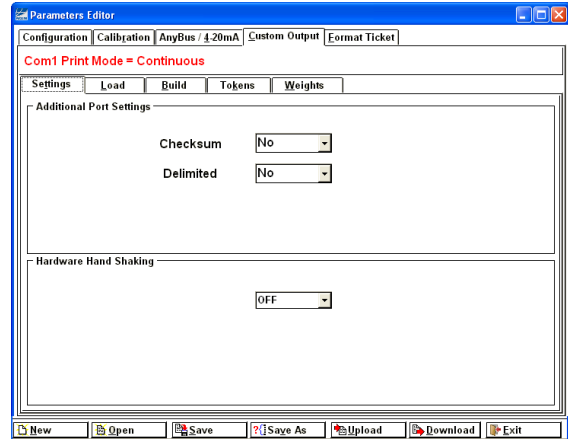
6.8. Custom Output – Settings

CHECKSUM

- This setting determines whether a **Checksum Character** is enabled or not.

- **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 HAND SHAKING

No current function. Set up for future use.

6.9. Custom Output – Load

A variety of pre-packaged **Output Strings** is available.

1. Click the **radio button** that applies.

   ✓ **Default = Fairbanks**

2. Click **OK** to download the settings, or **Cancel**.

   – *See* **Appendix 1: Data Output Formats**.
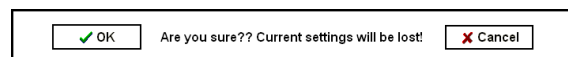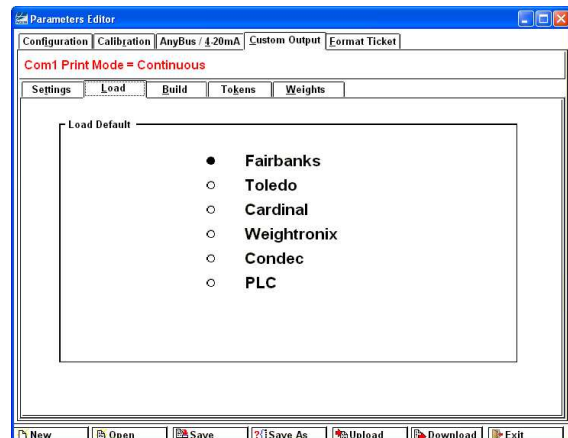
IMPORTANT NOTE:

Customized Outputs use **Port 1** *only.*

The power must be cycled to the FB2255 Instrument whenever custom outputs are programmed in order for them to take effect.

6.10. Custom Output – Build

1. Customize the **Data Output String** to suit the application requirements.

   – The current structure of the output string is displayed at the bottom of the **Custom Output page**, in order of transmission from left-to-right.
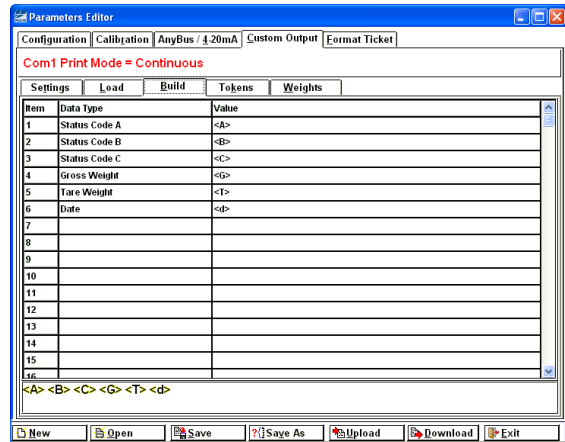
2. **Right-click** in the selected **DATA TYPE field** to change data items.

   – This opens a selection window containing many different data items.
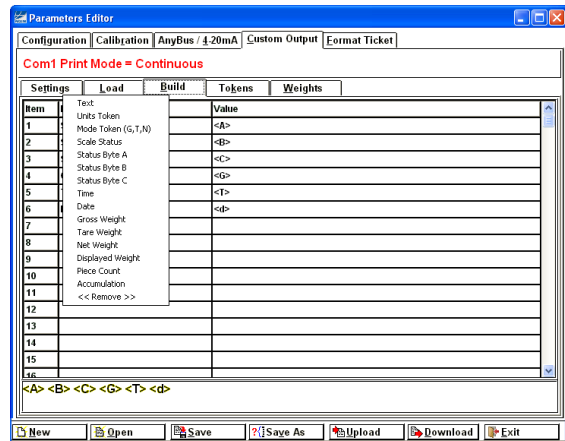
6.11. Custom Output – Tokens

1. Select from a wide variety of different characters for the polling character.

- Start
- Block
- Secondary Units
- Motion

- Stop
- Primary Units
- Weighing Mode
- Capacity Characters
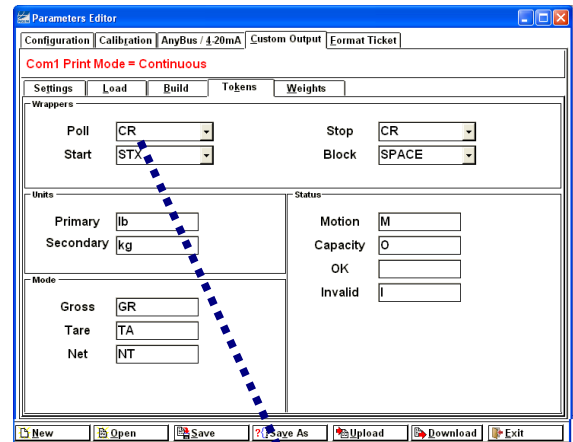
2. When entering a character that is not listed, select

USER DEFINED.
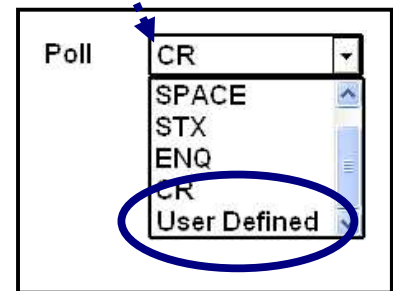
This will produce an additional data entry box as shown.

3. **Right-click** in the selected **DATA ENTRY BOX** to change data items.
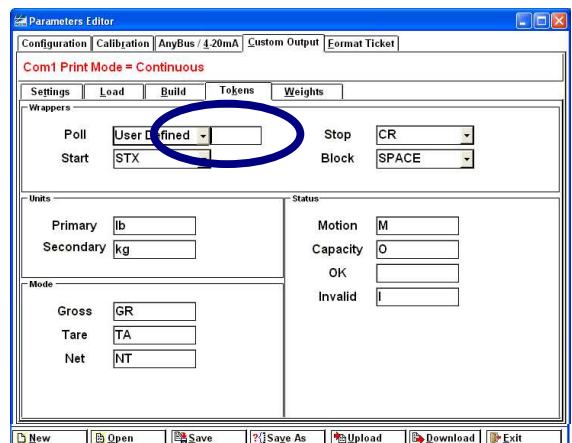
6.11. Custom Output – Tokens, Continued

4. Make a selection, such as **<SOH>**, for example.

   – This inserts a **Start of Header** character… otherwise known as a **CTRL/A**, or **0x01 HEX**.

5. When entering a character not listed, select **ENTRY**.

6. Select **ENTRY** to insert a character using the keyboard, such as an **A** or a **1**.
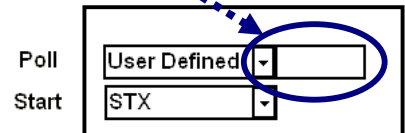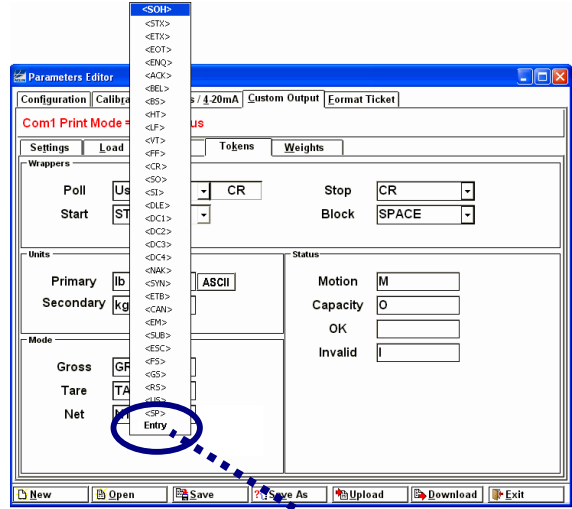
6.12. Custom Output – Weights

A variety of settings are available for the **Weight Digits** window. These choices include the following.

- Weight Digits
- Justification
- Fixes Decimal Places

- Leading Zeros
- Decimal Point

- Include Polarity (checkbox)
- Positive Token
- Negative Token
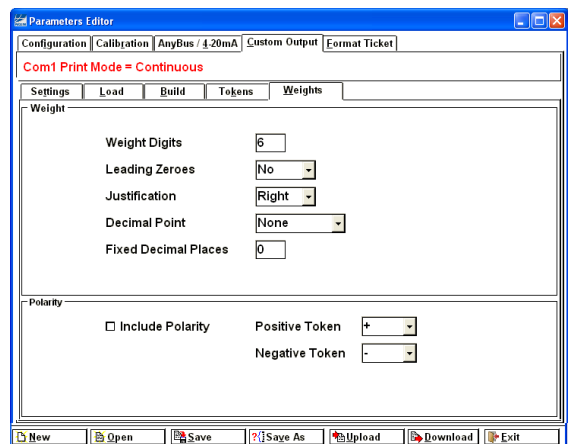
6.13. Formatting Tickets

- 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).
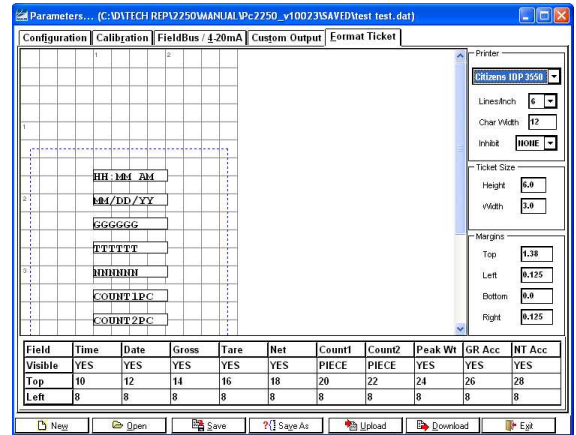
1. Click-and-hold on a data item to move it to a different location.

2. Change the numeric values for **TOP** and **LEFT**.

   – Legends such as **GROSS** cannot be disabled, and are *always included*.

3. Select **INHIBIT** to set the status of the **CTS** (**C**lear **T**o **S**end) and **RTS** (**R**eady **T**o **S**end) hardware handshake (**BUSY**) lines.

   – An example of this is **Paper out**.

4. Complete all the items can be disabled from view and printing by right clicking the **VISIBLE** box, and then selecting **NO** or **YES**.

5. Additional selections are available for both **COUNT 1** and **COUNT 2**.

6.14. Printed Examples

ACCUMULATION.

Count1	Count2	Peak Wt	GR Acc	NT Acc
CNT GR	CNT NT	NO	YES	YES
20	22	24	24	26
8	8	8	8	8

```
2 Items GR
0 Items NT
   7.315 lb GR Total
   0.000 lb NT Total
```

PIECE COUNT & TOTAL

Printing **Time, Date, Gross, Tare, Net, Count 1**, and **Count 2.**

```
09:52AM
03-11-09
   7.395 lb GR
   1.000 lb TA
   6.395 lb NT
457 Pieces
457 Total Pieces
```

PEAK WEIGHT

XXXXXX lb Peak Weight MM-DD-YY XX:XXAM

Count1	Count2
PIECE	CNT NT
20	22
8	8

```
600 Pieces
0 Items NT
```

PIECE COUNT & TOTAL.

Count1	Count2
CNT GR	PIECE
20	22
8	8

```
600 Items GR
0 Total Pieces
```

Section 7: Service and Maintenance

7.1. Troubleshooting the Instrument

DISPLAY	SYMPTOM	RESOLUTION
ERROR	• Possible bad battery or power loss • Program error	• Replace the PCB. • Replace Battery
No Display	No Power	• Check AC Input • Check battery voltage
Drifting/Unstable	• Display changes at a rapid pace. • Loss of Excitation voltage.	• Check for damaged load cell, load cell cables, or bad main PC. • Measure the Excitation Voltage (5VDC) • Use a Simulator to troubleshoot.

7.2. Battery Installation

STAINLESS STEEL INSTRUMENT

6. Unscrew the black plastic end caps.

7. Insert five (5) alkaline "D" cell batteries.

STAINLESS STEEL ENCLOSURE

ABS ENCLOSURE

ABS INSTRUMENT

8. Unscrew the two large knurled screws on the back of the Instrument

9. Remove the battery cover.

10. Insert five (5) alkaline "D" cell batteries.

• Industrial 'D' size Energizer EN95 battery or equivalent is recommended for maximum operating time.

• Stainless Steel models should have special formed key washers installed for grounding.

– Four (4) screws fasten the back cover plate at the corners.
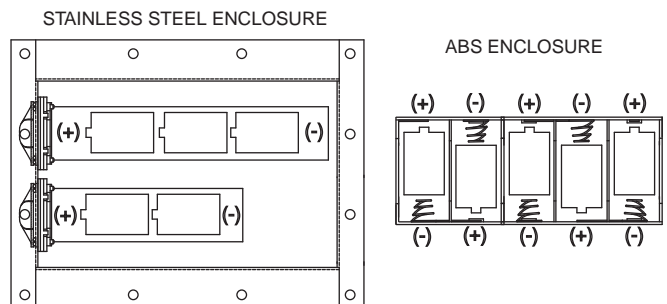
Appendix I: Data Output Formats

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)

B. Fairbanks/ Toledo Continuous Output

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

A   = Status Word A

B   = Status Word B

C   = Status Word C

W   = Displayed Weight

T   = Tare Weight

- Leading zeros 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	Net = 1
1	Positive = 0	Negative = 1
2	In Range = 0	Overcapacity = 1
3	No Motion = 0	Motion = 1
4	lb = 0	kg = 1
5	Always Logic 1	
6	Normal = 0	Power Up = 1
7	Parity Bit	

Status Word C

Bit #	Description	
0	Always Logic 0	
1	Always Logic 0	
2	Always Logic 0	
3	Normal = 0	Print Switch Pushed = 1
4	Always Logic 0	
5	Always Logic 1	
6	Normal = 0	Keyboard Tare = 1
7	Parity Bit	

C. Cardinal 738 Continuous Scoreboard Output

<CR><P><WWWWWW><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 zeros are not suppressed

D.   Weightronics WI-120 Continuous Output

<G><P><WWWWWW><SP><U><CR><LF>

G = Gross; N = Net

P = Polarity   + = positive weight

                      - = negative weight

U = Units

                      lb = pounds

                      kg = kilograms

SP = Space

Leading zeros are not suppressed

E. 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 zeros are suppressed

F. Demand Output

Activated by the receipt of a <CR>.

Gross Weight – No Motion – decimal points included

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

 Gross Weight – Motion – decimal points included

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

G. Continuous Output

- 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> <l> <b> <SP> <SP> <G> <R> <SP> <SP> <CR> <LF> <EOT>

Gross Weight – Motion – decimal points included

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

Net Weight – Motion – decimal points included

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

H. PLC

- Continuous Output, transmitting data on every other A/D update.
  - Approximately 32 transmissions per second.

Baud Rate	**19,200**
Data Bits	**8**
Parity	**None**
Stop Bit	**1**
Mode	**Continuous**

The output string is **12 characters**, seen as "**wwwwwwwuumm<eot>**" where,

<wwwwwww> = 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* **PLC option** *is selected and protocol has been programmed, the installing technician's setup is complete.*

Specialized tools available from www.anybus.com*.*

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

I. 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.

J. 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>	**<LF><SP>XXX.XXUU<CR>(STATUS)<ETX>**	Returns the weight and scale status in two ASCII digits.
S<CR>	**<LF>S(STATUS)<CR><ETX>**	Returns the scale Status in two ASCII digits (defined in the following section)
Z<CR>	**No response**	Zeros the scale
All Else	**<LF>?<CR>**	Unrecognizable command

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

1**. XXX.XX** =   A five digit number with two digits to the right of the decimal point

which is the displayed scale weight.

2**. SP** =   An ASCII space (hexadecimal 20). In the event of a negative

weight, an ASCII, "-" (hexadecimal 2D) is returned in this

location.

J. 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: Remote PC Commands

Transmitting certain ASCII characters to the FB2255 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.

ASCII CHARACTER   FUNCTION PERFORMED / COMMENTS

Z (upper case)   Zero. Active in the Polled or Button Modes

A (upper case)   Tare (Auto Tare). Active in the Polled or Button Modes

U (upper case)   Change Units. Active in the Polled or Button Modes

g (lower case)   Toggle Gross / Net. Active in the Polled or Button Modes

P or **p** (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 PC2255 program, using the 'Format Ticket' tab and can include any of the field items and in the order prescribed.

CR (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>

EXAMPLE

"12345 lb GR<CR><LF><EOT>" or "12345 lb nt<CR><LF><EOT>".

c (lower case)	Active in the Polled or Continuous Modes If the instrument is in the Polled Mode the output will be the same as if a Carriage Return was received. The output will be transmitted when the display is refreshed. If the instrument is in the Continuous Mode the output will be transmitted immediately regardless of display update timing.

NOTE: *The programmed parameters in the FB2255 apply equally to both a key press and a remote PC command.*

For example, in order to change the **Units option** *for more than one unit, it must be* **Enabled***.*

	RS232 INTERFACE WIRING			FB2255 (ABS) REMOTE DISPLAY			FB2255 (ABS) REMOTE DISPLAY			FB2255 (SS) REMOTE DISPLAY		
MODEL	COM	CONNECT		COM	CONNECT		COM	CONNECT		COM	CONNECT	
FB2200 (ABS)	1	3	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
	1	5	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
FB2200 (SS)	1	3	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
	1	5	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
FB2255 (ABS) or FB2250 (ABS)	1	TB4(A)-2	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
	1	TB4(A)-1	RX	1	TB4(A)-2	TX	2	3	TX	1 or 2	TB4(A or B)-2	TX
	1	TB4(A)-4	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
	2	3	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
	2	2	RX	1	TB4(A)-2	TX	2	3	TX	1 or 2	TB4(A or B)-2	TX
	2	5	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
FB2255 (SS) or FB2250 (SS)	1 or 2	TB4(A or B)-2	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
	1 or 2	TB4(A or B)-1	RX	1	TB4(A)-2	TX	2	3	TX	1 or 2	TB4(A or B)-2	TX
	1 or 2	TB4(A or B)-4	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
2300	1	TB4-1	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(B)-1	RX
	1	TB4-2	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(B)-4	GND
2500	2, 3, 4 or 5	3	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
		5	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
2500 (SS)	2, 3, 4 or 5	4	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
		8	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
2800	A	TB3-2	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
		TB3-4	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
	B	TB2-2	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
		TB2-4	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND
5200A	1 or 2	4	TX	1	TB4(A)-1	RX	2	2	RX	1 or 2	TB4(A or B)-1	RX
		5	RX	1	TB4(A)-2	TX	2	3	TX	1 or 2	TB4(A or B)-2	TX
		8	GND	1	TB4(A)-4	GND	2	5	GND	1 or 2	TB4(A or B)-4	GND

Appendix VI: FB2255 Remote Display Active Keys

MODEL	ZERO	UNIT	GROSS/NET	AUTO TARE	PRINT
FB2200	***	***	***	***	***
FB2250	Y	Y	Y	Y	Y
FB2255	Y	Y	Y	Y	Y
2300	***	***	***	***	***
2500	***	***	***	***	***
2800	***	***	***	***	***
5200A	***	Y	Y	***	***

FB2255 Series Instrument

FB2255/ PC2255
Document 51297

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