Operator Manual

FB7100 Series Instrumentation

FB7101 In/Out/ GTN/Setpoint Analog NEMA 12 Desktop Instrument

FB7102 In/Out/GTN/Setpoint Analog NEMA 4X Desk/Wall Mount

For complete wiring information, see

Load Cell-to-Instrument Interfaces Installation Manual, 51326

51490

Rev. 4 01/2021

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AMENDMENT RECORD

FB7100 Series Instrumentation

FB7101 In/Out/ GTN/Setpoint Analog NEMA 12 Desktop Instrument

FB7102 In/Out/GTN/Setpoint Analog NEMA 4X Desk/Wall Mount

Operator Manual
Document 51490

Manufactured by

Fairbanks Scales Inc.

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Revision 1	04/2020	New product documentation release
Revision 2	07/2020	Added: Appendix PLC Reference Updated Serial Input / Output > Printer Cable 15599
Revision 3	07/2020	Updated: Basic Weighing; Renamed Appendix III to Remote Input Codes
Revision 4	01/2021	Updated: Ticket Format Commands; multiple text and screen updates

TABLE OF CONTENTS

SECTION 1: GENERAL INFORMATION

This manual details the **FB7100 Instruments**.

1.1. Instrument Description

The **FB7100 Instrument** is a Basic, Inbound/Outbound, and GTN instrument.

The Instrument may be enhanced by adding either a: 4-20mA, Enhanced D/A, Serial Expansion Card, Relay Interface or Fieldbus Module to the unit.

The **FB7100 Instrument** is designed for a wide variety of truck, floor, hopper, and tank scale applications.

- The load cells interface with the Instrument through the **main PCB.**
- An RS-232 interface allows for the transfer of data from the Instrument to a computer and vice versa.
- The two **FB7100** Series instrument models are the **Desktop** and the **NEMA 4X Wall Mount**.

Standard Features

- **5" Full Color LCD Touchscreen Desktop**
  or
- **7" Full Color LCD Touchscreen Washdown**

- **Touchscreen Buttons, including the following:**
  - **0-9 keys, Enter, Red (stop), Green (go), Tare, In, Out, Units, B/G/Net, Zero, Start, Trim, Stop, ID, Function**

- **One (1) Ethernet Port**
- **Two (2) USB Ports**
- **One (1) Accessory Card Slot**
- **20mA COM Port 3**

- **Capable of formatting tickets**
- **Two (2) RS232 serial ports**

1.1.1. Accessories

PART NO.	DESCRIPTION	
35278	ACC 165	Relay box*
36234	ACC 167	Pass-through gland nut
36240	ACC 168	External Ethernet (RJ45) connector, NEMA 4
36241	ACC 169	External USB connector, NEMA 4
17216	ACC 1160	Instrument to relay box (ACC 165) interface cable
30919		Passive 4-20 mA, 16 bit **
33258		Active 4-20 mA, 16 bit **
30920		Relay Interface card for ACC 703 **
30921		Serial Expansion Card **
37044		DeviceNet Fieldbus Assembly**
37045		Ethernet/IP Fieldbus Assembly**
37220		Modbus-TCP Fieldbus Assembly**

* *See also ACC 165 Part List*

** *Only one accessory may be used in the FB7100 series instrument.*

1.1.2. Expansion Modules

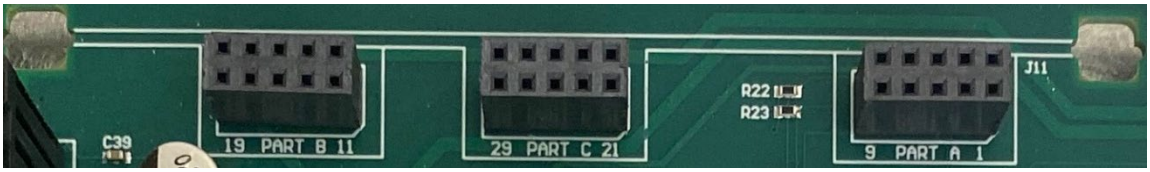
Expansion Modules provide the physical connectivity between the **FB7100** and all scale and peripheral devices.

- Each **Expansion Module** is an intelligent device, consisting of the following components:
  - A Processor
  - Non-volatile Memory
  - An RS-232 Communication Node

There is one available slot for an **EXPANSION MODULE KIT** to be installed on the **FB7100** Instrument. **One** of the following expansion modules may be installed into the Base Board socket J11

- **4-20mA Analog Kit** - produces an analog output between 4 and 20mA, dependent on configuration and weight applied to scale.
  - **4-20mA Passive Analog Kit**
  - **4-20mA Active Analog Kit**
- **Serial Expansion Card** - allows for four more serial communication ports.
- **DeviceNet Fieldbus Assembly**
- **Ethernet/IP Fieldbus Assembly**
- **Modbus-TCP Fieldbus Assembly**

- **Relay PCB Assembly Kit** - controls the ON/OFF state of the Traffic Signal Lights or Relay Box.
- **Enhanced D/A Assembly**- allows for more analog signal types than the 4-20 accessory.



1.2. Technical Specifications

PARAMETER	SPECIFICATION
Model	FB7101 NEMA 12 Desktop FB7102 NEMA 4X Desk/Wall Mount
Display	5” (Wesktop) or 7” (Washdown) diagonal, 800 x 480 resolution TFT LCD with LED backlight Full graphic color with touch
Displayed Characters	5/8”
Load Cell Interface	(16) 1000 Ohm or (10) 350 Ohm Load Cells
Cell Capacity	No Practical Limit
Load Cell Excitation	5 VDC
Cell Units	lb, oz, kg, g, ton, tonne
No. of Scales	One (1)
Resolution	10,000d Commercial 50,000d non-commercial
Scale Capacity	0-999,999
Division Size	0.0001-200
Units	lb, oz, kg, g, tons, tonne
Serial Input/ Output	Two (2) RS232 COM Ports, two (2) USB Ports, one (1) dedicated optically isolated 20mA (active or passive)
Network Connection	One (1) RJ45 10/100 Base-T Ethernet Port
Storage	1,000 Tares 10,000 Transactions
Auto Zero Tracking	Selectable – Off, 0.5d, 1.0d, 3.0d
Motion Band	Selectable – Off, 0.5d, 1.0d, 3.0d
Zero Range	Selectable – 2%, 100%
Filters	Light, Med/Light, Medium, Heavy/Med, Heavy, Animal
Digital Filter	Configurable
Clock	Real time clock, Day of the week, 12-hour AM/PM, Date (month/day/year)

ENVIRONMENTAL	SPECIFICATION
Enclosure	NEMA 12 Stainless Steel/Aluminum Desktop NEMA 4X Stainless Steel Washdown
Operating Temperature	14°F to 104°F, (–10°C to 40°C).
Operating Humidity	NEMA 12 0 to 90% NEMA 4X 0 to 100%
POWER REQUIREMENTS	**SPECIFICATION**
Incoming Voltage Requirement	Instrument has an Auto-switching power supply. 100 VAC to 130 VAC, 50Hz\ 60Hz 200 VAC to 260 VAC, 50Hz\ 60Hz It is recommended to install a separate circuit from the circuit panel to the outlet used. There must not be more than 0.2VAC between AC neutral and ground
Ground Requirements	For proper performance, the ground should have no more than 3.0 Ω resistance to true earth ground.
Power Consumption	< 30 W
ETL Listed	Conforms to UL STD 62368-1 Certified to CSA STD C22.2 #62368-1
Approvals	NTEP CC: 19-146 MC: AM-6141C
Accuracy	Class III/IIIL

1.3. Levels of Security

*There are three security levels for accessing the **FB7100** programs.*

- **Security Levels One thru Three (1 – 3)** configures the hierarchy of the management functions, and limits privilege accesses from unauthorized employees.
- When making the employee hierarchy, employee duties should determine their security level.
- Each access level includes all of the rights of any access level(s) below it.

FIRST LEVEL: OPERATOR ACCESS

– Accesses the Operator Menu and the Audit Trail Menu.

– **No Password** is necessary for this level of instrument access.

SECOND LEVEL: SUPERVISOR ACCESS

– All of the Operator Access privileges.

– Supervisor Password is required.

– The *default first time use* password for the **Supervisor Access** is **"1"**.

- *It is strongly recommended to change this password.*

– Second Level Users can also access the **Configuration Menu**.

THIRD LEVEL: SERVICE TECHNICIAN ACCESS

– All of the previous level privileges.

– With the **Service Password**, the technician can also access ***all*** menus options, including the highest level programming **SERVICE MENU**.

1.4. Users' Responsibility

All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications should be performed by trained service personnel.

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

Electrical connections other than those specified may not be performed, and physical alterations (holes, etc.) are not allowed.

Please call your local

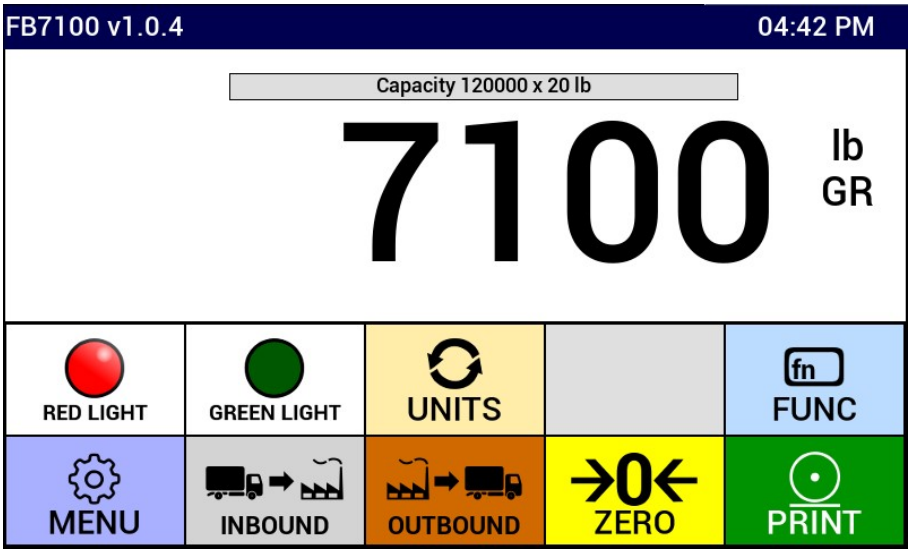
FAIRBANKS SCALES REPRESENTATIVE

For any question, problems, or comments.

SECTION 2: USER OPERATIONS

2.1. Front Panel Key Functions

KEYS	FUNCTION
RED & GREEN LIGHT	• Activates the Traffic Light function, if one is installed.
ID	• Up to a 6-digit product ID for printer/computer printout, not maintained at power loss.
MANUAL TARE	• Allows keypad entry of tare weight
AUTO TARE	• Performs an **AutoTare** function.
INBOUND & OUTBOUND BUTTONS	• Manually selects the **INBOUND** or **OUTBOUND** mode.
SCROLL Keys	• Navigates through the menu selections.
MENU	• Initiates the programming process into the different menus.
RETURN	• Return to a higher menu or to the weigh screen.
Numeral Keys	• Enters values for passwords, weight amounts, and configuration inputs.
ENTER	• Activates and saves data input.
FUNC	• Activates a secondary menu set on the weigh screen.
UNITS	• Toggles and sets the unit types for the weight displayed.
B/G/NET	• Toggles active display between Gross and Tare, in the GTN mode.
ZERO	• **ZERO**s the scale.
PRINT	• Initiates a print cycle.
GROSS/PRINT	• Basic one-line printing for a LOADED vehicle.
TARE/PRINT	• Basic one-line printing for an EMPTY vehicle.



2.1.1. Special Functions (FUNC key)

Press **FUNC** to bring up additional keys on the weigh screen. Included in the additional keys are the:

- **Peak Hold Enable**
  - **See section User Operations**
- **Access to the I/O menu**
  - **See section COM Ports**
- **Setpoint**
  - **See section Setpoint Information**
- **Price/Wt**
  - See section **Using Price/WT**

2.2. Operational Procedures

2.2.1. Gross Weighing

The truck drives on the scale and the operator prints the result.

1. Press the **ZERO** key.
2. Drive the vehicle to be weighed on the platform.
3. Once the display stabilizes, press the **PRINT** key.
   – A **GTN** ticket prints with the **Gross Weight**.

2.2.2. Basic Weighing

BASIC MODE weighs the vehicle, then prints a ticket displaying the **Time, Date** and **Weight Amount** (either **Tare** or **Gross**). *This is its only function*.

- This mode ***does not*** have In/Out or Tare functions, (including storing Tares).

1. With a loaded vehicle on the scale, press the **GROSS / PRINT** key
2. With an empty vehicle on the scale, press the **TARE / PRINT** key.

2.2.3. Gross-Tare-Net Weighing

1a. Press the **ZERO** key.

b. Drive the empty vehicle to be weighed on the platform.

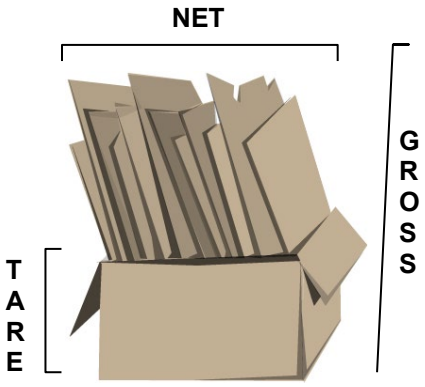
c. Press the **TARE** button.

– Displayed weight is the captured **Tare Weight**.

d. Exit the scale and load the vehicle with product.

e. Drive back onto the scale.

f. Once the display stabilizes, press the **PRINT** key and a Gross-Tare-Net Ticket will be printed.



The **Net Weight** (*product only*) is the **Gross Weight** (*all*) minus the **TARE WEIGHT** (*container only*).

OR…

1a. With the scale unloaded, press the **ZERO** key.

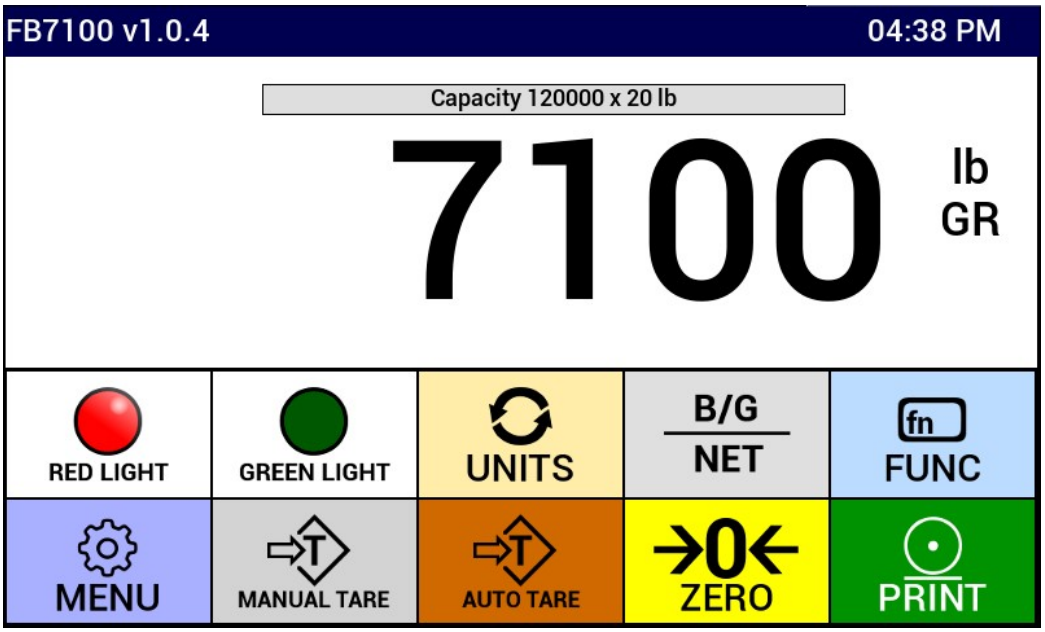
b. Drive the loaded vehicle to be weighed on the platform.

c. When the display stabilizes, press the **PRINT** key.

d. When **KEY IN TARE AND PRESS ENTER** displays, enter a known **TARE amount** from an earlier weighment using the numeric keypad, then press **ENTER**.

–A **GTN Ticket** will be printed.

NOTE: *For printing only* **Gross Weight**, *enter* **ZERO (0)** *when prompted to enter a Tare amount.*



Inbound/Outbound Weighing

Noted below are a few tips for the **Inbound/Outbound Weighing Mode.**

- The **Loop ID** is replaced by saving a new tare, or a saving a new keyboard tare ID.

See **Operating Modes** to configure the Instrument for the **INBOUND/OUTBOUND Operating Mode**.

1a. Press the **ZERO** key.

b. Drive the vehicle onto the platform, whether it is either full or empty.

c. Once the display stabilizes, press the **IN** (**Inbound**) key.

d. When the **LOOP ID LEGEND TEXT** displays, enter the **Loop ID number** using the numeric keypad, then press **ENTER.**

– *For complete information, see* **Legends – Programmable**.

OR…(option 2)

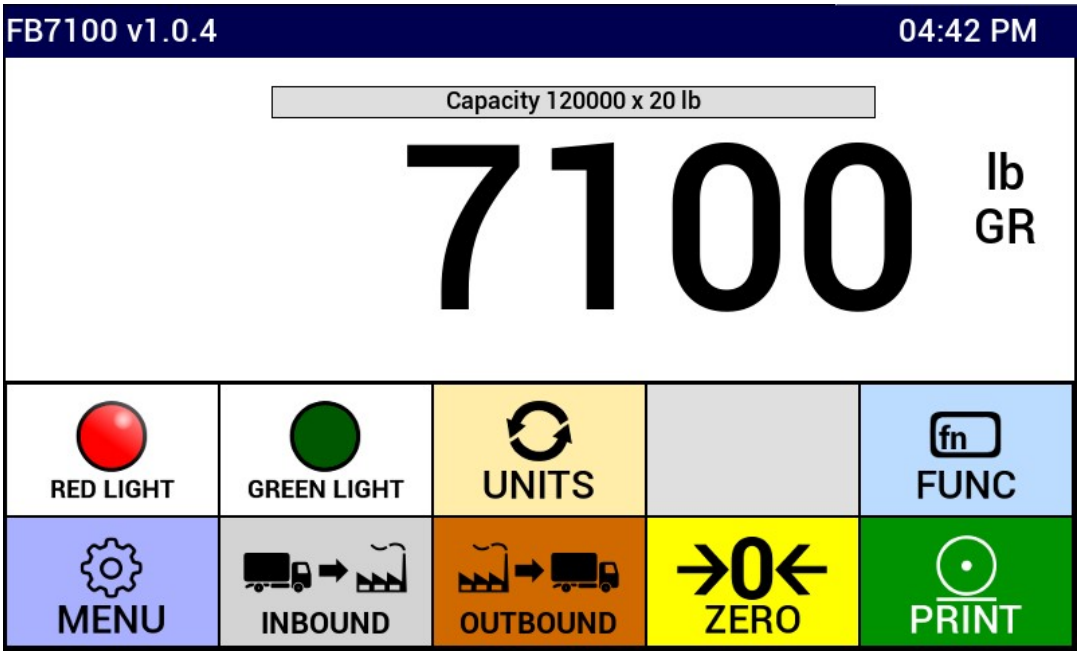
1a. Press **ENTER** to have the FB7100 auto-assign a **Loop ID number**.

b. Drive off the scale and process the trailer, by either filling or emptying it.

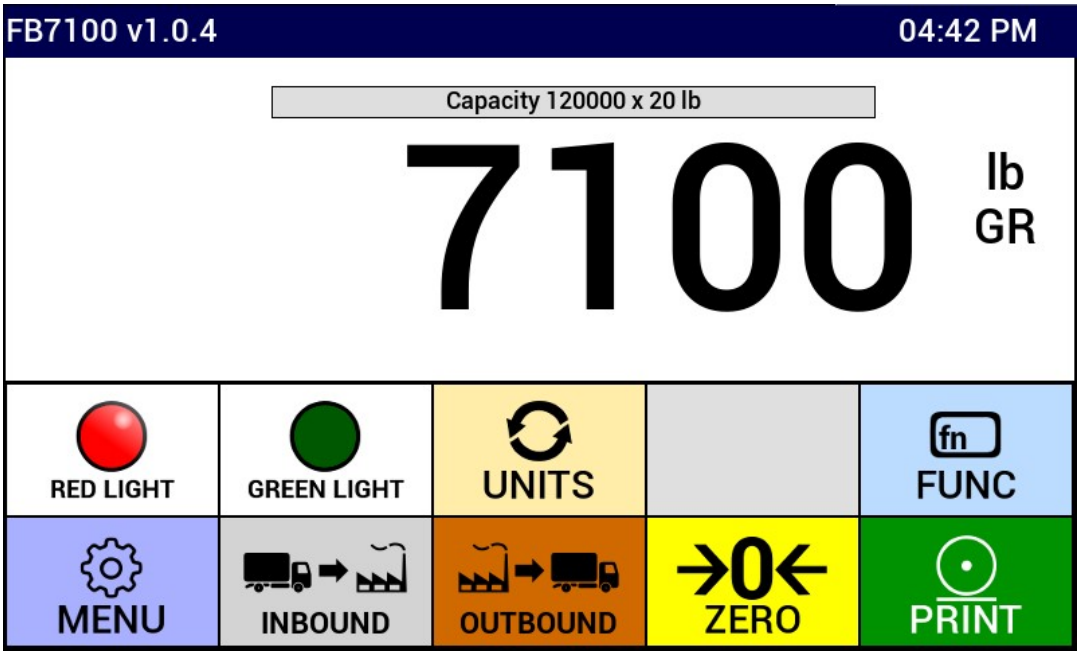
c. The same vehicle returns to the scale, either full or empty.

d. Once the display stabilizes, press the **OUT** (**Outbound**) key.

e. When the **LOOP ID LEGEND TEXT** displays, enter the **LOOP ID Number** from an Inbound Transaction or saved TARE ID number, then press **ENTER**.



OR…(option 3)



1a. With the scale unloaded, press the **ZERO** key.

b. Drive the loaded vehicle to be weighed on the platform.

c. When the display stabilizes, press the PRINT key.

d. When **KEY IN TARE AND PRESS ENTER** display, using the enter a known **TARE amount** from an earlier weighment, then press **ENTER.**

–A **GTN Ticket** will print.

NOTE: *For* **Gross Weight** *only to be printed, enter* **ZERO (0)** *when prompted to enter a Tare amount.*

OR…(option 4)

1a. With the scale unloaded, press the **ZERO** key.

b. Drive the loaded vehicle to be weighed on the platform.

c. When the display stabilizes, press the **IN** or **OUT** key.

d. When the **Loop ID legend text** displays, enter a **Tare ID number** from a stored **NEW TARE** or stored **NEW KEYBOARD TARE**, then press **ENTER.**

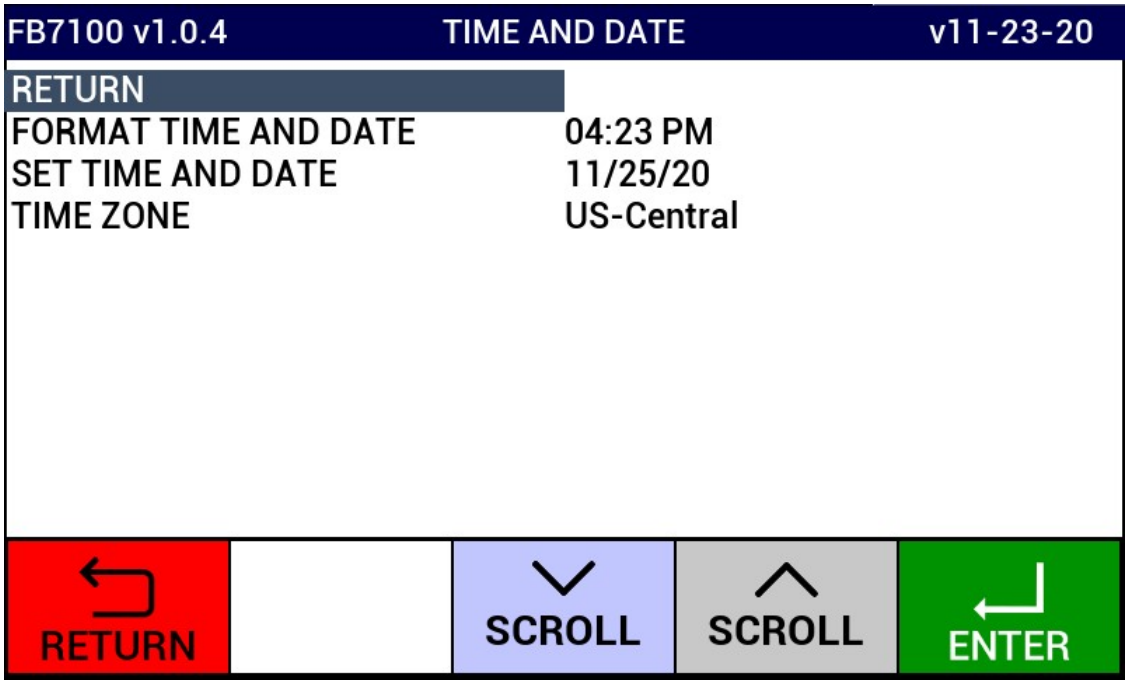
– *For complete information, see* **Legends – Programmable**.

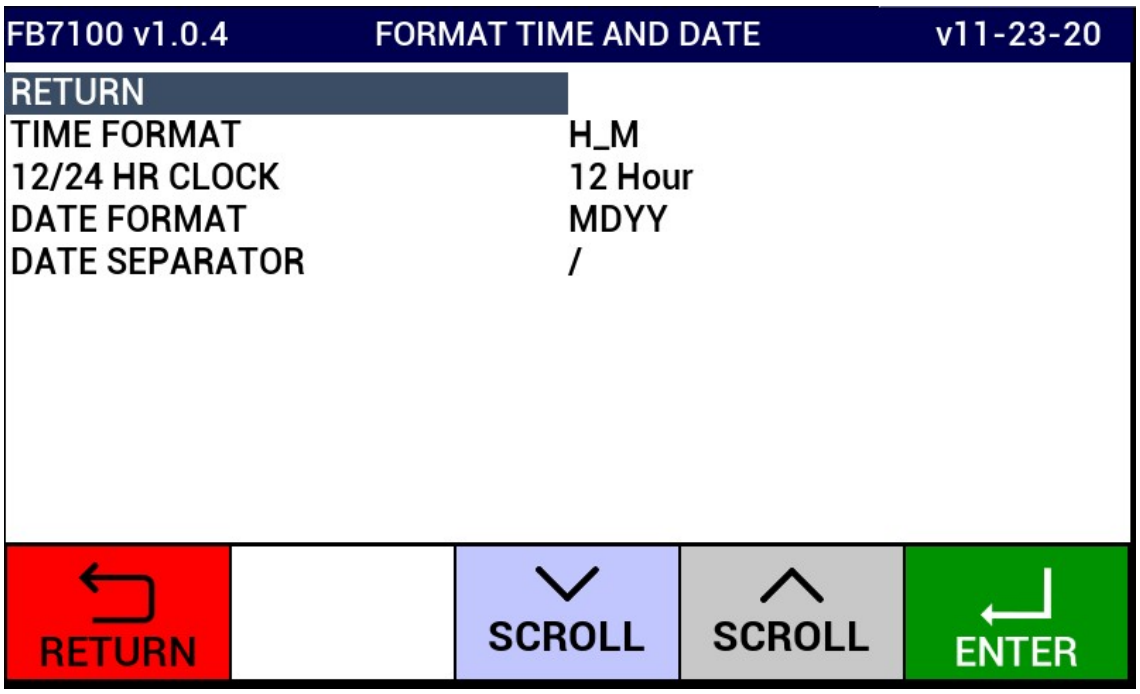
The transaction is processed and an **Outbound** ***ticket prints***

2.3. Programming the Operator Menu

2.3.1. Time & Date

1. While in the **OPERATOR MENU**, select the **TIME AND DATE** option, then press **ENTER**.
2. Select **FORMAT TIME AND DATE** display, press **ENTER**.
3. Select **TIME FORMAT**, press **ENTER**. Choose to include seconds or not, then press **ENTER**.
4. Select **12/24 HR CLOCK** and press **ENTER**.
5. Choose a **12** or **24 hour clock** and confirm your choice with **ENTER**.
6. Select **AM/PM**, press **ENTER**. Select the appropriate choice and confirm with **ENTER**.
7. Select **DATE FORMAT**, press **ENTER**. Make the desired selection and press **ENTER**.
8. Select **DATE SEPARATOR**, press **ENTER** then make a selection. Press **ENTER** to confirm.
9. Use **RETURN** to go back to a higher menu level. Select **SET TIME AND DATE**.
10. Enter the appropriate values for year, month, day, hour, and minute then select **SAVE TIME AND DATE**.
11. Select the appropriate **TIME ZONE**. Press **ENTER**.





NOTE*:* If time and date are being reset when power is cycled, check the battery located at BT1 on the display PCB.

2.3.2. Ticket Number

*Follow these steps to access a specific ticket by entering the **Ticket Number.***

1. While in the **OPERATOR MENU**, select the Ticket Number option, then press **ENTER**.
2. Select **NUMBER**, press **ENTER**.
3. Using the numeric keypad, in the **Ticket Number,** press **ENTER.**
   – This sets the value for the **Ticket Number** to be used in the next printing transaction.
4. To print a duplicate of the last ticket, select **LAST TICKET – PRINT** and press enter.
5. To select a previous ticket to reprint, select **DUPLICATE TICKET – PRINT**. Press **ENTER**, then type the desired ticket number.

2.3.3. Load Cell Diagnostics

Load Cell Diagnostics gives a quick snapshot of how each load cell is performing, used for easier troubleshooting capabilities.

1. While in the **OPERATOR MENU**, select the **SCALE/CELL DIAGNOSTICS** option, then press **ENTER**.
2. The Cell diagnostics will appear on the screen. To print the diagnostic report, use the print button in the lower left-hand corner.

The following categories are noted on the **COUNTS** *print-out.*

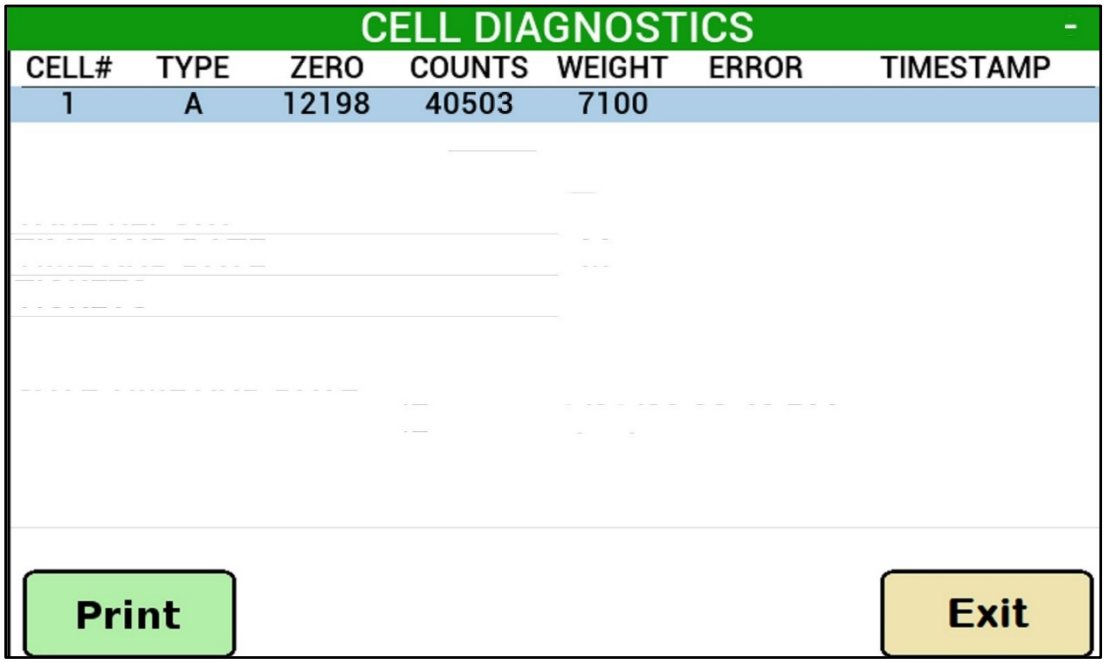
CELL NUM – Identifies the load cell in the scale platform.

ZERO – the zero-load cell count stored at calibration.

COUNTS – the current load cell counts.

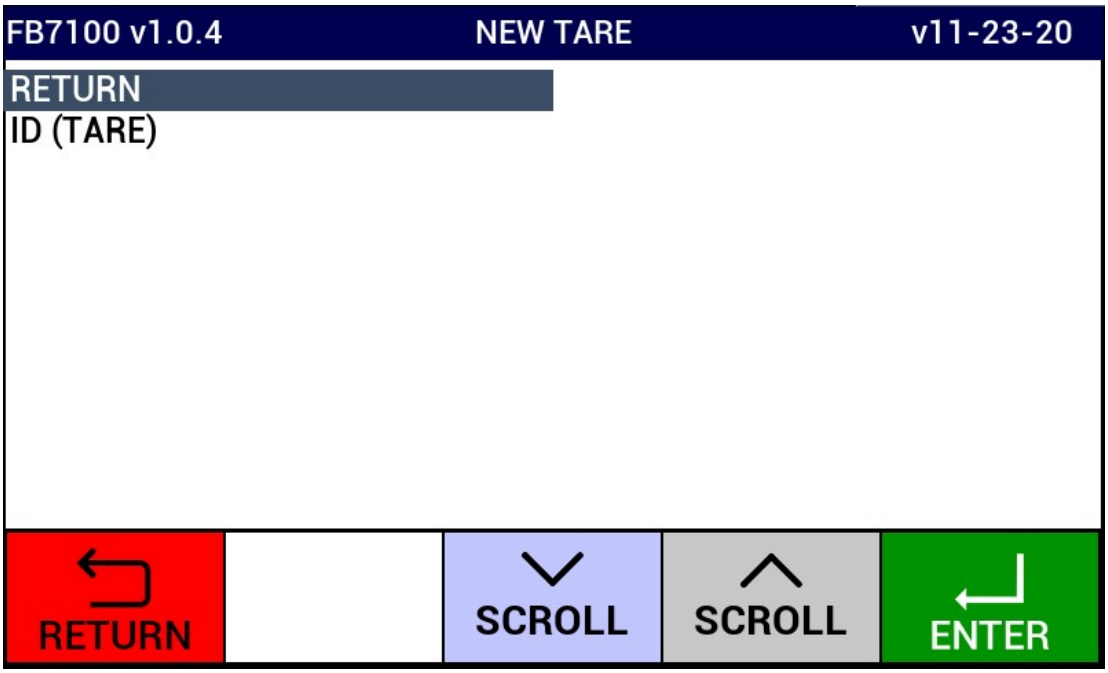
WEIGHT – the current weight value.

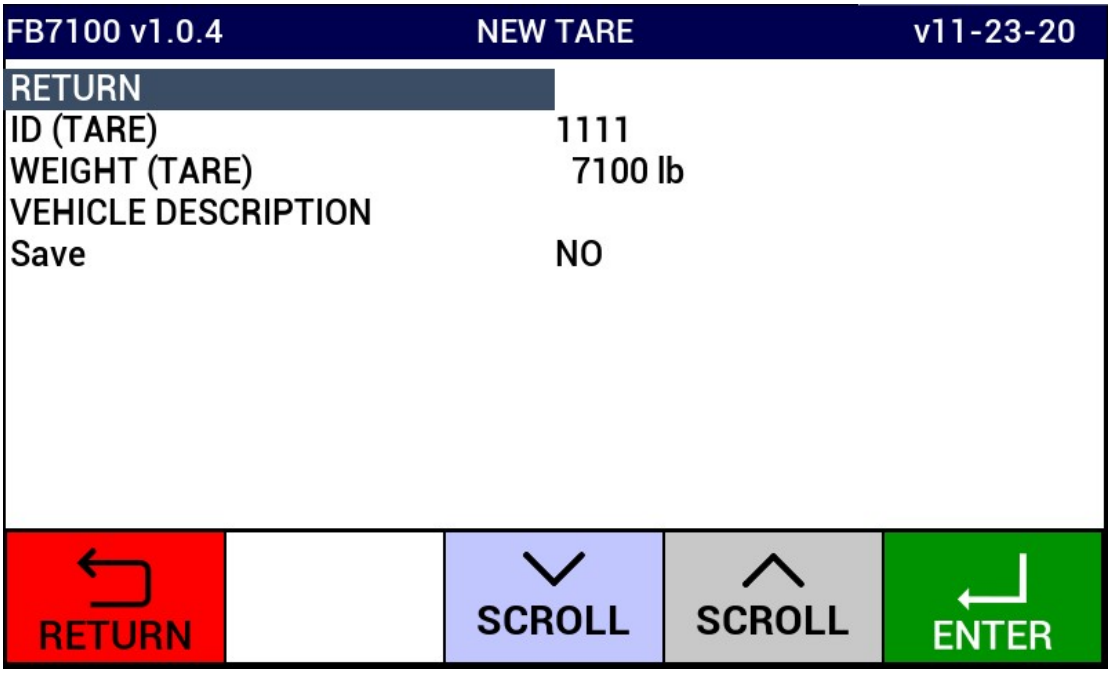
ERROR – This cell experienced an error condition and may need service.



2.3.4. New Tare

Follow these steps to store a **New Tare**, using the scale platform, then recalled later as a saved **Tare Weight**.

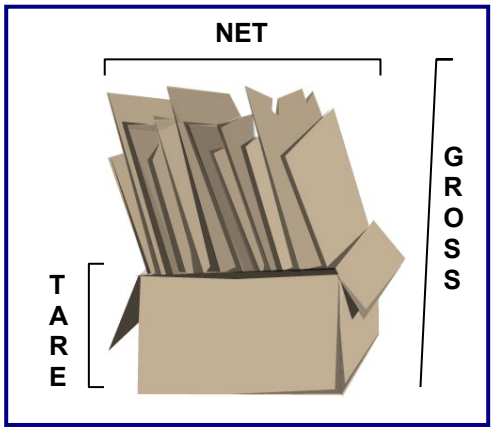




1. In the Operator Menu, select **NEW TARE**, then press **ENTER**.
2. Press **ENTER** to input the ID (TARE).
3. Enter a new Tare ID, or a pre-existing Tare ID to edit.
4. The weight on the scale will automatically be entered as the tare weight.

5. Select **VEHICLE DESCRIPTION**, press **ENTER**.
6. Use an external keyboard or the number keys to input a vehicle description, then press **ENTER**.
7. Select **SAVE**, select **YES**, then press **ENTER**.

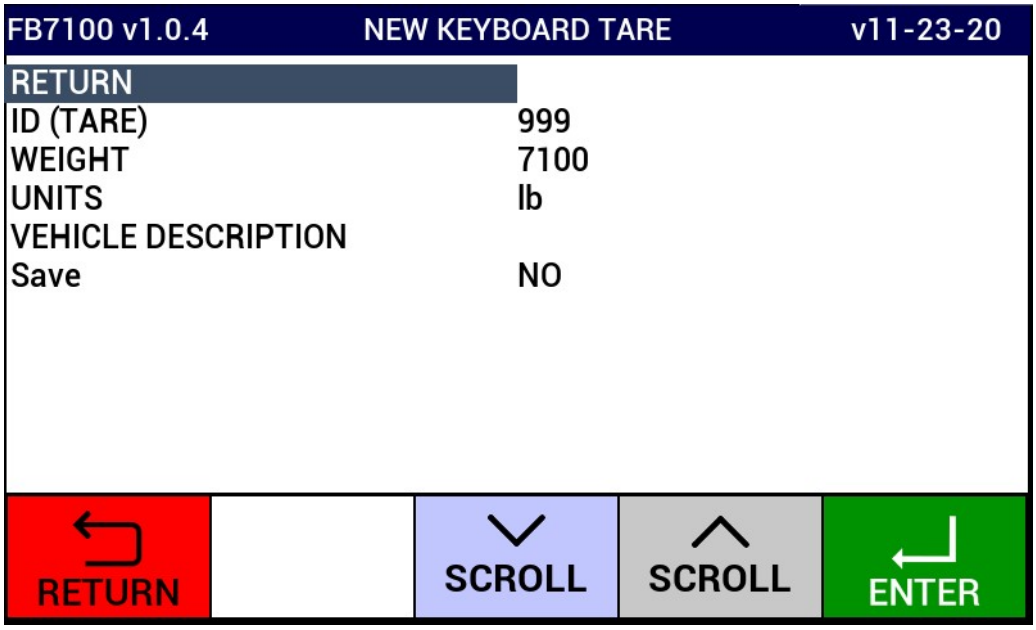
GROSS WEIGHT – TARE WEIGHT = NET WEIGHT

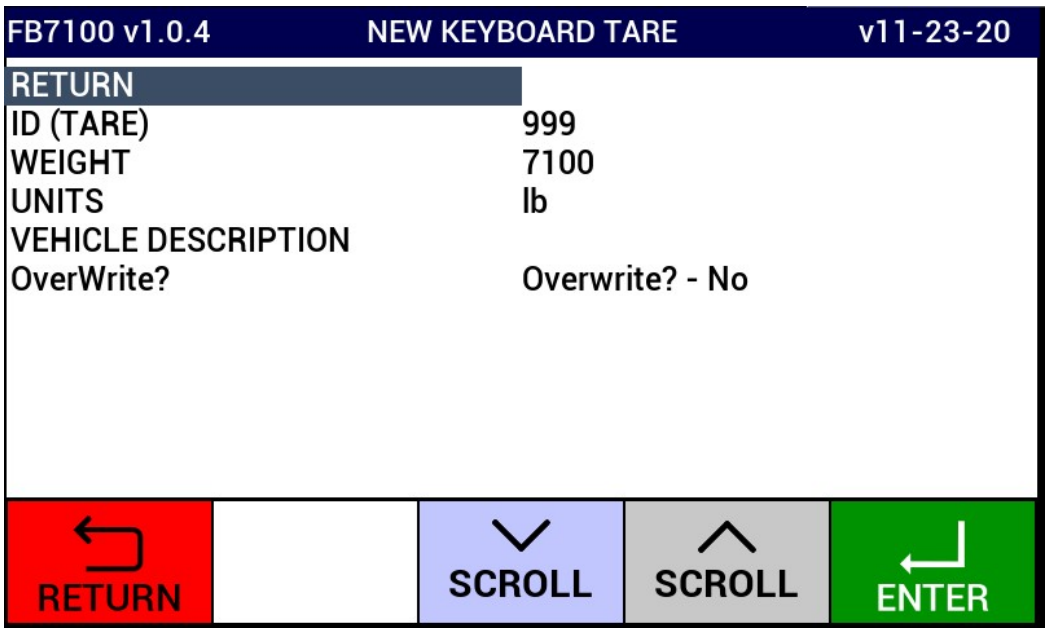


2.3.5. New Keyboard Tare

*Follow these steps to store a **New Tare,** using the keyboard, to be recalled later as a saved tare weight.*

1. In the **OPERATOR MENU**, select **NEW TARE**, then press **ENTER**.
2. Press **ENTER** to input the **ID (TARE)**.
3. Enter a new Tare ID, or a pre-existing Tare ID to edit.
4. Select **WEIGHT**, press **ENTER**.
5. Input the Tare weight using the numeral keys, then press **ENTER**.
6. Select **UNITS**, press **ENTER**.
7. Select the desired **UNITS** and select **ENTER**.
8. Select **VEHICLE DESCRIPTION**, press **ENTER**.
9. Use an external keyboard or the number keys to input a vehicle description, then press **ENTER**.
10. Select **SAVE**, select **YES**, then press **ENTER**.





2.3.6. Tare Report

This option displays each of the stored New Tares and New Keyboard Tares, then prints a Report as selected by the operator.

*Follow these steps to set the **Tare Report.***

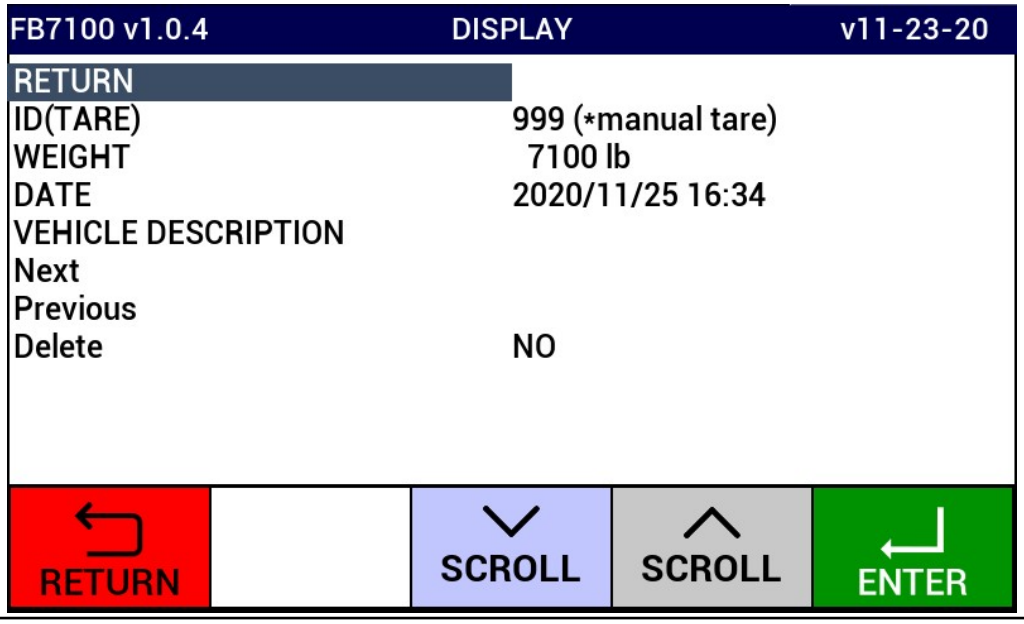
1. While in the **OPERATOR MENU**, select **TARE REPORT**, then press **ENTER**.

2a. Select **DISPLAY**, press **ENTER**.

–This shows the **Stored Tares**, listing the **Tare ID Number, Weight, Date**, and the **Tare Description**.

b. Use **Next** and **Previous** to scroll through the stored.

c. To delete a stored tare, select **DELETE** on the display screen, choose **YES** and press **ENTER**.



OR…(option 2)

2a. Select **PRINT**, then press **ENTER**.

b. Select **PRINTER**, then press **ENTER**.

c. Select an available **PRINTER**.

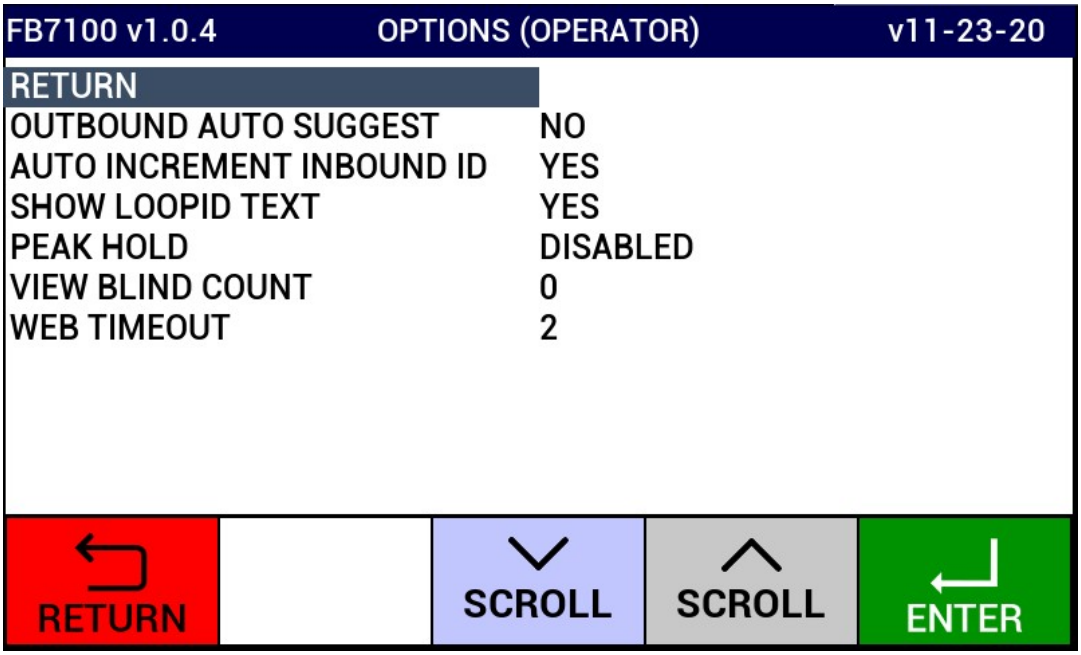
d. Select **PRINT OUT**, press **ENTER** to print a tare report.

2.3.7. Utility – Key Pad Beep, Set Volume, Mute

KEY PAD BEEP

1. In the **UTILITY MENU**, select **KEYPAD BEEP**, then press **ENTER**.
2. Select **ENABLED** or **DISABLED**, then press **ENTER**.

2.3.8. Options (Operator)



1. While in the **OPERATOR MENU**, press ▼ **SCROLL** and select **OPTIONS (OPERATOR)**, then press **ENTER**.
2. Press the ▼ **SCROLL** and press **ENTER** to select one of these options.

- **OUTBOUND AUTO SUGGEST –** When processing Inbound Loops, this selection displays the next available one.
- **AUTO INCREMENT INBOUND ID –** When processing Inbound Loops, this options automatically uses the next available one (without displaying it).

- **SHOW LOOPING ID TEXT –** This selection displays *all* the stated information about the Loop, including the ID number, truck description, or any related text.
- **PEAK HOLD –** This selection enables or disables the Peak Hold feature. Peak Hold will hold the highest weight placed on the scale until that weight is surpassed, the weight is cleared manually, or a ticket is printed. Peak Hold is only compatible with the GTN Operating mode.
- **VIEW BLIND COUNT –** Displays the current blind count.
- **WEB TIMEOUT –** Allows the user to change the duration of inactivity that causes the web interface to time out.

2.4. Using Setpoints

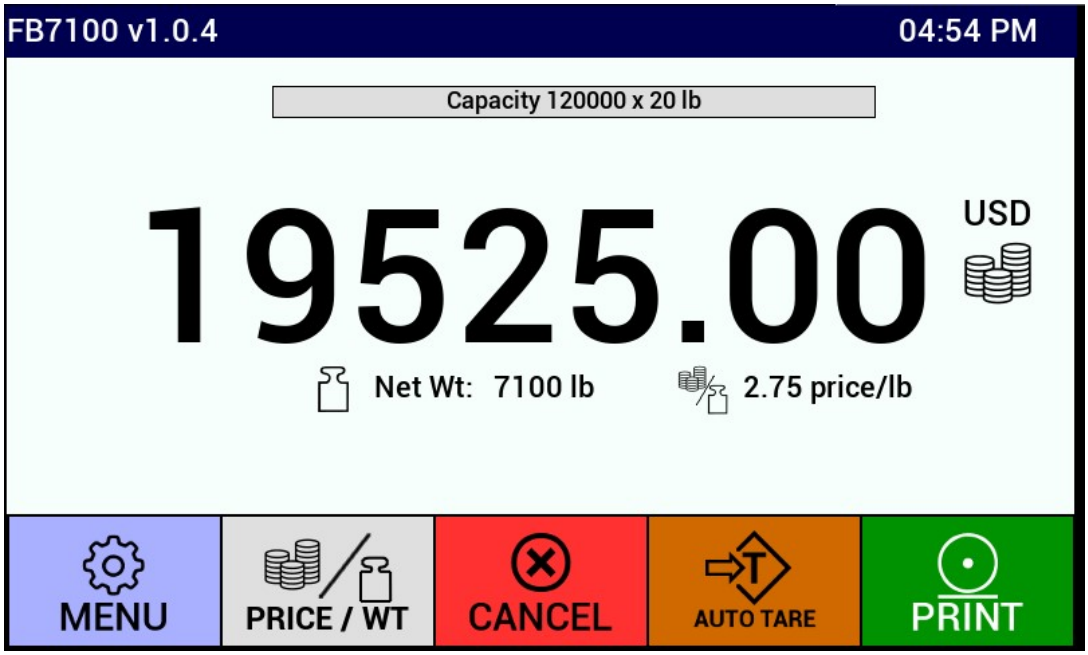
2.4.1. Activating Setpoint Mode

1. From the weigh screen, select **FUNC**.
2. Select **SETPOINT**.
3. **TARGET** and **PREACT** will display beneath the gross weight. To change **TARGET** select **TARGET WT** and to change **PREACT** select **PREACT**.
4. Log in and enter the new value, confirming the weight with **ENTER**.
5. Use the **START** button to begin filling.
6. When the **GROSS WEIGHT** reaches **TARGET-PREACT**, the relay will deenergize and filling will stop.
7. To add additional material, use the **TRIM** button.
8. The process can be stopped at any time using the **STOP** button.
9. When finished with setpoint mode, use the **CANCEL** key to return to the main weigh screen.

2.5. Using Price/WT

1. From the weigh screen, select **FUNC**.
2. Select **PRICE/WT**.
3. Enter the price per weight in the instrument's primary units, press **ENTER**.
4. A notification will appear warning the user that primary units must be used. Press anywhere on the screen to clear.
5. To change the price, select the **PRICE/WT** key.
6. Enter the **new price** and press **ENTER**.

7. To print a ticket, use the **PRINT** key. If a Tare is already stored the print will proceed, otherwise the keyboard tare screen will appear. Enter a Tare, if required, and press **ENTER**.
8. If **CLEAR ON PRINT** is set to **YES**, printing will return you to the weigh screen. Otherwise, it will return you to the **PRICE/WT** screen.
9. Use the **CANCEL** key to leave the **PRICE/WT** screen at any time.

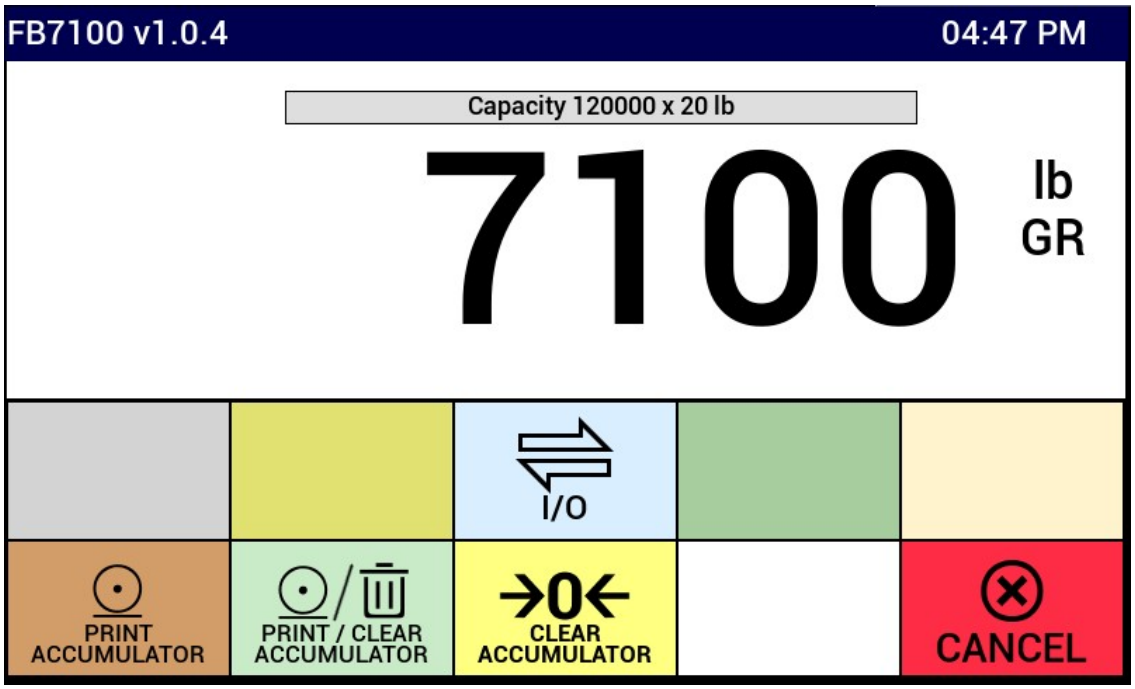


2.6. Using Accumulation

1. Enable the Accumulation feature in the configuration menu.

NOTE: Accumulation or accumulation totals will not print unless a tape printer is configured, and auto print is enabled.

2. When Print Weight is surpassed and motion stops **"ACCUMULATING AUTOPRINT DATA…**" will display on the screen.
3. When weight drops below the reset weight, the FB7100 is ready for another accumulation.
4. Repeat steps 2 and 3 as many times as desired.
5. To print the accumulated totals, press **FUNC**.
6. Select **PRINT ACCUMULATOR** to print the totals while saving the accumulated total.
7. Select **PRINT/CLEAR ACCUMULATOR** to print the totals and clear the current accumulation.
8. Select **ZERO ACCUMULATOR** to clear the accumulated totals without printing a ticket.



2.7. Calibration Web Interface

This setting is used to enable calibration of the FB7100 over the integrated web interface.

If modification of this setting is required, a Fairbanks authorized technician will instruct to do so.

SECTION 3: WEB INTERFACE

The Web Interface can be accessed through most browsers (Internet Explorer, Firefox, Google Chrome) that is connected to a TCP/IP network **OR** by using a crossover cable connected to a PC or tablet.

The first step in connecting remotely is to determine the connection address (IP address) of the instrument.

3.1. How to Connect Remotely to the FB7100 Series:

There are two (2) connection types used with the FB7100.

- **DHCP (Dynamic Host Configuration Protocol)** – Automatically addresses each node the first time it connects to the company's Intranet. A **DHCP** connection may change every few weeks so if you are not able to connect, re-verify the IP address on the instrument (see, "**To obtain the current IP address of the FB7101"**)
- **STATIC –** Dedicated addresses assigned by the IT Department that are specific to each node, and do not change.

3.1.1. To obtain the current IP address of the FB7100:

1. Login to the FB7100
2. Scroll *down* to **CONFIGURATION MENU**, press **ENTER**
3. Scroll *down* to **NETWORK**, press **ENTER**
4. Scroll down to **DHCP OPTIONS** or **STATIC OPTIONS**, press **ENTER**
5. The FB7100 Network Information is displayed
6. Write down the **IP address**
7. Press the **RETURN** button until returned to the weigh screen

Follow these steps to display, or to enter the **Static addresses** *in the* **NETWORK option**.

NOTE: *See* **CONNECTING TO THE FB7100 VIA ETHERNET** *for step-by-step details on connecting to the FB7100 via EtherNet.*

3.2. Logging In to the Web Interface

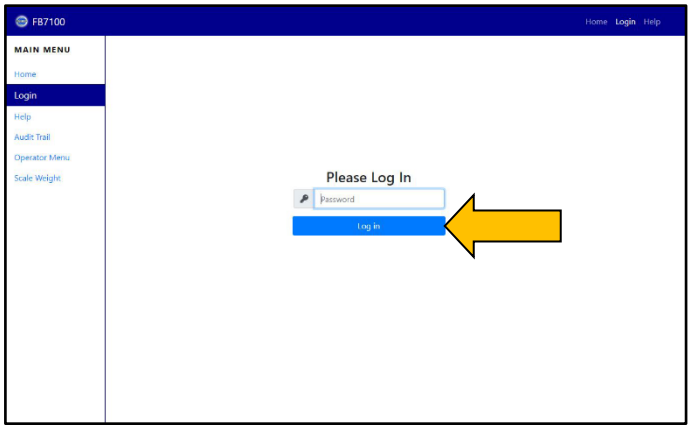
1. Locate the IP Address of the FB7100 Series Instrument

NOTE: *In order to login to the Web Interface, you **MUST** logout of the FB7100 instrument. If you are **NOT** logged out, you will receive the message "**Login Failed. There is an active menu session."***

1. **Input the correct IP Address** of the FB7100 into the Address Bar of the web browser, then press **ENTER** on the remote computer.

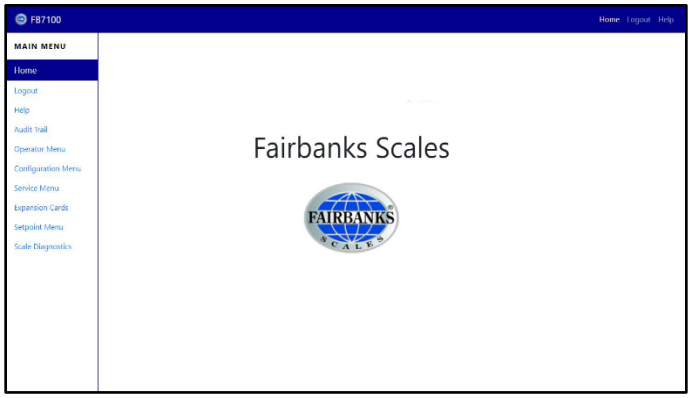
2. Click on **LOGIN**.

3. Input the password, then press the **LOG IN** button.



The **Web Interface Home** screen appears.

After you are logged in successfully, the message "***Remote Configuration in Process. Please wait…***" will appear on the screen of the instrument.

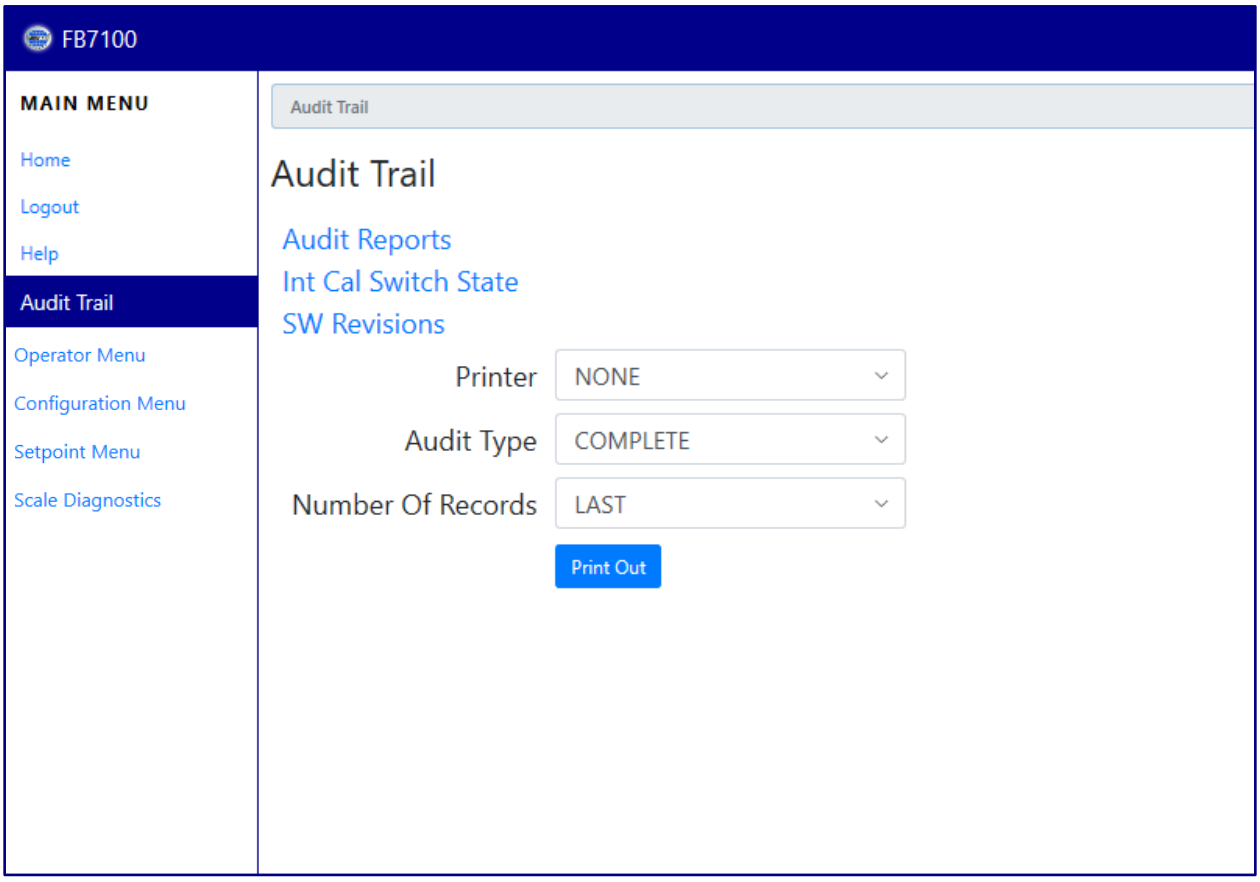


3.3. Navigating the Web Interface

After successfully logging into the FB7100 Web Interface, the additional options of **Configuration Menu**, **Setpoint Menu** and **Scale Diagnostics** will appear in the left-hand navigation.

3.3.1. Audit Trail

The following options will appear in the Web Interface under **Audit Trail**:

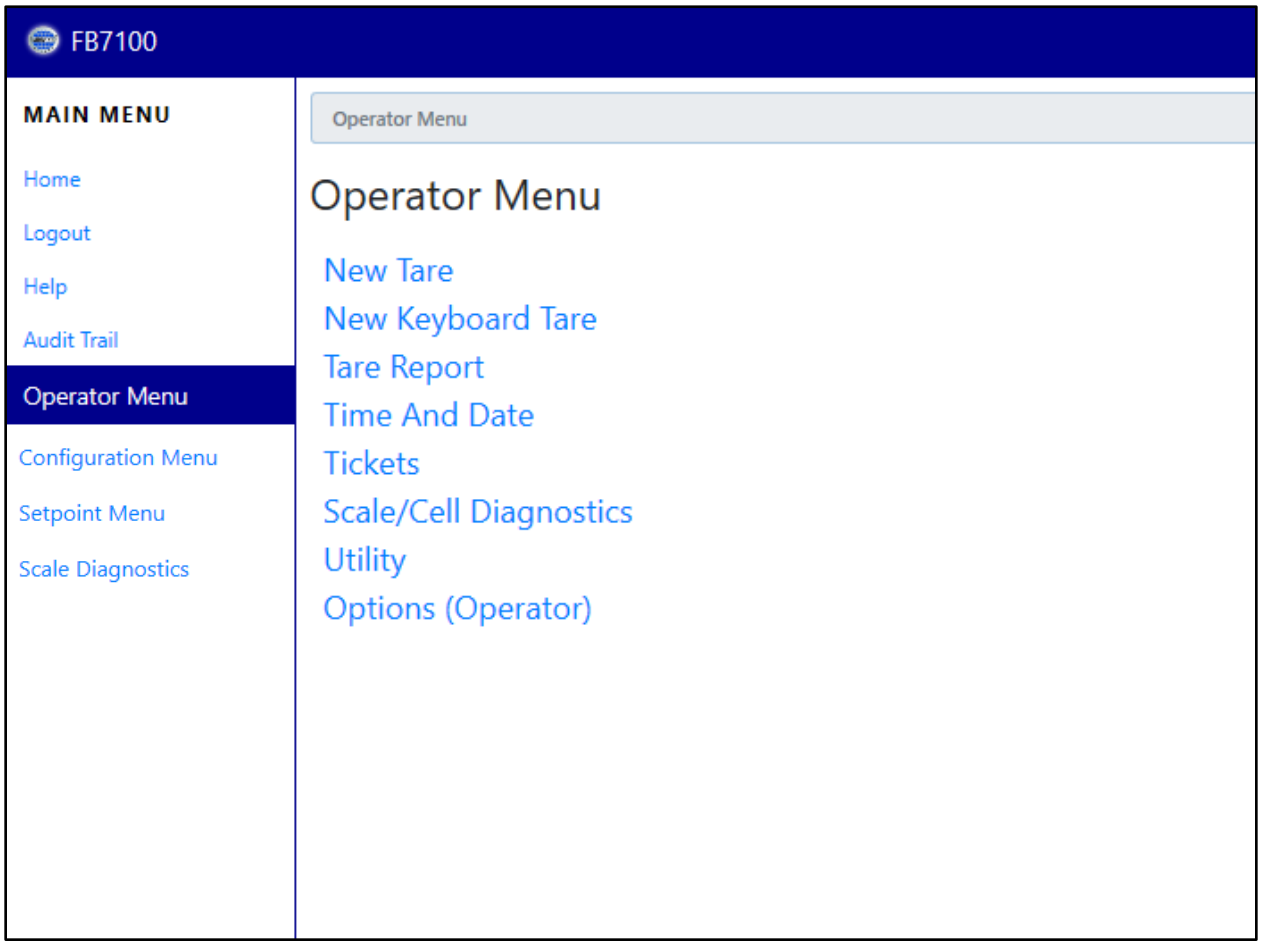


Audit Reports: Displays all configuration changes made to each scale, sortable by **Complete**, **Instrument** and **Scale**.

Internal Calibration Switch State: Lets you know if this feature is active or inactive.

SW Revisions: Provides **Image**, **Model**, **Main**, **Drivers**, **Interpreter**, **Webconfig** information.

3.3.2. Operator Menu



New Tare: Add a new tare from the scale.

New Keyboard Tare: Manually enter a new tare.

Tare Delete: Provides the same options of **New Tare**, **New Keyboard Tare** and deleting a tare. A drop-down menu of all the existing tares and a **Search** is available.

Tare Report: Provides the same options as **Tare Delete** and a **Print** option with a drop-down list of available printers.

Time And Date: Provides the options of **Format Time and Date** and **Set Time and Date.**

Tickets: Set the starting value of tickets under **Number,** print the last created ticket under **Print Last Ticket** or add the ticket number of a ticket you wish to re-print under **Print Duplicate Ticket**.

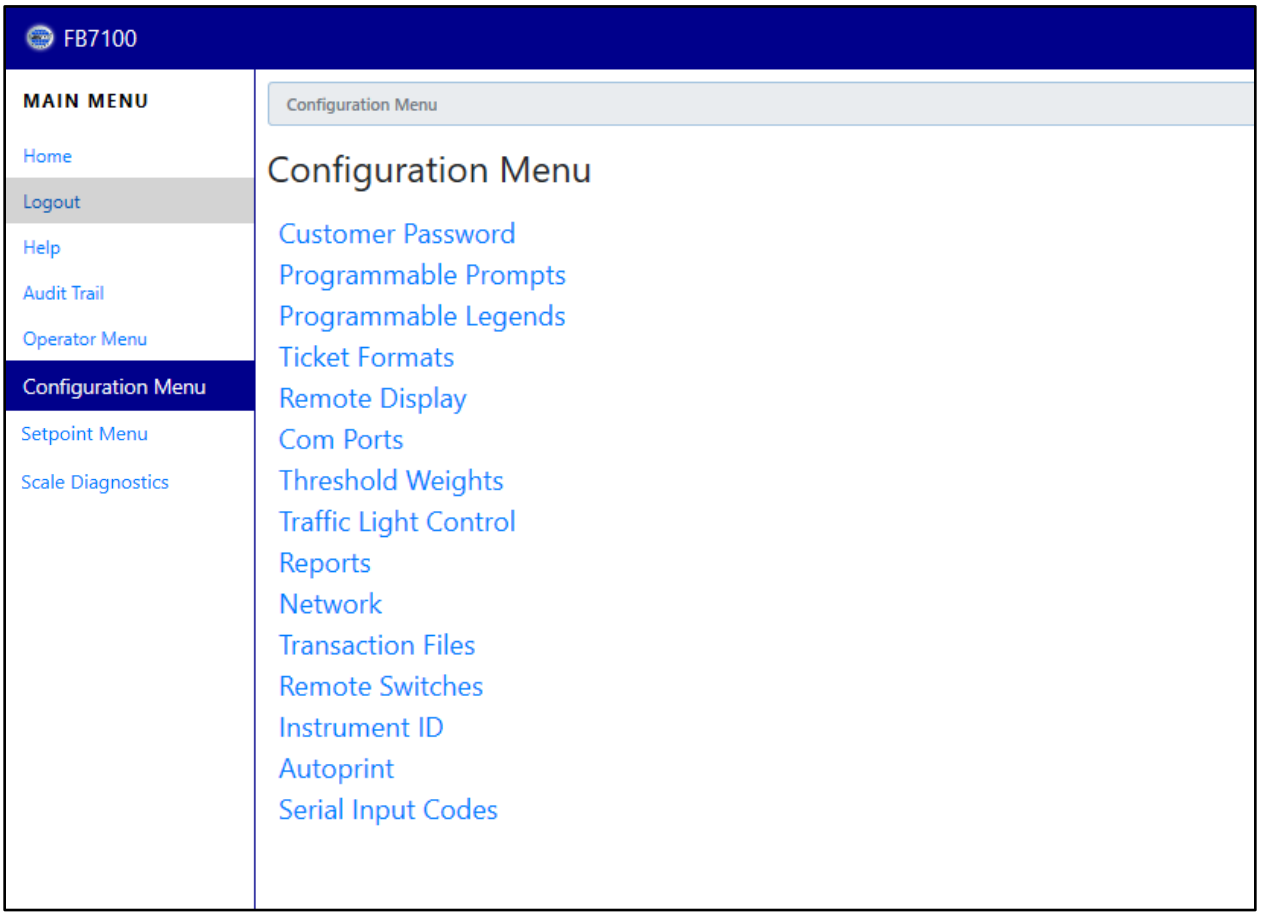
Scale/Cell Diagnostics: Provides a live count of the **Cell Outputs** and **Errors**.

Utility: Provides drop-down menus for **Display Intensity**, **Keypad Beep**, scale **Volume** ranging from 10% (lowest volume) to 100% (highest volume) and **Mute**.

Options (Operator): When processing Inbound Loops, **Outbound Auto Suggest** displays the next available. When processing Inbound Loops, **Auto Increment Inbound ID** automatically uses the next available (without displaying it). **Show Looping ID Text** displays *all* the stated information about the Loop, including the ID number, truck description, or any related text.

3.3.3. Configuration Menu

The following options will appear in the Web Interface under **Configuration Menu**:



Customer Password (Configuration Menu Password): Change the login password of the instrument. This is highly recommended.

Programmable Prompts: Messages to the Operator that ask a question, offer a choice, or relay an instruction. The **Name** field is a text entry field for naming a prompt. “Prompt 1” is the name used by the system to identify the prompt. **GTN**, **Inbound**, **Outbound**, **Basic In**, and **Basic Out** are all drop-down menu items that may be enabled or disabled.

Programmable Legends: Allows you to change the **Loop ID** field to a custom prompt.

Ticket Formats: The connected printer displays in the **Printer** field. The **Mode** drop-down menu lets tickets print in **GTN**, **Inbound**, **Outbound**, **BasicIn**, or **Basic Out** formats.

NOTE: *If a printer does not display in the **Printer** field, no printer has been added to a COM port. See, COM Ports to connect to an available printer.*

Remote Display: Provides a drop-down menu to adjust **Display Mode** to continuous or print, **Type (Output)** to display by ticket number, Active Gross or Net Wt. **Enable 1605T** set to Yes or No.

Com Ports: Provides options for configuring the three input com ports and the single outgoing port. See section **COM Ports** for further details.

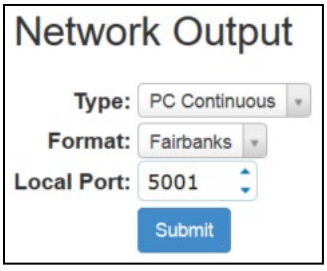
Threshold Weights: **Initial Weight** option provides up and ▼ s to set the minimum amount the truck must weigh to initiate a weighment.

Traffic Light Control: **Control (Traffic Light)** either Automatic or Manual. The **Event to Signal** option lets the operator add a time to delay between 1-10 seconds to the signal. “Scale ID 1” is the name used by the system to identify the setting.

Reports: Provides options for displaying a report. **Type** provides an option for choosing Completed or Incomplete transactions. **Media** only shows “Jump Drive” in the drop-down menu. Reports must be generated to an inserted jump drive. **Sort By** provides the option of the report being sorted by Loop ID or Date/Time. **Delimeter** provides the option of generating a report in CSV or Tab format. See **Reports**

Network: **DHCP Options** shows the network connectivity details of the instrument, **IP**, **Netmask**, **Gateway** and **DNS**. The **Network Output** provides an option for the **Type** output, of either Off or PC Continuous. The **Format** provides a choice of scale company output data. See also **Data String Outputs** The **Local Port** provides up and ▼ s to choose the correct port number on the outgoing PC.

- Network section under the **CONFIGURATION MENU** controls all network settings.
- Options include **DHCP** or **STATIC IP**
- **DHCP OPTIONS or STATIC IP**: Reports the IP address, Netmask, Gateway, Primary DNS
  - Displayed value dependent on selected option of DHCP or STATIC.



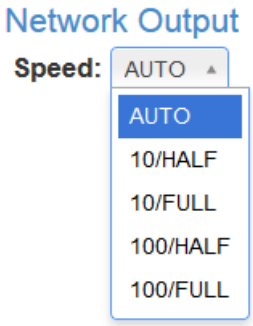
Network Output: If configured, will send **NETWORK** continuous **SCALE** output.

Type is either *OFF* or *PC Continuous*.

Format: Select from 5 factory **DEFINED** formats:

Fairbanks, *Toledo*, *Cardinal*, *Weigh-Tronix*, *Condec*.

Local Port: default is set to "0", change to 5001 unless a different value is requested by site.



Speed: This controls the speed and if full or half duplex is used on the network device. Default is AUTO and usually sufficient.

Transaction Files: This option allows for file deletion by five different options: **All Transactions**, **By Ticket Number**, **By Date Range**, **By Ticket Range** and **Incompletes**.

Remote Switches: If a remote switch is added, up to 4 switches may be configured using the drop-down menu. Available options are: **Zero**, **Units**, **B/G Net**, **Print**, **Tare**, **In** and **Out**.

Instrument ID: Number can be assigned to print on tickets.

Autoprint: Tickets can be automatically printed by adding values the **Print Weight** and **Reset Weight** fields and clicking Submit.

Serial Input Codes: Selected buttons on the front interface panel may be set using Serial Input Codes.

3.3.4. Setpoint Menu

Enable the Setpoint mode.

Target options change after this **Mode** is enabled.

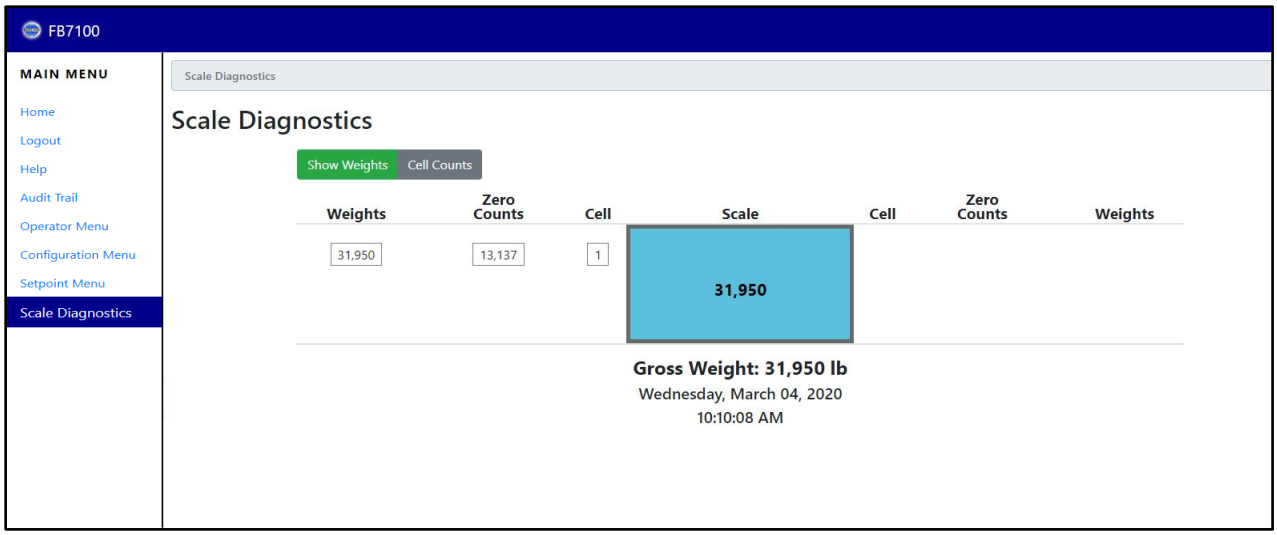
For more information on Setpoints, see section **Setpoint Information**

NOTE: **All** setpoint functions require the use of the **ACC 165 Relay Box**!

3.3.5. Scale Diagnostics

SCALE DIAGNOSTICS: Provides real-time data of the load cell counts and weight. The following screens are available:

Scale Diagnostics –Weights

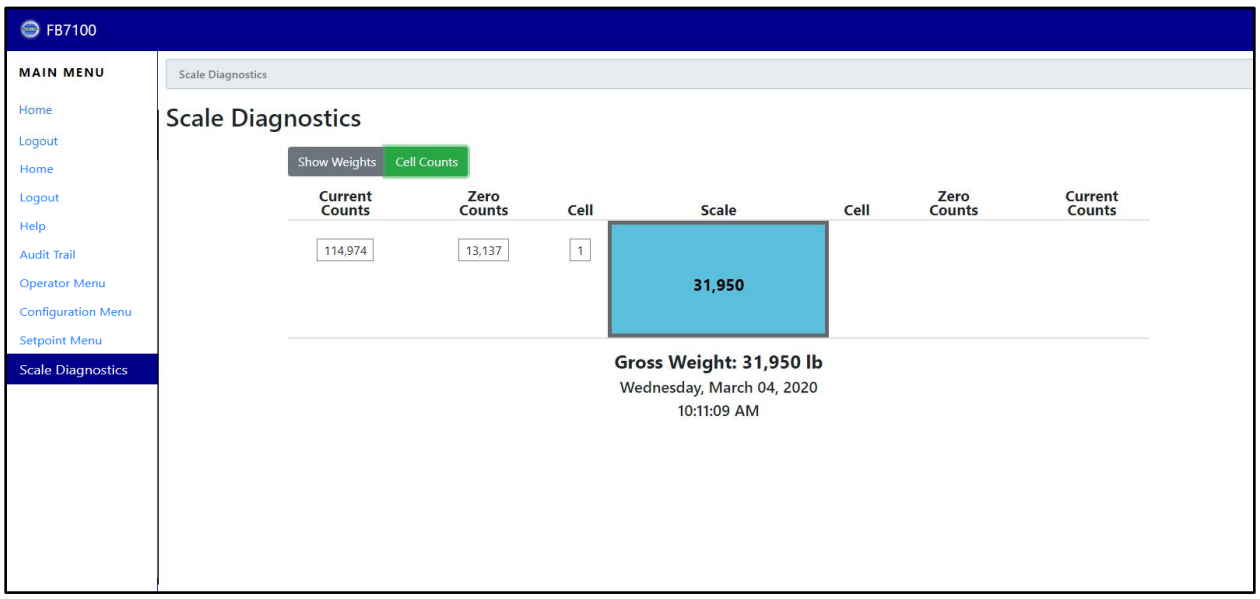


Scale Diagnostics shown with a single Load Cell (analog) and the Cell Counts Selected.

Provides the following data:

- Cell number and zero Counts it was calibrated to
- Cell number and current counts with weight on it
- Live Gross Weight of the scale

Scale Diagnostics – Cell Counts



Scale Diagnostics shown with a single Load Cell (analog) and the Cell COUNTS Selected.

Provides the following data:

- Cell number and zero Counts it was calibrated to
- Cell number and current counts with no weight on it, comparable to the calibrated zero counts
- Live Gross Weight of the scale shows 00

SECTION 4: STANDARD PROGRAMMING

4.1. Programming the Instrument

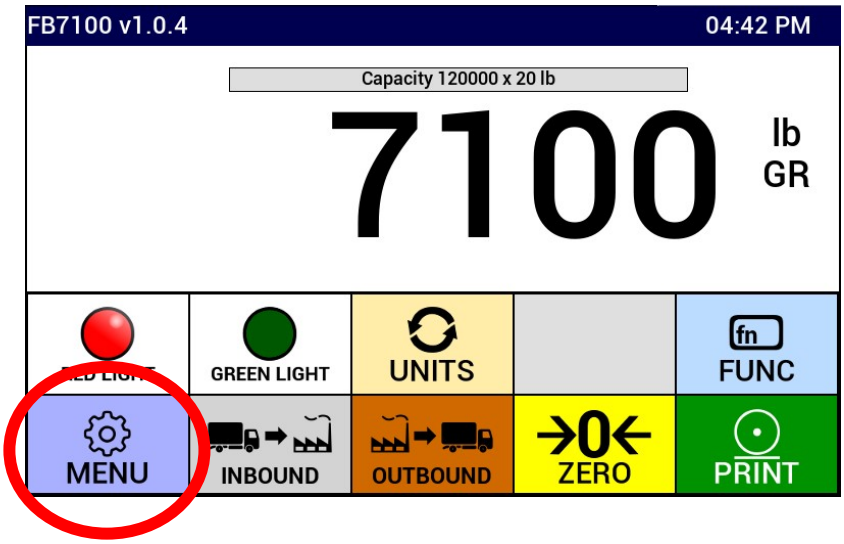
NOTE: *These keys appear on the touchscreen when needed. They will not be present at all times.*

KEYS	FUNCTION
RED & GREEN LIGHT	• Activates the Traffic Light function, if one is installed.
ID	• Up to a 6-digit product ID for printer/computer printout, not maintained at power loss.
MANUAL TARE	• Allows keypad entry of tare weight
AUTO TARE	• Performs an **AutoTare** function.
INBOUND & OUTBOUND BUTTONS	• Manually selects the **INBOUND** or **OUTBOUND** mode.
SCROLL Keys	• Navigates through the menu selections.
MENU	• Initiates the programming process into the different menus.
RETURN	• Return to a higher menu or to the weigh screen.
Numeral Keys	• Enters values for passwords, weight amounts, and configuration inputs.
ENTER	• Activates and saves data input.
FUNC	• Activates a secondary menu set on the weigh screen.
UNITS	• Toggles and sets the unit types for the weight displayed.
B/G/NET	• Toggles active display between Gross and Tare, in the GTN mode.
ZERO	• **ZERO**s the scale.
PRINT	• Initiates a print cycle.
GROSS/PRINT	• Basic one-line printing for a LOADED vehicle.
TARE/PRINT	• Basic one-line printing for an EMPTY vehicle.

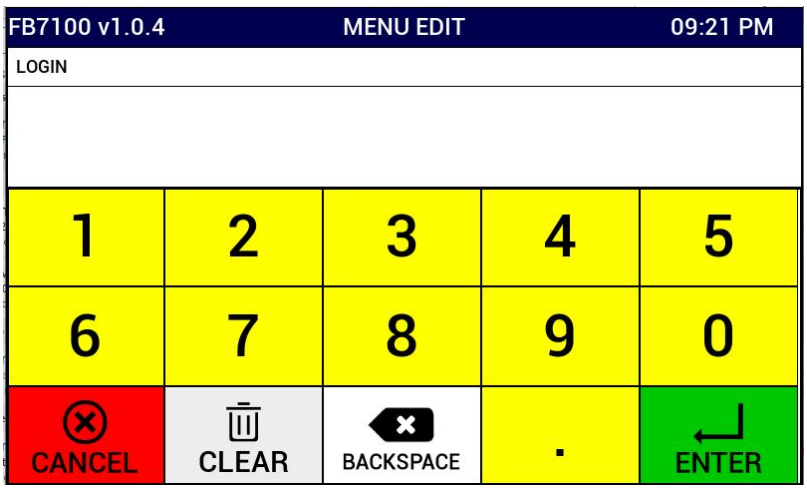
4.1.1. Login

To access some features in the FB7100, a supervisor login password is required. If access to a specific feature is required, a login box appears. You also may login by the following steps:

1. Press the **MENU** button to enter the Menu System.



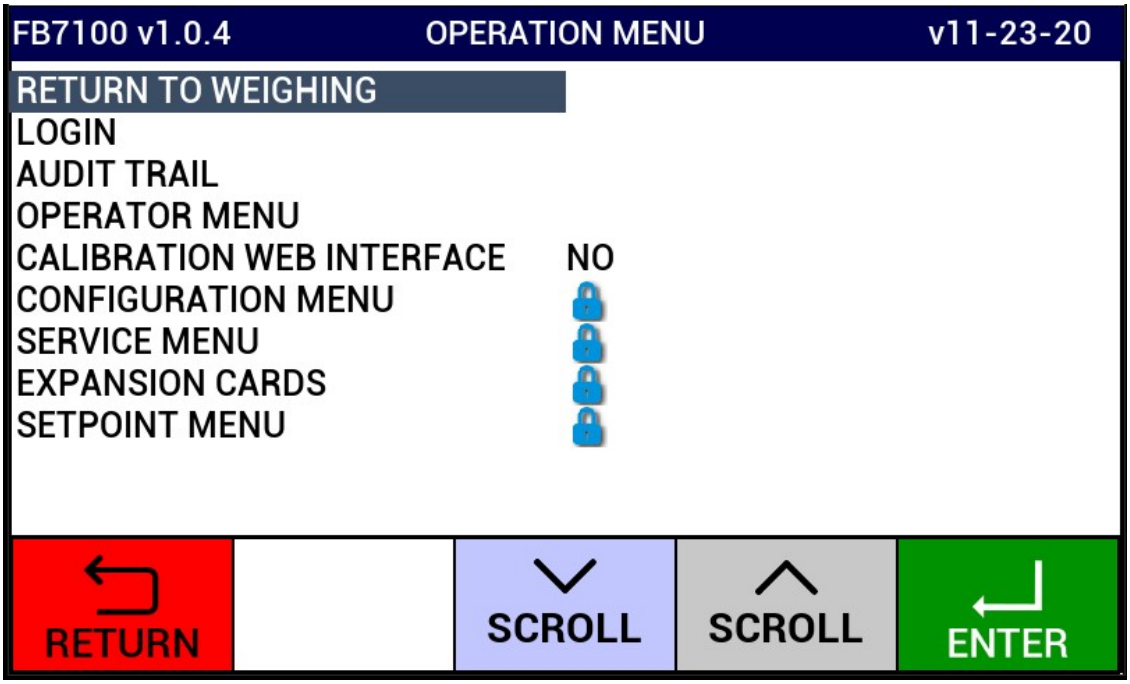
2. Select **LOGIN**, press the **ENTER** button.
   – A numeric keypad appears on the touchscreen.



The initial Supervisor login will be **1**.

Select **1,** press **ENTER**. It is advised to change the password from 1 to a four-number code.

See also Levels of Security for more information.



3. Use the touchscreen to navigate through the following main menus.
   - Audit Trail
   - Operator Menu
   - Configuration Menu
   - Setpoint Menu
   - Scale Diagnostics
4. Press **ENTER** to accept the option.

NOTE: **CALIBRATION WEB INTERFACE** is also on the main menu screen but is not a submenu.

See **CALIBRATION WEB INTERFACE** for more information.

4.1.2. Defining the Programming Menus

The five (5) programming menus are briefly defined below.

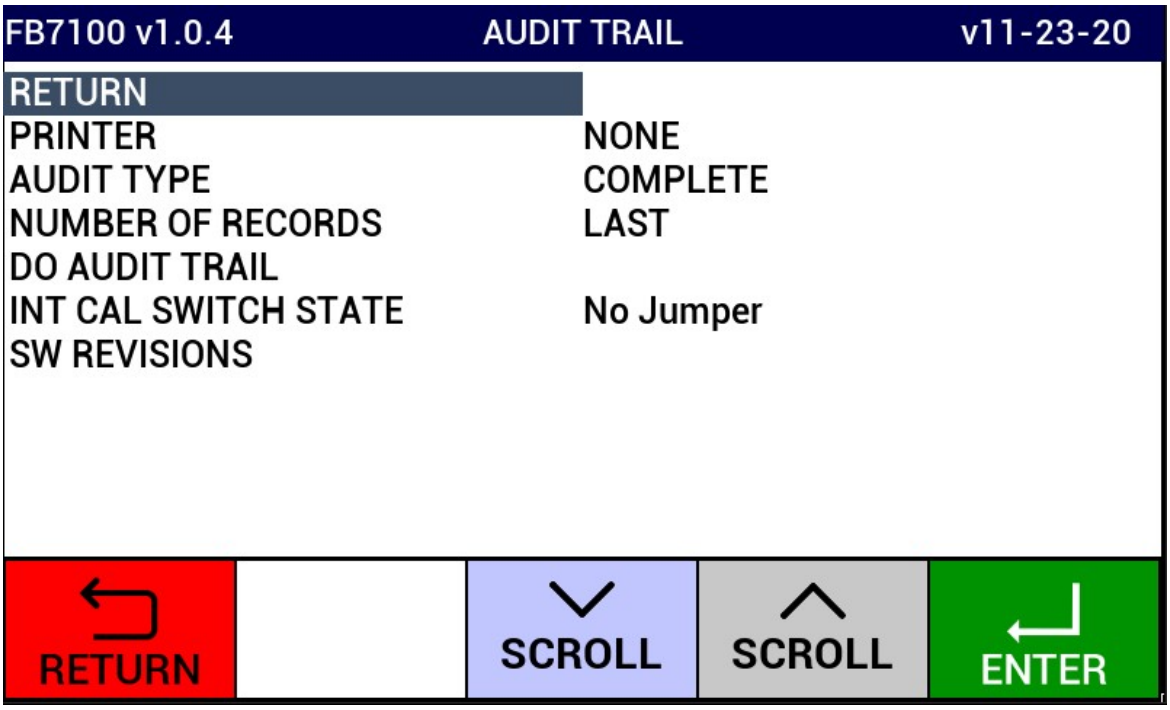
AUDIT TRAIL	Identifies how many times and when changes have been made to the scale's Calibration or Configuration settings. **NO Password required**
OPERATOR MENU	Programs the Time/Date, Ticket Number, Load Cell Diagnostics, Tare Functions, Display Intensity and Keypad Sounds. **NO Password required**
CONFIGURATION MENU	Programs Customer Passwords, Communications Programming and Functions, Ticket Formats, Programmable Prompts and Legends, Device Input/Outputs, Weight Threshold, Report Configuration, Network Configuration, and Transaction Files Operations. **Default Password = 1**
SETPOINT MENU	Turn on Setpoints and choose a Setpoint Mode. See **Setpoint Information** for a list of modes and explanations of each setpoint. **Default Password = 1**

SCALE DIAGNOSTICS	Displays real-time weight scale weight and cell counts.

4.2. Audit Trail

The **Audit Trail** report displays all the configuration and calibration activities that were changed within the Instrument.

– Provided for Weights and Measures Officials.



4.2.1. Viewing and Printing the Audit Trail

Sets up the print output for the **Audit Report**, then prints all Configuration and Calibration activities that were changed within the Instrument.

– Offers a choice of the available printers configured to a COM Port.

– Prints some or all of the records.

– The **PRINT OUT** function activates the printer according to the settings.

Follow these steps to print an **AUDIT TRAIL report**.

1. Prepare the printer.

In the **Audit Trail Menu,** select the correct printer.

- TM-U295
- IDP-2550
- DemandPC
- TM-U230
- TM-U590
- TM-U220
- SP-700
- SP-298
- SP-2000
- SP-2200

NOTE: *The printer must be correctly configured before completing this option.*

2. Select the **AUDIT TYPE**.
    - Complete
    - Instrument
    - Scale 1

3. Select the Number or Records to include on the report.
    - Last (record)
    - 10
    - 50
    - All (records)

4. Scroll to **DO AUDIT TRAIL** then press **ENTER**.
5. The **AUDIT REPORT – SUMMARY** will display. Press the Print button to print to the selected printer.

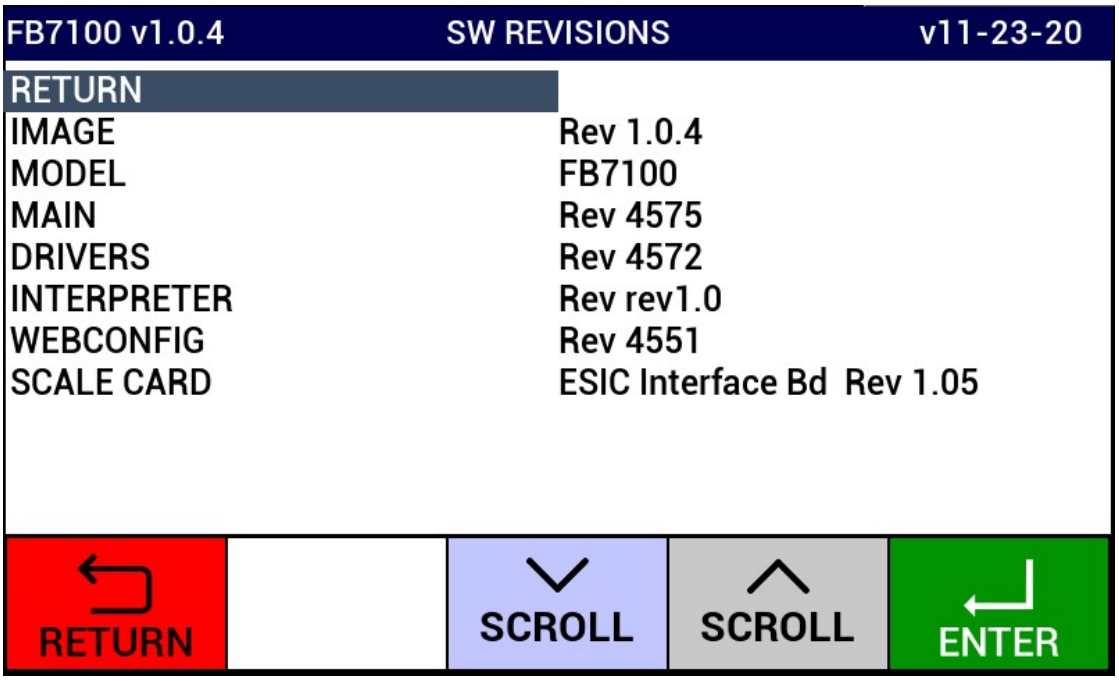
4.2.2. Internal Calibration Switch

The internal calibration switch provides a mechanical means of locking out the front panel from accessing the calibration menu. "NO JUMPER" means this feature is not enabled.

4.2.3. SW Revision

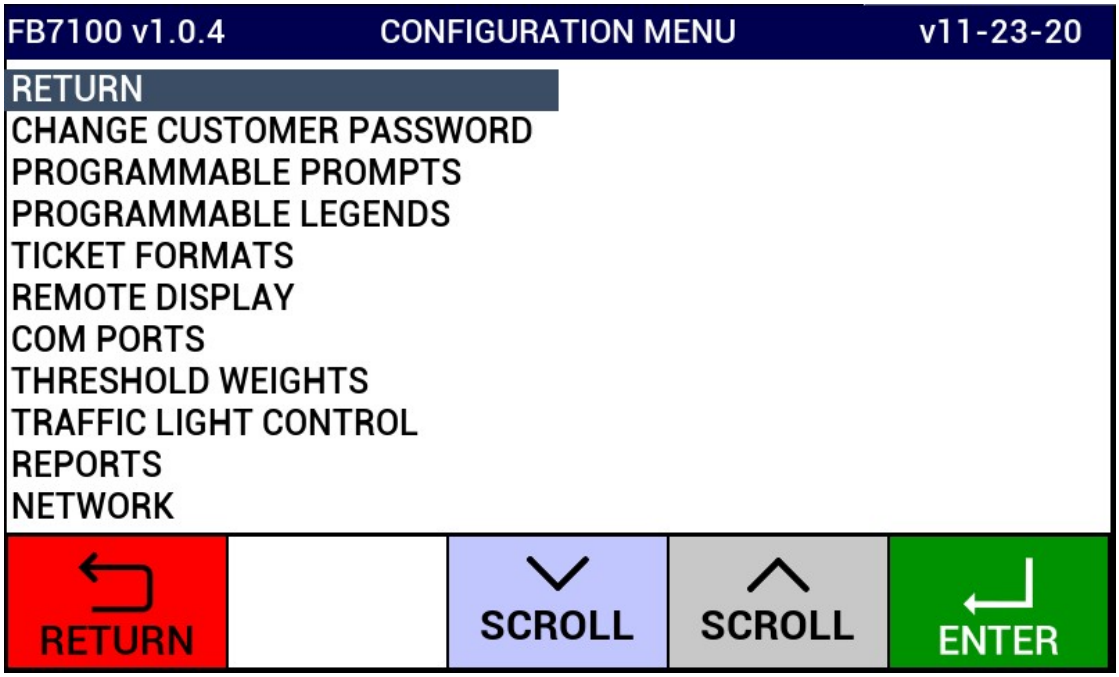
This option displays all the current revision information, used for troubleshooting.

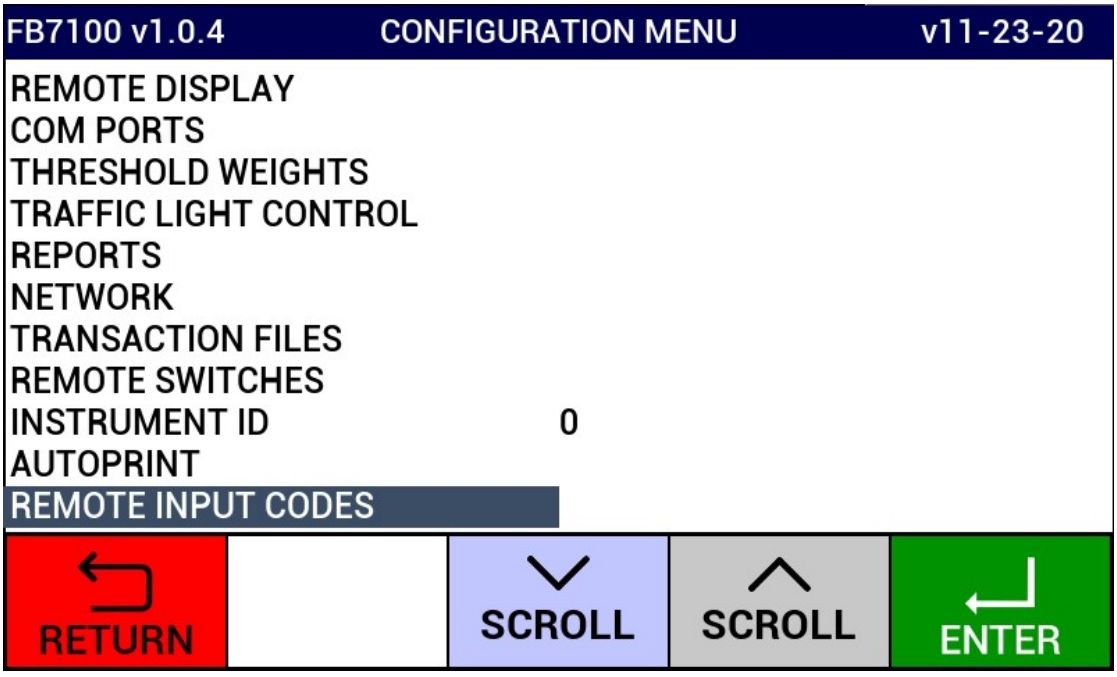
- **IMAGE –** Displays the Software Image revision number and software part number.
- **MODEL –** Displays which model is selected during the last software installation.
- **MAIN –** Displays the current revision level of the Main Software Program..
- **DRIVERS –** Displays the current revision level of the software driver program.
- **INTERPRETER –** Displays the current revision level of the software interpreter.
- **WEBCONFIG** – Displays the current revision level of the **Web Configuration** software.


FB7100 v1.0.4
SW REVISIONS
v11-23-20
RETURN
IMAGE
Rev 1.0.4
MODEL
FB7100
MAIN
Rev 4575
DRIVERS
Rev 4572
INTERPRETER
Rev rev1.0
WEBCONFIG
Rev 4551
SCALE CARD
ESIC Interface Bd Rev 1.05
RETURN
SCROLL
SCROLL
ENTER

SECTION 5: CONFIGURATION MENU

- The images below are a complete overview of the **Configuration Menu Flow Chart**.
- Each subtopic is expanded and fully defined in the following sections.
- Hold down the **CTRL** button, then scroll up with the **center mouse button** to magnify the computer view of this manual





5.1. Change Customer PW

1. In the **CONFIGURATION MENU**, press **ENTER**.
2. Scroll to **CHANGE CUSTOMER PASSWORD** displays, press **ENTER**.
3. Scroll to **ENTER PASSWORD**, press **ENTER**.
4. Present Customer Password displays. Input the *new Customer Password*, then press **ENTER**.
5. Scroll to **CONFIRM PASSWORD**, press **ENTER** again.
   – If the password in entered incorrectly, **SAVE CUSTOMER PASSWORD** does not display.
6. Press **ENTER** on **SAVE CUSTOMER PASSWORD**.

5.2. Prompts – Programmable

PROMPTS *are messages to the Operator that ask a question, offer a choice, or relay an instruction.*

1. In the **CONFIGURATION MENU**, select **PROGRAMMABLE PROMPTS**.
2. Select **PROMPT** 1
3. Select **NAME** and use an external keyboard to name the entry prompt. This is the text that will be displayed to the operator.
4. Press **ENTER** to save the *Prompt 1* text, which then can be printed on the ticket.
5. Select from **GTN**, **INBOUND**, **OUTBOUND**, **BASICIN** or **BASICOUT**, then press **ENTER**.
6. Select either **DISABLED** or **ENABLED**, then press **ENTER** to confirm this selection.
   – Selecting **ENABLED** initiates the prompt during the weighment transaction when that operating mode is used.

5.3. Legends – Programmable

1. In the **CONFIGURATION MENU**, select **PROGRAMMABLE LEGENDS**.
2. Select **LOOP ID** to edit this **LEGENDS** text.
3. Enter the desired **LOOP ID** text with an external keyboard, then press **ENTER** to save it.

5.4. Ticket Formats

For complete descriptions and procedures, see **FORMATTING TICKETS.**

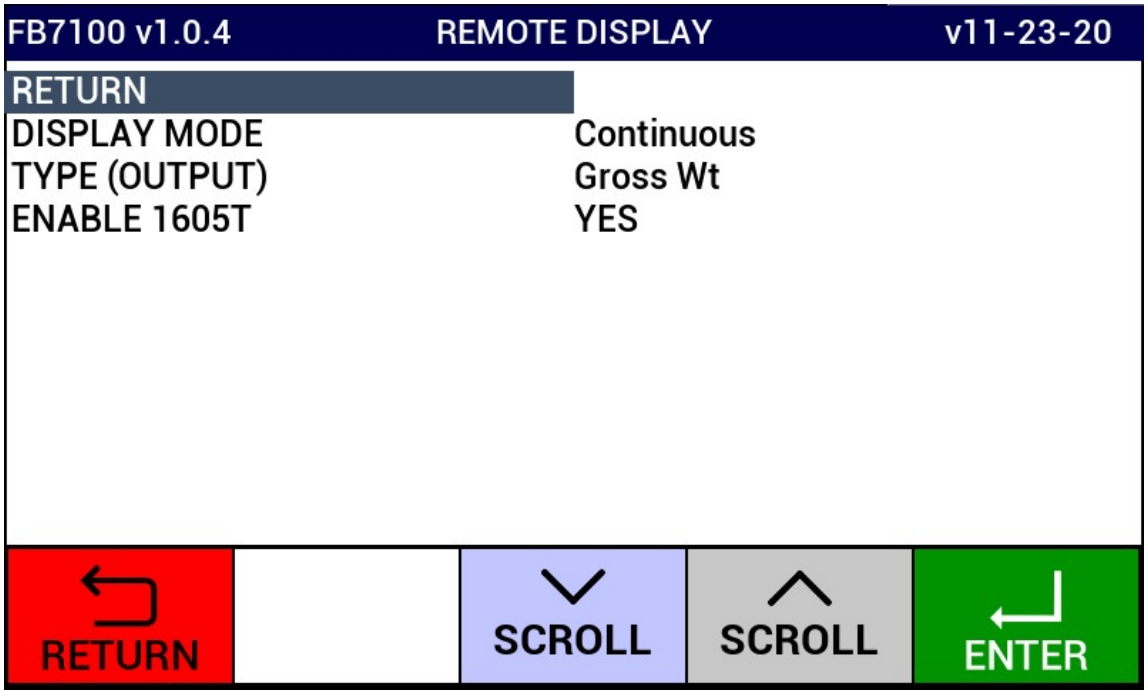
IMPORTANT NOTE: *Always configure the* **COM Ports** *first before formatting tickets*

5.5. Remote Display

5.5.1. Programming the Remote Display

Follow these steps to setup the ***DISPLAY MODE****.*

1. In the **CONFIGURATION MENU**, select **REMOTE DISPLAY**. Press **ENTER**.
2. Under **DISPLAY MODE**, select either **CONTINUOUS** or **ON PRINT**.
3. Under **TYPE(OUTPUT)** select Gross **WT**, **NT WT**, **TICKET NUMBER**, or **ACTIVE GROSS** or **NET**. Press **ENTER**.
4. If a traffic light is being used, set **ENABLE 1605T** to **YES**.



IMPORTANT PROGRAMMING CONSIDERATIONS

- When **DISPLAY MODE** is set to **CONTINUOUS**, and the **Active Gross or NetWt** is also set, the remote display follows what appears on the instrument display.
  - The operator can toggle between **Gross Wt** and **Net Wt** by pressing the **B/G NET** button.
  - If the output type is set to **Gross Wt**, the instrument will only display the Gross Weight, regardless of what appears on the instrument.
  - This is the same for **Net Wt**. The remote display indicates the Net Weight.

IMPORTANT PROGRAMMING CONSIDERATIONS, CONTINUED

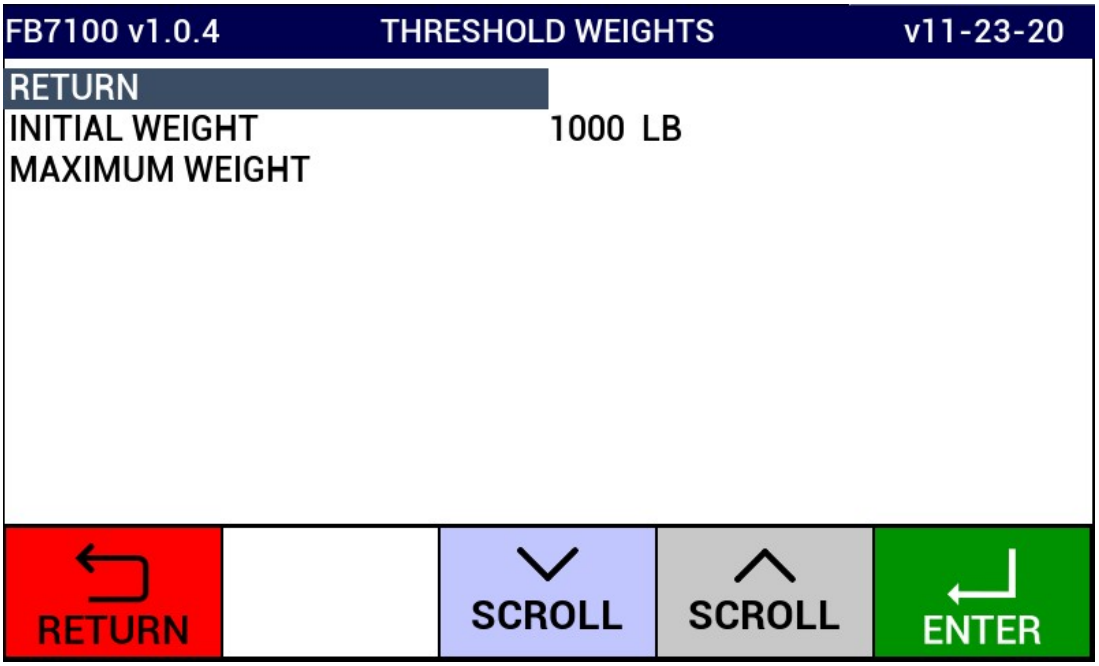
- When display **Type (Output)** is set to **TICKET NUMBER**, the next **Ticket Number** displays until a print occurs and the printed vehicle leaves the scale.
  - The weight drops below a threshold, either the **Initial Weight** threshold entry or **25 divisions of zero**, whichever is higher.
  - At that point, the next new ticket number displays.
- If display **Type (Output)** is set to **TICKET NUMBER**; the 1601/5/5T Remote Display must be configured first.
  - Set the Annunciator (**ANNUN**) to **SCALE 1**.
  - Set the Annunciator to **NO**.

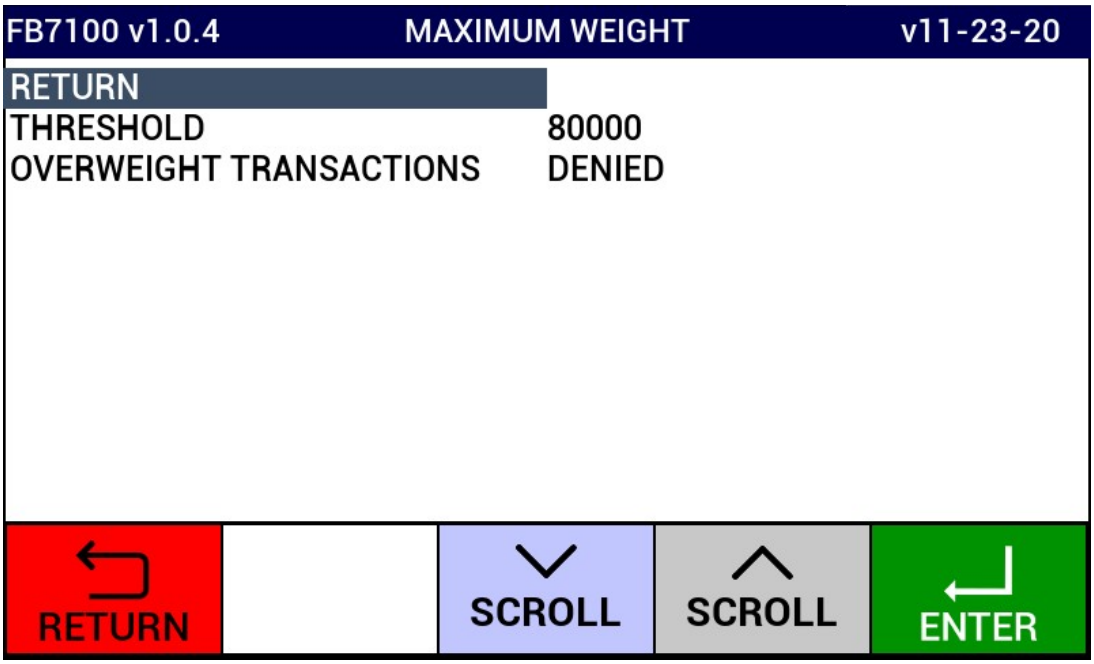
✓ **Failure to do this will constitute an NTEP violation!**

5.6. COM Ports

For complete descriptions and procedures, see **COM PORTS.**

5.7. Threshold Weights





THRESHOLD WEIGHT sets the minimum amount the truck must weigh to initiate a weighment.

– This feature is not used when the **TRAFFIC LIGHT CONTROL** is set to **MANUAL**.

Valid values = 0 to 99,999

Default setting = 1000

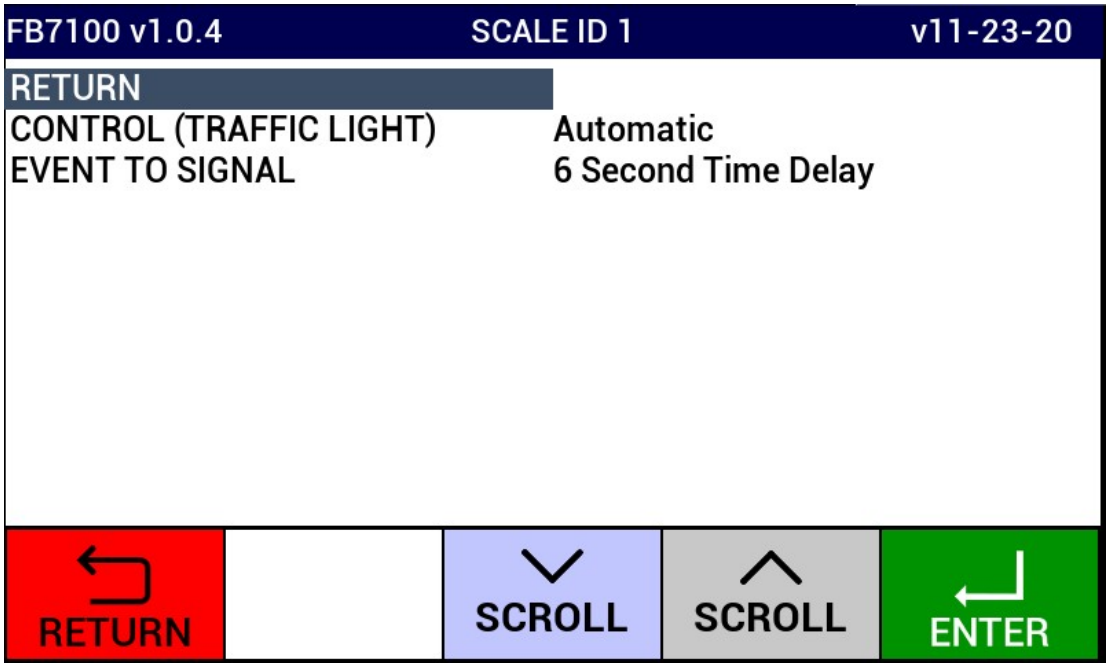
Follow these steps to set the **THRESHOLD WEIGHT**.

1. In the **CONFIGURATION MENU**, select **THRESHOLD WEIGHTS**, press **ENTER**.
2. Select **INITIAL WEIGHT**, press **ENTER**.
3. Enter the desired *Threshold Weights value*, then press **ENTER**.
4. Select **MAXIMUM WEIGHT**, press **ENTER**.
5. Select **THRESHOLD**, press **ENTER**.
6. Enter the desired weight, then press **ENTER**.
7. Select **OVERWEIGHT TRANSACTIONS**, press **ENTER** and select **ALLOWED** or **DENIED**, then press **ENTER**.
   - **ALLOWED** - will warn the operator of the overweight condition and ask if they want to proceed with the transaction
   - **DENIED** - will warn the operator of the overweight condition and prohibit the transaction from proceeding.

5.8. Traffic Light Control

The **Traffic Light Control** sets the operational modes of the traffic light. It is typically controlled automatically by the instrument weighment cycle.

- Each **I/O RELAY CARD** supports **two (2)** sets of lights operated in parallel.

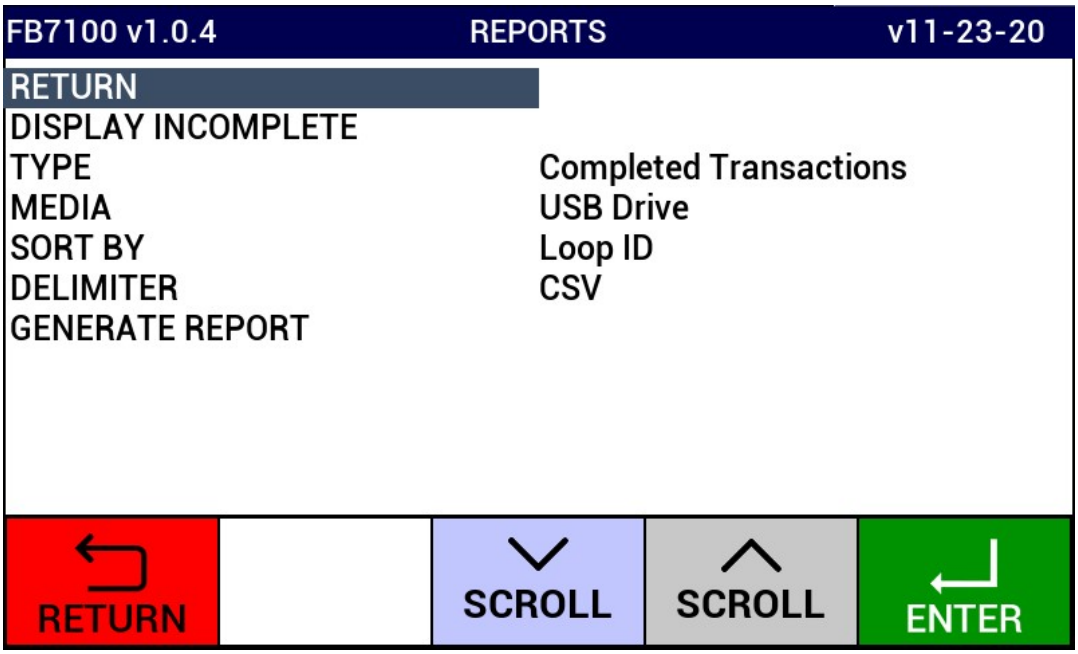


5.8.1. Control (Traffic Light)

*Follow these steps to setup the **TRAFFIC LIGHT CONTROL**.*

1. In the **CONFIGURATION MENU**, select **TRAFFIC LIGHT CONTROL.** Press **ENTER**.
2. Select **SCALE ID 1**, press **ENTER**.
3. Select **CONTROL (TRAFFIC LIGHT)**, press **ENTER**.
4. Select **AUTOMATIC** or **MANUAL.**
5. If Automatic was selected, highlight **EVENT TO SIGNAL**, press **ENTER**.
6. Choose the time delay between reaching the threshold weight and the traffic light turning red. Press **ENTER**.

5.9. Reports



Follow these steps to setup and generate the **TRANSACTION REPORTS**.

1. In the **CONFIGURATION MENU**, select **REPORTS**, then press **ENTER**.
2. To view currently incomplete transactions held in memory, select **DISPLAY INCOMPLETE**.
   – The Inbound time/date, weight and loop ID will display for each transaction. Use **NEXT** and **PREVIOUS** to view another transactions.
3. From the **REPORTS MENU**, select **TYPE** to choose between a complete or incomplete transaction report. Press **ENTER** to confirm your selection.
4. If a USB drive is installed, it will be listed under **MEDIA**. Otherwise, **NO DEVICES FOUND** will display.
5. Select **SORT BY** to choose from **Loop ID**, **Date/Time**, or **Ticket**.
6. Use **DELIMITER** to select between **CSV** or **TAB**.
7. Once the desired settings show in the **REPORTS** menu, select **GENERATE REPORT** to export the report to the USB drive.
8. Press **RETURN** to exit.

NOTE: Reports are also available for download directly from the Web Interface by changing USB Drive to Download.

5.10. Network IP Settings

The **NETWORK** option displays and provides access to configures the ethernet TCP/IP network connection addresses.

There are two (2) connection options available with the FB7100.

- **DHCP (D**ynamic **H**ost **C**onfiguration **P**rotocol**)** – The customers DHCP network automatically assigns the IP address for the FB7100 attached to the network. When using DHCP, the IP address of the FB7100 **can change** each time the customers network reissues the leases for the IP addresses on the network. This is why this type of network is known as **D**ynamic.
- **STATIC –** Dedicated, specific IP address. This IP address will be provided by the **customers** IT Department. To use a Static IP address the customers IT staff must provide you the following information:
  - IP address
  - Netmask
  - Gateway
  - Primary DNS

To enter a **Static address:**

1. In the **CONFIGURATION MENU**, select **NETWORK**, then press **ENTER.**
2. Select **USE DHCP?**, press **ENTER**.
3. Select **STATIC**, press **ENTER**.
4. Select **STATIC OPTIONS**, press **ENTER**.
5. The network settings will display on the screen. They will have default values that must be changed to settings supplied by the **customer's** IT department.
6. Select the setting to change and press **ENTER**. Use the numeral keys on the touchscreen to enter the network addresses and press **ENTER** to confirm.
7. Select **APPLY CHANGES**, press **ENTER**.
8. To save the network settings, select **YES** and press **ENTER**.

NOTE – If you do not APPLY after entering the settings described above, the settings will **NOT** be saved.

***** Static IP settings are now complete.*****

To configure the FB7100 for a **DHCP address:**

1. In the **CONFIGURATION MENU**, select **NETWORK**, then press **ENTER.**
2. Select **USE DHCP?**, press **ENTER**.
3. Select **DHCP**, press **ENTER.**
4. Reboot the **FB7100**.

5. To view the settings assigned by the network, go to **DHCP OPTIONS** in the **NETWORK** menu. These settings are read-only.

   ***** DHCP settings are now complete. *****

5.11. Transaction Files

Follow these steps to delete unneeded **TRANSACTION FILES**.

1. In the **CONFIGURATION MENU,** select **TRANSACTION FILES**, then press **ENTER**.
2. Select one of the following options, then press **ENTER**.

- **DELETE ALL TRANSACTIONS** removes every transactions.
- **DELETE BY TICKET** removes one specific transaction.
- **DELETE BY DATE RANGE** removes all transactions within a date range
- **DELETE BY TICKET RANGE** removes all transactions within a ticket range.
- **DELETE INCOMPLETES** removes all the Inbound transactions.
- **DELETE INCOMPLETES BY LOOP ID** removes specific transactions by Loop ID

C A U T I O N

Performing any of these TRANSACTION FILES functions will erase some or all the current transaction data records.

5.12. Remote Switches

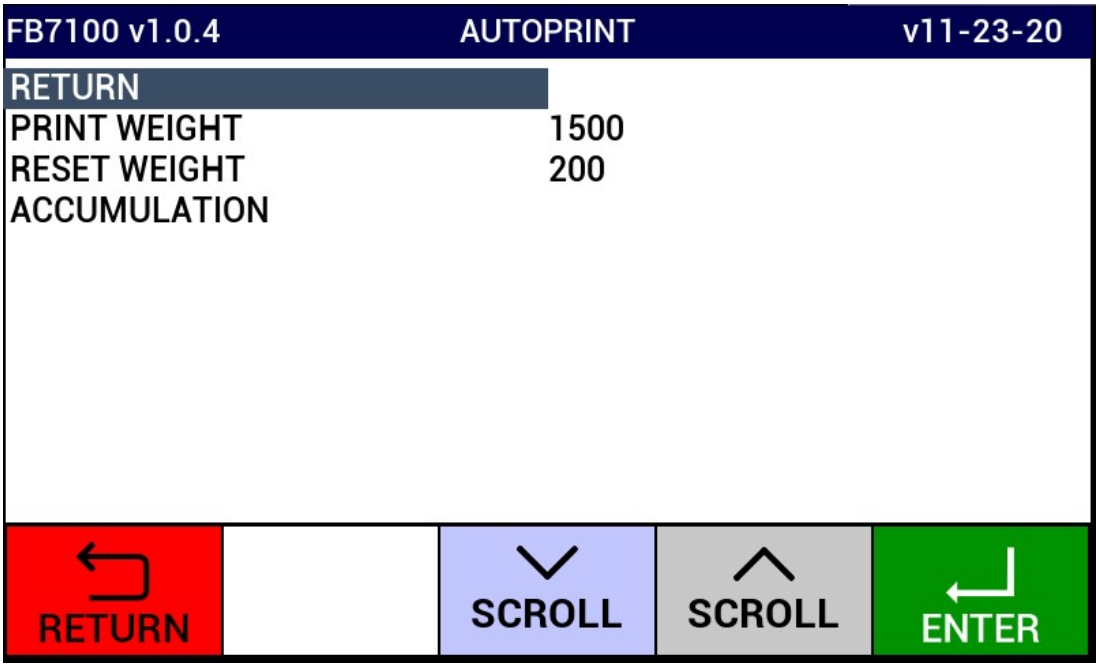
The FB7100 allows the setup of up to 4 remote switches. It is not advised to modify a remote switch setting or the cycle of operations could be negatively impacted.

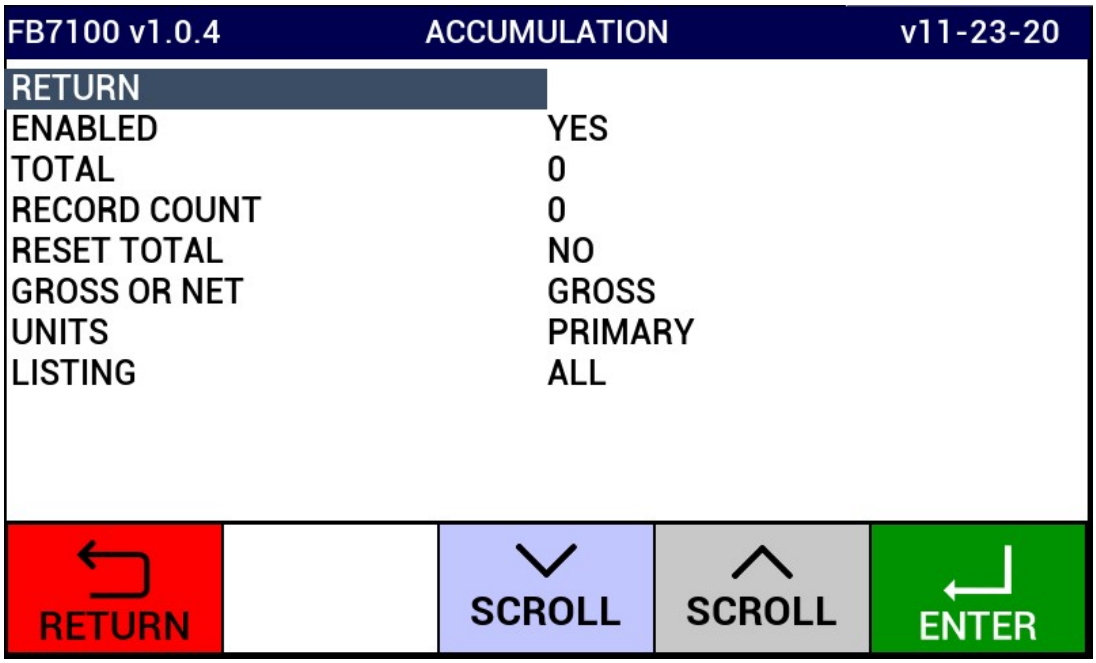
5.13. Auto Print

Enabling the auto print feature allows for a properly configured tape printer to automatically print a GTN weight ticket when stable weight is achieved over a configured threshold.

1. In the **CONFIGURATION MENU**, select **AUTOPRINT**, press **ENTER**.

2. Select **PRINT WEIGHT**, press **ENTER**.
   - This is the weight the scale must surpass for a print to trigger.
3. Use the keypad to enter the threshold weight for printing, then press **ENTER**.
4. Select **RESET WEIGHT**, press **ENTER**.
   - This is the weight that the scale must drop below to reset and allow the next print.
5. Use the keypad to enter the reset weight, then press **ENTER**.
6. Select **ACCUMULATION**. Press **ENTER** to set up the accumulation feature.
   a. **ENABLED** – **YES** or **NO**
   b. **TOTAL** - current accumulated total.
   c. **RESET TOTAL** - **YES** or **NO**
   d. **GROSS** or **NET** – select between **GROSS** and **NET** for display.
   e. **UNITS** – **PRIMARY** or **SECONDARY**
   f. **LISTING** – **SUMMARY** or **ALL**





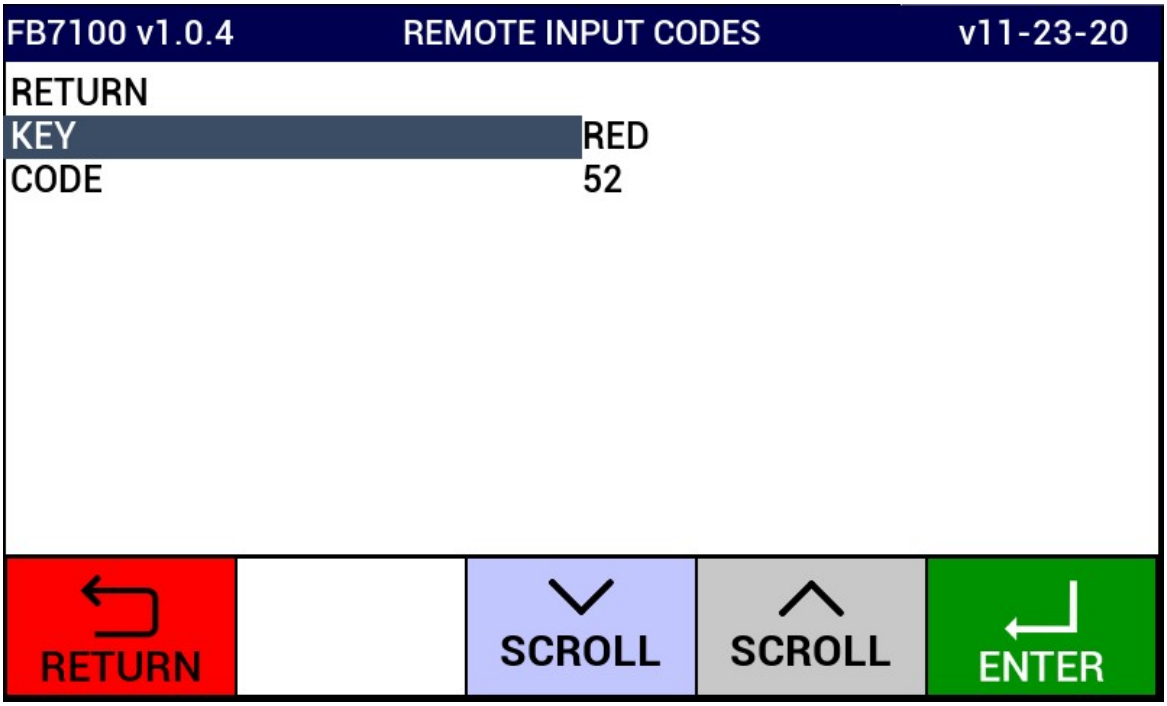
NOTE: Autoprint will only work if the instrument is in the GTN operating mode. Any other operating mode will not autoprint or accumulate.

5.14. Remote Input Codes

The FB7100 can accept two-character hex codes over any RS232 port or over an Ethernet TCP/IP network. See Appendix III for the default values. To change the values for a remote input code:

1. In the **CONFIGURATION MENU** select **REMOTE INPUT CODES**.
2. Select **KEY** and press **ENTER**.
3. Scroll through the list to find the key you want to modify, press **ENTER** to confirm your selection.
4. Select **CODE**, press **ENTER**.

5. Use the front panel or a USB keyboard to enter the two character hex code, press **ENTER** to confirm.



SECTION 6: SERIAL INPUT / OUTPUT

6.1. Printers

6.1.1. Printer Switch Settings

ROLL TAPE PRINTER	SW 1 ON	SW 2 ON	SW 3 ON	COMMUNICATION SETTINGS
iDP3550 (28810)	2, 3, 4, 8	1, 2, 3, 5, 6	—	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.

TICKET PRINTER	SW 1 ON	SW 2 ON	SW 3 ON	COMMUNICATION SETTINGS
TM-U590 (24740)	1, 3, 7	All OFF	—	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.
TM-U295 (24741)	1, 3	All OFF	—	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.
SP298	All OFF	3	1, 5	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.
SP700	1 thru 7	1 thru 6	1, 5	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.
SP2000	All OFF	3	1, 5	**2400** Baud, **Even** Parity, **7** Data and **2** Stop Bit.
SP2200	2, 3, 8	All OFF	All OFF	**2400** Baud, **No** Parity, **7** Data and **2** Stop Bit.
TM-U230 (30954)	All OFF	2, 5, 8	—	**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.
GC420D				**9600** Baud, **No** Parity, **8** Data and **1** Stop Bit.

— *No switch bank present inside the printer.*

NOTE: *The Fairbanks Scales standard default COM Port settings for all the printers is* **9600 Baud, No Parity, 8 Bits**, *and* **1 Stop Bit.**

6.1.2. Printer Cabling

The chart below shows the connections for the two cable types used with the printers.

20483 CABLE KIT *

✓ *Used only with the* **GC420d Printer**.

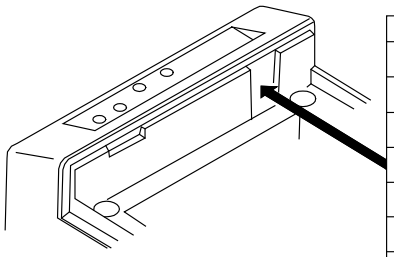
WIRE	COM PORT J8/ J9	COLOR	DB-9 PRINTER
1	**1-TX**	R	**3-RX**
2	**2-RX**	W	**2-TX**
3	**3-GND**	G	**5-GND**

**Remove the female end of the cable in the field.*

15599 CABLE KIT

WIRE	COM PORT J8/ J9	COLOR	DB-25 PRINTER
1	**1-TX**	R	**3-RX-**
2	**2-RX**	W	**2-TX**
3	**3-GND**	G	**7-GND**

6.1.3. iDP3550 Tape Printer Settings



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

BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**

6.1.4. TM-U590 Ticket Printer Settings

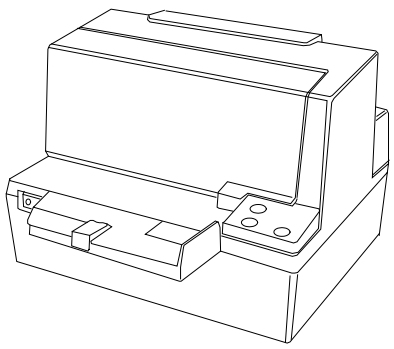
- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599.**

BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**

Set the printer **dip switche**s as listed below.

DSW 1: 1, 3, and 7 = **ON** only.

DSW 2: All Switches = **OFF**

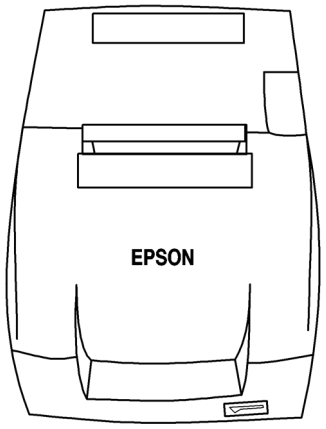


NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

6.1.5. TM-U220 Tape Printer

- Uses **SERIAL** communication.
- Use cable **15599**.

BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**



NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

DIP SWITCH 1 (Serial Interface)

SWITCH	FUNCTION	ON	OFF
1	Data receive error	Ignored	**Prints "?"**
2	Receive buffer capacity	40 byes	**4KB**
3	Handshaking	XON/XOFF	**DTR/DSR**
4	Work length	7 bits	**8 bits**
5	Parity check	Yes	**No**
6	Parity selection	Even	**Odd**
7	Transmission speed	4800 bps	**9600 bps**
8	BUSY condition	Receive buffer full	**Receive buffer full or Offline**

Default settings are in bold.

DIP SWITCH 2 (Serial Interface)

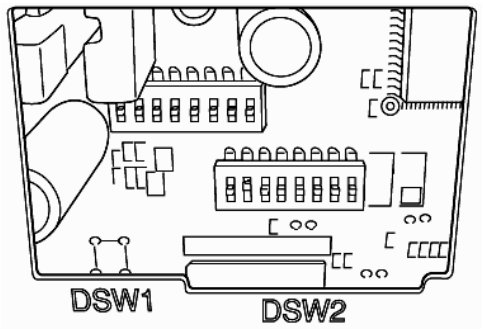
SWITCH	FUNCTION	ON	OFF
1	Print Column	42/35	**40/33**
* 2	For internal use only (auto-cutter) (do not change)	**Enabled**	**Disabled**
3	Pin 6 reset signal	Used	**Not used**
4	Pin 25 reset signal	Used	**Not used**
5	Undefined	--	--

6	Internal use only (flash memory rewriting) (Do not change)	Enabled	**Disabled**
7	Undefined	--	**--**
8	Serial Interface section	Memory Switch	**Dip Switch**

Default settings are in bold.

** The TM-U220 Tape Printer DAT (dk gray case, w/cutter) will have DSW2 switch #2 set to ON. TM-U220 Tape Printer (white case, no cutter) will have DSW2 switch #2 set to OFF. All other switch settings are identical between printers.*

Access the **Dip Switches** by unfastening the screw and removing the cover plate, found on the bottom of the printer.



For standard use, dip switches are factory-set correctly

6.1.6. TM-U295 Ticket Printer Settings

- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599**.

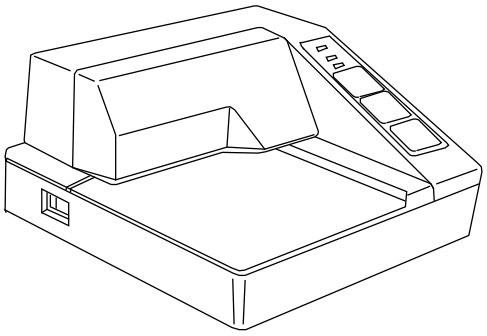
BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**

.

Set the printer **dip switche**s as listed below.

SW1: 1 and 3 = **ON**

Remainder = **OFF**



NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

6.1.7. SP298 Printer Settings

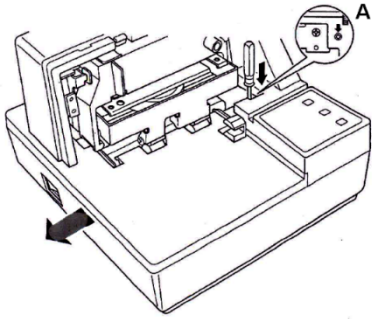
- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599**.

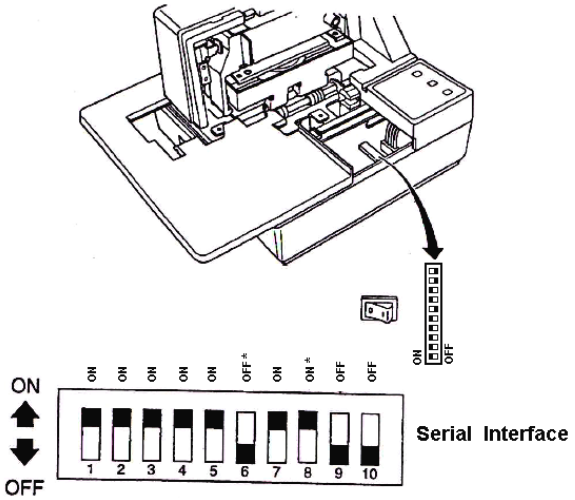
BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**

NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

ACCESSING THE DIP SWITCHES

1. Remove all power from the printer, as well as all Network cables from between the printer and the Instrument.
2. Remove the **Printer Cover**.
3. Press down with a screwdriver at **Location "A"** marked in the illustration below, and carefully slide the Document Table in the direction indicated by the arrow until it is out of the way.
   – It is not necessary to remove the document table completely. Just move it enough to access the DIP Switches inside.
4. Set the **DIP Switches** into their correct positions.
5. Slide the Document Table back into place while pressing down at **Location "A".**
6. Replace the **Print Cover**.





DIP Switch Settings (SERIAL INTERFACE)

SWITCH	FUNCTION	ON	OFF
1	Baud Rate	***See table below.***	
2			
3	Data Length	**8 bits**	7 bits
4	Parity Check	**Disabled**	Enabled
5	Parity	**Odd**	Even
6	Handshake	DTR/DSR	**XON/XOFF**
7	Command Emulation	***See table below***	
8			
9	Pin #6 (DSR) reset signal	Enabled	**Disabled**
10	Pin #25 (INIT) reset signal	Enabled	**Disabled**

Baud Rate Settings Table

BAUD RATE	SWITCH 1	SWITCH 2-2
4800 bps	OFF	ON
9600 bps	**ON**	**ON**
1920 bps	ON	OFF
3840 bps	OFF	OFF

Command Emulation Table

COMMAND EMULATION	SWITCH 7	SWITCH 8
Star Mode	**ON**	**ON**
ESC/POS (TM-295)	ON	OFF
ESC/POS (TM-290)	OFF	OFF
Not used (*)	OFF	ON

* *Never set* **Switch 7** *to* **OFF** *at the same time that* **Switch 8 is** *set to* **ON**.

6.1.8. SP700 Printer Settings

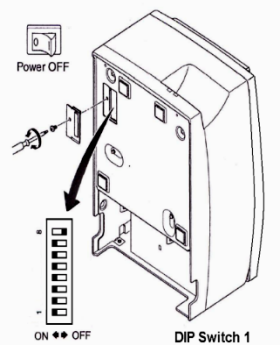
- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599**.

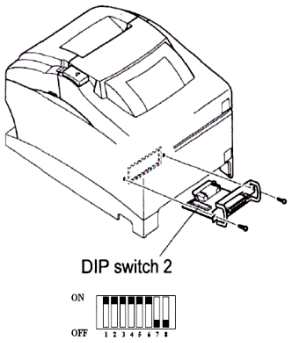
BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	1

NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

There are **two (2) dip switch** locations on the Star SP700 Printer.

- Underneath the printer, behind a protective cover is **DIP Switch 1**.
- **DIP Switch 2** is on the Serial Interface Board.





SWITCH	FUNCTION	ON	OFF
1-1	Always ON	**Should be set ON**	
1-2	Auto Cutter *	**Invalid**	Valid
1-3	Always ON	**Should be set ON**	
1-4	Command Emulation	**Star**	ESC/POS
1-5	USB mode **	**Printer Class**	Vendor Class
1-6	2 Colors Printing	**Valid**	Invalid
1-7	Reserved		
1-8	Print head model ***	18-pin wire	**9-pin wire**

* The factory settings for enabling/disabling the Auto Cutter are as listed below.

- Models without Auto Cutter: Invalid (**Switch 1-2 = ON**).
- Models with Auto Cutter: Valid (**Switch 1-2 = OFF**).

NOTE: *Only program the* **Auto Cutter** *function with models that have the* **Auto Cutter Accessory** *installed.*

- *This is models with a tear bar.*
- *A mechanical error will* occur.

** **USB Interface** model only.

*** Do not change the default setting (**Switch 1-8** = **OFF**).

DIP Switch 2

SWITCH	FUNCTION	ON	OFF
2-1	Baud Rate	***See table below***.	
2-2			
2-3	Data Length	**8 bits**	7 bits
2-4	Parity Check	**Disabled**	Enabled
2-5	Parity	**Odd**	Even
2-6	Handshake	DTR/DSR	**XON/XOFF**
2-7	Pin #6 (DSR) reset signal	Valid	**Invalid**
2-8	Pin #25 (INIT) reset signal	Valid	**Invalid**

Baud Rate Settings Table

BAUD RATE	SWITCH 2-1	SWITCH 2-2
4800 bps	OFF	**ON**
9600 bps	**ON**	**ON**
1920 bps	**ON**	OFF
3840 bps	OFF	OFF

6.1.9. SP2000 Printer Settings

The SP2000 is a Dot Matrix ticket printer. The following switch settings and cable requirements will work with the default format.

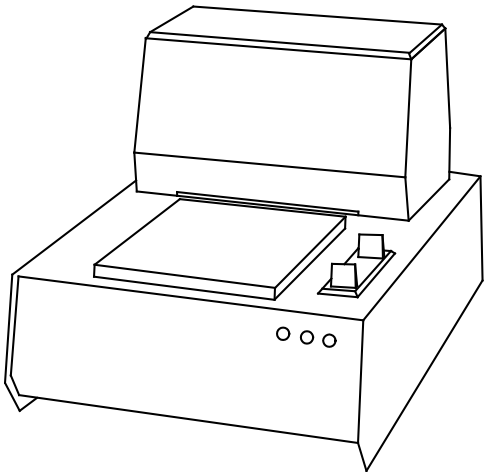
- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599**.

BAUD	**2400**
PARITY	**EVEN**
DATA BITS	**7**
STOP BIT	**1**

NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

Set the printer's **dip switches** according to the following:

- **DSW 1:**All **OFF.**
- **DSW 2: Three (3) ON** only.
- **DSW 3:One (1)** and **five (5) ON** only.



6.1.10. SP2200 Printer Settings

The SP2200 is a Dot Matrix ticket printer. The following switch settings and cable requirements will work with the default format.

- **FB7100 Desktop** and **NEMA 4X** use cable **15599**.

BAUD	**2400**
PARITY	**NO**
DATA BITS	**7**
STOP BIT	**2**

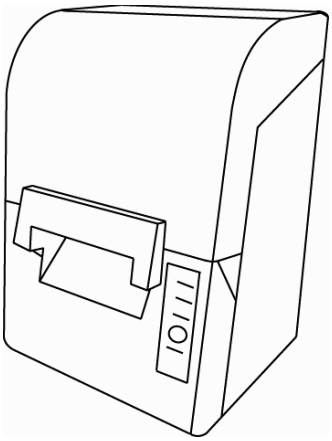
NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

Set the printer's **dip switches** according to the following:

- **DSW 1:Two (2), three (3),** and **eight (8) ON** only.
- **DSW 2** and **3:** All **OFF.**

6.1.11. TM-U230 Printer Settings

- For **FB7100** Instrument **Desktop** and **NEMA 4X SERIAL** communications, use cable **15599**.



BAUD	**9600**
PARITY	**No**
DATA BITS	**8**
STOP BIT	**1**

NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

DIP Switch 1 Settings (SERIAL INTERFACE)

SWITCH	FUNCTION	ON	OFF
1	Data receive error	Ignored	**Prints "?"**
2	Receive buffer capacity	1KB	**16KB**
3	Handshaking	XON/XOFF	**DTR/DSR**
4	Work length	7 bits	**8 bits**
5	Parity check	Yes	**No**
6	Parity selection	Even	**Odd**
7	Transmission speed	4800 bps	**9600 bps**
8	BUSY condition	Receive buffer full	**Receive buffer full or Offline**

DIP Switch 2 Settings (SERIAL INTERFACE)

SWITCH	FUNCTION	ON	OFF
1	Sections number of characters per line (cpl) 7 x 9 font/ 9 x 9 font	42/35	**40/33**
2	For internal use only (Auto-cutter) (do not change)	**Enabled**	Disabled
3	Pin 6 reset signal	Used	Not used
4	Pin 25 reset signal	Used	Not used
5	PAPER OUT LED flashing pattern	**Flashes**	Lights on
6	For internal use only (flash memory rewriting) (Do not change)	Enabled	**Disabled**
7	For internal use only (Internal synchronization) (Do not change)	Asynchronous	**Synchronous with clock**
8	Internal buzzer	**Disabled**	Enabled

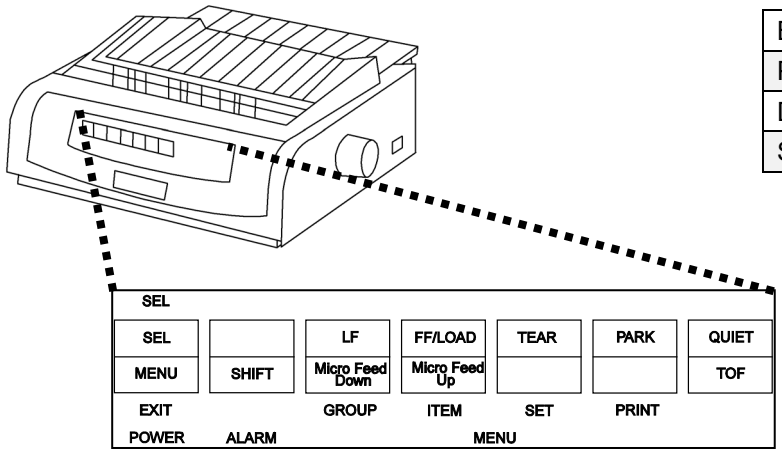
6.1.12. GC420d Printer Settings

- For **FB7100** instrument desktop and Nema 4x Serial communications use cable **20483**.

BAUD	**9600**
PARITY	**NO**
DATA BITS	**8**
STOP BITS	**1**

NOTE: *For wiring table, see* **Printer Cabling – 20483 Cable Kit**

6.1.13. OKI ML420 Printer



BAUD	**9600**
PARITY	**None**
DATA BITS	**8**
STOP BIT	**1**

NOTE: *For wiring table, see* **Printer Cabling – 15599 Cable Kit**

6.2. COM Ports

The **FB7100** Instrument has numerous ports and outlets allowing different Input/ Output devices to be utilized.

- The back of the Instrument has a 120V outlet, but the unit also supports 220V Scale Input.
- The FB7100 instrument has two (2) standard **Serial Output COM Ports**.
  - These are configured for **RS-232** communications.
  - Serial Outputs can be customized to provide specific configured data string protocols, configuration parameters, using output modes such as **PC Polled, PC Continuous, Demand PC, Off, Remote Display**, and **all printers**.

- There are **(2) USB Ports** used for different external components, such as a keyboard, USB Flash Drive, etc.
- Room for one **(1) accessory cards**
- The Ethernet Port is used for the **WEB FORMATTING.**
  - *For completed details, see* **Web Interface**

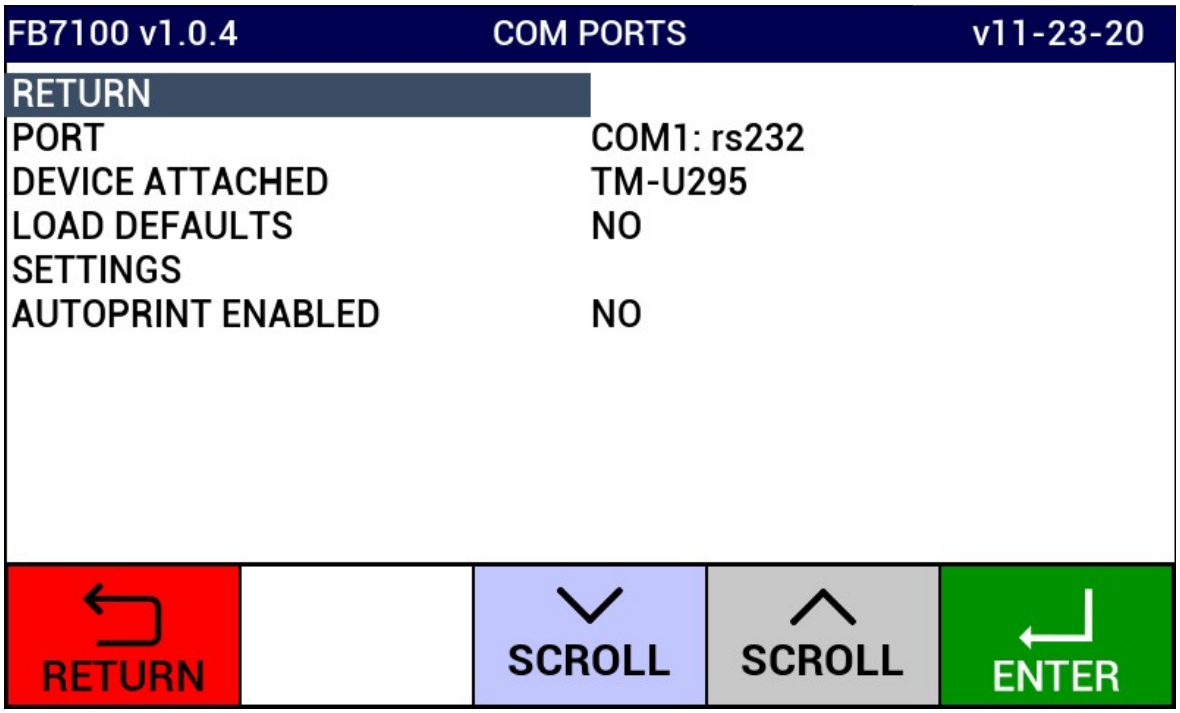
Back of the FB7100

6.2.1. Programming COM PORTS

NOTE: *Always configure the COM Port and select the Printer* ***before*** *formatting the tickets.*

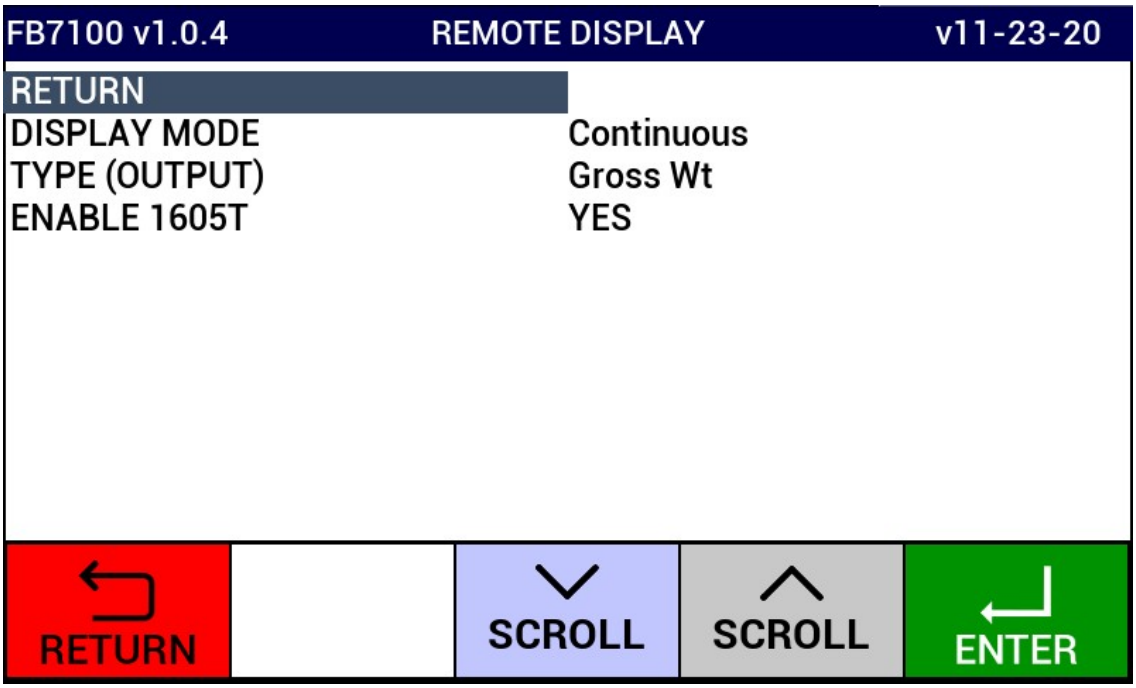
Follow these steps to program the **FOUR (4) COM PORTS***.*

1. In the **CONFIGURATION MENU**, select **COM PORTS**. Press **ENTER**.
2. Select **COM**, press **ENTER**.
3. Select the desired COM Port to configure, then press **ENTER**.
   - COM Ports 1 & 2 are RS232 ports.
   - COM Port 3 is a dedicated **20 mA Output**, use for a Remote Display..
   - COM Port 4 is dedicated to the ACC 165 relay control.



NOTE: *All the Ports are INTERNAL to the instrument. Access the port by using the glands on the back of the enclosure.*

6.2.2. Configuring the Remote Display Output



Follow these steps to program the **REMOTE DISPLAY:**

1. In the **CONFIGURATION MENU**, select **COM PORTS**. Press **ENTER**.
2. Select **PORT**, press **ENTER**.
3. Select **COM 3: 20mA** then press **ENTER**.
   - Select **DEVICE ATTACHED**. Press **ENTER**
   - Select **REMOTE DISPLAY**, then press **ENTER**.
   - Select **LOAD DEFAULT SETTINGS**, press **ENTER**.
   - Select **YES**, then press **ENTER**.
   - Select **SETTINGS**, then press **ENTER**. If using a non-Fairbanks remote display or if the settings otherwise require changes, press **ENTER** to enter the setting menu.
   - The available settings include: BAUD RATE, PARITY, STOP BITS, DATA BITS, CHECKSUM, DELIMITED AND INCLUDE LEGENDS.
4. Select the proper communication settings for your remote display, then press **ENTER**.

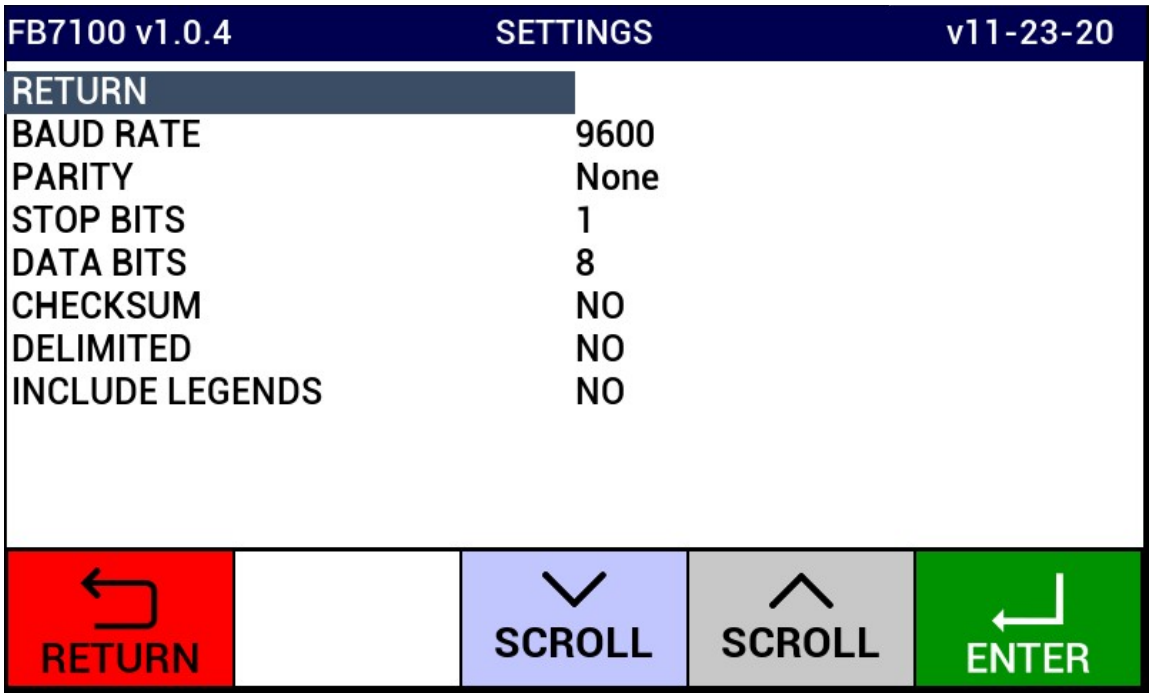
6.2.3. Selecting the Printer

1. In the **CONFIGURATION MENU**, select **COM PORTS**. Press **ENTER**.
2. Select **PORT**, press **ENTER**.
3. Select **COM1** or **COM2**. Press **ENTER**.
4. Select **DEVICE ATTACHED**, press **ENTER**.
5. *SCROLL* to select the desired printer, then press **ENTER**.

- Off *
- TM-U295
- IDP-3550
- TM-U220
- TM-U230
- TM-U590
- SP-700
- GC420D
- SP-2000
- SP-22000
- SP-298
- TM-L90
- EU-T432
- OKI-420

* *Does not transmit weight amount*.

6. Select **LOAD DEFAULTS**, press **ENTER**.
7. Select **YES** or **NO**, then press **ENTER**.
8. Select **SETTINGS**, press **ENTER**.
9. Select the proper RS-232 Communication settings, then press **ENTER**.
   - The settings include: Baud Rate, Parity, Stop Bits, Data Bits, CheckSum, Delimited, and Include Legends.



NOTE: *The Fairbanks Scales standard default COM Port settings for all the printers is* **9600 Baud, No Parity, 8 Bits**, *and* **1 Stop Bit**.

- *The* **FORMAT option** *does not appear when programming the printers.*

6.2.4. PC Data String Output

1. In the **CONFIGURATION MENU**, select **COM PORTS**. Press **ENTER**.
2. Select **PORT**, press **ENTER**.
3. Select **COM1** or **COM2**, press **ENTER**.
4. Select **DEVICE ATTACHED**, press **ENTER**.
5. Select **PC CONTINUOUS**, **PC POLLED** or **PC AUTO**, press **ENTER**.
   - **PC Continuous** – Sends displayed weight continuously.
   - **PC Polled** – The external device sends out a polling request. To test the output with a terminal program, press: "W" and **ENTER**, and the instrument responds with return data.
   - **PC Auto** – String is automatically transmitted when a transaction is processed.
6. Select **CONFIGURE**, press **ENTER**.
7. Select **LOAD**, press **ENTER**.

- Fairbanks.
- Toledo
- Cardinal

- Weightronix
- Condec

8. SCROLL to select the correct standardized data string format.

9. Press **ENTER** to confirm this selection. Press the **RETURN** button.
10. Select **LOAD DEFAULTS**, press **ENTER**.
11. Select **YES** or **NO**, then press **ENTER**.
12. Select **SETTINGS**, press **ENTER**.
13. Choose the proper **RS-232** communication settings, then press **ENTER**.
    – The settings include: Baud Rate, Parity, Stop Bits, Data Bits, CheckSum, Delimited, and Include Legends.

6.2.5. FB7100 Weight Output Via Ethernet

1. Press **MENU** to enter the **OPERATION MENU**.
2. Select **CONFIGURATION MENU**, press **ENTER**.
3. Select **COM PORTS**, then press **ENTER**.
4. Under **PORT**, select either **NETWORK: Ethernet**. Confirm your selection with **ENTER**.
5. *SCROLL* until **DEVICE ATTACHED**. appears. Press **ENTER**. TM-U295 appears.
6. Select **DEVICE ATTACHED**.
7. Scroll to **NETWORK** for continuous output or **AUTO NETWORK** to output a string when a transaction is processed. Confirm with **ENTER**.
8. Select a **LOCAL PORT** and use the keypad to enter a port number.
9. Select **CONFIGURE** to select the default string or edit the output string.

6.2.6. Modifying an Output String

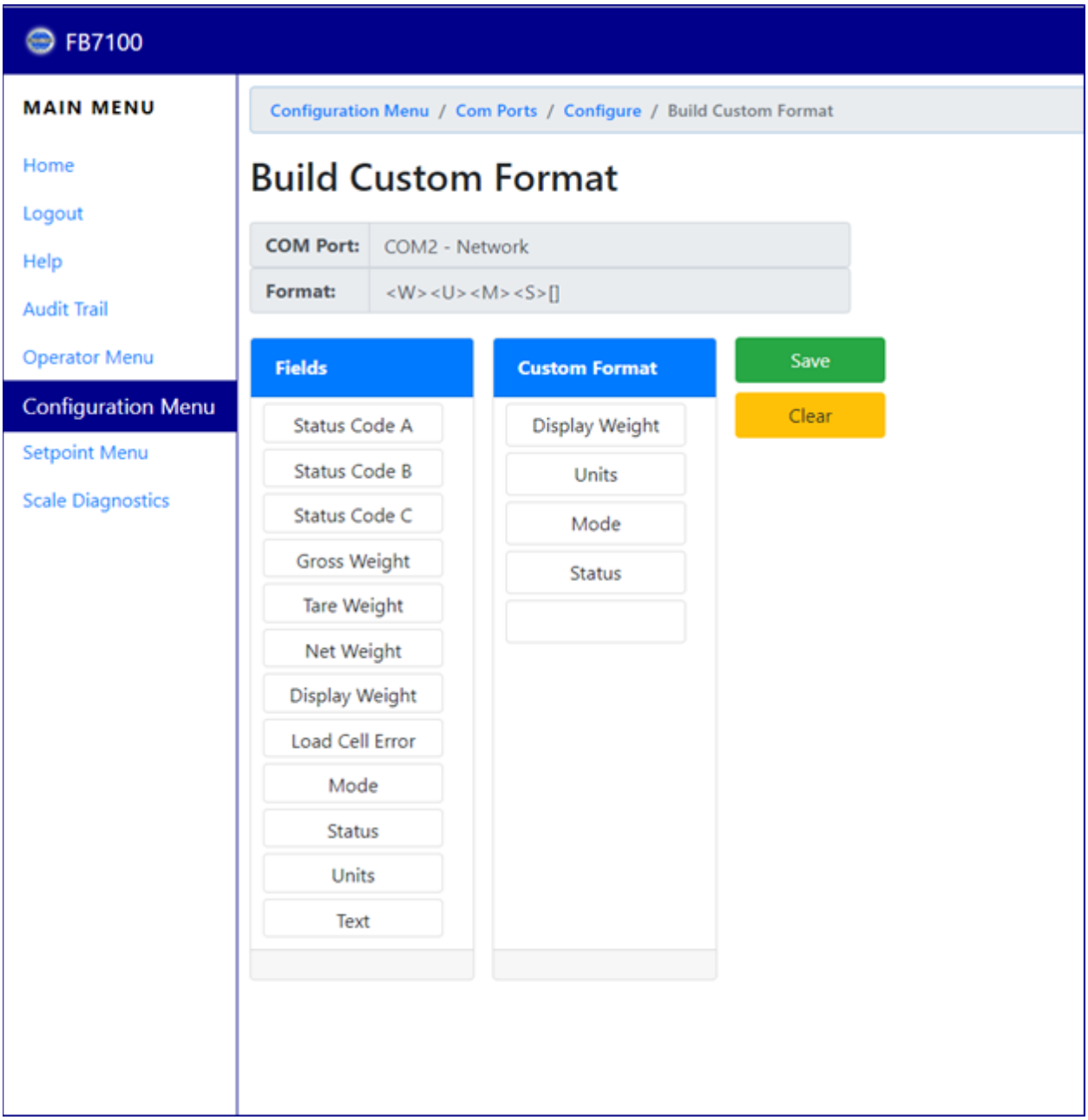
1. All serial and network PC outputs are fully customizable through the web interface.
2. Log in to the web interface.
3. Select **CONFIGURATION MENU**.
4. Select **COM PORTS**.
5. Select the appropriate **Com Port** and select **CONFIGURE**.
6. This will give you the option to change the load. Select the **standard output** most similar to the required output and select Submit.
7. There are settings to modify **Tokens**, **Status Codes**, and **Weights**.
   A. Tokens – includes the poll, start, stop, and block tokens as well as text characters for units, status, and mode.

B. Status Codes – eight bit codes for transmitting format information.

C. Weights – Format the weight outputs including digits, decimal location, justification, and polarity indicators.

NOTE: These three groups can also be changed through the instrument front panel by selecting **CONFIGURE** in the **COM PORT** menu.

8. Select **BUILD CUSTOM FORMAT**.
9. On the *left* will be all the fields available for **transmission** and on the *right* will be the **current custom format**.
10. To add a field to the string, drag it from the left column to the right. To remove a field, drag from the right column to the left.
11. To add text, drag the text icon into the right column. Double click the field and type the desired text.



6.2.7. DemandPC

This option transmits the weight data in the **GTN Format** whenever a carriage return is received.

– All data strings which have a **NON-ZERO VALUE** in the coordinates will be transmitted.

– The order the data strings appear in the data transmission follows the order in which the data is listed in the ticket format.

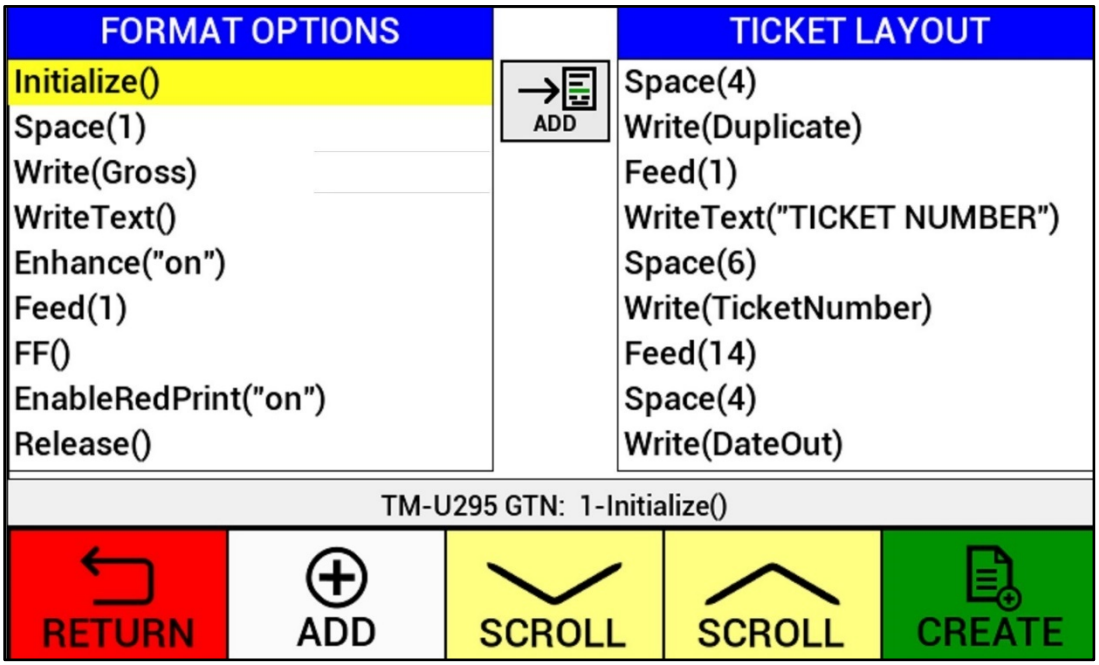
NOTE: the GTN ticket format is a separate format from any printers configured on the FB7100. It must be enabled and formatted separately.

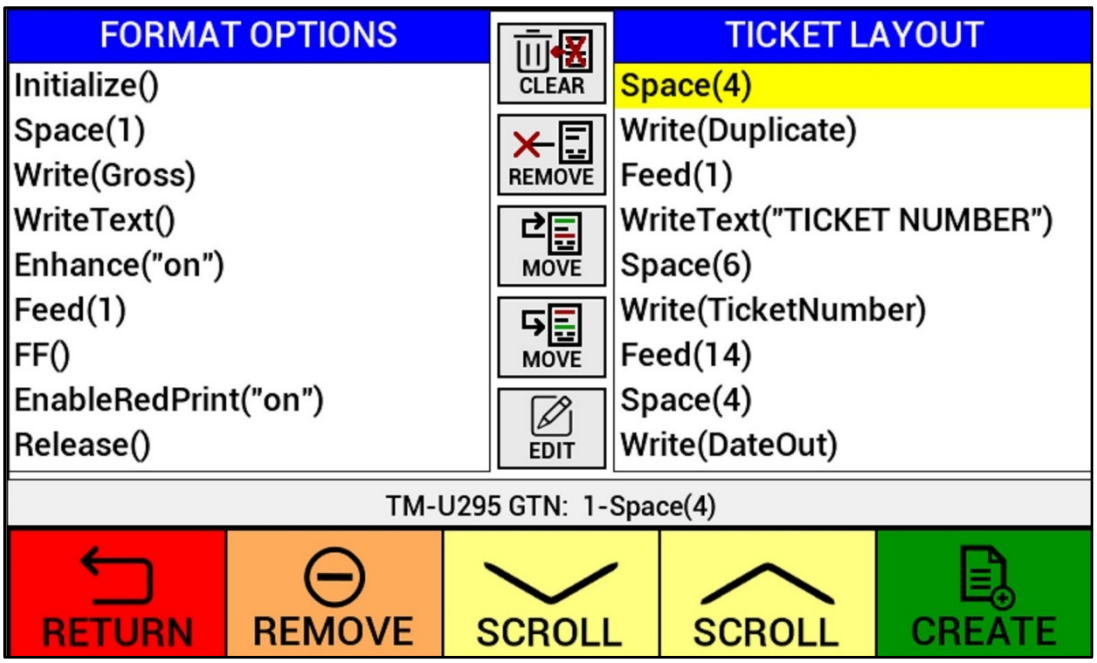
Follow these steps to format the **DemandPC option.**

1. Select **DEVICE ATTACHED**, press **ENTER**.
2. Select **DEMANDPC**, press **ENTER**.
3. Select **LOAD DEFAULTS**, press **ENTER**.
4. Select **YES** or **NO**, then press **ENTER**.
5. Select **SETTINGS**, press **ENTER**.
6. Select the proper RS-232 communication settings, then press **ENTER**.
   – These settings include BAUD RATE, PARITY, STOP BITS, DATA BITS, CHECKSUM, DELIMITED and INCLUDE LEGEND.

6.3. Formatting Tickets

6.3.1. Standard Ticket Formatting Steps





Listed below are the standard steps for formatting a ticket.

- The **OPERATING MODE** setup determines how the ticket prints.
  - The **GTN format** configures only the **GTN tickets**.
  - The **In/Out format** configures **In/Out tickets**.
  - The **Basic format** configures **BasicIn** and **BasicOut tickets**.

- Each **Mode of Operation** formats the weighment data in different positions on the ticket, printing only the needed data for that ticket.
- The ticket format can also vary due to the printer type that is used.

IMPORTANT NOTE: *Always configure the COM Ports before formatting tickets.*

1. Set up the COM Ports in the Configuration Menu to a specific attached device.
   - *For complete details, see* **COM PORTS**.
2. Install, wire and configure the printer.
   - *See* **Printer Switch Settings**.
3. Access the **TICKET FORMAT** menu.
4. Insert a blank ticket, then press the **PRINT** key for a test ticket.
5. Using this self-test ticket, plan where to format the ticket margins and available print spaces.

a. Determine how the current ticket format might differ from the customer's needs.

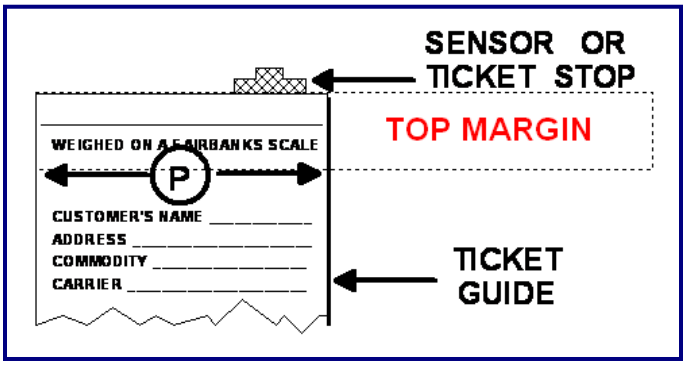
b. Plan the needed changes according to their **SPACE** (*horizontal*) and **FEED** (*vertical*) coordinates of the ticket.

c. Mark up this ticket with a ruler and pencil as needed, using it as a guide.

Consider these factors for placement of data when formatting a ticket.

A. TOP MARGIN

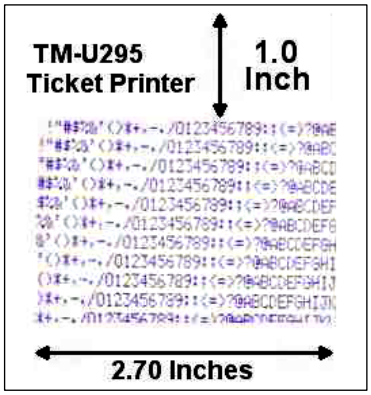
The area between the ticket sensor, stop, tear-off and the first line of print is called the **Top Margin**. Printing is not possible in this part of the ticket.



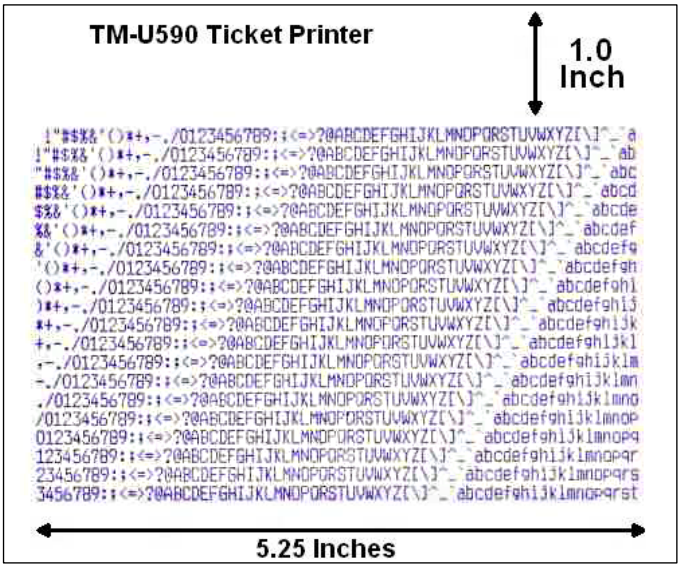
B. PRINTING AREA

There is a wide variation of printing area used between the different types of printers. This is determined by the physical characteristics of each particular one.

- To find the available space on a ticket, run a printer self-test.



The print head size is different between these two models, so their print area is different also.



C. ENHANCED PRINT SIZE

Another factor that regulates how many lines can be placed on a ticket is the font size of the characters. This varies depending on the printer.

– Typically, the **Enhanced Print** feature doubles the standard default font size, making it bolded and emphasized on the page.

- It is recommended using Enhanced Print for only the most important characters on the ticket, such as **Truck ID, Net Weight**, etc.
- It also enhances the character size of **FEEDS** and **SPACES**.

6.3.2. Programming Tips

Follow these guidelines when programming a **TICKET FORMAT**.

- All commands are written in the specific order to the ticket. They flow downward, starting from the top-left of the printer-assigned margin.
- Each command first describes the action, then in brackets, it defines how many, the type of action, or exactly what text to print.
- To remove a printed item on the ticket, display the command, then press the **ZERO key.**

WRITE (____) commands offer a standard list of **System Data Fields** to use when programming.

Follow these steps to alter how a **WRITE** *field appears.*

1. Use the Scroll buttons to navigate thru the **WRITE** commands, then press **ENTER** to open one.
2. Use the Scroll buttons to select the option that best suits the programming need, then press **ENTER**.
   - The **WRITE(____)** option selected wil l display next on the ticket.
   - Certain commands offer two choices, followed by a printed response for one.

Example:

HIDEWRITEONZERO (TARE/TARE)

This example means the following:

- **Hide** (do not print) **the Tare amount if it equals ZERO (0).**
- **Write** (print) **the Tare amount if it is greater than ZERO (0).**

Listed below are the **WRITE (____)** *commands.*

- GROSS
- TARE
- NET
- DATEIN
- DATEOUT
- TIMEIN
- TICKET NUMBER
- LOOPIDTEXT
- LOOPIDPROMPT1TEXT
- PROMPT1
- INBOUND
- MANUAL TARE
- DUALGROSS
- DUALTARE
- DUAL NET
- DUALINBOUND
- DUALUNITSGROSS
- DUTANTUNITS

- TIMEOUT
- UNITSGROSS
  UNITSTARENET
- DUPLICATE
- VEHDESC

WRITE (TEXT) commands are programmable text fields, allowing legends or prompts to be altered to suit the application needs.

– These text fields can be any character(s) required to suit the customer's need.

– All data items are **left justified**, with a maximum of **fifteen (15) characters**.

NOTE: *When inverting tickets, the* **Invert "On"** *command should be the first one in the format.*

Turn the option **"Off"** *as the last command before the ticket release, or the reports will invert when they print.*

6.3.3. GC420d Formatting Instructions

The **FB7100** has built in means to format a label on a GC420d label printer. Coordinates are fixed and programmed for use with 2 x 4 inch label.

Follow these steps to setup and configure ticket formats for the GC402D label printer:

1. In the Configuration menu, press the scroll buttons until **TICKET FORMATS** displays, then press **ENTER**.
2. When **PRINTER** displays, select the GC420d printer option and press **ENTER**. If the GC420d printer option is not displayed, scroll to select the correct printer and press **ENTER**.
3. When **LABEL FIELDS** displays, press **ENTER**. When **TDI FIELDS** (*TDI=Time, Date, ID*) displays, press **ENTER**. TDI options are as follows:

   - **NO TDI** – No time, date or ID on label.
   - **TDI** – Time, date and ID on label.
   - **TD** – Time and date on label.
   - **TI** – Time and IO on label.
   - **T** – Time only on label.
   - **DI** – Date and ID on label.
   - **D** – Date only on label.
   - **I** – ID only on label.

   Scroll to select the desired option and press **ENTER**.

4. When **GROSS** or **NET** displays, press **ENTER**.

   GTN – Prints, Gross, Tare and Net on label.

   Net Only – Prints net weight only.

   Use the ▼ to select the desired option and press **ENTER**.

5. When Barcode displays press **ENTER**.

   Barcode – Barcode printed on label.

   No barcode – No barcode printed on the label.

6.3.4. Ticket Format Commands

The **TICKET FORMAT commands** *are defined below.*

Space (__)	One (1) movement across (horizontal).
Feed (__)	One (1) movement downward (vertical).
InvertedWrite("on/off")	Prints the ticket from the bottom-to-the-top, placing data where it belongs according to the programmed coordinates.
WriteText ("___")	Programmable fields that allow **Legends** or **Prompts** to be altered to suit the application needs. Appears exactly as written within the quotation marks. — When **programming (WRITE)** fields, a **System Data** list displays.
HideWriteTextOnZero (Tare, Net)	If the Tare is **ZERO**, this prevents the **Net Weight** figure from being printed.
HideWriteTextOnZero (___/"___")	**HIDE** the message if the amount is **ZERO (0).** **WRITE** the quoted word if there is a different amount. — Quotation marks within the command display the exact words)
Write (____)	Without quotation marks, the printer writes out requested data of the command. — A command is sometimes blended with others together to print all the correct elements. **WRITE (UNITSTARENET)** is an example.
Write(Duplicate)	**"Duplicate Copy"** appears on the ticket for a **TICKET REPRINT**. — This specialized command has one purpose and cannot be altered.
Enhance ("on")	Enlarges the font characters, and prints them in bold text.
Enhance ("oFF")	Reduces the font size, and prints them in standard text.
Write (Gross)	Prints the **Gross Weight**.
Write (Tare)	Prints the **Tare Weight**.
WRITE (Net)	Prints the **Net Weight**.

WRITE (Date In)	Prints the **date** of the **first weighment**.
WRITE (Date Out)	Prints the **date** of the **final weighment**.
WRITE (Time In)	Prints the **time** of the **first weighment**.
WRITE (Time Out)	Prints the **time** of the **final weighment**.
WRITE (Units)	Prints the **Unit** choice.
WRITE (Ticket Number)	Prints the current **ticket number**.
WRITE (Loop ID Text)	Prints the legend in the **Loop ID** field, determined by the technician. — Truck Number, Rail Car Number, etc.
WRITE (Loop ID)	Prints the **Loop ID**.
WRITE (Prompt 1 Text)	Prints the **Legend** that prompts the user to enter an answer or to add data. — BOL Number, License, etc.
WRITE (Prompt 1)	Prints the data from the **Prompt 1 Text** field.
Inbound	Prints the **Inbound weight**.
WRITE (Manual Tare)	Prints an asterisk (*) next to the **TARE value** when it is a **MANUAL TARE**..
RELEASE ( )	End of the ticket, this command **releases the ticket** from the printer.
cLAMP ( )	Clamps the printer paper.
CuTPaper ( )	Cuts the printer paper.
ff ( )	(590 ticket printer only) feeds the ticket back through the front after printing.
ReverseFeed ( )	On ticket-style printers, will roll the ticket back towards the operator.

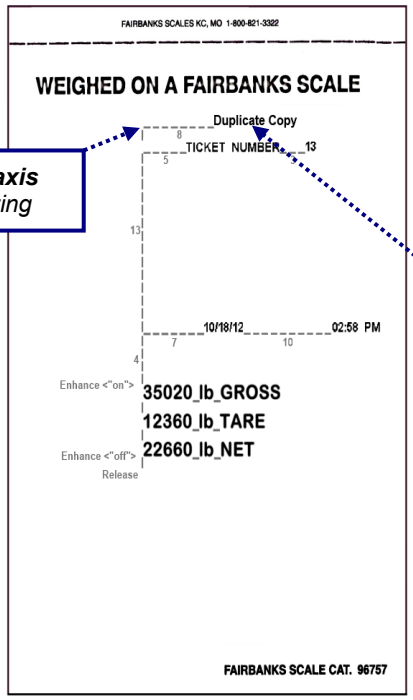
6.3.5. Ticket Formats

*Follow these steps to set up and configure the **TICKET FORMATS**.*

1. In the **CONFIGURATION MENU**, select **TICKET FORMATS**, then press **ENTER**.
2. Select the appropriate printer, then press **ENTER**
3. Select one of the five (5) default Ticket Formats, then press **ENTER**.
   - GTN
   - Inbound
   - outbound
   - BasicIn
   - BasicOut
4. Select **ENABLED** or **DISABLED,** then press **ENTER** to confirm this selection.
5. When **FORMAT** displays, press **ENTER**.
   – This will bring up the ticket formatting screen.
6. On the left side of the screen there will be a list of **FORMAT OPTIONS**. On the right will be the existing layout of the selected format.
7. To add an item from the **FORMAT OPTIONS**, highlight it and press **ADD**. If an additional menu selection appears, select the appropriate choice and press **CONFIRM**.
   - This will add the selected item to the bottom of the ticket.
8. Select the new item. To move the item up or down in the list, use the Scroll keys in the center of the touchscreen. To remove it, use the **REMOVE** key.
9. When you are finished modifying the ticket, press **CREATE**. **FORMAT SAVED** will appear. Use **RETURN** to exit back to **TICKET FORMATS** menu.

6.3.6. G/T/N Ticket Formatting

Defined below is the structure and appearance of a **GROSS/TARE/NET** ticket.



X/Y axis *starting*

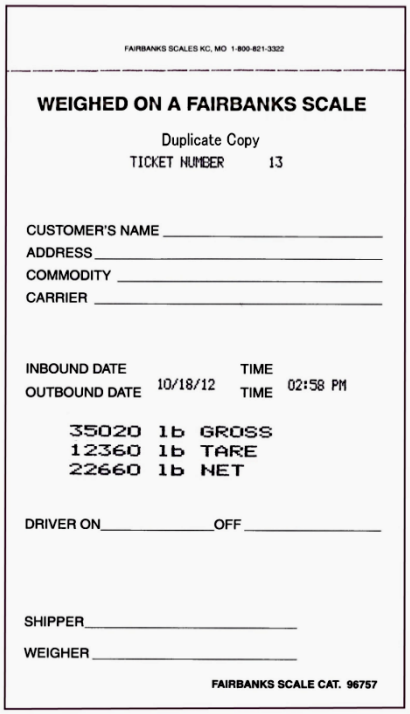
1-Space <8> *moves the ticket text* ***horizontally.***

3-Feed <1> *moves the ticket text* ***vertically****.*

"Duplicate Copy" *appears* ***only*** *when a* **TICKET REPRINT** *is performed.*

This image shows the printed areas and other defined elements of a **G/T/N Ticket.**

– *All grey markings are for illustration purposes only.*



Example of an actual ***G/T/N***

14-Enhance <"on" > *is the command for* **enlarged** *and* **bolded print.**

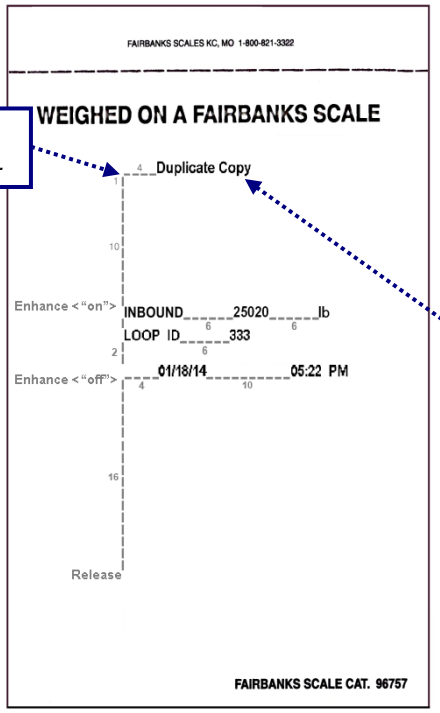
32-Enhance <"off" > *restores print style to standard.*

GTN
1-Space <4>
2-Write <Duplicate >
3-Feed <1>
4-WriteText <"TICKET NUMBER" >
5-Space <6>
6-Write <TicketNumber >
7-Feed <14>
8-Space <4>
9-Write <DateOut >
10-Space <10>
11-Write <TimeOut >
12-Feed <2>
13-Enhance <"on" >
14-Write <GroSS >
15-Space <1>
16-Write <UnitSGroSS >
17-Space <1>
18-WriteText <"GROSS" >
19-Feed <1>
20-Write <Tare >
21-Space <1>
22-Write <UnitSTareNet >
23-Write <ManualTare >
24-HideWriteTextOnZero <Tare, "TARE" >
25-Feed <1>
26-Write <Net >
27- Space <1>
28-Write <UnitSTareNet >
29-Space <1>
30-HideWriteTextOnZero <Tare, "NET" >
31-Feed <2>
32-Enhance <"off" >
33-Feed <10>
34-ReleaSe < >

The flow chart above outlines the coordinates for each element of the **G/T/N Ticket***.*

6.3.7. Inbound Ticket Formatting

Defined below is the structure and appearance of an **INBOUND** ticket example.

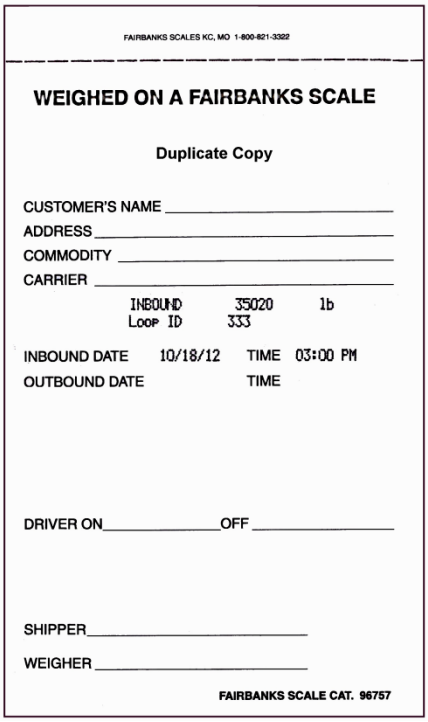


X/Y *axis*
starting point.

"Duplicate Copy" *appears **only** when a* **TICKET REPRINT** *is performed.*

The image above shows the printed areas and other defined elements of the ticket.

– *All grey markings are for illustration purposes only, and not printed.*



Example of an ***Inbound Ticket****.*

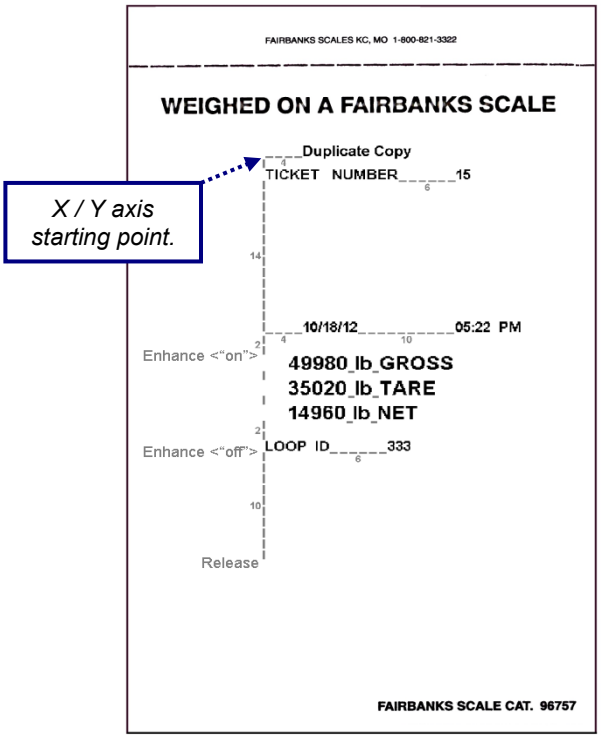
INBOUND

1-Space <4>
2-Write <Duplicate >
3-Feed <1>
4-Feed <10>
5-WriteText <"INBOUND" >
6-Space <6>
7-Write <Inbound >
8-Space <6>
9-Write <UnitSGroSS >
10-Feed <1>
11-Write <LoopIDText >
12-Space <6>
13-Write <LoopID >
14-Feed <2>
15-Space <4>
16-Write <DateIn >
17-Space <10>
18-Write <TimeIn >
19-Feed <16>
20-ReleaSe < >

The flow chart above outlines each element of the **Inbound Ticket***.*

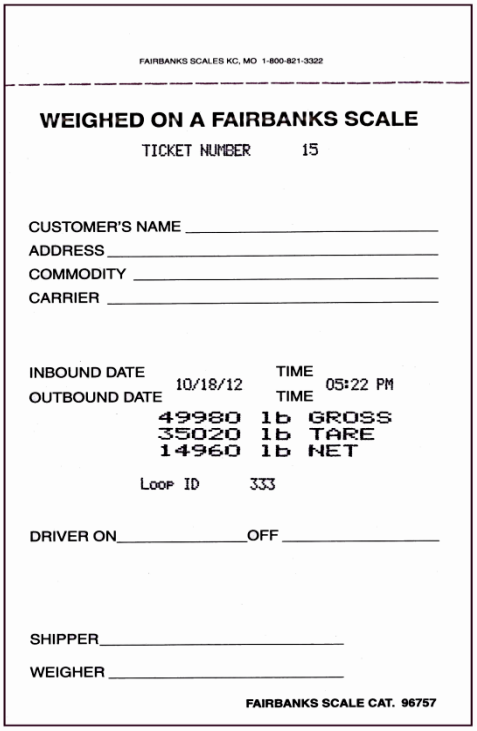
6.3.8. Outbound Ticket Formatting

Defined below is the structure and appearance of an **OUTBOUND** ticket example.



This image shows the printed areas and other defined elements of the ***Outbound Ticket****.*

– *All grey markings are for illustration purposes only.*



Actual image of an ***Outbound Ticket*** *(without any Inbound Ticket information).*

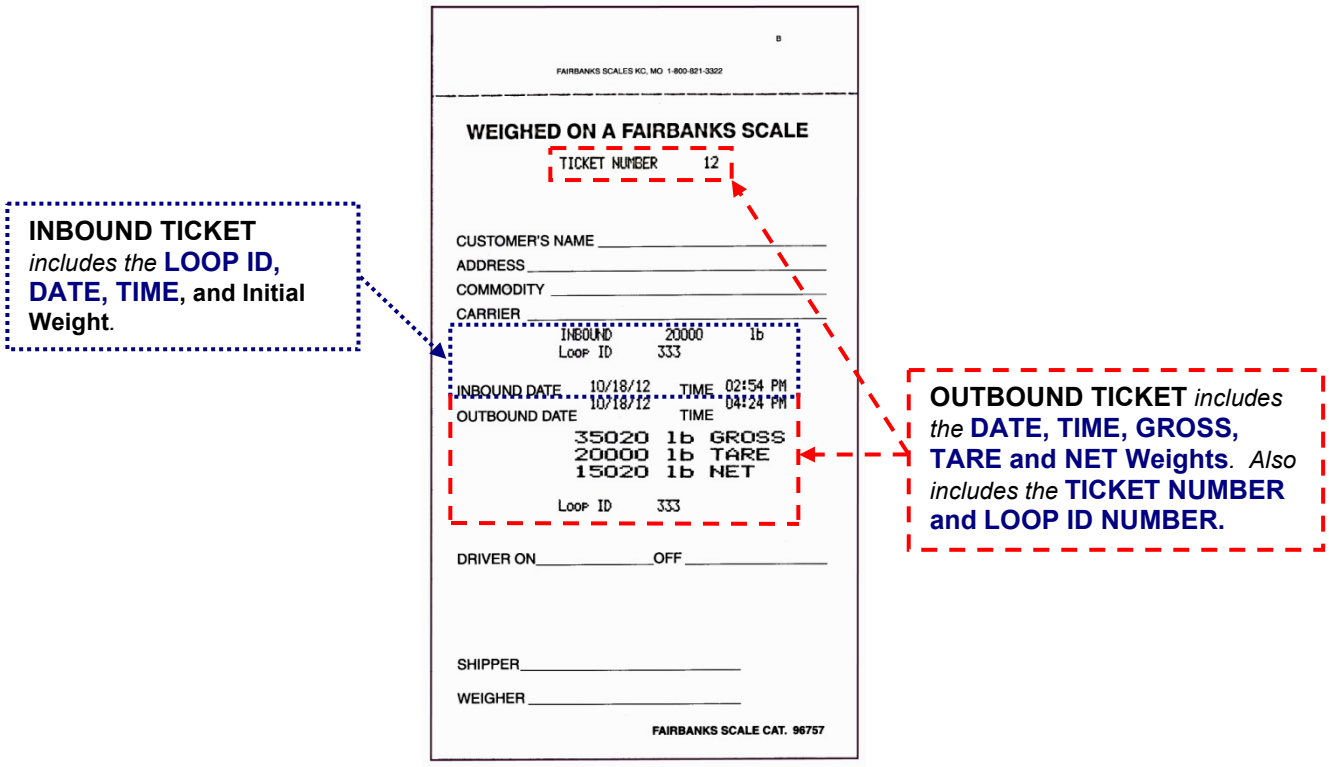
OUTBOUND

1-Space <4>
2-Write <Duplicate >
3-Feed <1>
4-WriteText <"TICKET NUMBER" >
5-Space <6>
6-Write <TicketNumber >
7-Feed <14>
8-Space <4>
9-Write <DateOut >
10-Space <10>
11-Write <TimeOut >
12-Feed <2>
13-Enhance <"on" >
14-Write <GroSS >
15-Space <1>
16-Write <UnitSGroSS >
17-Space <1>
18-WriteText <"GROSS" >
19-Feed <1>
20-Write <Tare >
21-Space <1>
22-Write <UnitSTareNet >
23-Write <ManualTare>
24-HideWriteTextOnZero <Tare, "TARE" >
25-Feed <1>
26-Write <Net >
27-Space <1>
28-Write <UnitsTareNet >
29-Space <1>
30-HideWriteTextOnZero <Tare, "NET" >
31-Feed <2>
32-Enhance <"off" >
33-Write <LoopIDText >
34-Space <6>
35-Write <LoopID >
36-Feed <10>
37-ReleaSe < >

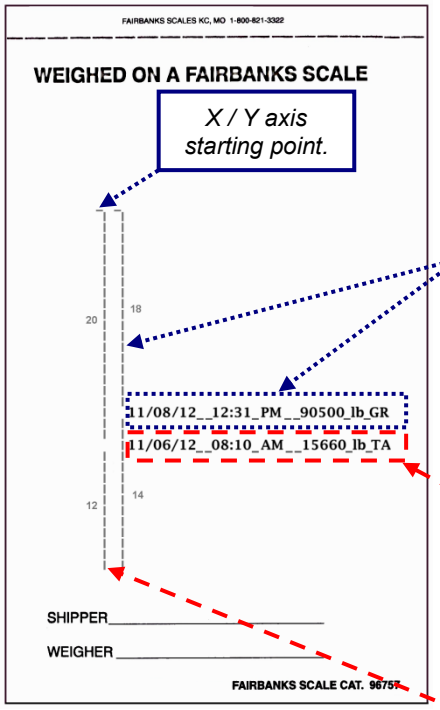
This flow chart outlines coordinates for each element of the ***Outbound Ticket****.*

6.3.9. Completed Transaction Ticket Example

*Shown below is a ticket example of a completed **INBOUND / OUTBOUND** transaction.*



6.3.10. BasicIn and BasicOut Ticket Formatting



BasicIn Ticket *includes the* **DATE**, **TIME** *and* **GROSS Weight**.

BasicOut Ticket *includes the* **DATE**, **TIME** *and* **GROSS Weight**.

This image shows the printed areas and other defined elements of the ***BasicIn*** *and* ***BasicOut Tickets****.*

BASICIN
1-Write <TimeIn >
2-Space <1>
3-Write <DateIn >
4-Space <1>
5-Write <GroSS >
6-Space <1>
7-Write <UnitSGroSS >
8-Space <1>
9-WriteText <"GROSS" >
10-Feed <1>
11-ReleaSe < >

BASICOUT
1-Feed <2>
2-Space <1>
3-Write <TimeOut >
4-Space <1>
5-Write <DateOut >
6-Space <1>
7-Write <GroSS >
8-Space <1>
9-Write <UnitSGroSS >
10-Space <1>
11-WriteText <"TARE" >
12-Feed <1>
13-ReleaSe < >

NOTE: *Tickets programmed in the* **BasicIn** *and* **BasicOut** *formats can be set up within the boundaries of the ticket size.*

– *The one displayed above is shown as an* ***example only****.*

6.3.11. Deleting a Ticket Format

Follow these steps to **DELETE** *a ticket format, and then reset to the* **factory default.**

1. In the **CONFIGURATION MENU**, select **TICKET FORMATS**, then press **ENTER**.
2. Select the **PRINTER**, press **ENTER**.
3. Select the **FORMAT**, then press **ENTER**.
4. Select **DELETE**, press **ENTER**.
5. Select **YES**, then press **ENTER**.

6.4. Formatting Web Interface Tickets

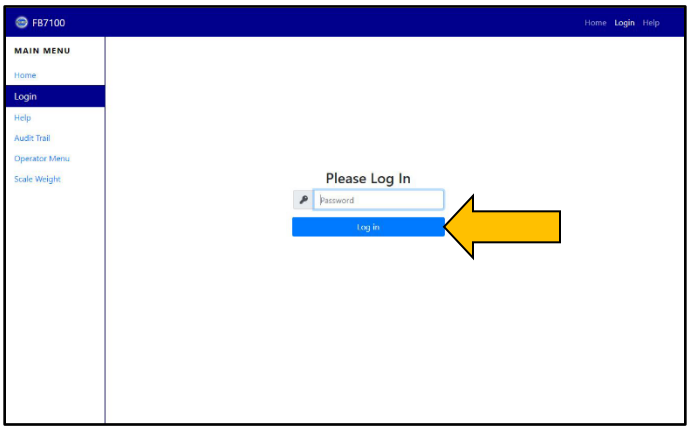
6.4.1. Logging In to the Web Interface

1. Locate the IP Address of the FB7100 Series Instrument

(See also ***To obtain the current IP address of the FB7100***)

NOTE: *In order to login to the Web Interface, you* ***MUST*** *logout of the FB7100 instrument. If you are* ***NOT*** *logged out, you will receive the message "****Front Panel in Use****" until you log out.*

2. Input the correct **IP Address** of the FB7100 into the Address Bar of the web browser, then press **ENTER** on the remote computer.



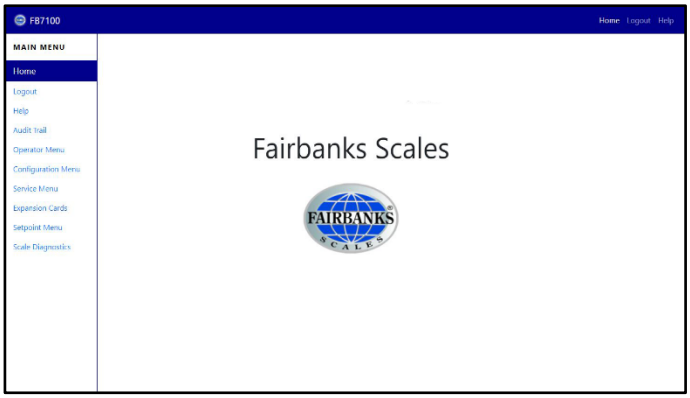
3. Click **Login** link.

4. Input the Password,

   then press the **Log in** button.

   The **Web Interface Home** screen appears.

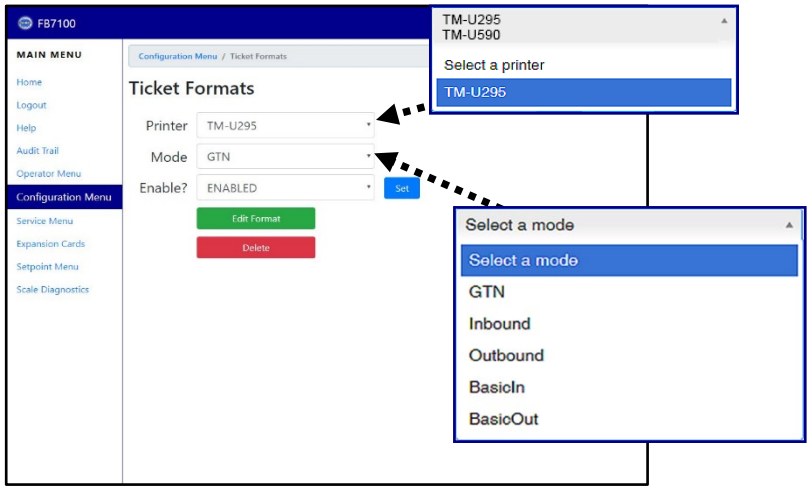
   After you are logged in successfully, the message "***Remote Config in Process***" will appear on the screen of the instrument.



For more complete detail regarding the Web Interface, see **Web Interface**.

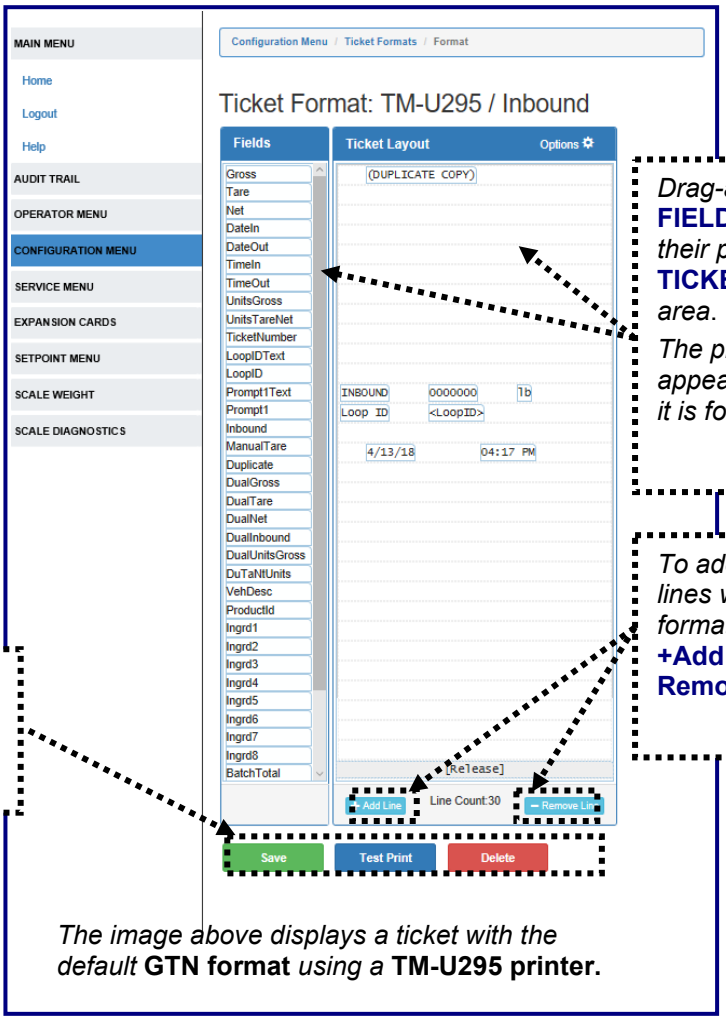
6.4.2. Ticket Format

1. Click **CONFIGURATION MENU**.
2. Click **TICKET FORMATS**
3. Using the drop-down menu, select an available printer next to **PRINTER:**
4. Using the drop-down menu, select an available mode next **Mode:**



IMPORTANT NOTE: *The printer must be configured in the* **COM Port menu** *before it is available here.*

5. Click the **EDIT FORMAT** button.
6. Drag-and-Drop the **FIELDS** options into their place on the **TICKET LAYOUT** area.
7. To add or delete lines within the ticket format, click the **+ ADD LINE** or **– REMOVE LINE**.
8. Once formatting is complete, click **TEST PRINT** to print a sample.
9. Either **SAVE** or **DELETE** the format.



Drag-and-drop the **FIELDS** *options into their place on the* **TICKET LAYOUT** *area.*

The printed ticket will appear similar to how it is formatted.

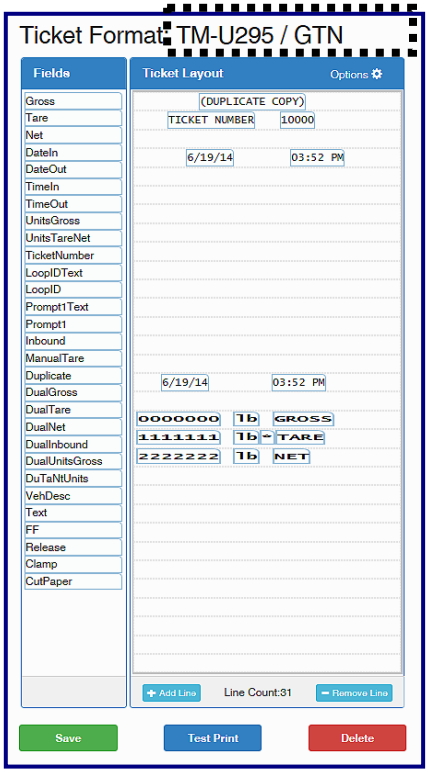
To add or delete lines within the ticket format, click **+Add Line** *or* **– Remove Line**.

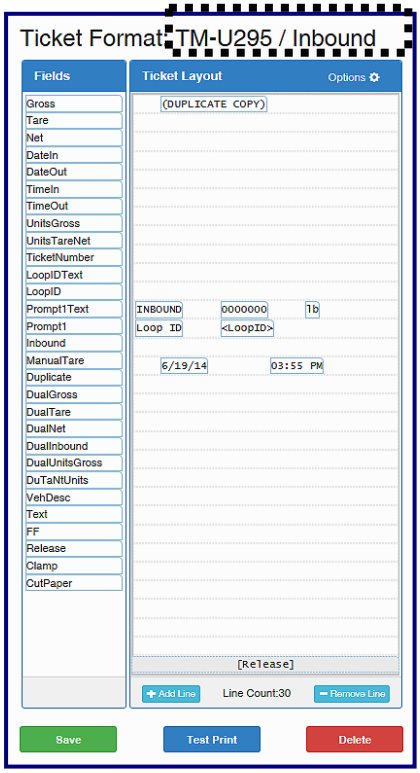
Once completed, click **TEST PRINT.** *Click either* **SAVE** *or* **DELETE**.

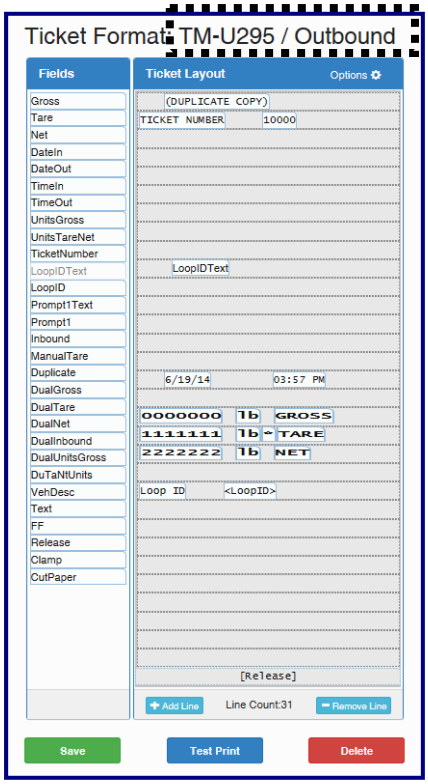
The image above displays a ticket with the default **GTN format** *using a* **TM-U295 printer.**

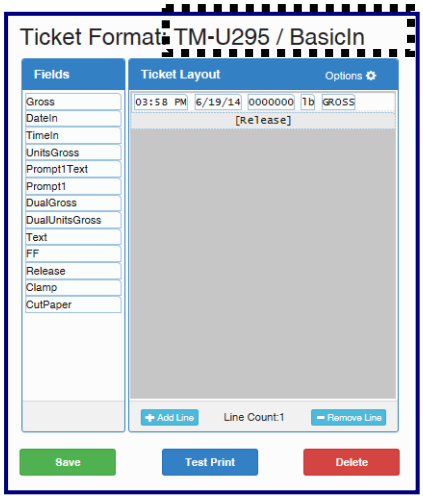
6.4.3. Standard Default Formats

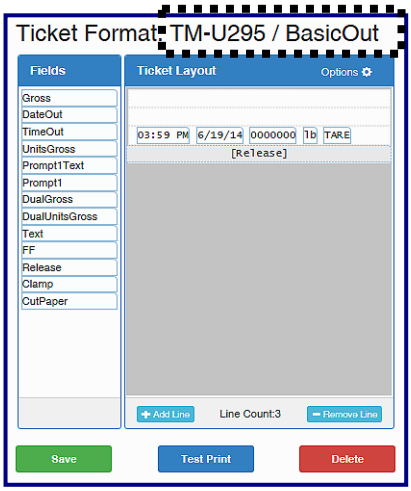
*Shown below are images of the **standard default formats** for each of the Ticket Modes when using theTM-U295.*







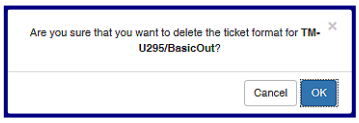




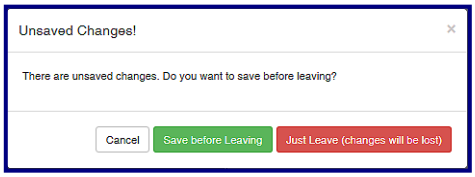
6.4.4. Exiting Without Saving

There are two warnings that display when the ticket format is closed without being saved.

DELETE BUTTON pressed without saving the format identifies the action.



CLOSING THE PROGRAM WITHOUT SAVING offers three buttons.



- **CANCEL** returns to the Ticket Interface.
- **SAVE BEFORE LEAVING** saves the format before exiting the interface.
- **JUST LEAVE (CHANGES WILL BE LOST)** closes the Ticket Interface without saving the current format.

6.5. Setpoint Information

Setpoint controls allow for filling in up-weighing and down-weighing applications. The **FB7100** features a single, simple setpoint.

6.5.1. Enabling Setpoint Mode

1. From the main menu screen, select **SETPOINT MENU**.
2. By default, the only setting on this screen is **MODE**, set to **OFF**. Select **MODE**, press **ENTER**.
3. Select **SETPOINT**, then press **ENTER**.
4. This will access the additional menu settings.
5. Select **PREACT**, press **ENTER**.
6. Using the numeric keypad, enter the amount of weight that will flow into the vessel after the flow is halted. Press **ENTER**.
7. Select **TARGET WEIGHT**, press **ENTER**.
8. Enter the desired weight on the scale and press **ENTER**. This value can also be changed from the weigh screen.
9. Select **PRODUCT ID**, press **ENTER** and use the numeric keypad to assign a product ID.
10. Select **TARGET WEIGHT PROTECTED**. Choose **YES** if the supervisor password will be required to enter a new target weight. Choosing **NO** will require no password to change the target weight.
11. Set the relay filter. Default = 1

6.5.2. Gross and Net Fill

The setpoint mode can be used in inbound/outbound or GTN mode.

When using inbound/outbound, the **only** available filling mode is by **gross weight**.

GTN mode offers both gross weight and net weight filling. To enter net weight mode, enter a keyboard or auto tare prior to entering the setpoint screen through the function menu. To fill by gross weight, clear out any tare before entering the setpoint screen.

6.6. ACC 165 Relay Box

The Relay accessory (**ACC 165**) is packaged in a NEMA 4X enclosure. The standard offering for the relay accessory is four relays. Four **(4)** additional relays can be added by ordering (**ACC 167**). Eight **(8)** is the maximum number of relays possible with the FB7100.

NOTE: the FB7100 only supports one (1) relay.

LED and Switch Descriptions:

TEST SWITCHES DS1_1 through DS1_8

When a **TEST SWITCH** is press and held down and the **MASTER TEST** switch is also pressed, the relay will engage. This is used to mechanically test a relay.

NOTE: Only functional if the **POLARITY = OFF** in the **SETPOINT** menu configuration.

MASTER TEST switch.

When the MASTER TEST SWITCH is press and held down and one of the TEST SWITCHES DS1_1 through DS1_8 is also pressed, the relay will engage. This is used to mechanically test a relay. **NOTE**: Only functional if the **POLARITY = OFF** in the **SETPOINT** menu configuration.

RESET switch.

Manually resets the Relay Box onboard microcontroller.

CAUTION!! DO NOT USE if **POLARITY** is set to **ON** in the **SETPOINT** menu as the relays will change state.

LED DS2

Indicates the board is receiving power from the instrument. LED ON = Power is supplied**. LED OFF = NO POWER**. Check cabling, wiring and verify the instrument is powered on.

LED DS7

Indicates that the Emergency Off (EMO, J6) circuit is closed and the relays are ready for operation. **LED ON = EMO** is closed. **LED OFF = EMO** open, relays will not function. Instrument will display **EMERGENCY OFF SWITCH ACTIVATED** .

LED DS4

Currently used.

LED DS5

Heartbeat for onboard microcontroller.

LED DS3

Data receive indication. Will blink very rapidly and faintly.

LED DS8

Data transmit indication. Will blink very rapidly and faintly.

Switch bank SW3

Not used at this time.

ALL switches should be **OFF**

Connector J2

Interface connection to instrument. Pin to pin wiring, four wires and shield/drain wire.

ACC 165 Relay box	FB7100 Instrument	Recommended wire color	Description
J2-1	J7-1	Red	RS485_A
J2-2	J7-2	White	RS485_B
J2-3	J7-3	Green	+12V
J2-4	J7-4	No connection	No connection
J2-5	J7-5	Black	Ground
J2-6	J7-6	Shield & drain	Shield

Connector J4

Connections for external Interlock devices. Interlocks are not used in the FB7100.

Interlock 1 wiring – J4-IN1 to COM

Interlock 2 wiring – J4-IN2 to COM

J4 Common is shared.

Connector J5

Connections for external Interlock devices. Interlocks are not used in the FB7100.

Interlock 3 wiring – J4-IN3 to COM

Interlock 4 wiring – J4-IN4 to COM

J5 Common is shared.

Connector J6

Emergency off switch input. This must be connected to a NC switch (i.e. safety mushroom switch, rated for 12V/0.5A or greater). If no switch is attached, then J6

must be jumped from J6-OUT to J6-RTN. This deactivates the relay outputs in software, cuts the 12V supply and notifies the instrument. DS7 will be unlit if this connection is open. Pins 1 & 3 must be tied together for proper operation.

Connector J7

Not used.

Relay 1 through Relay 8

These terminal blocks contain the common (COM), normally open (NO), and normally closed (NC) contacts where the customer's control devices will be connected. The customer must supply the power for these connections. Notice the contacts of each relay are protected by a 10-amp, 250 volt fuse.

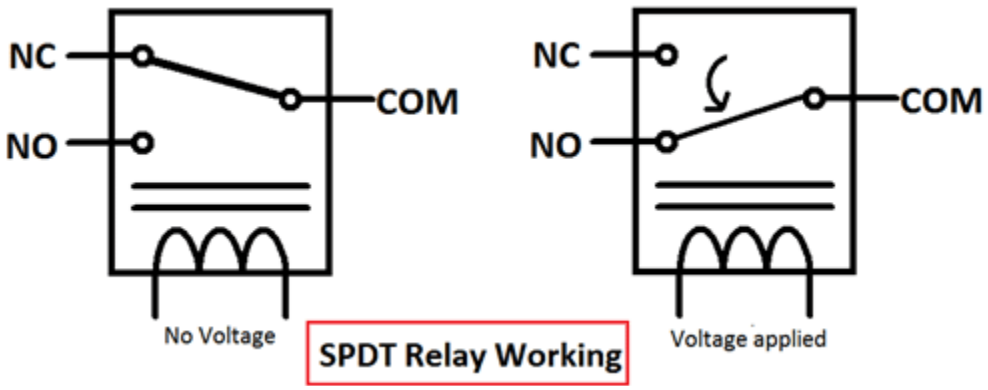
The relays are SPDT (single pole double throw) relays that can receive a control voltage from the FB7100 across the relay coil. Voltage at the common connection of the relay is provided by the customers device. The relays are mechanical devices that use electromagnetism created by the relay coil to operate a set of contacts.

COM = Common

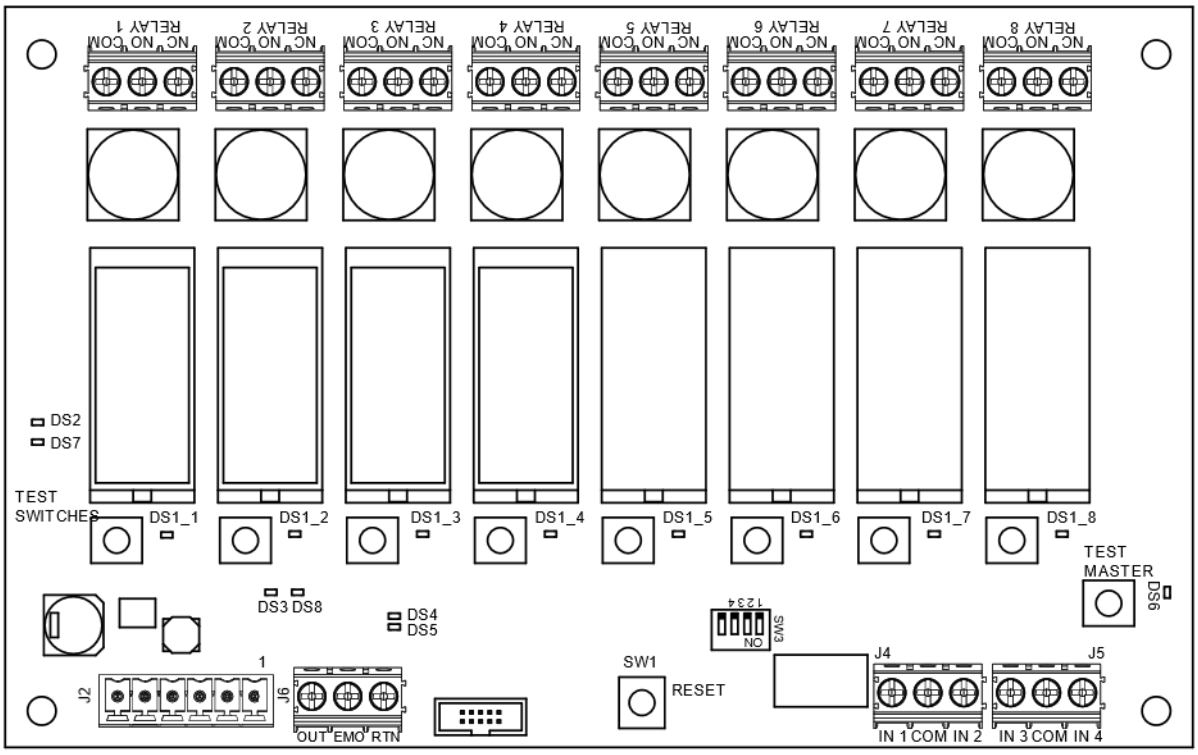
NO = Normally Open

NC = Normally Closed

A customer supplied voltage is connected to the common post of the relay. Then the normally open contact is connected to the customers device. When no setpoint operation is enabled and in progress, the relay coil is not energized and is providing contact between the common and the normally closed position.



When a setpoint operation is enabled and in progress, the relay coil is energized and is providing contact between the common and the normally open position, thus the relay is used to complete the circuit and provide power to the customers device.



SECTION 7: BASIC TROUBLESHOOTING

ERROR CONDITION(S)	SOLUTION(S)
SCALE ERRORS ARE PREVENTING DISPLAY UPDATES	*Call an authorized Fairbanks Technician.*
UNEXPECTED ERROR OCCURRED	**Error has occurred in the transaction database. Attempt to restore a backup and reboot.**
A PRINTER ERROR HAS OCCURRED CHECK PRINTER AND TRY AGAIN	**Check that printer is connected and powered on.**
MOTION TIME LIMIT EXCEEDED	**Scale is in motion until timeout. If no motion is present on the scale, load cell may be failing.** *Call an authorized Fairbanks Technician*
RELAY CARD NOT RESPONDING. SETPOINTS DISABLED	**ACC 165 Relay Box is not connected or is damaged.** *Call an authorized Fairbanks Technician*

APPENDIX I: DATA STRING OUTPUTS

A. Remote Display Output

DATA FORMAT

<STX><A><0><SP/–><XXXXXX><ETX>

NOTES:

1. Characters denoted by X are characters 0-9.
2. Leading zeroes are suppressed.
3. Polarity indication for a positive value is a space (SP).
   - Negative values are not transmitted.
4. Identifier code <4><0> = Gross weight.
   - Transmission is Gross Only.
5. Transmission for the DEMAND Mode occurs when a carriage return (CR) HEX 0D is received.
6. See APPENDIX V for more ID Codes

B. Configure Output

The Continuous Computer Output is an uninitiated, unrequested output that gets transmitted at a fixed time interval.

FAIRBANKS/TOLEDO DATA FORMAT

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

Character String Description:

STX - Start of Text character (02 Hex)
A - Status Word A
B - Status Word B
C - Status Word C
G (gross weight data) - xxxxxx Displayed Weight : x = Weight

- 6 characters if the graduation size does not have a decimal point.
- 5 characters if the graduation size does have a decimal point.

The decimal point is not sent as part of the character string.

T (tare weight data) - xxxxxx Tare Value : x = Tare

- (6 characters if the graduation size does not have a decimal point.)
- (5 characters if the graduation 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.

B. Configure Output, Continued

STATUS CODE (WORD) A

Bit #	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

FAIRBANKS/TOLEDO DATA FORMAT

INCREMENT SIZE

Bit #		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		

STATUS CODE (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		

B. Configure Output, Continued

STATUS CODE (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 = 0		
6		Normal = 0		Keyboard Tare = 1
7		Parity Bit		

CARDINAL 738 CONTINUOUS SCOREBOARD DATA FORMAT

<CR><P><WWWWWW>Period (.)<m><SP><u><SP><g><SP><SP><ETX>

Character String Description:

CR – Carriage return
P – Polarity (**+** = Positive weight, **-** = Negative weight)
W – Displayed weight

- 6 characters if the graduation size does not have a decimal point.
- 5 characters if the graduation size does have a decimal point.

m – Motion or o = Overload
SP – Space
U - Units (lb = pounds, kg = kilograms)
g – Gross or **n** = Net
ETX - End of text

- Leading zeros are not suppressed
- If division size has no decimal point, set the decimal to "trailing".
- If division size has a decimal point, set the decimal to "floating".

B. Configure Output, Continued

WEIGHTRONIX DATA FORMAT

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

Character String Description:

SP – Space
g – Gross or **n** = Net
W – Displayed weight

- 6 characters if the graduation size does not have a decimal point.
- 5 characters if the graduation size does have a decimal point.

SP – Space
U – Units (lb = pounds, kg = kilograms)
M – Motion
CR – Carriage return
LF – Line feed

- Leading zeros are not suppressed.
- There is no motion character.

CONDEC CONTINUOUS DATA FORMAT

<STX><SP><SP><WWWWWW><U><G><M><CR>

Character String Description:

STX – Start of Text character (02 Hex)
SP – Space
SP – Space
W – Displayed weight

- 6 characters if the graduation size does not have a decimal point.
- 5 characters if the graduation size does have a decimal point.

U – Units (L = pounds, K = kilograms)
G – Gross; N = Net
M – Motion
CR – Carriage return.

- Leading zeros are suppressed.

APPENDIX II: CONNECTING TO THE FB7100 VIA ETHERNET

Connecting via the Web Utility using an Ethernet crossover cable

NOTE: *If you are not using a keyboard and mouse on your PC or if you are using a Tablet, touch and hold will act as a 'Right Click'.*

To access the current IP address of the FB7100:

1. Login to the FB7100
2. Select **CONFIGURATION**. Press **ENTER**
3. Select **NETWORK**. Press **ENTER**

Depending on how the FB7100 has been configured **DHCP** or **STATIC** will display. Follow the instructions below for **DHCP** or **STATIC**:

If DHCP is displayed…

4. Change the **USE DHCP?** Setting to **STATIC** and press **ENTER**:
5. Select **STATIC OPTIONS** and press **ENTER**
6. Enter the **IP ADDRESS** as: ***192.168.100.XXX*** and press **ENTER**
   XXX must be **greater** than 001
7. Enter the **NETMASK** as***: 255.255.255.000*** and press **ENTER**
8. Enter the **GATEWAY** as: ***192.168.100.001*** and press **ENTER**
9. Enter the **PRIMARY DNS** as: ***008.008.008.008*** and press **ENTER**
10. Select **APPLY CHANGES** and press **ENTER**

If STATIC is displayed…

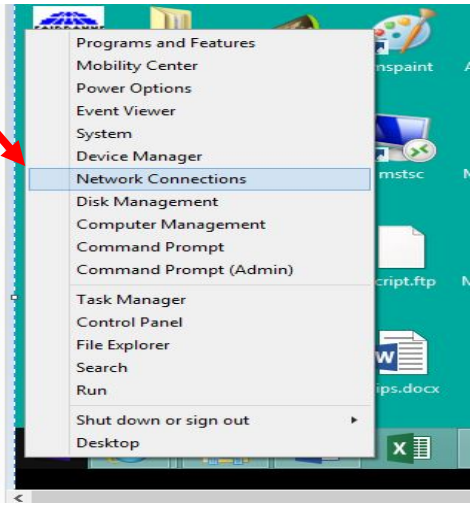
5. Select **STATIC OPTIONS**, Press **ENTER**
6. The FB7100 IP address is displayed
   XXX.XXX.XXX.XXX
7. Write down the IP address

Procedure:

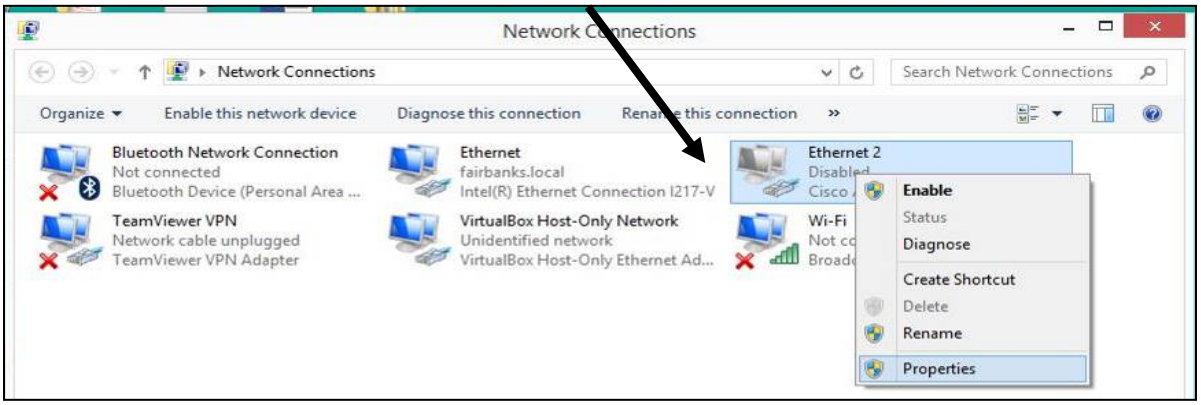
1. **FOR TABLET USERS ONLY** - Plug in your USB to Ethernet adaptor
   a. If you are using a PC with **Windows 8**, proceed directly to step 2

2. Right click on the **Start menu** (Windows Logo)

3. Click on **Network Connections**



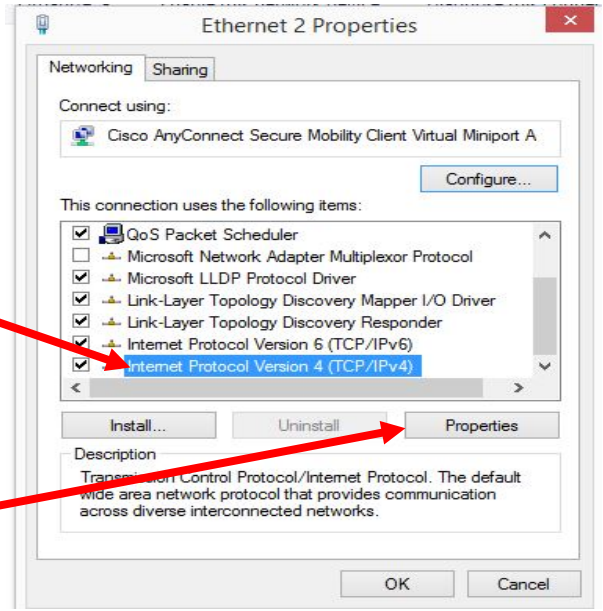
4. Right click on **Ethernet Connection** for the adapter (it may state **ETHERNET 2**)



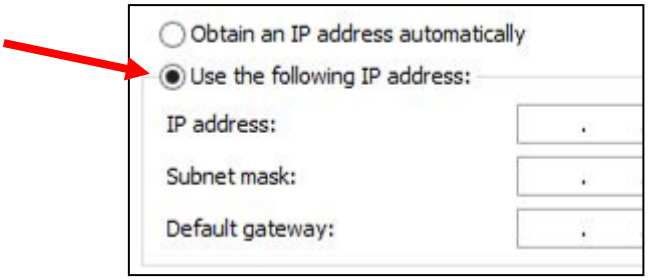
5. Click on **PROPERTIES**

6. Click on internet protocol **VER. 4 TCP/IP 4**

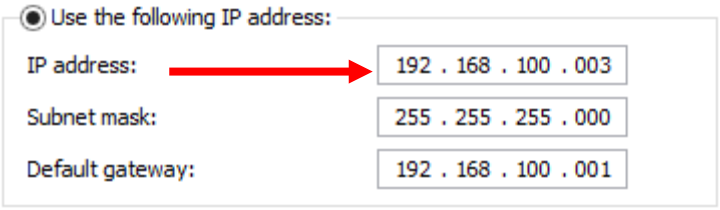
7. Then click on **PROPERTIES**



8. Click **Use the following IP address:**



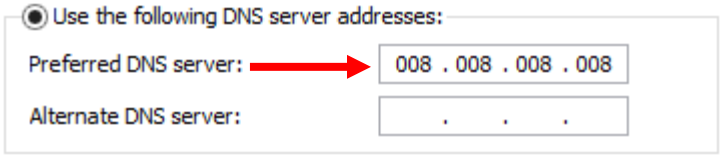
9. Enter the IP address of the instrument here, but make the last number in the IP address **at least 1 number higher** than the instrument.



10. Click in the Subnet Mask box and enter ***255.255.255.0*** as shown.

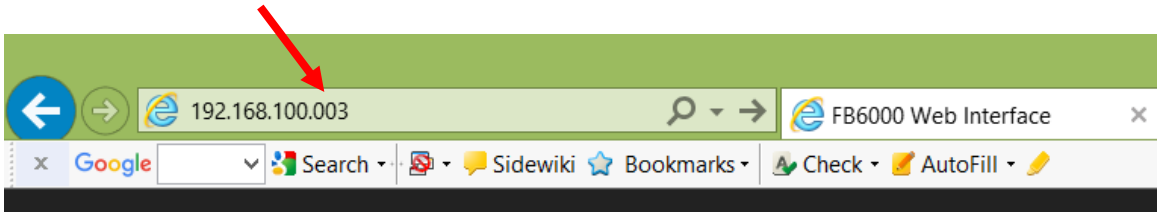
11. Click in the Default Gateway box and enter ***192.168.100.001*** as shown.

12. Click in the Preferred DNS server box and enter ***008.008.008.008*** as shown.



13. Click **OK** close this window.
14. Connect your PC or Tablet to the instrument using the ethernet cable.
15. Open your browser (Internet Explorer, Chrome or FireFox)

16. Enter the IP address of the instrument in the browser address bar



WHEN USING CERTAIN BROWSERS, YOU MADE NEED TO INCLUDE LEADING ZEROS WHEN ENTERING THE IP ADDRESS.

APPENDIX III: REMOTE INPUT CODES

Remote Input Codes can be sent to the instrument to control front panel keys remotely. Commands can be sent over any COM port configured to output to a PC in any mode or sent to the instrument over an Ethernet TCP/IP network if any network output is configured. The defaults are listed below, but the hex value for each command can be changed in the configuration menu.

COMMAND SENT VIA HEX VALUE	KEY
52	RED
47	GREEN
3F	ID
59	IN
4F	OUT
4B	UP
44	DOWN
3C	LEFT
3E	RIGHT
4D	MENU
30	NUM0
31	NUM1
32	NUM2
33	NUM3
34	NUM4
35	NUM5
36	NUM6
37	NUM7
38	NUM8
39	NUM9
2E	DEC PT
45	ENTER
55	UNITS
54	Tare
4E	BG NET
5A	ZERO

50	PRINT
46	FUNC
42	START
58	STOP

APPENDIX IV: PLC REFERENCE

After installing the fieldbus device, the following menu items will be available.

- Expansion Cards is now available at the 7100 main menu.

1. Select **EXPANSION CARDS**, press **ENTER** and select **FIELDBUS MODULE,** Press **ENTER**.
2. You can view the **Fieldbus Revision Number** and **network type**.
3. Fairbanks offers three different network types for the FB7100 Fieldbus Module Expansion Card, one of which will appear:
   - Ethernet/IP
   - Modbus-TCP
   - DeviceNet
4. Select **BYTE ORDER**, press **ENTER**.
5. **STANDARD** or **REVERSE** options appear. These ordering sequences are used when referencing 2 or more bytes.
   - **Standard *(default)*** is MSB aka Big Endian (example chart below).
   - **Reverse** is LSB aka Little Endian

   The **default** byte order is Big Endian or **M**ost **S**ignificant **B**yte (MSB).

   Example: Wt. 82,460 lb

   Below referencing the Fairbanks Fieldbus Input Data Map for Gross Wt.

   Words **5** & **6** | Bytes **10** - **13** | Gross Weight

	Word **5**		Word **6**	
	Byte **10**	Byte **11**	Byte **12**	Byte **13**
BINARY **MSB** order	00000000	00000001	01000010	00001000
HEX Value	00	01	42	08
Decimal Value	82,460			

Select **STANDARD** or **REVERSE**, press **ENTER**.

6. Select **NODE ADDRESS**, **IP ADDRESS** or **DEVICE ADDRESS** (depending on type), then press **ENTER**.
7. Enter the address supplied by the customer's IT department., press **ENTER**.
8. Proceed through the rest of the settings in the same manner. The remaining settings for each type are:

- **Ethernet/IP**:
  - **SUBNET MASK** – as needed to match customer network.
  - **GATEWAY IP** – as needed to match customer network.
  - **DHCP** - as needed to match customer network.
  - **COMM SETTINGS** - Allows you to set communication speed and Duplex type.
- **Modbus-TCP**:
  - **SUBNET MASK** - as needed to match customer network.
  - **GATEWAY IP** - as needed to match customer network.
  - **DHCP** - as needed to match customer network.
  - **COMM SETTINGS** – Allows you to set communication speed and duplex type.
  - **COMM 2 SETTINGS** - Allows you to set communication speed and duplex type.
  - **CONNECTION TIMEOUT**
  - **PROCESS TIMEOUT**
  - **DNS1** – Domain Name Server
  - **DNS2** – A second Domain Name Server
  - **HOST NAME** – host name of the PLC interface
  - **DOMAIN NAME** – domain containing the host
  - **SMTP SERVER** – Address of any mail server being used
  - **SMTP USER** – Username to access mail server.
  - **SMTP PASSWORD** – Password to access mail server.
  - **MIN WT** - Enter the min value
  - **MAX WT** – Enter the max value
- **DeviceNet**:
  - **BAUD RATE** - set the Baud Rate of the device.
  - **MIN WT** - enter the min value. *
  - **MAX WT** - enter the max value. *

*NOTE:

MIN WT

MIN value:

References the Fairbanks Fieldbus Input Data Map Word 2. Bit 2 is set to high when this value is present.

MAX WT

MAX value:

References the Fairbanks Fieldbus Input Data Map Word 2. Bit 1 is set to high when this value is present.

Information provided by the instrument to the network or by the network to the instrument is separated and stored into the appropriate register by the PLC accessory. The following tables show the register usage for each piece of information provided by the PLC. Each accessory has input data (from the scale to the PLC network) and output data (from the PLC network to the scale).

INPUT DATA (WORD BYTE REGISTER USAGE)

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)
0	0 – 1	Status Word 0	2
1	2 – 3	Status Word 1	2
2	4 – 5	Status Word 2	2
3 – 4	6 – 9	Unassigned	4
5 – 6	10 – 13	Gross Weight	4
7 – 8	14 – 17	Tare Weight	4
9 – 10	18 – 21	Net Weight	4
11 – 12	22 – 25	Setpoint 1	4
13 – 14	26 – 29	Setpoint 2	4
15 – 16	30 - 33	Flow Rate	4
17 – 19	34 - 39	Unassigned	6

OUTPUT DATA (WORD BYTE REGISTER USAGE)

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)
0	0 – 1	Command Word 0	2
1	2 – 3	Command Word 1	2
2	4 – 5	Command Word 2	2
3 – 4	6 – 9	Setpoint 1	4
5 – 6	10 – 13	Setpoint 2	4
7 – 8	14 – 17	Tare Weight	4
9	18 – 19	Unassigned	4
	80 – 105	Display Message Line 1	26
	106 – 131	Display Message Line 2	26
	132 – 157	Display Message Line 3	26

NOTE: There are additional words in the register dedicated to additional scales. The FBXXXX only supports single scale operation and those registers are unused during operation.

STATUS/COMMAND WORD BIT USAGE

The status and command words use bit-by-bit information to express scale information to the customer's PLC network. Status refers to information being relayed from the instrument to the network, while a command is issued by the network to the instrument.

Status/Command Word 0	
bit	Usage
0	Scale ID Scale 1 = 001
1	
2	
3	Motion
4	Over capacity
5	Within 2% of capacity
6	Enable Tare
7	Disable Tare
8	lb units
9	Kg units
10	Ton units
11	Tonne units
12	
13	
14	Weight conversion 01 = 32 bit floating point; 10 = 32 bit integer; 11 = 16 bit integer
15	

Status/Command Word 1	
bit	Usage
0	Decimal Point Location 000 * 1.0; 001 * 0.1; 010 * 0.01; 011 * 0.001; 100 * 0.0001
1	
2	
3	Load Tare Command
4	Auto Tare Command
5	Load Setpoint 1
6	Load Setpoint 2
7	Zero Scale Command
8	Load Cell Status Good = 0 Defective Cell = Cell Number Binary
9	
10	
11	
12	
13	
14	Print Command
15	Beep

Status/Command Word 2	
bit	Usage
0	Display Message Command / Operator Acknowledged
1	Scale weight at or above maximum weight
2	Scale weight at or below minimum weight
3	Unused
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

FB7100 Series Instrumentation

FB7101 In/Out/ GTN/Setpoint Analog NEMA 12 Desktop Instrument

FB7102 In/Out/ GTN/Setpoint Analog NEMA 4X Desk/Wall Mount Instrument

Operator Manual 51490

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