Operators Manual

FB2558 DAT Series

Driver Access Terminal

In/Out Application
Network Application

51418
Revision 5 03/19

Amendment Record

FB2558 DAT Series

Driver Access Terminal

Operator Manual, 51418

Manufactured by Fairbanks Scales Inc.
821 Locust
Kansas City, Missouri 64106

Created	9/2017	
Revision 1	9/2017	Released document
Revision 2	10/2017	Updated Specifications
Revision 3	03/2018	Updated: Operations > Product Groups
Revision 4	05/2018	Added note regarding Sleep Mode
Revision 5	03/2019	Updated ***Network Setup Procedure***

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Disclaimer

Every effort has been made to provide complete and accurate information in this manual. However, although this manual may include a specifically identified warranty notice for the product, Fairbanks Scales makes no representations or warranties with respect to the contents of this manual, and reserves the right to make changes to this manual without notice when and as improvements are made.

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Section 1: General Information

1.1. Introduction

Fairbanks Driver Access Terminals (DAT) offers the following benefits.

- Fully-automated system, to eliminate the need for an on-site operator. *
- The driver stays in his vehicle to weigh.
- A seven-inch (7”) color graphic display.
- An optional metalized outdoor keypad is vandal resistant, field tested and proven for demanding outdoor public environments.
- Two printer options are currently available.
  - Offered in both a wide and narrow print formats.
  - Available in thermal or dot matrix printers.
  - Ideal for unattended operation, these specific printers are also equipped with auto-feed and auto-cutter.
  - For durability and environmental protection, the ticket is printed internally then dispensed through a ticket slot in the front of the unit.
- The FB2558 DAT provides many connectivity and data acquisition capabilities with RS232, RS485, RS422 serial ports, USB, and a PCI 10/100mbs Ethernet interface.
- The **FB2558 DAT** can be outfitted with an optional bar code, magnetic or proximity card reader, which, after a quick card swipe, instantly transfers truck data to the system preventing possible data entry errors.
- Other options, such as an **Intercom** is also available.

* *Always check the local* **Weights & Measures Official** *for the rules governing unattended applications.*

1.1.1. Description

- An integrated e-mail client is configurable to alert a service organization or individual of a problem prior to total failure.
- These error notifications include such warnings as load cell failure, and calibration change.
- Several other notifications are available to keep the proper individuals informed of the scale's operating condition.
- Uses the customer's existing email infrastructures.
- Requires a connection to the customer's PC Network.
- The instrument is designed to function with **Intalogix™ Technology**, 5analog load cells, and **Mettler Toledo DigiTol™ Load Cells.**

The **FB2558 DAT** is a modular designed instrument, configurable and upgradable using **Printed Circuit Modules.**

- Each module provides a specific scale or I/O functionality to the weighing system.

STANDARD FEATURES

- **Seven inch (7") full-color display**
- **Ethernet**
- **SQL database**
- **Touch screen operation**
- **Integrated web server**
- **Multiple/ Expandable serial ports**
- **Built-in reporting functions**
- **IP Camera interface with onscreen image**
- **Stainless steel construction**
- **Programmable F-key Prompts**

MODULE KIT NO.	DESCRIPTION	MAX PER INSTRUMENT
30916	Intalogix Power Supply and Communications PCB Kit	1
30917	Expansion PCB Assy Kit*	2
30918	Scale Interface Controller (SIC) PCB Assy Kit	1
30919	4-20mA Analog Kit	1
30920	Relay PCB Assy Kit	2
30921	Serial Expansion PCB Assy Kit	2
31079	A/D Convertor Kit	1

NOTE: *Any combination of **eight (8) modules** can be installed, restricted to this maximum number. Possibly even less, depending on the module kit type.*

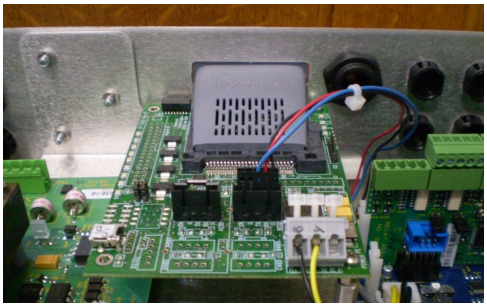
1.2. Accessories

1.2.1. Fieldbus Interface Kits

The **Industrial Fieldbus Module** is a standalone **HMS Compact Communication Interface Module**.

The **SBC** communicates thru a **RS232 port** to this **Fieldbus Gateway**, which may be populated with the appropriate Fieldbus option.

- Those options include the PROFIBUS-DP, Modbus-TCP, DeviceNet and ControlNet.



Typical **Fieldbus Card** *installation.*

1.2.2. RS-485 Serial Port Accessory

The RS-485 Serial Port Accessory (**30937**) is a two-wire, half duplex, multipoint serial connection.

- RS-485 offers high data transmission speeds, and uses a differential balanced line over twisted pair over long distances.
- RS-485 enables the configuration of inexpensive local networks and multi-drop communications links.
- This accessory utilizes **COM Port 1**.

NOTE: *See* **6.1. ACCESSORY PARTS REFERENCE** *for the complete listing of available options.*

1.3. Specifications

Enclosure	NEMA 4 Stainless Steel
BIOS	Award™ Software
RAM	2 GB RAM
Disk Storage	8 GB PCIe Memory Device
Operating System	Windows 8.1 Embedded, 32 GB Flash Module
Temperature **Operating Range** **Storage Range**	14°F to 104°F, (–10°C to 40°C).
Serial Outputs	Up to 12 serial ports and 4 built-in USB ports. The USB port on the Multi-Function board is dedicated for a keyboard only.
Digital I/O	Up to 28 I/O
Ethernet Interface	PCI 10/100/1000 Mbps Ethernet Complies with IEEE 802.3x Standards
Display	7” Diagonal Touch Screen LCD Color
Scale Interface Options	• **Intalogix Technology** — Intalogix Power Supply and Communications (**30916**) — Scale Interface Controller (**30918**) • **Analog Technology.** — A/D Convertor Load Cell Interface (**31079**) ▪ *Up to sixteen (16) 1000 Ω or eight (8) 350 Ω cells.*
Accessories	• Serial Interface (**30921**), including: – ***RS232*** – ***RS-485*** – ***20mA*** • 4-20mA (**30919**) • Mini keyboard (**25498**) — USB – 87 key • Keyboard (**31036**) — USB – 104 key • SVP/ Uninterruptible Power Supply (UPS) (**15892**) — 500 VA Rating • Fieldbus Gateway – ***PROFIBUS-DP (30922)*** – ***DeviceNet (30923)*** – ***ControlNet (30924)*** – ***MODBUS-TCP (30925)***
Power Requirements	100 - 130 VAC @ 12A @ 60 Hz +/- 2 Hz – ***Separate and dedicated circuit.*** – ***Neutral to Ground voltage should be ≤ 0.2 VAC*** – ***One Amp (1A) is typical. Twelve Amps (12A) is a fully equipped model.***
ETL Listed	• **Conforms to UL STD 60950-1.** • **CAN/CSA C 22.2 NO.60950-1-03.**
Approvals	• CC# 10-089 • MC# AM-5805

1.4. General Service Policy

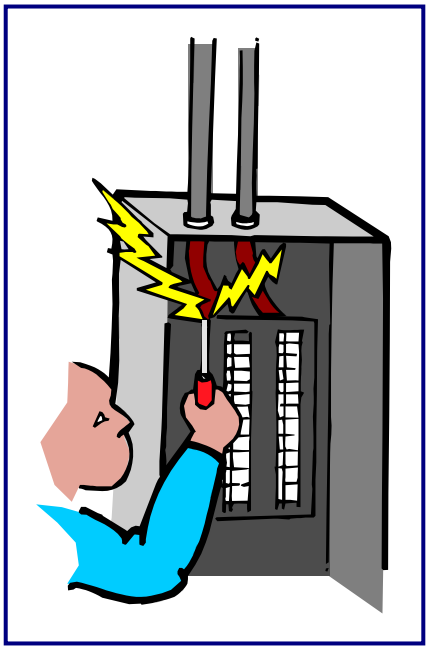
Prior to installation, ***always*** verify that the equipment satisfies the customer's requirements as supplied, and as described in this manual.

If the equipment cannot satisfy the application and the application cannot be modified to meet the design parameters of the equipment, **the installation should *NOT* be attempted.**

It is the **customer/operator's responsibility** to ensure the equipment provided by Fairbanks is operated within the parameters of the equipment's specifications and protected from accidental or malicious damage.

All load cells, load cell cables and interconnecting cables used to connect all scale components shall be located **a minimum of thirty-six (36") inches distance away** from all single and multiple phase high energy circuits and electric current carrying conductors.

- This includes digital weight indicators, junction boxes, sectional controllers, and power supplies.
- This includes any peripheral devices, such as printers, remote displays, relay boxes, remote terminals, card readers, and auxiliary data entry devices.
- Also included is the scale components themselves, such as 120-volt AC, 240 volt AC, 480 volt AC and electric supply of higher voltage wiring runs and stations, AC power transformers, overhead or buried cables, electric distribution panels, electric motors, florescent and high intensity lighting which utilize ballast assemblies, electric heating equipment, traffic light wiring and power, and relay boxes.



All scale components, including digital weight Instruments and peripheral devices are not designed to operate on internal combustion engine driven electric generators and other similar equipment.

WARNING!

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

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

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

Please call your local FAIRBANKS SCALES REPRESENTATIVE for any questions, problems, or comments.

1.5. Pre-Installation Checkout

The following points should be checked and discussed with the **Area Sales Manager and/or customer**, if necessary, before the technician goes to the site and installs the equipment.

- ✓ Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- ✓ If the installation process might disrupt normal business operations, tell the customer and ask that they make ample arrangements.
- ✓ Is properly-grounded power available at the installation location?
- ✓ Be sure that the equipment operator(s) are available for training.
- ✓ The Service Technician must thoroughly review the installation procedures.
- ✓ The service technician reviews the recommended setup with the Area Sales Manager or Area Service Manager, and together they identify all necessary variations to satisfy the customer's application.

1.5.1. Unpacking

Follow these guidelines when unpacking all equipment:

- ✓ Check in all components and accessories according to the customer's order.
- ✓ Remove all components from their packing material, checking against the invoice that they are accounted for and not damaged.
  - *Advise the shipper immediately, if damage has occurred.*
  - *Order any parts necessary to replace those which have been damaged.*
  - *Keep the shipping container and packing material for future use.*
  - *Check the packing list.*
- ✓ Collect all necessary installation manuals for the equipment and accessories.
- ✓ Open the equipment and perform an inspection, making certain that all hardware, electrical connections, and printed circuit assemblies are secure.
- ✓ Do not reinstall the cover if the final installation is to be performed after the pre-installation checkout.

1.5.2. Equipment Location

Position the equipment with these points in mind:

- ✓ Intense direct sunlight can harm the display.
- ✓ Airborne particles can activate the touch screen.
- ✓ Work areas should be relatively free from drafts and vibrations.
- ✓ Do not locate near magnetic material or equipment/instruments which use magnets in their design.
- ✓ Avoid areas which have extreme variations in temperatures. Temperatures outside the instrument’s specifications will affect the weighing accuracy of this product.

1.5.3. Safety

Follow these safety precautions during operation:

- ✓ Properly shut down the equipment and remove power before any cables or hardware is disconnected.
- ✓ Remove power to the equipment after a proper shut down before servicing the equipment.

1.6. Users' Responsibilities

- ✓ 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.*
- ✓ The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures and must be replaced as units.
  - *Replacement of individual components is not allowed.*

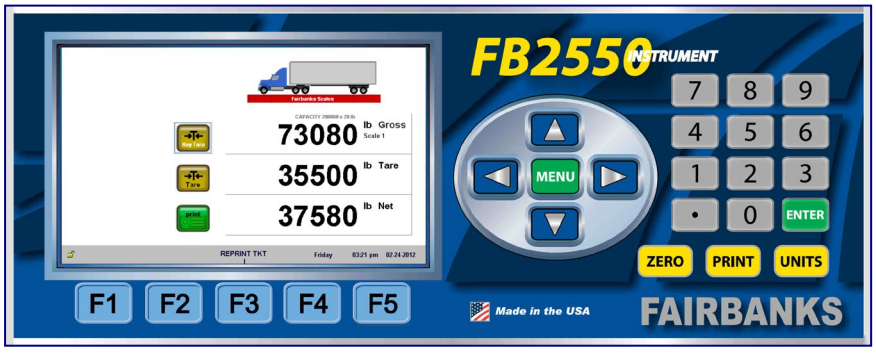
Section 2: Operations

2.1. Front Panel KeyPad Functions

KEY (S)	FUNCTION
0-9	Used to enter numeric data such as IDs.
F1	This key is not operational in the weight processing screen.
F2	This key is not operational in the weight processing screen.
F3	Reprint Ticket. This key will permit the reprinting of a previously printed ticket. This key will also function to pull up a list of items such as Loop, Customer, or Product during the weighing process.
F4	This key is not operational in the weight processing screen.
F5	This key is not operational in the weight processing screen. This key, while in the configuration menu, performs as a backup key to the previous screen.
ALT + F5	Power Off. This key with the ALT key held down turns the instrument off. The power cord must be unplugged and plugged back in to power up the instrument
Enter	Will store or accept a data entry item.
Zero	This key is not operational in the weight processing screen.
ALT + Zero	This key when used with an external keyboard with the ALT key held down will Zero the scale.
Units	This key is not operational in the weight processing screen.
ALT + Units	This key when used with an external keyboard with the ALT key held down will toggle the Units.
Print	Will initiate a print cycle.
Menu	This key is not operational in the weight processing screen.
ALT + Menu	This key when used with an external keyboard with the ALT key held down will open the Menu for the Configuration Home.
Up Arrow	Navigate up.
Down Arrow	Navigate down.
Left Arrow	Navigate left.
Right Arrow	Navigate right.

2.2. External Keyboard

KEY	FUNCTION
F1	This key is not operational in the weight processing screen.
F2	This key is not operational in the weight processing screen.
F3	Reprint Ticket. This key will permit the reprinting of a previously printed ticket. This key will also function to pull up a list of items such as Loop, Customer, or Product during the weighing process.
F4	This key is not operational in the weight processing screen.
F5	This key is not operational in the weight processing screen. This key, while in the configuration menu, performs as a backup key to the previous screen.
ALT + F5	Power Off. This key with the **ALT key** held down turns the instrument off. The power cord must be unplugged and plugged back in to power up the instrument
ALT + Pause Break	This key with the **ALT key** held down will Zero the scale .
ALT + Zero	The **ALT key** held down plus pressing the Zero key on the keypad will Zero the scale .
ALT + Scroll Lock	This key with the **ALT key** held down will toggle the Units.
ALT + Units	The **ALT key** held down plus pressing the Units key on the keypad will toggle the scales units. .
PrtSc SysRq	Will initiate a print cycle.
ALT + Home	This key with the **ALT key** held down will open the Menu for the Configuration Home.
ALT + Menu	The **ALT key** held down plus pressing the Menu key on the keypad will open the Menu for the Configuration Home.
ESC	Clear or restart.
Ctrl + Shift + H	System Information
Ctrl + Shift + S	Displays Expansion modules installed.
Alphanumeric keys	Used to enter various data. i.e. – truck id's, products, customers
Up Arrow	Navigate up.
Down Arrow	Navigate down.
Left Arrow	Navigate left.
Right Arrow	Navigate right.



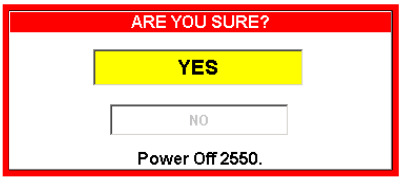
2.3. Proper Shutdown Procedure

C A U T I O N

FB2558 DAT must be shut down properly!

Failure to shut down properly can result in corrupting essential software files necessary for proper operation and may require replacement of the 8GB Flash Drive.

1. An external keyboard must be used to perform the shutdown.
2. Press the **ALT + F5** key to begin the shut-down process from the weight processing screen..
   - A **Shut Off Warning** appears whenever **ALT + F5** is pushed.



3. After proper shut-down is complete, ***ALWAYS*** **turn off the internal** power switch.
   - Until the FB2558 DAT AC power is turned off from the inside cabinet power
   - switch, it will continue to supply operating voltage to the instrument circuits.
4. The **POWER-OFF (ALT + F5)** is inactive when any Service Programming is being completed.

NOTE: If the display on the FB2558 changes to a “white” screen, it is in in **Sleep Mode**. Press any key or touch the display to “wake up” the instrument.

2.3. Proper Shutdown Procedure, Continued

A T T E N T I O N !

After proper shut-down is complete, ***ALWAYS*** turn off the internal power switch.

- Until the FB2558 DAT AC power is turned off from the inside cabinet, it will continue to supply operating voltage to the instrument circuits.

W A R N I N G !

DO NOT CONNECT OR DISCONNECT WIRING FROM SCALE COMPONENTS WHILE THE FB2558 DAT IS ENERGIZED.

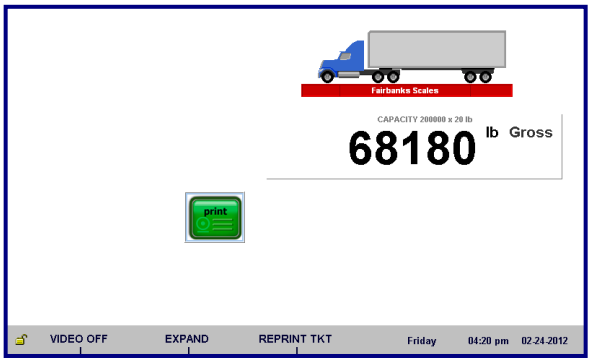
FAIRBANKS SCALES
HIGHLY RECOMMENDS USING A SUITABLY SIZED UPS.

SVP/ Uninterruptible Power Supply (UPS) (15892), 500 VA Rating

2.4. Operational Procedures

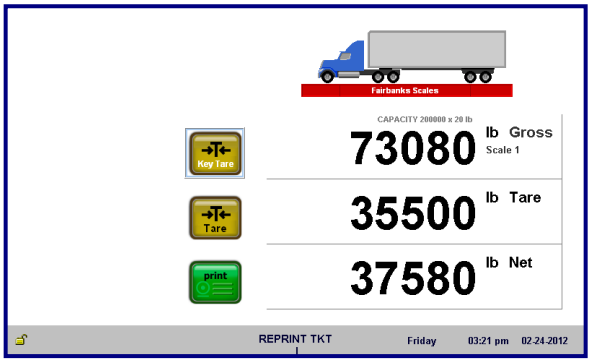
2.4.1. Basic Operations Summary

GROSS WEIGHING



1. Drive the vehicle to be weighed on the platform.
2. Once the display stabilizes, press the **PRINT** key.
   - A **Gross Weight** ticket prints.

GROSS-TARE-NET WEIGHING



3. Drive the vehicle to be weighed on the platform.
4. Press either the **KEY TARE** or **TARE** button.
   - If **KEY TARE** is selected, enter the known **Tare Weight** on the keypad.
   - If **TARE** is selected, the weight on the display is captured as a **Tare Weight**.
5. Load the vehicle with product and return to the scale.
6. Press the **PRINT** key and a Gross-Tare-Net Ticket will be printed.
   - **Mode Change** – When a **KEY TARE** or **TARE** button is pressed, the scale automatically switches from the **Gross Weighing Mode** to the **Gross-Tare-Net Mode**.
7. To change the scale from the Gross-Tare-Net Mode back to the Gross Weighing Mode, press **KEY TARE**.

NOTE: If the display shows cell(s) failure, this indicates an error on the platform.

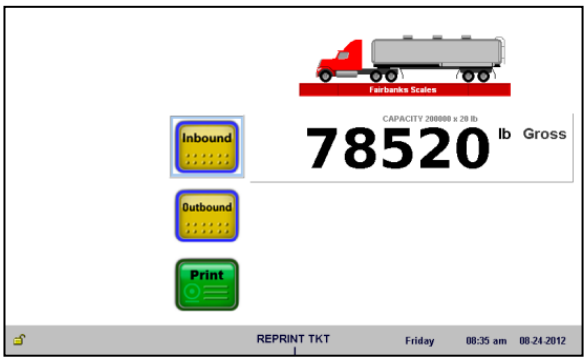
Check the platform for equipment, debris, or other materials and remove them. If this does not resolve the condition, call for service.

2.4.1. Basic Operations Summary, Continued

INBOUND/OUTBOUND WEIGHING

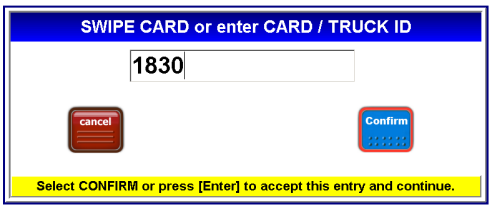
Follow these steps to weigh using the **INBOUND/OUTBOUND Mode**.

1. The truck pulls onto the scale.



2. The driver enters the **TRUCK ID,** or swipes an Id Card.

- Original readers include the following.
  - **Prox Card**
  - **Barcode Card**
  - **Magnetic Card**

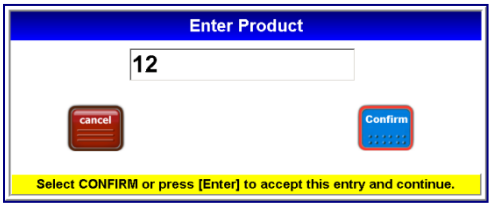


3. The driver enters the **CUSTOMER ID** (optional setting).

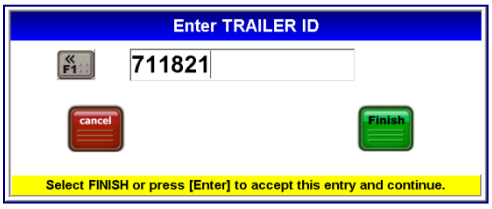
4. The driver enters a **PRODUCT ID** (optional setting).

   This **Product ID** is validated against the system database.

- This **Customer ID** is validated against the system database.



5. The driver enters data into a **FREE FORM PROMPT** for any additional information needed to detail the transaction, such as **Trailer ID**.



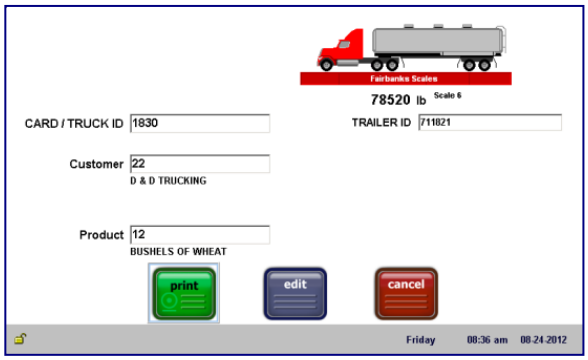
- There are ten (10) available free form prompts.
- The information is stored in the transaction record and can be printed, but it is not validated against the database.

2.4.1. Basic Operations Summary, Continued

INBOUND/OUTBOUND WEIGHING

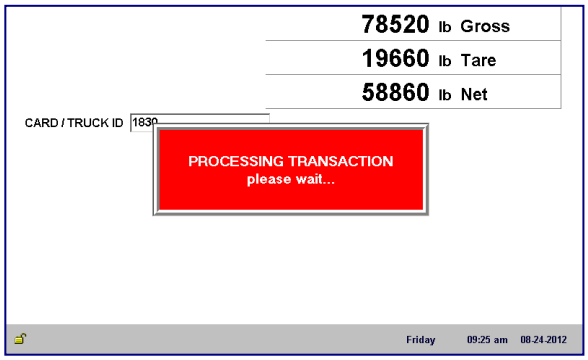
An optional **REVIEW Screen** provides the driver an opportunity to review and edit the entered information before generating a ticket.

6. Pressing the **EDIT** button updates the inputs.



A window displays briefly showing the **Gross, Tare** and **Net weights** while the transaction processes.

Printing a hard copy ticket is optional.



The optional **EXIT Screen** prompts the driver to leave the scale.

- The message within this window is fully programmable.
- Separate messages are available for **Inbound** (one line) and **Outbound** (two lines) **Transactions.**

2.5. Configuration Menu

The FB2558 DAT Program provides an intuitive means for configuration and programming.

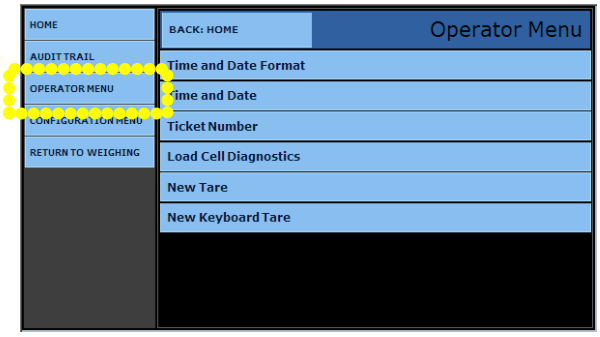
- Remote configuration of the instrument using a Network interface is also possible.
- There are three levels of access: **Standard Users, Supervisors,** and **Service Technicians**.
  - No **LOGIN** is required for standard **Scale Operators**.
  - Supervisors and Service personnel must **LOGIN** to gain access to the **CONFIGURATION menu**.

HOME	Returns the operator to the Configuration Home page
AUDIT TRAIL	Identifies how many times and when changes have been made to the scale's Calibration or Configuration settings.
OPERATOR MENU	User access for Time/Date, Ticket Number, Load Cell Diagnostics, and Keyboard Tare entries.
CONFIGURATION MENU	Supervisor access to communications programming and functions, ticket formats, programmable legends and prompts, camera inputs and weight threshold.
RETURN TO WEIGHING	Returns the user to the Weighing Display Screen.

2.6. Operator Menu

The **OPERATOR MENU** allows basic operations of the instrument.

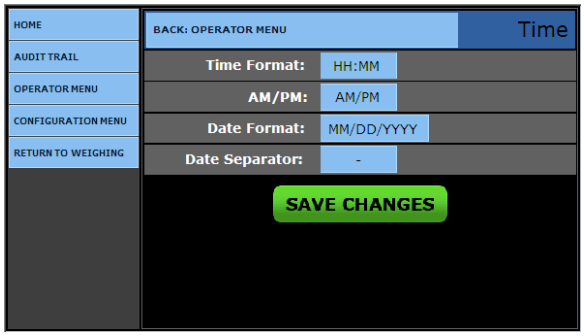
- Allows access to change the time, date, ticket number, and the formatting of the time and date.
- Allows basic diagnostics of the load cells in the scale(s), with beneficial information for scale operations.



- Selecting **BACK: HOME** returns to the **Configuration Home Menu**.

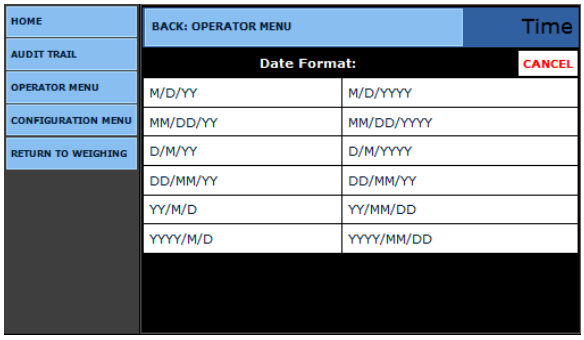
2.6.1. Time and Date Format

1. Select **TIME FORMAT** from the choices noted below.
   - **H:M**
   - **HH:MM**
   - **H:M:S**
   - **HH:MM:SS**



2. Open the **AM/PM** option, which permits **12 hour** or **24 hour** format.

3. Touch the **DATE FORMAT**, and then select best one for the company's needs.



4. Select one available **DATE SEPERATOR** formats include (**SPACE**), **/,** and **–.**

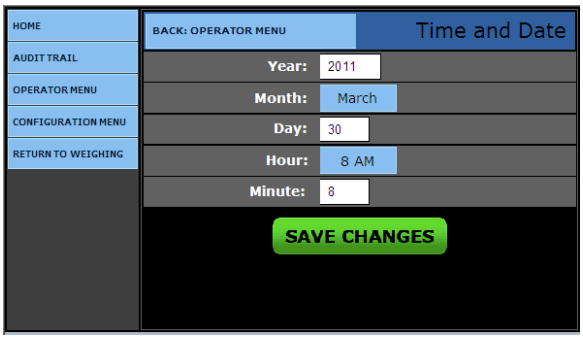
5. Press the **SAVE CHANGES** button when any changes are made, or they **will be lost**.

- Select **BACK: OPERATOR MENU** to return to the **Operator Menu.**

2.6.2. Set Time and Date

1. Enter the **YEAR, MONTH, DAY, HOUR,** and **MINUTE options** into the box next to the legend.
2. Press the **SAVE CHANGES** button when any changes are made, or they **will be lost**.

- Select **BACK: OPERATOR MENU** to return to the Operator Menu.



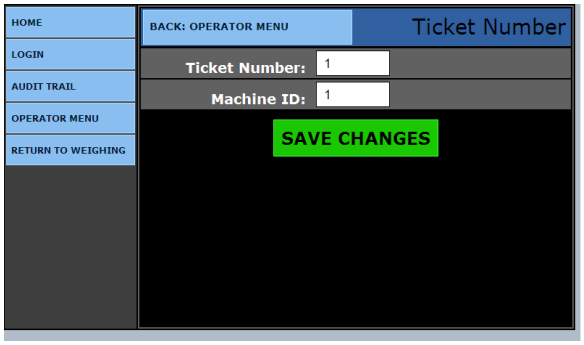
2.6.3. Ticket Number

1. Enter the **TICKET NUMBER** by typing the correct value into the box next to the legend.

- Allows a maximum entry of **six (6) digits**.

2. Enter the **MACHINE ID** by typing the correct value into the box next to the legend.

- This value is used for customer identification purposes if required.



✓ **DEFAULT = 1**

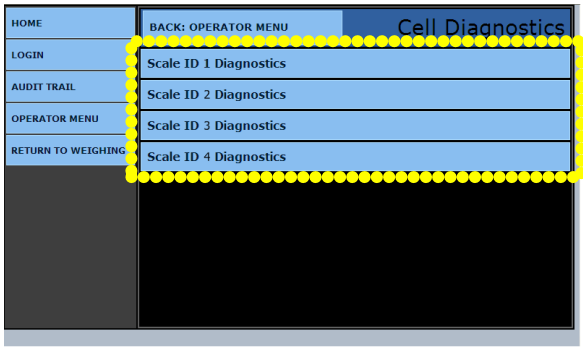
3. Press the **SAVE CHANGES** button when any changes are made, or they **will be lost**.

- Select **BACK: OPERATOR MENU** to return to the **Operator Menu.**

2.6.4. Load Cell Diagnostics

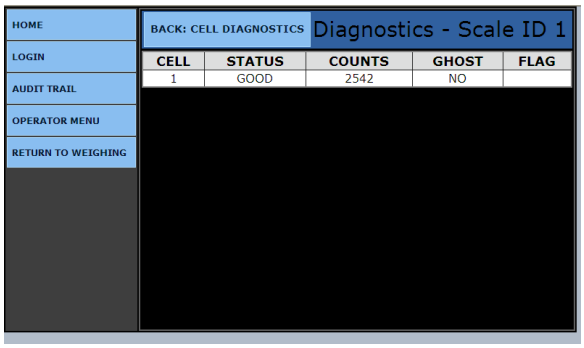
Instruments equipped with Intalogix® technology have load cell diagnostics features for easier troubleshooting capabilities.

1. To view the diagnostic information, select the correct scale.
2. Select **BACK: OPERATOR MENU** to return to the Operator Menu.



A. SCALE ID X DIAGNOSTICS

The diagnostic screen gives a quick snapshot of how each load cell is performing.

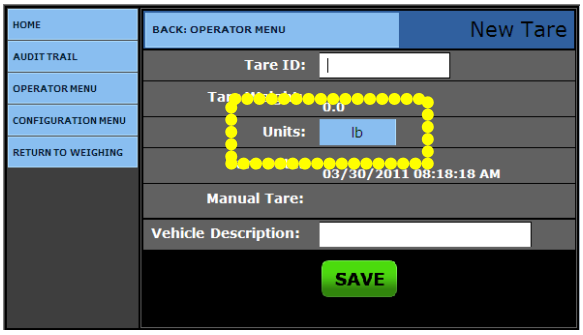


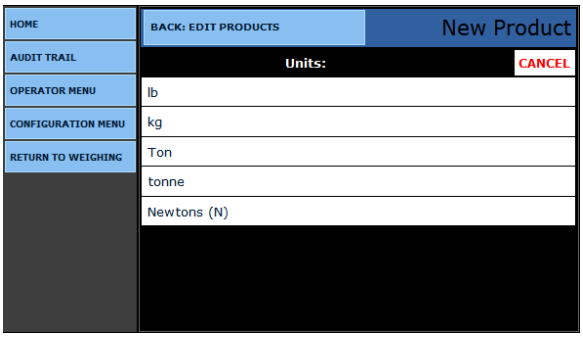
- **CELL:** Identifies the load cell in the scale platform.
- **STATUS:** Compares the load cell output to stored calibration values and posts a **GOOD** or **BAD** condition.
- **COUNTS:** Displays the load cell's current counts.
- **GHOST:** Ability to electronically "mimic" or duplicate a load cell if equipped with an Intalogix™ Interface for load cell communications (preventing system failure and/or shutdown).
- **FLAG:** Visual flags " * " are used to identify problem load cell(s) on diagnostic screen until flag is manually cleared This improves the ability to identify intermittent issues.

- Select **BACK: CELL DIAGNOSTICS** to return to the **Cell Diagnostics Menu**.

2.6.5. Entering a New Tare Automatically

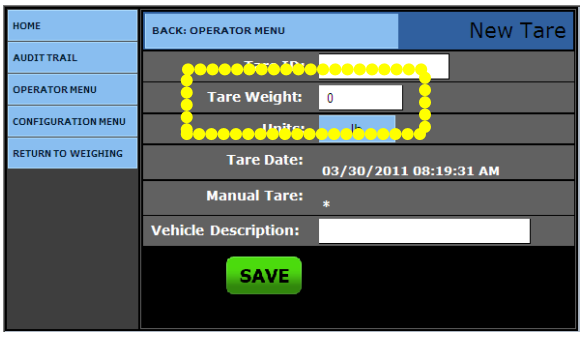
1. Enter the **TARE ID** numeric value to store and recall a tare weight saved.
   - The **Tare Weight** value is either what is currently on the scale, or was entered previously.
   - This value cannot be edited.
2. Select the correct **UNITS value.**
   - A **Tare Date** generates automatically when the Tare is entered.
   - The **Manual Tare** option is not used in this programming menu.
3. Enter the Vehicle Description.
   - This is a unique description or label for the tare weight, and how it is associated.





2.6.6. Entering a New Tare using a Keyboard

1. Enter a new **TARE ID** numeric value to save and recall the **tare Weight**.
2. Enter the **TARE WEIGHT** manually using the keyboard.
3. Select the **UNITS** for the new Tare.
   - The **Tare Date** records the date and time the tare generates automatically.
   - The **Manual Tare** is a flag designating the tare is manually entered.
4. Enter the Vehicle Description.
   - This is a unique description or label for the tare weight, and how it is associated.



5. Press the **SAVE CHANGES** button when any changes are made, or they **will be lost**.

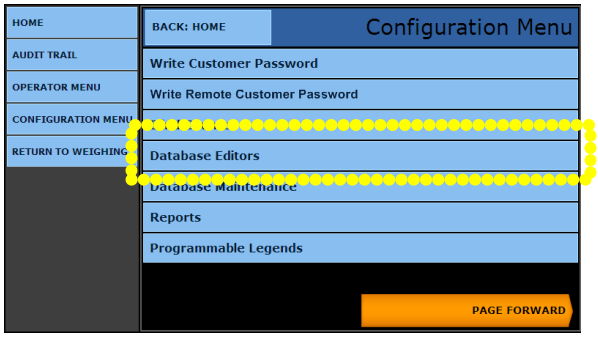
- Select **BACK: OPERATOR MENU** to return to the **Operator Menu.**

2.7. Edit Customers

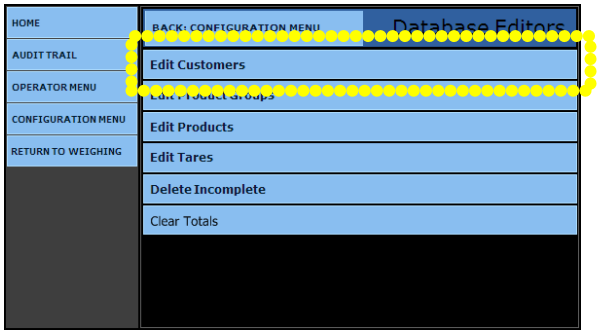
The FB2558 DAT stores customer's name and address, as well as information used for reporting accumulated weights.

2.7.1. Adding or Editing Customers

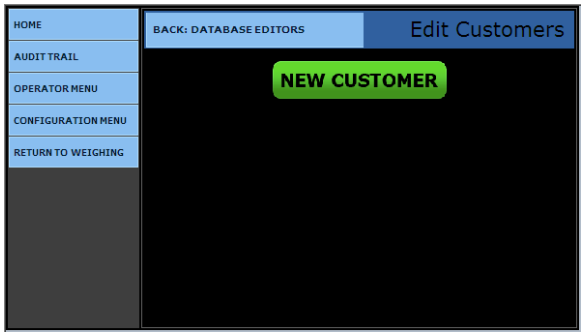
1. Press **ALT + Home**.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select the **CONFIGURATION MENU**
5. Press **DATABASE EDITORS**.



6. Select **EDIT CUSTOMERS**.

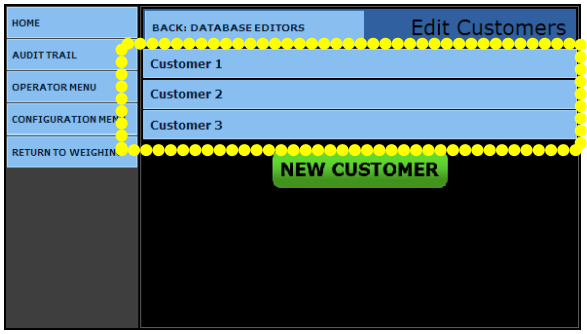


The first time a customer will be entered, the screen will appear as shown.



7a. Press the **NEW CUSTOMER** button.

OR…

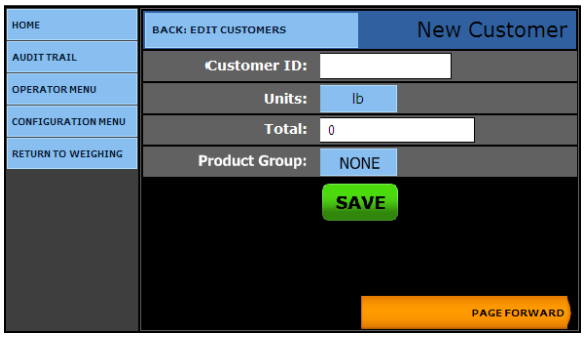


7b. Select the existing **customer record** which needs editing or updating.

2.7.1. Adding or Editing Customers, Continued

8. Enter the unique customer number in the **CUSTOMER ID** **data entry box**.

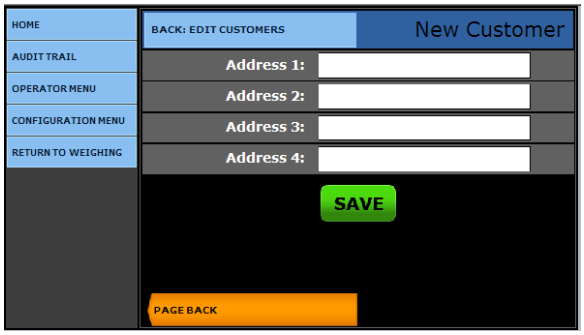
- When selecting a preexisting Customer, the **Customer ID** will generate automatically.



- The **TOTAL** data entry box is automatically populated and updated at every weighment that uses the **Customer ID Value**.
- This provides a running total of Net weight for each customer.

9. Input any pertinent company information in the **ADDRESS ONE** thru **FOUR** (**1 – 4)** data entry boxes.

- Include customer names, addresses, telephone numbers, fax numbers, and point-of-contact names.



- Press the **SAVE CHANGES** button when any changes are made, or they will be lost. Select **BACK: DATABASE EDITORS** to return to the **Database Editors menu.**

OR

- Select **BACK: EDIT CUSTOMERS** to return to the **Edit Customers menu.**

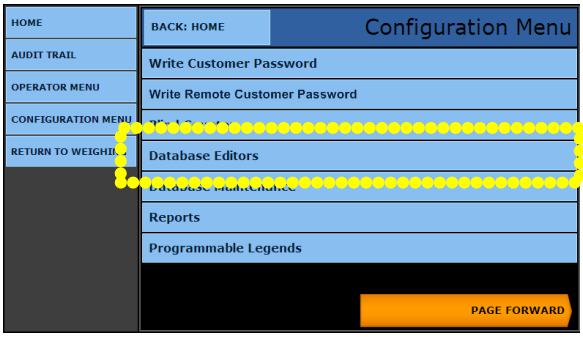
2.8. Editing Products

The FB2558 DAT can store a great deal of information about products.

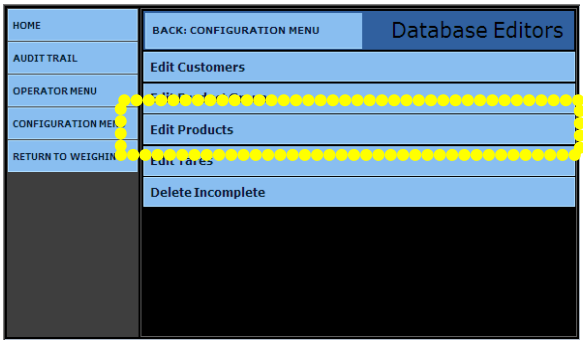
- The product id, conversion factor, conversion factor units, and number of decimal places are entered as information used for reporting such as accumulated weights.
- This menu adds new product or edits existing product.
- A **Supervisor** or **Service level access** is required to add or edit the products.

2.8.1. Adding or Editing Products

1. Select **LOGIN.**
2. Enter the **Supervisor Password**.
3. Select the **CONFIGURATION MENU**.
4. Click on the **DATABASE EDITORS** button.

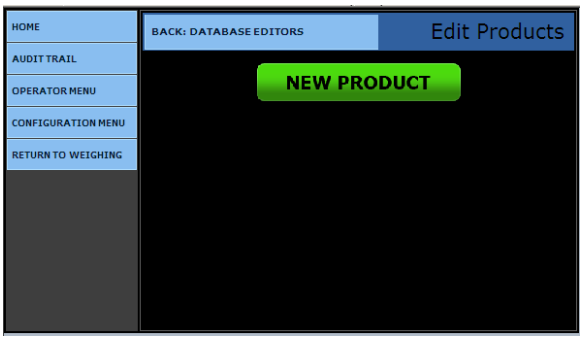


5. Select **EDIT PRODUCTS**.



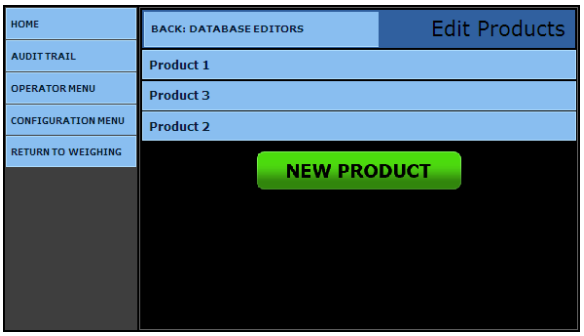
2.8.1. Adding or Editing Products, Continued

6a. Press the **NEW PRODUCT** button to generate a new one.



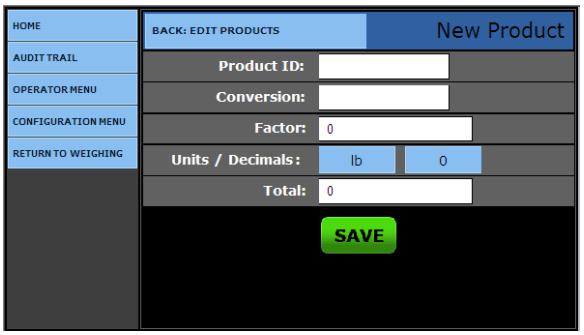
OR

6b. To edit or update an existing product, press the correct **PRODUCT X** button from the list.



OR

6c. For a pre-existing product, enter the **PRODUCT ID** in the data entry box.



7. Each product entered has an identification value for recalling it in the weighing process.
8. Enter a Product's Label in the **Conversion** entry field.

- **TONS, METRIC TONS, TONNES**, and **BUSHELS** are some examples of labels.

2.8.1. Adding or Editing Products, Continued

9. Enter the **FACTOR** value in the entry field.

- This value converts the weight to another unit's value.
- The **Factor** is multiplied by the **Net Weight** of a transaction.
- To obtain the Factor, divide the conversion value of the unit into **ONE (1).**

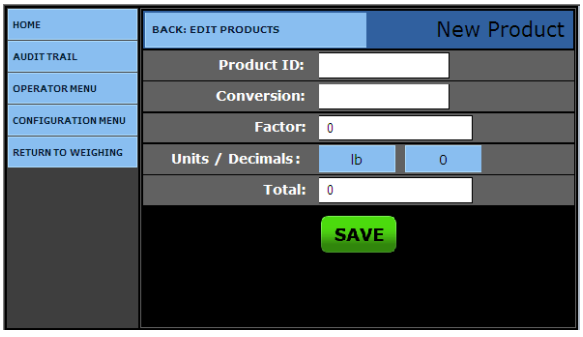
EXAMPLES

2000 lbs = 1 ton
Factor = 1/2000
Factor = **.0005**

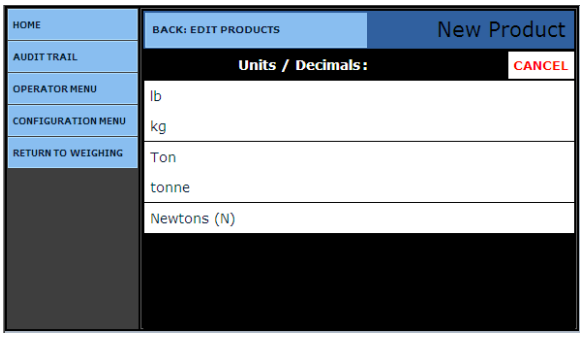
56 lb = 1 bushel of shelled corn
Factor = 1/56
Factor = **0.017857**

- The **Total** data entry box is automatically populated and updated upon every weighment which utilizes the **Product ID value**.
  - This provides a running total of **Net Weight** for each product.
  - Manually enter a **ZERO** to reset the accumulator.

The **UNITS / DECIMALS** selects the units of the running **Total,** and the accuracy of the conversion resultant product for each transaction weighment calculation.

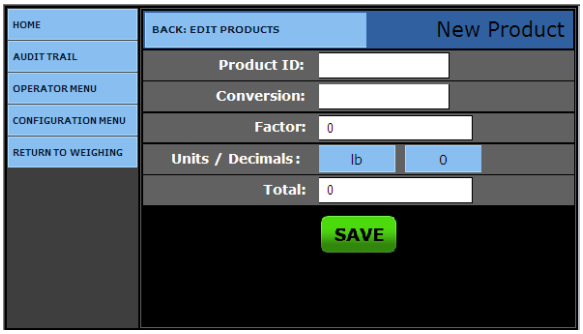


10. Press the **UNITS** button to select the measurement unit processed and displayed for each Product.



3.3.1. Adding or Editing Products, Continued

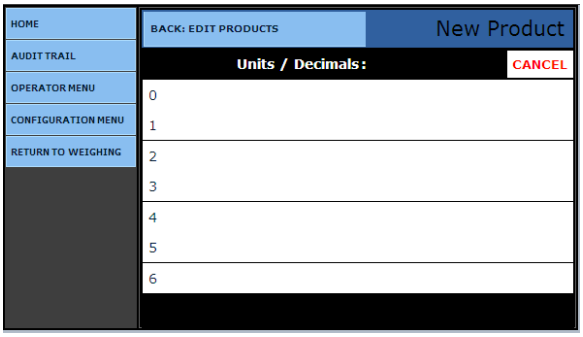
11. Press the **DECIMALS** button to select the number of places to the right of the decimal for the conversion result.



12. Enter the **TOTAL** quantity of the Product.

✓ **DEFAULT = 0**

13. Press the **SAVE** button when any changes are made, or they will be lost



- Select **BACK: EDIT PRODUCTS** to return to the **Edit Products Menu.**

2.9. Product Groups

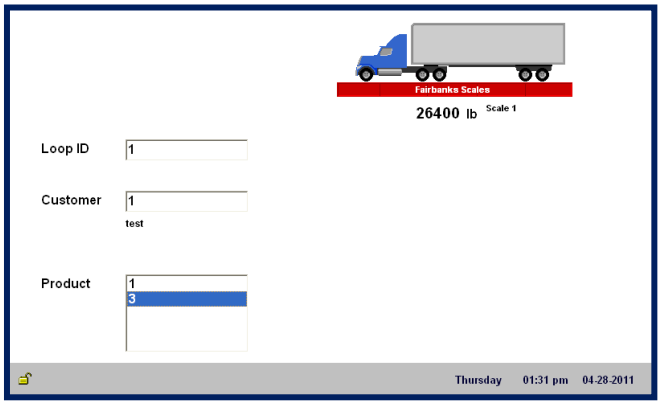
A **PRODUCT GROUP** is a filter to permit only specifically selected products to be used by a customer.

- These groups are assigned to a customer from the **Edit Customers menu**.
- **Supervisor** or **Service Level** access is required to add or edit these **Product Groups.**

WORKING EXAMPLE

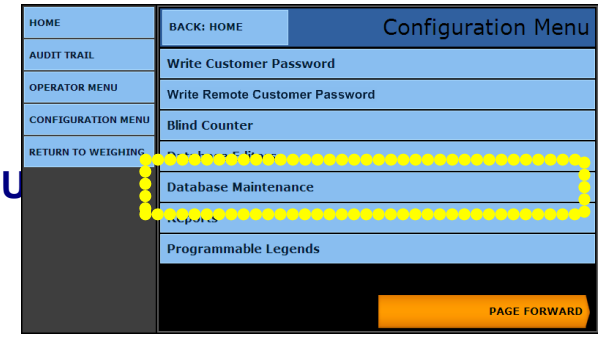
A vehicle weighs Inbound on the scale. The scale operator is prompted for **Loop ID, Customer ID**, and **Product ID**. When the **Product ID** is selected, a drop-down menu appears with the products the customer is limited to use.

Product IDs must be created first, before a **Product Group** is created.



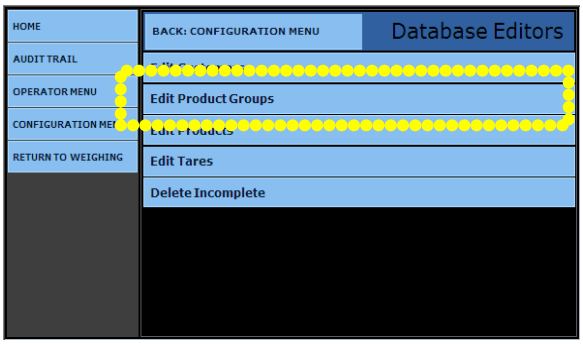
2.9.1. Adding or Editing Product Groups

1. Press the **MENU** key.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select the **CONFIGURATION MENU**
5. Select **DATABASE EDITORS**.

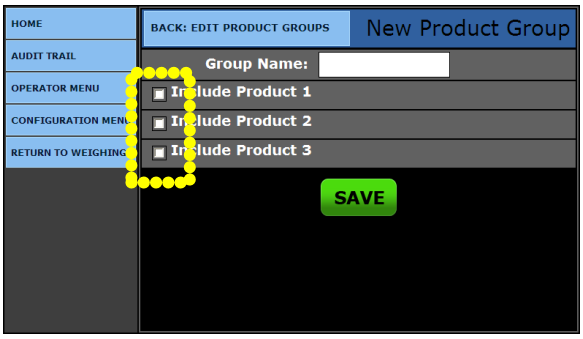


2.9.1. Adding or Editing Product Groups, Continued

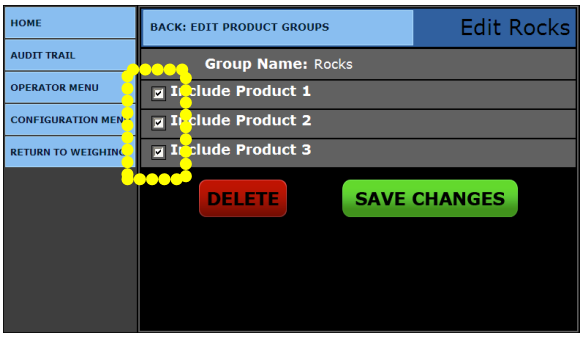
6. Select **EDIT PRODUCT GROUPS**.



7. Assign a **GROUP NAME** for the new Product Group. Place a check besides the product(s) to be included in the group.
8. Press the **SAVE** button when any changes are made, or they will be lost
9. Check any of the Products, then press the **DELETE** button to remove the Product Group.



- Select **BACK: EDIT PRODUCTS GROUP** to return to the **Edit Products Group Menu.**



C A U T I O N

Deleting the Product Group will affect the operation of the FB2558 Instrument with many customers that use the group.

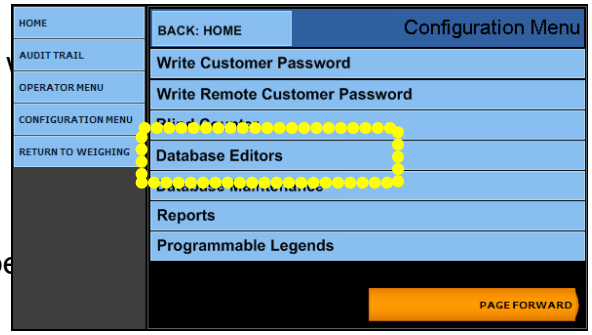
2.9.2. Edit Tags

- **TAG ID Stickers** are placed on the vehicle windshield or front license plate.
- **TAG ID Numbers** are recorded and placed in a **TAG TABLE.**
- The **TAG** entries are taken from the applicable tables, and the **Customer** and **Product** data can be edited as needed.
- **RFID Readers** identify each vehicle's **TAG ID** as it enters the scale.

  Whenever a vehicle with a matching **TAG ID** is found on a **TARE TABLE** record, weight from the **TARE RECORD** is used to calculate transaction figures.

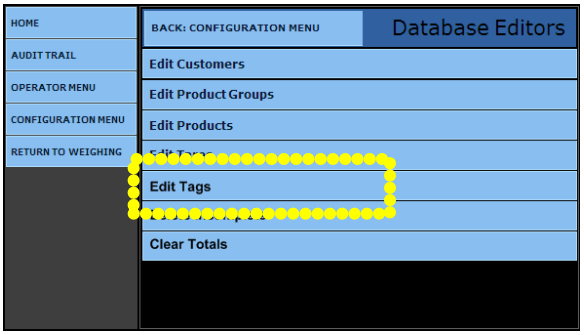
If the **RFID Reader** does not identify the tag v
message appears.

Follow these steps to create a **NEW TAG**.



1. In the **CONFIGURATION MENU**, ope

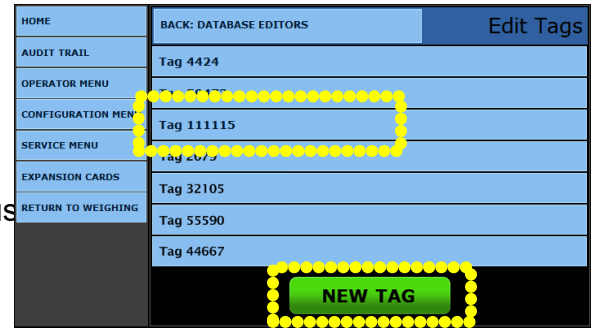
2. Select **EDIT TAGS**.



3a. Either press the **NEW TAG** button.

OR…

3b. **Double-click** on any one of the previous
needed,



Either select a previously created **Tag**, *or press the* **NEW TAG** *button.*

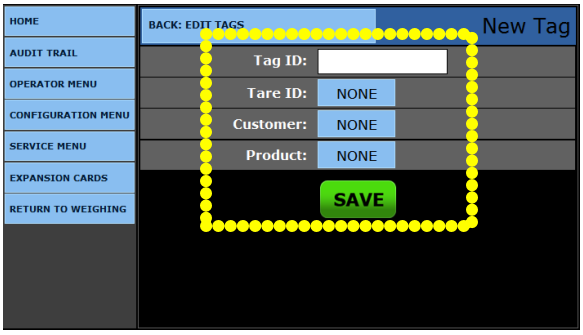
2.9.2. Edit Tags, Continued

CREATING A NEW TAG

If the RFID Reader does not identify the tag within its database, a notification message appears.

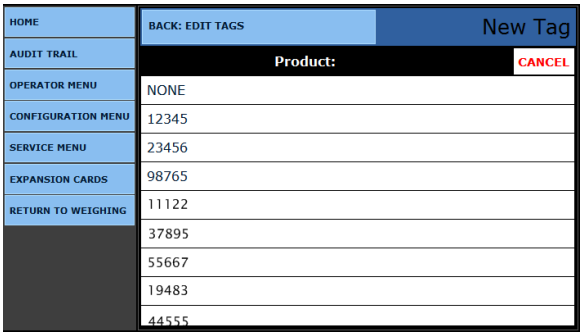
1. Press the **NEW TAG** button.

2. Enter the truck's **TAG ID**.
   - If one is already displaying and the other information is incomplete, verify and use the number.
   - Complete the other input fields.
3. If it applies, open the **TARE ID**.



4. Open the **CUSTOMER** option and double-click on the correct one from the list.

5. If it applies, open the **PRODUCT** option, and click on the correct **NUMBER** from the list.
6. Click **SAVE**.

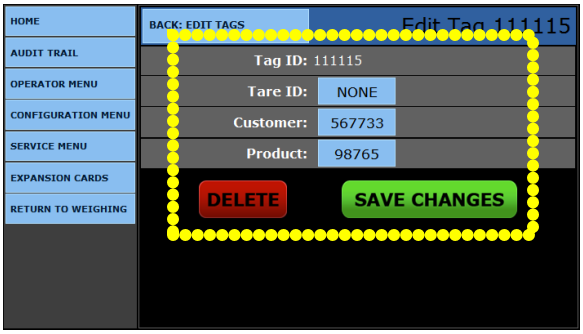


2.9.2. Edit Tags, Continued

EDITING A TAG

1. Double-click on the **TAG** to be edited.

2. Open and complete the **TARE ID, CUSTOMER** or **PROCUCT** options.
3. Double-click on the correct choice within the option window.

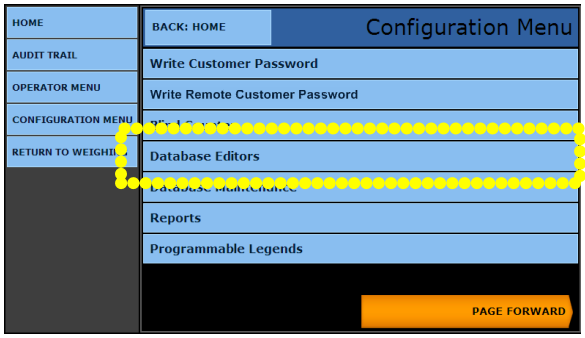


- Press the **SAVE CHANGES** button, or all changes will be lost.
- This exits to the **Edit Tares Menu**

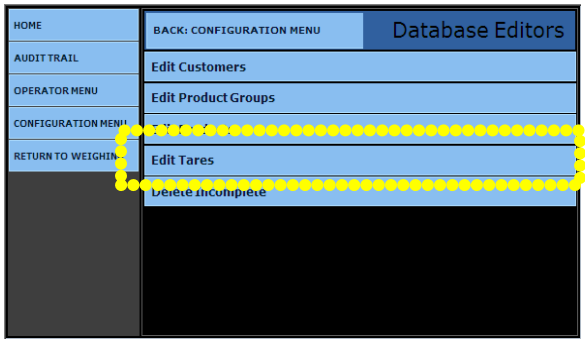
2.10. Creating and Editing Tares

The **Edit Tares** *option provides a quick access to both Keyboard and Key Tare stored tares from one menu screen for adding or editing stored tares.*

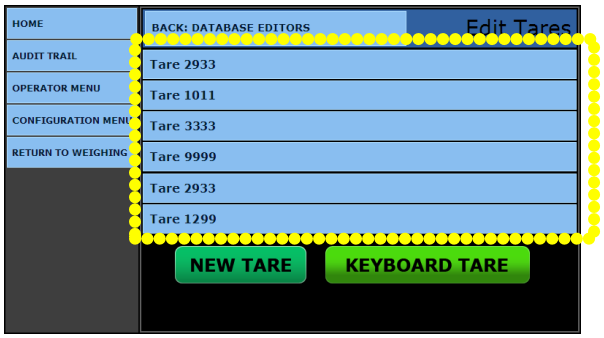
1. Press **ALT + HOME**.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select the **CONFIGURATION MENU**.
5. Press to select **DATABASE EDITORS.**



6. Select Edit Tares.

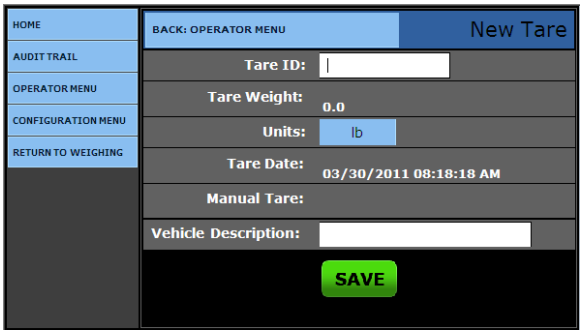


7. Select an existing tare to edit one, or press the **NEW TARE** or **KEYBOARD TARE** button to add one.



2.10. Creating and Editing Tares, Continued

8. Enter the **TARE ID.**
   - This is a numeric value entered to store and recall the tare weight saved.
9. Enter the **TARE WEIGHT** from the scale.
   - This value cannot be edited.
10. Enter the **UNITS** from the available choices.



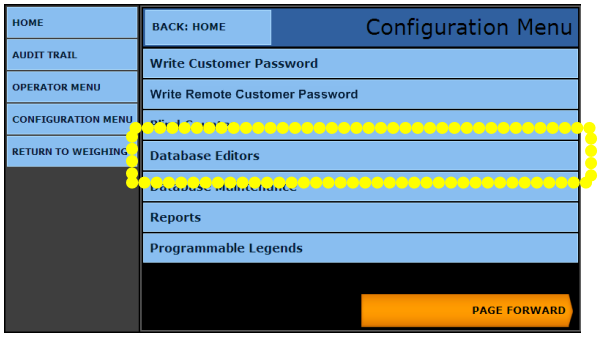
11. The **Tare Date** records the date and time the tare generates automatically.
12. The **Manual Tare** is a flag designating the tare is manually entered.
13. Enter the Vehicle Description.
    - This is a unique description or label for the tare weight and how it is associated.
14. Press the **SAVE** button when any changes are made, or they will be lost.
    - This exits to the **Edit Tares Menu**

Select **BACK: OPERATOR MENU** to return to the **Operator Menu.**

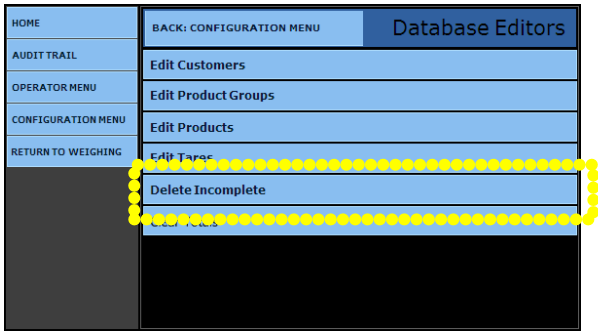
2.11. Deleting Incomplete Transactions

Through the course of normal operation of the FB2558 DAT, an error may occur. An **Incomplete Transaction** is then created.

Follow the steps below to remove and delete **Incomplete Transactions** *from the database.*

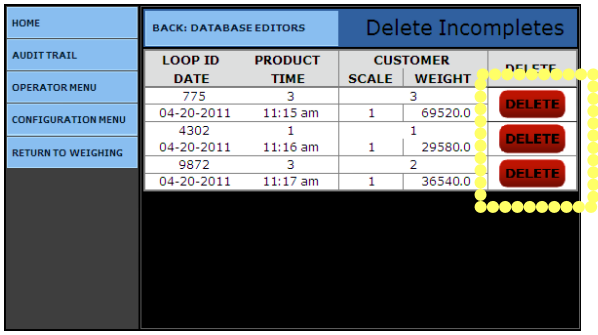


1. Press **ALT + HOME**.
2. Select **LOGIN.**
3. Enter the Supervisor **Password.**
4. Select the **CONFIGURATION MENU**.
5. Select **DATABASE EDITORS**.



6. Select **DELETE INCOMPLETE**.

7. Select the **Incomplete Transaction** which is to be deleted by pressing the ***correct*** **DELETE** button.



- Select **BACK: DATABASE EDITORS** to return to the Database Editors Menu.

NOTE: It is recommended to perform database maintenance by running the **Vacuum Database operation** after deleting transaction records.

W A R N I N G

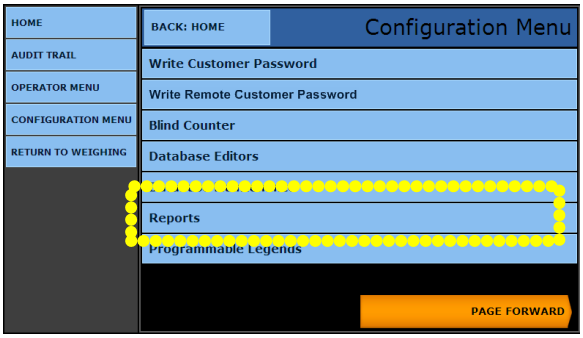
Once a record is deleted, the record cannot be recovered. Use this operation carefully!

2.12. Reports

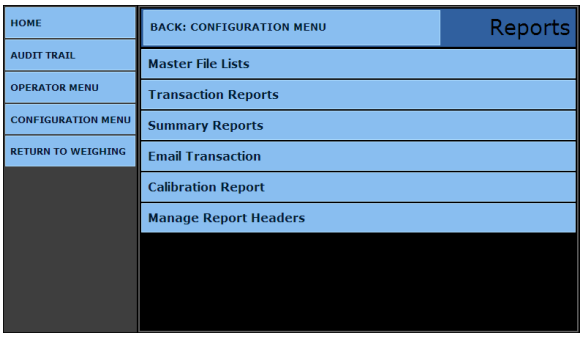
The FB2558 DAT generates multiple built in reports that vary from **Master Lists** of customers, products, tares, and operators.

- These includes Transaction Reports and Summary Reports.

1. Select **LOGIN.**
2. Enter the **Supervisor Password.**
3. Select **CONFIGURATION MENU**.
4. Press **REPORTS** to access the report list.



5. Select the type of report from the report list.



2.12.1. Master File Reports

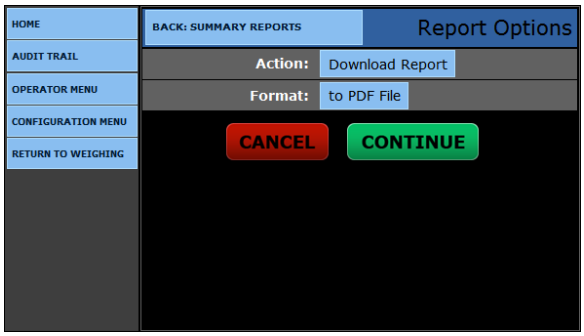
The **MASTER FILE** reports are listings of all the data stored under each category available.

- **Customer List**
- **Product List**
- **Product Group List**
- **Stored Tare List**

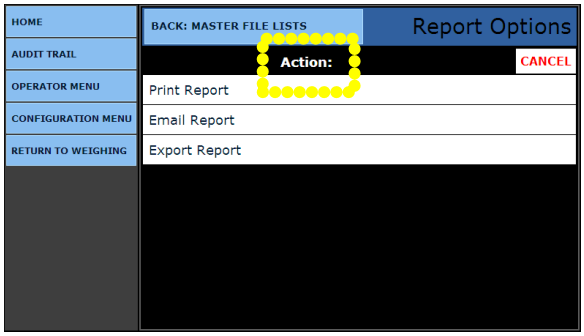
1. Select the correct **Report** from the **MASTER FILE LISTS.**.

2.12.1 Master File Reports, Continued

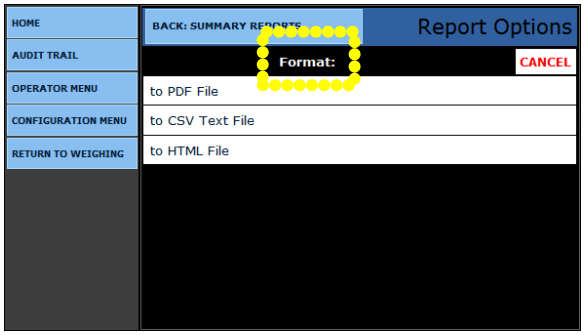
2. Select the correct button In the **ACTION** window.
   - **Print Report**
   - **Email Report**
   - **Export Report**



3. Select the correct button In the **FORMAT** window.
   - **Print Report**
   - **Email Report**
   - **Export Report**



4. Press the **CONTINUE** button to begin the print operation.
5. Press the **CANCEL** button at any time to cancel the report operation.



*** ***
Customer Listing
04/20/2011 - 04/20/2011

Customer ID	Address 1	Address 2	Address 3	Address 4
1	ABC Company	123 ABC Road	Abcville, MT 09876	908-223-7765
2	Acme Consolidated Goods	7601 Plantation Ave	Plaunch, NE 76854	455-667-6521
3	XYZ Specialties	10109 NE 61st Street	Richmond, MO 64018	913-234-4260

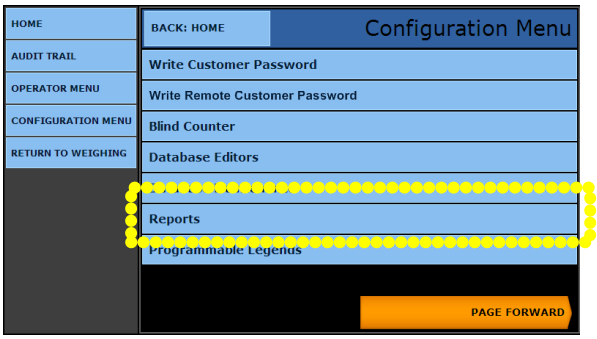
*** ***
Product Listing
04/20/2011 - 04/20/2011

Product ID	Product Description	Factor
1	Coal	0.0005
3	Wheat	0.0018
2	3/4 Rock	0.0005

Shown above are two examples of **Master File Reports.**

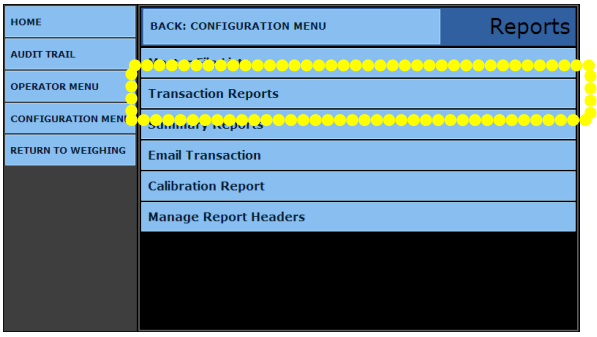
2.12.2. Transaction Reports

1. Select **LOGIN.**
2. Enter the **SUPERVISOR PASSWORD**.
3. Select **CONFIGURATION MENU**.
4. Press **REPORTS** to access the report list.



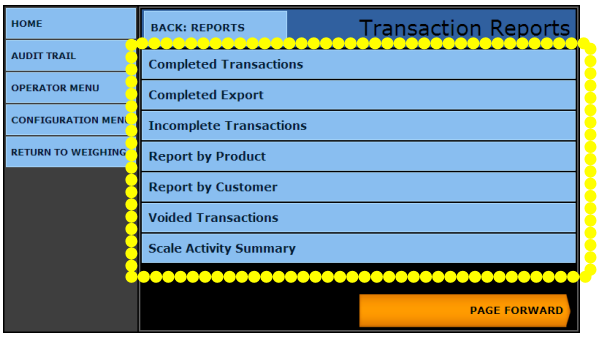
5. Select the **TRANSACTION REPORTS Menu** to choose from several reports.

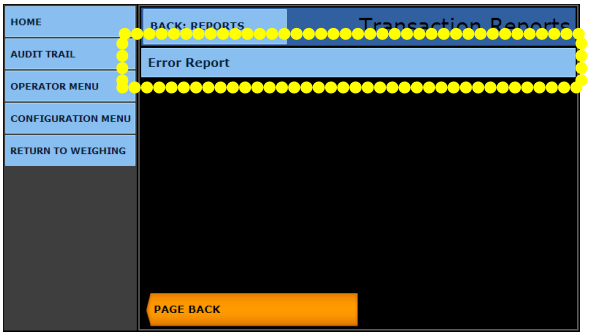
- These process and use the weighment data.



6. Select a **TRANSACTION REPORT** option from the list below.

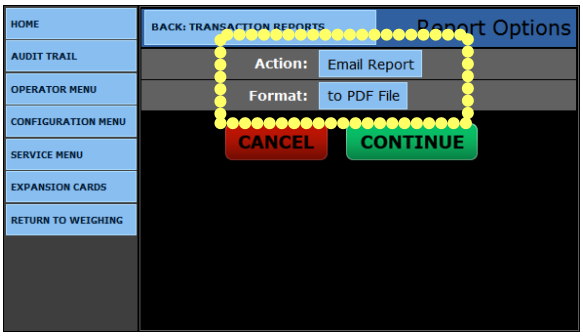
- **Completed Transactions**
- **Completed Export**
- **Incomplete Transactions**
- **Report by Product**
- **Report by Customer**
- **Voided Transactions**
- **Scale Activity Summary**
- **Error Report**



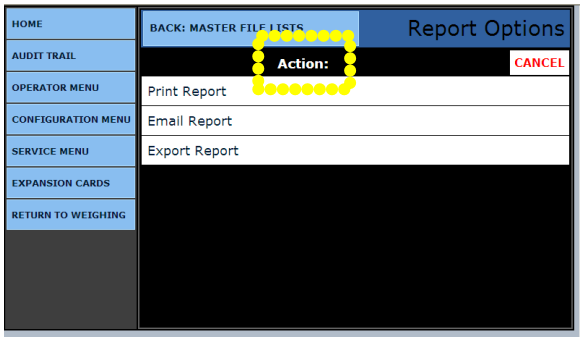


2.12.2. Transaction Reports, Continued

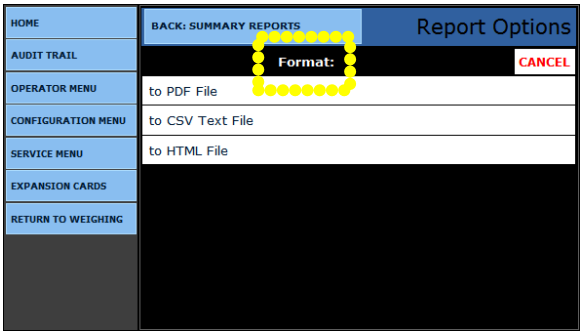
1. Select from the **REPORT OPTIONS MENU** for the method of printing the report.
2. Select the correct button In the **ACTION** window.
   - **Print Report**
   - **Email Report**
   - **Export Report**



3. Select the correct button In the **FORMAT** window.
   - **To PDF File**
   - **To CSV Text File**
   - **To HTML File**

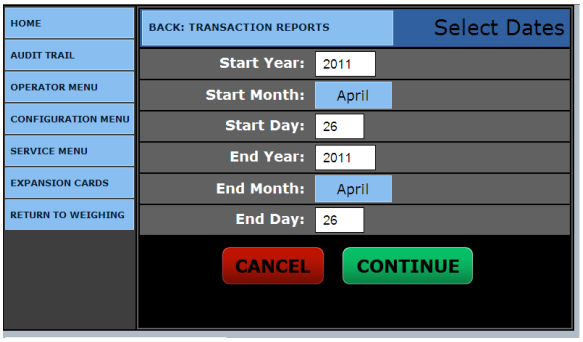


4. Press the **CONTINUE** button to begin the print operation.
5. Press the **CANCEL** button at any time to cancel the report operation.



6. In the **DATE SELECTION MENU**, set the **START YEAR**, **MONTH** and **DAY**.
7. Set the End Year, Month and Day.

   ✓ **Default = THE CURRENT DATE.**



8. Press the **CONTINUE** button to begin the print operation.
9. Press the **CANCEL** button at any time to cancel the report operation.

- Select **BACK: TRANSACTION REPORTS** to return to the **Transaction Reports Menu**.

2.12.2. Transaction Reports, Continued

- The **Completed Transaction Report** includes some or all of the following items.
  - ***Date Ranges***
  - ***Times and Dates of Transactions***
  - ***Ticket Numbers***
  - ***Weight Totals***

*** ***
Completed Transactions
04/20/2011 - 04/20/2011

Transactions in lb

Ticket	Date	Time	Loop ID	Product ID	Customer	Gross	Tare	Net	Units
1	4/20/2011	10:42 am	1	1	1	100000.0	40000.0	60000.0	lb
2	4/20/2011	10:53 am	2	2	2	40000.0	40000.0	0.0	lb
3	4/20/2011	11:03 am	11	3	3	75740.0	20000.0	55740.0	lb
4	4/20/2011	11:04 am	22	3	3	68140.0	40000.0	28140.0	lb
5	4/20/2011	11:05 am	33	1	1	80100.0	35780.0	44320.0	lb
6	4/20/2011	11:05 am	44	2	2	77260.0	15800.0	61460.0	lb
7	4/20/2011	11:06 am	3	3	3	77240.0	20000.0	57240.0	lb
8	4/20/2011	11:07 am	4	2	3	71600.0	20000.0	51600.0	lb
Total						590080.0	231580.0	358500.0	lb

Shown above is an example of a **Complete Transaction Report.**

- Shown to the right is an example of an **Incomplete Report**.
  - ***Incoming Weight***
  - ***Product IDs***
  - ***Loop Numbers***
  - ***Customer IDs***

*** ***
Incomplete Transactions
04/20/2011 - 04/20/2011

Loop ID	Date	Time	Product ID	Customer	Inbound Wt	Units
775	04-20-2011	11:15 am	3	3	69520.0	lb
4302	04-20-2011	11:16 am	1	1	29580.0	lb
9872	04-20-2011	11:17 am	3	2	36540.0	lb

Shown above is an example of an **Incomplete Transaction Report.**

- The **Report by Product** groups like products together and provides total weights for each product, which has been processed over the date range entered.

*** ***
Report by Product
04/20/2011 - 04/20/2011

Product 1 Units lb

Product ID	Ticket	Date	Time	Loop ID	Customer	Gross	Tare	Net	Units
1	1	4/20/2011	10:42 am	1	1	100000.0	40000.0	60000.0	lb
1	5	4/20/2011	11:05 am	33	1	80100.0	35780.0	44320.0	lb
Total						180100.0	75780.0	104320.0	lb

Product 2 Units lb

Product ID	Ticket	Date	Time	Loop ID	Customer	Gross	Tare	Net	Units
2	2	4/20/2011	10:53 am	2	2	40000.0	40000.0	0.0	lb
2	6	4/20/2011	11:05 am	44	2	77260.0	15800.0	61460.0	lb
2	8	4/20/2011	11:07 am	4	3	71600.0	20000.0	51600.0	lb
Total						188860.0	75800.0	113060.0	lb

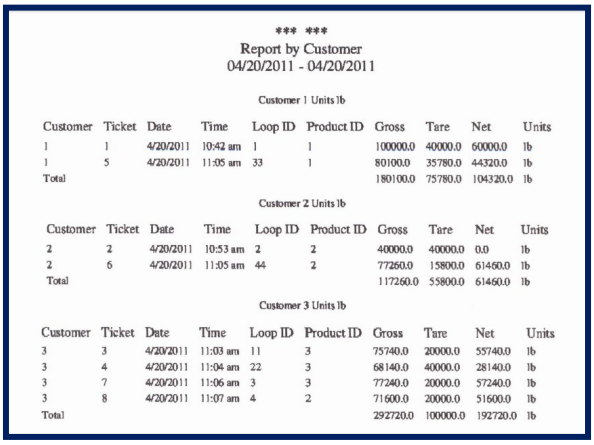
Product 3 Units lb

Product ID	Ticket	Date	Time	Loop ID	Customer	Gross	Tare	Net	Units
3	3	4/20/2011	11:03 am	11	3	75740.0	20000.0	55740.0	lb
3	4	4/20/2011	11:04 am	22	3	68140.0	40000.0	28140.0	lb
3	7	4/20/2011	11:06 am	3	3	77240.0	20000.0	57240.0	lb
Total						221120.0	80000.0	141120.0	lb

Shown above is an example of a **Report by Product.**

2.12.2. Transaction Reports, Continued

- Like the report above, the **Report by Customer** will group like customers together and provides total weights for each customer which has been processed over the date range entered.



*** ***
Report by Customer
04/20/2011 - 04/20/2011

Customer 1 Units lb

Customer	Ticket	Date	Time	Loop ID	Product ID	Gross	Tare	Net	Units
1	1	4/20/2011	10:42 am	1	1	100000.0	40000.0	60000.0	lb
1	5	4/20/2011	11:05 am	33	1	80100.0	35780.0	44320.0	lb
Total						180100.0	75780.0	104320.0	lb

Customer 2 Units lb

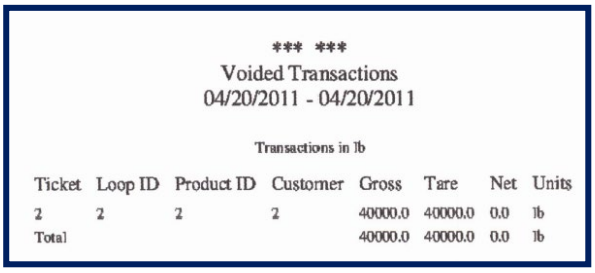
Customer	Ticket	Date	Time	Loop ID	Product ID	Gross	Tare	Net	Units
2	2	4/20/2011	10:53 am	2	2	40000.0	40000.0	0.0	lb
2	6	4/20/2011	11:05 am	44	2	77260.0	15800.0	61460.0	lb
Total						117260.0	55800.0	61460.0	lb

Customer 3 Units lb

Customer	Ticket	Date	Time	Loop ID	Product ID	Gross	Tare	Net	Units
3	3	4/20/2011	11:03 am	11	3	75740.0	20000.0	55740.0	lb
3	4	4/20/2011	11:04 am	22	3	68140.0	40000.0	28140.0	lb
3	7	4/20/2011	11:06 am	3	3	77240.0	20000.0	57240.0	lb
3	8	4/20/2011	11:07 am	4	2	71600.0	20000.0	51600.0	lb
Total						292720.0	100000.0	192720.0	lb

Shown above is an example of a **Report by Customer.**

- The **Voided Transactions** report lists all transactions which have been voided over the date range entered.



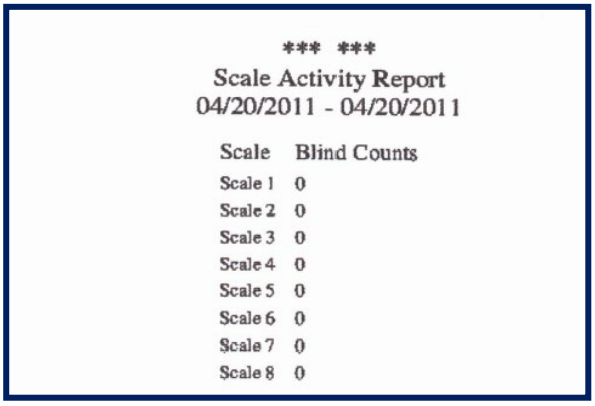
*** ***
Voided Transactions
04/20/2011 - 04/20/2011

Transactions in lb

Ticket	Loop ID	Product ID	Customer	Gross	Tare	Net	Units
2	2	2	2	40000.0	40000.0	0.0	lb
Total				40000.0	40000.0	0.0	lb

Shown above is an example of a **Voided Transactions.**

- The **Scale Activity Summary,** or **Blind Counter Report** lists the number of weighments which have exceeded the Threshold setting.
    - No tickets are produced and the transaction is not stored or saved.



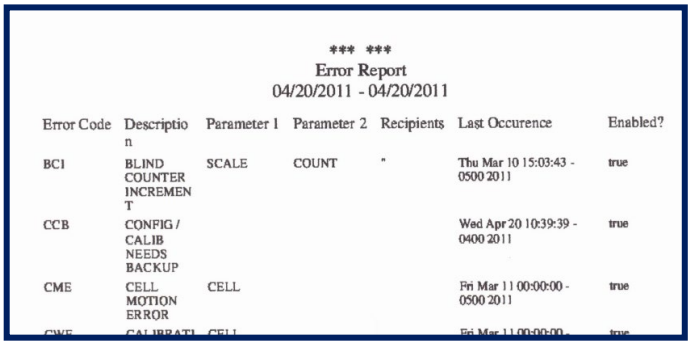
*** ***
Scale Activity Report
04/20/2011 - 04/20/2011

Scale	Blind Counts
Scale 1	0
Scale 2	0
Scale 3	0
Scale 4	0
Scale 5	0
Scale 6	0
Scale 7	0
Scale 8	0

Shown above is an example of a **Scale Activity Report.**

2.12.2. Transaction Reports, Continued

- The **Error Report** lists all of the errors which have occurred in the operation of the instrument.
    - It details the specifics of each error code and the error parameters.
    - The report also details if the error is enabled for reporting. The last occurrence details the time and date the error occurred.



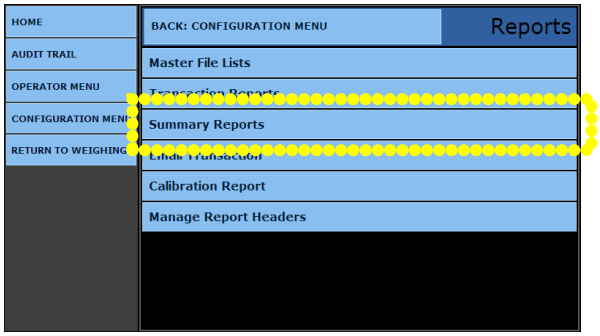
*** ***
Error Report
04/20/2011 - 04/20/2011

Error Code	Description	Parameter 1	Parameter 2	Recipients	Last Occurence	Enabled?
BC1	BLIND COUNTER INCREMENT	SCALE	COUNT	"	Thu Mar 10 15:03:43 - 0500 2011	true
CCB	CONFIG / CALIB NEEDS BACKUP				Wed Apr 20 10:39:39 - 0400 2011	true
CME	CELL MOTION ERROR	CELL			Fri Mar 11 00:00:00 - 0500 2011	true

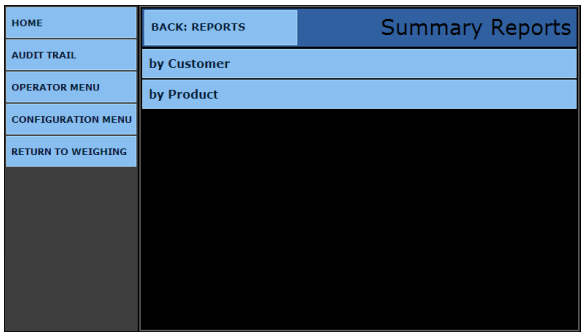
Shown above is an example of an **Error Report.**

2.12.3. Summary Reports

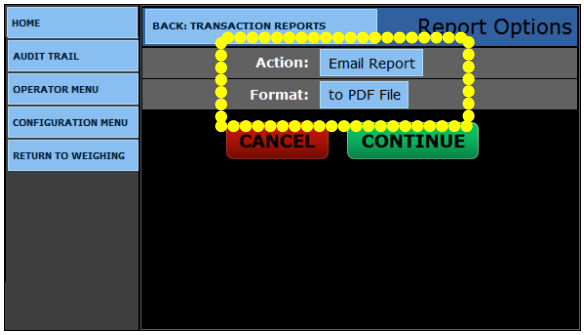
1. Select the **SUMMARY REPORTS** for a general summary of transaction activities for customers or products.



2. Select whether the Report is **BY CUSTOMER** or **BY PRODUCT.**



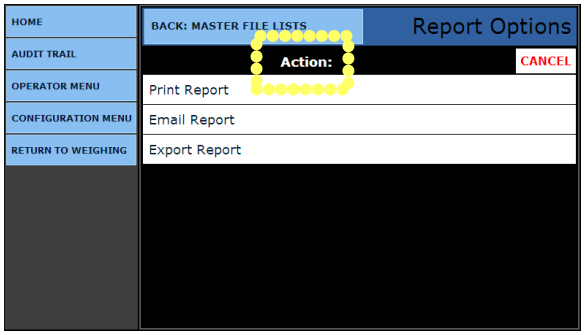
3. Select from the **REPORT OPTIONS MENU** for the method of printing the report.



2.12.3. Summary Reports, Continued

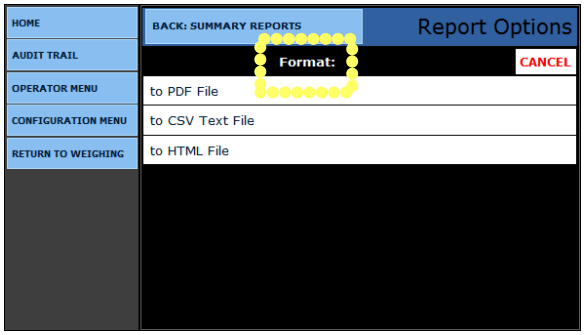
4. Select the correct button In the **ACTION** window.

- **Print Report**
- **Email Report**
- **Export Report**

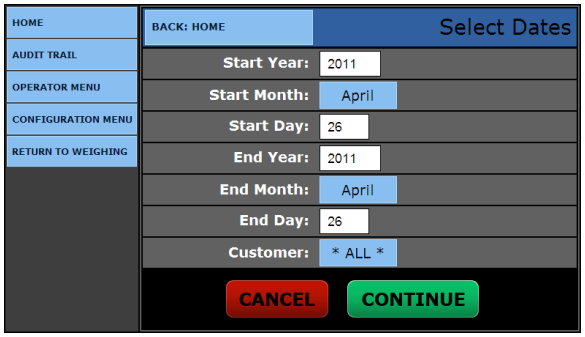


5. Select the correct button In the **FORMAT** window.

- **To PDF File**
- **To CSV Text File**
- **To HTML File**



6. Select the appropriate **Date Range** for the report.
   - The default values will be the current date.
7. Select the specific **CUSTOMER**, or select **ALL** (Customers).
8. Press the **CONTINUE** button to process the report.
9. Selecting the **CANCEL** button will abort the process.



- Select **BACK: HOME** to return to the **Home Menu**.

*** ***
Summary Customer
04/20/2011 - 04/20/2011

Customer	Total Transactions	Total Weight	Units
1	2	180100.0	lb
2	1	77260.0	lb
3	4	292720.0	lb

Shown above is an example of a **Customer Summary Report.**

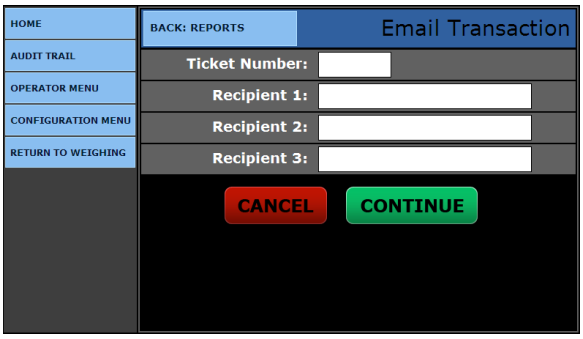
*** ***
Summary Product
04/20/2011 - 04/20/2011

Product ID	Total Transactions	Total Weight	Units
1	2	180100.0	lb
2	2	148860.0	lb
3	3	221120.0	lb

Shown above is an example of a **Product Summary Report.**

2.12.4. Email Transaction

The **EMAIL TRANSACTION** sends an email to a **maximum of three (3) recipients,** which contains **one (1) Transaction Record**.



- All the email server, user, etc configuration must be done and tested.
- Set the cameras to “Yes” to include pictures. See section **6.3.2. Camera Setup**

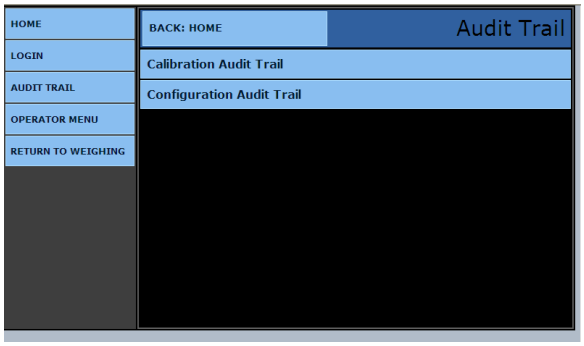
1. Enter the valid **TICKET NUMBER** to open a Transaction Record.
2. Enter up to three (3) email addresses.
3. Press the **CONTINUE** button to process the report.

- Select the **CANCEL** button will abort the process.

- Select **BACK: REPORTS** to return to the **Reports Menu**.

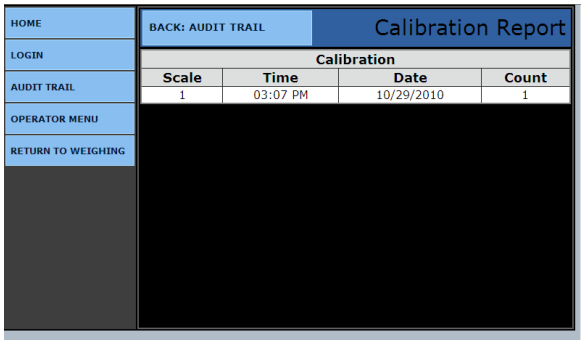
Section 3: Audit Trail

3.1.1. Getting Started



1. Select **LOGIN.**
2. Enter the **Supervisor Password.**
3. Select **AUDIT TRAIL**.
4. Choose either **CALIBRATION AUDIT TRAIL**, or **CONFIGURATION AUDIT TRAIL**.

3.1.2. Calibration Audit Trail

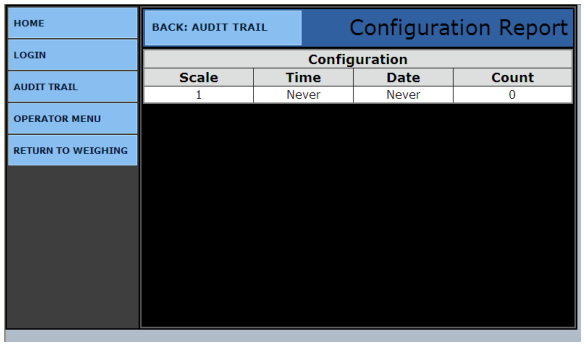


In a **CALIBRATION REPORT**, the unique count value(s) can only be viewed, and not edited.

- Select **BACK: AUDIT TRAIL** to return to the Audit Trail Menu.

3.1.3. Configuration Audit Trail

The **CONFIGURATION AUDIT TRAIL** option is provided for a **Weights and Measures Official.**



- Such an official can view the **AUDIT TRAIL** for calibration and configuration changes.
- This option is limited to ***view only access***.
- It displays the unique count value showing the date(s) and time(s) the calibration or configuration was changed for **up to one (1) scale**.
- In a **CONFIGURATION REPORT**, the unique count value(s) can only be viewed, and not edited.

Section 4: Configuration Menu

4.1. Levels of Security

STANDARD USER OR W&M OFFICIAL ACCESS

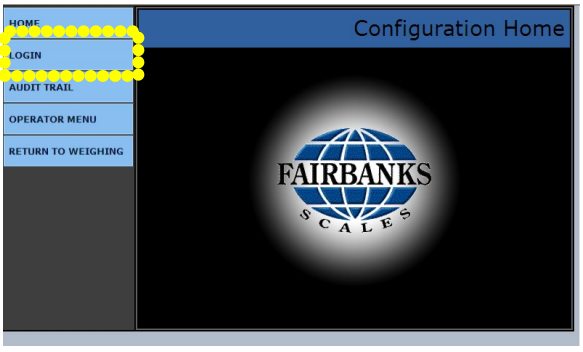
- **No password required.**
- First Level Users can access these menus.
  - **HOME**
  - **AUDIT TRAIL**
  - **OPERATOR MENU**
  - **RETURN TO WEIGHING**

SUPERVISOR ACCESS

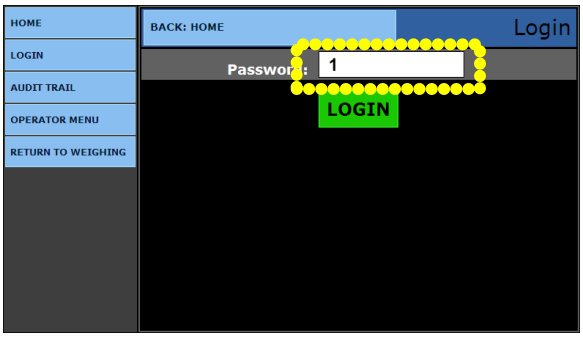
- **Supervisor Password** is required.
- It is suggested to change this password upon installation.
- Supervisor level users can also access the **CONFIGURATION MENU**.

4.2. Logging In – Supervisor Access

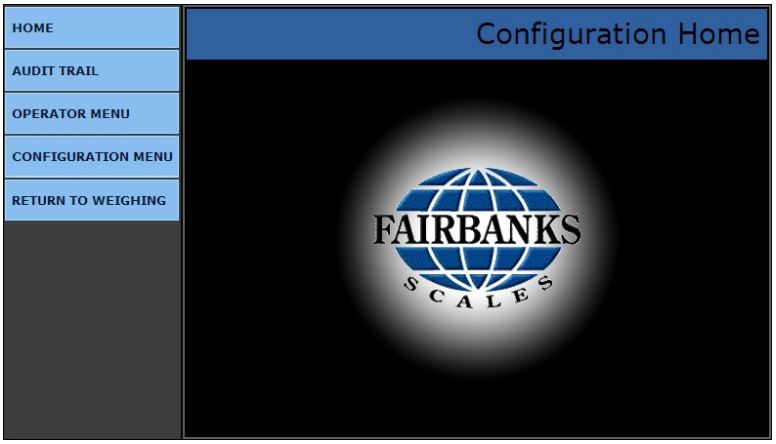
1. Press **ALT + HOME** to access the programming menus.
2. Select **LOGIN.**
3. Enter the Service **PASSWORD**.
4. Click the **LOGIN** button.



✓ **DEFAULT *FIRST TIME USE* PASSWORD FOR THE SUPERVISOR ACCESS IS "1".**



4.3. Configuration Home Page



An external keyboard is required for programming access.

Press **ALT + HOME** *to access the programming menus.*

HOME	Returns the user to the **Configuration Home Page.**
AUDIT TRAIL	Identifies how many times and when changes have been made to the scale's Calibration or Configuration settings.
OPERATOR MENU	User access for Time/Date, Ticket Number, Load Cell Diagnostics, and Keyboard Tare entries.
CONFIGURATION MENU	Used to access communications programming and functions, ticket formats, programmable legends and prompts, camera inputs and weight threshold.
RETURN TO WEIGHING	Returns the user to the **Weighing Display Screen**.

4.4. Configure Outputs

This menu configures data string protocols, configuration parameters, and output modes such as **Continuous, Demand, Auto, Network (Continuous)**, and **Network (Auto)**.

4.4.1. Configuring an Output Data String

To interface an FB2558 DAT to software or a pre-existing peripheral device, such as a remote display, knowing their specific Output Data String is ***mandatory***.

- This allows the software or peripheral device to communicate with the FB2558 DAT for weight data.
- When adding to other manufacturer's devices, refer to their Service Manuals for Output Data String information.
- Interfacing with other manufacturer's software, refer to either a web site, Service Manual, or contact the manufacturer directly for the Output Data String information.

Fairbanks' current programming for setting up an **Output Data String** provides quick and easy flexibility for customizing the FB2558 DAT's Serial Outputs.

4.4.2. Two Methods of Formatting

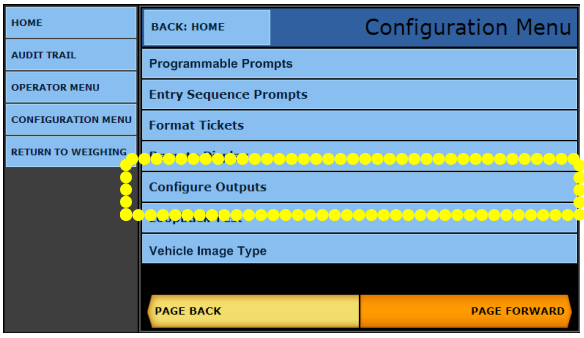
There are two methods to format an **Output Data String**.

- Use one of the five (5) preconfigured outputs under the **LOAD** menu.
- Use an output string from the **LOAD** menu as a base configuration for customizing an output data string which will closely match the customer's specific configuration requirements. Edit the string as required in the **BUILD** menu**.**

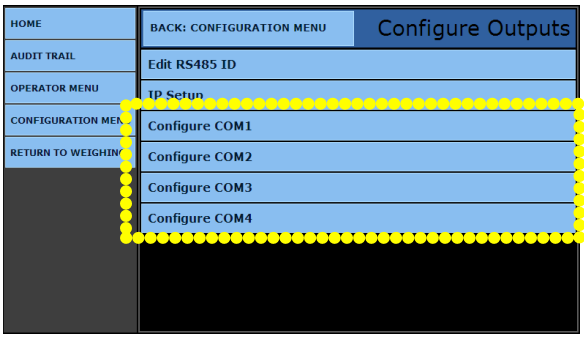
4.4.3. Method 1 – Pre-configured Output

Follow these steps to configure an output data string on the FB2558 DAT, completed in the **Configuration Menu.**

1. Using an external keyboard, press **ALT + HOME**.
2. Select **LOGIN**.
3. Enter the **Supervisor Password**.
4. Select the **CONFIGURATION MENU** and press **PAGE FORWARD** once.
5. Select **CONFIGURE OUTPUTS**.



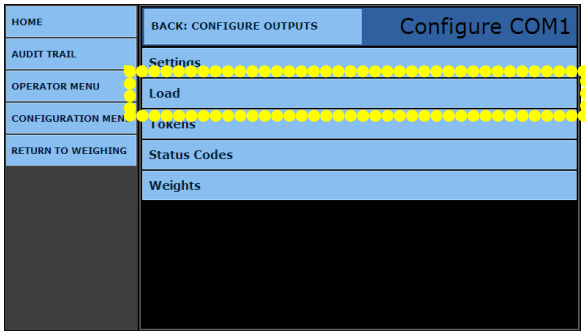
6. Touch the screen to select **CONFIGURE COM X,** where **X** is the desired COM port location to configure the output data string.



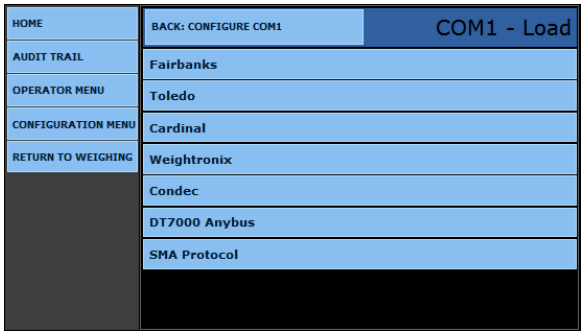
NOTE: In the following images, **CONFIGURE COM1** was selected.

4.4.3. Method 1, Continued

7. Select the **LOAD** button.
   - This selection will bring up a menu a **five (5) pre-configured outputs**.



8. When configuring an output data string, the Fairbanks' FB2558 DAT has **seven (7)** commonly used **pre-configured outputs**.
9. Select the correct data string type.



Displayed below are the data string protocols. *

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

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

Cardinal **<CR><P><WWWWWW><M><SP><U><SP><G><SP><SP><ETX>**

Weightronix **< ><M><WWWWWW>< ><U><CR><LF>**

Condec **<STX><SP><SP><WWWWWW><U><G><M><CR><LF>**

DT7000 Anybus

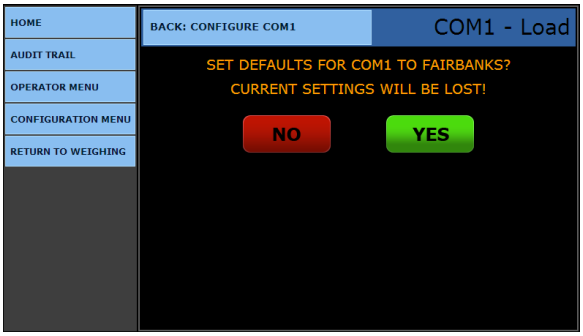
<STX><SW0><SW1><SW2><UD><GW><TW>NW><SP1><SP2><FR><UD><CRC><XCH>

SMA Protocol **<LF> <S> <R> <N> <M> <F> <XXXXXX.XXX> <UUU> <CR>**

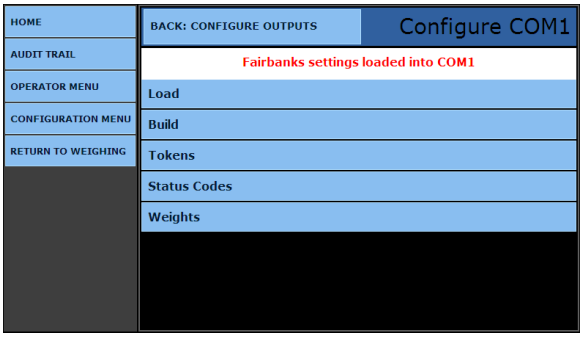
* *See* **Appendix II: Data Output** *for further information.*

4.4.3. Method 1, Continued

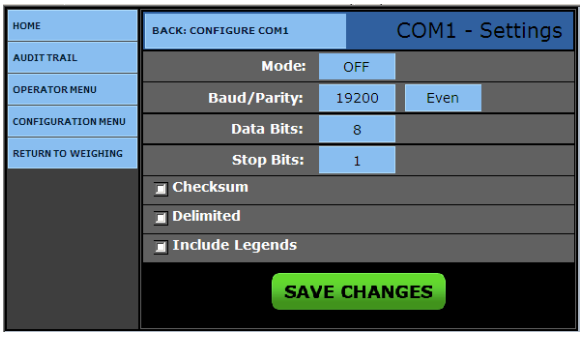
10. Press the **YES** button to load the default configuration for the data protocol selected.



11. A successful load of the selected data output will be indicated as shown.

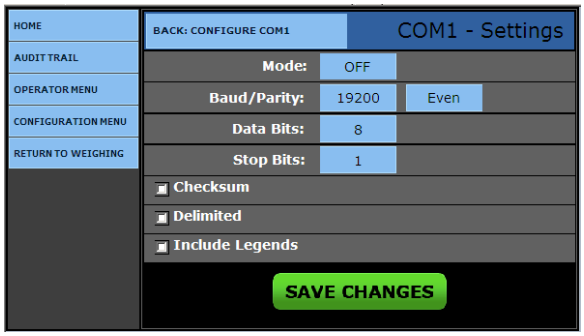


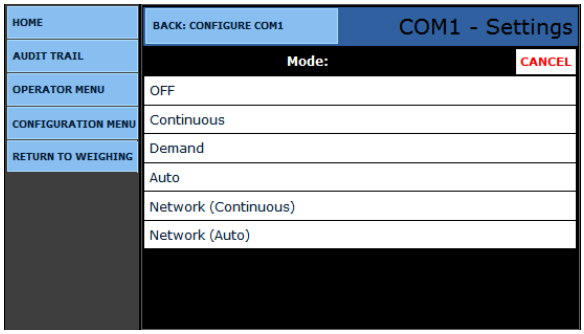
12. Verify the **CONFIGURATION BAUD, PARITY, STOP BITS** to be at the correct values.



4.4.3. Method 1, Continued

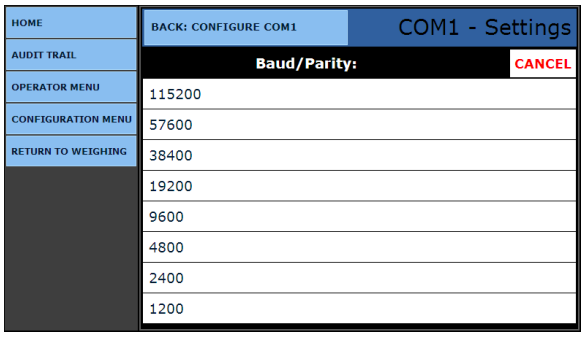
13. Enter the **SETTINGS** menu to configure the settings as required.
14. Touch the data field to the right of the Mode legend and a list of items will appear from which a selection is made.





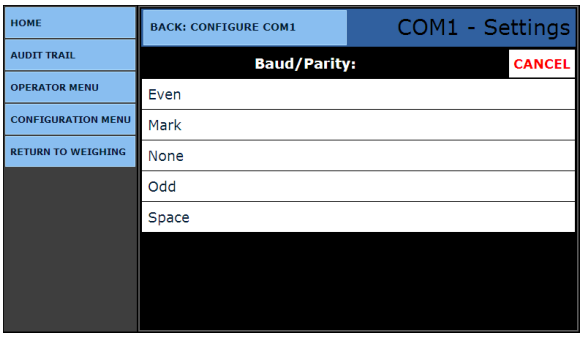
- **MODE –** This field determines how the data is transmitted.
- **OFF –** COM port is disabled.
- **CONTINUOUS –** The COM port transmits the data string continuously per every display update.
- **DEMAND –** The data string is transmitted upon receiving the programmed poll character from a peripheral device.
- **AUTO –** The data string is transmitted upon the printing of a transaction.
- **NETWORK (CONTINUOUS) -** The data string is transmitted continuously per every display update through the network connection.
- **NETWORK (AUTO) -** The data string is transmitted upon pressing print and the printing of a transaction will transmit the transaction through the network connection.

15. Touch the data field to the right of the Baud legend and a list of items will appear from which a selection is made.
16. Select the required **BAUD** rate from the menu list.

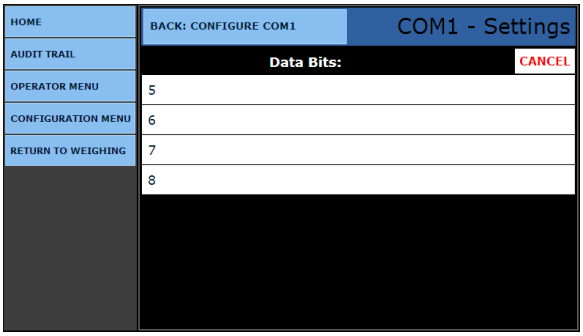


4.4.3. Method 1, Continued

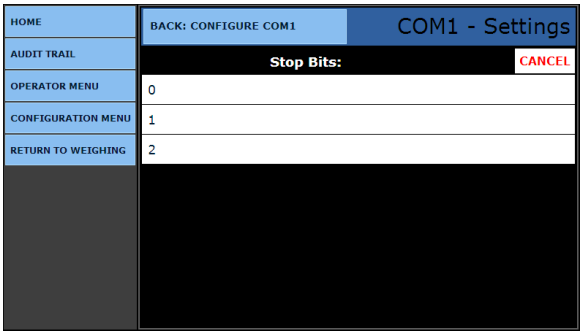
17. Touch the data field to the right of the Parity legend and a list of items will appear from which a selection is made.
18. Select the required **PARITY** rate from the menu list.



19. Touch the data field to the right of the Data Bits legend and a list of items will appear from which a selection is made.
20. Select the required **DATA BIT** from the menu list.

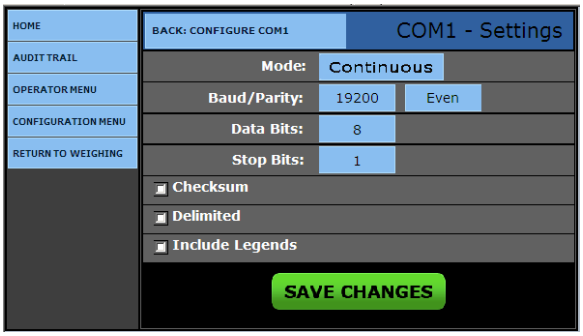


21. Touch the data field to the right of the Stop Bits legend and a list of items will appear from which a selection is made.
22. Select the required **STOP BIT** from the menu list.



23. Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.
24. Select **RETURN TO WEIGHING** to test and verify the output is producing the desired results.

- Selecting **BACK: CONFIGURE COM1** returns to the **CONFIGURE COM1 Menu**.



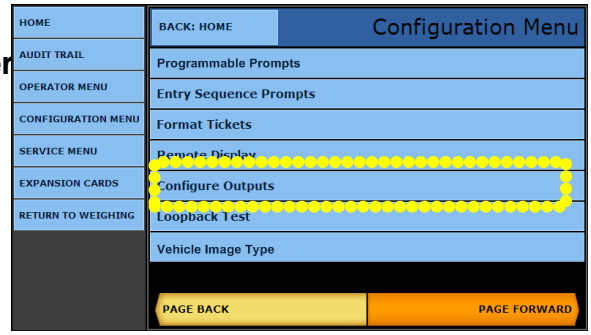
4.4.4. Method 2 - Customizing Output Data Strings

The FB2558 DAT can also be customized to support numerous manufacturers software interfaces to peripheral devices.

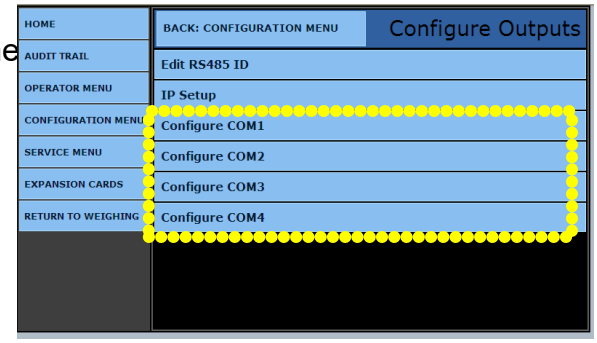
- When a data string protocol that is required is not similar as one of the pre-configured outputs, the output data string must be ***programmed manually*** using the **BUILD, TOKENS, AND WEIGHTS menus.**

Follow these steps to customize the **Output Data String**.

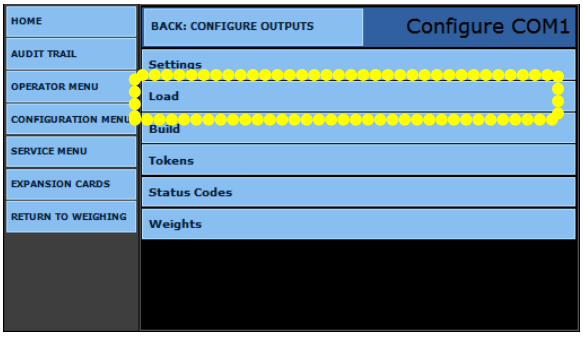
1. While in the **Weigh screen**, press **ALT + HOME** on the *external keyboard.*
2. Press **LOGIN**.
3. Enter the **Write Customer Password** or **Ser**
4. Press the **LOGIN** button.
5. Select the **Configuration Menu**.
6. Press **PAGE FORWARD** once.
7. Select **CONFIGURE OUTPUTS.**



8. Select the correct **COM Port** to configure the

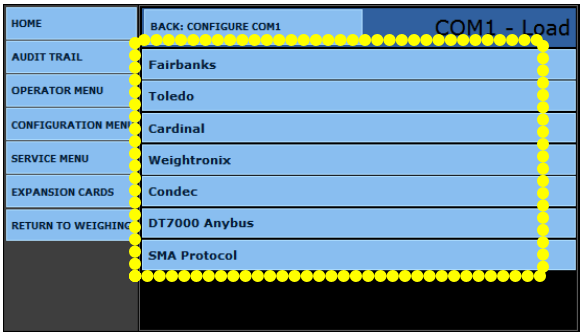


9. Select **LOAD.**



4.4.4. Method 2, Continued

When configuring an output data string, the Fairbanks' FB2558 DAT has **seven (7)** commonly used pre-configured outputs.



10. Select the correct data string type.

Displayed below are the data string protocols.*

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

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

Cardinal **<CR><P><WWWWWW><M><SP><U><SP><G><SP><SP><ETX>**

Weightronix **< ><M><WWWWWW>< ><U><CR><LF>**

Condec **<STX><SP><SP><WWWWWW><U><G><M><CR><LF>**

DT7000 Anybus
<STX><SW0><SW1><SW2><UD><GW><TW>NW><SP1><SP2><FR><UD><CRC><XCH>

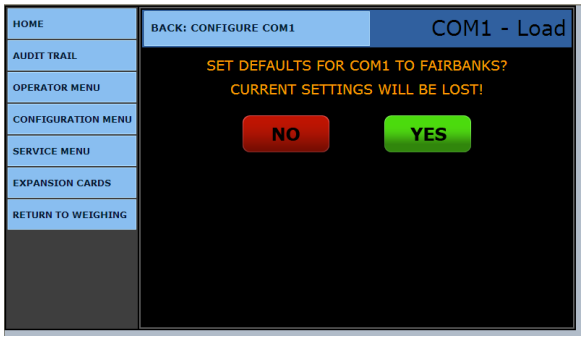
SMA Protocol **<LF> <S> <R> <N> <M> <F> <XXXXXX.XXX> <UUU> <CR>**

* *See* **APPENDIX II: DATA OUTPUT** *for further information.*

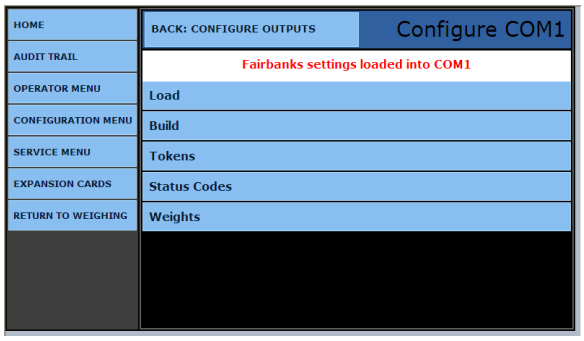
NOTE *:* **Configure COM1** *was selected in the following images.*

4.4.4. Method 2, Continued

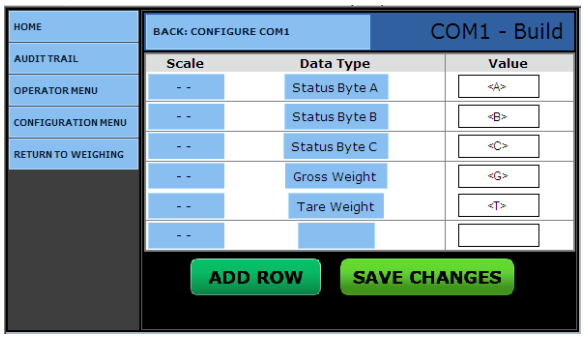
11. Touch the **YES** button to load the default configuration for the data protocol selected.



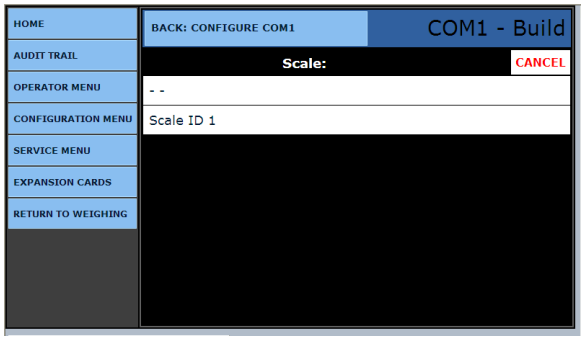
A successful load of the selected data output will be indicated as shown.



12. The customization of the output begins upon selecting the **BUILD** menu choice.



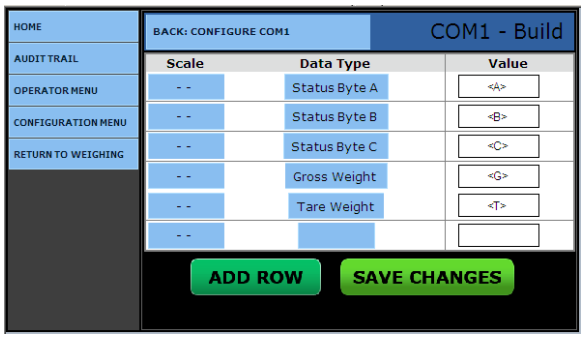
13. Touch the screen under **SCALE** to select the scale where the data item is obtained.



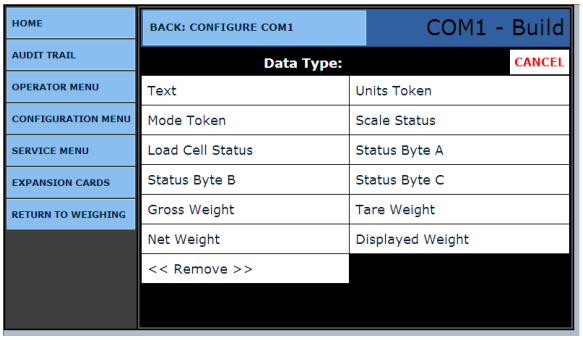
NOTE: *Selecting the* **Scale** *will limit the available data for configuring data strings.*

4.4.4. Method 2, Continued

14. Touch the screen under **DATA TYPE** to select a data item to edit.



There are many items available to select to edit the data item selected. Listed below are the available choices.

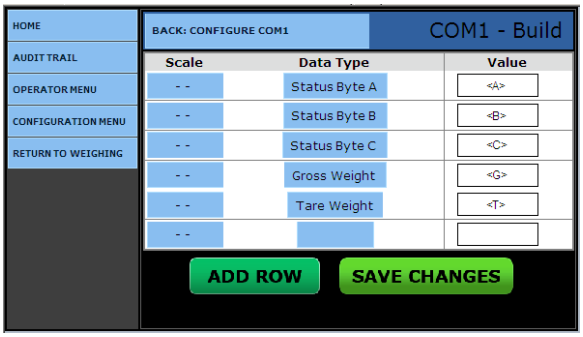


- **TEXT –** Allows text entry values in the location**.**
- **UNITS TOKENS** – Designates the unit of the data such as lbs or kgs.
- **MODE TOKENS** – Designates if the weight is Gross, Tare, or Net.
- **SCALE STATUS** – Designates the operating status of the scale such as motion, overcapacity, and behind zero.
- **LOAD CELL STATUS** – Designates if a load cell has a potential problem.
- **STATUS BYTE A, B** or **C** – Similar to Scale Status item but also includes graduation size, decimal point, and units.
- **GROSS WEIGHT, TARE WEIGHT, NET WEIGHT** –Weights retrieved from the scale selected for the data item configured.
- **DISPLAYED WEIGHT** – Value which is currently shown on the display.
- **<<REMOVE>>** - Removes the data item selected from the data string configuration.

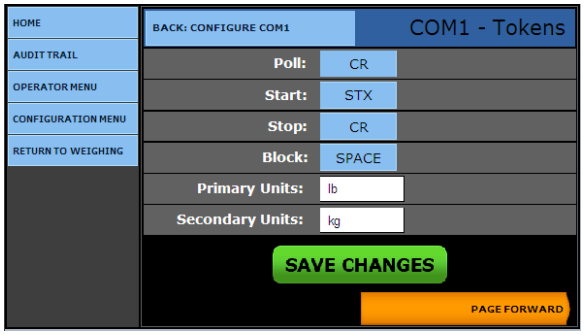
4.4.4. Method 2, Continued

15. Press the **ADD ROW** button to add additional data to the end of the string.
16. Touch the empty **DATA TYPE** box.
17. Select the data item required.
18. Select the Scale, if this data is required also.
19. Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.

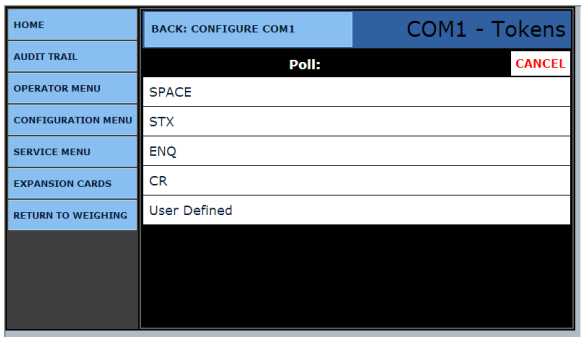
    Select **BACK: CONFIGURE COM1** to return to the Configure COM1 menu.



20. Select the **TOKENS** menu.

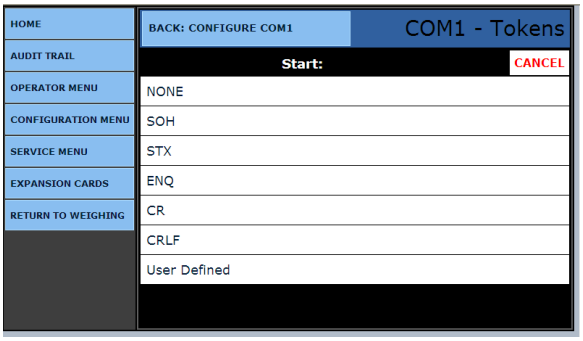


21. Touch the screen data box to the right of **POLL:** to select the available polling character for the demand mode.

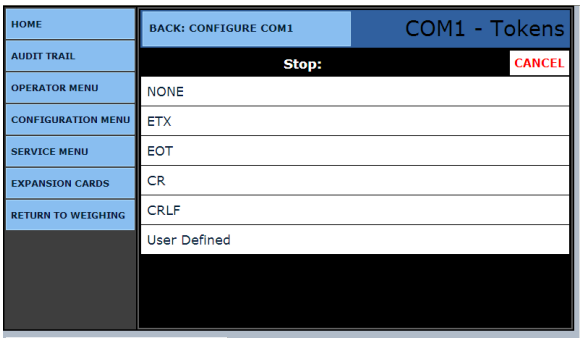


4.4.4. Method 2, Continued

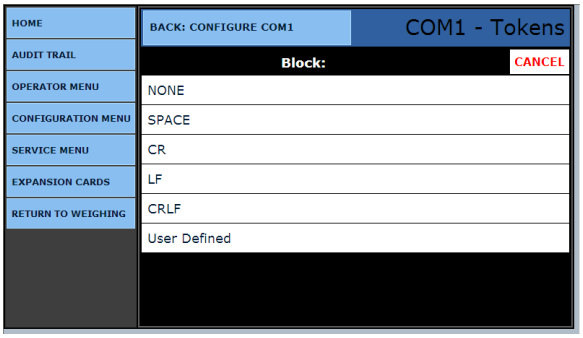
22. Touch the screen data box to the right of **START:** to select the available start character for all modes.



23. Touch the screen data box to the right of **STOP:** to select the available stop character for all modes.



24. Touch the screen data box to the right of **BLOCK:** to select the available data block separator character for all modes.

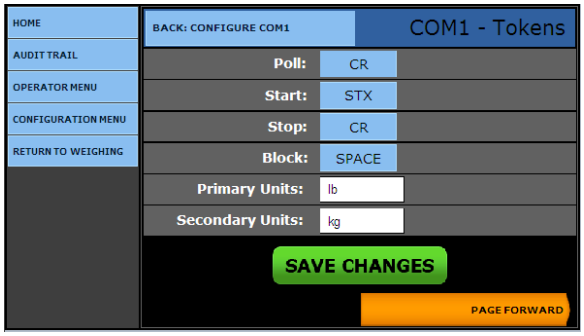


Select **BACK: CONFIGURE COM1** to return to the **Configure COM1 menu**.

4.4.4. Method 2, Continued

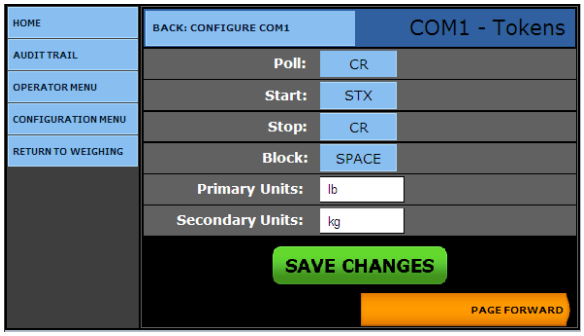
25. Select the **PRIMARY UNITS:** data entry block which is located to the right of the legend**.**
26. Enter the primary units legend as shown in the image to the right.

    Example: **lb**

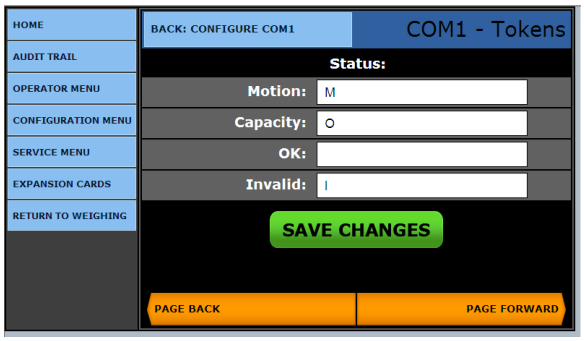


27. Select the **SECONDARY UNITS:** data entry block which is located to the right of the legend**.**
28. Enter the secondary units legend, as shown in the image to the right.

    Example: **kg**



29. Press **PAGE FORWARD** once.
    - This page configures the **Status:** token for the output data string.
    - Each item configured will indicate the character programmed in the output data string.
    - If **Motion:** is present on the scale, a **"M"** will be transmitted in the data string. The **Capacity:** value will indicate if the scale is overloaded.

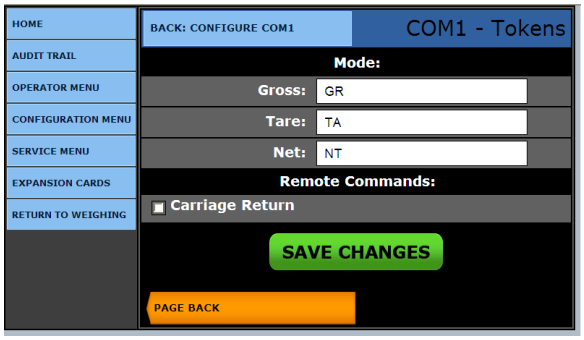


- Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.

NOTE: *Set all* **Threshold Weight** *settings to* **PRIMARY UNITS***, preventing any confusion when programming.*

4.4.4. *Method 2, Continued*

30. Press **PAGE FORWARD** again.



- This page configures the **Mode: token** for the output data string.
- Each item configured will indicate the character(s) programmed in the output data string.
- The **REMOTE COMMANDS:** configuration establishes if a carriage return is required when sending a remote command, such as a **Zero Command**.
- If the check box is selected, the remote **Zero Command** is **ZERO<CR>.** Otherwise it would be a **"ZERO"** only.

31. Select **RETURN TO WEIGHING TO TEST** and verify the output is producing the desired results.

- Press the **SAVE CHANGES** button when any changes are made.; Otherwise, the changes will be lost.

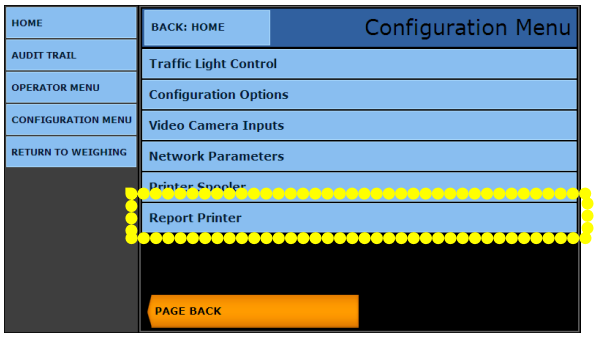
  Selecting **BACK: CONFIGURE COM1** will return the user to the Configure COM1 Menu.

- Touch **RETURN TO WEIGHING TO TEST** and verify the output is producing the desired results.

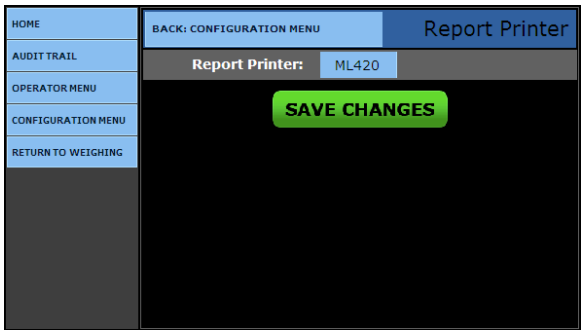
4.5. Report Printer Configuration

The steps listed below configure the report printer connected to the FB2558 DAT.

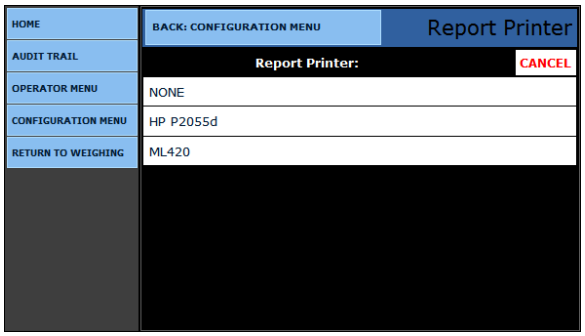
1. Using an external keyboard, press **ALT + HOME**.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**. .
4. Select the **CONFIGURATION MENU**.
5. Press **PAGE FORWARD** twice.
6. Select **REPORT PRINTER**.



7. Press the blue data box to the right of **REPORT PRINTER:**
8. Select the correct report printer used from the menu list.
9. Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.



- Select **BACK: CONFIGURATION MENU** to return to the **Configuration Menu.**

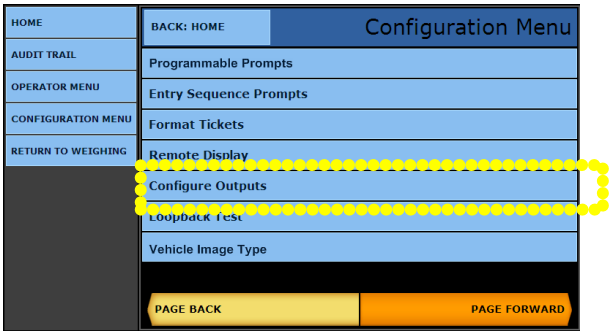


4.6. IP Output Configuration

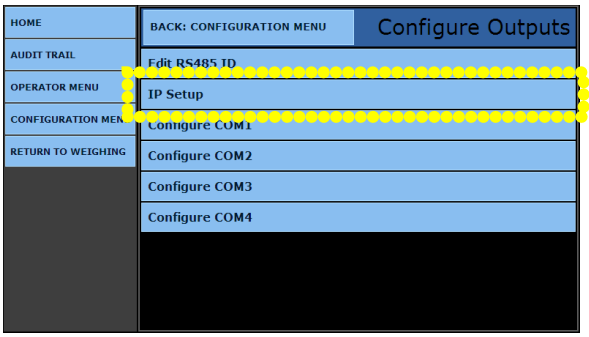
The IP Output is available using the Ethernet connection of the FB2558 DAT

- Follow these sections to configure the Communication Data String Protocol.
- The **MODE** selection configures the Network (Continuous) or Network (Auto).
- The final step of the IP Configuration is assigning the communication parameters for the device on the Network.

1. Using an external keyboard, press **ALT + HOME**.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Open the **CONFIGURATION MENU.**
5. Press **PAGE FORWARD** once.
6. Select **CONFIGURE OUTPUTS.**

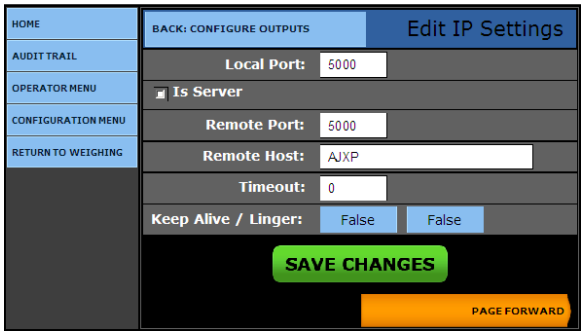


7. Touch the screen to select **IP SETUP,** which configures the FB2558 DAT.



4.6. IP Output Configuration, Continued

8. The **IP SETUP** configuration screen has several parameters to program.



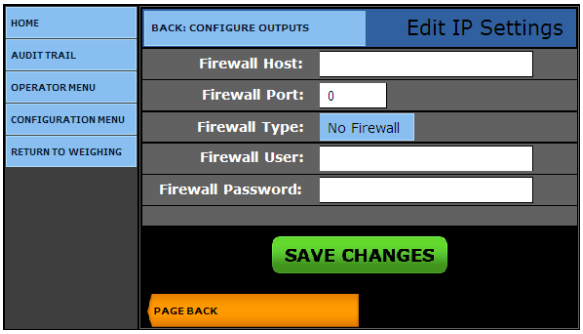
   - The Local Port: can be a random number which is assigned to the FB2558 DAT.
   - Port numbers are values from 0 to 65535.
   - Ports 0 to 1024 are reserved for certain privileged services.
   - The combination of port number and IP address is called a socket.
   - The Local Port: and Remote Port: values should match.

   ✓ **DEFAULT = 5001**

   - The **Remote Port:** looks for information to forward to the **Remote Host:** (remote device name) application.
   - The **Timeout:** function is to stop communications when it is inactive.
   - The **Keep Alive / Linger** settings will act as a means to keep the connections active even when activity is limited.

9. Press **PAGE FORWARD**.

   - The settings shown assist with Networks which have active firewalls, and permit the IP communications to continue operating, instead of becoming blocked by the networks firewall settings.



10. Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.

- Select **BACK: CONFIGURATION MENU** to return to the **Configuration Menu.**

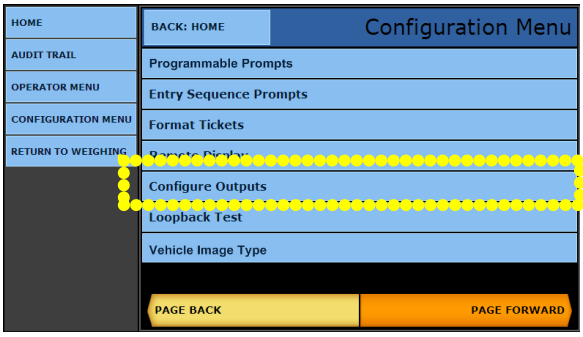
4.7. RS-485 Configuration

The RS-485 output is available from the **RS-485 accessory** (**30937**), or from the **Serial Expansion accessory** (**30921**).

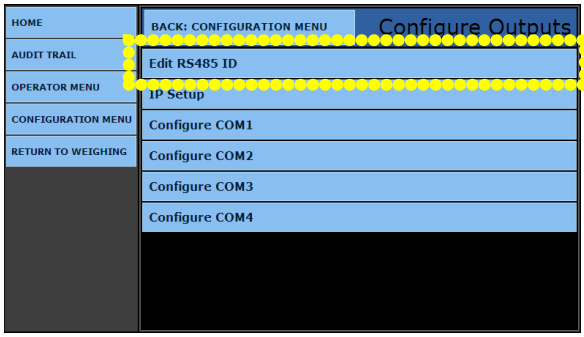
- *Refer to* **Section 4.4.3. Method 1 – Pre-configured Output** *or* Section **4.4.4. Method 2. – Customizing Output Data Strings**.
- These sections describe how to configure the data string protocol for the communications.
- The final step for the RS-485 configuration is to assign an ID for the RS-485 communications network.
- This address is a requirement for proper operation.

Follow these steps to configure the **RS-485 ID**.

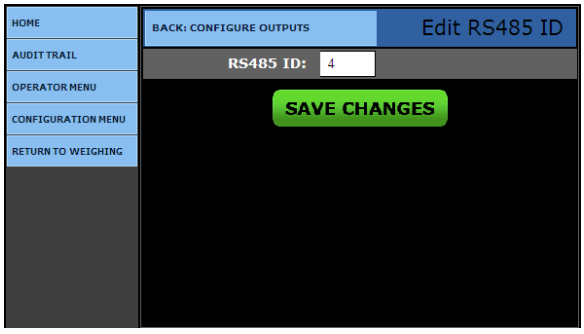
1. Using an external keyboard, press **ALT + HOME**. Select **LOGIN.**
2. Enter the **Supervisor Password.**
3. Select the **CONFIGURATION MENU**
4. Press **PAGE FORWARD** once.
5. Select **CONFIGURE OUTPUTS**.



6. Touch the screen to select **Edit RS-485 ID** to edit or enter the **RS-485 ID**.



7. Touch the screen to the right of **RS-485 ID** to enter the RS-485 ID from the keyboard.
   - The ID value may be configured from **1 to 32**.
   - A **ZERO (0)** disables the ID.
8. Press the **SAVE CHANGES** button when any changes are made, otherwise they will be lost.



- Select **Back: CONFIGURATION MENU** to return to the **Configuration Menu**.

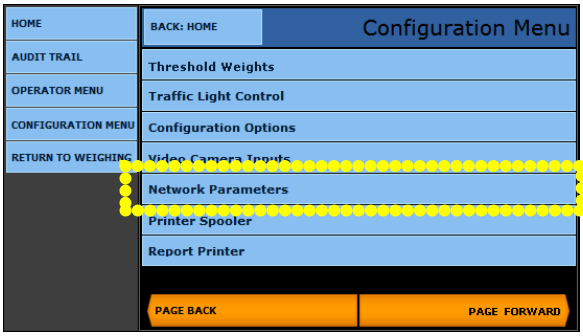
4.8. Network Parameters Configuration

The **Network Name** is a unique identifier of the instrument as it appears on the Network to which it connects.

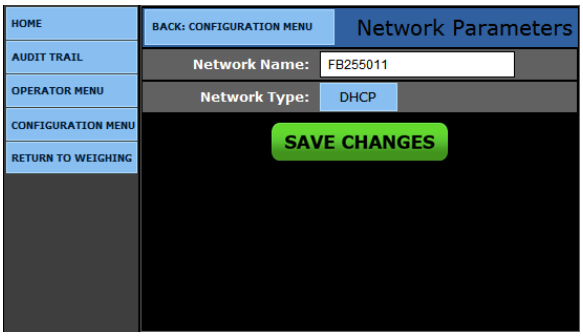
- Configure the **NETWORK TYPE** as a Static or Fixed IP, and either DHCP or Dynamic IP Addresses.
- The **IP ADDRESS** and **SUBNET MASK** are unique address values designed to function within the Network for which it is configured.
- IP Address is an identifier for a computer or device on a TCP/IP Network. Networks using the TCP/IP Protocol route messages based on the IP Address of the destination.

A **SUBNET MASK** is a local division of a **Local Area Network (LAN),** which is created to improve performance and provide Network security.

1. Using an external keyboard, press **ALT + HOME**.
2. Select **LOGIN.**
3. Open the **CONFIGURATION MENU**.
4. Press **PAGE FORWARD** twice.
5. Select the **NETWORK PARAMETERS** option.



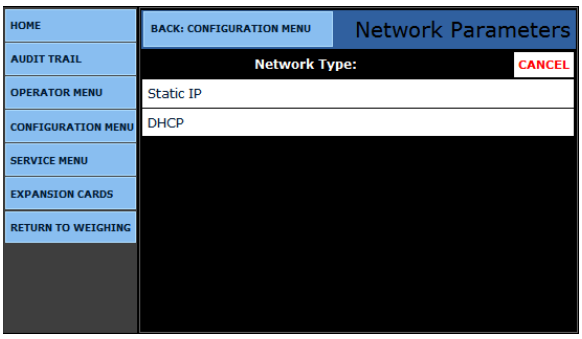
6. Click the **NETWORK TYPES** button.
7. Select either **STATIC IP** or **DHCP**.



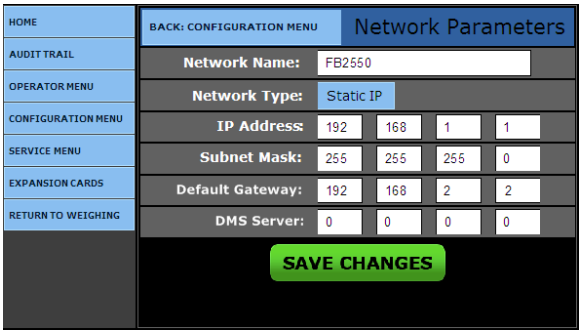
- If **cable is connected** upon initial Power Up and Configuration, the Network type selection will default to **DHCP**.
- If there is **no cable**, then the Network type will default to **STATIC.**

4.8 Network Parameters Configuration, Continued

8. If **STATIC IP** is selected, enter the correct **IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY** and **DNS SERVER ADDRESSES**.



9. Press **SAVE CHANGES** so the changes will not be lost.



Section 5: Input/ Output

5.1. Installing a Printer

The FB2558 DAT instrument has **three (3) standard Serial Output Ports** which are configured for RS-232 communications.

- Additional serial outputs such as **RS-232, 20mA**, and **RS-485** are available as optional accessories.
- Printers Include **TM-U220** (Tape Printer), **TL80** Custom America (Thermal Printer).

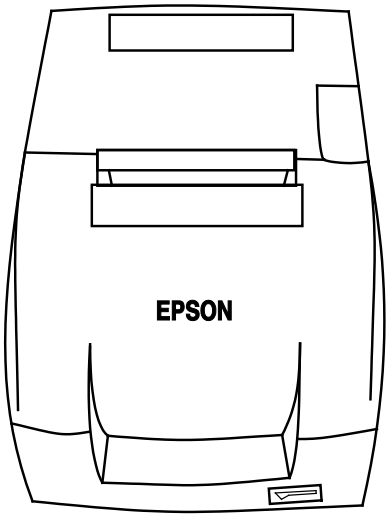
Serial outputs can be customized to provide specific configured data string protocols, configuration parameters, using selected output modes, such as **Continuous, Demand, Auto, Network (Continuous),** and **Network** (**Auto**).

- The FB2558 DAT also can connect using a Network for remote configuration and diagnostics capability.
- The FB2558 DAT uses **Serial Cable** (**25932**) and **USB Cable** (**29827C**).

5.1.1. TM-U220 Tape Printer Settings

- Uses **SERIAL** communication.
- Necessary cable used is **25932**.

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



5.1.1. TM-U220 Tape Printer Settings, Continued

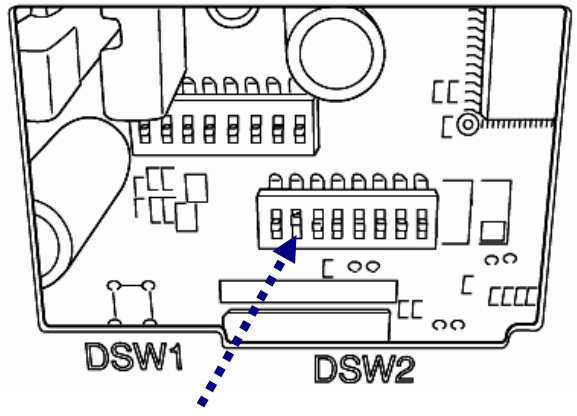
DIP SWITCH 1 (Serial Interface)

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**

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**

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. **DSW2–2** *is the only one* **ON**.

5.1.1. TM-U220 Tape Printer Settings, Continued

Cable 25932 Wiring for COM 1-3

DB-9 INSTRUMENT	DESCRIPTION	WIRE COLOR	DB-25 PRINTER	DESCRIPTION
2	RxD	BR	2	TxD
3	TxD	R	3	RxD
4	DRT	O	6	DSR
5	SG	Y	7	SG
6	DSR	G	20	DTR
7	RTS	BL	5	CTS
8	CTS	BK	4	RTS

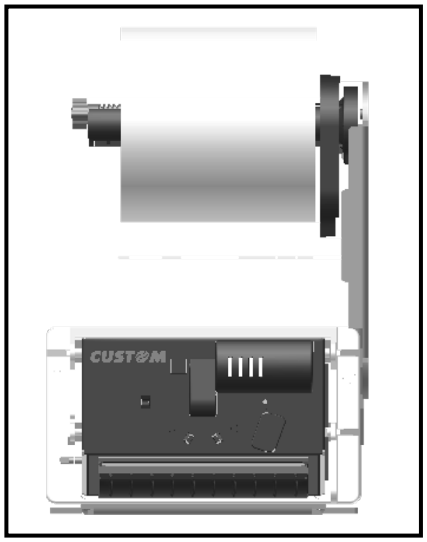
Cable 25932 Wiring for Serial Expansion Module*

RS232 PORT 1: COM7 XX	DESCRIPTION	WIRE COLOR	DB-25 PRINTER	DESCRIPTION
TB1**a**-2	RxD	BR	2	TxD
TB1**a**-3	TxD	R	3	RxD
TB1**a**-4	DRT	O	6	DSR
TB1**a**-5	SG	Y	7	SG
TB1**b**-6	DSR	G	20	DTR
TB1**b**-7	RTS	BL	5	CTS
TB1**b**-8	CTS	BK	4	RTS

* *Must remove the* **9-pin connector**.

5.1.2. TL80 Custom America Thermal Printer Settings

The TL80 Customer America is a kiosk printer, placed inside the FB2558 Instrument.



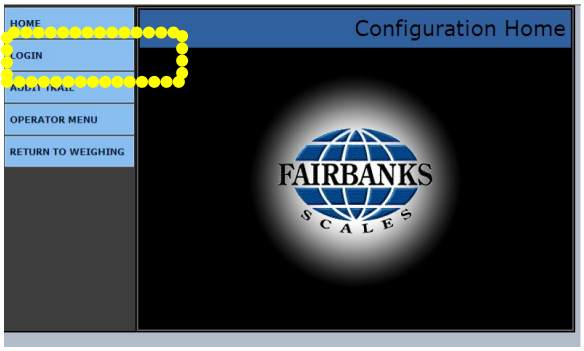
- Uses **USB** communication (recommended)
- Necessary cable used is **29827C**.
- No dip switches are used on the **TL80** Thermal Printer

NOTE: The COM port on the TL80 printer is **NOT** recommended for Serial communications at this time.

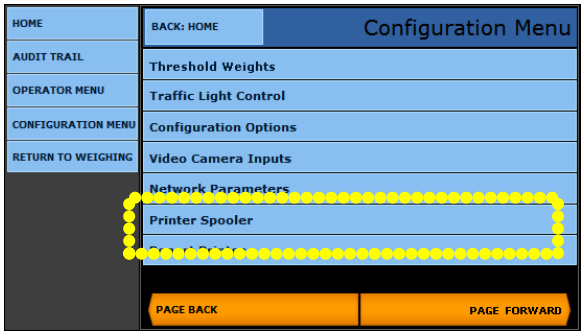
5.2. Programming the Printer

The steps listed below will provide the process to configure the printers which will be connected to the FB2558 DAT.

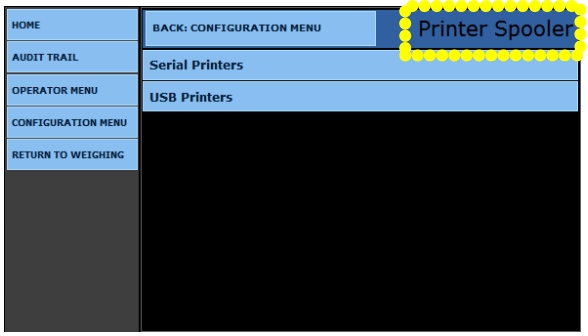
1. Using an external keyboard, press **ALT + HOME**.
2. Press **LOGIN**.
3. Enter the **Supervisor Password.**

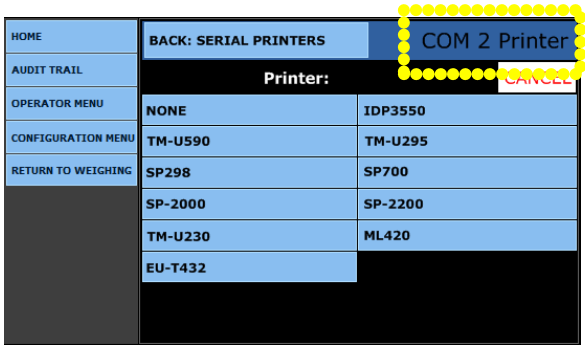


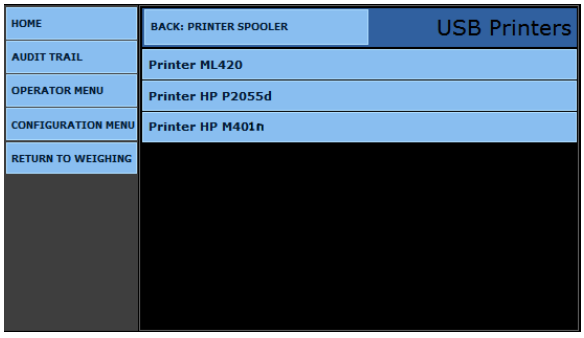
4. Select the **CONFIGURATION MENU**.
5. **PAGE FORWARD** twice.
6. Select **PRINTER SPOOLER**.



7. Select either **SERIAL PRINTERS** or **USB PRINTERS**.







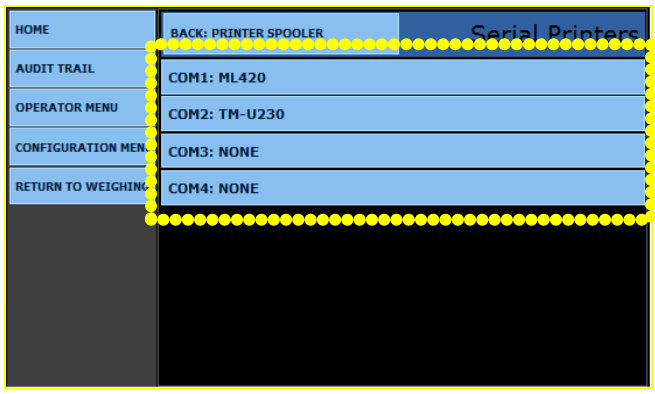
5.2. Programming the Printer, continued.

8. Select the correct printer from the list.

CONNECTION TYPE	PRINTER	
USB Only	• ML420	• HP P2055d
	• HP M401n	• TL80

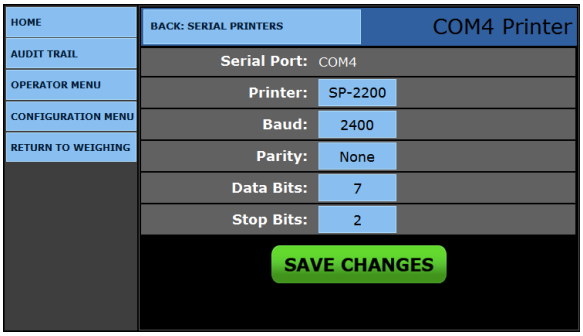
Serial	• None	• iDP3550
	• TM-U590	• TM-U295
	• SP298	• SP700
	• SP-2000	• SP-2200
	• TM-U230	• ML420
	• EU-EU-T432	

9. Select the correct **COM PORT** for the printer.

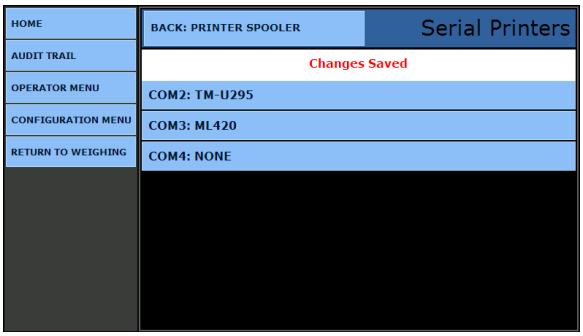


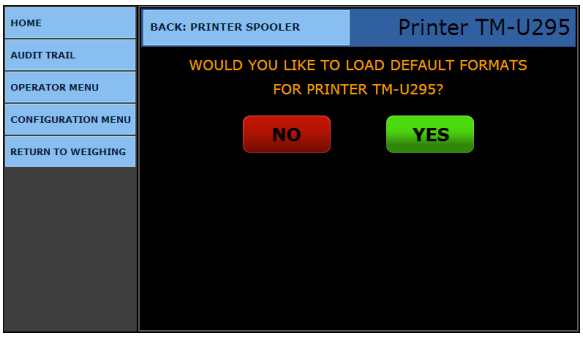
5.2. Programming the Printer, Continued

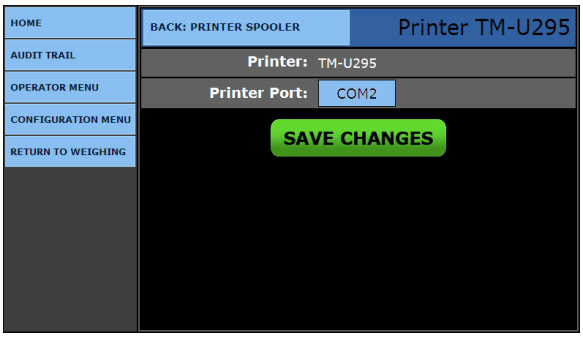
10. Set the data protocol for the COM Port, including the **PRINTER, BAUD RATE, PARITY, DATA BITS** and **STOP BITS**.



The FB2558 DAT will indicate the port has been set and the defaults loaded.







11. If this is the first time the printer is installed on the Indicator, load the **PRINTER DEFAULT FORMATS** by pressing the **YES** button.
12. Press the **SAVE CHANGES** button on the touch screen display to complete the Printer configuration.

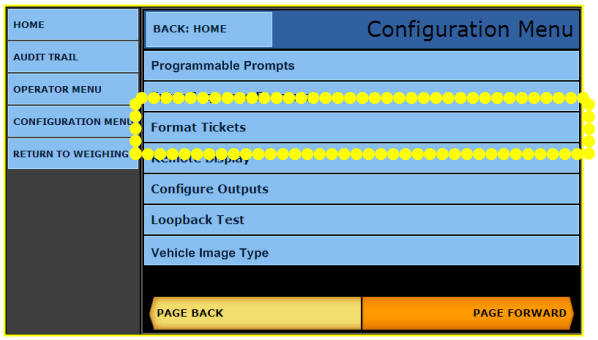
- Select **BACK: CONFIGURATION MENU** to return to the **Configuration Menu**.

13. Connect the printer cable to the printer and the configured COM port.

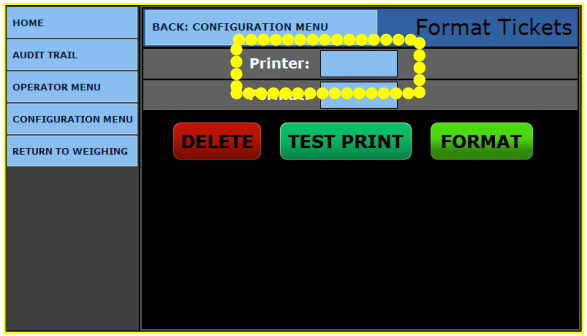
5.3. Format Tickets

The steps listed below will provide the process to format the tickets for the printers which were configured in SECTION 4.5. REPORT PRINTER CONFIGURATION.

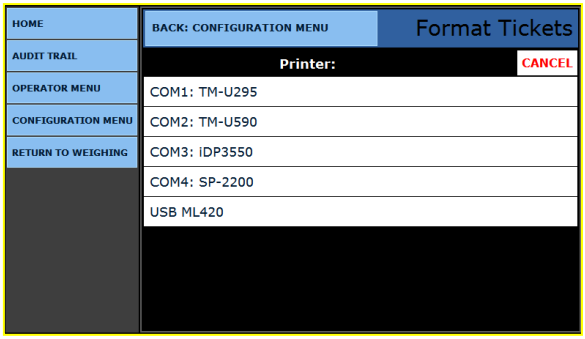
1. Using an external keyboard, press **ALT + HOME.**
2. Select **LOGIN**.
3. Enter the **Supervisor Password**.
4. Select the Configuration Menu and press **PAGE FORWARD** once.
5. Select **FORMAT TICKETS**.



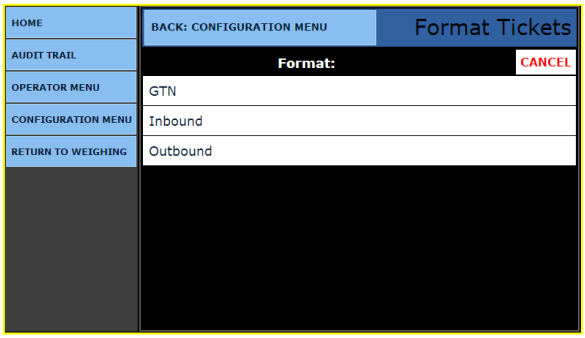
6. Touch the data entry box to the right of **PRINTER**.



7. Double-click the correct printer from the menu list.

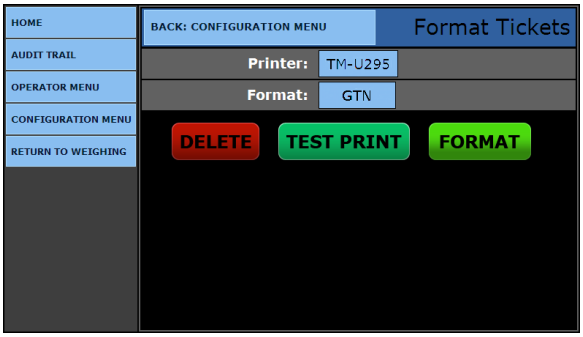


8. Select the ticket format to edit or configure.

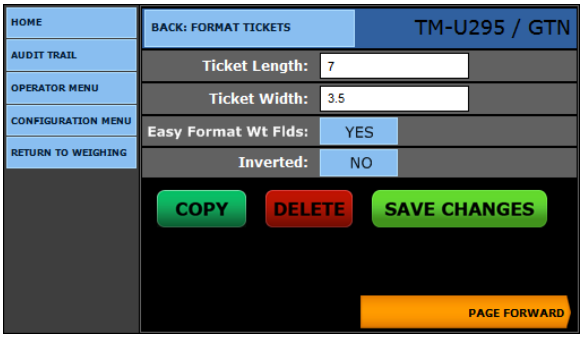


5.3. Format Tickets, Continued

9. Press the **FORMAT** button to access the format item menu.



10. The **Format Tickets menu** has **nineteen (19) windows** of configurable data windows for each printers ticket format.

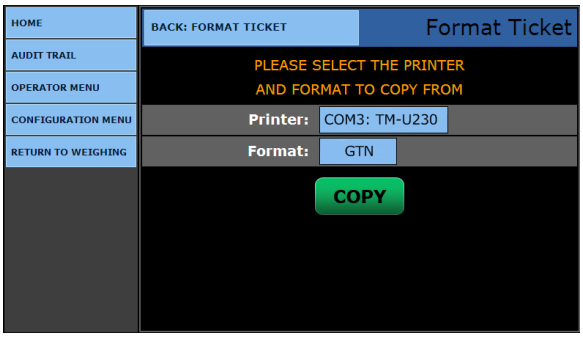


- This first window configures the **Ticket Length** and **Ticket Width.**
- The **Easy Format Wt Flds** combines the weight amount, units of weight, and legend (weight mode) so each of these fields will be automatically inserted throughout the processing of generating the ticket.
  - ***This prevents needing to input each of these items separately.***
- The **Inverted** feature prints the ticket from bottom first, up to the top.

11. Press the **PAGE FORWARD** button to advance to the next page of ticket options.

- Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.

- Press the **COPY** button to copies this ticket format, then posts it to another printer's selected ticket format.

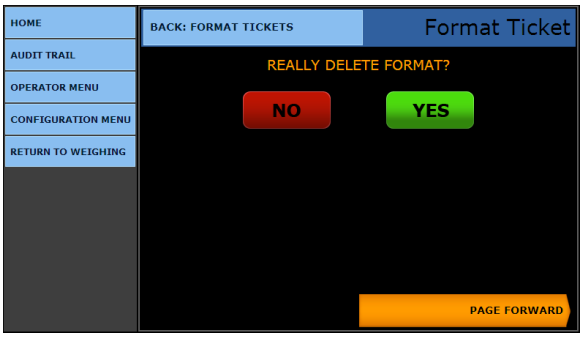


NOTE: *Formatting all the parameter windows will determine how the standard company ticket prints and displays in the Weight Screen.*

5.3. Format Tickets, Continued

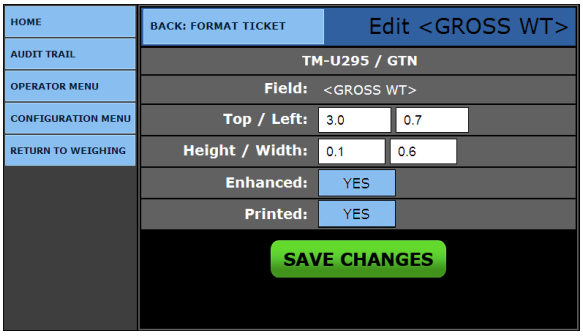
The **DELETE** button function eliminates the ticket format.

- A prompt appears to confirm the operation.



The formatting pages are displayed in three (3) distinctive types.

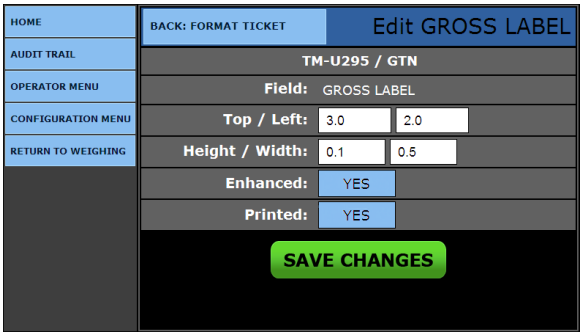
DATA FIELD – This field is identified by the **Field:** entry value shown. Data which is within greater than and less than symbols is data derived from the FB2558 DAT and the vehicle which is being weighed.



Example: **<Gross WT>**

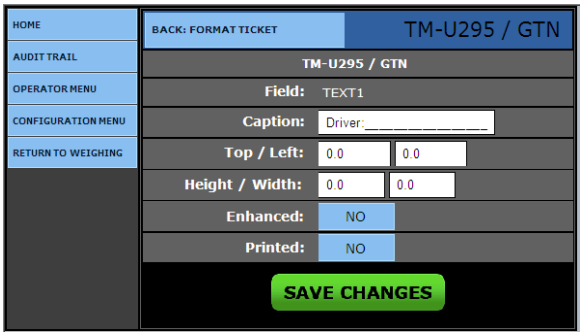
- *This is the actual weight value which was weighed on the scale.*

LABEL FIELD – This field is identified by the **Field:** entry value shown. Data which is text only is a label data field. This field will describe the data field that it is beside.



Example:
GR. This label describes the weight as a Gross weight value.

TEXT FIELD – This field is identified by the **Field:** entry value shown. This Data is custom text entered to provide required information on the ticket.

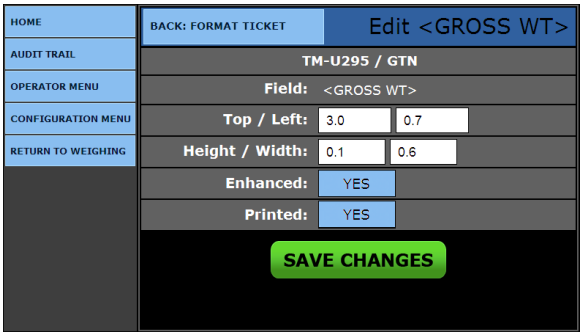


Example:

Driver: _____

- *This gives driver a place to sign a ticket.*

5.3. Format Tickets, Continued



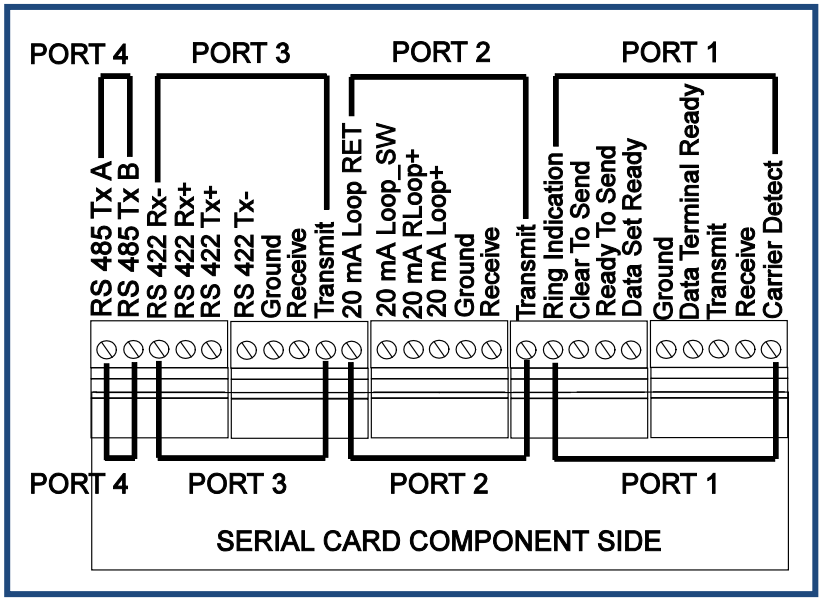
- **TOP / LEFT:** Plots the **x-y coordinates** of where the fields are located.
  - **TOP** field moves the data field in an **up and down** position.
    - *This value is incremented in **tenths (0.1) of an inch**.*
  - **LEFT** field moves the data field in a left to right direction.
    - *This value is incremented in **tenths (0.1) of an inch**.*
- **HEIGHT / WIDTH:** These two fields establish the font size of the data which has been selected. Care should be taken when changing these data fields. The characters can be distorted if the ratios of the default settings are not maintained.

  ✓ **DEFAULT – HEIGHT / WIDTH: 0.1 0.6 *CHANGE TO* HEIGHT / WIDTH: 1.1 1.6.**

- **ENHANCED:** Touch the data entry box on the screen to the right of **Enhanced:** and select Yes or No to enable or disable the emphasized print.
- **PRINTED:** Touch the data entry box on the screen to the right of **Printed:** and select Yes or No to enable or disable the printing of the data item.

- Press the **SAVE CHANGES** button when any changes are made otherwise the changes will be lost.
- Selecting **BACK: FORMAT TICKET** returns to the **Format Ticket**.

5.4. Serial Card



The **SERIAL CARD** (**30921**) provides **four (4) outputs** with a maximum of **two (2) cards** per Instrument. See the Port Assignments listed below.

– A bus cable is provided to connect the multi-function board to the expansion card.

PORT 1	RS-232 (Full Duplex 9 Pin Port)
PORT 2	RS-232 OR 20 Ma *
PORT 3	RS-232 OR RS-422 *
PORT 4	RS-485

* *Only one (1) may be selected at a time, and not both.*

5.5. Remote Display Setup and Configuration

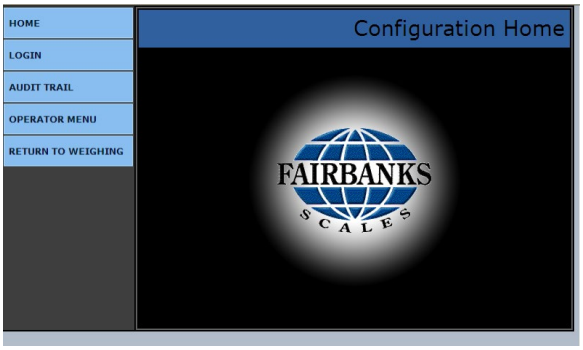
The FB2558 DAT has **two modes of operation**.

- **Continuous Display.**
- **Display On Print.**

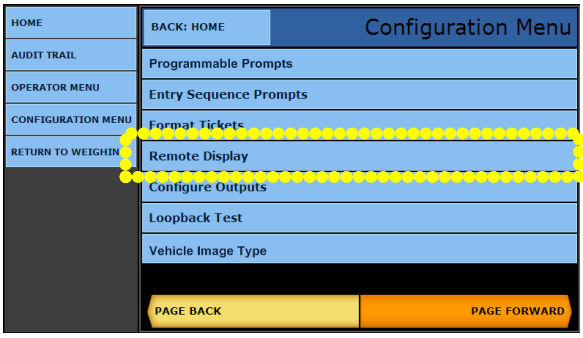
The remote display output may be configured for a RS232 interface or a 20 mA interface.

5.5.1. Serial 20MA Configuration (Multi-Function Board)

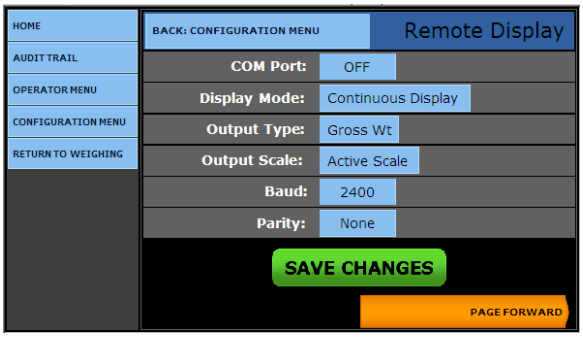
The following steps listed will provide the process to configure the FB2558 DAT for use with the serial 20 mA to a remote display.



1. Using an external keyboard, press **ALT + HOME**.
2. Select **LOGIN.**
3. Enter the Supervisor Password.



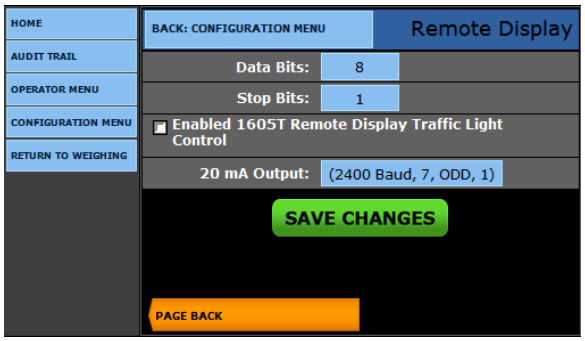
4. Select the **CONFIGURATION MENU**.
5. Press **PAGE FORWARD**.
6. Select **REMOTE DISPLAY**.

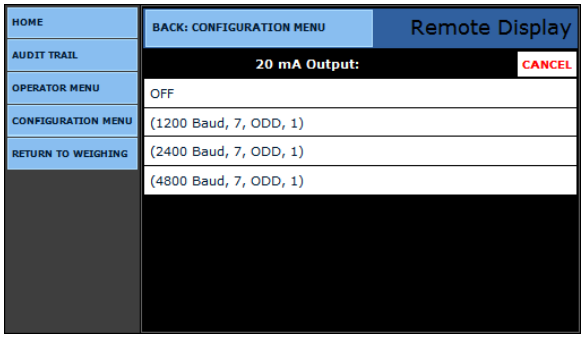


7. Leave the settings as shown in the image to the right.

5.5.1. Serial 20MA Configuration (Multi-Function Board), Continued

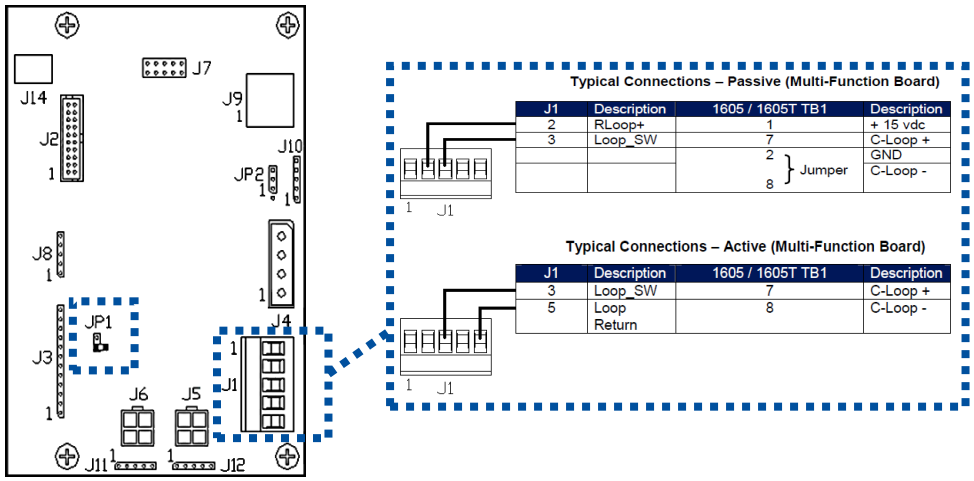
8. Press **PAGE FORWARD** once.
9. Click on the **ENABLE 20 MA OUTPUT** button.
   - Programs the **20 mA Output** located at **J1,** which resides on the Multi-Function Board.





NOTE: *See* **SECTION 6.2. Programming the Traffic Light Control** *for other configuration parameters which must be enabled for proper traffic light operation.*

- Use a **20mA CURRENT LOOP CONNECTION** for the Remote Display.
- LED Designations are displayed below.
  - ***DS3 is +5V***
  - ***DS4 is +12V***
  - ***DS1 is +3.3V***

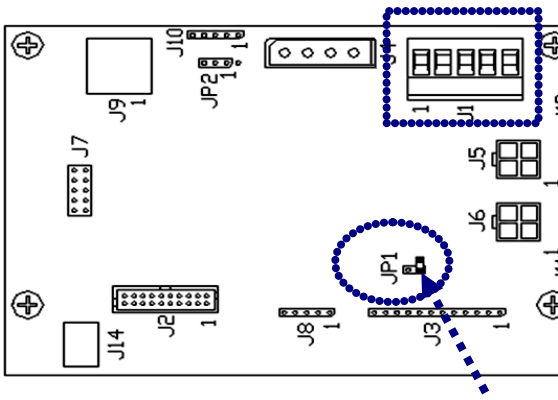


5.5.2. Multi-Function Board 20MA Wiring

The **Multi-function Board** (**29907**) processes the Keypad and Touch Screen Input.

– One USB Port is dedicated to the Auxiliary Keyboard.

J1	DESCRIPTION
PASSIVE LOOP	
1	LOOP+ (External Resistor)
2	RLOOP+
3	LOOP_SW
ACTIVE LOOP	
3	LOOP_SW
5	LOOP_RET



Internal Calibration Lockout Jumper
When jumper shorts the two pins together, **Calibration** *is prevented.*

A. Typical Connections – Passive (Multi-Function Board)

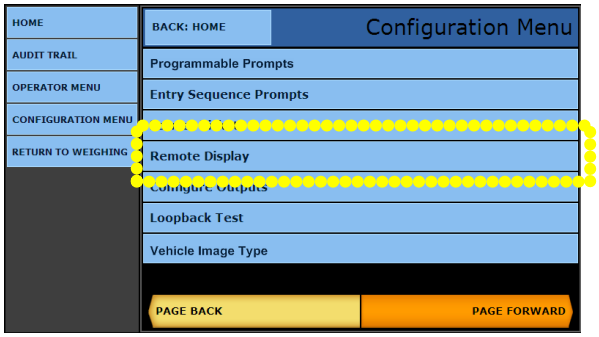
J1	Description	1605 / 1605T TB1	Description
2	RLoop+	1	+ 15 vdc
3	Loop_SW	7	C-Loop +
		2 } Jumper	GND
		8	C-Loop -

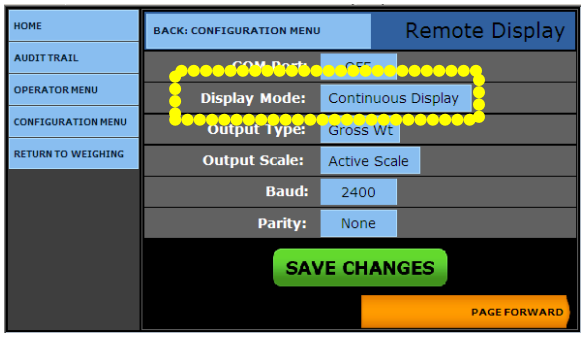
B. Typical Connections – Active (Multi-Function Board)

J1	Description	1605 / 1605T TB1	Description
3	Loop_SW	7	C-Loop +
5	Loop Return	8	C-Loop -

5.5.3. Serial 20MA Configuration (Serial Expansion Board)

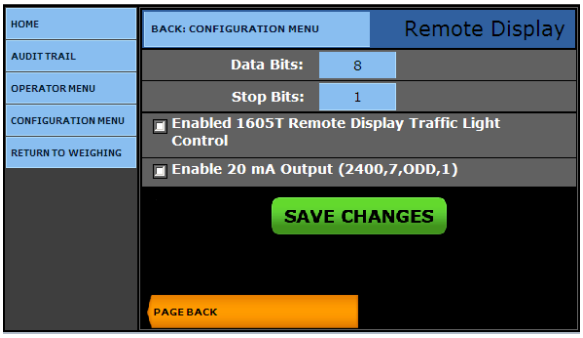
1. Using an external keyboard, press **ALT + HOME**. Select **LOGIN**.
2. Enter the Supervisor Password.
3. Select the Configuration Menu.
4. Press **PAGE FORWARD** once.
5. Select **REMOTE DISPLAY**.
6. Touch the data box on the screen to the right of **COM PORT,** selecting the desired COM port.
7. Select the **DISPLAY MODE** button, selecting the desired mode required from the menu list.
   - The menu choices are Continuous Display or Display on Print.
8. Touch the data box on the screen to the right of **OUTPUT TYPE:,** then select the desired type required from the menu list.
   - The types are Gross Wt, Net Wt, or Ticket Number.
9. Touch the data box on the screen to the right of **OUTPUT SCALE:,** then select the desired scale required from the menu list.
   - The scales choices are **All, Active** or **an individual scale**.
   - It is recommended to leave the settings for baud, parity, and etc. as shown in the images in steps 3 and 4.





Do Not touch the data check box on the screen to the left of **Enable 20 mA Output.**

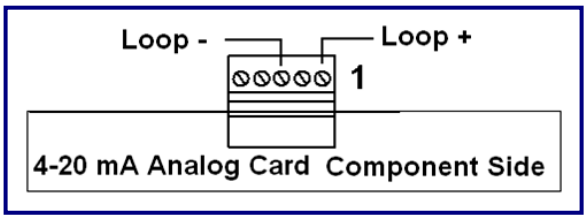
- This turns on the 20 mA output located at **J1**, which resides on the Multi-Function Board.
- This is not required for this **Configuration Setup**.
- If the check box is selected by **Enabled 1605T Remote Display Traffic Light Control**, the FB2558 DAT will control the traffic light function.

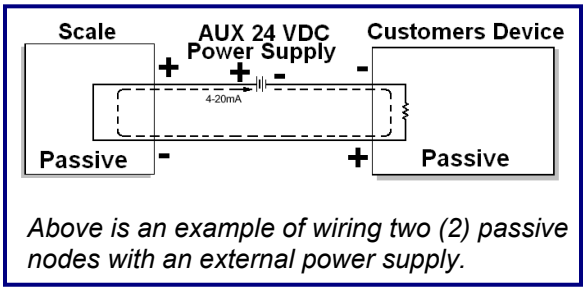


5.6. 20MA Analog Card

The **4-20 MA ANALOG CARD (30919)** is a **Passive Current Loop Device** with **16 Bit High Resolution Output.**

4-20mA Specifications	– 16 bit resolution +/- .01 integral linearity
Current Loop Voltage Compliance	• **A PASSIVE DEVICE, as the 4-20 Analog Card is, does not supply any current loop voltage.** • **Customer's external source must furnish 7 to 40 VDC power (typical voltage 24 VDC).** • **The negative (-) power of the supply *MUST* be isolated from chassis ground** • **See important CAUTION box below.** • **A separate power supply must be furnished for each output.**
Full Scale Setting Time	– 8 msecs.
Output Impedance	– 25 Meg Ohms.
Alarm Current	– 3.5 to 24mA (underload/overload conditions), Offset at 25°C; +/- .1% of full scale. Offset drift; +/- 25 ppm of full scale per degree Celsius.
Total Output Error	– (20mA) at 25°C: +/- .2% of full scale max.
Total Output Drift	– +/- 50 ppm of full scale per degree Celsius max.





Above is an example of wiring two (2) passive nodes with an external power supply.

C A U T I O N

Failure to have an **ISOLATED POWER SUPPLY**
WILL CAUSE
CATASTROPHIC DAMAGE!

5.7. Fieldbus Protocols and Formats

5.7.1. Transmission Methods

Communication protocols are simular to conversations; there are several different languages and methods used.

- **PROFIBUS-DP, MODBUS-TCP, INTERBUS-S** and **ETHERNET** use a method called **"source-destination" communications**. The message packets have destination information in them, and the Fieldbus passes a token from node to node in a timed fashion.
- **DEVICENET, CONTROLNET**, and **CAN** use a **broadcast, producer-consumer model for communications.** Messages are broadcast to all nodes, and each node only "hears" messages intended for it.

5.7.2. Communication Format

Another major difference among Fieldbuses is the format of the communications themselves.

- **DEVICENET** and **CAN** open messages are eight bytes long.
- **PROFIBUS-DP** is "word-oriented", and can have an **up to 256-byte** "stack" per message.

COSTS vs. SPEED

- **PROFIBUS-DP** and **CONTROLNET** are very fast networks – **12 megabits per second** and **500 Mb/s**, respectively. They are much more expensive to operate.
- **DEVICENET** is less expensive.

5.7.3. Handling Network Traffic

FIELDBUSES also handle network traffic in different ways.

- **DEVICENET** and **CAN** use "**non-destructive bitwise arbitration**." When two messages collide, the higher priority message goes first. If the two are equal priority, there is a mechanism within DeviceNet (as well as CAN) that decides which one should go first.
- When a collision occurs in **ETHERNET**, all devices "back off" and re-send their messages, which results in slower transmissions.

5.8. Fieldbus Connections

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

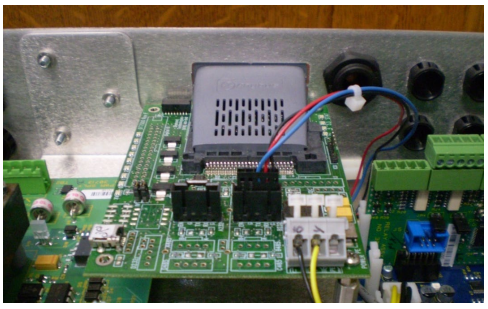
- Fieldbus traces its beginnings in the automotive industry, where efforts to simplify and reduce wiring resulted in a multiplexed CAN (Controller Area Network) system of modules installed at various points of a vehicle.

WORKING EXAMPLE

Most cars have multiple controls on the door panel, such as power-window, power-mirror, power-lock and power-seat controls. A **Fieldbus Network** combines all the switch wires into a two wire communication bus. Pressing a switch closes a relay that provides power to the window motor, sending a packet of data onto the communication bus to adjust the passenger-side mirror.

5.8.1. Overview of Terms

There are currently **four (4) different types of Fieldbus Interfaces** listed as standard accessories for the FB2558 DAT.



Typical **Fieldbus Card** *installation.*

DEVICENET – A network system to interconnect control devices for data exchange.

- It uses a differential serial bus, called **Controller Area Network** (**CAN**), as the backbone technology and defines an application layer to cover a range of device profiles.

CONTROLNET – An open Control Network in real-time, for high-throughput applications.

MODBUS-TCP– Serial network communications in a master/slave (request/response) type relationship using either ASCII or RTU (Remote Terminal Unit) modes.

- Non-powered two-wire (RS-485) network, with **up to 126 nodes**, transfering a maximum of 244 data bytes per node per cycle.

5.8.2. DeviceNet

DEVICENET (30923) is a low-cost communications link that connects industrial devices to a network, eliminating expensive hardwiring.

- It is based on a broadcast-oriented, communications protocol the **CAN**.
- The **CAN Protocol** was originally developed by BOSCH for the European automotive market for replacing expensive wire harnesses with low-cost network cable.
- The **CAN Protocol** has fast response and high reliability for applications like anti-lock brakes and air bags.

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

- This reduces connection points and physical size.
- The maximum network size is **up to 64 Nodes**, with message data packets **up to 8 bytes.**

WIRE	SIGNAL	DESCRIPTION
1	**V**	Negative bus supply voltage
2	**CAN_L**	CAN low bus line
3	**SHIELD**	Cable shield
4	**CAN_H**	CAN high bus line
5	**V+**	Positive bus supply voltage

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

5.8.2. DeviceNet, Continued

NETWORK STATUS LED

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

NS = **Operation Mode** LED
MS = **Mode Status** LED
Connection = DeviceNet Connector

MODULE STATUS LED

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

5.8.3. ControlNet

CONTROLNET (30924) is an open ControlNetwork running in “real-time”, for high-throughput applications.

- It uses a **Control and Information Protocol** (**CIP**), combining the functionality of an I/O Network and a Peer-to-Peer Network.
- **CONTROLNET** is based on the **Producer/Consumer Model**, permiting all nodes on the network to simultaneously access the same data from a single source.
- Maximum of **99 nodes**, with no minimum distance between nodes
- The ControlNet card uses BNC connectors.

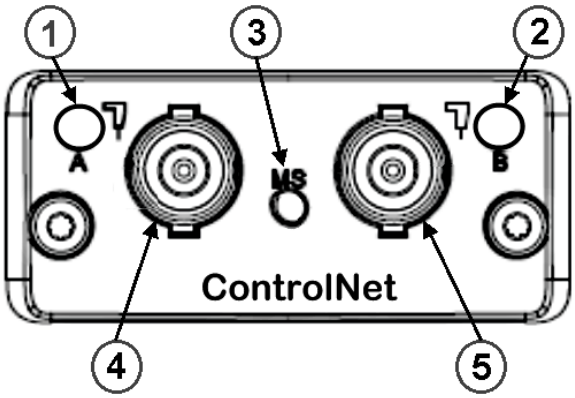
SPECIAL NOTES

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

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

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

- They are available in the application interface, but the LED placement on the front does not conform to the standard **Anybus CompactCom** placement of **LED 1** and **LED 2**.



5.8.3. ControlNet, Continued

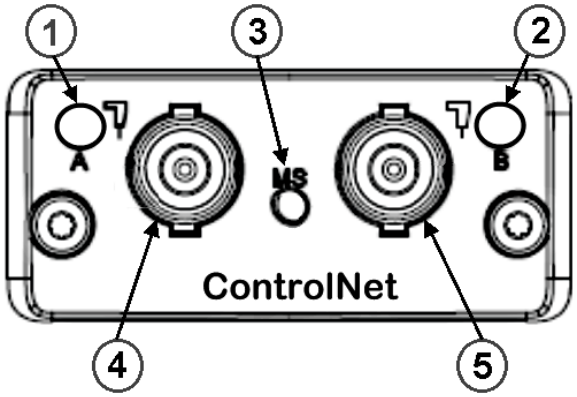
NETWORK STATUS

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

MODULE STATUS

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

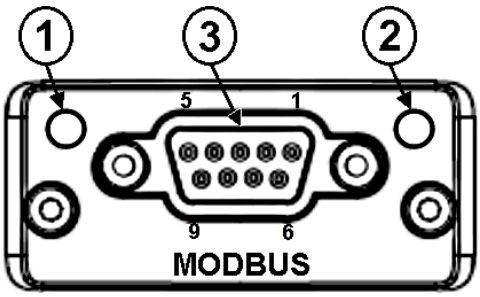
NO.	DESCRIPTION
1	Network Status LED **A**
2	Module Status LED
3	Network Status LED **B**
4	ControlNet Connector **A**
5	ControlNet Connector **B**



5.8.4. ModBus-TCP

MODBUS-TCP (30925) PROTOCOL was originally developed in 1978 to exchange information between devices on the factory floor.

- It developed into the standard for exchanging data and communication **MODULE STATUS** information between PLC systems.
- MODBUS-TCP devices communicate over a **Serial Network** in a **master/slave** (request/response) type relationship.
- Uses either the **ASCII** (American Standard Code for Information Interchange) **mode** or the **RTU** (Remote Terminal Unit) **mode**.
- In the **ASCII MODE**, two eight-bit bytes of data are sent as two ASCII characters.
    - The primary advantage of ASCII mode is the flexibility of the timing sequence.
    - Up to a one second interval can occur between character transmissions without causing communication errors.
- In the **RTU MODE**, data is sent as two four-bit, hexadecimal characters, providing for higher throughput than in ASCII mode for the same baud rate.
- Modbus Plus communicates using a single twisted pair of wires in one shielded cable **(#18AWG)**.
- Modbus Plus ***does NOT*** *provide power* on the network.
- Maximum of up to **32 Nodes**, and up to **64** with a Repeater.



NO.	DESCRIPTION
1	Communication LED
2	Device Status LED
3	MODBUS-TCP Interface

5.8.4. ModBus-TCP, Continued

COMMUNICATION LED

LED STATE	DESCRIPTION
OFF	No power - *OR* – no traffic
YELLOW	Frame reception or transmission
RED	A fatal error has occured

DEVICE STATUS LED

LED STATE	INDICATION
OFF	Initializine – *OR* – *n*o power
GREEN	Module initialized, no error
RED	Internal error – *OR* –major unrecoverable fault
RED, SINGLE FLASH	Communication fault or configuration error **Case 1:** Invalid setttings in Network Configuration error **Case 2**: Settings in Network Configuration Object has been changed during runtime (i.e. the settings do not match the currently used configuration).
RED, DOUBLE FLASH	Application diagnostics available.

MODBUS-TCP INTERFACE

PIN	DIRECTION	SIGNAL	COMMENT
Housing	—	**PE**	Protective Earth
1	—	**GND**	Bus polarization, ground (isolated)
2	Output[3]	**5V**	Bus polarizatino power +5V DC (isolated
3	Input	**PMC**	Connect to pin #2 for RS-232 operation
4			
5	Bidirectional	**B-LINE**	RS-485 B-Line
6			
7	Input	**RX**	RS-232 Data Receive
8	Output	**TX**	RS-232 Data Transmit
9	Bidirectional	**A-Line**	RS-485 A-Line

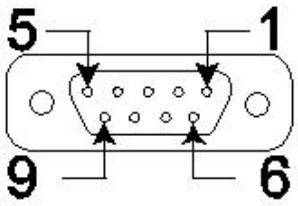
5.8.5. ProfiBus-DP

PROFIBUS-DP (**30922**) is one of the best-known industrial Fieldbus protocols from Europe.

- It is an established standard, used in a wide range of applications as a multi-application communications link for industrial devices.
- The PROFIBUS-DP protocol was originally developed by a committee founded by the German government.

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

- A PROFIBUS-DP Network may have **up to 126 nodes**, transfering a maximum of **244 bytes data per node/ per cycle**.
- Baud (Communication) Rates are selectable, and overall end-to-end network distance varies with speed.
- The maximum standard Baud Rate is **12Mbps**, with a maximum distance of **100M (328ft),** and **1200M (3936 ft)** at **93.75Kbps** without repeaters.
- **PROFIBUS-DP** connects to a wide variety of field devices including the following:
  - *Discrete and analog I/O Drives.*
  - *Robots.*
  - *HMI/MMI products.*
  - *Pneumatic valves.*
  - *Barcode readers.*
  - *Weigh scales.*
  - *Transducers.*
  - *Flow measuring equipment.*



PIN	SIGNAL	DESCRIPTION
3	**B-Line**	Positive RxxD/TxD, Rs485 level
4	**RTS**	Request to Send
5	**GND**	Ground (Isolated)
6	**+5 Bus Output**	+5V termination power (Isolated, short circuit protected)
8	**A-Line**	Negative RXD/TxD, RS485 level

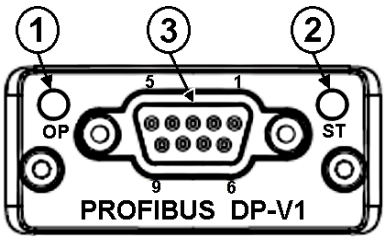
5.8.5. ProfiBus-DP, Continued

OPERATION MODE LED

LED STATE	DESCRIPTION	COMMENTS
OFF	Not online or No power	
Green	Online/ Data Exchange	
Flashing Green	Online, clear	
Flashing Red (1 flash)	Parameterization error	*See* **Parameterization Data Handling**
Flashing Red (2 flashes)	PROFIBUS-DP configuration error	*See* **Configuration Data Handling**

MODULAR STATUS LED

LED STATE	DESCRIPTION	COMMENTS
OFF	No power - *OR* – not initialized	Module state = "**SETUP"** OR **NW-INIT"**
Green	Initialized	Module has left the **NW_INIT** state
Flashing Green	Initialized, diagnostic events(s) present	Extended diagnostic bit is set
Red	Exception error	Module state = **EXCEPTION**



NO.	DESCRIPTION
1	Communication LED
2	Device Status LED
3	MODBUS-TCP Interface

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

Section 6: Accessories

6.1. Accessory Parts Reference

PART NO.	DESCRIPTION
30917	EXPANSION BOARD ACCESSORY KIT
30922 thru 30925	FIELDBUS INTERFACE ACCESSORY KIT(S)
30921	SERIAL EXPANSION BOARD ACCESSORY KIT
30937	INSTALLING THE RS-485 SERIAL PORT ACCESSORY KIT
26258	SHROUD KIT
	READER (ONE ONLY)
32020	– ***Bar Code//Magnetic Stripe Sedge Reader****
32083	– ***Proximity Reader****
32019	ALPHANUMERIC KEYPAD KIT
	SCALE COMMUNICATIONS (ONE ONLY)
31079	– ***Analog (internal)****
30916	– ***Digital Intalogix (Internal)****
26422	RTU HEATER KIT
30921	RS232 MODULE PC104 PCB ASSY
32085	PRINTER COMPARTMENT, DOT 3.00 EPSON
30023	PRINTER COMPARTMENT HEATER WITH 36” CORD
22269	POLE MOUNT KIT
31866	FILTERED COOLING FAN KIT
30920	RELAY KIT
32085	EPSON TM-U230 PRINTER
11535	– ***Paper Roll***
29647	– ***2-Ply Paper***
29260	– ***Ribbon***
32676	– ***Parallel Cable***
29215Q	– ***Printer with Enclosure***
32403	EPSON EU-T432 PRINTER
11535	– ***3” width, 3”diameter, 1-ply, Paper Roll***
29647	– ***3” width, 3”diameter, 2-ply, Paper Roll***
32404	– ***3” width, 8”diameter, 2-ply, 1268’ Paper Roll***
32676	– ***Parallel Cable***
32674	– ***Power Supply***
32673	– ***Printer with Enclosure***
	FIELDBUS INTERFACE KITS
30922	– ***PROFIBUS-DP Kit***
30923	– ***DeviceNet Kit****
30924	– ***ControlNet Kit****
30925	– ***MODBUS-TCP Kit***

* *Only **one (1) Fieldbus Kit** per instrument.*

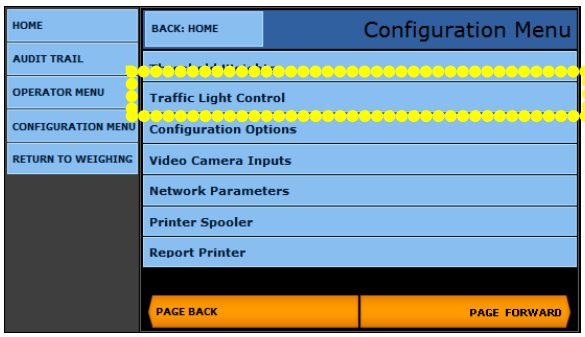
6.2. Programming the Traffic Light Control

The **TRAFFIC LIGHT CONTROL** shows the status of the scale's traffic light. It is typically controlled automatically by the instrument weighment cycle.

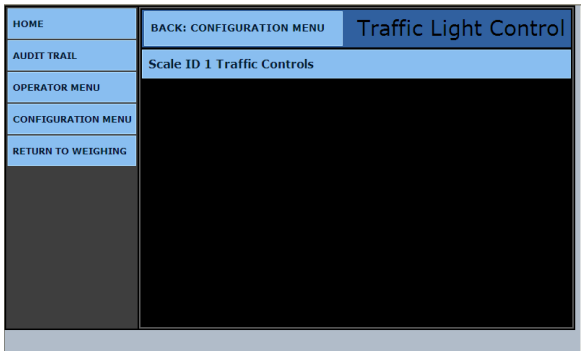
- The light has a manual override using the touch screen on the main weighing display.
- Each of the **two (2)** **I/O RELAY CARDS** supports **two (2)** sets of lights, totaling **four (4) Stop Light Units**.

Follow these steps to configure the **Traffic Light Control.**

1. Using an external keyboard, press
2. **ALT + HOME**.
3. Select **LOGIN**.
4. Enter the **Supervisor Password**.
5. Open the **CONFIGURATION MENU**.
6. Press **PAGE FORWARD** twice.
7. Select **TRAFFIC LIGHT CONTROL**.

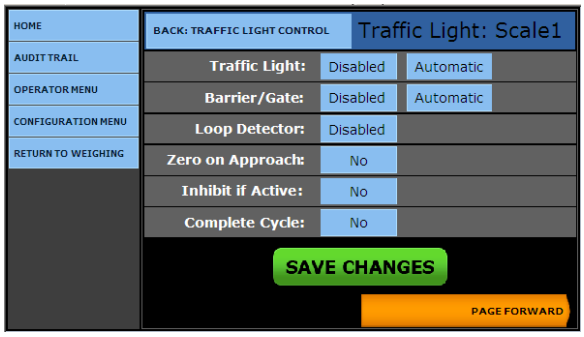


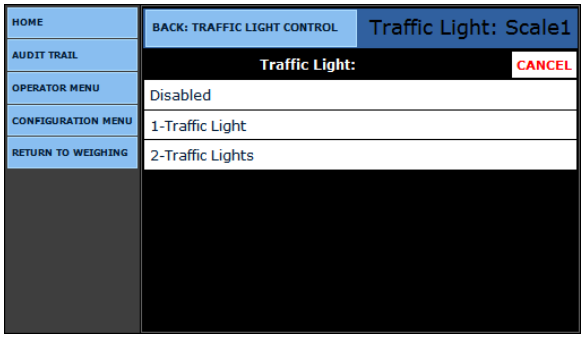
8. Select **SCALE ID X TRAFFIC CONTROLS**.

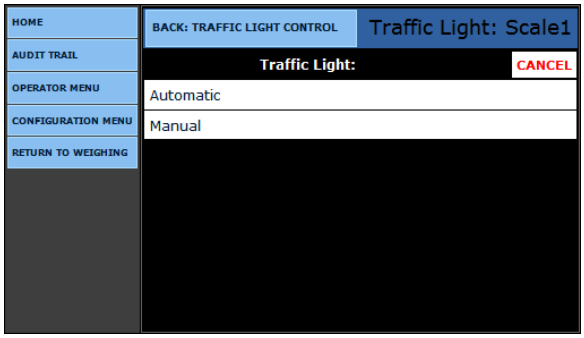


6.2. Programming the Traffic Light Control, Continued

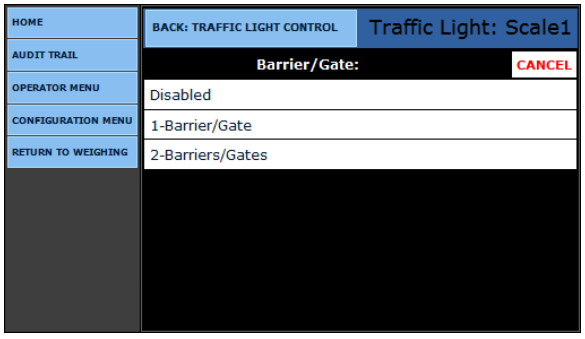
9. Select the **TRAFFIC LIGHT** Control button to one of the following options.
   - **Disabled**
   - **1 – Traffic Light**
   - **2 – Traffic Light**
10. In the second button to the right, select whether the **Traffic Lights** operate in a **MANUAL** or **AUTOMATIC** mode.

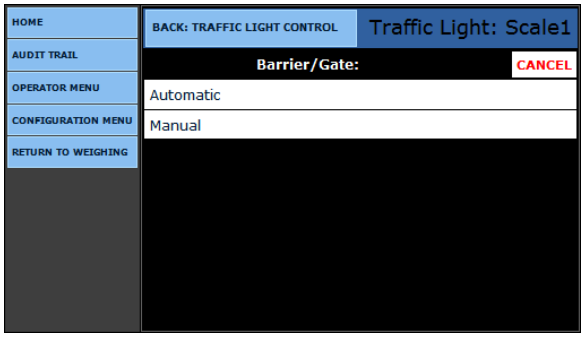






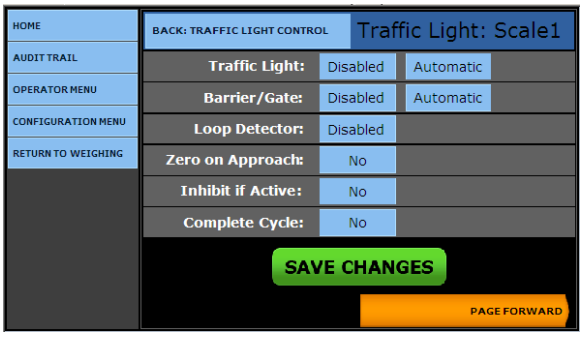
11. Select the **BARRIER/GATES** Control button.
12. In the second button to the right, select whether the **Barrier/Gates** operate in a **MANUAL** or **AUTOMATIC** mode.



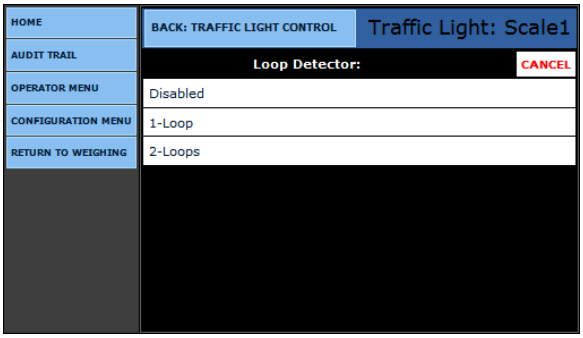


6.2. Programming the Traffic Light Control, Continued

13. Select the **LOOP DETECTOR** Control button.
    - Sensor contact plates alert that the vehicle has entered the scale, and also that it is leaving.



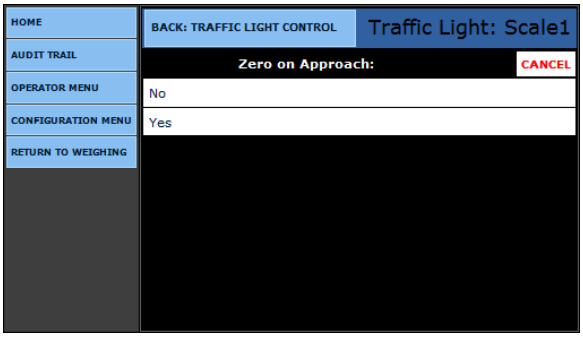
14. Select the correct **Loop Detector**.
    - Extra **LOOP** choices (*i.e.* **3- Loop**, **4-Loop**) appear when the optional **Digital Relay Card (30920)** is added to the Instrument.
15. Select the **ZERO ON APPROACH** Control button.
    - Only when the scale is on **ZERO (0)** with the light change to **green** and let the driver advance.



16. Choose **NO** or **YES**.
17. Select the **INHIBIT IF ACTIVE** Control button.
    - Selecting **YES** will NOT allow a weighment to be processed if a loop detector is **"active".**
        - This ensures that a truck is fully scale-borne before a weight can be processed. Trucks which are in succession cannot stop on the top of the loops, or the weighment transaction will discontinue.

OR

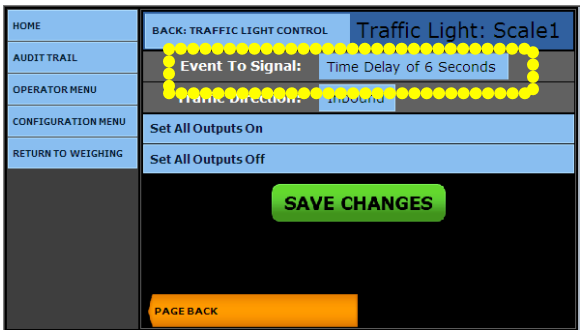
    - Selecting **NO** allows a transaction to be processed, even if a the vehicle is still detected at the loop.
18. Select the **COMPLETE CYCLE** Control button.
    - Only when the entire weighment process is complete, and the ticket is available for the driver, will the light change to **green,** letting the vehicle advance.



19. Choose **NO** or **YES**.

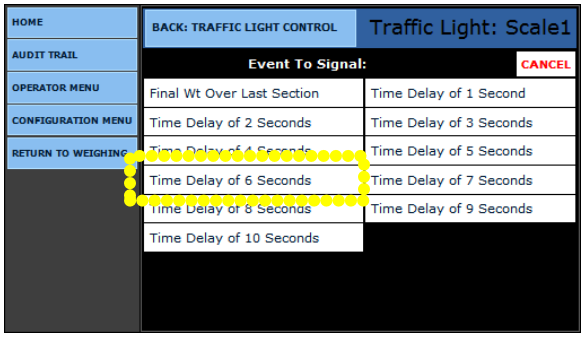
6.2. Programming the Traffic Light Control, Continued

20. Press the **SAVE CHANGES** button when any changes are made, or they will be lost.
21. Press **PAGE FORWARD**.
22. To the right of the **Event to Signal:**, select **TIME DELAY OF X SECONDS** Control button.

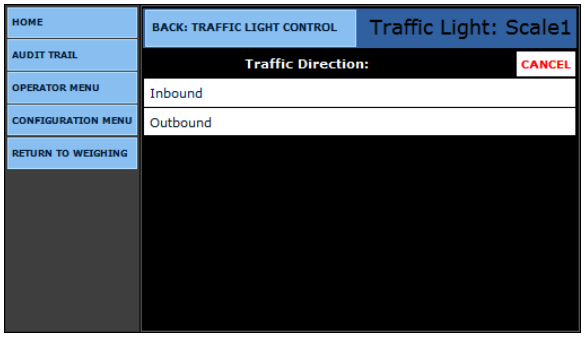


23. Click on the correct time value.
    - This is the **Time Delay** from when the truck enters the scale.

✓ **DEFAULT = 6 SECONDS**

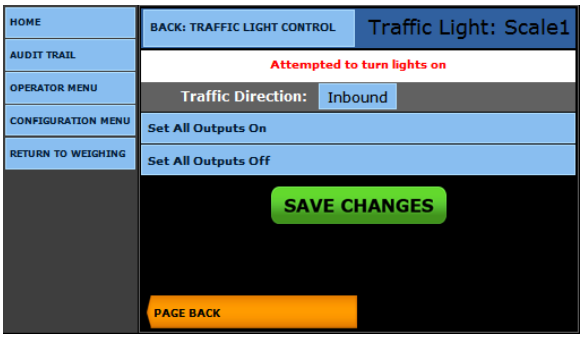


24. Select the **TRAFFIC DIRECTION** Control button.
    - This selects which way the vehicles will normally be traveling.
25. Select either **INBOUND** or **OUTBOUND**.



26. Select either the **SET ALL OUTPUTS ON** or the **SET ALL OUTPUTS OFF** Control Button.
    - Activates or deactivates the Traffic Lights.

- Press the **SAVE CHANGES** button when any changes are made, *or they will be lost.*
- Select **BACK: TRAFFIC LIGHT CONTROL** to return to the **Traffic Light Control Menu.**



6.3. Video Setup

NECESSARY TOOLS

- Laptop computer with rights to change the IP Address.
- Ethernet Cable with either of the following:
  - **Crossover cable** direct to the pc and camera.

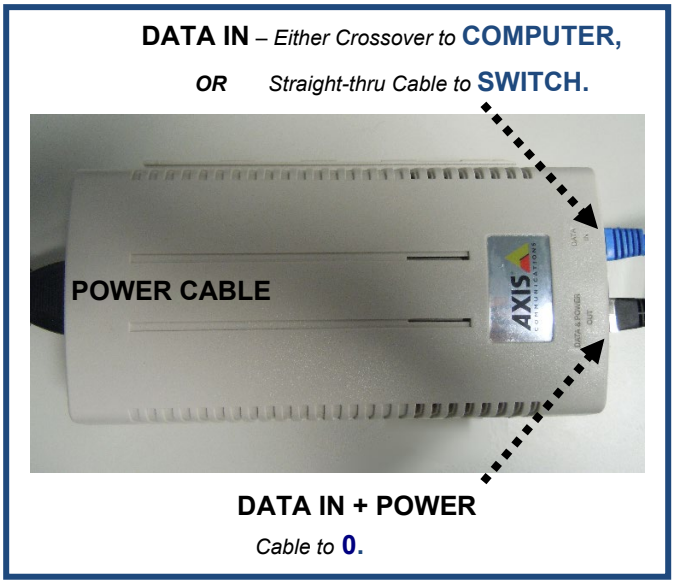
    OR…

  - **Straight-through cables**, switch, pc and camera.

NOTE: *It is strongly advised to review all the elements of the Video Camera, and fully study these instructions before altering this unit.*

6.3.1. Installing the Camera Without Factory Defaults

1. Plug in the **PoE CABLE** (**Power over Ethernet**) into the Video Camera.
2. Plug in the **DATA CABLE** to the **Power Supply**, either from a computer or local switch.
3. Connect the **POWER SUPPLY**.



6.3.2. Camera Setup

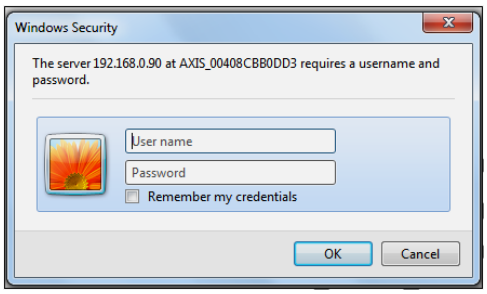
1. Open Internet browser on laptop.

2. In the Internet browser **Address** field, enter the **Video Camera's IP Address**.

   ✓ **DEFAULT ADDRESS = HTTP://192.168.0.90**

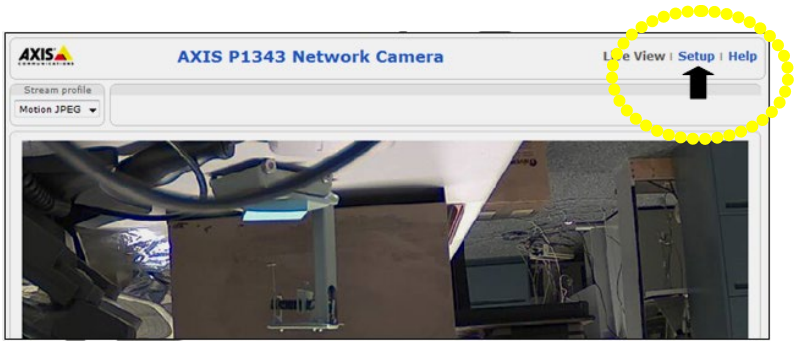
3. Press **ENTER**.
   - The Initial Screen should include the **Configure Root Password using HTTP.**
4. Type a **PASSWORD** in both fields.
5. Click **OK**.

6. When prompted, re-enter the **USERNAME** and **PASSWORD.**

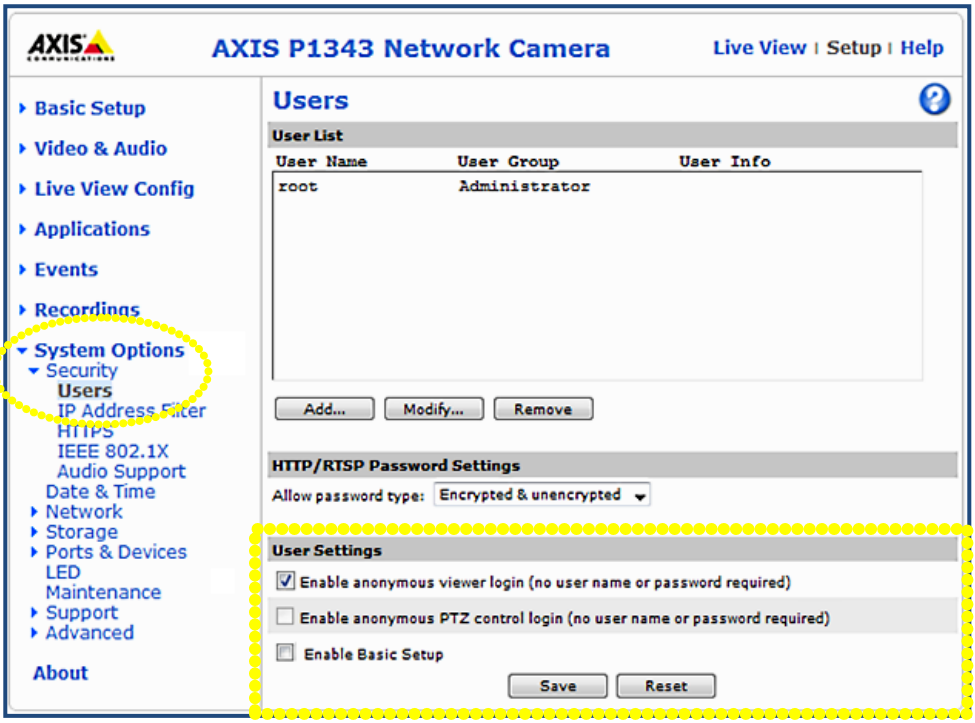


6.3.2. Camera Setup, Continued

7. From the **Initial Login Screen** select the **SETUP** option.
   - Located in the upper-right of the window.

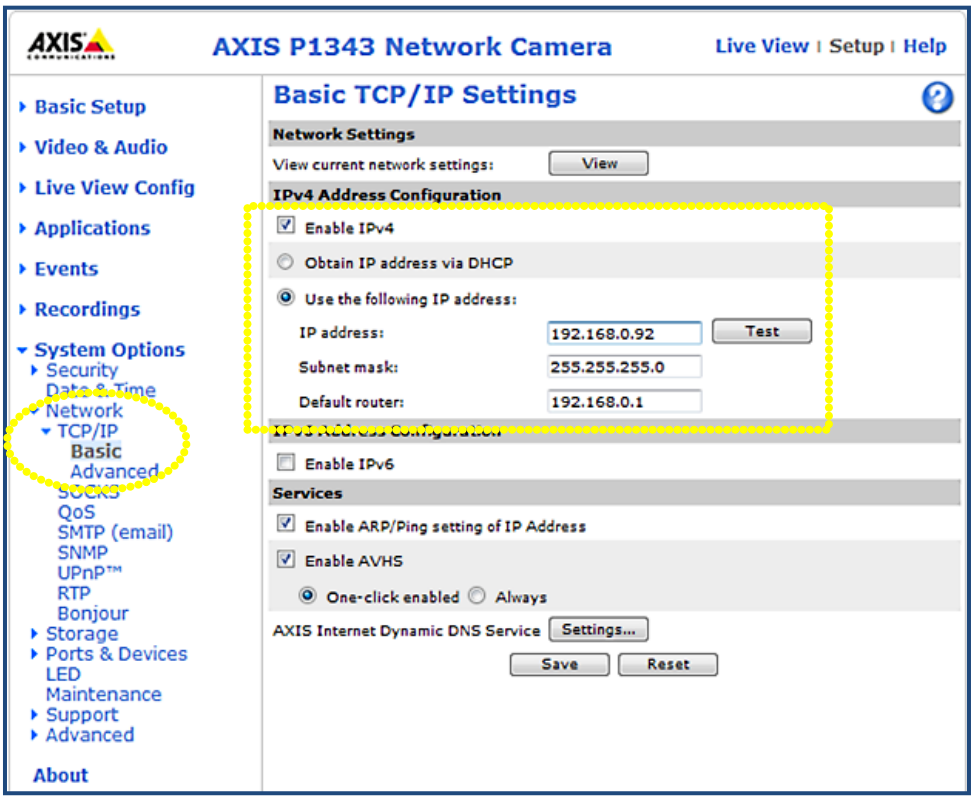


8. Select **SYSTEM OPTIONS,** found in the bottom-left column of page.
9. In the User Settings from initial screen, check **ENABLE ANONYMOUS VIEWER LOGIN**.
10. Uncheck Enable Basic Setup.
11. If IP Address changes are not needed, click **SAVE,** and then exit the browser.



6.3.3. Axis Network Setup

12. Select **NETWORK**, found in the bottom-left column of page.
13. From the **IPv4 Address Configuration** in the initial screen, select the **USE THE FOLLOWING IP ADDRESS** radio button.
14. Enter the correct **IP ADDRESS**.
15. Press **SAVE**.
16. Press **OK** at the warning prompt.

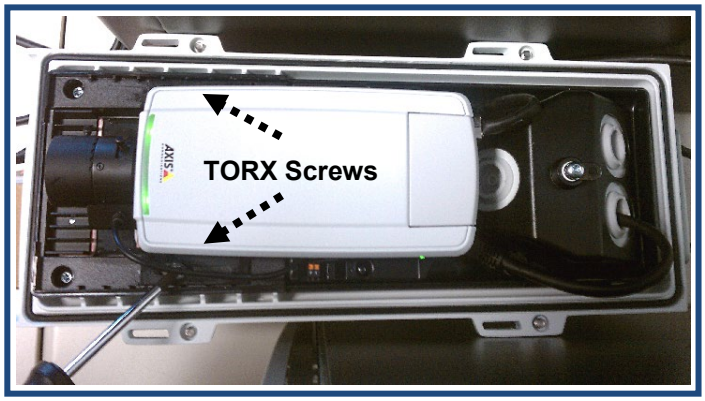


6.3.4. Resetting to the Axis Factory Defaults

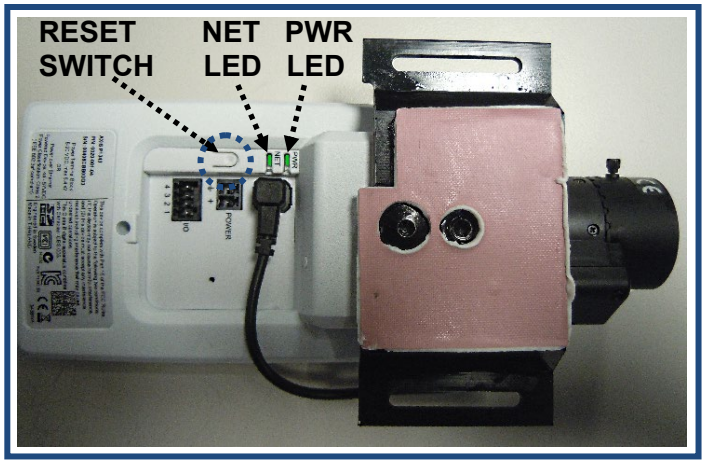
Restoring the **Factory Default Settings** is used when the previous steps do not resolve problems with the Camera Unit.

1. Disconnect the **POWER CABLE** from the Camera unit.

2. Remove the **two (2) Torx screws**, holding the camera into place with a **T20 ALLEN KEY**.



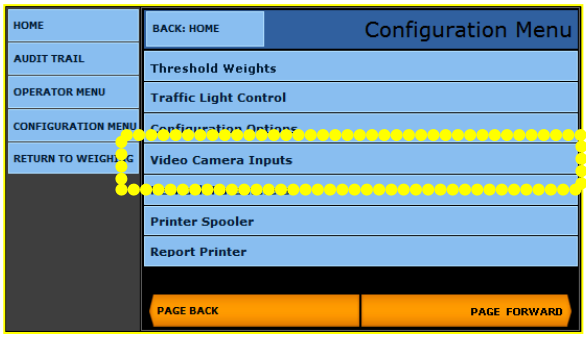
3. Flip the camera over to reveal the control components on the bottom.



4. Reconnect the **Power Cable**.
   - Wait approximately **fifteen (15) seconds** until the **NET** and **PWR** led lights are orange.
5. Press and hold the **RESET** button for approximately **thirty (30) seconds** until the **NET** led light flickers green, then release **RESET** button.
   - Doing this resets the **Factory Defaults**.
6. Reassemble the Camera Unit and follow **STEPS 1-16** from **SECTION 11.2.** and **11.2.1.** to complete the programming process.

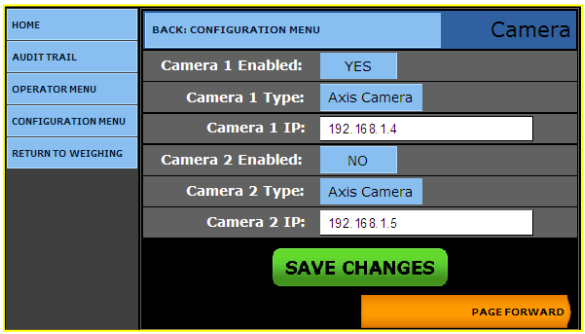
6.3.5. Video Camera Programming

1. Open the Configuration Menu.
2. Press **PAGE FORWARD** twice.
3. Select **VIDEO CAMERA INPUTS**.

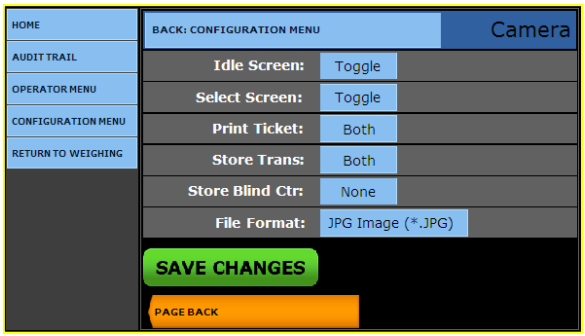


The FB2558 DAT has two (2) IP video camera inputs.

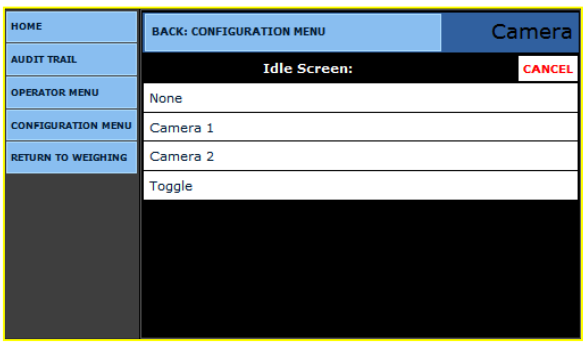
- These can be stored with the Transaction Data
- They can be displayed on the FB2558 DAT's **Weigh Screen**, **Idle Screen:** setting**,** in various ways.



4. To activate this feature, select **YES** to one or both of the **CAMERA 1** or **2 ENABLED** options.
5. Select the **CAMERA 1** or **2 TYPE.**
6. Enter the **CAMERA 1** or **2 IP** address.



7. Press **PAGE FORWARD**.

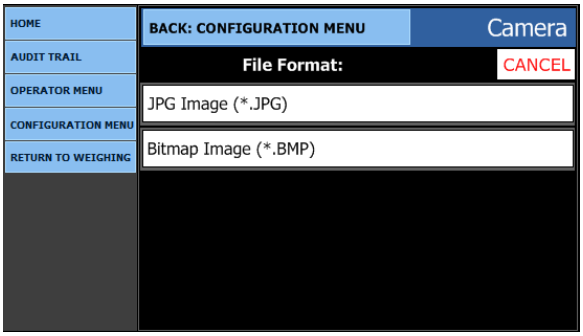


8. Select either **NONE, CAMERA 1, CAMERA 2,** or **TOGGLE** for each of the button options listed below.
   - The video camera can toggle between the two cameras or display them individually.

- **Idle Screen**
- **Select Screen**
- **Store Trans**
- **Store Blind Ctr (Control)**
- **Print Ticket**
- **File Format**

6.3.5. *Video Camera Programming, Continued*

9. In the **File Format** option, save the images in either a **PDF** or **JPG** **file format**.



- Press the **SAVE CHANGES** button when any changes are made, or they **will be lost**.
- Select **BACK: CONFIGURATION MENU** to return to the **Configuration Menu.**

Section 7: Service and Maintenance

7.1. Database Maintenance

7.1.1. Database Backup

*The FB2558 DAT has **three (3) methods** of database backup routines.*

A. BACKUP DATABASE TO FLASH

Backs up the database to the **PCLe** located on the Multi-Function board.

B. BACKUP DATABASE TO EXTERNAL FLASH

Backs up the database to a USB Flash drive, inserted into an available USB port on the instrument rear panel.

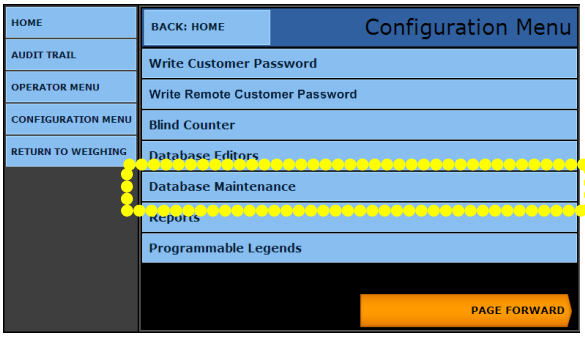
C. BACKUP AND SEND AN EMAIL

Backs up the database and attach the file to an email, which is sent to a predetermined user.

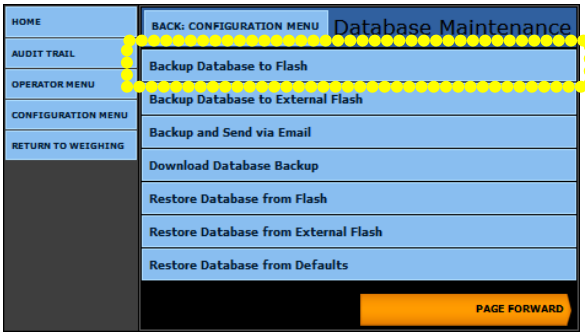
7.1.1. Database Backup, Continued

A. BACKING UP DATABASE TO FLASH:

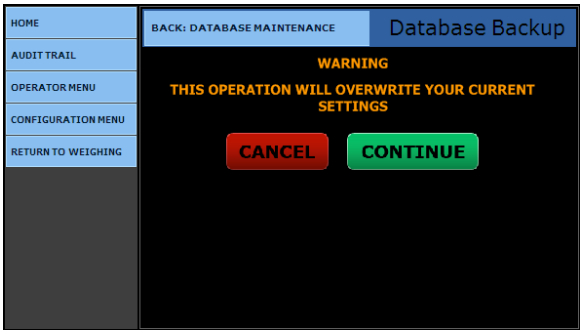
1. Press ALT + Home.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select **CONFIGURATION MENU**.
5. Select **DATABASE MAINTENANCE**.



6. Select Backup **DATABASE TO FLASH**.

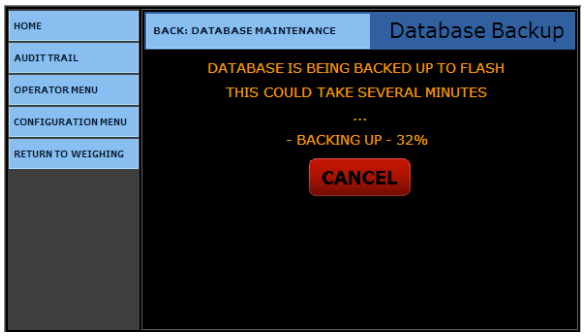


7. Select either the **CONTINUE** or the **CANCEL** button.

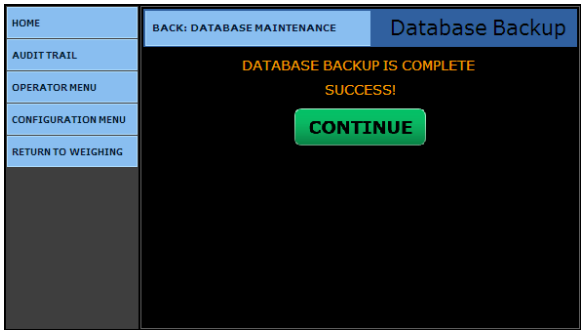


7.1.1. Database Backup, Continued

- When the **BACKING UP** process is performed, the data's integrity is **VERIFIED** against the backup.
- The currently existing transaction data will be **CLEARED** from the database and prepared for new transaction data.



8. Press the **CONTINUE** button to return to the **Database Maintenance Menu**.

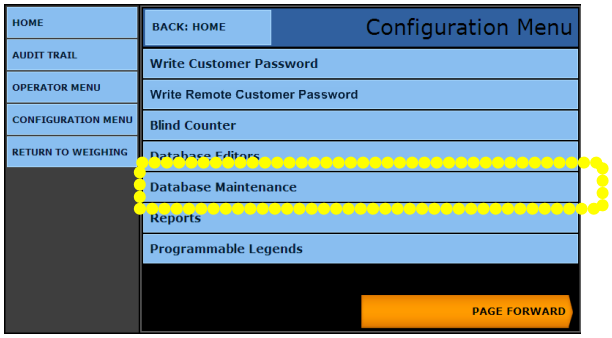


9. Press **RETURN TO WEIGHING** to exit to the Weight Screen.

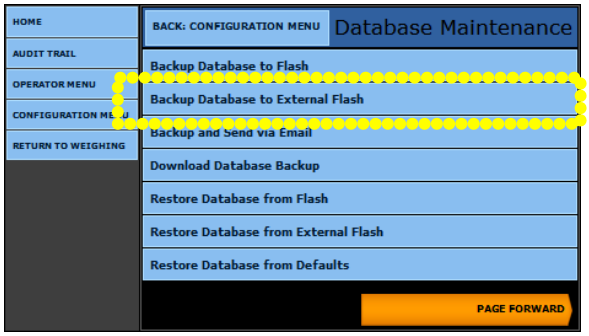
7.1.1. Database Backup, Continued

B. PROCEDURE BACKUP DATABASE TO EXTERNAL FLASH:

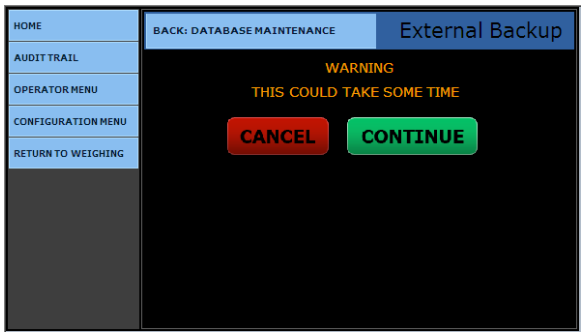
1. Insert a **USB Flash drive** into an available USB port on the rear panel.
2. Press ALT + Home.
3. Select **LOGIN.**
4. Enter the **Supervisor Password**.
5. Select **CONFIGURATION MENU**.
6. Select **DATABASE MAINTENANCE**.



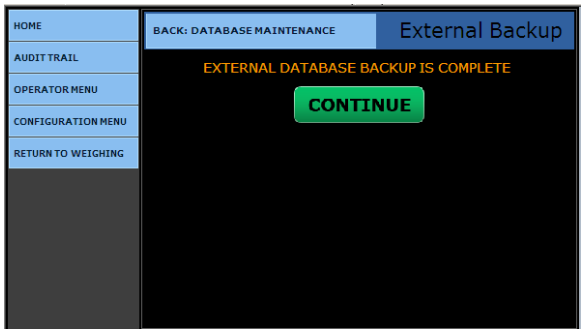
7. Select **BACKUP DATABASE TO EXTERNAL FLASH**.
   - A warning message displays,



8. Select either **CONTINUE** or **CANCEL**.



9. After completing the **External Backup,** press the **CONTINUE** button to return to the **Database Maintenance menu**.

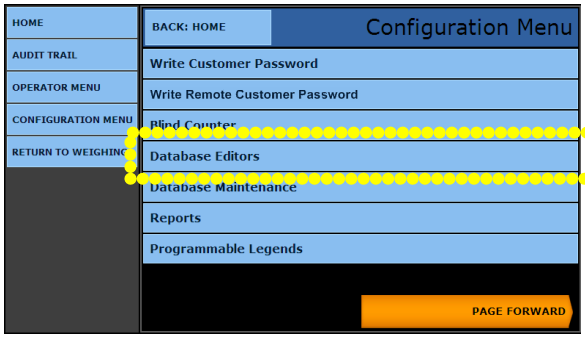


- Press **BACK: DATABASE MAINTENANCE** to exit to the Database Maintenance Menu.

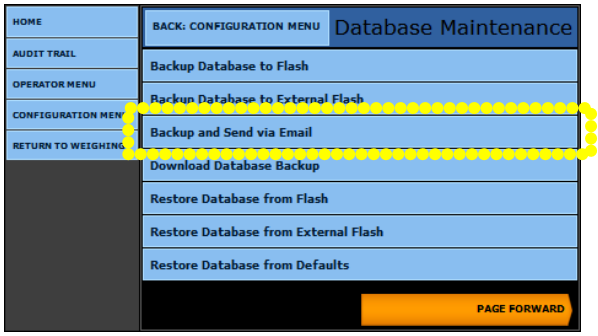
7.1.1. Database Backup, Continued

C. BACKUP AND SEND AN EMAIL

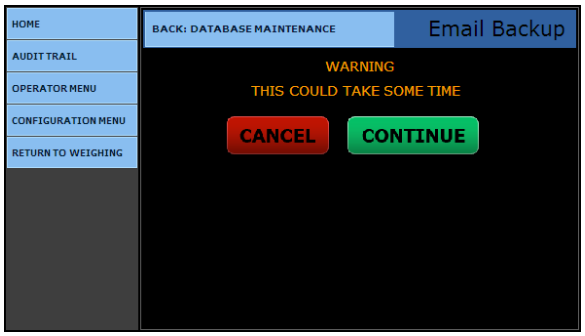
1. Press ALT + Home.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select **CONFIGURATION MENU**.
5. Select **DATABASE MAINTENANCE**.



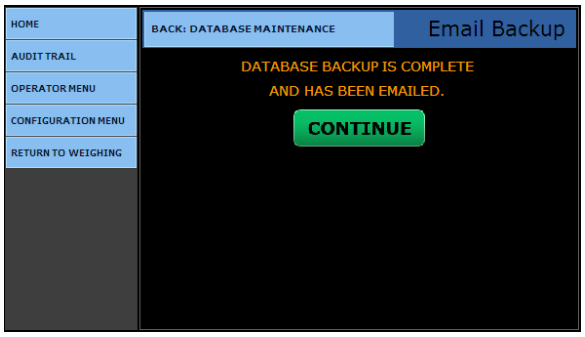
6. Select **BACKUP AND SEND VIA EMAIL**.



7. Select either **CONTINUE** or **CANCEL**.



- After completing the **External Backup,** press the **CONTINUE** button to return to the **Database Maintenance menu**.



- Press **RETURN TO WEIGHING** to exit to the Weigh Processing screen.

7.1.2. Database Restore

RESTORE DATABASE FROM FLASH uses a database backup from the **PCLe**, located on the **SBC**.

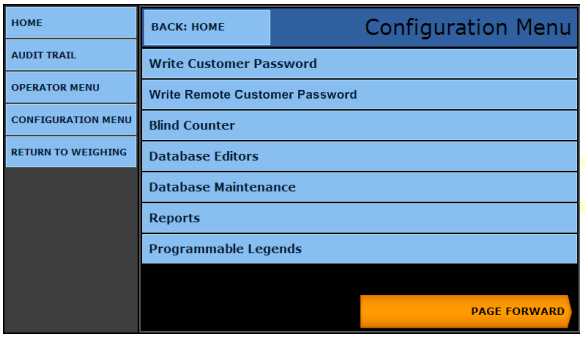
- This restores the instrument to the same condition it was configured as when the Backup was performed.

RESTORE DATABASE FROM EXTERNAL FLASH uses a database backup from an External USB Flash Drive.

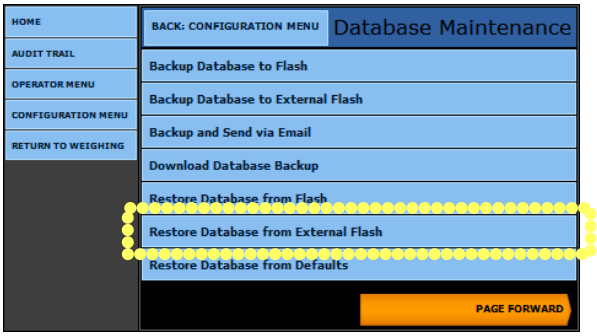
– This restores the instrument to the same condition it was configured as when the backup was performed.

A. RESTORING THE DATABASE FROM FLASH:

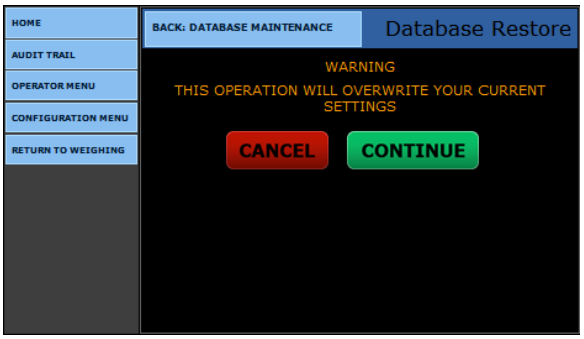
1. Select **LOGIN.**
2. Enter the **Supervisor Password**.
3. Select **CONFIGURATION MENU**.
4. Select **DATABASE MAINTENANCE**.



5. Select **RESTORE DATABASE FROM FLASH**.



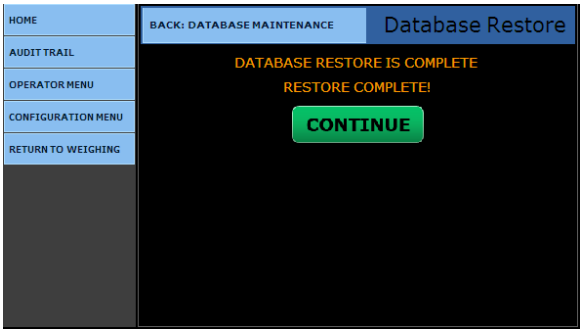
6. Select either **CONTINUE** or **CANCEL**.



7.1.2. Database Restore, Continued

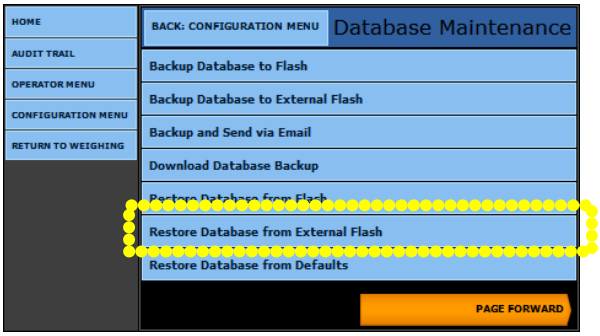
7. Once the process is complete, press the **CONTINUE** button to return to the **Database Maintenance menu.**

- Press **RETURN TO WEIGHING** to exit to the Weigh processing screen.

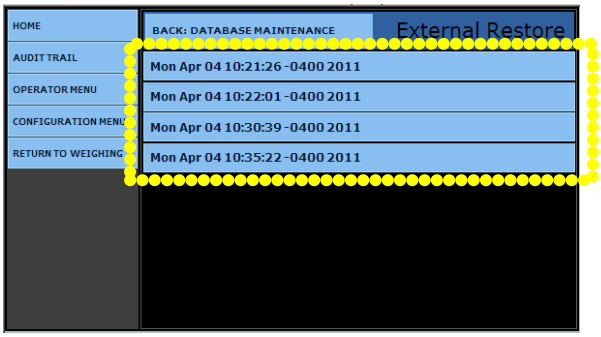


B. RESTORING THE DATABASE FROM EXTERNAL FLASH:

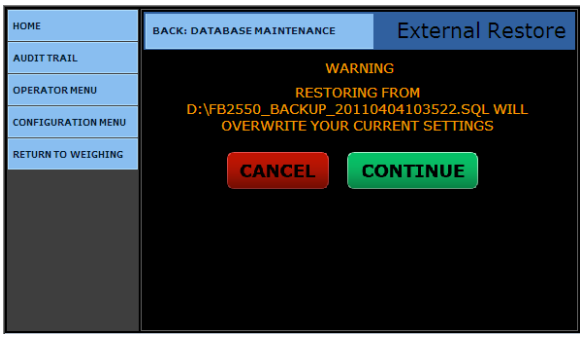
1. Select **LOGIN.**
2. Enter the **Supervisor password**.
3. Select **CONFIGURATION MENU**.
4. Select **DATABASE MAINTENANCE**.
5. Select **RESTORE DATABASE FROM EXTERNAL FLASH**.



6. Select the backup file which is to be restored from a menu list as shown.



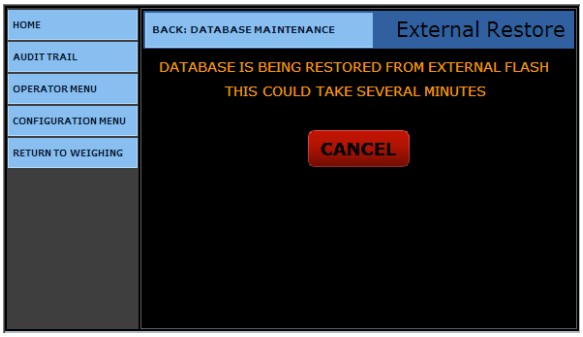
- A warning will have presented display of whether to proceed.
- It will also indicate the file selected from the external USB flash drive to ensure the correct one has been selected.



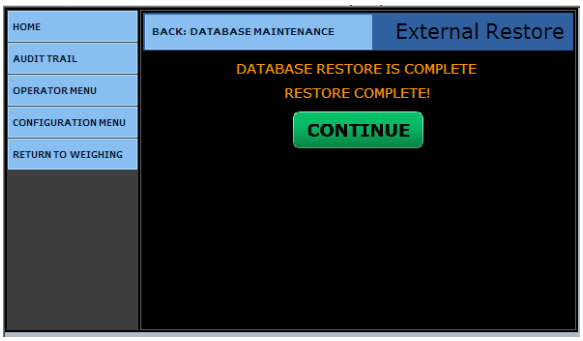
- Press **Continue** button to complete the process or press the **Cancel** button to stop the procedure.

7.1.2. Database Restore, Continued

7. The restore process has started and this process can take several minutes to complete.



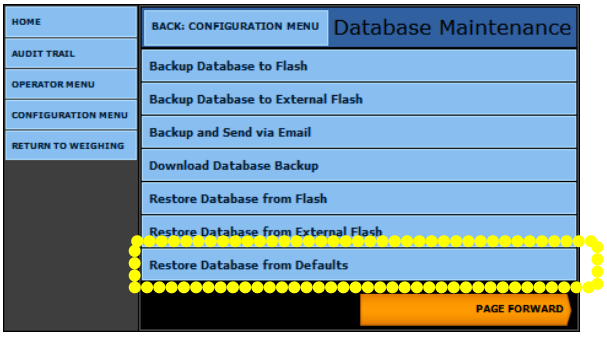
8. The Database Restore process is complete.
9. Press the **CONTINUE** button to return to the **Database Maintenance menu**.
10. Press **Return to Weighing** to exit to the Weight Screen.



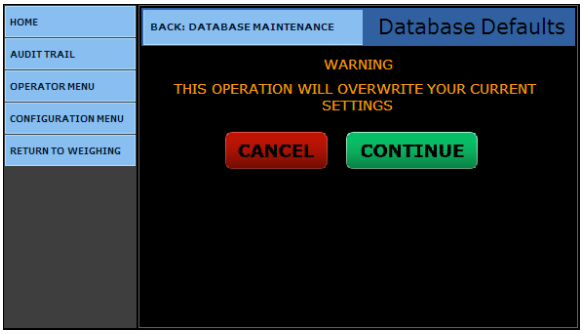
7.1.2. Database Restore, Continued

C. PROCEDURE RESTORE DATABASE FROM DEFAULTS:

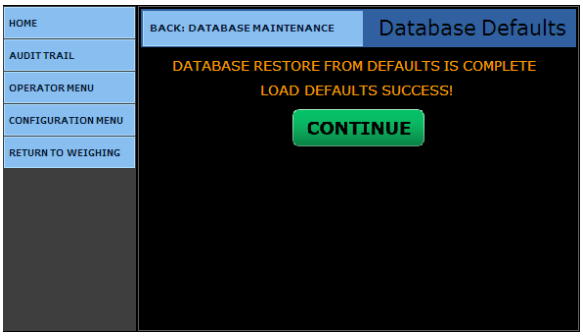
1. Select **LOGIN.**
2. Enter the **Supervisor Password**.
3. Select **CONFIGURATION MENU**.
4. Select **DATABASE MAINTENANCE**
5. Select **RESTORE DATABASE FROM DEFAULTS**.



- A warning will display asking whether to proceed.
- It will also indicate to ensure the correct one has been selected.
- Press **CONTINUE** button to complete the process, or press the **CANCEL** button to stop the procedure.
- This process could take several minutes.



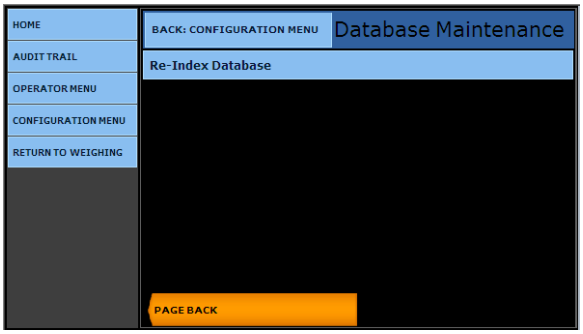
6. When the **Database Default Restore** process is complete, press the **CONTINUE** button to return to the **Database Maintenance menu**.
7. Press **RETURN TO WEIGHING** to exit to the Weigh processing screen.



7.1.3. Re-Index Database

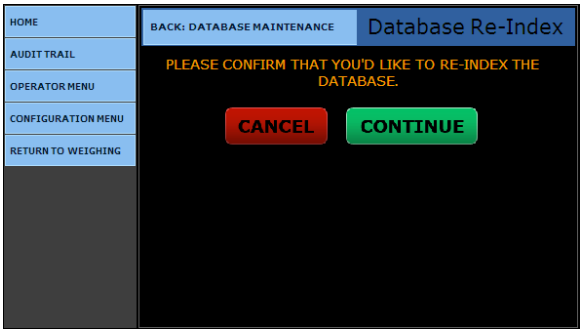
A. PROCEDURE TO RE-INDEX DATABASE:

1. Select **LOGIN**.
2. Enter **the Supervisor Password**.
3. Select **CONFIGURATION MENU**.
4. Select **DATABASE MAINTENANCE**.
5. Press **PAGE FORWARD** once.
6. Select **RE-INDEX DATABASE**.



NOTE: *A warning will display of whether or not to proceed. This process could take several minutes.*

7. Press **CONTINUE** button to complete the process, or press the **CANCEL** button to stop the procedure.
8. When the **Database Re-Index** process is complete, press the **CONTINUE** button to return to the **Database Maintenance menu.**



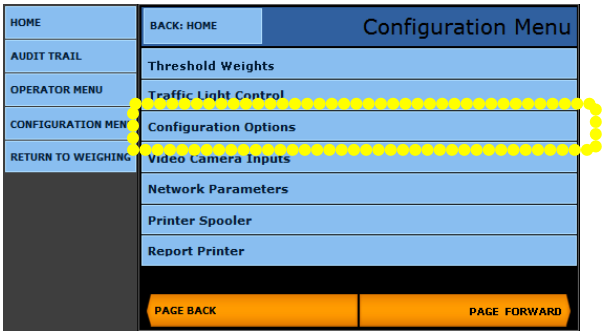
- Press **RETURN TO WEIGHING** to exit to the **Weigh Processing Screen**.

7.1.4. Transaction Data Backup Days Reminder

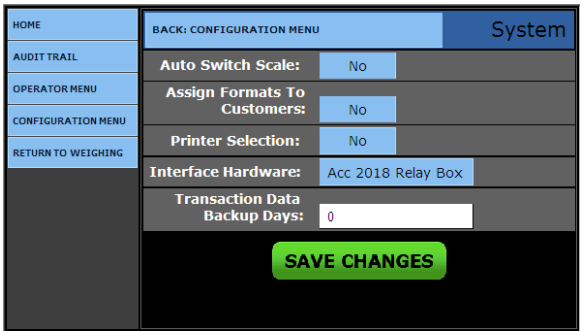
This option generates a reminder warning email that the database has not been backed up recently.

- A value of **0** disables this feature.

A. PROCEDURE TO ACTIVATE THE TRANSACTION DATA BACKUP DAYS:



1. Press ALT + Home.
2. Select **LOGIN.**
3. Enter the Supervisor Password.
4. Select **CONFIGURATION MENU**.
5. Press **PAGE FORWARD** twice.
6. Select **CONFIGURATION OPTIONS**.



7. Enter the **NUMBER OF DAYS** which will trigger the backup reminder beside the **Transaction Data Backup Days:.**
8. Selecting **BACK: CONFIGURATION MENU** will return the user to the Configuration menu.

- Press **RETURN TO WEIGHING** to exit to the **Weigh Processing Screen**.

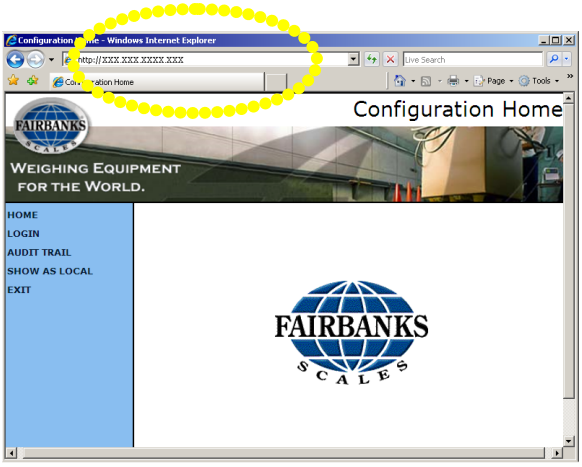
7.2. Remote Configuration Access

The FB2558 DAT may be configured by remote access. A connection to the local network can provide access to the FB2558 by any computer on the network.

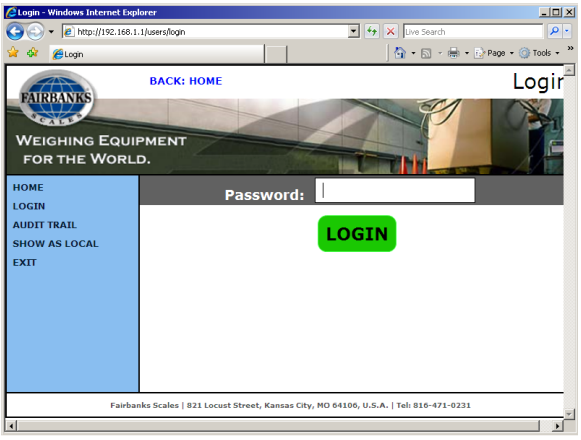
- This access may be allowed or denied at the instrument by the operator or supervisor.
- Another method of remote configuration is done by connecting directly to the FB2558 DAT using a crossover network cable.
- The menus presented can be in a Web format or displayed exactly as it appears locally at the instrument.
- The FB2558 Instrument must be connected to a network or direct connected using a crossover network cable to a computer.
- The FB2558 must have the Network parameters configured.

NOTE: *See* **Section 4.8. Network Parameters Configurations**.

1. From the **Configuration Menu,** open **INTERNET EXPLORER** on the computer.
2. Type in the **IP ADDRESS** of the FB2558 DAT into the **Address bar**.
   - Sample: http: **//192.168.xxx.xxx.**
   - The **Configuration Home window** will appear as shown.

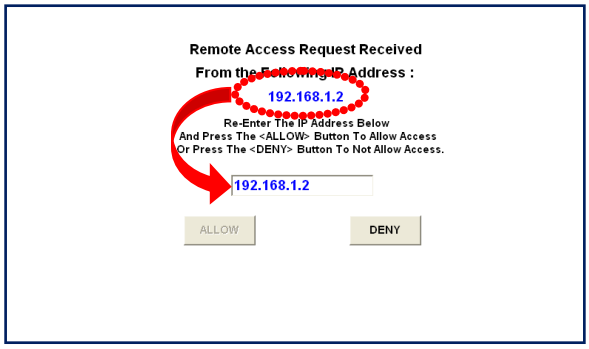


3. Select **LOGIN**.
4. Enter the **Supervisor Password**.
5. Press the **LOGIN** button.
   - Wait for confirmation from the FB2558 DAT.



7.2. Remote Configuration Access, Continued

6. When requested for access on the Instrument, enter the **IP ADDRESS** of the requesting computer written above the entry box.
7. Press the **ENTER** button, either on the keypad or the keyboard.
8. Press the **ALLOW** button on the Instrument screen.

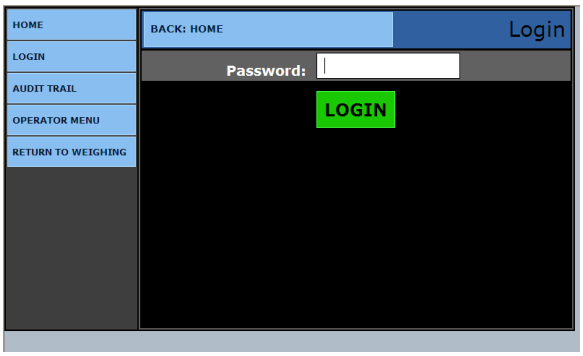


- When confirmed, an **Access Granted** screen appears.

9. Select the menu or function to view or edit.

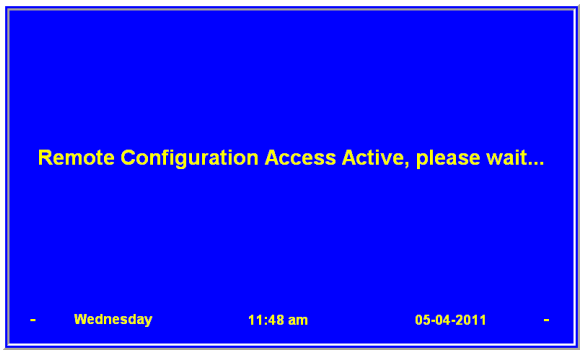
- **SAVE ALL CHANGES**.

10. Select **SHOW AS LOCAL** to direct the Instrument's image onto the computer monitor.
11. Select **LOGIN**.
12. Enter the Supervisor Password.

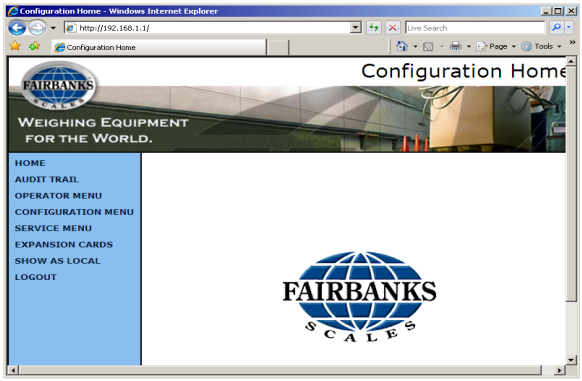


7.2. Remote Configuration Access, Continued

- The menus will appear exactly the same as the display on FB2558 DAT.
- The FB2558 DAT is not usable while the **Remote Access** is being performed.
- A blue notification screen appears while the **Remote Configuration** is active.



13. When viewing or editing is complete, press **LOGOUT.**



7.3. Cell Fail Error Codes

The error condition of Cell Fail appears on the display when a condition exists to prevent proper weighing. Underneath the Cell Fail error in a small display font is the words: **Type: xx Cell: x**.

This posts the error type the indicator identifies and the load cell which exhibits this problem or the problem area.

TYPE ERROR CODE	DESCRIPTION
1	Cell Zero Error
2	Cell Section Error
4	Cell Motion Error
8	Cell Calibration Error
10	Cell Out of Range Error
20	SSC Communication Error
40	Old Revision Board

Section 8: Network Application Configuration

8.1. Introduction

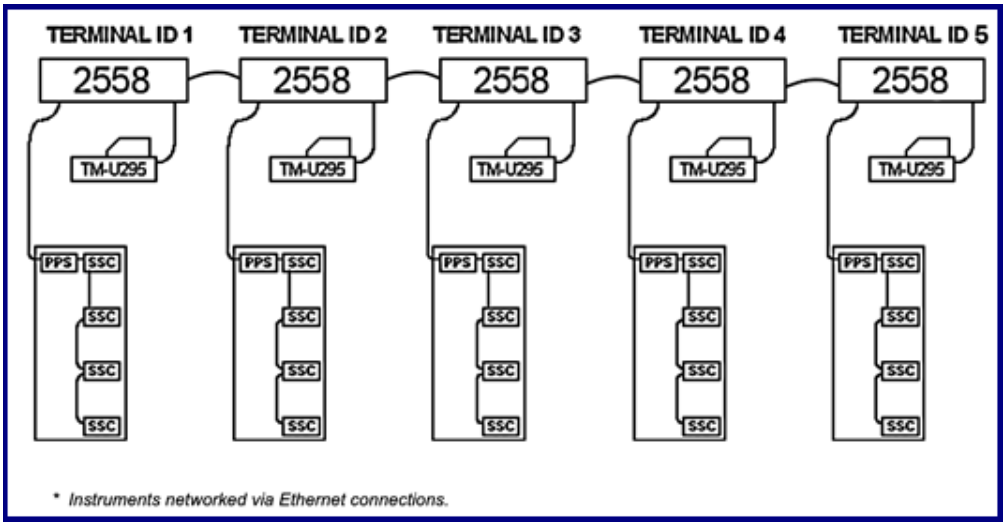
Some of the application uses are listed below.

- Customers with different scales at one site, can weigh in using one scale, then weigh out with another.
- Customers need to process transactions on the same scale from two different locations, such as the scale house during the day, and the guard house at night.
- Customers who need monitoring weighs on multiple scale platforms from a remote location.
- Customers processing weights from Instruments in Hostile Environment Enclosures mounted outside, and then produce and print reports from a standard unit in an office environment.

8.2. Standard Network Setup

Up to five (5) FB2558 DAT can be networked together using **up to one (1) scale platform**.

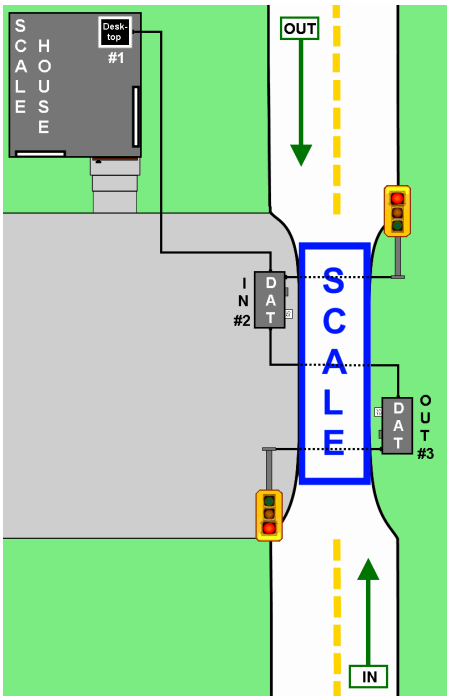
- Each of the FB2558 DAT becomes a Terminal on the network. Each Terminal can display its own weight or process transactions for scale 1 on the network.
- Peripheral devices, such as printers and remote displays, can be connected locally, or to any Terminal on the network.



8.2. Standard Network Setup, Continued

Each Terminal can view weights and process transactions from any scale on the network, as well as traffic light control. Transactions can be connected locally to a printer.

- A re-direct option in each Terminal is available to cause a print to occur to a specific remote Terminal on the network.
- Transaction information is shared by each Terminal on the network. Both incomplete and complete transactions are instantly shared with all Terminals on the network.
  - ***Customer***
  - ***Products***
  - ***Product Groups***
  - ***Product Group Products***
  - ***Tares***
- Data entered into the database of a Terminal may be imported by a different Terminal on the network.



Above is an example of a three Instrument networked system.

TERMINAL 1
- **Master Unit**
- Only Indicator attached directly to the Scale Platform
- Located in Scale House (in this example)
- **3550** Roll Tape Report Printer

TERMINAL 2
- **Inbound Indicator, Slave Unit**
- Unattached from scale
- Redirects signal to **TERMINAL 1**
- **TM-U230** Ticket Printer

TERMINAL 3
- **Outbound Indicator, Slave Unit**
- Unattached from scale
- Redirects signal to **TERMINAL 1**
- **TM-U230** Ticket Printer

8.2.1. Network Connections

According to the **ANSI/TIA/EIA Standard** for **Category 5e Copper Cable**, the maximum length for any cable segment is **one hundred meters** (**100m, or 328 ft.**)

- If longer runs are required, use active hardware such as a repeater or a switch, as is necessary.

  When networking one **FB2558 DAT** to another **FB2558 DAT** [two (2) Terminals *only*], use a **Cross-over Cable.**

- For any other cabling connections, use a straight through cable.

8.2.2. Testing Connectivity

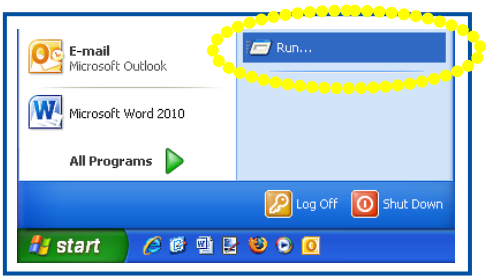
Follow these steps to test the Network Connectivity.

1a. Connect a laptop to the network using a straight-through cable.

OR

1b. **Connect** directly to the FB2558 DAT with a cross over cable.

2. Click the **START** button, then select **Run**.
3. Type **COMMAND** at the prompt, then press the **ENTER** key.
   - A **DOS window** will appear.
4. At the DOS prompt, type **ping xxx.xxx.xxx.xxx.**
   - ***X*** is the Terminal Number being tested.
5. Press the **ENTER** key.



If the test response is similar this example, the communication test is successful.

Pinging TerminalX [xxx.xxx.xxx.xxx] with 32 bytes of data:
Reply from xxx.xxx.xxx.xxx: bytes=32 time<1ms TTL-128
Reply from xxx.xxx.xxx.xxx: bytes=32 time<1ms TTL-128
Reply from xxx.xxx.xxx.xxx: bytes=32 time<1ms TTL-128
Reply from xxx.xxx.xxx.xxx: bytes=32 time<1ms TTL-128

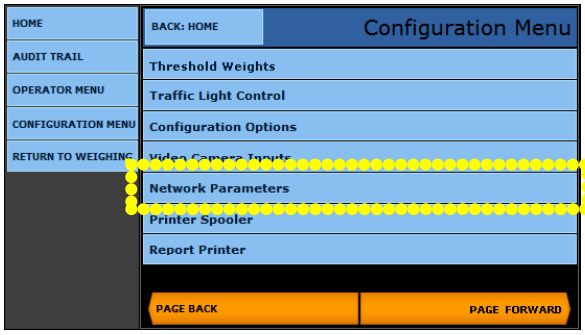
Ping statistics for 206.220.166.209:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:

Minimum = 0ns, Maximum = 0 ms, Average = 0 ms

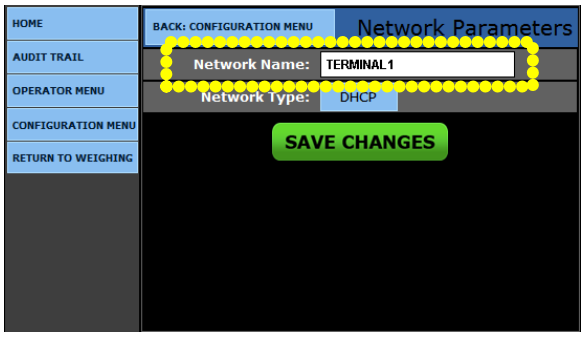
8.3. Network Setup Procedure

8.3.1. Network Terminal Name

Follow these steps to setup the Network Name.



6. From the Weigh Screen, select **ALT + MENU.**
7. Select **LOGIN** and enter the **Service Password**.
8. Select the **CONFIGURATION MENU**.
9. **PAGE FORWARD** twice.
10. Select **NETWORK PARAMETERS**.



11. Input a **NETWORK NAME** from the list below.
    - **TERMINAL1**
    - **TERMINAL2**
    - **TERMINAL3**
    - **TERMINAL4**
    - **TERMINAL5**

A T T E N T I O N

USE ONLY THE NETWORK NAMES LISTED ABOVE.

Example "**TERMINAL1**" – UNIQUE NAME / NO EXTRA SPACES.

12. Press the **SAVE CHANGES** button when any changes are made or they will be lost.
13. Return to the **Weigh Screen**.
14. ***Shut down and restart the FB2558 DAT***.

All setup changes will apply after the Instrument reboot.

IMPORTANT NOTE: *Reboot the FB2558 DAT correctly, or program files can become **corrupted**.*

See **Section 2.3. Proper Shutdown Procedure**

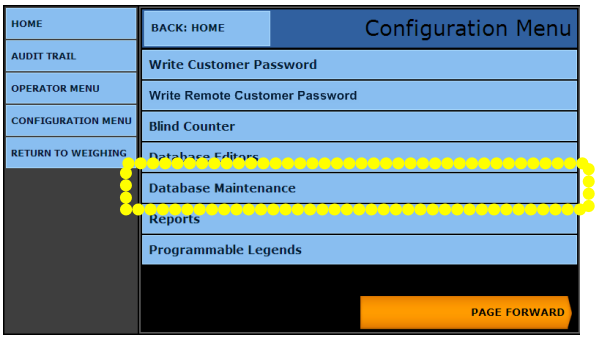
8.3.2. Synchronizing this Terminal

This populates the tables in this terminal with data from another terminal.

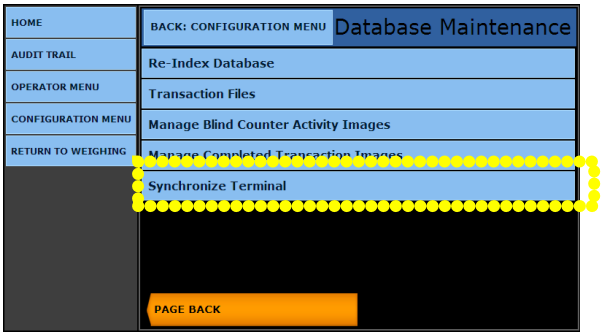
IMPORTANT NOTE: ***All data*** *currently in the terminal database* ***WILL BE LOST.***

Follow these steps to Synchronize the Terminal.

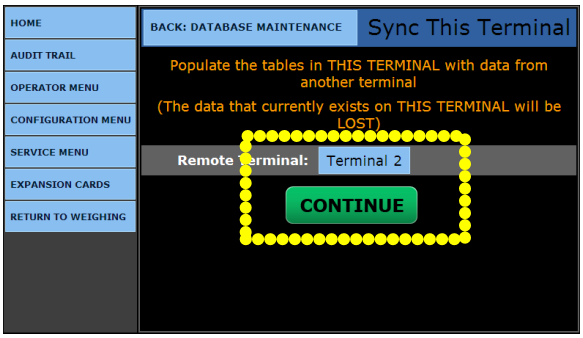
1. From the **Weigh Screen**, press Menu.
2. Select **LOGIN.**
3. Enter the **Supervisor Password**.
4. Select the **CONFIGURATION MENU**.
5. Select **DATABASE MAINTENANCE**.



6. Select **SYNCHRONIZE TERMINAL**.



7. Select the correct **REMOTE TERMINAL** to synchronize, then press **CONTINUE**.



8.3.2. Synchronizing this Terminal, Continued

The tables noted below populate in the Remote Terminal with data from the other selected Terminal.

- **Customers**
- **Products**
- **Tares**
- **Product Groups**
- **Product Groups Products**

- After this process, complete and incomplete transactions are instantly shared with all Terminals on the Network.
- Calibration cannot be performed from a remote location. It must be performed at the Terminal to which the scale is physically connected.
  - This is also true for viewing cell diagnostics, peak weights, and cell errors**.**
- Traffic Light Controls cannot be configured from a remote location, but only at the Terminal to which they are physically connected.

Appendix I: Fieldbus Interface Reference Data

A. Introduction

The Fieldbus interface(s) support a bi-directional communication capability for the FB2558 DAT.

The FB2558 DAT Interface supports a variety of industrial protocols.

– These include **PROFIBUS-DP, DeviceNet, ControlNet** and **Modbus-TCP**.

B. Hardware Specifications

Power	**9-40 VDC (24 VDC Nominal)**
Power Consumption	**300 mA typical 800 mA max (@24 VDC)**
Interface connections	**Fieldbus as selected, serial channel**
LEDs/indicators	**Power, Network connection**
Operating Temperature	**0 to 70 C**
Storage Temperature	**-40 to 85 C**
Operating humidity	**90% non-condensing**
Enclosure rating	**None**
Mounting options	**Thru holes**
Others	**RoHS**
Physical Dimensions	**4.24 inches x 3.20 inches**
Approval	**CE**

C. Software Specifications

OUTPUT DATA FORMAT TO GATEWAY

The **Gateway** takes a Serial String and remap the data to the format needed for the Fieldbus type installed per the register.

- The following is the definition of the **Serial String** for one (1) scale.
  - The Scale ID is extracted from **Status Word 0**.
  - The data is placed in the appropriate Fieldbus Registers based on this scale ID.
  - **Status Word Data** is sent as binary values **MSB** first over the Serial Channel.
  - Weight data is sent as six (6) characters representing a 6-digit decimal value (000000 – 999999).
  - This decimal value represents the weight multiplied by the scale factor, listed in **Command/Status Word 1 bits 0-2.**
  - The serial string is a fixed length of fifty-seven (57) bytes.

STX character	1 byte, (02h)	
Status word 0	2 bytes,	(includes scale ID)
Status word 1	2 bytes,	
Status word 2	2 bytes,	
Unassigned data	6 characters	(default ‘000000’)
Gross Weight	6 characters	(example ‘002340’)
Tare Weight	6 characters,	
Net Weight	6 characters,	
Setpoint 1	6 characters,	
Setpoint 2	6 characters,	
Flow Rate	6 characters,	
Unassigned data	6 characters,	
CRC	1 byte,	
ETX character	1 byte	(03h)

C. Software Specifications, Continued

NOTE WEIGHT VALUES sent over the Serial Channel will be represented in the Fieldbus registers based on the settings of **bits 14** and **15** in **STATUS WORD 0.**

- If the data is set to be a 16 bit or 32 bit integer, then the register value will contain the integer value and the host must multiply this by the scale factor to get the actual weight.
- If it is set to be a 16 bit integer, and the integer value is greater then **65535**, a value of **0** is placed in the register.
- If the data is set to be **FLOATING POINT**, then the gateway will multiply the integer value received by the scale factor, and place the resulting 32 bit floating point value in the register.
  - *In this case the host does not use the scale factor to interpret the value.*

INPUT DATA FORMAT FROM GATEWAY

The Gateway will send a string to the Serial Port reflecting data from the Fieldbus.

The following is the definition of the serial string for one (1) scale.

- The scale ID in the Fieldbus register for Command word 0 for a scale must be set to the correct value (1-4) before data for that scale will be sent over the serial channel.
- If the scale ID is set to the correct value, any time any data for this scale changes the data will be sent out the serial channel.
- Command word data is sent as binary values MSB first over the serial channel.
- Weight data is sent as six (6) characters representing a **six (6) digit decimal value** (**000000 – 999999**).
- This decimal value represents the weight multiplied by the scale factor listed in **command/status word 1 bits 0-2**.
- The serial string is a fixed length of **105 bytes**.

C. Software Specifications, Continued

INPUT DATA FORMAT FROM GATEWAY, CONTINUED

STX character	1 byte,	(02h)
Command word 0	2 bytes,	(includes scale ID)
Command word 1	2 bytes,	
Command word 2	2 bytes,	
Setpoint 1 weight	6 characters,	
Setpoint 2 weight	6 characters,	
Tare Weight	6 characters,	
Display Message 1	26 characters,	
Display Message 2	26 characters,	
Display Message 3	26 characters,	
CRC	1 byte,	
ETX character	1 byte	(03h)

NOTE WEIGHT VALUES sent over the serial channel will represent data in the Fieldbus registers based on the settings of **bits 14** and **15** in **STATUS WORD 0**.

- If the data is set to be a 16 bit or 32 bit integer, then the integer value in the register will be sent over the serial channel.
- If it is set to be 16 bit, the high order word will be ignored.
- If the data is set to be floating point, then the floating point value will be multiplied by the scale factor and the integer portion of this resulting value will be sent over the serial channel.
- In all cases if the resulting integer is greater than **999999**, a value of **000000** will be sent over the Serial Channel.
- In all cases the scale must multiply the integer by the scale factor to determine the actual weight.

- Serial data is transferred according to the RS232 specification between the gateway and the FB2558 DAT. The communications parameters are listed below.

Baud	**115,200**
Data Bits	**8**
Parity	**None**
Stop Bits	**1**

D. Fieldbus Data Representation

The following information shows the representation of data on all Fieldbuses. Each Fieldbus has input data (from the gateway/scales to the Fieldbus), and output data (from the Fieldbus to the gateway/scales).

ALL FIELDBUS TYPES OUTPUT MEMORY MAP

START ADDRESS	HEX	DECIMAL	SIZE
Scale 1	0	0	10 Words
Scale 2	14	20	10 Words
Scale 3	28	40	10 Words
Scale 4	3C	60	10 Words
Scale Message Line 1	50	80	26 bytes
Scale Message Line 2	6A	106	26 bytes
Scale Message Line 3	84 1	32	26 bytes
Unassigned	9E	158	2 bytes
		Total:	**160 bytes**

ALL FIELDBUS TYPES INPUT MEMORY MAP

START ADDRESS	HEX	DECIMAL	SIZE
Scale 1	0	0	20 Words
Scale 2	28	40	20 Words
Scale 3	50	80	20 Words
Scale 4	78	120	20 Words
			Total: 160 bytes

D. Fieldbus data representation, Continued

OUTPUT DATA (WORD BYTE REGISTER USAGE)

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)	SCALE
0	0 - 1	Command Word 0	2	Scale 1
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	2	
10	20 - 21	Command Word 0	2	Scale 2
11	22 - 23	Command Word 1	2	
12	24 - 25	Command Word 2	2	
13 - 14	26 - 29	Setpoint 1	4	
15 - 16	30 - 33	Setpoint 2	4	
17 - 18	34 - 37	Tare Weight	4	
19	38 - 39	Unassigned	2	
20	40 - 41	Command Word 0	2	Scale 3
21	42 - 43	Command Word 1	2	
22	44 - 45	Command Word 2	2	
23 - 24	46 - 49	Setpoint 1	4	
25 - 26	50 - 53	Setpoint 2	4	
27 – 28	54 - 57	Tare Weight	4	
29	58 – 59	Unassigned	2	

D. Fieldbus data representation, Continued

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)	SCALE
30	60 - 61	Command Word 0	2	**Scale 4**
31	62 - 63	Command Word 1	2	
32	64 - 65	Command Word 2	2	
33 - 34	66 - 69	Setpoint 1	4	
35 - 36	70 - 73	Setpoint 2	4	
37 - 38	74 - 77	Tare Weight	4	
39	78 – 79	Unassigned	2	
	80 - 105	Display Message Line 1	26	**All Scales**
	106 - 131	Display Message Line 2	26	
	132 - 157	Display Message Line 3	26	

INPUT DATA (WORD BYTE REGISTER USAGE)

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)	SCALE
0	0 - 1	Status Word 0	2	**Scale 1**
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 (weight /second)	4	
17 - 19	34 - 39	Unassigned	6	

D. Fieldbus data representation, Continued

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)	SCALE
20	40 - 41	Status Word 0	2	**Scale 2**
21	42 - 43	Status Word 1	2	
22	44 - 45	Status Word 2	2	
23 - 24	46 - 49	Unassigned	4	
25 - 26	50 - 53	Gross Weight	4	
27 - 28	54 - 57	Tare Weight	4	
29 - 30	58 - 61	Net Weight	4	
31 - 32	62 - 65	Setpoint 1	4	
33 - 34	66 - 69	Setpoint 2	4	
35 - 36	70 - 73	Flow Rate (weight /second)	4	
37 - 39	74 - 79	Unassigned	6	
40	80 - 81	Status Word 0	2	**Scale 3**
41	82 - 83	Status Word 1	2	
42	84 - 85	Status Word 2	2	
43 - 44	86 - 89	Unassigned	4	
45 - 46	90 - 93	Gross Weight	4	
47 - 48	94 - 97	Tare Weight	4	
49 - 50	98 – 101	Net Weight	4	
51 - 52	102 - 105	Setpoint 1	4	
53 - 54	106 - 109	Setpoint 2	4	
55 - 56	110 - 113	Flow Rate (weight /second)	4	
57 - 59	114 - 119	Unassigned	6	

D. Fieldbus data representation, Continued

WORD	BYTE	REGISTER USAGE	SIZE(BYTES)	SCALE
60	120 - 121	Status Word 0	2	**Scale 4**
61	122 - 123	Status Word 1	2	
62	124 - 125	Status Word 2	2	
63 - 64	126 - 129	Unassigned	4	
65 - 66	130 - 133	Gross Weight	4	
67 - 68	134 - 137	Tare Weight	4	
69 - 70	138 - 141	Net Weight	4	
71 - 72	142 - 145	Setpoint 1	4	
73 - 74	146 - 149	Setpoint 2	4	
75 - 76	150 - 153	Flow Rate (weight /second)	4	
77 - 79	154 - 159	Unassigned	6	

E. Status/Command Word Bit Usage

STATUS / COMMAND WORD 0

bit	Usage
0	Scale ID bits 0, 1, 2
1	Scale 1 = 001, Scale 2 = 010, Scale 3 = 011, Scale 4 = 100
2	
3	motion
4	over capacity gross weight = scale capacity
5	within 2% capacity
6	Enable Tare
7	Disable Tare
8	lb units
9	kg units
10	ton units
11	tonne units
12	
13	
14	Weight conversion, text to numeric (bits 14 and 15)
15	01 = 32 bit floating point
	10 = 32 bit integer
	11 = 16 bit integer

E. Status/Command word bit usage, Continued

STATUS / COMMAND WORD 1

bit	Usage
0	Decimal Point Location bits 0, 1, 2
1	000 * 1.0; 001 * 0.1; 010 * 0.01; 011 * 0.001; 100 * 0.0001
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 bits 8, 9, 10, 11, 12
9	All Good = 0
10	Defective Cell = Cell Number Binary
11	
12	
13	
14	Print Command
15	Beep

STATUS / COMMAND WORD 2

bit	Usage
0	Display Message Command / Operator Acknowledge
1	Scale weight at or above Maximum weight
2	Scale weight at or below Minimum weight
3 – 15	Unused

E. Status/Command word bit usage, Continued

SCALE ID WORD 0 BITS 0,1,2

Command: Changes Instrument display to applicable scale.

Status: Value is the scale id if the scale is selected, from instrument keyboard or Fieldbus, else the value is zero.

MOTION WORD 0 BIT 3

Command: Not applicable.

Status: Indicates that the scale senses motion.

OVER CAPACITY WORD 0 BIT 4

Command: Not applicable.

Status: Indicates that the scale is at 105% of capacity. If this condition is true the gross weight is sent to the Fieldbus as the scale capacity.

WITHIN 2% CAPACITY WORD 0 BIT 5

Command: Not applicable.

Status: Scale is within a range of +/- 2% of capacity and zero.

ENABLE TARE WORD 0 BIT 6

Command: Enable keyboard tare or auto tare weight.

Status: Tare weight enabled.

DISABLE TARE WORD 0 BIT 7

Command: Disable keyboard tare and auto tare weight.

Status: Tare weight disabled.

LB WEIGHT UNITS WORD 0 BIT 8

Command: Switch scale to lb units.

Status: Scale is indicating in lb units.

E. Status/Command word bit usage, Continued

KG WEIGHT UNITS WORD 0 BIT 9

Command: Switch scale to kg units.

Status: Scale is indicating in kg units.

TON WEIGHT UNITS WORD 0 BIT 10

Command: Switch scale to ton units.

Status: Scale is indicating in ton units.

TONNE WEIGHT UNITS WORD 0 BIT 11

Command: Switch scale to tonne units.

Status: Scale is indicating in tonne units.

DECIMAL LOCATION WORD 1 BITS 0,1,2

Command: Used in integer to float weight conversions.

Status: Indicates location of decimal point in weight data.

LOAD TARE WORD 1 BIT 3

Command: Load tare from tare memory address.

Status: Switches to 1 after command is executed and returns to 0 when command is cleared.

AUTO TARE WORD 1 BIT 4

Command: Take current scale gross weight as tare value.

Status: Switches to 1 after command is executed and returns to 0 when command is cleared.

LOAD SETPOINT 1 WORD 1 BIT 5

Command: Load setpoint 1 for this scale.

Status: Switches to 1 when command is executed returns to zero when command is cleared.

E. Status/Command word bit usage, Continued

LOAD SETPOINT 2 WORD 1 BIT 6

Command: Load setpoint 2 for this scale.

Status: Switches to 1 when command is executed returns to zero when command is cleared.

LOAD CELL STATUS WORD 1 BITS 8,9,10,11,12

Command: Not applicable.

Status: All cells are when the value is zero, else data indicates the number of the failing or failed cell.

PRINT COMMAND: WORD 1 BIT 14

Command: Print scale ticket

Status: Switches to 1 when the command is recognized and resets after the print cycle is complete and the command bit is reset.

BEEP WORD 1 BIT 15

Command: Sound Instrument audible alarm.

Status: Switches to 1 when command is executed, resets to 0 after the command bit is reset.

DISPLAY MESSAGE WORD 2 BIT 0

Command: Display message on Instrument display. Message loaded from display memory 1 to 3 lines.

Status: Switches to 1 when the command is received and the message is displayed.

When scale operator operates any key, the message and bit are cleared.

SCALE ABOVE MAXIMUM WEIGHT WORD 2 BIT 1

Command: Not applicable.

Status: Bit is set when scale weight is at or above the programmed value.

E. Status/Command word bit usage, Continued

SCALE BELOW MINIMUM WEIGHT WORD 2 BIT 2

Command: Not applicable.

Status: Bit is set when scale weight is at or below programmed value.

Appendix II: Data Output

A. Remote Display Output

Data Format

<STX><4><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.*

B. Configure Output

FAIRBANKS DATA FORMAT

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

NOTES:

1. *Characters denoted by* **G** *and* **T** *are* **characters 0-9**.
2. *Leading zeroes are suppressed.*
3. ***Gross Weight Data*** **= G**
   Tare Weight Data **= T**

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

B. Configure Output, Continued

FAIRBANKS 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		

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		

B. Configure Output, Continued

TOLEDO DATA FORMAT

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

NOTES:

1. *Characters denoted by* **G** *and* **T** *are* **Characters 0-9.**
2. *Leading zeroes are* ***not suppressed****.*
3. ***Gross Weight data*** **= G**
   Tare Weight data **= T**

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

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		

B. Configure Output, Continued

TOLEDO DATA FORMAT

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 = 0		
6		Normal = 0		Power Up = 1
7		Parity Bit		

Status Code (Word) C

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

B. Configure Output, Continued

CARDINAL 738 CONTINUOUS SCOREBOARD DATA FORMAT

<CR><P><WWWWWW><M><SP><U><SP><G><SP><SP><ETX>

NOTES:

1. *W = Displayed weight*
   P = Polarity
   + = Positive weight
   - = Negative weight
   U = Units
   lb = pounds
   kg = kilograms
   M = Motion or O = Overload
   G = Gross; N = Net
   SP = Space
2. *Leading zeros are not suppressed.*

WEIGHTRONIX DATA FORMAT

< ><M><WWWWWW>< ><U><CR><LF>

NOTES:

1. *< > = Space*
   M = Mode
   G =Gross
   T=Tare
   N=Net
   W = Displayed weight
   U = Units
   m = Motion
   o = Overload
2. *Leading zeros are suppressed.*

B. Configure Output, Continued

CONDEC CONTINUOUS DATA FORMAT

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

NOTES:

1. *P = Polarity*
   space = positive weight
   - = negative weight
   W = Displayed weight
   U = Units
   L = pounds
   K = kilograms
   G = Gross; N = Net
   M = Motion
2. *Leading zeros are suppressed.*

Appendix III: SMA Protocol

A. Standard Scale Response Message

Most of the host commands are responded to in the following message format. The only host commands that do not are the:
Diagnostic, **AB**out and **IN**formation commands

<LF> <s> <r> <n> <m> <f> <xxxxxx.xxx> <uuu> <CR>

where: <LF> Start of response message

<s> scale status — definition / example

'Z'	Center of Zero <xxxxxx.xxx>= 0.000
'O'	Over Capacity <xxxxxx.xxx>= +weight
'U'	Under Capacity <xxxxxx.xxx>= -weight
'E'	Zero Error (clears when condition clears)
'I'	Initial-Zero Error (if used, this error is maintained until zero condition is cleared)
'T'	Tare Error (clears after being read)
<space>	None of the above conditions

Note: For 'E', 'I', 'T' error conditions <xxxxxx.xxx>= ———— (center dashes) and 'Z', 'O', 'U' are overridden.

<r> range ('1', '2', '3', etc.) always '1' for single range

<n> gross/net status

'G'	Gross normal weight
'T'	Tare weight (in response to 'M' command)
'N'	Net normal weight
'g'	gross weight in high-resolution
'n'	net weight in high-resolution

<m> motion status

'M'	scale in Motion
<space>	scale not in Motion

<f> future — reserved for future or custom use

<xxxxxx.xxx> weight data — this field is fixed at 10 characters

<uuu> Unit of Measure

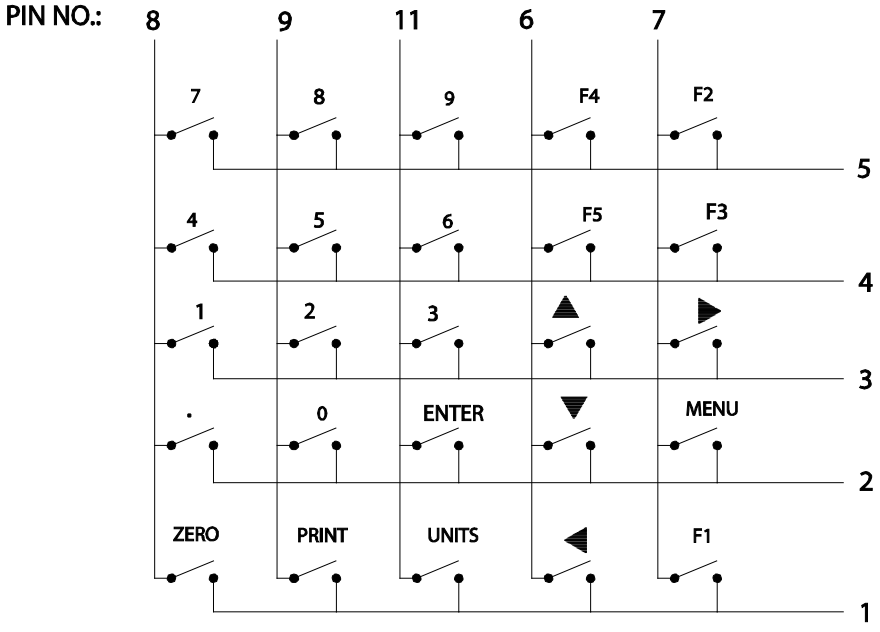
<CR> End of response message

B. Examples

Command	Response
<LF>W<CR>	<LF> <_> <1> <G> <_> <_> <_ _ _ _ 5.025> <lb_> <CR>
<LF>W<CR>	<LF> <_> <1> <N> <_> <_> <_ _ _ _ 100000> <lb_> <CR>
<LF>W<CR>	<LF> <_> <2> <G> <M> <_> <_ _ _ _ 8:08.5> <l/o> <CR>
<LF>H<CR>	<LF> <_> <1> <g> <_> <_> <_ _ _ _5.0025> <lb_> <CR>
<LF>Z<CR>	<LF> <Z> <1> <G> <_> <_> <_ _ _ _ _0.000> <lb_> <CR>
<LF>R<CR>	<LF> <_> <1> <G> <_> <_> <_ _ _ _ 7.025> <kg_> <CR>
	<LF> <_> <1> <G> <M> <_> <_ _ _ _ 7.650> <kg_> <CR>
	o o o
	<LF> <_> <1> <G> <_> <_> <_ _ _ _ 7.650> <kg_> <CR>

The scale will repeat weight until next command is received.

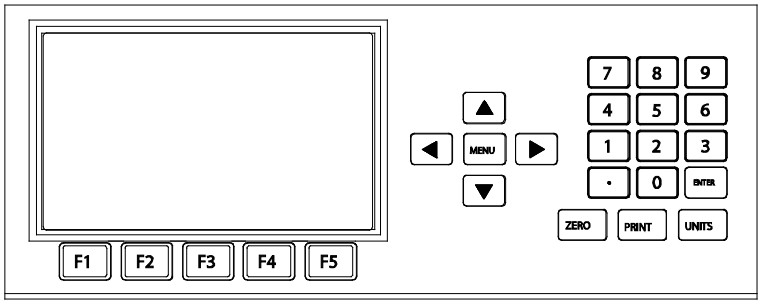
Appendix IV: Connections and Cables



INSERT KEY IN PIN 10

NO TRACE CONNECTION ON PINS 10 AND 12

SCHEMATIC DIAGRAM

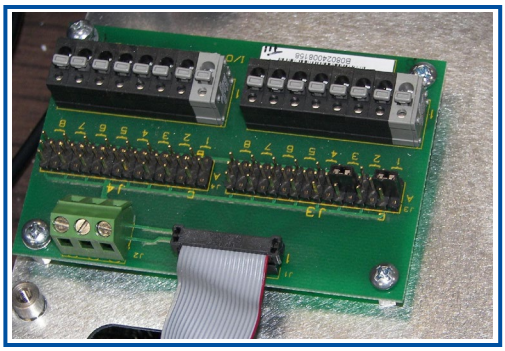


30746
KEYBOARD, 2550 INSTRUMENT

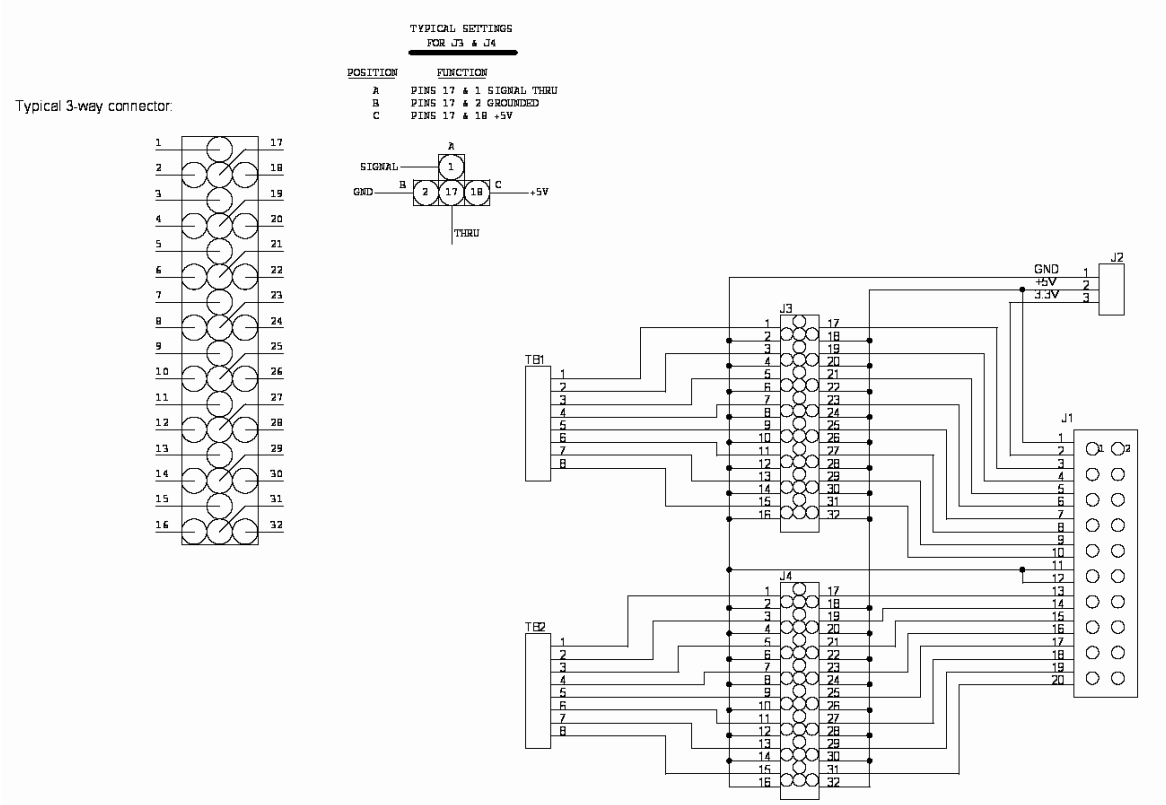
Appendix V: Remote Switches

Follow these steps to setup the Remote Switches.

1. In the Digital I/O Kit (**30359**), Connect **J2** of Multi-function Board to **J1** on the Remote I/O Board (**26472**) using Cable (**27053**).
2. Press the **MENU** button.
3. Open the **CONFIGURATION MENU**.
4. Press the **PAGE FORWARD** button twice.
5. Press the **REMOTE SWITCHES** option.
6. Open and select **YES** to the following Switches.
    1. **REMOTE ZERO TB1-1**.
    a. **REMOTE TARE TB1-2**.
    b. **REMOTE PRINT TB1-8**.



NOTE: *The second wire connects to* **J2-1.**



Appendix VI: Remote Serial Communication Commands

COMMAND	DESCRIPTION
A	Auto Tare Active scale
G	Turn Traffic Light Green (Manual Mode only)
LA	Change Traffic Light to Automatic mode
LM	Change Traffic Light to Manual mode
R	Turn Traffic Light Red (Manual Mode only)
S#	Change Active Scale (where **#** = scale number)
Txxxxx	Set Tare on Active scale (where **xxxxx** = tare weight value required)
T#,xxxxx	Tare entry for a specific scale (where **#** = scale number, and where **xxxxx** = tare weight value required)
U#	Toggle Units on a scale (where **x** = scale number)
u	Toggle All Scales Units
U	Toggle Units on Active scale
Z#	Zero one scale (where **#** = scale number)
z	Zero all scales
Z	Zero Active scale
P	Print Active scale
W	Demand request for a Weight output on the Active scale

Appendix VII: Formatable Data Fields

FIELDS and their DATA LENGTHS

SCALE TICKET: TICKET NUMBER	Twenty-four (24) characters
<TICKET NO>: <Ticket#>	Six (6) characters
GROSS LABEL: GROSS	Five (5) characters
<GROSS WT>: <Gross>	Six (6) characters
<GROSS UNITS>: lb GR	Two (2) characters
DUAL UNITS GROSS LABEL:P GROSS	
<DUAL UNITS GROSS WT>: <Dual Units Gross>	
<DUAL UNITS GROSS UNITS>: <lb GR	
TARE LABEL: TARE	Four (4) characters
<TARE WT>: <Tare>	Six (6) Characters
<TARE UNITS>: lb TA	Two (2) characters
DUAL UNITS TARE LABEL: TARE	
DUAL UNITS TARE WT>: <Dual Units Tare>	
<DUAL UNITS TARE UNITS>: lb TA	
NET LABEL: NET	Three (3) characters
<NET WT>: <Net>	Six (6) characters
<NET UNITS>: lb NT	Two (2) characters
DUAL UNITS NTET LABEL: NET	
<DUAL UNITS NET WT>: <Dual Units Net>	
<DUAL UNITS NET UNITS>: lb GR	
INBOUND LABEL: INBOUND	Seven (7) characters
<INBOUND WT>: <Inbound>	Six (6) characters
<INBOUND UNITS>: lb GR	Six (6) characters
<DUAL UNITS INBOUND WT>: <Dual Units Inbound>	
<DUAL UNITS GROSS UNITS>: <lb GR>	
<DATE>: <Date>	Ten (10) characters
<TIME>: <Time>	Eight (8) characters
<SCALE ID>: <SCALE ID>	Eleven (11) characters
<LOOP ID LABEL>: LOOP ID	Twenty (20) characters
<LOOP ID>: <Loop ID>	Sixteen (16) characters
<DATE IN>: <Date In>	Ten (10) characters
<TIME IN>: <Time In>	Eight (8) characters
<SCALE ID IN>: <Scale ID In>	Eleven (11) characters
PRODUCT LABEL: LABEL	Twenty-four (24) characters
<PRODUCT ID>: <Product ID>	Sixteen (16) characters
<CONVERSION LABEL>: Conversion Name	Sixteen (16) characters
<CONVERSION>: <Conversion>	Seven (7) characters
<CONVERSION 2 LABEL>: Conversion 2 Name	
<CONVERSION 2>: Conversion 2	

FIELDS and their DATA LENGTHS

<PRODUCT TOTAL WT>: <Prod Tot Wt>	Six (6) characters
<PRODUCT TOTAL UNITS>: <Prod Tot Units>	Two (2) characters
<DUAL UNITS PROD TOT WT>: < Dual Units Prod Tot Wt>	
DUAL UNITS PROD TOT UNITS>: < Dual Units Prod Tot Un>	
CUSTOMER LABEL: CUSTOMER	Twenty-four (24) characters (caption is editable from ticket format)
<CUSTOMER ID>: <Customer ID>	Sixteen (16) characters
<CUSTOMER LINE 1/2/3/4>: <Customer Line 1/2/3/4>	Forty (40) characters
CUSTOMER TOTAL LABEL: CUSTOMER TOTAL	Twenty-four (24) characters (caption is editable from ticket format)
<CUSTOMER TOTAL WT>: <Cust Tot Wt>	Six (6) characters
<CUSTOMER TOTAL UNITS>: <Cust Tot Units>	Two (2) characters
<DUAL UNITS CUST TOT WT>: <Dual Units Cust Tot Wt>	
<DUAL UNITS CUST TOT UNITS>: <Dual Units Cust Tot Un>	
VEHICLE TYPE: VEHICLE TYPE	Twenty-four (24) characters (caption is editable from ticket format)
<VEHICLE DESCRIPTION>: <Vehicle Description>	Thirty-two (32) characters
<LOCATION ID>: <Location ID>	Fifteen (15) characters
<LOCATION NAME/ADDRESS/ CITY STATE/PHONE NMR>: <Location Name/Address/ City State/Phone Nbr>	Sixty-four (64) characters
<LOCATION PHONE NBR>: <Location Phone NBR>	Twenty (20) characters
<PROMPT1 LABEL thru PROMPT10 LABEL>: PROMPT 1 thru PROMPT 10	Twenty (20) characters
<PROMPT1 thru PROMPT10>: <Prompt 1 thru Prompt 10>	
ALL TEXT FIELDS	Twenty-four (24) characters
DUPLICATE COPY LABEL: (DUPLICATE COPY)	
TEXT 1: TEXT 1 thru TEXT 20: TEXT 20	
IMAGE 1: IMAGE 1 and IMAGE 2: IMAGE 2	

FB2558 DAT Series

DRIVER ACCESS TERMINAL

Operators Manual

Document 51418

Manufactured by Fairbanks Scale, Inc.
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Kansas City, MO 64106

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