



***Model 9102***  
***Field Data Portal***

***User's Manual***

Version 1.0  
5/02

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# Model 9102 Field Data Portal

Version 1.0 5/02

Thank you for purchasing this product. We hope this instruction manual will provide you with all the necessary tools to fully understand and implement the features provided.

If you experience problems with installation or operation of this product, please contact your System Integrator or Telemetry Solutions Co. We are here to support you and to make your installation and operation of the Field Data Portal a success.

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2758 Bingle Road  
Houston TX 77055

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Fax 713/932-9379

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## Warranty Statement

The Model 9102 Field Data Portal and its components manufactured by Telemetry Solutions Co. are covered by the following warranties:

**What is Covered:** Telemetry Solutions Co. warrants that the Product will be free from defects in material and/or workmanship and will conform to Telemetry Solutions Co.'s published specifications if properly installed and maintained.

**For How Long:** The One (1) Year standard limited warranty expires one (1) year after the date of purchase. Purchase date must be confirmed in writing using the enclosed Registration Form. Please make a copy of the registration and follow instructions for submittal of this form.

**What We will Do:** If the Product fails or is not in good working condition as warranted, we will either repair or replace (at our discretion) the Product and return it to you, at our expense via Ground service (either UPS or Federal Express, or other designated carrier). Faster shipping methods are available but will be billed to the customer.

**What You Must Do:** You must examine the Product upon receipt and promptly notify us or the distributor you purchased the Product from if any item is damaged or missing. We will not consider any claims for damaged or missing items made more than thirty (30) days from the date of delivery. You must install and maintain the Product in accordance with the written instructions provided. To obtain warranty service, you must return the product at your expense. Prior to return shipment, contact your distributor or Telemetry Solutions Co. at 713/932-9071 to obtain a **return authorization number**. With return authorization, return the Product to:

Telemetry Solutions Co. • 2758 Bingle Rd. • Houston, TX 77055

**Other Conditions:** The One (1) Year limited warranty extends only to the original purchaser from Telemetry Solutions Co. or our authorized distributors, and is not transferable and does not include service, repair, or replacement to correct any damage caused by improper installation or maintenance, improper connection with any peripheral, external electrical fault, accident, disaster, misuse, abuse, or modifications to the Product not approved in writing by Telemetry Solutions Co. All express warranties not included in these terms are hereby disclaimed by Telemetry Solutions Co. If the Product is not in good working order as warranted, the sole and exclusive remedy shall be repair or replacement. In no event shall Telemetry Solutions Co. or any of our authorized distributors be liable for any damages in excess of the purchase price of the Product. This limitation applies to damages of any kind, including but not limited to direct or indirect damages or other special, incidental, exemplary, or consequential damages, whether arising out of the use or inability to use the Product, even if Telemetry Solutions Co. or any of its authorized distributors have been advised of the possibility of such damages or any claim by any other party.

**State Law Rights:** Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may or may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This agreement is governed by the laws of Texas, without giving effect to conflict of law rules.

## Telemetry Solutions Company Model 9102 Field Data Portal Registration Card

Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

Telephone: ( \_\_\_\_ ) \_\_\_\_\_ - \_\_\_\_\_

Fax: ( \_\_\_\_ ) \_\_\_\_\_ - \_\_\_\_\_

System Integrator or Distributor(if any): \_\_\_\_\_

Product Serial Number: \_\_\_\_\_

Purchase Date: \_\_\_\_\_ / Year 20

Signature: \_\_\_\_\_

Please retain this original in your manual. Make a copy and mail to:

FDP Registration  
Telemetry Solutions Co.  
2758 Bingle Road  
Houston, TX 77055

OR Fax to 713/932-9379

## Product Support Information

For technical support, contact: Telemetry Solutions Company

Primary System Integrator: \_\_\_\_\_

System Integrator Phone: \_\_\_\_\_

System Integrator Fax: \_\_\_\_\_

Manufacturer's Web Site: [www.statpak-pc.com](http://www.statpak-pc.com)

Telemetry Solutions Company

Phone: 713/932-9071

Fax: 713/932-9379

Sales/Support email: [sales@statpak-pc.com](mailto:sales@statpak-pc.com)

## Model 9102 Field Data Portal Specifications

Rated Voltage:	100/240 VAC 47-60 Hz 0.3 Amp
Input port types:	20mA current loop active or passive, 300 to 1200 Baud, RS-232, RS-422 300 to 19.6 Kbps, Receive only. Hard-wired terminal blocks.
Output port type:	RS-422, 1.2 K to 19.2 Kbps, Asynchronous. Hard-wired terminal blocks  Should be faster than highest Input port speed.
Input and Output ports are optically isolated for additional protection against electrical line noise.	
Maximum throughput per Input channel:	19.2 Kbps
Dimensions:	8" x 6" x 2.25" NEMA 4 (IP66) Fiberglass Enclosure with Mounting tabs
Memory:	Non-volatile RAM to store configuration
Status Indicators:	Receive Idle/Busy and Transmit Idle/Busy status LED's for each port. On-Board "Power ON" and CPU "heartbeat" status LED's.
Display:	4 Line x 20 Character Alpha-Numeric display with LED back light  Menu driven prompts for configuration and operation displayed on-screen.
Keypad:	Environmentally sealed Alpha-Numeric keypad with tactile feedback

UL/ULc & CE Approvals Pending



**WARNING: THIS EQUIPMENT IS TO BE INSTALLED AND SERVICED BY QUALIFIED SERVICE PERSONNEL ONLY.**

Instructions within this manual and attached drawings are to be strictly followed to insure both personnel safety and proper operation of the equipment. Please carefully read this chapter, and the following chapter on mechanical and electrical installation before attempting to install or operate this equipment.

**Electrical Requirements & Wiring Methods**

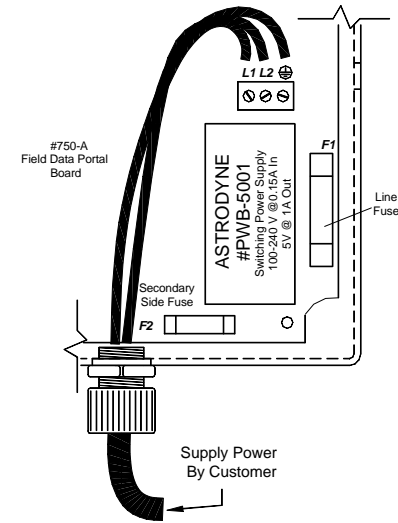
The 9102 Field Data Portal requires source power from a dedicated branch circuit breaker rated at **1 Amp Max.** This breaker is to be used as the primary means of disconnecting power from the device when performing maintenance.

The Field Data Portal does not normally require an isolation or power conditioning transformer. Single phase Power from 100 to 240 VAC, 50/60 Hz is acceptable. Minimum wire gauge for supply wiring is 16 Ga. stranded conductor, provided with an Earth Ground. Solid conductors should not be used.

All wiring routed to or from the 9102 Field Data Portal must be provided in accordance with National Electrical Code requirements to maintain the NEMA 4 rating of the control enclosure. Non-metallic cable grips are provided for one (1) input serial line, one (1) output serial line, and Source Power. Cable grips can be removed, and replaced with rigid or flexible conduits as long as properly rated and approved hubs and connectors are used. Recommended conduit sizes and wire sizes are noted along with the drawing found on the following page. Source Power wiring must be routed as shown on this drawing.

Supply power screw terminal connections are located within the 9102 enclosure, on the circuit board. A line fuse (F1) is provided for protection on the Primary side of the circuit. This is a 3AG 1 Amp fuse. A fuse on the 5 VDC Secondary side provides fused protection for the Field Data Portal components. This fuse is a 5 x 20 mm 1 Amp fuse.

***Replace each fuse with the same or equal type of fuse, as noted.***



Wiring of Source Power must include an Earth Ground conductor terminated on the Ground terminal, as shown in the above illustration. Minimum wire gauge for source power is 16 ga. stranded conductor.

The 9102 enclosure is provided with three (3) cable grips, each passing through a 0.656” dia. hole in the enclosure. If required, the cable grip may be removed from the hole, and the hole enlarged to 0.875” dia., for standard trade ½” conduit. Adequate room has been provided between cable grip holes to allow for installation of properly approved conduit hubs, such as Crouse-Hinds Part Number ST-1. Other manufacturer’s hubs may be used, but must be UL approved.

**Mounting Instructions**

The 9102 Field Data Portal is intended for wall or plate mounting in industrial environments. The enclosure’s fiberglass enclosure, stainless steel hardware, and corrosion resistant poly overlay are rated to withstand most harsh environments.

The enclosure comes with four (4) mounting tabs (provided loose with the enclosure). These tabs mount to holes in the bottom of the enclosure. Holes in the tabs are sized for #10 bolts.

## Defining the Field Data Portal's Use

The 9102 Field Data Portal is an extremely flexible product, and can be used for two distinct purposes. In general, the 9102 will receive serial data strings from its Input port and re-transmit serial data strings and commands out of its Output port to Telemetry Solutions' StatPak-PC Data collection and down-time logging software (an optional feature).

The primary purpose for the 9102 is for connection to production scale devices, such as an electronic filler controller or checkweigh scale, that is not specifically programmed to work directly with Telemetry Solutions' **ARCS** command set. The output serial port of the production scale device is connected to the 9102's Input port, and the data is passed through to StatPak-PC for logging and viewing. In turn the 9102 can transmit and receive data configuration commands from StatPak-PC, responding with displayed information for the equipment operator's use.

As an example, the equipment operator may need to change the production scale settings from the current Material (weight, package, etc.) over to another. Using the 9102, the operator accesses StatPak-PC's database containing information about other Materials run on this particular production scale, selects the new material to run, and then confirms the displayed information shown on the front panel of the Field Data Portal. This changes parameters and information within StatPak-PC on data to be collected for the new Material selected. In this way, StatPak-PC can be accessed and manipulated from the factory floor without the equipment operator ever leaving his station. This makes use of StatPak-PC much more efficient and far less prone to error or neglect.

The second purpose of the Field Data Portal is in Down-Time Logging. StatPak-PC has the ability to record both "Assignable" and "Non-Assignable" periods of production line down-time. Assignable Down-Time is defined as valid reasons for production being paused or halted, such as shift-change, scheduled operator breaks, and scheduled maintenance or idle time on the production line. Non-Assignable Down-Time is defined as unexpected or unscheduled production line stoppage, and can include running out of material, running out of containers, equipment breakage, etc.

In the very near future, a new version of the Field Data Portal and StatPak-PC will also have the ability to create 256 user defined specific reasons for down-time stored in memory. The user of StatPak-PC will have the ability to enter well defined descriptions for both assignable and non-assignable down-time events. In turn, the line operator using the 9102 Field Data Portal will be able to access and select any of these reasons for production down-time.

This extremely powerful feature will allow production staff and management to very clearly define exactly when, where, and for how long production stoppages occurred.

Efficiency reports generated by StatPak-PC can then present meaningful reports detailing trends for non-assignable down-time. With this information in-hand, management can then make informed decisions on how to address these reasons, eliminating sources of production down-time, increasing efficiency, productivity, and profits.

### Use with Telemetry Solution's 7151 Multiplexer:

The 9102 can be used in conjunction with our Model 7151 Multiplexer in two different ways. Both are described below:

**Local MUX:** is defined as the final connection point for multiple data devices on a factory floor back through a single serial output to a terminal, such as a PC.

For example: We will use an application with several filling and weighing systems on a factory floor. Each filling and weighing system may be located in different areas of the factory floor. Each supplied with the 9102 Field Data Portal. Serial data lines from each production scale are connected to their Field Data Portals, and then brought together and wired to the Input ports of the **Local MUX**, and then delivered out of the Output port of the **Local MUX** to a PC or other data collection device.

The 9102 Field Data Portal's output port would be connected to one of the Input ports in the Local MUX. Internally, each Input port on the multiplexer would then assign a corresponding prefix letter from "A" to "H", with Input port 1 being assigned an "A", Input port 2 being assigned a "B", up to Input port 8 being assigned an "H". In this way, data from the Field Data Portal can be identified and tracked through the serial network. In turn, StatPak-PC can issue responses to commands issued by a particular Field Data Portal, passing this data back through the multiplexer to the correct production scale location.

**Remote MUX:** is defined as a device connected to several common field devices and performs the function of bundling data from these devices for transmission as data from a single source.

For example: In this example we will use a multiple head filling system. Each head on the filler may have its own scale controller. Instead of providing a separate Field Data Portal for each of these devices, a multiplexer configured as a "remote Mux" would connect to each of the filler controllers, bringing all the data to a single point. The output of this "remote Mux" would then be connected to the input port of the Field Data Portal.

Data transmitted from this configuration would have a letter from "A-H" assigned to each of the separate fill controllers to allow identification of each individual controller back at the data collection point.

## Cascading Multiple Remote Multiplexers

The 7151 Multiplexer can be configured to cascade from one *Remote* MUX to another *Remote* MUX. There are applications in which more than eight (8) scales are used on a common production line filling system, such as rotary fillers.

An example for use of cascading multiplexers would be a 12-head filler system. The first eight fill heads would be tied to the eight input ports of a *Remote* MUX. The Output of this multiplexer would then connect to Input port 1 on the 2<sup>nd</sup> *Remote* MUX, the other four fill heads would then connect to Input ports #2 thru #5.

Data transmitted from the Output port of the Remote MUX would be:

```
<STX><A><A><data><CR><LF><ETX>
```

The first A indicates that this data came to the 1<sup>st</sup> Remote MUX from the device connected to Input port 1 of the 1<sup>st</sup> level Remote MUX. The second A indicates that the data was received at Input port A of the 2<sup>nd</sup> Remote MUX (signifying data from the device connected to Input port 1 of the 2<sup>nd</sup> level Remote MUX).

As defined above, the *Local* MUX also assigns a prefix letter from “A” to “H” to each data string. Data received from a *Remote* MUX could then have two (2) prefix letters on each data string from the *Remote* MUX.

For example: If the *Remote* MUX output port is connected to the *Local* MUX input port #1, then data output from the *Local* MUX would be <STX><A><A><data><CR><LF><ETX> for the scale device connected to Input port #1 in the *Remote* MUX.

Data from the Remote MUX Input port #2, would be  
<STX><A><B><data><CR><LF><ETX>

## Wiring the Input Serial Port

The 9102 is provided with a single set of input ports on a common 10 pin terminal strip, and is labeled “Port 0”. This port can be connected to RS-232, RS-422, or 20mA current loop devices. RS-485 half-duplex (transmit only) can be connected to the RS-422 Input Port on the two Receive (RX) terminals.

Output serial port is labeled “Port 1”, and is a 6 pin terminal block, and can be wired as RS-422 only.

**RS-232** is a very common type of serial data topology used on many scale devices, and has a limitation of about 50 feet (15.25 meters).

This topology can provide bi-directional communications, which requires a total of three (3) conductors; transmit, receive, and common (signal ground). Minimum wire size typically recommended is 24 ga. stranded conductors in a Shielded cable.

It is strongly recommended that data cables are run in a dedicated conduit away from AC wiring.

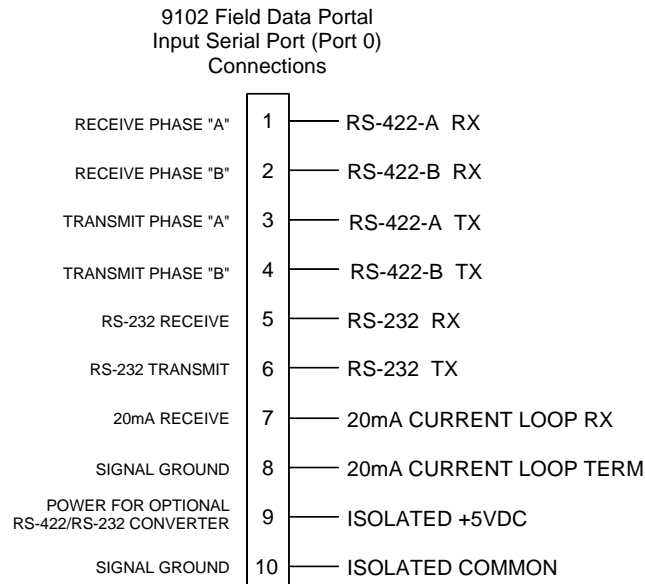
Special “drivers” for certain scale controllers may be available that will allow for bi-directional communication. If a “driver” is not available, use Telemetry Solutions’ Field Data Portal to send and receive information between your scale controller and Statpak-PC software.

**RS-422** is as common, and is similar in many ways to RS-485, with the significant difference in that 485 can transmit an ID value to an assigned port. RS-422 does not have this functionality. RS-422 offers benefits of longer transmission distances, up to 1400 feet (402 meters), or about 1/4 mile. RS-422 also allows for bi-directional communication, and requires five (5) conductors; transmit A&B, receive A&B, and common (signal ground). It is possible to connect an RS-485 output port to the 9102's RS-422 input port. Minimum wire size typically recommended is 24 ga. stranded conductors in a Shielded cable. It is strongly recommended that data cables are run in a dedicated conduit away from AC wiring.

**20mA Current Loop** is also a serial data topology that is relatively common to many scale devices. This port operates in only one direction, transmitting data from the scale device. It has some limitations as to speed (Baud Rate), typically around 1200 Baud, however, it can also transmit data over relatively long distances, up to 1400 feet (402 meters), or about 1/4 mile. The 20mA current loop port requires a two (2) conductor cable, minimum 24 ga. stranded wire, and should be run in a dedicated conduit away from AC wiring.

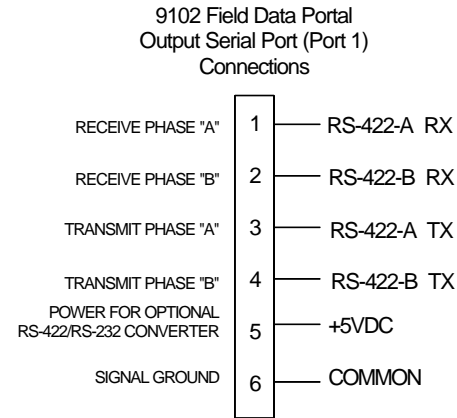
Telemetry Solutions Company suggests Belden #9680 or comparable cable for interconnection of the Field Data Portal to your PC or MUX. This is a 6-conductor shielded cable that will allow for flexibility when wiring the devices and will accommodate most future changes that may occur.

The following diagram shows terminations for the Receiving Input (Port 0) serial port:



## Wiring the Output Serial Port

This diagram shows the terminations for the transmitting Output (Port 1) serial port:



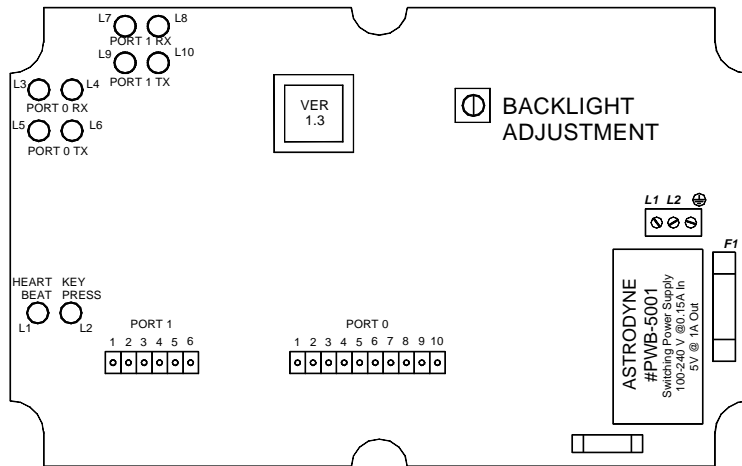
If your scale device contains an RS-232 serial port, and the wiring run from the scale device to the Field Data Portal will be over 50 feet, you can install a serial converter from Telemetry Solutions Co. that will change the signal type to RS-422. This conversion will allow for greater transmission distances, up to 1/4 mile.

The Model 4229 RS-232/RS-422 converter requires a 5 VDC power supply to operate. Pin #6 on the output serial port connector provides this power source. Data cable between the multiplexer and serial converter needs to contain six (6) conductors, 5 for communications and one for power.



**CAUTION: SHIELDS FROM ALL DATA CABLES MUST BE CONNECTED TO ONE (1) END ONLY. DO NOT CONNECT AT SCALE DEVICE AND FIELD DATA PORTAL.**

The following drawing shows the layout of terminal blocks and status LED's within the 9102 Field Data Portal.



Note the potentiometer to the right of center. This pot adjusts the contrast of the LCD display.

The LED labeled “Heartbeat” (L1) will blink on and off every one (1) second to indicate proper operation of the equipment’s CPU.

The LED labeled “Key Press” (L2) will light for one (1) second every time any key on the front panel is pressed, and provides visual confirmation that the keypad is operational.

## Navigating User Screens

Once power is applied to the FDP, the Main Menu screen will appear on the display. As shown below:

- 1) DISPLAY RUN
- 2) START NEW RUN
- 3) UART SETUP
- 4) TERMINAL SETUP

Using the front panel Up Arrow key (lower left corner) will scroll the display and reveal two additional Main Menu items, as shown in the following screen:

- 5) DOWNTIME LOGGING
- 6) TEST PROGRAM

These menu items are described in order below

### Display Run

The display run screen shows some details of the run in progress. Line 1 shows the customer code. Line 2 shows the material code. Line 3 shows the target weight. Line 4 displays the last weight message received from the weightmeter. Items 1 thru 3 are stored in non-volatile memory and the data terminal will remember them even after a power failure. Press ESC to exit this screen.

- 1) CUSTOMER CODE: XYZ123
- 2) MATERIAL CODE: BR549SO2
- 3) TARGET WEIGHT: 5.000 LB
- 4) G5.012N5.000T0.01210:18:03

### Start New Run

By selecting "START NEW RUN" the operator is starting a procedure to select the customer code and material code from information stored in the StatPak-PC database. The operator can not create new customers or materials, only select these data and begin new production runs based upon these data.

Several screens are displayed, prompting the operator and then displaying the results. Screens are shown in order of appearance.

#### SCREEN 1

##### ENTER CUSTOMER CODE

The operator enters the customer code at this prompt. The entry does not need to be exact, and can consist of only a single character. StatPak-PC will search its database for the closest match and will transmit it to the Field Data Portal for display and approval by the operator. If, after 5 sec, there is no response from StatPak-PC (the host), the Field Data Portal will show a warning message; "NO RESPONSE FROM HOST". It is possible that in some applications there may be too much data traffic from other connected devices, or that the host PC is temporarily occupied with other task. If this is a possibility, the operator should try transmitting the data again. If no response is returned, there may be a problem with communications between the Field Data Portal and the host computer running StatPak-PC.

If there is no customer code to enter, or if the operator chooses no customer code is required for this run, such as a run of material for general stock, the operator can go directly to Screen 3, shown below.

#### SCREEN 2

##### NEW CUSTOMER CODE

Once the operator enters a new customer code, the StatPak-PC database is queried, and the response is transmitted to and displayed on the Field Data Portal. If the information displayed is the desired customer code, press Enter to confirm.

If the displayed customer code is not correct, the operator can hit Esc to return to the previous screen and then reenter the customer code to search, or press N (next) or P(previous). If N (P) is pressed, the host will respond by transmitting the next (previous) customer code in the list. When the end of the available list of customer is reached in the database, the Field Data Portal will display "NO MORE NEXT (PREVIOUS) CUSTOMERS".

#### SCREEN 3

##### ENTER MATERIAL CODE

At this prompt, the operator enters from one to many characters for the desired material code. Press Enter to transmit this query to StatPak-PC. The closest match will then be returned and displayed to the operator.

#### SCREEN 4

##### NEW MATERIAL CODE

The data terminal will display the response to the query made in the previous screen. The material code and the target weight will be displayed. If this is not the correct material code, the operator can press N (next) or P(previous) to retrieve the previous or next material information from the StatPak-PC database. If the end of the list is reached, StatPak-PC will transmit the prompt "NO MORE NEXT (PREVIOUS) MATERIAL" to the Field Data Portal.

### UART Setup

This portion of the program steps the operator through setting up the protocol for the data transmitted from the connected scale device. The UART, which stands for "Universal Asynchronous Receiver/Transmitter" is an integrated circuit chip set mounted to the printed circuit card within the Field Data Portal. It receives data via serial communications, and must be configured to properly recognize the data it receives.

The following screen prompts will guide the user through setup on Baud rate, number of data bits, parity, and the number of stop bits of the data stream coming from the scale device. The UART, interfaced to port 1 (serial output port) must also be set to match the setup in the receiving device, whether it is the host computer running StatPak-PC or intermediate devices, such as one of Telemetry Solutions' Model 7151 Programmable Multiplexers. Once the parameters are set, they remain stored within non-volatile memory in the Field Data Portal. No battery backup is required to maintain these settings.

#### SCREEN 1

- 1) SET PORT 0 (WEIGHTMETER PORT)
- 2) SET PORT 1 (HOST PORT)

Select which port to configure. REMEMBER, you must configure both the input and output ports of the Field Data Portal for data transmission to work properly.

#### SCREEN 2

- 1) SET BAUD RATE
- 2) SET # OF DATA BITS
- 3) SET PARITY
- 4) SET # OF STOP BITS

Select which parameter to set, or press ESC to return to main menu.

**To Set Baud Rate:** Select item #1 from the screen shown at the bottom of page 16. The following screen will be displayed:

```
P#0 RATE IS 1200
1) 300 4)2400 7)19.2
2) 600 5)4800
3)1200 6)9600
```

The first line displayed shows the Port (either 0 or 1) and the current Baud rate. To select a different Baud, press a number from 1 to 7 that corresponds to the preferred Baud rate. Please note that item #7, "19.2", is in kbps. Once a selection has been made, it will be displayed in the first line. Hit Escape to return to the previous menu.

**To Set Data Bits:** Select item #2 from the screen shown at the bottom of page 16, then follow the prompts shown in the screen below:

```
P#0 DATA BITS = 8
1) 7 DATA BITS
2) 8 DATA BITS
```

The first line shows the Port (either 0 or 1) and the current data bits set. To select a different number of data bits, select from the list shown below the current data.

Please note that the type of UARTS used in the Field Data Portal can be set for 7 data bits ONLY if 2 stop bits are sent by the scale device. Once a selection has been made, it will be displayed in the first line. Hit Escape to return to the previous menu.

**To Set Parity:** Although parity for both the input and output ports are fixed at OFF, this setting is shown for future reference. The setting cannot be changed.

**To Set Stop Bits:** Select item #4 from the UART Screen #2, shown at the bottom of page 16, then follow the prompts shown in the screen below:

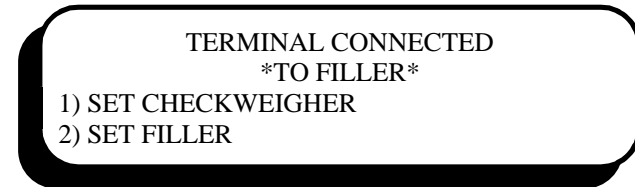
```
P#0 STOP BITS = 1
1) 1 STOP BIT
2) 2 STOP BITS
```

The first line shows the current setting. The choice is 1 or 2 stop bits. Make a selection or press ESC to return with no changes. Once a selection has been made, it will be displayed in the first line. Hit Escape to return to the previous menu.

### Terminal Setup

The Field Data Portal is designed to communicate directly with StatPak-PC to provide weight data to the software, and to retrieve product setup data from the software's database. To retrieve this data properly, StatPak-PC must know if it is connected to a filler system or a checkweigh system. The difference being in several commands transmitted to StatPak-PC for data retrieval.

A screen is shown upon entering this menu selection that asks about the scale device, as depicted below:



Current status is shown directly below the first line (in \*asterisks\*). If the user selects the other type of device, the second line will automatically change to reflect this new choice. Once the proper setting has been made, hit Escape to return to the main menu.

### Down-time Logging

As an option, StatPak-PC offers a down-time logging module that tracks and reports on two (2) types of production line down-time; Assignable and Non-Assignable. If this module is not included in your StatPak-PC license, the Field Data Portal will not communicate this information to the software. Contact Telemetry Solutions Company or your local reseller to get more information on this option.

Assignable down-time is considered as scheduled or predictable down-time, such as shift change, scheduled operator breaks and meal breaks, or scheduled maintenance to the production line.

Non-Assignable down-time is considered everything else, and can include running out of material to package or weigh, line stoppages, machinery breakdowns, etc.

Two settings are displayed on the FDP; "Set Running" and "Set Paused". When StatPak-PC and the Field Data Portal first begin running, the default setting for both is "Running", or that time is tracked against unit weights being received by the software. If for some reason the operator wants to stop production for an ASSIGNABLE reason, they would enter into this menu in the Field Data Portal and select "Set Paused". This would place a notation within the StatPak-PC database file that production was stopped for a valid reason.

If for any reason a production weight is generated by the scale device connected to the Field Data Portal, it WILL be logged, and the line is automatically considered to be back on-line. It is very important to make sure that production has stopped; i.e., the last unit has been discharged from the filler or has crossed the checkweigh scale, before the operator places the line into a Pause condition.

Once that reason (meal break, shift change, etc.) is complete, the operator would then select “Set Running” on the Field Data Portal. From that instant forward, any other line down-time would be considered as non-assignable. When a down-time logging report is generated on this particular production run, all assignable down-time created by the operator will be shown separately on the report.

Future versions of both StatPak-PC and the Field Data Portal will take this concept a step further, and will allow the user to enter up to 256 unique reasons for down-time occurrences in the StatPak-PC database. The line operator will then have the ability to log very specific reasons for both Assignable and Non-Assignable down-time on the production line, with these reasons clearly spelled out on the down-time report generated by StatPak-PC. Please check our web site or your local reseller for updates on this new feature.

### Test Program

The final feature of the Field Data Portal is the Test Program setting, Main Menu item #6. This feature provides a transmission of a simulated weight value within a range of 48.00 to 51.00 in a semi-random pattern. One weight value is transmitted every one (1) second. Protocol on this data string is:

- One Start Bit
- Eight Data Bits
- One Stop Bit
- No Parity

This data string is extremely useful when first connecting or troubleshooting the Field Data Portal and wiring to the Com port on the host PC. You do not need to rely on simulating weight values from the scale device connected to the Field Data Portal, just set the FDP to this test mode.

Once testing is complete, simply hit the Escape key to return to the Main Menu. This will turn the test mode off.

### Using the Field Data Portal without StatPak-PC

Although the Field Data Portal was specifically designed for use with StatPak-PC, it is quite possible to connect this device to other programs or hardware that can take advantage of the functions provided in the FDP. In fact, Telemetry Solutions Company encourages our users to request special programming functions and features to make this device compatible with new or existing applications outside of our data collection software.

The Field Data Portal communicates with StatPak-PC via Telemetry Solutions’ ARCS protocol. This is an open-architecture command set of pre-defined ASCII commands that invoke responses and data display on the FDP’s screen.

The current ARCS command set is shown below, followed by examples of usage. Please check our web site at “www.statpak-pc.com” for more information and updated command sets.

### ARCS Command Set

ARCS Commands from Scale Device StatPak-PC		
Command	Description	Parameter
300	Machine Online/Off-line.	Integer - sent as a 5-character ASCII string
301	Return Full Recipe Information of closest matching Material Code.	String - 20 characters
302	Return Full Recipe Information of NEXT Material Code.	NONE
303	Return Full Recipe Information of PREVIOUS Material Code.	NONE
304	Load current Material Code to RUN.	String - 20 characters
305	Return closest matching Customer Code.	String - 20 characters
306	Return NEXT Customer Code.	NONE
307	Return PREVIOUS Customer Code.	NONE
308	Get current Customer Code.	String - 20 characters. IF no parameter, then Customer = NONE
309	Cancel or EXIT current selection process.	NONE

ARCS Commands from StatPak-PC to Scale Device		
Command	Description	Parameter
001	Load Customer (Customer Code) into Temporary RAM.	String - 20 characters
002	Load Product Description (Material Code) into Temporary RAM.	String - 20 characters
003	Load High Reject into Temporary RAM.	Integer - sent as a 5-character ASCII string
004	Load High Pass into Temporary RAM.	Integer - sent as a 5-character ASCII string
005	Load Target into Temporary RAM.	Integer - sent as a 5-character ASCII string
006	Load Low Pass into Temporary RAM.	Integer - sent as a 5-character ASCII string
007	Load Low Reject into Temp RAM.	Integer - sent as a 5-character ASCII string
008	Load Container Weight (TARE) into Temporary RAM.	Integer - sent as a 5-character ASCII string
009	Load Units into Temporary RAM.	Integer - sent as 1-character ASCII string. 1 = lb, 2 = kg, 4 = oz., 8 = g
010	Load data in Temporary RAM to EEPROM. This command saves all data placed in Temp RAM to Product number 1 (in EEPROM)	Integer - sent as a 5-character ASCII string. <b>ONLY ALLOWABLE VALUE = 00001</b>
012	Load Recipe from EEPROM to Run. This confirms placement of information into EEPROM and must be executed to finish load of data.	Integer - sent as a 5-character ASCII string. <b>ONLY ALLOWABLE VALUE = 00001</b>

### Complementing Response Codes

As a command is transmitted from either the scale device or StatPak-PC, a corresponding error code is transmitted by the receiving device to confirm proper receipt of the command and data set. These error codes **MUST** be sent to the transmitting device whenever a command is received.

- E00 Command Properly Received and Recognized
- E01 Improper Format or Incomplete Message, or cannot process command received.

### Example of ARCS Command Usage

In the following example The Field Data Portal (FDP) is connected to a Generic Checkweigh Device. In this example Materials and Customers are already setup and reside in StatPak-PC's database.

#### DEFINITIONS:

**STX** = Ascii character for Start Text, value = 02 hex  
**ETX** = Ascii character for End Text, value = 03 hex  
**SO** = Ascii character for Shift Out, value = 0E hex  
**CR** = Ascii character for Carriage Return, value = 0D hex  
**LF** = Ascii character for Line Feed, value = 0A hex

\* spaces are shown for clarity only and are not included in transmission

#### FDP asks StatPak-PC for current Customer Code:

STX SO 308 CR LF ETX

#### StatPak-PC responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with current Customer Code:

STX 001 Customer Code1 CR LF ETX

#### FDP responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### FDP asks StatPak-PC for full recipe information of closest matching

##### Material Code (entered by Operator):

STX SO 301 Material Code1 CR LF ETX

#### StatPak-PC responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with closest matching Material Code:

STX 001 Material Code1 CR LF ETX

#### FDP responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with Customer Code:

STX 002 Customer Code1 CR LF ETX

#### FDP responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with High Reject weight setting:

STX 003 05500 CR LF ETX

#### FDP responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with High Pass weight setting:

STX 004 05200 CR LF ETX

#### FDP responds with an acknowledgment of receipt:

STX E00 CR LF ETX

#### StatPak-PC then responds with Target weight setting:

STX 005 05000 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with Low Pass weight setting:**

STX 006 04800 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with Low Reject weight setting:**

STX 007 04500 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with Container weight setting:**

STX 008 00050 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with weight units setting:**

STX 009 00001 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**FDP asks StatPak-PC to Start a new Run with the Material Code previously chosen:**

STX SO 304 CR LF ETX

**StatPak-PC responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with command for FDP to save full recipe:**

STX 010 00001 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

**StatPak-PC then responds with command for FDP to Run recipe:**

STX 012 00001 CR LF ETX

**FDP responds with an acknowledgment of receipt:**

STX E00 CR LF ETX

## Troubleshooting Guide

The Field Data Portal contains a single PC board within the NEMA 4X fiberglass enclosure. Display, serial port connection, and processor are all contained on this board. Component level testing and repair procedures are not provided and not recommended in the field. The board can be returned to Telemetry Solutions Company for testing and repair. Testing is typically 25% of the cost of a new board, and repairs are typically no more than 50% of the cost of a new board.



**WARNING: THIS EQUIPMENT IS TO BE INSTALLED AND SERVICED BY QUALIFIED SERVICE PERSONNEL ONLY.**



**WARNING: Monitoring Status LED's requires source power to be applied to the Field Data Portal while the internal power and serial connections are exposed. Extreme Caution should be used when handling and troubleshooting these exposed components.**

Status LED's on Input and Output serial ports provide visual confirmation on receipt and transmission of data to/from the FPD.

Indicators for each channel include both Transmit and Receive indicators, with each having two (2) status LED's, a RED LED for Busy state, and a GREEN LED for Idle state.

As data is transmitted from the scale device, electrical signals within the data communications cables change in intensity and state. These changes in electrical signals represent 0's and 1's, or digital information. The changes in state of these electrical signals are detected by the Field Data Portal, which in turn changes the state of the status LED's on the board.

The GREEN LED for each channel represents data communications at rest or Idle. This means that no data is being sent or detected. As data begins to flow, the RED LED will light and the GREEN LED will be turned off. Since data flows at a very high rate of speed, the GREEN and RED LED's appear to pulsate back and forth.

Send a test string of data from the scale device. Check with your owner's manual for the scale device for information on how to generate a test string. When the test string is transmitted, the status LED's for the Input port will provide visual confirmation of their receipt. Test the output port by sending a command (get new Customer or Material) from the Field Data Portal as well.

**No Display**

Confirm that power is applied to the Field Data Portal, and that both Primary and Secondary fuses are good.

Adjust back light potentiometer to change intensity of display

Faulty board. Replace or return to factory for repair.

**Dim Display**

Adjust back light potentiometer to change intensity of display.

Back light may be defective. Replace with a new board to correct the problem, return defective unit to factory for repair.

**No Response To Keyboard Input**

There is a status LED on the inside of the Field Data Portal that will come on for one (1) second every time a front panel key is pressed. Use this for visual indication of the source of the problem.

Defective keyboard. Replace with new

Loose connection on keyboard connector. This is found inside the enclosure.

Defective board. Replace and return defective unit for repair.

**Error displayed when sending/receiving information from Host PC**

Every time a command is transmitted from the Field Data Portal to StatPak-PC, a response must be issued by the software back to the Field Data Portal. If this response is not received within a set period of time, an error is displayed on the Field Data Portal's screen.

It is possible for communications between either multiple scale devices or a few high-speed scale devices and StatPak-PC to be delayed in response to queries from the Field Data Portal. Try at least twice to establish communications between the hardware and software. If this does not correct the problem, then a communications breakdown between the two has occurred.

Defective transmitting port on the Field Data Portal. Replace board and return defective unit to factory for repair.