

NT 560



Operators Manual



Ft. Atkinson, Wisconsin USA



Panningen, The Netherlands

www.digi-star.com

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Digi-Star LLC
W5527 Hwy 106
Fort Atkinson, WI 53538
USA
Tel: 800-225-7695
E-mail: sales@digi-star.com

Digi-Star International
Digi-Star Europe B.V.
J.F. Kennedylaan 235
NL-5981 WZ Panningen
The Netherlands
Tel: +31 (0)77 462 92 64
E-mail: dsinfo@digi-star.com

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1.0 INTRODUCTION

Thank you for the purchase of a NT560 system. Your NT560 is the culmination of more than 30 years of agricultural weighing engineering and expertise. With proper operation and preventative maintenance, it will last for many years.

The Digi-Star NT560 is designed for use with weighing, tracking, storing, and transferring related data regarding the weight of agricultural nutrient commodities.

The data collected by, and transferred from, the NT560 is designed primarily for use with Topcon Agriculture Nutrient Tracker PC software. For maximum value from the NT560 indicator, Digi-Star recommends that Nutrient Tracker PC software program be loaded on a computer. This program will allow the full initialization and personalization of the NT560 indicator to the operation. The manual for this software program is found within the program under the help tab.

The NT560 is not for use with applications for which the NT560 is not intended, or as outlined in this manual. Use of the NT560 outside of its intended purposes may result in inaccurate weight measurement or damage to indicator.

2.0 NT 560 FEATURES

Save Records to USB

USB drive has capacity to hold thousands of data records and allows easy data transfer to your office PC.

Nutrient Tracker PC Software

Nutrient Tracker™ software provided with NT 560 indicator allows generation of a variety of reports on your PC. Reports can be read by programs such as Microsoft Excel™, Adobe Acrobat™ and Microsoft Internet Explorer™. Nutrient Tracker uses GPS and weight information collected from the NT 560 to create reports that overlay delivery areas on satellite images. This data is used for nutrient management and record keeping. Nutrient Tracker can also export standard “CSV” and “Shape” files for use in other mapping PC programs.

Note: Mapping requires an internet connection.

GPS Data Records

Differential Correction GPS (DGPS), such as the Wide Area Augmentation System (WAAS), covers the USA and provides accuracy from 1 to 3 meters. Most developed countries have some type of DGPS. Standard GPS is available globally. The accuracy is 15 meters (49.2 feet).

A GPS data record includes data recorded periodically while unloading:

- GPS Coordinates
- Application rate
- Gross Weight
- Speed

The GPS data record also includes the load information calculated and stored once each time a load is concluded by pressing  This data includes:

- Field name
- ID
- GPS coordinates
- Time
- Date
- Application rate set
- Application width set
- Elapsed time
- Weight unloaded this load
- Acres (Hectares) spread this load
- Calculated application rate for load
- Weight unloaded this field
- Acres (Hectares) spread this field.

3.0 ACCURACY STATEMENT

READ THIS SECTION BEFORE USING THE SCALE SYSTEM

Digi-Star Scale Systems are designed and manufactured to provide the greatest accuracy possible. However, proper installation and use are required to obtain the highest level of accuracy.

When using the scale system, the following must be considered to realize the best possible performance and accuracy.

- Load cells must be installed with the proper orientation. Most Digi-Star load cells have a label indicating either the “TOP” or bending direction of the load cell. Inspect load cells to determine if the load cells are installed correctly. Incorrect installation of load cells will result in inaccurate measurement.
- Load cells should not be subjected to any strains or loads other than the weight of the load. Stress or strain caused by misalignment or other factors when accurate weight readings are desired will negatively affect the accuracy.
- The weighing unit should be stationary with minimum movement, and on a level surface, to ensure that weight readings are as accurate as possible.
 - The effect of movement on accuracy depends on the speed and roughness of the ground and application. Rougher terrain and faster and/or greater movement increases the degradation of accuracy.
 - A level surface is defined as being less than a 5” (13cm) change in rise over 10’ (3.0m) of run. As the slope of the terrain increases, degradation of accuracy will also increase.

4.0 TECHNICAL SPECIFICATIONS

SIZE	10.25" long x 8.0" high x 4" wide (260mm x 190mm x 105mm)
WEIGHT	4.5 lbs. (2.04 Kg)
HELP MESSAGES	Context sensitive help messages in 10 languages, Long messages are scrolled
LOAD CELL EXCITATION	8 volts D.C. Nominal, Capable of driving ten 350 Ohms transducers, Short circuit proof
AUTO TEMP COMPENSATION	Of internal circuitry for high accuracy weighing measurements
LOAD CELL SIGNAL	Compatible with Load Cells with greater than 0.25 mv/v
CONNECTORS	AMP plastic weather resistant circular connector. Gold plated contacts.
POWER REQUIREMENTS	10.5 to 16.0 VDC 160 mA nominals with four 350Ω L.C.
SETUP & CALIBRATION	Via front panel or saved when downloading the setting files.
GROSS RANGE	999,999 max-display
LOW BATTERY WARNING	Enabled at 10.5V nominal
POUND/KILO	Selectable
DISPLAY	LCD with 84 Character Display.
DISPLAY RESOLUTION	.01, .02, .05, .1, .2, .5, 1, 2, 5, 10, 20, 50, 100
DISPLAY UPDATE RATE	Selectable: 1, 2, 3, 4 times/sec.
MAX. DISPLAY RESOLUTION	Adjustable to 40,000 counts max.
ZERO TRACKING	Selectable, On/Off
SPAN ACCURACY	±(.1% + .005%/ °F) or (.1% + 0.009% °C) full scale ± 1 output count
MOTION DETECTION	Selectable, On/Off
ZERO ACCURACY	(.005%/ °F) or (0.009% °C) full scale ±1 output count for 0.5 mv/v transducer
ENVIRONMENTAL ENCLOSURE	IP65, IEC 529
WEIGH ALGORITHM	3 internally selectable digital filters to optimize performance (General, Slow, and Fast)
NON-VOLATILE MEMORY	Standard
OPERATING TEMP	-29°C to 60°C -20°F to 140°F
2 REMOTE INPUTS (power/ remote ports)	Tare / Print / Hold / Net Gross / M+ / Zero / TR Hold / Re-enter Preset / Switch

5.0 SAFETY DURING USE



Danger: Indicates an imminently hazardous situation that, if not avoided, could result in death or very serious injury.



Warning: Indicates a potential hazardous situation that, if not avoided, may result in death or very serious injury.



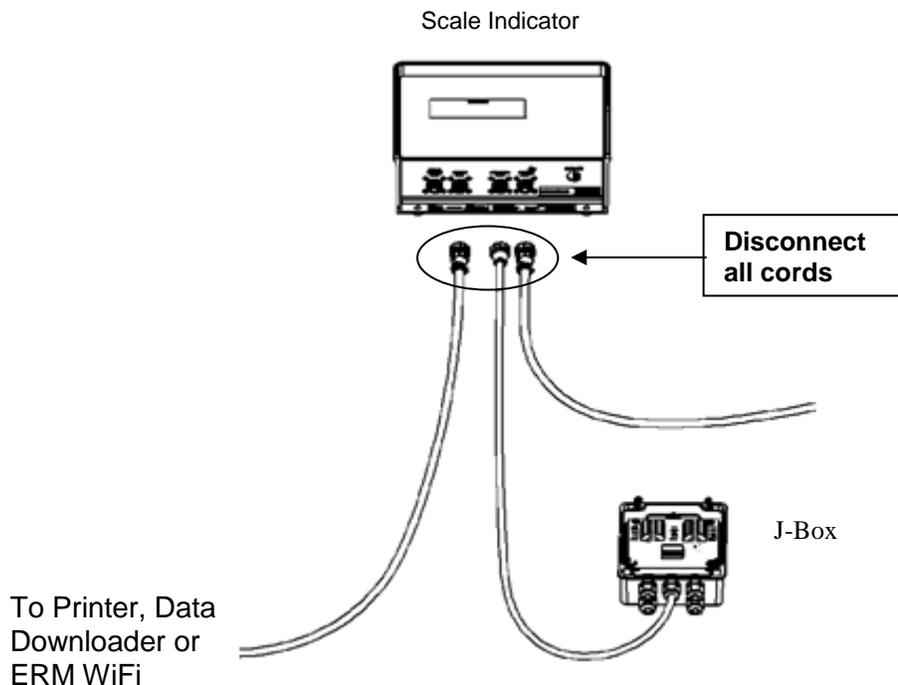
Caution: Indicates a potential hazardous situation that, if not avoided, may result in a minor injury.

IMPORTANT

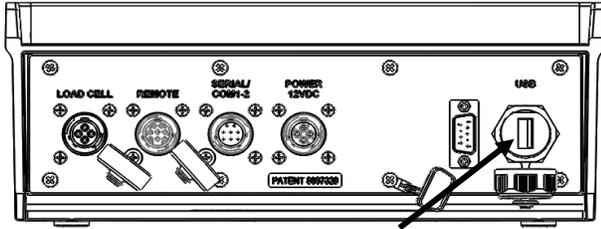
USB Port Function—The USB port is only to be used to upload or download data from a USB Memory Stick. The USB Port is not to be used as a charging port for any type of electronic device. Use of the USB Port for any purpose other than for which it is designed may void the product's warranty.

Cleaning: Do not use running water, pressure washer or hoses to clean the indicator or touch screen.

Charging Battery: Disconnect all cables from the indicator and touch screen before charging the battery or welding on the machine. If cables are left connected, the indicator, touch screen and connected load cells could be damaged.



6.0 DATA TRANSFER



Insert USB drive here to download data records.



The indicator is equipped with a USB drive port. The USB drive used with the indicator holds thousands of data records and allows for easy transfer to PC.

1. Insert USB drive. Indicator will automatically detect the USB drive.
2. Press  to save records to USB drive.

Note: This action appends values already on the USB drive. No data is lost.

Note: It takes about 3 minutes to download data when memory is 25% full. It takes about 12 minutes to download data when memory is 100% full.

3. Press 1 to transfer Field, ID, Total Weight, and Acres Data from indicator to USB.
Note: This is only necessary if Field or ID data has been modified using indicator keypad.
4. Press 9 to transfer Field, ID, Total Weight, and Acres data from USB drive to indicator.

 **Important:** This action will overwrite Field names, ID names and Accumulator values in the indicator.

6.1 Daily Data Collection

Insuring the customer data is secure from theft, fire or equipment failure requires a small effort each day to store your data on a USB drive.

6.2 Indicator Memory

When powering up the NT 560 the memory percent full is shown on the display. The NT 560 has enough memory to store approximately 400 loads while sampling every ten seconds and unloading one load every nine minutes.

It is recommended to download data from the NT 560 to the USB drive before the memory is close to full. It takes just under three minutes to download data when the memory is 25% full and under five minutes when 50% full.

6.3 Mid-Season Name Changes

During the season, you may wish to delete/add field names, also delete/add ID names to your NT 560 indicator memory.

This may be done in one of two ways:

Front panel

For a small amount of changes, edit field names and ID names using the keypad on the front panel. See pages 16 and 17 to edit field names or ID names. See page 28 to erase accumulator memory.

Upload New Field Names, ID Names and Accumulator Using USB Drive:

For many changes, perform the changes on your PC using Nutrient Tracker™ software and then transfer the new information to the indicator using a USB drive.

Important: Before doing this, transfer your existing field accumulator data (acres and weights) from the indicator to the USB drive. Then load the data onto the PC. This keeps the proper accumulator values on partially finished fields.

6.4 Nutrient Tracker Print Format

Use print format NUTRNT for recording data. The below example shows six lines of printed report.

```

          1           2           3
12345678901234567890123456789012345678
-----|-----|-----|-----
"WIDTH:40.5  RATE SET: 5.0<CR><LF>
"LA:4038.4551 N<CR><LF>
"LO:08848.3669 W<CR><LF>
" 1626070TOT      1020.0TAC<CR><LF>
" 17080LB  1.99AC 24.3T/A<CR><LF>
"FIELD  3                <CR><LF>
"ID   3,9/23/09,12:10P<CR><LF>
"T:   2:07<CR><LF>
"<CR><LF>

```

The middle 3 lines are displayed after  key is pressed.
The other three lines are displayed by pressing  or .

6.5 GPS Records Format

The GPS records stored have the following format:

```

          10           20           30           40
1234567890123456789012345678901234567890123456789
-----|-----|-----|-----|-----
ddmm.mmmm, N, dddmm.mmmm, E, rrrr, m, wwwwww, ss.s, kCL

```

ddmm.mmmm - Latitude, ddmm.mmmm format (leading zeros transmitted)
 N - Latitude hemisphere N or S
 dddmm.mmmm - Longitude, ddmm.mmmm format (leading zeros transmitted)
 E - Longitude hemisphere W or E.
 rrrr - Actual Application Rate measured by scale in Tons/Acre (or Tonnes/Hectare).
 m - Actual Application Rate Unit E=Tons/Acre, M=Tonnes/Hectare.
 wwwwww - Gross weight.
 ss.s – Speed in MPH or KPH
 k - Check Sum.
 c - Carriage Return.
 l - Line Feed.

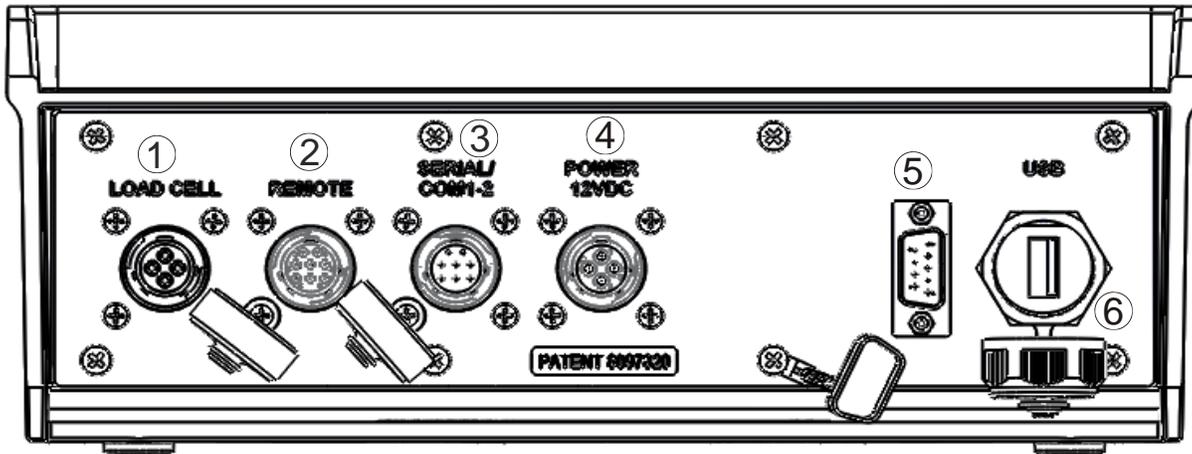
7.0 INDICATOR OVERVIEW



- ①  --Enter and exit Field screen.
- ②  --Start or stop load/unloading operation.
- ③ **Pre-Alarm Light** – Starts flashing and alarm sounds when weight is within preset limit.
- ④  --Press and hold for three seconds to zero balance.
- ⑤  --GPS Satellite Display.
- ⑥  --Enter and exit ID screen.
- ⑦  --Turns indicator on. Pressing while on will run self-test.
- ⑧  --Turns scale indicator off.
- ⑨ “Upper Display”---Displays current actions or weight—6 characters.
“Lower Display”---Displays recorded data-26 characters x3 rows.

- ⑩ **Directional Arrows**—Moves through list of information. Left arrow (-) and right arrow (+).
- ⑪  --Accepts change or proceeds to the next item.
- ⑫ “Qwerty Keyboard”
- ⑬ “Numbers Keypad”
- ⑭  --Performs tasks displayed when using the select button.
- ⑮  --Display additional task for the user.
- ⑯  --Shows additional information for last key pressed.
- ⑰  --Press and release. Press key with desired character.
- ⑱  --Delete one character in data entry field. Press and hold to delete entire data entry field contents.
- ⑲  --Escape or undo last data change.
- ⑳  --Press to backspace. Press and hold to backspace faster.

7.1 Bottom Panel Connections



① Load Cell

② Remote Display

③ Serial/Printer – Used to communicate with computer, data downloader (DDL) or printer.

④ Power – 12VDC

⑤ GPS – Port for GPS connection.

⑥ USB – Port for USB drive.

8.0 INDICATOR DISPLAY SCREENS

Seven display screens can be viewed on the NT560 indicator:

ACTIVE MAIN SCREEN

The 3-line display will show the following information. See page 17.

FIELD SCREEN

500 field names are available and can be modified using the keypad. See page 18.

ID SCREEN

150 ID names are available and can be modified using the keypad. See page 19.

GPS ACTIVE SCREEN

This screen is shown before pressing  to start spreading. Upper display shows gross weight while lower display includes speed, compass direction, application rate, spread width, total and field name. See page 20.

GPS SPREADING SCREEN

Press  before unloading to view GPS spreading screen. Upper display shows the current rate tons/acre (tons/hectare) while lower display includes speed, compass direction, target application rate, time since start of unloading, gross weight, NET weight unloaded, acres covered this load, and actual vs. target rate indicator. See page 21.

LAST LOAD SUMMERY SCREEN (temporary)

Screen display last load weights for 10 seconds after pressing  to complete a load. See page 22.

GPS SATILLITE SCREEN

Press  to view GPS Satellite Screen. This screen shows latitude, longitude, MPH, status and universal time clock. See page 23.

8.1 Active Main Screen

The 3-line display will show the following information:



1. **Upper Display Window** – Displays the gross weight.
2. **ID** – 6 Character ID description. Example; unloaded into TRUCK1, TRUCK2, TRUCK3.
3. **TOT** - Total Weight for current field.
4. **21980 GR** – Example: 21980 Total Gross weight spread on all fields.
5. **NE** – Net weight unloaded from this load.
6. **Current Time**.
7. **FIELD** – 26-character field description (entered by operator). Example; spread on field JIMS HILL CORN, SOUTH FIELD, EAST FIELD, WEST FIELD.

Note: Set print format (D.A.N. 2304) to PRTAC5 to operate in non-GPS mode.

8.2 Field Screen

Field names can be a maximum of 26 characters long. Field name is where the commodity is harvested from; **Example Field Names; NORTH FIELD, SOUTH FIELD, EAST FIELD, WEST FIELD.**

Field names can be changed using the keypad before loading or unloading.

Note: Field names can be uploaded from a PC using a USB drive.



1. Press to modify or select field. Current field number is shown in upper display.
2. Three lines are displayed in Lower Display Window. The top line of the three is current, editable and will be used for next data record.
3. Use keypad to enter or update field names. Press to delete characters to left and to delete the selected character. Hold to delete entire line. Pressing will reset line to last saved data.
4. To use special characters' press and release . Then press key with desired special character. Repeat for each special character required.
5. Press or to exit.
6. Up/Down Arrows – Press or to scroll through fields (150 maximum). Hold arrow to scroll faster. Use or to move cursor within data line.

8.3 ID Screen

ID names can be a maximum of 6 characters long. ID names could be what machine or person that has harvested the field or what truck the commodity was unloaded into; **Example of ID names; MACH1, SCOTT.**
ID names can be changed by using the keypad before loading or unloading.

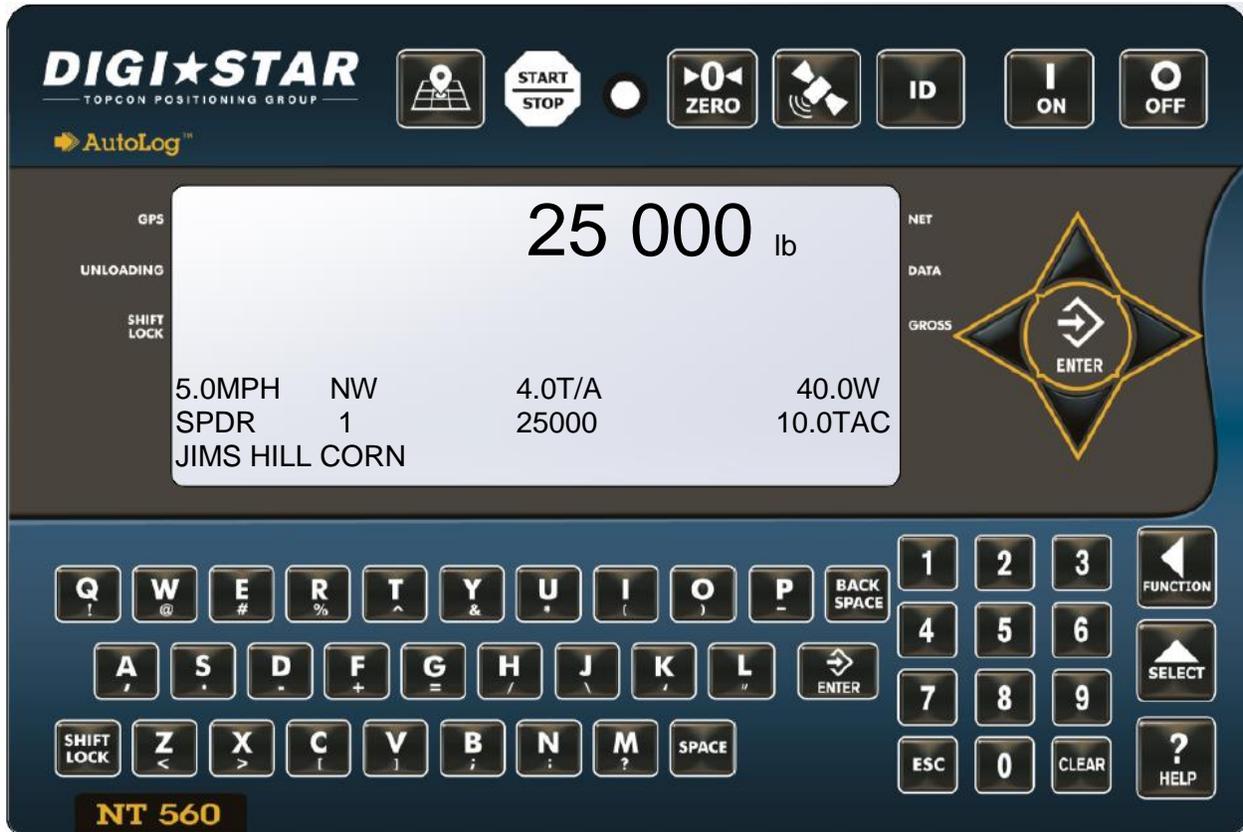
Note: ID names can be uploaded from a PC using a USB drive.



1. Press  to modify or select ID name. Current ID number is shown in upper display.
2. Three lines are displayed in lower Display Window. The top line of the three is current, editable and will be used for next data record.
3. Up/Down Arrows – Press  or  to scroll through ID names (150 maximum). Hold arrow to scroll faster. Use  or  arrow to move cursor within data line.
4. Use keypad to enter or update ID names. Press  to delete characters to left and “ to delete the selected character. Hold  to delete entire line. Pressing  will reset line to last saved name.
5. To use special characters’ press and release . Then press key with desired special character. Repeat for each special character required.
6. Press  or  to exit.

8.4 GPS Active Screen

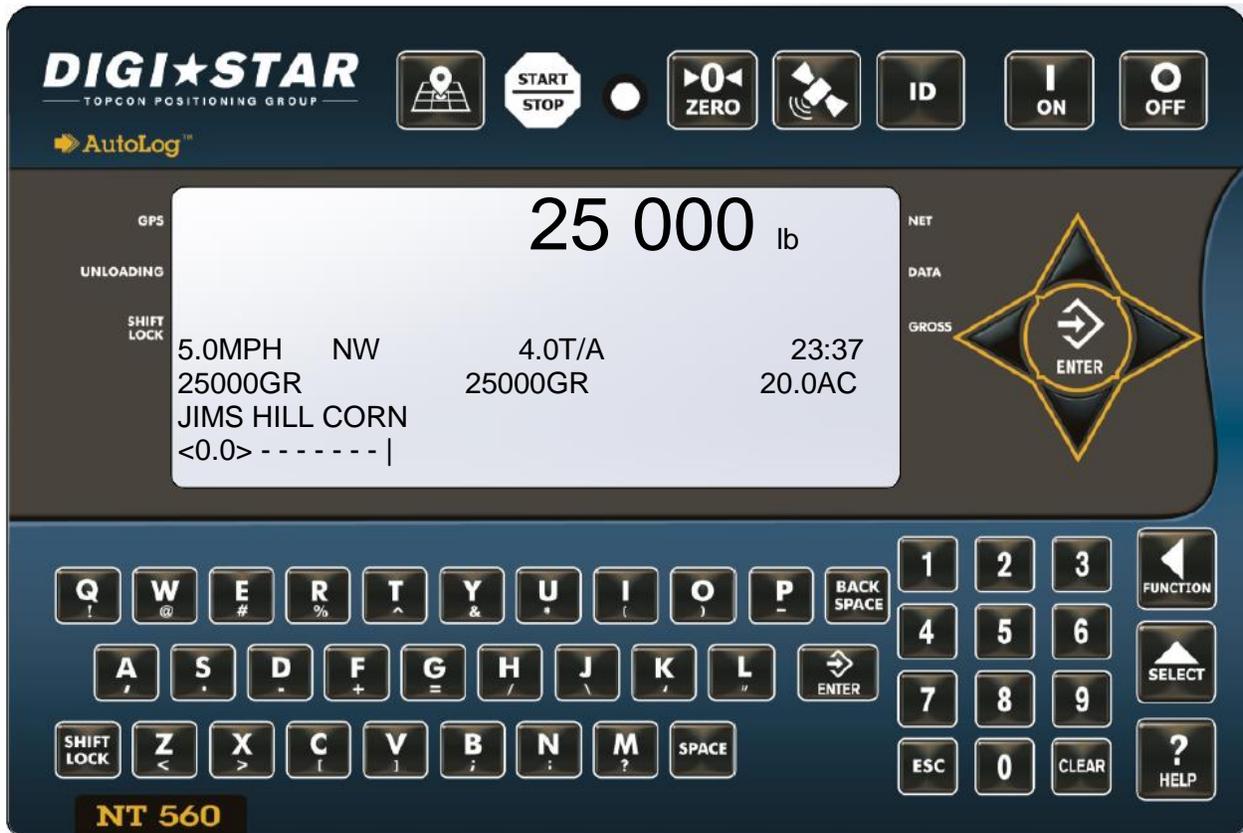
The 3-line display will show the following information:



1. Upper Display Window – Displays the gross weight.
2. **MPH (or KMH)** – Miles per Hour (or Kilometers per Hour) as read from the GPS.
3. **NW** – Compass direction as read from the GPS.
4. **T/A** – Application rate entered by operator in Tons/Acre (or Tones/Hectare).
5. **W** – Spread width of the spreader entered by the operator in feet (or meters).
6. **SPDR** – 1 – 6-character ID description.
7. **TOTAL** - Total amount of manure applied to field.
8. **TAC** – Total Acres/Hectares spread this field.
9. **FIELD** – 26-character field description (entered by operator).

Note: Print format PRTFMT must be set to **NUTRNT**.

8.5 GPS Spreading Screen



1. **Upper Display Window** – Displays the current rate lbs./acre (Kg/hectare) weight.
2. **MPH (or KMH)** – Miles per hour (or Kilometers per hour) as read from the GPS.
3. **NW** – Compass direction as read from the GPS.
4. **T/A** – Harvested weight entered by operator in lbs./Acre (or Kg/Hectare).
5. **Elapsed Time.**
6. **GR** – Gross weight left on harvester.
7. **NE** – Net weight harvested this load.
8. **AC** – Acres (Hectares) this load.
9. **Application Rate Indicator** – Actual rate of application, measured by scale in Ton/Acre (Tonnes/Hectare) or lbs./Acre (Kg/hectare). The indicator will be centered when the actual application rate is equal to the target application rate.

Note: Print format PRTFMT must be set to **NUTRNT** (D.A.N. 2304).

8.6 Last Load Summary Screen (temporary)

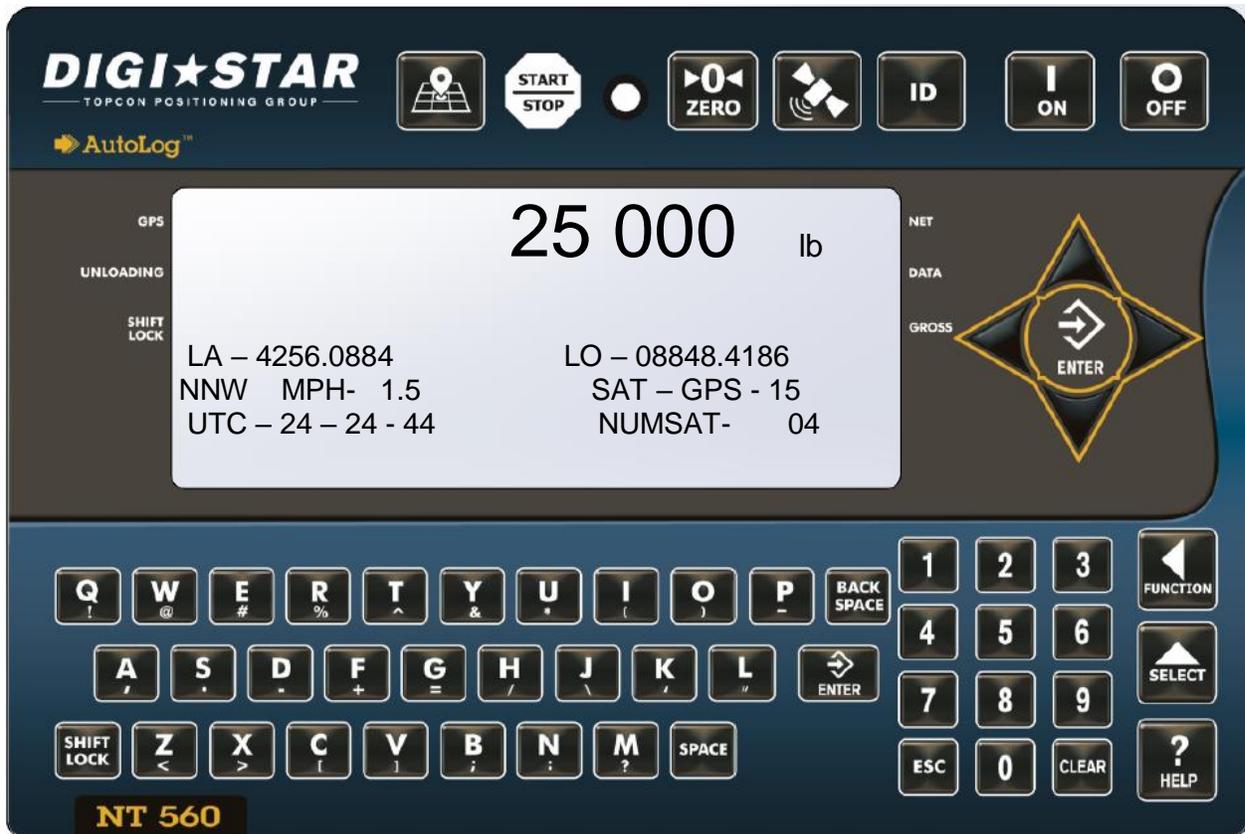


The screen is displayed to 10 seconds after pressing  to complete a load. Press  to review this screen for 10 seconds.

1. **Upper Display Window** – Displays the current gross weight.
2. **Total Weight** – Weight unloaded this field.
3. **Total Acres** – Acres spread this field.
4. **Net Weight** – Weight unloaded this load.
5. **Acres** – Acres spread this load.
6. **Ton/Acres** – (Tonnes/Hectare) this load.
7. **Field Name**

8.7 GPS Satellite Screen

When the GPS module detects a satellite, the “SAT” tag show either “NO GPS” (No satellites detected), GPS-15 (standard 15-meter accuracy) or DGPS-3 (Differential global positioning system with 3-meter accuracy). Latitude, Longitude, Compass Direction, Miles per hour and universal coordinated time (UTC) are also displayed. UTC always updated when GPS is connected. The previous locations latitude and longitude will display until satellites are found again.



1. **Upper Display Window**—Displays the current gross weight.
2. **LA/LO**—Latitude and Longitude GPS coordinates.
3. **NNW**—GPS Compass Direction.
4. **MPH** (or km/h)—Miles per Hour (or Kilometers per Hour) as read from the GPS.
5. **SAT**—Satellite status from the GPS.
6. **UTC**-Universal time clock from the GPS.
7. **NUMSAT**-Number of satellites found.

9.0 OPERATION

9.1 Turn on Scale



1. Press .

9.2 Zero Balance Indicator



1. Press and hold  for 3 seconds to zero balance indicator.

9.3 Set Application Width



1. Press . WIDTH will be displayed.
2. Press .

Note: The value is decimal – 40 should be entered as 400. The display will show 40.0.

Note: The GPS Measurement Unit Value AUNIT, in setting options, see page 43, will determine the unit of measure.

9.4 Set Application Rate



1. Press . RATE will display.
2. Press .

Note: The value is decimal – 40 should be entered as 400. The display will show 40.0.

Note: The GPS Measurement Unit Value AUNIT, in setting options, see page 43, will determine the unit of measure.

Application Rate Tolerance

Activate alarm by changing the Tolerance (Menu 4.2, D. A. N. 4202, TOLER) from OFF (“0” is the same as off) to 1, 2, etc. Tolerance is in Tons/Acres or Tonnes/Hectare. Default is OFF. The front panel light and beeper will periodically sound when the Actual Application Rate varies from the Rate Set by the tolerance selection.

Audio Alarm

Press 4004, then  to enter buzzer menu. Select OFF or ON (buzzer always on). Select 1-10 for number of seconds buzzer sounds.

10.0 GPS SPREADING FUNCTIONS

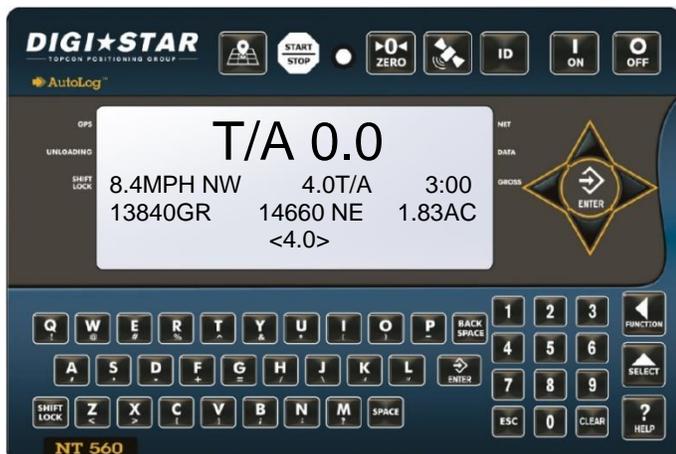
These functions apply only when the optional GPS is connected to the NT 560.

10.1 Start/Stop Display

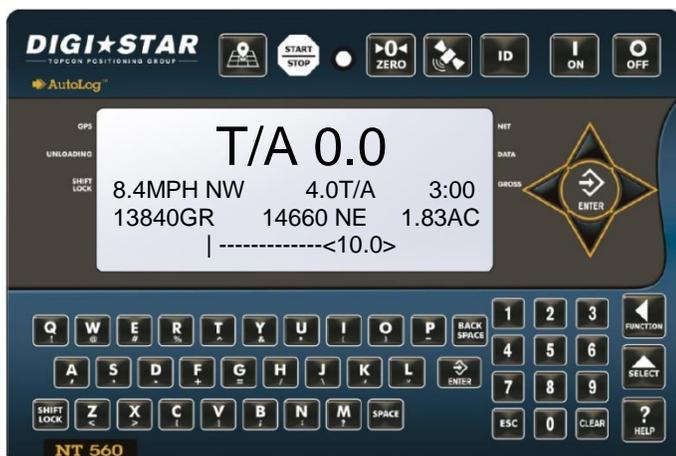


1. Press  to start unloading.
2. Unit will display the GPS Spreading Screen.

Application Rate Low – when unload annunciator (<0.0>) is left of center. Decrease driving speed or increase apron speed.



Correct Application Rate – when unload annunciator (<4.0>) is centered.



Application Rate High – when unload annunciator (<10.0>) is right of center. Increase speed or decrease apron speed.



3. Press  when unloading is complete.

4. For ten seconds the display will show the Last Load Summary Screen (See page 22).

5. The indicator now stores data and sends the weight and field information out the printer port.



6. The indicator will return to GPS Active Screen.

Note: If you wish to view the Last Load Summary Screen press .

10.2 Overview, Load Screen, GPS Data



1. Press **ESC** to go to load screen.
2. Use **▲** and **▼** arrows to scroll through the different loads.



3. When the load is chosen to view, press **▶** arrow. Use arrows to view the ID and total duration of time the load took to apply.



4. Press **◀** arrow to view GPS coordinates data and spreading width from load being viewed.

11.0 CLEARING DATA

11.1 Clearing the Indicator Memory

 **Important:** Before erasing the data records, be sure the data records have been safely stored.

 **Important:** This action will erase all data records.



1. Select field name of weight accumulator to be erased. Return to the active screen.

2. Press  repeatedly until ACCUM is displayed.

3. Press .

4. Press  to delete current field accumulated value, press  to erase all accumulated records or press  to exit.

Note: This operation only erases the accumulator data. Field names; ID names and data records are not affected.

11.2 Zero Acres Accumulator



Note: This operation only erases the acres data, field Names; ID names and data records are not affected.

1. Select field name of accumulator to be erased. See page 18. Return to the active screen.

2. Press  repeatedly until ACRES is displayed.

3. Press .

4. Press  to delete current field acres value, press  to erase all accumulated field records or press  to exit.

12.0 OTHER FUNCTION

12.1 Using Dimmer Option



1. Press  until DIMMER is displayed.
2. Press  (within 2 seconds) once to dim backlight on the LCD. Repeat steps 1 and 2 to brighten LCD back light.

12.2 Change Time



1. Enter 1202
2. Press .
3. Press  or  arrow to move cursor, and choose digit to edit.

Note: Press and hold  to clear all digits. HH/MM/SS, example; 00:00:00. Then enter new time using number keypad.

4. Press  or  arrow to change number. Press  to store.

12.3 Change Date



1. Enter 1204

2. Press .

3. Press  or  arrow to move cursor, and choose digit to edit.

Note: Press and hold  to clear time. Date format DDMMYY. Then enter new date using number keypad.

4. Press  or  arrow to change

number. Press  to store.

Note: change date format with D.A.N. 1203.

12.4 Change Unit of Measure for Spreader Application



1. Enter D.A.N. 6514

2. Press .

3. Press  again.
LBS / A—pounds per Acre
TONS / A—Tons per Acre

4. Press  to store.

12.5 Application Units



1. Enter D.A.N. 6501
2. Press .
3. Press  again to select;
ENGLISH
METRIC
4. Press  to store.

13.0 RE-CALIBRATING YOUR SCALE

To change set-up and calibration numbers see page 33.

To re-calibrate the scale and make it even more accurate, document at least 3 to 6 loads of varying sizes and measure the actual weight of all loads on a certified scale.

- It must be assured that each truck is not losing nutrient during transit to a certified scale.
- Weigh the truck immediately before unloading and immediately after unloading to minimize errors due to changes in fuel etc.

In this example, six carts of nutrient are unloaded on to four semi-trucks.

Example:

Cart Load A	51560		
Cart Load B	33240	Truckload #1	51920
Cart Load C	17620	Truckload #2	51320
Cart Load D	50520	Truckload #3	50720
Cart Load E	38200	Truckload #4	51070
Cart Load F	12360	Total Certified Weight	205030
Total Indicator Weight	203400		

Reading Too High

If the NT560 indicator is reading higher than the certified scale weight, then the calibration number is high and should be decreased proportionally.

Reading Too Low

If the NT560 indicator is reading lower than the certified scale weight, then the calibration number is low and should be increased proportionally.

13.1 Get your Calibration Number



TOTAL certified weight
----- X Current Cal Number = New Cal Number
TOTAL indicator weight

Using the previous example your results would be:

102920
----- X 24280 = 24475
102100

13.2 Setup Number



1. Enter 8712

2. Press .

3. Press  or  arrow to move cursor, and choose digit to edit.

Press  to store.

4. Press  or  arrow to change

number. Press  to store.

Note: Press and hold  to clear calibration number. Then using number keypad enter new calibration number.

1. Enter 8711

2. Press .

3. Press  or  arrow to move cursor, and choose digit to edit.

4. Press  or  arrow to change

number. Press  to store.

Note: Press and hold  to clear setup number. Then using number keypad enter new setup number. Press  to store.

14.0 DIRECT ACCESS NUMBERS (D.A.N.)

14.1 Options Changed by User.

1. Use key pad to enter D.A.N. (direct access number) listed below.

2. Press 

3. Press  to select options for each setting/display.

4. Press  to store setting.

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
MENU 1 – GENERAL SETTINGS			
LANGUAGE (LANGAG)	1001	English (ENGLISH) Portuguese (PORT) Spanish (ESPAÑ) Danish (DANSK) Hungarian (MAGYAR) Spanish (VESTI) Dutch (NEDERL) French (FRANCS) German (DEUTSH) Italian (ITALI)	Select language to be displayed.
DISPLAY RATE (DRATE)	1002	1,2, 3 ,4,6,7,8,9,10	Update display times per second.
SCALE ID SETUP (SCALID)	1003	560WFI	Identity of scale location (truck id or Mixer number).
ZERO TRACK (ZTRACK)	1004	ON/OFF	If ON -zero track adjust balance for buildup of snow & mud.
WEIGH METHOD (WMTHD)	1005	1=General 2=Fast 3=Slow	Select weigh method. The speed the weight changes as shown on the LCD.

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
1 PRESS ZERO (1 ZERO)	1006	ON/OFF	If ON -press and hold Zero key to Zero/Balance scale.
AUTO OFF (AUTOFF)	1007	OFF , 15, 30, 45, 60	Indicator turns off after selected minutes of stable weight.
DISPLAY UNIT (LB-KG)	1008	LB/KG	Display pounds – LB or Kilograms - KG
SCROLL DELAY (SCROLL)	1101	0,1,2,3, 4 , 5, 6, 7, 8, 9	Scroll rate for cold temperatures 0=normal 9=slowest
SAVE TARE (SAVTAR)	1102	ON/OFF	Saves tare weight to non-volatile memory.
PRELOAD TARE (PRETAR)	1103	ON/OFF	Tare weights can be entered using the numeric keypad.
TIME FORMAT (TIME F)	1201	24 HR AM/PM	Select time format -AM/PM or 24 hours
TIME (TIME)	1202	HH:MM: SS, AM/PM	Enter changes HH:MM: SS (use numeric keypad) use function key to change between HH:MM: SS then choose AM/PM.
REMOTE INPUT 2 (RMINP ₂)	1411	TARE, PRINT, HOLD, NETGRS, M+, ZERO, TR HLD, OFF , PRESET, SWITCH	Sets function of remote input line on the remote port.
REMOTE 2 SWITCH MESSAGE (RI ₂ MSG)	1412	OPEN , --,+,* ,0, 1,2,3, 4,5,6,7,8,9, A, B, C,D,E,F,G,H,I,J,K,L, M, N, O,P,Q,R,S,T,U,-V,-W,-X,-Y,-Z	Message that is displayed for remote input condition. D.A.N. 1411 set to “switch” .

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
REMOTE 2 SWITCH STATE (R ₂ STAT)	1413	OPEN/ CLOSED	Set remote input line state that displays message and/or illuminates alarm lamp. D.A.N. 1411 set to “switch”.
REMOTE 2 SWITCH MESSAGE TIME (R ₂ TIME)	1414	0... 2-9	Set how often the remote switch message is displayed. Once every 1-9 seconds. D.A.N. 1411 set to “switch”
PROGRAM ID (PRG ID)	1998	Example: 15FE16	Displays current software version
ESTIMATED WEIGHT (EST WT)	1999	Enter weight value using key pad. Then press enter, then “ON” to continue.	Manually adjust Gross weight of scale by changing zero/balance. Press “on” to continue.
MENU 2 – COMMUNICATIONS FEATURES			
REMOTE (REMOTE)	2001	MLTLNE , OFF, ON	If ON indicator communicates with Cab Control Display
SCALE NUMBER (SCL NO)	2002	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24	Select scale number for cab control communication
EXTERNAL RADIO (EXTRAD)	2003	ON/OFF	Enables external radio to be connected to the J905 port.
DDL ATTACHED (DDL)	2004	YES/NO	Enables connection of a DDL (Data Down-Loader)
SCORE BOARD MODE (SCOREM)	2101	0,1,2,3,4,5,6,7,8,11,12,15,27,37,38,39	Select scoreboard output

SETTING [display]	D.A. N NO.	OPTIONS [display] BOLD =DEFAULT	DESCRIPTION
ZERO OUTPUT (ZEROUT)	2102	Weight displayed= Then press ZERO key and hold for three seconds.	Allows zero/balance for SCOREM #11 serial gross weight.
FRONT PANEL ZEROUT (ZEROFF)	2103	OFF/ON	Allows use of the zero key to zero/balance the serial gross weight.
OPERATION STATUS (OPSTAT)	2111	0, 2	Select operating data to be sent to a Remote Terminal
COM 1 BAUD RATE (C1 BD)	2201	1200,2400, 4800, 9600 , 14400, 19200, 38400, 57600, 115200	Sets baud rate for com port #1
COM 1 PARITY (C1 PA)	2202	NONE, ODD, EVEN	Sets parity for com port #1
COM 1 DATA BITS (C1 DATA)	2203	7, 8	Sets data bits for com port #1
COM 1 DELAY (C1 DLY)	2204	0 , .10, .25, .50, .75, 1-5	Selects seconds to delay before advancing to next line.
COM 2 BAUD RATE (C2 BD)	2211	1200,2400, 4800, 9600 , 14400, 19200, 38400, 57600, 115200	Sets baud rate for com port #2
COM 2 PARITY (C2 PA)	2212	NONE , ODD, EVEN	Sets parity for com port #2
COM 2 DATA BITS (C2 DATA)	2213	7, 8	Sets data bits for com port #2
COM 2 DELAY (C2 DLY)	2214	0 , .10, .25, .50, .75, 1-5	Selects seconds to delay before advancing to next line.

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
TARE AUTO PRINT (TAREAP)	2301	ON/OFF	If ON -tare auto-prints displayed weight.
ONE LINE PRINT (iL PRT)	2302	ON/OFF	If ON -indicator data prints on one line.
AUTO PRINT (APRINT)	2303	ON/OFF	If ON -pressing keys auto-prints weight values.
PRINT FORMAT (PRTFMT)	2304	PRTAC1, PRTAC2, PRTAC3, PRTAC4, PRTAC5 , PRTAC6, 10K TA, GT560A, RECINF, AUTO, WTONLY, DOWLD, DT + TM, ID + TM, IDWTTM, BATCH1, PRWTRC, WTRCTM, 3200-A, 3200-B, SCL ABC	Select alternate & comma (CSV) formats.
PRINT ACCUMULATION (PRTACC)	2305	0	Shows a running total of weights printed.
REMOTE DISPLAY (RMDISP)	2401	EZ2 , EZ3MUX, COG, NONE	Select type of remote display
REMOTE TERMINAL (RMTERM)	2402	ON/OFF	Sends display data to serial remote terminal interface
BAR GRAPH MODE (BARGRP)	2411	OFF, RIGHT , LEFT, MIDOUT, MID IN	Selects output for a bar graph display when used with an RD4000 Remote Display
WEIGHT GRAPH (WTGRPH)	2412	ON/OFF	Enables graph to be used with weight when used with a RD4000 Remote Display.
BAR WEIGHT (BAR WT)	2413	12000	Enter the full scale gross weight for the bar graph display.

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
PRESET GRAPH (PRGRPH)	2414	ON/OFF	Enables graph use with presets when used with an RD4000 Remote Display.
TIMER GRAPH (TMGRPH)	2415	ON/OFF	Enables graph use with timers when used with an RD4000 remote display.
MENU 3 - MOTION & WEIGHT			
DISPLAY COUNT (COUNT)	3001	.01,.02,.05,.1,.2,.5,1,2,5,10,20, 50, 100	Select display count size of weigh values.
CAPACITY (CAP)	3002	120,000	Enter MAXIMUM weight measurable on scale.
WM1 ADJUST 1 (WMA1-1)	3003	10	Increase this number to smoothing weighing
WM1 ADJUST 2 (WMA1-2)	3004	4	0=off. Use value less than WMA1-1 for quick response weight.
WM1 ADJUST 3 (WMA1-3)	3005	4000	Enter the weight to active quick response weight Default-10% of scale capacity
WM2 ADJUST 1 (WMA2-1)	3006	30 , value must be less than 100 and more than 2.	Increase this number to smooth out weighing
WM2 ADJUST 2 (WMA2-2)	3007	10 , value must be less than 100 and more than 0.	10=off. Use value less than WMA2-1 for quick response weight.
WM2 ADJUST 3 (WMA2-3)	3008	4000	Enter the weight to active quick response weight Default-10% of scale capacity
MOTION (MOTION)	3101	ON/OFF	ON = Motion arrow flashes with unstable weight. Prevents: Print, Zero, Tare, Advance
MOTION WEIGHT (MOT WT)	3102	0	Enter weight used to detect motion. 0=Standard detection

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
MENU 4 - PRESET, ALARM, and TIMER			
PRE-ALARM METHOD (P MTHD)	4001	WEIGHT, PERCENT	Select weight or percentage method for pre-alarm
PRE-ALARM (P-ALM)	4002	100	Enter a value to activate an early warning that indicator is reaching the preset.
SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
ALARM OUTPUT (AL OUT)	4003	OFF, PRESET , TR	Select preset or TR to control relay, horn & lamp.
BUZZER (BUZZER)	4004	OFF, ON, 1-10	ALARM BUZZER -allows user to turn off alarm horn when loading/unloading
RELAY (RELAY)	4005	OFF, PRESET , SETPNT, SSPRAST	Selects the behavior of the +12VDC alarm output
PRESET DELAY (PRTDLY)	4006	0, MANUAL	Set time to automatically advance/print entered preset
GROSS SET PNT OUTPUT (SETOUT)	4101	OVER/UNDER	Select when the +12VDC Alarm Output becomes active.
GROSS SET POINT CHNG (SETCHG)	4102	500	Set required weight change to turn off +12VDC Alarm Output.
GROSS SET POINT DELAY (SETDEL)	4103	0	Set time delay before the +12VDC Alarm Output Can Turn On/Off.
GROSS SET POINT (SETPNT)	4104	5000	Set a gross weight in long form that will activate +12VDC Alarm Output on Power cord.
SET POINT COUNT (SETCTR)	4105	0	Counts how many times set point is activated.
SET POINT WEIGHT SOURCE (STWTSC)	4106	SERIAL/NORMAL	Sets weight source for use with set point feature.

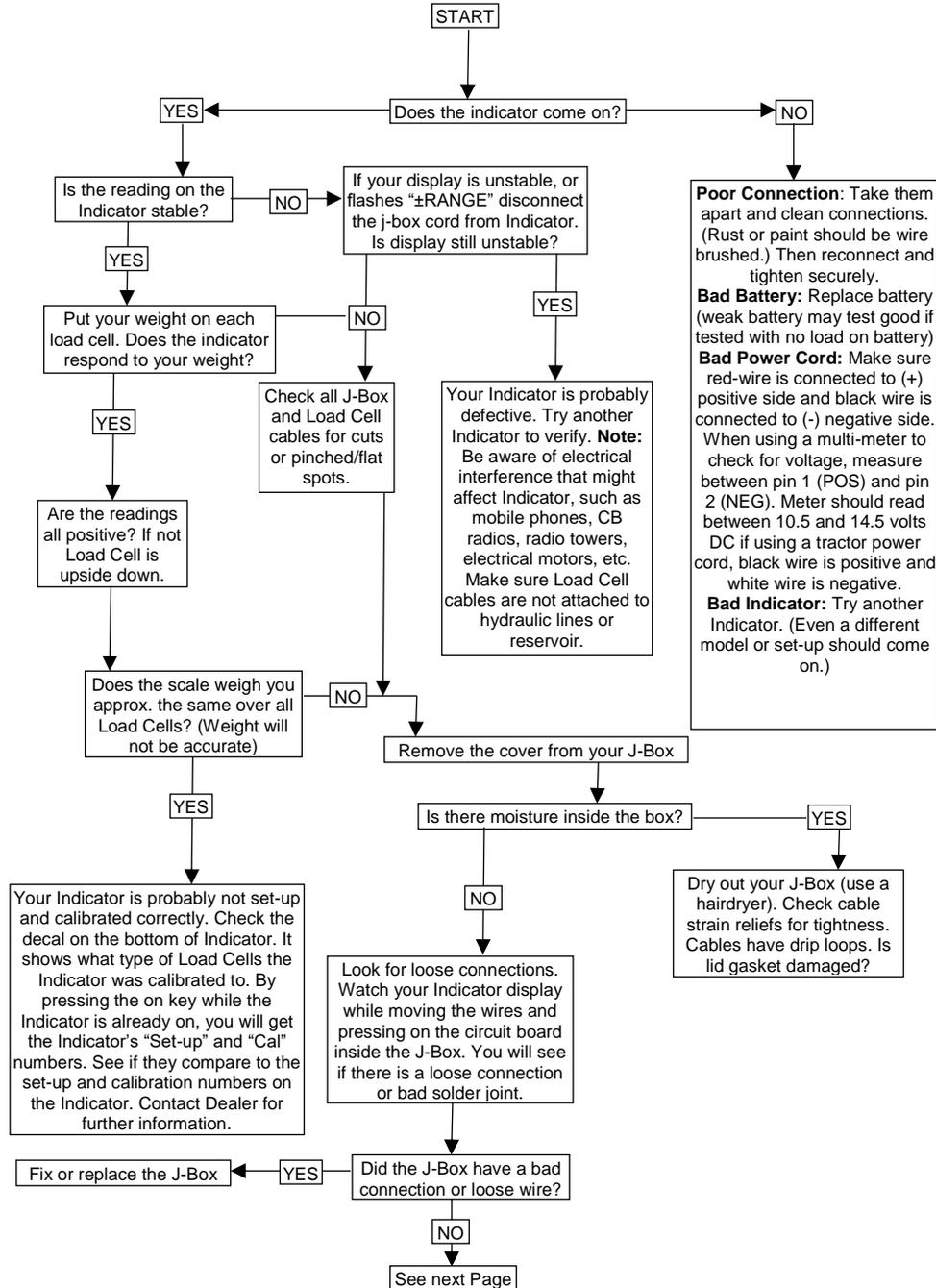
SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
TOLERANCE METHOD (TMTHD)	4201	WEIGHT, PERCENT	Select weight or percentage method for preset tolerance
TOLERANCE (TOLER)	4202	0	Select tolerance weight percentage to accept preset.
TOLERANCE OVERLOCK (OVERLK)	4203	OFF/ON	Prevents auto-advancing if preset exceeds tolerance
DRIVE RATIO (DRATIO)	4302	1.00	Enter the number of input pulses that equal 1 mixer revolution. REVCTR needs to be enabled in the setup options. D.A.N. 4301 set to COUNTER.
MENU 5 - COM PORT SETU MENU			
REMOTE DISPLAY PORT (RMDPRT)	5001	OFF, COM1, COM2 , COM3, COM4	Sets serial remote display output
RADIO PORT (RADPRT)	5002	OFF, COM1, COM2, COM3 , COM4	Sets internal radio port
EXTERNAL RADIO PORT (EXRPRT)	5003	OFF, COM1, COM2 , COM3, COM4	Sets external radio port
PRINTER PORT (PRPORT)	5005	OFF, COM1 , COM2, COM3, COM4	Sets printer port
SCORE BOARD PORT (SCPORT)	5006	OFF, COM1 , COM2, COM3, COM4	Sets scoreboard port
OPSTAT PORT (OPSTAT)	5007	OFF, COM1 , COM2, COM3, COM4	Sets op-stat port
DDL PORT (DDLPRRT)	5009	OFF, COM1, COM2 , COM3, COM4	Sets DDL port
20MA MIRROR PORT (20MAMR)	5011	OFF, COM1 , COM2, COM3, COM4	Sets port for 20MA signal to mirror

SETTING [display]	D.A.N NO.	OPTIONS [display] BOLD =DEFAULT	DESCRIPTION
DEBUG PORT (DBGPRT)	5999	OFF , COM1, COM2, COM3, COM4	Sets debugger port
APPLICATION UNITS {A UNIT}	6501	English or Metric	Enter application units in English or Metric
APPLICATION RATE {RATE}	6502	ENTER VALUE	Enter the desired rate in Tons per Acre (or Tonnes / Hectare)
APPLICATION WIDTH {WIDTH}	6503	40.0	Enter the spread width in feet (or meters)
TOTAL ACRES {ACRES}	6504		Shows a running total of acres spread or harvested on the selected field.
APP RATE ESTIMATE (ARATE)	6505	8	The number of weight samples used for the application rate estimate. Increase value to smoothen (2to10).
APP RATE AVERAGE (ARATE-2)	6506	5	The number of rate samples averaged. Increase value to smoothen (1to5).
APP RATE WINDOW (ARATE-3)	6507	0=OFF , increase value	Determines range for minimum or maximum samples. Uses minimum samples when outside of window. 0= OFF, 1=RATE +/- RATE, 9 = RATE +/- 1/9 RATE
APP MINIMUM SAMPLES (ARATE-4)	6508	6	Minimum samples used in APP RATE WINDOW. Decrease for faster response
APP RATE EQUAL WEIGHTS (AWEQUL)	6509	3	Increase value for low application rates
APP RATE LOAD / UNLOAD {A L/UL}	6511	UNLOAD , LOAD, AUTO	Select Load, Unload, or Auto detect for displaying T/A while loading or unloading

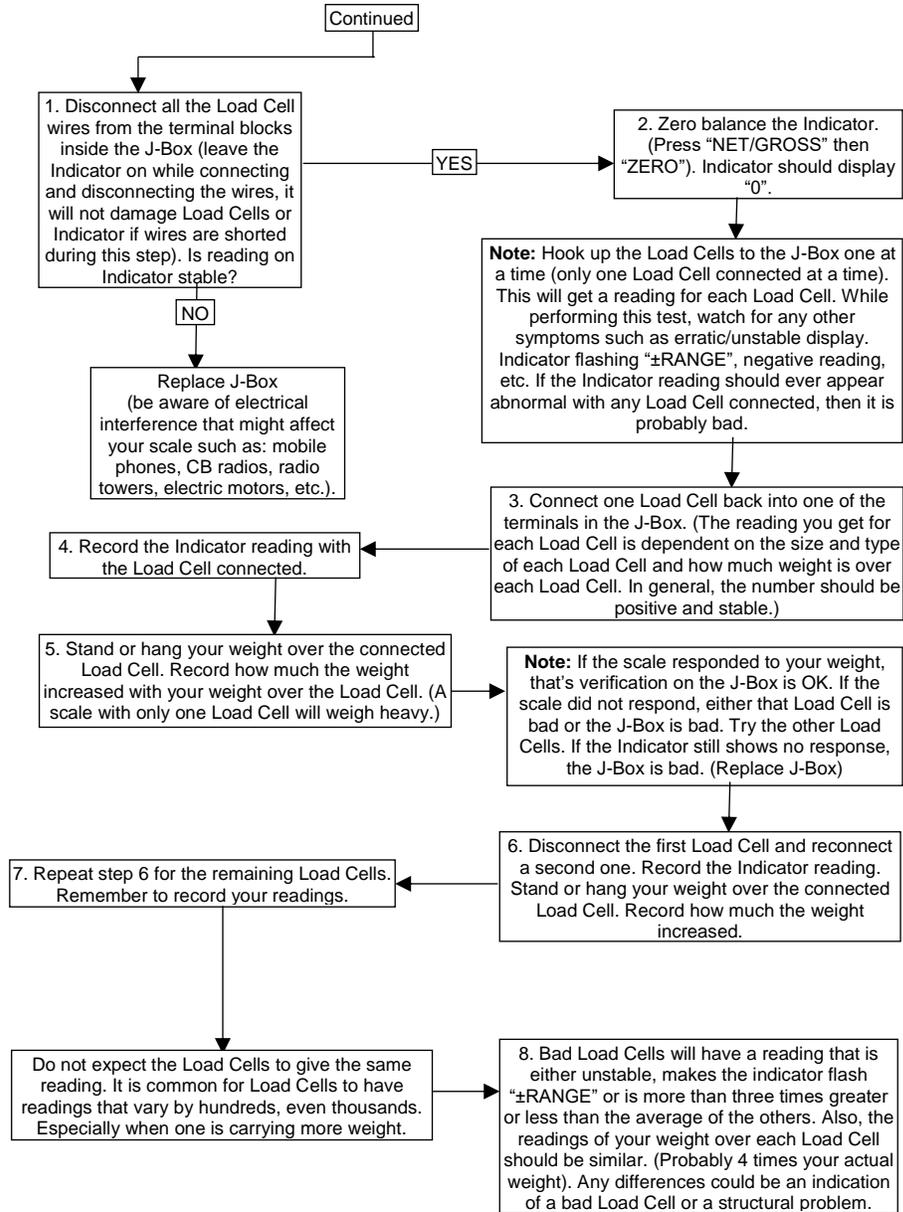
SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD =DEFAULT	DESCRIPTION
GPS STORAGE INTERVAL {GPSSTR}	6512	10	Time interval used to store GPS data
APP RATE MINIMUM SPEED {APMNSP}	6513	10	Minimum speed to use when calculating application rate
LOAD/UNLOAD MEASURE {MUNITS}	6514	TONS, LBS , KG	Select units to be measured. TONS, LB, or KG.
GPS STORAGE LOCATION {GPSTLC}	6515	INTRNL , USB, OFF	Select location to store USB records
GPS SERIAL STREAMING {GPSSSR}	6516	OFF , ON	When enabled, GPS application rate data is streamed out the serial port
SETUP FEATURES			
SIGNON SETTING (SIGNON)	8001	OFF , ON	Enables continuous display of sign-on message
SIGNON MESSAGE (SIGMSG)	8002	SIGMSG 1,2,3	Enables editing of the sign-on message
MAINTEN MESSAGE (MANTMG)	8011	MANTMG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Enables editing of the maintenance message
MAINTEN MESS. TIME (MANTTM)	8012	200 , Time is entered using key pad.	Time for maintenance message to be triggered.
DEAD WEIGHT CAL (WT CAL)	8121	Follow instructions shown on LCD	Calibration method using weights
TEMP CALIB (T CALB)	8123	OFF/ON	On=Scale adjusts for temperature changes
INDICATOR SETUP INFO (DS>SER)	8299	DS>SER	Downloads all setup information to the serial port
KEYTEST	8888		Enables front panel key test

SETTING [display]	D.A.N NO.	OPTIONS [display] BOLD =DEFAULT	DESCRIPTION
SETUP & CALIBRATION			
SETUP NUMBER (SETUP)	8711	146040	Quick entry method selects weigh method 1-4lbs, 5-8 kg, gain 1- 9, display counts 1-9 and capacity *1000
Calibration Number (CAL)	8712	32640	Weight displayed at 0.4mV/V

15.0 TROUBLESHOOTING FLOW CHART



15.1 Troubleshooting flow chart continued



15.2 Weighing Error Messages

Over-Capacity Limit (OVRCAP)

Weight on scale system exceeds capacity limit.

Over Range (+RANGE)

Weight on scale system exceeds maximum weight.

Check loadcell cabling.

Under Range (-RANGE)

Weight on scale system less than minimum weight.

Check loadcell cabling.

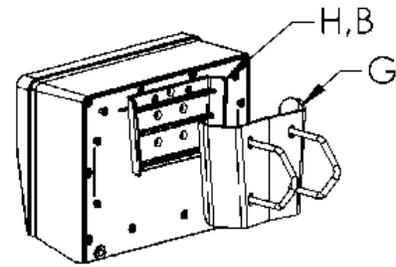
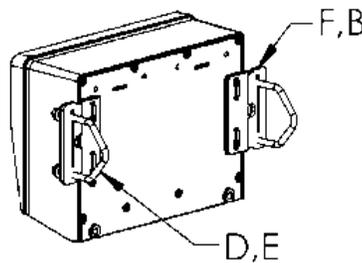
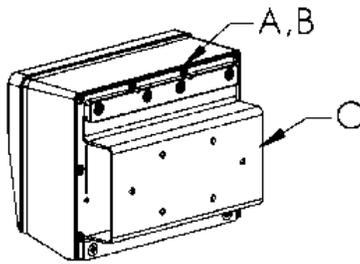
16.0 INSTALLATION

16.1 Indicator Mounting

For most applications, the equipment manufacturer provides the necessary mounting system and hardware, and mounts the indicator for the end user.

Digi-Star provides several mounting options that allow the end user to customize the location and placement of the Indicator. The following section provides a list of the optional mounts.

In all cases the Digi-Star Indicator must be securely mounted to the equipment. Loose, or unsupported, indicators can be damaged.

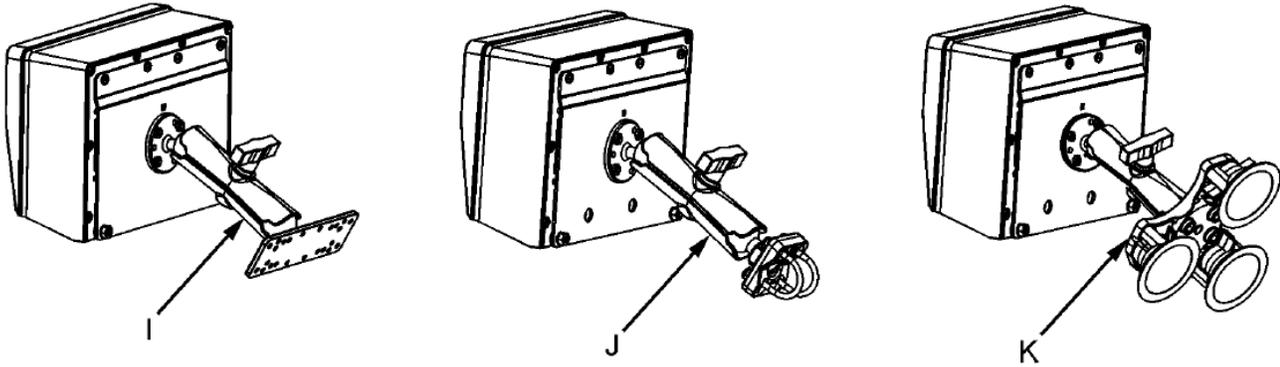


STD UNIVERSAL MOUNT TALL

WING MOUNT

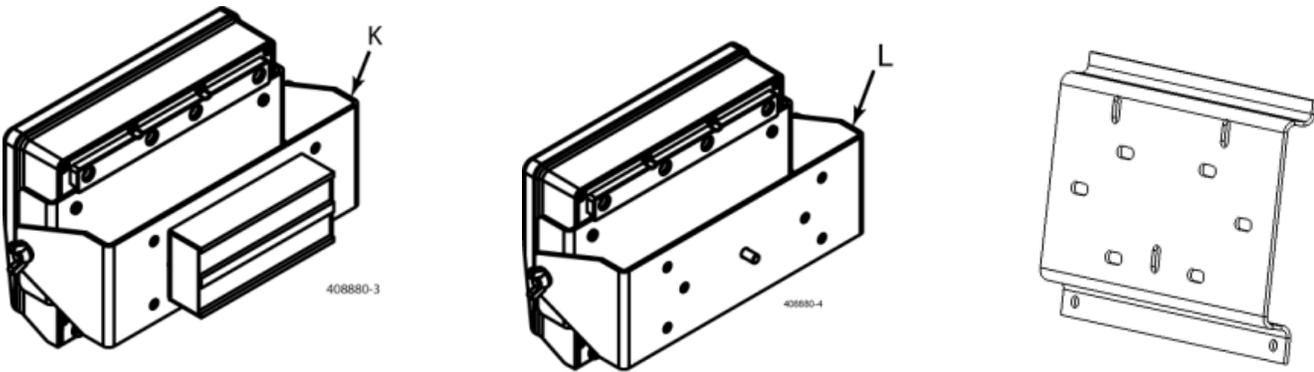
WEDGE MOUNT

KEY	PART NUMEBR	DESCRIPTION
A	404353	Bracket-EZ3 Plastic Rail *
B	403780	SCR-#10 X 5/8 FHSTS Black ZP
C	840459	Support-Hat Bracket
D	405069	U-Bolt 1/4-20 X 3.25 ZP
E	405084	Nut-1/4-20 Top Locking Flange
F	403770	Bracket- Wing Mount *
G	405124	Pack-Wedge Mount Bracket With U-Bolts & Flange Nuts
H	405244	EZ3 Wedge Mount



RAM MOUNT

KEY	PART NUMBER	DESCRIPTION
I	404799	Kit-1.5" Ram Mount with Bolt-On Base with Hardware
J	407544	Kit-1.5" Ram Mount with Dual U-Bolts (Fits 0.5"-1.5" Round)
K	407434	Kit-1.5" Ram Mount with Triple Suction Cup Base



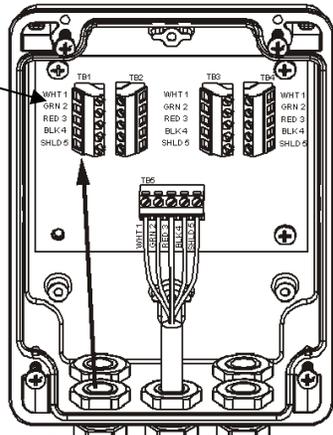
SIDE & UNIVERSAL MOUNTS

KEY	PART NUMBER	DESCRIPTION
K	408880	Mount for Large Indicators with Hardware and Magnet
L	408828	Mount for Large Indicators with Hardware Without Magnet
M	408199	Universal Mount Short

16.2 Connecting Load Cells to Junction Box

Connect load cell wires to terminal blocks. See wire color chart

Wire Color Key		
	Color	Description
1	White	Signal +
2	Green	Signal -
3	Red	Excitation +
4	Black	Excitation -
5	Shield	Shield



Junction Box
Illustrated for 4 Load
Cell Installation

Tighten Nuts

Junction Box Cable

Load Cell Cable

Connect to J902
Load Cell Port on
Indicator bottom
panel

16.3 Load Cell Direction



Observe direction of arrow when installing load cell.

17.0 DECLARATION OF CONFORMITY

EMC DECLARATION OF CONFORMITY	
Application of Council Directive(s)	<u>2014/108/EC</u>
Manufacturer's Name:	Topcon Agriculture Americas
Manufacturer's Address:	W5527 State Hwy 106 Fort Atkinson, WI 53538
European Representative Name:	Digi-Star International
European Representative Address:	J.F. Kennedylaan 235 5981 WX Panningen The Netherlands
Model Name:	GT560, TMR4610, YM560, EZ4 Series with multiline display
Conformance to:	<ul style="list-style-type: none">• EN 61326-1 electrical equipment for measurement, control, and laboratory use (See Report Number 316064.)ICES-003• EN 55011, for Class B ISM equipment for industrial, scientific, and medical equipment. (See Report Number 316064.)
Equipment Type/Environment:	Electronic weighing scale systems; not legal for trade. For agricultural, commercial and industrial use.
Beginning Serial No.:	00001001
Year of Manufacture:	2016
<p>I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).</p>	
Manufacturer	
 Signature	
Full Name:	Daniel J. Hegeman
Position:	Electrical Engineering Manager
Place:	Fort Atkinson, WI U.S.A.
Date:	June 30, 2017

18.0 QUICK START UP SHEET

FIELD SCREEN

- ③ Press  to modify or select field. Current field number is shown in upper display.
- ② Three lines are displayed in Lower Display Window. The top line of the three is current, editable and will be used for next data record.
- ⑩ Up/Down Arrows – Press  or  to scroll through fields (150 maximum). Hold arrow to scroll faster. Use  or  to move cursor within data line.
- ④ Use keypad to enter or update field names. Press  to delete characters to left and  to delete the selected character. Hold  to delete entire line. Pressing  will reset line to last saved data.
- ⑥ To use special characters, press and release . Then press key with desired special character. Repeat for each special character required.
- ⑥ Press  or  to exit.

ID SCREEN

- ① Press  to modify or select ID name. Current ID number is shown in upper display.
- ② Three lines are displayed in Lower Display Window. The top line of the three is current, editable and will be used for next data record.
- ⑩ Up/Down Arrows – Press  or  to scroll through ID names (150 max.). Hold arrow to scroll faster. Use  or  to move cursor within data line.
- ④ Use keypad to enter or update ID names. Press  to delete characters to left and  to delete the selected character. Hold  to delete entire line. Pressing  will reset line to last saved name.
- ⑥ To use special characters, press and release . Then press key with desired special character. Repeat for each special character required.
- ⑥ The operator will see ID XXX while editing the ID and CAP XXX while editing the capacity. After editing the ID press  to move the cursor to capacity field to enter capacity data. The display will scroll to the next ID when pressing  or .
- ⑦ Press  or  to exit.

19.0 OPITIONS



GPS Antenna
Optional GPS “Puck” antenna with
magnetic base and 17 feet of cord



IPC Thermal Printer
Optional printer a RS232 serial
port is required which is labeled
as SERIAL, J904 or J905
depending on model of indicator

20.0 NOTES

SETUP NUMBER _____

CALIBRATION NUMBER _____

