ПК "ПРИЗМА" Представитель ESIT в Украине.
esitscale.com.ua, prizma.com.ua

ECI Multi Functional Weighing Indicator (Automatic)

User Manual

ESİTİ

ECI

Multi Functional Weighing Indicator (Automatic)

Manual V1.6

Esit Technical Support

Esit Support Line for Turkey
GSM : +90 533 732 15 74
Email : servis@esit.com.tr

Istanbul
Phone: Direct Line +90 216 585 18 88 / +90 216 585 18 18 Extension: 141 /142
Fax : +90 216 585 18 89
Hendek
Phone: +90 264 614 16 41 / +90 264 614 16 42
Fax : +90 264 614 16 43
Izmir
Phone: +90 232 433 02 99
Fax : +90 232 433 12 42
Ankara
Phone: +90 312 397 01 10
Fax : +90 312 397 07 73
Adana
Phone +90 322 428 11 71
Fax : +90 322 428 11 72

Esit Istanbul Head Office

Address Nisantepe Mahallesi Gelin Çiçeği Sokak No:36 Cekmekoy 34794 Istanbul
Phone: 0216 585 18 18
Fax : 0216 585 18 19
E-mail: esit@esit.com.tr

1 Considerations

- Do not power-up the device before making sure that the device connections are made according to this manual.
- Do not open the case or disconnect-insert the connections before disconnecting the device from the power source.
- Note that the load cell and communication cables are not very close to the energy lines.
- Note that the cables are not crushed.
- Operate the device within the stated temperature range.
- The device has been developed for indoor use. Do not expose sunlight, rain and other external factors.

Table of Contents

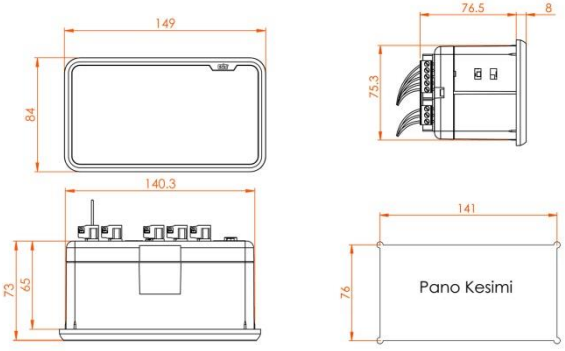
2 Introduction

ECI is a smart signal converter and control device which is designed for weigh measuring systems. It is a fast, sensitive device with a high accuracy class. It is designed suitably for using at industrial applications and standard weigh measuring areas. It is used as weigh, force and pressure measuring areas. Many optional modules can be added/modified easily thanks to the modular smart “plug and play” expansion structure.

This operating manual contains exemplary wording related to the installation, operation and field operation of the ECI.

All written and visual materials contained in this operating manual are the property of ESİT Elektronik Sistemleri İmalat ve Tic. Ltd. Sti.

3 Physical Dimensions



Standard Model
Weight 360 g

4 Specifications

4.1 Technical Specifications

Model	ECI, E Series
Load Cell Input	+/- 2.50–160mV/V
A/D Speed (/second)	1600
Screen Resolution	9 digit (999999.999)
Supply	12-24V DC
Display	LCD (101x33 pixel graphic, 4.5 inch)
Communication Terminal (Standard)	RS-232 (9600-115200bps)
Communication Remote Display (Standard)	For Remote Display (Opto-Coupler)
Communication Option Module (Optional)	RS-232-RS-485 / RS-422 (E-MDL-COM insulated)
Load Cell Feeding	10 VDC (280mA, maximum 10 load cells)
Operating Temperature	-10C / +50C
Protection Class	IP65 (Front Panel)

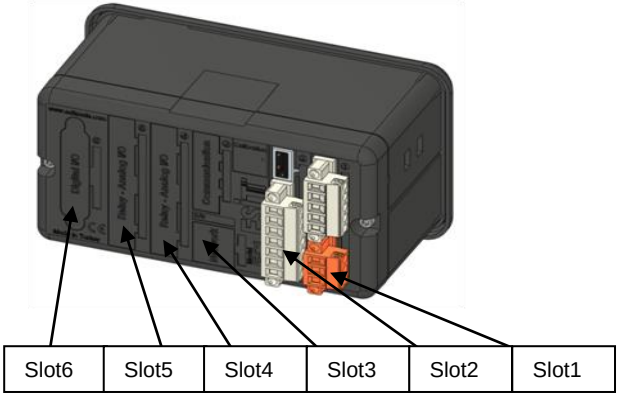
(Standard: Supplied as standard hardware with the device)
(Optional: Inserted to the device as additional hardware)

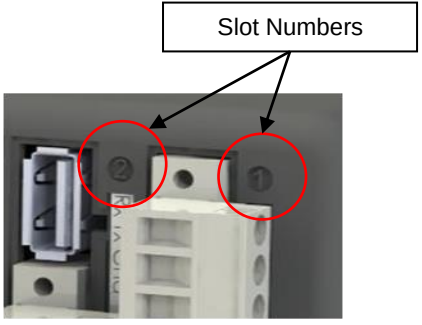
4.2 Use Properties

- Multi-language support
- 5 touch keys
- Plain use and setting thanks to the indexed menu system structure
- Internal batching and filling program
- Smart “plug and play” expansion structure
- Gain setting adjustable according to the sensor output (capable of reading between ±20mV and ±1.6V)
- Connectivity up to 10 load cells (350R)
- Software update by using USB
- Calibration without installation on the basis of the load cell data
- Facility to carry the calibration information between different devices.
- Easy test opportunity with the service menus (Serial Output, Digital inputs/Outputs, LCD, memory, ADC input)
- 3 sectional weighing range (Wide Range , Multi Partition options)
- Automatic scale interval (e) and dot space adjustment
- gResolver, Smart numerical filter technology
- Storing current weighing device values and calibration info
- Monitoring the Load Cell info real time as mV/V from the service menu
- 96 recipe and double speed batching up to 16 silos
- Up to 24 optional digital output and up to 16 digital input
- Optional 2 x 0/10V – 4/20mA analogue output
- USB reporting (Last 64 calibration log, Last 256 Error Record and Last 256 Overload log)

5 Installation and Connections

The number of each slot is shown as follows on the back cover of the ECI device

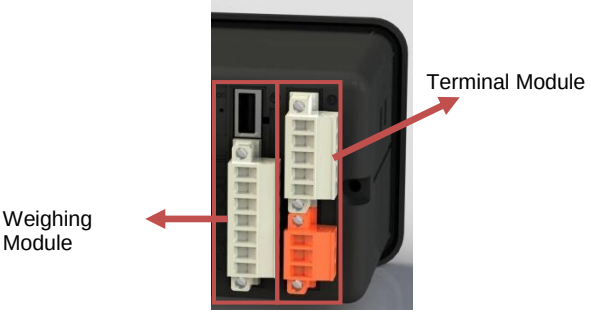




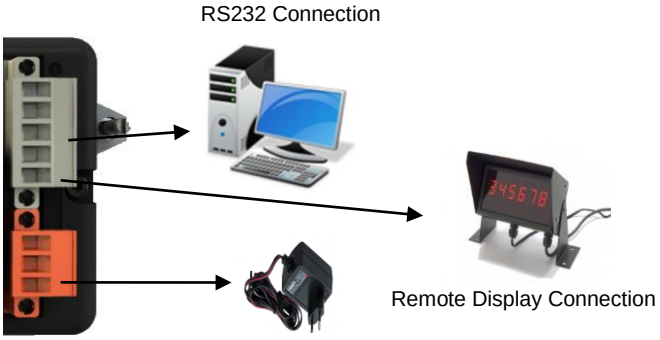
- **Slot1:** Used for the Terminal (Supply & Communication) Module. Following module(s) can be used;
  E-ECI-PWR (Standard) module can be inserted.
- **Slot2:** Used for Weighing (Load Cell) Module. Following module(s) can be used;
  E-ECI-LC (Standard) module can be inserted.
- **Slot3:** Used for optional Communication Module. Following module(s) can be used;
  E-MDL-COM (Optional), RS232 + RS485/RS422 Module
  E-MDL-PRF (Optional), Profibus Module
  E-MDL-EIP (Optional), Ethernet IP Module
- **Slot4:** Used for Optional Input/Output modules. Following module(s) can be used;
  E-MDL-RLY, 4in/4out Module (Optional)
  E-MDL-DAC, 0-10V / 4-20mA Analogue +2in/1out Module (Optional)
- **Slot5:** Used for Optional Input/Output modules. Following module(s) can be used;
  E-MDL-RLY, 4in/4out Module (Optional)
  E-MDL-DAC, 0-10V / 4-20mA Analogue +2in/1out Module (Optional)
- **Slot6:** Used for Expansion modules. Following module(s) can be used;
  E-MDL-EXP, 8in/16out expansion module (Optional)
  E-MDL-BCD, 20out/2In Optical Insulated BCD or Binary Output Module (Optional)

5.1 Standard Modules

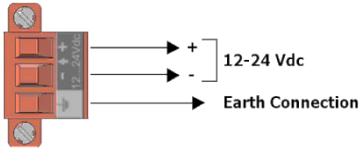
Standard modules are the units that are given in the base mode with the ECI E series devices. Respective modules and explanations are given below.



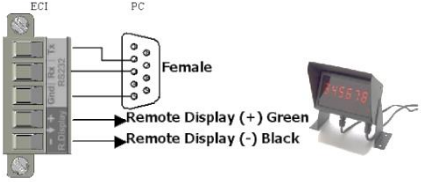
5.1.1 Slot1: Terminal (Supply and Communication Module)



5.1.1.1 Supply Connection



5.1.1.2 Communication Connections

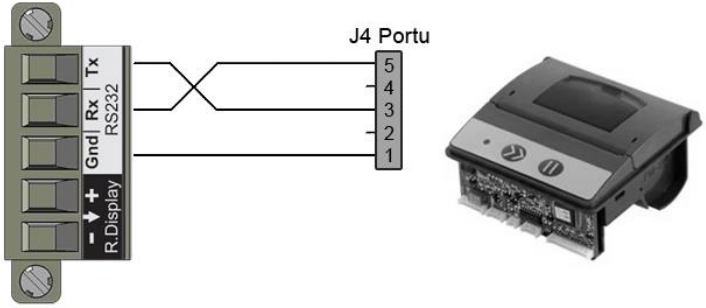


Note: When the "R.Display" output is used with Esit brand Remote displays, red and White cables of the Display must be short circuited

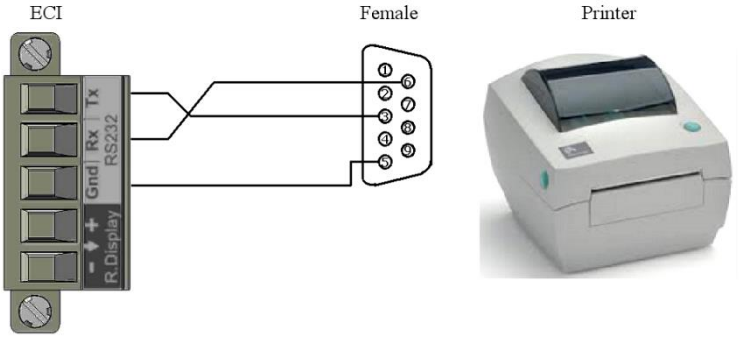
5.1.1.3 Printer Connection

ECI, supports EPM203-MRS, TOSHIBA B-EV4T and Zebra EPL model printer. Printer connection must be as follows.

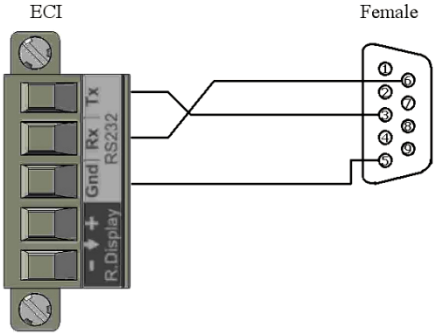
EPM203-MRS Connection



ZEBRA EPL Connection



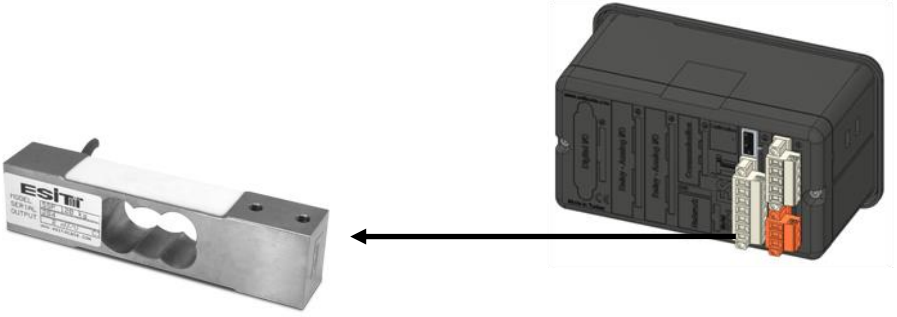
TOSHIBA B-EV4T



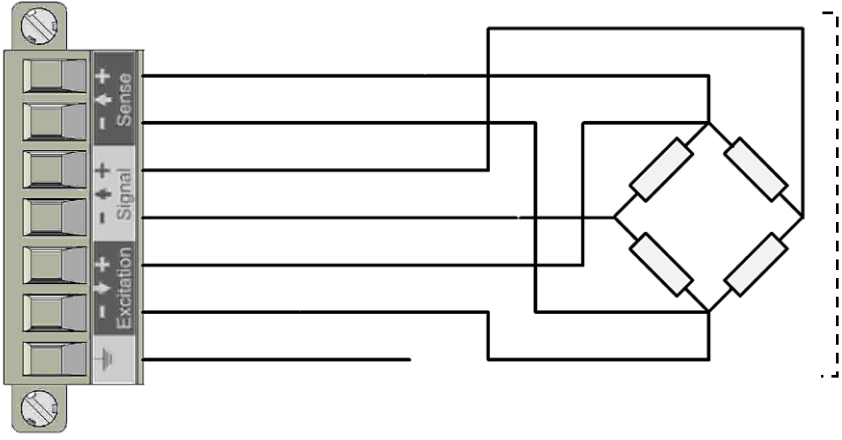
Printer

5.1.2 Slot2: Weighing (Load Cell) Module

5.1.2.1 Esit Load Cell Connection

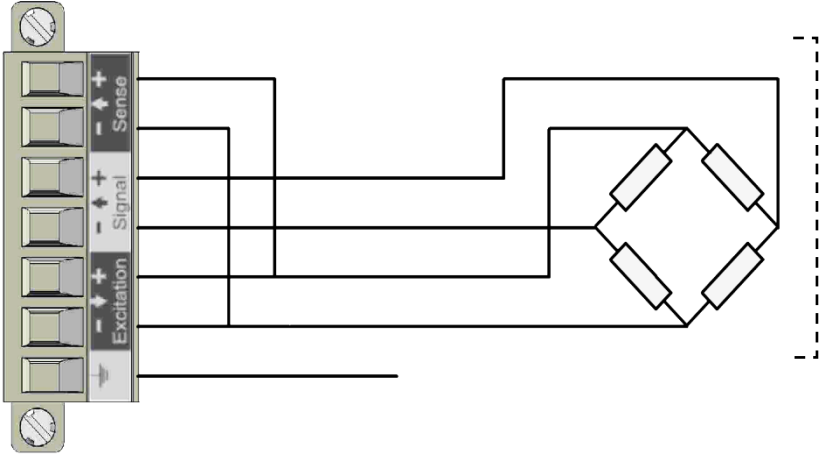


5.1.2.2 Six (6) Cable Load Cell Connection



Esit Colours	
Sense +	*Blue*
Sense -	*Orange*
Out +	*White*
Out -	*Red*
Supply +	*Green*
Supply -	*Black*

5.1.2.3 Four (4) Cable Load Cell Connection



Esit Colours	
Sense -	*Green*
Sense -	*Black*
Out +	*White*
Out -	*Red*
Supply +	*Green*
Supply -	*Black*

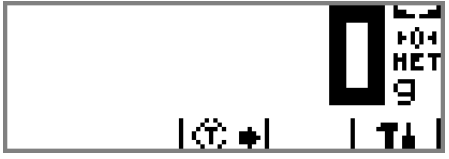
Sense-terminal is short circuit with Supply – terminal and Sense+terminal is short circuit with Supply + terminal

6 Screenshots

6.1 Weighing Main Screen

Main screen shot will be as shown at side

The screen will be displayed as shown at side when the tare is removed



6.1.1 Screen Layout

1. Weighing Indicator
2. Keys
3. Weighing Range
4. Mobility
5. Zero Indicator
6. Tare Status
7. Unit

6.1.2 Symbols

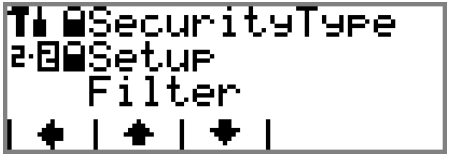
E1	**Weighing Range**	Indicates current weighing range. It is displayed when the measuring type is selected as “Multi Partition” or “Multi Range”. E1: Lower Zone, E2: Upper Zone and E3 represents the final zone.
	Stagnancy	Shows that the change in the weight value is within the stagnancy limits for a certain period (less than a one scale interval).
	Mobility	Shows that the change in the weight value is out of the stagnancy limits.
0	**Zero Indicator**	Indicates that deviation from zero is less than 1/4e (resolution).
NET	**Net**	Shows that the tare has been removed and the displayed value is the net value.

6.1.3 Keys

	Reset Key	Used for resetting the display.
	Tare Key	Used for taking the weight on the load cell as tare.
	Tare Clean Key	Used for cancelling the tare value and showing the gross value.
	Menu Key	Used for bringing the display menu where the device settings are made.

6.2 Menu Screen

Menu screenshot is as shown at side.



6.2.1 Screen Layout

1. Menu Logo
2. Menu No
3. Lock
4. Menu Names
5. Keys

6.2.2 Symbols

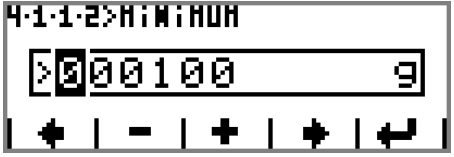
	Menu Logo	Respective menu logo.
	Menu No	Respective menu number.
	Software Lock	Shows that a parameter has to be changed in order to Access the menu.
	Hardware Lock	Shows that it is required to add or replace hardware in order to Access the menu.

6.2.3 Keys

	Left Arrow Key	Used for shifting to an upper menu on the menu screen.
	Up Arrow Key	Used for browsing among the options on the menu screen.
	Down Arrow Key	Used for browsing among the options on the menu screen.
	Right Arrow Key	Used for shifting to an lower menu on the menu screen.
	Enter Key	Used for entering to the menu next to the menu number.

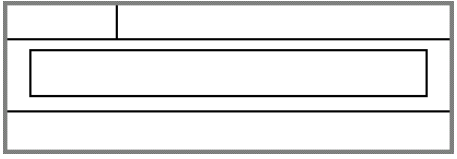
6.3 Change Parameter Screen (Numeric or Alpha-Numeric Entry Type)

The change parameter screen will be displayed as shown at side:



Note: The values entred in the screen must the multiplies of the "Resolution" parameter. For example if the "Resolution" is selected as 5 and the value entered in this screen is 101, an information message appears and the number is automatically rounded to 100 and returned to the parameter changing screen.

6.3.1 Screen Layout



1. Menu No
2. Menu Title
3. Value to be Adjusted
4. Keys

6.3.2 Symbols

4·1·1·2	**Menu No**	Respective menu number.
MINIMUM	**Title**	Name of the current menu
000100	**Option**	Value to be adjusted

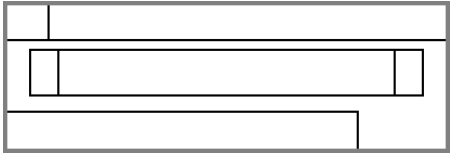
6.3.3 Keys

✕	**Exit Key**.	Used for returning to the menu screen from the parameter settings screen
◀	**Left Arrow Key**	Used for shifting the cursor to the left.
−	**Minus Key**	Used for decreasing the digit on which the cursor is located in the areas where numerical value is entered in the parameter setting screen.
+	**Plus Key**	Used for increasing the digit on which the cursor is located in the areas where numerical value is entered in the parameter setting screen.
▶	**Right Arrow Key**	Used for shifting the cursor to the right.
↵	**Confirm Key**	Used for confirming the selected screen.

6.4 Change Parameter Screen (Selective Type)

The selective type change parameter screen will be displayed as shown at side:

6.4.1 Screen Layout



1. Menu No
2. Menu Title
3. Option No
4. Option
5. Arrow
6. Keys

6.4.2 Symbols

2·1	**Menu No**	Respective menu number.
SECURITYTYPE	**Menu Title**	Name of the respective parameter.
2	**Option No**	Number of the parameter option.
Calibra.Lock	**Option**	Explanation of the respective parameter option.
	Arrow	Shows if there is any option above or below the selection list

6.4.3 Keys

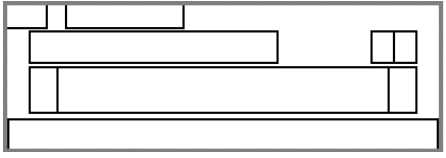
	Exit Key.	Used for returning to the menu screen from the parameter settings screen
	Up Arrow Key	Used for browsing among the options in the selection list.
	Down Arrow Key	Used for browsing among the options in the selection list.
	Enter Key	Used for conforming the value selected.

6.5 Ordered Menu Screen

Ordered menu is made for providing convenience in the menus with more than one sub-menu. For example, there are Unit, Capacity, Resolution and Measuring Type sub-menus in the Settings menu under the Weighing menu. When you enter this menu, you can change every parameter related to the weighing setting subsequently. The ordered menu screenshot will be as sown at side

6.5.1 Screen Layout

1. Menu No
2. Menu Title
3. Sub-Menu Title
4. Sub-Menu No
5. Sub-Menu Number
6. Option No
7. Option
8. Arrow
9. Keys



6.5.2 Symbols

2·2	**Menu No**	Respective menu number.
Setup	**Menu Title**	Name of the current menu.
Resolution	**Sub-Menu Title**	Name of the current sub-menu.
3	**Sub-Menu No**	Sub-Menu number.
4	**Number of Sub-Menu**	Number of Sub-Menus of the respective menu
3	**Option No**	Option number
1 9	**Option**	Respective option
	Arrow	Shows if there is any option above or below the selection list

6.5.3 Keys

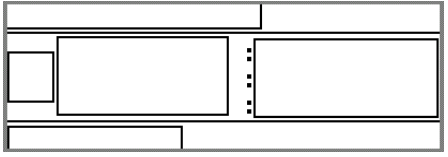
	Return Key	Used for returning to the previous menu in the ordered menu.
	Up Arrow Key	Used for browsing among the options in the selection list.
	Down Arrow Key	Used for browsing among the options in the selection list.
	Forward Key	Used for forwarding to the next menu in the ordered menu.
	Exit Key.	Used for returning to the menu screen from the ordered menu screen

6.6 Confirmation Screen

When ↵ key is pushed after entering to menu and changing any parameter, the confirmation screen as shown at side will appear before saving the new parameter.

6.6.1 Screen Layout

1. Screen Title
2. Confirmation Logo
3. Parameters Changed
4. New Parameter Values
5. Keys



6.6.2 Symbols

SAVE CHANGES?	**Confirmation Screen Title**	Respective menu title.
?	**Confirmation Screen Logo**	Respective menu logo.
UNIT	**Parameters Changed**	Name of the parameter changed
(G)GRAM	**Parameter Value**	New value of the parameter changed.

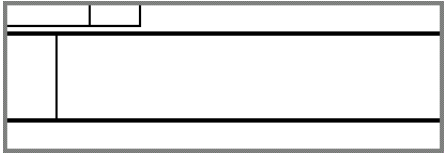
6.6.3 Keys

	Cancel Key	Used for returning to the previous menu without saving the parameters changed.
	Confirm Key	Used for saving the parameters changed.
	Save and Exit Key	It is used for saving the parameters changed and returning to the main screen.

6.7 Message Screen

The message screen shown at side will display when it is necessary to inform the user. There are 3 types of message These are information, warning and error messages.

6.7.1 Screen Layout



1. Message Screen Title
2. Message No
3. Message Logo
4. Message

6.7.2 Symbols

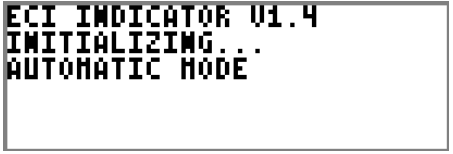
ERROR WARNING INFO	**Message Screen Title**	Indicates the message type
200	**Message No**	Respective message number.
⊖ ⚠ ⓘ	**Message Screen Logo**	The logo related to the message type.
Saving...	**Message**	The message content

7 Using the Device

The device is turned on by supplying energy after making the Supply and Load Cell connections. Start-up logo and version number will be displayed on ECI LCD screen during the start-up. Then the functional test will be performed and the Optional card inserted will be recognized and tested. Lastly, the main screen will be displayed and the measuring starts.

7.1 Program Selection

ECI, supports more than one operating screens (programs) (such as "Scale" Batching", "Filling" etc). Operating screen selection is made when the first energy is given to the device. After giving the first energy, when the following screenshot appears, the 1. and 3. keys from the left are pushed together.



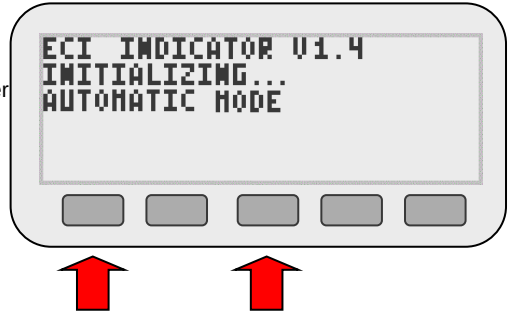
The desired program is selected from "Select Program" menu appeared. Related screenshot is shown below.

The status of the outputs may change when the program is changed. Thus, the respective warning message is displayed before the program selection screen.

7.1.1 Start-up Screen

Please follow the steps blow;

1. Energize the device
2. Wait for the initializing screen which is shown after the “ESIT” logo.
3. Press 1 and 3 keys together.
4. If correct combination is done “Select Program” screen appears.



Push buttons together when this screen apperars.

According to device type (shown on screen) the selectable device modes are listed below;

Automatic Mode	**Dynamic Mode**
Scale	Belt Scale
Batching	Impact Scale
Filling	Hopper Scale
	CheckWeigher

7.1.2 Program Selection Screen

After selecting the desired program, selection is confirmed with ↵ key and it is shifted to the desired operating program.

7.2 Menu List

Menu List is as follows:

1. Terminal
- **1.1.** Language Selection
- **1.2.** Date
- **1.3.** Time
- **1.4.** Communication
- **1.5.** USB Recording
- **1.6.** Keys
- **1.7.** Service

2. Weighing
- **2.1.** Security Type
- **2.2.** Settings
- **2.3.** Filter
- **2.4.** Zero/Tare
- **2.5.** Calibration
- **2.6.** Service

3. Optional Communication Menu

4. Optional In/Out Menu

5. Optional In/Out Menu

6. Optional Expansion Menu

7.3 Using the Menu

7.3.1 Terminal Menu

The menus related to the Terminal module inserted to slot 1 of the device are displayed under this menu.

1 Terminal

It is the main menu that contains the device settings and the settings related to Slot1.

1·1 Language Selection

The language selection for the device. The options are;

1) English
2) Türkçe

1·2 Date

Date settings are made. The date data can be changed in dd.mm.yyyy format.

1·3 Time

Time settings are made. The time data can be changed in hh.mm format.

1·4 Communication

1·4·1 Serial Out

Contains the terminal serial out settings. This menu is an ordered type menu. Sub-menus are Mode and Period. It functions differently in Indication, Batching and Filling programs. Explanation is made below for each program

1·4·1 Serial Out (Scale Program)

Mode

It is the communication type selection. The options are;

1) Speed: Net weight information is sent continuously.
(Baudrate is 115200bps)

For example;
The screen value of "2148.0kg" is sent as follows.

Character	‘ ‘	‘ ‘	‘ ‘	‘ ‘	‘ 2‘	‘ 1‘	‘ 4‘	‘ 8‘	‘.’	‘ 0‘	CR
Ascii	32	32	32	32	50	49	52	56	46	48	13
Hex	20	20	20	20	32	31	34	38	2E	30	0D

2) Accuracy: Net weight information is sent continuously. (Baudrate is 9600bps)The format of the data string sent is same as the Speed mode

3) Detail: The weight information is sent in detail.(Baudrate is 9600bps).The format of the data string sent is as follows.

Date	TAB	Time	TAB	Net	TAB	Tare	TAB	Gross	TAB	Status	CR
12.02.2013	Chr 9	09:52:13	Chr 9	128.5	Chr 9	21.5	Chr 9	150	Chr 9	S	CR

Status
E:Error
Z:Absolute Zero
S:Stagnancy
- :This symbol appears when non of the abovementioned conditions occur.

4) Stability: When Stagnancy situation occurs, net weight information is sent 10 times per second until the stagnancy situation is resolved. (Baudrate is 9600 bps.**)** The format of the data string sent is same as the Speed mode.

5) Command: Functions as a query from a remote computer or similar device (Baudrate is 9600bps) Not case sensitive

Command List:

'R'	: Resets the device (Reset).
'Z'	: Functions as reset key. When zero limit is exceeded, no zeroing is made and NL returns from the serial port.
'T'	: Functions as tare key. When taring is closed from the menu, the command does not run when it is sent and ND returns. If this command is given under negative load, the command does not run when it is sent and NN returns.
'W'	: Recovers the existing measurement results
'A'	: Returns ADC internal count value.
'V'	: Returns device version number.
'GIn'	: Rotates the card type numeric entries of the modules inserted in slot 4 and 5. Inputs in slot 4 and and 5 are rotated with GI0 and GI1 commands respectively.
'GOn'	: Recovers the numeric outputs of the modules inserted in slot 4 and 5. Outputs in slot 4 and 5 are rotated with GO0 and GO1 commands respectively.

For example;
Command: GI0
Response: 1100 → LSB (Input1)

1	1	0	0
Input4	Input3	Input2	Input1

0: No Input:
1: Input exists

For example;
Command: GO0
Response: 0011 → LSB (Exit1)
The binary number system equivalent of the response received: 0011

0	0	1	1
Exit4	Exit3	Exit2	Exit1

1: Exit
0: No Exit

6) Printer: It is the printer connection option. This option is locked as it is not active under the Scale Program.

Period

Selection for RS232 serial out sending frequency.
The options are;

1) 6/Min
2) 1/Sec
3) 10/Sec
4) 50/Sec
5) 100/Sec
6) 400/Sec
7) 800/Sec

Not: *Period menu is not shown when "Command", "Stability" or "Detail" modes are selected.*
When "Speed" Mode is selected, Period can be selected as 50-800/Sec
When "Accuracy" or "Detail" modes are selected, Period can be selected as 6/Min-10/Sec

1·4·1 Serial Out (Batching Program)

Mode

It is the communication type selection. The options are;

1) Speed: Net weight information is sent continuously during the batching operation. (Baudrate is 115200bps)

For example;
The screen value of "2148.0kg" is sent as follows.

Character	‘ ‘	‘ ‘	‘ ‘	‘ ‘	‘ 2‘	‘ 1‘	‘ 4‘	‘ 8‘	‘.’	‘ 0‘	CR
Ascii	32	32	32	32	50	49	52	56	46	48	13
Hex	20	20	20	20	32	31	34	38	2E	30	0D

2) Accuracy: Net weight information is sent continuously during the batching operation. (Baudrate is 9600bps)The format of the data string sent is same as the Speed mode

3) Detail: Information is sent in detail after each discharge operation. (Baudrate is 9600bps).The format of the data string sent is as follows.

Date	T	Time	T	Recipe Name	T	Operation No	T	Silo 1	Silo 2	…	Silo N	T	Total	CR
16.04.2013	*	08:50:19	*	RECIPE12	*	2	*	1200	1000	…	800	*	4500	CR

T : Tab
* : Chr 9
N : Value selected in silo number menu (Silo number)

Date	Date of batching
Time	Time of batching
Recipe No	Recipe processed.
Operation No	Number of the batching. It is reset when the recipe is changed.
Silo 1-Silo N	*they are silo weight values.(sent in an order)*
Total	*Total of the last batch made*

For example:

DATE	TIME	RECIPE NAME	OPER. NO	SILO01	SILO02	SILO03	SILO04	TOTAL
09.10.2013	16:25:15	RECIPE06	11	499	0	0	500	999

4) Stability: Total batching weight is sent after each discharge operation. (Baudrate is 9600 bps.**)** The format of the data string sent is same as the Speed mode.
5) Command: This mode will be shown as locked as it is not active in batching program.
6) Printer: It is the printer connection option.

Printer Mode

It is the printer operation mode selection. The options are;
1) Manuel: Printing is only possible from the "Report" screen.
2) After Filling: Printing operation is made according to the settings in "Printer Settings Menu" after the batching is completed. key is also used for manual printing at the report menu.

Printer Type

1) APS Epm203
2) Zebra EPL
3) TOSHIBA B-EV4T

Period

Selection for RS232 serial out sending frequency. The options are;

1) 6/Min
2) 1/Sec
3) 10/Sec
4) 50/Sec
5) 100/Sec
6) 400/Sec
7) 800/Sec

Not: *Period menu is not shown when "Stability" or "Detail" modes are selected.*
When "Speed" Mode is selected, Period can be selected as 50-800/Sec
When "Accuracy" mode is selected, Period can be selected as 6/Min-10/Sec

1·4·1 Serial Out (Filling Program)

Mode

It is the communication type selection. The options are;

1) Speed: The filling weight is sent continuously during the filling.
(Baudrate is 115200bps)

For example;
The screen value of "2148.0kg" is sent as follows.

Character	‘ ‘	‘ ‘	‘ ‘	‘ ‘	‘ 2‘	‘ 1‘	‘ 4‘	‘ 8‘	‘.’	‘ 0‘	CR
Ascii	32	32	32	32	50	49	52	56	46	48	13
Hex	20	20	20	20	32	31	34	38	2E	30	0D

2) Accuracy: The filling weight is sent continuously during the filling.
(Baudrate is 9600bps)The format of the data string sent is same as the Speed mode
3) Detail: The information is sent in detail after the filling operation is over. (Baudrate is 9600bps).The format of the data string sent is as follows.

Date	T	Time	T	Product Name	T	Operation No	T	Net	T	Tare	T	Gross	T	CR
16.04.2013	*	08:50:19	*	PRODUCT03	*	12	*	1200	*	300	*	1500	*	CR

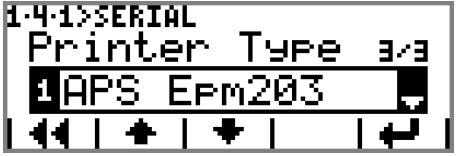
T : Tab
* : Chr 9

Date	*Filling Date*
Time	*Filling Time*
Product No	*Name of the product filled*
Operation No	It is the number of filling. It is reset when the product changes
Net	*Filling value*
Tare	*Weight value on the weighing platform when the filling starts*
Gross	*Total of net and tare values*

4) Stability: The final filling weight is sent after the filling is over.(Baudrate is 9600 bps.**)** The format of the data string sent is same as the Speed mode.
5) Command: This mode will be shown as locked as it is not active in filling program.
6) Printer: It is the printer connection option.

Auto Print

It is the printer operation mode selection. The options are;
1) Manuel: Printing is only possible from the "Report" screen.
2) After Filling: Printing operation is made according to the settings in "Printer Settings Menu" after the filling is completed. Key is also used for manual printing at the report menu.



Printer Type

3) APS Epm203
4) Zebra EPL

Period

Selection for RS232 serial out sending frequency. The options are;

1) 6/Min
2) 1/Sec
3) 10/Sec
4) 50/Sec
5) 100/Sec
6) 400/Sec
7) 800/Sec

Not: *Period menu is not shown when "Stability" or "Detail" modes are selected.*
When "Speed" Mode is selected, Period can be selected as 50-800/Sec
When "Accuracy" mode is selected, Period can be selected as 6/Min-10/Sec

1·4·3 Remote Display (In Scale and Filling Programs)

It is the section that contains the remote display out (opto-coupler) settings. This menu is an ordered type menu. Sub-menus are Mode and Baudrate.

Mode

The options are;
1) Inactive: No data transfer can be made to the remote display.
2) Gross: Gross value is sent to the remote display.
3) Net: Net value is sent to the remote display.
4) Stable-Net: The "Net" value is sent to the remote when the Stagnancy indicator ( ) is active.

display

Baudrate

It is the selection for remote display communication speed. The options are;
1) 1200
2) 2400
3) 4800
4) 9600

Not: *The Baudrate menu is not displayed when "Inactivate" mode is selected*

1.4.3 Remote Display (In Batching Program)

It is the section that contains the remote display out (opto-coupler) settings. This menu is an ordered type menu. Sub-menus are Mode and Baudrate.

Mode

The options are;

1) Inactive: No data transfer can be made to the remote display.

2) Silo: The value of the silo filled is sent to the remote display.

3) Total: Total batching value is sent to the remote display.

4) Weight: Gross weight value is sent to the remote display.

Baudrate

It is the selection for remote display communication speed. The options are;

7) 1200

8) 2400

9) 4800

10) 9600

Not: *The Baudrate menu is not displayed when "Inactivate" mode is selected*

1.5 USB Logging

It is the menu where the logging settings are made. This menu is an ordered type menu. Sub-menus are Mode and Period. It is active under filling and Scale Programs.

Mode

It is the recording type selection. The options are;

1) Inactive: No recording is made.
2) Weight: Net weight value is recorded.
3) Detail: Weight data is recorded in detail.

The format of the data recorded in USB is as follows.

Scale Program Format

USB recording mode "**Weight"**

Net	CR
169.2	CR

USB recording mode "**Detail"**

Date	TAB	Time	TAB	Net	TAB	Tare	TAB	Gross	TAB	Status	CR
12.02.2013	Chr 9	09:52:13	Chr 9	169.2	Chr 9	128.5	Chr 9	297.7	Chr 9	S	CR

Status
E:Error
Z:Absolute Zero
S:Stagnancy
- :This symbol appears when non of the abovementioned conditions occur.
The name of the saved file is as "YearMonthDayeMode" format. For example; 20130412D

Batching Program Format
USB recording mode "**Weight"**

Net	CR
100	CR

USB recording mode "**Detail"**

Date	T	Time	T	Recipe Name	T	Operation No	T	Silo 1	Silo 2	…	Silo N	T	Total	CR
16.04.2013	*	08:50:19	*	RECIPE12	*	2	*	1200	1000	…	800	*	4500	CR

T : Tab
* : Chr 9
N : Value selected in silo number menu (Silo number)

Date	Date of batching
Time	Time of batching
Recipe Name	Recipe processed.
Operation No	Number of the batching. It is reset when the recipe is changed.
Silo 1-Silo N	They are silo weight values.(sent in an order)
Total	Total of the last batch made

For example:

DATE	TIME	RECIPE NAME	OPERATIO N NO	SILO01	SILO02	SILO03	SILO04	TOTAL
09.10.2013	16:25:15	RECIPE06	11	499	0	0	500	999

The name of the saved file is as "YearMonthDayeMode"_RecipeName format. For example; 20131009D_RECIPE06

Filling Program Format

USB recording mode "**Weight"**

Net	CR
1000	CR

USB recording mode "**Detail"**

Date	T	Time	T	Product Name	T	Operation No	T	Net	T	Tare	T	Gross	T	CR
16.04.2013	*	08:50:19	*	PRODUCT03	*	12	*	1200	*	300	*	1500	*	CR

T : Tab
* : Chr 9

Date	*Last filling date*
Time	*Last filling time*
Product Name	*Name of the product filled*
Operation No	It is the number of filling. It is reset when the product changes
Net	*Last filling value*
Tare	*Weight value on the weighing platform when the filling starts*
Gross	*Total of net and tare values*

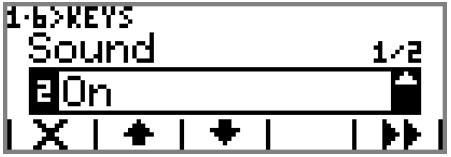
The name of the saved file is as "YearMonthDayeMode"_ProductName format. For example; 20130416D_PRODUCT03

1·E Keys

It is the menu where the key settings are made. This menu is an ordered type menu. Sub-menus are "Tone" and "Sensitivity".

Sound

It is the key tone selection. The options are;
1) On
2) Off



Sensitivity

It is the selection for the perception setting of the keys. The options are;
1) Sensitive: It is the option where the perception is the highest. Suitable for using with gloves.
2) Standard: It is the state of normal operation.
3) Stable: It is the option where the perception is the lowest.

1.1 Maintenance

1.7.1 LCDPixelTest

It is the screen test menu in LCD. Pixel and rear light control is made.

1.7.2 CPU Temp.

Inside temperature of the device is displayed for 3 seconds.

1.7.3 Memory Test

It is used for understanding whether the memory unit is functional or not.

1·7·4 Serial Test

1·7·4·1 Terminal

It is used for understanding whether the communication port is functional or not. The data received from the serial port is displayed at the receiving section. "ESIT" wording is sent to the serial port at the same time.

1·7·4·2 Remote

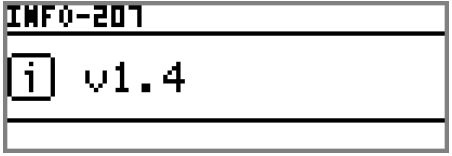
It is used for understanding whether the communication port is functional or not. "ESIT" wording is sent to the remote display.

1·7·5 Serial No

Used for displaying the device serial number.

1.7.6 Firmware No

Used for displaying the device version number.
vX.Y.Z
X: Represents the updates in the basic structure of the software.
Y: Represents the regional updates in the structure of the software.
Z: Represents the small changes in the software such as changing the Word written on a button.



1.7.7 FactoryDef

Used for returning the device parameters to the Factory settings.

Note: *The device can also be returned to the factory settings by pressing to the calibration key for 10 seconds while the device is at the main screen. The warning screen appearing later on will display that the factory settings will be returned and sound warning is given. The factory settings will be returned when it is pressed for an additional period of 10 seconds.*

1.7.8 ResetDevice

Used for restarting the device.

1.7.9 Reports

It is used for transferring calibration, error and over loading logs to USB.

Calibration report format is as follows:

Date	Time	Coefficient	Zero Value	Calibration Type
19.11.2013	09:02:15	0.03331	1254	Yük

Error report format is as follows:

Date	Time	Error No
19.11.2013	09:02:15	0.03331

Overload report format is as follows:

Date	Time	Overload
19.11.2013	09:02:15	0.03331

7.3.2 Scale Menu

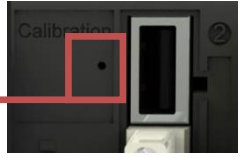
The menus related to the weighing module inserted to slot 2 of the device are displayed under this menu.

Scale

It is the menu that contains weighing device (Slot2-Load Cell Module) parameters.

Note: *If the symbol presents in any of the sub-menus of the Weighing menu, then the menu cannot be accessible. In such case, it is necessary to press the calibration key for a short time to activate in order to access the menu.*

Calibration Key



2.1 Security Type

Contains the weighing device security settings. The options are;
1) LegalForTrd: Weighing parameters and calibration cannot be changed. (Locked)
2) Calibra.Lock: Weighing parameters can be changed but the calibration cannot be changed. (Locked)
3) FullUnlocked: Weighing parameters and calibration can be changed.

Note: *If the security type is selected as "LegalForTrd" or "Calibra.Lock", primarily the calibration key should be pressed and the lock should be removed for making any change.*

2·2 Setup

This menu is an ordered type menu where the weighing parameters are set forth. The sub-menus are "Unit", "Sys.Capacity", "Resolution" and "Measuring Type".

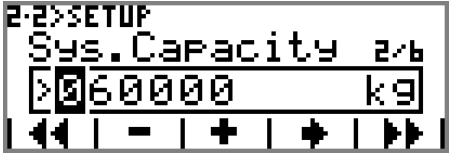
Units

Determines the unit of the weighing device . The options are;

1) (g)Gram
2) (kg)Kilogram
3) (t)Ton
4) (N)Newton
5) (lb)Pounds
6) (lt)Liter
7) (mV/V) Input
8) (m3)CubicM
9) None

Sys.Capacity

It is the capacity value of the device. The capacity of the load cell must not be exceeded.



Resolution

It is the scale interval (e) selection.
e: It is the smallest screen change quantity.
Scale Interval
Scale Interval is automatically calculated as the multiplies of 1, 2 and 5 depending on the capacity parameter and presented as a selection. The options are;

1) Capacity / 6000: The value calculated as 1/6000 as standard.
2) Capacity / 3000: The value calculated as 1/3000 as standard.
3) Capacity / 1500: The value calculated as 1/1500 as standard.
4) Custom: This option is selected if it is desired to select a resolution other than these first three options.

When the custom resolution is selected Multiple and Scale Interval menus appear and the product of the values selected in these menus are determined as the walking step.

Multiplier

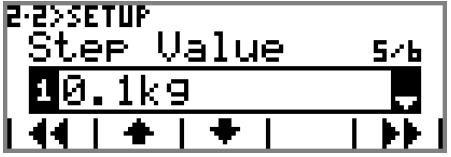
The options are;

1) 1000
2) 100
3) 10
4) 1
5) 0.1
6) 0.01
7) 0.001

Step Value

The options are;

1) 1
2) 2
3) 5



ScaleType

Determines the operation of the weighing device. In weighing devices;
“e”: is referred as the scale interval It is the difference between two subsequent indications.
There may be a signle "e" division as well as more than one partitions. The options related to this parameter are;

1) Single
2) Multi Int
3) Multi Rng

Single: The weighing device with a single scale interval and capacity.

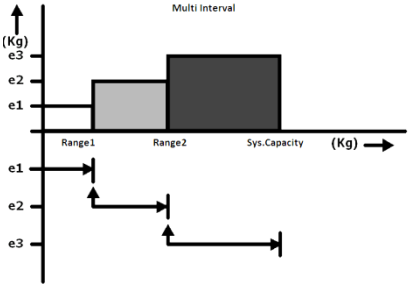
Multi Int: In this operation there are 3 different scale intervals and capacities. There is a different scale interval in each capacity range;

Weight < LowerZoneLimit + 9e1→ e1 (the first zone scale interval)

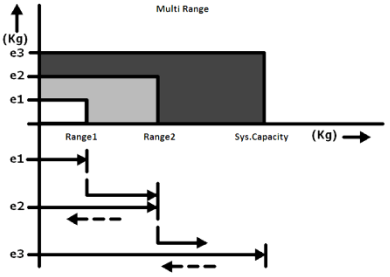
LowerZoneLimit + 9e1 < Weight < UpperZoneLimit + 9e2→ e2 = 2*e1 (the second zone scale interval)

UpperZoneLimit + 9e1 < Weight < Capacity + 9e3 → e3 = 2*e2 (the third zone scale interval)

"e1" scale interval is determined with **Resolution** parameter. e2 and e3 are determined automatically. If the respective zone capacity +9e is observed when the weight is increased, it is proceeded to the next scale interval. When the weight is decreasing, it is decreased to the previous scale interval when it is shifted from the upmost zone to the lowest one or from the lower zone to the 1. zone. The scale interval can be the multiples of 1,2 and 5. For example when e1=2, e2=2*e1=2*2=4 and calculated as 5 which is the next scale interval.



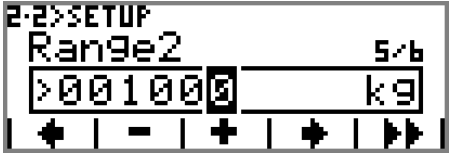
Rng: In this operation there are 3 different scale intervals and capacities. There is a different scale interval in each capacity range;
e1 (first zone scale interval): is determined with **Resolution** parameter
e2 = 2*e1 (the second zone scale interval): is determined automatically
e3 = 2*e2 (the third zone scale interval): is determined automatically
If the respective zone capacity +9e is observed when the weight is increased, it is proceeded to the next scale interval. However, the scale interval does not change when shifting from the 3. zone to the 2. one or from the 2. zone to the 1. one when the weight is decreasing. It is shifted to e1 when the weight is below 0,5 e(i).



The scale interval can be the multiples of 1,2 and 5. For example when e1=2, e2=2*e1=2*2=4 and calculated as 5 which is the next scale interval. It is shifted to 3 partition operation mode when the measuring type is selected as "Multi Interval" or "Multi Partition". In such case, following menus are displayed respectively in order to determine the upper and lower Zone limits.In multi partition systems Capacity>UpperZoneLimit>LowerZoneLimit must be entered.

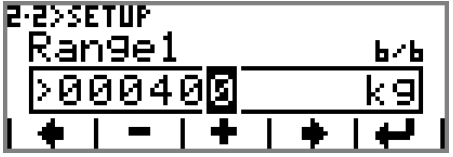
UpperZoneLimit:

It is activated when the measuring type is selected as "Multi Interval" or "Multi Rng". It is the maximum value that relates to the 2. scale interval (e2).



LowerZoneLimit:

It is activated when the measuring type is selected as "Multi Interval" or "Multi Partition". It is the maximum value that relates to the 1. scale interval (e1).



2·3 Filter

It is the menu where the filter settings are made. This menu is an ordered type menu. The sub-menus are "Mode", "AverageQuantity", "Speed", "Vibration" and "Stability Period".

Mode

It is the filter mode selection. The options are;
1) gResolver: It is the advanced numerical filtering option. The input signal is processed through advanced mathematical functions and gives rapid and stable results.
2) Mov. Average: It is the standard numerical filtering option. Moving average method is used.
3) No Filter: No filter is applied.

Vibration

It is the selection for the vibration intensity in the environment. The options are;
1) Low
2) Medium
3) High

Note: *When Moving **Average** is selected no "Vibration" is displayed.*

AverageCount

The selection for the number data to be used for the moving average filter. The options are;

1) 8
2) 16
3) 32

Note: *When* ***gResolver*** *mode is selected, "AverageQuantity" is not displayed*

Speed

It is the ADC measuring speed. The options are;

1) 6.25 Hz
2) 12.5 Hz
3) 50 Hz
4) 100 Hz
5) 400 Hz
6) 800 Hz

Note: *When* ***gResolver*** *mode is selected, "Speed" is not displayed It is detected automatically.*

StbltyDelay

The options are;
1) Short (0.5 sec): Current measurement value is monitored for 0,5 sec.
2) Mid (1.0 sec): Current measurement value is monitored for 1 sec.
3) Long (2.0 sec): Current measurement value is monitored for 2 sec.
4) Custom: This option is selected if it is desired to set a stability delay other than these first three options.

2·4 Zero/Tare

It is the menu where the zeroing and taring are made. This menu is an ordered type menu. The sub*menus are "Mode", "Zero Limit", "Starting Zero" and "Stagnancy".

Mode

The options are;

1) Manual: Zeroing is only made by using key.

2) ZeroTracking: The shifts in the weight value are zeroed as long as the gross value is zero.

3) PowerOnZero: The option of zeroing at start-up. It operates with the % ratio selected in "Start-up Zero" menu. Zero monitoring is also active.

4) FullAutoZero: It is the full automatic zeroing option. Start-up is also active. In case of stagnancy ( ), the screen is resetted in the % ratio as selected in "Zero Limit" menu once in every 3 seconds.

*Note: **ZeroTracking** operates only in Scale Program.*

ZeroingLimit

1) %1 Capacity: Zeroing is made if the weight value of less than 1 % of the Capacity.
2) %2 Capacity: Zeroing is made if the weight value of less than 2 % of the Capacity.
3) %10 Capacity: Zeroing is made if the weight value of less than 10 % of the Capacity.

PowerOn Zero

Determines at which ratio of the "Capacity" value will the zeroing be made at first start-up of the device. The options are;
1) %5 Capacity: Zeroing is made if the weight value of less than 5 % of the Capacity.
2) %10 Capacity: Zeroing is made if the weight value of less than 10 % of the Capacity.
3) %25 Capacity: Zeroing is made if the weight value of less than 25 % of the Capacity.

Note: *The start menu is not displayed when "Manuel" mode is selected.*

Stability

The options are;
1) Wait Stable: Stagnancy( ) is necessary for taring and zeroing. If there is no stagnancy warning message is displayed on the screen.
2) No Wait: Taring and zeroing is made regardless of stagnancy.

Tare

Options;
1) On: Taring function is enabled.
2) Off: Taring function is disabled.

Note: *Tare menu is displayed only in "Indicator" program.*

2.5 Calibration

It is explained in detail in Calibration section.

2.6 Maintenance

2.6.1 SystemDoctor

System doctor interprets the values obtained from the load cell and provides detailed information on the ambient vibration, load status and drift.

Detailed information can be seen by pressing i key.

Noise: Provides the ambient vibration.
Drift: Shows that the load is not stable and has the tendency to dislodge continuously.
Input Saturation: Provides the capacity percentage of the load cell used.

2·6·2 A/D Count

ADC internal count value is displayed on the screen. Expresses the numerical equivalent of the signal connected to the Load Cell module. Count Value varies depending on the "Load Cell Type" selection. Maximum values are shown in the table given below.

Load Cell Type	Maximum Value
Esit 2.0mV/V	6 400 000
2.5 mV/V …160.0 mV/V	8 000 000

2·6·3 A/D mV/V

ADC mV/V value is displayed on the screen. Expresses the mV/V value received from the sensor connected to the Load Cell module. It is used from controlling the load cell output.

2·6·4 Backup

The Weighing settings and calibration information on ECI can be backed-up to the "Load Cell Module" in Slot 2. Thus, the previous weighing settings can be recovered anytime by making Back-up > Recovery operation. Furthermore the "Load Cell Module" which contains the back-up can be inserted to another ECI and the weighing setting and calibration data can be transferred to another device by making Back-up > Recovery operation.

2·6·4·1 Backup

The Weighing settings and calibration information saved on ECI are backed-up to the **"Load Cell Module".**

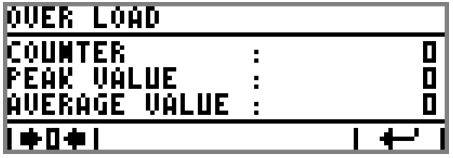
2·6·4·2 Restore

The Weighing settings and calibration information saved on the **"Load Cell Module"** are transferred to ECI.

Note: *If not Back-up operation is made to the "Load Cell Module" before, then no "Recovery" operation can be made and relevant message will be displayed.*

2.6.5 OverLoad

Overload menu provides information on the number of occurrence of the "**Maximum Load"** error, its peak value and average value by interpreting the values obtained from the load cell.



Counter: It givens the number of "Maximum Load" errors.
Peak Value: It gives the highest weight value causing the occurrence of "Maximum Load" error.
Average Value: It gives the average of the weight values causing the occurrence of "Maximum Load" error.

Values can be reset by 0 key.

It is possible to return to the Menu with key.

7.3.3 Optional Communication Menu

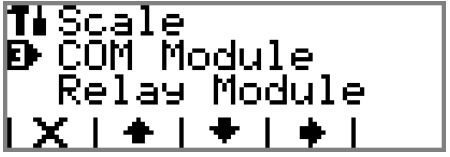
The menus related to the communication module inserted to slot 3 of the device are displayed under this menu. If there is not any communication module, this menu is displayed under the name "Empty Slot".

7.3.3.1 Optional Serial Communication Menu

Following menus will appear if COM module is inserted to slot 3.

COM Module

This is the menu where the parameters of the COM module are set forth.



Settings(In Scale,Batching and Filling Program)

This menu is an ordered type menu where the communication parameters are set forth. The sub-menus are "Mode", "Baudrate", "Period" and "Modbus Mode" and "Modbus No".

Mode

It is the communication type selection.

1) Speed: Net weight information is sent continuously. (Baudrate is 115200bps.)
For example;
The screen value of "2148.0kg" is sent as follows.

Character	‘ ‘	‘ ‘	‘ ‘	‘ ‘	‘ 2‘	‘ 1‘	‘ 4‘	‘ 8‘	‘.’	‘ 0‘	CR
Ascii	32	32	32	32	50	49	52	56	46	48	13
Hex	20	20	20	20	32	31	34	38	2E	30	0D

2) Accuracy: Net weight information is sent continuously. The format of the data string sent is same as the Speed mode.

3) Detail: Weight data is sent in detail. The format of the data string sent is same as follows.

Date	TAB	Time	TAB	Net	TAB	Tare	TAB	Gross	TAB	Status	CR
12.02.2013	Chr 9	09:52:13	Chr 9	169.2	Chr 9	128.5	Chr 9	297.7	Chr 9	S	CR

Status
E:Error
Z:Absolute Zero
S:Stagnancy
- :This symbol appears when non of the abovementioned conditions occur.

4) Stability: Net weight information is sent 10 times per second when stability is observed. The format of the data string sent is same as the Speed mode.

5) Command: Functions as a query from a remote computer or similar device.
Not case sensitive.
Command List:
'R' : Resets the device (Reset).
'Z' : Functions as reset key. When zero limit is exceeded, no zeroing is made and NL returns from the serial port.
'T' : Functions as tare key. When taring is closed from the menu, the command does not run when it is sent and ND returns. If this command is given under negative load, the command does not run when it is sent and NN returns.
'W' : Recovers the existing measurement results.
'A' : Returns ADC internal count value.
'V' : Returns device version number.
'GIn' : Rotates the card type numeric entries of the modules inserted in slot 4 and 5. Inputs in slot 4 and and 5 are rotated with GI0 and GI1 commands respectively.
'GOn' : Recovers the numeric outputs of the modules inserted in slot 4 and 5. Outputs in slot 4 and 5 are rotated with GO0 and GO1 commands respectively.
6) Modbus: It is the Modbus operation mode selection.
7) Off: Data sending over serial port is disabled

Note : *In "**Batching" and "Filling programs",** mode options other than "Modbus" and "Closed" are locked as they are not active.*

Baudrate

It is the selection for RS232 serial output communication speed. The options are;

1) 1200
2) 2400
3) 4800
4) 9600
5) 19200
6) 38400
7) 57600
8) 115200

Note: *Only 115200 can be selected if "Speed" Mode is selected.*
1200-115200 can be selected if "Accuracy", "Stability", "Command" or "Modbus" Modes are selected.
9600-115200 can be selected if "Detail" Mode is selected.

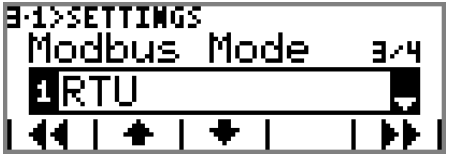
Period

Selection for optional module serial out transmission frequency. The options are;

1) 6 Pc/Min: Option for transmission frequency per minute.
2) 1 Pc/Sec: Option for transmission frequency per second.
3) 10 Pc/Sec: Option for transmission frequency per second.
4) 50 Pc/Sec: Option for transmission frequency per second.
5) 100 Pc/Sec: Option for transmission frequency per second.
6) 400 Pc/Sec: Option for transmission frequency per second.
7) 800 Pc/Sec: Option for transmission frequency per second.

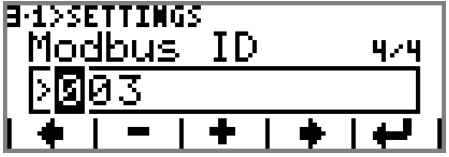
Not: *Period menu is not shown when "Command", "Stability", "Modbus" or "Off" modes are selected.*
When "Speed" Mode is selected, Period can be selected as 50-800/Sec.
When "Accuracy" or "Detail" mode is selected, Period can be selected as 6/Min-10/Sec

Modbus Mode



It is the Modbus communication mode. The options are;
1) **RTU**: Each byte data to be sent is meaningful and the transmission is made by coding with CRC control byte.
2) **ASCII**: Each byte data to be sent is sent as two separate bytes and in coding that can be displayed as Ascii. For example; for 26 (hex:1A) decimal data transmission, the characters "1" and "A" are set. Thus the communication speed is slower than RTU..

Modbus ID



The identity number to be used by the device during Modbus communication.

3·3 Maintenance

It is used for understanding whether the communication port is functional or not. The data received from the serial port is displayed at the receiving section. "ESIT" wording is sent to the serial port at the same time.

7.3.3.2 Optional Profibus Communication Menu

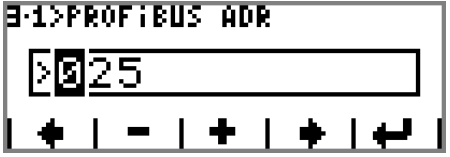
Following menus will appear if Profibus module is inserted to slot 3.

3 ProfiBus Modul

This is the menu where the parameters of the Profibus module are set forth.

3-1 ProfiBus Adr

The address number to be used by the device for the profibus communication.



3-2 Maintenance

The screen where the profibus communication settings are displayed.

7.3.3.3 Optional Ethernet IP Communication Module

Following menus will appear if Ethernet IP module is inserted to slot 3.

3 Ethernet IP

This is the menu where the parameters of the Ethernet IP module are set forth.

3·1 IP Address

The address number to be used by the device for the Ethernet IP communication.

IP.xx.xx.xx

1. part of the IP address. Value between 1-255 can be entered.

xx.IP.xx.xx
2. part of the IP address. Value between 1-255 can be entered.

xx.xx.IP.xx
3. part of the IP address. Value between 1-255 can be entered.

xx.xx.xx.IP
4. part of the IP address. Value between 1-255 can be entered.

3-2 Maintenance

The screen where the Ethernet IP communication settings are displayed.
Station name of the Profinet module is created from 4th part of IP adress. Screenshot on the side, as 4th part of IP adress is 100 thus station name is “ECI100”.

7.3.3.4 Optional Profinet Communication Module

Following menus will appear if Profinet module is inserted to slot 3.

3 Profinet

This is the menu where the parameters of the Profinet module are set forth.

3.1 IP Address

The address number to be used by the device for the Profinet communication.

IP.xx.xx.xx

1. part of the IP address. Value between 1-255 can be entered.

xx.IP.xx.xx

2. part of the IP address. Value between 1-255 can be entered.

xx.xx.IP.xx

3. part of the IP address. Value between 1-255 can be entered.

xx.xx.xx.IP

4. part of the IP address. Value between 1-255 can be entered.

3-2 Maintenance

The screen where the Profinet communication settings are displayed.

7.3.4 Optional In/Out Menu

The menus related to the In/Out module inserted to slot 4 of the device are displayed under this menu. If there is not any In/Out module, this menu is displayed under the name "Empty Slot".

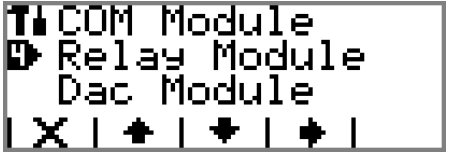
7.3.4.1 Optional Relay Menu

Following menus will appear if Relay module is inserted to slot 4.

4 Relay Module

Display Program

This is the menu where the parameters of the Relay module are set forth.



4.4 Outputs(In Scale Program)

It is the menu where the relay settings are made.

4.1.4 Relay1

It is the menu where the Relay1 settings are made. This menu is an ordered type menu. Sub menus are “Mode”, “Minimum”, “Maximum, “Delay” and “Contact Type”.
Following expressions are valid when "Norm.On" is selected as the "Contact type".

Mode

It is the relay operation mode selection. The options are;

1) Disabled: The relay is not active.

2) Net Value: Operates according to the NET value. Taring affects the operation of the relay.

3) Gross Value: Operates according to the gross weight. Relay set values function independent from the Tare.

4) Ready Sign: Relay contacts are short circuit as long as the device is in operation.

5) Error Sign: In the occurrence of any of the following error situations relay contacts are short circuit , but open circuit in other situations.

Error situations:

LoadCellError (error of the sensor connected to the load cell)

Maximum Load! (The situation where the measured values exceed the Maximum Capacity)

ADC Data Error! (Load Cell Module Error)

No Load Cell Module! (Load Cell Module could not be recognized error)

6) Stable Sign: If the change in the measurement result is less than a scale interval (if symbol is displayed on the screen), the relay contacts are short circuit otherwise (if is displayed on the screen) open circuit.

7) Tare Signal: While taring (when symbol is displayed), relay contacts are short circuit, when the tare is removed (when symbol is displayed), the relay contacts are open circuit.

Minimum

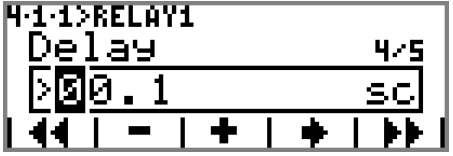
It is active when "Net Value" or "Gross Value" mode is selected. It is the lowest value of the weight range where the relay contact will be active.

Maximum

It is active when "Net Value" or "Gross Value" mode is selected. It is the highest value of the weight range where the relay contact will be active.

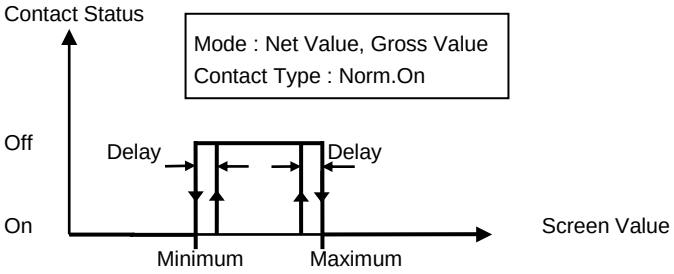
Delay

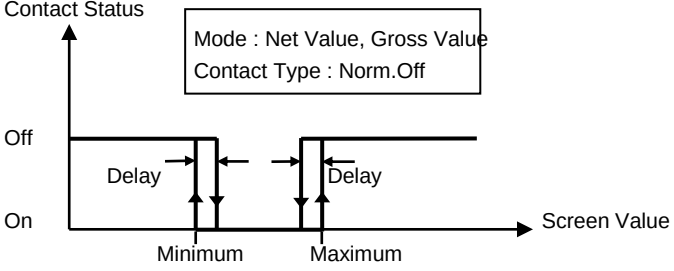
Determines the period after which the relay contact will change state after the desired situation occur.

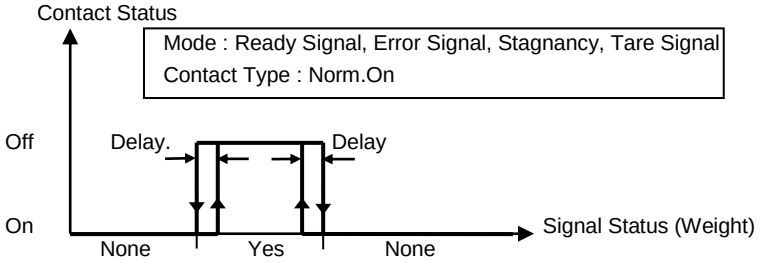


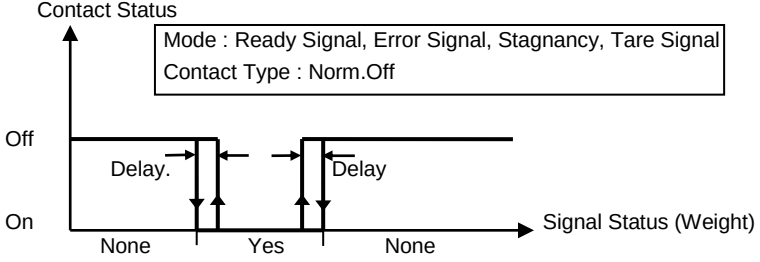
Contact Type

Determines the start-up positions of the relays contacts. The options are;
1) **Norm.Open:**Relay contact is open circuit at start-up.
2) **Norm.Closed:**Relay contact is short circuit at start-up.


Contact Status
Mode : Net Value, Gross Value
Contact Type : Norm.On
Off
Delay
Delay
On
Screen Value
Minimum
Maximum


Contact Status
Mode : Net Value, Gross Value
Contact Type : Norm.Off
Off
Delay
Delay
On
Screen Value
Minimum
Maximum


Contact Status
Mode : Ready Signal, Error Signal, Stagnancy, Tare Signal
Contact Type : Norm.On
Off
Delay.
Delay
On
Signal Status (Weight)
None
Yes
None


Contact Status
Mode : Ready Signal, Error Signal, Stagnancy, Tare Signal
Contact Type : Norm.Off
Off
Delay.
Delay
On
Signal Status (Weight)
None
Yes
None

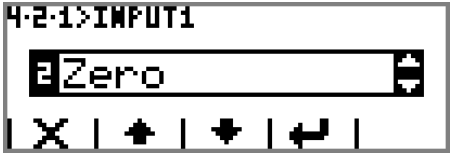
4.1.2 Relay2
4.1.3 Relay3
4.1.4 Relay4

Relay2, Relay3 and Relay 4 menus are same as Relay1 menu.

4.2 Inputs

Numerical input setting where on the Relay module, is setted by this parameter.

4.2.1 Input1



Related on input selection is set this parameter.
Options;
1) Disable: Input signal is appointed at this duty.
2) Zeroing: Device is done zeroing when the input signal detected.
3) Tare: Device is done to weight of the container when the input signal detected.

4.2.2 Input2

4.2.3 Input3

4.2.4 Input4

Input 2, Input 3 and Input 4 are as like as Input 1 menu.

4.3 Maintenance

4.3.1 Inputs

On this menu, Input statements are hounded and controlled as of momentary. If the applied input signal is 12-24 V DC,"1" statement is shown that on display otherwise "0" statement is shown that on display

4.3.2 Outputs

On this menu, relays are pulled to in order when the ▶ button is pressed. If the relay is pulled, shown that"1"character as on picture otherwise shown that"0" character.

7.3.5 Optional Input Output Menu

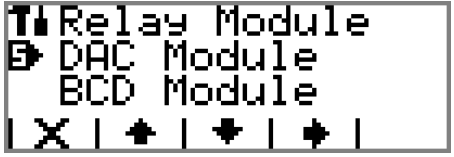
On this menu,Input/Output module where connected to Slot.5, corresponding of menu is shown that on display.If any of Input/output module is not exist, “Slot Empty” information is shown that on display

7.3.5.1 Optional DAC Menu

If the DAC module is mounted on Slot.5, This screen will be shown as below.

DAC Module

DAC module is setted by this parameters on shown that display.

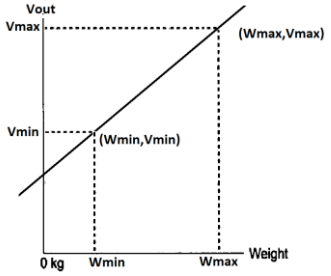


Note: *This module doesn’t use at batching and filling program. (shown that locked)*

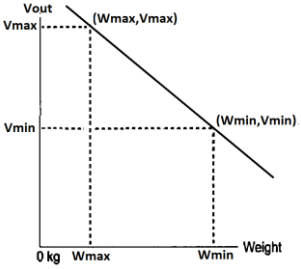
5-1 Analogue Output

This menu contains the Analogue Output module settings.

Voltage Output	: between- 0,500V / 10.500V range.	(in V1.2 cards: - 0,500V / 12V)
Current Output	: between 0mA / 20mA range.	(in V1.2 cards: 0mA / 24mA)



Vmax>Vmin, Wmax>Wmin or
Vmax<Vmin, Wmax<Wmin



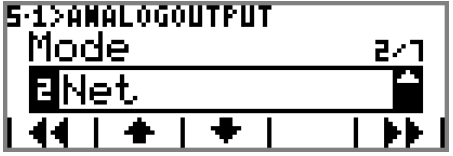
Vmax>Vmin, Wmax<Wmin or
Vmax<Vmin, Wmax>Wmin

Settings

1) Standart:When Net weigh value is changed between zero to capacity, analog output is worked between 0 to 10V.
2) Special: Mode, Referance, Minimum Load,Maximum Load,MinimumVoltage, MaximumVoltage is set by this parameter.

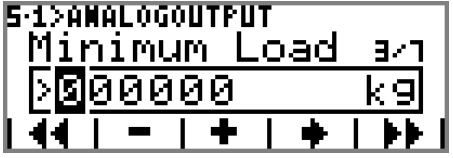
Mode

1) Gros: Analogue Output will function according to the Gross value.
2) Net: Analogue Output will function according to the Net value.

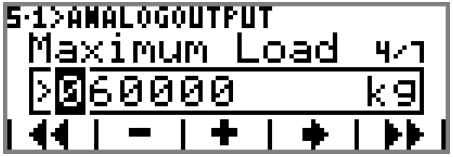


Minimum Load:

The weight value that corresponds the start value of the analogue output.

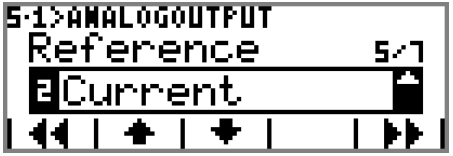


For example if it is desired that the Analogue output tension varies between 1000g and 2000g, the value 1000g is entered here.



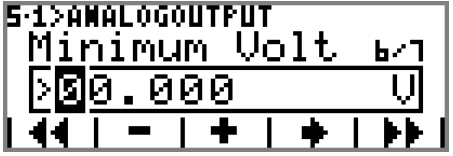
Maximum Load:

The weight value that corresponds the end value of the analogue output.
For example if it is desired that the Analogue output tension varies between 1000g and 2000g, the value 2000g is entered here.



Reference:

1) Voltage: Analogue output shall be adjusted according to the voltage.
2) Current: Analogue output shall be adjusted according to the current value.

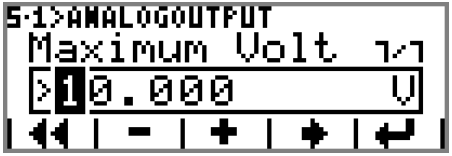


MinimumVolt.:

It is the start value of the Analogue Output.
For example if it is desired that the Analogue output voltage varies between 0 V and 10 V, the value 0 V is entered here.

MaximumVolt.:

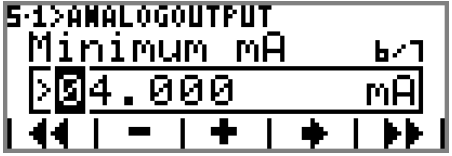
It is the end value of the Analogue Output.
For example if it is desired that the Analogue output voltage varies between 0 V and 10 V, the value 10 V is entered here.



Note: *If Current is selected in the reference menu, "MinimumVoltage" and "MaximumVoltage" menus are not displayed.*

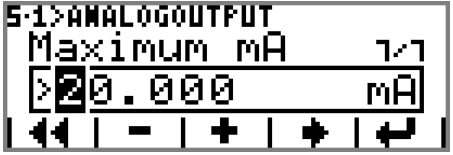
Minimum mA:

It is the start value of the Analogue Output.
For example if it is desired that the Analogue output current varies between 4mA and 20mA, the value 20mA is entered here.



Maximum mA:

It is the end value of the Analogue Output.
For example if it is desired that the Analogue output current varies between 4mA and 20mA, the value 20mA is entered here.

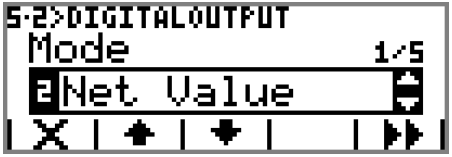


Note: *If Voltage is selected in the reference menu, "Minimum mA" and "Maximum mA" menus are not displayed.*

5·2 Digital Output

The section of the DAC module which contains the settings related to the Digital Output. This menu is an ordered type menu. Sub menus are “Mode”, “Minimum”, “Maximum, “Delay” and “Contact Type”.

Mode



It is the output operation mode selection. The options are;

1) Disabled: The relay is not active.

2) Net Value: Output is given between the minimum and maximum values of the net value, otherwise no output is given.

3) Gros Value: Output is given between the minimum and maximum values of the gross value, otherwise no output is given.

4) Ready Sign: Output is given as long as the device is in operation.

5) Error Sign: Output is given when any of the error situations stated below emerges, otherwise no output is given. Error situations:

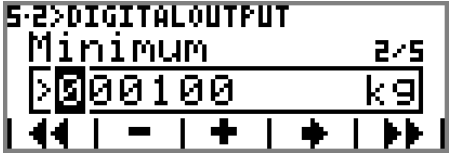
LoadCellError	LoadCellModule reading error!
Maximum Load!	LoadCell Module Hardware error!

6) Stable Sign If the change in the measurement result is less than a scale interval (if symbol is displayed on the screen), output is given, otherwise (if symbol is displayed on the screen) no output is given.

7) Tare Sign: While taring (when ⊕ ✚ symbol is on the scree) output is given. When tare is removed (when ✚⊕ symbol is on the scree) no output is given.

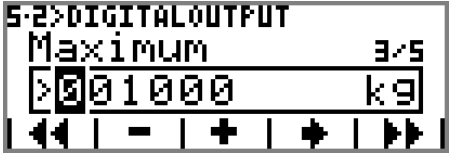
Minimum

It is active when Net Value or Gross Value mode is selected. It is the lowest value of the weight range where the output is active.



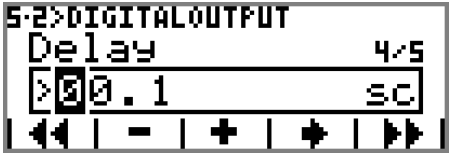
Maximum

It is active when Net Value or Gross Value mode is selected. It is the highest value of the weight range where the output is active.



Delay

Determines the period after which the output will be activated after the desired situation occur.



Output Type

Determines the status of the digital output signal at start-up. The options are;

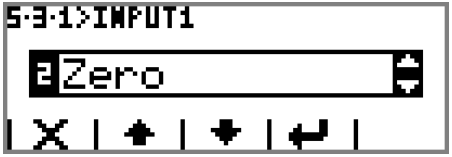
1) Norm. Open: There is digital output signal at start-up.

2) Norm. Closed: There is no digital output signal at start-up.

5·3 DigitalInput

5·3·1 Input1

1) Disabled: The input is not active.
2) Zero: The device performs zeroing operation when input signal is detected.
3) Tare: The device performs taring operation when input signal is detected.



5·3·2 Input2

Same as Input1.

5·4 Maintenance

5·4·1 Inputs

Real time status of the inputs can be monitored from this menu.The inputs that are applied 12-24 V DC are displayed as 1 and other are displayed as 0.

```
5·4·1>INPUTS
<LSB
0 0

| X |
```

5·4·2 Digital Output

In this menu,If ▶ button is pressed,output is activated as periodic to control when the output is activated,"1" is shown on display otherwise "0" is shown on display.

```
5·4·2>DIGITALOUTPUT

0

| X | ▶ |
```

5·4·3 Analog Output

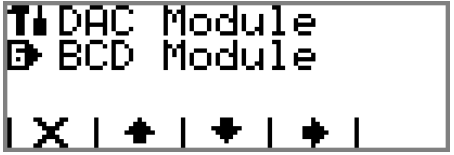
In this menu,When the button is pressed,output is changed to control as periodical between 0 to 10V.

7.3.6 Optional Expansion Menu

The menus related to the expansion module inserted to slot 6 of the device are displayed. EXP Module or BCD Module can be inserted to this slot. If there is not any expansion module, this menu is displayed under the name "Empty Slot".

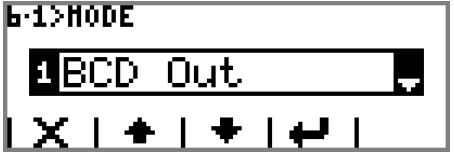
7.3.6.1 Optional BCD Module Menu

Following menus will appear if BCD module is inserted to slot 6.



BCD Module

This is the menu where the parameters of the BDC module are set forth.



Mode

1) BCD Out: BCD (Binary Coded Decimal) is the binary coding of the numbers in Decimal number system $4^{1/2}$ digit (39999) output data is coded.

2) Binary 2' s: BINARY'2 is the integrated output in binary number system. 1 sign + 19 bit (±524.287) output data is provided.

3) Binary Abs.: It is the absolute output coded in binary number system. 1 sign + 19 bit (524.287) output data is provided. Binary functions in the same way with the complement.

Note: *This module is not used in batching and filling programs (displayed locked).*

BCD Output:

	12495 kg	-1780 kg	ERROR
SIGN	0	1	1
D18	0	0	0
D17	0	0	0
D16	1	0	0
D15	0	0	0
D14	0	0	0
D13	1	0	0
D12	0	1	0
D11	0	0	0
D10	1	1	0
D9	0	1	0
D8	0	1	0
D7	1	1	0
D6	0	0	0
D5	0	0	0
D4	1	0	0
D3	0	0	0
D2	1	0	0
D1	0	0	0
D0	1	0	0

Binary 2' All

	12495 kg	-1780 kg	ERROR
SIGN	0	1	1
D18	0	0	0
D17	0	0	0
D16	0	0	0
D15	0	1	0
D14	0	1	0
D13	1	1	0
D12	1	1	0
D11	0	1	0
D10	0	0	0
D9	0	0	0
D8	0	1	0
D7	1	0	0
D6	1	0	0
D5	0	0	0
D4	0	0	0
D3	1	1	0
D2	1	1	0
D1	1	0	0
D0	1	0	0

BinaryAbsolute

	12495 kg	-1780 kg	ERROR
SIGN	0	1	1
D18	0	0	0
D17	0	1	0
D16	0	1	0
D15	0	0	0
D14	0	0	0
D13	1	0	0
D12	1	0	0
D11	0	0	0
D10	0	1	0
D9	0	1	0
D8	0	0	0
D7	1	1	0
D6	1	1	0
D5	0	1	0
D4	0	1	0
D3	1	0	0
D2	1	1	0
D1	1	0	0
D0	1	0	0

6·2 Maintenance

This menu is used for making the control and testing of the inputs and outputs of the "BCD Module".

6·2·1 Inputs

The status of the inputs can be monitored real time from this menu. The inputs that are applied 12-24 V DC are displayed as 1 and others are displayed as 0.

```
6·2·1>INPUTS
<LSB
0 0 0

| X |
```

6·2·2 Outputs

When ▶ key is pressed in this menu, one of the outputs activate while the other remain inactive. The active out is displayed as 1 and others are displayed as 0.

```
6·2·2>OUTPUTS
<LSB
00011011-10111000-0000

| X | ▶ |
```

7.3.6.2 Optional EXP Module Menu

Following menus will appear if EXP module is inserted to slot 6.

6 EXP Module

6.1 Outputs

It is the menu where the Digital Output settings are made. Same as the relay module output menu.

6.1.1 Output1

.

6.1.6 Output16

6.2 Inputs

Same as the relay module input menu.

6.2.1 Input1

.

6.2.8 Input8

6.3 Maintenance

Same as the relay service input menu.

6.3.1 Inputs

6.3.2 Outputs

7.4 Zeroing and Tare Operations

7.4.1 Zeroing

Used for zeroing the indication value.

7.4.1.1 Manuel Zeroing:

key is used in order to make zeroing operation within the limits in Zero/Tare menu.

7.4.1.2 Auto Zeroing

Zeroing is made at start-up. Furthermore in case of stagnancy ( ), the screen is resetted in the % ratio as selected in "Zero Limit" menu once in every 3 seconds.Other resetting options are explained in Zero/Tare menu.

7.4.2 Tare

7.4.2.1 Manuel Tare

key is used for taring operation. After taring, the load with the weight of at least 20*e (Resolution) is left on the weighing platform and if any stagnancy is observed, the tare is automatically cancelled when the gross value is 0.

7.4.2.2 Auto Tare

There is no auto Tare function in ECI device.

Note: *key is not displayed if Tare "Off" is selected from Zero/Tare menu.*

8 Calibration

8.1 Load Calibration

It is the operation of identification of a mass with a known weight to the device. It must be made by using real weights.

1) It is entered to menu 2.5 for the load calibration.

2) Load cell type is selected. The options are;

1) Esit (2 mV/V)
2) 2.5mV/V
3) 5.0mV/V
4) 10.0mV/V
5) 20.0mV/V
6) 160.0mV/V

mV/V selection is made depending on the load cell model.

3) For entering to Calibration Type menu ▶▶ is pressed.

4) Calibration Type is selected. The options are;

1) Load Calibration
2) mV/V Calibration
3) Coefficient Calibration
4) Zero Calibration

5) After selecting the Calibration Type as the "Load Calibration, proceeded to the next screen by pressing first, then ▶▶ key. The information screen shown at side is displayed.

<u>If you select the cell type wrong you can return the previous screen by pressing ◀◀ key.</u>

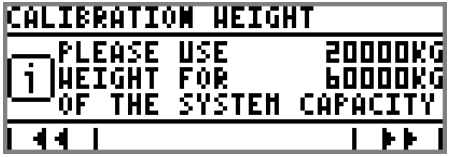
6) ▶▶ key is pressed for starting the zeroing operation.

7) After the zeroing operation finishes, the result of the zeroing will be displayed on the screen. If you want to repeat the zeroing operation press key.Press key to continue.

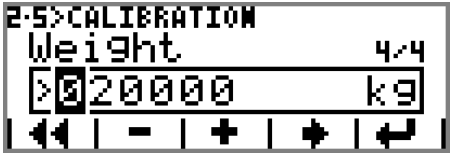
8) Zeroing operation is completed. Press key to continue the operations.

9) In order to proceed to the screen where the calibration weight value to be entered key is pressed.

For a proper calibration operation, the load used must not be less than the amount recommended on the screen.

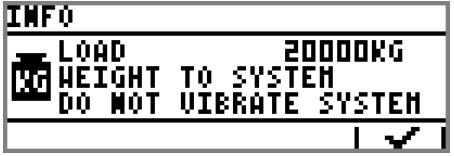


10) The weight value to be used in calibration is stated in this screen. For confirming the weight value entered key is pressed and proceeded to the calibration screen.



Approved and certified weights must be used for a healthy calibration.

11) By placing the load equal to the calibration weight stated in the message screen and pressing the key, the calibration process is initiated.



The screen shown at side is displayed during the calibration.

12) When the calibration operation is completed,the calibration result is displayed. If you want to repeat the calibration operation press key. Press key to continue.

13) General information screen indicates that the calibration is completed. Key is pressed for proceeding to the next screen.

14) key is pressed to store the calibration values or is pressed to exit from the menu without storing the calibration values.

8.2 mV/V Calibration

It is the calibration operation made by using the load cell values without any loading. Following operations are carried out in order.

1) It is entered to menu 2.5 for the mV/V calibration.

2) Load cell type is selected. The options are;

1) Esit(2 mV/V)
2) 2.5mV/V
3) 5.0mV/V
4) 10.0mV/V
5) 20.0mV/V
6) 160.0mV/V

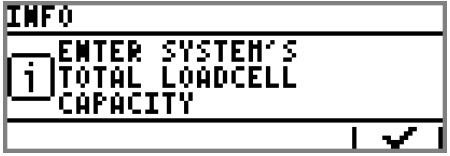
3) For entering to Calib. Type menu key is pressed.

4) It is the Calibration Type selection. The options are;

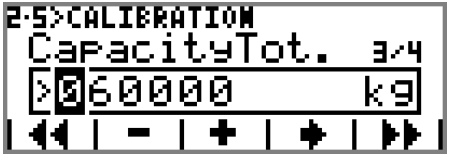
1) Load Calibr.
2) mV/V Calibr.
3) CoeffCalibr.
4) Zero Calibr.

"mV/V Calibration" is selected and key is pressed.

5) mV/V calibration is made according to the total load cell capacity of the system. The information screen indicating this is shown. Key is pressed to proceed.

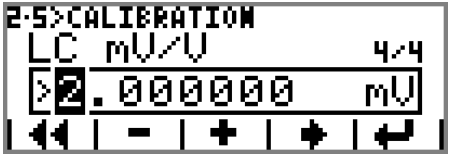


6) Total load cell capacity is entered. If there are more than one load cells in the system, the total value of the capacities of the load cells are entered. To proceed press ▶▶ Key.



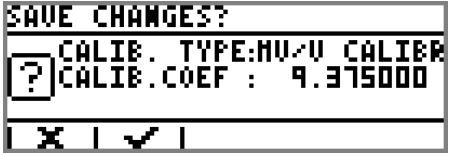
7) mV/V calibration is made according to the mV/V value of the average load cell of the system. The information screen indicating this is shown. ✓ Key is pressed to proceed.

8) The average mV/V value of the system is entered. If one load cell is used in the system, then the certificate value is valid. Otherwise the average of the load cell certificate values must be taken. For confirming the value entered press ↵ key.



9) An information screen indicating that the calibration has been completed appears. ✓ key is pressed to proceed to the next screen.

10) ✓Key is pressed to store the calibration values or ✗ is pressed to exit from the menu without storing the calibration values.



8.3 Coefficient Calibration

1) It is entered to menu 2.5 for the coefficient calibration.

2) Load cell type is selected. The options are;
1) Esit(2 mV/V)
2) 2.5mV/V
3) 5.0mV/V
4) 10.0mV/V
5) 20.0mV/V
6) 160.0mV/V

3) For entering to Calibration Type menu ▶▶ key is pressed.
4) Coefficient Calibration is selected as the Calibration Type. The options are;
1) Load Calibr.
2) mV/V Calibr.
3) CoeffCalibr.
4) Zero Calibr.

5) To proceed press ▶▶ Key.

For skipping the information screen appeared ✓ key is pressed.

6) Coefficient value is entered. For confirming the value entered press ↵ key.

For example;

Load Cell Type: is selected as 2.0 mV/V and if the load cell of 10 kg with the output of 2.0 mV/V is fully loaded, the screen value will be 10000 for the coefficient=1,562500

Other sample values will be as shown in the following table

Coefficient	Scale Interval (e)	Screen Value
1.000000	1	6400
1.000000	1.0	6400.0
1.000000	1.000	6400.000
0.250000	1.0	1600.0
1.562500	1	10000

$$Coefficient = \frac{Screen\ Value(Fully\ Loaded)}{6400}$$

7) ✓ key is pressed to finish the calibration.

```
INFO
 CALIBRATION
i PERFORMED SUCCESSFULY
                  | ✓ |
```

8) ✓ Key is pressed to store the calibration values or ✗ is pressed to exit from the menu without storing the calibration values.

```
SAVE CHANGES?
 CALIB. TYPE:COEFFCALIBR
? CALIB.COEF :  0.124012
| ✗ | ✓ |
```

8.4 Zero Calibration

The following operations must be performed respectively for the zero calibration.

1) It is entered to menu 2.5 for the zero calibration.

2) Load cell type is selected. The options are;

1) Esit(2 mV/V)
2) 2.5mV/V
3) 5.0mV/V
4) 10.0mV/V
5) 20.0mV/V
6) 160.0mV/V

3) For entering to Calibration Type menu key is pressed.
"Zero Calibration" is selected as the calibration type.
The options are;

1) Load Calibr.
2) mV/V Calibr.
3) CoeffCalibr.
4) Zero Calibr.

4) For proceeding to the zeroing screen key is pressed.

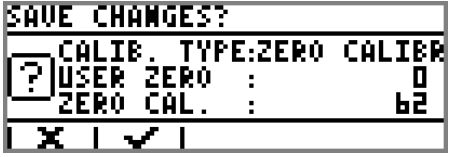
5) Weighing platform is emptied and ▶▶ Key is pressed for starting the zeroing operation.

The screen shown at side is displayed during the zeroing operation.

6) After the zeroing operation finishes, the result of the zeroing will be displayed on the screen. If you want to repeat the zeroing operation press key. Press key to continue.

7) ✔ Key is pressed to proceed to the calibration confirmation screen.

8) ✔ Key is pressed to store the calibration values or ✘ is pressed to exit from the menu without storing the calibration values.



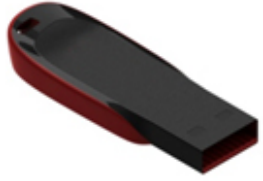
9 Software Update

EECI, provides software update support by using USB disk.

Warning: You may lose your existing settings after the device software update. Thus please review the changes brought by the update carefully and store/note old settings if necessary. The outputs (Relay, input etc) connected to the device may behave different as the routine operation of the device will be disabled during the software update. Thus it is recommended to disconnect or shutdown the connectors connected to the device.

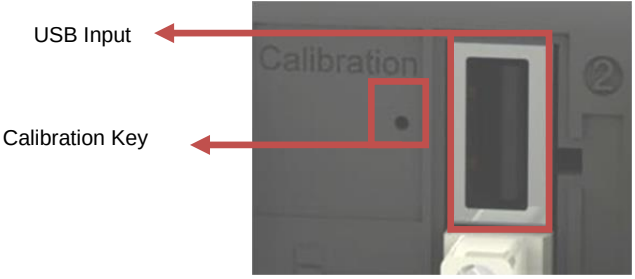
The following steps must be followed in order for the software update;

1) The "image.s19" file to be installed is transferred to an USB disk that is formatted as FAT32.



2) USB disk is inserted to the USB slot of ECI.

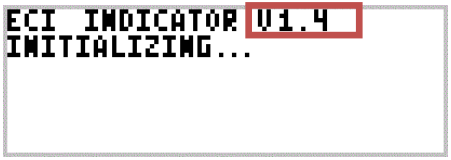
3) When the device is supplied power by keep pressing to the calibration key by means of a clip or stable, the software update operation will start.



The LCD screen will be blank when the update starts. LCD light will blink is short intervals and sound alarm will be heard at the same time. Do not cut the power of the device and wait during the update. When the operation is completed the device will start operating automatically.

Note: *v1.2 and older versions are not suitable for current USB update operations.*

4) The version number is the start screen must be control in order to verify that the installation after the update is performed.



v

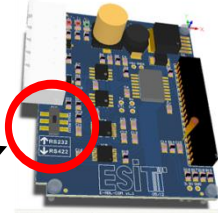
10 Annex 1: Optional Modules

ECI is a device with Smart "Plug-Play" Module structure and optional modules can be changed easily thanks to this feature.

10.1 Slot3 (Optional Communication Slot):

10.1.1 E-MDL-COM (Serial Communication Module):

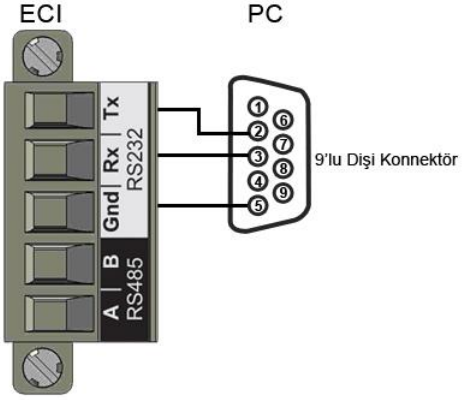
This module is an galvanic insulated serial communication module. RS232/R485 or RS422 communication mode can be selected with the selection switch on it. Maximum Baudrate is 115200bps.



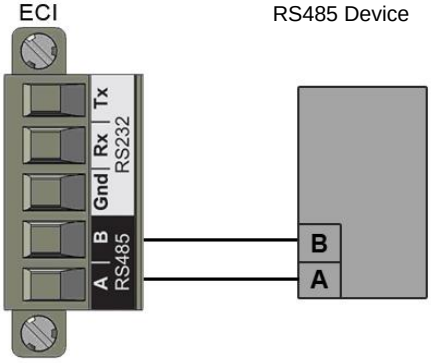
"RS232 & RS485"-"RS422" Selection Switch

***Note:** Before making the connections check "RS232 & RS485"-"RS422" Selection Switch of the respective module.*

10.1.1.1 Connection Example (RS232)

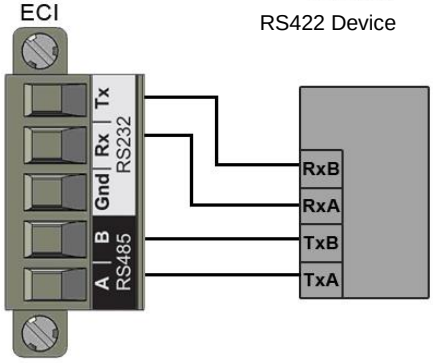


10.1.1.2 Connection Example (RS485)



Note: In RS485 connection, if device is the first or the last in the communication line, put a resistor(120 ohm) between A and B ports.

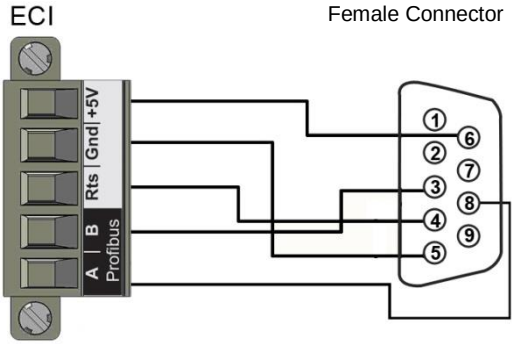
10.1.1.3 Connection Example (RS422)



Note: In RS422 connection, if device is the first or the last in the communication line, put a resistor(120 ohm) between A,B and between Rx, Tx ports.

10.1.2 E-MDL-PRF (Profibus Module)

10.1.2.1 Connection Example



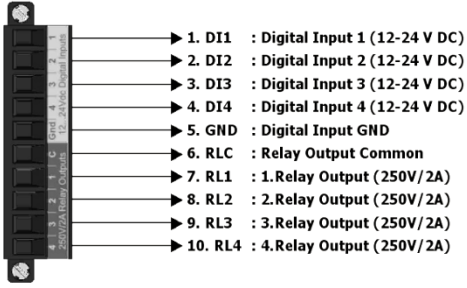
10.2 Slot4 (Optional Input/Output Menu):

E-MDL-RY or E-MDL-DAC modules can be connected to Slot4. Detailed information about these modules are given below.

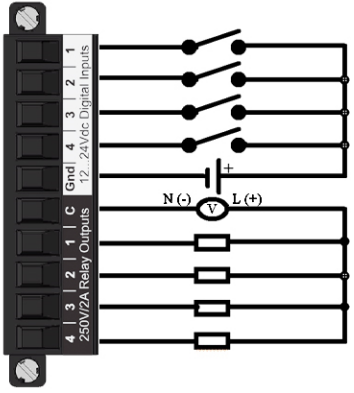
10.2.1 E-MDL-RLY (Relay Module):

This is an input -output module with 4 digital inputs (Optically insulated 12-24 V DC) and 4 relay outputs (250V/2A).

10.2.1.1 Terminal Explanations



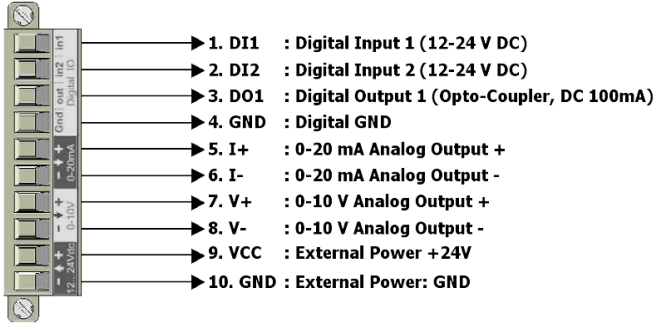
10.2.1.2 Connection Example



10.2.2 E-MDL-DAC (Analogue Output Module):

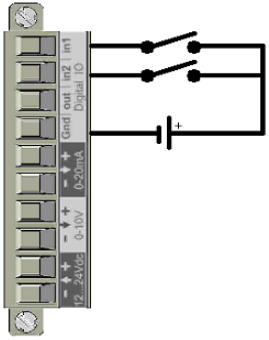
This is a module with 1 analogue output (4-20 mA or 0-10 V), 2 Digital inputs (12-24 V DC) and 1 opto-coupler output (maximum 100 mA).

10.2.2.1 Terminal Explanations

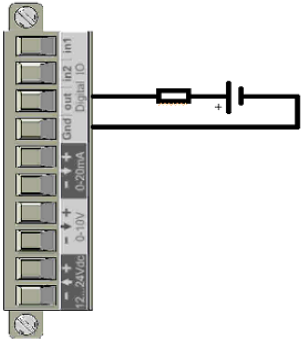


***Note**: In v1.2 boards, no external feeding connection (pin no 9 and 10) is necessary.*

10.2.2.2 Connection Example (Digital Input-Output)

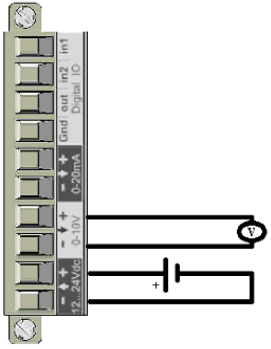


Digital Input Connection

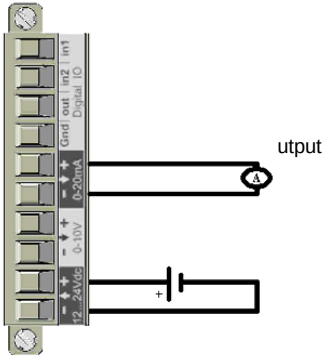


Digital Output Connection (Open Collector)

10.2.2.3 Connection Example (Analogue Output)



Analogue Output Connection (0-10 V)



Analogue Output Connection (0-20 mA)

***Note**: In v1.2 boards, no external feeding (pin no 9 and 10) is necessary*

10.3 Slot5 (Optional Input/Output Menu)

E-MDL-RY or E-MDL-DAC modules can be connected to Slot5. Module explanations are as shown in Slot4.

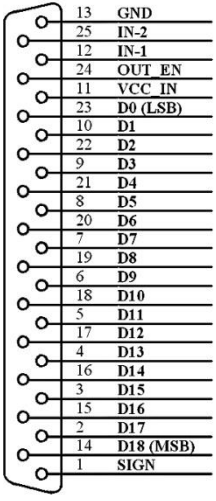
10.4 Slot6 (Optional Expansion Slot)

E-MDL-EXP or E-MDL-BCD modules can be connected to Slot6. The connections are given below in detail.

10.4.1 E-MDL-BCD (Binary Output Module)

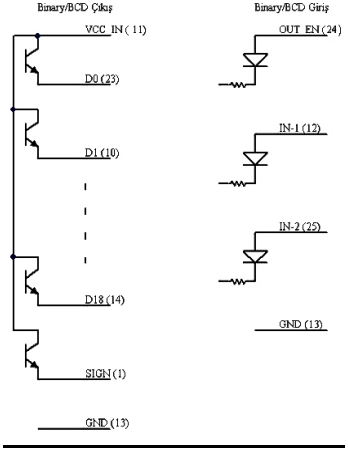
This is a BCD or Binary output (19 + 1 Bit) module.
The outputs are active when the pin no **11** (VCC_INN) and pin no **24** (OUT_EN) are short circuited. If the user wants to receive data continuously, the pins 11,24 are short circuited. No data transfer occurs as long as the pin no 11 is empty.
-0 (minus zero) value is sent from Binary and BCD outputs before the measurement and in cases of errors.

10.4.1.1 Connector Explanations



Output Connector

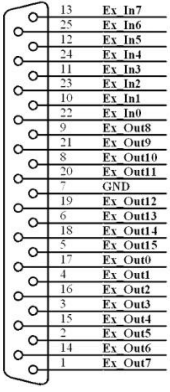
10.4.1.2 Connections



10.4.2 E-MDL-EXP (Relay Expansion Module)

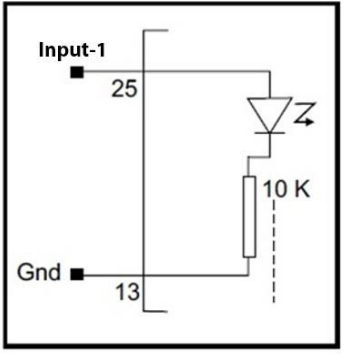
It is used for providing output to the external relay card. It is used with Es Relay card. 16 relay outputs (10 A 250 V) and 8 digital input signal control can be provided with this module.2 es relay cards are necessary for 16 outputs and 8 inputs.

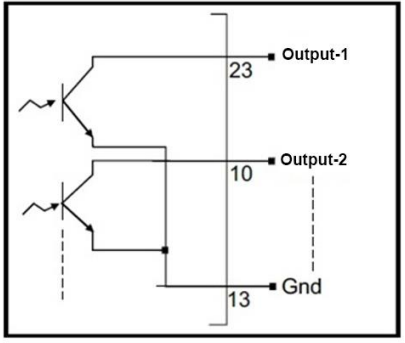
10.4.2.1 Connector Explanations



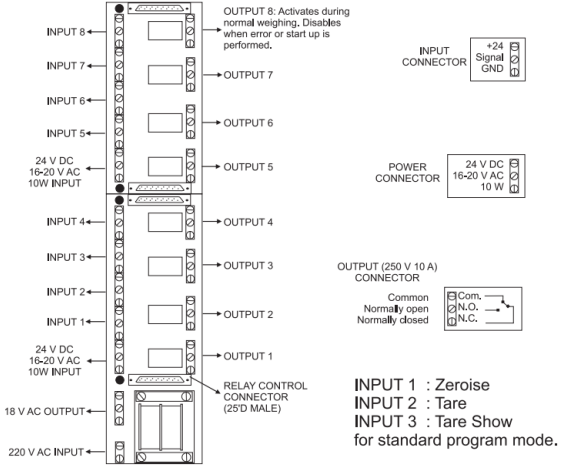
Output Connector

10.4.2.2 Connections





10.4.2.3 Es Relay Card



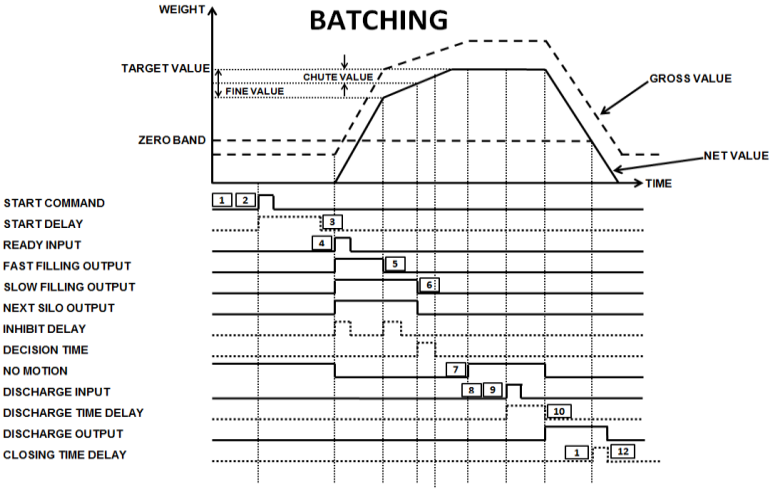
11 Annex 2: Batching Program

11.1 System Operation

1) It is waited for the start entry or pressing start key.
2) Tare is taken upon start input and Start-up Delay period starts (if "Start-upDelay" period is entered).
3) Ready input is waited at the end of the Star Delay period
4) When ready input is activated, Fast output, slow output and next silo output are activated, too. Decision delay period starts.
5) When the value filled at the end of the decision delay period reaches to the Target Value-(Chute Value + Sensitive Amount), the fast output becomes passive and Decision delay period restarts.
6) When the value filled at the end of the decision delay period reaches to the target-shot value, slow output and silo output also becomes passive. Decision delay period starts
7) When Stagnancy occurs at the end of the decision period (200 ms), Shot value is updated if Auto-Shot "On" is selected. The quantity taken is transferred to the total. If the quantity taken is out of tolerance, the system goes idle and error output is given (if the RecipeTolerance value is entered). For the next silo, if any, the operations after the 2.step are repeated.
8) If there is no silos, the discharge input is waited.
9) When the discharge input is detected, discharge delay period starts (1.5 sec*)
10) At the end of the discharge delay period, discharge output is activated.
11) When the (Weight value-Tare) < Zero Stripe, closing delay. (500ms*) starts.

12) At the end of the closing delay period, discharge output become passive.
13) Stagnancy is waited.
14) If the number of batches is finished, then the operation is finalized.
15) If the number of batches is not finished, Ready input is waited.
16) It is repeated from step 2.
*: Constant value. Cannot be changed.

Note:
If, during the operation, any stop entry is observed or stop key is pressed, then the batching operation is terminated.
If there is no change about 10 scale intervals during the fast or slow filling periods, silo time lapse error is given.


BATCHING
WEIGHT
TARGET VALUE
CHUTE VALUE
FINE VALUE
ZERO BAND
GROSS VALUE
NET VALUE
TIME
START COMMAND
START DELAY
READY INPUT
FAST FILLING OUTPUT
SLOW FILLING OUTPUT
NEXT SILO OUTPUT
INHIBIT DELAY
DECISION TIME
NO MOTION
DISCHARGE INPUT
DISCHARGE TIME DELAY
DISCHARGE OUTPUT
CLOSING TIME DELAY
1
2
3
4
5
6
7
8
9
10
11
12

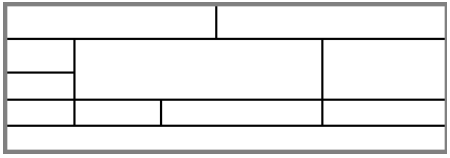
11.2 Batching Program Screen

Batching program main screen shot will be as shown at side;

The screenshot during the batching will be as shown at side;

Note: If ECI is not in "Batching" program (If the main screen above is not displayed), You can refer to section 7.1 Program Selection for shifting to the "Batching" program.

11.2.1 Screen Layout



1) Recipe Name The name of the recipe selected is shown.
2) Total batching quantity request is shown
3) Number of the silo currently filled / total number of silo used in the recipe.
4) Filling speed indicator. Filling speed is indicated as two levels.
5) Current quantity of the material taken from the silo that is filled or the quantity of materials discharged during the discharge.
6) Total quantity of the material filled.
7) The occupancy rate indicator of the weighing scale proportional to the target value. It shows the scale capacity status as 5 levels.
8) Name of the silo filled.
9) The quantity calculated (to be filled) from the filled silo according to the recipe.
10) Filling (Batch) number / Total filling (Batch) number.
11) Keys/Status Messages (During filling).

11.2.2 Keys

	Reset Key	Used for resetting the display.
	Batching Start Key	Starts filling operation.
	Recipe Key	It is used for quick accessing to the recipe selection and total filling value selection menus for the filling operation.
	Batching Menu Key	It is used for bringing the menu where the settings related to the batching are made.
	Setting Menu Key	Used for bringing the menu screen where the device settings are made.
	Pause Key	Used for pausing the operation during the filling.
	Stop Key	It is used for terminating the filling operation.

11.3 Batching Program Status Messages

During the batching operation status messages are displayed at the bottom of the screen. The messages displayed and their explanations are stated below.

Start.Delay	Batching operation will start
Quick Filling	Quick Filling in progress
Slow Filling	Slow Filling in progress.
Stagnancy.Wait	Awaiting stability for the operation completion.
DischOutWait	Awaiting input signal for starting the discharging operation.
Discharging	Discharging in progress.
Filling Completed	Filling operation is completed
Changing Silo	Proceeded to the next silo
ReadySignWait	Awaiting input signal for starting the filling operation.
Maximum Load!	Scale capacity value is exceeded.
SystemIdle	The filling has been paused temporarily as pause key is pressed.
DischargeDelay	Awaiting discharge delay period

11.4 Batching Menu

1. Recipe Settings
2. Silo Settings
3. Initial Setup
4. Time Settings
5. GetUSBRecipe
6. PrinterSettings
7. Report

11.5 Batching Menu Usage

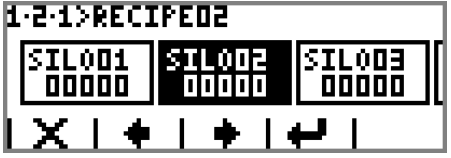
1 Recipe Settings

1·1 RECIPE1

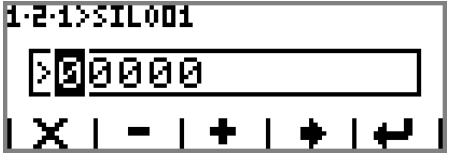
1·1·1 Formula

It is the menu where the recipe formulations are adjusted. The recipe is formed by entering the units to be used from each batch.

At this screen when ✚ and ✚ keys are used to select the desired silo and ↵ key is pressed, the silo ratio screen appears.



At this screen,it is determined how many units to be used from the silo selected.



1·1·2 Name

It is used for changing the recipe name.

1·2 RECIPE02

1·2·1 Formula
1·2·2 Name

…

…

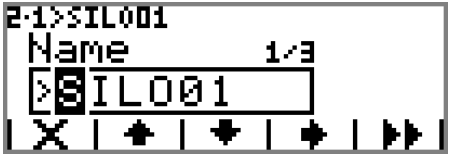
…

1·0 RECIPE16

Note: Other recipes are adjusted as the Recipe1

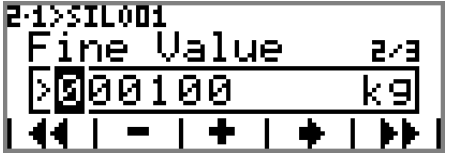
Silo Settings

2·1 SILO01



Name

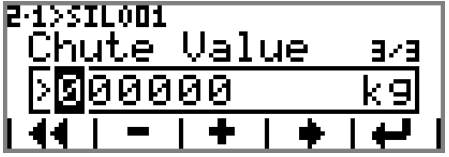
Used for determining/changing the silo name.



Fine Value

The weight value to be filled slowly. For example if 500g to be taken from the respective silo and 200g is entered as the sensitive quantity, 300 g is quick filled. 200 g is slow filled.

Note: The transition value from the Quick filling to Slow filling may vary depending on the shot value.



Chute Value

When the screen value approaches to the Target Value with the value stated here,the filling stops It is the quantity of the material hang.

Note: This step is not visible when it is "On" in Automatic Shot Menu

2.2 SILO02

Same as the Silo01 settings.

2.3 SILO03

Same as the Silo01 settings.

.

.

.

2.0 SILO16

Same as the Silo01 settings.

Initial Setup

It is an ordered type menu that contains the start-up settings for the batching program.The sub-menus are the Silo Number,Scale Capacity, Automatic Shot,Zero Stripe, Recipe Tolerance and RecipeComp.

Silo Count

It is used for identifying the number of silos in the system.
The options are;

1) 1 silo
2) 2 silos
3) 3 silos
4) .
5) .
6) .
F)15 silos
G)16 silos

Note: If there is not -MDL-EXP Module in Slot 6, 4 silo, 5 silo,.....16 silo options are locked.

Process type

If Total Quantity is selected, the material is prescribed to the target value. If "Judicial" is selected, the prescribing process is repeated until the value of "Repeat Count" is reached***.***

Options;

1)*Total Amount*

2)Repetitive

Note: *In "**repetitve**" mode, "**Pot Capacity**" and "**Target Value**" should be same.*

Pot Capacity

It is the maximum weight value determined for the batching. If the total quantity intended to be batched is greater than the "Scale Capacity", more than one filling is made by dividing as multipliers of the Scale Capacity.
It is also used as the limit of the reservoir that is filled.
Thus, no filling with the quantity more than the value stated in this parameter will be made to the scale.

Auto Chute

The weight value hang after the valve is closed is calculated automatically. When this parameter is selected "On" the error made on the target quantity of the silo is corrected automatically.
The options are;
1) Off: Error correction is made manually
2) On: Error correction is made automatically.

Zero Band

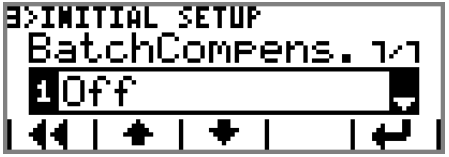
During the discharge, it is the value where it is determined that the discharge operation is over. When the weight value reduces under this quantity, the discharge operation is considered done. It is used for the material stuck to the scale.

BatchToleranc

It is the maximum error allowed per silo. If this value is exceeded, the device gives error and related relay output is activated. It is valid for all silos in the recipe. In case of false filling from any silo, the error output is activated. If no error signal is wanted, it must be entered as 0 (deactivated).

BatchCompens.

In batches made subsequently, it determines whether the error made in previous batches are compensated or not. If "On" is selected, in batching operations with more than one batch, deficient or excessive quantities filled in any silo is remedied by taking more or less quantity from the same silo in the next batch.



4 Time Settings

This menu is an ordered type menu where the timing settings are made for the batching program. The sub-menus are StartDelay,Stability.Delay and FillingTimeLapse.

Start Delay

It determines how much time after pressing the key will the filling operations start and also the transition period between the silos.

Inhibi. Delay

The weighing values during the period indicated in this parameter are not taken into account and the device does not change its state in order to prevent the mismeasurements resulting from the vibration just after the start of the quick filling and shifting from the quick filling to the slow one. (Default value is 0 sec)

Filling Tout

It is the maximum period that lapses during which the weight value does not change at least 10*0 (Resolution) during batching. The device gives error if this period is exceeded. If no material is received although the material intake has started, it is used for giving warning. If no error signal is wanted, it must be entered as 0 sec (deactivated).

GetUSBRecipe

It is used for transferring a recipe that is created with batching configurator program and stored in USB memory, to the ECI.

Note: You can find information related to the usage of the Batching Configurator in Annex 4

6 Printer Settings

It is the menu where the printer settings are made.

6.1 LineSelections

Line 1

The data intended to be printed in line 1 is selected
The options are;

1) Bold Text 1: In Line 1 Bold Text 1 template is printed.
2) Bold Text 2: In Line 1 Bold Text 2 template is printed.
3) Text 1: In Line 1 Text 1 template is printed.
4) Text 2: In Line 1 Text 2 template is printed.
5) Text 3: In Line 1 Text 3 template is printed.
6) Text 4: In Line 1 Text 4 template is printed.
7) Text 5: In Line 1 Text 5 template is printed.
8) Text 6: In Line 1 Text 6 template is printed.
9) Recipe Name: In Line 1 The Recipe Name batched is printed.
10) Silo Values: In Line 1 the silo quantity for last filled is printed.
11) CounterValue: In line 1 the batching number is printed.
12) Date/Time: In Line 1 Date/Time info is printed.

13) Last Batch: In Line 1 the quantity of the last filling is printed.
14) Overall Total: In Line 1 total batching quantity is printed.
15) Barcode: In Line 1 Barcode is printed.
16) Line Space: It is used for spacing in line 1.
17) End of Page: It is used for breaking the page is line 1.

Line 2

Same as Line 1 menu.

Line 3

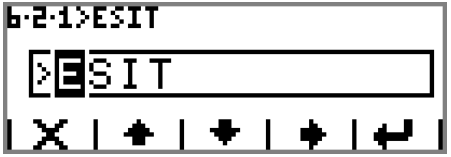
Same as Line 1 menu.

.
.
.
.
.

Line 16

Same as Line 1 menu.

6.2 Templates



6.2.1 Bold Text 1

Bold Text 1 template is indicated.

6.2.2 Bold Text 2

Bold Text 2 template is indicated.

6.2.3 Text 1

Text 1 template is indicated.

6.2.4 Text 2

Text 2 template is indicated.

6.2.5 Text 3

Text 3 template is indicated.

6.2.6 Text 4

Text 4 template is indicated.

6.2.7 Text 5

Text 5 template is indicated.

6.2.8 Text 6

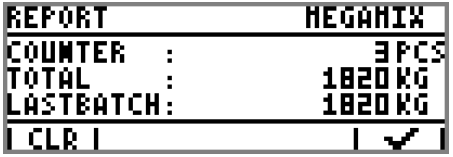
Text 6 template is indicated.

6.2.9 Barcode: Barcode template is indicated.

Printer Output

Report

METER, TOTAL and LAST FILLING values can be displayed. These values can be resetted with CLR key if requested. P Key is used for manual printing the report screen.



METER: It is the total filling (Batch) number.
TOTAL: It is the total batching quantity.
LAST FILLING: It is the quantity of the last filling.

Note: If the "Printer" option is not selected in Terminal Serial Output Mode menu, the P key is not displayed in the report screen.

Recipe Selection Menu

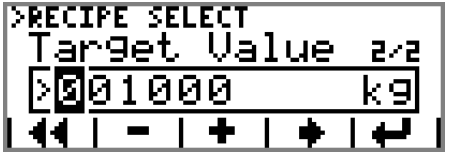
When key is pressed in the main screen of the batching program, the "Recipe Selection" menu is displayed.
Recipe and target value is determined in this menu.

Recipe

It is the recipe selection menu. Selection is made from among 96 different recipes. First 16 recipes can be selected from the selection list. If any of the further recipes are wanted to be selected, the "custom" option must be selected and the recipe number must be entered to the screen appeared.
The options are;
1) RECIPE01
2) RECIPE02
3) .
4) .
G) RECIPE16
H) Custom ->
When “custom->” option is selected, the Recipe No screen appears and the desired recipe can be selected by entering the number.

Target Value

It is the quantity of the intended batching.



Repeat Count

Determines the recurrence count of the prescription

***Note**: This menu does not appear if the Operation Type "Total Quantity" is selected in the Initial Settings menu.*

11.6 Batching Program Application

In order to perform batching following module options must be inserted;

11.6.1 Up to 4 Silos

E-MDL-RLY module must be inserted in Slot 4. Other than this, the presence of E-MDL-RLY in Slot 5 or E-MDL-EXP+EsRelay in Slot 6 is sufficient. If there is E-MDL-RLY module in Slot 5 and E-MDL-EXP+EsRelay module in Slot 6, the E-MDL-EXP+EsRelay module in Slot 6 is used for Batching.

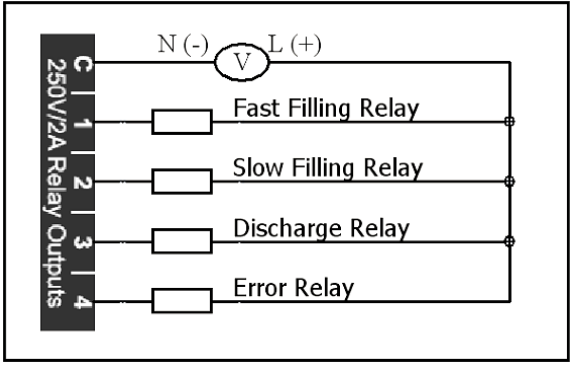
11.6.2 Up to 16 Silos

E-MDL-RLY module must be inserted in Slot 4.
E-MDL-EXP+EsRelay module must be inserted in Slot 6

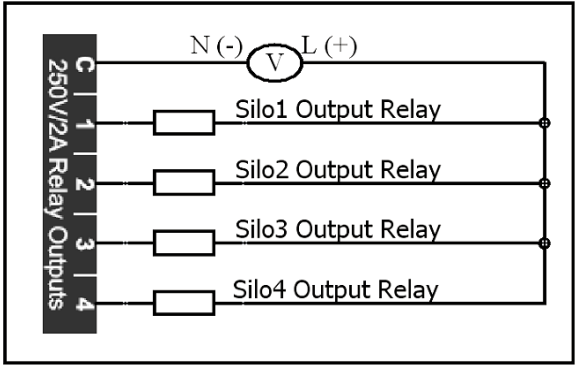
11.6.3 Batching Connections

When the batching program is selected, the settings of the Relay modules in Slot 4 and Slot5 and the EXP Module in Slot 6 cannot be changed and related menus will be locked. The connections of these modules must be made as follows.

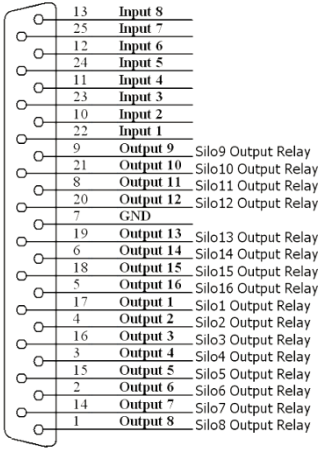
11.6.3.1 Batching Output Connections (Slot 4)



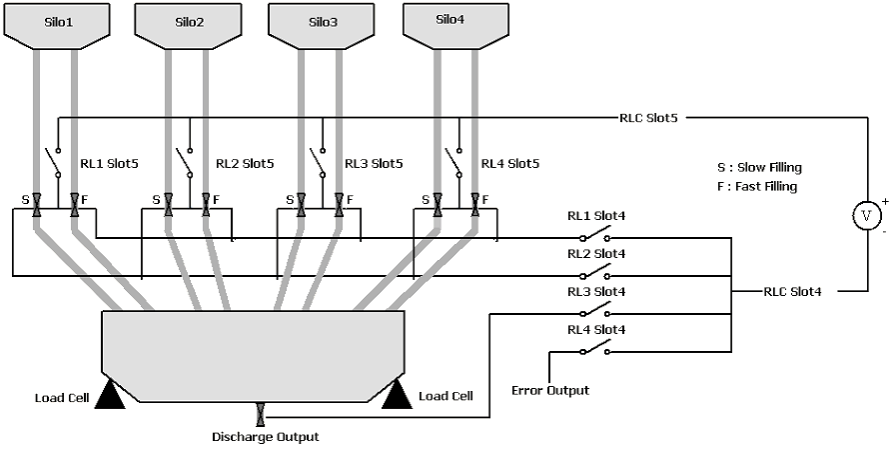
11.6.3.2 Batching Output Connections (Slot 5)



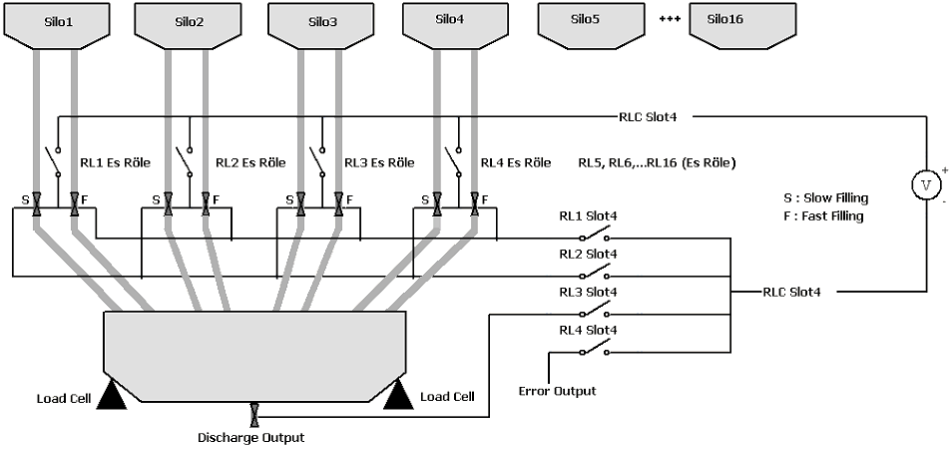
11.6.3.3 Batching Output Connections (Slot 6)



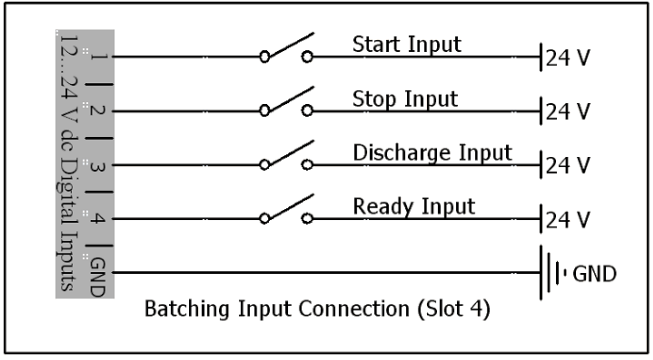
11.6.3.4 Batching Output Connections up to 4 Silos



11.6.3.5 Batching Output Connections up to 16 Silos

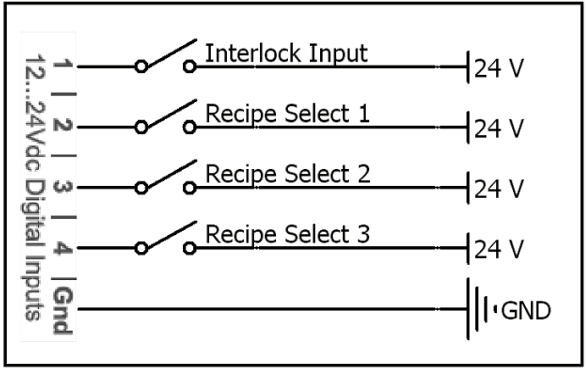


11.6.3.6 Batching Input Connections (Slot 4)



11.6.3.7 Batching Input Connections (Slot 5)

The menus are not accessible when 12-24 Vdc is applied to the authorization entry.



If there is no E-MDL-EXP Module in Slot 6, the relay module in Slot 5 is used for batching.

11.6.3.1 Select the recipe from the input

Input of Related on E-MDL-EXP module is used at Slot6. If E-MDL-EXP module is not exist at slot6,Batching is choosen how input of related on E-MDL-EXP module is used. Selected Batching number,which is according to input statement, is shown as below.

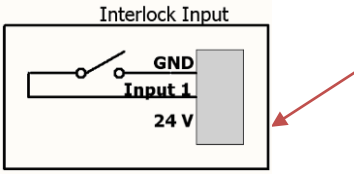
Select Recipe 1	Select Recipe 2	Select Recipe 3	Selected Product
			Choose from the Menu
No Signal	No Signal	Signal available	Product 01
No Signal	Signal available	No Signal	Product 02
No Signal	Signal available	Signal available	Product 03
Signal available	No Signal	No Signal	Product 04
Signal available	No Signal	Signal available	Product 05
Signal available	Signal available	No Signal	Product 06
Signal available	Signal available	Signal available	Product 07

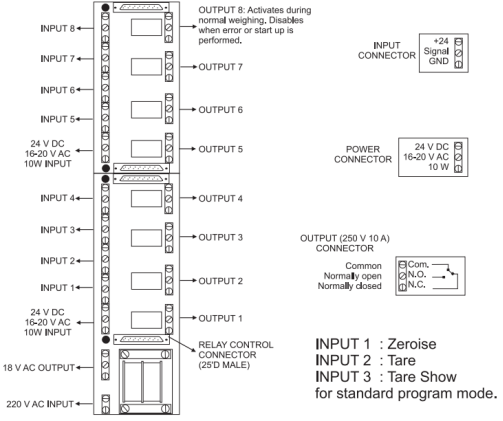
Signal available: 12-24 Vdc
No Signal: 0 Vdc

11.6.3.2 Batching Input Connections (Slot 6)

If there is E-MDL-EXP Module in Slot 6, this module is used for batching.

The menus are not accessible when 12-24 Vdc is applied to the authorization entry.





11.6.4 Identifying the Batching System to the Device

Sample Application:

Assume that we have 3 silos and;
Silo 1: Coffee
Silo 2: Sugar
Silo 3: Cream
.

First of all the number of silos in the systems and the silo names are identified in the system. For this operation at the main screen, batching menu key is pressed and entered to the batching menu.

1) The number of silos are identified;
Let's select 3 from the selection list appeared in the "Silo Number" menu with the number 3 for identifying the number of silos.

2) Silo names are identified;
Change the name of silo1 in the name menu 2.1.1 as "COFFEE"
Change the name of silo2 in the name menu 2.2.1 as "SUGAR"
Change the name of silo3 in the name menu 2.3.1 as "CREAM"

In order the make the application the ratios of each of the silos defined above in the mixture are determined. This operation is called recipe creation .
As an application of the recipe, make the mixture with 3 units of coffee, 1 unit of Sugar and 1 unit of cream.

3) Recipe name is identified;
For identifying the recipe name, change the name “RECIPE01” (Factory default) in the name menu 1.1.2 as “COFFE3U1” .

4) The mixing ratios (Formula) is determined;
In order to enter the silo ratios related to the recipe “COFFE3U1”, set the values of the "COFFE" silo in the Formula menu 1.1.1 as 3, "SUGAR" silo as 1 and "CREAM" silo as 1.

11.6.4.1 Operation

After making the settings and system identification, the recipe is selected by pressing key at batching main screen and the total batching value is entered.

Recipe Selection

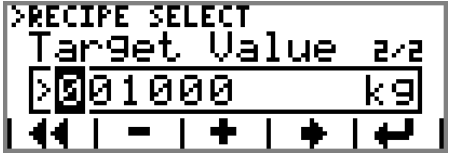
It is used for selecting recipe. The options are;

1) RECIPE01
2) RECIPE02
3) .
4) .
5) .
6) RECIPE15
7) RECIPE16

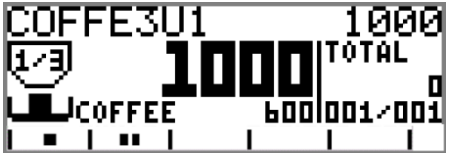
After selecting the recipe key is pressed and Total selection menu is displayed.

Target Value

It is used for setting the total batching quantity.



When ▶ key is pressed, the batching operation will start. During the batching operation the screenshot will be as shown at side
While the batching operation is in progress,it can be cancelled anytime by pressing ■ key or paused by pressing ■■ key .



12 Annex 3: Filling Program

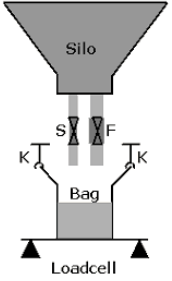
It is a program that is prepared for packaging a single type of material. The system performs the packaging operation according to the values such as quick-low filling, delay period, net-gross packaging indicated by the user.

12.1 Filling Program Features

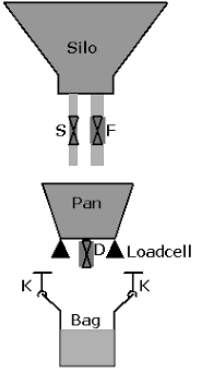
1) Net/Gross Filling Option
2) Ability to determine 16 different products
3) Tare and tolerance control
4) Product selection with the keypad or remote entry signal.
5) Displaying real time filling quantity, total quantity, real time filling time, average time and real time filling percentage
6) Warning output when lower and upper tolerance limits are breached.
7) Giving output when the filling is performed in the desired interval.
8) Single or double speed filling option
9) Automatically or manual failed filling corrections
10) Ability to determine filling start, bag handling waiting and discharge waiting periods
11) Displaying and printing the filling report

12.2 System Operation

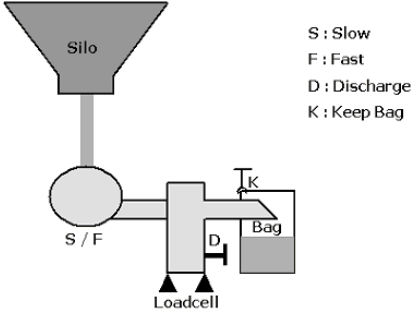
In the filling program, three different filling types which are the "Bag Filling", "Scale Filling" and “Valve Filling” are used.



Bag Filling



Pan Filling



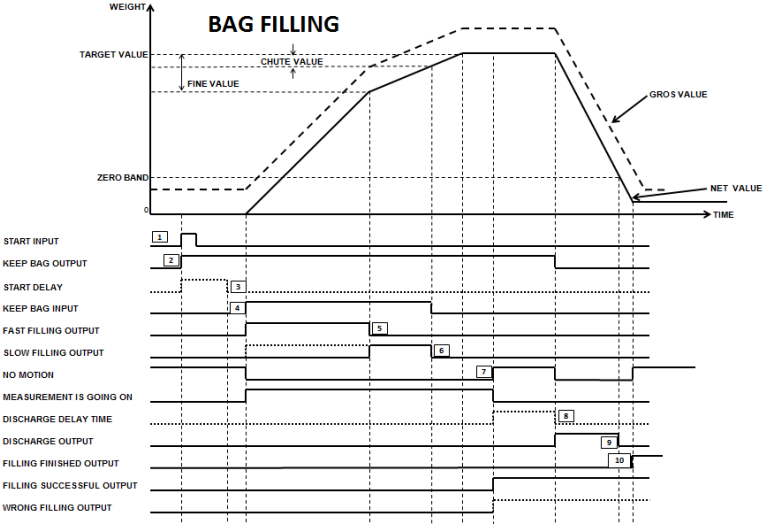
ValveBag Filling

12.2.1 Bag Filling:

The operation sequence for bag filling is as follows.

1) Start command is waited.
2) Bag Handling Output is activated and Start-up Delay period starts. (if "Start-upDelay" period is entered).
3) Taring is made (If Auto Taring is selected "On") at the end of the Start-Up Delay Period. Quick Filling Output and Weighing in Progress output is activated.
4) The Quick Filling Output becomes passive depending on the quantity taken and Slow Filling Output is activated (If the feeding is selected as "Quick+Slow").
5) Slow Filling Output is deactivated depending on the quantity taken.
6) When Stagnancy occurs, Weighing in Progress output is deactivated and Discharge Delay periodstarts (if "DischargeDelay" period is entered).
7) Bag Handling Output is deactivated at the end of the Discharge Delay Period and Discharge Output is activated.
8) When it reduced under the Zero Stripe, Operation Completed output is activated and the discharge output is deactivated.
9) When it reduced under Zero Stripe, Discharge output is deactivate.
10) When Stagnacy occurs, Operation Completed output is activated.

**:If Auto Taring is selected to "Each 10 Fill", One of the every ten filling is expected to stagnecy and the next one of filling is not expected to stagnecy. If "Each Fill" or "Disabled" are selected,it is expected to stagnecy at after the Every Filling operation.*

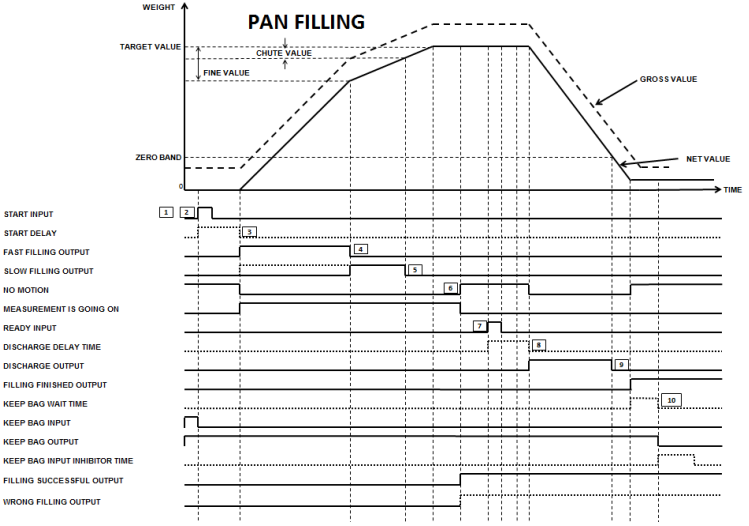

BAG FILLING
WEIGHT
TARGET VALUE
CHUTE VALUE
FINE VALUE
GROS VALUE
ZERO BAND
NET VALUE
0
TIME
START INPUT
KEEP BAG OUTPUT
START DELAY
KEEP BAG INPUT
FAST FILLING OUTPUT
SLOW FILLING OUTPUT
NO MOTION
MEASUREMENT IS GOING ON
DISCHARGE DELAY TIME
DISCHARGE OUTPUT
FILLING FINISHED OUTPUT
FILLING SUCCESSFUL OUTPUT
WRONG FILLING OUTPUT
1
2
3
4
5
6
7
8
9
10

12.2.2 Pan Filling:

The operation sequence for scale filling is as follows.

1) Start command is waited.
2) Start-up Delay period starts upon Start command (if "Start-upDelay" period is entered).
3) Taring is made (If Auto Taring is selected "On") at the end of the Start-Up Delay Period. Quick Filling Output and Weighing in Progress output is activated.
4) The Quick Filling Output becomes passive depending on the quantity taken and Slow Filling Output is activated (If the feeding is selected as "Quick+Slow" and quick feed is selected as “Ordered”).
5) Slow Filling Output is deactivated depending on the quantity taken.
6) When Stagnancy occurs, Weighing in Progress output is deactivated.
7) When ready signal occurs, Discharge Delay period starts (if "DischargeDelay" period is entered).
8) At the end of Discharge Delay period, Discharge Output is activated.
9) When it reduced under the Zero Stripe, Discharge Output deactivated. Operation Completed output is activated and BagHandWait period starts.
10) Bag Handling Output is deactivated at the end of the "BagHandWait" period (If it is activated)*. Bag Handling Prevention period (1 sec) starts. Handling input remains passive during this period.

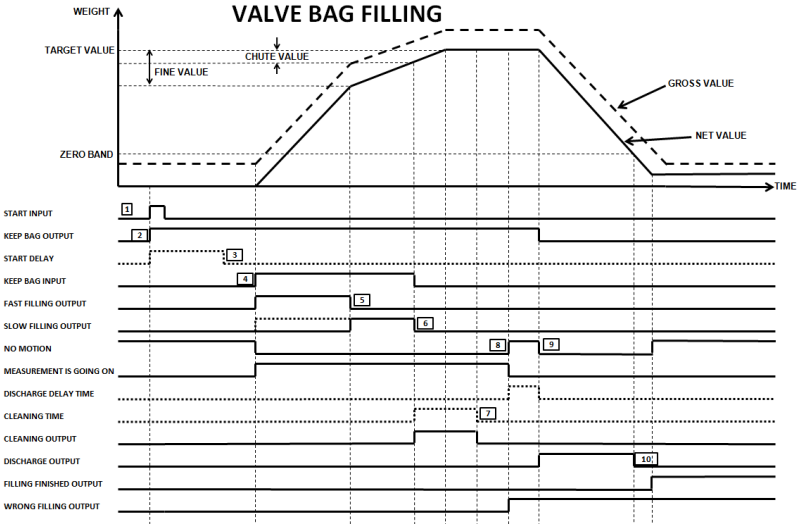
**:*:If Auto Taring is selected to “Each 10 Fill”, One of the every ten filling is expected to stagnecy and the next one of filling is not expected to stagnecy. If “Each Fill” or “Disabled” are selected,it is expected to stagnecy at after the Every Filling operation.*
*Not: *If Bag Handling input is detected at anytime,Bag Handling out is activated..*


PAN FILLING
WEIGHT
TARGET VALUE
CHUTE VALUE
FINE VALUE
GROSS VALUE
ZERO BAND
NET VALUE
0
TIME
START INPUT
START DELAY
FAST FILLING OUTPUT
SLOW FILLING OUTPUT
NO MOTION
MEASUREMENT IS GOING ON
READY INPUT
DISCHARGE DELAY TIME
DISCHARGE OUTPUT
FILLING FINISHED OUTPUT
KEEP BAG WAIT TIME
KEEP BAG INPUT
KEEP BAG OUTPUT
KEEP BAG INPUT INHIBITOR TIME
FILLING SUCCESSFUL OUTPUT
WRONG FILLING OUTPUT
1
2
3
4
5
6
7
8
9
10

12.2.3 ValveBag Filling

1) Start command is waited.
2) Bag Handling Output is activated upon Start command and Start-up Delay period starts (if "Start-upDelay" period is entered).
3) Taring is made (If Auto Taring is selected "On") at the end of the Start-Up Delay Period. Quick Filling Output and Weighing in Progress output is activated.
4) The Quick Filling Output becomes passive depending on the quantity taken and Slow Filling Output is activated. (If the feeding is selected as "Quick+Slow")
5) Slow Filling Output is deactivated depending on the quantity taken. Cleaning period starts and Cleaning Output is activated.
6) At the end of Cleaning period, Cleaning Output is deactivated.
7) When Stagnancy occurs, Discharge Delay period starts (if "DischargeDelay" period is entered).
8) Weighing in Progress output is deactivated
9) At the end of Discharge Delay period, Discharge Output is activated and Bag Handling Output is deactivated.
10) When it reduced under the Zero Stripe, Discharge Output deactivated and Operation Completed output is activated.

**: If Auto Taring is selected to "Each 10 Fill", One of the every ten filling is expected to stagnecy and the next one of filling is not expected to stagnecy. If "Each Fill" or "Disabled" are selected,it is expected to stagnecy at after the Every Filling operation.*


VALVE BAG FILLING
WEIGHT
TARGET VALUE
CHUTE VALUE
FINE VALUE
GROSS VALUE
NET VALUE
ZERO BAND
TIME
START INPUT
KEEP BAG OUTPUT
START DELAY
KEEP BAG INPUT
FAST FILLING OUTPUT
SLOW FILLING OUTPUT
NO MOTION
MEASUREMENT IS GOING ON
DISCHARGE DELAY TIME
CLEANING TIME
CLEANING OUTPUT
DISCHARGE OUTPUT
FILLING FINISHED OUTPUT
WRONG FILLING OUTPUT
1
2
3
4
5
6
7
8
9
10

12.3 Main Screen Overview

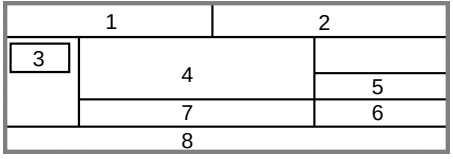
Filling Program main screen is as shown at side.

The screenshot after the filling operation started is as shown at side.

Note: If ECI is not in "Filling" program (If the main screen above is not displayed), You can refer to section 7.1 Program Selection for shifting to the "Filling" program.

12.3.1 Screen Layout

1. Product Name. The name of the product selected is shown.
2. Targeted filling quantity
3. Real time filling percentage %
4. Real time filling value
5. Actual time
6. Average filling time
7. Real time weight value
8. Keys



12.3.2 Keys

	Reset Key	Used for resetting the display.
	Start Key	Starts filling operation.
	Product Selection Key	It is used for selecting product for the filling operation.
	Filling Menu Key	It is used for bringing the menu where the settings related to the filling are made.
	Setting Menu Key	Used for bringing the menu screen where the device settings are made.
	Pause Key	Used for pausing the operation during the filling.
	Stop Key	It is used for terminating the filling operation.

12.4 Filling Program Status Messages

During the filling operation, information on the operation is displayed on the screen. The messages displayed and their explanations are stated below.

ReadySignWait	: Awaiting Ready Signal for the discharging operation.
Taring in progress	: Taring operation is being performed.
Low Tare	: Filling cannot be started as the weight is lower than the "Minimum Tare" value.
High Tare	: Filling cannot be started as the weight is higher than the "Maximum Tare" value.
Pre-Waiting Mode	: Start. Awaiting delay period.
Quick Filling	: Quick Filling in progress
Multiplication Period	: Awaiting Multiplication Period
Slow Filling	: Slow Filling in progress.
Stagnancy.Wait	: Awaiting stagnancy for finishing the filling operation
CleaningInProgress	: Filling chute is being cleaned.
DischargeWaiting	: Awaiting the lapse of the period entered to DischargeDelay menu.
Discharging	: Discharging in progress.
Filling Completed	: Filling operation is completed
Discharge Completed	: Discharge operation is completed
SystemIdle	: The filling has been paused temporarily as pause key is pressed.

12.5 Filling Menu:

1.Product Setting
- 1.1.FILL 01
- 1.2.FILL 02
- 1.3.FILL 03
- 1.4.FILL 04
- 1.5.FILL 05
- 1.6.FILL 06
- 1.7.FILL 07
- 1.8.FILL 08
- 1.9.FILL 09
- 1.A.FILL 10
- 1.B.FILL 11
- 1.C.FILL 12
- 1.D.FILL 13
- 1.E.FILL 14
- 1.F.FILL 15
- 1.G.FILL 16

2. Initial Setup
- Filling Type
- Filling Mode
- Feeding Mode
- Fast Feeding
- Auto Tare
- Max.Capacity
- Min.Capacity
- Zero Band
- Scale Capacity
- ToleranceChk
- Tare Check
- UserLevel

3. Control Setup
- Control Mode
- Chute Value
- Sensitive
- Quantity
- Multiplication
- Period

4. Time Setting
- Start Delay
- Discharge Dly
- CleaningTime
- BagHand.Wait
- FillingTimeLapse

5. Printer Setting
- 5.1.Line Selections
- 5.2.Templates

6.Report

12.6 Using the Filling Menu

1 Product Settings

It is the menu where the product settings are made.

1·1 FILL 01

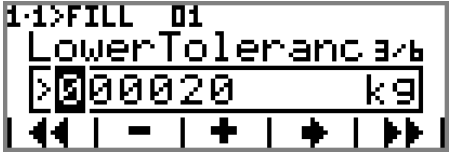
It is the menu where the settings related to Product 1 are made. This menu is an ordered type menu. Sub-menus are Product Name, Target Value, Lower Tolerance, Upper Tolerance, Minimum Tare and Maximum Tare.

Name
Product name is set.

Target Value
The quantity intended for filling is set.

Lower Tolerance

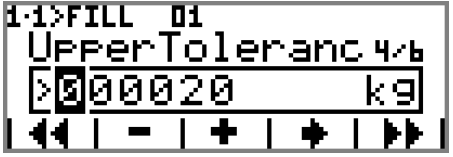
The error quantity accepted below the target value is indicated. For example if the quantity to be filled is 1000g and acceptable lower limit is 990 g, it is necessary to enter 1000-990=10 g in the Lower Tolerance menu.



Note:This step is not visible if "Off" is selected in "ToleranceControl" menu.

Upper Tolerance

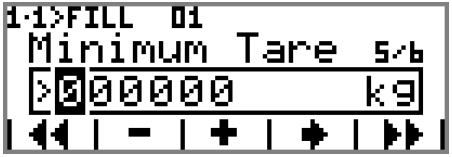
The error quantity accepted above the target value is indicated. For example if the quantity to be filled is 1000g and acceptable upper limit is 1015 g, it is necessary to enter 1015-1000=15 g in the Upper Tolerance menu.



Note:This step is not visible if "Off" is selected in "ToleranceControl" menu.

Minimum Tare

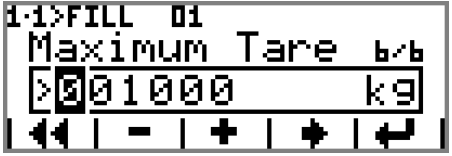
Indicates the lower limit used for the Tare Control.



Note:This step is not visible if "Off" is selected in "TareControl" menu.

Maximum Tare

Indicates the upper limit used for the Tare Control.



Note:This step is not visible if "Off" is selected in "TareControl" menu.

1·2 FILL 02: Same as FILL 01 menu.

.

.

.

.

1·F FILL 16: Same as FILL 01 menu.

Initial Setup

It is the menu for the start-up settings of the filling program. This menu is an ordered type menu. Sub-menus are Filling Type, Filling Mode, Feeding Mode, Quick Feeding, Auto Tare, Zero Zone, Tolerance Control, Tare Control ve UserLev.

Filling Type

The options are;

1) GainingWeight: It is the filling system in which the load cell is connected to the scale to be filled.

2) LoosingWeight: It is the filling system in which the load cell is connected to the silo.

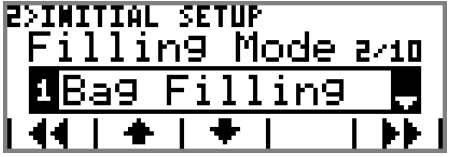
Filling Mode

The options are;

1) Bag Filling: The good in the silo is filled to the bag under control.

2) Pan Filling: Filling is made primarily into the scale. Then it is transferred to the bag.

3) ValveBagFill.: It is used for filling valve bags with products in powder form.

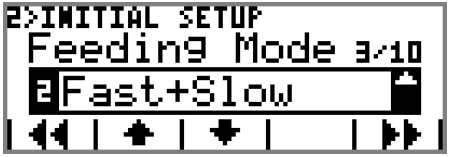


Feeding Mode

The filling can be performed with single or double speed. The options are;

1) Fast: Single speed filling is made.

2) Fast+Slow: Double speed filling is made.



Fast Feeding

When the feeding mode is selected as "Quick+Slow", quick feeding (rough filling) can be made with single or double relay. The options are;

1) In Sequence: Double relay (Slot4 Relay1+ Slot4 Relay2)

2) Simultaneous: Single relay (Slot4 Relay1)

Note:This menu is not displayed when "Quick" is selected in the "Feeding Menu"

Auto Tare

When the filling operation starts,the screen value may be resetted temporarily. The options are;
1) Disabled: Auto Tare is deactivated
2) Each Fill: Tare getting is started for every filling.
3) **Each 10 Fill:** Tare getting is done for one of the every ten filling process

Max.Capacity

Maximum filling weight selection.

Min. Capacity

Minimum filling weight selection.

Zero Band

The filling scale is assumed empty under the value stated herein.

ToleranceChk

If the filling is outside the lower and upper tolerances requested, warning can be made over the respective relay outputs. The options are;

1) Off:

2) On:

Note: Lower and Upper Tolerance menus are under "Product settings" menu.

Tare Check

When the filling operation is started, if the weight value is outside the Minimum Tare and Maximum Tare range, the device may give error and not start. The options are;

1) Off:

2) On:

Note: Minimum Tare and Maximum Tare menus are under "4.Product settings" menu

UserLevel

The options are;
1) Basic: Multiplication Period menu is close.
2) Advanced: Multiplication Period menu is open.

3 Control Setup

It is the menu where the filling control settings are made.

Control Mode

The options are;

1) Full Auto: Sensitive Quantity ve Shot Value are calculated automatically.

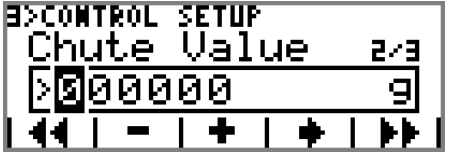
2) Auto Chute: Shot Value is calculated automatically.

3) Manual: Sensitive Quantity ve Shot Value are determined by the user.

Note:Full Automatic option is not displayed when "Quick" is selected in the "Feeding Menu"

Chute Value

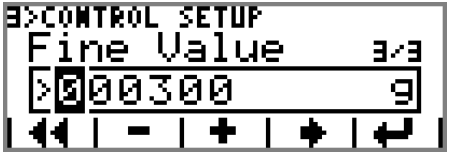
When the screen value approaches to the Target Value with the value stated here,the filling stops.



Note:This menu is not displayed if "Auto Shot" or "Full Automatic" is selected in "Control Mode" menu.

Fine Quantity

It is the weight value to be filled slowly. For example if 500g to be taken from the respective silo and 100g is entered as the sensitive quantity, 400 g is quick filled. 100 g is slow filled.



Note:This step is not displayed when "Quick" is selected in the "Feeding Menu"

Impact Time

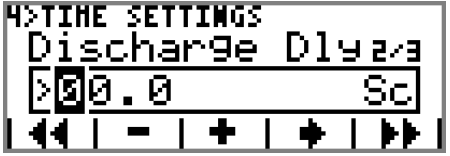
The period in which no weight control to be made after the quick filling finishes is indicated.

Note: When "Basic" is selected in "UserLev." menu or "Quick" is selected in "Feeding Mode" menu, this step is not displayed.

4 Time Setting

Start Delay
The delay period before start filling.

Discharge Dly
The waiting period before start discharging.



Filling Tout

It is the waiting period before the Bag Handling Output is deactivated after the completion of “Scale Filling” operation.

Note:This step is not displayed if “Bag Filling” or “Valve Filling” is selected from the “Filling Mode” menu.

CleaningTime

It is the period, during which the cleaning output will be active in “Valve Filling”

Note:This step is not displayed if “Bag Filling” or “Scale Filling” is selected from the “Filling Mode” menu.

FillingTimeLapse

The device gives error if this period is exceeded without changing the weight value during filling..

5 Printer Setting

It is the menu where the printer settings are made.

5.1 Line Selections

Line 1

The data intended to be printed in line 1 is selected.
The options are;

1) Bold Text 1: In line 1 Bold Text 1 template is printed.
2) Bold Text 2: In line 1 Bold Text 2 template is printed.
3) Text 1: In line 1 Text 1 template is printed.
4) Text 2: In line 1 Text 2 template is printed.
5) Text 3: In line 1 Text 3 template is printed.
6) Text 4: In line 1 Text 4 template is printed.
7) Text 5: In line 1 Text 5 template is printed.
8) Text 6: In line 1 Text 6 template is printed.
9) Product Name: In line 1 Name of the product filled is printed.
10) Weight Value: In line 1 the quantity of the last filling is printed.

11) CounterValue: In line 1 the number of filling is printed.
12) Date/Time: In line 1 Date/Time info is printed.
13) Total Value: In line 1 Total batching quantity is printed.
14) AverageValue: In line 1 Average batching quantity is printed.
15) Barcode: In line 1 Barcode is printed.
16) Line Space: It is used for spacing in line 1.
17) End of Page: It is used for breaking the page is line 1.

Line 2

Same as Line 1 menu.

Line 3

Same as Line 1 menu.

.

.

.

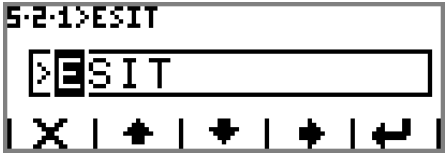
.

.

Line 16

Same as Line 1 menu.

5.2 Templates



5.2.1 Bold Text 1

Bold Text 1 template is indicated.

5.2.2 Bold Text 2

Bold Text 2 template is indicated.

5.2.3 Text 1

Text 1 template is indicated.

5.2.4 Text 2

Text 2 template is indicated.

5.2.5 Text 3

Text 3 template is indicated.

5.2.6 Text 4

Text 4 template is indicated.

5.2.7 Text 5

Text 5 template is indicated.

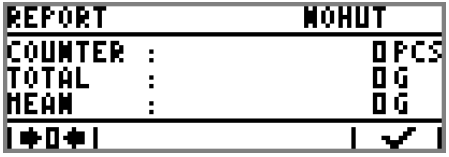
5.2.8 Text 6

Text 6 template is indicated.

5.2.9 Barcode: Barcode template is indicated.

Report

METER, TOTAL and AVERAGE values can be displayed.
These values can be resetted key if requested. P
Key is used for manual printing at the report screen.



COUNTER: Total number of filling.
TOTAL: Total quantity of the filling.
MEAN: Average quantity of the filling.

Values on the reporting screen are reset automatically when the product changes.

Note: If the "Printer" option is not selected in Terminal Serial Output Mode menu, the P key is not displayed in the report screen.

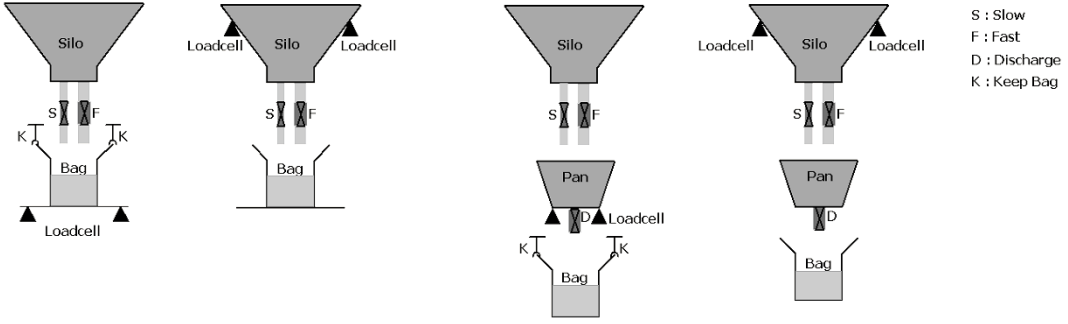
12.7 Filling Program Application

When the filling program is selected, related optional modules must be inserted. The options for the modules that have to be inserted are as follows.

Slot4	Slot5	Slot6
E-MDL-RLY	E-MDL-RLY*	-

* : the system operates even if the slot is empty. If there is E-MDL-RLY module, additional features such as the product selection from Input, authorization key and warning outputs can also be used.
-: Cannot be used by the filling program.

12.7.1 Different Application Examples



BagFilling
Gaining Weighing

Bag Filling
Loosing Weighing

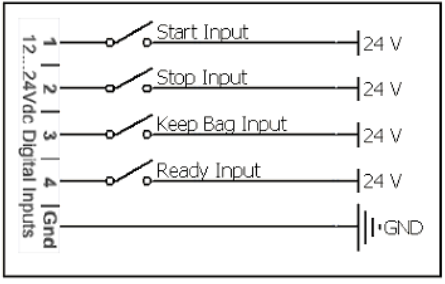
Pan Filling
Gaining Weighing

Pan Filling
Loosing Weighing

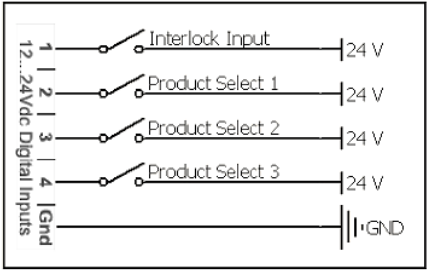
12.7.2 Filling Connections

Note: *When the filling program is selected, the settings of the Relay modules in Slot 4 and Slot5 and the EXP Module in Slot 6 cannot be changed and related menus , other than the service menus will be locked. The connections of these modules must be made as follows.*

12.7.2.1 Input Connections



Slot4 E-MDL-RLY Module Input Connections



Slot5 E-MDL-RLY Module Input Connections

12.7.2.2 Product Selection from Input

The product to be filled can be selected by using the inputs of the E-MDL-RLY module inserted to Slot 5. The products selected according to the status of the inputs are shown in the table below.

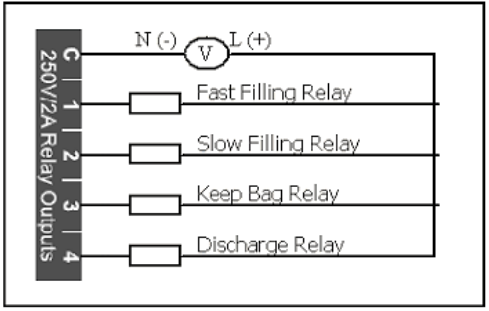
Select Product 1	Select Product 2	Select Product 3	Selected Product
			Choose from the Menu
No Signal	No Signal	Signal available	Product 01
No Signal	Signal available	No Signal	Product 02
No Signal	Signal available	Signal available	Product 03
Signal available	No Signal	No Signal	Product 04
Signal available	No Signal	Signal available	Product 05
Signal available	Signal available	No Signal	Product 06
Signal available	Signal available	Signal available	Product 07

Signal available: 12-24 Vdc
No Signal: 0 Vdc

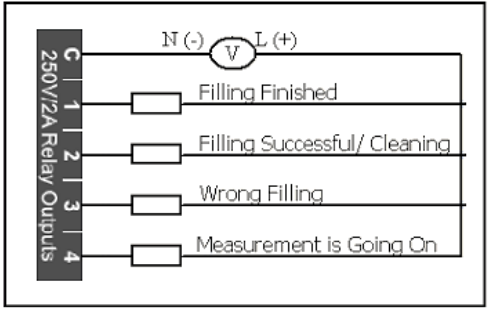
12.7.2.3 Authorization Key Input

The menus are not accessible when 12-24 Vdc is applied to the authorization key input.

12.7.2.4 Output Connections



Slot4 E-MDL-RLY Module Output Connections



Slot5 E-MDL-RLY Module Output Connections

12.7.3 Identifying the Filling System to the Device

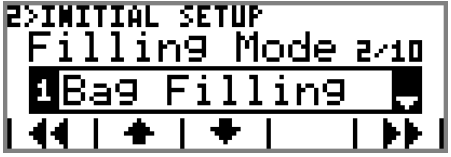
Sample Application:

Let's make the sample application with Bag Filling, Increasing Weighing (**Different Application Samples** No:1). Assume that the material to be filled is RICE. Make make the total filling quantity 1000g in double speed and last 50 g be slow filling.

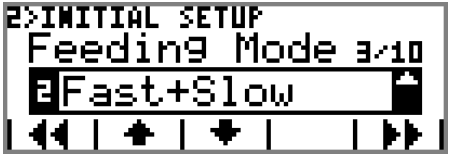
Primarily it is necessary to make the Start-up Settings (system settings). In order to do this, it is entered to the filling menu by pressing key on the main screen.

1) Enter “Start-up Setting” menu;
Select "Increasing Weighing" from the selection list of the Filling Type sub-menu.

2) Proceed to the next sub-menu by pressing key.
Select Bag Filling from the selection list of the Filling Mode sub-menu.



3) Proceed to the next sub-menu by pressing ▶▶ key.
Select "Quick + Slow" from the selection list of the Feeding Mode sub-menu.



4) Proceed to the next sub-menu by pressing ▶▶ key.
Select Ordered from the selection list of the Quick Feeding sub-menu.

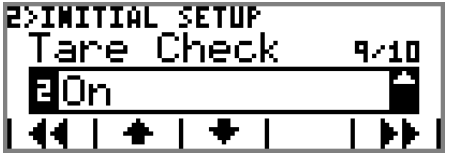
5) Proceed to the next sub-menu by pressing ▶▶ key.
Select "Off" from the selection list of the Auto Tare sub-menu.
.

6) Proceed to the next sub-menu by pressing ▶▶ key.
Enter 20g in Zero Stripe sub-menu.

7) Proceed to the next sub-menu by pressing ▶▶ key.
Enter 60000 in the Scale Capacity sub-menu.

8) Proceed to the next sub-menu by pressing ▶▶ key.
Select "Off" from the selection list of the Tolerance Control sub-menu.

9) Proceed to the next sub-menu by pressing ▶▶ key. Select "Off" from the selection list of the Tare Control sub-menu.

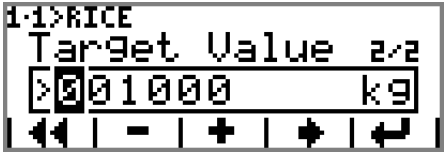


10) Proceed to the next sub-menu by pressing ▶▶ key. Select "Basic" from the selection list of the "UserLev." sub-menu.

Thus the system identification is completed.

Now let's proceed to the product identification.
Enter the menu FILL 01 from product setting menu. Replace the name FILL 01 with "RICE" from the name sub-menu.

11) Proceed to the next sub-menu by pressing ▶▶ key.
Enter 1000g from "Target Value" sub-menu.

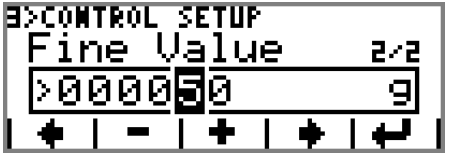


Thus the product identification is completed.

Now let's make the control settings.

12) Enter the menu "Control Mode" from Control Setting menu. Select “Auto Shot” from the selection list.

13) Proceed to the next sub-menu by pressing key.
Enter 50g in Sensitive Quantity sub-menu.



Thus we've finished all settings related to the filling. Now let's proceed to the application.

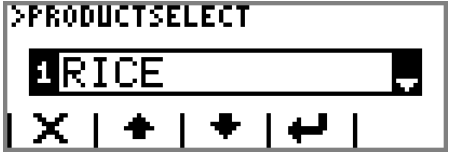
12.7.3.1 Operation

After making the system settings and product identification, the product is selected by pressing key on the main screen.

SELECT PRODUCT

It is used for selecting product. The options are;

1) RICE
2) FILL 02
.
.
16) FILL16



After selecting the product, the selected product is confirmed by pressing the key.

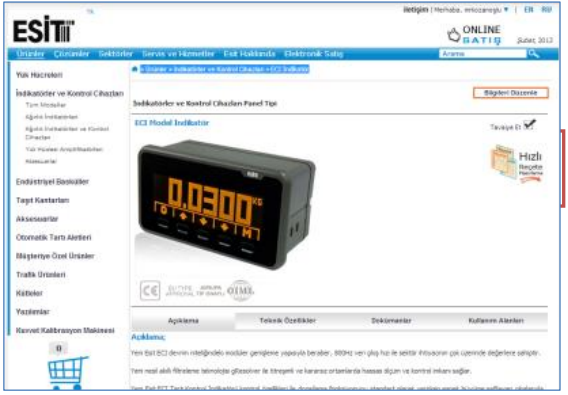
When ▶ key is pressed, the filling operation will start. During the filling operation the screenshot will be as shown at side

While the filling operation is in progress,it can be cancelled anytime by pressing ■ key or paused by pressing ■■ key .

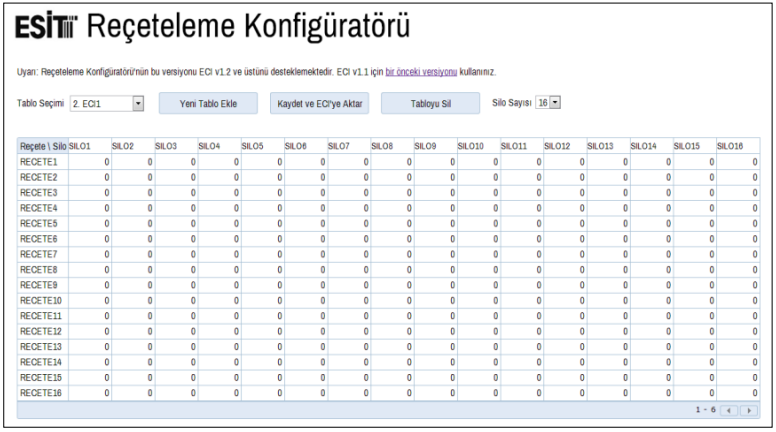
13 Annex 7: Batching Configurator

The batching configurator is used for making the batching setting over the web and transferring to the USD disk and then from the USB disk to the ECI.

1) www.esit.com.trweb page is opened.
2) Login.
3) By following the » Products » Indicators and Control Devices » ECI Indıcator route
4) Quick Recipe Preparation link is clicked.

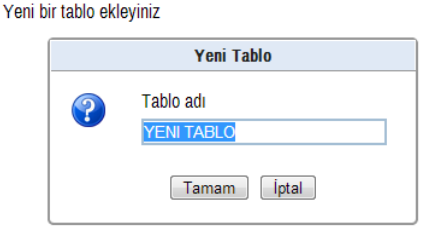


5) Press Add New Table.



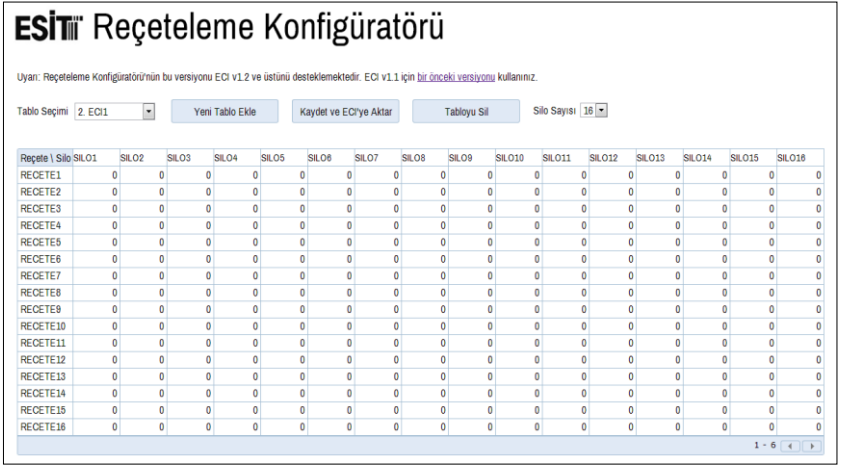
Reçete \ Silo	SILO1	SILO2	SILO3	SILO4	SILO5	SILO6	SILO7	SILO8	SILO9	SILO10	SILO11	SILO12	SILO13	SILO14	SILO15	SILO16
RECETE1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6) Click ok by entering the table name.



7) After entering the Table name from the new Table window click Tamam button and open the table screen.

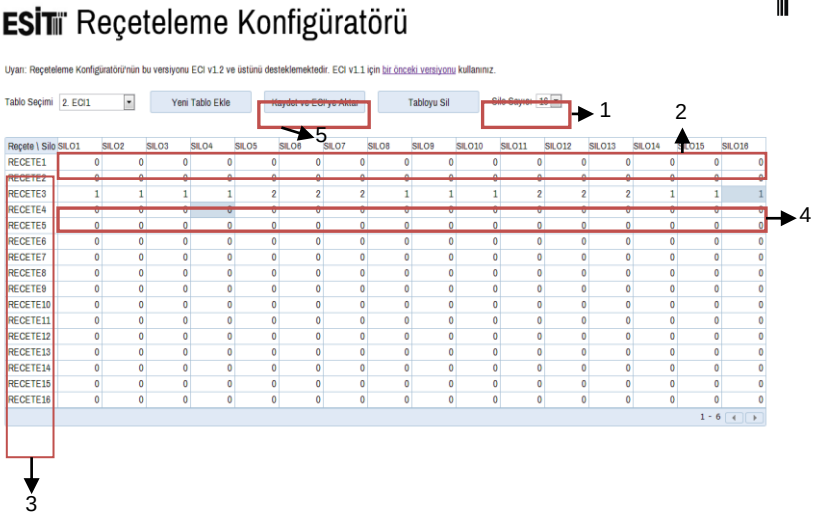
When [Tamam] the Table screen appears as follows.



Reçete \ Silo	SILO1	SILO2	SILO3	SILO4	SILO5	SILO6	SILO7	SILO8	SILO9	SILO10	SILO11	SILO12	SILO13	SILO14	SILO15	SILO16
RECETE1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECETE16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

At the table screen, recipe information can be created by following the steps below and transferred to ECI;

1. Number of silo is selected.
2. Silo names are entered.
3. Recipe names are entered.
4. Recipe formulations are created.
5. The recipes created are transferred to the USB disk by pressing the Save and Transfer to ECI keys.
6. USB Disk is inserted to the ECI.
7. B. The recipes which are created by using the Recipe menu are transferred from USB to ECI.



14 Annex 8 Modbus

14.1 Device Menu Settings

Related settings are under COM Module Menu.
Mode: Modbus must be selected.
Following parameters must be set as the same on the device to be connected.
Baudrate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Modbus Mode: RTU-ASCII
Modbus No: 1-255

14.2 Connection Point Settings

Bits per Second	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	None
Data Bits	8
Stop Bits	1

14.3 Modbus Commands

3	Multiple Record Reading
6	Single Entry Writing
16	Multiple Entry Writing

14.4 Modbus Directly Accessible Memory Map

Status A (16 Bit, LSB to MSB)

BIT(s)	**Function**
0-3 (/R)	Program Mode: 0: Indicator, 1: Batching, 2: Filling, 3: PLC, 4-15:Out of use
4-8 (/R) (5bits)	Out of use
9 (/R)	1:No load cell module inserted or it is not working, 0:load cell module is working.
10 (/R)	1:ADC input voltage over detected. It must be cleaned by the user.
11 (/R)	Out of use
12 (/R)	1:ADC input voltage is very high. It is 0 when the value returns to normal.
13(R/W)	Abnormal system operation flag. Set as 1 when wrong operation occurs. It means that the system has been restarted due to the electricity problems.
14-15 (2bits)	Out of use

Status B (16 Bit, LSB to MSB)

BIT(s)	Function
0-6 (/R) (7bits)	Scale Interval. (1, 2, 5 x10^n) 1:1, 2:2, 5: 5, 10:10, 20:20, 50:50, 100:100 101:200, 102:500, 103:1000, 104:2000, 105:5000
7 (/R)	Slot 4 Relay 1 On/Rff Status. 1:On, 0:Off
8-10 (/R) (3bits)	This value shows on which digit from right will the point be. It can be 3 maximum
11-14 (/R) (4bits)	Unit (0:g, 1:Kg, 2:t, 3:N, 4:lb, 5:lt, 6:mV, 7:m3 , 8:None)
15 (/R)	Slot 4 Relay 2 On/Off Status. 1: On, 0: Off

(R/W) Writable and Readable
(/R) Read Only

Status C (16 Bit, LSB to MSB)

BIT(s)	Function
0-2 ((/R) (3bits)	Load Cell Type. 0: 2mV/V, 1: 2.5mV/V, 2: 5mV/V, 3: 10mV/V, 4: 20mV/V, 5: 160mV/V
3-4 ((/R) (2bits)	Out of use
5 (/R)	1:Error, 0: No Error
6 (/R)	1: Calibration is possible, 0: No calibration is possible.
7 (/R)	Communication lock. 1:On 0:Off
8 (/R)	1:On device menu screen, 0: On Device main screen
9 (/R)	1: Absolute Zero yes, 0: Absolute Zero no
10 (/R)	1: Stagnancy, 0:Mobility
11 (/R)	1:Maximum load yes, 0: Maximum load no
12 (/R)	1:e2 zone
13 (/R)	1:e3 zone
14 (/R)	Out of use
15 ((/R)	Measuring Type. 1:Multi Partition or Multi Interval, 0:Single Partition

(R/W) Writable and Readable
(/R) Read Only

14.4.1 Scale Program

Address	Word Number	Function
0 (R/W)	1	Command register: it is used for the special functions together with the Reg A and Reg B.
1 (R/W)	1	Reg A: General Purpose Data Register.
2 (R/W)	1	Reg B: General Purpose Data Register.
5(/R)	1	Status A (Explanations are stated above in detail)
6 (/R)	1	Status B (Explanations are stated above in detail)
7 (/R)	1	Status C (Explanations are stated above in detail)
8 (/R)	2	Screen Value
10 (/R)	2	Tare Value
12 (/R)	2	Gross Value
16 (/R)	2	Tare Value (Internal Count)
20 (/R)	2	User Zero (Internal Count)
22 (/R)	2	Normalized Value (Factory Calibration has been made)
28 (/R)	2	Internal Count (Filtered)
30 (/R)	2	Internal Count (ADC)
32 (R/W)	2	User Data Area 1
34 (R/W)	2	User Data Area 2
36 (R/W)	2	User Data Area 3

(R/W) Writable and Readable
(/R) Read Only

14.4.2 Batching Program

Address	Word Number	Function
0 (R/W)	1	Command register: it is used for the special functions together with the Reg A and Reg B.
1 (R/W)	1	Reg A: General Purpose Data Register.
2 (R/W)	1	Reg B: General Purpose Data Register.
5(/R)	1	Status A (Explanations are stated above in detail)
6 (/R)	1	Status B (Explanations are stated above in detail)
7 (/R)	1	Status C (Explanations are stated above in detail)
8 (/R)	1	Batch Number
9 (/R)	1	Silo number
10 (/R)	2	Last silo value
12 (/R)	2	Total
14 (/R)	2	Screen Value
16-31 (R/W)	1	Recipe Formula Selected
32 (/R)	1	Batching Status
33 (/R)	1	Batching Operation Sequence

34 R/W	2	Target Value
36 (R/W)	2	User Data Area 1

(R/W) Writable and Readable
(/R) Read Only

14.4.3 Filling Program

Address	Word Number	Function
0 (R/W)	1	Command register: it is used for the special functions together with the Reg A and Reg B.
1 (R/W)	1	Reg A: General Purpose Data Register.
2 (R/W)	1	Reg B: General Purpose Data Register.
5(/R)	1	Status A (Explanations are stated above in detail)
6 (/R)	1	Status B (Explanations are stated above in detail)
7 (/R)	1	Status C (Explanations are stated above in detail)
8 (/R)	2	Screen Value
10 (/R)	2	Tare Value
12 (/R)	2	Gross Value
14 (/R)	2	Number of Filling
16(/R)	2	Total filling Value

18(/R)	2	Average Filling Value
20(/R)	2	Target Value
22(/R)	2	Minimum Tare Value
24(/R)	2	Maximum Tare Value
26(R/W)	2	Lower Tolerance
28(R/W)	2	Upper Tolerance
30(R/W)	2	Sensitive Quantity
32(/R)	1	Status
34 (R/W)	2	User Data Area 1
36 (R/W)	2	User Data Area 2

(R/W) Writable and Readable
(/R) Read Only

14.5 Examples:

14.5.1 Reading more than one register.

Such that Modbus ID:1, in order to read the data from register no 8 to register no 14 following data array is sent.

Modbus ID	Function Code	Start Address		Register Number		CRC Data	
01	03	00	08	00	06	44	0A

The response received is as follows.

Modbus ID	Function Code	Byte Number	Screen Top		Screen Bottom		Tare Upper		Tare Lower		Gross Upper		Gross Lower		CRC Data	
01	03	0C	00	00	01	F4	00	00	00	64	00	00	02	58	85	23

Accordingly
Screen Value=0x000001F4=500
Tare Value=0x00000064=100
Gross Value=0x00000258=600

14.5.2 Writing to the register.

Such that Modbus ID: :5, in order to write 0x0018 data to register no 1 (Reg A: General Purpose Register) following data array is sent.

Modbus ID	Function Code	Address		Data		CRC Data	
05	06	00	01	00	18	D9	84

The response received is as follows.

Modbus ID	Function Code	Address		Data		CRC Data	
05	06	00	01	00	18	D9	84

14.5.3 Removing the Security Lock.(Command Register =1, RegA =1357h, RegB=2192h)

In order to write to the EEPROM section, first of all a particular password is sent and EEPROM Communication lock is unlocked. This lock will unlock automatically after 3 seconds. Thus, this command must be executed before each EEPROM writing operation. Such that the Modbus ID:1, the communication lock opening command is;

Modbus ID	Function Code	Start Address		Register Number		Byte Number	Command Register		Reg A		Reg B		CRC Data	
01	10	00	00	00	03	06	00	01	13	57	21	92	F7	E9

14.5.4 Writing to EEPROM section

Such that the Modbus ID:1, following data array is sent in order to change the Unit information at address no 47 (0x2F) on EEPROM as kilogram.

Modbus ID	Function Code	Start Address		Register Number		Byte Number	Command Register		Reg A		Reg B		CRC Data	
01	10	00	00	00	03	06	00	02	00	2F	00	01	6F	49

NOTE: As a matter of course, when a value is written to the EEPROM section, only the EEPROM daat changes. There are two ways to update the RAM values with the EEPROM values;
1-) It is necessary to disconnect, then connect the power.
2-) 0x0A Command must be executed over Modbus. (0x0A: update parameters from EEPROM)

NOTE: Please request the “EEprom List” to change the device parameters with communication

14.6 Command Register Functions

Address no 0 is the command register. Following table explains the values written to this address and operations performed in consideration

Value	Function
-2	**No operation** It is used for feedback. Command denied. (This operation cannot be performed under the current status.)
-1	**No operation** It is used for feedback. It means that last operation is not successful.
0	**No operation** It is used for feedback. It means that last operation is successful.
1	**Unlocking Communication lock** It is used for writing data on EEPROM.
2	**Writing to EEPROM,** data should be written to RegB and address should be written to RegA.
3	**Reading from EEPROM:** Address should be written to RegA. Data is place to RegB.
5	**Reset:** Used for resetting the screen value.
6	**Tare:** Tare the screen value. (If the screen value is not 0 or negative)
7	**Learning the Communication Lock: To Both RegA and RegB**
8	**Device Type:** Data is written to RegA. ECI Family: (0x3000)
9	**Version No:** Data is written to RegA.
10	**Transfer device parameters from EEPROM to RAM.**
12	**Clean the error bits**

13	**Restart the device.**
20	**Select Recipe:** It is used for selecting recipe in batching program. Recipe number should be written to RegA. **Select Product:** It is used for selecting product in filling program. Product number should be written to RegA.
21	**Start Batching:** It is used for start batching in batching program. **Start Filling:** It is used for start batching in filling program.
22	**Start Batching:** It is used for stop batching in batching program. **Start Filling:** It is used for stop batching in filling program.
128*	**Relay 1 Minimum:** It is used for setting the minimum value of the 1.relay of the relay card inserted to Slot 4 in the Scale Program.
129*	**Relay 1 Maximum:** It is used for setting the maximum value of the 1.relay of the relay card inserted to Slot 4 in the Scale Program.
130*	**Relay 2 Minimum:** It is used for setting the minimum value of the 2.relay of the relay card inserted to Slot 4 in the Scale Program.
131*	**Relay 2 Maximum:** It is used for setting the maximum value of the 2.relay of the relay card inserted to Slot 4 in the Scale Program.

*When the device is restarted or any parameter is changed from the menus, these values return to their value displayed in the menu.

14.7 Examples

14.7.1 Taring

0x06 is written to the Command register for Taring. (Modbus ID:2 was used)

Modbus ID	Function Code	Address		Data		CRC Data	
02	06	00	00	00	06	09	FB

When the operation is performed, the same of the data string sent is returned.

14.7.2 Selecting Recipe

0x14 is written to the Command register (Address 0) for Selecting Recipe. Recipe no is written to RegA or (Address 1). (Modbus ID:1 was used)

Modbus ID	Function Code	Start Address		Register Number		Byte Number	Command Register		Reg B		CRC Data	
01	10	00	00	00	02	04	00	14	00	0F	F3	AF

When the operation is performed, the same of the data string sent is returned.

14.7.3 Start Batching

0x15 is written to the Command register (Address 0) for start Batching. (Modbus ID:1 was used)

Modbus ID	Function Code	Address		Data		CRC Data	
01	06	00	00	00	15	48	05

When the operation is performed, the same of the data string sent is returned.

14.7.4 Stop Batching

0x16 is written to the Command register (Address 0) to stop Batching. (Modbus ID:1 was used)

Modbus ID	Function Code	Address		Data		CRC Data	
01	06	00	00	00	16	08	04

When the operation is performed, the same of the data string sent is returned.

14.7.5 Setting the Relay 1 Minimum Value

Following data must be sent in order to set the minimum value of the 1. relay in Slot 4 as 500.
(Modbus ID:3 was used)

Modbus ID	Function Code	Start Address		Register Number		Byte Number	Command Register		Reg A		Reg B		CRC Data	
03	10	00	00	00	03	06	00	80	00	00	01	F4	E0	0B

The response received is as follows.

Modbus ID	Function Code	Start Address		Register Number		CRC Data	
03	10	00	00	00	03	81	EA

14.7.6 Setting the Relay 2 Maximum Value

Following data must be sent in order to set the maximum value of the 2. relay in Slot 4 as 800.
(Modbus ID:3 was used)

Modbus ID	Function Code	Start Address		Register Number		Byte Number	Command Register		Reg A		Reg B		CRC Data	
03	10	00	00	00	03	06	00	83	00	00	03	20	A5	34

The response received is as follows.

Modbus ID	Function Code	Start Address		Register Number		CRC Data	
03	10	00	00	00	03	81	EA

15 Annex 9 Profibus

15.1 Scale Program

Register Address (16 Bit)	Function
0 (/R)	Status A
1 (/R)	Status B
2 (/R)	Status C
3 (/R)	Screen Value Top
4 (/R)	Screen Value Bottom
5 (/R)	Tare Value Upper
6 (/R)	Tare Value Lower
7 (/R)	Gross Value Upper
8 (/R)	Gross Value Lower

(/R) Read Only

15.2 Batching Program

Register Address (16 Bit)	Function
0 (/R)	Status A
1 (/R)	Status B
2 (/R)	Status C
3 (/R)	Batch Number
4 (/R)	Silo number
5 (/R)	Last Silo Value Upper
6 (/R)	Last Silo Value Lower
7 (/R)	Total Value Upper
8 (/R)	Total Value Lower
9 (/R)	Screen Value Top
10 (/R)	Screen Value Bottom
11-26 (R/W)	Selected Recipe Formula
27 (/R)	Batching Status
28 (/R)	Batching Operation Sequence

(R/W) Writable and Readable
(/R) Read Only

15.3 Filling Program

Register Address (16 Bit)	Function
0 (/R)	Status A
1 (/R)	Status B
2 (/R)	Status C
3 (/R)	Net Value Upper
4 (/R)	Net Value Lower
5 (/R)	Tare Value Upper
6 (/R)	Tare Value Lower
7 (/R)	Gross Value Upper
8 (/R)	Gross Value Lower
9 (/R)	Number of Filling
10(/R)	Total filling Value Upper
11(/R)	Total filling Value Lower
12(/R)	Average Filling Value Upper
13(/R)	Average Filling Value Lower
14(/R)	Target Filling Value Upper
15(/R)	Target Filling Value Lower

16(/R)	Minimum Tare Value Upper
17(/R)	Minimum Tare Value Lower
18(/R)	Maximum Tare Value Upper
19(/R)	Maximum Tare Value Lower
20(/R)	Lower Tolerance Value Upper
21(/R)	Lower Tolerance Value Lower
22(/R)	Upper Tolerance Value Upper
23(/R)	Upper Tolerance Value Lower
24(/R)	Sensitive Quantity Upper
25(/R)	Sensitive Quantity Lower
26(/R)	Filling Operation Sequence

(/R) Read Only

Status A (16 Bit, LSB to MSB)

BIT(s)	Function
0-3 (/R)	Program Mode: 0: Indicator, 1: Batching, 2: Filling, 3: PLC, 4-15:Out of use
4-8 (/R) (5bits)	Out of use
9 (/R)	1:No load cell module inserted or it is not working, 0:load cell module is working.
10 (/R)	1:ADC input voltage over detected. It must be cleaned by the user.
11 (/R)	Out of use
12 (/R)	1:ADC input voltage is very high. It is 0 when the value returns to normal.
13(R/W)	Abnormal system operation flag. Set as 1 when wrong operation occurs. It means that the system has been restarted due to the electricity problems.
14-15 (2bits)	Out of use

Status B (16 Bit, LSB to MSB)

BIT(s)	Function
0-6 (/R) (7bits)	Scale Interval. (1, 2, 5 x10^n) 1:1, 2:2, 5: 5, 10:10, 20:20, 50:50, 100:100 101:200, 102:500, 103:1000, 104:2000, 105:5000
7 (/R)	Slot 4 Relay 1 On/Rff Status. 1:On, 0:Off
8-10 (/R) (3bits)	This value shows on which digit from right will the point be. It can be 3 maximum
11-14 (/R) (4bits)	Unit (0:g, 1:Kg, 2:t, 3:N, 4:lb, 5:lt, 6:mV, 7:m3 , 8:None)
15 (/R)	Slot 4 Relay 2 On/Off Status. 1: On, 0: Off

(R/W) Writable and Readable
(/R) Read Only

Status C (16 Bit, LSB to MSB)

BIT(s)	Function
0-2 (RW) (3bits)	Load Cell Type. 0: 2mV/V, 1: 2.5mV/V, 2: 5mV/V, 3: 10mV/V, 4: 20mV/V, 5: 160mV/V
3-4 (RW) (2bits)	Out of use
5 (/R)	1:Error, 0: No Error
6 (/R)	1: Calibration is possible, 0: No calibration is possible.
7 (/R)	Communication lock. 1:On 0:Off
8 (/R)	1:On device menu screen, 0: On Device main screen
9 (/R)	1: Absolute Zero yes, 0: Absolute Zero no
10 (/R)	1: Stagnancy, 0:Mobility
11 (/R)	1:Maximum load yes, 0: Maximum load no
12 (/R)	1:e2 zone
13 (/R)	1:e3 zone
14 (/R)	Out of use
15 (RW)	Measuring Type. 1:Multi Partition or Multi Interval, 0:Single Partition

(R/W) Writable and Readable
(/R) Read Only

16 Annex 10 Ethernet IP Addresses

TCP-IP Port No is 502.

16.1 Scale Program

Register Address (16 Bit)	Function
512(/R)	Status A
513 (/R)	Status B
514 (/R)	Status C
515 (/R)	Screen Value Top
516 (/R)	Screen Value Bottom
517 (/R)	Tare Value Upper
518 (/R)	Tare Value Lower
519 (/R)	Gross Value Upper
520 (/R)	Gross Value Lower

(/R) Read Only

16.2 Batching Program

Register Address (16 Bit)	Function
512(/R)	Status A
513 (/R)	Status B
514 (/R)	Status C
515 (/R)	Batch Number
516 (/R)	Silo number
517 (/R)	Last Silo Value Upper
518 (/R)	Last Silo Value Lower
519 (/R)	Total Value Upper
520 (/R)	Total Value Lower
521 (/R)	Screen Value Top
522 (/R)	Screen Value Bottom
523-539 (R/W)	Selected Recipe Formula
540 (/R)	Batching Status
541 (/R)	Batching Operation Sequence

(/R) Read Only

16.3 Filling Program

Register Address (16 Bit)	Function
512 (/R)	Status A
513 (/R)	Status B
514 (/R)	Status C
515 (/R)	Net Value Upper
516 (/R)	Net Value Lower
517 (/R)	Tare Value Upper
518 (/R)	Tare Value Lower
519 (/R)	Gross Value Upper
520 (/R)	Gross Value Lower
521 (/R)	Number of Filling
522 (/R)	Total Value Upper
523 (/R)	Total Value Lower
524 (/R)	Average Value Upper
525 (/R)	Average Value Upper
526 (/R)	Target Value Upper
527 (/R)	Target Value Lower

528 (/R)	Minimum Tare Value Upper
529 (/R)	Minimum Tare Value Lower
530 (/R)	Maximum Tare Value Upper
531 (/R)	Maximum Tare Value Lower
532 (/R)	Lower Tolerance Value Upper
533 (/R)	Lower Tolerance Value Lower
534 (/R)	Upper Tolerance Value Upper
535 (/R)	Upper Tolerance Value Lower
536 (/R)	Sensitive Quantity Upper
537 (/R)	Sensitive Quantity Lower
538 (/R)	Filling Operation Sequence

(/R) Read Only

Status A (16 Bit, LSB to MSB)

BIT(s)	Function
0-3 (/R)	Program Mode: 0: Indicator, 1: Batching, 2: Filling, 3: PLC, 4-15:Out of use
4-8 (/R) (5bits)	Out of use
9 (/R)	1:No load cell module inserted or it is not working, 0:load cell module is working.
10 (/R)	1:ADC input voltage over detected. It must be cleaned by the user.
11 (/R)	Out of use
12 (/R)	1:ADC input voltage is very high. It is 0 when the value returns to normal.
13(R/W)	Abnormal system operation flag. Set as 1 when wrong operation occurs. It means that the system has been restarted due to the electricity problems.
14-15 (2bits)	Out of use

Status B (16 Bit, LSB to MSB)

BIT(s)	Function
0-6 (/R) (7bits)	Scale Interval. (1, 2, 5 x10^n) 1:1, 2:2, 5: 5, 10:10, 20:20, 50:50, 100:100 101:200, 102:500, 103:1000, 104:2000, 105:5000
7 (/R)	Slot 4 Relay 1 On/Rff Status. 1:On, 0:Off
8-10 (/R) (3bits)	This value shows on which digit from right will the point be. It can be 3 maximum
11-14 (/R) (4bits)	Unit (0:g, 1:Kg, 2:t, 3:N, 4:lb, 5:lt, 6:mV, 7:m3 , 8:None)
15 (/R)	Slot 4 Relay 2 On/Off Status. 1: On, 0: Off

(R/W) Writable and Readable
(/R) Read Only

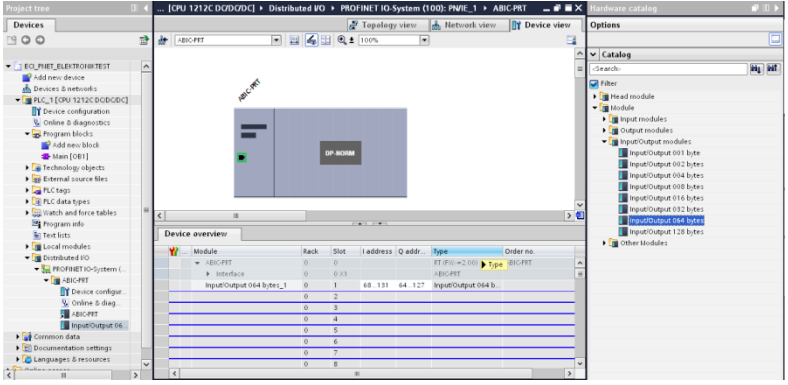
Status C (16 Bit, LSB to MSB)

BIT(s)	Function
0-2 (RW) (3bits)	Load Cell Type. 0: 2mV/V, 1: 2.5mV/V, 2: 5mV/V, 3: 10mV/V, 4: 20mV/V, 5: 160mV/V
3-4 (RW) (2bits)	Out of use
5 (/R)	1:Error, 0: No Error
6 (/R)	1: Calibration is possible, 0: No calibration is possible.
7 (/R)	Communication lock. 1:On 0:Off
8 (/R)	1:On device menu screen, 0: On Device main screen
9 (/R)	1: Absolute Zero yes, 0: Absolute Zero no
10 (/R)	1: Stagnancy, 0:Mobility
11 (/R)	1:Maximum load yes, 0: Maximum load no
12 (/R)	1:e2 zone
13 (/R)	1:e3 zone
14 (/R)	Out of use
15 (RW)	Measuring Type. 1:Multi Partition or Multi Interval, 0:Single Partition

(R/W) Writable and Readable
(/R) Read Only

17 Annex 11 Profinet Addresses

Profinet address sequence is same as Ethernet IP. Please see Annex 10 **Input/Output 064 bytes** block is used to Access via PLC.



18 Error Warning And Information Messages

Type	No	Short Name	Explanation
Error	1	Maximum Load!	This message is displayed when the measured value is more than "Capacity" + 9e.
Error	3	Zero Limit!	The load with this value cannot be zerod. It can be zeroed with zero calibration.
Error	5	LoadCellError	Load cell may be defected or there is a problem with the connection.
Error	6	ADC Data Error!	ADC Module is defective. Consult ESIT.
Error	10	Coeff.OutofLimit	It shows that the coefficient calculated as the result of the calibration is out of limit. The load used must be increased or the value to be calibrated must be decreased.
Error	11	Insufficient Load!	It shows that the load used for the calibration is not sufficient. The load used must be increased.
Error	12	2mV/V Only	It can be used only for 2mV/V load cell.
Error	21	No record!	No back-up has been made for the load cell. Thus it cannot be recovered.
Error	22	Memory 1 Error	The memory unit could not read/write. Consult ESIT.
Error	23	Wrong Value	The parameter attempted to be recorded is out of the allowed limits. Check the values

Error	24	Memory 2 Error	The memory unit could not read/write. Consult ESIT.
Error	31	PrinterTime.Out	Printer Connection is wrong or there is no printer connection.
Error	32	ProfiModulError	Profibus Module is defective. Consult ESIT.
Error	42	Battery Error	Date/Time info is unable to be read. Change the battery.
Error	50	No USB	USB is not inserted or detected.
Error	51	No File	No File in USB
Error	52	Corrupted File	Reload the file
Error	53	Restart!	Shut-down and turn on the device.
Error	60	SensitiveQuant.Error	Sensitive Quantity cannot be more than the Target Value. (Shot Value + Sensitive Quantity value) also cannot be more than the Target Value.
Error	61	ShotValueError	Shot Value cannot be more than the Target Value. (Shot Value + Sensitive Quantity value) also cannot be more than the Target Value.
Error	62	LowTareValue	The operation cannot be started as the Tare value is lower than the value entered to the Minimum Tare menu.
Error	63	HighTareValue	The operation cannot be started as the Tare value is higher than the value entered to the Minimum Tare menu.
Error	64	TargetValue.Excess	Target Value cannot be more than the Capacity Value.
Error	66	Scale is full	The filling operation could not be started as the target weight is less than the the weight on the weighing platform. (When Auto Tare is Off)
Error	70	InsufficientDigit	The digit is not sufficient for showing the value measured.

Error	71	ToleranceError!	More than the designated number of errors occurred in any of the silos as the result of batching
Error	72	Disc.Tim.Lap	It is displayed when no weight changes occurs during the “FillTimeLapse” period while discharging
Error	90	ADC ModulError	ADC could not be read. Consult ESIT.
Error	91	Defective Sensor	The temperature sensor could not be read. Consult ESIT.
Warning	101	Mobility	Zeroing or taring could not be performed due to mobility.
Warning	102	Tare active!	No zeroing can be made while the tare is active.
Warning	103	Negative Load	No taring can be possible for the negative loads.
Warning	104	No taring possible	No taring can be possible for the zero value.
Warning	108	RestoreFact.Settings	Factory Settings will be restored.
Warning	109	Restarting	The device will be restarted.
Warning	110	Output will change	Filling or discharging valves can be opened by activating the units connected to the relay outputs.
Warning	120	FillingTimeLapse	It shows that no weight change occurs during the "FillingTimeLapse" period while filling.
Warning	121	SiloValue Max	It is shown when the maximum batching value of 100.000 for silo is exceeded.
Warning	122	SiloValue Min	It is shown when the maximum batching value of 0 for silo is calculated.
Warning	123	InsufficientCapacity	Batching value is more than the capacity.

Warning	124	Total < Package	Total value of the batching cannot be less than the package value.
Warning	125	Recipe Empty!	The filling operation is unable to be started as the weight values for the silo related to the recipe intended to be batched is entered as zero.
Error	126	ToleranceError!	Errors more than detected occurred at any of the silos as the result of batching.
Error	127	Discharge.TimeLapse	It shows that no weight change occurs during the "FillingTimeLapse" period while discharging.
Warning	130	No Hardware!	It is shown when the module required for performing the operation is not present.
Warning	131	Missing Module	Additional module is required for the batching operation.
Information	224	Product has Changed!	Product to be filled has been changed.
Information	200	Stored	New parameter value has been stored to the memory.
Information	201	Please wait...	It is displayed during the long operations.
Warning	202	Tare Off	It is displayed when it is intended to perform input and taring operation when Tare “off” is selected from the menu.
Information	207	vX.Y	It is the version number screen. X:Major, Y:Minor
Information	208	Cancelled!	Parameter change has been cancelled.
Information	211		It is the terminal serial port test screen.
Information	212		It is the remote display output test screen.

Information	213		It is the E-MDL-COM module serial port test screen.
Information	220	Stopped.	Batching operation has been cancelled.
Information	223	ExternalSelecActive	No product can be selected from the menu when one of the product selection attempts is active.
Information	230	Memory-1 OK	Memory unit has been tested successfully.
Information	231	Memory-2 OK	Memory unit has been tested successfully.
Information	232	Backing-up...	Calibration parameters will be copies to E-ECI-LC card.
Information	233	Receiving...	Calibration parameters in E-ECI-LC card will be uploaded to the main card.
Information	255	Setting...	It is shown when key sensitivity is set.
Report Messages			
-	1000	Unknown Error	-
-	1001	Key Pad Failure	Keypad module error
-	1002	Soft Reset	It is reported when ECI is restarted for a reason other than blackout.

Украина, Харьков, ул. 23 Августа, 66

097 719-40-71, 057 719-40-71, 093 719-40-71