

Digital Weighing Controller SI 4300

Instruction Manual





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1. BEFORE INSTALLATION

1-1. Caution / Warning Marks

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

1-2. Other Marks

	Warning for Electric Shock or Damage. Please do not touch by hand		
=	Protective Ground(Earth) terminal		
	Prohibition of Operation process		

1-3. Copy Rights

1). All Right and Authority for this Manual is belonged to Sewhacnm Co., Ltd.

2). Any kinds of copy or distribution without Sewhacnm Co., Ltd's permission will be prohibited.

1-4. Inquiries

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

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2. INTRODUCTION

2-1. Introduction

Thank you for your purchasing "SI 4300" Industrial Digital Weighing Controller.

This "SI 4300" model is advanced model for Check Weighing and Testing application, with powerful communication performance.

With **2ports serial port interfaces** and precise weighing control system, you can upgrade your weighing process.

This "SI 4300" Weighing Controller is suitable for any kinds of Check weighing application with tow different weighing modes (Photo Sensor mode and Hold input mode).

Enjoy your process with "SI 4300" Weighing Controller.

2-2. Cautions



- 1). Don't drop on the ground or 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 prior notice or permission.
- 7). Item's performance will be up-dated continuously base on previous version's performance.

2-3. Features

- 1). All Modules and Option Cards are isolated to maximize accuracy and performance.
- 2). External input terminal inside.(4pcs:Can be set by F11 mode)
- 3). By using "Photo-Coupler" on each module(Option, Analog board, In/Out), we improved "Impedance problem", "Isolation ability among inputs", "Leading power problem", and "Noise covering function".
- 4). Data back-up function, when the sudden power off.
- 5). "Set value Error" check function added. Check "Set values for each weighing mode".
 - If there is any wrong set value, "E" will be display and will not start weighing process
- 6). Polycarbonate film panel, strong for dust and water.
- 7). Weight Unit selection Function added. ("g", "kg", "t" selectable F40)
- 8). Variable options(Order in advance, Refer Chapter 6. Interface) "RS-232C" Standard installed.
- 9) **2port Serial Interface available** various applications are available.
- 10) Simulation Calibrate mode added (Can calibrate without Test weight)

3. SPECIFICATION

3-1. Analog Input & A/D Conversion

Input Sensitivity	0.2₺ / Digit	
Load Cell Excitation	DC 10V (- 5V ~ + 5V)	
Max Input Signal	Max3.2mV/V	
Temperature Coefficient	[Zero] ± 16 PPM/°C [Span] ± 3.5 PPM/°C	
Input Noise	±0.3#V P.P	
Input Impedance	Over 10™	
A/D Conversion Method	d Sigma-Delta	
A/D Resolution(Internal)	520,000 Count(19bit)	
A/D Sampling Rate	Rate Max 500times / Sec	
Non-Linearity 0.005% FS		
Display Resolution(External)	1/20,000	

3-2. Digital Part

Display	Parts	Specification	
	Main Dionley	7Segments, 7digits VFD green Color	
	Main Display	Size :12.7(H) ×7.0(W)mm	
Display	Min. Division	$\times 1, \times 2, \times 5, \times 10, \times 20, \times 50$	
	Max display value	+999,950	
	Under Zero value	"-" (Minus display)	
Chahan lama	Steady, Zero, Tare, Hold, Gross, Print, Comm.	" ▼" Condition display Lamp	
Status lamp	kg, g, t / Over, Under, Pass	Red / Yellow-Green LED Display(3Ø)	
K e y	Number Key, Function, CAL. Lock key (14pcs)		

3-3. General Specification

Power Supply	AC110/220V±10%), 50/60Hz, about 30VA	
Operating Temperature Range	-10°C ~ 40°C	
Operating Humidity Range	Under 85% Rh (non-condensing)	
External Dimension	200mm(W) × 105mm(H) × 165mm(L)	
Net Weight(kg)	About 2.3kg	
Gross Weight(kg)	About 3.0kg	

^{*} AC 110V, Power supply is an optional before ex-factory.

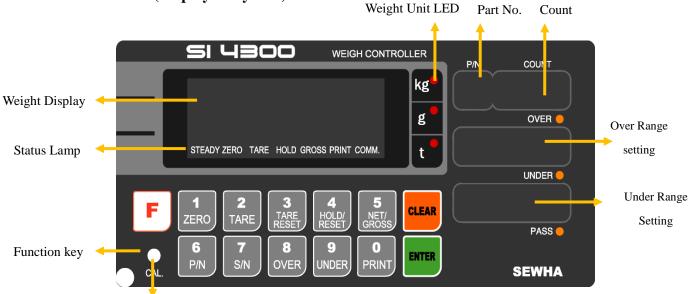
3-4. Option Card

Option No.1	Printer Interface: Centronics Parallel
Option No.2	Analog Output (0~10V or 0~5V)
Option No.3	Analog Output (4~20mA)
Option No.4	Serial Interface: RS-232C / 422 / 485
Option No.5	BCD INPUT (P/N change purpose)
Option No.6	BCD Output
Option No.7	Ethernet

 $[\]divideontimes$ Serial Interface (RS-232C) or Current Loop is Standard installed.

In the Optional Serial port, there is no Current Loop function.

3-5. Front Panel (Display / Key Pad)



Calibration Lock KEY

3-5-1. Status Lamp (ANNUNCIATORS): "▼" Lamp is "ON".

Steady	When the weight is Steady, "▼" Lamp is turn on.		
Zero	When the current weight is Zero, "▼" Lamp is turn on.		
Zero	(Displayed weight is Zero, "▼" Lamp is turn on.)		
Tomo	Tare function is set, "▼" Lamp is turn on.		
Tare	(Tare Reset → "▼" Lamp is turn off.)		
Hold	When "Hold" key is input, "▼" Lamp is turn on.		
Gross	When display Gross weight(Net weight + Tare Weight), "▼" Lamp is turn on.		
Gross	(Under F19-01 setting)		
Print	When print key input or Auto print, "▼" Lamp is turn on.		
Comm	When indicator transfers or receives data from other devices, "▼" Lamp is turn on. (If the		
Comm.	"▼" is off although there is some data transference, please check communication settings).		

3-5-2. Key Operation

Mala Wainka andre an Zana
Make Weight value as Zero.
Under F08, you can set the Zero key operation range, as 2%, or 5%, or 10%, or 20% of
Max Capacity.
※ Under "Tare" key input, Zero key will not be activated.
Make Weight value as Zero, including Tare Weight.
Under F09, you can set the Tare key operation range, as 10%, 20%, 50%, or 100% of Max
Capacity.
Tare setting: Under F10-00 setting, "TARE" key input
Under F10-01 setting, "Tare"+ No. key + "Enter"
Remove set TARE value.
To Set the "HOLD" function or Rest the "Set HOLD" function
Under F21-02 setting, give the Check weighing start signal by pressing this key.
Under TARE Setting condition, can select "Gross weight" or "Net Weight" display
mode.
First input: Gross Weight will be displayed.
Second input : Net Weight will be displayed.
You can set each weighing process as a certain P/N.
Each weighing process will be saved with FINAL, PRE1, PRE2, and Free Fall set
value.(Max 50 kinds of P/N you can set)
And you can call certain P/N with each set value.
Check the "Accumulated weight" and "Count" for current Part No. or All Part No.s
Sub Total : F15-00 setting
Grand Total: F15-01 setting
Set the "Over" range of current Part No.'s Check weighing limit.



PRINT

Set the "Under" range of current Part No.'s Check weighing limit.

1. Manual Print (F38-00 setting, under F35-01)

2. Manual weighing Data save for accumulated weighing count and weight.

(F01-00 / 02 setting)

3. Calibration mode

- Digit setting

Whenever pressing "0" key, digit will be change 1, 2, 5, 10, and 50.

Decimal point position
 Whenever pressing "0"key, decimal point will be change.

CLEAR

1. Modify the set value during setting process.

2. Calibration mode

- Move back to previous step.

F-function Mode.

- F-function Exit: Press "Clear" key, once.
- F-Test Mode Exit: Press "Clear" key, twice.



1. Save set value during setting process.

2. Calibration mode

- Save current setting and move to next step.
- 3. F-Function mode Save current F-function setting, and move to next F-function

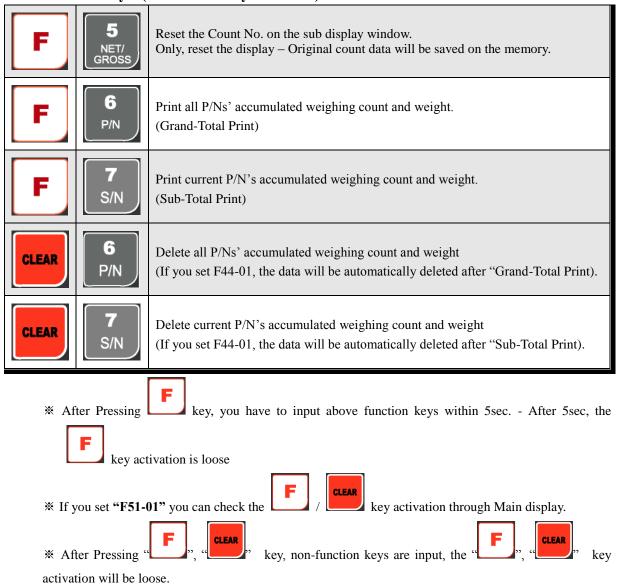


- 1. "F-TEST" Mode Entrance: Press "F" key for 5sec.
- 2. Under "F-function Mode", Move to next Function or move to certain function No.(Press function No. and press "F" key)
- 3. Function key (Refer "Function keys")



Enter/Exit to "Calibration" mode.

****** "Function Keys" (Combined Key Function)



3-6. Rear Panel





① POWER AC IN

- Power switch : Power on/off switch.



- Fuse : AC250V / 0.5A , $\phi 5.25$, 20mm.

- AC IN: Available Input AC 110V / 220V.

- ** The standard power supply is AC 220V(Fixed when ex-warehouse), if you want to have AC 110V, please inform in advance.
- ② Option Card 1 ③ Option Card 2
 - **Option Card Connector installed for Optional Interface or Output.

(Printer I/F, Analog out, RS-422/485, or RS-232C(two port)

- 4 LOAD CELL Connector (N16-05)
- **⑤** SERIAL I/F

"RS-232C" or "CURRENT LOOP" (9Pin, D-Type Female) are built-in as standard

⑥ External Input: External control input for wired remote control.

Refer to F-Function F11 to select desired function mode.

Input signal Optical-Isolator

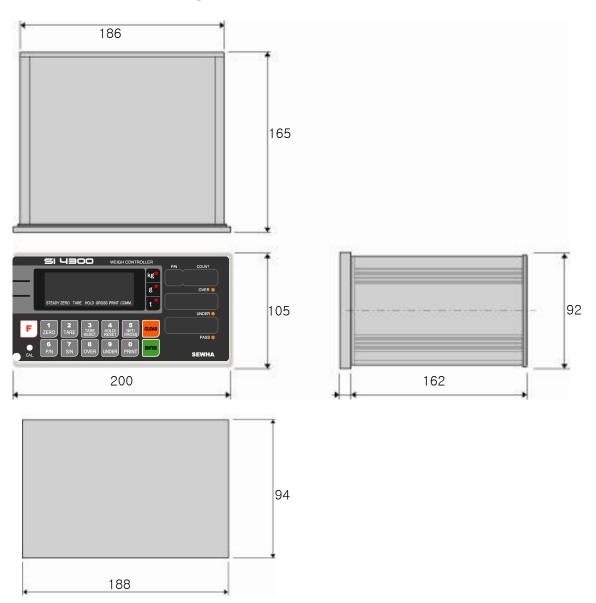
(7) Relay Output Terminal : Set point(SP1, SP2, SP3, SP4) and Finish, Empty relay output.

(Refer "F21" setting.)

4. INSTALLATION

4-1. External Dimension & Cutting Size

External Dimension , Cutting Size (unit: mm)

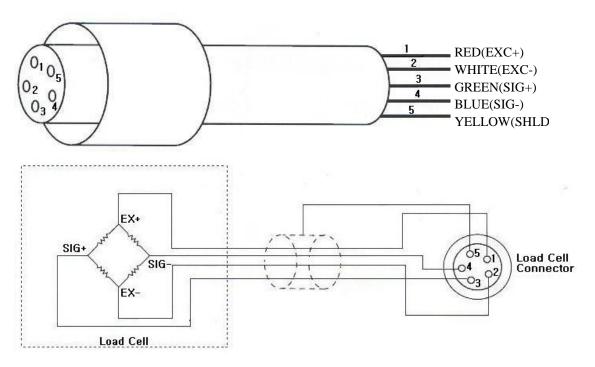


4-2. Installation Components

Power Cable	Communication Connector(D-SUB 9P)	Load-cell Cable

4-3. Load Cell Installation

4-3-1. Load Cell Connector Specification



4-3-2. 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.

4-3-3. Formula to plan the precise weighing system



This "SI 4300" weighing controller's Max input sensitivity is **0.2**/W / **Digit**.

And for precise weighing system, the following formula must be satisfied.

Caution: "Input sensitivity" means Min. output voltage variation of weighing part to change 1digit. So, please do not make large input voltage to make reliable weighing system.

G: 1 X 1 H	0.2 <i>µ</i> V ≤	ExBxD	A: Load cell capacity(kg)
Single Load cell use		A	B : Load cell Voltage(mV)
	0.2 <i>µ</i> V ≤	ExBxD	D : Digit
Plural Load cells use		AxN	E : affirmation Voltage of Load cell
			N : Number of Load cell

Example1.)

Number of Load cell : 1pcs Load cell capacity : 500 kgLoad cell Voltage : 2 mV/V

Digit: 0.05kg

Affirmation Voltage of Load cell: 5,000mV Max Capacity of Weighing System: 300kg

Then, estimation result for this weighing system with formula,

$$\frac{5000 \times 2 \times 0.05}{500} = 1 \ge 0.2 \mu\text{V}$$
 The calculated value is system has no problem.

The calculated value is larger than 0.2μ V, so this

Example2.)

Number of Load cell : 4pcs Load cell capacity : 500kg Load cell Voltage : 2mV/V

Digit: 0.10kg

Affirmation Voltage of Load cell: 5,000mV Max Capacity of Weighing System: 1,000kg

Then, estimation result for this weighing system with formula,

The calculated value is larger than
$$0.2\,\mu\text{V}$$
, so this system has no problem.

***** According to "Resolution" or "Capacity", it might not be calibrated like calculation.

5. SET-UP

5-1. Calibration

Calibration is the process of adjusting weight balance between "Real weight" on the load cell and "Displayed weight of Indicator". When you replace LOAD CELL or Indicator, you have to do Calibration process once again

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

Prepare the test weight as at least 10% of your weighing scale's max capacity.

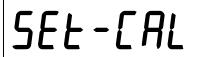
Remove "CAL-BOLT" on the indicator's front panel and press "CAL - LOCK S/W" inside.

*Remark: If "P-W" is displayed, you should input the pass word to start calibration mode.

1. At normal mode, remove "CAL-BOLT" on the Front panel



2. And press "CAL - LOCK S/W" inside. Check the "SET-CAL. message on display.



※ To save the each step, press



key, and for the cancel or move back, press



3. If you press \



→ey, Calibration Mode starts.

After displaying "C999999".



4. Input the max capacity of your weighing scale,



لب key.

Ex) Load cell CAPA: 20kg, division: 0.001 → Input 20000



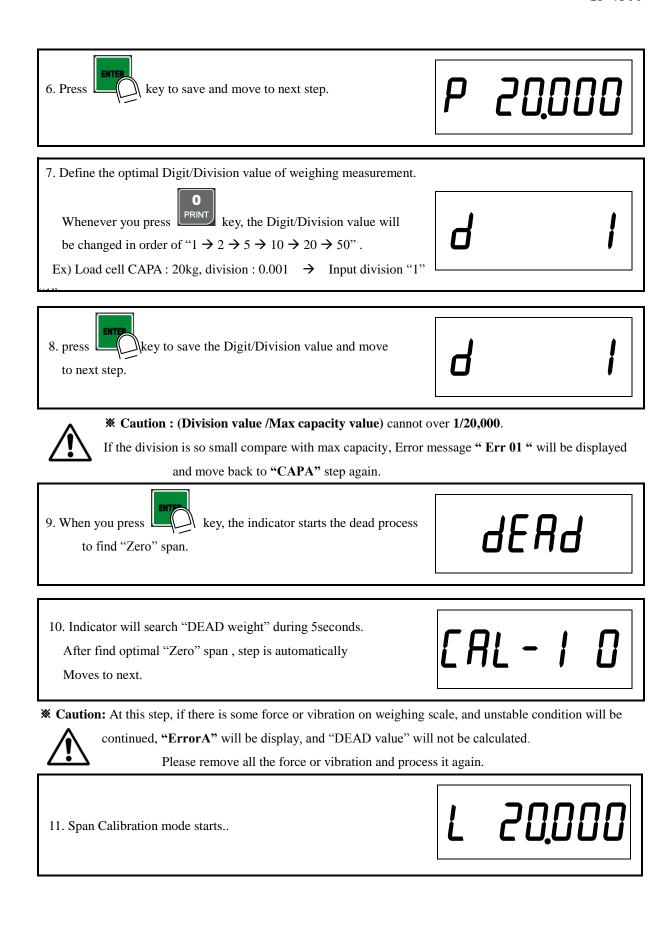
5. Define the optimal position of decimal point.

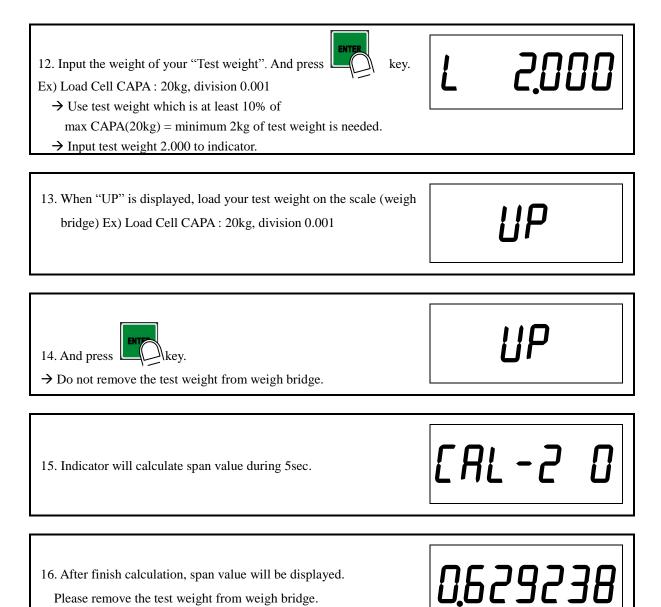


will be changed.

Ex) Load Cell CAPA: 20kg, division: 0.001kg → input 20.000







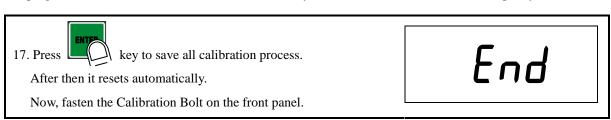
X Caution: The "Test Weight's value" must be at least 10% Max capacity of weighing scale.

Please remove the test weight from weigh bridge.



"at least 10%" means to guarantee precise weighing process you have to make standard with at least 10% of the max capacity weight.

We programmed the calibration will not be done, when you load less than 10% of the max capacity.



5-3. Simulation Calibration Mode (Calibrate without Test weight)

Through this "Simulation Calibration Mode" you can do simple calibration process without Test weight.

This calibration mode uses "Load cells' max capacity" and "Rated output value(mV)".

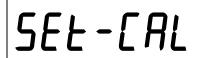
Simulation calibration's degree of accuracy is lower than test weight calibration.

By simulation calibration's characteristic, measured weight can be different with actual weight, according to load cell's actual output.

1. At normal mode, remove "CAL-BOLT" on the Front panel



And press "CAL - LOCK S/W" inside.
 Check the "SET-CAL. Message on display.



3. Please press

key, to start Simulation Calibration Mode.



★ To save the each step, press



key, for the cancel or move back, press



key.

4. Press ey to enter calibration mode.

After "CAPA" is displayed, Check the max Capacity of your load cell. (Refer the label on the load cell, or test report.)



5. After input max capacity of your load cell (at the label),

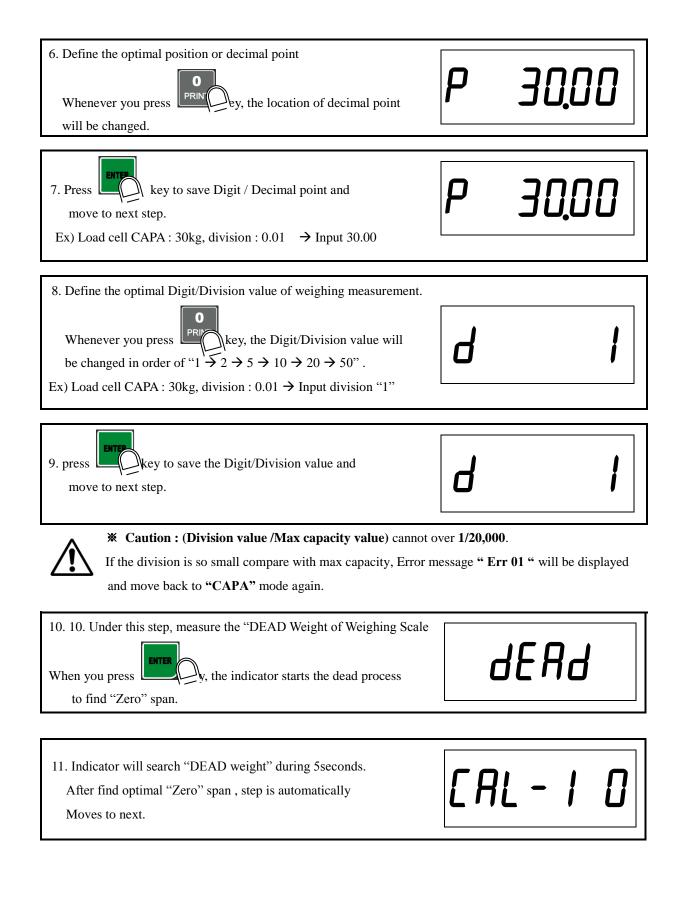


Ex) Load cell CAPA: 30kg, division: 0.01 → Input 3000



In case of multiple pieces of load cells are installed, make sum of each load cell's capacity and make setting with max capacity. EX) There are 4pcs of load cells, and each load cell's Max capa is 1,000kg.

Then, total Max Capacitywill be 4,000kg(1,000 x 4) and you have to input 4,000.



12. At this step input Max Output rate(mV) of load cell.



13. Input Load cell Output Rate(mV/V) (refer the load cell label)

Ex) Load cell Related output : 1.989 mV/V





**** Caution:** Due to some variation between **"Stated output rate"** and **"Real Output rate"** of load cell, there might be some weight difference after finishing calibration.

If you want to make more precise weighing process, please measure real output rate of load cell and input the measured value. Then the weight measurement will be more precise than before.

14. After inputting R.O. value, press Calculated "Span value" will be displayed.



15. Press key to save all calibration process and fasten the Calibration Bolt.



X Caution: To process "Simulation Calibration" process, All indicator has its' own standard value of 2mV gap.



So, if you replaced analogue board, you have to input standard value of 2mv gap.

And you can check the this 2mV gap value on F96.

(Normally, the gap value is between 200,000 ~400,000)

5-4. Set-up

Set-up means set the F-function and make SI 4300 weighing controller will perform more accuracy.

(Considering external / internal environmental condition)

5-4-1. Enter the Set-up Mode

1) Method: Press key for 4sec. Then you can enter "F-Test" mode. Under this mode, press No.1 key and enter the "F-function" mode.

5-4-2. F-Function Change

Under F-function mode, Whenever press key, the Function No. will be increased one by one. Increase to F-90 and return to F-01

If you move to certain function No., press f-function no. with number key and press key

Ex) If you want to call "F21-XX" directly under "F-function mode".



Then, you can call "F22-XX" directly.

5-4-3. F-Function Set Value Change

Under F-Function mode, input New set value with Number keys and press key to save.

If you don't press key, the new set value will not be memorized.

Ex) If you want to change the "F01-01" to "F01-02".



And press key to save.

5-4-4. Exit "F-function" Mode

Under "F-function" mode, press key, you can move back to "F-Test" mode.

Under "F-Test" mode, press key once again, you can move back "Stand-by" mode.

5-5. F-Function

■ General Function Setting (● Factory default set value)

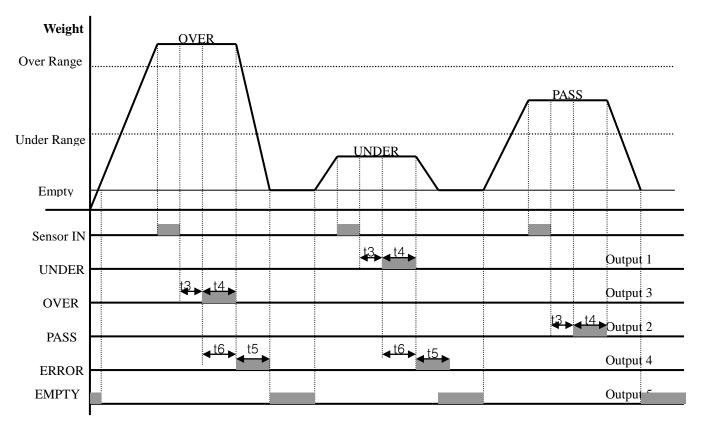
Weighing Data Save Method Selection					
(Apply on Accumulated weighing count/weight)					
	0 Not Saved				
Saved when "Print", "Weight Judge Finish Relay ou			elay output"		
F01	F01 2		Save when "Print"		
		3	Automatic Save Mode - Save when "Weight J	udge Finish Relay output"	
		I	Weight-Back up selection		
70.		0	Normal Mode		
F02	•	1	Weight Back up Mode		
			Motion Band Range setting	Ş	
		0.1	This is set "Steady" acceptable range of weigh	ning part.	
F02	01 If there is vibration on weighing part, you can set thi		If there is vibration on weighing part, you can	set this function and reduce the vibration	
F03	06	J	effect on weighing process.		
		50	1 : Weak vibration ~ 50 : Strong \	Vibration	
			Zero Tracking Compensation Rang	ge setting	
			Due to external causes(Temperature, wind, and	d dust), there are small weight difference,	
		00	indicator will ignore the weight difference and display Zero.		
E04	02	00	For this compensation function, indicator will estimate the weight difference is over		
F04	02	J	set range during fixed time period.		
		09	If there is large weight difference over set rang	ge within fixed time period, the "Zero" is	
			breaking and will find new zero point.		
			Auto Zero Range setting		
		00	Within the "Auto Zero" range, weighing part i	s steady, indicator will display current	
E05	00	1	weight as "Zero"		
F05	00 J If the weighing part is not "Steady", indicator will display current weight.			will display current weight.	
	(Auto Zero Range : ± Set value + weight unit)				
			Digital Filter setting		
			A : Frequency Filter setting value (0~3)	If "B" set value is fixed, "A" set value	
F06	13	AB	(0 : about 200Hz/sec, 3 : about 500Hz/sec)	is large, the indicator will response	
			B : Buffer Filter setting value (1~9) more sensitive.		
			Zero /Tare key Operation mode so	election	
F07	O Activate when "Steady" condition, only				
FU/		1	Always activated		

	Zero key Operation Range selection								
		0	Activated v	vithin 2% of Max Capa	city				
		1	Activated v	Activated within 5% of Max Capacity					
	•	2	Activated v	Activated within 10% of Max Capacity					
F08		3	Activated within 20% of Max Capacity						
		4	Activated v	Activated within 50% of Max Capacity					
		5	Activated v	vithin 100% of Max Ca	pacit	ty			
		6	Whenever l	Press "Zero" key (No L	.imit))			
Cauti	on : If y	ou set o	ver 20% , it	may cause "CELL-Ei	r" o	r inaccura	ate weighing	value.	
	ı	T		Tare key Operation	Ran	ge selectio	on		
		0	Activated v	vithin 10% of Max Cap	acity	7			
F09		1	Activated v	vithin 20% of Max Cap	acity	7			
10)	•	2	Activated v	vithin 50% of Max Cap	acity	I			
		3	Activated v	vithin 100% of Max Ca	pacit	ty			
	"Key TARE" Operation Selection								
F10	•	0	Key TARE	Function Not Use.					
		1	Key TARE Function Use						
				External Inpu	t Sele	ection			
	Set '	Value	Input 1	Input 2		Inj	out 3	Input 4	
		0	TARE	TARE RESET		ZI	ERO	PRINT	
	•	1	ZERO	TARE / RESET		РНОТО	SENSOR	PRINT	
F11		2	ZERO	TARE / RESET		Н	OLD	HOLD/RESET	
		3	ZERO	TARE		TARE	RESET	PRINT	
		4	ZERO	PRINT		SUB TOTAL, PRINT		PHOTO SENSOR	
		5	RUN	STOP		РНОТО	SENSOR	ZERO	
	ı	I	60	STEADY" condition	chec	k time set	ting		
		01		•				Y" condition and display.	
F12	03	ſ	If you set small value, indicator			l take "ST	ΓEADY" fast	t, if you set large value,	
20 indicator will take "STEADY" slow.									
				Display Up-date rate se	electi	1 -	ĺ		
		0	238 times			5	31 times		
E15		1	102 times			6	26 times		
F13		2	64 times			7	23 times		
		3	47 times			8	20 times		
		4	34 times			9	18 times		

	"OVER" / "UNDER" Range Set value apply selection						
E1.4	•	0	Apply only certain P/N				
F14	F14	1	Apply same set value to all P/N				
	SUB/GRAND Total Display mode selection						
		0	Display Accumulated weighing count and weight of current P/N				
		U	(SUB TOTAL DATA Display)				
F15		1	Display Accumulated weighing count and weight of all P/N				
F13		1	(GRAND TOTAL DATA Display)				
		2	Display weighing count of current P/N "OVER", "UNDER" or "PASS"				
		3	Display weighing count of current all P/N "OVER", "UNDER" or "PASS"				
			Minus(-) symbol display selection				
E16	•	0	Display (-) symbol on the display				
F16		1	Not used				
			"NEAR ZERO" relay output mode selection				
E17	•	0	Display weight is Zero(Including "TARE" Zero)→ Near Zero relay output				
F17		1	Only Gross Zero(Net weight + TARE) → Near Zero relay output				
			Equipment No. setting				
F18	01	01~99	Equipment No. setting with No. key.				
			HOLD Selection				
	•	0	Sample HOLD: Hold the weight value, when the "HOLD" key input				
F19		1	Peak HOLD: Hold the "PEAK" value of weight, during the set time				
		1	(Under F21-02 setting, must be set PEAK HOLD).				

■ Re	Relay Output Mode Setting								
	Weighing Mode selection								
	•	1	РНОТ	O SENSOR I	NPUT MODE	Ξ			
F21		2	HOLI	KEY INPUT	Γ MODE				
F21		3	SIMP	LE COMPAR	ISON MODE	1.			
		4	SIMP	LE COMPAR	ISON MODE	2.			
	Relay output Mode(Each weighing Mode)								
7	Weighi	ng Mod	le	Output1	Output2	Output3	Output4	Output5	Output6
1	PHOTO SENSOR		NSOR	UNDER	PASS	OVER	N.G	EMPTY	No using
2	HOLD MODE		UNDER	PASS	OVER	N.G	EMPTY	No using	
3	SIMPLE 1		1	UNDER	PASS	OVER	N.G	EMPTY	No using
4	SIMPLE 2.		UNDER	PASS	OVER	No using	EMPTY	No using	





1. Set Value Condition: Over Set value > Under Set value

* If the setting conditions are not satisfied, "E" symbol displayed and you can process the weighing.

2. Weighing Judgment

After Photo Sensor Input, Indicator will delay the judgment during the "t3" set time.

After "t3" set time, indicator will judge the weight and output "Over" / "Under" / "Pass" relay.

During the "Weight Judgment Relay "ON" time, indicator will hold the weight display.

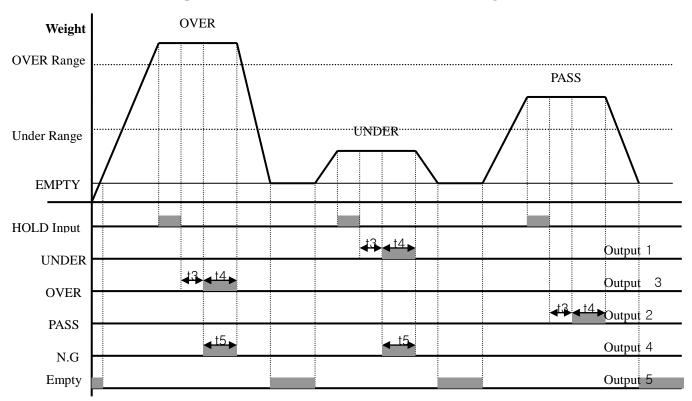
In case of "OVER" or "UNDER", "Error" relay will be output during the "t5" time period, after "t6" delay time period

3. External input: please set "F11-00", only

Output	Contents	Output	Contents		
Under(1)	Less than "Under" set, "ON"	N.G(4)	Under/Over relay output, "ON"		
Over(3)	More than "Over" set, "ON"	Empty(5)	Within the Empty Range "ON"		
Pass(2)	Under set ≤ Current Weight ≤ Over set				

♦ Weighing Mode 2. ("HOLD" input Mode)

- Manual HOLD input / Manual HOLD Reset mode (Under F55-00 setting)



1. Set Value Condition: Over Set value > Under Set value

* If the setting conditions are not satisfied, "E" symbol displayed and you can process the weighing.

2. Weighing Judgment

After "HOLD(Sample/Peak)" key input, indicator will delay the judgment during "t3".

After "t3" set time, indicator will judge the weight and output "Over" / "Under" / "Pass" relay.

During the "Weight Judgment Relay "ON" time, indicator will hold the weight display.

F19-00 (Sample HOLD): "t3" setting is not working, and judge the weight at the input spot weight.

F19-01(Peak HOLD): After input HOLD key, tracking the "Peak" weight during "t3" period and judge the weight after finishing "t3" period.

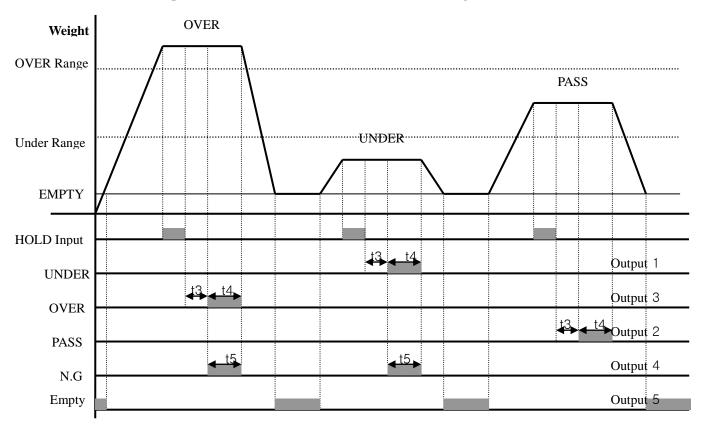
HOLD Reset: After finishing Weight judgment, press "HOLD" key and reset.

3. External input Mode: F11-01, only

Output	Contents	Output	Contents		
Under(1)	Less than "Under" set, "ON"	N.G(4)	Under/Over relay output, "ON"		
Over(3)	More than "Over" set, "ON"	Empty(5)	Within the Empty Range "ON"		
Pass(2)	Under set ≤ Current Weight ≤ Over set				

◆ Weighing Mode 3. ("HOLD" input Mode)

- Auto HOLD input / Auto HOLD Reset mode (Under F55-01 setting)



1. Set Value Condition: Over Set value > Under Set value

* If the setting conditions are not satisfied, "E" symbol displayed and you can process the weighing.

2. Weighing Judgment - Please set "F19-01(Peak Hold).

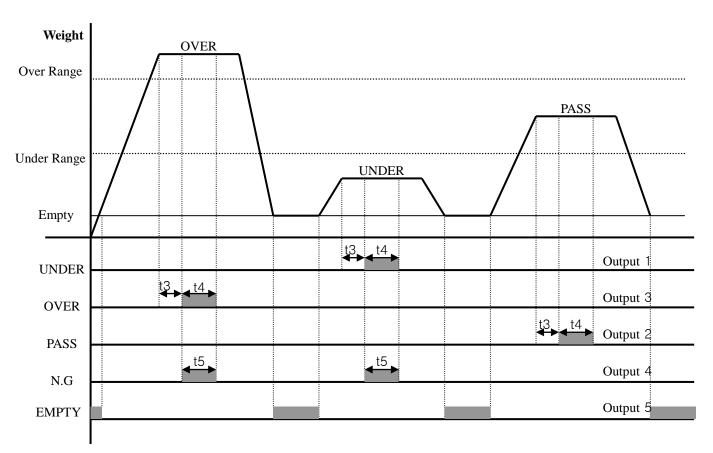
After "HOLD(Peak)" key input, indicator will delay the judgment during "t3".

After "t3" set time, indicator will judge the weight and output "Over" / "Under" / "Pass" relay.

- ** Auto "HOLD" Input: The Weight is over than "Empty" Range, "HOLD" will be set automatically and start tracking "Peak" value during "t3" period.
- ** Auto "HOLD Reset" Input: After finishing Weight judgment, weigh will be lower than "Empty" Range, "HOLD" will be reset automatically.
- * From Weight judgment relay output to Empty relay output, indicator will hold finished weight judgment data on the main display.

Output	Contents	Output	Contents
Under(1)	Less than "Under" set, "ON"	N.G(4)	Under/Over relay output, "ON"
Over(3)	More than "Over" set, "ON"	Empty(5)	Within the Empty Range "ON"
Pass(2)	Under set ≤ Current Weight ≤ Over se	t	

◆ Weighing Mode 3. (Simple Comparison Mode 1.)



1. Set Value Condition: Over Set value > Under Set value

* If the setting conditions are not satisfied, "E" symbol displayed and you can process the weighing.

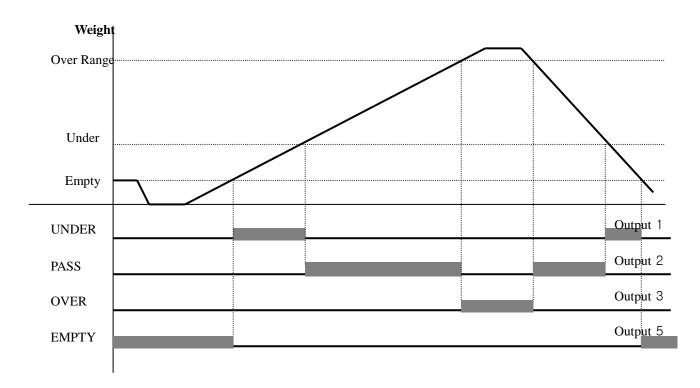
2. Weighing Judgment

When "Current Weight" is Steady, after "t3" period, indicator judges the weight.

Simple Weight Comparison Mode.

Output	Contents	Output	Contents	
Under(1)	Less than "Under" set, "ON"	N.G(4)	Under/Over relay output, "ON"	
Over(3)	More than "Over" set, "ON"	Empty(5)	Within the Empty Range "ON"	
Pass(2)	Under set ≤ Current Weight ≤ Over set			

◆ Weighing Mode 4. (Simple Comparison Mode 2.)



1. Set Value Condition: Over Set value > Under Set value

* If the setting conditions are not satisfied, "E" symbol displayed and you can process the weighing.

2. Weight Judgment

When "Current Weight" is Steady, Indicator will judge the Weight condition. - Limit Mode

UNDER: Empty < Current Weight < UNDER Range

PASS : UNDER Range \leq Current Weight \leq OVER Range

 $OVER: OVER\ Range < Current\ Weight$

Output	Contents	Output	Contents
Under(1)	Less than "Under" set, "ON"	PASS(2)	Under set \leq Current Weight \leq Over set
Over(3)	More than "Over" set, "ON"	Empty(5)	Within the Empty Range "ON"

			Weight Judgment Relay Delay time(t3) setting			
			Delay time period setting, before Weight judgment.			
		01	Under F21-01: Weight Judge after t3 set period, when "Photo Sensor" input			
F22	10	ſ	Under F21-02: Weight Judge after t3 set period, when "HOLD" input			
		99	Under F21-03: Weight Judge after t3 set period, when weight is "Steady".			
			Under F21-04 : Not applied			
			Weight Judgment Relay "ON" time (t4) setting			
		00	After "t3" set period, judge the weight condition and output judgment relay during the			
F23	10	ſ	set period.			
1.23	10	99	Under "00" setting: Judgment relay will out until the weight reaches to Empty Range.			
		99	Under "20" setting: Judgment relay will out during 2.0sec.			
	Weight Mode Selection (Absolute Weight / Positive weight mode)					
F25	•	0	Absolute Weight mode (Same replay output for "-" weight)			
1.23		1	Positive Weight mode (Relay output for only "+" weight)			
			N.G Relay "Delay" time (t6) setting			
		00	In case of "UNDER", or "OVER" weight, you can make some delay time before "N.G"			
F26	00	l oo	relay output			
F20	00	50	Under "01" setting: N.G relay will delay during 0.1 sec.			
		30	Under "20" setting: N.G relay will delay during 2.0sec.			
			N.G Relay "ON" time (t5) setting			
		01	In case of "UNDER" or "OVER" weight condition, "N.G" relay will be out with			
F27	10	ſ	"Weight judgment relay.			
F21	10	J 99	Under "01" setting: N.G relay will out during 0.1sec.			
		99	Under "20" setting: N.G relay will out during 2.0sec.			

■ Communication Mode setting (Serial Port 1. - Standard installed port)

	Parity Bit selection Mode					
	•	0	No Parity			
F30		1	Odd Parity			
		2	Even Parity			
	Serial Communication Speed selection					
		0	2,400bps			
F31		1	4,800bps			
F31	•	2	9,600bps			
		3	14,400bps			

		4	19,200bps
	-	5	28,800bps
		6	38,400bps
		7	57,600bps
		8	76,800bps
		9	115,200bps
			DATA Transference Method selection
		0	Simplex Mode / Stream Mode
F32	Ĕ	1	Duplex Mode / Command Mode
		1	Print port selection (Under F32-01 setting, only)
		0	Same port as using for Command Mode.
F33	Ě	1	The other port.
			"Check-Sum" detection selection (Under F32-01 setting, only)
		0	Check-Sum data will not be included on transferred data.
F34	H	1	Check-Sum data will be included on transferred data.
			Serial Port Application Selection (Under F32-00 setting, only)
	•	0	DATA Transference purpose
F35		1	Printing purpose (Serial Printer)
		DA	ΓA Transference Mode selection (Under F32-00, F35-00 setting, only)
	•	0	Stream Mode: Weighing Data will be transferred continuously.
F36		1	Finish Mode: When Finish Relay output, only 1 time transferred.
		2	Manual Mode: When "Print" key input, 1 time transferred.
	•	DAT	A Transference Format selection(Under F32-00, F35-00 setting, only)
	•	0	Format 1.
F27		1	Format 2. (Format 1 + ID No.)
F37		2	CAS Format
		3	AND Format
			Print Mode selection (Under F32-00, F35-01 setting, only)
F38	•	0	Manual Print : Whenever "Print" key input.
1.39		1	Auto Print : When Finish relay output, automatically print.
			Transferring DATA Byte selection
F40	•	0	7 Byte data Transfer
1.40		1	8 Byte data Transfer

■ Print Mode Setting (These settings will be apply to Serial and Parallel print)

	W.3.1.4 U.3.1.1.1.						
			Weight Unit selection				
	•	0	kg				
F41		1	g				
		2	t				
	Print Format selection (If you install on Standard Serial Port)						
		0	Continuous Print				
F42		Ů,	Serial No. and Weight will be printed continuously.				
1 72		1	Single Print				
		1	Date, Time, S/N, ID No. Weighing Data will be print				
			Print Format selection (If you install on Optional Serial Port)				
		0	Continuous Print				
F43			Serial No. and Weight will be printed continuously.				
Г43		1	Single Print				
		1	Date, Time, S/N, ID No. Weighing Data will be print				
			SUB/GRAND Total Data Delete selection				
			Manual Delete Mode				
	•	0	SUN Total Delete: "Clear" key + "P/N" key				
F44			GRAND Total Delete : "Clear" key + "S/N" key				
		1	Automatic Delete Mode				
		1	After SUB/GRAND Total Print, Automatically Deleted.				
			Paper Withdraw Rate setting (After SUB/GRAND Total Print)				
F45	03	00~09	Whenever set value increased, 1line will be added.				
			Paper Withdraw Rate setting (After Continuous/Single Print)				
F46	03	00~09	Whenever set value increased, 1line will be added.				
		Pı	rinting Language Selection (If you install on Standard Serial Port)				
E47	•	0	KOREAN				
F47		1	ENGLISH				
		P	rinting Language Selection (If you install on Optional Serial Port)				
F.10		0	KOREAN				
F48	•	1	ENGLISH				
			Minus(-) symbol Print selection				
7.0	•	0	Print minus(-) symbol, if the weight is minus(-).				
F49		1	Ignore minus(-) symbol				

		Parallel Print Port selection				
	• 0	Parallel Port is not installed.				
F50	1	Share Standard Serial Port.				
	2	Share Optional Serial Port.				
	Function / Clear key Activation display selection					
D5.1	0	Activation display not use				
F51 —	• 1	Activation display use				
·	<u> </u>	Auto Hold Reset selection				
F52	• 0	Auto HOLD Reset will not use				
Г32	1	Auto HOLD Reset use (HOLD Reset at "Weight Judge relay output)				
Counting selection (On Sub Display window)						
	• 0	PASS Count display				
F53	1	Over Count display				
F33	2	Under Count display				
	3	N.G Count display (Under + Over)				
		HIGH / LOW Letter display selection (On Sub Display window)				
F54	• 0	Letter not use				
1'54	1	Letter will use (High relay : HI / Under relay : LO)				
		Auto HOLD Tracking Function selection (Under F21-02 mode)				
F55	• 0	Auto HOLD Tracking not use				
155	1	Auto HOLD Tracking use				
		"EMPTY" Checking selection				
F56	• 0	EMPTY check				
130	1	EMPTY not check				
		Communication Interval Setting				
F57 —	• 0	Fast Speed (The interval is short)				
137	1	Low Speed (The interval is long)				
4~20mA analogue Output Setting						
F58	• 0	Positive Output				
F38	1	Negative Output				

■ Other Setting

* Under "Other setting mode", you can not move to other function directly.

key and move to F01 and move to other function No. directly.

	FMPTV Pange getting					
EMPTY Range setting						
F80	X.X.X.X.X.X. (0.0.0.0.1.0)	You can set "EMPTY" Range. Within set range, indicator will not display current weight and just display "Zero". "0.000" setting: When Net Zero, "Zero" status lamp and Near Zero relay will be output. "0.190" setting: Within 190, "Zero" Status lamp and Near Zero relay will be output.				
	SPAN Calibration Value Check					
		Span Calibration Value Check Under F-function mode, enter "FALL" key and press "CLEAR".				
F89	X.X.X.X.X.	After checking the value and press "CLEAR" to exit * If you have difficulty to process Calibration again, the best way to matching the net weight and display weight is doing Calibration process once again.				
		DATE Check / Change				
F90	Check Current I	OATE data or you can Change to new date				
		TIME check / Change				
F91	Check Current TIME data or you can Change to new date					
	Program & Hard ware Version Check					
F98	Check the Progr	am & Hard ware version (H/W: X.XX, S/W: X.XX.X)				
	Production DATE Check					
F99	Check the Produ	act's Production Year and Month.				

■ Communication Mode setting (Serial Port 2. - Optional Serial port)

Parity Bit selection Mode					
F60	•	0	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Non)
		1	DATA Bit (7 Bit)	STOP Bit (2 Bit)	Parity Bit (Non)
		2	DATA Bit (7 Bit)	STOP Bit (1 Bit)	Parity Bit (Even)
		3	DATA Bit (7 Bit)	STOP Bit (1 Bit)	Parity Bit (Odd)
		4	DATA Bit (8 Bit)	STOP Bit (2 Bit)	Parity Bit (Non)
		5	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Even)
		6	DATA Bit (8 Bit)	STOP Bit (1 Bit)	Parity Bit (Odd)

			Serial Communication Speed selection			
		0	2,400bps			
		1	4,800bps			
	•	2	9,600bps			
		3	14,400bps			
EC1		4	19,200bps			
F61		5	28,800bps			
		6	38,400bps			
		7	57,600bps			
		8	76,800bps			
		9	115,200bps			
			DATA Transference Method selection			
F62	•	0	Simplex Mode / Stream Mode			
1.02		1	Duplex Mode / Command Mode			
			Print port selection (Under F62-01 setting, only)			
F63	•	0	Same port as using for Command Mode.			
F03		1	The other port.			
			"Check-Sum" detection selection (Under F62-01 setting, only)			
F64	•	0	Check-Sum data will not be included on transferred data.			
F04		1	Check-Sum data will be included on transferred data.			
			Serial Port Application Selection (Under F62-00 setting, only)			
F65	•	0	DATA Transference purpose			
1.03		1	Printing purpose (Serial Printer)			
		DAT	A Transference Mode selection (Under F62-00, F65-00 setting, only)			
		0	Stream Mode: Weighing Data will be transferred continuously.			
F66		1	Finish Mode: When Finish Relay output, only 1 time transferred.			
	•	2	Manual Mode: When "Print" key input, 1 time transferred.			
DATA Transference Format selection(Under F62-00, F65-00 setting, only)						
	•	0	Format 1.			
F67		1	Format 2. (Format 1 + ID No.)			
		2	CAS Format			
	Print Mode selection (Under F62-00, F65-01 setting, only)					
F68	•	0	Manual Print : Whenever "Print" key input.			
		1	Auto Print : When Finish relay output, automatically print.			

6. INTERFACE

6-1. Serial Interface (RS-232C)

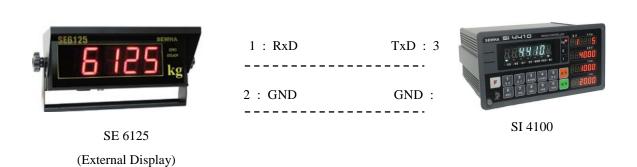
RS-232C Serial Interface is sensitive/weak for electric Noise.

So, please isolate with AC power cable and use shield cable to reduce the electric noise effect.

6-1-1. Communication with PC(Personal Computer) or Other devices

	2 : RxD	TxD:	SI LIBOO ROF COPPELIA
	3_:_TxD	RxD.:	F has had had 200
Personal Computer (9pins Standard)	5 : SG	SG:	SI 4300

6-1-2 Connection with External Display or other devices



6-1-3. Signal Format

- ① Type: EIA-RS-232C
- ② Communication Method : Half-Duplex, Full Duplex, Asynchronous
- ③ Serial Baud Rate: Selectable on "F-function31"
- 4 Data Bit : 8(No Parity mode, only)Bit Refer "F30".
- **⑤** Stop Bit: 1
- 6 Parity Bit: Non, Even, Odd (Selectable on "F-function 30") Refer "F30"
- 7 Code : ASCII

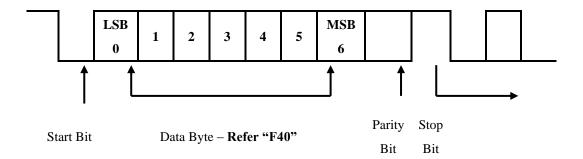
STX 02H

ETX 03H

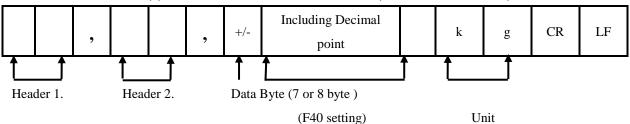
CR 0DH

LF 0AH

8 Check-Sum (Error Detecting, "F-Function 34")



6-1-4. Data Format(1): ID Number will not be transferred. (Refer "F-function 37")



1 Header 1.: OL: Over Load, Under Load

ST: Display weight "Steady"

US: Display "Un-Steady"

② Header 2.: NT: Net-Weight

GS: Net-Weight, under TARE

3 Data Bit(Number) 2B(H): "+" Plus

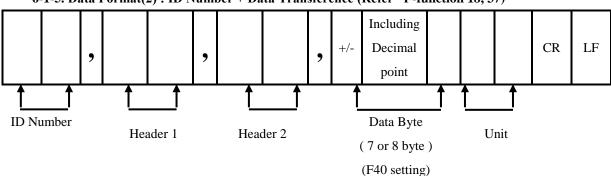
2D(H): "-" Minus

2D(H): " " Space

2E(H): "." Decimal Point

4 Unit: kg, g, t

6-1-5. Data Format(2): ID Number + Data Transference (Refer "F-function 18, 37)



① Header 1.: OL: Over Load, Under Load

ST: Display "Steady"

US: Display "Un-Steady"

② Header 2. : NT : Net-Weight

GS: Net-Weight, under TARE.

3 Data Bit(Number) 2B(H): "+" Plus

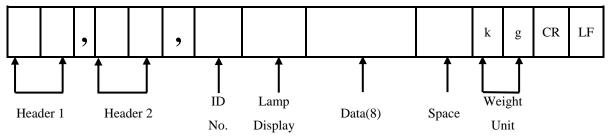
2D(H): "-" Minus

2D(H): " " Space

2E(H): "." Decimal Point

4 Unit: kg, g, t

6-1-6. Data Format(3): CAS "CI5101A" Data Transference) - CAS 22byte Format



①. Header 1.: OL: Over Load, Under Load

ST: Display "Steady"

US: Display "Un-Steady"

②. Header 2.: NT: Net-Weight

GS: Net-Weight, under TARE.

③. Lamp Display: Current Lamp Condition (ON/Off Data)

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

4. Data Bit(Number) 2B(H): "+" Plus

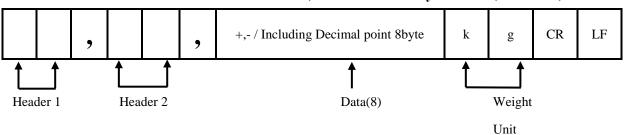
2D(H): "-" Minus

2D(H): "" Space

2E(H): "." Decimal Point

⑤. Unit: kg, g, t

6-1-7. Data Format: AD - 4321 Data Transference) - AD - 4321 18byte Format (Refer F-37)



① Header 1. : OL : Over Load, Under Load

ST: Display "Steady"

US: Display "Un-Steady"

② Header 2.: NT: Net weight (Under Tare)

GS: Net weight (Under TARE reset)

3 Data Bit(Number) 2B(H): "+" Plus

2D(H): "-" Minus

20(H): "" Space

2E(H): "." Decimal Point

4 Unit: Kg, g, t

6-2. Current Loop Interface

"Current Loop" Interface is stronger for Electric Noise than "RS-232C" interface.

So, it can be used for long distance communication.(About 100m long distance).

***** Current Loop Interface supports, up to 9,600 Communication Speed, only.

6-2-1. Communication with Other Devices (Remote Display / External Display)

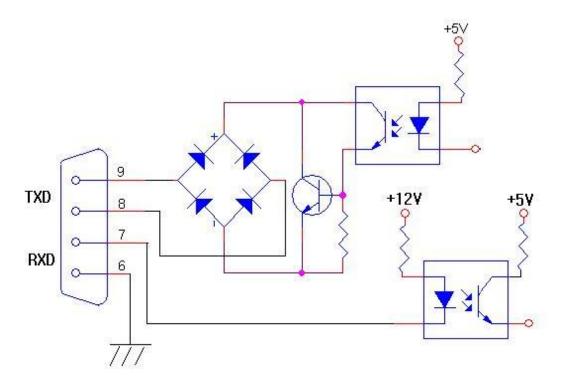




SI 4300

SE 6125 (External Display)

6-2-2. Current Loop Circuit



6-3. Print Interface (Option 01 : Centronics Parallel Interface)

This Print Interface Option is based on "Centronics Parallel Interface", so this print interface can be connected other printers using this communication method.

But, the print format is programmed based on our "SE7300", and "SE7320" Industrial Printers, so you had better to use these printer for convenience.

6-3-1. Connector Wire Connection

Pin	Signal	Contents	RE
1	STROBE	STROBE signal	out
2	DATA0	Data(bit0) signal	out
3	DATA1	Data(bit1) signal	out
4	DATA2	Data(bit2) signal	out
5	DATA3	Data(bit3) signal	out
6	DATA4	Data(bit4) signal	out
7	DATA5	Data(bit5) signal	out
8	DATA6	Data(bit6) signal	out
9	DATA7	Data(bit7) signal	out
10	ACK	Data Response	In
11	BUSY	Busy signal	In
12,13	N.C		

Pin	Signal	Contents	RE
14	N.C		
15	N.C		
16	N.C		
17	N.C		
18	GND	GROUND	out
19	GND	GROUND	out
20		GROUND	out
21		GROUND	out
22		GROUND	out
23		GROUND	out
24		GROUND	out
25	GND	GROUND	out

6-3-2. Print Format (English)

Single Print Format

DATE: 2006-10-15

TIME: 10:20:30

ID_N : 01

STATE PART SERIAL WEIGHT

OVER 01 01 +1.000 kg

DATE: 2006-10-15

TIME: 10:20:30

ID_N : 01

STATE PART SERIAL WEIGHT

PASS 02 +1.000 kg

Continuous Print format

DATE: 2006-10-15

TIME: 10:20:30

ID_N : 01

STATE PART SERIAL WEIGHT

OVER 01 01 +1.000 kg

PASS 01 02 +0.900kg

PASS 01 03 +0.910kg

PASS 01 04 +0.900kg

UNDER 01 05 +0.890kg

OVER 01 06 +1.000kg

Sub-Total Print Format

SUB-TOTAL

DATE: 2006-10-15

TIME: 10:30:30

ID_N: 0

PART: 10

T-COUNT: 2

OK-COUNT: 1

NG-COUNT:

T-WEIGHT:

01

2.100kg

DATE: 2006-10-15

Grand-Total Print Format

GRD-TOTAL

2000 10 12

TIME: 10:40:30

ID_N: 01

PART SERIAL WEIGHT

10 2 2.100kg

T-PART:

T-COUNT: 2

T-OK-COUNT: 1

T-NG-COUNT:

T-WEIGHT: 2.100kg

6-4. Analog Output Interface (Option 02: 0~10V Output)

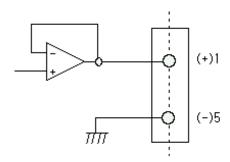
This Option card converts weight value to Analog Voltage output(0~10V) and transfers to external devices(Recorder, P.L.C), controlled by voltage output.

6-4-1. Specification

① Output Voltage: 0~10V DC output

② Accuracy: More than 1/1,000

6-4-2. Circuit



* This Voltage output is proportioned on weight calibration and outputs 0~10V.

6-4-3. Output Adjustment

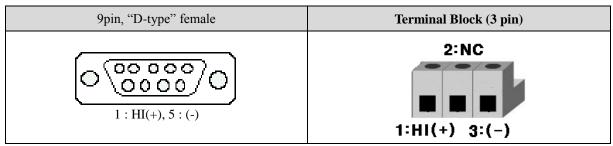
- ①This output is adjusted as when the weight is "Zero", output is 0V and When the weight is "Full capacity", output is 10V.
- ②If you need additional adjustment, please adjust with "VR1(Zero)", "VR2(Span) on the Analog Output PCB.

***** Remark

This Analog option card converts Displayed weight value(Micro-process data) to analog value on D/A Converter(Digital to Analog converter)

This D/A Converter has Max 1/4,000 accuracy, so this output is not suitable for high accuracy application, like more than 1/3,000.

6-4-4. Connecter



* For 0~5VDC or 1~5VDC analog output, please inform when you inquiry.

6-5. Analog Output Interface (Option 03: 4~20mA Output)

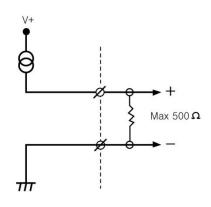
This Option card converts weight value to Analog Electric Current output(4~20mA) and transfers to external devices(Recorder, P.L.C), controlled by electric current output.

6-5-1. Specification

Output Current	4~20mA (Output Range : 2~22mA)
Accuracy	Over 1/1,000
Temperature Co-efficiency	0.01% ℃
Max Loaded Impedance	500Ω MAX

* When Weight display is "Zero", 4mA current will be output, when Weight display is "Full Capacity", 20mA current will be output.

6-5-2. Circuit



* "LO" terminal is not a "GND", so this "LO" terminal do not be connected with other "GND" terminal on other devices.

6-5-3. Output Adjustment

① This output is adjusted as when the weight is "Zero", output is "4mA" and When the weight is "Full capacity",

output is "20mA".

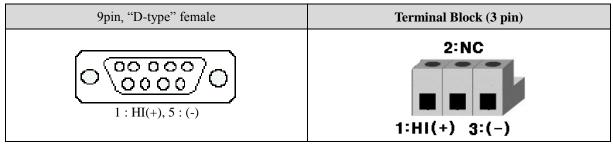
② If you need additional adjustment, please adjust with "VR1(Zero)", "VR2(Span) on the Analog Output PCB.

***** Remark

This Analog option card converts Displayed weight value (Micro-process data) to analog value on D/A Converter (Digital to Analog converter)

This D/A Converter has Max 1/4,000 accuracy, so this output is not suitable for high accuracy application, like more than 1/3,000.

6-5-4. Connecter (9pin, "D-type" female)



6-6. Serial Interface (option 04 : RS-232C/422/485)

RS-422/485 serial interface is more stable for electric noise effect compare with other communication method, using electric current difference.

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

Recommendable communication distance is about 1.2km.

6-6-1. Signal Format

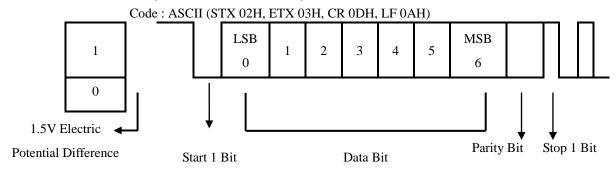
. Type: RS-422/485

②. Format: Baud Rate: Refer "F-function 36".

Data Bit: 7 or 8(No Parity)

Stop:1

Parity Bit: Even, Odd, No Parity (Selectable)



6-6-2. Data Format

Same as RS-232C (Refer "6-1. Serial Interface")

6-6-3. RS-422 Circuit (In case of RS-485, Use No6 and 7 pin - No.8 and 9 will be use)

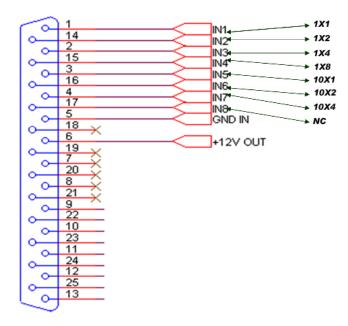
	D-SUB 9 pin				
If you install ad	ditional RS-232C inter	face,	Terminal Block		
refer "6-1. Seria	al Interface" section.				
TXD (-) TXD (+) RXD (-) RXD (+) 6			1 2 3	4	
Terminal Block	1	2	3	4	
RS-232 TX RX		RX	GND	GND	
RS-485	RTX+	RTX-	NC	NC	
RS-422	RXD+	RXD-	TXD+	TXD-	

6-7. BCD Input (Option 05) – Input for Part No. selection.

This "BCD interface" option card can be applied on PLC (Programmable Logic Controller), or Score Board applications.

Each Input circuit is isolated with "Photo-Coupler", from external devices electrically.

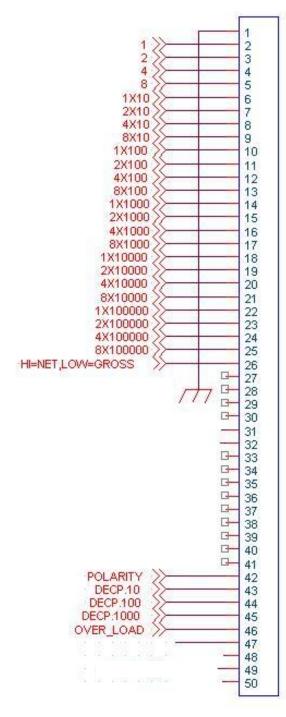
Wire Connection Diagram

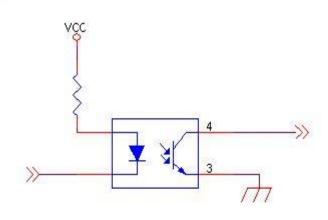


6-8. BCD Output Interface(Option 06)

This "BCD interface" option card can be applied on PLC (Programmable Logic Controller), or Score Board applications.(NPN TYPE)

Each Input circuit is isolated with "Photo-Coupler", from external devices electrically.





F-function setting for BCD OUT					
F - No.	Set value	F - No.	Set value		
F30	0	F60	0		
F31	2	F61	2		
F32	0	F62	0		
F33	0	F63	0		
F34	0	F64	0		
F35	0	F65	0		
F36	0	F66	0		
F37	0	F67	0		
F38	0				

6-9. Command Mode

Under "Command Mode", Indicator will recognize the receipt of Order based on 02h(Header) and 03h(END) signal, and transfers ACK(06)/ NAK(15).

6-9-1. Read Command (Standard Serial Port and Optional Port is same.)

P.C ->> SI 4300	Command	SI 4300 Response
STX ID NO. RCWT ETX	Current Weight Transfer	Current Weight READ(7/8 byte, including Decimal point) -STX ID NO. RCWT ST/US,NT/GS, ±Current Weight (7/8byte) Weight unit(2byte) ETX
STX ID NO. RHIG ETX	OVER Value Transfer	Over Set value READ(Including Decimal point 7/8byte) -STX ID NO. RHIG Over Value(7/8byte) ETX
STX ID NO. RLOW ETX	Under Value Transfer	Under Set value READ(Including Decimal point 7/8byte) -STX ID NO. RLOW UNDER Value(7/8byte) ETX
STX ID NO. RPSN ETX	Pass Weight Count	Pass Count READ(Including Decimal point 6byte) -STX ID NO. RPSN Pass Count ETX
STX ID NO. ROSN ETX	Over Weight Count	Over Count READ(Including Decimal point 6byte) -STX ID NO. ROSN Over Count ETX
STX ID NO. RUSN ETX	Under Weight Count	Under Count READ(Including Decimal point 6byte) -STX ID NO. RUSN Under Count ETX
STX ID NO. RNSN ETX	N.G(Over+Under) Count	N.G Count READ(Including Decimal point 6byte) -STX ID NO. RNSN N.G Count ETX
STX ID NO. RTIM ETX	TIME setting Transfer	TIME setting READ(6byte) STX ID No. RTIM time setting ETX
STX ID NO. RTAR ETX	TARE set weight Transfer	TARE set weight READ(7/8 byte, including Decimal point) STX ID No. RTAR TARE Weight(7/8byte) ETX
STX ID NO. RDAT ETX	DATE setting Transfer	DATE setting READ(6byte) STX ID No. RDAT DATE setting ETX
STX ID NO. RSNO ETX	Serial Count (Over+Pass+Under)	Serial Count READ(6 byte) STX ID No. RSNO Serial Count ETX
STX ID NO. RSUB ETX	SUB-TOTAL READ	SUB-TOTAL DATA READ -STX ID NO. RSUB P/N(2byte) Serial No.(6byte) Accumulated Weight(11byte) Weight unit(2byte) ETX
STX ID NO. RCWD ETX	INDICATOR MEMORY READ	INTERNAL MEMORY READ -STX ID NO. RCWD DATE(6byte) TIME(6byte) P/N(2byte) S/N(6byte) TARE Weight(7/8byte) Current Weight(7/8byte) Weight unit(2byte) ETX
STX ID NO. RPNO ETX	P/N READ	Part No. READ (2byte) STX ID No. RPNO Part No.(2byte) ETX
STX ID NO. RGRD ETX	GRAND-TOTAL	GRAND-TOTAL DATA READ

	READ	-STX ID NO. RGRD P/N(2byte) Serial No.(6byte) Accumulated
		Weight(11byte) Weight unit(2byte)ETX
CTV ID NO DEIN ETW	FINISH weight	FINISHED weight READ((7/8 byte, including Decimal point)
STX ID NO. RFIN ETX	READ	-STX ID NO. RFIN FINISHED Weight(7/8byte) ETX
	Current	Weight + External Input + Output Relay
STX ID NO. RWRS ETX	Weight/External input /	-STX IN NO. RWRS Weight(7/8byte), External input(4byte),
	Output Transfer	Output Relay(6byte) ETX

6-9-2. Write Command

P.C ->> SI 4300		Command	SI 4300 Response
STX ID NO. WHIG (Including Decimal point 7/8 byte) I	ETX	Over Range Setting	ACK or NAK
STX ID NO. WLOW (Including Decimal point 7/8 byte)	ETX	Under Range Setting	ACK or NAK
STX ID NO. WDAT(6byte) ETX		Date Setting	ACK or NAK
STX ID NO. WTIM(6byte) ETX		Time Setting	ACK or NAK
STX ID NO. WSNO(6byte) ETX		Serial No. Setting	ACK or NAK
STX ID NO. WPNO(2byte) ETX		Part No. Setting	ACK or NAK
STX ID NO. WPSN (6byte) ETX]	Pass Count Setting	ACK or NAK
STX ID NO. WOSN (6byte) ETX	(Over Count Setting	ACK or NAK
STX ID NO. WUSN (6byte) ETX	Under Count Setting		ACK or NAK
STX ID NO. WPRT ETX		Print Command	ACK or NAK
STX ID NO. WSPR ETX		-Total Print Command	ACK or NAK
STX ID NO. WGPR ETX	Grand	d-Total Print Command	ACK or NAK
STX ID NO. WTAR ETX		TARE Setting	ACK or NAK
STX ID NO. WTRS ETX	Т	ARE Reset Setting	ACK or NAK
STX ID NO. WZER ETX		ZERO Setting	ACK or NAK
STX ID NO. WSTC ETX		Total Delete Command	ACK or NAK
STX ID NO. WGTC ETX		-Total Delete Command	ACK or NAK
STX ID NO. WHOL ETX		HOLD Setting	ACK or NAK
STX ID NO. WHRS ETX	НС	OLD Reset Command	ACK or NAK

• 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.

7. Error & Treatment

7-1. Load Cell Installation

Error	Cause	Treatment	Remark
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	Measure input/output resistance of Load cell. Measure Load cell isolation resistance Check attach point with other devices.	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 Value is increased regular rate, but not return to "Zero"	Load cell Error Load cell connection Error	Check Load cell conn Measure Load cell Re	
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 Ch	eck
ON FASS display	Power was "ON" when some weight is on the load cell?	Remove weight on the Load cell	
"OL" or "UL" display	Load cell broken or Indicator connection Error Loading over than Max Capa.	 Load cell Check Load cell connection Check Remove over loaded weight 	

7-2. Calibration Process

Error	Cause	Treatment
Err 01	When Maxcapacity/digit value is over 20,000	Re-input the Max Capacity, less than 20,000 (Max Capacity / Digit)
Err 04	Standard weight value is over than Max Capa	Re-input Standard weight value with Number keys, under Max Capacity
Err 05	Standard weight value is less than 10% of Max Capa	Re-input Standard weight value with Number keys, more than 10% of Max Capacity
Err 06	 Amp. Gain is too big Sig+ and Sig- wire connection error Test weight is not loaded 	Check standard weight's weight with set value. If there is difference between set value and real weight, please re-input the value (set value is too small)
Err 07	 Amp. Gain is too small Sig+ and Sig- wire connection error Test weight is not loaded 	Check standard weight's weight with set value. If there is difference between set value and real weight, please re-input the value (set value is too big)
Err 08	Under "F-function" model, set value is "N.A"	Check the correct value and re-input
Err A	When there is continuous vibration on the weighing part,, indicator can not process calibration any more.	- Find vibration cause and remove - Load cell check - Load cell cable and connecting condition check

7-3. Digital Weighing Indicator

Error	Display	Cause	Treatment
No.1	"CELL- Er" or "OL"	 Load cell Error Load cell cable Error Load cell connection Error A/D Board Error It displays under 5000 or over520000. 	1. Under "TEST" mode 1, check analogue value. If you can not get any analogue value or there is no change although adding load, please check load cell, load cell cable, connection conditions first. 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.
No.2	"Un-Pass"	 Power is ON, when some materials are on weighing part. 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. Setting Back-up mode it can memory empty value, and it becomes set value without displaying "Un-pass") 	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. 2. Please try to set F02-01(Back-up) mode so that the indicator can remember first empty value. ** Under "UNPASS", please press RESET PRINT key, then you can exit the mode you are.
No. 3	"E"	In case, you set wrong set value for PRE1, PRE2, FREE FALL or FINAL. Under this display, you canot process weighing.	1.Please check each weighing mode's setting condition and make set properly.
No.4	"FN-SET"	 When "FN-Memory" is defected When the "FN-Memory" is empty. 	Please contact the distributor or Head Office.
No.5	"P-Err"	Under Parallel Printer is connected and installed. 1. Parallel printer interface is defected or disconnected.	 Please check connection of the print cable. Please check the trouble of print. If you only install "Parallel Print" option card, you can check to do.

^{*} Under "CELL-Er", Relay will not be Output, and Analogue Output(4~20mA/0~10V), either.

7-4. Indicator Test mode

Through this "Test Mode", you can check basic conditions of Indicator.

This Test consists with total 7 tests.

7-4-1. Enter "Test Mode"



Press key for 4sec, then display will show "F-Test".

Under this display, press No.2 key and enter the "Test Mode".

Under "Test Mode", please choose each test and check the basic conditions of Indicator.

If you want to exit from each "Test Mode", press



. . _ _ _ _

7-4-2. Test Mode

Test Mode	Contents		
	Under "TEST" display, press No.1 key and Enter "TEST1" mode.		
Test 1.	Under this mode, you can check the A/D value. If the A/D value is close to 520,000, or there is no change although pressing or loading some force on/in weighing part, please check load cell, load cell, cable, connecter, A/D		
Analogue			
Value Test			
	board.		
Test 2.	Under "TEST" display, press No.2 key and Enter "TEST2" mode.		
Key test	Press each key, and check the pressed key is operated.		
Test 3. Output Relay Test	Under "TEST" display, press No.3 key and Enter "TEST3" mode.		
	This Test will be operated automatically from Relay1 to Relay6.		
	* This test will operate automatically, so please remove all materials in/on		
	weighing parts.		
	If you can not remove materials, please remove relay terminals.		
Test 4.	Under "TEST" display, press No.4 key and Enter "TEST4" mode.		
External Input	If you press External input S/W, the External S/W No. will be displayed.		
Test	If the S/W No. is not displayed, please check connecting condition.		
Test 5. Communication Test (Com. Port 1)	Under "TEST" display, press No.5 key and Enter "TEST5" mode.		
	After connecting No.2 and 3 pin of 9pin connector, you can test communication		
	condition, like TXD or RXD/TXD.		
	If there is an error in communication, "232-Err" will be displayed with 3times buzzer		
	sound. The communication is working properly, "232Pass" will be displayed with one		
	time buzzer sound.		
Test 6. Communication Test (Com. Port 2)	Under "TEST" display, press No.6 key and Enter "TEST6" mode.		
	After connecting No.2 and 3 pin of 9pin connector, you can test communication		
	condition, like TXD or RXD/TXD.		
	If there is an error in communication, "232-Err" will be displayed with 3times buzzer		
	sound. The communication is working properly, "232Pass" will be displayed with one		
	time buzzer sound.		
Test 7. BCD IN Test	This test is for "BCD Input".		
	If you install "BCD IN" option card, you can test this option card operation through		
	this Test mode.		
Test 8.	This test if for "BCD out"		
BCD OUT	Through this test mode, you can check operation of BCD output.		

WARRANTEE CETIFICATION

This product is passed "Sewhacnm"s strict quality test.

If there is defect of manufacturing or abnormal detection within warrantee period, please contact our Agent or Distributor with this Warrantee certificate.

Then, we will repair or replace free of charge.

WARRANTEE CLAUSE

1. The Warrantee period, we can guarantee, is one(1) year from your purchasing date

2. Warrantee Exception Clause

- 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".

3. Other

- Any kinds of "Warrantee Certification" without authorized Stamp is out of validity

Manufacturer : SEWHACNM Co.,Ltd.	Product	Digital Weighing Indicator
#504, 302Dong, 397, Seokcheon-ro, Ojeong-gu,	Model	SI 4300
Bucheon-si, Gyeonggi-do, Korea	Serial No.	
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sales@sewhacnm.co.kr		
http://www.sewhacnm.co.kr		Sewha CNM Co.,Ltd
Made in KOREA		

Digital Weighing Indicator SI 4300