CARDINAL

2XX-RS232
Serial Port Option
Installation Manual

For 200 Series Indicators

STATIC ELECTRICITY PRECAUTION

CAUTION! This device contains static sensitive circuit cards and components. Improper handling of these devices or printed circuit cards can result in damage to or destruction of the component or card. Such actual and/or consequential damage IS NOT covered under warranty and is the responsibility of the device owner. Electronic components must be handled only by qualified electronic technicians who follow the guidelines listed below:

ATTENTION! ALWAYS use a properly grounded wrist strap when handling, removing or installing electronic circuit cards or components. Make certain that the wrist strap ground lead is securely attached to an adequate ground. If you are uncertain of the quality of the ground, you should consult a licensed electrician.

ALWAYS handle printed circuit card assemblies by the outermost edges. NEVER touch the components, component leads or connectors.

ALWAYS observe warning labels on static protective bags and packaging and NEVER remove the card or component from the packaging until ready for use.

ALWAYS store and transport electronic printed circuit cards and components in anti-static protective bags or packaging.

FCC COMPLIANCE STATEMENT

This equipment generates, uses and can radiate radio frequency and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user will be responsible to take whatever measures necessary to correct the interference.

You may find the booklet "How to Identify and Resolve Radio TV Interference Problems" prepared by the Federal Communications Commission helpful. It is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 001-000-00315-4.

While every precaution has been taken in the preparation of this manual, the Seller assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from use of the information contained herein. All instructions and diagrams have been checked for accuracy and ease of application; however, success and safety in working with tools depend to a great extent upon the individual accuracy, skill and caution. For this reason the Seller is not able to guarantee the result of any procedure contained herein. Nor can they assume responsibility for any damage to property or injury to persons occasioned from the procedures. Persons engaging the procedures do so entirely at their own risk.
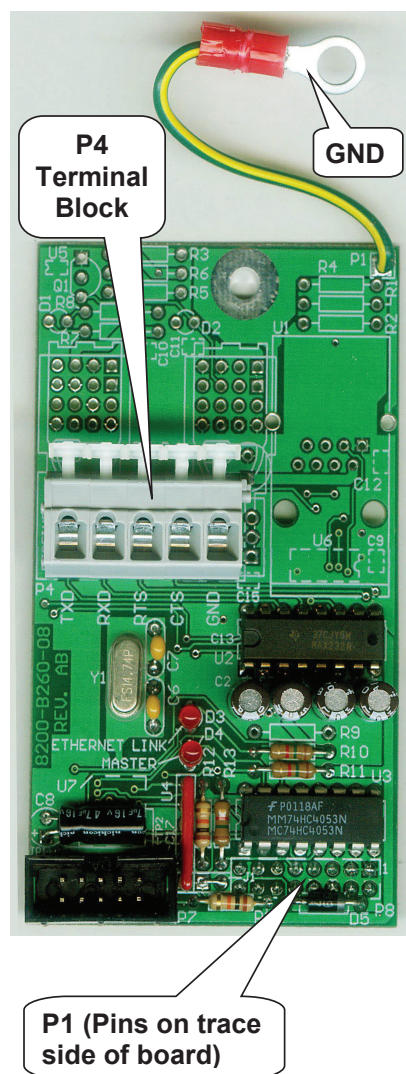
INSTALLATION

Mounting the 2XX-RS232 Board (Models 205/210 & 220)

NOTE! Should your indicator come with the 2XX-RS232 board already installed, the following information describing the mounting of the board does not apply. Proceed to the Serial Cable Installation section.

**ATTENTION!** OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

1. Make sure the power to the indicator is OFF. Unplug the AC power cord and/or remove the battery.

2. Remove the acorn nuts securing the back panel to the main housing.

3. Lift the back panel from the main housing, taking care not to stretch the cable and wires between the panel and main housing. Lay the back panel on the workbench next to the indicator.

4. On the 205/210, locate the threaded mounting stud (below J2) and connector P5 on the main board.

   On the 220, locate the threaded spacer (near P3) and connector P4 on the main board.

5. To install the 2XX-RS232 board, carefully align the connector P1 (pins on trace side of 2XX-RS232 board) with connector P5 on the 205/210 main board (P4 on the 220 main board).

6. On the 205/210, align the hole in the 2XX-RS232 board with the threaded mounting stud (below J2) on the main board. Apply even downward pressure to the end of the 2XX-RS232 board with P1. Using the lock washer and hex nut supplied with the 2XX-RS232 board, secure the board to the 205/210 main board.

   On the 220, align the hole in the 2XX-RS232 board with the threaded spacer (near P3) on the main board. Apply even downward pressure to the end of the 2XX-RS232 board with P1. Using the lock washer and screw supplied with the 2XX-RS232 board, secure the board to the 220 main board.

7. To attach the ground wire, remove a 6-32 nut and washer from the corner of the controller board.

8. Connect the ground wire from the 2XX-RS232 board by placing the ring terminal over the 6-32 threaded stud.

9. Reinstall the washer and 6-32 nut and tighten.

P4 Terminal Block

GND

P1 (Pins on trace side of board)

INSTALLATION, Cont.

Serial I/O Cable Installation

1. Loosen the cable gland connector(s) for the serial cable. The gland connector(s) for the serial data are located on the rear panel of the enclosure. For an illustration of the gland connector layout, refer to your Weight Indicating Instrument Technical and Operation Manual.

2. Slip the serial cable through the gland connector and into the enclosure.

3. Remove 2" of the outer insulation jacket then remove 1/4" of insulation from each of the wires (refer to the adjacent figure).

4. Connect each of the wires to the terminal block (P4) referring to the figure on the previous page for the terminal block location.

5. To terminate, first press down on the release bar for the terminal, insert the wire into the opening then allow the release bar to return to its original position, locking the wire in place.

6. Repeat the procedure until all of the wires are in place.
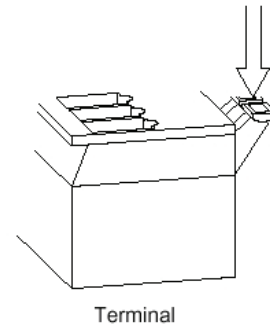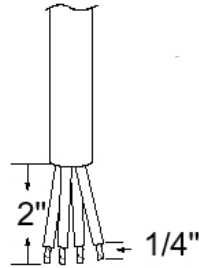
2XX-RS232 INTERFACE

P4 Terminal	Function
TXD	Transmit Data
RXD	Receive Data
RTS	Ready To Send
CTS	Clear To Send
GND	GROUND

Re-Installing the Rear Panel

1. After all terminations have been made, pull the excess cable from the instrument enclosure.

2. Make certain no cables or wires are exposed between the main housing and rear panel, and then place the rear panel onto the main housing.

3. Securely tighten each of the cable gland connectors. Do not over-tighten these connectors but make certain they are snug. **DO NOT USE TOOLS!** Finger-tighten only! Insure any unused gland connectors are plugged.

4. Secure the rear panel onto the main housing with the acorn nuts removed earlier.

NOTE! Follow a diagonal pattern when tightening the acorn nuts.

INDICATOR SETUP

A new section has been added to the SETUP menu for the 2XX-RS232 card. The new sub menu *OPtIOn* (OPTION) has been placed after *LOCOUt* (LOCOUT). The *OPtIOn* sub menu contains the setup required to establish communications.

bAUd: (2XX-RS232 Card Baud Rate)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, use the numeric keys to enter a new baud rate, then press the **ENTER** key to save it. Allowable values are:

24 = 2400 Baud	*48* = 4800 Baud	*96* = 9600 Baud
19 = 19.2k Baud	*38* = 38.4k Baud	*57* = 57.6k Baud
		76 = 76.8k Baud

Prty: (Serial Port Parity)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting then press the **ENTER** key to save it. Allowable values are: 0, 1, or 2.

> *0* = NONE (No Parity)   *1* = Odd Parity   *2* = Even Parity

bitS: (Serial Port Data Bits)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting then press the **ENTER** key to save it. Allowable values are: 7 or 8.

StoP: (Serial Port Stop Bits)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting, then press the **ENTER** key to save it. Allowable values are: 1 or 2.

Cont3: (Continuous Output Serial Port 3)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting then press the **ENTER** key to save it.

Cont3: YES	*Cont3: no*
Continuous Output	No Continuous Output

If *Cont3: YES* (Continuous Output) is selected, an additional prompt, *tYPE:* will be displayed.

If *Cont3: no* (No Continuous Output) is selected, the indicator will operate in the Weight On Demand mode (only output data in respond to a weight request, ENQ).

tYPE: (Continuous Output Format)

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting, then press the **ENTER** key to save it. Allowable values are: 0, 1, 2 or 3.

> 0 = SMA   1 = SB-400   2 = SB-200

For a complete description of the Continuous Output and the Weight On Demand formats, refer to the *SiO* Serial Input/Output section in the 205/210 Weight Indicating Instrument Technical and Operation Manual (8200-M024-O1).

INDICATOR SETUP, Cont.

`[ŁS:` **(Clear To Send, Handshaking)**

Press the **ENTER** key to show the current value. If the setting displayed is acceptable, press the **ENTER** key again to save it. Otherwise, using the arrow keys, select a new setting then press the **ENTER** key to save it.

| `[ŁS: YES`	`[ŁS: no`
Handshaking Enabled	Handshaking Disabled

STATUS LED'S

The 2XX-RS232 contains two LED's to indicate the communication status of the Serial Input/Output connection.

D3 (LINK)

This LED will illuminate when the 2XX-RS232 has been successfully connected to a serial device and flicker when data is being transmitted or received from the serial device. Note that this LED is identified on the board as Ethernet Link.

D4 (MASTER)

This LED will flash with every communication between the 2XX-RS232 and the indicator. If the D4 LED is not flashing, then communications between the 2XX-RS232 and the indicator has failed.
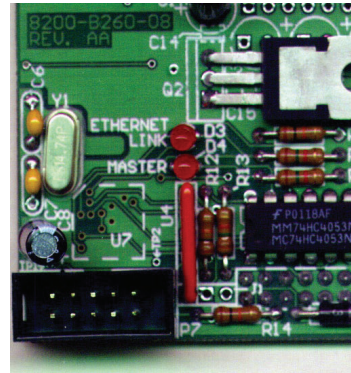
2XX-RS232 ADDENDUM
For 225 Indicator

SETUP:

With the indicator ON, hold the **SHIFT** key down and press the Navigation **ENTER** key (red square key in center of the Navigation arrows). The display will change to show the SETUP/REVIEW MENU.

```
        SETUP/REVIEW MENU
1.ENTER CALIBRATION AND SETUP
2.VIEW AUDIT TRAIL COUNTERS
3.CALIBRATE SCALE 1



Enter Selection: 1  ^EXIT
```

Press the **ENTER** key, then press the **NEXT** Navigation arrow until SETUP MENU #3 is displayed.

```
        SETUP MENU #3
1. G/N ACCUMS=XXX    6. KEY LOCKOUT
2. BACK LITE=XX
3. PASSWORD
4. 2xx-RS232

Enter Selection: 0  ^PREV  vEXIT
```

Press the **4** key and then the **ENTER** key, the 2xx-RS232 SETUP MENU will be displayed.

```
          2xx-RS232 SETUP MENU
1.  BAUD=XXX          6.  TYPE=X XXXXX
2.  PARITY=X XXXX  7.  SCALE=X
3.  BITS=X             8.  CTS ENABLED=XXX
4.  STOPS=X
5.  CONT=XXX
Enter Selection: 0   ^EXIT
```

1. BAUD=XX
   To change the BAUD setting press the **1** key and then the **ENTER** key.

```
      2xx-RS232 BAUD RATE  SELECTION
24=   2400      19= 19200       76= 76800
48=   4800      38= 38400
96=   9600      57= 57600



BAUD=XX
```

   Key-in the 2-digit value for the desired baud rate and press the **ENTER** key.

2. PARITY=X
   To change the **PARITY** setting press the **2** key and then the **ENTER** key.

```
       2xx-RS232 PARITY SELECTION

    0. NONE      1. ODD      2. EVEN



PARITY=X
```

   Key-in the 1-digit value for the desired PARITY and press the **ENTER** key.

3. BITS=X
   To change the number of data **BITS** setting, press the **3** key and then the **ENTER** key.

```
            2xx-RS232 SETUP MENU




 BITS=X
```

   Enter the number of data bits at the prompt, allowable values are 7 or 8.

4. STOPS=X
   To change the number of stop **BITS** setting, press the **4** key and then the **ENTER** key.

```
            2xx-RS232 SETUP MENU




 STOPS=X
```

   Enter the number of STOP bits at the prompt, allowable values are 1 or 2.

5. **CONT=XXX**
    To turn the continuous data output **ON** or **OFF**, press the **5** key and then the **ENTER** key.

```
          2xx-RS232 SETUP MENU




 CONT=XXX
    YES                                          NO
```

Press the **YES** and **ENTER** keys to turn continuous data output **ON**, press the **NO** and **ENTER** keys to turn it off.

6. **TYPE=X**
    To select the format of the data transmitted from the 2xx-RS232 card, press the **6** key and then the **ENTER** key.

```
   2xx-RS232 CONTINOUS OUTPUT SELECTION
0. SMA                 5. NUMERIC WT
1. SB400               6. SB500
2. SB200               7. SB250/500M
3. IQ355
4. TOLEDO SHORT
TYPE=X

```

Enter the 1-digit value for the desired format and press the **ENTER** key.

For a complete description of the Continuous Output and the Weight On Demand formats, refer to the CONTINUOUS OUTPUT FORMATS section in the 225 Weight Indicating Instrument Technical and Operation Manual (8200-M538-O1).

7. **SCALE=X**
   In a multi scale configuration the scale to be tracked by the 2xx-RS232 card can be selected. Press the **7** key and then the **ENTER** key.
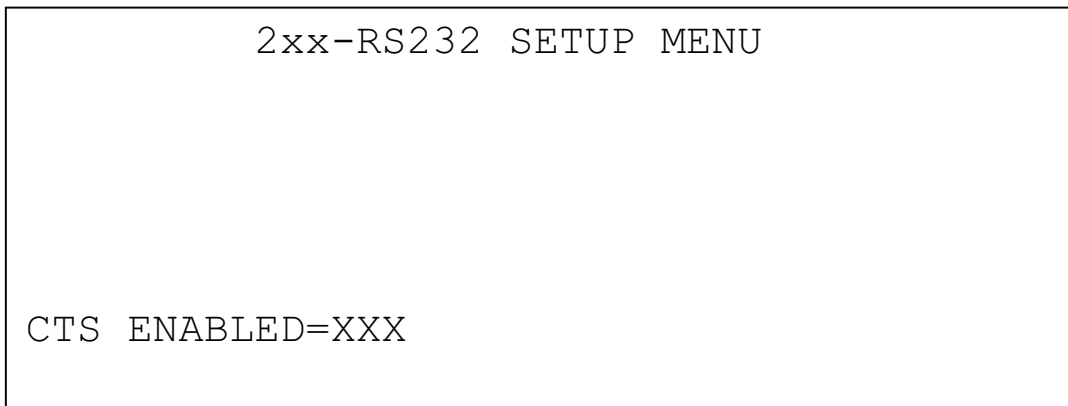
```
         2xx-RS232 SETUP MENU




  SCALE=X


```
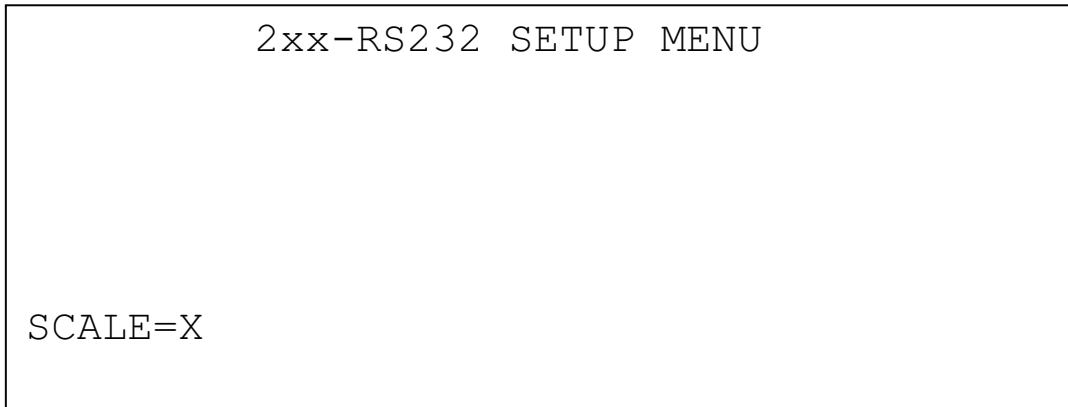
   Valid values are:
0	Current selected scale (scale that is in reverse video mode)
1	Scale #1
2	Scale #2
3	Scale #3
4	Total Scale

8. **CTS ENABLED=XXX**
   The Clear To Send handshaking can be enabled or disabled, press the **8** key and then the **ENTER** key.

```
         2xx-RS232 SETUP MENU




  CTS ENABLED=XXX


```

   Press the **YES** and **ENTER** keys to enable CTS, press the **NO** and **ENTER** keys to disable CTS.

Press the Navigation **EXIT** arrow until the indicator goes into the weight display mode.