Go-220,440,660

Shipping Scale

USER MANUAL

Version : 2.06 (Lb, Kg Version)

Revised : Oct 12, 2020

Google play store: 'saerom scale' APP(only android)

Gravity Compensation Setting video:

https://www.youtube.com/watch?v=FpDDMPz2p6A\

SAEROM

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1. SAFETY PRECAUTIONS

Please follow the following safety precautions.

(1) Please check whether the Output voltage of a charge adapter is matched to the relevant local rated voltage.

Input: 100~240V AC50/60Hz   Output: DC12V 1000mA)

(2) This scale shall be used only in a dry area.

(3) This scale shall not be used under an improper environment.

(Please use it within the scope of -10 ℃ ~ 40 ℃).

(4) Please do not have an excessive impact onto the tare.

(5) Please take care that a measured object shall not touch an area of the handle. (For preventing the distortion of a weight)

(6) Service shall be provided only by an authorized employee.

2. EXPLANATION OF EACH PART
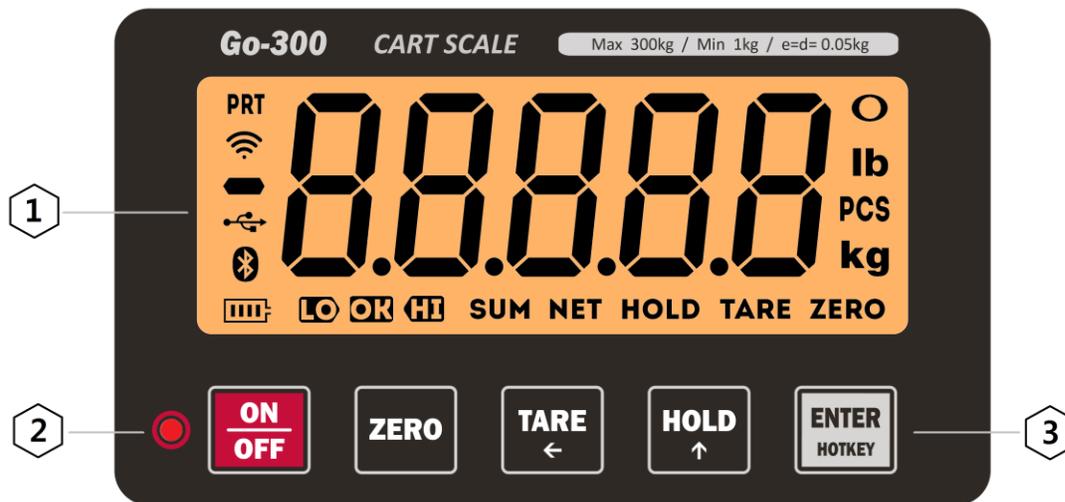
No.	Division		Explanation
1	Indication Part	PRT	It appears when the result is printed. (Select a Printer Option.)
		📶	It indicates the wireless sensitivity. (Select a ZIGBEE Option.)
		▬	It indicates that a measured value is negative (-).

		⭤	It appears when an USB memory is used.
		🅑	It appears when a Bluetooth module (dongle) is used.
		🔋	It indicates the battery level.
		LO	It is used for checking a weight when the weight is set.
		OK	It indicates that HOLD function is completed. In addition, it is used for checking a weight when the weight is set.
		HI	It is used for checking a weight when the weight is set.
		SUM	It appears when using the sum mode.
		NET	It indicates the net weight of a container when the container is set and it turns off when the Gross Weight is indicated.
		HOLD	It appears when the hold function is used (e.g. when weighing animals or unstable objects).
		TARE	It appears when a container is set.
		ZERO	It appears when the current value measured is zero (0).
		kg	It indicates that the measuring unit is kg.
		PCS	It indicates a quantity when the counting function is used.
		lb	It indicates that the measuring unit is lb. (A measuring unit (KG/LB) is changed by using the existing key, "HOLD".)
		O	It appears when the current value measured is stable.
2	Charge Status Lamp		It turns on in red when a battery is being charged. But it turns off when the battery is fully charged.
3		**ON/OFF**	It is used when the power is turned on/off.
		ZERO	It is used when you make the weight as zero (0).
		TARE ←	It is used when a container is set (tare function), or to tally up weights (sum function).
		HOLD ↑	It is used when the function, "HOLD" is set, or to switch units between kg and lb (American Lb Version).
		ENTER HOTKEY	The user can designate a kind of usage. Please designate a kind of usage by using the 'HOT KEY' of the setting mode, "F31".

3. CHARGING METHOD

◆ When the adapter is plugged, the charge status lamp turns on and the battery starts to be charged while the charging status is indicated at %.

50 [50% charged]

[100% charged]

◆ When the battery is fully charged, 100% is indicated and the power turns off automatically.

Even though the adapter is unplugged while the battery is being charged, charging is stopped and the power turns off automatically.

Caution: Please check whether the input voltage of the charging adapter matches to the local rated voltage or not.

(Input: 100~240V AC50/60Hz   Output: DC12V 1000mA)

4. CALIBRATION MODE

◆ Operation Key: **ZERO** (EXIT after saving the contents up to now) / **TARE ←** (digit movement) / **HOLD ↑** (Number Increase) / **ENTER HOTKEY** (Setting Completed)

| Order	Operation & Explanation	Indication
1	**_Entry & Zero Calibration_** When the power turns off, please turn on the power while pressing the key, **ENTER HOTKEY**, then *000* appears after the firmware version is indicated. At this time, please take your hand off the key, **ENTER HOTKEY** then, the number input box appears. When the password, '111' is input, the general weight setting mode starts. ※ If the password is wrong, the general weight setting mode disappears.	**000** **111**
2	**_Maximum Weight Setting_** Please input the maximum weight.	**C 300** kg
3	**_Set division Value_** Please set the scale division value by using the keys, **TARE ←** & **HOLD ↑**. The scale division value can be set according to the following operation method instead of using the keys mentioned above. (**TARE ←**: Decrease of Scale division value, **HOLD ↑**: Increase of Scale division value, **ENTER HOTKEY**: Setting Completed)	**d 0.05** kg
4	**_Zero Calibration_** When the key, **ENTER HOTKEY** is pressed while the tare is empty, Zero Calibration starts.	**U 0.00** kg
5	**_Entering the Value of Balance Weight & Span Calibration_** After putting on a balance weight held, please enter the value of the balance weight and press the key, **ENTER HOTKEY**. Then, span calibration starts and the weight checking mode appears.	**L 300** kg
6	**_Checking Weight_** When a span calibrated weight is correct, the lamp, 'OK' turns on. If a lamp indicating 'LO' or 'HI' turns on, please press the key, **HOLD ↑**. Then, it is reset. After that, if the key, **ENTER HOTKEY** is pressed, the general weight setting ends. And if the key, **ZERO** is pressed, the sectional weight setting	**300** kg OK

	continues. ※ The sectional weight is set by repeating the procedure 5 &6.	

5. WEIGHT MEASUREMENT MODE

Press the key, [ON/OFF]. Then, after the current version of the firmware is indicated, the weight measurement mode starts.

(1) Zero Calibration Function

• In case that zero point is changed, please press the key, [ZERO] to calibrate zero point.
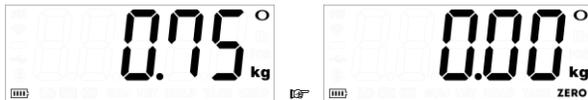
• Zero point is possible only within the scope ±2% or ±100% of the maximum capacity (Refer to the scale setting mode, 'F08').

(2) Container Setting Function

• When the key [TARE←] is pressed after putting a container on, the lamps indicating 'container' and 'NET' turn on and the weight becomes zero. In case that the 'HOT KEY' is set for changing between Net Weight & Gross Weight, it is possible to indicate Net Weight and Net Weight Conversion. (Refer to the Scale Setting Mode 'F31')

• If you want to remove the weight of a container, please remove the container and the liquid together and then press the keys [TARE←] or [ZERO] to release the container mode.

• The Gross Weight of the container and the measured weight shall not exceed the maximum capacity of the scale.

(3) Sum Function

• When the key [TARE←] is pressed and held for more than one second, the lamp indicating 'SUM' turns on as you enter sum mode You can then tally up the weights of different objects.

• To display the sum of the weights of different objects, after entering sum mode:

- Put the first object on the scale, then press [TARE←]

- Remove the first object from the scale, then put the second object on it, press [TARE←] again

- Repeat as many times as necessary to add all the weights you want to tally up.

• When the printing format has been set to Format 4, you can print the weight of each object, as well as the total weight, by pressing the key [ENTER HOTKEY] after weighing all the objects.

Please note: printing also clears your history. After printing, you can then start tallying up the weights of another set of items.

• To disable the sum function, press and hold the key [TARE ←] for more than one second.

(4) Manual Hold Function

• If the key [HOLD ↑] is pressed after putting the liquid on, the progressive status of HOLD is indicated and the average weight is indicated. And then, the lamps indicating 'HOLD' & 'OK' turn on.
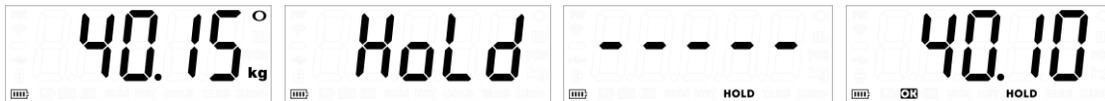
• If you want to release the manual HOLD function, please remove the liquid or press the key [HOLD ↑] once again.

(5) Automatic HOLD Function

• Press the key [HOLD ↑] under the zero status. Then, $AH\ on$ is indicated and the lamp indicating 'HOLD' turns on.

• When the liquid is put and the changes of weight are stabilized, the status, 'HOLD' is indicated while the average weight is indicated and the lamp indicating 'OK' turns on.

• If you want to release the Automatic HOLD Function, please press the key [HOLD ↑] under the zero status.

※ If the weight held changes by more than ±10%, the mode, 'HOLD' is automatically executed.

(6) Units Key

• To switch units between kg and lb, please press the key [HOLD ↑] and hold it for more than one second.

(7) Counting Function

• If the key [ZERO] is pressed for around 3 seconds under the zero status, the counting mode starts and at the same time, $U\ 0.00$ is indicated and the automatic zero compensation is executed. And then, while the PCS lamp turns off, the number input mode starts.
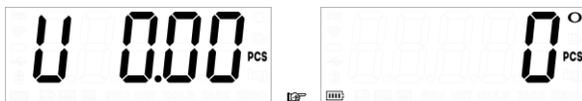
• Please put some sample objects to count onto the tare and enter the quantity of the objects in the following way. After the quantity is entered, PCS lamp turns on. And then, from that time, the counting function starts to be operated.

[ZERO] (Counting Function Ends) / [TARE ←] (Set Quantity Initialization) / [HOLD ↑] (Set Quantity increases by 5) /

[ENTER HOTKEY] (Setting is Completed)

• When the objects are measured, the quantity is indicated. While the counting function is operated, please follow the following way of key operation.

[ZERO] (Counting Function Ends) / [TARE ←] (Zero Point Reset) / [HOLD ↑] (No Function) / [ENTER HOTKEY] (It resets a mode as the Counting Mode Entry Sequence in order to count new items.)

6. SCALE SETTING MODE

◆ Entry Method

When the power turns off, please turn on the power while pressing the key, [TARE ←]. Then, *F01* is indicated after the firmware version is indicated. At this time, when taking your hand off the key, [TARE ←], the scale setting mode starts.

Please move to a setting mode which you want in order to set a mode by using the following keys.

◆ Operation Key: [ZERO] (EXIT after saving the contents up to now) / [TARE ←] (Digit Movement) / [HOLD ↑] (Number Increase) / [ENTER HOTKEY] (Setting is Completed)

◆ Configuration Items

1) Measurement-related Setting Mode

F01: Low Battery Function (Default: 0)

Set Value	Explanation
0~1	It reduces the weight data reading interval in order to minimize the consumption of the battery energy. (0: Non-activation/ 1: Activation)

F02: Weight Backup Function (Default: 0)

Set Value	Explanation
0, 1	When the Weight Backup Function is activated, even though the power turns off and on under the situation that some load is applied onto the tare, the current weight is indicated. Under the non-activation status, the weight of the tare is initialized and indicated as zero (0). (0: Non-activation/ 1: Activation)

F03: Weight Stabilization Time (Default: 1)

Set Value	Explanation
0.5~9.9 (sec)	When load does not change during a set period of time, it is judged that the weight is stable. And turn on the stability lamp. (The set number means seconds.)

F04: Automatic Zero Point Reset (Default: 1.5)

Set Value	Explanation
0~9.9	It makes zero point be maintained within a certain limit automatically. Even though some

(digit) | residual amount is left on the tare, zero point is automatically maintained.
F05 is used for setting the time interval.

F05: Automatic Zero Point Maintenance Time (Default: 1)

Set Value	Explanation
0~9.9 (sec)	When the automatic zero point is maintained by using the key, 'F05', if the load is maintained under a level less than the scale point set by the key, 'F04', the residual weight becomes zero. If F04-1 & F05-1 are used, the weight of the residual amount will be zero (0) since the weight changes by less than 1 scale interval during one (1) second.

F06: Hold Time (Default: 2)

Set Value	Explanation
0~9.9	Please select a hold sampling time. The bigger the number, the bigger the frequency of sampling increases for calculating the average HOLD time

F07: Zero Range Scale (Default: 3)

Set Value	Explanation
0~9 (digit)	During HOLD and when data is automatically saved, transmitted or printed, please set the reset range. When the weight value is held due to the progression of a manual or automatic hold, please set the released scale point. If it is 3, when a load reaches less than 3 scales, the held weight is released. In addition, when data is automatically saved, transmitted or printed, it can be operated again only when the current weight reaches less than the set scale point.

F08: Zero Key Operation Range (Default: 1)

Set Value	Explanation
0, 1	Please select the range where zero key is operated when you press the zero key. (0: ±2% of the Maximum Weight / 1: ±100% of the Maximum Weight)

F09: Automatic Data Saving and Transmitting (Default: 0)

Set Value	Explanation
0~2	The conditions for saving and transmitting data automatically are set. (0: Non-use/ 1: When weight is stabilized/ 2: When weight is held)

※ When F13-1 is set, data is automatically transmitted and the automatic saving into the USB memory is executed without a condition.

F10: Weight Shaking Calibration Filter (Default: 0)

Set Value	Explanation
0~1	It improves some phenomena which a weight value is not stable or the cart scale is shaken. (0: Non-use/ 1: Use of Shaking Calibration)

2) Communication-related Setting Mode
F11: RS-232C Communication Speed (Default: 0)

Set Value	Explanation

0~7	0: 9600 / 1: 14400 / 2: 19200 / 3: 28800 / 4: 38400 / 5: 56000 / 6: 57600 / 7: 115200

F12: RS-232C Parity Bit (Default: 0)

Set Value	Explanation
0~2	0: Non parity / 1: Even parity / 2: Odd parity

F13: RS-232C Transmission Method (Default: 1)

Set Value	Explanation
0~1	0: Real-time (Stream) Transmission/ 1: AT Command

F14: RS-232C Data Real-time Transmission Form (Default: 2)

Set Value	Explanation
0~2	0: Form A / 1: Form B/ 2: Form C

[Form A]

Starting Text	HEX	0x02	STX
Date	ASCII	Oct. 13, 2015	Month, Date, Year
Division		,	Comma
Time		[AM]12:10.33	Hour, Minute, Second
Division		,	Comma
Serial NO.		12345	The no. of digits increases automatically depending on data.
Division		,	Comma
Gross Weight		100.0	The no. of digits increases automatically depending on data.
Division		,	Comma
Container		45.5	The no. of digits increases automatically depending on data.
Division		,	Comma
Net Weight		54.5	The no. of digits increases automatically depending on data.
Division		,	Comma
Ending Text	HEX	0x03	ETX

[Form B-10bytes]

Start		Lamp Status	Weight Data					End	
S	T	0x00	0	0	0	0	0	C_R	L_F

☞ Lamp Status Byte

Bite 8	Byte 7	Byte 6	Byte 5	Byte 4	Byte 3	Byte 2	Byte 1
3 Decimal Point	2 Decimal Point	1 Decimal Point	Stabilization	- weight	Zero Point	Container	HOLD

[Form C-18bytes]

Header 1			Header 2			Weight Data								Unit		End	
S	T	,	G	S	,	+	0	0	0	0	0	.	0	k	g	C_R	L_F

Header 1	ST	When weight is stable (0x53) (0x54)
	US	When weight is unstable (0x55) (0x53)
	OL	During overload (0x4F) (0x4C)
	HD	When weight is held (0x48) (0x44)
Header 2	GS	Gross Weight (0x47) (0x53)
	NT	Net Weight (0x4E) (0x54)
Weight Data	The first bit is for sign (+/-) and the weight data includes decimal points.	
Weight Unit	kg	(0x6B) (0x67)
	g	(0x20) (0x67)
End Text	$C_R L_F$	(0x0D) (0x0A)

3) Bluetooth Setting Mode
F21: Bluetooth Password (Default: 1013)

Set Value	Explanation
0000~ 9999	When it is connected to a Bluetooth device, the necessary password is set. The scale can be paired with the Bluetooth device only when the relevant password is input into the device.

F22: Bluetooth Transmission Method (Default: 1)

Set Value	Explanation
0, 1	It sets a method for transmitting data wireless to an external Bluetooth device. 0: AT Command 1: Real-time (Stream) Transmission

F23: Data Real-time Bluetooth Transmission Method (Default: 2)

Set Value	Explanation
0~2	0: Form A/ 1: Form B/ 2: Form C It is the same as the form of F14.

4) General Functions Setting Mode
F31: Usage of HOT KEY (Lb Virsion Default: 3)

Set Value	Explanation
0~4	0: NO/ 1: Lighting/ 2: Data Saving & Transmission / 3: Data Saving, Transmission & Printing/ 4: Change between Gross Weight & Net Weight/ 5: Changing a Weight Unit (Kg <->Lb)

F32: Conditions for Enlarging Lighting (Default: 2)

Set Value	Explanation
0~4	0: Using the HOT KEY/ 1: Always on/ 2: Weight Monitoring/ 3: It turns on when the set time arrives.

F33: Lighting Brightness (Default: 70)

Set Value	Explanation
1~100	It sets a level of lighting brightness at %.

F34: Automatic Power Off (Default: 0)

Set Value	Explanation
0~99 (minute)	When the set value is maintained under the condition that the stability lamp is on, it is judged that the device is not used. And the device turns off automatically. If the value is set at zero (0), the automatic power off is not activated.

5) Printing Function Setting Mode (when selecting an option: OP-01)

F41: Automatic Printing (Default: 0)

Set Value	Explanation

0~2	It sets the conditions for automatic printing. (0: Non-use / 1: When weight is stable/ 2: When weight is held)

F42: Print Form (Default: 3)

Set Value	Explanation
0~2	0: Form A / 1: Form B/ 2: Form C/3: Form D

[Format 1]	[Format 2]	[Format 3]	[Format 4]
2014.10.13 12:30 001 100.0kg 002 200.0kg 003 150.0kg	2014.10.13 12:30 001 100.0kg 2014.10.13 12:31 002 150.0kg	2014.10.13 12:30 Gross: 100.0kg Tare: 10.0kg Net: 90.0kg	2014.10.13 12:30 001 100.0kg 002 200.0kg 003 150.0kg Total: 450.0kg

F43: LINE FEED (Default: 5)

Set Value	Explanation
0~9	It sets a blank after printing. 0: NO LINE FEED ~ 9: 9 lines of LINE FEED

6) Time Setting Mode

※ The clock function works even after the power turns off if this mode is set. However, since there can be a time error, please reset a time once a month in order to compensate for a time error.

F51: Year Setting

Set Value	Explanation
00~99	It sets a year.

F52: Month Setting

Set Value	Explanation
00~12	It sets a month.

F53: Date Setting

Set Value	Explanation
00~31	It sets a date.

F54: Hour Setting

Set Value	Explanation
00~23	It sets an hour.

F55: Minute Setting

Set Value	Explanation
00~59	It sets a minute.

7) Gravity Compensation Setting Mode

※ The Gravity Compensation Setting Mode starts only when the password [111] is input.

F98: Gravitational Acceleration for Weight Setting Place (SAEROM company Default: 9.799)

Set Value	Explanation
9.000~ 9.999	It sets a gravity compensation value of the weight setting place. ※ Since this is a menu which a general user does not use, please do not change the

(m/sec²)	value.

F99: Gravitational Acceleration for Place of Use (Default: 9.801)

Set Value	Explanation
9.000~ 9.999 (m/sec²)	Please enter a gravity compensation value for the place of use. (As a sample: The gravity value of Chicago in US is 9.803) ※ Since this is an item which is not used by a general user, please do not change the value.

How to change g on our product:

To change the value of g, you need to enter into F-Mode (settings). Turn the scale on while pressing 'TARE'. When you can read 'F01' on the display, it means you entered the settings mode. To navigate settings mode, use the keys as follows:

- ZERO to exit after saving contents
- TARE to switch digits
- HOLD to increase digits
- ENTER to complete settings

'F99' is used to set the value of g at the place of use. The **default setting value** is **9.801** - value for Indianapolis, IN or Baltimore, MD, Washington, D.C. You can change this value according to the place where the cart scale is used. Please note that you need to enter a password to be able to change g; **the password is '111'**.

For an easy tutorial explaining how to change the value of change, just take a look at the following video: https://www.youtube.com/watch?v=FpDDMPz2p6A\

from: Wolfram Alpha LLC. "Gravitational Acceleration." WolframAlpha. https://www.wolframalpha.com/input/?i= gravitational +acceleration (16th November 2018)

Value for major cities across the US (UK London 9.812)

Location	g (in m/s²)		Location	g (in m/s²)
Austin, TX	9.793		Los Angeles, CA	9.796
*Baltimore, MD	9.801		Memphis, TN	9.797
Boston, MA	9.804		Milwaukee, WI	9.804
Charlotte, NC	9.797		Nashville, TN	9.798
Chicago, IL	9.803		New York, New York	9.802
*Columbus, OH	9.801		Oklahoma City, OK	9.797
Dallas, TX	9.795		Phoenix, AZ	9.795
Denver, CO	9.796		Philadelphia, PA	9.802
Detroit, MI	9.803		Portland, OR	9.806
El Paso, TX	9.791		San Antonio, TX	9.792
Fort Worth, TX	9.795		San Diego, CA	9.795
Houston, TX	9.793		San Francisco, CA	9.800
*Indianapolis, IN	9.801		San Jose, CA	9.799
Jacksonville, FL	9.794		Seattle, WA	9.807
Las Vegas, NV	9.796		*Washington, D.C.	9.801

7. SAVING INTO A USB MEMORY

<u>A USB memory stick shall be connected or disconnected under the condition that the power turns off without missing</u>.

If the power of the scale turns on while a USB memory stick is connected, the USB memory stick is automatically recognized and the USB indicator lamp turns on.

But, a USB is recognized only when the scale setting modes, 'F09' (Data Automatic Saving & Transmission) and 'F31' (HOT KEY) are set to be used for saving data into a USB memory stick. Thus, please set them properly.

The data is saved under the file name, <u>Memory Backup Date.CSV</u> (Excel File format).

	A	B	C	D	E	F
1	DATE	TIME	SN.	GROSS(kg)	TARE(kg)	NET(kg)
2	2015.09.05	[PM]08:45.21	1	100	50	50
3	2015.09.05	[PM]08:45.23	2	110	40	70
4	2015.09.05	[PM]08:45.26	3	250	0	250

※ Please use a USB memory stick which is formatted by FAT (FAT16) or FAT32. One which is formatted by NTFS or exFAT cannot be used.

※If a USB memory stick is detached while some data is being saved, the whole data can be lost, so please never pull out a USB memory stick while data is being saved.

※ If a USB memory stick is detached while the power of the scale is on even though it is not while data is being saved, the power of the scale turns off automatically, so please take care of it.

※SN. Means a serial number and it is applied to a USB memory and the printed contents. If a date is changed, the serial number is automatically initialized (1).

8. BLUETOOTH WIRELESS COMMUNICATION

A weight can be indicated and some data can be managed and controlled by using a smartphone-based application. The relevant application is available through a distribution channel of this equipment.

A Bluetooth Module (Dongle) shall be connected or disconnected only while the power of the scale is off.

When the power of the scale turns off under the Bluetooth device is connected, the module is automatically recognized and the Bluetooth lamp blinks.

※ If the Bluetooth Module is detached while the power of the scale is on, the power of the scale turns off. So, a care must be taken.

◆ Device Connection (Pairing)

1) The Bluetooth function of a smartphone or a PC is activated.
2) Select the device, 'Go-300' in the connection list.
3) Input the password that is set in the Scale Setting Mode, 'F21' into a smartphone.

※ In case of a device which was once connected before, a password is not required to be entered in order for the device to be connected.

※ When the scale is turned off and then on while being used, the device can be connected only when the reconnection mode is executed.

※ All kinds of notebooks and PCs, etc., that have a Bluetooth device can be connected to the scale.

◆ Wireless Bluetooth Specifications

Bluetooth specification	Fully qualified with Bluetooth v2.0 +EDR specification EDR (Enhanced data rate) compliant with v2.0 of specification for both 2Mbps and 3Mbps.
RF frequency range	2401 ~ 2480 MHz
Output power	Max. 18dBm
Transmit data rate	Up to 921Kbps
Receiver sensitivity	-87dBm (PER <1%)
Maximum input level	-17dBm
Radio link effective range	Depend on smart phone Bluetooth

9. ZIGBEE WIRELESS COMMUNICATION (When selecting an option: OP-02)

It is possible to connect with a wireless device with has a ZIGBEE function, such as, an auxiliary annunciator, etc.

For more information on how to do pairing with wireless devices which are provided by this company, please refer to the Auxiliary Annunciator Manual.

◆ Wireless ZIGBEE Specifications

RF frequency range	2400 ~ 2483.5 MHz
Output power	Max. 4dBm
Channel width	2 MHz
Frequency offset	< ±30ppm
Transmit data rate	250Kbps,500Kbps

Receiver sensitivity	-99dBm (PER <1%)
Maximum input level	0dBm
RF In/out impedance	50 ohm (TXRF, RXRF)
Spurious(2nd harmonics)	< -30dBm
Radio link effective range	Approx. 100M (Open space)

10. AT COMMAND

It is a command mode which is used by using RS-232C or a Bluetooth or ZIGBEE wireless communication methods when the data of the scale is received or the operations of the scale are controlled.

◆ Composition of Command Protocol

Start Text	Command	End Text
STX (0x02)	ASCII data	ETX (0x03)

1) Read command

Function	Command	Responses of Scale	Explanation
Version Information	RV	Success: 1.00,\r\n Failure: NG,\r\n	Firmware Version 1.00
Battery Voltage	RB	Success: 3.56,\r\n Failure: NG,\r\n	3.56V
Date & Time Info	RD	Success: 15/08/14,16:33:23,\r\n Failure: NG,\r\n	At 16:33:23 on August 14, 2015
Scale Setting Mode	RF01	Success: 1,9,5,\r\n Failure: NG,\r\n	It returns the value of F01. It means 5 among 1~9.
Weight Data	RW	Success: 18byte Form Failure: NG,CH01,\r\n	It returns in the C form of the Scale Setting Mode, 'F14'.
Gross Weight Data	RG		
Net Weight Data	RN		

2) Write command

Function	Command	Responses of Scale	Explanation
Date & Time Info	WD15/08/14,16:33:23	Success: OK,\r\n Failure: NG,\r\n	At 16:33:23 on August 14, 20
Scale Setting Mode	WF013	Success: OK,\r\n Failure: NG, Minimum*, Maximum*,\r\n	It sets F01 at 3.
Scale Setting Mode	WF130		It sets F13 at 0.
Scale Setting Mode	WF068.7		It sets F06 at 8.7.

※ The minimum and maximum values are the limits of the relevant setting mode that can be adjusted. (Example: Since F01 is 1 to 9, they are 1 &9.)

3) Control command

Function	Command	Responses of Scale
ZERO	CZ	Success: OK, Message*,\r\n Failure: NG, Message*,\r\n
TARE ←	CT	
HOLD ↑	CH	
ENTER HOTKEY	CE	

※ Message List

Operation of ZERO Key		OK,ZERO OK,\r\n NG,HOLD ON,\r\n NG,RANGE OVER,\r\n NG,TARE OFF,\r\n
Operation of TARE ← Key		OK,TARE ADD,\r\n OK,TARE OFF,\r\n OK,TARE ON,\r\n NG,HOLD ON,\r\n NG,CAPA OVER,\r\n NG,MINUS,\r\n NG,ZERO WEIGHT,\r\n
Operation of HOLD ↑ Key		OK,AUTO HOLD ON,\r\n OK,AUTO HOLD OFF,\r\n OK,HOLD START,\r\n OK,HOLD OFF,\r\n NG,HOLD FAIL,\r\n
Operation of ENTER HOTKEY Key	F31-0	NG,NO COMMAND,\r\n
	F31-1	OK,LIGHT ON,\r\n OK,LIGHT OFF,\r\n
	F31-2	OK,DATA SEND,\r\n
	F31-3	OK,DATA&PRINT SEND,\r\n
	F31-4	OK,GROSS DISPLAY,\r\n OK,NET DISPLAY,\r\n NG,TARE OFF,\r\n

11. TEST MODE

It is a mode which can diagnose the functions of the equipment by itself.

Order	Operation & Explanation	Indication
1	***Entry Method*** When the power turns on while pressing the key [ZERO] when the power is off, the firmware version is indicated and then *tESt1* is indicated. At this time, when you take your hand off the key [ZERO], the Test no. 1 starts automatically.	*tESt1*
2	***TEST 1: Display Test (Automatic Execution)*** All of the LCD displays turn on. When the key, [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt1* *8.8.8.8.8*
3	***TEST 2: Key Switch Test*** When each key is pressed, the relevant number is indicated on the display. ([ZERO]: 1 / [TARE ←]: 2 / [HOLD ↑]: 3 / [ENTER HOTKEY]: 4) When the key, [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt2* *0*
4	***TEST 3: Load Cell Test*** It indicates the output value of an A/D converted load cell. When some load is applied onto the tare, the number rises. When the key [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt3* *10547*
5	***TEST 4 RS-232C Communication Test*** When a key is pressed, the relevant key number is transmitted as the relevant ASCII value through RS-232C. ([ZERO]: 1 / [TARE ←]: 2 / [HOLD ↑]: 3 / [ENTER HOTKEY]: 4) When the key [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt4* *0*
6	***TEST 5: Backlight Test*** The backlight turns on depending on the brightness of the following keys. ([ZERO]: Dark / [TARE ←]: Normal / [HOLD ↑]: Bright) When the key [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt5* *-*
7	***TEST 6: Clock Test*** Hour and Minute are indicated. (Example: 10:13) When the key [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt6* *10 13*
8	***TEST 7: Printer Test*** When the key is pressed, the data on the key is printed. ([ZERO]: KEY PUSH 1/ [TARE ←]: KEY PUSH 2 / [HOLD ↑]: KEY PUSH 3) When the key [ENTER HOTKEY] is pressed, the mode is changed to the next Test.	*tESt7* *Print*

12. FIRMWARE UPGRADE

Order	Operation & Explanation	Indication
1	***Entry Method*** Please connect a USB memory stick where the firmware is saved while the power is off. When the power is turned on while the keys, "**TARE**" and "**HOLD**" are pressed at the same time, *boot* is indicated. And then, take your hands off the keys, "**TARE**" and "**HOLD**". Then, the new firmware that is saved in the USB memory stick is indicated and the USB lamp turns on.	*boot* *t: 1.01*
2	***Firmware Upgrade*** When the key [ENTER HOTKEY] is pressed, the firmware starts to be upgraded and then *00000* is indicated in sequence. When upgrading ends, the power turns off automatically. Please check the firmware version which is indicated on the initial display when the power is turned on again.	*00000* *End*

13. ERROR MESSAGES

Indication	Explanation & How to Cope
CH 01	It appears when the tare or the measuring part is abnormal. Please check whether a load cell is mounted or connected well or not.
CH 02	It appears when the printer does not respond. Please check whether the printer is connected well or the printer cover is covered properly or not.
CH 03	It appears when there is no printer paper. Please feed some papers.
CH 04	It appears when the embedded battery or the charging part has a problem. Please charge the scale by using only the adapter that is provided by this company. And in case that a problem is not solved, please consult with the place where you bought.
CH 05	It appears when the resolution is too high while a weight is set.
CH 06	It appears when the span value is too high or low while a weight is set. Since a weight cannot be set with the current resolution because the load cell is abnormal or the output is too low or high, please check it again.
CH 07	It appears when the value exceeds the zero calibration range.
ouEr	It appears when the weight of the scale plate exceeds the maximum capacity of the scale. Please do not put an object exceeding the maximum capacity limit onto the scale at all.

14. PRODUCT SPECIFICATIONS

(1) General Specifications

Indication Part	FSTN 1inch LCD & LED Backlights
A/D Resolution	24bits
A/D External Resolution	Up to 100,000 counts
A/D Internal Sensitivity	0.2uV/D
A/D Input Range	0~39mV
A/D Non-linearity	<±0.0015% of FSR max.
Wired Interface	RS-232C, USB host
Wireless Interface	Bluetooth
Operating Temperature	-20℃ ~ 60℃
Operating Moisture	85% R.H. (No condensation)
Using Hours	Around 350 hours (when a USB HOST is not used)
Battery Specifications	18650 Lithium Ion
Charging Adapter	AC/DC Adapter 12VDC, 1A
Option	Thermal Transfer Printer

(2) Printer Specifications

Printing Method	Thermal Transfer Method
Resolution (DPI)	200 DPI(8dot/mm)
Print Range	2inches (48mm, 384dots/line)
Print Speed	60mm/sec
Printing Paper	Φ40 x 57mm roll paper (Thermal Paper)
Print Column	24 in English
Emulation	EPSON / CITIZEN
Communication Method	RS-232C serial
Data Buffer	16kbytes
Input Voltage	5~7.5VDC, 2.5A
Product Size	77.5(W) x 51(D) x 81(H)

(3)Option Selection

OP-01	Thermal Transfer Printer
OP-02	ZIGBEE Wireless Communication
OP-03	Bluetooth Module (Dongle) for PC Communication ※ Since a notebook has an embedded Bluetooth module, it is possible to communicate by using only the embedded Bluetooth module.

15. LIMITED WARRANTY

  The warranty period for a defect of a part or technology shall be one year from the date of shipment by the authorized seller. Accordingly, the transportation charge shall be borne by SAEROM. A product which is proved that it is defective during the warranty period shall be repaired or replaced selectively.

  This warranty shall not be applied to the cases that a product is damaged due to an incidence, a misuse, the exposure to a corrosive material, the penetration by an external object, service or repairing by a company other than SAEROM.

SAEROM shall not be responsible for any indirect damages.

  Since the warranty-related laws are different between countries or regions, for more information on warranty, please consult with a sales person at SAEROM in your country or region.

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