



RFX Ag Scale Indicator User's Manual

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Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this scale. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the scale. Intercomp assumes no liability for the customer's failure to comply with these requirements. **DO NOT SUBSTITUTE PARTS OR MODIFY SCALE**

Because of the danger of introducing hazards, do not substitute parts or perform any unauthorized modifications of the scale.

Notice

All rights reserved. The information contained in this publication is derived in part from proprietary and patent data of the Intercomp Corporation. This information has been prepared for the express purpose of assisting operating and maintenance personnel in the efficient use of the instrument described herein. Publication of this information does not convey any rights to use or reproduce it or to use it for any purpose other than in connection with the installation, operation, and maintenance of the equipment described herein. While every precaution has been taken in the preparation of this manual, Intercomp Corporation assumes no responsibility for damages resulting from the 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 largely upon the individual accuracy, skill, and caution. For this reason Intercomp Company 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.

Warranty

INTERCOMP CORPORATION (hereafter called "the company") warrants the products which this document accompanies to be free of defects in materials and workmanship, and to operate according to design specifications for a period of one (1) year after receipt by the original purchaser. After authorized return to the company at the purchaser's expense, the company shall evaluate any returned equipment under warranty claim, and shall make such repairs or replacements as may be judged necessary, in as expeditious a manner as possible.

IN THE EVENT that the company determines the claim to be made as a result of improper use, abuse, modification, shipping damage, or other factors beyond the reasonable control of the company, the company will advise the purchaser of the estimated repair costs. The company makes no warranty other than that contained in this statement. No agent other than an executive officer of Intercomp Corporation is empowered to modify in any manner this statement of warranty.

Specifications

Controls

General: On/Off, Zero, Hold, Tare, Menu/Setup, Bin, Gross/Net, numeric keypad, Clear, Store/Enter
Display: 6 digit, LCD (1.0")

Electrical

Voltage: 4-15 VDC or 120/240 VAC with power supply

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: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located in conjunction with any

* Radio notes: Frequency: ISM 2.4GHz (2.400GHz - 2.483GHz), with 12 channels (CH 1-12) within that range with each center frequency = 2405MHz + (CH * 5) MHz. Power output 63mW (18dBm), 10mW (10dBm) for international variant. Antenna is internal surface mount with - 1.5dbi gain, omni-directional.

Front Panel Controls



On/Off (RED Power Symbol Key)

Cycles power to the indicator when pressed.

Numeric Keypad

Used to enter numeric inputs into the system when in the menus.

CLEAR

Used to clear entry while in the menus.

STORE/ENTER

Used to store an entered numeric entry in the menus.

ZERO

Press and hold the Zero key to zero the scale when there is no load.

HOLD

Note: The HOLD feature is disabled by default. To enable, enter the MODE MENU and change 'Hold.E' from 'no' to 'yes'.

Press this to lock the current weight. While in this mode, the display will alternate between showing 'HOLD' and the locked weight. Make sure not to add or remove any weight while in HOLD mode, as that weight difference will not be recorded. Press HOLD again to return to normal weighing mode.

TARE

Press to set the displayed weight as the TARE weight. Press TARE and CLEAR keys together to clear a saved TARE weight and return to GROSS weight.

MENU/SETUP

Press the Menu/Setup key to access the menus used to set the system up in the desired configuration. See Mode and Calibration menus for further information.

BIN

The 'BIN' mode function may be used to set a preset 'BIN' weight for up to ten (10)-individual bins or seed boxes. When operating in the 'BIN' mode, only the selected 'BIN' and 'TOTAL GROSS' weight values will change. The other 'BIN' weight values do not change. For first time use, set the 'Number of Bins' setting in the Mode Menu.

Press BIN to toggle through BIN numbers 1-x. The display will show which BIN you are switching to, or the GROSS (or Net) weight: "bin01", "bin02", ..., "Gross". Note that the indicator will also show the current BIN number when powered on.

Press and hold BIN to enter a bin weight for the currently selected BIN number. Enter the desired weight value for that BIN number and press STORE/ENTER.

Note: The ZERO key will not function while in BIN weight viewing mode.

GROSS/NET

Press to toggle between Gross and Net weight. The choice will show on the display.

Mode Menu

Press MENU/SETUP to advance through the menu to the desired setting. Some settings allow for a number to be entered, and the numeric keypad should be used for these. For other settings with preset choices to choose from, use the arrow keys to edit the selection. Either way, when the desired value is shown, press MENU/SETUP to save and advance. The setting is saved at this point, so the indicator can be turned off if no other settings need editing.

Step	Function	Note	Default
Mode	Mode menu code	0= no skip. 477= jump to Calibration Menu	000
bins	Number of bins	0-10	00
b.LtE	Back light	On, off, or Auto	Auto
Units	Units	lb or kg	lb
A.rE	Average rate	1 to 120	006
A oFF	Auto off	000 = off, 1 to 240	000
Hold.E	Hold Enable	Yes or No	no
PbAUD	RS232 baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200	9600

Press the MENU/SETUP key. The display will show "Mode".

1. Press the MENU/SETUP key. The display will show "000". Press MENU/SETUP to continue to the rest of the mode menu.
2. The display will show "bins". Press MENU/SETUP. The display will show "00". On the numeric keypad enter the desired number of bins or seed boxes, and press MENU/SETUP to save and advance.
3. The display will show "b.LtE". Press the MENU/SETUP key. Press any of the arrow keys to toggle through the back light choices. Once the desired choice is shown on the display, press MENU/SETUP to save and advance.
4. The display will show "Units". Press the MENU/SETUP key and the current unit of weight will be flashing in the upper left corner of the display. Press any of the arrow keys to toggle between "lb" and "kg". Once the desired unit is flashing press MENU/SETUP to save and advance.

5. The display will show "**A. rE**". Press the MENU/SETUP key. Using the numeric keypad, enter the desired number for the system average rate. This number is how many readings will be averaged together. Higher values will result in a more stable reading, but will take longer to settle to the final value. Note that the scale updates at 4Hz, so an Average Rate of '8' equates to 2 seconds of averaging. Enter a '1' to effectively disable averaging. Once the desired number is displayed press MENU/SETUP to save and advance.
6. The display will show "**A OFF**". Press the MENU/SETUP key. Using the numeric keypad, enter the desired number for the system automatic turnoff. The number displayed is the minutes that the scale can remain idle before it automatically shuts down. Any key press will reset the countdown. Also, if the scale is used in conjunction with a host indicator (wired or wireless), an active link with that indicator will prevent the scale from turning off. Setting this number to "000" will disable the function, meaning the scale will never shut itself off. Using the numeric keypad enter the desired number and press MENU/SETUP to save and advance.
7. The display will show "**Hold.E**". Press the MENU/SETUP key. Press any of the arrow keys to toggle between "**YES**" and "**no**". See the "HOLD" function description in the front panel control section for more information. Once the desired choice is shown on the display, press MENU/SETUP to save and advance.
8. The display will show "**PbAUD**". Press the MENU/SETUP key. Press any of the arrow keys to toggle through the RS232 baud rate choices. The baud rates available are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. This baud rate affects the continuous serial output for use with a scoreboard or secondary display (See Serial Output). Once the desired choice is shown on the display, press MENU/SETUP to save and advance.
9. The system will return to normal operation.

Calibration Menu

To initiate calibration press the MENU/SETUP button. The display will show “*ModE*”. Enter ‘477’ to jump to the calibration menu.

Press MENU/SETUP to advance through the menu to the desired setting. Some settings allow for a number to be entered, and the numeric keypad should be used for these. For other settings with preset choices to choose from, use the arrow keys to edit the selection. Either way, when the desired value is shown, press MENU/SETUP to save and advance. The setting is saved at this point, so the indicator can be turned off if no other settings need editing.

Step	Function	Note	Default
<i>ModE</i>	Mode menu code	Enter 477 to go to Calibration Menu	<i>000</i>
<i>STEP</i>	Calibration menu step code	000= no skip 001= skip to Weight calibration 003= Cell span calibration 005= jump to Mode Menu 030= Field Calibration adj 201-208= Cell span adj mode 221= Cell span entry	<i>000</i>
<i>rAd io</i>	Radio Enable	Yes or no	<i>no</i>
<i>rF CH</i>	Radio Channel	01 to 12	<i>04</i>
<i>rF.PAn</i>	Radio Network ID	0 to 65534	<i>8000</i>
<i>rF.ECP</i>	Radio encryption enable	Yes or no	<i>no</i>
	Radio Encryption Key	0 to 65534	<i>00000</i>
<i>rF.dEF</i>	Restore Radio Defaults	0 or 3	<i>0</i>
<i>U. EnA</i>	Unit switch enable	Yes or no	<i>YES</i>
<i>AZt</i>	AZT (auto zero tracking)	1 d, 3 d, .5 d, oFF, or.6 d	<i>1 d</i>
<i>GrAd</i>	graduation size	1, 2, 5, 10, 20, 50, or 100	<i>d 1</i>
	<i>SAuE</i>	Displays for 1 sec and returns to normal display	

1. Press the MENU/SETUP key. If the display shows "iOdE", enter '477' to switch to the calibration menu.
2. The display will show "StEP".
3. Press the MENU/SETUP key. Using the numeric keypad, enter the desired number to skip to a different menu, or press the MENU/SETUP key to continue to the rest of the calibration menu.
4. The display will show "rAd io". Press the MENU/SETUP key. Press any of the arrow keys to toggle between "YES" (radio enabled) and "no" (radio disabled). Once the desired choice is shown on the display, press the MENU/SETUP key.
5. The display will show "rF CH". Press the MENU/SETUP key. Using the numeric keypad, enter the desired number for the radio channel and press MENU/SETUP to save and advance.
6. The display will show "rF.PAn". Press the MENU/SETUP key. Using the numeric keypad, enter the desired number for the desired Personal Area Network ID setting (0-65534) and press MENU/SETUP to save and advance.
7. The display will show "rF.ECP". This is the encryption enable status and is either on or off. Press the MENU/SETUP key. Press the arrow keys to toggle between "YES" and "no". Once the desired choice is shown on the display, press the MENU/SETUP key. If you selected 'yes', you will have an opportunity to enter the encryption key (0-65534), then press MENU/SETUP to save and advance.
8. The display will show "rF.dEF". Press the MENU/SETUP key. Using the numeric keypad, enter "0" or "3". By default, enter "0" here. Setting the number to 3 will restore the default radio settings. Using the numeric keypad, enter the desired number and press MENU/SETUP to advance.
9. The display will show "U. EnA". Press the MENU/SETUP key. Press any of the arrow keys to toggle between "YES" and "no". When set to "no", the units will be locked and the mode menu entry "Un iLS" will not allow switching units. Once the desired choice is shown on the display, press MENU/SETUP to advance.
10. The display will show "AZt". Press the MENU/SETUP key. Press any of the arrow keys to toggle through the auto zero tracking choices. (1 d, 3 d, .5 d. oFF, or 5 d). If the displayed weight is less than the number of grads shown for a given amount of time, the weight will be automatically zeroed off. Once the desired choice is shown on the display, press MENU/SETUP to advance.
11. The display will show "GrAd". Press any of the arrow keys to toggle through the graduation size choices. Once the desired choice is shown on the display, press MENU/SETUP to advance.
12. "SALE" is displayed and the display will then return to normal operation.

Calibration Methods

This indicator has two main calibration methods:

1. **Weight Calibration:** Apply known weight(s) and enter the value of those weights into the indicator. Scale must be unloaded at the start of this operation.
2. **Field Calibration Adjustment:** Allows a user to adjust the displayed weight by a percentage amount they believe the scale is off by. When entered, it will apply that factor to all displayed weight results.

Whenever a 'Weight Calibration' operation is performed, the 'Field Calibration Adjustment' is automatically reset back to the default of 1.0000.

Weight Calibration

ModE	Mode menu code	Enter 477 to go to Calibration Menu	000
StEP	Calibration menu step code	Enter 1 to advance to Weight Calibration	000
CAP	capacity	Enter scale capacity	199999
LL-00	No weight applied		
HH-01	First weight	Enter first weight	
LL-01	First weight	Load first weight	
	Up to 3 cal points available to enter	Turn indicator off to stop adding cal points.	

1. Press MENU/SETUP to advance through the menu. After **ModE** enter '477' to enter the calibration menu.
2. Press MENU/SETUP. After **StEP** enter '1' for Weight Calibration.
3. Display shows **CAP**. Press MENU/SETUP and enter the scale capacity.
4. Display shows **LL-00**. With no weight on the scale press MENU/SETUP.
5. Display shows **HH-01**. Press MENU/SETUP.
6. Enter the first calibration weight to be applied and press MENU/SETUP.
7. Display shows **LL-01**. With the first load applied to the scale and stable, press MENU/SETUP.
8. Display shows **HH-02**. You can now turn off the scale to lock in a 1-point calibration, or repeat steps #5-7 for up to 3 calibration points.

Field Calibration Adjustment

Adjust the displayed weight by a percentage amount. When a value other than 1.0000 is entered, it will apply that factor to all displayed weight results. Note: Performing the field calibration adjustment should only be accomplished if the user has a verified weight of a load and the scale system displays a different weight for the verified load.

ModE	Mode menu code	Enter 477 to go to Calibration Menu	000
StEP	Calibration menu step code	Enter 30 for Field Calibration Adjustment	000
FLd.Ad	Field Cal Adj value	0.1000 to 9.9999	1.0000

1. Press MENU/SETUP to advance through the menu. After **ModE** enter '477' to enter the calibration menu.
2. Press MENU/SETUP. After **StEP** enter '30' for Field Calibration Adjustment.
3. Display will show **FLd.Ad**. Press MENU/SETUP to view the current Field Cal Adjustment value.
4. Calculate and enter the new Field Cal Adjustment value and press MENU/SETUP to save.

All units are shipped with the default value of "1.0000". With the value set to 1.0000, simply enter the adjustment desired. Examples:

- To increase the weight displayed by 1.5%, enter "1.0150".
- To decrease the weight displayed by 1%, enter "0.9900".

If the Field Calibration Adjustment value has been adjusted previously (set to a value other than 1.0000), multiply the desired adjustment by the current adjustment.

Example calculation:

Customer reads 20000 lb for a load on the scale, and then later verifies that the weight was actually 20250 lb. To adjust for this, divide the verified weight by the indicator weight to calculate the required adjustment ($20250/20000 = 1.0125$). Check the current value for "Field Calibration Adjustment", and multiply it by 1.0125 and enter the new value. If the previous value was 1.0000, simply enter 1.0125. If it was 0.9950 (for example), then multiply $1.0125 \times .9950$ and enter the result =1.0074.

Cell Span Entry

This procedure will adjust the relative output of the cells compared to one another. This only applies to systems with multiple digital channels, and typically also only for systems that use different types of load cells in the same system. For most systems this should be left at the default settings of "1.0000" for each cell, meaning each cell contributes equally to the total system weight. Special configurations may require different settings.

CH1.SP	Cell #1 span	0.0001 to 9.9999	1.0000
CH2.SP	Cell #2 span	0.0001 to 9.9999	1.0000
	Up to 6 cells available...		
	SRLE	Displays for 1 sec and returns to normal display	

Calibration "Step" codes

Cal Mode #	Enter Cal Mode # After "STEP" in Cal Menu
000	Advance through normal calibration menu.
001	Weight calibration (apply weight(s) to calibrate)
003	Enter corner calibration. (Also set the number of load cell inputs here.)
005	Enter Mode menu. (the same menu that is entered if the cal strap is in the Run position)
030	Field Calibration Adjustment
111	Individual cell read diagnostic. Next enter specific load cell number 1-8.
121	Raw Counts display diagnostic. 0mV/V = 131072. 8375 per mV/V
122	Raw mV/V display. Output based on mV/V calibration.
131	Constant power to all load cells diagnostic
201-208	Corner adjust cell 1-8. (Example: 202 will enter mode to adjust cell span #2).
221	Cell Span Entry (manually enter cell spans for cells 1-8)
311	Default and save all radio settings to the radio
711	Default and save all settings (Leave calibration and cornering untouched)
811	Default and save corner compensation to nominal values
911	Default and save all board memory (settings, calibration, and corners)

Serial output

For indicators with this option included, the RS232 output will transmit the current GROSS, NET, or BIN weight, whichever is currently being displayed, once per second on the RS232 output. Example:

```
9210 1b
9210 1b
9210 1b
```

Error codes

Error messages, displayed in priority order:

Message	Meaning
EEPE	EEPROM FAILURE Calibration information lost or corrupted
	Calibration information is held in a special permanent memory area. A checksum code is generated and written to this memory during the calibration process. Each time the power is turned on this code is regenerated and compared to the stored value. If a change is found this error message is displayed. Recalibration may clear the error display, but if the problem persists the control panel will have to be replaced.
Ad I	A/D converter failure
	The A/D circuit board has indicated a fault and needs to be repaired or replaced.
LCb I	Power-up Self-Test has detected a load cell errors
	The load cell may have failed or there is a bad connection. In this example cell #1 has failed. If there is a 2 digit code, use the LC error conversion table on the following page.
LC I	Run-time checking has detected a load cell errors
	The load cell may have failed or there is a bad connection. In this example cell #1 has failed. If there is a 2 digit code, use the LC error conversion table on the following page.
Lo.bAt	Low battery (supply) voltage
	This message indicates that the indicator has measured the supply voltage and found it to be too low. Check the power supply voltage and wiring.
CAP	Overload or calibration information lost or bad load cell
	The control panel has detected a weight reading that is larger than expected. This may be caused by the application of too much weight to the platform. If this display is seen when there is no weight on the platform, then the most likely causes are a defective load cell or defective control panel.
d ,SP	Number can't be displayed
	The most common cause of this error is pressing the zero key with a full load on the scale. When the load is removed, the full number with a minus sign will not fit on the display. Press the ZERO key to clear this error.

LC error conversion table

The 'LCbxx' and 'LC xx' error messages indicate one or more cell(s), connecting cable(s), and/or connector(s) has failed. If there is only one cell input failure, this error message shows as a single digit number: 1-6, indicating which cell has failed. If there is more than one failure, the single digit is replaced with a two-digit hexadecimal code representing multiple cells. Use the table below to decode which cells have failed. For example, if you see the code 'LC 0C', look for '0C' on the chart below to find '00**00' (highlighted below in the table). Each '*' indicates a cell (or connection) failure, in this case referring to cells #4 and #3.

Cell error code table

Code	Cell Number 654321	Code	Cell Number 654321	Code	Cell Number 654321	Code	Cell Number 654321	Code	Cell Number 654321
1	0000*	0E	00***0	1b	0**0**	2B	*0*000	34	**0*00
2	0000*0	0F	00****	1C	0***00	29	*0*00*	35	**0*0*
03	0000**	5	0*0000	1d	0***0*	2A	*0*0*0	36	**0**0
3	000*00	11	0*000*	1E	0****0	2b	*0*0**	37	**0***
05	000*0*	12	0*00*0	1F	0*****	2C	*0**00	38	***000
06	000**0	13	0*00**	6	*00000	2d	*0**0*	39	***00*
07	000***	14	0*0*00	21	*0000*	2E	*0***0	3A	***0*0
4	00*000	15	0*0*0*	22	*000*0	2F	*0****	3b	***0**
09	00*00*	16	0*0**0	23	*000**	30	**0000	3C	****00
0A	00*0*0	17	0*0***	24	*00*00	31	**000*	3d	****0*
0b	00*0**	18	0**000	25	*00*0*	32	**00*0	3E	*****0
0C	00**00	19	0**00*	26	*00**0	33	**00**	3F	*****
0d	00**0*	1A	0**0*0	27	*00***	2B	*0*000		

Code: Refers to the 1 or 2 digit code in the 'xx' spot of the 'LCbxx' or 'LC xx' error message

Cell Number: Identifies with an '*' each cell input that has failed or has been disconnected. This failure could be in the cable, connector, or load cell itself.

How to reach Intercomp Service

Things to know: Inform the Service Dept. that the product is an AG scale system. Supply serial numbers of system and/or components.

When was the system purchased?

Where was the system purchased?

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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