

920i Setpoint Configuration with 882IS/882IS Plus



Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties



NOTE: For additional information about 882IS/882IS Plus and 920i indicators see:

- 183532 882IS and 882IS Plus Intrinsically Safe Indicator/Controller Technical Manual
- 67887 920i Programmable Indicator/Controller Technical Manual



WARNINGS:

Some procedures described in this document require work inside the indicator enclosure. These procedures must be performed by qualified service personnel only.

Do not place fingers into slots or possible pinch points.

When working on components inside the enclosure, ensure the power cord is disconnected from the outlet.



IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside indicator or fiber optic converter enclosures.

1. Overview

The 882IS/882IS Plus indicator is capable of controlling setpoint batching on a remote Rice Lake Weighing Systems 920i weight indicator. This capability enables an industrial batching engine to run in a safe environment controlled by the 882IS/882IS Plus through a fiber optic cable from a hazardous area. With a special iRite program, the 920i is capable of running as a serial scale with batching setpoints controlled by the 882IS/882IS Plus indicator.

The 882IS/882IS Plus communicates through fiber optic cables connected to a fiber optic converter. The data is then converted and transferred via serial cable (RS-232 or RS-422) to the 920i. The 882IS/882IS Plus can configure the value of setpoints 1-10, given the setpoints are enabled on the 920i, for control of both indicator and external equipment functions. The 882IS/882IS Plus can control a batch operation that has been set up on a 920i (located in the safe area) and supports:

- Batch Start
- Batch Stop
- Batch Pause
- Batch Reset

When setting up a 882IS/882IS Plus with 920i batching systems, the following sections must be followed in order:

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Table 1. Setup Order

2. Requirements

2.1 Hardware Requirements

- 920i Digital Weight Indicator, firmware version 4.0 or greater with fiber optic port option
- 882IS/882IS Plus Digital Weight Indicator, firmware version 1.05 or greater
- Two Fiber optic cables
- Serial cable for 920i configuration (optional)
- Fiber optic to serial converter (PN 196769 - RS-232) or (PN 196770 - RS-422)
- Jumper wire for 920i

2.2 Software Requirements

- iRite special program 201804.cod running on the 920i
- iRev file 201804.920 loaded into the 920i, firmware version 4.0 or newer



NOTE: The iRite program must be running on the 920i before remote setpoints are available.

3. Hardware Installation

3.1 920i Jumper Wire Installation



WARNING: The 920i has no on/off switch. Before opening the unit, ensure the power cord is disconnected from the power outlet.



IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside the 920i enclosure.

1. Remove 920i backplate mounting screws.
2. Lift the backplate from the enclosure and set aside.
3. Install jumper wire from J9 pin 2 to J11 pin 3 on CPU board.

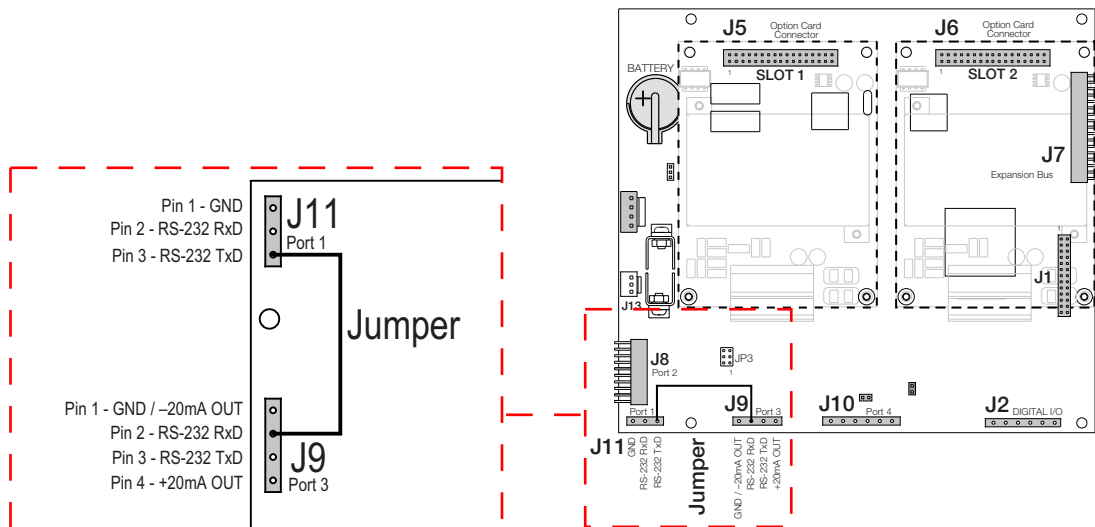


Figure 1. 920i Jumper Wire Configuration

3.2 Wiring Serial Cable from 920i to Fiber Optic Converter

A fiber optic cable is used to communicate between the 882IS/882IS Plus and a 920i fiber optic converter option. Depending on requirements, the converter is one of the following:

- RS-232 fiber to serial converter box (PN 196769)
- RS-422 fiber to serial converter box (PN 196770)



WARNING: The 920i has no on/off switch. Before opening the unit, ensure the power cord is disconnected from the power outlet.



IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside the 920i enclosure.

3.2.1 Wiring Serial RS-232 from 920i to Fiber to Serial Converter

Wire RS-232 serial cable from J10 on 920i CPU board to J3 on RS-232 fiber to serial converter. Ensure the following connections are made:

- 920i CPU Board J10 receive pin connects to transmit pin on Fiber Optic Converter J3
- 920i CPU Board Ensure J10 transmit pin connects to receive pin on Fiber Optic Converter J3



IMPORTANT: Do not connect fiber adapter to port 3 (J9). The adapter must connect to port 4 (J10).

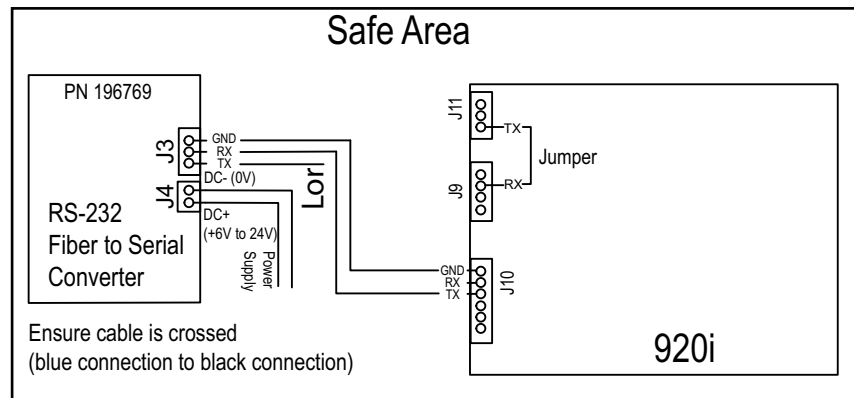


Figure 2. 920i RS-232 Wiring to Fiber to Serial Converter

3.2.2 Wiring Serial RS-422 from 920i to Fiber to Serial Converter

Wire J10 on 920i CPU board to J3 on fiber to serial converter. Ensure the following connections are made:

- 920i CPU Board J10 receive pin connects to -Transmit pin on Fiber Optic Converter J3
- 920i CPU Board J10 transmit pin connects to +Transmit pin on Fiber Optic Converter J3
- 920i CPU Board J10 RS485 A pin connects to +Receive pin on Fiber Optic Converter J3
- 920i CPU Board J10 RS485 B pin connects to -Receive pin on Fiber Optic Converter J3

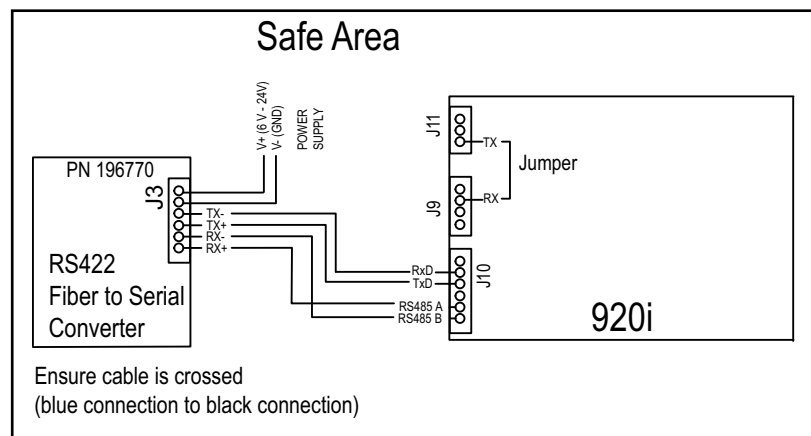


Figure 3. 920i RS-422 Wiring to Fiber to Serial Converter

3.3 Connecting Fiber Optic Cable to 882IS/882IS Plus and Fiber Optic Converter

WARNING: Disconnect indicator and fiber optic to serial converter box from power sources before opening.

IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside the fiber optic converter enclosure.

The fiber optic to serial converter box is equipped with a duplex fiber optic port for communicating with a 920i indicator located in the safe area. It provides electrical isolation and eliminates the use of IO barriers commonly used in intrinsically safe systems.

Figure 4 displays the location of the duplex fiber optic port in the fiber optic to serial box (RS-232 or RS-422).

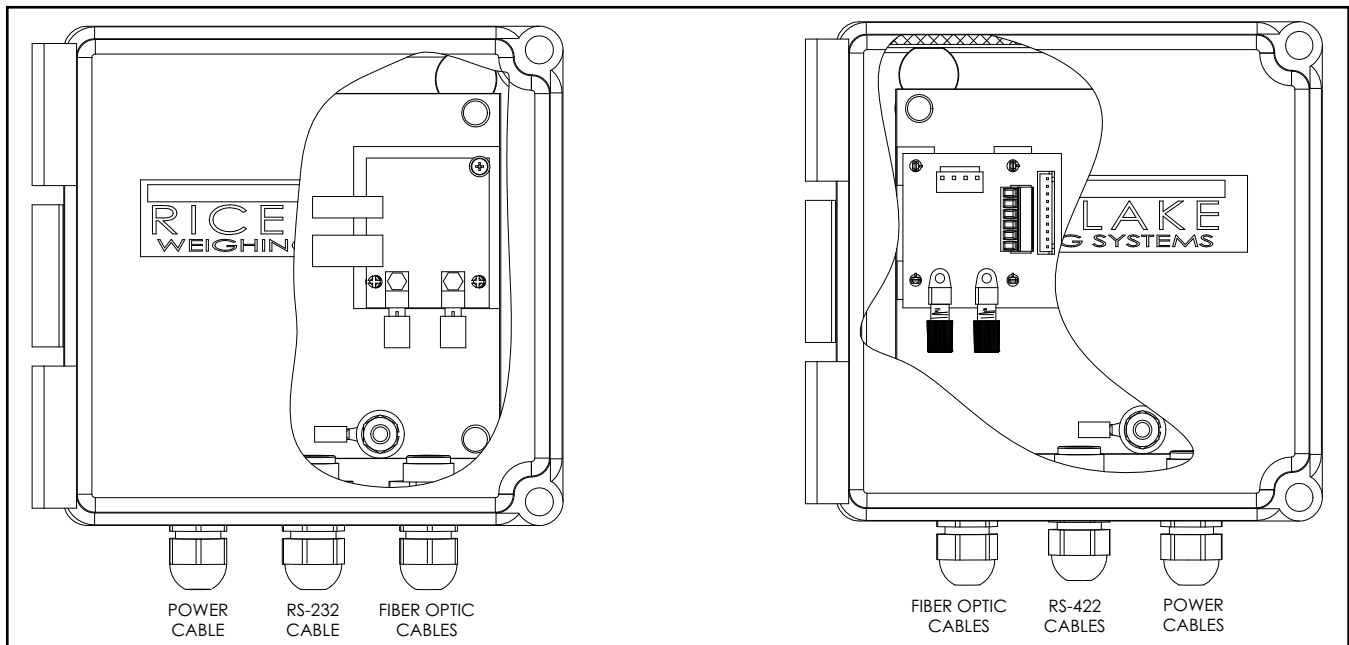


Figure 4. Fiber Optic Board Location in RS-232 Adapter Box (PN 196769) and RS-422 Adapter Box (PN 196770)

Perform the following to connect fiber optic cables to the fiber optic to serial converter box and 882IS indicator:

IMPORTANT: Ensure there are no 90° or greater bends in fiber optic cables.

1. Unplug indicator and fiber optic converter power cords from power outlets.
2. At fiber optic serial converter, insert fiber optic cables through cord grips into the enclosure.
3. Flush cut the ends of the fiber optic cable with a suitable cutting tool, such as a fiber optic cable hot knife (PN 85548).

IMPORTANT: The cut end of the fiber optic cable must be flush so the core and outside insulation are equal. Fiber optic core exposure can lead to failure.

4. Polish the ends of the fiber optic cable, per fiber optic polishing kit (PN 197384).

5. Insert the fiber optic cable through the locking nut and into the connector until the core tip seats against the internal micro-lens; then back it out 1/16 in (1 mm).
6. Turn the locking nut until snug.

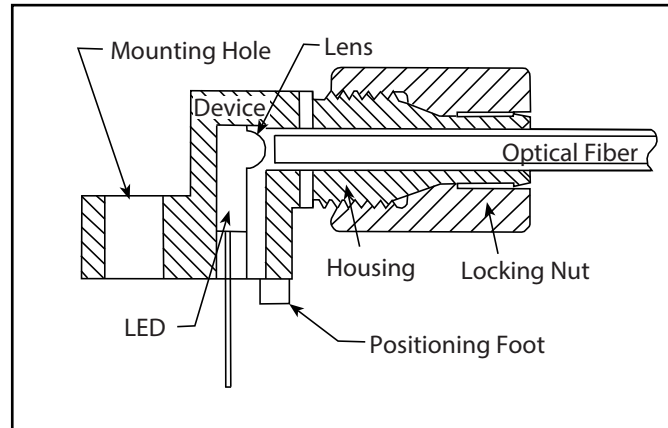


Figure 5. Fiber Optics Connector

7. Route fiber optic cabling from indicator to fiber optic to serial converter.
8. At indicator, insert fiber optic cables through cord grips into the enclosure.



IMPORTANT: Cross-link fiber optic cables. The fiber optic connections between the 882IS/882IS Plus and the serial converter needs to be cross-linked (blue connection to black connection). The optical output of the indicator should be attached to the input of the serial converter, and the indicator input to the serial converter module output.

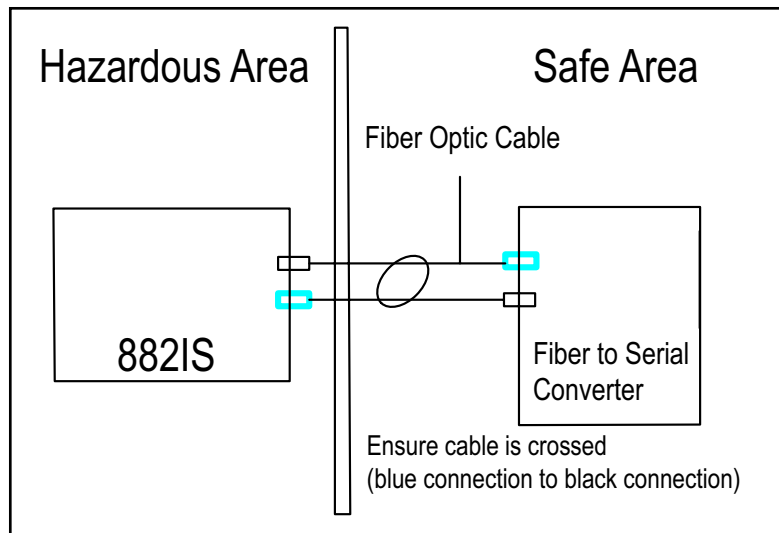


Figure 6. 882IS/882IS Fiber Optic Wiring Example

9. Repeat [Step 3](#) through [Step 6](#) to connect fiber optic cables to 882IS/882IS Plus.
10. Reconnect the power source for the fiber optic to serial converter box and indicator.

4. Software Configuration

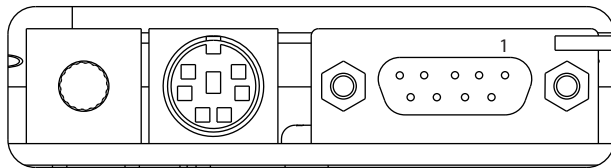
4.1 920i iRite Software Configuration

1. Download "920i iRite with 882IS/882IS Plus Setpoints Application" from <https://www.ricelake.com/firmware/>.
2. Unzip the downloaded file. The contents include:
 - 201804_V1_01.920
 - 201804_V1_01.COD
3. Either connect a USB cable to a PC and 920i indicator, or connect a serial cable to a PC and 920i indicator DB-9 connector (J8).



NOTE: If needed, download 920i USB driver from <https://www.ricelake.com/resources/software/>, unzip file, launch executable, and then follow on-screen instructions to install driver.

Default baud rate for J8 is 115200.



DB-9 Connector for Port 2 / J8

DB-9 Pin	Signal
2	TxD
3	RxD
5	GND
7	CTS
8	RTS

DB-9 Connector Pin Assignments

Figure 7. DB-9 Pin Assignment

4. To enable 920i indicator **Configuration** mode, remove the setup screw, insert a non-conductive tool into the access hole and then press the setup switch.

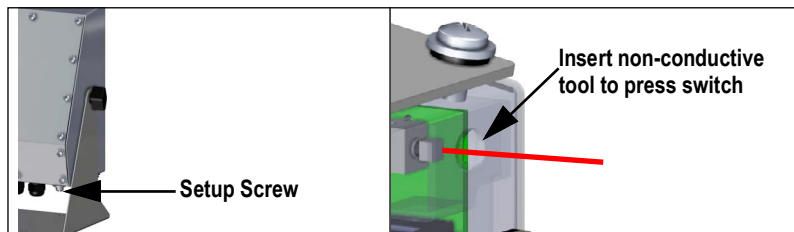


Figure 8. 920i Configuration Mode Switch

5. On the PC, launch iRev for the 920i, V4.0 or newer.
6. Press the **Connect** button in iRev to connect to the 920i.
7. Using iRev, download the configuration files (201804.920 and 201804.cod) to the 920i indicator.
8. The system configures scales, serial ports, the display and default setpoints.
9. Press **Save and Exit** on the 920i indicator to enable the serial scale and batching setpoints.

4.2 920i Setpoint Configuration



NOTE: To edit a setpoint value, the following conditions must be met:

- A setpoint must be already configured as active on the 920i
- The 920i batching process must be in a reset state or not started
- A maximum of seven digits can be configured for each of the 10 setpoint values
- Setpoint values on the 882IS/882IS Plus are inactive on the 920i indicator until the value is successfully entered on the 882IS/882IS Plus

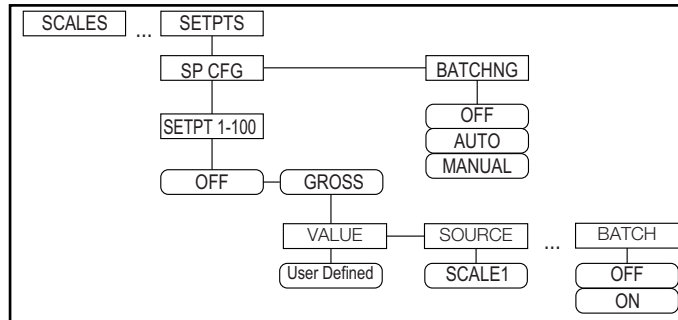


Figure 9. 920i Setpoint Configuration Flowchart



NOTE: Configure the Setpoint as GROSS, with desired value, SOURCE as SCALE1, and BATCHING On.

For example:

Setpoint #1: GROSS, Value 1234.5, Source Scale 1, Batching ON

Setpoint #2: GROSS, Value 2345.6, Source Scale 1, Batching ON

Setpoint #3: GROSS, Value 3456.7, Source Scale 1, Batching ON

Setpoint #4: GROSS, Value 4567.8, Source Scale 1, Batching ON

Setpoint #5: GROSS, Value 5678.9, Source Scale 1, Batching ON

1. To enable 920i indicator **Configuration** mode, remove the setup screw, insert a non-conductive tool into the access hole and then press the setup switch.

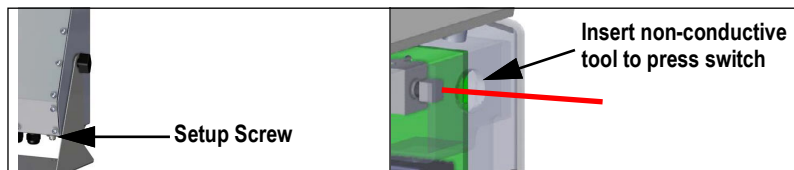













Figure 10. 920i Configuration Mode Switch

2. Navigate to **SCALES ► ... ► SETPTS ▼ SP CFG ► BATCHNG**.
3. Press . The current BATCHNG parameter configuration displays.
4. Press or repeatedly until MANUAL displays.
5. Press . SP CFG displays.
6. Press . A list of setpoints display.
7. Press or repeatedly until the desired setpoint displays.
8. Press . The current setpoint kind displays.
9. Press or repeatedly until GROSS displays.
10. Press . The VALUE parameter displays.
11. Press . The current Value displays.

12. Use number pad to enter the desired value (for example, 1234.5).
13. Press . The SOURCE parameter displays.
14. Press . The current scale source displays.
15. Press  or  repeatedly until SCALE1 displays.
16. Press . The TRIP parameter displays.
17. Press  or  repeatedly until BATCH displays.
18. Press . The current BATCH parameter displays.
19. Press  or  repeatedly until ON displays.
20. Press .
21. Repeat procedure for additional setpoints.
22. Press **Save and Exit** on the 920i indicator to enable the serial scale and batching setpoints.

4.3 882IS/882IS Plus Fiber Optic Port Configuration

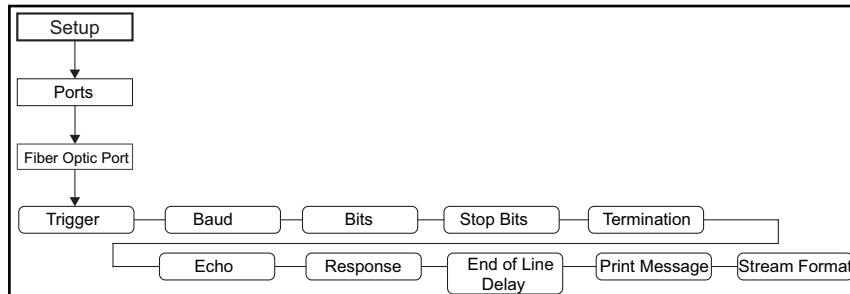



Figure 11. 882IS/882IS Plus Fiber Optic Port Flow Chart

1. Enable 882IS/882IS Plus indicator **Configuration** mode by performing one of the following:
 - a. Pressing  (if audit trail is enabled).
 - b. Removing the setup screw, inserting a non-conductive tool into the access hole and then pressing the setup switch.

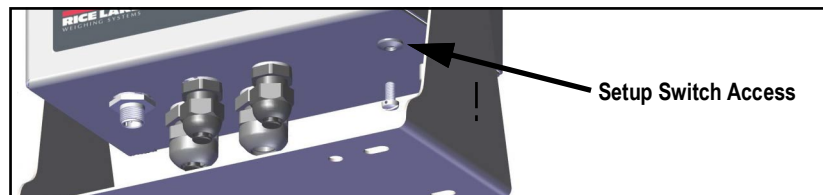





Figure 12. 882IS/882IS Plus Configuration Mode Switch

2. Navigate to **Setup** ▼ **Scale** ► ... ► **Ports** ▼ **Serial Port** ► **Fiber Optic Port** ▼ **Trigger**
3. Press . The current Trigger configuration displays.
4. Press  repeatedly until **Setpoint** displays.
5. Press . Baud displays.

6. Press . The current Baud configuration displays.
7. Press or repeatedly until **9600** displays.
8. Press . Bits displays.
9. Press or repeatedly until **Echo** displays.
10. Press . The current Echo configuration displays.
11. Press or repeatedly until **Off** displays.
12. Press . Response displays.
13. Press . Response configuration displays.
14. Press or repeatedly until **Off** displays.
15. Press then to save and exit.
16. 882IS/882IS Plus displayed on the 920i verifies the 882IS/882IS Plus is configured correctly.

5. 882IS/882IS Plus Setpoint Configuration



NOTE: To configure batching setpoints, a batch must not be started.

1. If needed, press to reset the batch.
2. Press then repeatedly until **Setpoints** displays.
3. Press . Setpoint #1 displays.
4. Use and to select the desired Setpoint (1-10).
5. Press .
6. One of the following occurs:
 - If the setpoint is configured as Off, the screen displays SP#n=OFF. This setpoint cannot be changed, it must be enabled (see [Section 4.2 on page 7](#)), and then this procedure must be repeated.
 - If the setpoint is configured as a value other than Off, a setpoint value edit screen displays: SP#n Value =
 - The value appears with the left digit blinking (indicating the value is editable): SP#n Value = 1234.500
7. Press and to move the edit cursor; press or to increase or decrease the values.



NOTE: If using a unit with a numeric keypad, the value can be directly keyed in.

8. Press . The setpoint value is sent to the 920i indicator. The 882IS/882IS Plus screen automatically advances to the next setpoint value #.
9. Repeat configuration for remaining setpoints, if needed.
10. Press then to exit setup and return to **Weigh** mode.

6. Batching Operation

6.1 882IS/882IS Plus Setpoint Batching

Use the 882IS/882IS Plus F-keys to control the 920i's batching operation. F-keys descriptions follow:





882IS/882IS Plus F-keys	882IS Function Description	Text 920i Displays on Press
	Starts batch process	F1 - Batch Started
	Stops an active batch and turns off all associated digital outputs.	F2 - Batch Stopped
	Pauses an active batch and turns off all digital outputs except those associated with concurrent and timer setpoints. Processing is suspended until Batch Start is pressed again. Pressing Batch Start resumes the batch and re-energizes all digital outputs turned off by the Batch Pause .	F3 - Batch Paused
	Stops and resets an active batch to the beginning of the process.	F4 - Batch Reset

Table 2. 882IS/882IS Plus F-Key Descriptions



NOTE: The 920i displays **Error Stopping Batch** if the 882IS/882IS Plus F2 (stop) button is pushed with no batch currently running.

The 882IS/882IS Plus also displays the batch status: **Batch Running**, **Batch Stopped**, **Batch Paused** or **Batch Complete**.

6.2 920i Batch Operations

Once 201804.cod and 201804.920 files are downloaded to the 920i with iRev, softkeys appear (Figure 13). Softkeys provide the operator control of batch operations from the 920i front panel.

Softkeys can be configured using iRev 4, serial commands or the FEATURE menu. Softkeys operate the same as the F-keys from the 882IS/882IS Plus front panel (Table 2 on page 10), excluding the Setpoint softkey. Setpoint displays or changes assigned setpoints.

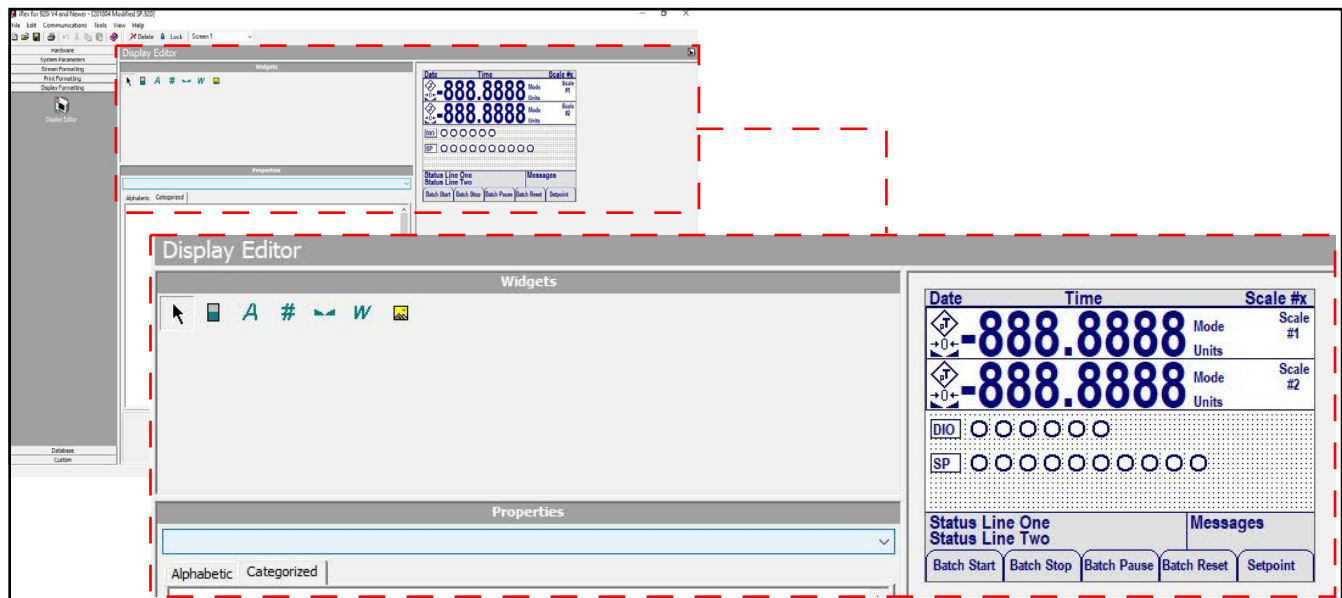


Figure 13. 920i Batching Softkeys



WARNING: To prevent personal injury and equipment damage, software-based interrupts must always be supplemented by emergency stop switches and other safety devices necessary for the application.



NOTE: When a batch is running and an over-range condition occurs on the 882IS/882IS Plus, the 920i pauses the batch and displays "Paused - 882IS/882IS Plus Scale" while scales 1 and 2 illustrate as dashes. When a batch is running and communication is lost between the 882IS/882IS Plus and the 920i, the 920i pauses the batch and shows "No Comm with 882IS/882IS Plus" while scales 1 and 2 illustrate as dashes

Pausing a batch deactivates all digital outputs with the exception of those tied to Concur and/or Timer setpoints.

7. Reinstall Indicator Covers

Once installation and configuration is complete, indicator covers must be reinstalled.

7.1 Reinstall 920i Cover

1. Position the backplate over the enclosure.
2. Secure with the backplate screws.
3. Torque screws to 15 in-lb (1.7 N-m), using pattern shown in [Figure 14](#), to prevent distorting the backplate gasket.



NOTE: Torqued screws may become less tight as the gasket is compressed during torque pattern, a second torque is required using the same pattern and torque value.

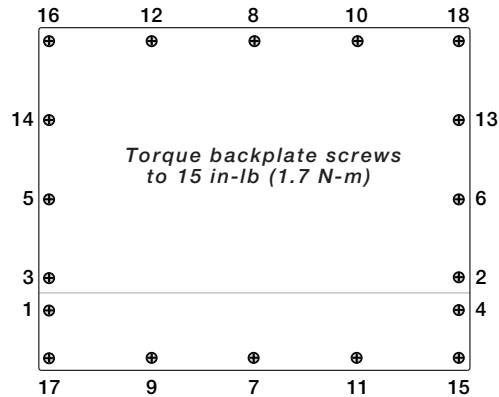


Figure 14. 920i Back Cover Installation

7.2 Install 882IS/882IS Plus Cover

1. Place backplate over exposed threads on enclosure rear.
2. Finger tighten nuts on exposed threads.
3. Secure nuts in a star pattern.

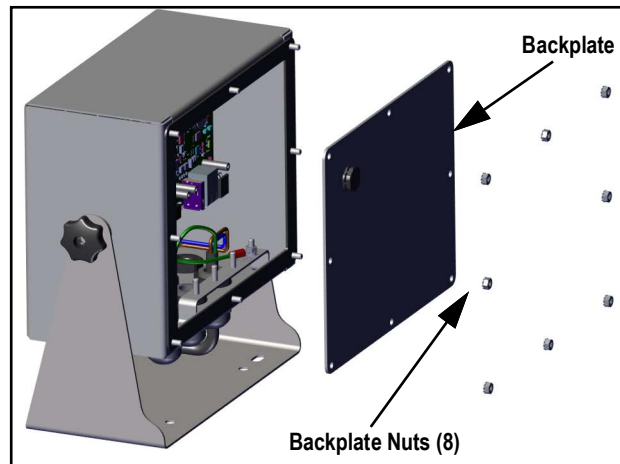


Figure 15. 882IS/882IS Plus Back Cover Installation



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