

CE

Approved for Digital
Weigh Indicator

Digital Weighing Indicator SI 250 & SI 310

Instruction Manual



 **SEWHACNM**
주식회사 세화씨엔엠

CONTENTS

1. Before Installation	-----	3 Page
2. Introduction	-----	4 Page
3. Specification	-----	6 Page
3-1. Specification	-----	6 Page
3-2. Front Panel	-----	8 Page
3-3. Connector	-----	11 Page
3-4. Composition	-----	13 Page
4. Installation	-----	14 Page
4-1. Dimension & Cutting Size	-----	14 Page
4-2. Load Cell Installation	-----	15 Page
5. Set up	-----	16 Page
5-1. Set Up mode	-----	16 Page
5-2. TEST Weight Calibration Mode	-----	17 Page
5-3. F-FUNCTION Setting	-----	19 Page
5-4. Test Mode	-----	30 Page
6. Interface	-----	32 Page
6-1. Serial Interface	-----	32 Page
6-2. Serial Print	-----	41 Page
7. Error & Treatment	-----	42 Page
Warrantee Certificate	-----	45 Page

1. BEFORE INSTALLATION

Caution / Warning Marks



This mark warns the possibility to arrive death or serious injury in case of wrongly used.



This mark cautions the possibility to arrive serious human body injury or product lose in case of wrongly used.

Copy Rights

1. All Right and Authority for this Manual is belonged to SEWHA CNM CO., LTD.
2. Any kinds of copy or distribution without permission of SEWHA CNM CO., LTD. will be prohibited.
3. This manual may be changed as the version is upgraded, without previous notice.

Inquiries

If you have any kinds of inquiries for this model, please contact your local agent or Head Office.

Head Office : SEWHA CNM CO., LTD.

Website : <http://www.sewhacnm.co.kr>

Email : sales@sewhacnm.co.kr

2. INTRODUCTION

Introduction

Thank you for your choice of this SI250 & SI310 Industrial Digital Weighing Indicator.

This SI250 & SI310 model is high-performance weighing Indicator.

Please review and learn this instruction Manual and enjoy your process efficiency with "SI250 & SI310" Weighing Indicator.



Cautions

1. Don't drop on the ground and avoid serious external damage on item.
2. Don't install under sunshine or heavy vibrated condition.
3. Don't install place where high voltage or heavy electric noise condition.
4. When you connect with other devices, please turn off the power of item.
5. Avoid from water damage.
6. For the improvement of function or performance, we can change item specification without previous notice or permission.
7. Item's performance will be up-dated continuously base on previous version's performance.

Features

1. SI250 & SI310 model is the standard 1/8 DIN SIZE and compact enough, so it is easy to install.
2. It has wide range of DC Input.
3. Front panel is covered with Polycarbonate film, strong against dust and water.
4. RS-422/485 serial port standard installed,

Product Guide

1. This product consists of the indicator (SI250) and display (SI310).
2. Indicator (SI250) and display (SI310) is connected by wireless communication.
Through the product's ID (F101-xx) can connect the communication between the products.
3. SI310 also has Indicator function like a calibration, user can easily set the weight.



3. SPECIFICATION

3-1-1. Specification(SI250)

Content		Specification	
Performance	External Resolution	1/20,000	
	Internal Resolution	1/2,097,152 ($\pm 1,048,576$)	
	Input Sensitivity	0.1 μ V/V	
	Max. Signal Input Voltage	3.0 mV/V	
	Load cell Excitation	DC +5V	
	A/D Conversion Method	Sigma-Delta	
	Decimal Point	0, 0.0, 0.00, 0.000	
	Drift	Offset	10PPM/ $^{\circ}$ C
		Span	10PPM/ $^{\circ}$ C
	Linearity	0.001% of Full Scale	
Analogue Sampling(sec)	60times / sec		
Environment	Operating Temperature Range	-10 $^{\circ}$ C ~ +40 $^{\circ}$ C [14 $^{\circ}$ F ~ 104 $^{\circ}$ F]	
	Operation Humidity Range	40% ~ 85% RH, Non-condensing	
Function	Calibration Mode	Test Weight Calibration Mode Simulation Calibration Mode	
	Display	7segment 6 digit, 0.36 inch Red Color FND	
	Key Pad	6EA Key including CAL key	
Comm	Serial Interface	RS-485 447MHz Wireless Communication	
Power	DC12V 3.3A Involve 6V 4Ah (Provide Adapter)		
Size	190mm(W) x 124mm(H) x 122mm(D)	Weight : 2.0kg	

3-1-2. Specification(SI310)

Content		Specification
Environment	Operating Temperature Range	-10°C ~ +40°C [14°F ~ 104°F]
	Operation Humidity Range	40% ~ 85% RH, Non-condensing
Function	Calibration Mode	Test Weight Calibration Mode Simulation Calibration Mode
	Display	7segment 6 digit, 1 inch(25mm) Red Color FND
	Key Pad	7EA Key including CAL key
Comm	Serial Interface	RS-232C, Current Loop 447MHz Wireless Communication
Power	DC12V 3.3 Involve 6V 7Ah (Provide Adapter)	
Size	190mm(W) x 124mm(H) x 122mm(D)	Weight : 2.0kg

3-2. Front Panel






3-2-1 Front Panel (Display / Key Pad)



3-2-2. State Lamp



Display	Meaning
STEADY	When the weight is "STEADY", Lamp is ON.
ZERO	When the current weight is "ZERO", Lamp is ON.
TARE	"TARE" function is set, Lamp is ON.
HOLD	"HOLD" function is set, Lamp is ON.
TxD	When the Indicator transmits Serial communication data (Print data), Lamp is ON.
RxD	When the Indicator receives Serial communication data, Lamp is ON.
F	When the "F" key is working, Lamp is ON.

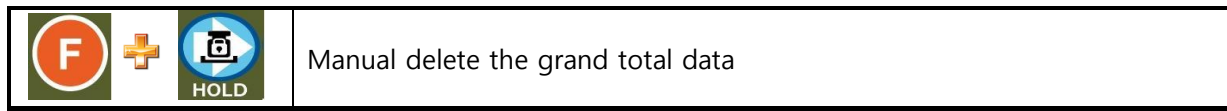
3-2-3. Key Operation


	<ol style="list-style-type: none"> 1. Normal Mode : Make Weight value as Zero. (F07, F08 setting) 2. Calibration Mode : Cancel the value or move to previous step.
	<ol style="list-style-type: none"> 1.Normal Mode : Set the TARE Function .(F09 setting) 1 time input : "TARE", 2 times input : "TARE Reset" (When "HOLD" or weight value is ZERO, then this key doesn't work.) 2.Calibration Mode : Move to left 3.F-Function setting : Move to left 4.Test Mode 1 : Analog value check mode
	<ol style="list-style-type: none"> 1. To set the "HOLD" Function (refer F10) [1st input : "HOLD", 2nd input : "HOLD Reset"] 2.Calibration Mode : Move to right 3.F-Function setting : Move to right 3. Under "SETUP" Mode, Enter into the "Calibration" Mode. 4.Test Mode 1 : Analog Variation value check mode
	<ol style="list-style-type: none"> 1. Normal Mode : Print out (refer F38, F32) 2.Calibration Mode :Increase set value 3.F-Function setting : Increase set value 4. Set up Mode : Enter Test Mode. <p>※ If the printer is installed, under "F01-01 setting, when you press this key the current valued is increased. And the current weight is saved and print out, altogether. (Refer to CH.5-4)</p>
	<ol style="list-style-type: none"> 1. Press this key 4times, within 2secs, enter "SET-UP" mode. 2.F-Function setting : Save the value go to next step

- Setup Mode :It is a mode can SET UP the calibration, Function of SI250 & SI310.
(refer to CH5. SET UP)

3-2-4. Hot key (with F key)

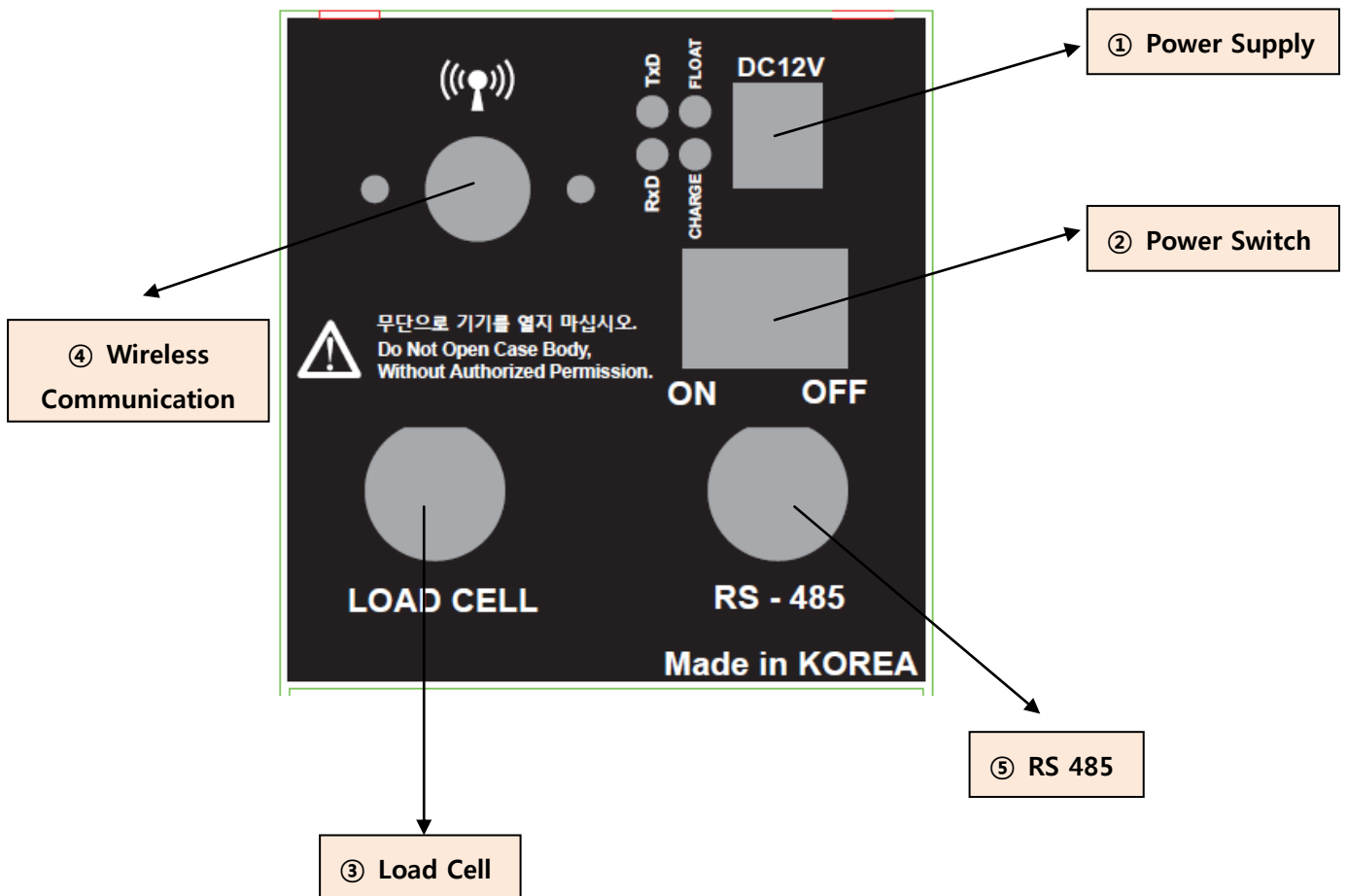
	<p>Continuous "TARE" setting (From the second TARE setting, use this key)</p>
	<p>If the Printer is installed, You can print out the "Grand-total data". (GRAND-total data can be checked though Print output).</p>



 Max. accumulated weighing count : 999,999times Over 999,999times → return to "0" time
Max. accumulated weight display : 999999999 (g, kg, ton)
Over 999,999,999 (g, kg, ton) → return to "0" (g, kg, ton)

3-3. Connector

3-3-1. SI250



① Power Supply : DC 12V , 1A

② Power Switch

③ Load Cell

Terminal	1	2	3	4	5
Load Cell	EXC+	EXC-	SIG+	SIG-	SHEILD

④ Wireless Communication

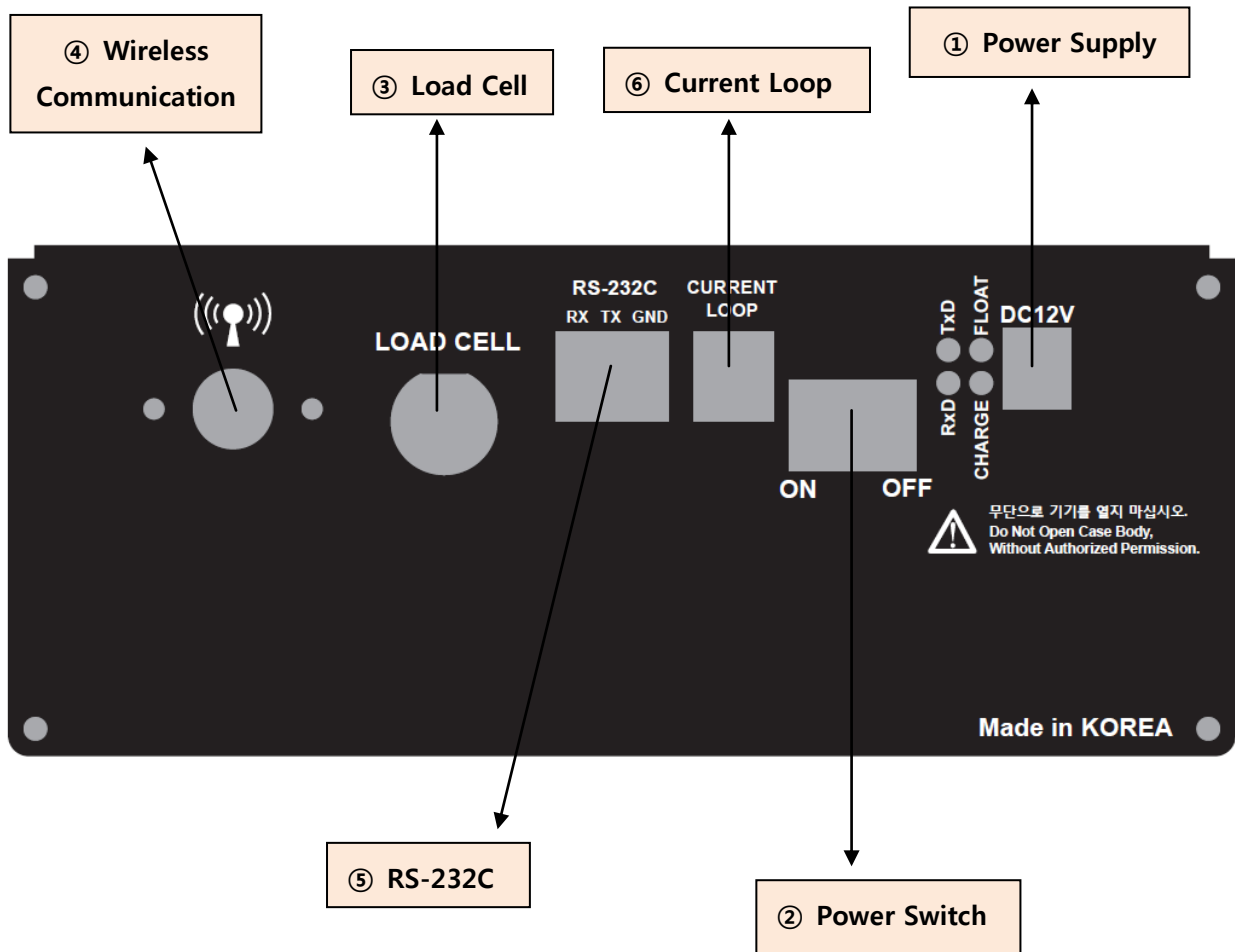
A. Transmission Power : +10dB

B. Frequency (MHz) : 447.2625MHz BAND / 447.8625 MHz BAND

⑤ RS 485

Terminal	1	2	3	4	Note
RS - 485	D+	D-	None	None	Option

3-3-2. SI 310



① Power Supply : DC 12V , 1A

② Power Switch

③ Load Cell

Terminal	1	2	3	4	5
Load Cell	EXC+	EXC-	SIG+	SIG-	SHEILD

④ Wireless Communication

A. Transmission Power : +10dB

B. Frequency (MHz) : 447.2625MHz BAND / 447.8625 MHz BAND

⑤ RS-232C






Terminal	Rx	Tx	GND
RS - 232C	Tx	Rx	GND

⑥ Current Loop

No Polarity



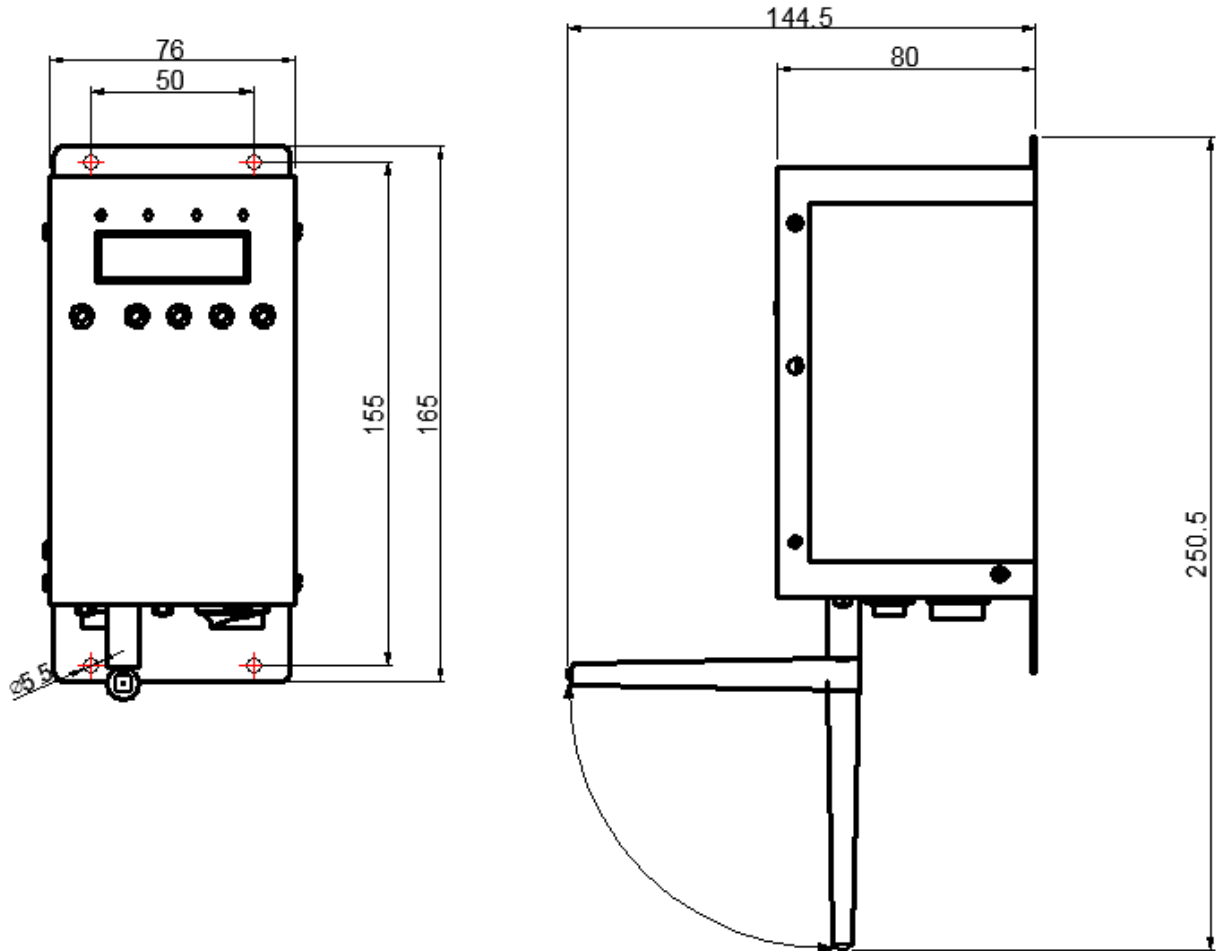
3-4. Composition

SI250 & SI310	Adapter	Side Bolt	Terminal Pin	Manual
 <p>Two digital weighing indicators are shown side-by-side. The one on the left is model SI250 and the one on the right is model SI310. Both have a red LED display showing 'SEt-UP' and several control buttons below the display.</p>	 <p>A black power adapter with a power cord attached. The label on the adapter includes technical specifications and safety warnings.</p>	 <p>Two black plastic side bolts with a red circular center, used for mounting the indicator to a surface.</p>	 <p>A set of ten silver metal terminal pins, arranged in two rows of five, used for connecting the indicator to a scale.</p>	 <p>The user manual cover for the SI 250 & SI 310. It features the CE mark, the product name, and the title '설치 매뉴얼' (Installation Manual). A small image of the indicator is also present on the cover.</p>

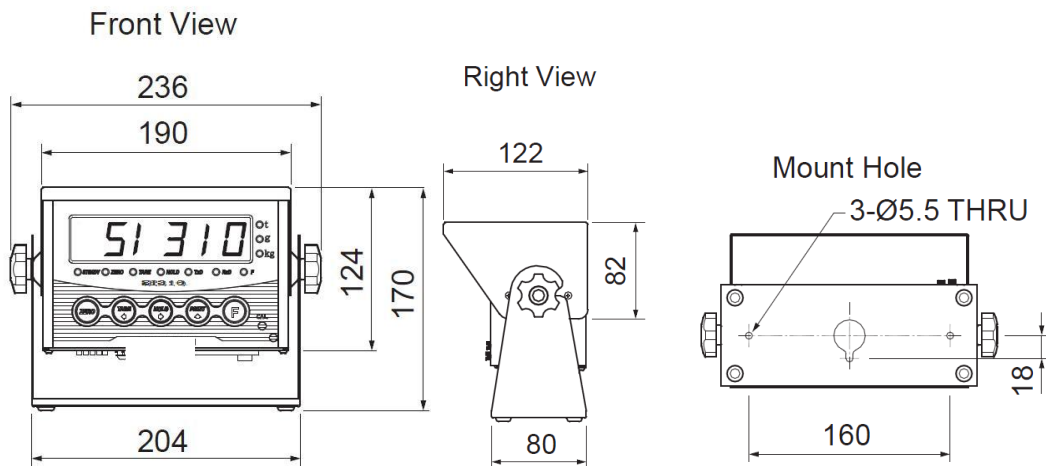
4. INSTALLATION

4-1. External Dimension & Cutting Size

1) SI250



2) SI310



4-2 Load cell Installation

Load Cell Wire Connection (In case of SEWHACNM's Load cell)

It depends on the manufacturer of load cell, please check the specification.



-----Sewhacnm Co.,Ltd. Load cell & wire color----

※ Load cell wire color can be changed without prior notice.

Load Cell Installation


1. You can connect Max. 8pcs of same capacity Load cells at once. (350 Ω)
2. You have to make horizontal balance on the ground.
3. If you install more than 2pcs of load cells, use Summing box and adjust output signal difference as minimum. It can make wrong weighing process caused by each load cell's variation.
4. If there is some temperature difference around Load cell, it can cause wrong weight measurement.
5. Don't do Welding job or Arc discharge around installation place. But, there is no choice, please disconnect power cable and Load cell cable.
6. If you measure static electricity material, please make earth between down part and up part of Load cell.
7. Under set up the Load cell, if EXC+ and EXC- have a short circuit, It may cause damage in the indicator.(specially analogue board)
8. If you connect other wires to Load cell terminal wrongly, it may cause damage in the analogue board.
9. Before connecting the load cell cable you have to power off and be sure to connect the cable to the terminal correctly.
10. Do not weld near the load cells , Indicators or other devices.






5. SET-UP

5-1. Adjusting “ZERO” Balance (Calibration)









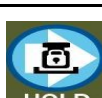








Adjust weight balance between “Real weight” on the load cell (Weight Part) and “Displayed weight of Indicator”. When you replace LOAD CELL or Indicator, you have to Calibrate process once again.



(When you start calibration mode, TARE, HOLD & PRINT function is reset.)

 **Before processing calibration, please warm up the indicator during 15 min to guarantee more preciseness.**

Calibration Key				
				
CANCEL/BACK	Move to left	Move to right	Increase set value	SAVE/NEXT

● **To Go Each Mode**


Calibration	Weight Calibration	CAL key → 
F-FUNCTION MODE		 Key 4 times → 
Test Mode 1	Analog Value	 Key 4 times →  → 
	Serial Interface	 Key 4 times →  → 
	Key test	 Key 4 times →  →   :1,  :2,  :3,  :4,  :Back

- ESC/UPPER step , Entering  , SAVE/NEXT Step, Entering .
- Default is no password. Displaying “P-W” means the password is activated. Please input your pass word.

5-2 Test Weight Calibration Mode (Using test weight)


5-2-1. Starting Test Weight Calibration Mode

CAL 16r

When "CALIBR" is displayed, press . Then Test Weight Calibration Mode will be started.


5-2-2. Max using capacity

CAPA

"When "CAPA" is showed, input max capacity with keys & Press  key to save the data & move to next step.

20

Ex) When max capacity : 20kg, Minimum division : 0.001kg



Input '20' and press  key to save and go to the next step.

5-2-3. "Decimal Point" and "Digit / Division" Value

d 10 1

After "DIVI" is displayed

0.00 1

Select Decimal point & division with  &  key.

Ex) When Max capacity : 20kg, Min division : 0.001kg.

Input '0.001' and press  key to save and move to next step.



Max Decimal point will be 0.001, and digit can be selectable among 1, 2, 5, 10, 20, 50.

Digit and Decimal point must be fulfill the below condition.

(Division value /Max capacity value) cannot be less than **1/20,000**.

If the division is so small compare with max capacity,

Error message " **Err 01** " will be displayed and move back to "CAPA" step again.

5-2-4. Measuring the "DEAD" Weight of Weighing Scale

dEAd

When "DEAD" is displayed, press  key, then indicator will calculate Dead weight of scale part automatically.

CAL-0

Indicator will search "DEAD weight" during 10~20 seconds to find the best condition.

※ To guarantee the preciseness, DEAD weight calculation (CAL00~CAL09) will be operated twice when resolution (Division value /Max capacity value) is less than 1/10,000.



In this step, if there is some force or vibration on weighing scale, and unstable condition will be continued, "ErrorA" will be display, and "DEAD value" will not be calculated.

Please remove all the force or vibration and process it again.

5-2-5. Input Test Weight value and Calculate SPAN value.


SPAN

If "SPAN" is displayed, input "Test Weight" capacity and press  key.

5.000

For example, when the weight of test weight is 5kg, input 5.000

UP


When "UP" is displayed, load your test weight on the scale (weigh bridge) and press  key.

CAL-0

Calculate Span value during 10 ~20 secs, automatically

※ To guarantee the preciseness, SPAN calculation (CAL00~CAL09) will be operated twice when resolution (Division value /Max capacity value) is less than 1/10,000.

0.62923

After calculation, span value will be displayed on the display. Then press  key. ※This span value is not a weight value.

END


When " END" is displayed and calibration is completed.

5-3. F-FUNCTION Setting

This is the Menu which can set the all of the functions.


5-3-1. Start "SET UP" Mode (Pass Word Not use)

SETUP

Press  key four times within 2sec
When "SET UP" is displayed, SETUP Mode is activated .

5-3-2. Start "SET UP" Mode (Pass Word Use – Refer F-function 95)

P-W

Press  key four times within 2sec
If "P-W" displays, input 4 characters password.


SETUP

If Password is right, "SETUP" Mode starts.

Err

If Password is wrong, it is back to weighing display.

No password at factory default.


 If you set password by "F95". "TEST" mode, you cannot start "SETUP" Mode without password. Please don't forget the pass word.
After starting "Calibration" mode, and "Test" mode, serial I/F will be closed.


Starting F-FUNCTION Mode


 Press 4 times → Displaying "SETUP" Press  Key.

F 101-00

A B C

"A" : Make the function number and press  Key.

"B" : Whenever press  key the the function number will increase.

"C" : Make the set value and press  key and save.

5-3-3. F-FUNCTION List(Summary)

F-list	Subject	Contents
101	Equipment No. setting	01~99
102	Weight-Back up Mode	00: Normal mode 01: Weight Back up Mode(Zero) 02: Weight Back up Mode(Zero&Tare)
103	Weighing Data Save Method	00~06
104	Display Up-Date Speed	01: Slow(1 time per 1 sec) ~ 09: Fast(60 times per 1 sec)
105	Auto Power OFF Setting	00 : Disuse 01 : Use
106	Auto Power OFF Time Setting	01~99 (Unit : 1 minute)
107	SI250 Front Key lock (Wireless using mode)	00 : Disuse 01 : Use
110	Weight Unit	00: kg, 01: g, 02: ton
111	Language for print bill	00: Korean, 01: English
201	EMPTY Range	00~999999
202	Auto Zero Range	01~99 (Unit: 0.25 gradation)
203	Steady Range	01~99 (Unit: 0.25 gradation)
204	Steady condition check time	01~99 (Unit: 0.1 sec)
205	Digital Filter	01: Weak vibration ~ 99:Strong vibration
206	Zero key operation mode	00: Always active 01: Active under steady condition only
207	Tare Key operation mode	00: Always active 01: Active under steady condition only
209	Zero key Operation Range	00: Active within 2% of Max Capacity 01: Active within 5% of Max Capacity 02: Active within 10% of Max Capacity 03: Active within 20% of Max Capacity 04: Active within 50% of Max Capacity 05: Active within 100% of Max Capacity 06: No limit
210	Tare key Operation Range	00: Active within 10% of Max Capacity

		01: Active within 20% of Max Capacity 02: Active within 50% of Max Capacity 03: Active within 100% of Max Capacity
211	Auto Zero function under Tare state	00: Disuse, 01: Use
212	Tare Delay Time	00: Disuse, 01 ~ 10: Use (Unit: 1 sec)
214	Tare Removal Timing	00: Manual, 01: Auto at empty range, 02: Auto at steady condition, 03: Auto when finish relay out is off
215	Auto Tare Removal Time	00: Disuse 00 ~ 09: Use (Unit : 1 sec)
216	Hold Mode	00: Sample Hold 01: Peak Hold 02: Average Hold
217	Hold Delay Time	00: Disuse 01~10: Use (Unit: 1 sec.)
218	Hold Removal at the near zero	00: Disuse 01: Use
219	Auto Hold Removal Time	00: Disuse 01~10: Use (Unit: 1 sec)
220	Average Hold Time	01 ~ 99 (Unit: 0.1 sec)
221	Minus (-) Mark Display	00: Use 01: Disuse
222	Under UNPASS/OVERLOAD state, Weight display	00: Display 01: No display
251	Zero state lamp output standard	00: Near Zero 01: Zero
301	Parity / Stop bit	00: Data bit 8, Stop bit 1, Parity bit None 01: Data bit 8, Stop bit 1, Parity bit Odd 02: Data bit 8, Stop bit 1, Parity bit Even 03: Data bit 7, Stop bit 1, Parity bit Odd 04: Data bit 7, Stop bit 1, Parity bit Even
302	Serial Communication Speed	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: 1115,200bps
303	Data transmission mode	00: Simplex / Stream Mode 01: Duplex / Command Mode 02: Print Mode 03: Modbus(RTU)
304	"Check-Sum" under command mode	00: Disuse, 01: Use
305	Data Format under Stream Mode	00: Format 1 01: Format 2 02: Format 3 03: Format 4
306	Date transference under stream mode	00: Continuously 01: Single time on every steady state 02: Single time(finish weighing process) 03: When input "PRINT" key
307	Modbus Transmit Data MSB/LSB location	00: Standard, 01: Change
352	Print Format Setting	00: Continuous Print, 01: Single Print
354	Print Output Delay Time Setting	00~09 (Unit: 1 sec)
355	Paper Withdraw Rate setting (After Continuous/Single Print)	00~09 (Unit: 1 line add)
356	Paper Withdraw Rate setting (After SUB/GRAND Total Print)	00~09 (Unit: 1 line add)
358	Grand total data delete	00: Disuse 01: Use

5-3-4. F-FUNCTION List(Detail)

("●" Factory default)

Equipment No. setting			
101	01	01 ~ 99	ID No. setting with No. key. (01~99 selectable)
Weighing Data Save Method selection			
102		00	Normal mode
		01	Weight Back up Mode(Zero)
	●	02	Weight Back up Mode(Zero&Tare)
Weighing Data Save Method			
103		00	Manual(Whenever "Print" key input)
		01	Auto(At every steady states)
		02	Auto(At the first steady states)
	●	03	Auto(At weighing process finish)
		04	Manual& Auto(At every steady states)
		05	Manual& Auto (At the first steady states)
		06	Manual& Auto(At weighing process finish)
Display Up-Date Speed			
104	09	01 ~ 09	01: Slow(1 time per 1 sec) ~ 09: Fast(60 times per 1 sec)
Auto Power OFF Setting			
105	●	00	Disuse
		01	Use (After auto power off time #106 will off)
Auto Power OFF Time Setting			
106	01	01~99	01~99 (Unit : 1 minute)
Language for print bill			
107	●	00	Disuse
		01	Use
Weight Unit			
110	●	00	kg
		01	g
		02	ton
Language for print bill			
111	●	00	KOREAN
		01	ENGLISH
EMPTY Range			
201	100	0 ~ 999999	You can set "EMPTY" Range.

Auto Zero Range			
202	00	00 ~ 99	Within the "Auto Zero" range, weighing part is steady, indicator will display current weight as "Zero" If the weighing part is not "Steady", indicator will display current weight. (Unit:0.25 gradation)
Steady Range			
203	08	01 ~ 99	During the set time period, estimate weighing part's "STEADY" condition and display. (Unit: 0.25 gradation)
"STEADY" condition check time			
204	10	01 ~ 99	During the set time period, estimate weighing part's "STEADY" condition and display. If you set small value, indicator will take "STEADY" fast, if you set value, indicator will take "STEADY" slow. (Unit: 0.1 sec)
Digital Filter			
205	20	01 ~ 99	01:Weak vibration ~ 99:Strong vibration
Zero key operation			
206	●	00	Always active
		01	Active under steady condition only
Tare Key operation			
207	●	00	Always active
		01	Active under steady condition only
Zero key Operation Range			
209		00	Active within 2% of Max Capacity
		01	Active within 5% of Max Capacity
	●	02	Active within 10% of Max Capacity
		03	Active within 20% of Max Capacity
		04	Active within 50% of Max Capacity
		05	Active within 100% of Max Capacity
		06	No limit .
<p>※ CAUTION: If setting over than 10%, The display weight could be over than Load cell input signal or Max Capacity and it may display "CELL-Err" or incorrect weight value. And It can be the cause of load cell damage.</p>			

Tare key Operation Range			
210		00	Active within 10% of Max Capacity
		01	Active within 20% of Max Capacity
	●	02	Active within 50% of Max Capacity
		03	Active within 100% of Max Capacity
Auto Zero function under Tare state			
211	●	00	Disuse
		01	Use
Tare Delay Time			
212	00	00 ~ 10	00: Disuse 01 ~ 10: Use(Unit: 1 sec)
Tare Removal Timing			
214	●	00	Manual
		01	Auto at empty range
		02	Auto at steady condition
		03	Auto when finish relay out is off
Auto Tare Removal Time			
215	00	00 ~ 09	Set time to tare removal 00: Disuse 01 ~ 09: Use (Unit : 1 sec)
Hold mode			
216	●	00	Sample Hold: Hold current weight until "Hold Reset"
		01	Peak Hold: Measure Max weight value and hold on display.
		02	Average Hold: Hold average value
Hold delay time			
217	00	00 ~ 10	00: Disuse 01 ~ 10: Use(Unit: 1 sec)
Hold Removal at the near zero			
218	●	00	Disuse
		01	Use
Auto Hold Removal Time			
219	00	00 ~ 10	00: Disuse 01 ~ 10: Use(Unit: 1 sec)
Average Hold Time			
220	10	01 ~ 99	Unit: 0.1 sec








Minus (-) Mark Display					
221	●	00	Display		
		01	No display		
Under UNPASS/OVERLOAD state, Weight display					
222	●	00	Display		
		01	No display		
Zero state lamp output standard					
251	●	00	Near Zero		
		01	Zero		
Near zero output Setting Under tare ON state					
253	●	00	Zero Output		
		01	Actual zero output except Tare weight		
Parity / Stop bit					
301	●	00	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Non)
		01	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Odd)
		02	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Even)
		03	DATA Bit (7 Bit)	STOP Bit (1 Bit)	Parity Bit (Odd)
		04	DATA Bit (7 Bit)	STOP Bit (1 Bit)	Parity Bit (Even)
Serial Communication Speed selection					
302		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		
DATA transference Method selection					
303	●	00	Simplex Mode / Stream Mode		
		01	Duplex Mode / Command Mode		
		02	Print Mode		
		03	MODBUS(RTU)		
Command mode "Check Sum" detection selection (F303-01)					
304	●	00	Disuse		




		01	Use
Stream mode DATA Transference Format selection (Refer chapter 6-1-4)			
305	<input checked="" type="radio"/>	00	Format 1 (19byte)
	<input type="radio"/>	01	Format 2 (22byte)
	<input type="radio"/>	02	Format 3 (17byte)
	<input type="radio"/>	03	Format 4 (22byte)
Stream mode Data transference			
306	<input checked="" type="radio"/>	00	Continuously
	<input type="radio"/>	01	Single time on every steady state
	<input type="radio"/>	02	At the first steady point
	<input type="radio"/>	03	Single time(when finish weighing process)
	<input type="radio"/>	04	When input "PRINT" key
Modbus Transmit Data MSB/LSB location			
307	<input checked="" type="radio"/>	00	Standard
	<input type="radio"/>	01	Change
Print Format			
352	<input checked="" type="radio"/>	00	Continuous Print
	<input type="radio"/>	01	Single Print
Print Output Delay Time			
354	00	00 ~ 09	Unit: 1 sec
Paper Withdraw Rate setting(After Continuous/Single Print)			
355	00	00 ~ 09	Unit: 1 line add
Paper Withdraw Rate setting(After SUB/GRAND Total Print)			
356	00	00 ~ 09	Unit: 1 line add
Grand total data delete			
358	<input checked="" type="radio"/>	00	Disuse
	<input type="radio"/>	01	Use

◆ Weighing Data Saving time point and print

Weighing Data Save Method (F-function 103)		Print input (Key, Comm., External input)	Printing out data	Saving Data
00	Manual	○	Current weight	Current weight
		X	X	X
01	Auto: At every steady states	○	Recent Stable weight	X
		X	Steady weight	Steady weight
02	Auto: At the first steady states	○	Recent Stable weight	X
		X	Steady weight	Steady weight
04	Manual& Auto: At every steady states	○	Current weight	Current weight
		X	Steady weight	Steady weight
05	Manual& Auto: At the first steady states	○	Current weight	Current weight
		X	Steady weight	Steady weight
06	Manual / Auto : When weighing is finished	○	Current weight	Current weight
		X	Finish weight	Finish weight

5-3-5. Hidden Option

How to enter Hidden function setting mode : Press  Key during 4sec and input your password. Default password is     (1111). Press  key after input your password. Then show "SET.CAL" on the screen press "" key.

F-LIST	Subject	Default	Contents
HF01	Serial Number Check	-	-
HF03	S/W Version Check	-	Program version check
HF04	H/W Version Check	-	-
HF05	DATE(Y,M,D) Check	-	Able to modify
HF06	TIME(H,M,S) Check	-	Able to modify
HF07	Password Setting (4 digit)	-	1:TARE Key  2:HOLD Key  3:PRINT Key  (Password combination within 1~3)
HF08	Maximum Capacity Weight Check	-	Able to modify
HF13	Analog Output select	00	00:4-20mA Output 01:0-10V Output
HF16	Factory Reset	-	Revert all settings before user changed.
HF20	Program Serial Download	-	-
HF21	Wireless Channel Change(CH1~CH10)	-	-

5-4. Test Mode



Before starting the TEST mode, please remove operating devices.

SETUP

TEST

Press  Key 4 times then SETUP display input  key to start TEST mode.

TEST MODE



ESC / BACK



Analog value
Check Mode



Serial port test mode



Key/Digital Input
Check Mode

5-4-1. Analog Check Mode

Under this mode, you can check analogue value to real digital value through Display. The last digital value can be fluctuated



Press 4 times →



Key →



Key

2 10375

If there is no change although pressing keys or loading some force on/in weighing part, it may something wrong with load cell, cable, connector or A/D board. (-1048575~1048575)

2 10375

12 1037

12 103



Displaying 1~100,000



Displaying 10~1,000,000








Displaying 100~10,000,000

5-4-2. Key / Digital input Test Mode

Under this mode, you can test Key input and Digital Key input test


 Key 4 times →  Key →  Key

				
ESC	1	2	3	4

5-4-3. Serial Interface Test Mode.

This is the mode to check RS232C port.

 Key 4 times →  Key →  Key

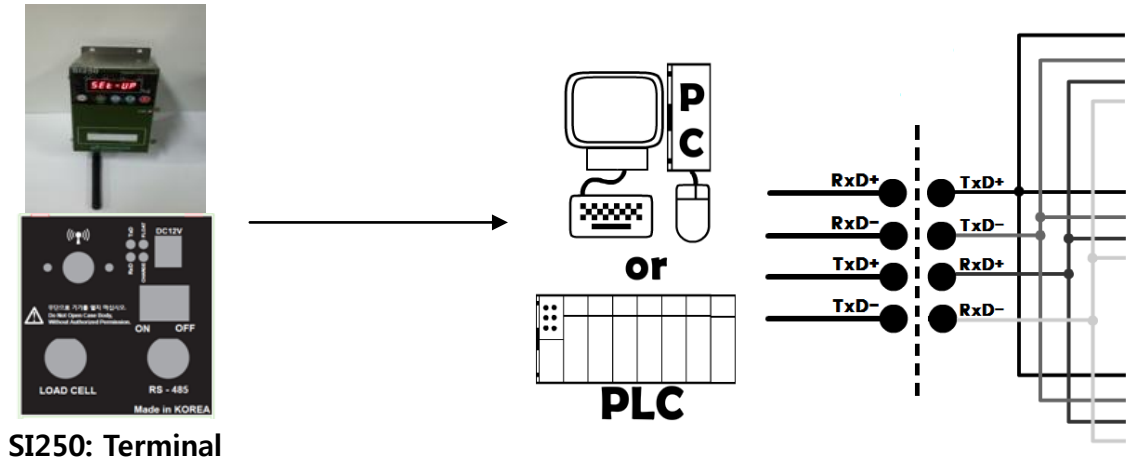
<div style="background-color: black; color: white; padding: 2px; text-align: center; font-weight: bold;">RS-232C</div> <div style="display: flex; justify-content: space-around; font-weight: bold;"> RxD TxD GND </div>	Short between Rxd & Txd of Indicator terminal
COM1	Enter the RS232C test mode and "COM1" is displaying, then press  key
PASS	Displaying "PASS" is that the port works well.
UNPASS	Displaying "UNPASS" means that the port 's IC chip has a problem. Contact your seller or the main office..

※ If you send "Testing protocol" from PC to Indicator, at the normal operation Display will blink.

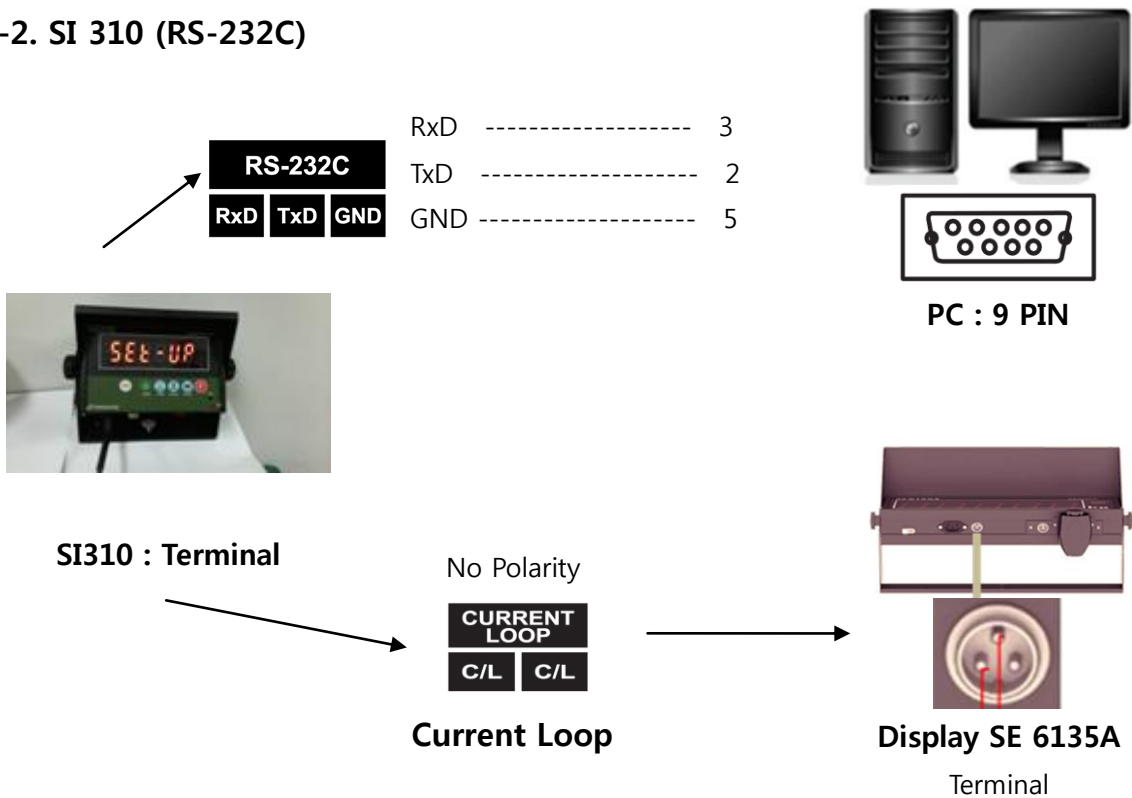
6. Interface

6-1. Serial Interface

6-1-1. SI 250 (RS - 485)



6-1-2. SI 310 (RS-232C)

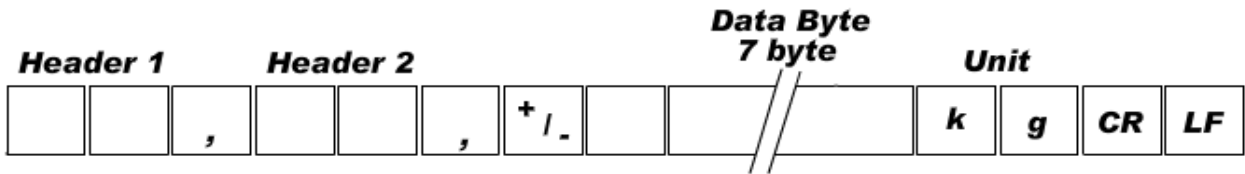


Serial communication interface is sensitive to electric noise.

Install isolated place from Power cable or other electric cables and wires, and please use shielded cable for better performance.

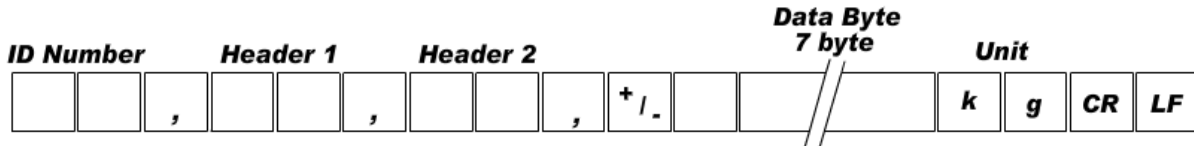
6-1-3. Data Format

1. Data Format1 : ID Number is not be transferred.(Refer "FUNCTION 305-00" setting)



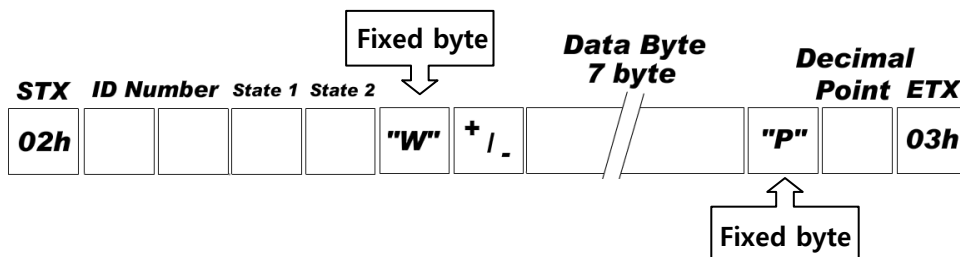
Header1	Header2
OL : OVER LOAD	NT : NET-WEIGHT(Tare is not set)
ST : STEADY	GS : when setting TARE
US : UNSTEADY	

2. Data Format2 : ID Number + Data Transference (Refer F-function 305-01)



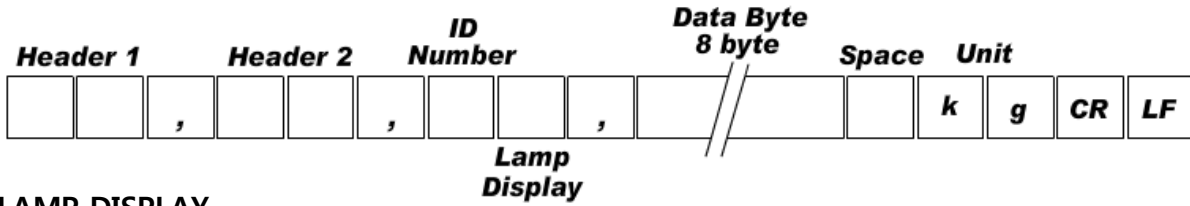
Header1	Header2
OL : OVER LOAD	NT : NET-WEIGHT(Tare is not set)
ST : STEADY	GS : when setting TARE
US : UNSTEADY	

3. Data Format3 : ID Number + State (F305-03 setting)



Header1	Header2
O : OVER	G : Gross weight
S : STEADY	N : Net weight
U : UNSTABLE	

4. CAS Format (305-03 / 22byte)



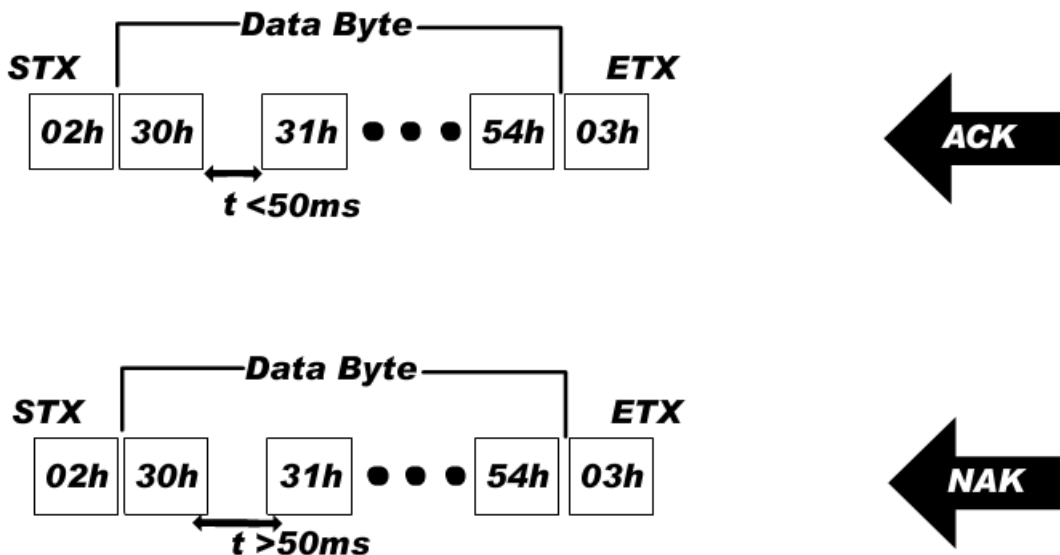
LAMP DISPLAY

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	0	1	1	1	1	1	1
1	STEADY	1	Hold	Print	Gross Weight	TARE	ZERO

Header1	Header2
OL : OVER LOAD	NT : GROSS weight
ST : STEADY	GS : Net weight
US : UNSTEADY	

6-1-4. Command Mode (F303-00 setting)

Under "Command Mode", Indicator will recognize the receipt of Order based on 02h(Header) and 03h(END) signal, and transfers ACK/ NAK).




※Although wrong value is transmitted, the communication format is matched, then ACK is transmitted.

Read Command

1.Current Weight data																																																																																								
ASCII : STX ID(2Byte) RCWT ETX HEX : 02 30 31 52 43 57 54 03																																																																																								
SI250 & SI310 response	STX ID RCWT State1(1byte) State2(1byte) P decimal point(1byte) +/- (1byte) Current weight(7byte) unit(2byte) ETX																																																																																							
	State1 : O(Over load) , S(Steady), U(Unsteady) State2 : N(Net weight), G(Gross weight), P+No. : decimal point number																																																																																							
Ex) Steady(S), TARE not used(N), 0.000kg <u>State1, State2, Decimal point</u>																																																																																								
<table style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>STX</td><td>ID</td><td>R</td><td>C</td><td>W</td><td>T</td><td>S</td><td>N</td><td>P</td><td>3</td><td>+</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>k</td><td>g</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>43h</td><td>57h</td><td>54h</td><td>53h</td><td>4Eh</td><td>50h</td><td>33h</td><td>2Bh</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>6Bh</td><td>67h</td><td>03h</td> </tr> </table>		STX	ID	R	C	W	T	S	N	P	3	+	0	0	0	0	0	0	0	0	0	k	g	ETX	02h	30h	31h	52h	43h	57h	54h	53h	4Eh	50h	33h	2Bh	30h	30h	30h	30h	30h	30h	30h	30h	6Bh	67h	03h																																									
STX	ID	R	C	W	T	S	N	P	3	+	0	0	0	0	0	0	0	0	0	k	g	ETX																																																																		
02h	30h	31h	52h	43h	57h	54h	53h	4Eh	50h	33h	2Bh	30h	30h	30h	30h	30h	30h	30h	30h	6Bh	67h	03h																																																																		
2. Indicator memory data																																																																																								
ASCII : STX ID(2Byte) RCWD ETX HEX : 02 30 31 52 43 57 44 03																																																																																								
SI250 & SI310 response	STX ID RCWD P decimal point(1byte)DATE(6byte) TIME(6byte) the no. of weighing (6byte) +/- TARE(7Byte) +/- current weight(7byte) unit(2byte) ETX																																																																																							
	Ex) DATE : Aug 12 th ,2009, TIME : 12:00:00, the no. of weighing : 10, TARE : 2.000kg, current weight : 3.000kg <u>decimal point</u>																																																																																							
<table style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>STX</td><td>ID</td><td>R</td><td>C</td><td>W</td><td>D</td><td>P</td><td>3</td><td>0</td><td>9</td><td>0</td><td>8</td><td>1</td><td>2</td><td>1</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>43h</td><td>57h</td><td>44h</td><td>50h</td><td>33h</td><td>30h</td><td>39h</td><td>30h</td><td>38h</td><td>31h</td><td>32h</td><td>31h</td><td>31h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>+</td><td>0</td><td>0</td><td>0</td><td>2</td><td>0</td><td>0</td><td>0</td><td>+</td><td>0</td><td>0</td><td>0</td><td>3</td><td>0</td><td>0</td><td>0</td><td>ETX</td> </tr> <tr> <td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>31h</td><td>30h</td><td>2Bh</td><td>30h</td><td>30h</td><td>30h</td><td>32h</td><td>30h</td><td>30h</td><td>30h</td><td>2Bh</td><td>32h</td><td>30h</td><td>30h</td><td>33h</td><td>30h</td><td>30h</td><td>30h</td><td>03h</td> </tr> </table>		STX	ID	R	C	W	D	P	3	0	9	0	8	1	2	1	2	0	0	0	0	02h	30h	31h	52h	43h	57h	44h	50h	33h	30h	39h	30h	38h	31h	32h	31h	31h	30h	30h	30h	30h	0	0	0	0	1	0	+	0	0	0	2	0	0	0	+	0	0	0	3	0	0	0	ETX	30h	30h	30h	30h	31h	30h	2Bh	30h	30h	30h	32h	30h	30h	30h	2Bh	32h	30h	30h	33h	30h	30h	30h	03h
STX	ID	R	C	W	D	P	3	0	9	0	8	1	2	1	2	0	0	0	0																																																																					
02h	30h	31h	52h	43h	57h	44h	50h	33h	30h	39h	30h	38h	31h	32h	31h	31h	30h	30h	30h	30h																																																																				
0	0	0	0	1	0	+	0	0	0	2	0	0	0	+	0	0	0	3	0	0	0	ETX																																																																		
30h	30h	30h	30h	31h	30h	2Bh	30h	30h	30h	32h	30h	30h	30h	2Bh	32h	30h	30h	33h	30h	30h	30h	03h																																																																		
3. Grand Total data																																																																																								
ASCII : STX ID(2Byte) RGRD ETX HEX : 02 30 31 52 43 57 44 03																																																																																								
SI250 & SI310 response	STX ID RGRD P decimal point(1byte) the no. of weighing (6byte) Accumulated weight(10byte) unit(2byte) ETX																																																																																							
	Ex) the no. of weighing : 10 , Accumulated Weight : 10.000kg <u>decimal point</u>																																																																																							
<table style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>STX</td><td>ID</td><td>R</td><td>G</td><td>R</td><td>D</td><td>P</td><td>3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>47h</td><td>52h</td><td>44h</td><td>50h</td><td>33h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>31h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>31h</td><td>30h</td><td>30h</td><td>30h</td><td>30h</td><td>03h</td> </tr> </table>		STX	ID	R	G	R	D	P	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	ETX	02h	30h	31h	52h	47h	52h	44h	50h	33h	30h	30h	30h	30h	31h	30h	30h	30h	30h	31h	30h	30h	30h	30h	03h																																							
STX	ID	R	G	R	D	P	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	ETX																																																																	
02h	30h	31h	52h	47h	52h	44h	50h	33h	30h	30h	30h	30h	31h	30h	30h	30h	30h	31h	30h	30h	30h	30h	03h																																																																	

4.Finished Weight data																																			
ASCII : STX ID(2Byte) RFIN ETX	HEX: 02 30 31 52 46 49 4E 03																																		
SI250 & SI310 response	STX ID RFIN P decimal point(1byte) +/- Finished weight(7byte) ETX																																		
Ex) Finished weight : 2.000kg <u>decimal point</u>																																			
<table border="0"> <tr> <td>STX</td><td>ID</td><td>R</td><td>F</td><td>I</td><td>N</td><td>P</td><td>3</td><td>+</td><td>0</td><td>0</td><td>0</td><td>2</td><td>0</td><td>0</td><td>0</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>46h</td><td>49h</td><td>4Eh</td><td>50h</td><td>33h</td><td>2Bh</td><td>30h</td><td>30h</td><td>30h</td><td>32h</td><td>30h</td><td>30h</td><td>03h</td> </tr> </table>		STX	ID	R	F	I	N	P	3	+	0	0	0	2	0	0	0	ETX	02h	30h	31h	52h	46h	49h	4Eh	50h	33h	2Bh	30h	30h	30h	32h	30h	30h	03h
STX	ID	R	F	I	N	P	3	+	0	0	0	2	0	0	0	ETX																			
02h	30h	31h	52h	46h	49h	4Eh	50h	33h	2Bh	30h	30h	30h	32h	30h	30h	03h																			
5. Current time Data																																			
ASCII : STX ID(2Byte) RTIM ETX	HEX: 02 30 31 52 54 49 4D 03																																		
SI250 & SI310 response	STX ID RTIM Current Time(6byte) ETX																																		
Ex) Time : 12:00:00																																			
<table border="0"> <tr> <td>STX</td><td>ID</td><td>R</td><td>T</td><td>I</td><td>M</td><td>1</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>54h</td><td>49h</td><td>4Dh</td><td>31h</td><td>32h</td><td>30h</td><td>30h</td><td>30h</td><td>03h</td> </tr> </table>		STX	ID	R	T	I	M	1	2	0	0	0	0	ETX	02h	30h	31h	52h	54h	49h	4Dh	31h	32h	30h	30h	30h	03h								
STX	ID	R	T	I	M	1	2	0	0	0	0	ETX																							
02h	30h	31h	52h	54h	49h	4Dh	31h	32h	30h	30h	30h	03h																							
6. Current date Data																																			
ASCII : STX ID(2Byte) RDAT ETX	HEX : 02 30 31 52 44 41 54 03																																		
SI250 & SI310 response	STX ID RDAT Current Date(6byte) ETX																																		
Ex) Date : Aug 12 th ,2009																																			
<table border="0"> <tr> <td>STX</td><td>ID</td><td>R</td><td>D</td><td>A</td><td>T</td><td>0</td><td>9</td><td>0</td><td>8</td><td>1</td><td>2</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>41h</td><td>41h</td><td>54h</td><td>30h</td><td>39h</td><td>30h</td><td>38h</td><td>31h</td><td>03h</td> </tr> </table>		STX	ID	R	D	A	T	0	9	0	8	1	2	ETX	02h	30h	31h	52h	41h	41h	54h	30h	39h	30h	38h	31h	03h								
STX	ID	R	D	A	T	0	9	0	8	1	2	ETX																							
02h	30h	31h	52h	41h	41h	54h	30h	39h	30h	38h	31h	03h																							
7. Tare data																																			
ASCII : STX ID(2Byte) RTAR ETX	HEX : 02 30 31 52 54 41 52 03																																		
SI250 & SI310 response	STX ID RTAR P decimal point(1byte) +/- (1byte) TARE value(7byte) ETX																																		
Ex) TARE : 2.000kg <u>decimal point</u>																																			
<table border="0"> <tr> <td>STX</td><td>ID</td><td>R</td><td>T</td><td>A</td><td>R</td><td>P</td><td>3</td><td>+</td><td>0</td><td>0</td><td>0</td><td>2</td><td>0</td><td>0</td><td>0</td><td>ETX</td> </tr> <tr> <td>02h</td><td>30h</td><td>31h</td><td>52h</td><td>54h</td><td>41h</td><td>52h</td><td>50h</td><td>33h</td><td>2Bh</td><td>30h</td><td>30h</td><td>30h</td><td>32h</td><td>30h</td><td>30h</td><td>03h</td> </tr> </table>		STX	ID	R	T	A	R	P	3	+	0	0	0	2	0	0	0	ETX	02h	30h	31h	52h	54h	41h	52h	50h	33h	2Bh	30h	30h	30h	32h	30h	30h	03h
STX	ID	R	T	A	R	P	3	+	0	0	0	2	0	0	0	ETX																			
02h	30h	31h	52h	54h	41h	52h	50h	33h	2Bh	30h	30h	30h	32h	30h	30h	03h																			

 Recommended Interval of READ COMMAND is min.60ms, 70ms is recommended, under 9600bps setting.

Min.60ms is required between each Read Command(under RCWD)

Min. interval is changed when data's length & speed are changed.

Min Interval : 20ms under 2400bps(RCWD)

Min Interval : 40ms under 115200bps (RCWD)

■ Write Command

Zero (same as "ZERO" key)	
ASCII : STX ID(2Byte) WZER ETX	HEX : 02 30 31 57 5A 45 52 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
TARE	
ASCII : STX ID(2Byte) WTAR ETX	HEX : 02 30 31 57 54 41 52 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
TARE reset	
ASCII : STX ID(2Byte) WTRS ETX	HEX : 02 30 31 57 54 52 53 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
HOLD	
ASCII : STX ID(2Byte) WHOL ETX	HEX : 02 30 31 57 48 4F 4C 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
HOLD reset	
ASCII : STX ID(2Byte) WHRS ETX	HEX : 02 30 31 57 48 52 53 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
PRINT	
When transfer format, "F356" : plus line" and "F304 : checksums are not applied.	
ASCII : STX ID(2Byte) WPRT ETX	HEX : 02 30 31 57 50 52 54 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
PRINT grand total	
ASCII : STX ID(2Byte) WGPR ETX	HEX : 02 30 31 57 47 50 52 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX
Delete grand total	
ASCII : STX ID(2Byte) WGTC ETX	HEX : 02 30 31 57 47 54 43 03
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX

Date setting																													
ASCII : STX ID(2Byte) WDAT current DATE (6byte) ETX																													
Ex) Date : Aug 12 th ,2009																													
<table border="1" style="margin: auto;"> <tr> <td>STX</td> <td>ID</td> <td>W</td> <td>D</td> <td>A</td> <td>T</td> <td>0</td> <td>9</td> <td>0</td> <td>8</td> <td>1</td> <td>2</td> <td>ETX</td> </tr> <tr> <td>02h</td> <td>30h</td> <td>31h</td> <td>57h</td> <td>44h</td> <td>41h</td> <td>54h</td> <td>30h</td> <td>39h</td> <td>30h</td> <td>38h</td> <td>31h</td> <td>32h</td> <td>03h</td> </tr> </table>		STX	ID	W	D	A	T	0	9	0	8	1	2	ETX	02h	30h	31h	57h	44h	41h	54h	30h	39h	30h	38h	31h	32h	03h	
STX	ID	W	D	A	T	0	9	0	8	1	2	ETX																	
02h	30h	31h	57h	44h	41h	54h	30h	39h	30h	38h	31h	32h	03h																
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX																												
Time setting																													
ASCII : STX ID(2Byte) WTIM Time (6byte)ETX																													
Ex) Time : 12:00:00																													
<table border="1" style="margin: auto;"> <tr> <td>STX</td> <td>ID</td> <td>W</td> <td>T</td> <td>I</td> <td>M</td> <td>1</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>ETX</td> </tr> <tr> <td>02h</td> <td>30h</td> <td>31h</td> <td>57h</td> <td>54h</td> <td>49h</td> <td>4Dh</td> <td>31h</td> <td>32h</td> <td>30h</td> <td>30h</td> <td>30h</td> <td>30h</td> <td>03h</td> </tr> </table>		STX	ID	W	T	I	M	1	2	0	0	0	0	ETX	02h	30h	31h	57h	54h	49h	4Dh	31h	32h	30h	30h	30h	30h	03h	
STX	ID	W	T	I	M	1	2	0	0	0	0	ETX																	
02h	30h	31h	57h	54h	49h	4Dh	31h	32h	30h	30h	30h	30h	03h																
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX																												
Change S/N																													
ASCII : STX ID(2Byte) WSNO S/N(6byte)ETX																													
Ex) S/N is changed to 100																													
<table border="1" style="margin: auto;"> <tr> <td>STX</td> <td>ID</td> <td>W</td> <td>S</td> <td>N</td> <td>O</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>ETX</td> </tr> <tr> <td>02h</td> <td>30h</td> <td>31h</td> <td>57h</td> <td>53h</td> <td>4Eh</td> <td>4Fh</td> <td>30h</td> <td>30h</td> <td>30h</td> <td>31h</td> <td>30h</td> <td>30h</td> <td>03h</td> </tr> </table>		STX	ID	W	S	N	O	0	0	0	0	1	0	0	ETX	02h	30h	31h	57h	53h	4Eh	4Fh	30h	30h	30h	31h	30h	30h	03h
STX	ID	W	S	N	O	0	0	0	0	1	0	0	ETX																
02h	30h	31h	57h	53h	4Eh	4Fh	30h	30h	30h	31h	30h	30h	03h																
SI250 & SI310 response	normal: STX ID ACK ETX error: STX ID NAK ETX																												



Recommended Comm. Interval of WRITE COMMAND is Min. 100ms.

Comm. Interval of WPRT is Min.300ms

You have to guarantee Min. 100ms interval between two different commands.

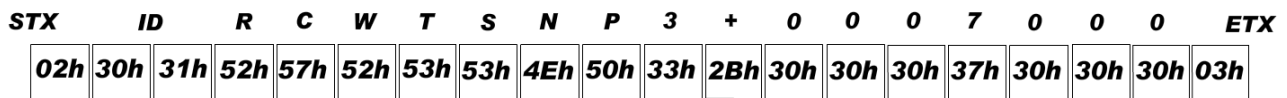
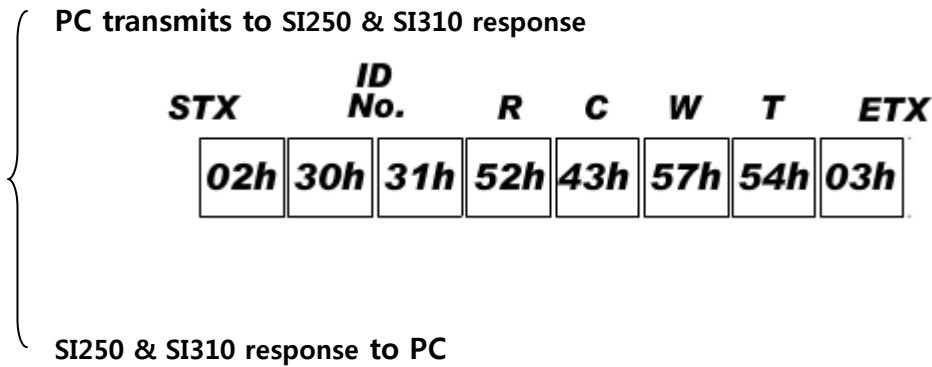
Response for WPRT will be output through Print Port, set by F303-00.

■ Command Mode Example

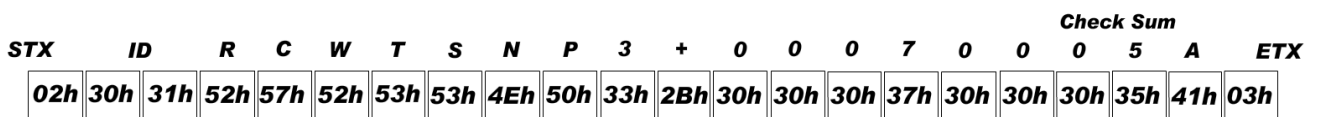
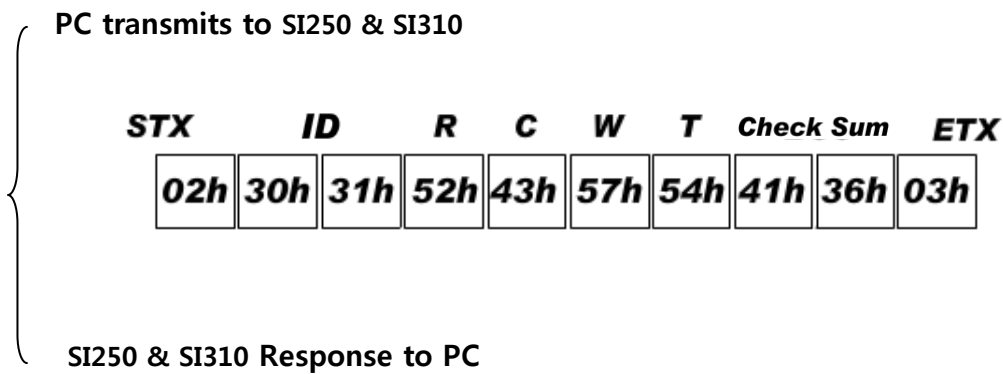
READ COMMAND

Ex.) Current Weight Command(RCWT), ID No. : 01, Current Weight : 7,000kg

1) P.C Read Command Format (STX ID NO. RCWT ETX) "Check-sum" not used.



2) When PC requests to Indicator, Format(STX ID RCWT ETX) CHCEK SUM is used.

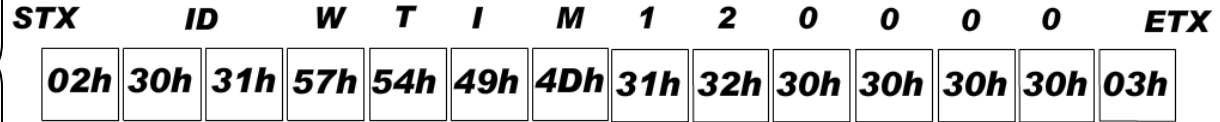


WRITE COMMAND

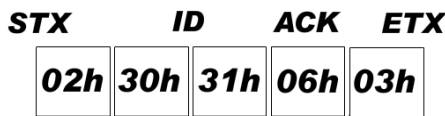
Ex) SP1 Setting Command, ID No : 01, New SP1 Set value : 0.600kg

1) PC Write command format (STX ID WPR1 000.600 ETX) "CHECK SUM" not use.

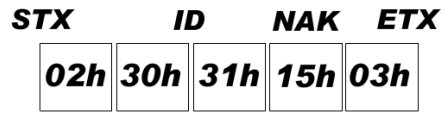
PC transmits to SI250 & SI310



SI250 & SI310 Response to PC



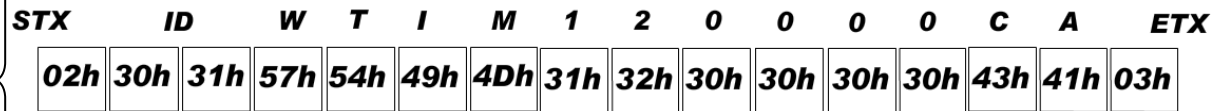
Normal operation



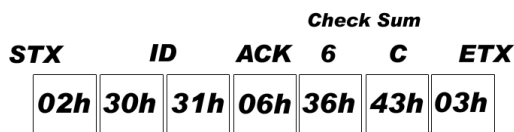
Incorrect operation

1) PC Write command format (STX ID WPR1 000.600 ETX) "CHECK SUM" use.

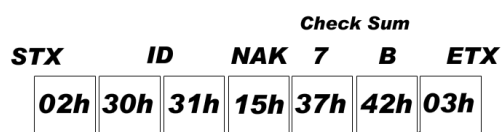
PC transmits to SI250 & SI310



SI250 & SI310 Response to PC



Normal operation



Incorrect operation

All Read/Write command must be use "HEX CODE"..

How to Calculate Check sum.

- Sum the value from "STX" to "ETX" and converts to ASCII(2byte) and transfer.

Convert the Sum value(HEX) to ASCII and transmit(28byte) .

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). the rest of result is A6h.

Calculated remainder value is A6h, then convert A6h to ASCII, 41(A), 36(6), and transfer.

6-2. Serial Print (F303-02 setting) – RS-232 Serial Interface.

It can be connected with all kinds of Serial interface printer, but the printing format is already programmed and fixed with SE7200/7300 model.

6-2-1. Printing Format

Using the RS-485 or 422 interface, please use convertor and converts to RS-232 and connect with Serial printer.

If you use RS-232 serial interface, connect directly without any convertor.

English Format (F111-01)

```

=====
DATE :      2009-05-10
TIME :      18:00:10
COUNT      WEIGHT
  1          + 1.330kg
  2          + 5.350kg
  3          + 1.380kg
  4          + 2.330kg
    
```

Continuous Print Format(F352-00)

```

=====
DATE :      2009-05-10
TIME :      18:00:10
COUNT      WEIGHT
  2          + 5.350kg

=====
DATE :      2009-05-10
TIME :      18:00:10
COUNT      WEIGHT
  3          + 1.280kg
    
```

Single Print Format(F352-01)

```

=====
TOTAL
DATE :      2009-05-10
TIME :      18:00:10
COUNT :      10
TOTAL WEIGHT : 258.145kg
=====
TOTAL DELETE
=====
    
```

**Grand Total Print
(Grand Total Print delete setting, F358-01)**

7. Error & Treatment

7-1. Load Cell Installation

Error	Cause	Treatment	Remarks
Weight Value is unstable	1) Load cell broken 2) Load cell isolation resistance error 3) Weighing part touches other devices or some weight is on the weighing part 4) Summing Board Error	1) Measure input/output resistance of Load cell. 2) Measure Load cell isolation resistance	1. Input Resistance of "EXC+" and "EXC-" is about $400\Omega \pm 30$ 2. Output Resistance of "SIG+" and "SIG-" is about $350\Omega \pm 3.5$ 3. Isolate Resistance is more than $100M\Omega$
Weight Value is increased regular rate, but not return to "Zero"	1) Load cell Error 2) Load cell connection Error	1) Check Load cell connection 2) Measure Load cell Resistance	
Weight Value is increased to under Zero	Load cell Output wire (SIG+, SIG-) is switched	Make wire correction	
"UN PASS" display	Load cell broken or Indicator connection Error	Load cell Check Load cell connection Check	
	Power was "ON" when some weight is on the load cell.	Remove weight on the Load cell	
"OL" or "UL" display(Over Load)	1) Load cell broken or Indicator connection Error 2) Loading over than Max. Capacity	1) Load cell Check 2) Load cell connection Check 3) Remove over loaded weight	


7-2. Calibration Process

Display	Cause	Treatment
<i>Err01</i>	When Max.capacity/digit value is over 20,000	Re-input the Max. Capacity, less than 20.00 (Max. Capacity / Digit)
<i>Err04</i>	Standard weight value is over than Max. Capacity	Re-input Standard weight value with Number keys, under Max. Capacity
<i>Err05</i>	Standard weight value is less than 10% of Max. Capacity	Re-input Standard weight value with Number keys, more than 10% of Max. Capacity
<i>Err06</i>	<ol style="list-style-type: none"> 1. Amp. Gain is too big 2. Sig+ and Sig- wire connection error 3. Test weight is not loaded 	<p>Check standard weight's weight with set value.</p> <p>If there is difference between set value and real weight, please re-input the value (set value is too small)</p>
<i>Err07</i>	<ol style="list-style-type: none"> 1. Amp. Gain is too small 2. Sig+ and Sig- wire connection error 3. Test weight is not loaded 	<p>Check standard weight's weight with set value.</p> <p>If there is difference between set value and real weight, please re-input the value (set value is too big)</p>
<i>Err08</i>	Under "F-function" model, set value is "N.A"	Check the correct value and re-input
<i>Err-A</i>	When there is continuous vibration on the weighing part,, indicator cannot process calibration any more.	<ul style="list-style-type: none"> - Find vibration cause and remove - Load cell check - Load cell cable and connecting condition check

7-3. Digital Weighing Indicator

Display	Cause	Treatment
<p>"CELL - Er"</p> <p>or</p> <p>"OVER"</p>	<p>1. Load cell Error</p> <p>2. Load cell cable Error</p> <p>3. Load cell connection Error</p> <p>4. A/D Board Error</p> <p>5. If Analogue value is over 1,040,000.</p> <p>※ When weigh "-" value, If it is over set max capa, "OVER" is displayed.</p> <p>Ex) Even though set max capa is "100" and it is over "-100", "OVER" is displayed.</p>	<p>1. Under "TEST" mode 1, check analogue value. If you cannot get any analogue value or there is no change although adding load, please check load cell, load cell cable, connection conditions first.</p> <p>2. Replace another load cell, and check the indicator condition. If you have same problem, please replace new indicator and check A/D board error.</p> <p>3. Try to connect the indicator's A/D with the other indicator.</p> <p>4. Check the power and connection of terminal.</p>
"UNPASS"	<p>1. Power is ON, when some materials are on weighing part.</p> <p>※ Under "Normal Mode", if there are more than 20% loading of Max. capacity, "Un-Pass" display will be appeared and indicator will stay until removing the load.</p> <p>※ Setting Back-up mode it can memory empty value, and it becomes set value without displaying "Un-pass")</p>	<p>1. If you set "Normal Mode", please check weighing part empty or not before turn on the power. If there are some materials in/on weighing part, please remove those materials and turn on the power.</p> <p>2. Please try to set F02-01(Back-up) mode so that the indicator can remember first empty value.</p>
"SET"	<p>When Power is on, "SET" displays. It means EEPROM has some problem.</p>	Please contact the distributor or Head Office.
"HALT"	H/W has some problem.	
"t-Err"	The dead Battery	

※ Under "CELL - Er", Zero key, Tare key, Hold key and print key will not be activated.

WARRANTEE CERTIFICATION	
<p>This product is passed "Sewhacnm's strict quality test.</p> <p>If there is defect of manufacturing or abnormal detection within warrantee period, please contact our Agent or Distributor with this Warrantee certificate.</p> <p>Then, we will repair or replace free of charge.</p>	
WARRANTEE CLAUSE	
<p>1. The Warrantee period, we can guarantee, is one(1) year from your purchasing date</p> <p>2. Warrantee Exception Clause</p> <ul style="list-style-type: none"> - Warrantee period is expired. - Any kinds of Mal-function or defection caused by Modification or Repair without Sewhacnm's permission. - Any kinds of Mal-function, Defection, or External damage, caused by operator - Any kinds of Mal-function, Defection, caused by using spare part from Non-Authorized Distributor or Agent. - Any kinds of Mal-function, Defection, caused by not following Warnings or Cautions mentioned on this manual. - Any kinds of Mal-function, Defection caused by "Force Majeur", like Fire, Flood. - Without presentation of this "Warrantee Certification". <p>3. Other</p> <ul style="list-style-type: none"> - Any kinds of "Warrantee Certification" without authorized Stamp is out of validity 	
<p>SEWHACNM Co.,Ltd. #504-302, 397, Seokcheon-ro, Ojeong-gu, Bucheon-si, Gyeonggi-do, Korea Made in KOREA Website : http://www.sewhacnm.co.kr , Email : sales@sewhacnm.co.kr</p>	<p>Product</p> <p>Digital Weighing Indicator</p>
	<p>Model</p> <p>SI250 & SI310</p>
	<p>Serial No.</p>
	<p style="text-align: center;">AUTHORIZED STAMP</p> <div style="text-align: center;">  </div>