

LD820 LOAD/UNLOAD INDICATOR



User Manual

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EU DECLARATION OF CONFORMITY



PRODUCT DESCRIPTION: LD820 Load/Unload Indicator

We, Intercomp Company
3839 County Road 116
Medina, Minnesota 55340 USA

Declare under the sole responsibility of Intercomp Company that the LD820 LED Load/Unload Indicator to which this declaration relates is in conformity with the relevant Union harmonization legislation, and meets the essential health and safety requirements, and is in conformity with the relevant EC Directives listed below using the relevant section of the following standards and other normative documents.

DIRECTIVE	DIRECTIVE TITLE / PURPOSE
Directive 2012/19U	On waste electrical and electronic equipment (WEEE) (Directive 20/96/EC Recast)
Directive 2013/56/EU (amending 2006/66/EC)	Sets out that the limit of 0.0005% of mercury in batteries will also apply to button cell batteries from 1 st October 2015. The exemption of button cell batteries in hearing aids will be reviewed by 1 st October 2014. AKA batteries and accumulators directive
Directive 2014/30/EU Electromagnetic Compatibility (EMCD) Directive	Of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility (recast) Text with EEA relevance The Directive covers apparatus sold as single functional units to end users, which are likely to 1) generate electromagnetic disturbance, or 2) have performance affected by electromagnetic disturbance. NOTE: If the unit has a radio (XBEE Radio Chip) installed, Directive 2014/53/EU will take precedence
Directive 2014/53/EU	Of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC Text with EEA relevance AKA Radio Equipment Directive (RED)
EN 300 328 V2.1.1 (2016-11)	Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band
EN 301 489-1 V1.9.2 (2011-09)	Common Technical requirements
EN 45501:2015	Metrological aspects of non-automatic weighing instruments

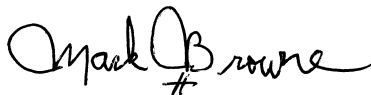
EU DECLARATION OF CONFORMITY

DIRECTIVE	DIRECTIVE TITLE / PURPOSE
EN 55011:2016+A1:2017	Industrial, scientific and medical equipment. Radio-frequency disturbance characteristics. Limits and methods of measurement
EN 60950-1:2006+A2:2013	Information technology equipment. Safety. General requirements
EN 61000-6-1:2019	Generic standards, Residential, commercial and light industry environment
EN 61000-6-2:2019	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-3:2007+A1:2011	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments
EN 62311:2008	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

The safety issues of this measurement equipment have been evaluated under the self-certification provisions of the relevant directives. This product complies with all safety-relevant provisions referring to protection against electrical hazards and other hazards, such as mechanical hazards, fire hazards, noise and vibration.

The related technical construction files are held for inspection in the U.K. at Intercomp Europe Limited.

Signed for and on the behalf of Intercomp Company:



Mark Browne / Quality Manager
 Medina, Minnesota USA
 August 15, 2022

NOTIFICATIONS

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.



WARNING: Due to the danger of introducing hazards, do not substitute parts or perform any unauthorized modifications to 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. Intercomp Corporation assumes no responsibility for damages resulting from the use of the information contained herein.

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

INDICATOR DISPLAY

DISPLAY KEYS				
ON/OFF	ZERO	HOLD	TARE	MENU/SETUP
BIN	GROSS/NET	CLEAR	STORE/ENTER	LOAD
UNLOAD	START/STOP	ALPHA-NUMERIC KEYPAD		LED ALARM INDICATOR
DISPLAY SCREEN				
6 Digit, 2 inch (51 mm) Alpha-Numeric LCD Display				

ELECTRICAL

FUNCTION	SPECIFICATION
Voltage	6 - 16 VDC
Power Surge Protection	Protected against 100V automotive load dump and reverse polarity

ENVIRONMENTAL

FUNCTION	SPECIFICATION
Humidity	10 to 95% non-condensing
Temperature	Operating -22° F to +140° F / -30° C to +60° C
	Storage: -40° F to +167° F / -40° C to +75° C

PHYSICAL

FUNCTION	SPECIFICATION
Dimensions	11 in x 7.7 in x 4.4 in / 279 mm x 196 mm x 112 mm

CONNECTIONS

TYPE	QTY	FUNCTION
RS232	3	Scoreboard Output
		Feed Management Interface
		Transmission Gear Output
Relay Outputs	2	
Digital Inputs	2	

SPECIFICATIONS

RADIO

FUNCTION	SPECIFICATION
Radio Frequency	ISM 2.4 GHz, 802.15.4 DSSS*
License Requirements	None. Pre-approved US/FCC, CAN/IC, EUR/CE
Range	200 ft / 60m indoor, 300 ft / 90m line of sight

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



WARNING: FCC Radio Frequency (RF) exposure requirements for mobile transmitting devices dictate that 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 other antenna or transmitter.

OVERVIEW

INDICATOR DISPLAY



KEY FUNCTIONS

KEY FUNCTION	DESCRIPTION
ON/OFF	Press the ON/OFF key (RED Power Symbol in upper left corner of display) to turn indicator On or Off.
ALPHA-NUMERIC KEYPAD	The keypad is used to enter alpha-numeric inputs when accessing the MODE Menu and Calibration Menu settings.
CLEAR	Press the CLEAR key to return to Normal mode.
STORE/ENTER	The STORE/ENTER key is used to advance through a menu or setting. Press the STORE/ENTER key to save a setting entry.
LOAD	The LOAD key controls the load operation.
UNLOAD	The UNLOAD key controls the unload operation.
START/STOP	The START/STOP key is used to start and stop load and unload actions.
ZERO	Press and hold ZERO key to zero the scale when there is no load.

OVERVIEW

Key Functions (continued)

KEY FUNCTION	DESCRIPTION
▲ HOLD	Press the HOLD key to lock the current weight. The HOLD icon will be displayed on the screen. Ensure no weight is added or removed while in HOLD mode. If attempting to add or remove weight when in HOLD mode, the weight difference will not be recorded. Press the HOLD key to return to normal weighing mode.
◀ TARE	Press the TARE key to set the displayed weight as the TARE weight. Press the 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, enter and exit MODE Menu and Calibration Menu settings.
▶ BIN	<p>The BIN key is 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, select the Number of Bins setting in the MODE Menu to enter the number of bins.</p> <p>Press BIN key to toggle through BIN numbers 1-x. The screen will display the BIN number selected or the GROSS (or NET) weight: bin01, bin02... Gross. The indicator screen will also display the current BIN number when powered up. Press and hold BIN key to enter a bin weight for the selected BIN number. Enter the desired weight for the BIN number and press STORE/ENTER key. NOTE: The ZERO key will not function when in BIN weight viewing mode.</p>
GROSS/NET	Press the GROSS/NET key to toggle between Gross and Net weight. The GROSS/NET selection will be displayed at the top of the screen.
▼ M+	Reserved for future use.
RM	In some configurations the RM key can be used to initiate a Split Unload or Load activity. Refer to the Unload/Dispense section.
PRINT/EXPORT	Reserved for future use.

OVERVIEW

PREACT WEIGHT ALARM

The LD820 Indicator has an audio beeper that provides a PRACT Weight countdown alarm when in LOAD or UNLOAD mode. A red LED located in the center of the screen above the LCD characters, will blink in concert with the audio alarm when the Load/Unload operation approaches the weight or percentage of weight entered for the PRACT. The audio alarm beep and indicator blink rate will increase as the load/unload weight approaches the PRACT weight or percentage of weight.

MENU

MODE MENU

1. Press the MENU/SETUP key to access the MODE Menu settings. The message *MENU* will be displayed.
2. Enter the desired code referenced in the following table.
3. Some settings require a number to be entered, while other settings will have preset selections to choose from. Use the keypad to enter numbers. Use the arrow keys to toggle through and edit preset selections.
4. When the desired setting has been entered or selected, press the STORE/ENTER key to save the entry and exit the setting. The indicator can be turned off if no other settings require editing.

CODE	DESC	FUNCTION	SETTING	DEFAULT
1010	T LOAD	Time After Load/Unload	0-60 seconds	2
1020	BINS	Number of Bins	0 -10	00
1030	BACKLT	Backlight	YES or NO	YES
1040	UNITS	Units	lb or kg	lb
1050	AVE. RT	Average Rate	1 to 100	020
1070	HOLD.EN	Hold Enable	YES or NO	NO
1080	SC.MODE	Scoreboard Mode	Off, STD, BAR, GTN, TXT.BAR	BAR
1090	COM1.BD	RS232 Baud Rate Port 1	1200, 2400, 4800, 9600,19200 38400, 57600, 115200, 230400	115200
1092	COM2.BD	RS232 Baud Rate Port 2	1200, 2400, 4800, 9600,19200 38400, 57600, 115200, 230400	9600
1094	COM3.BD	RS232 Baud Rate Port 3	1200, 2400, 4800, 9600,19200 38400, 57600, 115200, 230400	9600
1096	COM4.BD	RS232 Baud Rate Port 4	1200, 2400, 4800, 9600,19200 38400, 57600, 115200, 230400	9600
1100	SC ID	Scale ID	1-100	001
1110	DISP.O	Unload/Dispense Output Mode	0 = No relay output control 1 = Auger or Clutch on/off control	0
1112	LOAD.O	Load Output Mode	0 = No relay output control 1 = Auger or Clutch on/off control	0

MENU

MODE Menu (continued)

CODE	DESC	FUNCTION	SETTING	DEFAULT
1140	TARE.S	TARE Sync	0 = normal weight message	2
			1 = weight + tare/bin message	
			2 = weight + tare + load/unload	
1150	PRE.TYP	Preact Type	Weight or Percent	WEIGHT
1152	PRE.WGT	Preact Weight	0-999999 (lb or kg)	20
1154	PRE.SPJ	Preact Speed	0.0-9999.9 lb/s	20.0
1160	BEEPER	Beeper Enable	YES or NO	YES
1170	TOLERA	Tolerance	0-999999. Max weight variance allowed at end of load/unload	20
1180	MOTION	Motion	0-999999. 0=no mot det. Weight change (over 1.5s) to detect motion	0
1190	PRE.ALAR	Pre-Alarm	0-999999. Weight to start Alarm/LED blinking	200
1200	FJ.PROT	Feed Management Protocol	0 = Disable Feed Management Protocol	1
			1 = Enable Feed Management Protocol	
1250	SC.PORT	RS232 port assigned to Scoreboard Output	OFF, COM1, COM2, COM3, COM4, BT	COM3
1260	FJ.PORT	RS232 port assigned to Feed Management Interface	OFF, COM1, COM2, BT	COM1
1270	TG.PORT	RS232 port assigned to Transmission Gear Output	OFF, COM1, COM2, COM3, COM4, BT	COM2
1300	YEAR	Year		
	MONTH	Month	JAN, FEB,...NOV, DEC	-
	DATE	Day of Month	1-31	-
	HOUR	Hour (12 hour format)	1-12	-
	MINUTE	Minute	0-59	-
	AM/PM	AM/PM	AM, PM	-



ATTENTION: Codes 1152, 1170, 1180, 1190 use the current UNIT setting (lb or kg). Unit of Measure cannot be changed under the Preact Weight, Tolerance, Motion and Pre-Alarm settings.

MENU

MODE MENU SETTINGS

- 1. Time After Load/Unload:** Press the MENU/SETUP key followed by Code **1010**. Press the STORE/ENTER key. The message **T LDRD** (Time After Load/Unload) is displayed. Press the STORE/ENTER key. The screen displays **00** or the current setting. Use keypad to enter a time between 0 and 60 seconds. This is the time the display will stay in LOAD/UNLOAD Active mode before returning to LOAD/UNLOAD Ready mode after the PRACT weight is reached, or when the load/unload operation is cancelled. Default setting is **2** seconds. Enter **0** to keep display in load/unload mode indefinitely when action has been completed. Press the STORE/ENTER key to save the entry and exit the setting.
- 2. Number of Bins:** Press the MENU/SETUP key followed by Code **1020**. Press the STORE/ENTER key. The screen will display **BINS** (Number of Bins). Press the STORE/ENTER key. The screen will display **00** or the current setting. Use the keypad to enter the number of bins or seed boxes. Default setting is **00**. Press the STORE/ENTER key to save the entry and exit the setting.
- 3. Backlight:** Press the MENU/SETUP key followed by Code **1030**. Press the STORE/ENTER key. The screen will display **BACKLT** (Backlight). Press the STORE/ENTER key. The screen will display either YES or NO. Default setting is **YES**. Press the Up or Down arrow key to toggle between YES and NO. Press the ENTER key to save the entry and exit the setting.
- 4. Unit of Measure:** Press the MENU/SETUP key followed by Code **1040**. Press the STORE/ENTER key. The screen will display **UNITS** (Unit of Measure). Press the STORE/ENTER key. The current unit of measure will be flashing in the upper left corner of the display screen. Press the Up or Down arrow key to toggle between lb and kg. Default setting is lb. When the desired Units setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

MENU

MODE Menu Settings (continued)

5. Average Rate: Press the MENU/SETUP key followed by Code **1050**. Press the STORE/ENTER key. The screen will display **AVE. RT** (Average Rate). Press the STORE/ENTER key. The current Average Rate setting will be displayed, Use the keypad to enter the setting for the system Average Rate. Default setting is **20**. To disable the averaging function, enter **1**. When the desired number has been entered, press the STORE/ENTER key to save the entry and exit the setting.



ATTENTION: The Average Rate setting represents the number of readings taken to obtain an average rate. Higher values will result in a more stable reading, but may take longer to calculate the final value. The scale updates internally at a rate of 10 times per second, so an Average Rate setting of 20 equates to a 2 second rolling average weight displayed on the screen.

6. Hold Enable: Press the MENU/SETUP key followed by Code **1070**. Press the STORE/ENTER key. The screen will display **HOLD.EN** (Hold Enable). Press the STORE/ENTER key. The screen will display either **NO** or **YES**. Default setting is **NO**. Press the Up or Down arrow key to toggle between **NO** and **YES**. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

7. Scoreboard Mode: Press the MENU/SETUP key followed by Code **1080**. Press the STORE/ENTER key. The screen will display **SC.MODE** (Scoreboard Mode). Press the STORE/ENTER key. The current Mode setting will be displayed. Press the Up or Down arrow key to toggle through the available Scoreboard Mode settings. Default setting is **BAR**.

MODE	FUNCTION
OFF	RS232 Output Disabled
STD	Standard Output
BAR	Output Including Bar Graph Data
GTN	GROSS, TARE, NET Output
TXT.BAR	Similar to BAR, but can include text

When the desired Scoreboard Mode setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

MENU

MODE Menu Settings (continued)

8. **RS232 Baud Rate Port 1:** Press the MENU/SETUP key followed by Code **1090**. Press the STORE/ENTER key. The screen will display **COM 1.00** (RS232 Baud Rate Port 1). Press the STORE/ENTER key. The current BAUD Rate setting is displayed. Press the Up or Down arrow key to toggle through the available RS232 Baud Rate Port 1 settings. Default setting is **115200**. When the desired setting has been selected, press the STORE/ENTER key to save entry and exit setting.

BAUD RATE PORT 1 SETTINGS				
1200	2400	4800	9600	19200
38400	57600	115200	230400	



ATTENTION: Baud Rate is the speed data is transmitted through a continuous serial output connected to a scoreboard or secondary display.

9. **RS232 Baud Rate Port 2:** Press the MENU/SETUP key followed by Code **1092**. Press the STORE/ENTER key. The screen will display **COM2.00** (RS232 Baud Rate Port 2). Press the STORE/ENTER key. The current BAUD Rate setting is displayed. Press the Up or Down arrow key to toggle through the available RS232 Baud Rate Port 2 settings. Default setting is **9600**. When the desired setting has been selected, press the STORE/ENTER key to save entry and exit the setting.

BAUD RATE PORT 2 SETTINGS				
1200	2400	4800	9600	19200
38400	57600	115200	230400	



ATTENTION: Baud Rate is the speed data is transmitted through a continuous serial output connected to a scoreboard or secondary display.

MENU

MODE Menu Settings (continued)

10. RS232 Baud Rate Port 3: Press the MENU/SETUP key followed by Code **1094**. Press the STORE/ENTER key. The screen will display **COM3.00** (RS232 Baud Rate Port 3). Press the STORE/ENTER key. The current BAUD Rate setting is displayed. Press the Up or Down arrow key to toggle through the available RS232 Baud Rate Port 3 settings. Default setting is **9600**. When the desired setting has been selected, press the STORE/ENTER key to save entry and exit the setting.

BAUD RATE PORT 3 SETTINGS				
1200	2400	4800	9600	19200
38400	57600	115200	230400	



ATTENTION: Baud Rate is the speed data is transmitted through a continuous serial output connected to a scoreboard or secondary display.

11. RS232 Baud Rate Port 4: Press the MENU/SETUP key followed by Code **1095**. Press the STORE/ENTER key. The screen will display **COM4.00** (RS232 Baud Rate Port 4). Press the STORE/ENTER key. The current BAUD Rate setting is displayed. Press the Up or Down arrow key to toggle through the available RS232 Baud Rate Port 4 settings. Default setting is **9600**. When the desired setting has been selected, press the STORE/ENTER key to save entry and exit the setting.

BAUD RATE PORT 4 SETTINGS				
1200	2400	4800	9600	19200
38400	57600	115200	230400	



ATTENTION: Baud Rate is the speed data is transmitted through a continuous serial output connected to a scoreboard or secondary display.

12. Scale ID: Press the MENU/SETUP key followed by Code **1100**. Press the STORE/ENTER key. The screen will display **SC ID** (Scale ID). Press the STORE/ENTER key. The current Scale ID setting will be displayed. Use the keypad to enter a Scale ID between 1 - 190. Default setting is **00 1**. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit setting.

MENU

MODE Menu Settings (continued)

13. Unload/Dispense Output Mode: Press the MENU/SETUP key followed by Code 1110. Press the STORE/ENTER key. The screen will display 1ISP.0 (Unload/Dispense Output Mode). Press the STORE/ENTER key. The indicator screen displays 0 or 1. Use the keypad to enter the desired setting for the Unload/Dispense Output mode. Default setting is 0. Press the STORE/ENTER key to save the entry and exit the setting.

SETTING	FUNCTION
0	No Relay Output Control
1	Auger or Clutch ON/OFF Control

14. Load Output Mode: Press the MENU/SETUP key followed by Code 1112. Press the STORE/ENTER key. The screen will display LOP1.0 (Load Output Mode). Press the STORE/ENTER key. The indicator screen displays 0 or 1. Use the keypad to enter the desired setting for the Load Output mode. Default setting is 0. Press the STORE/ENTER key to save the entry and exit setting.

SETTING	FUNCTION
0	No Relay Output Control
1	Auger or Clutch ON/OFF Control

15. TARE Sync: Press the MENU/SETUP key followed by Code 1140. Press the STORE/ENTER key. The screen will display TARE.5 (TARE Sync). Press the STORE/ENTER key. The screen displays 00 or the current setting. Use the keypad to enter the desired TARE Sync setting as referenced in the following table. Default setting is 2. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

SETTING	FUNCTION
00	0 = normal weight message
01	1 = weight + tare/bin message
02	2 = weight + tare + load/unload

MENU

MODE Menu Settings (continued)

16.Preact Type: Press the MENU/SETUP key followed by Code **1 150**. Press the STORE/ENTER key. The screen will display **PRE.TYP** (Preact Type). Press the Up or Down arrow key to toggle between Weight or Speed setting. Default setting is Weight. Press the STORE/ENTER key to save the entry and exit the setting. Refer to the LOAD/UNLOAD CONTROL SETTINGS section for details on the use of the Preact Weight and Speed related settings.

16.1. **Preact Weight:** Press the MENU/SETUP key followed by Code **1 152** if the Preact Weight setting was selected in step 16. Press the STORE/ENTER key. Enter a weight between 0 and 999999 (lb or (kg)). Default setting is **20**. When the desired weight has been entered, press the STORE/ENTER key to save the entry and exit the setting.

16.2. **Preact Speed:** Press the MENU /SETUP key followed by Code **1 154** if the Preact Speed setting was selected in step 16. Press the STORE/ENTER key. Enter a Preact lb/s value between 0 and 9999.9 lb/s. Default setting is **20.0**. When the desired speed setting has been entered, press the STORE/ENTER key to save the entry and exit the setting.



ATTENTION: Preact Weight setting, Code **1 152** has no influence on the Load/Unload operation when the Preact Speed setting, Code **1 154** is selected.

17.Beeper Enable: Press the MENU/SETUP key followed by Code **1 160**. Press the STORE/ENTER key. The screen will display **BEEPER** (Beeper Enable). Press the STORE/ENTER key. The screen displays **YES** (Beeper Enabled) or **NO** (Beeper Off). To change the setting, press the Up or Down arrow key to toggle between YES and NO. Default setting is **YES**. When desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

18.Load/Unload Tolerance: Press the MENU/SETUP key followed by Code **1 170**. Press the STORE/ENTER key. The screen will display **TOLERR** (Load/Unload Tolerance). Press the STORE/ENTER key. The current Load/Unload Tolerance setting is displayed. Use the keypad to enter a maximum tolerance setting between 0 and 999999. The Default setting is **20**. The Load/Unload tolerance is amount of weight that can be short of the target weight and automatically complete a load or unload action. When the desired setting has been entered, press the STORE/ENTER key to save the entry and exit the setting.

MENU

MODE Menu Settings (continued)

19. Motion Weight Limit: Press the MENU /SETUP key followed by Code **1180**. Press the STORE/ENTER key. The screen will display **MOTION** (Motion Weight Limit). Press the STORE/ENTER key. The current Motion Weigh Limit setting is displayed. Use the keypad to enter a Motion Weight Limit setting between 0 and 999999. Enter **0** to disable the Motion Weight Limit function. Default setting is **0**. The Motion Weight Limit is the weight variation over 1.5 seconds allowed and still permit a load/unload action to complete or advance. When the desired setting has been entered, press the STORE/ENTER key to save the entry and exit the setting.

20. Pre-Alarm: Press the MENU/SETUP key followed by Code **1190**. Press the STORE/ENTER key. The screen will display **PRE.ALAR** (Pre-Alarm). Press the STORE/ENTER key. The current Pre-Alarm setting is displayed. Use the keypad to enter a weight between 0 and 999999. This is the weight at which the Alarm will begin to beep and the LED will start to blink. Default setting is **200**. When desired setting has been entered, press the STORE/ENTER key to save the entry and exit the setting.

21. Feed Management Protocol: Press the MENU/SETUP key followed by Code **1200**. Press the STORE/ENTER key. The screen will display **F.M.PROT** (Feed Management Protocol). Press the STORE/ENTER key. The screen displays either **0** (Disable Feed Management Protocol) or **1** (Enable Feed Management Protocol). If required, press the Up or Down arrow key to toggle between 0 and 1. Default setting is **1**. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

22. Scoreboard Output: Press the MENU/SETUP key followed by Code **1250**. Press the STORE/ENTER key. The screen will display **SC.PORT** (Scoreboard Output). Press the STORE/ENTER key. The current setting is displayed. Press the Up or Down arrow key to toggle through the available Scoreboard Output settings. Default setting is **COM3**. Settings COM 1 to COM 4 are RS232 outputs. Setting BT is for the Bluetooth wireless connection. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

SCOREBOARD PORT ASSIGNMENT					
OFF	COM 1	COM2	COM3	COM4	BT



ATTENTION: Refer to the RS232 OUTPUT - SCOREBOARD MODES section for additional information.

MENU

MODE Menu Settings (continued)

23. Feed Management Interface: Press the MENU/SETUP key followed by Code **1250**. Press STORE/ENTER key. The screen will display **FM.PORT** (Feed Management Interface) Press the STORE/ENTER key. The current setting is displayed. Press the Up or Down arrow key to toggle through the available Feed Management Output settings. Default setting is **COM 1**. Settings COM 1 and COM 2 are RS232 outputs. Setting BT is for the Bluetooth wireless connection. When the desired setting has been selected, press STORE/ENTER key to save the entry and exit setting.

FEED MANAGEMENT PORT ASSIGNMENT			
OFF	COM 1	COM2	BT

24. Transmission Gear Output: Press the MENU/SETUP key followed by Code **1270**. Press the STORE/ENTER key. The screen will display **TG.PORT** (Transmission Gear Output). Press the STORE/ENTER key. The current setting is displayed. Press the Up or Down arrow key to toggle through the available Transmission Gear Output settings. Default setting is **COM2**. Settings COM 1 to COM 4 are RS232 outputs. Setting BT is for the Bluetooth wireless connection. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

TRANSMISSION GEAR PORT ASSIGNMENT					
OFF	COM 1	COM2	COM3	COM4	BT



ATTENTION: Refer to the RS232 OUTPUT - DATA OUTPUT FORMATS section for additional information.

25. Date and Time Mode: Press the MENU/SETUP key followed by Code **1300**. Press the STORE/ENTER key. The screen will display **YEAR** (Date and Time Mode). Press the STORE/ENTER key. The current YEAR setting is displayed. Use the keypad to enter the desired year between **1970** and **2099**. When the year has been entered, press the STORE/ENTER key to save the entry and advance to the next step.



ATTENTION: Pressing the MENU/SETUP key after entering the DATE settings (Year, Month and Date) will save the Date entries only and exit the setting. If the MENU/SETUP key is pressed before the three date settings are entered, none of the Date settings will be saved.

25.1. The screen will display **MONTH**. Press the STORE/ENTER key. The current Month is displayed. Enter a number between 1 and 12 that corresponds to the desired Month (Jan to Dec). When the correct number is displayed, press the STORE/ENTER key to save the entry and advance to the next step.

MENU

MODE Menu Settings (continued)

25.2. The screen will display **DATE**. Press the STORE/ENTER key. The current Date setting is displayed. Use the keypad to enter the desired date between 1 and 31. When the desired date has been entered, press the STORE/ENTER key to save the entry and advance to the next step.



ATTENTION: If an invalid date is entered (ex: Feb 30), the indicator will display the message **ERROR** and then return to the **MONTH** entry.

25.3. The screen will display **HOURL**. Press the STORE/ENTER key. The current Hour setting will be displayed. Use the keypad to enter the desired hour setting between 1 and 12. When the desired hour has been entered, press the STORE/ENTER key to save the entry and advance to the next step.

25.4. The screen will display **MINUTE**. Press the STORE/ENTER key. The current Minute setting is displayed. Use the keypad to enter the desired minute setting between 1 and 59. When the desired minute setting has been entered, press the STORE/ENTER key to save the entry and advance to the next step.

25.5. The screen will display **AM** or **PM**. Press any arrow key to toggle between AM and PM. When the desired setting is displayed, press the STORE/ENTER key to save the entry and exit the setting.

26. To exit the MODE Menu, press the MENU/SETUP key.

LOAD/UNLOAD OPERATION

LOAD/UNLOAD OVERVIEW

PREACT WEIGHT SETTING

The PRACT weight setting compensates for seed that is still in-flight as the auger/conveyor is stopped or a door/gate is being closed at the end of an Auto Dispense operation. Factors influencing the PRACT setting adjustment include chute size or length, gate time opening and closing, or seed type and weight.



ATTENTION: PRACT setting adjustments are accessed in the MODE Menu under MODE Menu Settings, Step 13, Codes 1150, 1152, 1154.

1. If a seed tender is dispensing too much seed, increase the PRACT Weight or Percentage setting value by the overfill weight amount. For Example: If the final dispense weight is overshooting by 10 lbs, increase the PRACT Weight setting by 10 lbs or by the percentage of total weight that comprises the overfill.
2. If the seed tender is dispensing too little seed, decrease the PRACT Weight setting value by the under fill weight amount or percentage.

LOAD/UNLOAD STATUS

The following table references the display status of load and unload operations. When a load or unload action has been set up, the message **LOAD** or **UNLOAD** will be displayed. When the load or unload action has begun, the Red Warning LED located in the middle of the screen above the LED characters will be illuminated. The LED indicator will begin to blink as the weight gets closer to zero.

DISPLAY STATUS	FUNCTION
LOAD or UNLOAD Not Displayed	Normal Mode. Dispense not ready. Optional external key operates in Pass-Through mode and will not trigger a dispense action.
LOAD or UNLOAD Displayed, LED Off	Load/Unload Ready. The indicator is ready to start a Load/Unload action. Optional external key can initiate a dispense operation.
LOAD or UNLOAD Displayed, LED On	Load/Unload Action Active
LOAD or UNLOAD Displayed, LED Blinking	Load/Unload Active. Weight has reached the Pre-Alarm weight. Blink rate will increase as the weight gets closer to zero.

LOAD/UNLOAD OPERATION

LOAD/UNLOAD CONTROL SETTINGS

The following table provides a brief description on the use of settings used to manage Preact

SETTING	LOAD/UNLOAD FUNCTION
Unload Timer Load	Unload Timer Load setting Code 2010 . This is used to determine the type of Preact setting to use (Weight or Speed). Load/unload weights lower than this value will use the Preact Speed method, and load/unload weights higher than this value will use the Preact Weight method. If zero is entered here, the Preact Type setting decides which preact method is used.
Preact Type	Preact Type setting Code 1150 is used to set the type of Preact (Weight or Speed) when Unload Timer Load is set to 0.
Preact Weight	Preact Weight setting Code 1152 is used to set the Preact Weight. The load/unload action will stop immediately when the weight reaches the Preact Weight setting.
Preact Speed	Preact Speed setting, Code 1154 . This setting (lb/sec) is used for a load/unload action based on a timer rather than monitoring weight changes: Unload Time = (Unload Weight / Preact Speed).
Tolerance	The Tolerance setting, Code 1170 , is used to set the maximum weight variance allowed at the end of the load/unload action.
Motion	The Motion setting, Code 1180 is used to detect motion. If no motion is detected over a period of 1.5 seconds, the load/unload action will stop.
Pre-Alarm	The Pre-Alarm setting, Code 1190 is used to provide audio and visual notification that commences when the load/dispense weight reaches the Pre-Alarm weight setting.



ATTENTION: If the Tolerance setting Code **1170** or the Motion setting Code **1180** are activated prior to the PRACT setting, the unload action will stop.

LOAD/UNLOAD OPERATION

Load/Unload Controls Settings (continued)

TYPICAL LOAD/UNLOAD SETTING APPLICATIONS

AUTOMATIC RELAY OUTPUT CONTROLS

For systems wired with direct auger or conveyor control, the Load/Unload settings can be used to activate automatic relay control to end the operation. In this example, the output will turn off automatically when the weight is within 50 lb of the target weight, allowing time for the in-flight product to finish dispensing. The PRE.WGT setting is also prompted during each dispense operation, and can be adjusted experimentally to fine tune the amount dispensed.

Setting Example:

1. Set DISP, Code 1110 or the LOAD, Code 1112 = 1
2. Set TOLERR, Code 1170 to 0
3. Set MOTION, Code 1180 to 0
4. Set PRE.FLR, Code 1190 to 0
5. Set UTL, Code 2010 = 0
6. Set PRE.TYP, Code 1150 = WEIGHT
7. Set PRE.WGT, Code 1152 = 50

AUDIO/VISUAL ALARM SIGNALS

Audio and visual alarm alert the operator to manually stop the flow of product as it reaches target weight. In this example, the alarm will start blinking when the weight is within 200 lb of the target weight, with the alarm rate increasing as the weight gets closer to the target. When the weight is within 20 lb of the target weight, the operation will end and the indicator will return to normal mode.

Setting Example:

1. Set DISP, Code 1110 or the LOAD, Code 1112 = 0
2. Set TOLERR, Code 1170 = 200
3. Set MOTION, Code 1180 = 0

LOAD/UNLOAD OPERATION

Load/Unload Controls Settings (continued)

4. Set PRE.ALAR, Code 1 190 = 200
5. Set UTL, Code 20 10 = 0
6. Set PRE.TYP, Code 1 150 = WEIGHT
7. Set PRE.WGT, Code 1 152 = 0

LOAD OUTPUT MODES

LOAD, OUTPUT MODE 0 (No Automatic Control)

1. Press the LOAD key to commence a load operation. The screen will momentarily display L0R0 followed by 5 digits. The weight entered from the last load action will be displayed by default.
2. Enter the weight of product to be loaded. Press the STORE/ENTER key. The screen will display L0R0. The indicator is now in Load mode and ready to begin a load action.
3. To begin loading product, press the START/STOP key. The red Load/Unload LED will be illuminated. The screen will display the live weight along with the weight of product remaining to be loaded. As the loading continues, the Load/Unload LED will begin to blink. The displayed weight will decrease as the weight on the scale increases. If a scoreboard display with bar graph is used, the bar graph will increase from 0% to 100% over the duration of the loading operation.
4. As the loading process approaches the Pre-Alarm weight, the alarm will begin to beep. The beep rate increases as the load gets closer to the pre-alarm weight setting. The red Load/Unload LED will begin to blink faster.
5. To stop the load action, press the START/STOP key. Alternatively, if the Tolerance and Motion settings (refer to MODE Menu) are enabled, the load action will stop when the load reaches the tolerance or motion tolerances entered.
6. When the loading is completed, the displayed weight will be near zero. The indicator may display a small positive or negative number representing the weight under or over the desired target weight.
7. To repeat a load operation with the same weight, press the START/STOP key.

LOAD/UNLOAD OPERATION

Load Output Modes (continued)

LOAD, OUTPUT MODE 1 (Auger or Clutch ON/OFF Control)

1. Press the LOAD key to commence a load operation. The screen will momentarily display **L O A D** followed by 5 digits. The weight entered from the last load action will be displayed by default.
2. Enter weight of product to be loaded. Press the STORE/ENTER key. The screen will display **L O A D**.
3. If the Load weight entered in Step 2 is less than the Unload Timer weight, the screen will briefly display **PRE.SP** (Speed Preact). Enter a weight between 0 and 9999.9. Default setting is **20.0** lbs. The Output Time (Load Time) equals Load Weight/Speed Preact. The indicator is now in Load Ready mode and ready to begin a load action.
4. If the Load Weight entered in Step 2 is greater than the Unload Timer weight, the screen will briefly display the message **PREACT**. The number 00040 (or previously saved value) will be displayed followed by 5 digits. Enter the PRACT amount and press the STORE/ENTER key (previously entered value will be displayed as default). The LOAD/UNLOAD LED will be illuminated solid red. The indicator is now in Load Ready mode and ready to begin a load action.
5. To begin loading product, press the START/STOP key. The red Load/Unload LED will be illuminated. The screen will display the live weight along with the weight of product remaining to be loaded. As the loading continues, the Load/Unload LED will begin to blink. The displayed weight will decrease as the weight on the scale increases. If a scoreboard display with bar graph is used, the bar graph will increase from 0% to 100% over the duration of the loading operation.
6. As the loading process approaches the PRACT weight, the PRACT Weight alarm will begin to beep. The beep rate increases as the load gets closer to the PRACT weight. The red Load/Unload LED will begin to blink faster.
7. The load action will automatically stop when the dispensed weight reaches the PRACT weight or speed (lb/second), depending on the type of PRACT set in the MODE Menu. Alternatively, if the Tolerance and Motion settings (refer to MODE Menu) are activated prior to the PRACT settings, the unload action will stop.
8. When the loading is completed, the displayed weight will be near zero. The indicator may display a small positive or negative number representing the weight under or over the desired target weight.
9. To repeat a load operation with the same weight, press the START/STOP key.

LOAD/UNLOAD OPERATION

UNLOAD/DISPENSE MODES

UNLOAD/DISPENSE, OUTPUT MODE 0 (No Automatic Control)

1. Press the UNLOAD key to commence an unload/dispense operation. The screen will momentarily display **UNLOAD** followed by 5 digits. The weight entered from the last unload action will be displayed by default.
2. Enter the weight of the product to be unloaded/dispensed. Press the STORE/ENTER key. The screen will display **UNLOAD**. The indicator is in Unload mode and ready to begin unloading product.
3. Press the START/STOP key. The red Load/Unload LED will be illuminated. The screen will display the live weight along with weight of remaining to be unloaded.
4. Proceed to unload the product. The displayed weight will decrease as the weight on the scale decreases. If a scoreboard display with bar graph is used, the bar graph will decrease from 100% to 0% during the unloading of product.
5. When the unload/dispense action has been completed for the row or tank, press the START/STOP key. To begin the unload/dispense for a new row or tank, press the START/STOP key.
6. When the unload action has been completed, the displayed weight will be near zero. The indicator may display a small positive or negative number that represents the weight of product under or over the desired target unload/dispense weight.
7. Press the START/STOP key to stop the unload action and return to Unload Ready mode (normal gross/net/bin display). Alternatively, pressing the CLEAR or GROSS/NET key will return the indicator screen to Unload Ready mode.
8. To repeat an unload operation with the same weight; press the START/STOP key.

UNLOAD/DISPENSE, OUTPUT MODE 1 (Auger or Clutch ON/OFF Control)

1. Press the UNLOAD key to commence an unload/dispense operation. The screen will momentarily display **UNLOAD** followed by 5 digits. The weight entered from the last unload action will be displayed by default.
2. Enter the weight of product to be unloaded/dispensed. Press the STORE/ENTER key. The screen will display **UNLOAD**.

LOAD/UNLOAD OPERATION

Unload Dispense Output Mode 1 (continued)

3. If the Unload weight entered in Step 2 is greater than the Unload Timer Load weight, the screen will briefly display the message **PREACT**. The number 00040 (or previously saved value) will be displayed followed by 5 digits. Enter the PREACT amount and press the STORE/ENTER key (previously entered value will be displayed as default). The LOAD/UNLOAD LED will be illuminated solid red. The indicator is now in Unload Ready mode standing by to begin the unload operation.
4. If the Unload weight entered in Step 2 is less than the Unload Timer weight, the screen will briefly display **PRE.SPD**, Preact Speed. Enter a weight between 0 and 9999.9. Default setting is **20.0** lbs. The Output Time (Unload Time) equals Unload Weight/Speed Preact.

EXAMPLE: 150 lbs Unload Weight with Speed Preact setting of 20
UNLOAD TIME = $150 \div 20 = 7.5$ seconds
The output will stop automatically after 7.5 seconds has elapsed

When the desired Speed Preact weight has been entered, press the STORE/ENTER key. The LOAD/UNLOAD LED will be illuminated solid red. The indicator is now in Unload Ready mode standing by to begin the unload operation.

5. To begin unloading product, press the START/STOP key. The red Load/Unload LED will be illuminated. The screen will display the live weight along with the weight of product remaining to be unloaded.
6. As the unloading continues, the Load/Unload LED will begin to blink. The displayed weight will increase as the weight on the scale decreases. If a scoreboard display with bar graph is used, the bar graph will decrease from 100% to 0% over the duration of the unloading operation.
7. When the PREACT weight has been reached, the relay will be disabled and the auger/conveyor will stop. The LED will stop blinking and turn off. Product will continue to dispense, stopping at the completion of the dispense operation. The GROSS or BIN weight is displayed after an adjustable Time After Dispense delay.
8. To commence a new unload/dispense action using the same settings, press the START/STOP key. If a new dispense or PREACT weight is required, press the UNLOAD key to enter the new weight.



ATTENTION: To stop the unload/dispense operation prior to reaching the PREACT weight, press the START/STOP key. The indicator will return to Dispense Ready Mode and a new dispense can be started. Press the CLEAR key at any time to return to normal mode (dispense not ready).

LOAD/UNLOAD OPERATION

SPLIT LOAD/UNLOAD FUNCTION

The LD820 SPLIT Unload function is used to split a load between a number of rows or tanks.



ATTENTION: To enable the Split Unload feature, access the Calibration Menu, Code **2020**, **SPL.L**] (Split on Load). Select setting YES. When Split on Load is enabled, the LOAD key will function as the SPLIT key. Additionally, the RM key then functions as the LOAD key.

1. Press the SPLIT (LOAD) key to unload/dispense product equally across a set number of rows or tanks.
2. The Split Unload message **S.LDR**] is momentarily displayed followed by the weight to be split between the rows/tanks. If required, the weight can be edited. Use the keypad to enter the desired weight. When the desired weight has been entered, press the STORE/ENTER key to save the setting and proceed to the next step.
3. The message **SPLIT** is momentarily displayed followed by number of rows/tanks that will receive product. If required, the number of rows/tanks can be edited. Use the keypad to enter the desired number of rows/tanks. When the desired number of rows/tanks have been entered, press the STORE/ENTER key. The indicator automatically calculates the split weight (total weight entered in step 2 divided by the number of rows/tanks entered in step 3). The result is displayed in step 4.
4. The message **UNLDR**] is momentarily displayed, followed by the Split Weight Unload amount calculated in step 4. If required, the entry can be edited using the keypad. When the desired weight has been entered, press the STORE/ENTER key to save the setting and proceed to the next step.
5. Press the START/STOP key to begin unloading product. The displayed weight will increase as the weight on the scale decreases. If a scoreboard display with bar graph is used, the bar graph will decrease from 100% to 0% during the unloading process.
6. The unload action will automatically stop when the dispensed weight reaches the PRACT weight or percentage of weight that was set in the MODE Menu. Alternatively, if the Tolerance and Motion settings (refer to MODE Menu) are activated prior to the PRACT settings, the unload action will stop.
7. When unloading is completed, the displayed weight will be near zero. The indicator may display a small positive or negative number that represents the weight of product under or over the desired target unload/dispense weight.
8. To repeat an unload operation with the same weight; press the START/STOP key.

LOAD/UNLOAD OPERATION

PASS-THROUGH MODE (Default Mode - Dispense Not Ready)

When in Normal mode (dispense not ready, LED off), the Indicator will pass-through the external key functions and will not trigger a dispense operation. If required, press the CLEAR key to reset the LOAD/UNLOAD LED and return the indicator to Normal mode.

STR REMOTE HANDHELD

When using an optional STR Remote to control the internal relay for the dispense operations, verify the indicator is in Normal mode (Dispense Not Ready, LED Off). If required, press the CLEAR key to reset the LOAD/UNLOAD LED and return the indicator to Normal mode.

CALIBRATION

CALIBRATION MENU

1. To initiate a calibration, press the MENU/SETUP key. The message *MENU* will be displayed.
2. Enter the desired code referenced in the following Calibration Menu table.
3. Some settings require a number to be entered, while other settings will have preset selections to choose from. Use the keypad to enter numbers. Use the arrow keys to toggle through and edit preset selections.
4. When the desired setting has been entered or selected, press the STORE/ENTER key to save the entry and exit the menu. The indicator can be turned off if no other settings require editing.



ATTENTION: Alternatively, entering code 477 will go through each calibration menu option.

CODE	DESC	FUNCTION	SETTING	DEFAULT
2010	UTL	Unload Timer Load	0 to 99999.9	0
2020	SPL.LD	Split on Load	YES or NO	NO
2030	RF.ENABLE	Radio Enable	YES or NO	NO
	RF. CH	Radio Channel	01 to 12	04
	RF. ID	Radio Network ID	0 to 65534	8000
	RF.ENCP	Radio Encryption Enable	Yes or No	NO
		Radio Encryption Key	0 to 65534	00000
2050	RF.DEF	Restore Radio Defaults	0 or 3	0
2060	AZT	AZT (Auto Zero Tracking)	OFF, 0.6 d, 1 d, 3 d, 0.5 d	3 d
2070	GRAD	Graduation Size	0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100 (lb or kg)	1 2
2080	CAPCTY	Scale Capacity	1-999999 (lb or kg)	999999

CALIBRATION

CALIBRATION SETTINGS

1. **Unload Timer Load:** Press the MENU/SETUP key followed by Code **2010**. Press the STORE/ENTER key. The screen will display **UTL** (Unload Timer Load). Press the STORE/ENTER key. The screen displays the current setting. The Unload Timer Load setting is used to determine which of the Preact settings to apply to a load or unload operation. When the load/unload weight is greater than the Unload Timer Load setting, Weight Preact setting Code **1152** is used. When the load/unload weight is less than the Unload Timer Load setting, Speed Preact setting Code **1154** is used. If zero is entered here, the Preact Type setting decides which Preact method is used. Use the keypad to enter a weight between 0 and 99999.9. Default is **0**. When the desired weight has been entered, press the STORE/ENTER key to save the entry and exit the setting.
2. **Split on Load:** Press the MENU/SETUP key followed by Code **2020**. Press the STORE/ENTER key. The screen will display **SPL.L** (Split on Load). Press the STORE/ENTER key. The current setting is displayed. If required, press the Up or Down arrow keys to toggle between NO (disable) or YES (Enable). Default setting is NO. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.
3. **Radio Enable:** Press the MENU/SETUP key followed by Code **2030**. Press the STORE/ENTER key. The screen will display **RF. ENA** (Radio Enable). Press the STORE/ENTER key. The current setting is displayed. Press the Up or Down arrow keys to toggle between NO or YES. If NO is selected, there is no need to edit the other radio settings. Press the STORE/ENTER key to save the entry and exit the setting. If YES is selected, continue through steps 3.1 to 3.4.
 - 3.1 **Radio Channel:** The screen will display **RF. CH**. Press the STORE/Enter key. The current setting will be displayed. If required, use the keypad to enter a radio channel between 1 and 12. Default setting is **04**. When the desired channel has been entered, press the STORE/ENTER key to save the setting.
 - 3.2 **Radio Network ID:** screen will display **RF. ID**. Press the STORE/Enter key. The current ID setting is displayed. Use the keypad to enter an ID setting between 0 and 65534. Default setting is **8000**. When the desired ID has been entered, press the STORE/ENTER key to save setting.

CALIBRATION

Calibration Settings (continued)

3.3 Radio Encryption Enable: The screen will display **RF.ENC**. Press the STORE/ENTER key. The current status is displayed. Press the Up or Down arrow keys to toggle between NO and YES. Select NO to disable encryption. Select YES to enable encryption. Default setting is NO. When the desired status is selected, press the STORE/ENTER key to save the setting.

3.4 Radio Encryption Key: If the Radio Encryption Enable setting YES is selected, the current encryption key is displayed. If required, use the keypad to enter an encryption ID between 0 and 65534. Default setting is **00000**. When the desired encryption ID is entered, press the STORE/ENTER key to save the entry and exit the setting.

4. Restore Radio Defaults: Press the MENU/SETUP key followed by Code **2050**. Press the STORE/ENTER key. The screen will display **RF.DEF** (Restore Radio Defaults). Press the STORE/ENTER key. The current default setting is displayed. If required, use the keypad to enter either **0** to keep the existing radio settings, or select setting number **3** to restore default radio settings (set at the factory). Default setting is **0**. When the desired setting has been selected, press the STORE/ENTER key to save the entry and exit the setting.

5. Auto Zero Tracking: Press the MENU/SETUP key followed by Code **2060**. Press the STORE/ENTER key. The screen will display **AZT** (Auto Zero Tracking). Press the STORE/ENTER key. The current AZT setting is displayed. If required, use the keypad to enter one of the AZT settings referenced in the following table. Default setting is **3 d**. When the desired setting has been entered, press the STORE/ENTER key to save the entry and exit the setting.

AZT SETTINGS	
OFF, 0.6 d, 1 d, 3 d, 0.5 d	

CALIBRATION

Calibration Settings (continued)

6. **Graduation Size:** Press the MENU/SETUP key followed by Code **2070**. Press the STORE/ENTER key. The screen will display **GRAD** (Graduation Size). Press the STORE/ENTER key. The current setting is displayed. If required, use the keypad to enter the desired Graduation Size in either lb or kg unit of measure. The default setting is **2** **d**. When the desired size has been entered, press the STORE/ENTER key to save the entry and exit the setting.

GRADUATION SIZE SETTINGS					
0.02	0.05	0.1	0.2	0.5	1
2	5	10	20	50	100

7. **Scale Capacity:** Press the MENU/SETUP key followed by Code **2080**. Press the STORE/ENTER key. The screen will display **CAPCTY** (Scale Capacity). Press the STORE/ENTER key. The current capacity is displayed. If required, use the keypad to enter a capacity between 1 and 999999 in either lb or kg unit of measure. Default setting is **999999**. When the desired capacity has been entered, press the STORE/ENTER key to save the entry and exit the setting.

CALIBRATION OPTIONS

The LD820 LED Indicator has four scale calibration options available for conducting a comprehensive calibration of the weigh system.

CODE CALIBRATION WITH mV/V

Calibrate the system by entering the load point (lb or kg) per load cell, signal (mV/V), and number of load cells. The mV/V calibration can also be adjusted by following the procedure set forth in the mV/V Calibration section.

FIELD CALIBRATION WEIGHT ENTRY ADJUSTMENT

The Field Calibration Weight Entry Adjustment should only be attempted if the scale is working but the weights are off. Adjust the displayed weight by entering the Displayed Weight and a Certified Weight. The LD820 will automatically calculate an internal factor which is applied to all displayed weights for future weighings.

FIELD CALIBRATION FACTOR ADJUSTMENT

Field Calibration Factor Adjustment is used to view or edit the Field Cal Factor directly.

CALIBRATION

Calibration Options (continued)

WEIGHT CALIBRATION

Weight Calibration should only be attempted if the calibration has been lost. Apply known weight(s) and enter the value of those weights into the indicator. The scale must be unloaded at the start of the procedure, with a known weight ready to be loaded.



WARNING: When a Weight Calibration is performed, the Field Calibration Adjustment is automatically reset to the default setting of 1.0000.

CALIBRATION PROCEDURES

MV/V CALIBRATION



WARNING: The mV/V calibration parameters will be overwritten when advancing through the mV/V calibration menu. Do not advance through the mV/V Calibration steps unless the following conditions are present.

1. A certified Load Cell Simulator is available.
2. There is a requirement to change the mV/V calibration.

The mV/V calibration of the indicator is accomplished at the factory prior to shipment. A certified load cell simulator is required to perform the mV/V adjustment. Connect a simulator to CH1 and leave any other CHs open.

STEP	FUNCTION	SETTING	DEFAULT
0020	Menu ID Code	Enter 20 for mV/V Calibration	20
SIM-00	Simulator Set to 0.0 mV/V		
SIM-LL	Simulator Set to x.x mV/V	Enter simulator setting	1.0000

1. Press the MENU/SETUP key followed by Step Code 20. Press the STORE/ENTER key.
2. SIM-00 is displayed. Set the simulator to 0 mV/V. Press the STORE/ENTER key.
3. SIM-LL is displayed. Press the STORE/ENTER key. Set the simulator to the desired value. Enter the same value using the LD820 keypad. Press the STORE/ENTER key to save the mV/V Calibration and return to normal operation.

CALIBRATION

Calibration Procedures (continued)

CODE CALIBRATION

STEP	FUNCTION	SETTING	DEFAULT
002 1	Menu ID Code	Enter 21 for Code Calibration	2 1
CC-L]	Load Point (in lb or kg)	1 to 999999	10000
CC-SIG	Signal (mV/V)	0.1000 to 99.9999	1.0000
CC-NUM	Number of Load Cells	1-99	1

1. Press the MENU/SETUP key followed by Step Code 2 1. Press the STORE/ENTER key.
2. CC-L] (Load Point) is displayed. Press the STORE/ENTER key. Enter the capability each load cell is rated for at a specific mV/V output. The load or cell capacity may be listed on the load cell label or data sheet. Press the STORE/ENTER key to save the entry and advance to the next step.
3. CC-SIG (Signal mV/V) is displayed. Press the STORE/ENTER key. Enter the mV/V output corresponding to the load entered in step 2. The output value may be listed on the load cell label or data sheet. Press the STORE/ENTER key to save the entry and advance to the next step.
4. CC-NUM (Number of Load Cells) is displayed. Press the STORE/ENTER key. Enter the number of cells in the system. Press the STORE/ENTER key to save the entry and return to normal operation.

CALIBRATION

Calibration Procedures (continued)

FIELD CALIBRATION WEIGHT ENTRY ADJUSTMENT

Adjust the displayed weight by entering the Displayed Weight and a Certified Weight. The indicator will automatically calculate an internal factor that will be applied to all subsequent displayed weights.



WARNING: Performing a field calibration adjustment should only be attempted if a certified or trusted weight is available to compare the displayed gross weight against. The indicator should display the gross weight prior to starting the adjustment.

STEP	FUNCTION	SETTING	DEFAULT
003 1	Menu ID Code	Enter 31 for Field Cal Weight Entry Adjustment	31
DISP.L	Displayed Load (weight)	1 to 999999	
CERT.L	Certified Load (weight)	1 to 999999	

1. Press the MENU/SETUP key followed by Step Code 003 1. Press the STORE/Enter key.
2. DISP.L (Displayed Load) is displayed. Press the STORE/ENTER key. Use the keypad to enter the current displayed load weight. If there is a load on the scale, the weight will automatically be populated to the display, but can later be edited. Press the STORE/ENTER key to save the setting and advance to the next step.
3. CERT.L (Certified Load) is displayed. Press the STORE/ENTER key. Use the keypad to enter a certified or trusted weight between 1 and 999999. Press the STORE/ENTER key to save the entry and return to normal operation. An internal Field Cal Factor will be calculated automatically and applied to all subsequent displayed weights.

CALIBRATION

Calibration Procedures (continued)

FIELD CALIBRATION FACTOR ADJUSTMENT

View or edit the Field Calibration Factor directly.

STEP	FUNCTION	SETTING	DEFAULT
0030	Menu ID Code	Enter 30 for Field Cal Factor	30
FL I.FAC	Field Cal Factor Value	0.1000 to 9.9999	1.0000

1. Press the MENU/SETUP key followed by Step Code 0030. Press STORE/ENTER key.
2. FL I.FAC (Field CAL Factor Value) is displayed. Press the STORE/ENTER key.
3. Use the keypad to enter the value calculated in step 2. The new factor will be applied to all subsequent displayed weights. Default Field Cal Factor is 1.0000. The Field Cal Factor is reset to 1.0000 when performing a new Code or Weight calibration. When the Cal Factor has been entered, press the STORE/ENTER key to save the entry and return to normal operation.

EXAMPLE: To increase the weight by 1%, increase the factor by 1%. If the factor is set at the default setting of 1.0000, change the setting to 1.0100 to increase weights by 1%.

WEIGHT CALIBRATION



WARNING: Weight Calibration parameters will be overwritten when advancing through the Weight Calibration menu. Do not advance through the Weight Calibration steps unless the following conditions are present.

1. The required number of Known Weight(s) is available.
2. There is a requirement to change the Weight Calibration.

The scale must be unloaded at the start of the calibration. A known weight(s) must be readily available to be loaded on the scale.

STEP	FUNCTION	SETTING	DEFAULT
1001	Menu ID Code	Enter 1001 for Weight Calibration	1001
LL - 00	No Weight Applied		
LL - 01	Apply Weight #1	Enter weight #1 (1 - 999999)	

CALIBRATION

Calibration Procedures (continued)

1. Press the MENU/SETUP key followed by Step Code **100 1**. Press the STORE/ENTER key.
2. **LL-00** is displayed. Verify there is no weight applied to the scale. Press the STORE/ENTER key.
3. **LL-0 1** is displayed. Apply Weight #1 (first calibration point), then press the STORE/ENTER key.
4. Use the keypad to enter the weight of Load #1. Press the STORE/ENTER key to save the entry.
5. If required, repeat steps 2 to 4 to enter up to 2 additional calibration points.
6. If no other calibration points are required, turn the indicator off or press the STORE/ENTER key to return to normal operation.

CALIBRATION STEP CODES

CAL MODE	ENTER CAL MODE # AFTER <i>STEP</i> in CAL MENU Diagnostic Use Only - Contact Intercomp Service Before Proceeding
0000	Advance through MODE Menu
0477	Advance through CALIBRATION Menu
0020	mV/V calibration (calibrate mV/V input using a certified LC simulator)
002 1	Code Calibration (set system calibration by entering cell load and mV/V info)
0030	Field Calibration Direct Adjustment
003 1	Field Calibration Weight Entry Adjustment
0 12 1	Raw Counts display diagnostic. 0mV/V = 50000. 10000 per mV/V
0 122	Raw mV/V display. Output based on mV/V calibration
03 1 1	Default and save all radio settings to the radio
07 1 1	Default and save all settings (leave calibration untouched). Enter 711 again to confirm
09 1 1	Default and save all board memory (settings and calibration). Enter 911 again to confirm
100 1	Weight Calibration. Apply weight(s) to calibrate, lb or kg

RS232 OUTPUT

COM PORT ASSIGNMENTS

The LD820 has three output/interface types that can be accessed in the MODE Menu. Each of the output or interface types can be assigned to one of the (4) RS232 COM ports (1 through 4) or to a Bluetooth wireless connection. The desired output can be selected using one of the codes referenced in the following table.



ATTENTION: Feed Management Interface Output, Code **1260** is bi-directional and not compatible with COM Ports 3 and 4 which are transmit (TX) only.

CODE	OUTPUT	FUNCTION
1250	SC.PORT	Scoreboard Output
1260	FI.PORT	Feed Management Interface
1270	TG.PORT	Transmission Gear Output

1. The Scoreboard Output (SC.PORT) is used to communicate with a scoreboard.
2. The Feed Management Interface (FI.PORT) is used to manage a 3rd party software connection.
3. The Transmission Gear Output (TG.PORT) is used to communicate with other ancillary agriculture weighing products.

DATA OUTPUT FORMATS

SCOREBOARD AND FEED MANAGEMENT INTERFACE

The Scoreboard and Feed Management outputs communicate using the following format:

FORMAT	DESCRIPTION
Data Bits	8
Parity	None
Stop Bit	1
Flow Control	None

RS232 OUTPUT

DATA Port Assignment (continued)

TRANSMISSION GEAR

The Transmission Gear output communicates using the following format:

FORMAT	DESCRIPTION
Data Bits	7
Parity	Even
Stop Bit	1
Flow Control	None

The Transmission Gear output will always transmit the gross weight regardless of what mode is displayed on the screen. This message will be transmitted at a rate of 10 times per second on the RS232 output.

DATA FORMAT

- Start of text character <STX>
- Six digit serial gross weight (whole number) value
- LB or KG unit of measure
- Space character
- SG to identify serial gross weight (ER is displayed if there is a scale error)
- End of text character <ETX>
- Checksum character value that includes all bytes starting after the <STX> up through, but not including the <ETX>. The Checksum calculation is shown below.
- Carriage return <CR>

Example:

<STX>000150LB SG<ETX><Checksum><CR>

CHECKSUM CALCULATION

1. XOR the bits of each character in the data string
2. AND the result with decimal 63 (0x3F) to keep the lower 6 bits
3. OR the results with decimal 64 (0x40) to make it a printable character

RS232 OUTPUT

SCOREBOARD MODES

If the LD820 Indicator includes the Serial Output option, four scoreboard modes are available under CODE **1000** of the MODE Menu.

MODE	FUNCTION
STJ	Standard Output
BAR	Output Including Bar Graph Data
GTN	GROSS, TARE, NET Output
TXT.BAR	Similar to BAR, but can include text

STD MODE

When Scoreboard mode **STJ** mode is selected, the indicator will transmit the current GROSS, NET or BIN weight being displayed at a rate of 10 times per second on the RS232 output. If a load/unload action is in progress, the weight loaded or unloaded will be transmitted instead.

```
" 3000 lb<cr><lf>" (lb or kg)
" 2865 lb<cr><lf>"
```

BAR MODE

When the Scoreboard mode is set to **BAR**, an additional command intended to control a bar graph display will be transmitted.

```
" 3000G<cr>@^100<cr>" (G for Gross or N for Net) (100% bar graph filled)
" 2856G<cr>@^22<cr>" (22% bar graph filled)
```

GTN MODE

When Scoreboard mode **GTN** is selected, a 4-line output will always send the GROSS, TARE and NET weights plus an additional blank line. The time and date will be printed at the top of the GTN output.

```
"SEP 07, 2022 01:35PM<cr><lf>"
"G: 3000 lb<cr><lf>"
"T: 1200 lb<cr><lf>"
"N: 1800 lb<cr><lf>"
"<cr><lf>"
```

RS232 OUTPUT

Scoreboard Mode (continued)

TXT.BAR MODE

When the Scoreboard mode is set to **TXT.BAR**, the output transmitted is similar to the **BAR** mode, but may include text.

" G 3000<cr>@^100<cr>" (G for Gross or N for Net) (100% bar graph filled) (3000 lbs or kgs)

" G 2856<cr>@^22<cr>" (22% bar graph filled)

" TXTMSG<cr>@^100<cr>" (Displays TXTMSG on scoreboard. 100% bar graph filled)

TROUBLESHOOTING

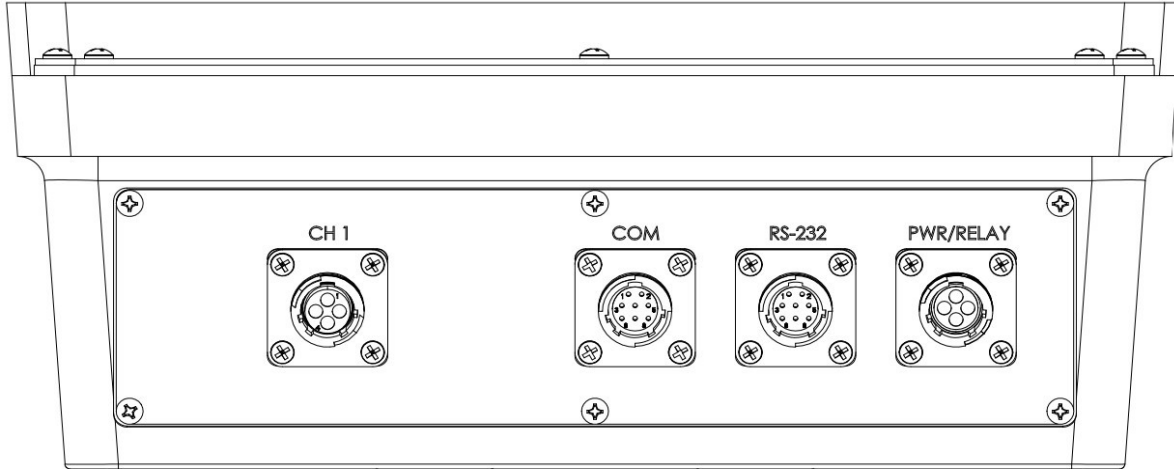
ERROR MESSAGES

Error messages are displayed in priority order.

MESSAGE	DEFINITION
EEPE	EEPROM FAILURE Calibration Information Lost or Corrupted
The message indicates a failure in the EEPROM memory including calibration, or the status of a new circuit board that has not been calibrated yet. Recalibration may clear the error display, as will a 911 reset of all calibration and settings. If the problem persists the control panel will need to be replaced.	
LC ERR	Load Cell Error
A load cell may have failed or there may be a bad connection to the load cells.	
LOW.BAT	Low Battery (Supply) Voltage
The 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 weight is over the scale capacity limit set in the Calibration menu. Refer to Scale Capacity setting 2020 . Reduce the load to the scale. If the error message persists there could be a load cell failure or bad connection, or when the load is removed, press and hold the ZERO key to reset the zero position.	
DISP	Number Cannot Be Displayed
This error will occur if the number is too large to fit on the display.	

TROUBLESHOOTING

INDICATOR PIN CONNECTIONS



CH 1		COM		RS232		PWR/RELAY	
1	+EXC	1	ADIN1	1	ADIN1	1	+12V
2	-SIG	2	RS232 TX3	2	RS232 TX1	2	GND
3	+SIG	3	ADIN2	3	RS232 RX1	3	OUT1
4	-EXC & Shield	4	RS232 TX4 *	4	RS232 TX2	4	DI1
		5	+12VON	5	+12VON		
		6	GND	6	GND		
		7	ADIN3	7	RS232 RX2		
		8	GND	8	GND		



ATTENTION: *The RS232 TX4 is not currently supported for the LD820 Load/Unload Indicator.

PRODUCT INTERFACES

MOUNTING APPLICATIONS

RAM MOUNT

An optional RAM style mount is available for securing the LD820 Indicator to a mounting point on a vehicle or tender. The mount is installed on the rear of the indicator. Refer to part number 137258.

WEDGE MOUNT

The optional Wedge style mount is available for securing the LD820 Indicator to a mounting point on a vehicle or tender. The mount is installed on the rear of the indicator. Refer to part number 137073.

HOW TO OBTAIN SERVICE

For Service and Support, contact your Equipment OEM or Local Dealer.

Inform the Service Department that the product is an AG Scale System.

Be prepared to provide the following information:

1. Serial Number(s) of System and/or Components
2. When was the system purchased?
3. Where was the system purchased?

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