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SI-810 Check Counting/Weighing

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Document Revision History

Rev	Rev Date	Prepared By	Verified By	Details of Revision
0	06/10/2009	Gangadhar.B	V.Nagarajan	Initial Release
1	10/12/2009	Gangadhar.B	V.Nagarajan	▪ In Check Weighing application weighing messages are shortened, as the messages not getting cleared fully. ▪ Option is provided in custom print formats to print required number of records in all the pages with header, filed names and footer. ▪ Tare option is provided for external scales PG/FB and AJ/AF. ▪ Unit Weight Round off problem solved; ▪ LOGIC #4 DIO incorrect operations solved. ▪ Changes for Host application Software
2	SICC30.03 29.07.10	M.Sandhya	V.Nagarajan	▪ If PLU tare weight is zero, existing tare is not disturbed ▪ When change over from scale #1 to scale #2, if scale #2 is not having PLU recalled, the scale #1 PLU is used in scale #2 also. ▪ DS-315 crane scale interface implemented. ▪ Selection criteria is not retaining the last record found, issue solved. ▪ Option #1 and Option #2 list programming and corresponding field features (Option #1 and Option #2) are implemented. ▪ Simple weighing is removed. ▪ Selection criteria for date field can now have date ranges. ▪ Field print name against field number implemented.
3	SICC30.04 19.03.11	V.Nagarajan	V.Nagarajan	▪ Print Last Batch implemented
4	SICC30.05 / 07.06.11	V.Nagarajan	V.Nagarajan	▪ If online printing is enabled, Batch over will not print last batch records
5	SICC30.06 / 03.09.11	V.Nagarajan	V.Nagarajan	▪ NCI 4000 protocol implemented in Weight Data #1 to #4. ▪ GPRS communication using modem implemented. ▪ Menu > Communication > Modem implemented
6	SICC30.07 / 21.02.12	V.Nagarajan	V.Nagarajan	▪ Gross weight round off problem solved ▪ Delete Records from Application SW will update Record count in SI

7	SICC30.08 / 25.02.13	V.Nagarajan	V.Nagarajan	▪ GR series added under External scale
8	SICC30.09 / 15.03.13	V.Nagarajan	V.Nagarajan	▪ Weight and Measures regulation regarding calibration applied.
9	SICC30.10 / 16.05.13	V.Nagarajan	V.Nagarajan	▪ Modbus ASCII checksum calculation Error solved.
10	SICC31.00/ 13.06.2014	V.Nagarajan	V.Nagarajan	▪ Solved the total of Net weight and Tare Weight problem. ▪ Auto Ethernet cable initialize. ▪ One more weight unit "cu" is implemented under the Menu > Scale > Scale #1 and Scale #2. ▪ One more weight output "Display Wt" is implemented under the Menu > Communication > Weight Data > Weight Data #1 to Weight Data #4. ▪ "Kg to Cu Multiply Factor" is implemented in Menu > Settings. ▪ "Kg to Ltcow Multiply Factor" is implemented in Menu > Settings. ▪ "Dummy Zero for 2DP" is implemented in Menu > Settings. ▪ New print option "Print PLU Range Summary" is implemented in Menu > Reports > Print. ▪ Added one default PLU under Menu > PLU ▪ New extra Field Features "Unit of Measure", "Date and Time", "Info #1", "Info #2" and "Info #3" are implemented under the Menu > Log Settings > Field Programming. ▪ "Unload For Log" is implemented in Menu > Log Settings.
11	SICC31.01 / 04.08.2014	V.Nagarajan	V.Nagarajan	1. Aux Keyboard implemented in Menu>Mapping Logical Device. 2. PLU tare having zero value will not override the existing Tare done manually. 3. New commands to read new records and acknowledge having read all records implemented in RS-485 standard. 4. New commands to read new records and acknowledge having read all records implemented in Print Data
12	SICC31.02 / 10.03.2015	C.Vinoth Kumar	V.Nagarajan	G3 Indicator is added as External scale. Machine Number & Machine Name is added in field features. Milkotronics is added in Weight Transfer mode for all Weight data's 1-4. SICS is added in Weight Transfer mode for all Weight data's 1-4.

				RS232 Weight Data Transfer Speed is reduced to 10 times per second for stream mode.
13	SICC31.03 / 03.04.2015	C.Vinoth Kumar	V.Nagarajan	1. For External Scale, No Data is conformed only after 2 Sec. 2. Power On Zero is made for 2.5 Sec.
14	SICC31.04 / 18.09.2015	S.Veerappan	V.Nagarajan	1.K1(Enable Keyboard) & K2(disable Keyboard) Command made to work Proper in SICS data transfer mode 2.No data problem for external scale solved
15	SICC31.05 / 04.12.2015	S.Veerappan	V.Nagarajan	1.Ohaus Gold series added under External scale Scale > Scale #1 & Scale #2 > Miscellaneous > Xternal Scale-> Ohaus Gold series.
16	SICC31.06 / 30.01.2016	S.Veerappan	V.Nagarajan	1. WiFi communication is added.
17	SICC31.07 / 26.02.2016	V.Nagarajan	V.Nagarajan	1.Men>Settings>PLU Update In App Mode is implemented
18	SICC31.08 / 02.06.2016	S.Veerappan	V.Nagarajan	1. In DIO Logic#4, DIO1, DIO2, DIO3 changed to DIO3, DIO4, DIO5 respectively.
19	SICC31.09 / 10.08.2016	V.Nagarajan	V.Nagarajan	1. Unit of measurement 'mg' is added 2. Menu>Communication>WiFi>Connection Type implemented. 3. Menu>Communication>WiFi>Server IP implemented. 4.Menu>Communication>WiFi>Server TCP Port implemented. 5. Mapping Logical Device>Aux Keyboard changed to RS232 #4.
20	S1CC31.10 / 05.1.2017	V.Nagarajan	V.Nagarajan	1. Menu> Scale> Scale #1 or #2> Calibration> Linearity Enable is implemented. 2. Menu> Settings> Calibrate> Linearise Scale #1 or #2 implemented. 3. Report Standard deviation with higher resolution implemented.
21	SICC31.11 /25.05.2018	Mukund M H	V.Nagarajan	1. Extra command is implemented to rezero 2. Command is Ctrl + R -> Re-zero.
22	SICC31.12 / 30.4.2019	V.Nagarajan	V.Nagarajan	1. In List print out, a delay of 200ms is inserted between records to avoid record missing.
23	SICC31.13 / 15.5.2020	V.Nagarajan	V.Nagarajan	1. "Mapping Logical Device> RF GPS Time" is implemented. 2. "Menu> Scale> Scale #1 or #2> Miscellaneous> Xternal Scale" selection option DI-60 is added.

24	SICC31.14 / 19.6.2020	V.Nagarajan	V.Nagarajan	1. In "Menu>Communication>Weight Data>Weight Data #1 to Weight Data#4>Transfer Mode", CTPZ is implemented.
25	SICC31.15 / 19.2.2021	V.Nagarajan	V.Nagarajan	1. "Menu> Log Settings> Tare After Log" is implemented. 2. "Menu> Log Settings> Clear PLU After Log" is implemented. 3. "Menu> Settings> Exit On PLU ERROR" is implemented. 4. If second Field number is Manual Auto Increment feature, then value starts from 1 for new batch. 5. GTN is added in Weight Output of Weight Data #1 to #4.

INDEX

I. INTRODUCTION

The System Indicator (SI) is designed and developed for industrial environment conditions with highly integrated communication facilities and networking interface. SI is equipped with advanced features, a high degree of flexible configurations and ability to be customizable at the installation site to the specific requirements of customers.

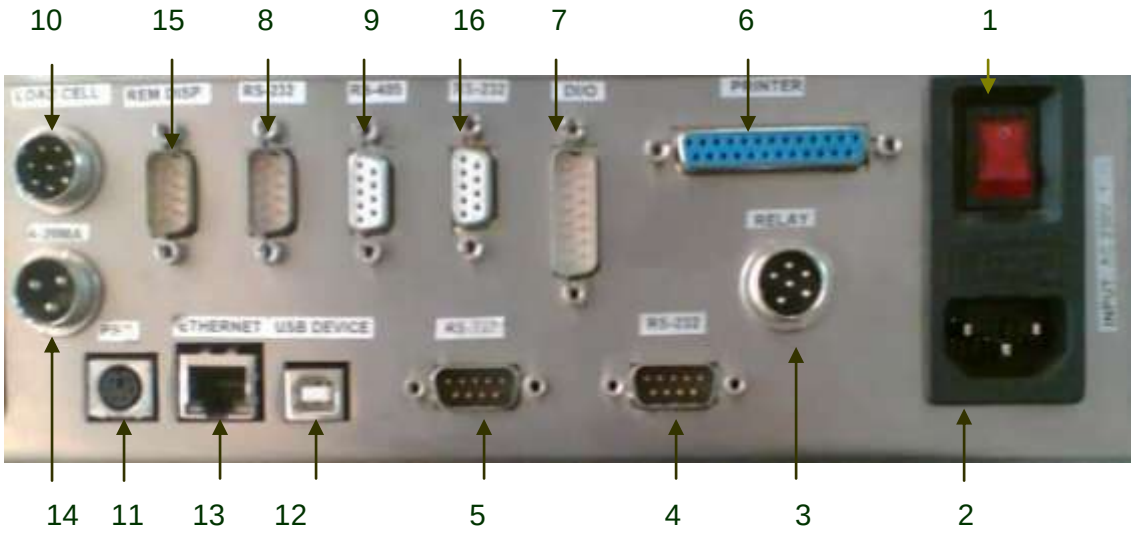
SI can be used for check counting, check weighing, process control, filling and batch weighting applications. SI finds applications in Pharmaceutical, food processing, weight based automation industries.

Meaning of Sign	
 Caution  Note	Indicates a potential problem if neglected, may result in improper functioning of the system. Used to emphasize essential information

Front View

1. Bargraph
2. Graphical Display.
3. Soft keys
4. MSW #1
5. SI Keyboard 6. MSW#2.

Rear View



Standard:

1. Main Power Switch.
2. Power cord terminal.
3. Relay contacts connector.
4. RS232 #3 connector.
5. RS232 #1 connector.
6. Centronics Printer connector.
7. Digital Input/Output connector.
8. RS232 #2 / RS485 connector.
9. RS485 connector.
10. Load Cell connector.
11. PS2 connector for keyboard and/or Barcode reader.

Optional:

12. USB Device connector.
13. Ethernet connector.
14. 4-20 mA connector.
15. RS232 #5/ Remote Display connector.
16. RS232 #4 connector.

INITIAL SET-UP

1. Unscrew Transport lock M6 bolts & Nut 2nos. before start using
   - Place platform vertical or Reverse
   - Unscrew transport lock M6 Hexagonal bolts shown in the image.
   - Keep the transport lock to further, if platform moves to the long distance.

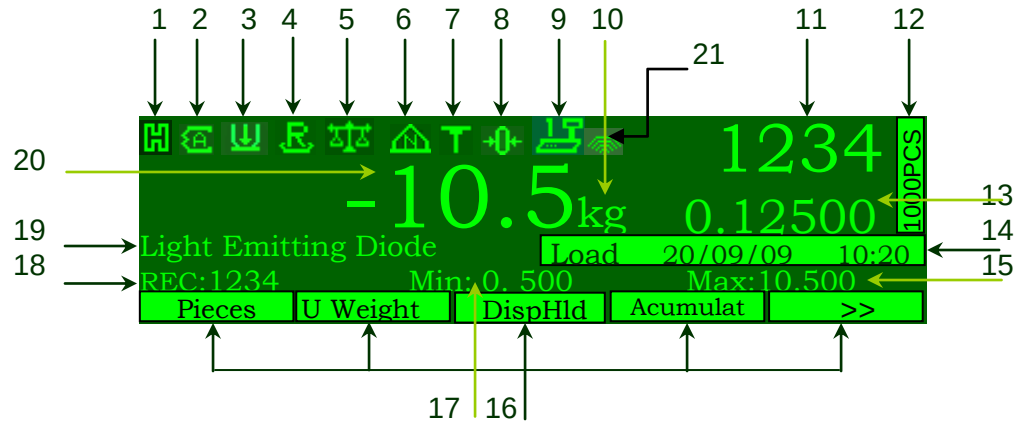
II. SALIENT FEATURES OF SYSTEM INDICATOR (SI)

- Graphical LCD with pleasant green backlight.
- Simple and small keyboard with multi-tap type key entries.
- Soft key concept with context sensitive key functions.
- Supports different ways of sampling the weight.
- Accumulation of Net weight, Tare weight, Gross weight and Quantity.
- Warn the user by displaying insufficient symbol, if counting process began below the minimum reference weight.
- Automatic Reference optimization improves counting accuracy by enabling the automatic piece weight enhancement logic.
- SI supports Negative Counting.
- Display can be freezed (Display Hold) by pressing 'DispHld' soft key, SI will display Hold symbol in freezed condition.
- Adjustable Unit weight Average between 16 and 64, to improve counting accuracy.
- Different methods of communications: RS232 (4 nos.), RS485, USB Host, Ethernet, current and voltage output, digital input/output (16 nos.), PS2 interface, Centronics, GPRS (Modem) and WiFi(Optional).
- Two scales, three unit conversions, three ranges in each unit with selectable basic unit such as g, kg, ct, lb and lt.
- All options are controlled from menu. No spec list provided and easy to operate.
- Mapping of logical devices to physical devices option enables rerouting of data output/input to working physical device.
- Philips ARM processor based design.
- Compact Indicator with Integrated power supply. Stainless steel small form factor housing.
- Bright LED Bargraph provides visual indication for quick check couting/weighing.
- 5000 PLUs. Selectable PLU recall by Number or Code. PLU can be listed by Number, Name and Code. PLU can also be searched by Number, Name and Code.
- Minimum 25,000 records can be logged for a typical record size. Flexible selection criteria for taking reports.

III. SI DISPLAY & KEYBOARD

1. Display

Display will look as below when all the options are enabled. (This display refers to display of check counting/weighing application).



1. Display Hold Indicator
2. Accumulation Indicator
3. Insufficient Indicator
4. Recomputing Indicator
5. Stability Indicator
6. Net/Gross weight Indicator
7. Tare weight Indicator
8. Zero weight Indicator
9. Active scale (in 2 scale s/m)
10. Unit common for weight & unit wt
11. Quantity in PCS
12. Symbol 1000 PCS
13. Unit weight in kg / 1000 PCS
14. Status message
15. Maximum value
16. Five Soft keys
17. Minimum value
18. Total number of records logged
19. Active PLU name
20. Weight on the platter
21 Wifi connected/Blink for data transfer

2. Keyboard

- Keyboard consists of 3 different types of keys.
  1. Soft keys
  2. Alphanumeric keys
  3. Functional keys

2.1. Soft keys

- 5 soft keys are provided.
- Names of these soft keys are present in the display as soft key labels.
- A Soft key label depends on the context.

2.2. Alphanumeric keys

- They are multifunction keys used for entering both numbers and alphabets.
- When the key is pressed initially, numbers will appear first.
- When same key is pressed repeatedly values of that key changes in cyclic order.

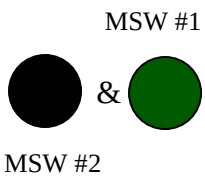
- When  is pressed, values are obtained in the following cyclic order:

  1 & @ ? ! , : “ ‘ =

- When  is pressed, values are obtained in the following cyclic order:

  0 space + - * / ^ % ( )

2.3. Functional keys



MSW #1/ MSW #2 (Mechanical switches): These are heavy-duty switches meant for frequent operations.

- In simple weighing application mode MSW #1/ MSW #2 will work as Tare and Rezero.
- In Check counting/weighing application mode MSW #1/ MSW #2 will work as Log and Last bill print.
- While logging MSW#1 can be used as ENTER key, except for selecting PLU.

Rezero: For rezeroing weight within acceptable limit. This key can also be used to clear the entire data in field programming, PLU editing and while entering data for manual entry fields during logging.

Tare: To do One touch and Digital Tare within acceptable limit. It is also used to return to the application.

Star: In Truck weighing application mode all completed records will be printed in List print format.

PF: To give Paper feed to printer.

All functional keys will work only in application mode.

2.4. PC keyboard keys mapped to SI keyboard keys

PC KB keys F1 to F12 are mapped to SI keyboard special function keys as shown below. This mapping allows us to work only using PC keyboard even if SI keyboard is not available.

PS2 Keyboard	SI Keyboard	USB keyboard
F1	Soft key 1	F1
F2	Soft key 2	F2
F3	Soft key 3	F3
F4	Soft key 4	F4
F5	Soft key 5	F5
F6	Power On/Off	F6
F7	Rezero	F7
F8	Tare	F8
F9	PF (Paper feed)	F12
F10	* (Star)	F10
F11	MSW #1	F11
F12	MSW #2	F9

During power ON, if keyboard controller is not working then SI will be switched ON automatically and the "Keyboard-fail" message will be displayed.

Some of soft key function can also be mapped to PC keyboard keys as shown below:

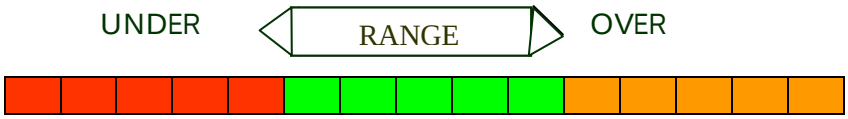
PC Keyboard	SI soft keys
↑ (Up arrow)	Up
↓ (Down arrow)	Down
→ (Right arrow)	Select
← (Left arrow)	Abort, Back, No
↵ (Enter)	Enter, Yes, Use, Save, Ok, Send, Test, DIO, Output, Next, Print, Material (PLU).

← (Back Space)	Clear
Esc	Quit, Escape to application (This is also done using Tare key).

- Ctrl, Tab, Alt, delete, Insert, Home, End, Page up, Page down, Print screen, scroll lock, Pause, Num lock, window's special keys are not implemented.
- Numeric Keypad will work only as numbers.

3. Bargraph

It provides the user visual indication of check counting/weighing application. It shows whether or not quantity/weight of the sample is within the range of a specified target.



- Bargraph comprises of 15 LEDs.
- First 5 LEDs are red in color which indicates under weight.
- Next 5 LEDs are Green in color which indicates weight is within the range.
- Last 5 LEDs are Orange in color which indicates over weight.

For the following conditions, the bargraph will not function

1. If either minimum value or maximum value is zero.
2. Not in check counting/weighing application mode.

Three types of bargraph display is possible called single colour, all colour and BG Check Weigh. This option is selected in *'Menu> Settings> Bargraph Display'.*

In Single colour, at a time the bargraph display will be shown either in Red or Green or Orange based on the current quantity/weight.

In All colour bargraph is continuous i.e. if quantity/weight is more than maximum then bargraph is shown in Red, Green, and Orange.

In BG Check Weigh, bargraph depends on check counting/weighing:

- When quantity/weight on the platter is between PLU Min Limit quantity/weight and PLU minimum quantity/weight, all red LEDs will be displayed.
- When quantity/weight on the platter is between PLU minimum quantity/weight and PLU maximum quantity/weight, all Green LEDs will be displayed.
- When quantity/weight on the platter is above PLU maximum quantity/weight, all orange LEDs will be displayed.

IV. BASIC FUNCTIONS

1. Switching On And Off

Briefly pressing (ON/OFF) key, switches SI on or off.

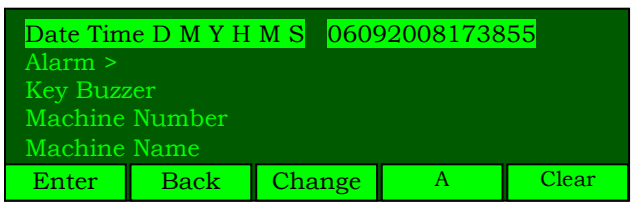
When SI is switched ON, display shows "Essae" logo and then power on self-check of currently available hardware configuration takes place. If any hardware is not O.K, then "fail" message will be shown. If field programming is not done, during power up SI will do default field programming and it will display "Programming Default Fields....." message.

Once the weight display appears, SI is ready to operate.
The power on will also recall the last selected application, last soft key page, the last active scale, PLU selected for the active scale if any.

Switch off key will work only in application mode.

2. Setting Date And Time

- Time can be set in 24 hours format only. Date and time are to be entered in "DDMMYYYYHHMMSS" format without spaces.
- Press Menu soft key.
- Press Down soft key to navigate to Settings.
- Press Select soft key.
- Select Date and time by pressing Select soft key.



- Clear old date and time by pressing Clear soft key continuously till all the characters are cleared.
- Use keyboard to enter date and time in DDMMYYYYHHMMSS and confirm with Enter soft key. Incorrect inputs can be deleted with the Clear soft key.

- To return to application mode press  key.

3. Counting/Weighing

- Place the object to be weighed on the platter.
-  This will be displayed only if 2 scales are present.

  1 in the symbol indicates scale #1 is selected,  indicates Scale #2 is selected.
- Wait until the weight is stable.

   This symbol appears when weight is Stable.
- If check counting, do sampling.  Symbol warns the user weight on the platter is insufficient for sampling. Sampling process explained below in 3.1.

- If check weighing read indicated weight or if check counting read indicated weight, unit weight and quantity.
- Following symbols indicates the type of the weight displayed.

   Net weight is indicated by this symbol.

   Gross weight is indicated by this symbol.

  NOTE: All the above symbols are optional. They will be displayed only if the corresponding option is selected.

  For Scale #1 it has to be set in *'Menu> Scale> Scale #1> Display>'.*

  For Scale #2 it has to be set in 'Menu> Scale> Scale #2> D*isplay>'.*

- To change the display weight from Net weight to Gross weight and vice verse, press NetGross soft key.
-  This symbol will be displayed if accumulation is done.

 In Gross weight display mode, quantity will be blank.

3.1 Sampling

It's a process of finding the Unit weight for the given number of samples or vice-versa.

Different ways sampling:

- User can directly press Pieces soft key (soft key page #4), by default SI will do sampling for 10 samples (when unit weight is zero) or if any increment in last sampled quantity it will sample for that quantity (whatever the quantity displayed in screen). If any error occurs while sampling corresponding error/status message will be displayed.

- User can directly enter the quantity (number of samples) and press Pieces soft key SI will do sampling for those many samples. For any valid quantity or if any error during sampling SI will display corresponding error/status message.

- If user knows the unit weight of 1000 pieces, press U Weight soft key, enter the unit weight and then press Set soft key.

- If user wants to enter the unit weight for other than 1000 pieces, first enter the number of pieces, press Pieces soft key then enter the unit weight of the entered pieces and then press Set soft key. For any invalid unit weight/pieces, SI will display error/status message.

  NOTE: In the application screen while displaying unit weight, SI will calculate unit weight for 1000 pieces from the entered unit weight and quantity and displays the same.

- If user don't know the unit weight and he know the quantity, press U Weight soft key, keep the samples on platter (weight of samples will be displayed for Net Wt filed), and enter the quantity (number of samples), then press Pieces soft key so that entered quantity will be updated for PCS field and then press Set soft key. For any invalid unit weight/pieces, SI will display error/status message.

- While editing PLUs, if user wants to find the unit weight through sampling for the field Unit Weight/1000, place the samples on platter enter the number of samples with 'p' or 'P' at the end and press Enter soft key, SI will do sampling and assigns unit weight for 1000 pieces directly.

4. Weighing With Tare in Active Scale

There are two methods for tarring weights: One Touch Tare and Digital Tare. The Tare operation temporarily overrides the currently selected PLU tare if any.

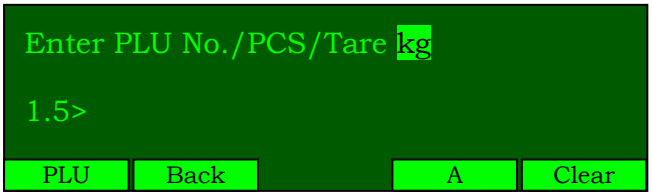
4.1. One Touch Tare.

- This method is used when tare weight is not known.
- Place the empty weighing container on the platter.
- Press →T← key to tare the weighing container.
- Once the weight is tarred, Zero display and tare symbol will appear.
- Place the material to be weighed in the container and then read the weight.

- If automatic tare is activated then there is no need to press tare key.
- The tare weight is retained until either a new tare is determined or the SI is switched off.

4.2. Digital Tare

- In application mode, enter numerical values directly in the currently selected unit and then press tare key.
- The tare values entered will appear in the display with a negative sign and the symbol →T←.



- As soon as the weighing container with the corresponding weight is placed on the platter, the zero display appears.

4.3. Clearing Tare

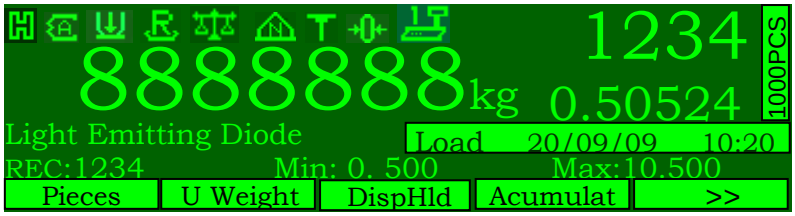
Do Tare operation either by one Touch tare or digital tare method as above.
Remove the weight along with the container, the display will read –tare value, press →T← key, Tare will get cleared.

If auto Tare clear is enabled and auto tare clear condition is satisfied, the tare will get cleared automatically once you remove weight along with the container.

4.4 Switch between gross and net weights

- Place the empty weighing container on the platter and then press →T← key or enter tare weight value if a known tare weight has already been established and then press →T←.
- Place the material to be weighed in the container, check the weight displayed, if net weight is displayed then read the indicated net weight. To read gross weight Press NetGross key and then read the indicated gross weight.

5. Rezero Operation



Weight can be zeroed at any time with the key in application mode provided the following condition:

5.1. Limit

Weight can be rezeroed only if it is within the range specified in rezero tracking range (i.e. *'Menu> Scale> Scale #1> Zero> Rezero Tracking Range'*).

5.2. Rezero when weight is stable

This condition depends on the option selected in *'Menu> Scale> Scale #1> Zero> Rezero on stable'*.
If 'Yes' is selected then weight can be zeroed only if it is stable.
If 'No' is selected then weight can be zeroed for both stable and unstable weights.

5.3. Rezero when tare present

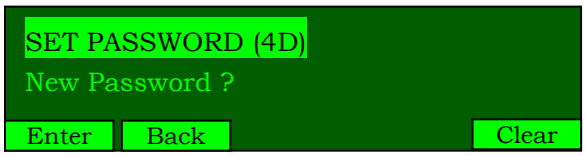
Zeroing of weight when tare is present depends on the option selected in 'Menu> Scale> *Scale #1> Zero> Weight zero on Tared'.*
If 'Yes' is selected then weight can be zeroed even when tare is present.
If 'No' is selected then weight can't be zeroed when tare is present.

During rezero operation, weight will be displayed as "8888888." which will remain for a maximum of 2.5 second if conditions for successful operation of rezero not yet attained.

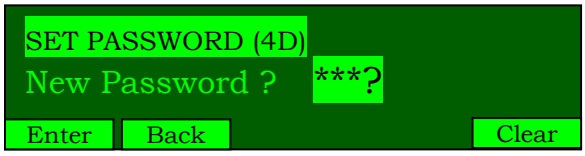
V. ENHANCED FUNCTIONS

1. Password

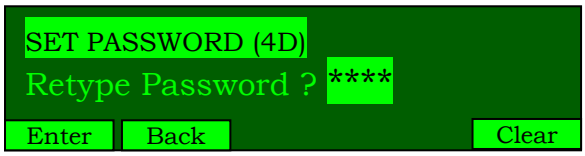
We can set user password for entering into menu. By default no password is present. Follow below steps to set up a new password or alter existing password.



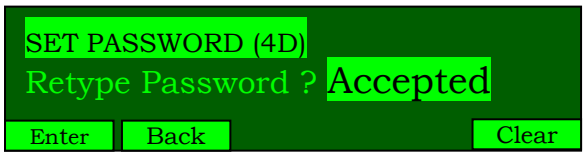
1. User password can be set *in 'Menu> Settings> Set Password>'*.
2. Enter the password. Password should be only 4 digit numeric value.
3. Entered numbers are indicated by *.



4. Any value other then numbers are indicated by '?'
5. Press Enter soft key to save the password.
6. Once Enter soft key is pressed, SI will prompt to retype the same password for confirmation.

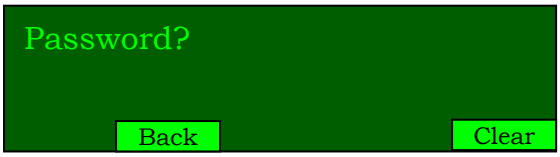


7. Enter same password again.
8. If both passwords are same then SI will display "Accepted" message.
9. If passwords are different then SI will prompt to enter New password.



10. Incorrect inputs can be deleted with the Clear soft key.
11. Press Back soft key to exit password setting screen without storing any changes.

If any user password is present then password is prompted every time while entering menu.



2. PLU

The following operations describe the working of the PLU.

All weights & Quantity Values are to be programmed with respect to net weight.

2.1. PLU Record

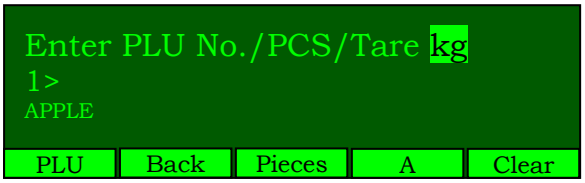
Each PLU record contains the following details

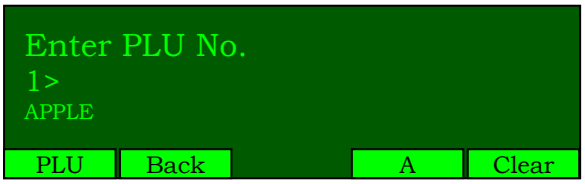
1. PLU Number: Any number between 0001 and 9999.
2. PLU code: Maximum 20 digit alphanumeric value.
3. PLU Name: Maximum 20 characters.
4. PLU Type: It can be PCS or WEIGHT. Is should be PCS for check counting and WEIGHT for check weighing.
5. Tare Weight: Should be <= Tare limit.
6. Unit weight/1000: Unit weight per 1000 pieces in check counting. User can enter known unit weight directly for 1000 pieces or user can sample for unit weight by keeping samples on platter and entering quantity with 'p' or 'P' at the end the end of quantity value. Here net weight will be displayed and user can use REZERO and TARE keys for rezeroing and One touch tare respectively.
7. Target: In check counting, it will be target quantity and it should be less than maximum quantity i.e. 999999
   In check weighing, it will be target weight and it should be less than scale capacity.
8. Minimum: In check counting, it will be minimum quantity and it can be between 0 and 999999.
   In check weighing, it will be minimum weight and it should be less than scale capacity.
9. Maximum: In check counting, it will be maximum quantity and it can be between 0 and 999999.
   In check weighing, it will be maximum weight and it should be less than scale capacity.
10. Min Limit: In check counting, it can be between 0 and 999999.
    In check weighing, it should be less than scale capacity.
11. Wt-Log Condition: Any one of the following options can be selected: All Weight, within range, under weight, over weight.
12. Activate DIO #1: Any one of the following options can be selected: No, all weight, within range, under weight, over weight.
13. Activate DIO #2: Any one of the following options can be selected: No, all weight, within range, under weight, over weight.
14. Activate DIO #3: Any one of the following options can be selected: No, all weight, within range, under weight, over weight.
15. DIO Time Delay: Time delay after which DIO will activate and delay should be entered in milliseconds.
16. DIO Active Time: DIO Active time (amount of time DIO will be activated) and should be entered in milliseconds.
17. Setpoint #3:
18. Setpoint #4:
19. Setpoint #5:
20. Setpoint #6:
21. Setpoint #7:
22. Setpoint #8:
23. Info #1:
24. Info #2:
25. Info #3:

- Setpoints #3 to #8 is required when output type is set as Logic 1 or Logic 2.
- Setpoints #3 to #8 can be weight or pieces depending on the PLU type.
- Values of Minimum, maximum and Setpoints from #3 to #8 should be in ascending order.
- Info #1 to #3 supports up to 55 characters.

- Maximum number of PLU records is 5000.
- PLU Search by Name, code and number is present in PLU menu.
- PLU can be recalled either by number or by code. By default PLU is recalled by number.

- There are two methods to recall PLU.
  - Enter PLU number or code depending on current selection and then press PLU soft key.
  - Press PLU soft key, enter PLU no or code and then press PLU soft key.





To clear the current PLU, press 0 key in application mode and then press PLU soft key. It clears Min, Max and PLU name from the application screen.

- Application screen will display selected PLU name.
- Min, max and tare values of selected PLU can be changed. But these changes are temporary till SI is switched off or if PLU is edited.
- We can change Min, max and tare values of selected PLU without using Edit soft key in the following way:
  - To change Min and max values:
    Press corresponding Min or Max soft keys, enter numerical values and then press Set soft key to update the value.
  - To change Tare value:
    In application screen enter values in current unit and press →T← to update tare value.

If PLU records are not present.

When no PLU records are available, SI will display "NO PLU ADD NEW" and prompt you to create a new PLU record.

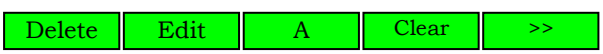
- PLU records can be listed in ascending order based on number, name or by code.
- Press Select soft key to select the type of list.
- Press Up soft key to select the previous PLU records.
- Press Down soft key to select the next PLU record.
- To search a particular PLU record, enter values directly. E.g. if PLU is listed based on numbers then enter PLU number of the record you want to search.
- Press Use soft key to use the selected PLU record.

2.2. PLU Operations

Following soft keys are provided in three different pages for performing various operations on PLU. To select different soft key pages, press >> soft key.

- First soft key page

- Second soft key page



- Third soft key page

- Search:

PLUs can be searched by Number, Name or Code. Suppose we are searching by PLU numbers then enter PLU number. If it is present corresponding PLU will get highlighted, we can operated on that. If it is not present then, the nearest PLU will get highlighted.
PLU numbers are listed in the ascending order.
PLU names and PLU codes are listed in the following order:

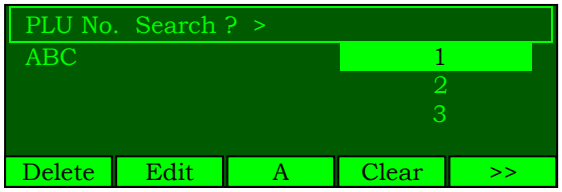
Special printable characters
Space
Number
Lower case
Uppercase
Non Printable characters

E.g.

Available PLU names	PLU names Listed by SI
AAB	? a
AaB	?ab
?AB	?AB
?ab	Ab
aAB	123
? a	aAB
Ab	AaB
123	AAB

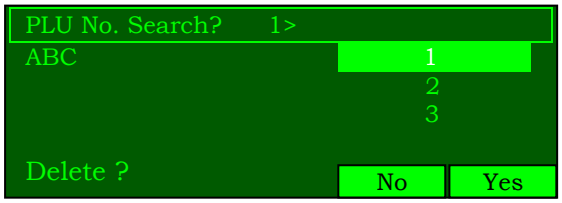
- Delete :

Select the PLU record to be deleted using Up and Down soft keys or directly enter PLU No.
Press Delete soft key to delete selected PLU record.



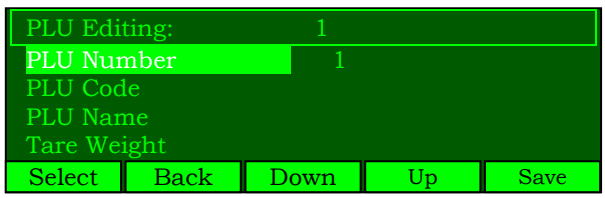
Once Delete soft key is pressed, display will look like this. Press YES soft key to delete selected PLU.

Press No soft key to cancel deleting of a PLU record.

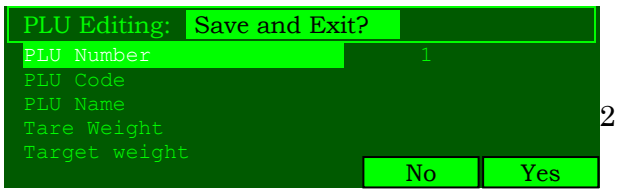


- Edit :

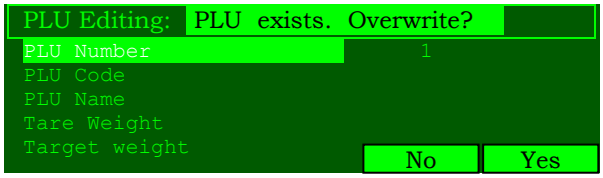
Details of PLU can be edited.



- Select a PLU record to be edited and then press Edit soft key. Following screen will be displayed.
- Edit PLU record.
- Press Back soft key to retain old values.



- When Back soft key is pressed following screen will be displayed. Press Yes soft key if you want to save changes. Press No soft key if you don't want to save changes.



- After editing press Save soft key. If you don't save PLU, the changes will not be updated.
- When Back soft key is pressed above screen will be displayed. Press Yes soft key if you want to save changes. Press No soft key if you don't want to save changes.

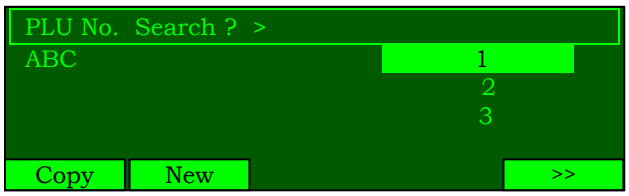
➢ A / a:

- While entering details of PLU, Character's case can be changed.
- This key toggles between A and a
- A Indicates upper case characters can be entered.
- a Indicates small case characters can be entered.
- Case change is applicable from SI keyboard only.

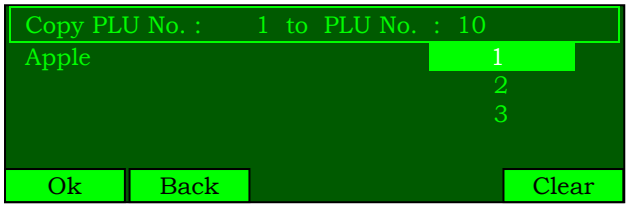
➢ Clear: This key is used to clear characters entered. To clear all the characters at once press REZERO key.

➢ Copy:

Details of one PLU record can be copied to another PLU record.
Once PLU record is copied, in source and destination PLU record, only PLU no will be unique value and all other details will be same.



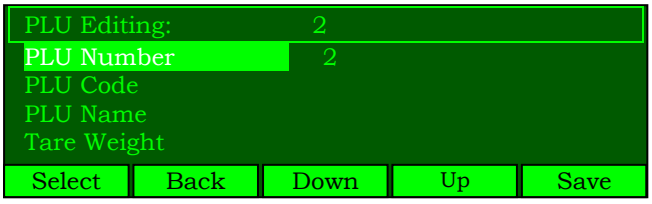
1. Select the PLU record to be copied by using Up and Down soft keys present in different soft key page.
2. Press Copy soft key to copy the details of the selected PLU record.



3. Once the Clear soft key is pressed, display will look like this
4. Enter destination PLU No to which you want to copy the details of selected PLU record.
5. Press Ok soft key to copy the details.
6. Press Back soft key to exit without copying.

➢ New:

To create new PLU, press New soft key. All operations are similar to Edit.



➢ Use: This soft key is used to select PLU record in the application. First select PLU record and then press Use soft key. Once Use soft key is pressed, SI will return to application mode.

Delete All PLUs

This is used to delete all PLUs. This option can be selected in Menu> PLU> Delete All PLUs.

As soon as this option is selected, following screen will be displayed, Press Yes soft key to delete all PLUs. If Yes soft key is pressed then SI will display "Deleting PLUs" message.
Press Back soft key if you don't want to delete PLUs.

3. Universal Serial Bus (USB) Host

One USB host connector is provided to connect pen drive to SI for dumping the logged records into Pendrive.
For using USB Port, do the following settings in SI.

- Go to Menu >Hardware Configuration > RS232 Status > RS232 #2 / RS485 and select RS232.
- Go to Menu >Communication >RS232 > RS232 #2 / RS485> Handshake, set it to Hardware and other settings should be 9600,8,N,1.
- Go to Menu >Mapping Logical Device >Pen drive and map to RS232 #2.
- After changing all the above settings restart the SI.

Or Press Number 7 key and PF key on SI Keyboard, the required settings are set automatically after restarting.

As and when pendrive is connected to SI or during power up (if pen drive is connected) the screen (Pendrive screen) will look like this, here "Connected" is the status message and "12300612.LOG" is the default file name.

In the default file name,

- Filename are made up of an 8 character main part and an optional 3 character extension after dot.
- First 2 digits [12] indicates the starting 2 digits of SI machine number set in Menu > Settings > Machine Number.
- Next 4 digits [3006] is the current date (date [30] and month [06] each 2 digits) of SI.
- Last 2 digits before. (Dot) indicates is the current hour of SI time.
- After dot only three characters are allowed and extension "LOG"indicates file contains logged records.

Use Clear soft key to edit the default file name. Press Store soft key to dump the logged records to pendrive. Press Back soft key, to come back to application screen from pendrive screen.

While dumping into pendrive user can cancel or pause dumping. If user press Back dumping will be cancelled and SI will display "Printing Cancelled" message. After dumping all the records SI will display "Printed Successfully" message. If Pendrive is full while dumping, SI will display "Printing Cancelled" and "Disk Full" messages respectively.

When pendrive is removed, SI will display status message "Removed" as shown in figure and the pendrive screen will be removed automatically.

Filenames

The SI can create files on a FAT file system on a disk. It will perform checks on filenames and will display an error message, if a filename contains invalid characters or file name is too large.

Valid Characters

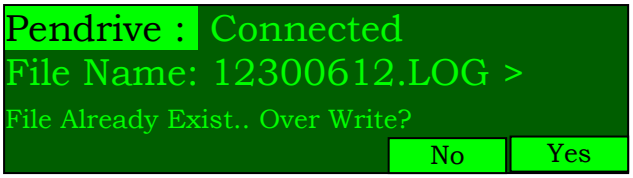
Filenames must be uppercase letters and numbers or one of the following characters: $ % ' - _ @ ~ ` ! ( ) { } ^ # &

Important: Long file names in FAT32 file systems are not supported.

Valid Filenames

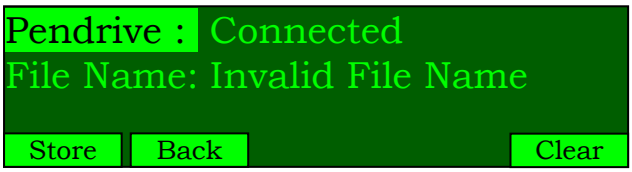
Filenames are made up of an 8 character main part and an optional 3 character extension. The presence of a 'dot' character in the filename indicates the boundary between the main part and the extension. The name may be up to 8 characters long, excluding the 'dot' character. The following rules are used to form a valid filename:

- In a filename, all the lower case alphabets are converted to upper case and it will be displayed before dumping logged records to pendrive.
- If the last character is "."(dot) in a file name, it will be truncated. If filename already exist in pendrive SI will ask conformation for over writing and the display will look like this.



- If file name is blank or if the filename has no extension and the main part of the name is longer than 8 or if extension is more than 3 character, then SI will display "File Name Err" message, when user press Store soft key, like as shown in the below figure.

- If the user enters any invalid character for filename other the valid characters explained above, SI will display "Invalid File Name" error message, when user press Store soft key as shown below.



General limitations

All firmware versions support pendrive devices formatted in FAT12, FAT16 or FAT32 file systems only where the sector size is 512 bytes. No other file systems or sector sizes are allowed.

NOTE

- If user wants to dump the logged records based on selection criteria to pendrive, set selection criteria in Reports before connecting pendrive or if user already in pendrive screen press Back and set selection criteria and then remove and connect the pendrive or switch off and then switch on SI to go to the Pendrive screen.

- If free space is less in pendrive SI will take more time to display appropriate status/error message and operation will be slow.

- If no free space in pendrive and if user tries to write into pendrive SI will display "Disk Full" or "Printing Cancelled" error message.

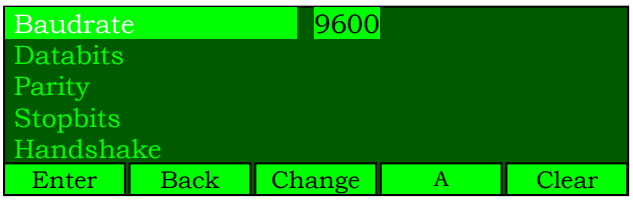
- USB Host circuit diagram is shown below in page no.142.

Both USB Host and S485 cannot be possible. Either one can be present.

VI. COMMUNICATION

1. Baud Rate setting of RS232 #1 to 5

Press *'Menu> Communication> RS232 #1'*



Press Select soft key, the current value will be highlighted. Clear all the digits of baud rate and then enter new value using numeric keys. Press Enter soft key to store the value.

If the menu option is selectable type (for E.g. Parity) use change soft key for selecting the right option. Like this program remaining communication parameters of RS232 #1.

Use same procedure for programming RS232 #2 to 4.

RS232 #5

RS232 #5 can have baud rate of either 19200 or 57600.

By default 57600 is set with 8 N 1 permanently. It also provides +15V, 250mA power on the connector, please refer circuit diagram. This port can only transmit data and no receive is possible.

We recommend using this port for remote display, serial printer where bidirectional communication is not required

2. Weight Data #1-4

Weight Data can support 7 types of Weight transfer mode namely:

- Stream
- Command
- Manual
- Auto transfer
- NCI4000
- Milkotronics
- SICS
- CTPZ

Weight data will be sent only if following conditions are satisfied:

- In *'Menu> Communication> Weight Data>'* if 'Stable Weight Transfer' is set as 'Yes' then SI will wait till the weight is stable and then send it.
- Current Weight should be greater than 'Minimum Limit' set in *'Menu>Scale> Scale #1> Miscellaneous>'*.

Rezero command and Tare command:

These commands will work only in ESSAE standard communication modes like stream mode, command mode, and manual mode.

- Command required to do Re-zero is Ctrl+R.
- Command required to do Tare is T or t.

Note: Ctrl+R is only implemented in Weight Data #1.

Stream Mode

In stream mode the selected weight data is sent continuously.

Manual Mode

In manual mode when * key is pressed the selected weight data is sent.

Command Mode

In command mode,

- Command required to get weight data is ctrl+E.

Auto Transfer

If Auto Transfer mode is selected, SI will send current weighing result to the peripheral devices automatically.

Start	STX	The start of data	02H
Weight/quantity Delimiter	CR	The end of data	0DH
End	LF	The end of Text	0AH
Numeric Header	:	Gross Weight	(3AH)
	0	Net Weight	(30H)
	4	Tare Weight	(34H)
	1	Unit Weight	(31H)
	2	Quantity	(32H)
Alpha Header	G	Gross Weight	(47H)
	N	Net Weight	(4EH)
	T	Tare Weight	(54H)
	U	Unit Weight	(55H)
	Q	Quantity	(51H)
Weight Stable	SOH	Weight stable	(01H)
	NUL	Weight unstable	(00H)

General Data Format (All options are enabled from the Menu)

Description	Start	Stable status	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	STX	SOH/NUL	:/G	Gross Wt	space	g /kg/lb/lt	CR
No.of Characters	1	1	1	1-8	1	2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	0/N	Net Wt	space	g /kg/lb/lt	CR
No.of Characters	1	1-8	1	2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	4/T	Tare Wt	space	g /kg/lb/lt	CR
No.of Characters	1	1-8	1	2	1
Description	Header	Weight	Unit Delimiter	Unit	Weight

					Delimiter
ASCII	1/U	Unit Wt	space	g /kg/lb/lt	CR
No.of Characters	1	1-8	1	2	1

Description	Header	Quantity	Unit Delimiter	Unit	Quantity Delimiter	End
ASCII	2/Q	Quantity	space	PCS	CR	LF
No.of Characters	1	1-8	1	3	1	1

- Following options are controlled in *'Menu> Communication> Weight Data>* Weight Data #1-*4'*
- STX, Stable status, Header, Unit, are optional.
- All (Gross wt, Net wt and Tare wt) or any one of the three weights or no weight output are optional.
- Similarly quantity & Unit weight or any one or no output are optional.
- Unit delimiter will be output if unit output is enabled.

NCI4000

NCI4000 is basically command based mode meant for OPOS driver.
The following commands are available.

1. W <CR> (Read Weight)
   Reply = <LF>xx.xxxUU<CR><LF>Shh<CR><ETX>
2. S <CR> (Read Status)
   Reply = <LF>Shh<CR><ETX>
3. Z <CR> (Zero)
   Reply = <LF>Shh<CR><ETX>
4. u <CR> (Read Unit)
   Reply = <LF>x<CR><ETX>
5. m <CR> (Read Capacity)
   Reply = <LF>xx<CR><ETX>

Options such as Weight output, Weight Header, Stable Weight Transfer, Weight Data Length, Stable Status Flag, Skip STX, Weight Unit have NO EFFECT on this mode.

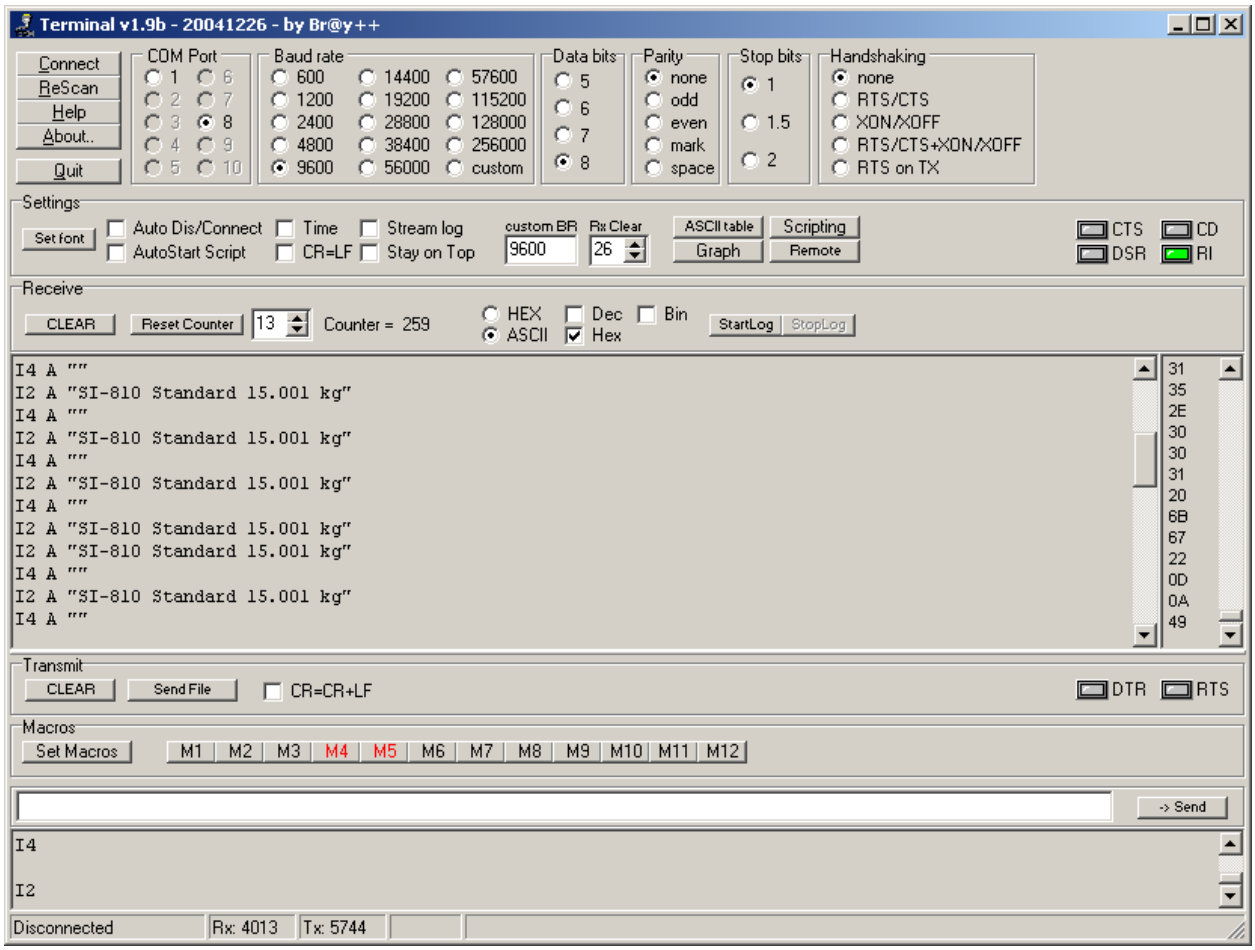
Milkotronics

- If wt is 125.45 display on hyper terminal as +000125.45kg.
- For negative weight, Command wont response.
- For over flow & under flow, Command wont response.
- Command 'Wn' --> Weight will be displayed n times. (ie. n varies from 1 to 9).
- Command 'T' or 'Z'--> will perform as one touch tare.
- Total no. bytes are 15. They are as follows
  - 1st byte → + (Sign).
  - 2nd to 8th bytes → Weights before decimal point.
  - 9th byte → . (Decimal point).
  - 10th & 11th byte → Weights after decimal point.
  - 12th & 13th byte → Unit (ie. Kg/lt)
  - 14th byte → Carriage return.
  - 15th byte → Line feed.

SICS

Sample

I2 A "SI-810 Standard 15.001 kg"
I4 A ""
I2 A "SI-810 Standard 15.001 kg"
I4 A ""
I2 A "SI-810 Standard 15.001 kg"
I4 A ""
I2 A "SI-810 Standard 15.001 kg"
I2 A "SI-810 Standard 15.001 kg"
I4 A ""
I2 A "SI-810 Standard 15.001 kg"
I4 A ""
I2 A "SI-810 Standard 15.001 kg"



Following command implemented in MT-SICS.

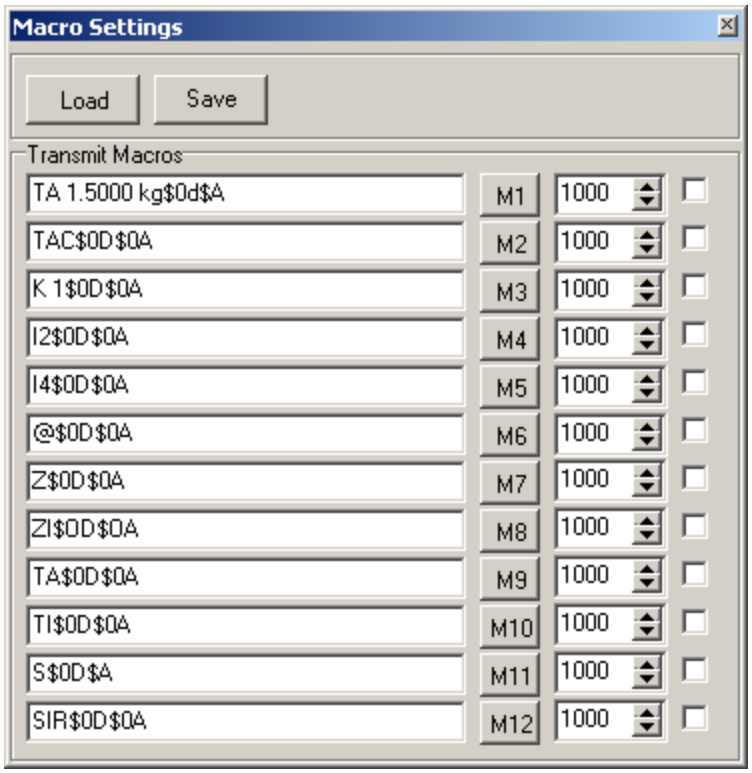
Refer for command syntax "b-s-al-pl-sics-e-11780447.pdf" document

MT-SICS 0 version 2.3x
&
MT-SICS 1 version 2.2x

- S
- SI

- SIR send and repeat
- Z
- ZI
- T
- TI
- TA
- TAC tare clear
- I2 inquiry of balance type
- I4 machine serial number
- @ Reset
- K 1 Enable keyboard
- K 2 Disable keyboard
- SNS 1 - Select Scale 1

- SNS 2 – Select Scale 2



CTPZ
C – Clear Tare
T – One Touch Tare
P - Print on Stable Weight
Z – Zero
These Commands are case insensitive.

P command Data output format
If tare weight is Zero
Weight (9C), space (1C), unit (4C), CR (1C), LF (1C) Total 16 Characters
If tare weight is Non Zero
Weight (9C), space (1C), unit (4C), NET (3C), CR (1C), and LF (1C) Total 19 Characters
Weight is right justified and Unit is left justified with spaces.

One Touch Tare

'Menu> Communication> Weight Data> Weight Data #1> One Touch Tare' should be set to 'Yes' for tarring from selected physical device. Press T/t key on the selected physical device to tare. The tare conditions for unstable tarring in 'Menu> Scale> Scale #1> Tare> One *Touch Tare on Stable'* should be 'No'.

GTN Format

```
G           1.000 kg
T           0.250 kg
N           0.750 kg
```

If GTN Weight Output is selected, the Output is fixed as shown above. GTN weight output is available in weight Data #1 to Data #4.

3. Print Data commands.

To print all Records

Press Ctrl r on the selected physical device to which print data is mapped to for printing all records without any selection criteria.

To print only selected Records

Press Ctrl s on the selected physical device to which print data is mapped to for printing only records matching selection criteria.

To delete all Records

Press Ctrl x on the selected physical device to which print data is mapped to for initiating SI to delete all logged records.

SI will send some random character to the selected physical device.
Now send same character from the selected physical device to SI.
If the character sent and character received by SI is same then, SI will delete all the logged records and sends "OK" as an acknowledgement to the selected physical device. While deleting records, SI will display "**Deleting Records...**" message.

To Select Standard format

Press Ctrl a on the selected physical device to which print data is mapped to for selecting Standard formats.

To Select Custom Format

Press Ctrl b on the selected physical device to which print data is mapped to for selecting Custom formats.

4. Digital Input/Output

The output options for the DIO is present in *'Menu> Communication> Digital In/Out> Output Type'*. Output type can be one of the following:

Logic #1(Bar)
Logic #2(Dot)
Logic #3
Within Min & Max
Logic #4
Log DIO Output
Level Control

Only Except logged DIO output option the DIOs are output based on the weighing conditions.
Minimum, Maximum, Set point #3 to #8 should be programmed in PLU and recalled for proper working of DIO outputs.
Min limit in PLU is applicable only to Logic #3, within min & max and outside min & max.

Logic #1(Bar) : The DIO outputs are given successively based on the weight/quantity. In this mode more than one active DIO output is possible. Minimum, Maximum, set point #3 to #8 should be programmed in ascending order.

Logic #2(Dot): Only one Active output is possible in this mode. Minimum, Maximum, set point #3 to #8 should be programmed in ascending order.

Logic #3: Only min limit, minimum and maximum are required, other values will not have any effect on output. Only DIO #1 and #2 is possible. This output type is useful for giving green lamp and red lamp indication.

Within Min & Max: Only min limit, minimum and maximum are required, other values will not have any effect on output. Only DIO #1 and #2 is possible. This output type is useful for giving only green lamp.

Logic #4: Only min limit weight/quantity, minimum weight/quantity and Maximum weight/quantity are required, other values will not have any effect on output.

- When weight/quantity is > = to min limit and < minimum DIO #3 will be activated.
- When weight/quantity is < = to minimum and < = maximum DIO #4 will be activated.
- When weight/quantity is > maximum DIO #5 will be activated.

Log DIO Output: Here on successful logging, DIO #1 to #3 are activated based on the programmed conditions such as no, all weights, within range, under weight, over weight. DIO time delay can also be set in the PLU. The DIO will be active for set duration; if DIO time delay is 0 then, none of the DIO are active.

'Setpoint on Stable' option in *'Menu> Communications> Digital In/Out>'* is not applicable here.

Level Control: Only min limit weight/quantity, minimum weight/quantity and maximum weight/quantity are required, other values will not have any effect on output. When weight/quantity is equal to maximum weight/quantity DIO #1 will be activated and DIO #1 is deactivated when weight reaches min limit weight/quantity.

NOTE: min limit, minimum and maximum can be weight or quantity.

DIO outputs for Different weight conditions:

DIO	#1	#2	#3	#4	#5	#6	#7	#8
Logic #1 (Bar)								
Current Weight/quantity < Minimum	IA	IA	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Maximum	A	IA	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint #3	A	A	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint#4	A	A	A	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint #5	A	A	A	A	IA	IA	IA	IA
Current Weight/quantity < Setpoint #6	A	A	A	A	A	IA	IA	IA
Current Weight/quantity < Setpoint #7	A	A	A	A	A	A	IA	IA
Current Weight/quantity < Setpoint #8	A	A	A	A	A	A	A	IA
Current Weight/quantity ≥ Setpoint #8	A	A	A	A	A	A	A	A
Logic #2 (Dot)								
Current Weight/quantity < Minimum	IA	IA	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Maximum	A	IA	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint #3	IA	A	IA	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint #4	IA	IA	A	IA	IA	IA	IA	IA
Current Weight/quantity < Setpoint #5	IA	IA	IA	A	IA	IA	IA	IA
Current Weight/quantity < Setpoint #6	IA	IA	IA	IA	A	IA	IA	IA
Current Weight/quantity < Setpoint #7	IA	IA	IA	IA	IA	A	IA	IA
Current Weight/quantity < Setpoint #8	IA	IA	IA	IA	IA	IA	A	IA
Current Weight/quantity ≥ Setpoint #8	IA	IA	IA	IA	IA	IA	IA	A
Logic #3								
Min Limit < Current Weight/quantity < Minimum	A	IA	IA	IA	IA	IA	IA	IA
Minimum ≤ Current Weight/quantity ≤ Maximum	IA	A	IA	IA	IA	IA	IA	IA
Current Weight > Maximum	A	IA	IA	IA	IA	IA	IA	IA
Within Min & Max								
Min Limit < Current Weight/quantity < Minimum	IA	IA	IA	IA	IA	IA	IA	IA
Minimum ≤ Current Weight/quantity < Maximum	A	IA	IA	IA	IA	IA	IA	IA
Current Weight/quantity > Maximum	IA	A	IA	IA	IA	IA	IA	IA
Logic #4								
Min Limit <= Current Weight/quantity < Minimum	IA	IA	A	IA	IA	IA	IA	IA
Minimum ≤ Current Weight/quantity ≤ Maximum	IA	IA	IA	A	IA	IA	IA	IA
Current Weight/quantity > Maximum	IA	IA	IA	IA	A	IA	IA	IA
Level Control								
↑Current Weight/quantity >= Maximum	A	IA	IA	IA	IA	IA	IA	IA
↓Current Weight/quantity <= Minimum	IA	IA	IA	IA	IA	IA	IA	IA

5. Analog output (Current/Voltage)

Current/Voltage output is optional. We can set in one of the following output mode:

4-20mA
0-20
0-24
0-5V
0-10V

Calibration of current/voltage output is to be done for the selected output mode. This has to be done for any changes in current/voltage output mode. Use 'Menu> Diagnostic> Analog *Output'* command along with offset and span trimmer present on the main board. The procedure for calibration is available under Diagnostics Analog Output.
This option is set in 'Menu> Hardware Configuration> A*nalog Output Status'*. Either current or voltage output is possible at a time. Any change in the output mode requires power OFF.

The current/Voltage output range can be related to net weight or gross weight. This can be selected in 'Menu> Communication> Analog Output Range'. By default Current/Voltage output range corresponds to gross weight.

0-5V and 0-10V selection needs a Hardware change in addition. (For more information please refer main board circuit diagram sheet 4). By default the components are meant for 5V.

6. RS485

RS485 is a balanced line, half-duplex transmission system allowing transmission distances of up to 1.2 km
In a 485 network the "master" will start the "conversation" with a "Request" addressed to a specific "slave", the "master" will then listen for the "slave's" response. If the "slave" does not respond within a pre-defined period, (set by control software in the "master"), the "master" will abandon the "conversation".

6.1. RS485 Standard

The master always initiates communication and slave responds to command.
The command frame basically contains START, RS485 ID, COMMAND & END fields and all fields are mandatory. The RS485 ID programmed into each SI should be unique in a network. The slave will respond with echo of command frame if conditions in the weighing scale are not OK for output response to be sent. This basically depends on menu settings and current application mode.
If a command frame not recognized by the SI is sent, then it will be echoed to the host. This feature may be used to check transmit & receive physical channel.

6.1.1 General Commands

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	X	CRLF
NO OF CHARACTERS	1	2	1	2

START: ":" character defines the start of query from master.

ID: Should be "00" to "99" for RS485 ID. The ID should be unique for each SI. The length of ID should be 2 characters. A unique RS485 ID is to be programmed in each SI.

COMMAND: One character alpha. Following commands are applicable:
R/r: Read all logged records.
S/s: Read records matching selection criteria.
W/w: Read current weight.
T/t: One Touch Tare.
Z/z: Rezero.
X/x: Delete all logged Records.
A/a: Select Standard format.
B/b: Select Custom format.
N/n: Read New Records
C/c: Acknowledge of All records Read

END: The query should be terminated with CRLF characters.

6.1.2 Weight Command

FIELD ->	START	RS485 ID	COMMAND	END
Characters	:	XX	W w	CRLF
No. of Characters	1	2	1	2

POSITIVE RESPONSE FOR WEIGHT COMMAND

The response output depends on Menu settings of weight data #4. The maximum data output response condition is shown below:

Description	Start of Response	ID	Delimiter	Start	Stable status	Header	Weight	Unit Delimiter	Unit	Delimiter
ASCII	:	00-99	CR	STX	SOH/ NUL	:/G	Gross Wt	space	g /kg/lb/lt	CR
No. of Characters	1	2	1	1	1	1	1-8	1	2	1

Description	Header	Weight	Unit Delimiter	Unit	Delimiter
ASCII	0/N	Net Wt	space	g /kg/lb/lt	CR
No. of Characters	1	1-8	1	2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	4/T	Tare Wt	space	g /kg/lb/lt	CR
No. of Characters	1	1-8	1	2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	1/U	Unit Wt	space	g /kg/lb/lt	CR
No. of Characters	1	1-8	1	2	1

Description	Header	Quantity	Unit Delimiter	Unit	Quantity Delimiter	End
ASCII	2/Q	Quantity	space	PCS	CR	LF
No. of Characters	1	1-8	1	3	1	1

- Following options are controlled in 'Menu> Communication> Weight Data> ***Weight Data #4'***
- STX, Stable status, Header, Unit, are optional.
- All (Gross wt, Net wt and Tare wt) or any one of the three weights or no weight output are optional.
- Similarly quantity & Unit weight or any one or no output are optional.
- Unit delimiter will be output if unit output is enabled.

6.1.3 Tare Command

This will do basically one touch operation on the active scale.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	T t	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE FOR TARE COMMAND

The tare operation will execute successfully if weight is stable and positive frame response is sent.

FIELD ->	START	RS485 ID	COMMAND	Delimiter	STATUS	END
CHARACTER	:	XX	T t	CR	OK	CRLF
NO OF CHARACTERS	1	2	1	1	2	2

NEGATIVE RESPONSE FOR TARE COMMAND

If weight is not stable, then negative response shown below will be sent.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	T t	CRLF
NO OF CHARACTERS	1	2	1	2

6.1.4 Rezero Command

This will do basically Rezero operation on the active scale.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	Z z	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE FOR REZERO COMMAND

The Rezero operation will execute successfully if weight is stable and positive frame response is sent.

FIELD ->	START	RS485 ID	COMMAND	Delimiter	STATUS	END
CHARACTER	:	XX	Z z	CR	OK	CRLF
NO OF CHARACTERS	1	2	1	1	2	2

NEGATIVE RESPONSE FOR REZERO COMMAND

If weight is not stable, then negative response shown below will be sent.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	T t	CRLF
NO OF CHARACTERS	1	2	1	2

6.1.5 Read All Logged Records Command

All Logged records will be sent on receiving this command. If no records are present then data will be blank in the response. If SI is not in check counting/weighing application mode, then this command will be discarded.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	R r	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Delimiter	Data	END
CHARACTER	:	XX	R r	CRLF	Formatted	CRLF
NO OF CHARACTERS	1	2	1	2	Variable size	2

No negative response is sent for this command

6.1.6 Read Logged Records With Selection Criteria Command

Logged records matching selection criteria will be sent on receiving this command. If no records are present then data will be blank in the response. If SI is not in check counting/weighing application mode, then this command will be discarded.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	S s	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Delimiter	Data	END
CHARACTER	:	XX	S s	CRLF	Formatted	CRLF
NO OF CHARACTERS	1	2	1	2	Variable size	2

No negative response is sent for this command

Formatted Output

```
:XXS                    SI-810 Counting
                        Essae-Teraoka Pvt Ltd
                           Bangalore

-------------------------------------------------------------------------------
Sl.No Product Name Date       Time   Tare Wt   Net Wt Gross Wt Quantity Remark
-------------------------------------------------------------------------------
    1 CountingPLU1 19-09-2009 13:43    0.250    0.241    0.491       10 LOW
    2 CountingPLU2 19-09-2009 13:44    0.000    1.476    1.476     6033 HIGH
    3 CountingPLU2 19-09-2009 13:44    0.100    1.380    1.480     3115 HIGH
    4 CountingPLU3 19-09-2009 13:45    0.500    0.483    0.983     9662 HIGH
    5 CountingPLU4 19-09-2009 13:46    0.987    0.494    1.481     1501 HIGH
    6 CountingPLU4 19-09-2009 13:46    0.250    1.234    1.484     4001 HIGH
-------------------------------------------------------------------------------
                                       2.087    5.308    7.395    24322
-------------------------------------------------------------------------------
Thank you
```

6.1.7 Delete all logged Records Command

All Logged records will be deleted on receiving this command.

FIELD ->	START	RS485 ID	COMMAND	END

CHARACTER	:	XX	X x	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Delimiter	STATUS	END
CHARACTER	:	XX	X x	CR	OK	CRLF
NO OF CHARACTERS	1	2	1	1	2	2

No negative response is sent for this command

6.1.8 Select Standard format command

Standard report formats will be selected on receiving this command.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	A a	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Delimiter	STATUS	END
CHARACTER	:	XX	A a	CR	OK	CRLF
NO OF CHARACTERS	1	2	1	1	2	2

No negative response is sent for this command

6.1.9 Select Custom format command.

Custom report formats will be selected on receiving this command.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	B b	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Delimiter	STATUS	END
CHARACTER	:	XX	B b	CR	OK	CRLF
NO OF CHARACTERS	1	2	1	1	2	2

No negative response is sent for this command

6.1.10 Unknown Command

For instance if an unknown command is sent as shown below:

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	P	CRLF
NO OF CHARACTERS	1	2	1	2

RESPONSE FOR UNKNOWN COMMAND

The response for above command is given below. SI will eco back the command.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	P	CRLF
NO OF CHARACTERS	1	2	1	2

6.1.11 Read New Records Command

All new Logged records will be sent on receiving this command. If no news records are present then data will be blank in the response but no of records present will be ",00000". If SI is not in check counting/weighing application mode, then this command will be discarded.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	N n	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	No of Records Present	Delimiter	Data	END
CHARACTER	:	XX	R r	,00010	CRLF	Formatted	CRLF
NO OF CHARACTERS	1	2	1	6	2	Variable size	2

No negative response is sent for this command

6.1.12 Acknowledge All Records Read Command

After receiving this command, SI-810 will assume that all records are read.

FIELD ->	START	RS485 ID	COMMAND	END
CHARACTER	:	XX	C c	CRLF
NO OF CHARACTERS	1	2	1	2

POSITIVE RESPONSE

FIELD ->	START	RS485 ID	COMMAND	Response	Delimiter
CHARACTER	:	XX	C c	OK	CRLF
NO OF CHARACTERS	1	2	1	2	2

No negative response is sent for this command

6.1. RS485 Modbus ASCII

In ASCII (American Standard Code for Information Interchange) mode, all messages are coded in hexadecimal, using 4-bit ASCII character and each 8-bit byte in a message is sent as two ASCII characters. The main advantages of this mode are that it allows time intervals of up to one second to occur between characters without causing a timeout error and that message may be monitored more easily on a simple ASCII terminal.

In ASCII mode messages begin with the ':' character (Hex (3A)) and end with a Carriage Return – Line Feed pair (Hex (0D) and Hex (0A)).

All network devices continuously monitor the network for the 'start of the message' colon (:) character. When it is received, every network device decodes the next field to determine if it is the addressed device.

Following Formats are provided

1. BCD Format: Here a slave sends the weight data as displayed in SI but without decimal point. Negative weight data is read without sign.

2. Floating Point in Big Endian format: Weight data is converted to floating point number and then data is sent in Big Endian format (i.e. MSB byte comes first).

3. Floating Point in Little Endian format: Weight data is converted to floating point number and then data is sent in Little Endian format (i.e. LSB byte comes first.)

4. Integer in Big Endian Format: Weight data is converted to whole number and the data is sent in Big Endian format.

5. Integer in Little Endian Format: Weight data is converted to whole number and the data is sent in Little Endian format.

Request

The example illustrates a request for a single 16-bit Modbus Register.

Start	Slave Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (LRC) (Hi)	Error Check (LRC) (Lo)	End

Start: ":"character defines the start of query from master.

Slave Address: 8-bit value representing the slave being addressed (1 to 247), 0 is reserved for the broadcast address.
Function Code: 8-bit value telling the addressed slave what action is to be performed. (SI supports only 4).
Start Address (Hi): High eight bits of a 16-bit number specifying the start address of the data being requested.

Start Address (Lo): Low eight bits of a 16-bit number specifying the start address of the data being requested.

Number of Registers (Hi): High eight bits of a 16-bit number specifying the number of registers being requested.

Number of Registers (Lo): Low eight bits of a 16-bit number specifying the number of registers being requested.

Error Check (Hi): High eight bits of a 16-bit number representing the error check value.

Error Check (Lo): Low eight bits of a 16-bit number representing the error check value.

End: The query should be terminated with CRLF characters.

Request	Function Code 1 Byte	Device Address	Start Address 2 Byte	Number of Registers 2 Byte
BCD Format	0x04	30001 to 30006	0x0000 to 0x0005	0x0001 to 0x0006
Floating Point Big Endian	0x04	30101 to 30106	0x0064 to 0x0069	0x0001 to 0x0006
Floating Point Little Endian	0x04	30201 to 30206	0x00C8 to 0x00CD	0x0001 to 0x0006
Integer Big Endian	0x04	30301 to 30306	0x012C to 0x0131	0x0001 to 0x0006
Integer Little Endian	0x04	30401 to 30406	0x0190 to 0x0195	0x0001 to 0x0006

Response

The example illustrates the normal response to a request for a single 16-bit Register.

Start	Slave Address	Function Code	Byte Count	Data (Hi)	Data (Lo)	Error Check (Hi)	Error Check (Lo)	End

Start: ":"character defines the start of query from master.

Slave Address: 8-bit value representing the address of slave, which has just responded.

Function Code: 8-bit value which, when a copy of the function code in the query, indicates that the slave recognized the query and has responded. (Also see Exception Response).

Byte Count: 8-bit value indicating the number of data bytes contained within this response

Data (Hi): High eight bits of a 16-bit number representing the register(s) requested in the query.

Data (Lo): Low eight bits of a 16-bit number representing the register(s) requested in the query.
Error Check (Hi): High eight bits of a 16-bit number representing the error check value.

Error Check (Lo): Low eight bits of a 16-bit number representing the error check value.

End: The query should be terminated with CRLF characters.

Response (Common for all the formats)	Number of Bytes	Value
Function Code	1	0x04
Byte Count	1	2 x *N
Data	*N x 2	

*N = Number of Input Registers

Exception Response

Whenever SI receives a MODBUS message with valid parity and error check but contains some other error (e.g. a request to set a register to an illegal value or a request for part of a floating point variable), an Exception code will be generated.

Exceptions are indicated by a value in the function code field of the response greater than Hex (80), obtained by OR'ing the original function code in the query with Hex (80). For example, if a function code of Hex (84) and exception code 2 were present in an exception response this indicates that a function 4 query (Read Input Registers) has resulted in an illegal data address error.

Start	Slave Address	Function Code'	Error Code	Error Check (Hi)	Error Check (Lo)	End

Start: ":"character defines the start of query from master.

Slave Address: 8-bit value representing the address of slave, which has just responded.

Function Code: 8 bit value which is the function code in the query OR'ed with Hex (80), indicating the slave either does not recognize the query or could not carry out the action requested.

Error Code: 8-bit value indicating the nature of the exception detected.

Error Check (Hi): High eight bits of a 16-bit number representing the error check value.

Error Check (Lo): Low eight bits of a 16-bit number representing the error check value.

End: The query should be terminated with CRLF characters.

Error (Common for all the formats)	Number of Bytes	
Function Code	1	0x84
Error Code	1	01/02/ 03/04

The error codes and the corresponding types of error returned are given in the following table:

Error Code	Error Name	Description
01	Illegal Function	Function Code not Supported by SI
02	Illegal Data Address	Attempt to access an invalid address or an attempt to read part of a floating point value
03	Illegal Data Value	Number of Points requested is > 0x006.
04	Invalid Data Read	Occurs for the following errors: Weight Underflow Weight Overflow Disp Resolution Error

E.g.

If you want to read current Gross, Net and Tare weight from SI in BCD format then send Request in the following way:

Request

:010400000006F5$0d$0a (Testing in Terminal)

: Start of Text
01 Slave Address
04 Function Code (Read Input Register).
0000 Start Address (In BCD Format)
0006 Number of Registers Requested.
F5 LRC (Longitudinal redundancy check)
(01 + 04 + 00 + 00 + 00 + 06 = B, and 2's complement of B = F5)
$0d$0a End CRLF

Response for the above request if WT : 0.200

:01040C00000200000002000000000EB$0d$0a

: Start of Text
01 Slave Address
04 Function Code (Read Input Register).
0C The number of data bytes to follow
00000200000002000000000 Data
(Gross wt = 00000200, Net wt = 00000200, Tare wt = 00000000).
EB LRC (Longitudinal redundancy check)
$0d$0a End CRLF

Below Table shows few examples of request and its corresponding responses (start and end are excluded). For the condition below Gross wt = 1.100, Net weight = 1.000, Tare Weight = 0.100.

Format	Request	Response	Description
BCD	010400000006F5	01040C000011000000100000000100CD	All 3 weights
	010400000004F7	0104080000110000001000D2	Gross and Net wt
	010400010005F5	01040A11000000100000000100CF	Gross wt (Low 4-bits), Net wt, Tare wt.
	010400000007F4	01840378	Register count > 6

	010300000007F5	0183017B	Invalid Function Code
	010400020005F4	01840279	Start address + register count > 0x0006
Float Big Endian	01040064000691	01040C3F8CCCCD3F8000003DCCCCCC2B	All 3 weights
	01040065000690	01840279	Start address + register count > 0x006A
	01040064000790	01840378	Register count > 6
	01040066000293	0104043F80000038	Net wt
	01040065000294	010404CCCD3F809F	Gross wt (Low 4-bits), Net wt (4-bits high)
Float Little Endian	010400C8000231	010404CDCC8C3F93	Gross wt
	010400C800062D	01040CCDCC8C3F0000803FCCCCCC3D2B	All 3 weights
	010400C800072C	01840378	Register count > 6
	010400C900062C	01840279	Start address + register count > 0x00CE
Integer Big Endian	0104012C0006C8	01040C0000044C000003E80000006450	All 3 weights
	0104012D0006C7	01840279	Start address + register count > 0x0132
	0104012C0007C7	01840378	Register count > 6
	0104012C0002CC	0104040000044CA7	Gross wt
Integer Little Endian	01040190000664	01040C4C040000E80300006400000050	All 3 weights
	01040190000763	01840378	Register count > 6
	01040190000268	0104044C040000A7	Gross wt
	01040191000663	01840279	Start address + register count > 0x0196

LRC – Longitudinal Redundancy Check

The Longitudinal Redundancy Check (LRC) is calculated by the transmitting device, which appends the LRC to the message. The receiving device recalculates an LRC during receipt of the message, and compares the calculated value it received in the LRC field, if the two values are not equal, an error results.

The LRC is calculated by adding together successive eight-bytes in the message, discarding any carries, and then two's complementing the result. The LRC is an eight-bit field therefore, the carry is discarded automatically.

Generating an LRC

Step 1: Add all bytes in the message, excluding the starting colon and ending CRLF. Add them into an eight-bit field, so that carries will be discarded.

Step 2: Subtract the final field value from FF hex (all 1's), to produce the ones-complement.

Step 3: Add 1 to produce the two's complement.

Placing the LRC into the message

When the eight-bit LRC (two ASCII Characters) is transmitted in the message, the high order character will be transmitted first, followed by the low order character – i.e., if the LRC value is 61 hex (0110 0001)

The character frame includes an LRC field as the last field preceding the CRLF characters. This field contains 2 ASCII characters that represent the result of a Logical Redundancy calculation for all the fields except the starting colon character and ending CR LF pair of characters.

VII. MENU OVERVIEW

- Highlighted text indicates that particular menu option is selected.
- The symbol '>' in menu option name indicates that next level of menu is present.
- Press Up soft key to select previous menu option.
- Press Down soft key to select next menu option.
- Press Select soft key to go to next lower level in menu if it is present, to select an option or to execute command.
- Press Back soft key to go to higher level in menu.
- If any menu options is password protected then that value would not be shown when selected.

Top Level Menu

1. Scale
2. Communication
3. Settings
4. Application
5. Mapping Logical Device
6. Reports
7. Diagnostics
8. Hardware Configuration
9. PLU
10. Log Settings
11. Counting Settings
12. Accumulation

1. Scale

2. Communication

2.1 RS232

This option is used to set UART communication parameters.
After changing any of the UART communication parameters, SI has to be restarted for the changes to be effected.

2.1.1. RS232 #1

2.1.1.1. Baudrate: any value between 100 and 115200
2.1.1.2. Databits: (5,6,7,8)
2.1.1.3. Parity: (Odd/Even/None).
2.1.1.4. Stopbits: 1 or 2
2.1.1.5. Handshake: (None/hardware/software)

2.1.2. RS232 #2 / RS485

2.1.2.1. Baudrate: any value between 100 and 115200
2.1.2.2. Databits: (5,6,7,8)
2.1.2.3. Parity: (Odd/Even/None).
2.1.2.4. Stopbits: 1 or 2
2.1.2.5. Handshake: (None/hardware/software)
2.1.2.6. RS485 ID: any value between 0 and 99.
2.1.2.7. RS485 Type: (Standard/Modbus ASCII).

2.1.3. RS232 #3
(Same as RS232 #1)

2.1.4. RS232 #4
(Same as RS232 #1)

2.2 Weight Data

The contents of weight/quantity data and mode of transfer are configured here. It will be sent through the corresponding mapped physical device if any.

2.2.1. Weight Data #1

2.2.1.1. Weight Output:(All weight/Net Only/Gross Only/Tare Only/No/Display wt/GTN)
Used to select the type of the weight output.

2.2.1.2. Transfer Mode:
(Stream/Manual/Command/AutoTransfer/Milkotronics/SICS/CTPZ).
Used to select the type of transfer mode.

2.2.1.3. Header: (No Header/Numeric Header/Alpha Header).
Used to select, the type of weight/quantity header.

2.2.1.4. Stable Weight Transfer: (Yes/No)
Used to select whether only stable weight has to be transferred or not.

2.2.1.5. Data Length: (Variable Length/Fixed Length).
Used to select length of the weight/quantity data.

2.2.1.6. Stable Status Flag: (Yes/No)
Used to select whether stable status flag required or not.

2.2.1.7. Skip STX: (Yes/No)
Used to skip STX character.

2.2.1.8. One Touch Tare: (Yes/No).
Used to select whether One touch tare required or not from selected physical device.

2.2.1.9. Unit: (Yes/No)
Used to select whether unit of weight/quantity has to be sent or not.

2.2.1.10. Counting Output (Quantity/Unit Weight/ Qty & Unit Wt/No).
Used to select the type of counting output.

2.2.2. Weight Data #(2-4)
Same as Weight data #1

2.3 Digital In/Out

2.3.1. Output Type: (Logic #1(Bar)/Logic #2(Dot)/Logic #3/Within Min & Max/ Logic #4/Log DIO Output/Level Control).
Used to select the type of Digital output type.

2.3.2. Negative Setpoint: (Yes/No)

Used to select whether negative set point required or not.

2.3.3. Setpoint Buzzer: (Yes/No)

Used to select whether buzzer is required for set point or not.

2.3.4. Setpoints On Stable: (Yes/No)

Used to select whether set points has to be activated only on stable weight.

2.4 Ethernet

SI has to be restarted for the changes to be effected properly.

2.4.1. Connection Type: (Server/Client)

2.4.2. Ethernet MAC

Used to set Ethernet MAC address.
It should be 6 bytes hexadecimal value.

2.4.3. Local IP

Used to set local IP address.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.4.4. Subnet Mask

Used to set Subnet mask.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.4.5. Primary DNS

Used to set Primary DNS.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.4.6. Default Gateway

Used to set Gateway.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.4.7. Remote IP

Used to set the address of Remote IP.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.4.8. Local Host Name

Used to set the name of the local host.
Maximum 15 characters are allowed.

2.4.9. Local TCP Port

Used to set local TCP Port number.
Any value between 1 and 65535 can be entered.

2.4.10. Remote TCP Port

Used to set Remote TCP Port number.
Any value between 1 and 65535 can be entered.

2.4.11. DHCP Enable

Used to get IP address automatically from the DHCP server.

2.5 Analog Output Range: (Gross Weight/Net Weight)

Used to select whether analog output range refers to gross weight or net weight of active scale.

2.6 Modem

The modem related settings can be configured here.

2.6.1. GPRS APN

To set Access Point Name (APN) of GPRS service provider.
Maximum 20 characters are allowed.

2.6.2. Server IP

Used to set IP address of server.
Value should be entered in 4 groups; each group is of 3 characters (with leading zero). In a group, value should not be more than 255.

2.6.3. Server TCP Port

Used to set server TCP port for GPRS communication.
Any value between 2000 and 65535 can be entered

2.6.4. Local IP

Will set automatically on context activation of GPRS.

2.6.5. Local TCP Port

Used to set local TCP port for GPRS communication
Any value between 2000 and 65535 can be entered

2.6.6. Server Phone No

Phone no of server SMS modem. Getting updated automatically on SMS from server SMS modem.

2.6.7. Link Check Timer

Used to set communication link check timer value in seconds.
Any value 60 to 300 seconds can be set.

2.6.8. Modem On RS232 #4 (Yes/No)

Used to select whether modem is connected on RS232 #4.

2.6.9. Balance Enquiry

Used to set enquiry string for the service provider of GSM.
Maximum 20 characters are allowed.

2.7 WiFi

The WiFi related settings can be configured here.

2.7.1 Terminal

It is used for Scan, Init, Status and Test WiFi interface.

2.7.2 SSID

The name of Access Point (AP) which is used to connect. Max 20 character is allowed.

2.7.3 Channel

The channel of SSID is set. It can range from 0 to 14. If zero is given, channel is selected automatically.

2.7.4 Security(Auto/Open/WEP/WPA-PSK/WPA2-PSK/WPA-EAP/WPA2-EAP/WPA2-AES+TKIP)

Security is selected from above options.

2.7.5 Password

Password for security options is set here. Maximum 15 characters allowed.

2.7.6 Username

User name for enterprise (EAP) level security is set here.

2.7.7 Hostname

Host name of WiFi interface can be set here. Maximum 15 characters allowed.

2.7.8 DHCP(No/Yes)

Getting IP from DHCP server controlled here.

2.7.9 Local IP

The Local IP of the WiFi interface set here.

2.7.10 Subnet Mask

Subnet Mask is set using this setting.

2.7.11 Default Gateway

Default Gateway for reaching external subnets.

2.7.12 Primary DNS

Primary DNS for resolving hostname to IP Address.

2.7.13 Local TCP Port

The Host connects to the local port. It can range from 2000 to 65535

2.7.14 WiFi On RS232 #4(No/Yes)

The WiFi interface is enabled through this option. It has higher priority over Modem On RS232 #4.

2.7.15 EAP Outer Auth(EAP-FAST/ EAP-TLS EAP-TTLS/ EAP-PEAP)

For enterprise(EAP) level security, outer authentication between machine and AP is selected.

2.7.16 EAP Inner Auth(EAP-MSCHAP/ EAP-GTC)

For enterprise(EAP) level security, inner authentication between AP and RADIUS sever is selected.

2.7.17 Idle Time Out

Machine disconnects and connects to specific Access Point when Idle Time set times out. It can range from 30 seconds to 300 seconds.

2.7.18 Connection Type (Server/Client)

Select the connection based on the requirement.

2.7.19 Server IP

The IP of the server is set here. This setting is used when connection type is client.

2.7.20 Connection Type (Server/Client) Server TCP Port

Select the connection based on the requirement.

3. Settings

3.1 Date & Time

Used to set Date and Time in the following format ddmmyyyyhhmmss.

3.2 Alarm

3.2.1. Enable: (Yes/No).

Used to select whether alarm has to be enabled or not.

3.2.2. Type: (Alarm Once/Recursive Alarm).

Used to set type of the alarm.

Alarm Once: used to set alarm only once.

Recursive Alarm: Used to alarm recursively.

3.2.3. Date & Time

Used to set alarm date and time in the following format ddmmyyyyhhmmss.

For recursive alarm, year should be zero.

3.3 Key Buzzer: (Yes/No).
Used to select whether buzzer is required when a key is pressed.

3.4 Machine Number

3.5 Machine Name
Used to set Machine name. Maximum 25 characters are allowed.

3.6 Calibrate Scale

3.7 Load Defaults

3.8 Set Password
Used to set user password. Only 4 digit numeric number can be entered.
To clear user password, press Enter soft key without typing any characters.

3.9 Format Flash File System

3.10 ON/OFF bypass: (Yes/No).
Used to select whether ON/OFF function is required

3.11 Bargraph Display: (Single Colour/All Colour/BG Check Weigh).
Used to select type of bargraph display.

3.12 Kg to cu multiply Factor:
Kg weight is multiplied with entered factor for Custom unit(cu). It takes 0.000001 to 100.00 value.

3.13 Kg to Ltcow multiply Factor:
Kg weight multiplied with entered Ltcow factor for Cow Litre . It takes 0.000001 to 100.00 value.

3.14 Dummy Zero for 2DP:
If this option is YES then dummy zero will be added with two decimal point.

3.15 PLU Update In App Mode:
If this option is YES, PLU minimum, maximum and Unit weight will get updated. Otherwise the changes are temporary.

3.16 Exit On PLU ERROR:
If this option is YES, PLU error is shown for 1 second and returns to Weighing while selecting PLU.
If this option is NO, PLU error is shown and remains in key input mode.

4. Application: (Check Counting/Weighing)

5. Mapping Logic Device

6. Reports

6.1 Select Format: (Standard/Custom).
Used for selecting type of report format.

6.2 Clear Selection Criteria

6.3 Set Selection Criteria

Used to set the selection criteria based on which we can get reports of selected records.
Field #(1-20)

- Start Value
- End Value

6.4 Print

6.4.1. Bill Print

Used to print records matching selection criteria in Bill format.

6.4.2. List Print

Used to print records matching selection criteria in list format.

6.4.3. Print Data Dump

Used to dump records matching selection criteria from SI to PC.

6.4.4. Print PLU Range summary

Used to print summary data matching with entered PLU and Date.

6.5 Online Print Type: (None/List Print/Bill Print)

Online Print is used for printing each record as soon as data is logged.User can end Online Print by pressing BatchOvr key in application mode.

6.6 Enable Online Print Data: (Yes/No)

Online Print Data is used for sending the recorded data to PC through communication terminals like ProComm or HyperTerminal using RS232.

7. Diagnostics

8. Hardware Configuration

9. PLU

9.1 PLU List by Number:

Lists PLUs by sorting PLUs in ascending order of Numbers

9.2 PLU List by Name:

Lists PLUs by sorting PLUs in ascending order of Names

9.3 PLU List by Code:

Lists PLUs by sorting PLUs in ascending order of Codes

9.4 PLU Recall by: (PLU Number/PLU Code).

9.5 Delete ALL PLUs

10. Log Settings

10.1 Field Programming

10.1.1. Field #1 to Field #20

10.2 Load Default Fields

Used to load default fields.

10.3 Delete Field

Used to delete fields which are programmed. Either last field or all fields can be deleted.

10.4 Delete Logged Records

Used to delete all logged records.

10.5 Shift Programming

Used for programming shift timings.

10.5.1. Shift #1 to Shift #3

10.6 Formula Programming

Used for entering algebraic expression. The result of this is used in case of fields which are programmed as formula result.

10.7 Multiplication factor

Used by the multiply net weight field feature.

10.8 Header Programming

Used for programming header. This information is common for all the report formats.

10.9 Footer Programming

Used for programming footer. This information is common for all the report formats.

10.10 Logging type: (Auto/Manual).

Used for selecting logging type. If logging of records is to be done automatically then select *Auto*, if logging of records is to be done manually then select *Manual*.

10.11 Line Feed for Printer

Used to send line feeds to the printer logical device at the end of standard reports (Bill, List).

The number of line feeds can range from 00 to 99.

10.12 Generate Standard Format

Used to generate standard formats. Report formats will be generated automatically based on the fields programmed.

10.13 Manual Unstable Wt Log (Yes/No)

Used to log data even when, weight is unstable.

10.14 Enable Auto/Manual Key (Yes/No)

Used to control whether auto/manual toggling in Check counting/weighing Application

10.15 Clear Alpha/Numeric @Log

Used to clear or not, the last entered data for manual fields, when prompt on log is enabled. Set to 'Yes', to clear or set to 'No', to display the old values for manual fields.

10.16 Option List Programming

10.16.1. Option #1 List

10.16.2. Option #2 List

Used for programming selectable options for option #1 and option #2 field features.

10.16.3 Unload For Log (Yes/No)

Used for logging the weight without removing weight on platter.

10.17 Tare After Log (Yes/No)

Used for tarring the weight once logging is done if selected Yes.

10.18 Clear PLU After Log (Yes/No)

Clear selected PLU after logging the weight if selected Yes.

11. Counting Settings

11.1 Negative Counting (Yes/No)

Used to enable or disable Negative Counting.

11.2 Insufficient Sample Limit (No/0.1%/0.2%)

Used to set the minimum weight required for sampling to warn the user, with respect to capacity of the scale.

11.3 Auto Unit Wt Recompute (Yes/No)

Used to enable or disable Recomputing automatically. If it is set to yes, when the present quantity reaches double the last sampled quantity, SI will do recomputing automatically to find more accurate unit weight and it will display

"Auto Unit weight Compute"

"Sampling... n" message while recomputing. Hare 'n' is the number of samples. This will increase the accuracy of counting.

11.4 Unit Weight Average (16 - 64)

Used to set how many times average should be taken for calculating unit weight while sampling. More value, more accurate unit weight.
The number can range from 16 to 64.

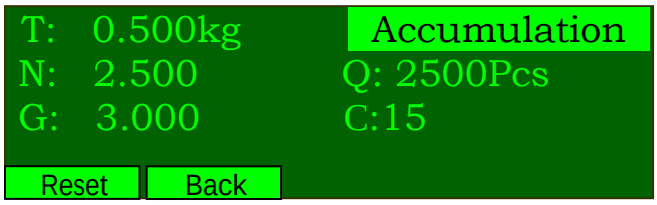
11.5 Enable Sampling (Yes/No)

Used to set whether to allow sampling or not. If it is enabled user can be do sampling in all possible ways, when it is not enabled SI will not allow for sampling, it will display "Sampling Not Enabled" message. In this case, SI will show the quantity for the unit weight present in the PLU.

12. Accumulation

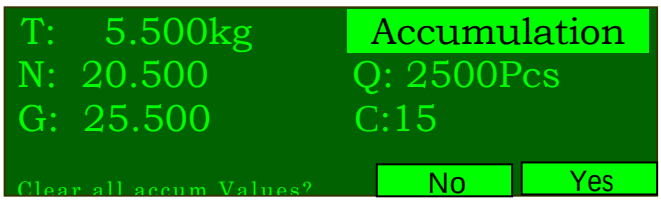
12.1 View Accumulation

Used to view or reset the accumulated values. When user selects this option, the display screen looks like as shown below.



All the values displayed here are total accumulated values, T→Tare weight, N → Net weight, G → Gross weight, Q→Quantity and C → Counter (This will indicate how many times accumulation has done).
If user presses Back soft key, it will go back without clearing values. If user wants to clear the accumulated values, press Reset soft key and display will looks like this.

SI will ask conformation whether to clear or not by displaying "Clear all accum Values" message, press Yes key to clear all accumulated values, if don't want to clear press No soft key.



12.2 Accumulation Mode (Manual/Auto)

Used for selecting accumulation type, whether to accumulate automatically (when weight on platter becomes stable) or after pressing the Acumulat soft key in Manual mode.

12.3 Acc Display Method (No/Back key/Time Exit)

Used to set, how the accumulation window should be displayed after accumulation.

- When it is set to *'No'*, accumulation will be done without displaying accumulation window.
- When it is set to *'Back key'*, after accumulating values accumulation window will be displayed with *'Back'* soft key.
- When it is set to *'Time Exit'*, after accumulating values accumulation window will be displayed for some time and auto exit from the accumulation window.

12.4 Accumulation Minimum Weight

Used to set the minimum weight required for accumulation and it should be less than the scale capacity.

Accumulation minimum weight cannot be set to zero.

12.5 Accumulate While Logging (Yes/No)

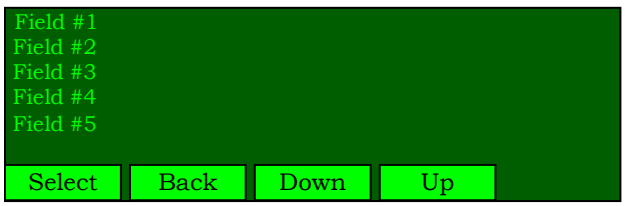
Used to control, whether to accumulate or not every time after logging the data.

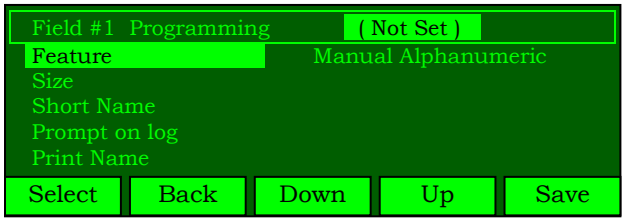
When it is set to 'Yes', SI will do accumulation every time after logging the data and it will display accumulation window depending on "Acc Display Method" and when it is set to 'No', SI will not do accumulation after logging the data.

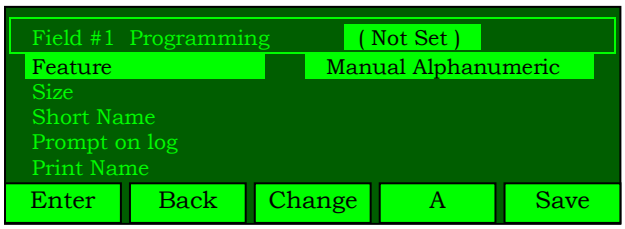
VIII. MENU COMMANDS

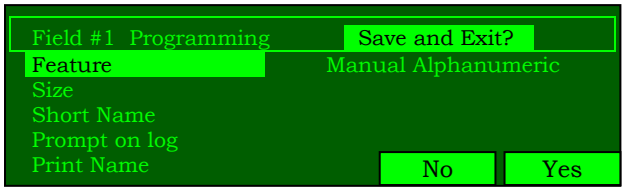
1. Field Programming

- This is used to program fields for a record. User can select different field feature (Refer Field setting for more details). User can program maximum 20 fields per record.

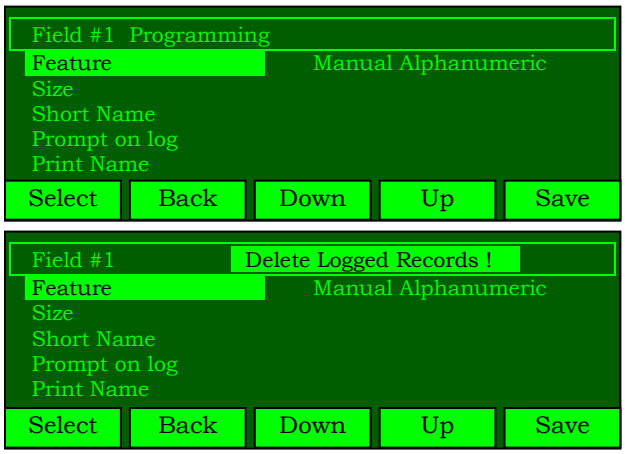








- Using Up and Down soft keys, select the field to be programmed.
- Suppose if Field 1 is selected, and if it is not programmed then SI will display "(Not Set)" as shown.
- Using Up and Down soft keys browse field programming menu.
- Select the option using Select Soft key.
- Enter new value using keyboard or change the value if it is selectable option using Change soft key. Press Enter soft key to store the values.
- Press Save soft key to update the changes.
- Back soft key can be pressed anytime to retain old values
- Suppose if some field value is changed and Back soft key is pressed then SI will display message **"Save and Exit?"**. Press Yes soft key if you want to save the changes or Press No soft key to retain old values.



- Suppose if fields are already programmed, then it can be edited only when there are no logged records.
- If some data is present in the log file, then fields cannot be programmed.
- If you try to enter any value then display will show message **"Delete logged records".**
- If you want to edit any fields or program new fields, then first delete logged records and then do changes in field programming.

- 25 Field features are available.
- PLU related fields should be programmed before programming the weight related (Tare or Net or Gross weight) fields, if prompt on log is enabled for any of weight fields or PLU fields.
- Following table shows the details of field setting:

SL No	Field Feature	Behavior	Data type, size (Max, default Size)	Prompt at log	Decimal Point (Max, default)	Unit (Used for reports)	Calculations
1	Manual Alphanumeric	Data for the field has to be entered manually while logging	String, 55, 20	Yes/No	0		None
2	Manual Numeric	Data for the field has to be entered manually while logging, Only Numeric is accepted.	Float, 12, 8	Yes/No	6, 1		Option
3	Manual Auto Increment	Data for the field has to be entered once while logging. It starts Storing Incremental Value for the next Logging.	Int, 8, 4	Yes/No	0		Option
4	Auto Increment	Data for the field gets stored automatically. It starts from 1 for first logging & increments by 1 for every logging.	Int, 8, 4	No	0		Option
5	Date	Takes SI Date as Field data	String, 10, 10	No	0		None
6	Time	Takes SI Time as Field data	String, 8, 8	No	0		None
7	Multiply Net wt	Takes result of (Multiplication Factor * Net weight) as Field data	Float, 12, 8	No	6, 3	Max 8 chars Programmable	Option
8	Tare Weight	Takes Tare Weight data from Weighing Scale as Field data	Float, 12, 8	Yes/No	0	Max 8 chars Programmable	Option
9	Net Weight	Takes Net weight data from Weighing Scale as Field data	Float, 12, 8	Yes/No	0	Max 8 chars Programmable	Option
10	Gross Weight	Takes Gross weight data from Weighing Scale as Field data	Float, 12, 8	Yes/No	0	Max 8 chars Programmable	Option
11	Shift	User can Link Programmed Shift Timings data with Logging Time of each Record & Store the Shift value in the Programmed field	String, 8, 5	No	0		None
12	Remark	High /Low /OK Remark will be Auto stored	String, 6, 6	No	0		None
13	Formula Result	Resultant Field For Formula	Float, 12, 8	No	6, 3	Max 8 chars Programmable	Option
14	PLU Number	Takes PLU number from the current PLU selected. Can be any number between 0001 and 9999.	Int 4, 4	Yes/No	0		None
15	PLU Code	Takes PLU code from the current PLU selected.	String, 13, 8	Yes/No	0		None
16	PLU Name	Takes PLU name from the current PLU selected.	String, 20, 12	Yes/No	0		None
17	Minimum Weight	Takes PLU Minimum weight from the current PLU selected.	Float, 12, 8	No	0	Max 8 chars Programmable	Option
18	PLU Target Weight	Takes PLU Target weight from the current PLU selected.	Float, 12, 8	No	0	Max 8 chars Programmable	Option
19	Maximum Weight	Takes PLU Maximum weight from the current PLU selected.	Float, 12, 8	No	0	Max 8 chars Programmable	Option
20	Record Number	Data for the field gets stored automatically. It starts from 1 for first logging & increments by 1 for every logging	Int, 8, 4	No	0		Option
21	Scale	S1 or S2 will be assigned depending on current active scale.	String, 2, 2	No	0		None

22	Manual Auto Decrement	Data for the field has to be entered once while logging. It starts Storing Decremented Value for the next Logging. It will prompt when it reaches 0	Int, 8, 4	Yes/No	0		Option
23	Unit Weight	Takes Unit weight of a sample after sampling	Float, 12, 8	No	Max 5	Max 8 chars Programmable	Option
24	Quantity	Takes quantity as data after sampling	Int, 6	Yes/No	0	Max 8 chars Programmable	Option
25	PLU Type	'W' is stored as field data for weighing item or 'P' for Non-weighing item.	String, 1	No	0		None
26	Option #1	Data for the field entered by selecting the available options(programmed in option list programming) or directly entering data	String, 20, 10	Yes/No	0	Max 8 chars Programmable	None
26	Option #2	Data for the field entered by selecting the available options(programmed in option list programming) or directly entering data	String, 20, 10	Yes/No	0	Max 8 chars Programmable	None
27	Unit of measure	Takes Current Weight Unit as Field data	String 2, 2	No	0		None
28	Date and Time	Takes SI Date and Time as Field data	String 19, 16	No	0		None
29	Info#1	Takes Info#1 from the current PLU selected.	String 55, 20	No	0		None
30	Info#2	Takes Info#2 from the current PLU selected.	String 55, 20	No	0		None
31	Info#3	Takes Info#3 from the current PLU selected.	String 55, 20	No	0		None
32	Machine Number	Takes Machine Number from Settings→Machine number	Int 8,3	No	0		None
33	Machine Name	Takes Machine Name from Settings→Machine Name	String 25,10	No	0		None

1. Option: One of the following can be selected: None, Count, Total, Average, Minimum Value, Maximum Value, Standard Deviation, and Variance.
2. Short name: String, Max 8 chars applicable to manual fields
3. Print name: String, Max 20 chars
4. Weight decimal point cannot be changed. It is always taken form basic capacity accuracy.
5. If any change in Basic capacity accuracy then, delete all the fields and program again.
6. Machine Number is restricted to 8 characters.

2. Load Default fields

This will program default fields and then generate standard format automatically.

Once Load Default Fields is selected in *'Menu> Log Settings>'* SI will display following screen.

When Yes soft key is pressed, SI will display massage **"Programming Default Fields..."** as shown.

Default Field Setting

Field #	Feature	Size	Short Name	Prompt at log	Print Name	Decimal Point	Unit	Calculation
1	Auto Increment	5		No	Sl.No	0		None
2	PLU Name	12		No	Product Name	0		None
3	Date	10		No	Date	0		None
4	Time	5		No	Time	0		None
5	Tare Weight	8		No	Tare Wt	*	Kg	Total
6	Net Weight	8		No	Net Wt	*	kg	Total
7	Gross Weight	8		No	Gross Wt	*	kg	Total
8	Quantity	8		No	Quantity	0	pcs	Total
9	Remark	6		No	Remark	0		None

* Decimal point is taken from basic scale settings at the time of loading defaults fields.

3. Shift Programming

This is used to program shift timings. Three shifts can be programmed.
For each shift start time, end time and name can be programmed.
Shift names can be blank or it can be programmed up to 8 characters.

First select the shift you want to program.

E.g.: Suppose if shift #1 is selected then the display will look as below:

Enter values for start time, end time and name of shift #1.
Values will be saved automatically.
Press Back to program different shift.

If current shift matches with more than one shift then, whichever shift matches first will be printed.

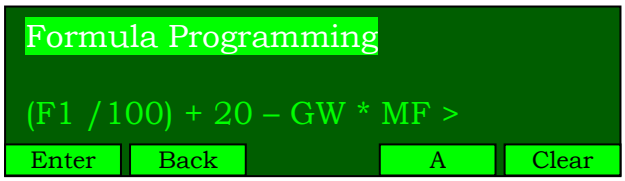
Default values of 3 shifts are:

Shift number	Start Time	End Time	Shift Name
Shift #1	0700	1500	I
Shift #2	1500	2300	II
Shift #3	2300	0700	III

4. Formula Programming

Formula Programming is used for setting Formula with desired arithmetic operations. The output will be stored in Formula Result field.

Keywords for formula (upper case or lower case)
F1 to F20: Field value reference
GW : Gross weight
NW : Net weight
TW : Tare weight
MF : Multiplication factor



Following operators are supported

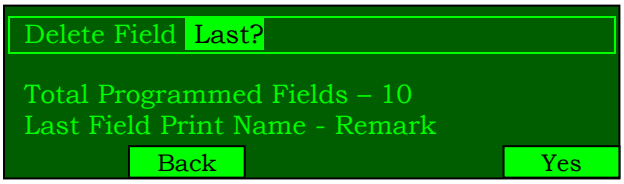
+ (Addition)
- (Subtraction)
* (Multiplication)
% (Modulus)
/ (Division)
Unary operator (Only - and +)

- If field value reference whose field value is of string data type is used then its value is considered as 0.
- If a field is not programmed and if it is used as Field value reference then its value is taken as 0.
- If formula result field is before field value reference then its value is taken as 0.

5. Delete Field

This option is used to delete fields which are programmed.

To delete only last programmed field, Press Del Last soft key.
To delete all programmed fields, Press Del All soft key.



If Del Last soft key is pressed then SI will display following screen.
Press Yes soft key to delete last field.
Press No soft key to cancel delete function.

If some records are logged then fields cannot be cleared.
Following message will be displayed as shown below

First delete logged records and then clear fields.

6. Delete Logged Records

This option is used to delete all logged record.

Once Delete Logged Records is selected in *'Menu> Log Settings>'* SI will display following screen.

When Yes soft key is pressed, SI will display massage "**Deleting Records…**" as below.

7. Header Programming

This is used to program header. This information is common for all the report formats.

1. If only last line is programmed then all the above lines will be printed as blank lines.
2. If we want a few empty lines at the end in the header then program those lines with one space.

E.g. If you want header in the following way i.e. after Bangalore there are two empty lines.

ESSAE-TERAOKA LTD
BANGALORE

Then program line #1 with "ESSAE-TERAOKA LTD", line #2 with "BANGALORE". Since two empty lines are required after "BANGALORE", program line #3 and #4 with space.

8. Footer Programming

This is used to program footer. This information is common for all the report formats.

1. If only last line is programmed then all the above lines will be printed as blank lines.
2. If we want a few empty lines at the end in the header then program those lines with one space.

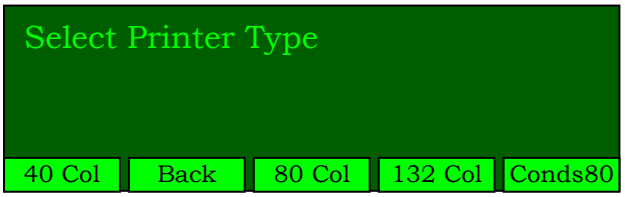
E.g. If you want to footer in the following way i.e. after "OPERATOR" there are two empty lines.

OPERATOR

Then program line #1 with "OPERATOR". Since two empty lines are required after "OPERATOR", program line #2 and #3 with a space.

9. Generate Standard Format

This is used to generate standard formats.
Report formats will be generated automatically based on the fields programmed and number of line feeds set in 'Menu> Log Settings> Line feeds for Printer'. Line feeds are applicable only at the end of standard Bill, List and Online Print.



Select the type of the printer. This size is used as page width while generating standard report formats.

In case of Conds80 maximum 175 characters will be printed in a single line.

10. Option List Programming

Menu>Option list Programming>Option #1 List or Option #2 List is used for programming this.

We can program maximum 10 items in each option list. If only five options are required, program the item #6 with no character. Item #7 to item #10 do not care. The maximum item text can be 20 characters.

This is used in the Option #1 and Option #2 field features while logging data.

While logging the display will be prompted with change soft key for selecting item data programmed choice.

11. Reports

Procedure for taking reports

1. Select the format either standard or custom. *'Menu > Reports> Select Format'*

   a. Standard:
      - Report will be printed according to field programming. No change in the order of data is possible.
      - In case of Bill print Header will be left justified. In case of List Print and Print Data Dump, header is center justified.
      - Footer will be always left justified.
      - For each field only one calculation is possible. The result of the calculation will be printed just below the field data only in the case of list print and print data dump.
      - Single Space character is printed as a delimiter for the field data in case of list print and PC data dump.
      - Summary of Auto, Manual Auto, PLU Number, Record Number, Manual Auto Decrement and Unit Weight field features data will not be printed in case of PLU Range Summary Report.

   b. Custom formats:
      - Placement of data can be anywhere.
      - Header and footer lines can be justified left, center and right.
      - For each field all calculations are possible:
        - If field type is numeric
          - Count of records.
          - Sum of field data.

- Average of field data.
- Min of field data.
- Max of field data.
- Standard deviation.
- Variance
- Max – Min
- Relative Deviation

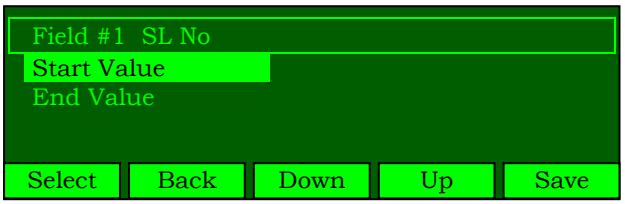
- If field type is string
  - Count of string: for the same field, count of 3 different strings can be obtained.
  - % of string: for the same field, percentage of 3 different strings can be obtained.
  - Count of records.

- Any static text can be added.
- Any printable or non-printable characters can be printed as a delimiter for the field data.
- Machine related data can be printed like: RTC Date and Time, SI machine number, SI machine name, Basic capacity/accuracy, formula string, and multiplication factor.
- Any number of blank lines can be printed.
- Printing leading zeros for field data and calculated values.
- Variable width field data printing.
- Required number of records can be printed in all the pages with header, field names and footer.

2. Selection criteria, *'Menu > Reports > Selection Criteria'*

a. If you want reports for all the records then select 'Clear Selection Criteria'.
b. If you want reports for only selected records then you can specify your selection in 'Set Selection Criteria'. Selection criteria can be set for all the fields.

First select the field number. E.g. Suppose field 1 is selected and it is programmed as SL NO with field feature as auto. Display will look like this



- If Start value is blank then this field will not be considered for selection criteria.

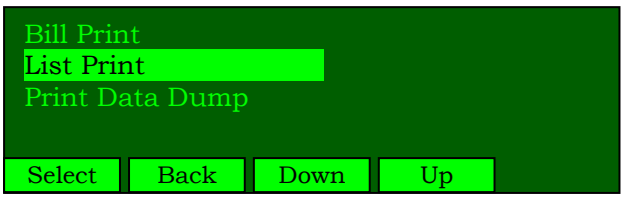
- If Start value is entered and End value is blank then all the records whose value is greater than or equal to start value will be selected.

  E.g. Suppose 100 records are logged.
  If Start value is 25 and end value is blank then all the records with Sl No equal to or above 25 will be selected.

- If both Start value and End value is entered then all the records whose value are greater than or equal to Start value and less than or equal to End value will be selected.
  E.g. Suppose 100 records are logged.
  If Start value is 25 and End value is 50 then all the records between 25 and 50 will be selected.

If the field data type is string (Date, time, manual alpha numeric, remark, shift, etc…) then, only start value of selection criteria should be matched exactly with the corresponding field data.

3. If you want to take reports OFFLINE, Select the type of the print whether Bill Print, List Print or Print Data Dump in *'Menu > Reports> Print'*. Here all the reports are printed using selection criteria.



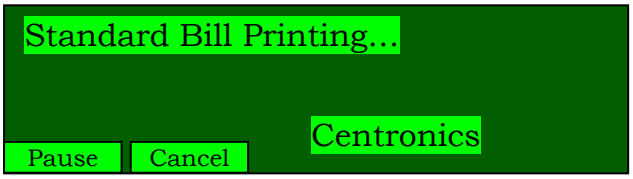
As soon as the type of print is selected, if selected format files are not present then SI will display "No Files".
At this condition if standard format is selected then go to *'Menu> Log Settings>'* and Generate Standard format.
If Custom format is selected then go to application mode and then upload custom formats from PC.

a. Bill print

This is used to print all the records in Bill format.
Printer should be connected to SI and to be kept ONLINE during Bill print operation. Check if centronics is present in Hardware configuration.

Suppose if standard format is selected then "**Standard Bill Printing…**" message will be displayed. If custom format is selected then "**Custom Bill Printing…**" will be displayed.

In bottom right side of display, physical port to which printer is mapped to will be displayed.



Bill print can be cancelled at any time. Press Cancel soft key to cancel Bill print. When printing is cancelled, following message will be displayed "**Printing Cancelled…**"

Bill Print can be paused at any time. Press Pause soft key to Pause Bill Print. When printing is paused, following message will be displayed "Paused". To start printing again press Pause.

Once the printing is completed, SI will display "Printed Successfully".

If there is some problem with the printer (like Printer not connected, Printer OFF, Centronics is not present in hardware configuration, No Response), SI will display "Print error". During printing if printer is switched off or if connection is removed then Printing will be cancelled. If there are no records in SI or if there are no records matching selection criteria then SI will display "No Records".

Sample Bill Print

```
SI-810 Counting
Essae Teraoka Ltd
Bangalore

Sl.No        : 6
Product Name : CountingPLU4
Date         : 19-09-2009
Time         : 13:46
Tare Wt      : 0.250   kg
Net Wt       : 1.234   kg
Gross Wt     : 1.484   kg
Quantity     : 4001    pcs
Remark       : HIGH

Thank you
```

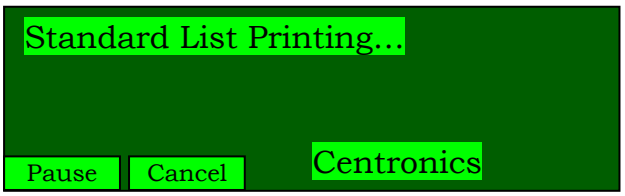
b. List print

This is used to print all the records in List format.
Printer should be connected to SI and to be kept ONLINE during List print operation. Check if centronics is present in Hardware configuration.

Suppose if standard format is selected then "**Standard List Printing…**" message will be displayed. If custom format is selected then "**Custom List Printing…**" will be displayed.

In bottom right side of display, physical port to which printer is mapped to will be displayed.

List print can be cancelled at any time. Press Cancel soft key to cancel List print. When printing is cancelled, following message will be displayed "Printing **Cancelled…**"



List Print can be paused at any time. Press Pause soft key to Pause List Print. When printing is paused, following message will be displayed "Paused". To start printing again press Pause.

Once the printing is completed, SI will display "Printed Successfully".

If there is some problem with the printer (like Printer not connected, Printer OFF, Centronics is not present in hardware configuration, No Response), SI will display "Print error".
During printing if printer is switched off or if connection is removed then Printing will be cancelled.
If there are no records in SI or if there are no records matching selection criteria then SI will display "No Records".

Sample List Print

SI-810 Counting
Essae-Teraoka Ltd
Bangalore

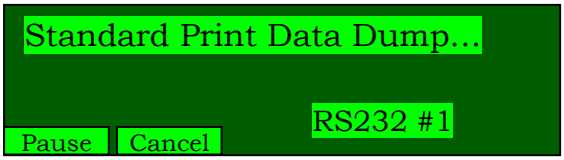
Sl.No	Product Name	Date	Time	Tare Wt	Net Wt	Gross Wt	Quantity	Remark
1	CountingPLU1	19-09-2009	13:43	0.250	0.241	0.491	10	LOW
2	CountingPLU2	19-09-2009	13:44	0.000	1.476	1.476	6033	HIGH
3	CountingPLU2	19-09-2009	13:44	0.100	1.380	1.480	3115	HIGH
4	CountingPLU3	19-09-2009	13:45	0.500	0.483	0.983	9662	HIGH
5	CountingPLU4	19-09-2009	13:46	0.987	0.494	1.481	1501	HIGH
6	CountingPLU4	19-09-2009	13:46	0.250	1.234	1.484	4001	HIGH
				2.087	5.308	7.395	24322	

Thank you

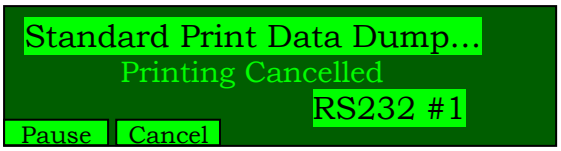
c. Print Data Dump

This is used to send records from SI to PC.
Suppose if standard format is selected then "**Standard Print Data Dump…**" message will be displayed. If custom format is selected then "**Custom Print Data Dump…**" will be displayed.

In bottom right side of display, physical port to which Print Data is mapped to will be displayed.



Print Data can be cancelled at any time. Press Cancel soft key to cancel Print Data. When print data is cancelled, following message will be displayed "**Printing Cancelled…**"



Print Data can be paused at any time. Press Pause soft key to Pause Print Data. When printing is paused, following message will be displayed "Paused". To start printing again press Pause.

Once the printing is completed, SI will display "Printed Successfully". If the physical device to which Print Data is mapped to is not configured then SI will display "Print error".

If there are no records in SI or if there are no records matching selection criteria then SI will display "No Records".

Sample PC Data Dump

SI-810 Counting
Essae-Teraoka Ltd
Bangalore

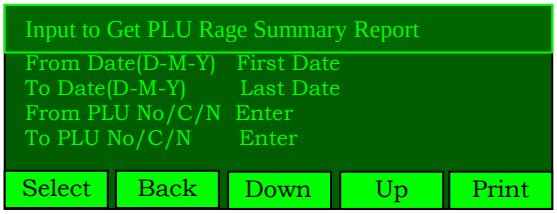
Sl.No	Product Name	Date	Time	Tare Wt	Net Wt	Gross Wt	Quantity	Remark
1	CountingPLU1	19-09-2009	13:43	0.250	0.241	0.491	10	LOW
2	CountingPLU2	19-09-2009	13:44	0.000	1.476	1.476	6033	HIGH
3	CountingPLU2	19-09-2009	13:44	0.100	1.380	1.480	3115	HIGH
4	CountingPLU3	19-09-2009	13:45	0.500	0.483	0.983	9662	HIGH
5	CountingPLU4	19-09-2009	13:46	0.987	0.494	1.481	1501	HIGH
6	CountingPLU4	19-09-2009	13:46	0.250	1.234	1.484	4001	HIGH
				2.087	5.308	7.395	24322	

Thank you.

d. Print PLU Range Summary

This is used for print the summary of selected PLU and Date Report.

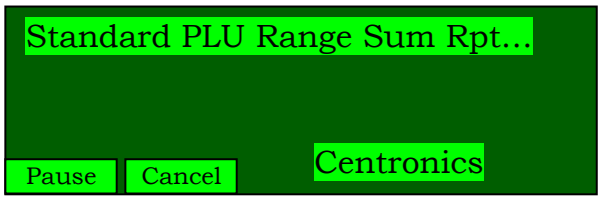
Below display is using for selecting PLU and Date for printing the summary data.



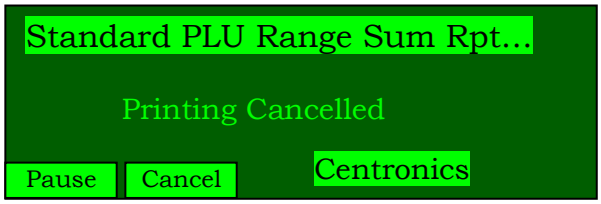
- If selected From Date is greater than last logged record date then **"From Date > Last Logged Date"** message will be displayed.
- If selected From Date is greater than To Date then **"From Date > To Date"** message will be displayed.
- If Selected To Date is greater than last logged record date then **"To Date > Last** Logged Date" message will be displayed.
- If selected ToDate is less than first logged record date then"To Date < First Logged **Date"**
  message will be displayed
- If selected To Date is less than From Date then **"To Date < From Date"** message will be displayed.
- If Selected PLU is not in PLU Database then **"No Data in PLU"** message will be displayed.
- If Selected PLU is not in reports then **"No Record"** message will be displayed.
- Selected PLU Number should be in ascending order.
- If selected To PLU is less than From PLU then **"From PLU > To PLU"** message will be displayed.

Suppose if standard format is selected then "**Standard PLU Range Sum Rpt...**" message will be displayed. If custom format is selected then "**Custom PLU Range Sum Rpt...**" will be displayed.

In bottom right side of display, physical port to which printer is mapped to will be displayed.



PLU Range print can be cancelled at any time. Press Cancel soft key to cancel PLU Range print. When printing is cancelled, following message will be displayed "**Printing Cancelled...**"



PLU Range Print can be paused at any time. Press Pause soft key to Pause PLU Range Print. When printing is paused, following message will be displayed "Paused". To start printing again press Pause.

Once the printing is completed, SI will display "Printed Successfully".

If there is some problem with the printer (like Printer not connected, Printer OFF, Centronics is not present in hardware configuration, No Response), SI will display "Print error".
During printing if printer is switched off or if connection is removed then Printing will be cancelled.
If there are no records in SI then SI will display "No Records".

Sample PLU Range Summary Report

SI-810 Counting
Essae-Teraoka Ltd
Bangalore

Sl.No	Product Name	Date	Time	Tare Wt	Net Wt	Gross Wt	Quantity	Remark
	Name1	01-04-2014	00:01	0.015	0.385	0.400	380	OK
	Name2	01-04-2014	00:01	0.035	0.365	0.400	310	LOW
	Name3	01-04-2014	00:01	0.095	0.305	0.400	380	LOW
	Name1	02-04-2014	00:01	0.046	0.354	0.400	354	OK
	Name2	02-04-2014	00:01	0.027	0.373	0.400	373	OK
	Name3	02-04-2014	00:01	0.033	0.367	0.400	367	LOW
	Name1	03-04-2014	00:49	0.150	0.844	0.994	887	OK
	Name2	03-04-2014	00:05	0.070	0.330	0.400	575	OK
	Name3	03-04-2014	00:05	0.036	0.364	0.400	364	LOW
				0.507	3.687	4.194	3990	

Thank you

4. If user wants ONLINE reports then you can select Online Print Type or Enable Online Print Data.

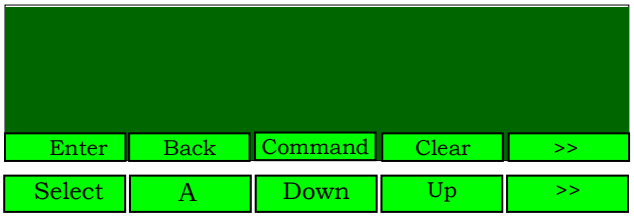
   Online Print is used for printing details of each Transaction
   User can program whether he would like to have Online Print in List print format or in Bill print format or None (Not Required)
   User can end Online Print by pressing BatchOvr key in application mode.

   Online Print Data is used for sending the recorded data to PC through communication Software like ProComm or HyperTerminal. If you want to send each transaction details to the PC then select 'Yes' in *'Menu> Reports> Enable Online Print Data'*. User can end Online Print Data by pressing BatchOvr key in application mode.

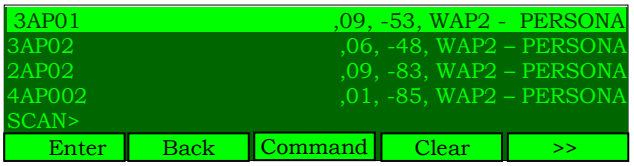
12.WiFi Terminal

Select in 'Menu> Communication>WiFi>Terminal to execute this command. When Menu>Communication>WiFi>WiFi On RS232 #4 is yes, WiFi options is enabled. The RS232 #4 should be mapped to one of the Logical devices; otherwise power on testing will always fail. Scan AP (Access Points), select AP, Status, Settings, test and Init of WiFi interface can be done.

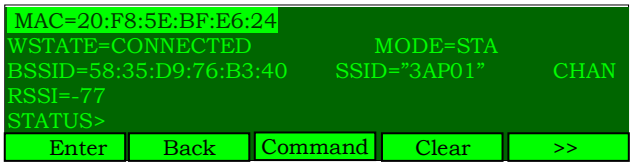
Press Command soft key repeatedly, the SCAN, STATUS, SETTINGS, INIT predefined commands will scroll. Press Enter soft key to execute predefine command.



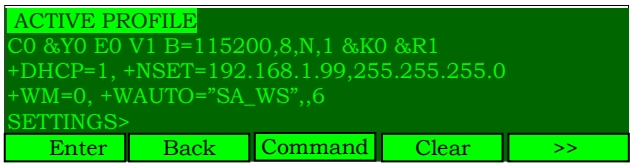
SCAN: After scan command is given, display will list the available APs present in its range. Now we can select required AP using Down and Up soft key. After highlighting the required AP, press Select soft key. Make sure that "SCAN" is shown in the screen. Please note password to be set inside menu.



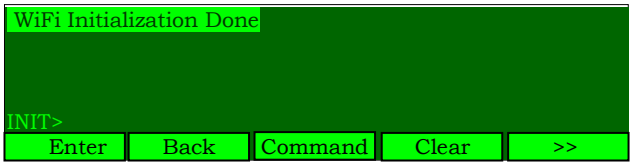
STATUS: After status command is given, the following screen will be shown.



SETTINGS: After settings command is given, the following screen will be shown.



INIT: After init command is given, the following screen will be shown.



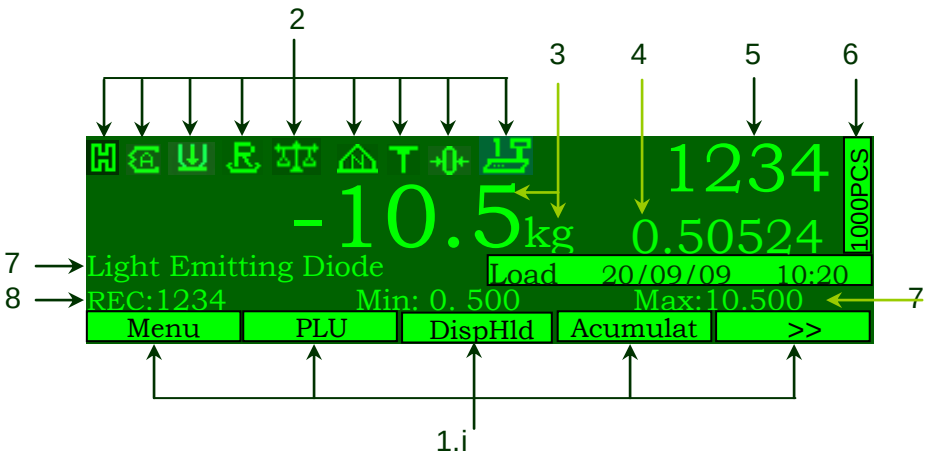
X. APPLICATION

1. Check Counting / weighing

The check counting/weighing application simplifies verification of sample weights. It provides the user with visual indicators to show whether or not weight of the sample is within the range of the specified target weight.

1.1. Screen

Soft keys page 1



In Soft key page 2, 3 & 4 only 1.i will change.

Soft key page 2:	Scale	Min	Max	Info	>>
Soft key page 3:	Log	BatchOvr	Manual /PrLstBat	Bill	>>
Soft key page 4:	Pieces	U Weight	DispHld	Acumulat	>>

1. Soft keys:
   i. Menu, PLU, Unit, NetGross, >>.
   ii. Scale, Min, Max, Info, >>.
   iii. Log, BatchOvr, Manual or PrLstBat(Menu>Log Settings > Enable Auto/Manual Key), Bill, >>.
   iv. Pieces, U Weight, DispHld, Accumulat, >>.

2. Counting/Weight Status Indicators:
   Display hold, accumulation, insufficient, recomputing, stability, net weight/ gross weight, tare weight, zero weight indicator and current active scale indicators respectively.
3. Weight data
   Weight on platter along with unit of weight.

2. Unit Weight
   Unit weight in kg per 1000 pieces.
3. Quantity
   Quantity in Pieces(PCS), after sampling.

4. 1000PCS (symbol)

Symbol 1000PCS indicated values displayed for Quantity and Unit weight in kg, is for 1000 Pieces.

5. PLU details
   PLU Name, minimum weight and maximum weight.

6. Records
   Number of records logged.

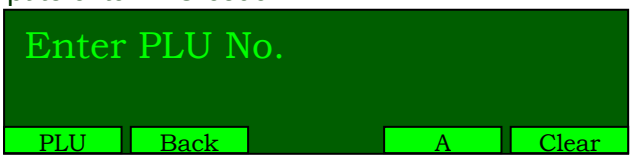
1.2. Key operation

1.2.1. Menu:

Menu soft key is used to enter into menu. Refer Topic VII (Menu overview) for more details.

1.2.2. PLU:

- PLU soft key is used to search for a PLU.
- PLUs can be recalled by number or code.
- If PLUs is recalled by number then SI will prompt to enter PLU number. If PLUs is recalled by code then SI will prompt to enter PLU code.
- When PLU soft key is pressed display will look like this.



- When alphanumerical keys are pressed.

E.g. Consider PLU is recalled by number.
If entered PLU no is present in the database then corresponding name will be displayed.

- To select entered PLU number press PLU soft key.
- Press A soft key to change the case of the alphabets from lower case to upper case or vice versa when typing characters from SI keyboard.
- Press clear soft key to clear the characters entered
- Press Back soft key to go to application screen.

To clear the current PLU, press PLU soft key in the application mode, press 0 key and then PLU soft key. It clears Min, Max and PLU name from the application screen.

1.2.3. Unit:

Unit soft key is used to change the unit of the weight.

This key is displayed only if it is enabled. This can be enabled in *'Menu> Scale> Scale #1> Display> Unit conversion'.*

By default this option is not enabled.

1.2.4. NetGross:

NetGross soft key is used to switch between net and gross weight.
If Net weight is displayed then when NetGross soft key is pressed, Gross weight will be displayed.

This key is displayed only if it is enabled. This can be enabled in 'Menu> Scale> *Scale #1> Display> Gross weight'*.

1.2.5. Scale:

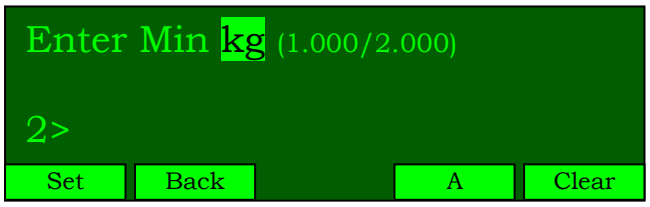
Scale soft key is used to select active scale.

This key is displayed only if it both scale #1 and scale #2 is assigned with physical devices.

On Scale change its recalls last selected PLU for this scale along with tare. It retains last selected unit.

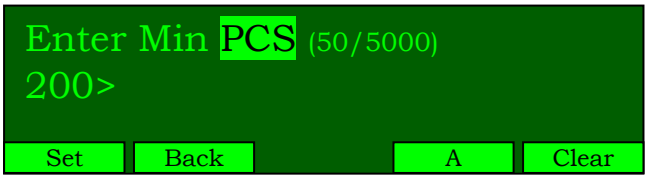
1.2.6. Min:

Minimum quantity/weight of the selected PLU can be changed using this key. But these changes are temporary.



If current PLU Type is of WEIGHT type, the display will look like as shown in above figure.

If current PLU Type is of PCS type, the display will look like as shown in the figure.



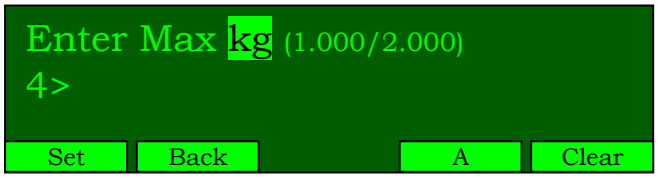
SI display will show current unit (for WEIGHT type PLU) selected along with Minimum and Maximum values.

To set minimum quantity/weight, press Min soft key, then enter Minimum quantity/weight. To confirm this weight press Set soft key.

- Value for Minimum Quantity should be always less than or equal to 999999. Minimum Quantity can be set to zero or less than or equal to Maximum Quantity.
- Value for Minimum Weight should be always less than or equal to Maximum Weight. Minimum Weight can be set even when Maximum Weight is 0.0.

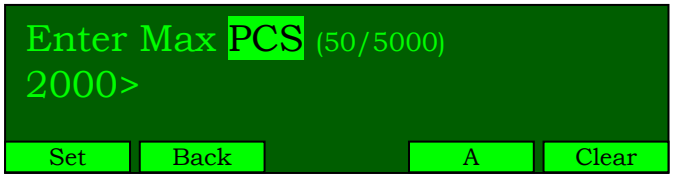
1.2.7. Max:

Maximum quantity/weight of the selected PLU can be changed using this key. But these changes are temporary.



If current PLU Type is of WEIGHT type, the display will look like as shown in above figure.

If current PLU Type is of PCS type, the display will look like as shown in the figure.



SI display will show current unit (for WEIGHT type PLU) selected along with Minimum and Maximum values.

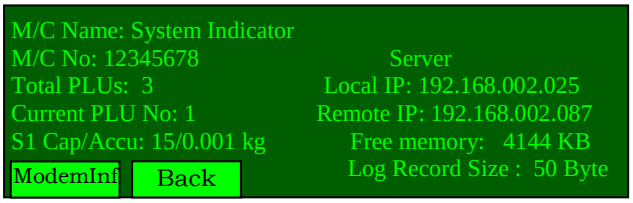
To set maximum quantity/weight, press Max soft key, then enter maximum quantity/weight. To confirm this weight press Set soft key

Maximum quantity/weight should be always greater than minimum weight.

1.2.8. Info:

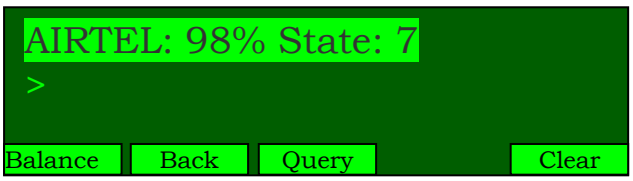
Press this key to get the basic information of the SI such as free memory, total PLUs, Active scale Cap/Accu, Ethernet addresses if enabled.

When Info soft key is pressed, SI will display following screen. Here we can access Modem Info Screen which is explained below:



1.2.9. Modeminf:

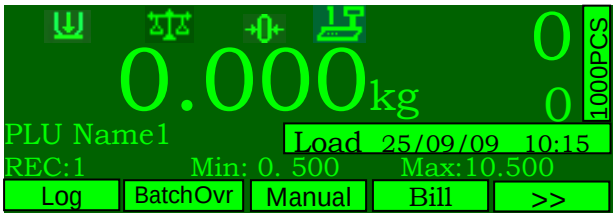
Press ModemInf soft key in info screen. We can check balance and query the GPRS Data available.



1.2.10. Log:

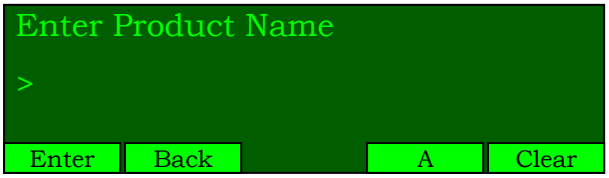
This soft key is used to log records manually. This soft key will work only if Manual logging is enabled. Make sure that required fields are programmed for the current logging.
When prompt on log not enabled for any of the weight fields (Tare, Net and Gross weight), PLU fields (Name, Code and Number) and Quantity field then, the logging sequence as follows.

Before logging, SI should display "Load" message.



Keep the product on the platter for weighment and then press Log soft key.

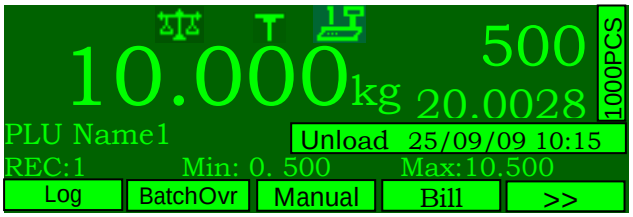
If any fields are programmed as manual entries then first time SI will prompt all those fields for entering values as shown.
If prompt at log is enabled then those fields will be prompted every time Log soft key is pressed.



Enter corresponding field values and then press Enter soft key.

Suppose while entering field values before pressing Enter soft key, if Back soft key is pressed then logging will be cancelled and **"Data not entered"** message will be displayed.

Once the data is logged, "Data Logged" message will be displayed momentarily and then "Unload" message will be displayed.

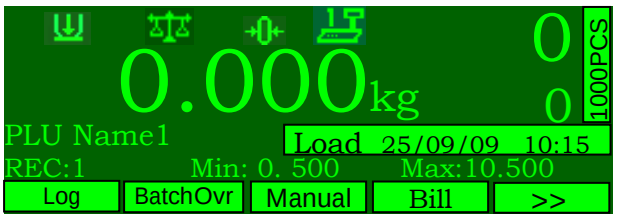


- Zero and negative weights cannot be logged.
- If fields are not programmed then during logging **"Field(s) not set"** message will be displayed.
- Only stable weights can be logged during Auto logging.
- During Manual logging, only stable or unstable weights can be logged. This option can be set in 'Menu> Log Settings> Manual Unstable Wt Log'.
- **"Weight not ready"** message will be displayed for the following conditions:
  - If weight on the platter is not stable.
  - If current net weight is less than PLU Min Limit Weight.
  - During weight error like weight display resolution error, power on error, weight underflow, weight overflow.

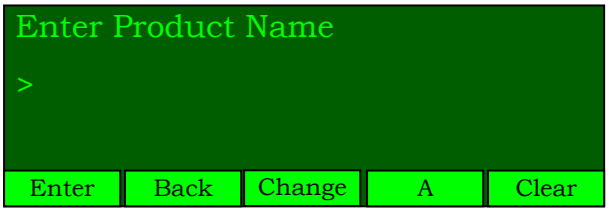
When prompt on log is enabled only for any one of weight fields (Tare or Net or Gross weight) or Quantity field then, the logging sequence as follows.

In this case SI will allow entering logging even weight on platform is Zero or Negative.

Before logging, SI should display message, Press Log soft key.



If any fields are programmed as manual entries before the weight fields (Tare or Net or Gross) and quantity field, then first time SI will prompt all those fields for entering values as shown. Enter corresponding field values and then press Enter soft key. If option #1 or Option #2 it will show change soft key.



After entering values for manual fields, SI will display weight window (all weights and quantity) like as shown in figure.
Here all the conditions will be checked for weight and quantity and appropriate error message will be displayed and user can do digital tare or one touch tare.

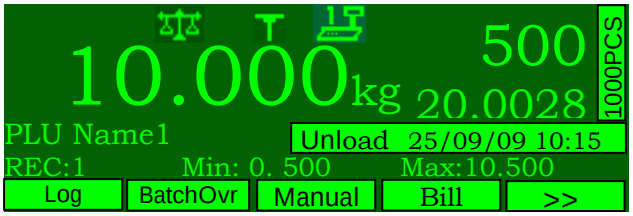
When weight is Zero or negative, if user presses OK soft key, SI will display "Wt Not Ready" message. Similarly all other weight status/error messages will be displayed in this screen.

Keep the weight on platform and press OK soft key, then data will be logged.
If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'No' then manual fields will be prompted every time while logging with old data.

If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'Yes' then manual fields will be prompted every time while logging without old data.

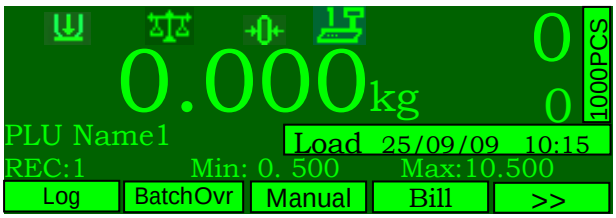
- Suppose while entering field values before pressing Enter soft key, if Back soft key is pressed then logging will be cancelled and **"Data not entered"** message will be displayed.
- If prompt on log is enabled for all the weight fields (Tare, Net and Gross) and quantity field then, SI will display same weight window 4 times, so it is better to enable prompt on log for any one of the required weight or quantity field.

Once the data is logged, "Data Logged" message will be displayed momentarily and then "Unload" message will be displayed.

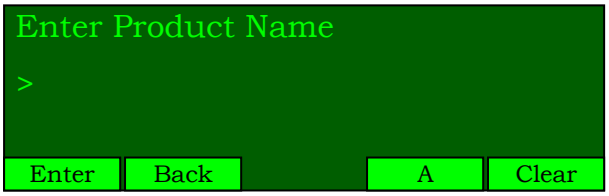


When prompt on log enabled only for any one of PLU fields (Name, Code or Number) fields then, the logging sequence as follows.

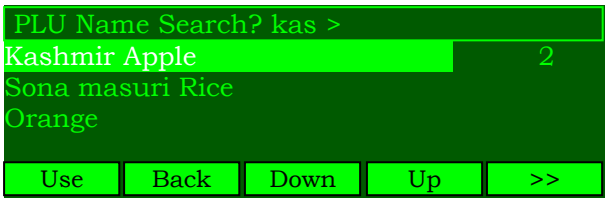
Before logging, SI should display "Load" message. Keep the product on the platter for weighment and then press Log soft key.



If any fields are programmed as manual entries SI will prompt all those fields for entering values as shown. Enter corresponding field values and then press Enter soft key

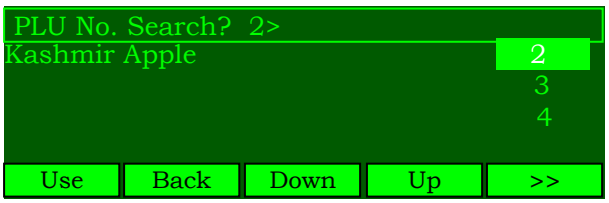


If prompt at log is enabled for PLU Name field then, SI will display PLU Name Search window like as shown, here user can edit, delete, add new, search for particular PLU Name. Press Use soft key to select the PLU.



If prompt at log is enabled for PLU Code field then, SI will display PLU Code Search window like as shown, here user can edit, delete, add new, search for particular PLU Code. Press Use soft key to select the PLU.

If prompt at log is enabled for PLU Number field then, SI will display PLU No. Search window like as shown, here user can edit, delete, add new, search for particular PLU Number. Press Use soft key to select the PLU.

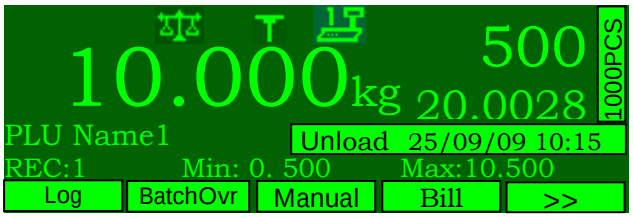


If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'No' then manual fields will be prompted every time while logging with old data.

If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'Yes' then manual fields will be prompted every time while logging without old data.

- Suppose while entering field values before pressing Enter soft key, if Back soft key is pressed then logging will be cancelled and **"Data not entered"** message will be displayed.
- If prompt on log is enables for any one of PLU Name or PLU Code or PLU Number only the corresponding PLU search window will be displayed.
- If prompt on log is enabled for PLU Name, PLU Code and PLU Number, then SI will display all the 3 corresponding PLU search windows as shown above one after the other, but whatever the last chosen PLU will be selected.

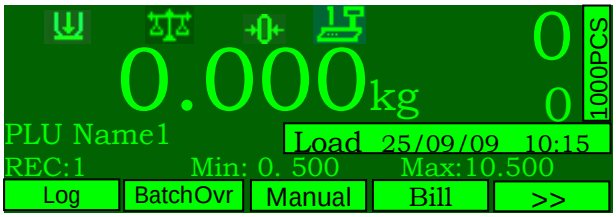
Once the data is logged, "Data Logged" message will be displayed momentarily and then "Unload" message will be displayed.



When prompt on log enabled for any one of PLU fields (Name, Code or Number) and any one of weight fields (Tare, Net and Gross) or Quantity field then, the logging sequence as follows.

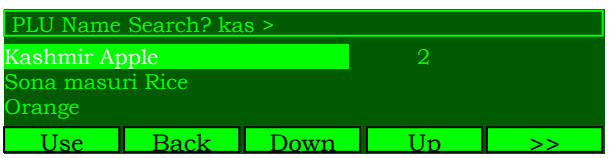
In this case SI will allow entering logging even weight on platform is Zero or Negative.

Before logging, SI should display "Load" message, Press Log soft key.



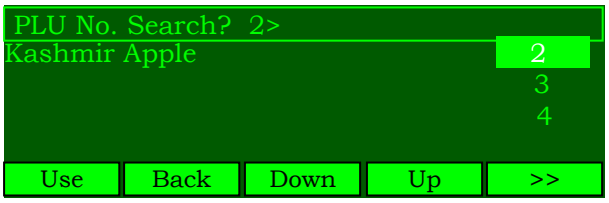
If any manual entry fields are programmed before the weight fields (Tare or Net or Gross) and quantity field then, first time SI will prompt all those fields for entering values as shown. Enter corresponding field values and then press Enter soft key.

If prompt at log is enabled for PLU Name field then, SI will display PLU Name Search window like as shown, here user can edit, delete, add new, search for particular PLU Name. Press Use soft key to select the PLU.



If prompt at log is enabled for PLU Code field then, SI will display PLU Code Search window like as shown, here user can edit, delete, add new, search for particular PLU Code. Press Use soft key to select the PLU.

If prompt at log is enabled for PLU Number field then, SI will display PLU No. Search window like as shown, here user can edit, delete, add new, search for particular PLU Number. Press Use soft key to select the PLU.



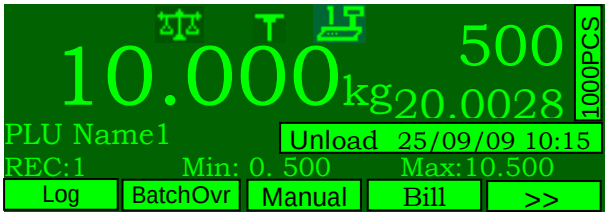
After selecting PLU, SI will display weight window like as shown in figure.

Here all the conditions will be checked for weight and appropriate error message will be displayed and user can do digital tare or one touch tare.

When weight is Zero or negative, if user presses OK soft key, SI will display "Wt Not Ready" message. Similarly all other weight status/error messages will be displayed in this screen.

Keep the weight on platform and press OK soft key, then data will be logged.

Once the data is logged, "Data Logged" message will be displayed momentarily and then "Unload" message will be displayed.



- Suppose while entering field values before pressing Enter soft key, if Back soft key is pressed then logging will be cancelled and **"Data not entered"** message will be displayed.
- If prompt on log is enabled for any one of PLU Name or PLU Code or PLU Number only the corresponding PLU search window will be displayed.

- If prompt on log is enabled for PLU Name, PLU Code and PLU Number, then SI will display all the 3 corresponding PLU search windows as shown above one after the other, but whatever the last chosen PLU will be selected.
- If prompt at log is enabled for all the weight fields (Tare, Net and Gross) and quantity field, SI will display weight window 4 times, so it is better to enable prompt at log for any one of the required weight or quantity field.

Important Information

- All the PLU related fields should be programmed before programming the quantity and weight related fields.
- In Manual log mode, if prompt on log is enabled for quantity or all/any one of weight related fields (Tare or Net or Gross weight), SI will allow proceeding for logging up to the weight window, even weight on platform is zero or negative but, it is not applicable for Auto logging.
- If user going to enable prompt on log for any one of weight or quantity field, then it's better to enable prompt on log whichever is programmed first.
- If tare weight is present or not before logging, during logging if user selects a PLU which is having PLU tare weight, then that corresponding PLU tare weight will be taken as tare weight and it will be displayed in weight window. After logging, the corresponding PLU Name, Min, Max weight/quantity will be displayed.
- When any one of PLU (Name or Code or Number) Search window is displaying during logging sequence, ESC key will act as a ENTER key and it is applicable only here.
- If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'No' then manual fields will be prompted every time while logging with old data.
- If prompt on log is enabled for manual fields and if Clear Manual Field Data is set to 'Yes' then manual fields will be prompted every time while logging without old data.
- "Clear Manual Field Data" have no effect on Manual Auto Decrement field.

1.2.11. BatchOvr

Press this key to end the batch. This is useful in case of application which requires batch wise operation.

Batch starts as soon as first record is logged.
Press BatchOvr soft key again to end the batch.
Suppose if online print or data is enabled, when this key is pressed all the calculations and footer will

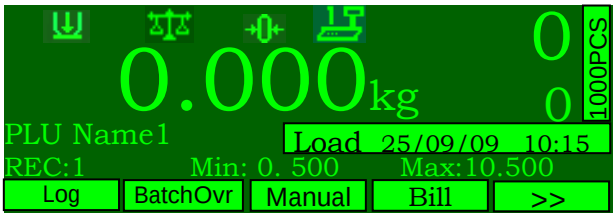
be printed. All manual entries are prompted once again.
For Manual Auto Decrement field, once the value becomes zero SI will do batch over operation automatically.

1.2.12. Manual/Auto

This function is available only if Menu>Log Settings > Enable Auto/Manual Key is Yes. This is used to set type of Weighment Recording. This soft key toggles between Auto and Manual logging if Menu>Log Settings > Enable Auto/Manual Key is Yes. The current mode selected is indicated on the soft key label. This overrides the option set in the *'Menu> Log Settings> Logging Type'*.

User would like to have either *Manual Log* where he keeps the weight on the Weighing Scale and confirms Weighment Recording by pressing LOG soft key or *Auto Log* - Where Weighment Recording is done without pressing a key as soon as weight kept on the Weighing Scale gets stable, Weighment is Recorded.

Auto Logging



As soon as Auto Log mode is selected, "**Load"** message will be displayed. Place the Product on the platter, on reaching stable and min max conditions logging process starts. If any manual entry fields with prompt on log or manual entry field for the first record, SI will prompt for entering corresponding field value. After entering all manual field values data will be logged.

"Data Logged" message will be displayed momentarily and then "Unload" message will be displayed.

Now, remove the product from the platter **"Load"** message will be displayed. Continue same operation for next product.

1.2.13. PrLstBat

This function is available only if Menu>Log Settings > Enable Auto/Manual Key is No. This is used for printing last completed batch of list print out.

1.2.14. Bill

This soft key is used to print only last transaction details.

Its function is similar to MSW #2.

Last Bill print is available even after power OFF.

1.2.15. Pieces

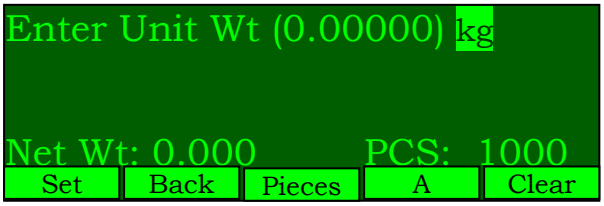
This soft key is used to sample the weight kept on platter, when Menu>Counting Settings>Enable Sampling is set to 'Yes', if it is set to 'No', SI will display "Sampling Not Enabled" message. By default it will sample for 10 Pieces.

- For any invalid pieces it will display "Pieces Error" message.
- If user tries to sample for the same last sampled quantity (PCS), it will display "Already Sampled" message.
- Once sampling is done, then again sampling is possible for the incremented quantity (PCS) value but sampling is not possible for the quantity which is less than the last sampled quantity. While sampling pieces count will be shown.

1.2.16. U Weight (Unit weight)

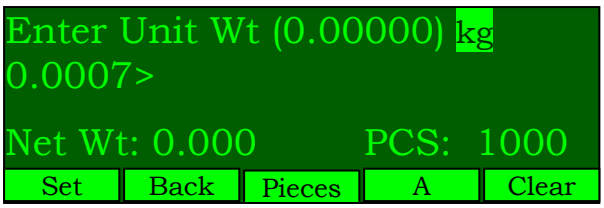
Sampling through this soft key is possible only when Menu>Counting Settings>Enable Sampling is set to 'Yes', SI will display "Sampling Not Enabled" message when is set to 'No'. Here user can enter the known unit weight or can get unit weight through sampling for the required number of pieces.

When this soft key is pressed, the display will look like this and it contains,

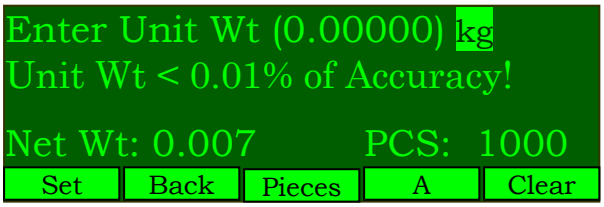


- Last unit weight and current scale unit will be displayed along with "Enter Unit Wt".
- Default number of pieces for PCS.
- Current weight on platter for Net Wt.

If you know the unit weight, enter it and press Set soft key. SI will accept valid unit weight, for any invalid unit weight it will display "UNIT WT ERR" message.



If entered unit weight is less than the 0.01% of accuracy of the scale, SI will display "Unit Wt < 0.01% of Accuracy!" message.



Once valid unit weight is entered, SI will accept it and it will display unit weight and its corresponding quantity in the main window.

To get the unit weight for the required samples through sampling.

- Keep the samples on platter, accordingly net weight will be updated in the display.

- Enter the number of samples and press Pieces soft key, if entered valued is valid, this value will be updated for PCS field in the display, for invalid number of pieces SI will display "PCS ERR" message.
- Once entered value is updated for PCS field, then press Set soft key, SI will do sampling to find the unit weight for the entered quantity.

1. To clear the existing unit weight enter zero and press Set soft key.
2. Number of pieces can vary from 1 to 999999.

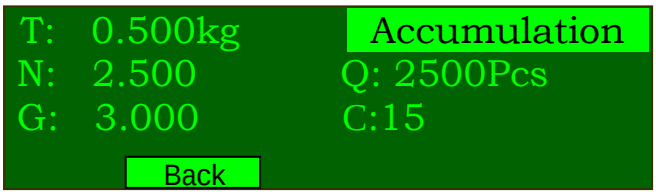
1.2.17. DispHld (Display Hold)

DispHld soft key is used to freeze the display. Once display is freezed only the following keys will work ON/OFF key, ESC key and DispHld soft key. Press ESC key or DispHld soft key to release from freezed condition.

1.2.18. Acumulat (Accumulate)

Acumulat soft key is used to accumulate the weights and quantity in Manual accumulation mode.
When this soft key is pressed, depending on accumulation display method the following screens will be displayed.

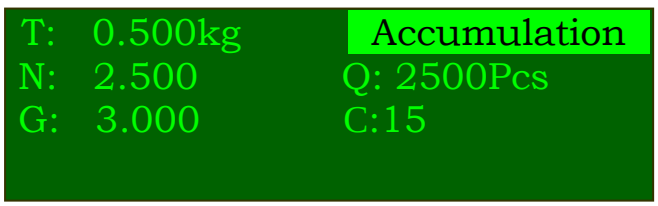
When accumulation display method in Menu> Accumulation> Acc Display Method is set to 'No', accumulation will be done but accumulation window will not be shown.



When accumulation display method in Menu> Accumulation> Acc Display Method is set to '**Back key**', accumulation window will be displayed after accumulation like as shown in above figure.

Once this screen is displayed user has to press Back soft key to come back from accumulation screen to application screen.

When accumulation display method in Menu> Accumulation> Acc Display Method is set to '**Time Exit**', accumulation window will be displayed after accumulation like as shown below.



This screen will be displayed around 3 seconds, after that SI will go to application screen automatically.

- Once accumulation is done, if user presses Acumulat soft key again, SI will display "Accumulated" message.

- If user tries to accumulate when weight on the platter is not stable, SI will display "Weight not stable" message.
- If any error in weight, "Wight Error" message will be displayed.
- If any error in quantity, "Quantity Error" message will be displayed.

Once any one of the accumulation counters is reached maximum value, SI will not do accumulation and it will display "Clear Accumulation Counters" message.

XIII. TECHNICAL SPECIFICATIONS

Model	SI-810
Description	Digital System scale
Module size	175(W) x 262(L) x 180(H) mm.
Capacity, accuracy & Platform size	Refer Annexure – I & II
Maximum Display Resolution	1/30,000
Internal resolution	1/6,00,000
Processor	32 Bit ARM Processor
Calibration method	Software calibration
Power supply	230V AC, 50 Hz
Power consumption	15W (Max)
Operating temperature	0°C to 45°C
Operating humidity	Max. 85 % Rh (non - condensing)
Model approval no.	
Platform Machine - Class II	IND/09/08/259
Platform Machine - Class III	IND/09/08/260
Bench/TT - Class II	IND/09/08/262
Bench/TT - Class III	IND/09/08/261

Standard Feature:

Interfaces	2 X RS232 Port
	1 X RS485 Port (Modbus ASCII Protocol)
	1 X Centronics Port
	6 X Digital I/O
	1 X USB Host
	1 X PS2 Port (for keyboard and or for scanner)
Memory	4 MB Flash (Expandable up to 8 MB)
Set point	2 X Potential free relay contact
Bar graph LED	Red, Green and Orange (for Low, OK and High weight indication)
Rugged key	2 X Industrial type
Console	Compact and fully SS#304 construction

Display	
Type	Graphical Dot Matrix LCD
Back Light	Green Colour
Pixel	256 X 64
Display active area	102.37 X 25.57 mm

Key Board	
Type	Tactile
No. of Key	21 keys
Operation	Mobile phone style key operation
MOC	Polyester

Factory option:

Interfaces	2 X RS232 Port	
	1 X Ethernet 10/100 mbps auto negotiation	
Lamp	1 X Tower Lamp (Red and green colour)	
Current or Voltage O/P (for process automation)	Current	Voltage
	4 – 20 mA or 0 – 20 mA or 0 – 24 mA ‘	0 – 10 VDC or 0 – 5 VDC ‘
Additional Platform connectivity	1 X Platform	

Accessories:

Printer (Dot matrix)	Samsung SRP280, 40 column
	Wipro LX540, 80 column
Roller	MS Roller, 450 X 550 mm
	MS Roller, 550 X 650 mm
	MS Roller, 700 X 800 mm
Jumbo display	25 mm RED LED or 50 mm RED LED ‘ (works through RS232 interface)
Others	SS#304 Table mount bracket for console
	SS Semi Cylindrical Lap pan
	RS485 Converter
	Back rail (for 300 kg and 600 kg, 700 X 800 mm Machine)

Key software features:

Weighing part:

Units	*Kg, ct, lt, g and cu*
Display Indicator	➢ Display Hold ➢ Accumulation ➢ Insufficient ➢ Recomputing ➢ Stable ➢ Gross/Net ➢ Tare and ➢ Zero ➢ Active Scale
Tare features	➢ One Touch Tare ➢ Digital Tare ➢ Auto Tare and Tare Clear ➢ Tare from PC ➢ Tare on Stable or unstable
Programmable Filter	➢ Three level of filter Low, Medium and High (selectable) for ➢ Digital (weighment) ➢ Stability and ➢ Zero tracking allows to configure the system to different weighing application
RS232 feature	➢ Bi-directional communication ➢ Remote firmware update ➢ User configurable O/P data format ➢ Stream, once transmit and command to transfer weight data to PC ➢ Baud rate – max. of 115200
Others	➢ Power failure retain ➢ ON/OFF key bypass ➢ Forced Zero Tracking (max 20d) ➢ Gross/Net weight selection ➢ Unit selection (max 3 units) ➢ Platform selection (Optional – max. 2 PF - one can be used at a time) ➢ Zero and Span value entry through keyboard ➢ Power ON unit selection

Check Counting/weighing Application:

Check Counting/weighing	➢ Used to check the quantity/weight of the material prior to final dispatch based on user defined Minimum and maximum weight tolerance

		➢ Visual bar graph LED indication while products are weighed Storage of check weighed data ➢ Transaction recording with weight range and PLU, etc., ➢ List print and Bill print
Display information		Min and Max, Selected scale, Record count, PLU Name and soft key pages along with weight, unit weight and quantity.
PLU	No. of PLU	5000
	PLU search	By Name or Code or Number
	PLU Details	➢ PLU No. – 4 digit – N ➢ PLU Code – 20 digit – AN ➢ PLU Name – 20 digit – AN ➢ PLU Type ➢ Tare weight ➢ Unit weight/1000 ➢ Target ➢ Minimum ➢ Maximum ➢ Min Limit ➢ Wt.-Log condition] ➢ DIO Time Delay ➢ DIO Active Time ➢ Digital IO ➢ Info #1 ➢ Info #2 ➢ Info #3
Diagnostics		Automatic diagnostic self check for the hardware ➢ Keyboard ➢ Display ➢ Digital IO ➢ RS232 Port ➢ Ethernet ➢ Centronics ➢ RTC ➢ Bargraph LED ➢ Analog O/P
No. of user Programmable fields		20 (refer manual for details)
No. of Field feature		25 (refer manual for details)
Print format		Standard or customized (refer manual for details)

No. of record	25,000
Log type	Manual or Auto

Header & Footer	Each 5 line with 80 Character
Others	➢ In-built RTC ➢ Password protection ➢ Load factory default ➢ Machine ID ➢ Machine Name ➢ Alarm ➢ Shift time ➢ Formula creation ➢ Non volatile memory for the data
Reports & on line option	➢ Easy customized report format for various requirement ➢ User selectable printer option ➢ 40 column ➢ 80 column ➢ 132 column ➢ 175 column compressed to 80 column ➢ On line data to PC or Printer ➢ Calculation on any numeric field like Total, average, std. deviation etc., ➢ User selectable standard or customized print format ➢ Report based on selection criteria

Check Counting Bill Print Format:

```
SI-810 Counting
Essae Teraoka Ltd
Bangalore

Sl.No        : 6
Product Name : CountingPLU4
Date         : 19-09-2009
Time         : 13:46
Tare Wt      : 0.250   kg
Net Wt       : 1.234   kg
Gross Wt     : 1.484   kg
Quantity     : 4001    pcs
Remark       : HIGH

Thank you
```

Check Counting List Print Format:

```
                        SI-810 Counting
                      Essae-Teraoka Ltd
                         Bangalore

-------------------------------------------------------------------------------
Sl.No Product Name Date       Time   Tare Wt   Net Wt Gross Wt Quantity Remark
-------------------------------------------------------------------------------
    1 CountingPLU1 19-09-2009 13:43    0.250    0.241    0.491       10 LOW
    2 CountingPLU2 19-09-2009 13:44    0.000    1.476    1.476     6033 HIGH
    3 CountingPLU2 19-09-2009 13:44    0.100    1.380    1.480     3115 HIGH
    4 CountingPLU3 19-09-2009 13:45    0.500    0.483    0.983     9662 HIGH
    5 CountingPLU4 19-09-2009 13:46    0.987    0.494    1.481     1501 HIGH
    6 CountingPLU4 19-09-2009 13:46    0.250    1.234    1.484     4001 HIGH
-------------------------------------------------------------------------------
```

```
                                    2.087    5.308    7.395    24322
-------------------------------------------------------------------------------
Thank you
```

Check Weighing Bill Print Format:

```
SI-810 Counting
Essae Teraoka Ltd
Bangalore


Sl.No        : 12
Product Name : WeighingPLU4
Date         : 19-09-2009
Time         : 13:50
Tare Wt      : 0.089   kg
Net Wt       : 1.492   kg
Gross Wt     : 1.580   kg
Quantity     : 0       pcs
Remark       : HIGH

Thank you
```

Check Weighing List Print Format:

```
                              SI-810 Counting
                            Essae-Teraoka Ltd
                               Bangalore


-------------------------------------------------------------------------------
Sl.No Product Name Date       Time   Tare Wt   Net Wt Gross Wt Quantity Remark
-------------------------------------------------------------------------------
    7 WeighingPLU1 19-09-2009 13:49    0.500    0.985    1.485        0 HIGH
    8 WeighingPLU2 19-09-2009 13:49    0.000    0.493    0.493        0 HIGH
    9 WeighingPLU2 19-09-2009 13:49    0.250    0.739    0.989        0 HIGH
   10 WeighingPLU3 19-09-2009 13:49    0.000    1.490    1.490        0 HIGH
   11 WeighingPLU4 19-09-2009 13:50    0.000    1.492    1.492        0 HIGH
   12 WeighingPLU4 19-09-2009 13:50    0.089    1.492    1.580        0 HIGH
-------------------------------------------------------------------------------
                                    0.839    6.691    7.529        0
-------------------------------------------------------------------------------

Thank you
```

Check Counting & weighing (Mixed) List Print Format:

```
                              SI-810 Counting
                               Essae-Teraoka Ltd
                                  Bangalore


-------------------------------------------------------------------------------
Sl.No Product Name Date       Time   Tare Wt   Net Wt Gross Wt Quantity Remark
-------------------------------------------------------------------------------
    1 CountingPLU1 19-09-2009 13:43    0.250    0.241    0.491       10 LOW
    2 CountingPLU2 19-09-2009 13:44    0.000    1.476    1.476     6033 HIGH
    3 CountingPLU2 19-09-2009 13:44    0.100    1.380    1.480     3115 HIGH
    4 CountingPLU3 19-09-2009 13:45    0.500    0.483    0.983     9662 HIGH
    5 CountingPLU4 19-09-2009 13:46    0.987    0.494    1.481     1501 HIGH
    6 CountingPLU4 19-09-2009 13:46    0.250    1.234    1.484     4001 HIGH
    7 WeighingPLU1 19-09-2009 13:49    0.500    0.985    1.485        0 HIGH
    8 WeighingPLU2 19-09-2009 13:49    0.000    0.493    0.493        0 HIGH
    9 WeighingPLU2 19-09-2009 13:49    0.250    0.739    0.989        0 HIGH
   10 WeighingPLU3 19-09-2009 13:49    0.000    1.490    1.490        0 HIGH
   11 WeighingPLU4 19-09-2009 13:50    0.000    1.492    1.492        0 HIGH
   12 WeighingPLU4 19-09-2009 13:50    0.089    1.492    1.580        0 HIGH
-------------------------------------------------------------------------------
                                    2.926   11.999   14.924    24322
-------------------------------------------------------------------------------

Thank you
```

Check Counting & weighing Date and PLU Range Print Format:

SI-810 Counting
Essae-Teraoka Ltd
Bangalore

Sl.No	Product Name	Date	Time	Tare Wt	Net Wt	Gross Wt	Quantity	Remark
	Name1	01-04-2014	00:01	0.015	0.385	0.400	380	OK
	Name2	01-04-2014	00:01	0.035	0.365	0.400	310	LOW
	Name3	01-04-2014	00:01	0.095	0.305	0.400	380	LOW
	Name1	02-04-2014	00:01	0.046	0.354	0.400	354	OK
	Name2	02-04-2014	00:01	0.027	0.373	0.400	373	OK
	Name3	02-04-2014	00:01	0.033	0.367	0.400	367	LOW
	Name1	03-04-2014	00:49	0.150	0.844	0.994	887	OK
	Name2	03-04-2014	00:05	0.070	0.330	0.400	575	OK
	Name3	03-04-2014	00:05	0.036	0.364	0.400	364	LOW
				0.507	3.687	4.194	3990	

Thank You

Annexure I:

Single Loadcell platform:

Capacity & Accuracy	Resolution	Tare value	Platform size in mm	Platter MOC	Pole	Product code
Without IP67 L/C						
3 kg X 0.2 g	1/15000	1499.8 g	360X276	SS#304	Attached	R2DI010000
6 kg X 0.5 g	1/12000	-2.9995 kg	360X276	SS#304	Attached	R2EH010000
15 kg X 1 g	1/15000	-7.499 kg	360X276	SS#304	Attached	R2GI010000
30 kg X 2 g	1/15000	-14.998 kg	360X276	SS#304	Attached	R2HI010000
6 kg X 0.5 g	1/12000	-2.9995 kg	400X400	SS#202	Attached	R2EH030000
15 kg X 1 g	1/15000	-7.499 kg	400X400	SS#202	Attached	R2GI030000
30 kg X 2 g	1/15000	-14.998 kg	400X400	SS#202	Attached	R2HI030000
With IP67 Loadcell						
60 kg X 5 g	1/12000	-29.995 kg	450X550	SS#304	Attached	R2IH050000
150 kg X 10 g	1/15000	-74.99 kg	450X550	SS#304	Attached	R2KI050000
150 kg X 10 g	1/15000	-74.99 kg	550X650	SS#304	Attached	R2KI080000
300 kg X 20 g	1/15000	-149.98 kg	550X650	SS#304	Attached	R2LI080000
300 kg X 20 g	1/15000	-149.98 kg	700X800	SS#202	Attached	R2LI090000
300 kg X 20 g	1/15000	-149.98 kg	700X800	MS	Attached	R2LI240000
600 kg X 50 g	1/12000	-299.95 kg	700X800	SS#202	Not Attached	R2MH090000
600 kg X 50 g	1/12000	-299.95 kg	700X800	MS	Not Attached	R2MH250000

- No back rail for 400 X 400 & 700 X 800 machine
- Frame work MOC is MS (Mild steel)
- Pole height of the capacity 60 kg – 600 kg is 860 mm
- Pole height for 400 X 400 mm machine is 430 mm
- The above platform is suitable for uniformly distributed load only
- If the application is for concentrated load then special requirement has to be sent

Annexure II:

Four Loadcell platform – IP67 L/C:

Capacity & Accuracy	Resolution	Tare value	Platform size in mm	Platter MOC	Product code
600 kg X 100 g	1/6000	-299.9 kg	1000X1200	MS Cheq.	R2ME120000
600 kg X 100 g	1/6000	-299.9 kg	1200X1500	MS Cheq.	R2ME140000
600 kg X 100 g	1/6000	-299.9 kg	1500X1800	MS Cheq.	R2ME170000
1000 kg X 200 g	1/5000	-499.8 kg	1000X1200	MS Cheq.	R2ND120000
1000 kg X 200 g	1/5000	-499.8 kg	1200X1500	MS Cheq.	R2ND140000
1000 kg X 200 g	1/5000	-499.8 kg	1500X1800	MS Cheq.	R2ND170000
1500 kg X 0.2 g	1/7500	-749.8 kg	1000X1200	MS Cheq.	R2PF120000
1500 kg X 0.2 g	1/7500	-749.8 kg	1200X1500	MS Cheq.	R2PF140000
1500 kg X 0.2 g	1/7500	-749.8 kg	1500X1800	MS Cheq.	R2PF170000
2000 kg X 500 g	1/4000	- 999.5 kg	1000X1200	MS Cheq.	R2QC120000
2000 kg X 500 g	1/4000	- 999.5 kg	1200X1500	MS Cheq.	R2QC140000
2000 kg X 500 g	1/4000	- 999.5 kg	1500X1800	MS Cheq.	R2QC170000
3000 kg X 500 g	1/6000	- 1499.5 kg	1000X1200	MS Cheq.	R2RE120000
3000 kg X 500 g	1/6000	- 1499.5 kg	1200X1500	MS Cheq.	R2RE140000
3000 kg X 500 g	1/6000	- 1499.5 kg	1500X1800	MS Cheq.	R2RE170000
5000 kg X 1 kg	1/5000	- 2999 kg	1000X1200	MS Cheq.	R2SD120000
5000 kg X 1 kg	1/5000	- 2999 kg	1200X1500	MS Cheq.	R2SD140000
5000 kg X 1 kg	1/5000	- 2999 kg	1500X1800	MS Cheq.	R2SD170000

- No back rail for the above platform
- Frame work MOC is MS (Mild steel)
- Pole not attached to the platform
- Pole height is 860 mm
- The above platform is suitable for uniformly distributed load only
- If the application is for concentrated load then special requirement has to be sent
- No foundation fixing is possible

XV. DISPLAY MESSAGES

- Zeroing
  Message occurs after diagnostics is completed in Check Counting/Weighing.

- Power Fail
  Message occurs, if Power Fail detection is enabled after diagnostics.

- Zero Error
  Message occurs when weight on the platter is less than the value set in PON Zero start Range in Check Counting/Weighing.

- Disp Resoln.
  Message occurs, when capacity by accuracy of weights in basic, second and third is greater than 15,000 in Check Weighing.

- Underflow
  Message occurs, when weight on the platter is less than 5% of scale capacity in Check Weighing.

- Overflow
  Message occurs, when weight on platter is greater than capacity + 9d on the scale in Check Weighing.

- Memory Low
  Message occurs, when available data memory is less than 25k byte.

- Accepted
  Message occurs while setting user password, when new password set matches with Retype password.

- Cleared
  Message occurs when user password is cleared.

- NO PLU ADD NEW
  Message occurs when no PLU is programmed and following option is selected in *'Menu> PLU>'*
  PLU List by Number
  PLU List by Name
  PLU List by Code

- Deleting PLUs
  Message occurs while deleting all PLU records.

- Not Present, Check Hardware Configuration
  Message occurs if the device is not configured during Print or Diagnostic.

- Zero Cal… Pass
  Message occurs during scale calibration when Zero calibration is done successfully.

- Span Cal… Pass
  Message occurs during scale calibration when Span calibration is done successfully.

- Not Set

This message will be shown when respective fields are not set during field programming.

- Save and Exit
  Message occurs when fields or PLU records are edited, without saving the change Back soft key is pressed.

- Delete Logged Records!
  Message occurs when changing field programming, shift programming, multiplication factor, formula programming if record(s) is already present.

- Deleting Records…
  Message occurs while deleting all records.

- Alarm
  When alarm is enabled this message will be shown along with set alarm date and time.

- No Records
  Message occurs during printing if no records are present matching selection criteria.

- Memory Error
  Message occurs during internal fatal error.
- File Error
  Message occurs if we try to print when selected format files are not present.

- Printed Successfully
  Message occurs when data is printed successfully.

- Printing Cancelled
  Message occurs when cancel soft key is pressed during printing.

- Print Error
  Message occurs when
  - There is some problem with the printer (like Printer not connected, Printer OFF, Centronics is not present in hardware configuration, No Response).
  - If the physical device to which Print Data is mapped to is not configured.

- Printer Busy
  Message occurs when printer buffer is full or printer is busy.

- Paused
  Message occurs when cancel soft key is pressed during printing.

- Printing…
  Message occurs while printing reports.

- Connected
  Message occurs when pendrive is connected to USB Host connector.

- Removed
  Message occurs when pendrive is disconnected from USB Host connector.

- No Disk

Message occurs when pendrive is disconnected from USB Host connector after displaying Removed message.

- Wt not stable
  Message occurs in weight window and accumulation window, when weight is not stable on platform.

- Wt Not Ready
  Message occurs in weight window and accumulation window when weight is zero or negative.

- net < min
  Message occurs in weight window, when net weight is less than PLU set_wt.

- Weight Error
  Message occurs in weight window, when weight on the platter is less than 5% of scale capacity or when weight on platter is greater than the capacity + 9d on the scale.

  This error also comes in accumulation window for any weight related error during accumulation.

- Accumulated
  Message occurs in accumulation window, when user tries to accumulate second time for the same values without removing weight.

- Quantity Error
  Message occurs in accumulation window, if the quantity is grater then 999999.

- Clear Accumulation Counters
- Print Data Dump
  Message occurs in accumulation window, when any one of accumulation counters over flows.

- PCS Err
  Message occurs in unit weight window, when user presses Pieces soft key for invalid number of pieces (when number of pieces zero or grater than 999999 or blank).

- UNIT WT ERR
  Message occurs for any invalid unit weight.

- Unit Wt < 0.01% of Accuracy!
  Message occurs in accumulation window, when unit weight is less than 0.01% of accuracy of the scale.

- Sampling...n
  Message occurs while sampling to find the unit weight. Here 'n' is the number of pieces, it can be any value between 1 and 999999, indicates sampling for 'n' number of pieces.

- Already Sampled
  Message occurs when user tries to sample for the same last sampled quantity.

- Sampling Not Enabled
  Message occurs when user tries to sample, when "Enable Sampling" is set to 'No', in Menu>Counting Settings>Enable Sampling.

- Pieces Error
  Message occurs in unit weight window, when user presses Pieces soft key for invalid number of pieces (when number of pieces zero or grater than 999999 or blank).

- Print PLU Range Summary Report
- From Date > Last Logged Date
  Message occurs when From Date is greater than Last Logged Record Date in Menu > Reports > Print > Print PLU Range Summary.

- From Date > To Date
  Message occurs when From Date is greater than To Date in Menu > Reports > Print > Print PLU Range Summary.

- To Date > Last Logged Date
  Message occurs when To Date is greater than Last Logged Date in Menu > Reports > Print > Print PLU Range Summary.

- To Date < From Date
  Message occurs when To Date is less than From Date in Menu > Reports > Print > Print PLU Range Summary.

- No Data in PLU
  Message occurs if entered PLU is not PLU Database in Menu > Reports > Print > Print PLU Range Summary.

- No PLU in Records
  Message occurs if entered PLU is not available in Records.

- From PLU > To PLU
  Message occurs if entered From PLU is greater than To PLU in Menu > Reports > Print > Print PLU Range Summary.

- **Standard PLU Range Sum Rpt…**
  Message occurs when printing the PLU Range Summary Report in Menu > Reports > Print.