

Industrial RFX Indicator Users Manual

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Introduction

This manual contains specification, operating, and calibration information for Intercomp's Industrial RFX Indicator.

Specifications

Controls

General: On/Off, Zero, Backlight, Print, Clear, Store/Enter, Recall, Menu, Show Arms, Show Weight, numeric keypad, Accum Total, Clear Accum Total, Tare, Peak Hold
 Display: 4 digit, LCD (0.5")

Electrical

Voltage:	6-15 VDC or 120/240 VAC power supply/charger
Batteries:	4 x AA NiMH rechargeable or 4 x AA alkaline batteries
Battery Life:	(w/ backlight off): 38 hours with alkaline batteries

Performance

Speed: ≈1 sec to typical reading (typical)

Environmental

Humidity:	10 to 95% non-condensing
Temperature:	Storage: -40° C to +75° C. / -40° F to +170° F
	Operating -10° C to +50° C. / +14° F to +122° F

Radio

Radio frequency	ISM 2.4GHz, 802.15.4
License requirements	None. Pre-approved US/FCC, CAN/IC, EUR/CE
Range	200' / 60m indoor, 300' / 90m line of sight



WARNING: This equipment has been approved for mobile applications where the equipment should be used at distances greater than 20cm from the human body (with the exception of hands, wrists, feet, and ankles. Operation at distances less than 20cm is strictly prohibited.

Controls



ON / OFF

Press the ON/OFF key to cycle the indicator power on or off. If the "Remotes Off' setting is turned on, this will also cycle the scale power on or off accordingly.

ZERO

Press the ZERO key to display the Zero menu.

Zero 1 Scale

From the Zero menu, enter the scale number to zero, 1-6, and press STORE/ENTER.

Zero All Scales

From the Zero menu, press the ZERO key to zero all scales.

BACKLIGHT

Press the BACKLIGHT key to cycle the indicator backlight on or off.

Contrast

The BACKLIGHT key also will adjust the contract of the screen. To decrease the screen contrast, hold the BACKLIGHT key down and press the 1 key until the desired contrast is reached. To increase the screen contrast, hold the BACKLIGHT key down and press the 2 key until the desired contrast is reached.

PRINT

Press the PRINT key to display the Print menu.

PRINT MENU				
1:	PRINT SCREEN			
2:	PRINTING OPTIONS			
SHO	OW WEIGHT TO EXIT			

Print Screen

From the Print menu, press the 1 key to print the user chosen display screen.

Example print of the 5 Scale Layout display:

LBS 1:18000 2:15800 3:16050 4:15960 5:16000 CG: 22.21 T: 81810

Example print of an Accumulated Total: INTERCOMP CO. U.S.A. TEL: 763-476-2531

LBS ACCUM 1: 18000 ACCUM 2: 15800 ACCUM 3: 16050 ACCUM 4: 15960 ACCUM 5: 16000 ACCUM TOTAL: 81810

Printing Options

PRINTING OPTIONS 1: TOGGLE CONTINUOUS (CURRENTLY OFF) 2: SELECT BAUD RATE

Toggle Continuous

From the Printing Options menu, press the 1 key to turn continuing printing on or off. The format of the continuous output is as follows (items in parentheses are not printed):

~0 XXXX.X (Scale 1 Weight or ARM) ~1 XXXX.X (Scale 2 Weight or ARM) ~2 XXXX.X (Scale 3 Weight or ARM) ~3 XXXX.X (Scale 4 Weight or ARM) ~4 XXXX.X (Scale 5 Weight or ARM) ~5 XXXX.X (Scale 6 Weight or ARM) ~6 XXXX.X (Total Weight) ~7 XXXX.X (CG)

Below is an example continuous print for a 5 Scale Layout display:

Note: When in continuous print mode the following will print approximately every second. The example below only has 5 scales connected. Lines 0 - 5 are each scale, line 6 is total, and line 7 is the CG.

Select Baud Rate

From the Printing Options menu, press the 2 key to display the available printing baud rates. Choose a baud rate by pressing the corresponding number on the numeric keypad. The current baud rate selected will have an asterisk in front of it.

CLEAR

Press the CLEAR key to clear saved ARM data from memory. Enter the memory location you wish to clear, 1-10, and press STORE/ENTER to clear. Enter 00 to clear all saved ARM data.

STORE/ENTER

STORE/ENTER MENU

- 1: ENTER ARMS
- 2: ENTER SETPOINTS

Entering ARM Values

Press the STORE/ENTER key to enter ARM values for a scale layout. Key in the ARM value for the listed scale using the numeric keypad, then press STORE/ENTER to save the value and advance to the next scale until all Arms have been entered. Press the ZERO button to change the ARM value from positive to negative, and vice versa when required for lateral center of gravity. After the ARM values for all scales have been entered, the user will be prompted to save the ARM values in a memory location for future use. If you wish to store new ARM values in a memory location already used, the indicator will prompt the user to overwrite the data or cancel the store process. Up to 10 ARM configurations can be saved.

Note: On power up the indicator will have the last used ARMS loaded in the "SHOW ARMS" screen.

Entering Setpoints

The indicator can export a signal via the RS232 communication jack when for up to 2 setpoints. To use the setpoints, the baud rate must be set to 9600. Press the "PRINT" key, press the 2 key (PRINTING OPTIONS), press the 2 key (SELECT BAUD RATE), and select 9600 (4 key).

After the baud rate has been selected press the STORE/ENTER key, then the 2 key. Enter the desired setpoint values for up to 2 setpoints, enter 0 to disable the setpoint.

NOTE: A separate relay module must be purchased to use the setpoint output. Contact Intercomp for further information.

NOTE: The setpoint outputs, when enabled, use the same connection as the serial output. Do not enable the RS232/USB continuous output when the setpoints are enabled

RECALL

Recalling ARM Values

Press the RECALL key to recall stored ARM configurations. Key in the memory location for the desired ARM configuration using the numeric keypad and press STORE/ENTER to recall.

MENU

Press the MENU key to display the main menu.

DISPLAY MENU See the "Displays" section for more information.

SETTINGS MENU See the "Settings" section for more information.

COMMUNICATION MENU See the "Communication" section for more information.

CALIBRATION MENU See the "Calibration" section for more information.

SHOW ARMS

Press the SHOW ARMS button to display the current ARMS values for each scale.

SHOW WEIGHT

Press the SHOW WEIGHT button to display the current weights for each scale.

ACCUM TOTAL

This function will accumulate the total of all connected scales. The total will continue to be accumulated every time this button is pressed. The indicator will accumulate a maximum of 10 accumulations.

CLEAR ACCUM TOTAL

This function will clear all previously accumulated weights.

TARE

This function will only be active in the GTN display mode. When pressed the user enters into a tare menu as shown below.

Note: The tare function will only work with scales that have the tare-interface capability, such as the CS3000.



KEY-IN TARE

Press the 1 key and follow the prompts to enter in a tare weight.

SET GROSS AS TARE

Press the 2 key to use the current gross weight as your tare weight.

CLEAR TARE

Once a tare weight has been entered and you wish to remove it. Press the 3 key and the tare will be removed from the display.

PEAK HOLD

This function will hold all peak weights on all scales. A "P" indicator will be displayed on the right of the screen when in the peak hold function.

Operation

Displays

Display Menu

The display menu allows the user to choose what display type to show when viewing scale weights or arms. Press the MENU key, then press the 1 key to access the Display menu. The display menu can also be reach by pressing the 1 and 0 keys on the numeric keypad at the same time.

DISPLAY	OPTIONS
1:SCALE	LAYOUT VIEW
3:SCALE	LIST VIEW
4:GTN VI	ΓEW

Note: To exit out of any menu, press the "SHOW WEIGHT" key and the indicator will return to the previous screen.

Scale layout view

From the Display menu, press the 1 key to display the Scale Layout View. The Scale Layout View will display the scales as shown below, the weight units, the total weight and the center of gravity (C).

1:	2730	2: 2350 lb
3:	2260	4: 2450
5:	1250	6: 1350
Т:	12390	C: 80.78

Scale list view

From the Display menu, press the 2 key to display the Scale List View. The Scale List View will display the scales in a list configuration as shown below, the weight units, the total weight and the center of gravity (C).

1:	2730	4: 2350 lb
2:	2260	5: 2450
3:	1250	6: 1350
т:	12390	C: 80.78

GTN view

From the Display menu, press the 3 key to display the GTN (Gross, Tare, Net) View. The GTN View will only display the weight on up to 4 scales, the Gross, Tare and Net Weights as shown below.

1:	9500	G:	37880	lb
2:	9470	Т:	2500	
3:	9550	N:	35380	
4:	9360	AT	:70760	

Display Lock

The display lock will lock the display into a selected scale configuration. When enabled, the indicator will turn on in the selected display screen. The enable the display lock select the desired configuration from the "DISPLAY MENU". Simultaneously press the "MENU" and the "1" key and the indicator will toggle the display locked status. The user will be prompted that the display choice has been saved or that the display choice has been unlocked.

Note: If the user is in one of the menu screens and the indicator is in the locked status the indicator will return to the locked display when the "ON/OFF" key is pressed.

Settings

Settings Menu

The settings menu allows the user to change various indicator and scale settings. Press the MENU key, then press the 2 key to access the Settings menu.

1: SWITCH lb/kg

2: DISPLAY CB (ON)

- 3: NUMBER OF SCALES
- 4: MORE OPTIONS

1: RE-NUMBER SCALE
2: LAT/ALT
3: AUTO OFF
4: AVG RATE 5:PREV

Switch lb/kg

From the Settings menu, press the 1 key to switch from Ib to kg. Changing the units on the indicator will also change the units of all scales currently communicating with the indicator.

Display CB (ON)

From the Settings menu, press the 2 key to toggle the CB (ON) to display the CB and (OFF) to disable the CB on the display.

Number of Scales

From the Settings menu, press the 3 key to enter in the number of scales the user is going to use in the system.

More Options

From the Settings menu, press the 4 key to display more options as shown above on the right.

Re-number scale

From the Settings menu, press the 4 key to enter more options and then press the 1 key to begin renumbering a scale. Follow the on screen instructions to complete the re-numbering process.

LAT/ALT

From the Settings menu, press the 4 key to enter more options and press the 3 key to display the LAT/ALT menu. Press the 1 key to change the Latitude, or the 2 key to change the Altitude. Changing the Latitude and Altitude on the indicator allows the user to change the Latitude and Altitude settings of all scales currently communicating with the indicator.

Auto off

The Auto Off setting is the amount of time in minutes the indicator will sit idle; not communicating with scales, before it automatically turns itself off.

From the Settings menu, press the 4 key to show more options, then press the 3 key to enter the Auto Off value (0-240 minutes). Enter 0 to disable the auto off function.

Avg rate

From the Settings menu, press the 4 key to show more options, then press the 4 key to enter the Average Rate value (1-120). Changing the Average Rate on the indicator allows the user to change the Average Rate setting of all scales currently communicating with the indicator.

Prev

From the Settings menu, press the 4 key to show more options, then press the 5 key to return to the previous selections.

Communication

Communication Menu

The Communication menu allows the user to change various settings on how the indicator communicates with the scales. Press the MENU key, then press the 3 key to access the Communication menu.



Protocol

From the Settings menu, press the 1 key to toggle between Standard (std) and Low Power (LPP) protocol. Changing the protocol on the indicator will also change the protocol of all scales currently communicating with the indicator.

Remotes off

From the Settings menu, press the 2 key to toggle REMOTES OFF on or off. If REMOTES OFF is on, all scales currently communicating with the indicator will be turned off when the indicator is turned off. Likewise, all scales that were turned off when the indicator was turned off will be turned back on when the indicator is turned on.

Radio settings

From the Settings menu, press the 3 key to access the Radio Settings Menu.

RADIOS	TO S	SET	
1:HOST	RAD	IO (ONLY
2:HOST	AND	SCA	ALES
3:HOST	AND	ΡB	SCALES

From the Radio Settings menu, choose:

1: HOST RADIO ONLY - Change only the indicator's radio settings.

2: HOST AND SCALES - Change the indicator and scale's radio settings

3: HOST AND PB SCALES - Change the indicator and scale's radio settings. Used only with scales utilizing a "program button" to enable their radio settings to be changed.

Read Only

From the Settings menu, press the 4 key to toggle READ ONLY mode on or off. When the indicator is in Read Only mode, it will only read the weights of the scales and offer no control of scale functions. For example, when the indicator is in Read Only mode it will not be able to Zero the scales, or change the scale's units. The Read Only mode is useful when using another indicator to provide control over the scales, and the RFX indicator as a secondary display.

SETUP

- 1. Turn the Industrial RFX Indicator on.
- 2. Choose your desired display option.
- 3. Position the weigh pads in their positions to weigh.

1:	0	2:	0 lb
3:	0	4:	0
5 :	0	6:	0
Т:	0	C:	0.00

- Ensure that the scales are communicating correctly. (If all scales are turned on, the weight on each scale should be displayed on the screen, if not communicating there will be "OFF" by the scale not communicating)
- 5. If calculating center of gravity, measure and enter in the ARM lengths.
- 6. The system is ready to weigh.

Calibration

To access the calibration menu, the calibration strap must be moved from the "Run" to the "Cal" position. Follow the following instructions to access the calibration strap.

- 1. Remove the four screws on the back of the indicator.
 - 2. Carefully separate the indicator ensuring that the two interconnecting cables do not come off of the boards.
 - 3. Move the strap that is shown below to the "cal" position.



- 4. Reattached the two parts of the indicator and insert the four screws.
- 5. Process complete.

Note: Return the cal strap to the run position after you are finished with the "Calibration Menu" to prevent accidental entry in the calibration section.

Note: If calibrating a scale refer to the scale's User Manual for access into the scale calibration parameters.

Calibration Menu

Press the MENU key, then press the 4 key to access the Calibration menu.



- 2: GRADUATIONS
- 3: AZT
- 4: MORE OPTIONS

1: ZERO RANGE 2: RAW COUNTS

3: DEFAULT CPU

4: PREVIOUS OPTIONS

Calibrate Scale

From the Calibration menu, press the 1 key to begin the scale calibration routine. The calibration routine will prompt the user through the calibration of the scale and can accommodate a 1 -10 point calibration. The scale's calibration strap must also be set to "Cal." position. Refer to the individual scales user manual for access to the scale's calibration.

The process that the operator will be prompted through is as follows.

- 1. Enter the scale number
- 2. Enter the number of cal points
- Remove weight and enter the capacity of the scale Note: The scale can accept any weight within it's range. The weights must be entered and placed on the scale from the lowest weight to the greatest weight that will be applied.
- 4. Place the first cal weight on the scale.
- 5. Repeat step 4 until all calibration points have been completed.
- 6. After the last calibration point, the display will return normal operations.

Graduations

From the Calibration menu, press the 2 key to access the Graduations menu. Choose the desired Graduation using the numeric keypad. Changing the Graduations on the indicator will also change the Graduations of all scales currently communicating with the indicator.

AZT

The auto zero tracking (AZT) mode enables the user to select a number of graduations that if displayed for a given amount of time, the weight will be zeroed off. From the Calibration menu, press the 3 key to access the AZT menu. Choose the desired AZT using the numeric keypad. Changing the AZT on the indicator will change the AZT of all scales currently communicating with the indicator.

Zero Range

The zero range is the percentage the zero can shift from the original zero obtained at calibration. The zero key will not work if the reading is outside the zero range; and the display will show error with the error icon lit if the zero range is set to 1, 2, 3, or 4. If 5-7 is selected, the zero button will simply not function when an attempt is made to zero the scale outside the Zero Range. From the Calibration menu, press the 4 key for more options, the press the 1 key to access the Zero Range menu. Choose the desired Zero Range using the numeric keypad. Changing the Zero Range on the indicator will change the Zero Range of all scales currently communicating with the indicator.

Raw Counts

Raw Counts mode will display the raw counts of each scale currently communicating with the Indicator. This is a diagnostic function used only by the manufacturer.

Default CPU

Defaulting the CPU will reset the indicator to its original factory configuration. From the Calibration menu, press the 4 key for more options, the press the 3 key to access the Default CPU screen. To default the CPU, enter 911 using the numeric keypad and press STORE/ENTER.

There are two formats of serial output: Print tickets and continuous serial output. See the '**Error! Reference source not found.**' section for details on the print tickets and on how to switch between print tickets and continuous. Both types are transmitted on each of two connectors: USB and Stereo jack RS-232.

Serial Output

Continuous output format

When selected, this format will transmit a string of weights about once per second. The transmitted signal has the following characteristics:

Fixed 8 data bits, no parity, 1 stop bit.

Baud rate is configurable using the PRINT key menu; see section '**Error! Reference source not** found.'.

There are 13 pieces of data transmitted continuously in a repeating pattern:



The first character of each line is the "data identifier" for which weight follows: 0 = LF, 1 = RF, 2 = LR, 3 = RR, etc. The data will follow the data identifier. The **data** will be the actual, target, or compare weights. The type of data transmitted will be the mode you are in (actual, target, or compare).

Data Identifier	Data	Data Identifier	Data
0	Left Front	7	Rear
1	Right Front	8	Front Bite
2	Left Rear	9	Rear Bite
3	Right Rear	:	Cross
4	Left Side	•	Total
5	Right Side	<	Total Selected
6	Front		

USB Output

The USB connector is located on the left side of the indicator and is the suggested connection used to interface with an external computer.

You can download the driver at the web site listed below. http://www.ftdichip.com/Drivers/VCP.htm

Choose the operating system that your computer uses and select the driver that supports "FT232R" and save it to your computer after it downloads. Connect the USB cable from the indicator to your computer and have your computer search the driver folder for the driver when prompted by your computer.

Stereo Jack RS-232

RS-232 Output is available on the stereo jack located on the left side panel of the wireless series indicator. This connection is typically used to connect to an optional external printer.

You must have the appropriate cable for your application (listed in section '**Error! Reference source not found.**').

Stereo Jack wiring

The 3.5mm stereo plug has 3 rings (3 connections) on the post.



outside ring

Outside ring	SW series indicator's receive
Middle ring	SW series indicator's transmit
Inside ring	ground

Scoreboard

The serial output is designed to work with Intercomp's S400 (4 inch) and SA2000 (2 inch) scoreboards. The following describes how to configure the S400 or SA2000 to work with the scoreboard output.



The above diagram is the S400 switch pack layout. The SA2000 has pack C which is below pack B instead of to the right of pack B. The switch is to the right for on, and to the left for off.

S400 and SA2000 Settings

Switch #	Pack A	Pack B	Pack C
1	OFF	OFF	OFF
2	ON	ON	OFF
3	ON	OFF	ON
4	ON	OFF	OFF
5	ON	see below	OFF
6	OFF	"	ON
7	OFF	"	OFF
8	ON	"	OFF

The above switches should be set on switch packs A, B, and C. Switch pack B, switches 5, 6, 7, and 8 select what piece of information will be displayed.

Choosing Displayed Parameter for S400 and SA2000

Choice	Pack B-5	Pack B-6	Pack B-7	Pack B-8
Left front	ON	ON	ON	ON
Right front	OFF	ON	ON	ON
Left rear	ON	OFF	ON	ON
Right rear	OFF	OFF	ON	ON
Left side	ON	ON	OFF	ON
Right side	OFF	ON	OFF	ON
Front	ON	OFF	OFF	ON
Rear	OFF	OFF	OFF	ON
Front Bite	ON	ON	ON	OFF
Rear Bite	OFF	ON	ON	OFF
Cross	ON	OFF	ON	OFF
Total	OFF	OFF	ON	OFF
Total Selected	ON	ON	OFF	OFF

Power / Battery

The SW wireless indicator comes standard with four rechargeable NiMH batteries, but will also operate on four AA alkaline batteries.



WARNING: Do not plug the charger in if you are using AA alkaline batteries (non-rechargeable). This could result in damage to the batteries and your scale.

Your indicator will operate indefinitely off of the charger while the battery charges. The scale can be left on or off while the charger is plugged in. Expect 12 to 24 hours to completely recharge the battery. With a fully charged battery the indicator will operate about 40 hours. This specified time is reduced the more the backlight is used. If the battery power is low the SW Wireless Indicator will flash a "Low Battery" message. The indicator will shut off if the "Low Battery" message is ignored too long. The scale pads come supplied with two AA Alkaline batteries. The indicator can detect if one of the scale pads is running low on batteries: If the batteries in one of the scale pads are low, the indicator will toggle between "BATT" and the weight on the scale in the scale's position on the indicator. Replace the scale pad batteries with two new AA alkalines.

Replacement

Press and slide the battery cover to the side. It is located on the back of the scale indicator. Install new batteries with attention to polarity and replace the battery cover.

Error Messages

Pad status error messages (these will display in place of a particular pad's weight)

OFF	The scale is turned off or not communicating with the indicator.
LOST	The indicator has lost communication with the scale.
EEPROM	EEPROM error. The scale has lost saved information or its calibration information was corrupted. Scale will require calibration.
ZERO	Zero Range error in the scale.
BATT	The scale has a low battery. Replace or charge the batteries in the scale.
CAP	This message will blink if weight present on the pad exceeds the pads capacity, or the pad is not plugged in, or the pad may have failed.
UNITS	The scale units do not match the units of the indicator. Toggle the Units on the indicator to allow the indicator to send the correct units to the scale.

Indicator status error messages

LOW DISPLAY	Indicator battery is running low. This message will blink on the display.
BATTERY	batteries.
EEPROM ERROR	EEPROM check fail. Contact Intercomp service department for assistance.
ENTER CODE: 00	

Printer / RS232 / USB errors

Extra Characters	Check that both setpoints are both set to 0 (disabled). Press STORE/ENTER
periodically appear on	and then the '2' key. Enter '0' for both setpoints to disable them. The
the printout or serial	setpoints and the serial output share the same connection, so both can't be
output	enabled at the same time.

How to reach Intercomp Service

Things to know:

- 1. The service is for an Industrial RFX Indicator.
- 2. When did you purchase your system?
- 3. What is your serial number?
- 4. Whom did you purchase the scale through?

For Intercomp Service call or fax:

FAX # (763)-476-2613 (763)-476-2531 **1-800-328-3336**

Or fill out Service Support form at:

www.intercompcompany.com

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