



A member of the
Avery Weigh-Tronix Group

Model 350I.S. and Model 355I.S.

Intrinsically Safe Indicator Series



User Instructions

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1 General information and warnings

1.1 About this Manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1 and 1.1 headings shown above. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

1.1.1 Text Conventions

Key names are shown in brackets e.g. [PRINT] and reflect the case of the key being described. This applies to the keys on the indicator keypad.

Displayed messages appear in *italic* type and reflect the case of the displayed message.

1.1.2 Special Messages

Examples of special messages you will see in this manual are defined below. The signal words have specific meanings to alert you to additional information or the relative level of hazard.



DANGER!
THIS IS A DANGER SYMBOL.
DANGER MEANS THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES WILL CAUSE INJURY OR DEATH.



ELECTRICAL WARNING!
THIS IS AN ELECTRICAL WARNING SYMBOL.
ELECTRICAL WARNINGS MEAN THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES MAY RESULT IN ELECTROCUTION, ARC BURNS, EXPLOSIONS OR OTHER HAZARDS THAT MAY CAUSE INJURY OR DEATH.



WARNING!
This is a Warning symbol.
Warnings mean that failure to follow specific practices and procedures may have major consequences such as injury or death.



CAUTION!
This is a Caution symbol.
Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.



NOTE: This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.

1.2 Installation



DANGER: RISK OF ELECTRICAL SHOCK. NO USER SERVICEABLE PARTS. REFER TO QUALIFIED SERVICE PERSONNEL FOR SERVICE.

1.3 Electrical Installation



CAUTION: The AC to DC Power Supply power cable must be connected to an earth-grounded electrical outlet. The electrical supply must have a circuit breaker with an appropriate rating to protect from over-current conditions.

For your protection, all electrical (110V or 230V) equipment used out of doors or in wet or damp conditions should be supplied from a correctly fused power source and protected by an approved ground fault protection device (RCD, GFCI etc.)

IF IN DOUBT SEEK ADVICE FROM A QUALIFIED ELECTRICIAN.

1.3.1 Pluggable Equipment

Pluggable equipment must be installed near an easily accessible socket outlet.

1.3.2 Permanently Wired Equipment - Isolator Requirements

Permanently connected equipment must have a readily accessible disconnect device incorporated in the fixed wiring such as an isolator or circuit breaker with at least 3mm contact separation.

The isolator **MUST NOT** be installed into the flexible power cable supplied with the unit.

The mains supply to the weighing equipment **MUST** be protected by a 4000A breaking capacity fuse of a suitable current rating (a suitable fuse is a 3A Bussmann type TDC180). These fuses are usually of the sand filled type.

1.3.3 Safe Handling of Equipment with Batteries



CAUTION: *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

ATTENTION: *Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.*

1.3.4 Wet Conditions

Under wet conditions, the plug must be connected to the final branch circuit via an appropriate socket / receptacle designed for washdown use.

Installations within the USA should use a cover that meets NEMA 3R specifications as required by the National Electrical Code under section 410-57. This allows the unit to be plugged in with a rain tight cover fitted over the plug.

Installations within Europe must use a socket which provides a minimum of IP56 protection to the plug / cable assembly. Care must be taken to make sure that the degree of protection provided by the socket is suitable for the environment.

1.4 Routine Maintenance



IMPORTANT: *This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.*

Always turn off the machine and isolate from the power supply before starting any routine maintenance to avoid the possibility of electric shock.

Make sure that it is placed securely on a flat and level surface.

1.5 Cleaning the Indicator

Table 1.1 Cleaning DOs and DON'Ts



DO	DO NOT
Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent	Attempt to clean the inside of the indicator
	Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions
Spray the cloth when using a proprietary cleaning fluid	Spray any liquid directly on to the display window

1.6 Training

Do not attempt to operate or complete any procedure on a indicator unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the indicator on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

1.7 Sharp Objects

Do not use sharp objects such as screwdrivers or long fingernails to operate the keys.

1.8 FCC and EMC Declarations of Compliance

United States

Table 1.2

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

Table 1.3

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Countries

Table 1.4

WARNING: This is a Class A product. In a domestic environment, this product may cause radio interference in which the user may be required to take adequate measures.

2 Installation

The Model 350/355 I.S. stainless steel enclosure meets NEMA 4X type specifications.
The encapsulant used is Dow Corning "Sylgard 170" Silicone Elastomer.



Do not allow the power supply or battery pack to be immersed in hazardous liquid, or to be subjected to any condensation of the hazardous atmosphere.

If the power supply or battery pack is likely to be splashed with hazardous liquid, protect it with a splash guard.

Never mount the power supply or battery pack in a position where it is permanently subjected to hazardous atmosphere, such as in a pit, or any closed, unventilated space. Always mount the unit in a position which minimizes its' exposure to the hazardous gas, vapor, or dust.

The heating effect of the sun must be taken into account when installing hazardous area equipment, especially in hot climates. If exposed to direct sunlight, it is possible that the temperature class ($T4 = 135\text{ }^{\circ}\text{C}$, $T3 = 200\text{ }^{\circ}\text{C}$) may be exceeded.

Contact Avery Weigh-Tronix for further information with regard to hazard analysis, and compatibility of equipment with hazardous materials.



WARNING: Risk of electrical shock!

WARNING! Only authorised personnel who have had appropriate product training and hazardous area training relevant to the location in which the equipment is to be sited must install and maintain this equipment. The installation must be done in accordance with the procedures detailed in the Service Manual. Refer to your supplier for more details.

2.1 Hazardous Area Approval (ATEX)

Gas	Approval	Temperature Range	T class	Zone
Indicator	II 1 G Ex ia IIC T4	-10 °C to + 50 °C	T4	1 & 2
AC mains PSU	II 2 G Ex mb[ia] IIC T4	-10 °C to + 50 °C		
Indicator	II 1 G Ex ia IIC T4	-10 °C to + 50 °C	T3	0, 1 & 2
Battery pack	II 1 G Ex ia IIC T3	-10 °C to + 40 °C		

Dust	Approval	Temperature Range	Enclosure	Zone
Indicator	II 1 D Ex iaD 20 T117 °C	-10 °C to + 50 °C	IP6X	21 & 22
AC mains PSU	II 2 D Ex mbD 21 T64 °C	-10 °C to + 50 °C		
Indicator	II 1 D Ex iaD 20 T117 °C	-10 °C to + 50 °C	IP6X	20, 21 & 22
Battery pack	II 1 D Ex iaD 20 T193 °C	-10 °C to + 40 °C		

2.2 Desktop Mounting

The Model 350/355 I.S. includes a swivel bracket for quick adjustment for viewing the display.

2.3 Outline Drawings

The outline drawings provide measurements needed for indicator installation.

2.3.1 Model 350 I.S.

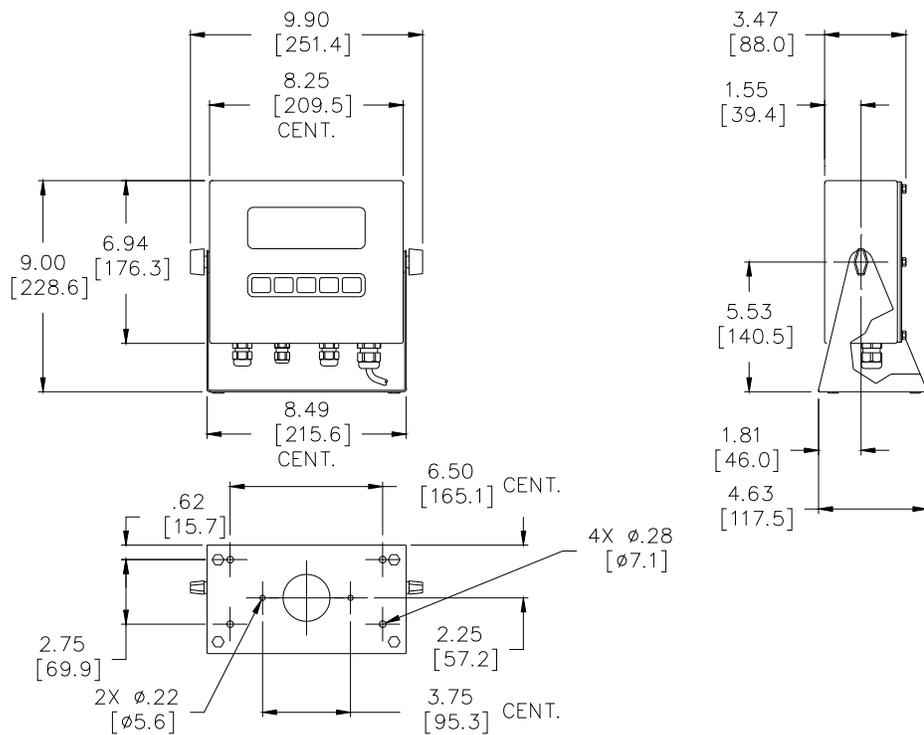


Figure 2.1 Model 350 I.S. with Standard Swivel Bracket

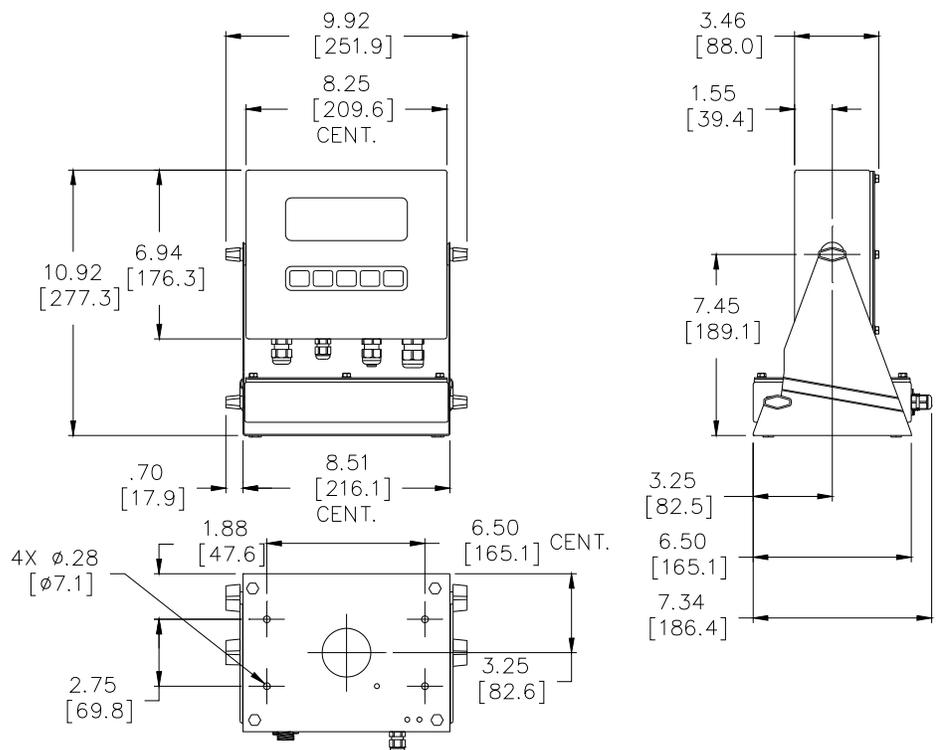


Figure 2.2 Model 350 I.S. with Battery Swivel Bracket

2.3.2 Model 355 I.S.

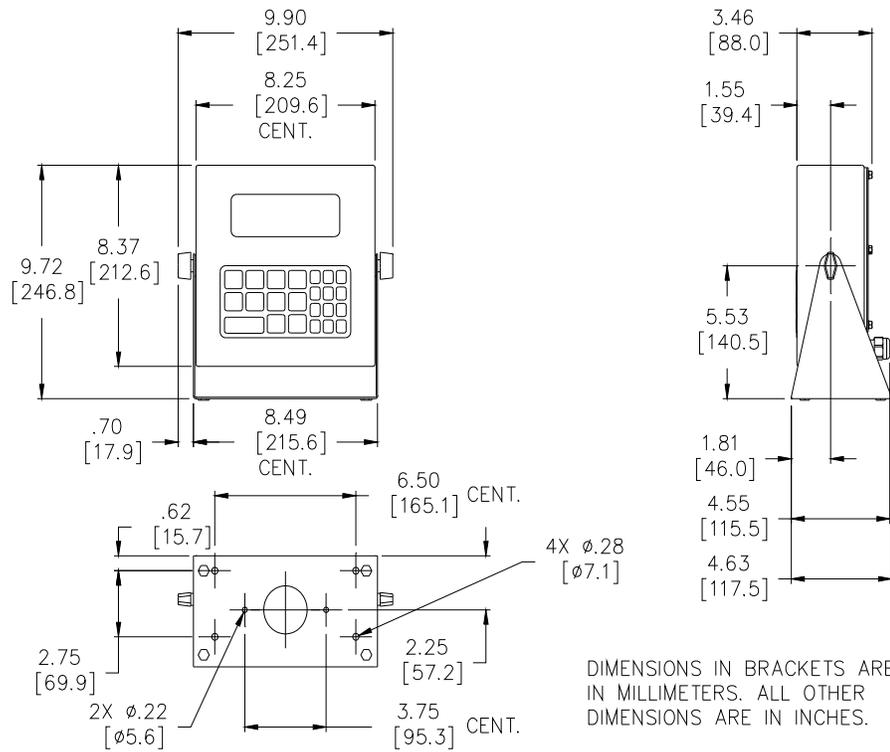


Figure 2.3 Model 355 I.S. with Standard Swivel Bracket

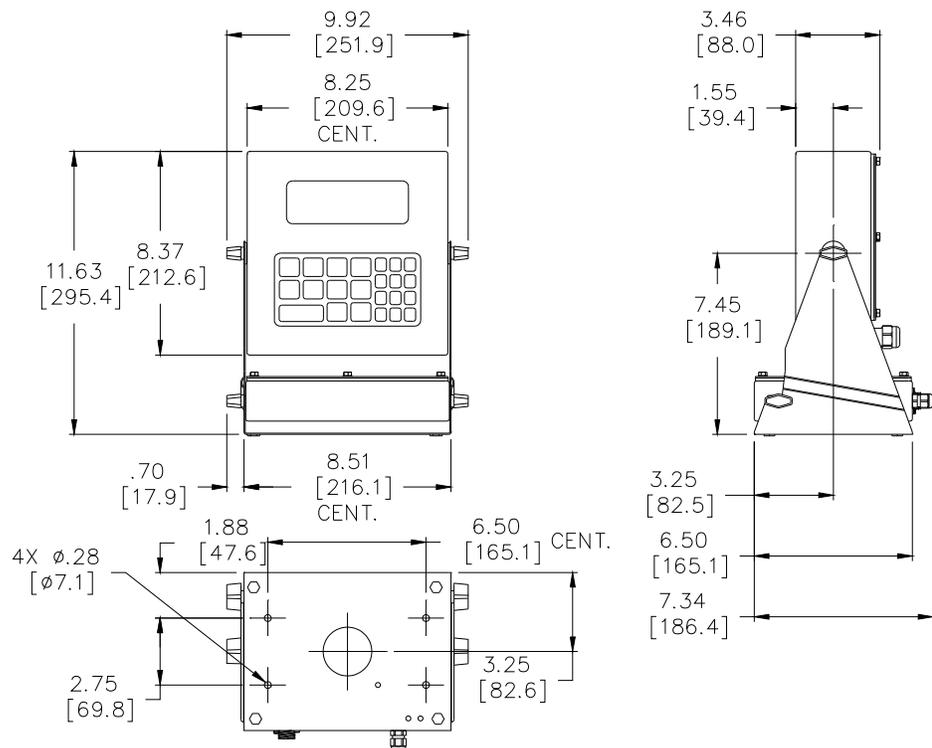


Figure 2.4 Model 335 I.S. with Battery Swivel Bracket

2.4 AC and DC Powered

2.4.1 DC Operated

Part number 24H350-3502A

The battery is enclosed in a stainless steel case and cannot be removed from the case. The battery module is mounted on the indicator swivel bracket. The battery will operate approximately 200 continuous hours with LCD display (backlight off, 1 load cell and no options installed) or 100 hours with the LED display (one load cell and no options installed). ***Please do not throw away old battery packs. Recycle or return to place of purchase for recycling.***

Mount the battery module in the swivel bracket:

1. Hold the battery module in both hands. Make sure the connectors on the battery module are facing the back of the indicator.
2. Line up the two protrusions on each side of the battery module with the slide rails on the swivel bracket.
3. Push the module into the slide rails until the knobs drop into the slots in the swivel bracket.
4. Tighten the knobs to hold the battery module in the swivel bracket.

Battery Charging



THE BATTERY MUST BE CHARGED IN THE SAFE AREA

Connect the battery to the Avery Weigh-Tronix battery charger. Connect the battery charger to AC power. Charging will take approximately 3.5 hours.

Low Battery Indication

The low battery annunciator will be lit when the voltage reaches a low threshold and the low battery message (Lo Bat) is shown on the display for 1.5 seconds every 15 seconds.

Flat (Discharged) Battery Shutdown

The indicator will shutdown after five minutes of flat (discharged) battery condition.

2.4.2 AC Operated

Part number 24H350-3501A

The AC- DC power supply is in a stainless steel enclosure which is remotely mounted. Refer to [Figure 2.5](#) for mounting dimensions.

When one power supply is used to power two indicators then the combination cannot be used in a Zone 1 or a IIC gas group hazard.

The AC to DC supply has a conduit fitting on the bottom where the power cable is attached to the unit. This fitting is 1" in diameter and has a 1/2" thread. Ensure that the conduit is correctly connected using suitable ATEX approved conduit fittings and seals.



The AC power supply cable must be mechanically protected in conduit when the AC Power Supply is installed in the hazardous area.

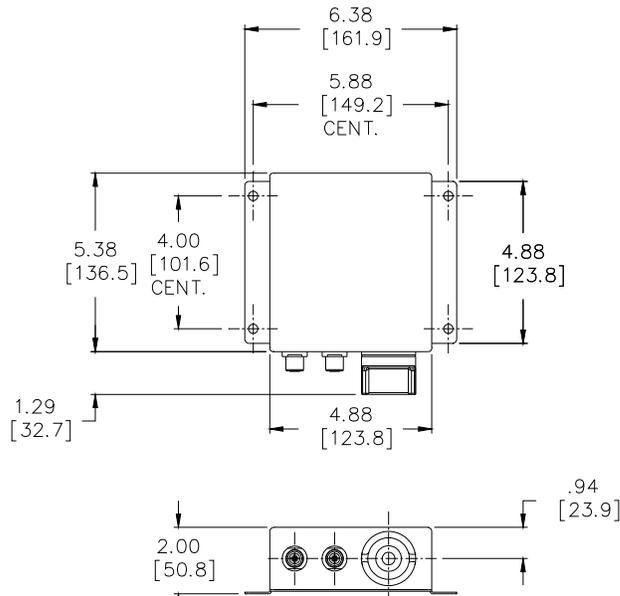


Figure 2.5 AC to DC Power Supply Outline Drawing

2.4.3 AC To DC Power Supply Extension Cable

The extension cable comes in either 25' or 50' length. This cable is used for mounting the AC to DC converter away from the indicator. Fifty feet is the maximum allowed from power supply to indicator.

3 Display and Keypad

3.1 Display

The Model 350 and 355 intrinsically safe indicators are available with a six digit, 7-segment red LED display, six digit, 7-segment black LCD display or 7-segment backlit LCD display. The Model 350 and 355 I.S. will display alphanumeric data, but due to the nature of 7-segment LED / LCD and the limitation of six digits, some information is abbreviated.

All segments and annunciators are illuminated for a brief display test upon power up. The current gross weight is then displayed in default units.

3.1.1 LED Display

The LED display is a six digit, 7-segment bright red LED screen with 12 annunciators to show weight and status information.

The SP1, SP2, and SP3 annunciators are red, green, and yellow.

There is also an annunciator for a third unit of measure under kg. Place the third unit label above the third annunciator (the third unit is available on both the LED and LCD displays).

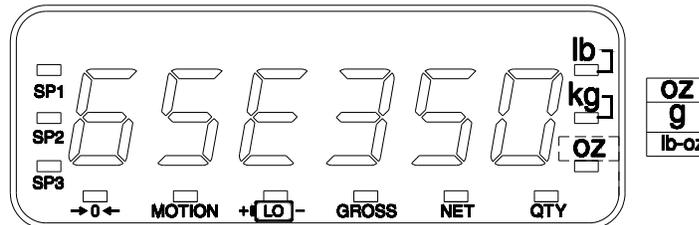


Figure 3.1 Model 350/355 I.S. LED Display

3.1.2 LCD Display

The LCD display is a six digit, 7-segment black LCD screen with 12 annunciators and a bargraph to show the operational status.

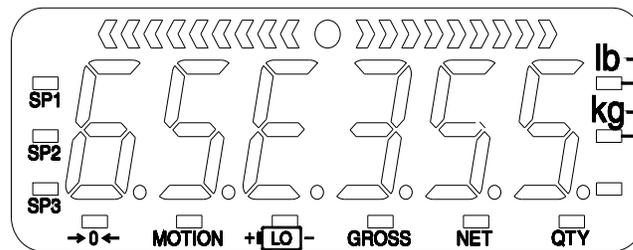


Figure 3.2 Model 350 I.S. LCD Display

3.2 Keypads

3.2.1 Model 350 I.S. Keypad

The Model 350 I.S. offers a sealed 5-button elastomer keypad which is used for operator input. Each key is assigned two distinct functions. Various key combinations are also used. Each key has secondary functions; allowing an operator to enter target values, perform piece samples, access setup parameters, etc.

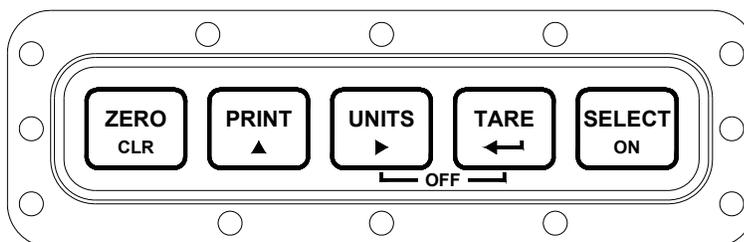


Figure 3.3 Model 350 I.S. Keypad

Key Press	Weigh Mode	Count Mode
ZERO CLR	Performs a gross zero function and/or clears an entry in progress. Hold this key on power-up to turn on the display if in sleep mode.	Performs a quantity zero function and/or clears an entry in progress.
PRINT ▲	Performs a print function and/or 'scrolls' through digits during setpoint entry.	Performs a print function and/or 'scrolls' through digits during setpoint entry.'
UNITS ▶	Toggles between 'lb' and 'kg' and/or advances cursor to next entry position.	Toggles through standard sample sizes and/or begins a new sample entry.
TARE ←	Performs an auto-tare function (if enabled) and/or accepts an entry in progress.	Performs an auto-tare function and requests a piece sample and/or accepts an entry in progress.
SELECT ON	Toggles between display modes and/or restores power to the indicator (if auto-shutoff enabled).	Toggles between display modes and/or restores power to the indicator (if auto-shutoff enabled).
ZERO CLR + TARE ←	Absolute clear - clears an entry in progress and/or clears the value of a parameter.	No function.

Key Press	Weigh Mode	Count Mode
ZERO CLR + PRINT ▲	Backspace - erases the right-most digit during data entry.	Backspace - erases the right-most digit during sample entry.
PRINT ▲ + SELECT ON	Extended gross.	Extended gross.
PRINT ▲ + UNITS ►	Reverse character scroll during data entry.	Reverse character scroll during sample entry.
UNITS ► + TARE ◀	Turn off indicator by holding key for approximately 1 second.	Turn off indicator by holding key for approximately 1 second.

3.2.2 Model 355 I.S. Keypad

The Model 355 I.S. keypad performs different functions in the Weigh Mode and the Count Mode. The numeric keys make entering values such as tare or average piece weight easier.

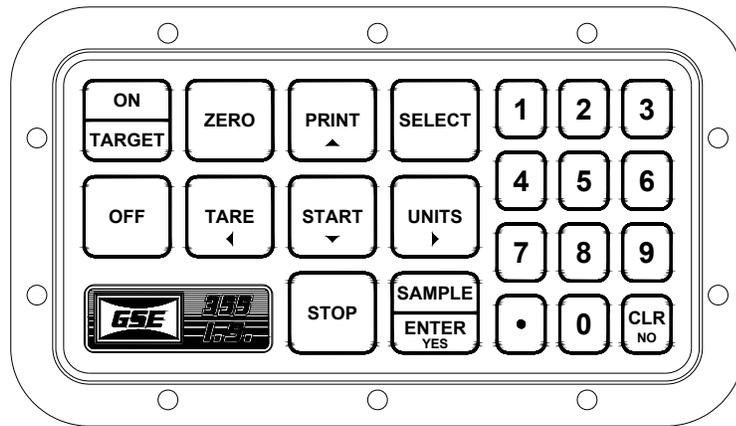


Figure 3.4 Model 355 I.S. Keypad

Key Press	Weigh Mode	Count Mode
	Performs a gross zero function and/or clears an entry in progress.	Performs a quantity zero function and/or clears an entry in progress.
	Performs a print function and/or 'scrolls' through digits during setpoint entry.	Performs a print function and/or 'scrolls' through digits during setpoint entry.
	Toggles between 'lb' and 'kg' and/or advances cursor to next entry position.	Toggles through standard sample sizes and/or begins a new sample entry.
	Performs an auto-tare function (if enabled) and/or accepts an entry in progress. If a tare weight is known, key in the value and press [TARE].	Performs an auto-tare function and requests a piece sample and/or accepts an entry in progress.
	Toggles between display modes and/or restores power to the indicator (if auto-shutoff enabled).	Toggles between display modes and/or restores power to the indicator (if auto-shutoff enabled).
	Performs a sample. If a number is keyed in before hand, it will be used as the sample size. Accepts an entry.	Performs a sample. If a number is keyed in before hand, it will be used as the sample size.
	Clears an entry in progress. Hold this key on power-up to turn on the display if in sleep mode.	Performs a quantity zero function and/or clears an entry in progress.
	If setpoints are enabled, causes a process to start or resume.	If setpoints are enabled, causes a process to start or resume.
	If setpoints are enabled, causes a pause. Press [STOP] again to abort the process.	If setpoints are enabled, causes a pause. Press [STOP] again to abort the process.
	Wake up the indicator if in sleep mode. Turn on the indicator if power is off. Access the target entry mode.	Wake up the indicator if in sleep mode. Turn on the indicator if power is off. Access the target entry mode.
	Turn off indicator by holding key for approximately 1 second.	Turn off indicator by holding key for approximately 1 second.

3.2.3 Weigh Mode Functions

The Model 350 I.S. and Model 355 I.S. keypads have five primary Weigh Mode functions:

	Performs a gross zero and selects the gross mode.
	Initiates data transmission out the selected communication port.
	Toggles the units of measure between lb, kg, g, lb oz, oz.
	Tares any displayed weight and selects the net mode.
	Toggles the display between GROSS, NET, QUANTITY and setpoint TARGETS (if enabled).

4 Operation

The Model 350 I.S. and 355 I.S. provide many options for check-weighing, parts counting and filling etc. The functions described in this section are not available until enabled within the setup parameters. Contact your GSE distributor to configure the indicator for a specific operation.

4.1 Entering a Tare Value (Model 350 I.S.)

If a tare value is known, it is possible to enter that value into the tare register. Follow the steps below.

1. From the gross mode use the [SELECT] key to scroll in the first number.
2. Use the [PRINT] key to scroll in the first number.
3. Press the [UNITS] key to move to the next digit.
4. Repeat steps 2 and 3 until the desired number is showing on the display.
5. Press the [TARE] key to accept the entered tare value.

4.2 Entering a Tare Value (Model 355 I.S.)

If a tare value is known, it is possible to enter that value into the tare register. Follow the step below.

1. Key in the known tare value with the numeric keys and press [TARE]. The display will access the net mode.

4.3 Enter an ID Number

If the ID parameter has been enabled previously, a number may be entered to print on a ticket. Follow the instructions below to enter an ID number.

1. Press the [PRINT] key from the weigh mode. The display will show the current ID number if one has been entered previously.
2. Key in the desire ID number (numeric and/or alphanumeric) and press [TARE] (Model 350 I.S.) or [ENTER] (Model 355 I.S.). This will print a ticket.

-or-

- 2a. If the ID number shown is acceptable simply press [TARE] (Model 350 I.S.) or [ENTER] (Model 355 I.S.). This will print a ticket which includes the entered ID number.

4.4 Set Time & Date

The time and date feature is stored as non-volatile (time/date setting will not be lost when the unit power is reset).

The time and date can be accessed from the weigh mode with the [SELECT] key if the time/date parameter has been enabled. Time and date can be accessed via the communication port by sending 11%*s*.

4.4.1 Model 350 I.S.

To enter the time from the Enter~time~00.00.00 prompt

EXAMPLE: 16.32.41 (4:32:41 P.M.)

1. Press [PRINT] to toggle through the numbers to enter the hour. Hours must be entered as military time.
2. Press [UNITS] once to move the cursor. Press [PRINT] to select the next digit.
3. Press [UNITS] twice to move the decimal point over to separate the hour from the minutes. It is not necessary to enter a 0 before a single digit hour.

To enter the date from the Enter~date~01.01.70 prompt

EXAMPLE: 01.09.11 (January 9, 2011)

1. Press [PRINT] to toggle through the numbers to enter the month.
2. Press [UNITS] twice to move the decimal point over to separate the month from the day. It is not necessary to enter a 0 before a single digit month. If it is a double-digit entry, press [UNITS] once to move the cursor and then [PRINT] to scroll through the digits.
3. Press [PRINT] to toggle through the numbers to enter the day.
4. Press [UNITS] twice to move the decimal point over to separate the day from the year. It is not necessary to enter a 0 before a single digit month. If it is a double-digit entry, press [UNITS] once to move the cursor and then [PRINT] to scroll through the digits.
5. Press [PRINT] to toggle through the numbers to enter the year.
6. Press [UNITS] once to move the cursor and then press [PRINT] to scroll through the digits.
7. Press [TARE] twice to accept the entry.

4.4.2 Model 355 I.S.

To enter the time from the Enter~time~00.00.00 prompt

EXAMPLE: 16.32.41 (4:32:41 P.M.)

1. Key in the date in the following format: 16.32.41
2. Press [ENTER] to except the time and move to the weigh mode.

To enter the date from the Enter~date~01.01.70 prompt

EXAMPLE: 01.09.11 (January 9, 2011)

1. Key in the date in the following format: 1.9.11. It is not necessary to enter a 0 before a single digit month.
2. Press [ENTER] to except the date and move to the time entry. Press [ENTER] again to bypass the time entry.

4.5 Parts Counting

The counting parameter must be enabled before using. Follow the instructions below for sampling and counting parts. A new sample must be performed for each unique part being counted. The indicator will not store the average piece weight.

4.5.1 Model 350 I.S.

Sample selectable fixed counts from the weigh mode

1. From the weigh mode, press [SELECT] until the QTY annunciator is lit. The display may show do APS if an average piece weight is not found. This message is to let you know this is a new sample. Go to step 2.
2. Press [TARE] to perform a sample. Add 10 will be displayed. If 10 is the desired sample size, go to step 4. Otherwise go to step 3.
- 2a. If a fixed sample size other than 10 is desired, press [SELECT] to toggle through sample size choices 5, 10, 20, 50 and 100. When the desired sample size is displayed, go to step 4.
3. Add the pieces to be sampled and press [TARE]. After motion is stabilized, the sampled quantity will be displayed.
4. Continue adding parts to be counted. The display will show the number of parts added.
- 4a. If a different part needs to be counted, go to step 2.

To sample using variable counts

1. From the weigh mode, press [SELECT] until the QTY annunciator is lit. The display may show do APS if an average piece weight is not found. This message is to let you know this is a new sample. Go to step 2.
2. Press [TARE] to perform a sample. Add 10 will be displayed.
3. Add pieces and key in the number of pieces being sampled by entering the known sample size. First press the [PRINT] key until the first digit is displayed. Use the [UNITS] key to move to the next digit. Continue using the [PRINT] and [UNITS] keys until the desired sample size is displayed and press [TARE].
4. Add the pieces to be sampled and press [TARE]. After motion is stabilized, the sampled quantity will be displayed.
5. Continue adding parts to be counted. The display will show the number of parts added.

- 5a. If a different part needs to be counted, go to step 2.

View the average piece weight

1. From the QTY mode, press [SELECT] once. The display will show APS and then flash the last sampled average piece weight. This value cannot be altered.
2. Press the [SELECT] key to exit the average piece weigh mode. Continue to press [SELECT] until the desire weigh mode parameter is displayed.

4.5.2 Model 355 I.S.

To sample using selectable fixed counts from the weigh mode

1. From the weigh mode press [ENTER]. Add 10 will be displayed.
 - 1a. If 10 is the desired sample size, go to step 2. Otherwise go to step 1b.
 - 1b. If a fixed sample size other than 10 is desired, press [SELECT] or [UNITS] to toggle through sample size choices 5, 10, 20, 50 and 100. When the desired sample size is displayed, go to step 3.
2. Add the pieces to be sampled and press [ENTER]. After motion is stabilized, the sampled quantity will be displayed.
3. Continue adding parts to be counted. The display will show the number of parts added.
 - 3a. If a different part needs to be counted, go to step 2.

To sample using variable counts

1. From the weigh mode press [ENTER]. Add 10 will be displayed. If 10 is the desired sample size, go to step 3. Otherwise go to step 2.
2. Add pieces and key in the number of pieces being sampled with the numeric keys. Press [ENTER] to accept the entry.
3. Add the pieces to be sampled and press [ENTER]. After motion is stabilized, the sampled quantity will be displayed.
4. Continue adding parts to be counted. The display will show the number of parts added.
 - 4a. If a different part needs to be counted, go to step 2.

4.5.3 View the average piece weight

1. From the QTY mode, press [SELECT] once. The display will show APS and then flash the last sampled average piece weight. This value cannot be altered.
2. Press the [SELECT] key to exit the average piece weigh mode. Continue to press [SELECT] until the desire weigh mode parameter is displayed.

4.6 Percentage Checkweigh

This feature is commonly used in checkweigh applications and must be enabled before attempting to use.

After a target weight is entered, upper and lower tolerances are entered as a percentage of the target. Over and under tolerance values are automatically calculated according to the percentages entered. The desired target may be based on gross weight, net weight or quantity (if counting is enabled).

4.6.1 Enter a Target Value

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed. If the target value shown is correct, press [TARE] to go to the PctLo value. To change the target value, go to step 2.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered. Refer to the example below as a reference.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. Press [TARE] to accept the entered value. Once the tare key is pressed, PctLo will be displayed. This is where the low percentage will be entered. Enter target percentage value in the same manner as the target weight was entered above. If the displayed value is correct, press [TARE].
4. Next the PctHi value will be displayed. This is target percentage value for the high percentage. Enter this value in the same manner as the target weight was entered above.
 - 4a. If the displayed value is correct press [SELECT]. The display will return to the weigh mode.
 - 4b. Press [SELECT] to view the desired weigh mode parameter.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the target weight with the numeric keys and press [ENTER].

3. The PctLo value will be displayed. Key the in target percentage value with the numeric keys and press [ENTER].
4. The PctHi value will be displayed. Key the in target percentage value with the numeric keys and press [ENTER].
5. Press [SELECT] to select the desired weigh mode parameter.

4.6.2 Start Checkweighing

The checkweigh applications do not have a start function. Simply put the item to be weighed onto the scale platter. An annunciator will illuminate to indicate whether the item is within tolerance.

Annunciators

In order for the annunciators to activate, the displayed value must be at least five graduations above zero.

Status	Annunciator Status	Annunciator Color (LED)
OVER	SP 1 Illuminated	Red
GOOD	SP 2 Illuminated	Green
UNDER	SP 3 Illuminated	Yellow

4.7 Fill

The fill program is used for single-speed or dual-speed filling operations. The dual-speed fill operation allows for both a fast and a slow fill mode. During a fast-fill, setpoints 1 (SP1) and 2 (SP2) are activated. During a slow-fill or single-speed fill, only setpoint 1 (SP1) is activated. This feature must be enabled before attempting to use. Over filling can be prevented with the use of pre-act values (PA1 and PA2). Pre-act 1 (PA1) is used for switching the fast fill to a slow fill. Pre-act 2 (PA2) is used as a final cutoff value.

4.7.1 Enter a Target Value

Pressing [TARE] or [SAMPLE/ENTER] alone allows access to the subsets. PA1 and PA2 are the subsets for Targ 1.

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered. Refer to the example below.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. Press [TARE]. Once the tare key is pressed, it is possible that PA1 will be displayed if the pre-act parameter is enabled.
- 3a. If a value is desired, enter it in the same manner as the target weight was entered above. When the displayed value is correct, press [TARE].
- 3b. If no value is to be entered or PA1 is not displayed, press [TARE] to go to the next screen.
- 3c. If PA2 is displayed, enter the value in the same manner as the target weight was entered above and press [TARE] to accept or press [TARE] to return to the weigh mode. Press [SELECT] to view the desired weigh mode parameter.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the desired target value with the numeric keys and press [ENTER].
3. The PA1 value will be displayed. Key the in value with the numeric keys and press [ENTER].
4. The PA2 value will be displayed. Key the in value with the numeric keys and press [ENTER].
5. Press [SELECT] to select the desired weigh mode parameter.

4.7.2 Start Fill

Activation Method

The fill begins with the selected activation method. The method is determined by the parameters in the setup mode.

The deactivation of the setpoints is automatic. The desired target may be based on net or quantity (if counting is enabled).

Activation types

- Tare key - Press the [TARE] key to start the process. A tare weight will be set and the weight will switch to net zero.
- Remote key - Press the remote key switch.

- Auto-start - The process is automatically activated. It waits for a no-motion condition and then adds the target to the current displayed weight to achieve a relative cutoff value.

Annunciators

Fill Status	Annunciator Status
Fast Fill	SP 1 & SP 2 Illuminated
Dribble Fill (or Single-Speed Fill)	SP 1 Illuminated
Fill Done or Pause	SP 1 & SP 2 Off

4.7.3 Fill Example

With a system set up to fill 55-gallon drums with motor oil, the following settings might be used to achieve an accurate final fill weight of 400 lbs.:

Parameter Setting	Actual Cutoff Value	Comments
Targ 1 = 400	Desired final weight.	
Pre-act 1 = 28	$400 - 28 = 372.0$	Switch to dribble feed at 372.
Pre-act 2 = .5	$400 - 0.5 = 399.5$	Final fill valve closes at 399.5.

4.8 Batch

The standard batch program is used for batching up to three separate items. Ingredients 1 through 3 use setpoints and pre-acts 1 through 3 respectively. Ingredients are batched one at a time. Free falling product can be accounted for with the use of pre-act values (PA1 - PA3). This feature must be enabled before attempting to use.

4.8.1 Enter a Target

Pressing [TARE] or [ENTER] alone allows access to the subsets. PA 1 and PA 2 are the subsets for Targ 1.

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed

- DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
- 3. Press [TARE]. Once the tare key is pressed, it is possible that PA1 will be displayed if the pre-act parameter is enabled.
- 3a. If a value is desired, enter it in the same manner as the target weight was entered above. When the displayed value is correct, press [TARE].
- 3b. If no value is to be entered or PA1 is not displayed, press [TARE] to go to the next screen.
- 4. Repeat steps 2 and 3 until all targets and pre-acts are entered. Press [TARE] to return to the weigh mode.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the desired target value with the numeric keys and press [ENTER].
3. The PA1 value will be displayed. Key the in value with the numeric keys and press [ENTER].
4. Repeat steps 2 and 3 for tArG2, PA2, tArG3 and PA3.
5. Press [SELECT] to select the desired weigh mode parameter.

4.8.2 Start Batch

Activation Method

The batch begins with the selected activation method. The method is determined by the parameters in the setup mode. The deactivation of the setpoints is automatic. The desired target may be based on net or quantity (if counting is enabled).

Activation types

- Tare key - Press the [TARE] key to start the process. A tare weight will be set and the weight will switch to net zero.
- Remote key - Press the remote key switch.
- Auto-start - The process is automatically activated. It waits for a no-motion condition and then adds the target to the current displayed weight to achieve a relative cutoff value.

Annunciators

Batch Status	Annunciator Status	Setpoint Status (Requires Setpoint Option Board)
Fill 1	SP 1 Illuminated	Relay 1 Contacts Closed, Relay 2 and 3 Contacts Open
Fill 2	SP 2 Illuminated	Relay 2 Contacts Closed, Relay 1 and 3 Contacts Open
Fill 3	SP 3 Illuminated	Relay 3 Contacts Closed, Relay 1 and 2 Contacts Open

4.8.3 Batch Example

With a system set up a system to make a 50,000 lb batch with water (30,000 lbs.), corn syrup (15,000 lbs.) and caramel color (5,000 lbs.), ingredient 1 should start with [TARE] and subsequent ingredients should auto-start.

Parameter Setting	Actual Cutoff Value	Comments
Target 1 = 30,000		Desired water weight.
Pre-Act 1 = 100	$30,000 - 100 = 29,900$	Water valve closes at 29,900 lbs. Free-fall will bring weight to 30,000.
Start 1 = Tare		Start water with [TARE].
Target 2 = 15,000		Desired corn syrup weight.
Pre-Act 2 = 236	$15,000 - 236 = 14,764$	Corn syrup valve closes at 14,764 lbs. Free-fall will bring weight to 15,000.
Start 2 = Auto	Calculated cutoff value for corn syrup is added to current displayed weight	Start corn syrup when water is done and motion has stopped.
Target 3 = 5,000		Desired caramel coloring weight.
Pre-Act 3 = 142	$5,000 - 142 = 4,858$	Carmel coloring valve closes at 4,858. Free-fall will bring weight to 5,000.
Start 3 = Auto	Calculated cutoff value for caramel coloring is added to current displayed weight	Start caramel coloring when corn syrup is done and motion has ceased.

4.9 Discharge

The discharge program is designed for single-speed or dual-speed dispensing of product from a larger weigh vessel. Discharge is a loss-in-weight application similar in operation to the fill program. When a discharge is initiated, the scale automatically tares and comes to a net zero weight. The appropriate setpoints are activated and material is discharged until the decreasing net weight reaches the desired target value. Free falling product can be accounted for with the use of pre-act values (PA1 - PA3). This feature must be enabled before attempting to use.

4.9.1 Enter a Target

Pressing [TARE] or [ENTER] alone allows access to the subsets. PA 1 and PA 2 are the subsets for Targ 1.

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. Press [TARE]. Once the tare key is pressed, it is possible that PA1 will be displayed if the pre-act parameter is enabled.
- 3a. If a value is desired, enter it in the same manner as the target weight was entered above. When the displayed value is correct, press [TARE].
- 3b. If no value is to be entered or PA1 is not displayed, press [TARE] to go to the next screen.
4. Repeat steps 2 and 3 until all targets and pre-acts are entered. Press [TARE] to return to the weigh mode.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the desired target value with the numeric keys and press [ENTER].
3. The PA1 value will be displayed. Key the in value with the numeric keys and press [ENTER].
4. Repeat steps 2 and 3 until all targets and pre-acts are entered.
5. Press [SELECT] to select the desired weigh mode parameter.

4.9.2 Pre-acts

Pre-act 1 is used for dual-speed dispensing. Pre-act 1 specifies when the system should switch from fast-discharge to slow-discharge. When using a single-speed device, pre-act 1 should be set to 0 from the Setup Mode. Pre-act 2 specifies the point where the final cutoff should occur, regardless of a single-speed or dual-speed operation.

4.9.3 Start Discharge

Activation Method

The dispensing activation is limited to [TARE] or a remote key input. The deactivation of the setpoints is automatic. The desired target may be based on net or quantity (if counting is enabled).

The discharge begins with the selected activation method. The method is determined by the parameters in the setup mode.

The deactivation of the setpoints is automatic. The desired target may be based on net or quantity (if counting is enabled).

Activation types

- Tare key - Press the [TARE] key to start the process. A tare weight will be set and the weight will switch to net zero.
- Remote key - Press the remote key switch.

Annunciators

Discharge Status	Annunciator Status	Setpoint Status (Requires Setpoint Option Board)
Fast Discharge	SP 1 & SP 2 Illuminated	Relay 1 and 2 Contacts Closed
Slow (or Single-Speed) Discharge	SP 1 Illuminated	Relay 1 Contacts Closed
Fill Done or Pause	SP 1 & 2 Off	Relay 1 and 2 Contacts Open

4.9.4 Discharge Example

With a system set up to dispense ball bearings from a 50,000 lb weigh-bin and the fast-feed requiring an early cutoff to slow-feed, the following settings might be used to achieve accurate dispensing of 1000 bearings:

Parameter Setting	Actual Cutoff Value	Comments
Targ 1 = 1000	0 - 1000 = (-1000)	Desired quantity (decreasing value from a net zero: enter as a positive value).
Based = Qty		Targets are compared to quantity (P170 Enabled).
PA 1 = 200	1000 - 200 = 800 0 - 800 = (-800)	Switch to slow feed at -800 bearings (decreasing value from a net zero: enter as a positive value).
Start = [TARE]		Start discharge with [TARE].
PA 2 = 15	1000 - 15 = 985 0 - 985 = (-985)	Final gate begins closing at 985 bearings. Delayed closure brings final quantity to 1000 (decreasing value from a net zero: enter as a positive value).

4.10 Fill and Discharge

The fill and discharge program combines a fill operation with a discharge operation. This automates a single-speed vessel filling operation with a single-speed multiple dispensing function. Setpoint 1 is used for filling the vessel and Setpoint 2 is used for product discharge. Free falling product can be accounted for with the use of pre-act values (PA1 and PA2). This feature must be enabled before attempting to use.

4.10.1 Enter a Target

1. Press [SELECT] until tArG1 is displayed.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. Press [TARE]. Once the tare key is pressed, it is possible that PA1 will be displayed if the pre-act parameter is enabled.

- 3a. If a value is desired, enter it in the same manner as the target weight was entered above. When the displayed value is correct, press [TARE].
- 3b. If no value is to be entered or PA1 is not displayed, press [TARE] to go to the next screen.
4. Repeat steps 2 and 3 until all targets and pre-acts are entered. Press [TARE] to return to the weigh mode.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the desired target value with the numeric keys and press [ENTER].
3. The PA1 value will be displayed. Key the in value with the numeric keys and press [ENTER].
4. Repeat steps 2 and 3 until all targets and pre-acts are entered.
5. Press [SELECT] to select the desired weigh mode parameter.

4.10.2 Pre-acts

Pre-act 1 is used for vessel filling. Pre-act 1 specifies the point where the final cutoff for the fill should occur. Pre-act 2 specifies the point where the final cutoff for the material discharge should occur.



Pre-act 1 controls setpoint 1. Pre-act 2 controls setpoint 2.

4.10.3 Activation Method

The fill and discharge functions begin with their selected activation methods. The deactivation of the setpoints is automatic. The desired target may be based on net or quantity (if counting is enabled).

Activation types

- Tare key - Press the [TARE] key to start the process. A tare weight will be set and the weight will switch to net zero.
- Remote key - Press the remote key switch.
- Auto-start - The process is automatically activated. It waits for a no-motion condition and then adds the target to the current displayed weight to achieve a relative cutoff value.

Annunciators

Status	Annunciator Status	Setpoint Status (Requires Setpoint Option Board)
Vessel Fill	SP 1 Illuminated	Relay 1 Contacts Closed
Vessel Discharge	SP 2 Illuminated	Relay 2 Contacts Closed
Fill Done or Pause	SP 1 & SP 2 Off	Relay 1 and Relay 2 Contacts Open

4.10.4 Pause

The Model 350/355 I.S. can pause setpoint operations. This is useful as a safety device, for mid-cycle operator breaks, mechanical adjustments, etc. This feature must be enabled before attempting to use.

When invoked, Pause deactivates all setpoints. The display will show: Tare= ~ Abort. Pressing [TARE] will abort the current cycle; any other keypress will resume the cycle. The Pause feature has four settings:

Pause Setting	Action	Result
Keypad	350/355 Key Press	Current cycle paused - all setpoints deactivated.
Remote Key	Remote Key Contact Closure	Current cycle paused - all setpoints deactivated.
Both	350/355 Key Press or Remote Key Contact Closure	Current cycle paused - all setpoints deactivated.

4.10.5 Fill and Discharge Example

Parameter Setting	Actual Cutoff Value	Comments
Targ 1 = 2000		Desired vessel fill target.
Based = Net		Targets are compared to net weight.
PA 1 = 5	$2000 - 5 = 1995$	Fill valve closes at 1995 lbs.
Start 1 = R-but		Start fill with remote key closure.
Targ 2 = 45	$0 - 45 = (-45)$	Desired discharge target (decreasing weight from a net zero: enter as a positive value).
PA 2 = 5	$45 - 5 = 40$ $0 - 40 = (-40)$	Discharge valve closes at (-40) lbs. (decreasing weight from a net zero: enter as a positive value).

4.11 Absolute Checkweigh

This program is commonly used for check-weigh applications where the accepted tolerance will be an absolute value between an upper and lower limit.

After a target weight is entered, upper and lower tolerances are entered as absolute values. The desired target may be based on gross weight, net weight, or quantity (if counting is enabled). Only the annunciators will light to indicate the setpoint status. Be sure to enter both the upper and lower limits. Failure to enter one of these values will cause a setpoint error. This feature must be enabled before attempting to use.

4.11.1 Enter a Target Value

Model 350 I.S.

1. Press [SELECT] until tArGL is displayed. The low target value will need to be entered. Go to step 2.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. Press [TARE]. Once the tare key is pressed, tArGH will be displayed. This is where the high target value will be entered. Enter this value in the same manner as the target weight was entered above. If the displayed value is correct, press [TARE]. The display will return to the gross mode.

Model 355 I.S.

1. Press [SELECT] until tArGL is displayed.
2. Key in the low target weight with the numeric keys and press [ENTER].
3. The tArGH value will be displayed. Key in the high target value with the numeric keys and press [ENTER].
4. Press [SELECT] to select the desired weigh mode parameter.

4.11.2 Start Checkweighing

The checkweigh applications do not have a start function. Simply put the item to be weighed onto the scale platter. An annunciator will illuminate to indicate whether the item is within tolerance.

Annunciators

In order for the annunciators to activate, the displayed value must be at least five graduations above zero.

Status	Annunciator Status	Annunciator Color (LED)
OVER	SP 1 Illuminated	Red
GOOD	SP 2 Illuminated	Green
UNDER	SP 3 Illuminated	Yellow

4.11.3 Absolute Checkweighing Example

With a system set up to check-weigh 50 lb. cement bags, the following settings might be used check-weigh bag from 49.5 to 51.5 lbs.:

Parameter Setting	Acceptable Values	Comments
Target = 50.00		Desired bag weight.
Low Value = 49.50	0 - 49.50 lbs.	Low acceptable range = 0 to 49.50 lbs.
Target Window	49.50 - 51.50 lbs	Good light within this range
High Value = 51.50	51.50 lbs. and above	High acceptable range = 51.50 lbs. and above

4.12 Target Deviation Checkweigh

The target deviation method uses a target value in which the upper and lower tolerances are deviated from the target. The upper and lower tolerances are fixed values. The accept window is varied by adding the high tolerance to the target and subtracting the low tolerance from the target. This feature is commonly used in check-weigh applications. The desired target may be based on gross weight, net weight or quantity (if counting is enabled). The annunciators will light on the indicator display or physical setpoints can be added. This feature must be enabled before attempting to use.

4.12.1 Enter a Target Value

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed. The target value will need to be entered. Go to step 2.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
- 3. Press [TARE]. Once the tare key is pressed, Lo will be displayed. This is where the lower tolerance value will be entered. Enter this value in the same manner as the target weight was entered above. If the displayed value is correct, press [TARE].
- 4. Press [TARE]. Once the tare key is pressed, Hi will be displayed. This is where the upper tolerance value will be entered. Enter this value in the same manner as the target weight was entered above. If the displayed value is correct, press [TARE]. The display will return to the gross mode.

Model 355 I.S.

- 1. Press [SELECT] until tArG1 is displayed.
- 2. Key in the target weight with the numeric keys and press [ENTER].
- 3. The Lo value will be displayed. Key the in value with the numeric keys and press [ENTER].
- 4. The Hi value will be displayed. Key the in value with the numeric keys and press [ENTER].
- 5. Press [SELECT] to select the desired weigh mode parameter.

4.12.2 Start Checkweighing

The checkweigh applications do not have a start function. Simply put the item to be weighed onto the scale platter. An annunciator will illuminate to indicate whether the item is within tolerance.

Annunciators

In order for the annunciators to activate, the displayed value must be at least five graduations above zero.

Status	Annunciator Status	Annunciator Color (LED)
OVER	SP 1 Illuminated	Red
GOOD	SP 2 Illuminated	Green
UNDER	SP 3 Illuminated	Yellow

4.12.3 Target Deviation Checkweighing Example

With a system set up to check-weigh ice cream containers, the following settings might be used to guarantee container weights from 1.98 to 2.04 lbs.:

Parameter Setting	Acceptable Values	Comments
Target = 10.00		Desired container weight.
Lo Value = 0.5	$10.00 - 0.5 = 9.50$	Low acceptable range = 9.50 to 10.00
Hi Value = 0.25	$10.00 + 0.25 = 10.25$	High acceptable range = 10.00 to 10.25

4.13 Batch 2

The batch 2 program is used for batching up to three separate items without using pre-act values. Ingredients 1 through 3 use setpoints 1 through 3 respectively. Ingredients are batched one at a time. The target values can only be set from the weigh mode by pressing the [SELECT] key.

After a batch is run all target values will be set back to 0. The target values will be set to 0 after accessing the setup mode or if power is cycled. If a new batch is started when all target values are set to 0 an error message "No Targ" will be displayed. This feature must be enabled before attempting to use.

4.13.1 Enter a Target

Model 350 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Press [PRINT] until the first digit of the new target is displayed. Press [UNITS] to accept the number displayed. Continue this step until the desired number is entered.

Example: Target of 20

- 2a. Press [PRINT] four times
 - DISPLAY READS > 2
- 2b. Press [UNITS] to accept the 2 that is displayed
 - DISPLAY READS > 2 .
- 2c. Press [PRINT] once
 - DISPLAY READS > 20
- 2d. Press [TARE] to accept the target weight as 20
 - DISPLAY READS > 20
3. If more than one target is enabled, press [SELECT] to advance to the next target (e.g. tArG2). Repeat steps 2 and 3 until all values are entered.

Model 355 I.S.

1. Press [SELECT] until tArG1 is displayed.
2. Key in the target weight with the numeric keys and press [ENTER].
3. If more than one target is enabled, press [SELECT] to advance to the next target (e.g. tArG2). Repeat steps 2 and 3 until all values are entered.

4.13.2 Activation Method

The filling of each ingredient begins when one of three selectable start functions occur. Each ingredient may have its own start function. The deactivation of the setpoint is automatic. The desired targets may be based on net weight or quantity (if counting is enabled).

Annunciators

Status	Annunciator Status	Annunciator Color (LED)
Fill 1	SP 1 Illuminated	Relay 1 Contacts Closed, Relay 2 and 3 Contacts Open
Fill 2	SP 2 Illuminated	Relay 2 Contacts Closed, Relay 1 and 3 Contacts Open
Fill 3	SP 3 Illuminated	Relay 3 Contacts Closed, Relay 1 and 2 Contacts Open

4.13.3 Batch2 Example

With a system set up a system to make a 50,000 lb batch with water (30,000 lbs.), corn syrup (15,000 lbs.) and caramel color (5,000 lbs.), ingredient 1 should start with [TARE] and subsequent ingredients should auto-start.

Parameter Setting	Actual Cutoff Value	Comments
Target 1 = 30,000	Desired water weight.	Target 1 = 30,000
Based = Net	Targets are compared to net weight.	Based = Net
Start 1 = Tare	Start water with [TARE]	Start 1 = Tare
Target 2 = 15,000	Desired corn syrup weight.	Target 2 = 15,000
Start 2 = Auto	Start corn syrup when water is done and motion has stopped.	Start 2 = Auto
Target 3 = 5,000	Desired caramel coloring weight.	Target 3 = 5,000
Start 3 = Auto	Start caramel coloring when corn syrup is done and motion has ceased.	Start 3 = Auto

5 Troubleshooting

The Model 350/355 I.S. utilizes the following types of error messages: Operational Errors, Hardware Errors, Calibration Errors, Communication Errors, and Miscellaneous Errors.

5.1 Operational Errors

Error Code	Description
Code02	Under Load. Input signal is less than negative full scale. Check load cell wiring.
Code03	Over load input signal is greater than positive full scale. Use same checks as "under load" above.
Funct ~ Disbl	Attempted to perform a function disabled in the Setup Mode.
Code 04	The digits on the display have exceeded the six digit display capacity.
Code 05	Zero attempted beyond the value set.
Code 08	Input signal greatly exceeds the valid range. Check the load cell connection.
Tare ~ Error	Negative tare attempted when disabled.
Tare ~ GT FS	Tare value greater than full scale capacity.
Delay	Indicates that a motion delay is in effect (zero, tare, etc.).
Delay ~ Abort	Acknowledges that a motion delayed function was aborted.
Print ~ Abort	Acknowledges that a motion delayed print request was aborted.
Add ~ Load!	If displayed after performing a count sample, this message indicates that a larger sample size is required.
Out of ~ Range	Attempted to enter a value beyond the allowable range.
Need APS	A setpoint start is initiated and the setpoint is based on quantity and no piece weight has been established (start will not occur).
Edit Disbl	Unable to edit the time and date.

5.2 Miscellaneous Errors

Error Code	Description
T.X.YYYY	If catastrophic errors occur in the software, a trap error may occur and freeze the display with address information (X = bank number and YYYY = the address of the trap error. Press any key five seconds after viewing message to reboot the unit).

5.3 Hardware Errors

Error Code	Description
Code00	An EPROM problem detected during power up.
A-D ~ Bad! or Code17	Problem with A/D chip detected. Disconnect any options installed and re-power the unit. Options are connected to the same serial lines as the A/D so they may prevent it from working properly.
Deflt ~ A-D	Bad A/D calibration values.
Re- ~ Boot!	EEPROM data could not be read. Attempting power-up reset.
Code21~E2rd	Error while reading data from EEPROM.
Code21~E2sd	Error while saving data to EEPROM.
Deflt ~ Setup	An error occurred when reading setup data from the EEPROM during power-up. All parameters are set to factory default.
Ch.XXXX	A checksum error occurred during power-up. All annunciators are lit. The EPROM integrity test failed or is improperly seated.
E2 ~ Full!	The EEPROM setup exceeds the memory capacity.
NoSpc ~ Free!	The current setup exceeds the setup RAM capacity.

5.4 Communication Errors

Error Code	Description
Par-Er	The selected parity does not match that of the connected device.
Buf-Er	The receive buffers capacity was exceeded. This indicates a handshaking problem.
Bit-Er	The stop bit of a received character did not occur when expected.
Trans~Hold1	Data transmission is inhibited due to a deasserted handshake on communication port 1. Press [ZERO] or [CLR] to abort transmission.
Trans~Hold2	Data transmission is inhibited due to a deasserted handshake on communication port 2. Press [ZERO] or [CLR] to abort transmission.
Error~BaudX	The X being either comm port 1 or comm. port 2. The baud rate selected is too high for the microprocessor rate.

6 Specifications

Performance

Full Scale (F.S.)	Selectable 0 to 999,999
Resolution	20-bit A/D converter, 100,000d displayed, 1,000,000d internal
A/D Conversion	60 Hz
Zero Track Aperture	0 - 100% of Full Scale
Operating Temperature	-10°C to +40°C
Units of Measure	lb, kg, oz, g, lb-oz

Electrical

Power Requirement	Rechargeable battery or AC power supply
Excitation Voltage	5 VDC or optional 8V DC
Excitation Current	57 mA max. (5V EXC) or 91mA max. (8V EXC) / (4) 350Ω bridge
F.S. Signal Input	0.1 mV/V min - 10 mV/V max
Signal Connection	4 lead or 6 lead with sense

Process Control

Remote Input	Programmable, two momentary contact closure (100ms minimum) TARE, PRINT, ZERO
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Communication

Comm 1	RS232 bi-directional serial port
Comm 2	TTL port for optional Fiber Optic Module
Data Output	16 selectable fixed-format transmissions or 2 custom formats (programmable via RS232)
Protocol	Selectable
Baud Rate	150 - 115200 bps

Display

LED	6-digit weight display, 0.8" (22mm) height 12 LED annunciators for operational status
LCD / LCD Backlit	6-digit weight display, 1.0" (25.4mm) height 12 LCD annunciators for operational status. Built in LCD status bargraph.

Keypad

350I.S.	Five key, durable elastomeric rubber
355I.S.	22 key, full numeric, durable elastomeric rubber

Enclosure

Material	Stainless Steel, NEMA 4X / IP66 Design
Mounting	Swivel bracket

Safe Area Options

Fiber Optic Transceiver	Communicates with hazardous area indicator via fiber-optic cable.
Battery Charger	Charges battery in approximately 3.5 hours.
Analog Output Module	0-10 VDC/5mA, 0-20mA/10V, 4-20mA/10V, electrically isolated, 16 bit resolution with up to 10 updates per second response time, mounts internal to enclosure
Relay Output Module	Three (3) solid-state 24-280 VAC, 1A with up to 10 updates per second response time, mounts internal to enclosure or three (3) 3- 60 VDC, 2A
Two Option Mount Kit	Mounts up to two option boards inside the stainless enclosure
Battery Power Supply Kits	Two versions: one mounts inside the stainless steel enclosure, the other mounts inside the die cast enclosure
RS-485 Network Module	Enables the communication port to be a RS-485 network port. Multi drop capable.
20 mA Current Loop	Enables the communication port to be a digital 20 mA current loop port.

Hazardous Area Options

AC / DC Power Module	Stainless steel enclosure. Universal AC input 90-250VAC, 50/60 Hz.
Battery Module	Stainless steel enclosure, mounts to indicator swivel bracket. 200 hours continuous use with LCD display + 1 loadcell, and 100 hours continuous use with LED display + 1 loadcell.
Dura Shield	Durable adhesive plastic that adheres to the front surface of the stainless steel enclosure model
Splash Guard	Clear plastic cover which covers the entire indicator.



Refer to [page 10](#) for hazardous approval information.

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