SI240

Digital Indicator

User Manual

Manual Ver 1.00

Program Ver 1.00

SEWHACNM

주식회사 세화씨엔엠

Contents

1. Precautions

1-1. Caution / Warning Mark

Warning Mark means there is possibility to get serious injury or to cause death If the product was not handled in a proper way.

1) Do not drop the product and avoid serious external damage on it.
2) Do not install the product under direct sunshine or severe vibration.
3) Do not install the product under conditions with high voltage or severe electric noise.
4) Turn off the power when you use it with external input devices.
5) Do not sprinkle water on the product or avoid rainy conditions.

Caution Mark means there is possibility to cause material loss if the product was not handled in a proper way.

1) The products can be changed without previous notice as the version is upgraded.
2) As version is upgraded the product version increases and all of the function will remain if possible.
3) Do not use the product at conditions with fluctuating temperature or severe vibration.

1-2. Copyrights

3) This manual can be changed without previous notice as the version is upgraded. If you have any kind of inquiries, please contact your local agent or the Headquarter, SEWHACNM Co., LTD.

1-3. Inquiries

If you have any inquiries about our products, please contact us at following address.

1) Headquarter : SEWHACNM Co., LTD
2) Homepage : http://www.sewhacnm.co.kr
3) E-mail : sales@sewhacnm.co.kr

2. Introduction

2-1. Introduction

Thank you for Purchasing “SI 240”, the digital weighing indicator. This product is a high-quality indicator connectible to other external devices and has high resolution. Plus, RS485 and Ethernet Interface with Modbus Protocol is available for user’s convenience.

Please learn and review this manual before use it and enjoy all of the function of this product.

2-2. Features

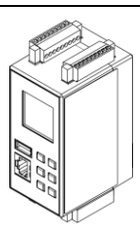
1) It is convenient to install this product into a control box as a DIN type product.

2) RS485 and Ethernet Interface available (Modbus Protocol including)

3) You can choose various options as below.

- Serial Interface RS485
- Ethernet Interface TCP/IP
- Analog Output 4~20mA, 0~10V
- Data storage device (USB memory)

2-3. Components

	
Indicator	Manual

3. Specification

3-1. Specification

Content			Specification
Load Cell Input Analog Signal	Display Resolution		1/20,000
	Internal Resolution		1/2,000,000 (±1,000,000)
	Input Sensitivity		Min. 0.1μV/V
	Max Signal Input Voltage		Max. 3.2mV/V
	Load Cell Excitation		DC +5V
	A/D Converting Method		Sigma-Delta
	Decimal Point		0, 0.0, 0.00, 0.000
	Drift	Zero	10PPM/°C
		Span	10PPM/°C
	Non Linearity		0.005% Max
Operating Environment	Operating Temperature Range		-10°C ~ +40°C [14°F ~ 104°F]
	Operating Humidity Range		40% ~ 85% RH, No Condensation
Front Part	Display		Main Display : 1.46 Inch White OLED 128X128 Dot Matrix LCD Status LED : RED 7EA
	Key		6EA
Interface	Digital Input		2EA, Dry Contact(Zero Voltage Contact)
	Serial Interface	RS485C	PC, PLC, Printer, etc
	Ethernet		PC, PLC, etc
Power	DC : 12-24V, 6W		
Size	Size : 49mm(W) x 96.5mm(H) x 70mm(D), Weight : 220g		

3-2. Front Part

3-2-1. Display and Key Pad

① Number 6 digits

② Unit

③ Tare Weight

④ Weighing Count and Cumulative Weight

⑤ Status

- ①: ON when IN1 input
- ②: ON when IN2 input

⑥ Key

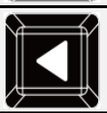
⑦ Status (words)

- STEADY : Current weight is steady
- ZERO : Current weight is zero
- TARE : Using Tare function
- HOLD : Using Hold function
- RUN : Weighing mode is running
- Tx : Transmitting data via COM1(RS485)
- Rx : Receiving data via COM2(RS485)

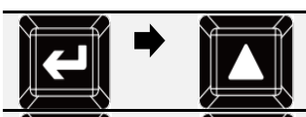
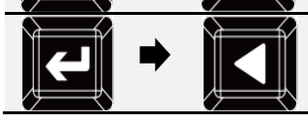
⑧ USB Port

⑨ Ethernet Port

3-2-2. Key

	- Set zero point - Move cursor up or Increase number
	- Tare set or Tare reset - Move cursor to the left
	- Print - Move cursor to the right
	- Run or Stop - Move cursor down or decrease number
	- Clear or Cancel
	- Confirm - Enter Function mode

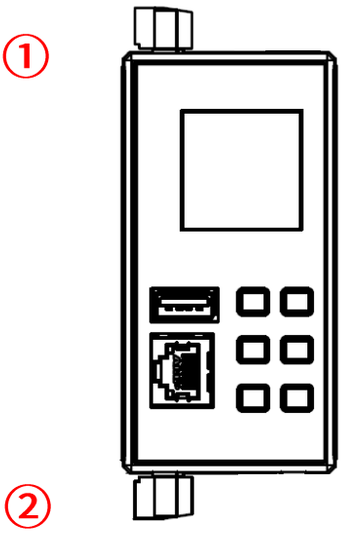
3-2-3. Combination Key

	Set Part number
	Initialize Weighing Count or Cumulative weight

- The maximum of weighing counting number is 999,999. It will be initialized when it is over the max value.

- The maximum of cumulative weighing counting number is 999,999,999. It will be initialized when it is over the max value.

3-3. Connection Part



3-3-1. Power, RS485, Load cell

Power		RS485		Load cell				
1	2	3	4	5	6	7	8	9
V+	0V	D+	D-	EXC+	EXC-	SIG+	SIG-	SHIELD

3-3-2. Analog Output, External Input

Analog Output			External Input				CAN	
1	2	3	4	5	6	7	8	9
AOUT+	AOUT-	N.C	INCOM	IN1	IN2	N.C	HIGH	LOW

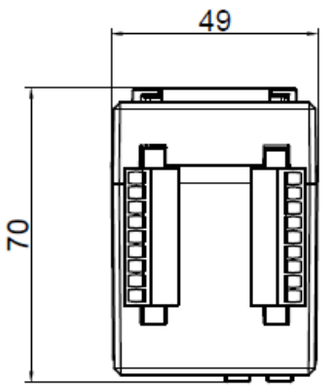
Check the standard Interface and optional specification of the product before installation.

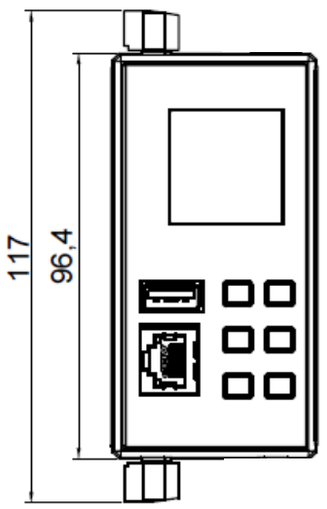
CAN bus does not work as a port for internal test

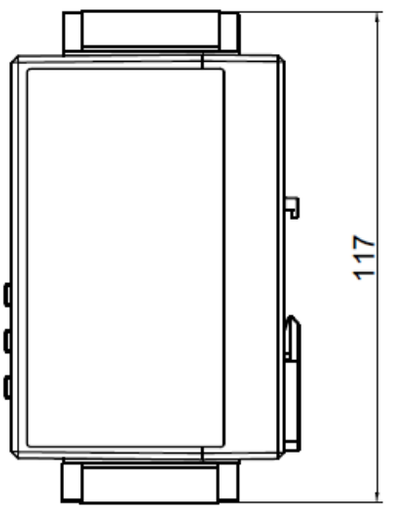
4. Installation

4-1. Size

(Unit: mm)



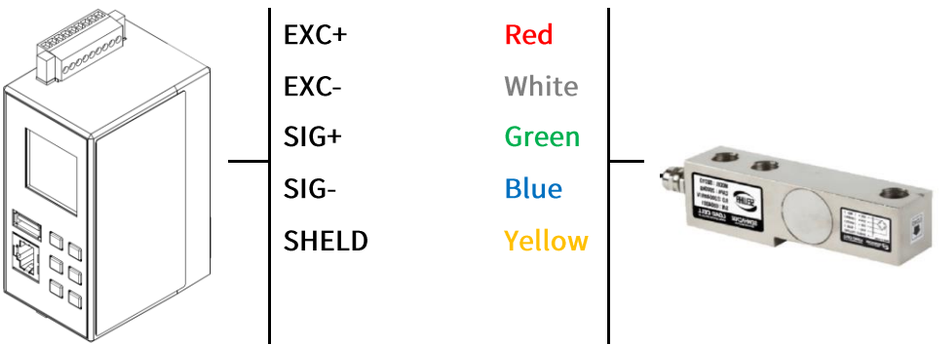




4-2. How to connect Load cell to Indicator

How to install load cell input terminal

(The color of the cables can differ from each manufacturer.)



warning

1. If you use tension type of load cell as compression type, connect SIG+ and SIG- crossly.
2. The product can be damaged if you connect other cable to load cell input terminal.
3. Turn off the power of the indicator during connection to load cell.
4. Do not weld around the device.
   (Parts of internal circuit of indicator or load cell can be broken during arc welding or electric welding.)

warning

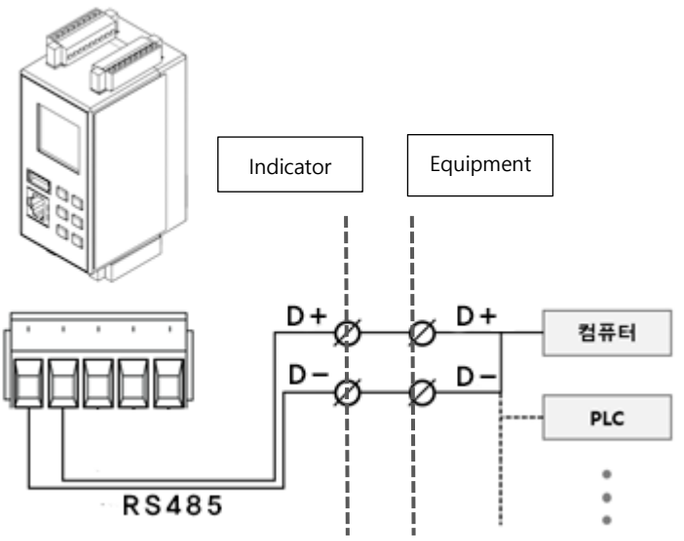
※ Precautions for Indicator-Load Cell Connection

1. You can use a maximum of 8 load cells. (350Ω standard)
2. The product has to be horizontal to the ground for more precise value.
3. Use summing box to adjust output deviation minimally when you install load cell more than two. (Each output gap can cause a margin of error.)
4. Change in temperature can cause a margin of error.
5. Do not weld around the device. If you need, disconnect every cable of indicator.
6. If you weigh static electricity, use earth shield wire or other ways to protect static electricity flowing in Indicator.

4-3. External Equipment Connection

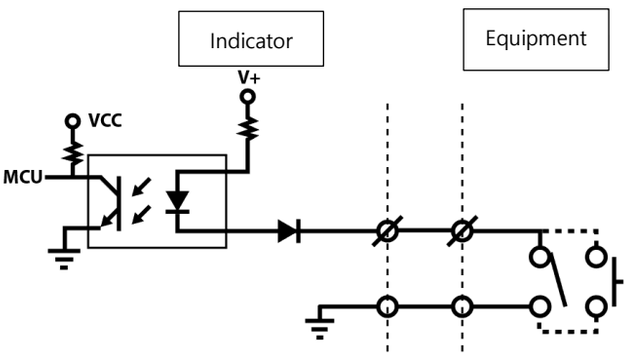
4-3-1. RS485

1) RS485 Interface is available for the connection to PC, PLC, External display, etc.



4-3-2. External Input – Input 2EA

1) Each external digital Input can be set on F156~161.
2) Dry contact for Input Signal



3) Terminal Component
   - INCOM: Input common terminal
   - IN1~IN2 : Input Signal Terminal (Dry contact-relay or switch signal)

5. Calibration

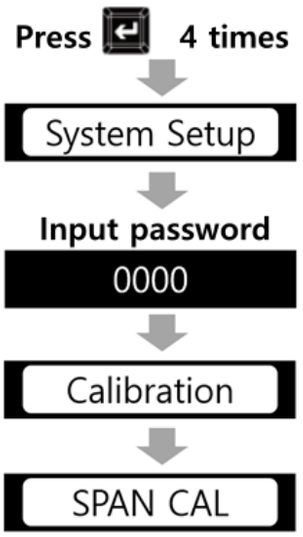
5-1. Calibration

Calibration is a work to correct linearity from zero to Max Capacity, which becomes standard when an indicator displays the current weight.

warning

- **When enter Calibration mode, Tare/Hold/Print function is initialized.**
- **Preheat the Indicator for 5 minutes before Calibration to get more exact result.**

Step 1. Enter Calibration mode

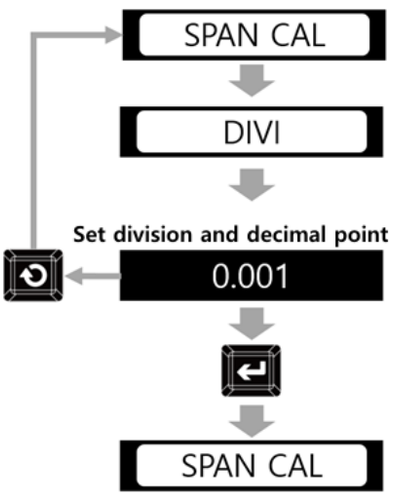


<Key Explanation>

- : Enter or Move to next step
- : Cancel

※ Default password is 1111.

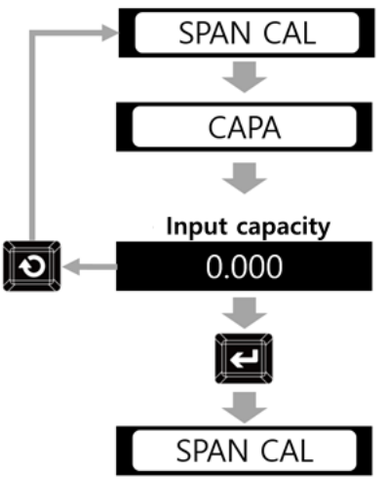
Step 2. Set Decimal Point and Division



- : Increase division
- : decrease division
- : Decimal Point digits increase
- : Decimal Point digits decrease
- : Save or Move to next step
- : Cancel or Move to previous step

Ex : When you want to set 20.00kg (division 0.01kg) for capacity, input 20.

Step 3. Set Maximum Capacity and Balance Weight (integral value only)



- : Increase number
- : Decrease number
- : Change digits
- : Change digits
- : Save or Move to next step
- : Cancel or Move to previous step

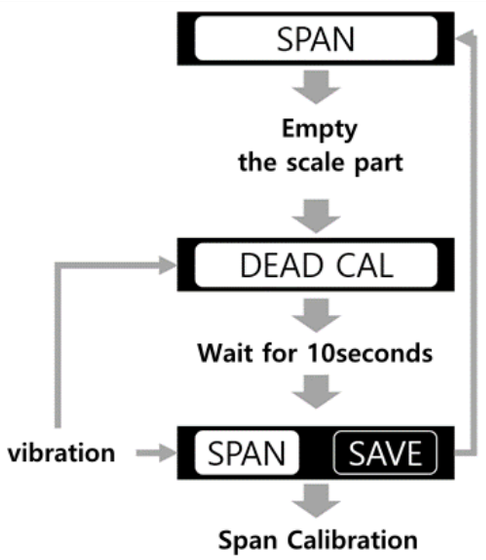
※ You can set the decimal point to 3 places (0, 0.0, 0.00, 0.000) and division can be set as 1, 2, 5, 10, 20, 50.

※ The value of (Max capacity/Division) should not be over 20,000.

※ Balance weight cannot be over Max Capacity and under 10% value of Max Capacity.

※ If the value of (Max capacity/Division) is over 20,000, “Er-001” will show up and you have to start from “Step 3. Set Maximum Capacity” again.

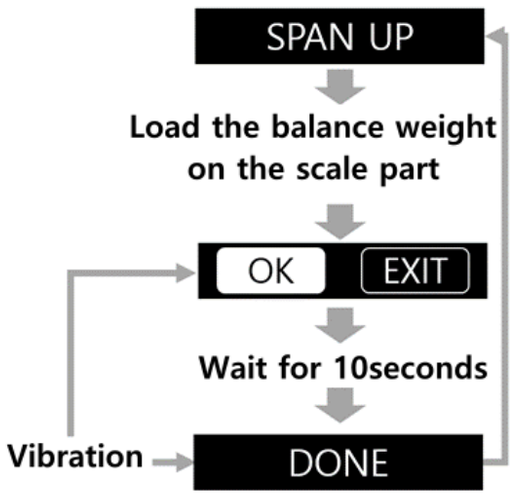
Step 4. Measure Dead Weight



- : Save or Move to next step
- : Cancel or Move to previous step

※ If “Er-009” shows up, check if there is anything on the scale part or vibration which interrupt calculation of the indicator.

Step 5. Span Calibration



- : Save or Move to next step
- : Cancel or Move to previous step

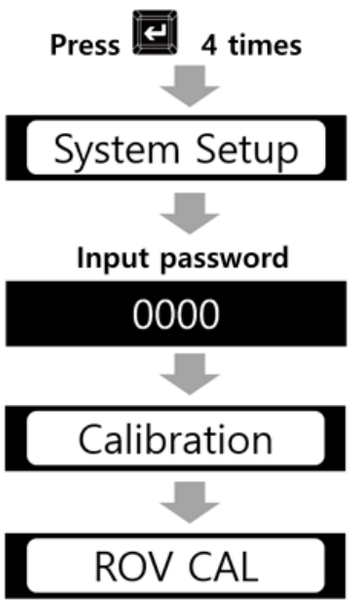
※ **Er-004 :** The balance weight is over Max capacity

※ **Er-005 :** The balance weight is under 10% of Max capacity

5-2. Simulation Calibration

You can proceed with Simulation Calibration when you do not have any balance weight. It is the way to calculate and adjust weight via Max capacity of load cell and Rated Output Value. The guaranteed accuracy of simulation calibration is 1/3,000 and it can differ from the accuracy of Rated Output Value of load cell.

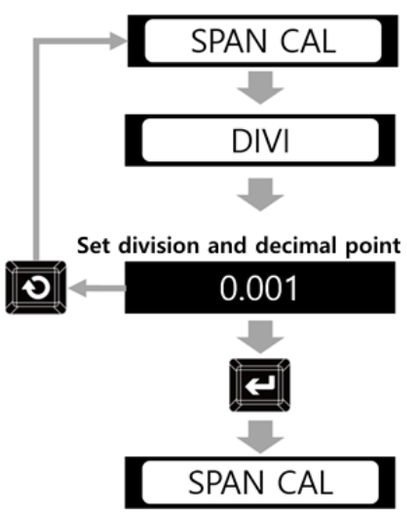
Step 1. Enter Simulation Calibration mode



<Key Explanation>

- : Save or Move to next step
- : Cancel or Move to previous step

Step 2. Set Decimal Point and Division



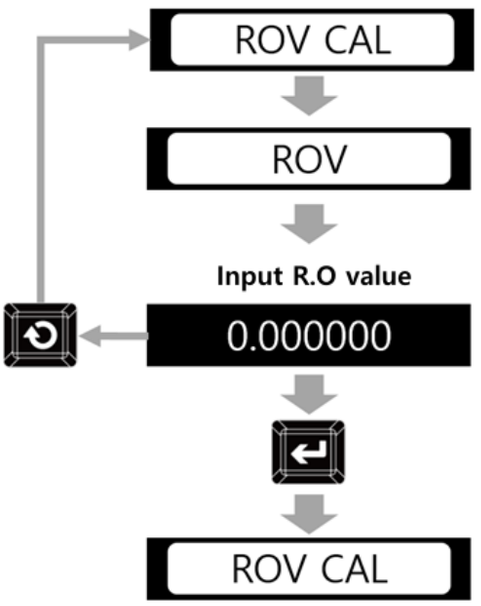
- : Increase division
- : decrease division
- : Decimal Point digits increase
- : Decimal Point digits decrease
- : Save or Move to next step
- : Cancel or Move to previous step

※ You can set the decimal point to 3 places (0, 0.0, 0.00, 0.000) and division can be set as 1, 2, 5, 10, 20, 50.

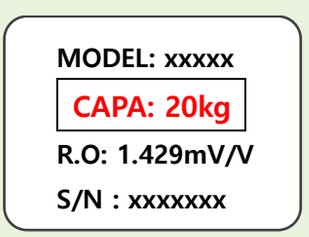
※ The value of (Max capacity/Division) should not be over 20,000.

※ If the value of (Max capacity/Division) is over 20,000, “Er-001” will show up and you have to start from “Step 3. Set Maximum Capacity” again.

Step 3. Set R.O.V



- : Increase number
- : Decrease number
- : Change digits
- : Change digits
- : Save or Move to next step
- : Cancel or Move to previous step

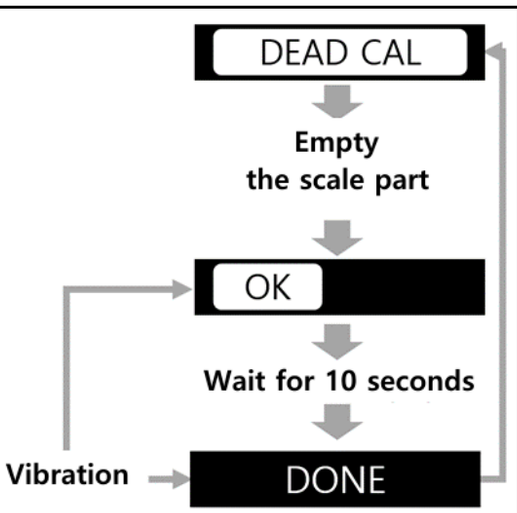


<Load Cell Label Explanation >

※ Capacity in Simulation Calibration means the capacity written on load cell label.

※ Input the capacity of load cell multiplied by the number of load cell.
(number of load cell * capacity of load cell)

Step 4. Measure Dead Weight



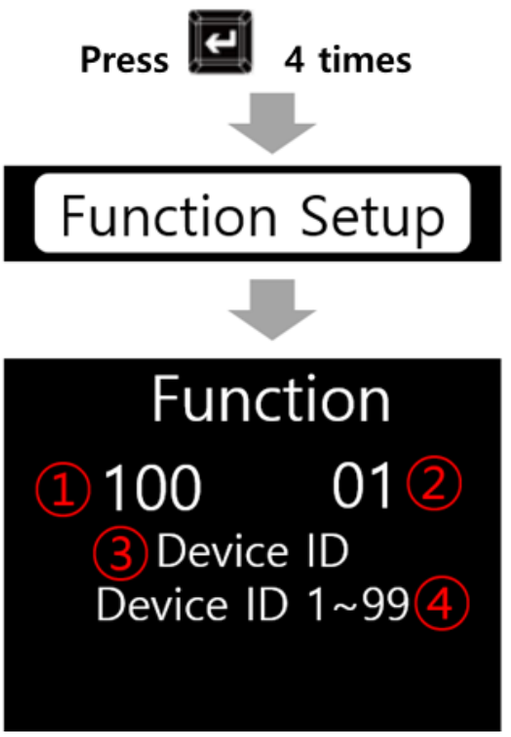
- : Save or Move to next step
- : Cancel or Move to previous step

※ If “Er-009” shows up, check if there is anything on the scale part or vibration which interrupt calculation of the indicator.

5-3. Function Mode

Function Setting makes indicator operate perfectly with surrounding condition.

5-3-1. How to Enter Function Mode



- : Increase number
- : Decrease number
- : Change digits
- : Change digits
- : Move cursor to Function number and Setting Value or Save Setting Value

※ **Display Explanation**

① Function Number

② Setting Value of Function Number

③ Function Subject

④ Explanation for Setting Value

5-3-2. Function List

No.	Subject	Default	Content
Function no. 100~119 : Basic Function Setting for Indicator System			
100	ID Number	01	01~99 ID number
101	Weight back-up mode	01	00 : Normal Mo 01 : Zero/Tare Back-Up Mode 02 : Zero Back-Up Mode
102	Weighing data saving method	03	00 : Manual (When Print key is input) 01 : Auto (At every steady state) 02 : Auto (At the first steady state) 03 : Auto (After weighing is finished) 04 : Manual or Auto (at every steady state) 05 : Manual or Auto (At the first steady state) 06 : Manual or Auto (After weighing is finished)
107	Minus Mark (-) Display	00	00 : enable 01 : disable
108	Buzzer Alarm for External Input Detection	00	00 : enable 01 : disable
109	Key Input Delay Time	03	01 ~ 50 (unit : 0.01 sec)
110	External Input Delay Time	10	01 ~ 99 (unit : 0.01 sec)
111	Key Lock	00	00 : disable 01 : enable
Function no. 120~129 : Printer Function Setting			
120	Print Language	00	00 : Korean 01 : English
121	Print Format Setting	00	00 : continuous 01 : continuous (tare/net weight included) 02 : single 03 : single (tare/net weight included) 04 : single array (tare/net weight included)
122	Paper withdraw rate (continuous / single)	00	00 ~ 09 (unit : 1line)
123	Paper withdraw rate (total/ sub-total)	00	00 ~ 09 (unit : 1line)
124	Delete contents after printing sub-total	00	00 : delete 01 : disable

No.	Subject	Default	Content	
125	Delete contents after printing total	00	00 : delete 01 : disable	
Function no. 130~139 : Basic Function Setting for Indicator Weighing System				
130	Steady Range	08	01 ~ 99 (unit : 1 = 0.25 division)	
131	Delay to judge Steady state	10	01 ~ 99 (unit : 1 = 0.1 sec)	
132	Digital Filter	25	01(weak vibration) ~ 50(strong vibration)	
133	Auto Zero Range	00	01 ~ 99 (unit : 1 = 0.25 division)	
134	Zero Key Operation	00	00 : No limit 01 : Active only under steady condition	
135	Zero Key Range	02	00 : less than 2% of Max Capacity 01 : less than 5% of Max Capacity 02 : less than 10% of Max Capacity 03 : less than 20% of Max Capacity 04 : less than 50% of Max Capacity 05 : less than 100% of Max Capacity 06 : No limit	
Function no. 140~199 : Digital Input Setting				
156	External Input 1	01	00 : disable 01 : Zero 02 : Tare 03 : Tare reset 04 : Tare / Tare reset 05 : Hold 06 : Hold reset	07 : Hold / Hold reset 08 : Run 09 : Stop 10 : Run/Stop 11 : Print 12 : Print Sub-total 13 : Print Total 14: Force to complete
157	External Input 2	04		
Function no. 200~209 : Serial Interface (RS485) Setting				
200	Data bit/Stop bit/ Parity	00	00: Data bit8, Stop bit1, Parity bit Non 01: Data bit8, Stop bit1, Parity bit Odd 02: Data bit8, Stop bit1, Parity bit Even 03: Data bit7, Stop bit1, Parity bit Non 04: Data bit7, Stop bit, Parity bit Even	
201	Baud Rate	02	00 : 2,400bps 01 : 4,800bps 02 : 9,600bps 03 : 14,400bps 04 : 19,200bps	05 : 28,800bps 06 : 38,400bps 07 : 57,600bps 08 : 76,800bps 09 : 115,200bps

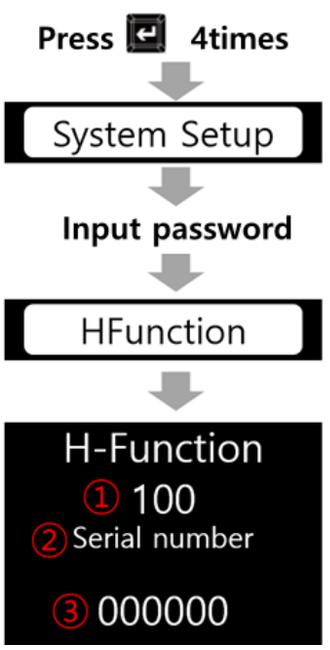
No.	Subject	Default	Content
202	Communication Mode	00	00: Stream mode 01: Command mode 02: Command mode(SI 4000 format) 03: Print mode 04: Modbus (RTU)
203	Serial Interface Stream Mode Protocol (F202-00)	00	00 : format1 (18byte) 01 : format2 (21byte) 02 : format3 (17byte) 03 : format4 (22byte) 04 : format5 (15byte, for checker mode)
204	Stream Mode Data Output (F202-00)	00	00 : continuous 01 : 1 time at every steady state 02 : at the first steady state (over Near Zero) 03 : 1 time after weighing is finished 04 : Input Print key or using external device
205	Command Checksum	00	00 : Disuse 01 : Use
250	Ethernet Interface Communication Mode	03	00: Stream mode 01: Command mode 02: Modbus TCP/IP 03: Modbus RTU over TCP/IP 04: MQTT
251	Ethernet Interface Stream Mode Protocol (F252-00)	00	00 : format1 (18byte) 01 : format2 (22byte) 02 : format3 (17byte) 03 : format4 (22byte) 04 : format5 (15byte)
252	Ethernet Interface Stream Mode Data Output (F252-00)	00	00 : continuous 01 : 1 time at every steady state 02 : 1 time at the first steady state (over Near Zero) 03 : 1 time after weighing is finished 04 : Input Print key or using external device
253	Ethernet Interface Command Checksum	00	00 : Disuse 01 : Use

No.	Subject	Default	Content		
300	Analog Output Direction	00	00 : Forward (4~20mA, 0→10V) 01 : Reverse (20~4mA, 10→0V)		
301	Analog Max Output Range	00	00 : Absolute value (regardless of mark “-” or “+”) 01 : Positive value (Output when current weight is “+”)		
302	Analog Max Output (Iout=20mA, Vout=10V) Standard	00	00 : Max Capacity 01 : SP1 02 : SP2	03 : SP3 04 : SP4 05 : Max Capacity (Gross value under Tare state)	
Function no. 501~599 : Indicator Function Setting					
502	Zero State Lamp	00	00 : Near Zero (Absolute value) 01 : Zero 02 : Near Zero (Positive value)		
531	Tare Operation limit	00	00 : No limit 01 : Active only under steady condition		
532	Tare Operation range	02	00 : less than 10% of Max Capacity 01 : less than 20% of Max Capacity 02 : less than 50% of Max Capacity 03 : less than 100% of Max Capacity		
533	Tare Operation Delay Time	00	00 : disable 01 ~ 10 : enable (Unit : 1 sec)		
534	Auto Zero After Tare Key Input	00	00 : disable	01 : enable	
535	Zero Lamp During Tare State	00	00 : ON when displayed weight is zero 01 : ON when gross weight excluding tare weight		
537	Auto Tare Reset	00	00 : disable (Manual reset) 01 : Auto Reset under Near Zero range 02 : Auto Reset under Steady state 03 : Auto Reset after weighing finishes		
538	Auto Tare Reset Delay Time	00	00 : disable (right after Key or External input) 00 ~ 09 : enable (Unit : 1 second)		
540	Hold Mode	00	00: Sample hold	01: Peak hold	02: Average hold
542	Hold Delay Time	00	00 : disable (right after Key or External input) 01 ~ 10 : enable (Unit : 1 second)		

No.	Subject	Default	Content
543	Auto Hold reset setting	00	00: disable 01: enable(Auto hold reset under Near Zero range)
544	Hold Reset Delay Time	00	00 : disable (Right after conditions are met) 01 ~ 10 : enable (Unit : 1 second) (When conditions are met after setting time)
545	Average Hold Time	10	Calculate average weight during set time (Unit : 0.1 second)

5-3-3. Hidden Function Mode

※ **How to enter Hidden Function Mode**



- : Increase number
- : Decrease number
- : Change digits
- : Change digits
- : Move cursor to Hidden Function number and Setting Value or Save Setting Value

※ **Display Explanation**

① Hidden Function Number

② Hidden Function Subject

③ Setting Value

※ **Default password is 1111.**

No.	Subject	Default	Content
HF01	Serial Number	xxxxx	Factory release number
HF03	Model	xxxxxx	
HF04	Date	YY.MM.DD	Able to set using keys
HF05	Time	HH.MM.SS	Able to set using keys
HF06	Password Setting - Password setting for Hidden Function Mode (4 digits) - Input password 2 times to check	----	Able to set with keys

No.	Subject	Default	Content
HF10	Max Capacity	xxxxx	Change after calibration
HF11	Span Constant	x.xxxxx	
HF12	Near Zero Range	0.010	Able to set using keys
HF13	Use Simulation Calibration	00	00 : disuse 01 : use
HF14	Span Value Input	00	00: disuse 01 : use
HF15	Simulation Calibration Constant Value	x.xxxxx	
HF20	Analog Output Setting	00	00 : Iout(4-20mA) 01 : Vout(0-10V)
HF21	Minimum Analog Output Adjustment (Current/Voltage)	0.000	Input ±gap value
HF22	Maximum Analog Output Adjustment (Current/Voltage)	0.000	Input ±gap value

5-4. Test Mode

Caution	**Disconnect all of the devices from the indicator before you proceed with test.**
How to enter Test Mode	1) Press Enter key 4 times. 2) Select Device Test on the menu. 3) You can test various function of indicator. 4) You can cancel or move to previous step with  .

5-4-1. Load Cell Input Value Check Mode.

1) Select ADC Test on the test mode to check load cell input value.
2) R [xxxxxxx] is ADC value
3) D [xxxxxxx] is ADC value based on Zero.

※ This mode is to check analog input value converted to digital value. It is normal symptom that the last digit changes.
(Display until -1,048,575~1,048,575)

※ If the value is fluctuating though there is nothing on the scale part or if there is no difference when you load something on the scale part, these may be because of broken load cell, cable connection error, or broken A/D converter of indicator.

5-4-2. External Input, Relay Out, Keypad Check Mode

1) Select IN/OUT/KEY on the test mode.
2) External Input Number will be displayed on EX In.
3) Relay Out will be ON and OFF automatically from OUT1 to OUT7.
4) Key name will be displayed when you press key.
5) Press Clear key to move to previous step.

5-4-3. Analog Output 4~20mA, 0~10V Check Mode

1) When you select Analog out on the test mode 00.000 will show up.
2) You can proceed with simulation With indicator outputting virtual analog output from In00.000(0mA, 0V) to 23.000(23mA, 10V).

※ You can check analog output by 0.1 unit with arrow keys.
If input value is over the maximum, real output will be 100%.
EX) **If** the mode is 4~20mA and you input **4.000,** the real output will be **4mA.**
If the mode is 4~20mA and you input **20.000,** the real output will be **20mA.**
If the mode is 0~10V and you input **4.700,** the real output will be **4.7V.**

If the mode is 0~10V and you input **10.000,** the real output will be **10V.**

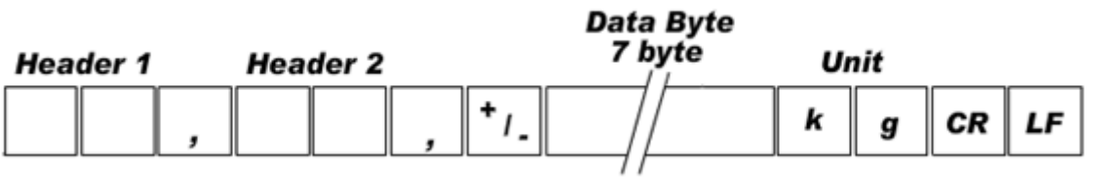
5-5-4. Device Information Check Mode

1) Select Information on Test Mode Information to check Device Information.
    A. Model
    B. Software and Hardware Version Information
    C. Device Serial Number
    D. Ethernet IP Address
    E. Ethernet MAC Address

6. Communication Data Format

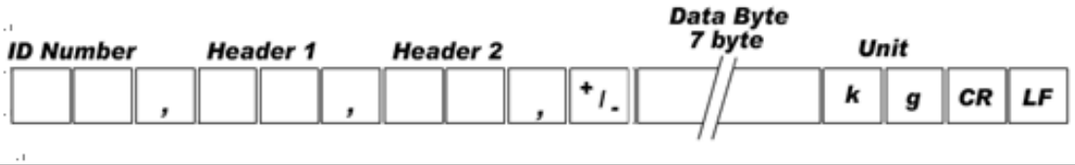
6-1. Stream Mode

6-1-1. Format 1 (excluding ID number) – 18 byte



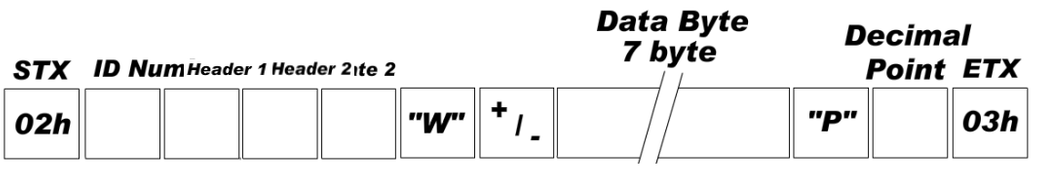
Classification	Contents
Header1 (2Byte)	OL : Overloaded ST : Stable US : Unstable
Header2 (2Byte)	NT : NET-WEIGHT GS : GROSS-WEIGHT
Sign (1Btye)	Mark
Weight Data (7Byte)	Current weight
UNIT (2Byte)	kg - k g g - g ton- t
CR (1byte)	Carriage Return
LF (1byte)	Line Feed
Example	ASCII : ST,NT,+0000.00kg CR LF HEX : 53h 54h 2Ch 4Eh 54h 2Ch 2Bh 30h 30h 30h 30h 2Eh 30h 30h 6Bh 67h 0Dh 0Ah

6-1-2. Format 2 (including ID number) – 21 byte



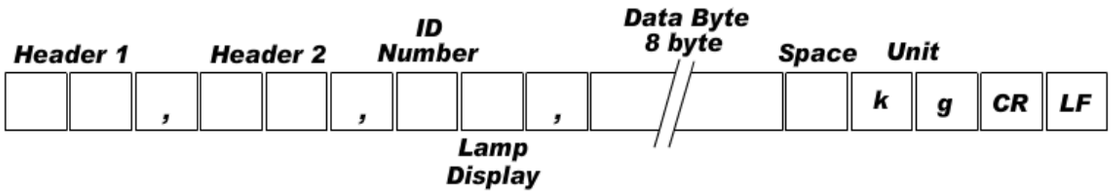
Classification	Contents
ID Number (2Byte)	ID number
Header1 (2Byte)	OL : Overloaded ST : Stable US : Unstable
Header2 (2Byte)	NT : NET-WEIGHT GS : GROSS-WEIGHT
Sign (1Btye)	Mark
Weight Data (7Byte)	Sign
UNIT (2Byte)	kg - k g g - g ton- t
CR (1byte)	Carriage Return
LF (1byte)	Line Feed
Example	ASCII : 01,ST,NT,+0000.00kg CR LF HEX : 30h 31h 2Ch 53h 54h 2Ch 4Eh 54h 2Ch 2Bh 30h 30h 30h 30h 2Eh 30h 30h 6Bh 67h 0Dh 0Ah

6-1-3. Format 3 (including ID number) – 17 byte



Classification	Contents
STX (1Byte)	Start of Text
ID Number (2Byte)	
Header1 (1Byte)	O : Overloaded S : Stable U : Unstable
Header2 (1Byte)	N : NET-WEIGHT G : GROSS-WEIGHT
“W” (1Byte)	Current weight separator
Sign (1Btye)	Mark
Weight Data (7Byte)	Current weight
“P” (1Byte)	Decimal point separator
Decimal Point (1Byte)	
ETX (1Byte)	End of Text
Example	ASCII : STX 01SNW+0000000P2 ETX HEX : 02h 30h 31h 53h 4Eh 57h 2Bh 30h 30h 30h 30h 30h 30h 30h 50h 32h 03h

6-1-4. Format 4 (including ID number) – 22 byte

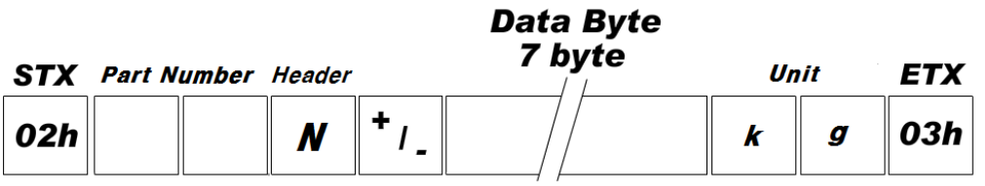


Classification	Contents
Header1 (2Byte)	OL : Overloaded ST : Stable US : Unstable
Header2 (2Byte)	NT : NET-WEIGHT GS : GROSS-WEIGHT
ID Number (1Byte)	ID number
Lamp Display (1Byte)	Lamp status display
Weight Data (8Byte)	Current weight including mark (Mark for minus '-' only)
UNIT (2Byte)	kg : kg g : g t : ton
CR (1byte)	Carriage Return
LF (1byte)	Line Feed
Example	ASCII : ST,NT,.?␣␣␣␣0.12 kg CR LF HEX : 53h 54h 2Ch 4Eh 54h 2Ch 01h E1h 2Ch 20h 20h 20h 20h 30h 2Eh 31h 32h 20h 6Bh 67h 0Dh 0Ah

※ Explanation of State Lamp Display

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	Steady	1	Hold	Print	Gross weight	Tare	Zero

6-1-5. Format 5 (Part number, Judged value, for checker mode) – 15 byte



Classification	Contents
STX (1Byte)	Start of Text
Part Number (2Byte)	P/N
Header1 (1Byte)	N : No judged value U : Underweight P : Pass O : Overweight
Sign (1Btye)	Mark
Weight Data (7Byte)	Current weight
UNIT (2Byte)	kg : kg g : g t : ton
ETX (1Byte)	End of Text
Example	ASCII : STX 01N+0000.00kg ETX HEX : 02h 30h 31h 4Eh 2Bh 30h 30h 30h 30h 2Eh 30h 30h 6Bh 67h 03h

6-2. Command Mode

Command judgement judge data 06h (ACK), 15h (NAK) and Error Code which starts with 02h(STX) and ends with 03h(ETX).

6-2-1. Read Mode

Current Weight (Displayed Weight)		
Transmit	Format : STX(1) ID(2) RCWT(4) ETX(1) ASCII : STX 01RCWT ETX HEX : 02h 30h 31h 52h 43h 57h 54h 03h	8 Byte
Respond	Format : STX(1) ID(2) RCWT(4) State1(1) State 2(1) P(1) Decimal Point(1) Mark(1) Current Weight(6) Unit(2) ETX(1) ASCII : STX 01RCWTSNP2+001234kg ETX HEX : 02h 30h 31h 52h 43h 57h 54h 53h 4Eh 50h 32h 2Bh 30h 30h 31h 32h 33h 34h 6Bh 67h 03h	21 Byte
	State 1: O(Overloaded), S(Stable), U(Unstable) State 2: N(Net Weight), G(Gross Weight)	
Current Weight (Memory)		
Transmit	Format : STX(1) ID(2) RCWD(4) ETX(1) ASCII : STX 01RCWD ETX HEX : 02h 30h 31h 52h 43h 57h 44h 03h	8 Byte
Respond	Format : STX(1) ID(2) RCWD(4) P(1) Decimal Point(1) Date(6) Time(6) Part Number(2) Weighing Count(6) Mark(1) Tare Weight(6) Mark(1) Current Weight(6) Unit(2) ETX(1) ASCII : STX 01RCWDP2171101123035010123 45+012345+012345kg ETX HEX : 02h 30h 31h 52h 43h 57h 44h 50h 32h 31h 37h 31h 31h 30h 31h 31h 32h 33h 30h 33h 35h 30h 31h 30h 31h 32h 33h 34h 35h 2Bh 30h 31h 32h 33h 34h 35h 2Bh 30h 31h 32h 33h 34h 35h 6Bh 67h 03h	46 Byte
Sub-total		
Transmit	Format : STX(1) ID(2) RSUB(4) ETX(1) ASCII : STX 01RSUB ETX HEX : 02h 30h 31h 52h 53h 55h 42h 03h	8 Byte
Respond	Format : STX(1) ID(2) RSUB(4) P(1) Decimal Point(1) Part Number(2) Sub-total Count(6) Sub-total(10) Unit(2) ETX(1) ASCII : STX 01RSUBP201012345 0123456789kg ETX HEX : 02h 30h 31h 52h 53h 55h 42h 50h 32h 30h 31h 30h 31h 32h 33h 34h 35h 30h 31h 32h 33h 34h 35h 36h 37h 38h 39h 6Bh 67h 03h	30 Byte

Total		
Transmit	Format : STX(1) ID(2) RGRD(4) ETX(1) ASCII : STX 01RGRD ETX HEX : 02h 30h 31h 52h 47h 52h 44h 03h	8 byte
Respond	Format : STX(1) ID(2) RGRD(4) P(1) Decimal Point(1) Total Count(6) Total(10) Unit(2) ETX(1) ASCII : STX 01RGRDP2012345O123456789kg ETX HEX : 02h 30h 31h 52h 47h 52h 44h 50h 32h 30h 31h 32h 33h 34h 35h 30h 31h 32h 33h 34h 35h 36h 37h 38h 39h 6Bh 67h 03h	28 byte
Sub-total Count		
Transmit	Format : STX(1) ID(2) RSNO(4) ETX(1) ASCII : STX 01RSNO ETX HEX : 02h 30h 31h 52h 53h 4Eh 4Fh 03h	8 Byte
Respond	Format : STX(1) ID(2) RSNO(4) Sub-total Count(6) ETX(1) ASCII : STX 01RSNO012345 ETX HEX : 02h 30h 31h 52h 53h 4Eh 4Fh 30h 31h 32h 33h 34h 35h 03h	14 Byte
Time		
Transmit	Format : STX(1) ID(2) RTIM(4) ETX(1) ASCII : STX 01RTIM ETX HEX : 02h 30h 31h 52h 54h 49h 4Dh 03h	8 Byte
Respond	Format : STX(1) ID(2) RTIM(4) Time(6) ETX(1) ASCII : STX 01RTIM123035 ETX HEX : 02h 30h 31h 52h 54h 49h 4Dh 31h 32h 33h 30h 33h 35h 03h	14 Byte
Date		
Transmit	Format : STX(1) ID(2) RDAT(4) ETX(1) ASCII : STX 01RDAT ETX HEX : 02h 30h 31h 52h 44h 41h 54h 03h	8 Byte
Respond	Format : STX(1) ID(2) RDAT(4) Date(6) ETX(1) ASCII : STX 01RDAT171101 ETX HEX : 02h 30h 31h 52h 44h 41h 54h 31h 37h 31h 31h 30h 31h 03h	14 Byte

Tare Weight		
Transmit	Format : STX(1) ID(2) RTAR(4) ETX(1) ASCII : STX 01RTAR ETX HEX : 02h 30h 31h 52h 54h 41h 52h 03h	8 Byte
Respond	Format : STX(1) ID(2) RTAR(4) P(1) Decimal Point(1) Mark(1) Tare Weight(6) ETX(1) ASCII : STX 01RTARP2+012345 ETX HEX : 02h 30h 31h 52h 54h 41h 52h 50h 32h 2Bh 30h 31h 32h 33h 34h 35h 03h	17 Byte
Current Part Number		
Transmit	Format : STX(1) ID(2) RPNO(4) ETX(1) ASCII : STX 01RPNO ETX HEX : 02h 30h 31h 52h 50h 4Eh 4Fh 03h	8 Byte
Respond	Format : STX(1) ID(2) RPNO(4) Part Number(2) ETX(1) ASCII : STX 01RPNO01 ETX HEX : 02h 30h 31h 52h 50h 4Eh 4Fh 30h 31h 03h	10 Byte
Weighing Completion Value		
Transmit	Format : STX(1) ID(2) RFIN(4) ETX(1) ASCII : STX 01RFIN ETX HEX : 02h 30h 31h 52h 46h 49h 4Eh 03h	8 Byte
Respond	Format : STX(1) ID(2) RFIN(4) P(1) Decimal Point(1) Mark(1) Weighing Completion Value(6) ETX(1) ASCII : STX 01RFINP2+012345 ETX HEX : 02h 30h 31h 52h 46h 49h 4Eh 50h 32h 2Bh 30h 31h 32h 33h 34h 35h 03h	17 Byte
Current Weight, INPUT, OUTPUT		
Transmit	Format : STX(1) ID(2) RWRS(4) ETX(1) ASCII : STX 01RWRS ETX HEX : 02h 30h 31h 52h 57h 52h 53h 03h	8 Byte
Respond	Format : STX(1) ID(2) RWRS(4) P(1) Decimal Point(1) Mark(1) Current Weight(6) External Input (6) Relay Out(7) ETX(1) ASCII : STX 01RWRSP2+0123450000001111010 ETX HEX : 02h 30h 31h 52h 57h 52h 53h 50h 32h 2Bh 30h 31h 32h 33h 34h 35h 30h 30h 30h 30h 30h 30h 31h 31h 31h 31h 30h 31h 30h 03h	30 Byte

6-2-2. Write Mode

Error Code	
0 : Normal	1 : Checksum error
2 : Transmitted data length error	3 : Received data length error
4 : Write-protection error (during running)	

Zero Setting			
Transmit	Format : STX(1) ID(2) WZER(4) ETX(1) ASCII : STX 01WZER ETX HEX : 02h 30h 31h 57h 5Ah 45h 52h 03h		8 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	
Tare Setting			
Transmit	Format : STX(1) ID(2) WTAR(4) ETX(1) ASCII : STX 01WTAR ETX HEX : 02h 30h 31h 57h 54h 41h 52h 03h		8 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	
Tare Reset			
Transmit	Format : STX(1) ID(2) WTRS(4) ETX(1) ASCII : STX 01WTRS ETX HEX : 02h 30h 31h 57h 54h 52h 53h 03h		8 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	

<table>
<tr><th colspan="4">Hold Setting</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WHOL(4) ETX(1)
ASCII : STX 01WHOL ETX
HEX : 02h 30h 31h 57h 48h 4Fh 4Ch 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Hold Reset</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WHRS(4) Part Number(2) ETX(1)
ASCII : STX 01WHRS ETX
HEX : 02h 30h 31h 57h 48h 52h 53h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Print</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WPRT(4) ETX(1)
ASCII : STX 01WPRT ETX
HEX : 02h 30h 31h 57h 50h 52h 54h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
</table>

<table>
<tr><th colspan="4">Print Sub-total</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WSPR(4) ETX(1)
ASCII : STX 01WSPR ETX
HEX : 02h 30h 31h 57h 53h 50h 52h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Delete Sub-total</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WSTC(4) ETX(1)
ASCII : STX 01WSTC ETX
HEX : 02h 30h 31h 57h 53h 54h 43h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Total Print</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WGPR(4) ETX(1)
ASCII : STX 01WGPR ETX
HEX : 02h 30h 31h 57h 47h 50h 52h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
</table>

<table>
<tr><th colspan="4">Delete Total</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WGTC(4) ETX(1)
ASCII : STX 01WGTC ETX
HEX : 02h 30h 31h 57h 47h 54h 43h 03h</td><td>8
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Time Setting</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WTIM(4) TIME(6) ETX(1)
ASCII : STX 01WTIM123035 ETX
HEX : 02h 30h 31h 57h 54h 49h 4Dh 31h 32h 33h 30h 33h 35h 03h</td><td>14
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
<tr><th colspan="4">Date Setting</th></tr>
<tr><td>Transmit</td><td colspan="2">Format : STX(1) ID(2) WDAT(4) DATE(6) ETX(1)
ASCII : STX 01WDAT171101 ETX
HEX : 02h 30h 31h 57h 44h 41h 54h 31h 37h 31h 31h 30h 31h 03h</td><td>14
Byte</td></tr>
<tr><td rowspan="2">Respond</td><td>Normal</td><td>Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1)
ASCII : STX 01 ACK 0 ETX
HEX : 02h 30h 31h 06h 30h 03h</td><td rowspan="2">6
Byte</td></tr>
<tr><td>Error</td><td>Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1)
ASCII : STX 01 NAK 2 ETX
HEX : 02h 30h 31h 15h 32h 03h</td></tr>
</table>

Part Number Change			
Transmit	Format : STX(1) ID(2) WPNO(4) Part Number(2) ETX(1) ASCII : STX 01WPNO10 ETX HEX : 02h 30h 31h 57h 50h 4Eh 4Fh 31h 30h 03h		10 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	
Run			
Transmit	Format : STX(1) ID(2) WSTR(4) ETX(1) ASCII : STX 01WSTR ETX HEX : 02h 30h 31h 57h 53h 54h 52h 03h		8 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	
Stop			
Transmit	Format : STX(1) ID(2) WSTP(4) ETX(1) ASCII : STX 01WSTP ETX HEX : 02h 30h 31h 57h 53h 54h 50h 03h		8 Byte
Respond	Normal	Format : STX(1) ID(2) ACK(1) ERROR(1) ETX(1) ASCII : STX 01 ACK 0 ETX HEX : 02h 30h 31h 06h 30h 03h	6 Byte
	Error	Format : STX(1) ID(2) NAK(1) ERROR(1) ETX(1) ASCII : STX 01 NAK 2 ETX HEX : 02h 30h 31h 15h 32h 03h	

※ How to calculate CHECK SUM

Check sum is a remainder when Sum of HEX value of the data from STX to ETX and the value is into 100.

ex) The sum HEX value from STX to ETX(02,30,31,52,43,57,54,03) is 1A6h.

Then, divide 1A6h by 100h(1A6h/100h) and the remainder is A6h.

This value is converted to ASCII and transferred to 41(A) 36(6).

Command Judgement of Command mode judges and outputs 06h(ACK) and 15h(NAK), Error code between the data which starts with 02h(STX) and ends with 03h(ETX)

6-3. Modbus

- RO : Read Only
- RW : Read Write
- Setting value for Each Part Number cannot be over Max Capacity
  ex) If you want to set 35.00kg, input 3500 (0xDAC)
- Input 6 digits to set Date and Time
  ex) Input 140101 (0x22345) for 2014 January 1st
  Input 155017 (0x25D89) for 3:50:17 pm
- Refer to Memory Register Table below for lamp, error, digital input, standard key, special key.
- Modbus Function Codes
  '03' (0x03) : Read Holding Registers
  '04' (0x04) : Read Input Registers
  '06' (0x06) : Write Single Registers
  '16' (0x10) : Write Multiple Registers

6-3-1. Data Address Map

Contents	Address		Length	Feature
Decimal Point	191	0xBF	1	R
Current Weight	194	0xC2	2	R
Tare Weight	196	0xC4	2	R
Key Input Tare Weight	198	0xC6	2	R/W
Measured Weight	200	0xC8	2	R
Hold Weight	202	0xCA	2	R
External Input	204	0xCC	2	R
Lamp	206	0xCE	2	R
Error	208	0xD0	2	R
Weighing Count Of Current P/N	214	0xD6	2	R
Cumulative Weight of Current P/N	216	0xD8	2	R
Total Count	218	0xDA	2	R
Total	220	0xDC	2	R
P/N 1 Weighing Count	222	0xDE	2	R
P/N 1 Cumulative Weight	224	0xE0	2	R
P/N 2 Weighing Count	226	0xE2	2	R

Contents	Address		Length	Feature
P/N 2 Cumulative Weight	228	0xE4	2	R
~				
P/N 50 Weighing Count	418	0x1A2	2	R
P/N 50 Cumulative Weight	420	0x1A4	2	R
Date	422	0x1A6	2	R
Time	424	0x1A8	2	R
Key	426	0x1AA	1	R/W
P/N	429	0x1AD	1	R/W

6-3-2. External Input Data Map

1bit	2bit	3bit	4bit	5bit	6bit	7bit	8bit
IN 1	IN 2	IN 3	IN 4	IN 5	IN 6		
9bit	10bit	11bit	12bit	13bit	14bit	15bit	16bit

6-3-3. Lamp Data Map

1bit	2bit	3bit	4bit	5bit	6bit	7bit	8bit
Stable	Zero	Tare	Hold				
9bit	10bit	11bit	12bit	13bit	14bit	15bit	16bit
USB	Run						
17bit	18bit	19bit	20bit	21bit	22bit	23bit	24bit
OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	
25bit	26it	27bit	28bit	29bit	30bit	31bit	32bit
	Unit ‘k’	Unit ‘g’	Unit ‘t’				

6-3-4. Key Data Map

0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08
Zero		Tare / Tare Reset	Print	Hold / Hold Reset	Run / Strop		
0x09	0x10	0x11	0x12	0x13	0x14	0x15	0x16
						Run	Stop

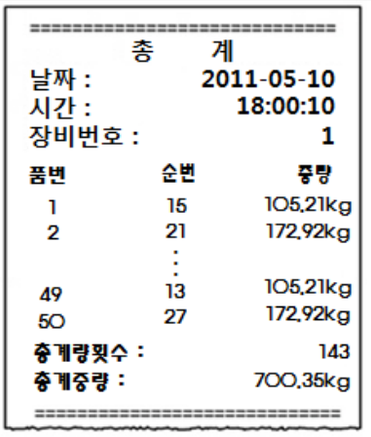
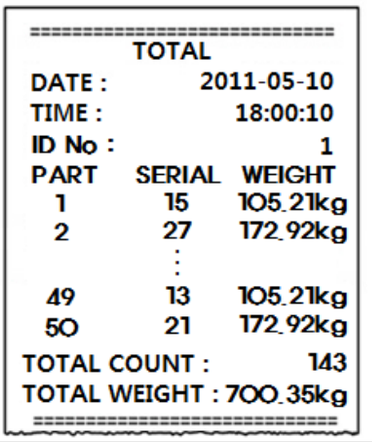
6-3-5. Error Data Map

1bit	2bit	3bit	4bit	5bit	6bit	7bit	8bit
	AD ER	OVER		USB ERR			
9bit	10bit	11bit	12bit	13bit	14bit	15bit	16bit

6-4. Print Format

It can be connect the indicator to all kinds of Serial Interface printers, but recommend you to use SE7200, SE7300 (30 columns) since the print format is programmed and fixed with the models.

	Korean (F120-00)	English (F120-01)
Continuous F121-00	========== 날짜 : 2011-05-10 시간 : 18:00:10 장비번호 : 1 장비 품번 순번 중량 1 10 1 1.330kg 1 10 2 5.350kg 1 10 3 2.358kg	========== DATE : 2011-05-10 TIME : 18:00:10 ID No : 1 ID PART SERIAL WEIGHT 1 10 1 1.330kg 1 10 2 5.350kg 1 10 3 2.358kg
Continuous (Tare weight, Net / Current weight) F121-01	========== 날짜 : 2011-05-10 시간 : 18:00:10 장비 품번 순번 총중량 용기값 순중량 01 01 1 3.000 kg 1.501 kg 1.499 kg 01 01 2 3.024 kg 1.501 kg 1.523 kg 01 01 3 3.039 kg 1.501 kg 1.538 kg	========== DATE : 2011-05-10 TIME : 18:00:10 ID PART SERIAL GROSS WEIGHT TARE WEIGHT NET WEIGHT 01 01 1 3.000 kg 1.501 kg 1.499 kg 01 01 2 3.024 kg 1.501 kg 1.523 kg 01 01 3 3.039 kg 1.501 kg 1.538 kg
Single F121-02	========== 날짜 : 2011-05-10 시간 : 18:00:10 장비번호 : 1 장비 품번 순번 중량 1 10 1 1.330kg ========== 날짜 : 2011-05-10 시간 : 18:00:10 장비번호 : 1 장비 품번 순번 중량 1 10 2 5.350kg	========== DATE : 2011-05-10 TIME : 18:00:10 ID No : 1 ID PART SERIAL WEIGHT 1 10 1 1.330kg ========== DATE : 2011-05-10 TIME : 18:00:10 ID No : 1 ID PART SERIAL WEIGHT 1 10 2 5.350kg
Single (Tare weight, Net / Current weight) F121-03	========== 날짜 : 2011-05-10 시간 : 18:00:10 장비 품번 순번 총중량 용기값 순중량 01 01 1 3.000 kg 1.501 kg 1.499 kg	========== DATE : 2011-05-10 TIME : 18:00:10 ID PART SERIAL GROSS WEIGHT TARE WEIGHT NET WEIGHT 01 01 1 3.000 kg 1.501 kg 1.499 kg
Single Array (Tare weight, Net / Current weight) F121-04	========== 날짜 : 2018-07-16 시간 : 15:40:16 장비 : 1 품번 : 1 순번 : 1 총중량 : 2.99 kg 용기중량 : 1.00 kg 순중량 : 1.99 kg	========== DATE : 2018-07-16 TIME : 15:40:16 ID : 1 PART : 1 SERIAL : 1 GROSS WEIGHT : 2.99 kg TARE WEIGHT : 1.00 kg NET WEIGHT : 1.99 kg

Total	 

Date and Time will be printed when it is number first in spite of Continuous format setting.

6-5. Data Storage Device (USB Memory)

6-5-1. Data Storage Device (USB Memory)

Data storage device saves the weight data according to F102 setting.

USB memory must be set to MBR, FAT16 or FAT32.

1) Weighing Data Format (File name: N + created Date)(ex : N160114)

Save data on USB Memory according to F102 setting.

DATE	TIME	ID	P/N	SERIAL	SP1	SP2	SP3	SP4	GROSS WEIGHT	TARE WEIGHT	NET WEIGHT	UNIT
2016-01-01	12:18:04	1	1	1	100	200	300	400	200	20	180	kg
2016-01-01	12:18:10	1	1	2	100	200	300	400	100	10	90	kg
2016-01-01	12:18:10	1	1	3	100	200	300	400	300	5	295	kg

2) Saved Sub-total Data (File name: S + created Date)(ex : S160114)

Save Sub-total weight data on USB Memory when input “Print Sub-total”

DATE	TIME	ID	P/N	SUB-TOTAL COUNT	SUB-TOTAL WEIGHT	UNIT
2016-01-01	12:00:30	1	1	10	6000	kg
2016-01-01	12:00:30	1	2	10	5000	kg

2) Saved Total data (File name: T + created Date)(ex : T160114)

Save Total weight data on USB Memory when input “Print Total”

DATE	TIME	TOTAL COUNT	TOTAL WEIGHT	UNIT
2016-01-01	12:27:30	17	4620	kg
ID	**PART NO.**	**SUB TOTAL COUNT**	**SUB TOTAL WEIGHT**	**UNIT**
1	1	5	1207	kg
1	2	8	2383	kg
1	3	2	506	kg
1	4	2	524	kg

- Back up the files and format the USB memory regularly since USB Memory has capacity.
- When you mount USB to your PC, a removable disk drive is created on my computer.
- Right-click on the removable disk drive, run the format, select FAT32 in the file system, and press Start.

7. Error and Treatment

7-1. Error during Load Cell Installation

Error	Cause	Treatment	Remark
Weight is unstable	1. Load cell broken 2. Load cell isolation resistance error 3. There is interruption on the weighing part 4. Summing board broken	1. Measure input/output resistance of Load cell. 2. Measure Load cell isolation resistance 3. Change Summing Board 4. Make sure that there is nothing on the scale part.	1. Input Resistance of “EXC+” and “EXC-“ is about 400Ω ±30 2. Output Resistance of “SIG+“ and “SIG-” is about 350Ω ±3.5 3. Isolate Resistance is more than 100MΩ
Weight increases regularly or does not returns to Zero.	1. Load cell error 2. Load cell connection Error	1. Check load cell connection 2. Measure resistance value of load cell	
Weight value is Minus (-)	1. Load cell Output wires (SIG+, SIG-) are switched	1. Check load cell connection	
“UnPAss" displays	1. Load cell broken or Indicator connection error	1. Check load cell 2. Check load cell connection	
	1. Power has been supplied when the scale part is not empty.	1. Remove weight on the load cell	
“-OVER-" displays (OVER LOAD)	1. Load cell broken or Indicator connection Error 2. Weight over Max Capacity	1. Check load cell 2. Check load cell connection 3. Remove overloaded weight	

7-2. Error during Calibration

Display	Treatment
Over Minimum A/D	A/D converting value is over the maximum during calibration.
Under Minimum A/D	A/D converting value is under the minimum during calibration.
Detect vibration	The weight is not stable during calibration.

7-3. Error and Treatment

Following is weighing process error and the indicator cannot measure precise weight in these cases.

Display	Cause	Treatment
“Ad-Er or “-0VER-”	1. Load cell broken 2. Load cell cable broken 3. Load cell connection Error 4. A/D Board Error 5. Analogue value over 1,040,000. ※ “-OVER-” displays as well if the current value is over the absolute value of Max Capacity. Ex) Max Capacity is “100” and current weight is uner “-100” : “-OVER-” shows up.	1. Check load cell input digital value on Test mode 1. If this value does not change, check load cell and connection condition first. 2. Check weight value error with another indicator. 3. Check A/D converting board error with another indicator. 4. Check Power cable 5. Check load cell terminal
“UnPAss”	1. Power has been supplied when the scale part is not empty. ※ F101-00 : “UnPAss” displays when power has been supplied though there is load of 10% of Max Capacity on the scale part. ※ F101-01 : Indicator saved previous zero value so it normally works with the load on the scale part not showing “UnPAss”.	1. Make sure that the weighing part is empty before turn on the power. 2. Set F101-01(Back-up) so that the indicator can remember first empty value.
“FAULT”	“FAULT” on the display or continuous beep – Hard ware error	Please contact the distributor or the Head Office.

7-4. Firmware Update

1) Change the name of update file as “Update.bin” and save it to FAT32 USB.
2) While pressing Clear button for several seconds, Supply power to the indicator.
   ※ If it does not enter to Update mode, repeat Step 2).
3) left STEADY Lamp flickers, Input USB to the port of the indicator.
4) Remove USB when HOLD, RUN, TX, RX Lamp are on at the same time.
5) Reboot automatically.

※ If TARE Lamp is on, check USB of update file and try step 2) again.

※ If you remove USB or turn off the indicator while updating, the system may not work properly.

Warranty Certification

This product passed strict quality test of SEWHACNM Co., LTD.

If there is a defect of manufacturing or abnormal detection within warranty period, please contact our agent or distributor with this Warranty Certification so that you can get the product repaired or replaced.

Warranty Clause

1. The warranty period is one(1) year from your purchase date.

2. Warranty Exemption Clause

- Warranty period expired
- Mal-function caused by repairmen, modification, etc without any authorization of the Headquarter.
- Mal-function caused by user's carelessness
- Mal-function caused by distribution of non-authorized distributor or agent
- Mal-function cased since user did not follow the precautions.
- Mal-function or defection caused by Fore Majeur
- Without presentation of this Warranty Certification

3. Other

- Warranty Certification without authorized stamp is invalid.

Main office: **SEWHACNM Co.,Ltd.**

#504, 302dong, 397, Seokcheon-ro, Ojeong-gu,

Bucheon-si, Gyeonggi-do, Korea

Tel : +82 32-624-0060

Fax : +82 32-624-0065

E-mail : sales@sewhacnm.co.kr

Homepage : http://www.sewhacnm.co.kr

Made in KOREA

Product	Digital Weighing Indicator
Model	SI240
Serial No.	
AUTHORIZED STAMP