



# Smart-2 Multi Functional Wireless Weighing Indicator

## User Manual



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Wireless Weighing Indicator  
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## **LEGAL WARNING**

We congratulate you on the good choice you made. ESIT SMART-2 indicators are Esit's simplest weight indicators which are specially designed in line with your weight measurement needs.

SMART-2 is an ideal device with its features for the weighing sector with its unique durable construction and the unusually small dimensions Like the ESIT's other indicators, SMART-2 is manufactured to provide the most advanced quality standards.

This user guide is prepared to introduce features of SMART-2 to our valuable users and help you get the most out of your device.

For more information and technical support, please visit [www.esit.com.tr](http://www.esit.com.tr) .

**GENERAL DETAILS**



Loadcell Cable Input Power, Communication, Relay, DAC Cables

**key Function**



Switch on / off the device



Going one level up in the menu and resetting while in the weight display



Access to menu

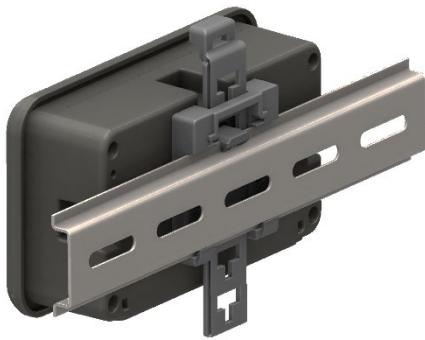


Menu selection, confirmation and taring while in the weight display



## MOUNTING METHODS

- Rail Mounting Apparatus (inside cabinet or wall mounting)



- Panel Mounting Apparatus (Front panel mounting)



## INDICATORS

**Inactivity:** The display value indicates that inactivity has been detected within  $\pm 2e$  range for 2 seconds and kg segment is highlighted on the display. (**e**: increment step on the display)



**Absolute zero:** Indicates that display value is 0 and internal counting value is less than  $1/4e$ .



**Net:** Indicates taring operation is in progress



**Minus:** Indicates that the display value is negative.




## INDICATOR CONNECTIONS

In the printed circuit of the indicator, the connections are as follows provided that the leftmost terminal slot is number 1. See 'Connection and mode selection' section for more details.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
-LC 1 input	+LC 1 input	-LCFeed	+LCFeed	LCGround	0V GND	+V (6-24V)	-I <sub>o</sub>	+I <sub>o</sub>	+V <sub>o</sub>	GND	DI2	DI1	RL 2/1	RL 2/2	RL 1/1	RL 1/2	RS485VCC	Rx / B	Tx / A	RS485GND

## MENU SYSTEM

To access the menu system and navigate menus, press the  button

**IDENTITY MENU:** This is the menu for displaying the serial number and version information of the indicator.



**DISPLAY SETTINGS MENU:** This is the menu where the increment step (e), point location, weighing capacity value and unit of measurement are set.



**CONFIGURATION MENU:** This is the menu where background light setting, brightness, average filter size, eco mode, weight change response speed, weight tracking and ADC gain value settings are made.



**CALIBRATION MENU:** This is the menu where zero and load calibrations are made.



**OUT 1 (RELAY # 1) MENU:** This is the menu where set value, hysteresis, delay time and contact position setting for relay 1 are performed.



**OUT 2 (RELAY # 2) MENU:** This is the menu where set value, hysteresis, delay time and contact position setting for relay 2 are performed.



**ANALOG OUTPUT (DAC) MENU:** This is the menu for setting lower and upper values and the display values corresponding to the lower value for the analogue output.



**COMMUNICATION SETTINGS MENU:** This is the menu where the communication mode, speed and data format settings are made.



**BLUETOOTH MENU:** This is the menu for making the name setting and on/off setting of the Bluetooth Low Energy module. The module becomes active when it is connected to the device.



**WIFI MENU:** This is the menu for making the name setting and on/off setting of the WiFi module. The module becomes active when it is connected to the device.



**TEMPERATURE CALIBRATION MENU:** This is the calibration menu for temperature compensation.




**RESET MENU:** It is used to restore the factory settings.




## DEVICE IDENTITY INFORMATION

It is possible to display the serial number and version information of the indicator with this menu.


### DISPLAYING THE SERIAL NUMBER


1. Press  key until you reach the 'Device identity information' menu




2. Press the  key to confirm the menu
3. The first option is the 'Serial number' menu.



4. Press the  key to confirm the menu
5. The value displayed on the screen is the serial number of the indicator


6. Press the  key to go back to the measurement screen.

### DISPLAYING THE VERSION DETAILS

7. Press  key until you reach the 'Device identity information menu




8. Press the  key to confirm the menu

9. Press  key until you reach the 'Version Details' menu



10. Press the  key to confirm the menu

11. The value displayed on the screen is the version details of the indicator






12. Press the  key to go back to the measurement screen.

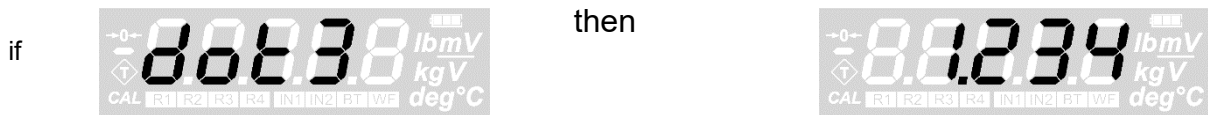
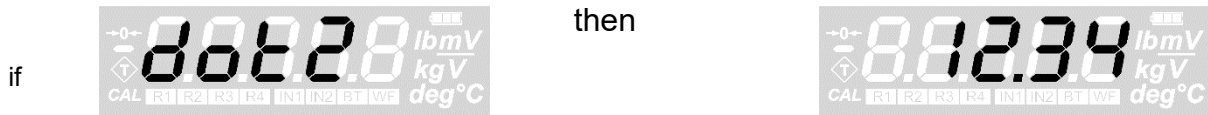
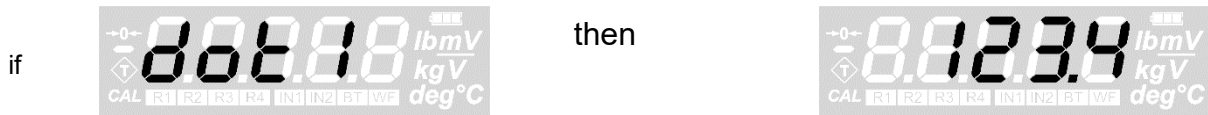
**DISPLAY SETTINGS:**



**WARNING:** In order for these menu functions to be active, the P2 connection inside the indicator must be open circuit; otherwise only recorded information will be displayed and they are not allowed to be changed. In this case, a special error code (Error50) will also be displayed on the indicator's screen.

**SETTING THE POINT LOCATION**


If a decimal representation of the screen resolution is required, the decimal point is set with this menu.

- (1) Press  key until you reach the 'Display Settings' menu 
- (2) Press the  key to confirm the menu
- (3) The first option is the 'Decimal point' menu.
- (4) Press the  key to confirm the menu
- (5) Set the decimal point as you desire with  menu key.




- (6) Press the  key to save the changes.
- (7) Press the  key to go back to the measurement screen.

**INCREMENT STEP SETTING**

- (1) Press  key until you reach the 'Display Settings' menu




- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Increment Step' menu



- (4) Press the  key to confirm the menu

- (5) Set the increment step as you desire with  menu key.

if  then e = 1

if  then e = 2


if  then e = 5

if  then e = 10

if  then e = 20


 then e = 50

- (6) Press the  key to save the changes.

- (7) Press the  key to go back to the measurement screen.


**WEIGHING CAPACITY SETTING**

This value is the maximum measurement value allowed to be displayed on the screen. The indicator displays an error code if there is a load that exceeds MAX□ (9e) value on the platform.

- (1) Press  key until you reach the 'Display Settings' menu



- (2) Press the  key to confirm the menu



- (3) Press  key until you reach the 'Weighing capacity' menu





- (4) Press the  key to confirm the menu

- (5) The last recorded weighing capacity will be displayed on the screen and the ten thousands digit blinks at the same time



- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.


- (7) Press the  key to save the weighing capacity.

- (8) Press the  key to go back to the measurement screen.




## UNIT OF MEASUREMENT SETTING

This value allows you to select the unit of measurement made. Kg, g, lb, ° C, degrees, mV / V, mV and V units can be selected.

- (1) Press  key until you reach the 'Display Settings' menu



- (2) Press the  key to confirm the menu


- (3) Press  key until you reach the 'Unit Settings' menu




- (4) Press the  key to confirm the menu

- (5) The last used unit will be displayed on the screen and the unit option on the right of the screen will also be active at the same time.




- (6) Press  key until the unit you'd like to use is displayed on the screen.

- (7) Press the  key to save the unit setting.

- (8) Press the  key to go back to the measurement screen.


**ZERO LIMIT SETTING**

This value is the zero limit value allowed to be zeroing by the user. Value between 0-99999 can be saved.

- (2) Press  key until you reach the 'Display Settings' menu



- (7) Press the  key to confirm the menu



- (8) Press  key until you reach the 'Zero Limit' menu





- (9) Press the  key to confirm the menu

- (10) The last recorded zero limit value will be displayed on the screen and the ten thousands digit blinks at the same time



- (11) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.


- (9) Press the  key to save the zero limit value.

- (10) Press the  key to go back to the measurement screen.

## CONFIGURATION SETTINGS

### DISPLAY LIGHT SETTING

You can adjust the display light in this menu. In addition to the continuous on and off options, you can also set the auto light on when the weight value changes by  $\pm 5e$ .

- (1) Press  key until you reach the 'Configuration Settings' menu




- (2) Press the  key to confirm the menu


- (3) The first option is the 'Display light' menu.




- (4) Press the  key to confirm the menu

- (5) Press 'ON' button to turn on, 'OFF' button to turn off the display light and  key until the 'Auto' screen is displayed for the auto mode.




- (6) Press the  key to save the display light setting.

- (7) Press the  key to go back to the measurement screen.


**AVERAGE SETTING**

With this value, the number of measurements to be averaged when the measurement value is displayed on the screen is set. The high average value increases the measurement quality while the response to small changes is reduced.

- (1) Press  key until you reach the 'Configuration Settings' menu









- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Average' menu




- (4) Press the  key to confirm the menu

- (5) Set the increment step as you desire with  menu key.

if		then single measurement display
if		then average with 5 measurements
if		then average with 10 measurements
if		then average with 20 measurements
if		then average with 50 measurements

- (6) Press the  key to save the changes.

- (7) Press the  key to go back to the measurement screen.

**WEIGHT CHANGE SPEED**


With this menu (SPEED), the speed of change when new weight is added, is adjusted

It is 0.2 sec when FAST, 0.5 sec with MED, 1.0 sec with SLOW. The measurements in the SLOW mode are more stable.

(1) Press  key until you reach the 'Configuration Settings' menu




(2) Press the  key to confirm the menu

(3) Press  key until you reach the 'SPEED' menu



(4) Press the  key to confirm the menu

(6) Set the speed mode of your choice with  menu key.



then 0.2 sec




then 0.5 sec



then 1.0 sec.

(6) Press the  key to save the changes.

(7) Press the  key to go back to the measurement screen.


## ECO MODE SETTING

With this menu you can turn eco mode on or off. If the measurement value is within  $\pm 10e$  range around 0 for 10 minutes while Eco mode is on, the indicator goes into eco mode and automatically switches off the display, backlight, wifi and relays. To exit the eco mode, either weigh a weight outside the  $\pm 10e$  range of or press the buttons other than the off key.

- (1) Press  key until you reach the 'Configuration Settings' menu




- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Eco Mode' menu




- (4) Press the  key to confirm the menu

- (5) Press  key until reaching 'ON' for activating and 'OFF' for deactivating the Eco Mode



- (6) Press the  key to save the changes.


- (7) Press the  key to go back to the measurement screen.

**GAIN SETTING**

With this value, you can choose the internal upgrade value of the ADC. This value can be 128 or 64. 128 must be selected for load cells up to 3mV/V and 64 must be selected for higher ones


(up to 6mV/V) Once the gain value has been changed, **calibration must be performed** to ensure proper measurement.

**WARNING:** In order for these menu functions to be active, the P2 connection inside the indicator must be open circuit; otherwise only recorded information will be displayed and they are not allowed to be changed. In this case, a special error code will also be displayed on the indicator's screen.

- (1) Press  key until you reach the 'Configuration Settings' menu




- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Gain' menu



- (4) Press the  key to confirm the menu

- (5) Set the gain value as you desire with  menu key.




then gain 128




then gain 64

- (6) Press the  key to save the changes.

- (7) Press the  key to go back to the measurement screen.


**DISPLAY BRIGHTNESS SETTING**

With this value you can change the backlight brightness. Higher values consume more energy.

(1) Press  key until you reach the 'Configuration Settings' menu




(2) Press the  key to confirm the menu

(3) Press  key until you reach the "Display Brightness" menu.



(4) Press the  key to confirm the menu

(5) Set the display brightness as you desire with  menu key.


 then Maximum

 then High

 then Moderate

 then Low


(6) Press the  key to save the changes.

(7) Press the  key to go back to the measurement screen.




**MEASUREMENT STABILITY**

When this menu option is on, any change that is less than 2e for 2 sec after the measurement is stable, is not displayed

(1) Press  key until you reach the 'Average' menu




(2) Press the  key to confirm the menu

(3) Press  key until you reach the 'TRACK' menu



(4) Press the  key to confirm the menu

(5) Set the position as you desire with  menu key.




then active




then passive

(6) Press the  key to save the changes.

(7) Press the  key to go back to the measurement screen.


**BATTERY SELECTION**

This option is available for both 6V and 12V battery. User have to select battery according to which battery is in use.

(1) Press  key until you reach the 'Conf' menu




(2) Press the  key to confirm the menu

(3) Press  key until you reach the 'Battery' menu



(4) Press the  key to confirm the menu


(5) Set the position as you desire with  menu key.




6V battery selected



12V battery selected


(6) Press the  key to save the changes.

(7) Press the  key to go back to the measurement screen.

## WEIGHT CALIBRATION


**WARNING:** In order for these menu functions to be active, the P2 connection inside the indicator must be open circuit; otherwise an error code special for this situation is displayed on the indicator's screen.

### ZERO CALIBRATION

- (1) Press  key until you reach the 'Calibration' menu



- (2) Press the  key to confirm the menu


- (3) Press  key until you reach the 'Load' menu



- (4) Press the  key to confirm the menu



- (5) The 'Zero Calibration' menu flashes for a short time and the internal count value information starts to be displayed on the screen. When this internal count value is displayed, the CAL segment at the bottom left of the screen flashes




- (6) After the platform is emptied, zero calibration is performed with the  key.

- (7) When zero calibration is done, the indicator automatically switches to the 'Load calibration' menu (Load). This screen information flashes for a short time and the display shows the internal count value after the reset and the CAL segment at the bottom left of the screen is lit continuously




- (6) When this internal count value is displayed, the reset operation can be performed with the  key. Press the  key to go back to the normal operation (measurement) screen.

**LOAD CALIBRATION**

(1) Press  key until you reach the 'Calibration' menu



(2) Press the  key to confirm the menu



(3) Press  key until you reach the 'Load' menu





(4) Press the  key to confirm the menu

(5) The 'Load Calibration (Load)' menu flashes for a short time and the internal count value information starts to be displayed on the screen. When this internal count value is displayed, the CAL segment at the bottom left of the screen does not flash like it does in zero calibration




(6) When this internal count value is displayed, the reset operation can be performed with the  key. When reference weight is placed on the platform and stability of the platform is ensured,  key must be pressed.

**NOTE: IT IS RECOMMENDED THAT THE REFERENCE WEIGHT IS AT LEAST HALF OF THE LOADCELL CAPACITY**

(5) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.



















(6) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

(7) 'CALok' message indicating that the calibration is successful will appear and device will start to operate according to the calibration performed in the normal operation mode





**DLOAD DIGITAL CALIBRATION ( Death Load )**


- (8) Press  key until you reach the 'Calibration' menu 
- (9) Press the  key to confirm the menu
- (10) Press  key until you reach the 'DLoad Digital Calibration' menu 
- (11) Press the  key to confirm the menu
- (12) 'The Loadcell Capacity' message will be displayed for a short time on the screen 
- (13) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key 
- (14) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.
- (15) After recording capacity, 'Weight' message will be displayed for a short time on the screen. User should enter weight value which is the weight of the death load 
- (16) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key 
- (17) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

- (18) After that operation 'mV/V' message will be displayed for a short time on the screen. User have to enter the maximum loadcell mV/V value



- (19) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key




- (20) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

- (21) 'CALoK' message will be displayed for a short time on the screen if calibration is performed successfully.




**KLOAD DIGITAL CALIBRATION ( Known Load )**

(6) Press  key until you reach the 'Calibration' menu



(7) Press the  key to confirm the menu



(8) Press  key until you reach the 'KLoad Digital Calibration' menu




(9) Press the  key to confirm the menu

(10) 'The Loadcell Capacity' message will be displayed for a short time on the screen





(11) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key




(12) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

(13) After recording capacity, 'Weight' message will be displayed for a short time on the screen. User should enter absolute weight value over scale





(14) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key




(15) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

- (16) After that operation 'mV/V' message will be displayed for a short time on the screen. User have to enter the maximum loadcell mV/V value



- (17) After this operation the ten thousands digit blinks. Numeric value of the blinking digit can be increased by  key. The place value can be changes with  key



- (18) Once the desired value is displayed on the screen, the  key must be pressed to complete the calibration and record the value.

- (19) 'CALoK' message will be displayed on the screen for a short time if calibration is performed successfully.





## RELAY SETTINGS

When the relay contacts are closed, the warning segments (R1 and R2) of that relay are lit on the display.



The relays are active in '-' direction just like they are in '+' positive one. For example; if the contacts of relay 1 is set to be closed circuit for the set value of 1000 and above, relay contacts will also be closed for the values -1000 and below.

Opens the menus related to relay 1




Opens the menus related to relay 2



## RELAY 1 SETTINGS

### RELAY 1 SET VALUE SETTING

(1) Press  key until you reach the 'Relay 1' menu

(2) Press the  key to confirm the menu



(3) The first option is the ' relay 1 set value' menu.





(4) Press the  key to confirm the menu

(5) The last recorded set value will be displayed on the screen and the ten thousands digit blinks at the same time




(6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.

(7) Press the  key to save relay 1 set value.


(8) Press the  key to go back to the measurement screen.

**RELAY 1 SET DIRECTION SETTING**

- (1) Press  key until you reach the 'Relay 1' menu



- (2) Press the  key to confirm the menu


- (3) Press  key until you reach the 'Relay 1 set direction' menu



- (4) Press the  key to confirm the menu

- (5) The last recorded relay direction will be displayed on the screen




- (6) Set relay 1 set direction as you desire with  menu key.




Then relay contacts are closed circuit when the value is below the set value




Then relay contacts are open circuit when the value is above the set value

- (7) Press the  key to save relay 1 set direction.

- (8) Press the  key to go back to the measurement screen.


**RELAY 1 SET HYSTERESIS SETTING**

Hysteresis can be expressed as the difference between the opening and closing values of the relay or the amount return loss.

- (1) Press  key until you reach the 'Relay 1' menu



- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Relay 1 hysteresis' menu





- (4) Press the  key to confirm the menu

- (5) The last recorded relay 1 hysteresis value will be displayed on the screen and the hundreds digit blinks at the same time



- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.


- (7) Press the  key to save relay 1 hysteresis value.

- (8) Press the  key to go back to the measurement screen.

NOTE: Hysteresis quantity can be between **0 and 255**.


**RELAY 1 DELAY TIME SETTING**

A delay of up to 5 seconds can be given to set the relay. This delay period is made with the 'delay time' menu at intervals of 0.2 seconds between 0 to 1 second and intervals of 1 second between 1 to 5 seconds.

- (1) Press  key until you reach the 'Relay 1' menu




- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Relay 1 delay time' setting menu



- (4) Press the  key to confirm the menu


- (5) The recorded delay time is displayed on the screen. Set the delay time as you desire with  menu key.




then 0 second delay (without delay)




then 5 seconds delay


- (6) Press the  key to save the relay 1 delay time.

- (7) Press the  key to go back to the measurement screen.

## RELAY 2 SETTINGS

- (1) Press  key until you reach the 'Relay 2' menu



- (2) Press the  key to confirm the menu
- (3) The necessary settings for 'Relay 2' are made by following the settings for 'Relay 1' (see pages 25-28).

## ANALOG OUTPUT (DAC) SETTINGS

### ANALOG OUTPUT CALIBRATION

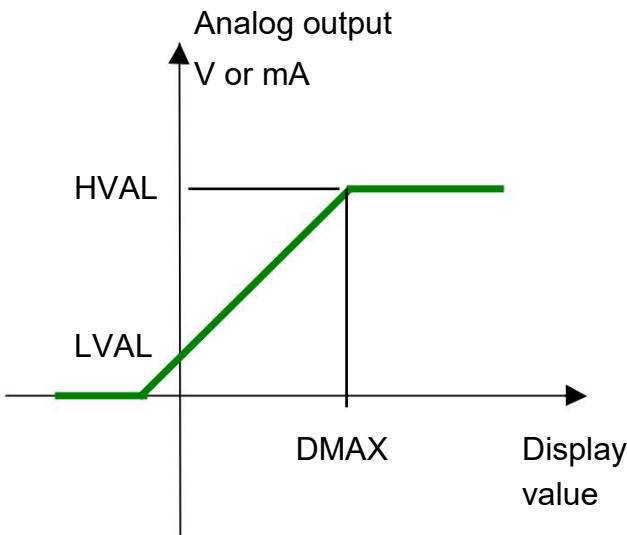
In order for the weight information on the SMART-2 display to be used in voltage or current controlled automation devices, the analogue output must have been calibrated correctly.

Calibration must be performed after selecting the voltage (0-5V) or current (4-20mA) mode. See the "CONNECTIONS AND MODE SELECTIONS" section of your manual for the selection of the analog output mode.

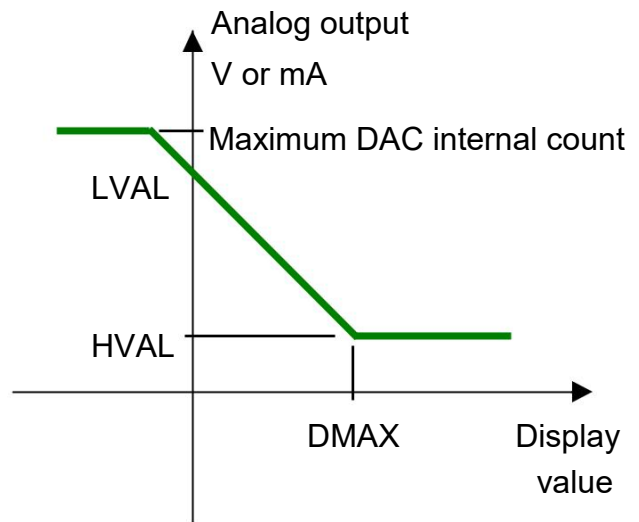
LVAL refers to DAC LOWEST OUTPUT VALUE  
 HVAL refers to DAC HIGHEST OUTPUT VALUE  
 DMAX refers to DAC MAXIMUM OUTPUT VALUE and

$$\text{Analog output value} = \text{LVAL} + \frac{(|\text{HVAL} - \text{LVAL}| \times \text{Display Value})}{\text{DMAX}} \quad \text{For } \text{HVAL} > \text{LVAL}$$

$$\text{Analog output value} = \text{LVAL} - \frac{(|\text{HVAL} - \text{LVAL}| \times \text{Display Value})}{\text{DMAX}} \quad \text{For } \text{LVAL} > \text{HVAL}$$



If set as HVAL > LVAL




If set as LVAL > HVAL

NOTE: The maximum DAC internal count value can be 4095.

**DAC LOWEST OUTPUT VALUE (LVAL) SETTING**

It is used to determine the value to be obtained from the analogue output for the zero value on the screen.

- (1) Press  key until you reach the 'DAC' menu



- (2) Press the  key to confirm the menu

- (3) The first option is the 'DAC lowest output (LVAL) value' menu.





- (4) Press the  key to confirm the menu


- (5) The last recorded DAC lowest output (LVAL) value will be displayed on the screen and the thousands digit blinks at the same time



NOTE: WHILE CHANGING THE LVAL VALUE, THE ANALOGUE OUTPUT VALUE FOR THAT VALUE CAN BE OBSERVED.

- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.


- (7) Press the  key to save DAC lowest output (LVAL) value.

- (8) Press the  key to go back to the measurement screen.




**DAC HIGHEST OUTPUT VALUE (HVAL) SETTING**

It is used to determine the value to be obtained from the analogue output for the DAC maximum value (dmax) to be determined on the screen.

- (1) Press  key until you reach the 'DAC' menu



- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'DAC highest output (HVAL) value' menu "HVAL" appears on the display.





- (4) Press the  key to confirm the menu


- (5) The last recorded DAC highest output (HVAL) value will be displayed on the screen and the thousands digit blinks at the same time



NOTE: WHILE CHANGING THE HVAL VALUE, THE ANALOGUE OUTPUT VALUE FOR THAT VALUE CAN BE OBSERVED.


- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.


- (7) Press  key to save DAC highest output (HVAL) value

- (8) Press the  key to go back to the measurement screen.


**DAC MAXIMUM OUTPUT (DMAX) VALUE SETTING**


This value is used to set the display value corresponding to the HVAL value.

(1) Press  key until you reach the 'DAC' menu




(2) Press the  key to confirm the menu



(3) Press  key until you reach the 'DAC maximum output (DMAX) value' menu "dMAX" appears on the display.




(4) Press the  key to confirm the menu

(5) The last recorded DAC maximum output (DMAX) value will be displayed on the screen and the ten thousands digit blinks at the same time




(6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.

(7) Press the  key to save DAC maximum output (DMAX) value.

(8) Press the  key to go back to the measurement screen.

## COMMUNICATION SETTINGS

### COMMUNICATION MODE SETTING

- (1) Press  key until you reach the 'Communication' menu




- (2) Press the  key to confirm the menu

- (3) The first option is the 'Communication mode' menu.



- (4) Press the  key to confirm the menu

- (5) Set the communication mode of your choice with  menu key.



NO COMMUNICATION



SENDING 4 DIGIT WEIGHT INFORMATION CONTINUOUSLY




ADDRESSABLE COMMUNICATION




MODBUS COMMUNICATION



COMMAND MODE

- (6) Press the  key to save the communication mode

- (7) Press the  key to go back to the measurement screen.

**MOD2 communication note:**

In this mode, the indicator sends the weight information after receiving the authorization signal from its counterpart. Thus, more than one device can be connected to the same communication line. The communication in this mode is the same as the communication form in MOD1.

If more than one indicator is to be communicated with the computer, the communication mode must be set to MOD2 and the hardware setting must done as RS485.

**MOD4 communication note:**

This mode works from a remote computer or similar device.

Command Lists:

- 'L' : Returns list of available commands.
- 'R' : Resets device.
- 'Z' : Zero-Setting command.
- 'T' : Tare Command.
- 'W' : Returns current measured weight.
- 'I': Read inputs
- 'O': Read outputs
- 'A' : Returns ADC inner count.
- 'V' : Returns Version of device.

Example;


Command: 'W' '

"8.311" is the current measured weight

Character	+	'0'	'8'	'.'	'3'	'1'	'1'	CR
HEX	2B	30	38	2E	33	31	31	0D


**INDICATOR ADDRESS (SCALE IDENTITY NO) SETTING**

IT IS ACTIVE AND THE MENU IS AVAILABLE ONLY IF MODE 2 COMMUNICATION IS SELECTED


- (1) Press  key until you reach the 'Communication' menu



- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Indicator address' menu







- (4) Press the  key to confirm the menu
- (5) The last recorded indicator address will be displayed on the screen and the hundreds digit blinks at the same time




065 = hex41= "A"

**NOTE: INDICATOR ADDRESS CAN BE ASSIGNED BETWEEN 0 AND 255**


- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.
- (7) Press the  key to save the indicator address.
- (8) Press the  key to go back to the measurement screen.

**COMMUNICATION PARITY BIT SETTING**

(1) Press  key until you reach the 'Communication' menu




(2) Press the  key to confirm the menu

(3) Press  key until you reach the 'Communication parity bit' menu



(4) Press the  key to confirm the menu

(5) Set the communication parity of your choice with  menu key.




then no parity bit(NO PARITY)




then parity bit is even (EVEN PARITY)



then parity bit is odd (ODD PARITY)








(6) Press the  key to save the communication parity setting.

(7) Press the  key to go back to the measurement screen.



### COMMUNICATION SPEED (BAUD RATE) SETTING

The number of data bits that can be sent in one second during communication is called the 'communication speed' (BAUD RATE). For Smart-2 indicators this speed can be set between 1200 and 28800.

- (1) Press  key until you reach the 'Communication' menu 
- (2) Press the  key to confirm the menu
- (3) Press  key until you reach the 'Communication speed' menu 
- (4) Press the  key to confirm the menu
- (5) Set the communication speed of your choice with  menu key.



then 1200 baud communication



then 2400 baud communication



then 4800 baud communication



then 9600 baud communication





then 14400 baud communication



then 19200 baud communication




then 28800 baud communication


- (6) Press the  key to save the communication speed setting.
- (7) Press the  key to go back to the measurement screen.

## COMMUNICATION DATA LENGTH SETTING

The length of the data bits to be used for communication is set by this menu. With this parameter setting, 128 different characters can be defined in 7 bit communication. 256 different character definition is possible only if 8 bits = 1 byte communication is selected.


(1) Press  key until you reach the 'Communication' menu

(2) Press the  key to confirm the menu

(3) Press  key until you reach the 'Communication data length' menu



(4) Press the  key to confirm the menu


(5) Set the data length as you desire with  menu key.




then 7 bit communication



then 8 bit communication

(6) Press the  key to save the communication data length setting.

(7) Press the  key to go back to the measurement screen.


NOTE: For example, the ASCII code equivalent of the character 'A' is 41 in the hexadecimal (hex) system; By setting the data length, transfer is performed as follows:

	<u>7. 6. 5. 4. 3. 2. 1. 0.</u>
7 bit	x 1 0 0 0 0 0 1
8 bit	0 1 0 0 0 0 0 1




## POINT-TO-POINT COMMUNICATION SETTING

Point transmission in communication occurs when 8 bit communication is selected. The point is transmitted by setting the most meaningful bit of the digit sent as 1.

- (1) Press  key until you reach the 'Communication' menu




- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Point transmission communication' menu



- (4) Press the  key to confirm the menu


- (5) Set the point transmission as you desire with  menu key.




NON-POINT-TO-POINT COMMUNICATION



POINT-TO-POINT COMMUNICATION

- (6) Press the  key to save the point transmission setting in communication

- (7) Press the  key to go back to the measurement screen.

*A sample data stream (mode1, 8 bit and point-to-point communication)*

<u>Display</u> +1234	<table border="0"> <tr> <td style="padding-right: 10px;">‘+’</td> <td style="padding-right: 10px;">‘1’</td> <td style="padding-right: 10px;">‘2’</td> <td style="padding-right: 10px;">‘3’</td> <td style="padding-right: 10px;">‘4’</td> <td style="padding-right: 10px;">CR</td> </tr> <tr> <td>Hex 2B</td> <td>31</td> <td>32</td> <td>33</td> <td>34</td> <td>0D</td> </tr> </table>	‘+’	‘1’	‘2’	‘3’	‘4’	CR	Hex 2B	31	32	33	34	0D
‘+’	‘1’	‘2’	‘3’	‘4’	CR								
Hex 2B	31	32	33	34	0D								
+123.4	<table border="0"> <tr> <td style="padding-right: 10px;">‘+’</td> <td style="padding-right: 10px;">‘1’</td> <td style="padding-right: 10px;">‘2’</td> <td style="padding-right: 10px;">‘3.’</td> <td style="padding-right: 10px;">‘4’</td> <td style="padding-right: 10px;">CR</td> </tr> <tr> <td>Hex 2B</td> <td>31</td> <td>32</td> <td>B3</td> <td>34</td> <td>0D</td> </tr> </table>	‘+’	‘1’	‘2’	‘3.’	‘4’	CR	Hex 2B	31	32	B3	34	0D
‘+’	‘1’	‘2’	‘3.’	‘4’	CR								
Hex 2B	31	32	B3	34	0D								
-12.34	<table border="0"> <tr> <td style="padding-right: 10px;">‘-’</td> <td style="padding-right: 10px;">‘1’</td> <td style="padding-right: 10px;">‘2.’</td> <td style="padding-right: 10px;">‘3’</td> <td style="padding-right: 10px;">‘4’</td> <td style="padding-right: 10px;">CR</td> </tr> <tr> <td>Hex 2D</td> <td>31</td> <td>B2</td> <td>33</td> <td>34</td> <td>0D</td> </tr> </table>	‘-’	‘1’	‘2.’	‘3’	‘4’	CR	Hex 2D	31	B2	33	34	0D
‘-’	‘1’	‘2.’	‘3’	‘4’	CR								
Hex 2D	31	B2	33	34	0D								

If there is a point in the display value, hex80 is added to the ASCII value of that digit and sent to the opposite side.

<u>Character</u>	<u>HEX</u>		<u>Character</u>	<u>HEX</u>	
0.	B0	(30+80)	5.	B5	(35+80)
1.	B1	(31+80)	6.	B6	(36+80)
2.	B2	(32+80)	7.	B7	(37+80)
3.	B3	(33+80)	8.	B8	(38+80)
4.	B4	(34+80)	9.	B9	(39+80)

*An exemplary mode2 data stream (addressed communication):*

If the indicator address is set to 65 (hex41), the indicator transfers the weight information after receiving the following data from the opposite side.

	(Switching on)	Address
HEX	FFh	41h

If the address of the indicator is set to **0**, the weight information transmission starts with any character received from the serial communication line. It should be noted that the indicator address can be between 0 and 255.

If more than one SMART-2 indicators are connected to the same communication line, RS485 type communication must be set and a different address must be assigned to each device.

## MODBUS COMMUNICATION

The following settings must be selected to communicate to the Smart2 indicator with Modbus protocol.

CMOD (mod)	MOD3
SCNR (Indicator Address)	0-255(max. 32 device on the line)
PRTY (Parity)	no
BAUD (Baud Rate )	1200-2400-4800-9600-14400-19200-28800
BIT (Data Bits )	8
TRDP	Do not care

Modbus commands supported by Smart2 are listed below.

<b>Modbus Commands</b>	
3	Read Multiple Registers
6	Write Single Register
16	Write Multiple Registers

Addresses that can be used in Modbus communication are shown in the table.

Address	Word	Explanation	
0 (W)	1	Command : Explained in Table 1.0	
1 (/R)	6	Not Used	
7 (/R)	1	Status Bits : Explained in Table 1.1	
8 (/R)	2	Screen Weight Value	
10 (/R)	2	Tare Value	
12 (/R)	2	Net Value	
14 (/R)	2	Not Used	
16 (/R)	2	Tare Value (Inner Count)	
18 (/R)	8	Not Used	
28 (/R)	2	ADC Inner Count (Filtered)	
30 (/R)	2	ADC Inner Count	
32 (/R)	6	Not Used	
38 (/R)	2	Temperature: It gives the temperature value of the indicator. 10 times the temperature in degrees.	
40 (/R)	2	Returns Serial number of the indicator.	
42 (/R)	2	Returns Version number of the indicator. Appears 11 for v1.1	
44 (R/W)	1	SCNR (Indicator Address) is the communication address used in Mod 2 (Address Communication) and Mod 3(MODBUS). It can be between 0 and 255.	
45 (R/W)	1	BAUD (Communication Speed):	
		Decimal	Description
		0	1200 Br
		1	2400 Br
		2	4800 Br
		3	9600 Br
		4	14400 Br
		5	19200 Br
46 (R/W)	1	CMOD (Communication Mode)	
		Decimal	Description
		0	No Communication (Mod0)
		1	Continuous 4 digit weight information (Mod1)
		2	Address Communication (Mod2)
		3	Modbus Communication (Mod3)
47 (R/W)	1	NAME (Indicator Wi-Fi name) : Specifies the Wi-Fi name	
48 (R/W)	1	AVG (Average Inner Count)	
		Decimal	Description
		0	1 Filter value
		1	5 Filter value
		2	10 Filter value
		3	20 Filter value
4	50 Filter value		

49 (R/W)	1	UNIT (Indicator Unit)	
		Decimal	Description
		0	kg
		1	g
		2	lb
		3	°C
		4	Deg
		5	mV/V
		6	mV
7	V		
50 (R/W)	1	GAIN: It affects ADC inner count . For load cells up to 3 mV/V level 128, higher (up to 6 mV/V) must be selected level 64.	
		Decimal	Description
		0	128
		1	64
51 (/R)	1	Not Used	
52 (R/W)	1	HVAL :Represents the upper output value of DAC (0-4095)	
53 (/R)		Not Used	
54 (R/W)	1	LVAL :Represents the lower output value of DAC (0-4095)	
55 (R/W)	2	DMAX : Represents the maximum output value of the DAC	
57 (R/W)	1	DTIR (First Relay Delay Time)	
		Decimal	Description
		0	0 second
		1	0.2 seconds
		2	0.4 seconds
		3	0.6 seconds
		4	0.8 seconds
		5	1 second
		6	2 seconds
		7	3 seconds
		8	4 seconds
9	5 seconds		
58 (R/W)	1	SDIR (First Relay Set Direction)	
		Decimal	Description
		0	Closed Contact below set point
		1	Closed Contact above set point
59 (R/W)	1	HYST (First Relay Hysteresis Setting) : The difference between the opening and closing value of the relay.(0 – 255)	
60 (R/W)	2	SETP (First Relay Set Value): First Relay Set Value	

62 (R/W)	1	DTIR (Second Relay Delay Time)	
		Decimal	Description
		0	0 second
		1	0.2 seconds
		2	0.4 seconds
		3	0.6 seconds
		4	0.8 seconds
		5	1 second
		6	2 seconds
		7	3 seconds
		8	4 seconds
		9	5 seconds
63 (R/W)	1	SDIR (Second Relay Set Direction)	
		Decimal	Description
		0	Closed Contact below set point
		1	Closed Contact above set point
64 (R/W)	1	HYST (Second Relay Hysteresis Setting) : The difference between the opening and closing value of the relay.(0 – 255)	
65 (R/W)	2	SETP (Second Relay Set Value): First Relay Set Value	
67 (R/W)	1	LIGHT (Screen Light)	
		Decimal	Description
		0	Light Off
		1	Light On
		2	Light Auto
68 (R/W)	1	DECP (Decimal Point )	
		Decimal	Description
		0	1234
		1	123.4
		2	12.34
		3	1.234
69 (R/W)	1	STEP (Step Size Setting)	
		Decimal	Description
		0	e = 1
		1	e = 2
		2	e = 5
		3	e = 10
		4	e = 20
		5	e = 50
70 (R/W)	2	MAX (Weighing Capacity Setting):This value is the maximum measurement value that is allowed to be displayed on the screen.	

72 (R/W)	1	BRIGHT (Screen Brightness)	
		Decimal	Description
		0	%25
		1	%50
		2	%75
73 (R/W)	1	SPEED (Weight changing Speed)	
		Decimal	Description
		0	Slow (1 sec)
		1	Middle (0.5 sec)
		2	Fast (0.2 sec)
74 (R/W)	1	TRACK (Measurement Stability)	
		Decimal	Description
		0	Change appears.
		1	When the measurement is stable, the net value for the last 2 seconds appears to be unchanged if it changes less than 2e.
75 (R/W)	1	ECO (ECO Mod Setting)	
		Decimal	Description
		0	Eco Mod Off
		1	Eco Mod On
76 (W)	1	Calibration Command	
		Decimal	Description
		0	It enters zero calibration and saves the inner count.
		1	It enters load calibration and saves the inner count .
77 (R/W)	2	Calibration Value can be between 0 – 99999.	
79 (/R)	2	It is 10000 times the calibration coefficient.	
81 (R/W)	1	Represents inputs and outputs (Explained in Table 1.2)	
82 (R/W)	2	Represents the digital calibration weight(Current weight on load cell)	
84 (R/W)	2	The value of mV / V of the load cell should be entered as multiplied by 1000.No values greater than 1.2V / V are not accepted. For example, 19500 value is entered for 1.95 mv / v.	

(W: Write, R: Read)

NOTE: The register with a lower number in 2 word fields is higher.  
 For example; if Max value is set to 99999 , the register 70 is 1 and register 71 is 34463.  $1 \times 65536 + 34463 = 99999$ .

## Modbus Command Functions

The ZERO( 0 ) register is the command register. The following table describes the operations that correspond to the values written to this address.

Decimal	Command
5	Zero-Setting Command: Zero-Setting is possible if the weight value is stable and the weight value is below the capacity / 10 value
6	TARE Command: Device gets tare. If tare exists, then device leave tare.
7	Switches relay controls to Modbus.
8	The relays are in a position that changes with the values in the menu.
9	Command to Load cell with known load into digital calibration
10	Command to Load cell with known death load into digital calibration
13	Restart device
14	Reset device

**Table 1.0**

## Status Bits Table

Bit	Explanation
0	Not used
1	Not used
2	Not used
3	1: Weight is below the minimum value, 0: Weight is above the minimum value
4	1: Weight is above the maximum value , 0: Weight is below the maximum value
5	1: Absolute zero exists, 0: There is no absolute zero
6	1: Stable, 0:Unstable
7	1: Calibration can't be done, 0: Calibration can be done
8	1:Zero-Setting can't be done , 0: Zero-Setting can be done
9	1: Tare can't be taken ,0: Tare can be taken
10	1:Tare exists, 0:No tare
11	1: First relay contacts in closed position, 0: First relay contacts in open position
12	1: Second relay contacts in closed position , 0: Second relay contacts in open position
13	1:Relays are controlled by MODBUS, 0: Relay can change with menu
14	Not used
15	Not used

**Table 1.1**



8.bit	7.bit	6.bit	5.bit	4.bit	3.bit	2.bit	1.bit
		2.Input	1.Input			2.Relay	1.Relay

**Table 1.2**

1: Relay closed contact, 0: Relay open contact

1: Input exists, 0: No Input

Frequently used Modbus commands

Command	Request (HEX)	Response (HEX)	Explanation
Weight info	01 03 00 08 00 02 45 C9	01 03 04 <b>00 00 07 D0</b> F9 9F	Weight = 2000kg
ADC inner count	01 03 00 1C 00 02 05 CD	01 03 04 <b>00 00 E9 03</b> F5 A2	Inner count = 59651
Temperature	01 03 00 26 00 02 25 C0	01 03 04 <b>00 00 01 0E</b> 7A 67	The temperature is division of response by 10. Temperature is 27.0.
Indicator unit	01 03 00 31 00 01 D5 C5	01 03 02 <b>00 00</b> B8 44	The answer is in the command table. For example; if response is 0, then indicator unit is kg.
Tare operation	01 06 00 00 00 06 09 C8	01 06 00 00 00 06 09 C8	Tare can be taken according to the 9. bit of the status bits.
Zero-Setting	01 06 00 00 00 05 49 C9	01 06 00 00 00 05 49 C9	Zero-Setting can operate according to the 8. bit of the status bits.
Restore Factory Settings	01 06 00 00 00 0E 08 0E		Modbus communication will be break because device will change communication parameters.
Indicator Capacity	01 10 00 46 00 02 04 00 01 86 9F 04 7D	01 10 00 46 00 02 A0 1D	Capacity is 99999

**Table 1.3**

**Calibration Steps:**

- Load cell unloaded.
- 0 is written to address 76. Thus, it enters zero calibration and saves the ADC inner count value.
- Weight should load on the load cell to be calibrated. Value of 1 is written to address 76, so it enters the Load calibration and saves the ADC inner count value.
- The desired calibration value between 0 and 99999 is written to address 77 .

**Digital Calibration steps with known load:**

- The capacity of the load cell is written to address 70.
- The weight value over the load cell is written to address 82.
- The mV/V of load cell is written to address 84.
- To perform operation value of 9 is written to address 0.

**Digital Calibration steps with known death load:**

- The capacity of the load cell is written to address 70.
- The death weight value over the load cell is written to address 82.
- The mV/V of load cell is written to address 84.
- To perform operation value of 10 is written to address 0.

**Modbus Error Codes**

Error Codes	Code (Decimal)	Description
Illegal Function	1	If user try to use another function different from provided functions (3: Read multiple registers, 6: Write single register, 16: Write multiple registers), this error will be generated.
Illegal Data Address	2	If the transaction is requested except the addresses provided to the user, error code will be generated. This error code is generated only if you want to write to the address used for reading.
Illegal Data Value	3	The value is invalid for used address


**Table 1.4**

## BLUETOOTH SETTINGS

### BLUETOOTH STATUS SETTING

With this menu you can turn the device's Bluetooth feature on or off. The bluetooth module must be plugged in to the device in order to be active.

The communication distance is 20 meters.

- (1) Press  key until you reach the 'BLE settings' menu




- (2) Press the  key to confirm the menu

- (3) The first option is the "BLE Status" menu




- (4) Press the  key to confirm the menu

- (5) Press  key until reaching 'ON' for activating and 'OFF' for deactivating the BLE. When 'ON' is selected, the display will show "Wait" message for 1-2 sec.




- (6) Press the  key to save the BLE status setting.

- (7) Press the  key to go back to the measurement screen.


## BLUETOOTH ID SETTING

With this menu, you can change the Bluetooth ID of the device. BLE IDs of two devices in the same environment cannot be the same. BLE ID must be one of ASCII equivalents of 0-9, a-z, A-Z characters.

- (1) Press  key until you reach the 'BLE settings' menu



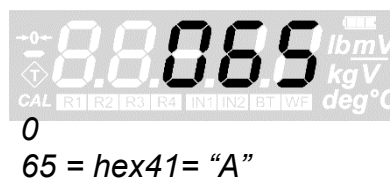
- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Change BLE ID' menu




- (4) Press the  key to confirm the menu


- (5) The last recorded BLE ID will be displayed on the screen and the hundreds digit blinks at the same time



**NOTE: BLE ID can be assigned between 0 and 255 and can be selected only between 0-9, a-z and A-Z character range**

- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.

- (7) Press the  key to save the BLE ID. "wait" appears on the display.


- (8) Press the  key to go back to the measurement screen.

NOTE: See page 55 for Bluetooth connectivity from the Android application.

## WIFI SETTINGS

### WIFI STATUS SETTING

With this menu you can turn the device WiFi feature on or off.  
 The wifi module must be plugged in to the device in order to be active.  
 The communication distance is 40 meters.

- (1) Press  key until you reach the 'WiFi settings' menu




- (2) Press the  key to confirm the menu


- (3) The first option is the 'WIFI Status' menu.




- (4) Press the  key to confirm the menu

- (5) Press  key until reaching 'ON' for activating and 'OFF' for deactivating the WIFI. When 'ON' is selected, the display will show "Wait" message for 1-2 sec.














- (6) Press the  key to save the WIFI status setting.

- (7) Press the  key to go back to the measurement screen.

## WIFI MODE SETTING


With this menu, you can change WiFi mode of the device as Access Point or Station. One of the devices in the same environment must be in the Access Point, and the others must be in Station mode. Since the station devices will be connected to the access point device, first the settings of the access point device must be made and WiFi feature must be turned on.

- (1) Press  key until you reach the 'WiFi settings' menu 
- (2) Press the  key to confirm the menu
- (3) Press  key until you reach the 'WIFI mode' menu 
- (4) Press the  key to confirm the menu
- (5) Press  key until 'AP' is displayed for the Access Point mode and 'STA' for the Station mode. The "wait" appears on the display when either mode is selected.   

- (6) Press the  key to save the WIFI mode setting.
- (7) Press the  key to go back to the measurement screen.

## WiFi Access Point ID SETTING


This menu is active only when device mode is AP.

With this menu, you can change the WiFi Access Point ID of the device. WiFi AP ID must be one of ASCII equivalents of 0-9, a-z, A-Z characters.

- (1) Press  key until you reach the 'WiFi settings' menu



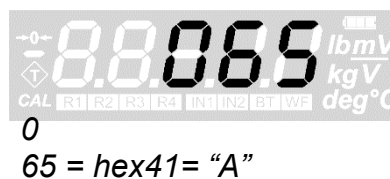
- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Change WiFi AP ID' menu



- (4) Press the  key to confirm the menu


- (5) The last recorded WiFi AP ID will be displayed on the screen and the hundreds digit blinks at the same time



**NOTE: WiFi AP ID can be assigned between 0 and 255 and can be selected only between 0-9, a-z and A-Z character range**


- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.

- (7) Press the  key to save the WiFi AP ID.

- (8) Press the  key to go back to the measurement screen.


**WiFi Name SETTING**

With this menu you can change WiFi Name of the device. Each device on the same network should be given a different name since the WiFi name will appear as a device name in the application. WiFi Name must be one of ASCII equivalents of 0-9, a-z, A-Z characters.

- (1) Press  key until you reach the 'WiFi settings' menu



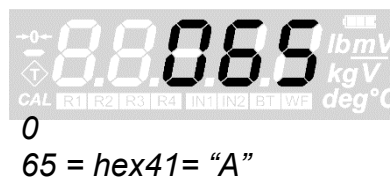
- (2) Press the  key to confirm the menu

- (3) Press  key until you reach the 'Change WiFi Name' menu





- (4) Press the  key to confirm the menu


- (5) The last recorded WiFi Name will be displayed on the screen and the hundreds digit blinks at the same time



**NOTE: WiFi Name can be assigned between 0 and 255 and can be selected only between 0-9, a-z and A-Z character range**

- (6) Numeric value of the blinking digit can be increased with  key. The place value can be changes with  key.

- (7) Press the  key to save the WiFi name.

- (8) Press the  key to go back to the measurement screen.

NOTE: See page 53 for Wi-Fi connection from the Android app. See page 59 to connect the devices to your own Wifi network.











## TEMPERATURE CALIBRATION SETTINGS

With this menu you can change temperature calibration of the device. The device has 5-point temperature compensation feature. **When calibrating the temperature, the load cell must be empty.**


There are five ranges in temperature compensation: (, -5 °C) , (-5 °C, 10 °C), (10 °C, 30 °C), (30 °C, 50 °C), (50 °C,). The ranges that cannot be set with this menu are ignored during compensation. So if 3 values are set, 3 point temperature compensation is done. This compensation works partial linearly.

**WARNING:** In order for these menu functions to be active, the P2 connection inside the indicator must be open circuit; otherwise an error code special for this situation is displayed on the indicator's screen. **IT IS RECOMMENDED NOT TO USE THESE SETTINGS IF YOU DO NOT HAVE SUITABLE DEVICES**

- (1) Press  key until you reach the 'Temperature Calibration Settings' menu 
- (2) Press the  key to confirm the menu
- (3) The display shows the current temperature value and the number of range covering the temperature for 2 seconds 
- (4) Real time internal ADC count value deviation will appear on the display. 
- (6) Press the  key to save the temperature calibration setting.
- (7) "TCLok" will appear showing that the calibration is successful. 
- (8) Press the  key to go back to the measurement screen.


## RESTORING FACTORY SETTINGS

With this menu, you can restore the device to factory settings. The values that require the calibration jumper to be installed will not be changed.


- (1) Press  key until you reach the 'Reset' menu



- (2) Press the  key to confirm the menu


- (3) Press the  key until 'Yes' appears in order to restore the factory settings



- (4) Press  key to restore factory settings


## PERFORMING TARING WITH TARE key

When inactivity is ensured manual taring is performed by

pressing  key. When taring is completed, the display is reset and net warning segment is lit. Upon loading, tare becomes visible.




In order to cancel the tare, the inactivity must be provided and

the  button must be pressed. The net warning segment goes out when tare is cancelled.



## ZEROING DISPLAY VALUE WITH ZERO key

When the inactivity is ensured and if the weight value on the screen is less than MAX / 10, the weight value can be

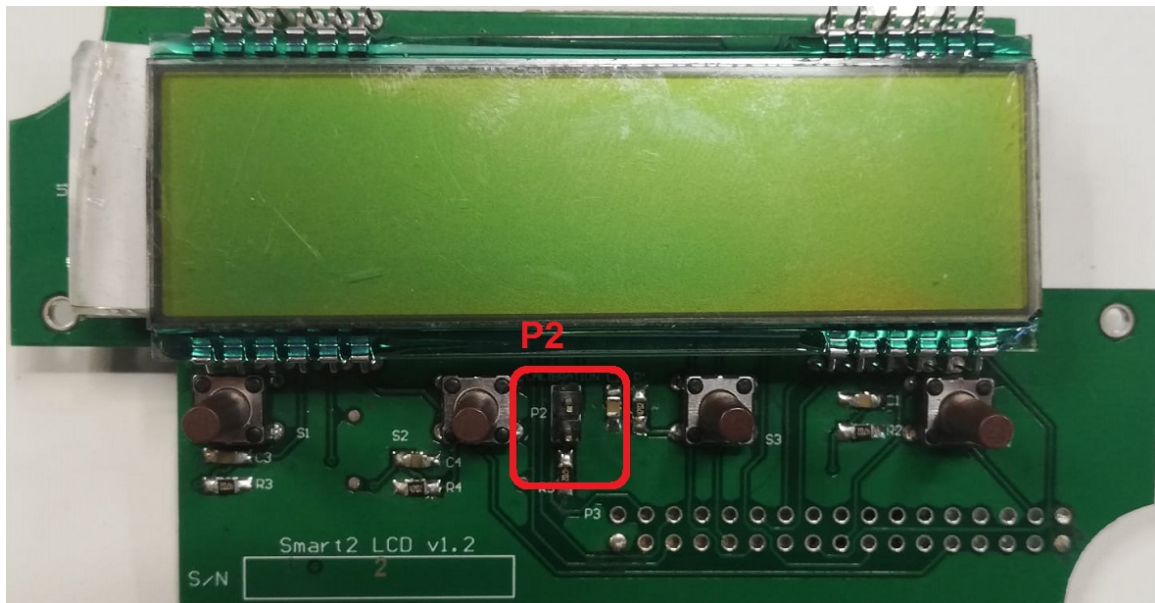
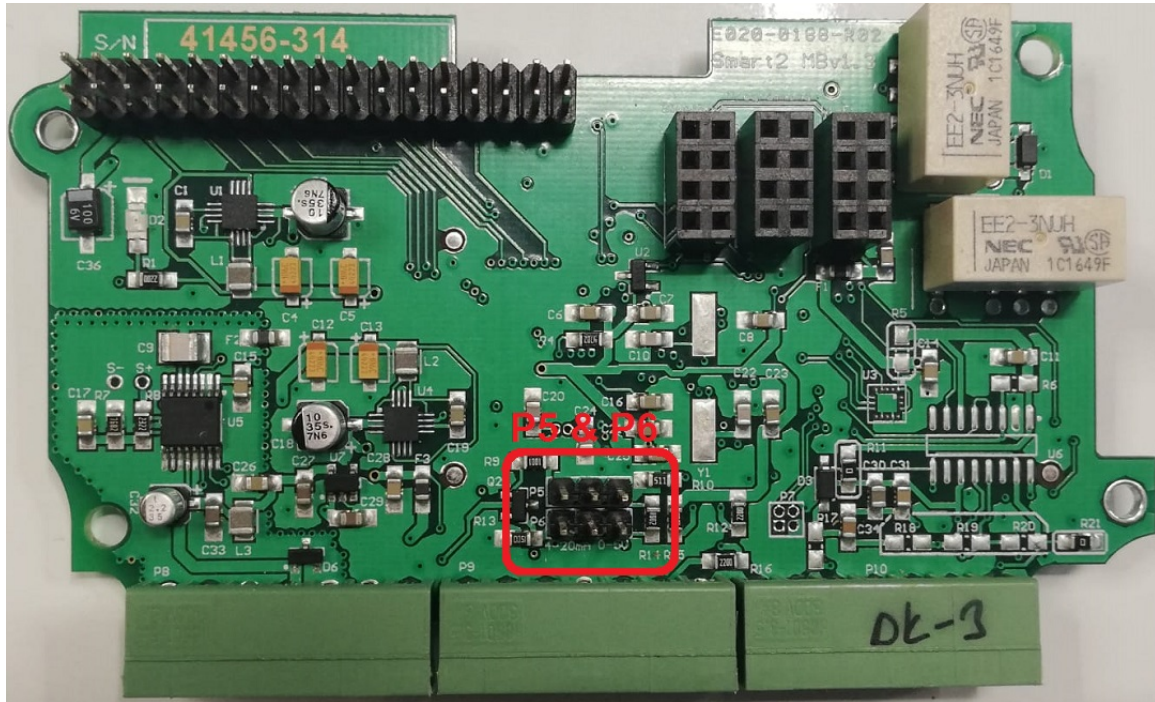
zeroed with the  key



The display is zero when  key is pressed and actual zero symbol is displayed on the screen.



**CONNECTIONS AND MODE SELECTIONS**



**CALIBRATION SWITCH (P2)**

The calibration switch P2 must be switched on to change and calibrate the display settings of the device.

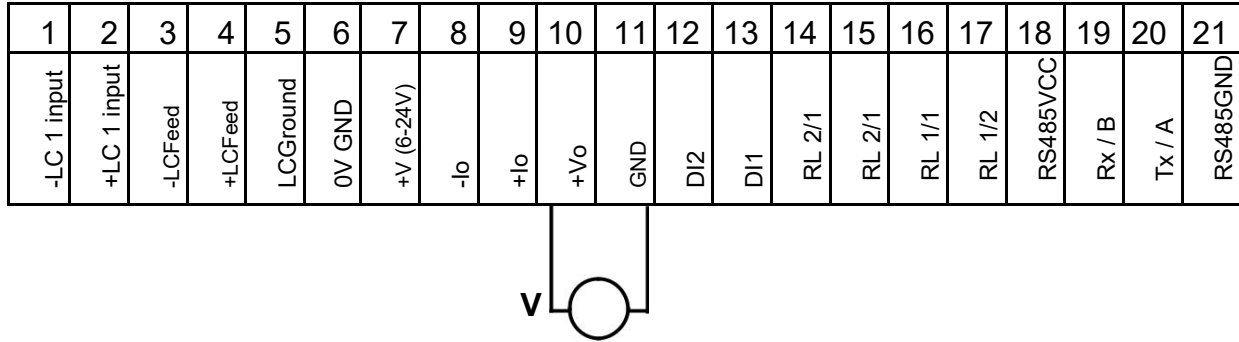
The display settings can be accessed and saved values can be displayed while P2 is shorted but the changes made cannot be saved and the error code 'Err50' is displayed on the screen.

The calibration menu cannot be accessed while P2 is closed circuit and the error code 'Err50' is displayed on the screen

## ANALOG OUTPUT mode selection

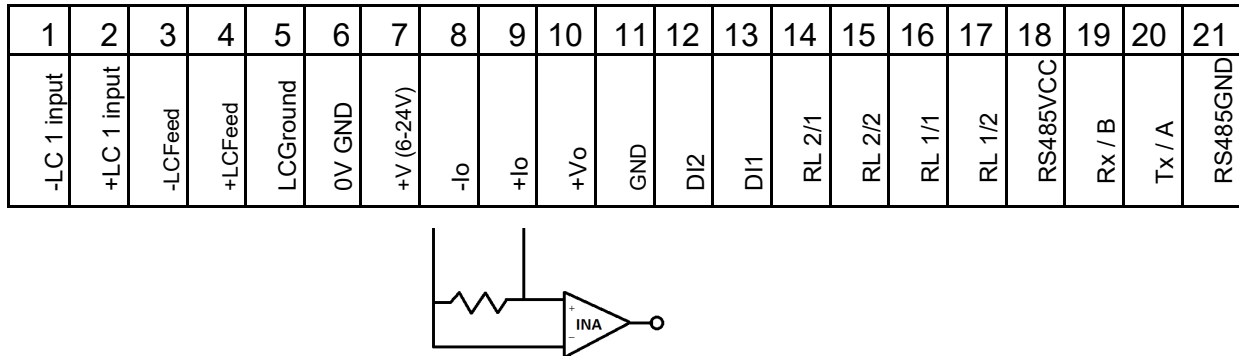
### 0-5V analog output connection

Second and third pins of jumper P5 and P6 have to be short circuit to generate 0–5V analog output. In the printed circuit of the indicator, the connections are as follows provided that the leftmost terminal slot is number 1.



### 4-20mA analog output connection

First and second pins of jumper P5 and P6 have to be short circuit to generate 4-20mA analog output. In the printed circuit of the indicator, the connections are as follows provided that the leftmost terminal slot is number 1.



**WARNING:** Changes to the card (short-circuit, open circuit and interfering with components) other than those listed above may cause permanent damage to the indicator and incorrect operation of the device and are not covered by the warranty.

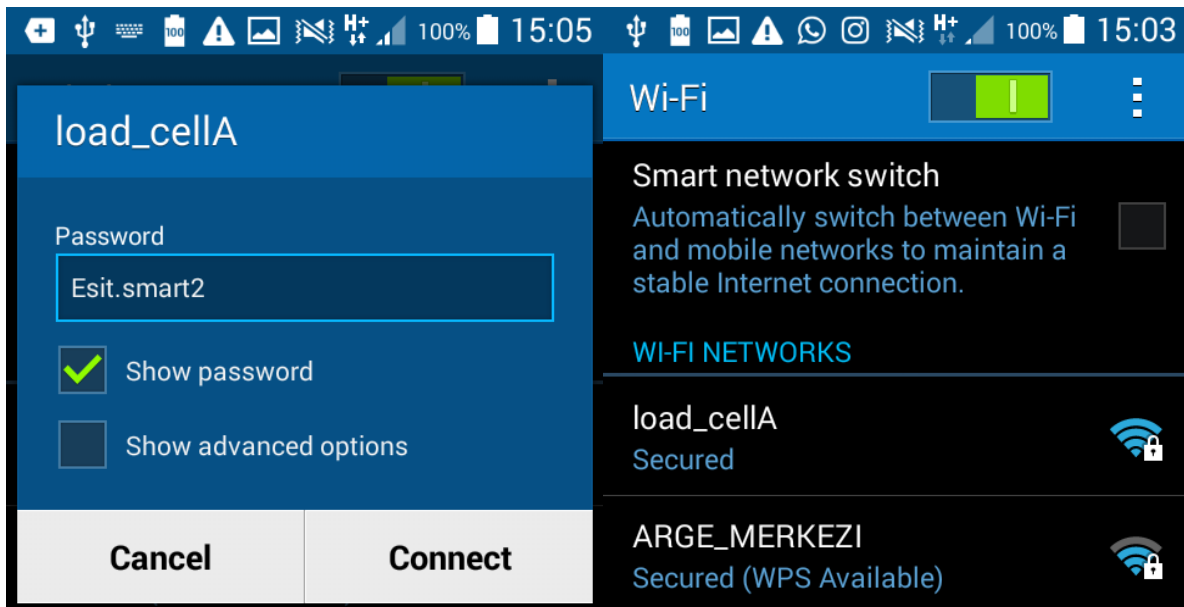
## ANDROID APPLICATION SETTINGS

Settings that can be made via Smart can also be done via the android application. Device settings can be made via following application is wireless connection Bluetooth/WiFi is used.

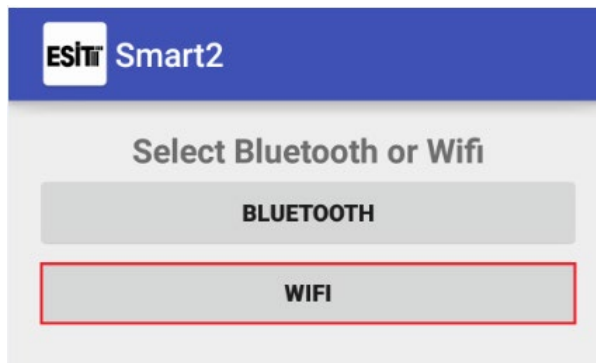
### CONNECTION WITH WIFI MODULE

First, open the Smart's WiFi by following the "WIFI STATUS SETTING" section. Make sure that "WIFI MODE SETTING" is "AP" (see "WIFI TYPE SETTING" section for this).

Scan your WIFI networks from your Android phone and connect to the "loadcellx" network by typing "Esit.smart2" to password field.

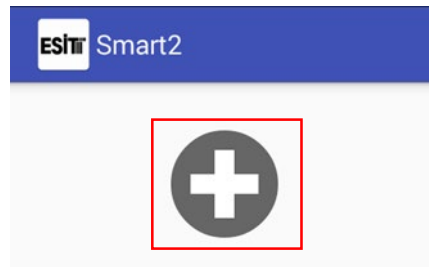


Once connected, open the "Smart2" android application and click the "WIFI" button.



"ALERT You are already connected to loadcellA. Do you want to use that loadcell" , "No" , "Yes" appears on the screen. Please perform operation step 4 when proceeded with "Yes" and step 1 when proceeded with "No"

1-Click on the "+" shown in the figure



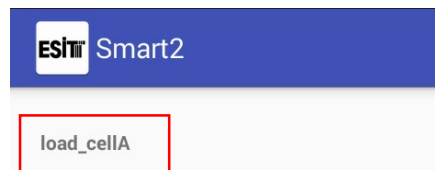
2-The location service must be turned on after proceed with "Yes" to message displayed.

### ALERT

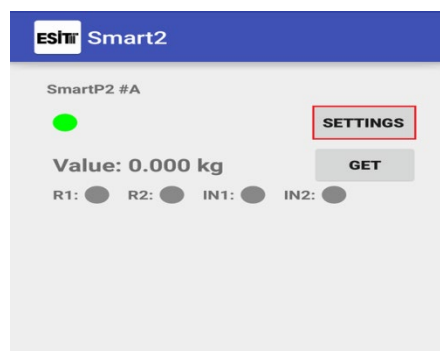
Location Service is disabled. You need to open it.

NO YES

3-Select the smart you want to connect to in the opened page.

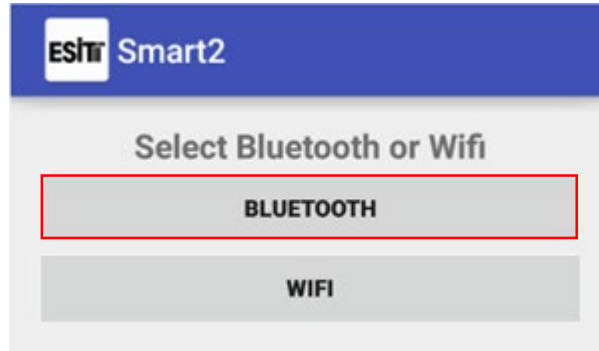


4-You can see the instant weight information on the smart screen by clicking on the "GET" button on the pop-up screen. By clicking on the "SETTINGS" button, you can make the settings you need.

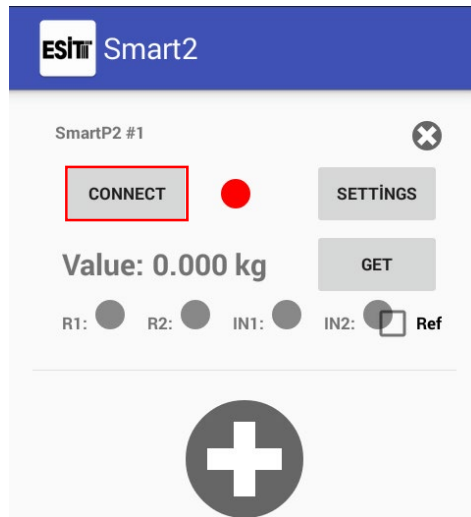


**CONNECTION WITH BLUETOOTH MODULE**

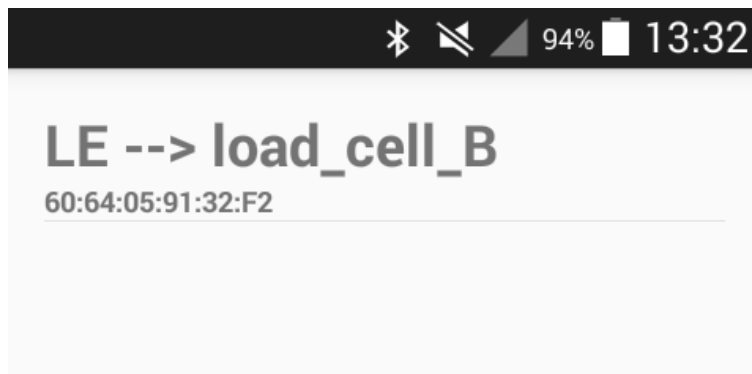
(1) After turning on your Android device's Bluetooth, open the Smart2 application and click the BLUETOOTH button.



(2) Click on the "Connect" button.

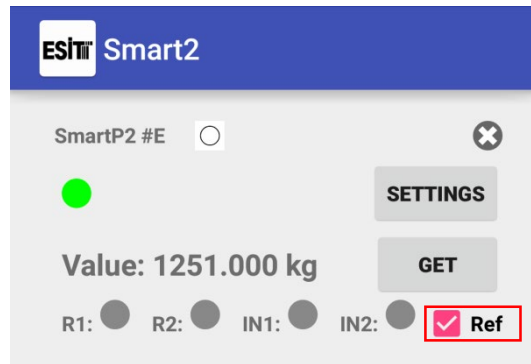


(3) Select the Smart you want to communicate with.

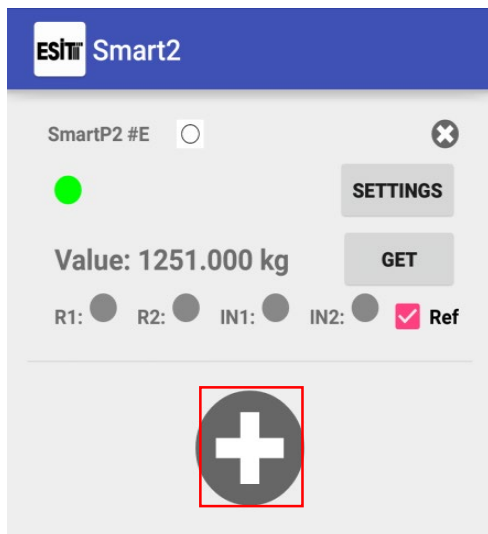




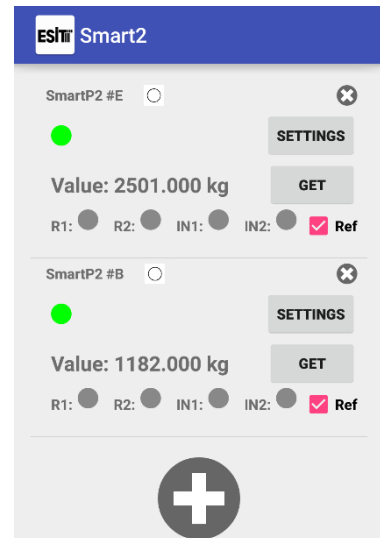
- (4) The weight value can be obtained when the "GET" button is clicked on the pop-up screen. When the "Ref" button is clicked, the weight value is automatically updated.



- (5) More than one smarts can communicate simultaneously via Bluetooth. Click the "+" button for this. It must be noted that "BLUETOOTH IDs" of the Smart devices are different. BLUETOOTH IDs can be set from "Change BLE ID" menu.

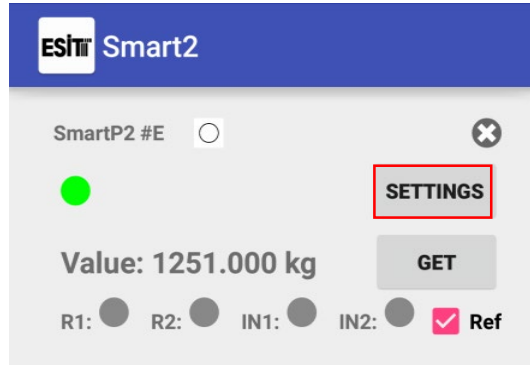


When 1 indicator is active



When 2 indicators are active

(6) By clicking "SETTINGS" button, desired changes can be made.

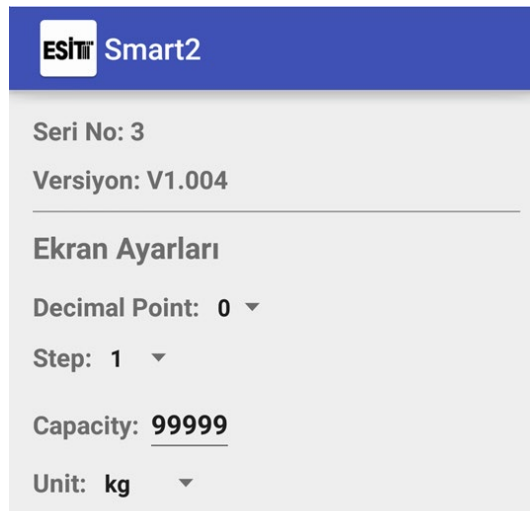


## MAKING DEVICE SETTINGS

### Display Settings

"Decimal Point", "Step", "Capacity" and "Unit" settings can be changed as desired.

After changing, press "SAVE" button at the end of the page.



## Configuration Settings

Make the desired configuration settings and press "SAVE" button.

### Konfigürasyon Ayarları

Backlight Mode: **auto** ▾

Average Count: **20** ▾

Speed: **medium** ▾

Auto Eco Mode: **off** ▾

Gain Selection: **128** ▾

Backlight Brightness: **max** ▾

Track: **on** ▾

## Relay Settings

Make the desired relay settings and press "SAVE" button.

### 1. Röle Ayarları

Set Değeri: 100

Set Yönü: <= ▾

Hysteresis: 50

Gecikme: **0.4 sn** ▾

---

### 2. Röle Ayarları

Set Değeri: 1000

Set Yönü: <= ▾

Hysteresis: 50

Gecikme: **0.0 sn** ▾

## Analog Output (DAC) Settings

Make the desired analog output settings and press "SAVE" button.

### Analog Çıkış (DAC) Ayarları

LVAL: 21

HVAL: 3840

DMAX: 10000

## Communication Settings

Make the desired communication settings and press "SAVE" button.

**Haberleşme Ayarları**

Haberleşme Modu: Sürekli 4 hane ağır.. ▾

Identity No: 65

Parity Bit: Yok ▾

Baud Rate: 1200 ▾

Bit Length: 8 ▾

Nokta Gönderimi: Yok ▾

SAVE

## Wifi Connection Setting

If Wifi connection modules are used and it is intended to read weight data from many smart devices through a local network, the following procedure should be followed for each smart device.

NOTE: This setting only applies to smart devices with the WIFI module installed. Not suitable for use with BLUETOOTH devices.

(This setting is made if it is intended to connect to a local network and receive data simultaneously from many smart devices.)

- (1) First make sure that the "wifi mode setting" of the smart is AP.
- (2) Click the "WIFI" button in the WiFi settings section of the Android application.

**ESİTİ Smart2**

Seri No: 25

Versiyon: V1.004

**Ekran Ayarları**

Decimal Point: 0 ▾

Step: 1 ▾

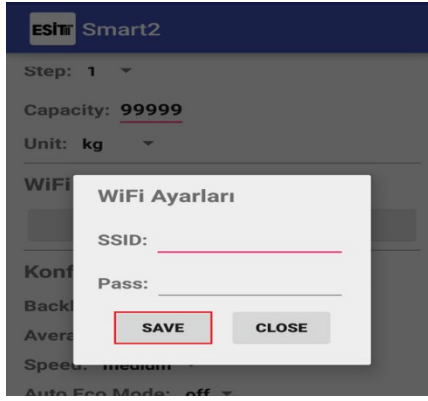
Capacity: 99999

Unit: kg ▾

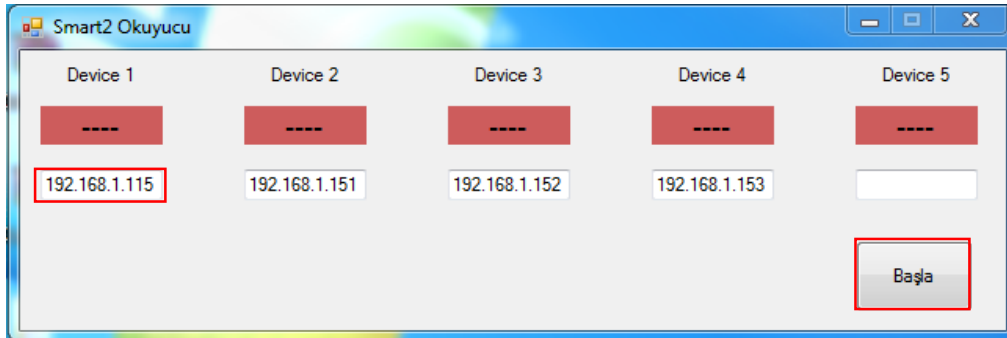
**WiFi Ayarları**

WIFI

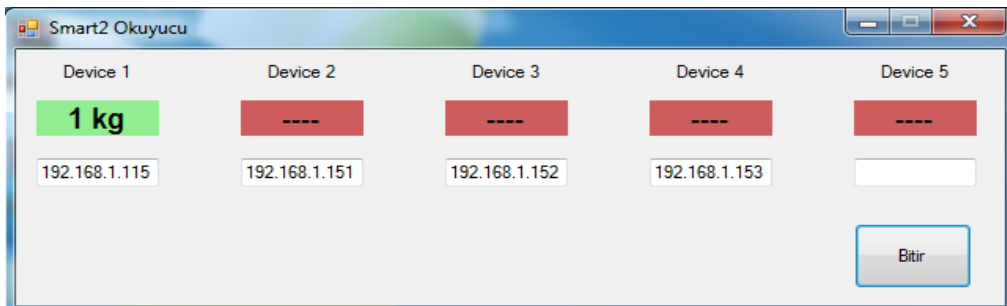
- (3) Write the "SSID" and "Pass" in the figure to SSID and password fields of the network from which you would like to get weight data and click "SAVE" button.



- (4) Change Smart "wifi mode setting" as "STA".
- (5) When the "WAIT" message disappears from the Smart screen, connection to the local network is done.
- (6) If you cannot connect to the local network, an error ERR.09 will be displayed on the smart screen. In this case check the necessary connections and repeat the procedure.
- (7) When the Smart is taken to "STA" mode, the "IP" submenu will appear under the WIFI menu. You can check your smart's IP address from this section.
- (8) The desktop application "Smart2 reader" can be used to access the weight information sent by the Smarts connected to the local network.
- (9) After opening the application, the IP address of the Smart that is intended to get data from must be written to the text box under the indicators.



- (10) Then click the "Start" button to see the weights of the respective Smart or Smart devices.

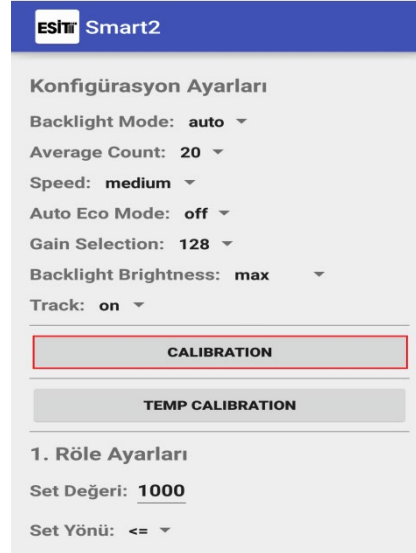


- (11) The source code for the desktop program is available on the CD included in the product package. For further information, please contact us.

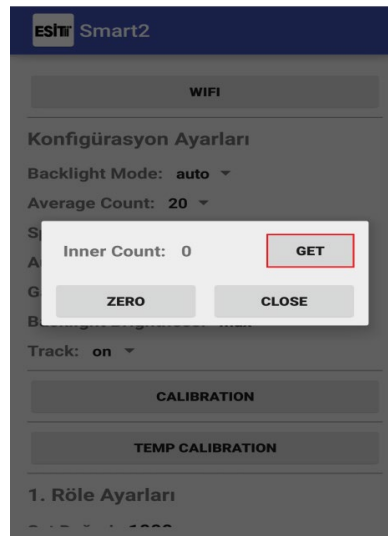
## Calibration Setting

It is possible to perform calibration through both Smart and application.

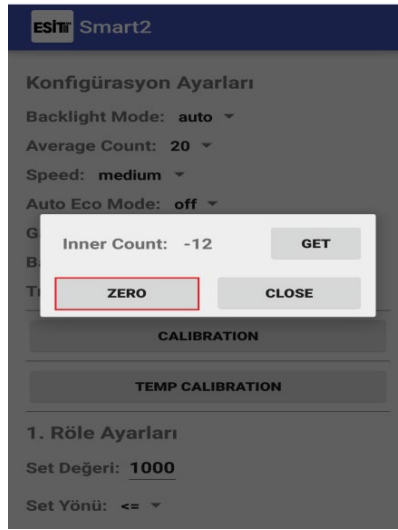
- (1) Press the "CALIBRATION" button



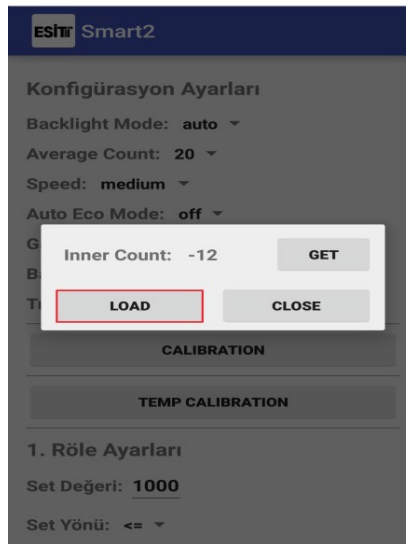
- (2) If there is no load on the system, press "GET" button.



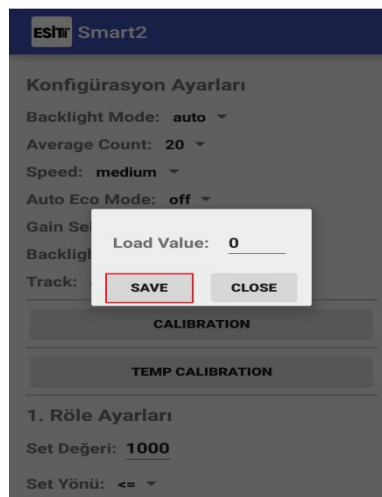
(3) Press the "ZERO" button



(4) Place the weight you want to calibrate in the system and press "Get" button. Repeat the process several times and press the "LOAD" button after seeing that the value is stable.



(5) Enter the weight value you want to calibrate in the system to the "Load Value" section and press "Get" button.



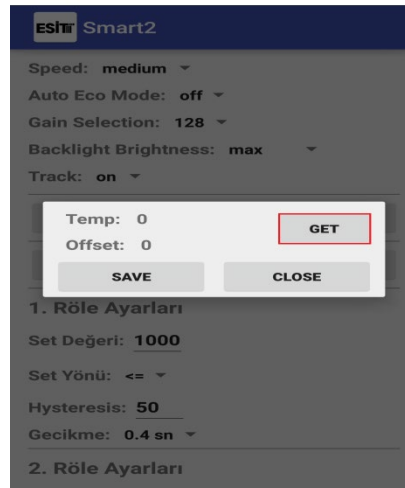
## Temp Calibration Setting

Settings made via Smart are visible.

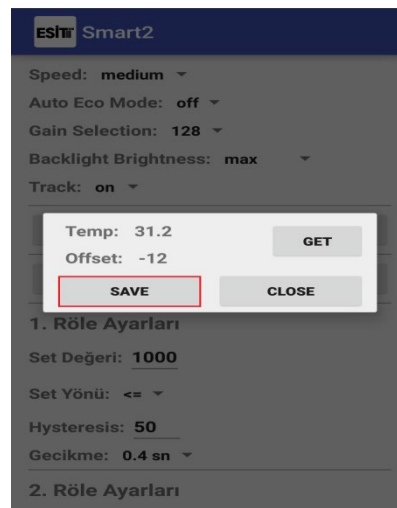
- (1) Press the "CALIBRATION" button



- (2) Press the "GET" button



- (3) Press the "SAVE" button





## ERROR CODES

The following error codes can be displayed on SMART-2 indicators during measurement and as a result of incorrect setting. These error codes and their causes are listed below

<b>These errors indicate that the device needs to be reset or repaired</b>	
Error99	No response from ADC
Error98,97	ADC serial communication is incorrect
Error96	Bluetooth reset error
Error95	Bluetooth sleep mode error
Error94	Bluetooth name change error
Error93	Wi-Fi APID change error
Error92	EEPROM Writing error
Error91	EEPROM full error
<b>These Errors Can Be Fixed After The Operation Is Repeated</b>	
Error1	Weight data is above maximum value
Error2	The weight data is below the minimum value
Error3	The weight data is too large to be reset
Error4	ESC key is stuck
Error4	Menu key is stuck
Error6	Enter key is stuck
Error7	Wifi / BLE name entered incorrectly
Error8	Changing name when wifi is connected
Error9	Wifi name change error
Error10	EEPROM consumed 5% of its life
Error19	Calibration value cannot be 0
Error50	Calibration jumper inserted
Error51	mV and V values cannot be calibrated
Error52	mV and V values cannot be reset
Error54	If tare exists weight cannot be reset
Error55	If weight is less or equal to zero, tare cannot be operate
Error60	IP address error. The device is in STA mode but is not connected to any network.



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