882IS I/O Module

For Intrinsically Safe Systems

Installation Manual

RICE LAKE
WEIGHING SYSTEMS

Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
B	August 15, 2025	Established revision history; Added configurable baud setting details; Updated communications wiring
C	November 4, 2025	Updated for Rev G CPU board: • Illustrations • Firmware update procedure • Replacement parts

Table i. Revision Letter History

Contents

*Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit **www.ricelake.com/webinars***

1.0   Introduction

This manual is intended for use by service technicians responsible for installing and servicing the 882IS I/O Module.

⚠️ *WARNING: Some procedures described in this manual require work inside the I/O Module enclosure. These procedures are to be performed by qualified service personnel only.*

Improper specification, installation, or service of this equipment could result in personal injury or property damage.

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

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

1.1   Overview

The 882IS I/O Module is an external device designed for use with the 882IS and 882IS Plus digital weight indicators. When placed in the safe area, its fiber optic interface allows it to provide remote functions for an indicator in a hazardous environment. The 882IS I/O Module provides access to the indicator through the following:

- USB device connection
- Ethernet
- One comm port (RS-232 or RS-422)
- One option card slot

The 882IS I/O Module operating parameters are stored in the attached 882IS indicator. After both the indicator and I/O Module are connected and powered up, the indicator attempts to communicate with the I/O module and download configuration parameters. The peripherals are operated by the indicator, which acts as the master device in the system.

Safety Definitions:

⚠️ *DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.*

⚠️ *WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.*

⚠️ *CAUTION: Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.*

🛈 *IMPORTANT: Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.*

General Safety

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

⚠️ **WARNING**

Failure to heed could result in serious injury or death.

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

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

2.0   Installation

This section describes procedures for connecting digital I/Os, fiber optic and serial communication cables from the 882IS I/O Module.

ⓘ   **IMPORTANT: Use a wrist strap to ground yourself and protect components from electrostatic discharge (ESD) when working inside the indicator enclosure.**

It is mandatory to return the 882IS I/O Module to Rice Lake Weighing Systems for circuit board level service. Component level repair is not permitted on UL-approved equipment by anyone other than the manufacturer.

2.1   Unpacking

Immediately after unpacking, visually inspect the 882IS I/O Module to ensure all components are included and undamaged. The shipping carton should contain the 882IS I/O Module, parts kit and this manual. If any parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

2.2   Open the I/O Module

The 882IS I/O module enclosure must be opened to connect cables for communications. Use a flat head screwdriver to open the two screws on the top of the enclosure.

⚠️   **WARNING: The I/O module does not have an On/Off switch. Before opening the unit, ensure power to the unit is disconnected.**

2.3   AC Wiring

The I/O Module is to be permanently mounted in a safe area with a readily accessible disconnect device incorporated in the building installation wiring. All wiring is to be done in accordance with the National Electric Code (NEC).

2.4   RS-232/RS-422 Communications (Port 1)

Connector J2 provides connections for the RS-232 or the two-wire RS-422 serial communications.

Pin	RS-232	RS-422
1	GND	GND
2	RX	B (-)
3	TX	A (+)

Table 2-1. J2 Pin Assignments (Port 1 Serial Communications)

2.5   USB Device Communications – (Port 2)

📝 *NOTE: If using Windows 7 or later, and the PC is connected to the Internet, the operating system may be able to install the drivers without operator interaction.*

Before the USB Device Port can be used, drivers must be installed on the PC.

1. Have power applied to the PC, the indicator and the I/O module.

2. Connect a USB cable from the PC to the micro USB connector (J3) on the 882IS I/O Module. The PC recognizes a device has been connected and will attempt to install the drivers needed to make it work. Those drivers can be downloaded from the Rice Lake Weighing Systems' website at **www.RiceLake.com** under downloads.

3. When the individual drivers are installed, a new COM Port designation is assigned for the USB port the 882IS is connected to on the PC.

For example, if the PC already has two physical RS-232 COM Ports, they most likely are designated COM1 and COM2. When connecting the indicator to a USB port on the PC, it will be assigned the next available port designation, or in this case, COM3. When plugging into the same physical USB port on the PC, the port designation will again be COM3. If plugging into another physical USB port on the PC, it will be assigned the next available designation, in this case COM4.

After the drivers are installed, use Windows Device Manager to determine the COM Port designation which was assigned to the USB port, or open the application which is used with the 882IS, such as Revolution®, and see which ports are available.

Configuration of the USB Device Port is done in the USB Communications sub-menu under *I/O MODULE PORTS* in configuration mode.

The port can be configured as either a demand port for EDP commands and printing, or a data streaming port. Other settings include the termination character(s); enabling echoes and responses; adjust the end-of-line delay; and whether or not the indicator displays a 'print' message when a print format sends data out the port.

📝 *NOTE: If a computer application has an open communications connection through the USB Device Port, and the physical cable connection is interrupted, a soft reset is performed on the indicator or power is cycled to the indicator; the connection in the computer application must be disconnected and reconnected again before it will continue to communicate with the indicator.*

For the USB Device Port, it does not matter what the settings are for Baud, Data Bits, Parity and Stop Bits in the computer software. The port will communicate in the same way regardless of these settings.

This port is not a host port and is not intended to be connected to other devices such as keyboards, memory sticks or printers.

2.6   Ethernet Communications

The 882IS I/O Module features Ethernet TCP/IP 10Base-T/100Base-TX communication using a standard RJ45 connector (J5 – see Figure 2-1 on page 8). It can support two simultaneous connections, one as a server, the other as a client.

Through an Ethernet network, software applications are able to communicate with the 882IS using the EDP command set (see the 882IS manual), or data can be streamed continuously from the indicator, or printed on demand.

The Ethernet port supports both DHCP and manual configuration of settings such as the IP and subnet. In addition, the TCP Port number, Primary and Secondary DNS, and the Default Gateway can be configured using the Ethernet sub-menu of the Ports setup menu. For more information on configuring the Ethernet port see the 882IS technical manual (PN 183532).

Physical connection to the 882IS I/O Module Ethernet port can be made directly from a PC to the 882IS (AdHoc Network), or through a network router or switch. The port supports auto-sensing MDI/MDIX cable configuration (straight-through or crossover cables can be used).

The RJ45 Ethernet jack on the 882IS I/O Module houses two LEDs to indicate the status and speed of the connection.

Yellow LED (left) indicates the status of the connection:

- Off for no link
- On for a link
- Blinking if there is activity

Green LED (right) is:

- Off for a 10Base-T connection
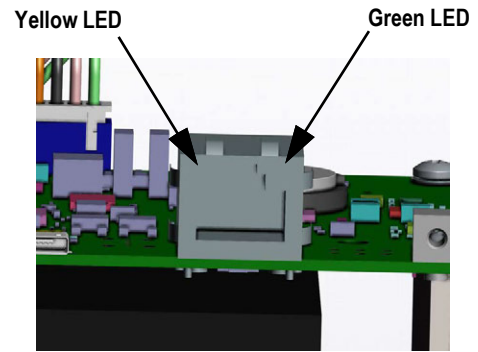- On for a 100Base-TX connection

Figure 2-1. RJ45 Ethernet Jack
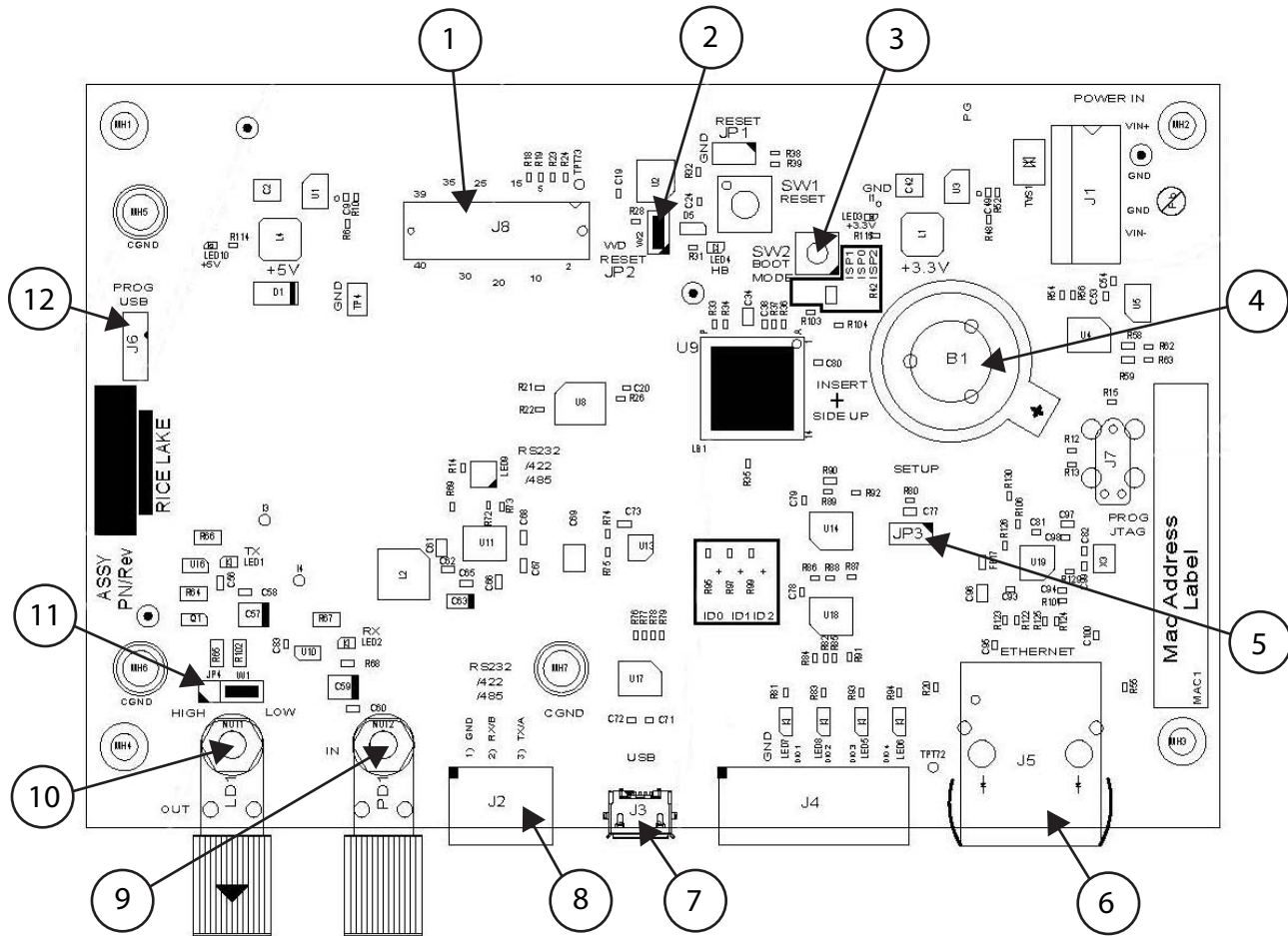
2.7   I/O Module CPU Board

Figure 2-3. Rev G+ I/O Module CPU Board (PN 176922)

Item No.	Description
1	Option Card Connector
2	JP2 WD RESET Jumper
3	SW2 Firmware Update Boot Switch
4	Lithium Battery
5	JP3 Setup Jumper
6	Ethernet Jack
7	J3 USB Device Connector
8	Serial Communications
9	PD1 Fiber Optic Receiver (Input)
10	LD1 Fiber Optic Transmitter (Output)
11	JP4 Fiber Optic High/Low Intensity Jumper
12	J6 Firmware Update USB Connection

Table 2-2. I/O Module CPU Board

The 882IS I/O Module must be installed in a safe area. The internal power supply unit provides DC voltage for the 882IS I/O Module CPU board. The DC power requirements of the I/O module are as follows:
- Nominal input voltage: 7.5V
- Peak current consumption: 930mA
- Average input current: 630mA

2.8   Fiber Optics Assembly

The 882IS I/O Module is equipped with a duplex fiber optic port for communicating with an 882IS or 882IS Plus located in the safe or hazardous area. It provides electrical isolation and eliminates the use of I/O barriers commonly used in intrinsically safe systems. The optical fibers are plastic and the terminate ends must be properly polished prior to installation. Refer to POF Polishing kit (PN 197384) for complete instructions on polishing the fiber-optic ends. See Figure 2-3 on page 8 for the location of the fiber optic connectors in the 882IS I/O Module.

NOTE: The fiber optic connections between the 882IS and 882IS Plus indicator and the 882IS I/O Module needs to be cross-linked. The optical output of the indicator should be attached to the input of the 882IS I/O Module, and the indicator's input to the module's output.
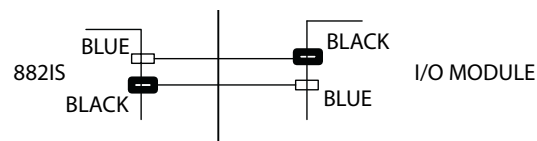

Figure 2-4. Fiber-Optic Cross Connection

Use the following steps for assembling the fiber-optic connectors of the 882IS I/O Module:

1. Cut off the ends of the fiber-optic cable (500 ft length maximum), with a proper cutting tool such as a fiber-optic hot knife (PN 85548), ensuring no bends 90° or greater are in the cable.

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

2. Polish the fiber ends per the fiber polishing kit.

3. 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).

4.   Screw the connector locking nut down to a snug fit, locking the fiber cable in place.
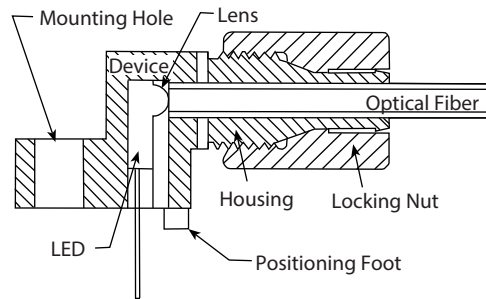

Figure 2-5. Fiber Optic Connector

2.9   Board Replacement

Use the following procedure to replace the main board of the 882IS I/O Module:

1.   Disconnect power to the board.
2.   Unplug all connectors.
3.   Remove the four screws holding the main board then lift the board out of the enclosure.

To replace the board, reverse the above procedure. Be sure to reinstall cable ties to secure all cables inside the enclosure.

2.10   I/O Module Mounting

The 882IS I/O Module is capable of being mounted to a surface in the safe area using the mounting holes of the enclosure. Use 1/2 in or larger mounting hardware.
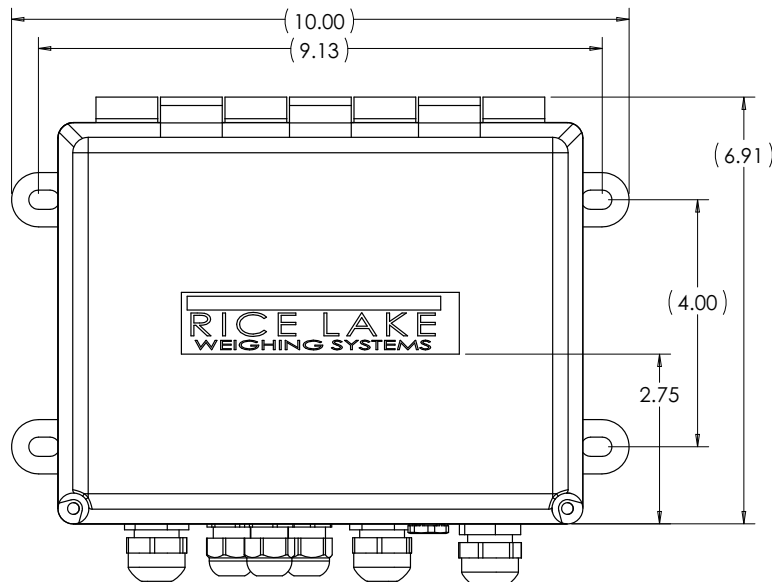

Figure 2-6. 882IS I/O Module Enclosure Dimensions (noted in inches)

📝   *NOTE: Mounting surface must be capable of holding four times the weight of the 882IS I/O Module and wiring.*

2.11   Battery Replacement

The lithium battery on the 882IS I/O Module board maintains the real–time clock when it is not connected to AC power. See Figure 2-3 on page 8 for battery location and orientation (positive side up).

⚠️   *WARNING: Risk of explosion if battery is replaced with incorrect type. Dispose of batteries per manufacturer instructions.*
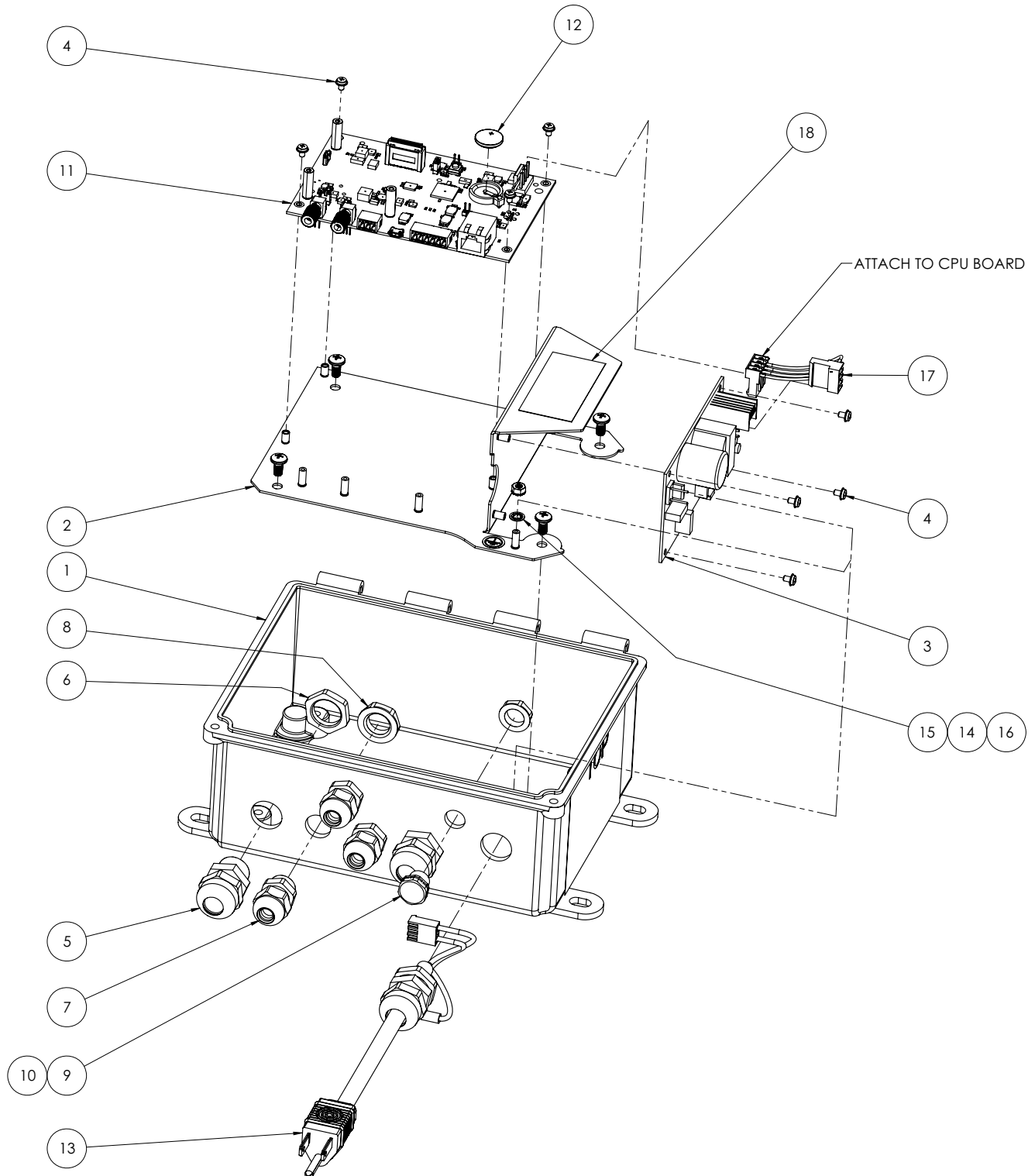
2.12   Replacement Parts

Figure 2-7. 882IS I/O Module Assembly

ATTACH TO CPU BOARD

Item No.	Part No.	Description	Quantity
1	177750	Enclosure, FRP Milled 882IS I/O Module	1
2	177549	Mounting Plate, CPU 882 I/O Module using FRP Enclosure	1
3	67613	Power Supply Board, 6V 25W	1
4	199474	Screw, Mach M3-0.5X5 Phillips Pan Head Zinc Finish	8
5	68600	Cord Grip, PG11	2
6	86801	Nut, PG11 Black Nylon	2
7	15626	Cord Grip PG9 Plastic	3
8	15627	Lock Nut, PG9 Plastic	3
9	88733	Vent, Breather Sealed Gortex Membrane Black Plastic	1
10	88734	Nut, Breather Vent M12X1 Thread	1
11	176922	Board Assy, 882 IO Module CPU Board	1
12	69291	Battery, 3V Coin Lithium, 16 mm diameter	1
13	85202	Power Cord Assy, 120 VAC w/ PG11 Cord Grip and SL-156 Connector	1
14	180826	Nut, Kep M 4.0 x 0.7 External Tooth Lock Washer 18-8 SST	1
15	15134	Washer, Lock No 8 Type A Internal Tooth Steel Zinc Plated	1
16	16892	Label, Ground Protective Earth Adhesive IEC	1
17	180855	Cable Assy, Power Supply 882IS I/O Module	1
18	16861	Warning Label, High Voltage, Adhesive	1

Table 2-3. 882IS I/O Module Replacement Parts

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3.0   Configuration

Configuration of the external 882IS I/O Module is done through the SETUP menu of the attached 882IS indicator acting as the primary device.

All operating parameters are stored in the host indicator's EEPROM memory, and can be edited after placing the indicator in SETUP mode. See the indicator installation or operation manual for instructions on editing configuration parameters.

The 882IS I/O Module works as the secondary device of the indicator and will not work as a stand-alone unit. After both the 882IS indicator and 882IS I/O Module are powered up, the 882IS attempts to communicate with the I/O Module through the fiber optic port and all necessary working parameters are sent to the 882IS I/O Module. All inputs and outputs function as peripherals of the indicator. Communication must remain constant between the two devices for data to be transferred through the various ports.

> *NOTE: Baud rate is configured based on I/O Module firmware:*
> * *Firmware 2.x = 57600 baud*
> * *Firmware 1.x = 115200 baud*

3.1   Updating the I/O Module Firmware

The firmware for the 882IS I/O Module can be updated using a PC with a micro USB cable and the Revolution® Indicator configuration software package.

> *NOTE: Firmware updates for the I/O Module CPU board Rev G and newer can only be done through the J6 PROG USB micro port. Updates through the RS-232 USB device and Ethernet ports are not supported.*

1. Download the new I/O Module firmware from **www.ricelake.com**.
   * IO Module firmware file – **882IS_IO_MODULE_PN220025_Vx_xx_xx.bin**
2. Disconnect power from the I/O Module.
3. Open the enclosure to access the CPU board.
4. Remove the JP2 WD Reset jumper and set aside (see Figure 2-3 on page 8).
5. Press and hold the SW2 boot mode switch (see Figure 2-3 on page 8).
6. Connect a micro USB cable from the PC to the J6 PROG USB connector on the CPU board. The USB connection powers the CPU board and LED 3 and 10 will light.
7. Release the SW2 boot mode switch.
8. Start the Revolution software on the PC.
9. Under file, select **NEW**.
10. Select the **882IS 1.x** or **882IS 2.x** module.

11. On the Indicator Information page, select **Update I/O Module Firmware Rev G and Newer** (see Figure 3-1).
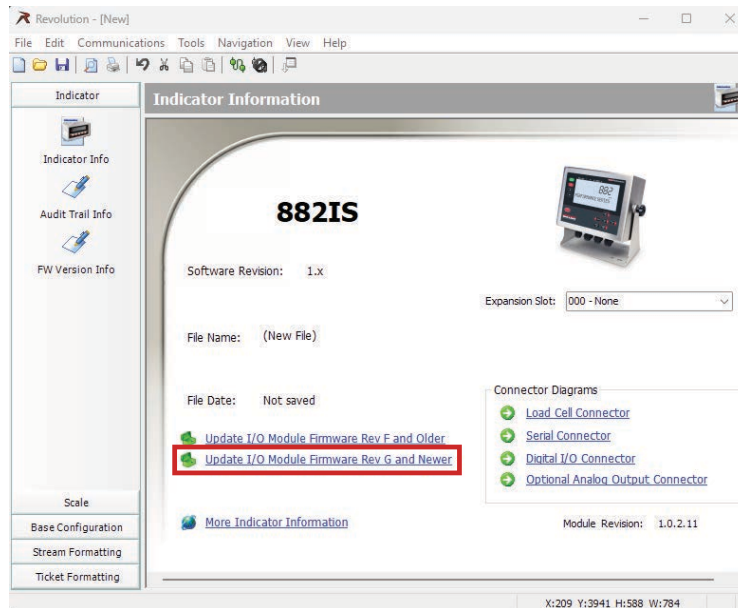

Figure 3-1. Indicator Information Page

12. In the Rice Lake 882IO Module Firmware window, either:
     - Enter the full path for the firmware file downloaded from the Rice Lake web site in Step 1.
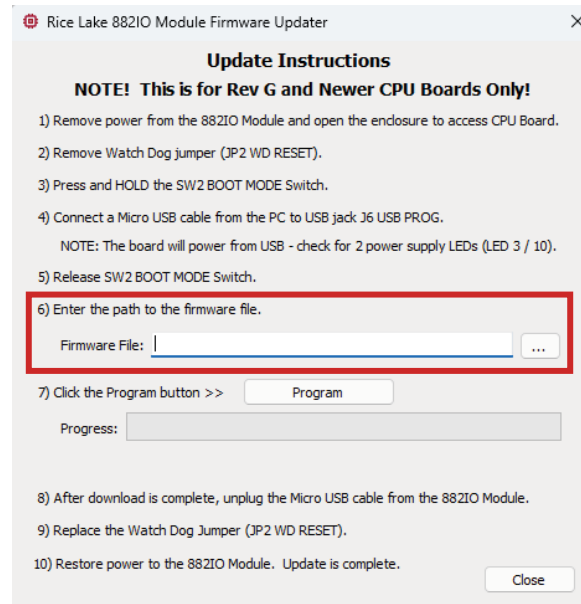   - Select the "..." button. Browse and select the firmware file (see Figure 3-2).

Figure 3-2. Rice Lake 882IO Module Firmware Window

13. Select **Program**. Revolution initiates download.

14. When download is complete, a success or failure message appears. If download is unsuccessful, disconnect the micro USB cable and repeat Step 5 through Step 13.

15. Disconnect the micro USB cable from the 882 I/O Module.

16. Replace the JP2 WD Reset jumper.

17. Firmware update is complete.

4.0　Specifications

Power

Line Voltages	110 or 240 VAC
Power Frequency	50/60 Hz
Consumption	100-175 mA (.25 Watts)

Optical Port

Physical Medium	2.2 mm plastic fiber @ 640 nm
Maximum Transmission Length	500 ft. (152.4 m)
Transmission Type	Full duplex

EDP Ports

Supported Standards	RS-232/RS-422 (half duplex)
	USB Device
	Ethernet

Environmental

Operating Temperature	–10 to +40°C (Legal-for-Trade applications); (14°F to 104°F)
	–10 to +50°C (industrial applications); (14°F to 122°F)
Storage Temperature	–25 to +70°C (13°F to 158°F)
Humidity	0–95% relative humidity

FRP Enclosure

Enclosure Dimensions	10.00 in x 6.91 in x 4.41 in
(W x H x D)	254.0 mm x 175.5 mm x 112.0 mm

Battery Replacement

Panasonic (PN 69291)	CR1632, 16 mm
	3V, Lithium Coin, 125mAH

Certifications and Approvals

Measurement Canada Approved　AM-6124C

NTEP　CoC Number 19-015

c UL us LISTED　File number: E151461-A23-UL