CI-600A SERIES

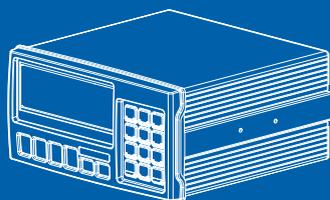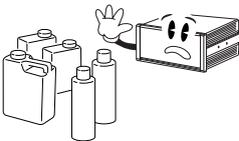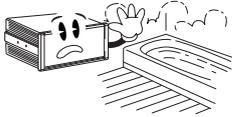## **Weighing** Indicator

CAS

Cautions for Your Safety

Please comply with 'Cautions for Your Safety', which will lead you to use the product safely and properly to prevent any dangerous situations.

- Cautions are divided into 'Warning' and 'Alert', which mean as follows.
- Keep this manual in a place where product users can find out, after finish reading it.

⚠ **Warning**

'Warning' means a great possibility led to the death or heavy injury when instructions are violated.

⚠ **Attention**

'Alert' means a great possibility led to the injury or material damage when instructions are violated.

⚠ **Warning**

Never disassemble, repair or retrofit the product. It might exclude the product from the quality assurance and cause the damage to devices, electric shock or fire.	Ensure the power plug to be fully inserted to prevent shaking. Any instable connection might cause electric sparks to set fire.	Ensure the grounding of the product. Poor grounding might cause failure or electric shock upon electric leak.
Do not damage, process, excessively jerk, bend or twist the power cord. It might damage the power cord to cause fire or electric shock.	Keep any combustible spray or fire source away. It might cause fire.	Do not spray water to the outside of the product or use it in any humid place. It might deteriorate the insulation of electric parts that can cause the electric shock, fire risk or weighing errors.
Do not place the product to the direct sunlight or near any hot object like a heater. It might cause fire.		

⚠ **Attention**

Check the weighing error anytime for the accurate weighing. Any use out of the allowed tolerance for the careless use or other causes might not ensure the accurate weighing. Customer Service：080-022-0022	Avoid any sudden shock to the product. It might damage the product to fail the accurate weighing.	Find a proper place to attach the rubber pad at the bottom of the indicator, which was shipped together.
Do not use the product at a place with sudden temperature changes or severe vibrations. It might cause the weighing error or failure.	Do not install the produce at a place with the excessive electromagnetic wave. It might cause the wrong weighing.	

Our Dealers : CAS feels that each of its valued customers should get the best service available. Whether it's the initial installation of our product, maintenance/repair work, or simply answering questions about our products, CAS Corporation and all of its Authorized Dealers are highly trained to assist you with any need regarding CAS products.

Contents

Preface

Thank you very much for purchasing CAS International Indicator.

This produce is characterized by the excellent performance and luxurious features through strict examinations, as well as elaboration for each part under our strict quality control.

CAS Indicator (CI-series) is a product with rich functions and various external interfaces, which is designed to comply well with special requirements in a variety of industrial fields under strong and beautiful designs in appearance.

In addition, it is designed for the user-friendly programs for the easier use of indicator by any user with the built-in message display functions to help users understand the product.

Please use the product right and sufficiently utilize functions of CI-600 series as you read this manual thoroughly before using CI-600 series.

1. Features

1-1. Features

- High speed, High accuracy
- High speed micro processor adoption
- A/D conversion speed : Maximum 200 times/sed
- Appropriate for weight and measurement system
- Easy operation and various options.
- Simple and prompt Full Digital Calibration
  (SPAC^{TM}: Single pass automatic span Calibration)
- RFI/EMI screened
- Watch Dog circuitry (System restoration)
- Weight Back-up
  (Weight memory at sudden power failure)

1-2. Main Functions

- Store date, time and calculated data at sudden power failure.
- Various specification on weight conversion speed.
  (Digital filter function)
- Various printer connection. (RS-232C Serial printer)
- Tare weight setting with keys.
- Storage of measured times.
- Set Point input & highest, lowest limit input.
- External input 4 relay.(CI-605)
- External output 6 relay.(CI-605)
- Users can set the desirous max. weight and a division freely.
- Control various external equipment by inner external input/output.
- Print date and time by inner clock.
- Self hardware Test.
- Prompt A/S is available for Test of each part of circuit by module is possible.

1-3. Analog and A/D Conversion

Applied voltage for load cell	DC 5V (350Ω maximum 8 possible connections)
Zeroing range	0 ~ 2mV/V
Input sensitivity	0.5 uV / D (OIML,)Ntep, KS
	0.3 uV / D (Non OIML,)Ntep, KS
Non-straightness	0.01% Full Scale
A/D internal resolution	1 / 520,000
A/D external resolution	1 / 10,000 (NTEP,)OIML, KS
	1 / 20,000 (Non NTEP,)OIML, KS (Possible with the use of sufficient output at 2mV/V L/C)
A/D conversion speed	Maximum 200 rounds/second
Weight setup	Full Digital Calibration : SPAC™ (Automatic weight setup at once)

1-4. Digital and Display

Span Calibration	Full Digital Calibration : SPAC™ (Single automatic span Calibration)
Display	4.3" Full Graphic LCD
Sign for status	ZERO, TARE, NET,GROSS, STABLE, HOLD, RX,TX,USB,UNIT(kg, lb, ton)
Division	×1, ×2, ×5, ×10, ×20, ×50
Tare Subtraction	Full capacity
Display Below Zero	"-"Minus

1-5. General Specifications

Power	AC 85~264V, 50~60 Hz (20W)
Product Size	192(W) x 199(D) x 96 (H)
Temperature Range	-10℃ ~ 40℃
Fuse Capacity	T2A L250V
Product Weight	Approx. 1.8 kg

1-6. Option Specification

Option - 1	Analog V-out (0 ~10V) or I-out (4~20mA)
Option – 2	Relay module Type 1 (4in, 6out)
Option – 3	BCD Out
Option – 4	Zigbee / Bluetooth
Option – 5	RS232 to USB
Option - 6	RS232 or RS485
Option – 7	Ethernet Card
Option - 8	Relay module Type 2 (8in, 10out)

Note 1. Ensure to affirm before purchasing the product since there may be
a limitation for the option module that can be used depending on
the program version.

2. Specifications in Appearance

2-1. External Dimension (CI-601A, CI-605A)
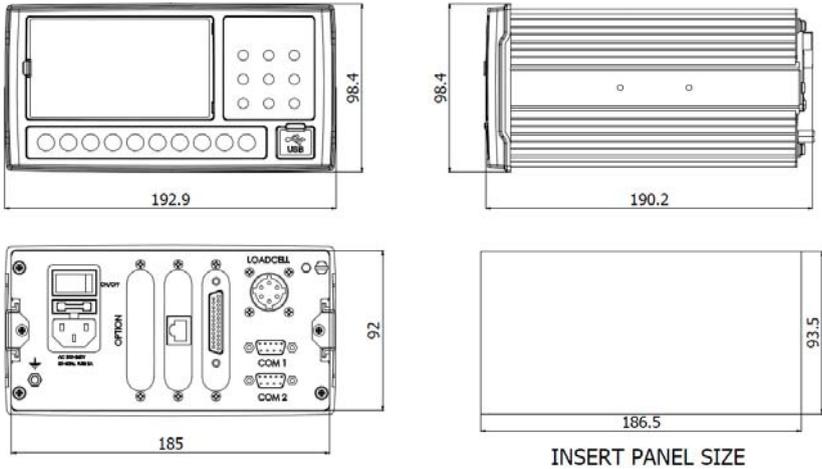
2-2. Front Panel Descriptions

Mode Display(Weighing, Calibration, Test, Setting)

Stable   Date, Time

[CI-601A]

Status Indication : Zero, Tare, Net, Gross, Hold, Tx, Rx
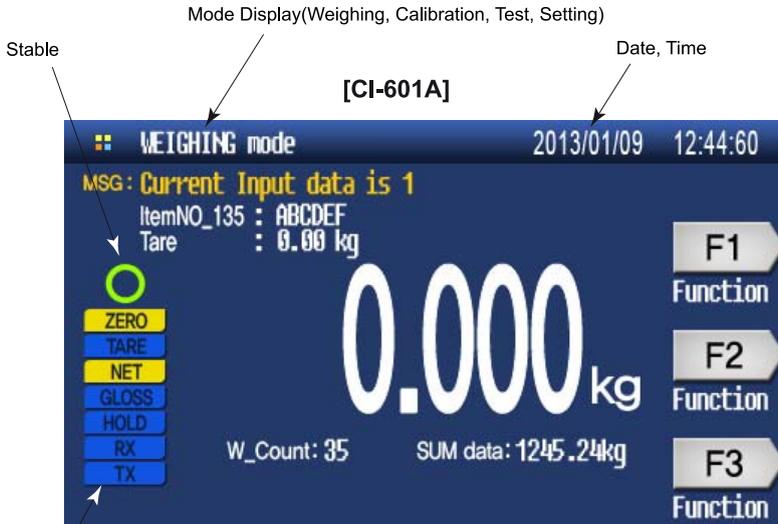
[CI-605A]

Display Information

1. 6Digits, Decimal point, sign
2. Unit : kg, lb, ton
3. Message Display   : Key input, Error message..
4. Short cut key with function name
5. Set data SP1~4 (CI-605)
6. External input status (CI-605)
7. External output status (CI-605)

2-3. Keyboard
Function Key

▶0◀ ⇧	* It sets the weight display near zero point to 0. (A range of 2%, 5%, 10%, 20% and 100% can be selected.)
▶T◀ 1→A→a	* Use it to weigh with the tare. * The current weight is memorized as the tare by pressing the key. * Press the key when the load tray is empty to release the tare.
ITEM ⇨	* Use it change to item number or name
MENU Enter	* Use it enter to menu mode.
F1 ← Back space	* Some functions can be defined to the needs. * Use it for the manual print. (default) (The function set at M2120 in the Set Mode will be operated.)
F2 ⇦	* Some functions can be defined to the needs. * Use it to fix the shaking weight(default) (The function set at M2121 in the Set Mode will be operated.)
F3 Home	* Some functions can be defined to the needs. * Use it to tare canceling. (default) (The function set at M2122 in the Set Mode will be operated.)

Editor Key

Key	Description
0 .:/ ～ **9** YZ⌴	* It enters 0~9 in the input numeric mode * It enters A~Z , symbol in the input alphabet mode
▸0◂ ⇧ , **G/N** ⇩	* Use it to cursor up-down
F2 ⇦ , **ITEM** ⇨	* Use it to cursor left-right * Use it to page up-downt
F1 ← Back space	* Use it to erase privious charactor
▸T◂ 1→A→a	* Use it to change input symbol
CLEAR Clear	* Use it to correct any wrong input while entering data. * Use it to enter a decimal point (.) in the calibration mode
MENU Enter	* Use it to save input value.

Multi Function key

Numbers + **ITEM** ⇨	* Use it to change Item number.
Numbers + **►T◄** 1→A→a	⋆ Use it to key tare function ⋆ If the tare is known, enter it using the numeric keys. (If the remaining value occurs when the input value is divided into the minimum unit, the value is rounded and entered.)
4 JKL + **F1** ← Back space	⋆ Use it to print the subtotal print (The base setting of F1 key is the Print key.) Delete the total print data after printing will be progressed by setting menu.
5 MNO + **F1** ← Back space	⋆ Use it to print the grandtotal print (The base setting of F1 key is the Print key.) Delete the total print data after printing will be progressed by setting menu.
4 JKL + **CLEAR** Clear	⋆ Use it to clear subtotal data
5 MNO + **CLEAR** Clear	⋆ Use it to clear grandtotal data

2-4. Rear Panel Descriptions

CI-601A, CI-605A
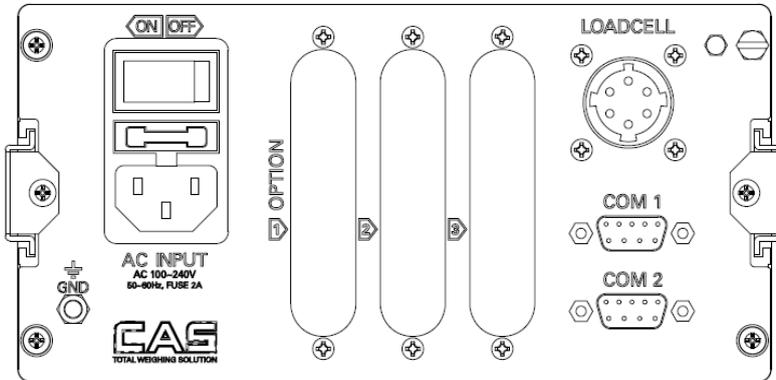
□ LOAD CELL : Port for connection. 4Wires, 6Wires Loadcell

□ COM 1 : Serial Interface Com Port (Option - RS485)

□ COM 2 : Serial Interface Com Port

□ OPTION : When Option in Use, please connect.

□ AC INPUT : AC 100 ~ 240V(50/60Hz) ara available.

                FUSE - T2A L250V

3. Installation & Connection

3-1. Loadcell Connection

Connect the load cell connector to the load cell port which is in the backside of the indicator.

* Connection method
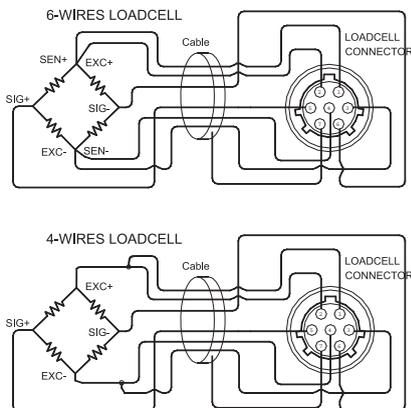
Pin	Function	Color
1	EXC+	Red
2	SEN+	Brown
3	EXC-	White
4	SEN-	Black
5	SIG+	Green
6	SIG-	Blue
7	SHIELD	Shield

Note 1. In case of 4 wires load cell, connect EX+ with SEN+, and connect EX- with SEN-.
Note 2. Wire color can be different depending on the load cell's manufacturer or it's model.
* Relationship between the load cell output and input sensitivity.
   The input sensitivity of this product is maximum 0.2uV/digit or more.
   The following equation should be satisfied upon the system design.

$$0.2uV \leq \frac{\text{Applied voltage of load cell x Output voltage of load cell x Value of a division}}{\text{Rated capacity of load cell x Number of load cell}}$$

   Example 1) Number of load cell: 4 ea
                  Rated capacity of load cell: 500 Kg
                  Rated output of load cell: 2mV/V
                  Value of a division: 0.10 Kg
                  Applied voltage of load cell: 10V (= 10,000 mV)

According to the equation➔ (10000 mV* 2mV * 0.1Kg)/(500Kg * 4) = 1 ≥ 0.2uV
As the calculated value is greater than 0.2uV, this weight system design has no problem.

Note 3. It can check the mV/V value in the testmode3

4. Weight Setup (Calibration) Mode

What is the weight setup?

It refers to the calibration to set the displayed value to the actual weight in displaying weights.

How to Access to the Weight Setup Mode

Remove the blot on the rear panel and connect both of CAL pin(check picture below)
And turn on the power supply, you can access to weight setup mode

Press the F3 Home key in the weight setup mode to return to weighing mode.
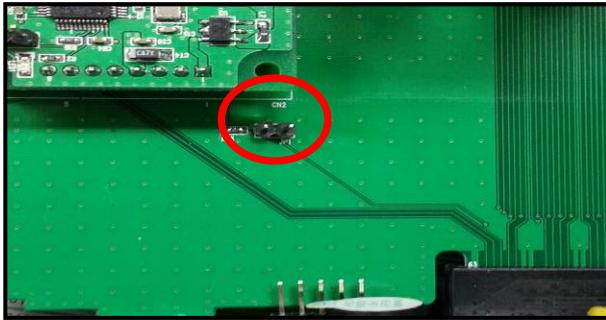
4-1. Weight Setup(Calibration) Menu (CAL1 – CAL7)

```
::  CALIBRATION MODE

    1.  Max Capa & Div          5.  Trim Zero & Span

    2.  Zero & Span             6.  Direct Cal

    3.  Gravity                 7.  Corner Cal(DLC)

    4.  Dual Range
```
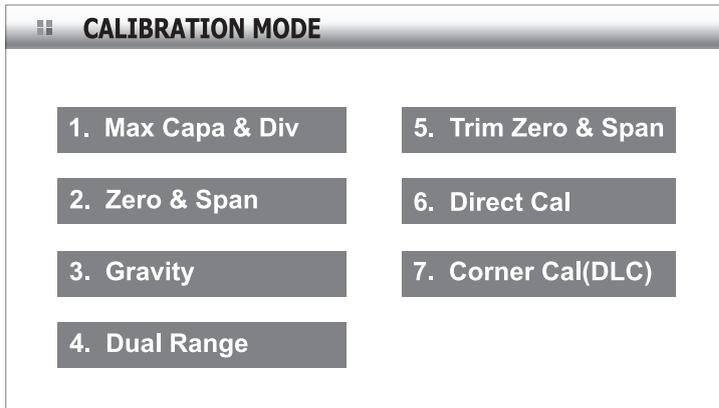
CAL 1: Maximum capacity & Division
CAL 2: Zero & Span Calibration
CAL 3: Gravity adjustment
CAL 4: Setting Dual range
CAL 5: Trimming Zero & Span
CAL 6: Direct Calibration
CAL 7: Corner Adjustment

Note 1. When you need to corner adjust, you must be corner adjustment function before the weight calibration

CAL 1(Setting of Maximum Weight and Minimum Division)

Setting Method	Display Part
1. Using numeric keys **0** ~ **9** **. : / YZ↵** Enter maximum weight. **MENU / Enter** = Set, **CLEAR / Clear** =Cancel 2. Enter minimum division. Push **CLEAR / Clear** when entering a decimal point	**Max Capa** 10 **Division** 0.002

Note 1. If [Cancel] key is pushed with a decimal point set, weight & division settings are
terminated .
Note 2. Minimum division refers to the value of 1 division.

CAL 2(Zero and Span Setting)
CAL 2-1(Set Multi Step and Zero)

Setting Method	Display Part
Using numeric keys **0** ~ **9** Set the multi step, **CLEAR/Clear** =Cancel Set the zero after affirming stability of AD value.	**MultiCal** **1** **ZeroAD** **5680**

Note 1: Multi setting section consists of steps 1~5.
 A function used to compensate for the load cell output by setting multiple points in
 some section when actual curve of the load cell is not a straight line as shown below

Zero and Span points to interpolate weight from Load Cell
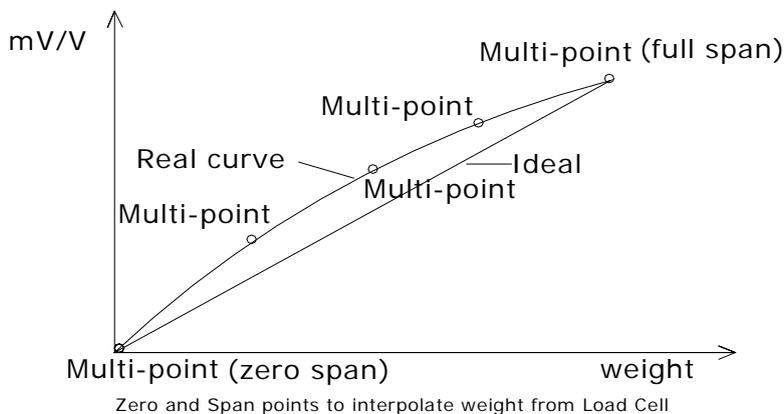
Note 1. When the zero setting is completed without any error, it moves to the weight setting
 without a key being pushed.
Note 2. When only span setting is desired with the zero set, it moves to

 CAL 2-2 by pushing **ITEM ⇨** key after multi setting.

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CAL 2-2(Enter Weight and Span Settings)

Load_1	1.000	**Span_AD1**	15532
Load_2	2.000	**Span_AD2**	35461
Load_3	5.000	**Span_AD3**	54650
Load_4	8.000	**Span_AD4**	89312
Load_5	10.000	**Span_AD5**	123510

Using numeric keys **0** ~ **9** , set the counterweight values.

MENU Enter = Set, **CLEAR** Clear = Cancel

Set the span after affirming stability of AD values.

Note 1. Set the weight of the counterweight to be within the range of 10% ~ 100% of the maximum
weight While initially being given as 100% of the maximum weight, enter again the desired
weight value if the weight of the counterweight is different from this.
(Accuracy upon Calibration drops below 10%)
Note 2. Repeat to execute inputting the counterweight value and setting the span
as many times as multi setting steps.
In this case, set a larger value than the previous one for the weight value.

CAL 3(Gravity Calibration)

Setting Method	Display Part
1. Using numeric keys **0** . : / ~ **9** YZ↵ Enter an initial gravity value. **MENU** Enter = Set, **CLEAR** Clear =Cancel 2. Enter a local gravity value.	**Produ_Gr** 9.7994 **Local_Gr** 9.7994

Note 1: Use when gravity values are different between the production area and the sales area

CAL 4(Dual Range Setting)

Setting Method	Display Part
1. Set the use status for dual function 0= Not use, 1 = Use 2. Using numeric keys **0** . : / ~ **9** YZ↵ Enter dual values. **MENU** Enter = Set, **CLEAR** Clear =Cancel	**Produ_Gr** 9.7994 **Local_Gr** 9.7994

Note 1: Upon dual setting, the graduation is changed to minimum division * 2
        beyond the dual section.

CAL 5(Zero & Span Adjustment)

Zero Adjustment

Setting Method	Display Part
<kbd>MENU / Enter</kbd> = Set, <kbd>CLEAR / Clear</kbd> =Cancel Set the Zero after affirming stability of AD value (Zero is changed with reference to the current AD)	**CurrZero** **-43** **Curr_AD** **6649**

Span Adjustment

Setting Method	Display Part
Using numeric keys <kbd>0 . : /</kbd> ~ <kbd>9 YZ↵</kbd> , Enter the desired factor value for change. <kbd>MENU / Enter</kbd> = Set, <kbd>CLEAR / Clear</kbd> =Cancel	**Curr_Fac** **333320** **Adjs_Fac** **XXXXXX**

CAL 6(Direct(Equivalent input) Weight Setting)

Setting Method	Display Part
Using numeric keys <kbd>0 . : /</kbd> ~ <kbd>9 YZ↵</kbd> , Enter the output value. <kbd>MENU / Enter</kbd> = Set, <kbd>CLEAR / Clear</kbd> =Cancel	**InputZero(mV/V)** **0.25462** **InputSpan(mV/V)** **2.00000**

Note 1. Find zero, span output of the load cell for equivalent input.
Note 2. Set maximum weight and minimum division for CAL-1 before equivalent input.

4-2. How to Seal the Indicator (Sealing)

SEALING LEAD

SEALING WIRE

LOADCELL

COM 1

SEALING BOLT

LOADCELL
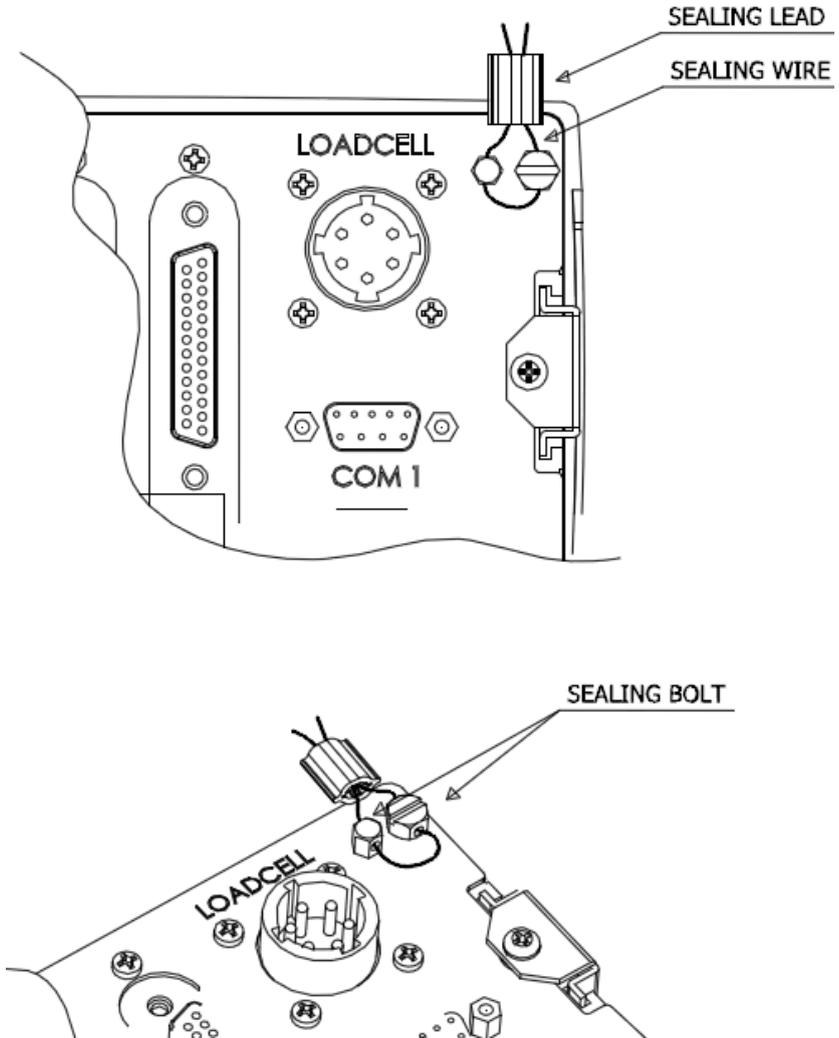
5. Weighing Mode

5-1. Zero function
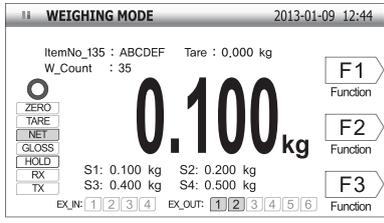
	Display Part or Used Keys	Load Plate	Description
Step 1	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135 : ABCDEF　　Tare : 0.000 kg W_Count　 : 35 ZERO / TARE / NET / GLOSS / HOLD / RX / TX **0.100** kg S1: 0.100 kg　S2: 0.200 kg S3: 0.400 kg　S4: 0.500 kg F1 Function　F2 Function　F3 Function EX_IN: 1 2 3 4　EX_OUT: 1 2 3 4 5 6	Empty	State with zero changed
Step 2	▶0◀		Push the zero key
Step 3	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135 : ABCDEF　　Tare : 0.000 kg W_Count　 : 35 ZERO / TARE / NET / GLOSS / HOLD / RX / TX **0.000** kg S1: 0.100 kg　S2: 0.200 kg S3: 0.400 kg　S4: 0.500 kg F1 Function　F2 Function　F3 Function EX_IN: 1 2 3 4　EX_OUT: 1 2 3 4 5 6	Empty	State after performing zero function. Namely, the current weight is designated as '0'kg.
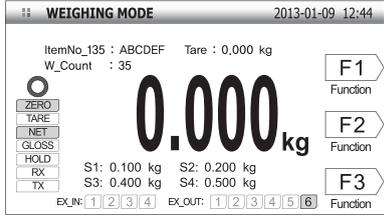
Note 1. Operating range for the zero key is possible between ±2% ~±100% of the maximum weight.
　　　Operating range for the zero key is designated in Menu No. [2-1-16].
Note 2. Menu No. [2-1-14] designates whether to perform zero function only if the current weight is stabilized or even when it is unstable.

5-2. Tare function

	Display Part or Used Keys	Load Plate	Description
Step 1	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135：ABCDEF　　Tare：0.000 kg W_Count　：35 ZERO TARE NET GLOSS HOLD RX TX **0.500**kg S1: 0.100 kg　S2: 0.200 kg S3: 0.400 kg　S4: 0.500 kg EX_IN: 1 2 3 4　EX_OUT: 1 2 3 4 5 6 F1 Function　F2 Function　F3 Function	Tare Placement	State with tare placed on load plate
Step 2	▶T◀ 1→A→a		Push the tare key
Step 3	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135：ABCDEF　　Tare：0.000 kg W_Count　：35 ZERO TARE NET GLOSS HOLD RX TX **0.000**kg S1: 0.100 kg　S2: 0.200 kg S3: 0.400 kg　S4: 0.500 kg EX_IN: 1 2 3 4　EX_OUT: 1 2 3 4 5 6 F1 Function　F2 Function　F3 Function	Tare	State with tare lamp turned ON and tare registered

5-3. Net Weight/ Gross Weight Selection

	Display Part or Used Keys	Load Plate	Description
Step 1	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135：ABCDEF Tare：0,000 kg W_Count ：35 ZERO / TARE / NET / GLOSS / HOLD / RX / TX **0.500** kg S1: 0.100 kg S2: 0.200 kg S3: 0.400 kg S4: 0.500 kg EX_IN: 1 2 3 4 EX_OUT: 1 2 3 4 5 6 F1 Function / F2 Function / F3 Function	Tare	Tare Weight : 0.500 kg Gross Weight state is indicated
Step 2	G/N		Push the Gross Weight/net weight switching key
Step 3	**WEIGHING MODE** 2013-01-09 12:44 ItemNo_135：ABCDEF Tare：0,000 kg W_Count ：35 ZERO / TARE / NET / GLOSS / HOLD / RX / TX **0.000** kg S1: 0.100 kg S2: 0.200 kg S3: 0.400 kg S4: 0.500 kg EX_IN: 1 2 3 4 EX_OUT: 1 2 3 4 5 6 F1 Function / F2 Function / F3 Function	Tare	Current net weight value is indicated with net weigh lamp turned ON

Note 1. Push [Tare] key with the load plate empty to cancel the tare.

5-4. Item Number Change

	Display Part or Used Keys	Load Plate	Description
Step 1	2013-01-09 12:44 ItemNo_135 : 1 Tare : 0,000 kg W_Count : 1 ZERO / TARE / NET / GLOSS / HOLD / RX / TX **0.500**kg S1: -0.001 kg S2: -0.001 kg S3: -0.001 kg S4: -0.001 kg EX_IN: 1 2 3 4 EX_OUT: 1 2 3 4 5 6 F1 Function / F2 Function / F3 Function	0.500kg	Current item number is No. 10.
Step 2	WEIGHING MODE 2013-01-09 12:44 Message : Current input data is 22 ItemNo_135 : 1 Tare : 0,000 kg W_Count : 10 F1		Enter No.22
Step 3	ITEM ⇨		Push the item number key
Step 4	WEIGHING MODE 2013-01-09 12:44 ItemNo_135 : 1 Tare : 0,000 kg W_Count : 22 F1		Item number is changed to No. 22
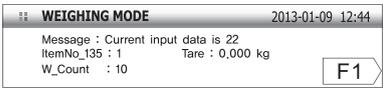
Note 1. Item number may be designated as 0~99.

5-5. Subtotal Print

■ Assume that the item number of the reinforcing bar is '10'.

	Display Part or Used Keys	Load Plate	Description
Step 1	☞ **1** ABC , **0** . : / , ITEM ⇨		Select the item number code as '10'
Step 2	☞ **4** JKL		Push No.4(Subtotal) key "No.4 key pushed" is displayed in the message window
Step 3	☞ F1 Back space		The subtotal value of Item No.10 is printed in the designated form

Note 1. Output form is designated as follows.

```
---------------------
        SUB-TOTAL
---------------------
 DATE           2012/ 1/ 1
 TIME                09:30
 ID                      1
 COUNT                   5
 TOTAL          350.0 kg
```

Note 1. Subtotal DATA are deleted automatically
or manually according to the Menu No.[2-3-09].

5-6. Total Print

	Display Part or Used Keys	Load Plate	Description
Step 1	☞ **5** MNO		Push No.5(Total) key "No.5 key pushed" is displayed in the message window
Step 2	☞ F1 ← Back space		Sum of all subtotal information in Item Nos.0~99 is printed as in the designated form.

Note 1. Output form is designated as follows.

```
----------------------
       GRAND-TOTAL
----------------------
 DATE          2012/ 1/ 2
 TIME               10:30
 ID                    10
 COUNT                123
 TOTAL        12350.0 kg
```

Note 1. Total DATA are deleted automatically or manually according to the Menu No.[2-3-09]

5-7. Selection and Change of Article Information

1) Push **ITEM** ⇨ key in the scale mode, and the following screen appears.

⠿ MENU MODE					
1	Item No	1	**2**	Tare	0.000
3	SP1_Data	0.100	**4**	SP2_Data	0.250
5	SP3_Data	0.400	**6**	SP4_Data	0.500
7	SP5_Data	0.700	**8**	SP6_Data	0.700
9	Item Name				

⇨   Select the item to change an input value for using numeric keys.

⇨   Push **F3** Home key to change to the previous state(weight weighing state).

5-8. How to Change Item Number

⇨   Push No.1 key to select the item number and push **MENU** Enter key

⇨   Input window for item number is displayed

⇨   Enter a desired item number → Enter [1][1] and push **MENU** Enter key

⇨   Information on Item No.11 is displayed, followed by return to the previous state

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5-9. Change in Tare Weight

⇨ Push No.2 key to select the tare weight and push **MENU Enter** key

⇨ Input window for the tare weight is displayed

⇨ Enter the desired tare value → Enter [1][0][0][0]

and push **MENU Enter** key (Tare value = 1000)

Change of set values 1~6

⇨ Push the relevant numeric key to select the item

1	Item No	1	2	Tare	0.000
3	SP1_Data	0.100	4	SP2_Data	0.250
5	SP3_Data	0.400	6	SP4_Data	0.500
7	SP5_Data	0.700	8	SP6_Data	0.700
9	Item Name				

MENU MODE

⇨ Input window for the set value is displayed

MENU MODE

M-3006 : SP4_Data

Set Value:
0.100

Init Value:
0

Input Range: 0 - 999999

⇨ Input the desired value and push **MENU Enter** key

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6. Test Mode

How to Access to the Test Mode

Push the **MENU Enter** in the weighing mode, by the **1 ABC** key to selec test mode or when

the power is turned on while pressing **1 ABC** key in the front of the indicator.

Push the **F3 Home** key in the test mode to return to weighing mode.

Test menu(1-9)

:: TEST MODE	
1. Key Test	6. Ext In/Out Test
2. LCD Test	7. BCD, A-OUT Test
3. AD Test	8. Memory Test
4. Comm Test	9. RTC Test
5. Print Test	
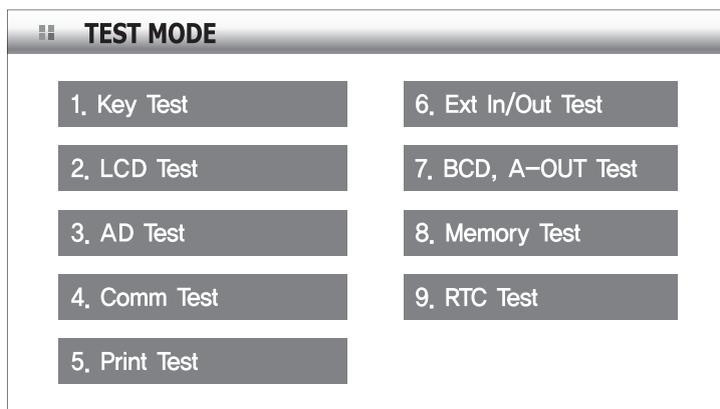
1. Key Test

2. LCD Test

3. AD Test

4. Communication Test(COM1, COM2)

5. Print Test (COM2)

6. External Input/output Test

7. Option test

8. Memory test

9. RTC test

1. Key Test

Function : Key test		
Used Key	**Used Key**	**Used Key**
MENU **Enter** : Upper Menu Other Key : Test	`Key Code` `7`	When you press any key to test, the number and code for the key are displayed on the screen.

<Key List>

Key	No	Code	Key	No	Code	Key	No	Code
1 ABC	1	1	**8** VWX	8	8	**G/N** ⇩	163	163
2 DEF	2	2	**9** YZ↵	9	9	**ITEM** ⇨	161	161
3 GHI	3	3	**0** . : /	0	0	F3 Home	27	27
4 JKL	4	4	F1 ← Back space	128	128	**CLEAR** Clear	48	48
5 MNO	5	5	▶0◀ ⇧	162	162	**MENU** Enter	30	30
6 PQR	6	6	▶T◀ 1→A→a	55	55			
7 STU	7	7	F2 ⇦	160	160			

2.LCD Test

Function : Display Screen Test	
Used Keys	**Description**
MENU **Enter** :Upper Menu	LCD test proceeds in the order of Red -> White -> Green -> Yellow

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3.AD Test

Function : Load Cell Test		
Used Key	**Display Part**	**Description**
MENU **Enter** : Upper Menu	AD Data 5703	Output value of the Calibrated load cell is displayed.

Note 1. Check whether load cell output values are changed while loading and unloading
 a weight on the load plate.
 If the number is fixed or the number "0"is displayed, check again to note whether the
 load cell is correctly connected

Note 2. When **ITEM ⇨** key is pushed, the load cell output is displayed in the unit of mV/V

4.Communication Test

Function : Series Communication Test	
Used Keys	**Display Part**
MENU **Enter** : Upper Menu Other Key : Test	Comm IN_1 1 Comm IN_2 2 Comm Out_1 3 Comm Out_2 3
Description	The value entered as Port No.1 is displayed in Communication Input 1 The value entered as Port No.2 is displayed in Communication Input 2 Simultaneously transmitted to Communication Outputs 1,2 upon key inputting

Note 1. Execute this test in the state of executing the communication program(Hyper
 Terminal) in the computer after connecting the series port of the computer and com
 port on the back face of the indicator.
Note 2. Click'1'to affirm whether the computer receives properly.
Note 3. Perform this test after designating the communication speed in advance
 in Menu No.[2-2-04 or 2-2-09].

5.Print Test

Function : Printer Test		
Used Keys	**Display Part**	**Description**
MENU Enter : Upper Menu	Print	Print out the following form CAS Corporation Come And Succeed TEL 1577-5578 TEST OK

Note 1. Designate in advance the printer to be used n Menu No. [2-3-01].

6.External Input/ Output Test

Function : External Input/ Output Test		
Used Keys	**Display Part**	**Description**
MENU Enter :Upper Menu Other Key : Test	Ext In 1 Ext Out 3	Displayed in the external input section when there is an external input. Push No.1~6 key to execute weighing external output

Note 1. This test operates only if Weighing Module Option Card is mounted

7.A-OUT, BCD OUT Test

Function : Option(Analog Out, BCD Out)Test		
Used Keys	**Display Part**	**Description**
MENU Enter :Upper Menu Other Key : Test	AOUT(%) 25 P	The output level of Aout is raised by 25% each time the key is pushed.

Note 1. This test operates only if Analog out or BCD out Option Card is mounted.
Note 2. In BCD OUT mode, each line cannot be tested individually but only overall operation checking is possible

8.Memory Test

Function :Memory test		
Used Keys	**Display Part**	**Description**
MENU Enter :Upper Menu	EEPROM Memory Error Flash Memory Error	If have some errors, display to bad point
	Memory Test O.K	If don't has any error, display to OK

9.RTC Test

Function :RTC test		
Used Keys	**Display Part**	**Description**
MENU Enter : Upper Menu	**Time** 18:55:23	Display current time

7. Set Mode

7-1. How to Enter the Set Mode

Push the **MENU Enter** in the weighing mode, by the **2 DEF** key to select set mode or when the power is turned on while pressing **2 DEF** key in the front of the indicator.

Push the **F3 Home** key in the set mode to return to weighing mode.

M-2100 : General Function

- M-2101 : Unit Select
- M-2102 : AD Speed
- M-2103 : Digital Filter Buffer
- M-2104 : Digital Filter Level
- M-2105 : Digital Filter T_Constant
- M-2106 : Stable Range
- M-2107 : Auto Zero Range
- M-2108 : Weight Back up
- M-2109 : Hold Type
- M-2110 : Average Hold Time
- M-2111 : Hold Clear Condition
- M-2112 : Auto Hold Condition
- M-2113 : Auto Hold Clear Condition
- M-2114 : Key Operating Condition
- M-2115 : Zero Key Range
- M-2116 : Tare Key Range
- M-2117 : Initial Zero Range
- M-2118 : Overload Range
- M-2119 : Lock Front keys
- M-2120 : Set F1 key Function
- M-2121 : Set F2 key Function
- M-2122 : Set F3 key Function
- M-2123 : Near Zero(Print, Relay)

M-2200 :
Communication Function

- M-2201 : Device ID
- M-2202 : Data Transmission Rate
- M-2203 : COM1 Port Setting
- M-2204 : COM1 Baudrate
- M-2205 : COM1 Out Data
- M-2206 : COM1 Output Format
- M-2207 : COM1 Output Mode
- M-2208 : COM2 Port Setting
- M-2209 : COM2 Baudrate
- M-2210 : COM2 Out Data
- M-2211 : COM2 Output Format
- M-2212 : COM2 Output Mode

M-2300 : Print Function

- M-2301 : Print Type
- M-2302 : Print Form
- M-2303 : Manage Print Data
- M-2304 : Print Line Feed
- M-2305 : Print Head Messgae
- M-2306 : Print Delay Time
- M-2307 : Print Condition
- M-2308 : Print Set Automatic
- M-2309 : Print Count Number

M-2400 : Option Function

- M-2401 : Select Option1
- M-2402 : Select Option2
- M-2403 : Select Option3
- M-2404 : Adjust Zero(Aout)
- M-2405 : Adjust Span(Aout)
- M-2406 : Max Weight(Aout)

M-2500 : Device Function

- M-2501 : Set value Initialize
- M-2502 : Connect to PC
- M-2503 : Set Date
- M-2504 : Set Time
- M-2505 : Set Password
- M-2506 : USB Backup
- M-2507 : LCD Bright

M-2600 : Batching Function

- M-2601 : Set External Key
- M-2602 : Relay Mode
- M-2603 : F_Relay Delay Start time
- M-2604 : F_Relay Delay Operating
- M-2605 : C_Relay Delay Start Time
- M-2606 : C_Relay Delay Operating
- M-2607 : NG_Relay Delay Operating

7-2. General Functions

Menu-2101

Function	Set Unit	
Set Range (1~3)	Display Part	Meaning
	▭ **1_kg**	kilogram (kg)
	▭ 2_ Lb	pound (lb)
	▭ 3_ton	ton

Menu-2102

Function	Set AD Speed	
Set Range (0~4)	Display Part	Meaning
	Set Value 0	AD Switching Speed 10 times per second
	Set Value **1**	AD Switching Speed 15 times per second
	Set Value 2	AD Switching Speed 40 times per second
	Set Value 3	AD Switching Speed 100 times per second
	Set Value 4	AD Switching Speed 200 times per second

Menu-2103

Function	Set Digital Filter _1 Buffer	
Set Range (1 ~ 50)	Display Part	Meaning
	Set Value : XX Initial Value : 10	Setting the number of buffers in the digital filter

Note 1. Set it so as to be suite to the environment (Speed for weight changes may slow down)

Menu-2104

Function	Set Digital Filter_1 Level	
Set Range (1 ~ 50)	Display Part	Meaning
	Set Value : XX Initial Value : 10	Setting the level of the digital filter (The more stable the weight, the higher the level)

Menu-2105

Function	Set Digital Filter_2 Time Constant	
Set Range (1 ~ 200)	Display Part	Meaning
	Set Value : XX Initial Value : 50	Setting the time constant of the digital filter (The more stable the weight, the higher the constant)

Note 1. Set it so as to be suite to the environment (Speed for weight changes may slow down)

Menu-2106

Function	Set Stable Range	
	Display Part	Meaning
Set Range (0 ~99)	⊙ x 0.5 division **Initial Value:** **1x 0.5 division**	Stability lamp is turned ON when weight change is such that the width of change in a given time is within the set value x 0.5 division

Note 1. Function that acknowledges it as the stable state when the width of weight change within a set time does not exceed the set range X 0.5 division.

Note 2. Weighing stabilization will be made faster by setting the larger number if the environment involves much vibration in the surrounding and by setting the smaller number if there is little vibration.

Menu-2107

Function	Set Automatic Zero Tracking Compensation	
	Display Part	Meaning
Set Range (0 ~ 99)	⊙ x 0.5 division **Initial Value:** **1x 0.5 division**	Function to compensate for zero when weight change is such that the width of change in a given time is within the set value x 0.5 division

Note 1. This function automatically calibrates for zero if the weight does not exceed a given range of division within a given time in the zero state.

Ex) When the maximum display division is 120.0Kg with the value of one division set as 0.05Kg, provided that the Menu[2-1-07] is set as "2",

2.0digit (0.1Kg)

If there is a weight change by less than 100g within 0.5SEC, the indicator automatically displays it as "0".

0.5 Sec

If there is a change by more than 100g within 0.5SEC. a changed
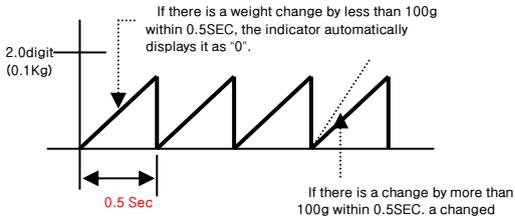
Menu-2108

Function	Set Weight Back up	
Set Range (1, 2)	Display Part	Meaning
	☐ 1 _ **Weight back up not used**	Weight back up function is not used
	☐ 2 _ Weight back up used	Weight back up is used (based on operation)

Note 1. Select the function using numeric keys or arrow keys and push the
[Enter] key for storage
Note 2. As the Back-up state remembers the initial zero state of the weighing instrument upon
power failure or power supply turned OFF, the weight value is displayed when the
power supply is ON if weighing object is placed in the weighing instrument.
If the weighing tare is empty, push the "zero: key to have the zero remembered again.

Menu-2109

Function	Set Hold Type	
Set Range (1 ~4)	Display Part	Meaning
	☐ 1_**Average Value Hold**	Average Hold :Average the wavering weight over a set time and hold upon using the Hold key or external inputting
	☐ 2_Peak Hold	PEAK Hold : Hold the maximum value of the wavering weight
	☐ 3_Sampling Value Hold	SAMPLING Hold : Hold sampled value of the wavering weight upon using the Hold Key or external inputting
	☐ 4_Automatic Hold	Auto Peak Hold :Automatically calculate the maximum value of the wavering weight

Note 1. Select the function using numeric keys or arrow keys and push [Enter] key for storage
Note 2. Hold function is not performed if the applied weight value exceeds the maximum
weight value during Hold operation.
Note 3. Upon setting No.'2, if a load is applied while the load plate is empty, the maximum
value of the applied load is automatically calculated and displayed.

Menu-2110

Function	Set Average hold time	
Set Range (01 ~ 99)	Display Part	Meaning
	00 X 0.1 Sec **Initial Value: 30x 0.1 Sec**	Average value within the set value x 0.1 sec is calculated

Menu-2111

Function	Set Hold Canceling Conditions	
Set Range (1~2)	Display Part	Meaning
	☐ 1_**Cancel Hold at zero**	Hold is canceled when it becomes zero.
	☐ 2_Cancel upon entering Hold Key	Hold is canceled when Hold key is entered.

Menu-2112

Function	Set Automatic Hold Starting Conditions	
Set Range (0, 99)	Display Part	Meaning
	○ x 1 division **Initial Value: 10x 1 divistion**	Hold starts when the weight changes within the set range value x 1 division.

Menu-2113

Function	Set Automatic Hold Canceling Conditions	
Set Range (0~99)	Display Part	Meaning
	○○% **Initial Value: 10 %**	Hold is canceled when the value is changed by more than ○○% of the held value.

Menu-2114

Function	Set Ker Operating Conditions (ZERO, TARE Keys Availability)	
Set Range (1, 2)	Display Part	Meaning
	▭ 1 _ Always Operational	Always in operation
	▭ 2_ Operational when the weight is stable	Operates only if the weight is stable

Menu-2115

Function	Set Zero Key Range	
Set Range (0~99)	Display Part	Meaning
	○○ % **Initial Value: 1 %**	Zero key operates up to within +/- ○○% of the maximum weight

Menu-2116

Function	Set Tare Key Range	
Set Range (0~100)	Display Part	Meaning
	○○ % **Initial Value: 100 %**	Tare key operates up to within +/-○○% of the maximum weight

Menu-2117

Function	Set Initial Zero Range	
Set Range (0~99)	Display Part	Meaning
	○○ % **Initial Value: 10%**	Initial zero operates within +/-○○% of the Gross Weight

Menu-2118

Function	Set Overload Range	
Set Range (0~99)	Display Part	Meaning
	○ x 1 Digit **Initial Value: 9x 1 Digit**	Overweight from the next to 0 x 1 Digit of the maximum weight

Menu-2119

Function	Set the front key input to be allowed.	
Set Range (0 ~ 1)	Display Part	Meaning
	▭ 1 _ **Use Front key**	Function key operation is allowed in the scale mode
	▭ 2 _ Lock Front Key	Function key operation is not allowed in the scale mode

Menu-2120: F1 Key Use Type
Menu-2121: F2 Key Use Type
Menu-2122: F3 Key Use Type

Function	Set Key Use Type	
	Display Part	Meaning
Set Range (1~18)	□ 1_Zero Key	F key used as the zero key
	□ 2_Total/Net Weight Key	F key used as the total./net weight key
	□ 3_Tare Key	F key used as the tare key
	□ 4_Subtotal Key	F key used as the subtotal key
	□ 5_Total Key	F key used as the total key
	□ 6_Clearing Key	F key used as the clearing key
	□ 7_Prin t Key	F key used as the print key
	□ 8_HoldKey	F key used as the hold key
	□ 9_Tare Cancelling Key	F key used as the tare cancelling key
	□ 10_Step1 Set Value Entering Key	F key used as the step 1 setting key
	□ 11_ Step2 Set Value Entering Key	F key used as the step 2 setting key
	□ 12_Step3 or 1 Fall Key	F key used as the step 3 setting key
	□ 13_ Step4 or 2 Fall Key	F key as the step 4 setting key
	□ 14_Upper Limit Input	F key used as the upper limit input key
	□ 15_Lower Limit Input	F key used as the lower limit input key
	□ 16_Start Key	F key used as the start key
	□ 17_Stop Key	F key used as the stop key
	□ 18_Print Form Key	F key used as the print form key

Note 1. The base setting of F1 key is the Print key.
Note 2. The base setting of F2 key is the Hold key
Note 3. The base setting of F3 key is the Tare Cancelling key.

Menu-2123

Function	Set Near Zero(Print, Relay)	
	Display Part	Meaning
Set Range (0~99)	○ x 1 Digit **Initial Value: 0x 1 Digit**	Up to the set value * 1 Digit is allowed as the zero

7-3. Communication and Function Setting

Menu-2201

Function	Set Device ID	
Set Range (0 ~ 100)	Display Part	Meaning
	Device ID : ○○ **Initial Value: 0**	Desired device ID may be entered.

Note 1 . This function may be used as the indicator's inherent ID in the COMMAND mode.

Menu-2202

Function	Set Data Transmission Rate	
Set Range (1 ~ 9999)	Display Part	Meaning
	00 x 10ms **Initial Value: 50 x 10ms**	Data are transmitted by the unit of 00 x 10ms

Note 1. Data are transmitted in real time upon setting at "0".

Menu-2203

Function	Com1 Port Setting	
Set Range (1 ~ 6)	Display Part	Meaning
	▭ 1_Data_8 / Stop_1 / Parity_none	Data Bit 8, Stop Bit 1, Parity Bit : None
	▭ 2_Data_7 / Stop_1 / Parity_even	Data Bit 7, Stop Bit 1, Parity Bit: Even
	▭ 3_Data_7 / Stop_1 / Parity_odd	Data Bit 7, Stop Bit 1, Parity Bit: Odd
	▭ 4_Data_7 / Stop_2 / Parity_odd	Data Bit 7, Stop Bit 2, Parity Bit: Odd
	▭ 5_Data_8 / Stop_1 / Parity_even	Data Bit 8, Stop Bit 1, Parity Bit: Even
	▭ 6_Data_8 / Stop_1 / Parity_odd	Data Bit 8, Stop Bit 1, Parity Bit: Odd

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Menu-2204

Function	Set COM1 Baud Rate	
	Display Part	Meaning
	▭ 1_1,200 bps	1,200 bps
	▭ 2_2,400 bps	2,400 bps
	▭ 3_4,800 bps	4,800 bps
Set Range (1 ~ 7)	▭ 4_9,600 bps	9,600 bps
	▭ 5_19,200 bps	19,200 bps
	▭ 6_38,400 bps	38,400 bps
	▭ 7_57,600 bps	57,600 bps
	▭ 8_115,200 bps	115,200 bps

Menu-2205

Function	Set Com1 Out Data	
	Display Part	Meaning
Set Range (1 ~ 3)	**▭ 1_Displaed Value**	Displayed value is transmitted
	▭ 2_Gross Weight	Gross Weight is transmitted
	▭ 3_Net Weight	Net weight is transmitted

Menu-2206

Function	Set COM1 Output Format	
	Display Part	Meaning
Set Range (1 ~ 3)	**▭ 1_CAS 22**	22 byte of CAS
	▭ 2_ CAS10	10 byte of CAS
	▭ 3_AND18	18 byte Format(AND, FINE)

Note 1. Note <Appendix 1> for communication format

Menu-2207

Function	Set Com1 Output mode	
	Display Part	Meaning
Set Range (1 ~ 8)	▭ 1_No Data Output	Data is not transmitted
	▭ 2_Transmit When Print Key is Pushed	Transmitted only if the print key is pushed
	▭ 3_Transmit in Both Stable/Unstable Cases	Transmitted in both stable/unstable cases (Stream Mode)
	▭ 4_Transmit Only if Weight Is Stable	Transmitted only if the weight is stable
	▭ 5_Command Type 1	Command Type 1
	▭ 6_Command Type 2	Command Type 2
	▭ 7_Command Type 3	Command Type 3
	▭ 8_Transmit upon Completion Signal	Transmitted only upon completion signal

Note 1. See Appendices 2, 3, 4 for command types

Menu-2208

Function	Com2 Port Setting(RS232, Print)	
	Display Part	Meaning
Set Range (1 ~ 6)	▭ 1_Data_8 / Stop_1 / Parity_none	Data Bit 8, Stop Bit 1, Parity Bit : None
	▭ 2_Data_7 / Stop_1 / Parity_even	Data Bit 7, Stop Bit 1, Parity Bit : Even
	▭ 3_Data_7 / Stop_1 / Parity_odd	Data Bit 7, Stop Bit 1, Parity Bit : Odd
	▭ 4_Data_7 / Stop_2 / Parity_odd	Data Bit 7, Stop Bit 2, Parity Bit: Odd
	▭ 5_Data_8 / Stop_1 / Parity_even	Data Bit 8, Stop Bit 1, Parity Bit: Even
	▭ 6_Data_8 / Stop_1 / Parity_odd	Data Bit 8, Stop Bit 1, Parity Bit: Odd

Menu-2209

Function	Set COM2 Baud Rate	
	Display Part	Meaning
	▱ 1_1,200 bps	1,200 bps
	▱ 2_2,400 bps	2,400 bps
	▱ 3_4,800 bps	4,800 bps
Set Range (1 ~ 7)	▱ 4_9,600 bps	9,600 bps
	▱ 5_19,200 bps	19,200 bps
	▱ 6_38,400 bps	38,400 bps
	▱ 7_57,600 bps	57,600 bps
	▱8_115,200 bps	115,200 bps

Menu-2210

Function	Set Com2 Out Data	
	Display Part	Meaning
Set Range (1 ~ 3)	▱ 1_Displaed Value	Displayed value is transmitted
	▱ 2_Gross Weight	Gross Weight is transmitted
	▱ 3_Net Weight	Net weight is transmitted

Menu-2211

Function	Set COM2 Output Format	
	Display Part	Meaning
Set Range (1 ~ 3)	▱ 1_CAS 22	22 byte of CAS
	▱ 2_ CAS10	10 byte of CAS
	▱ 3_AND18	18 byte Format(AND, FINE)

Note 1. See <Appendix 1> for communication format

Menu-2212

Function	Set Com2 Output mode	
	Display Part	Meaning
Set Range (1 ~ 8)	▱ **1_No Data Output**	Data is not transmitted
	▱ 2_Transmit When Print Key is Pushed	Transmitted only if the print key is pushed
	▱ 3_Transmit in Both Stable/Unstable Cases	Transmitted in both stable/unstable cases (Stream Mode)
	▱ 4_Transmit Only if Weight Is Stable	Transmitted only if the weight is stable
	▱ 5_Command Type 1	Command Type 1
	▱ 6_Command Type 2	Command Type 2
	▱ 7_Command Type 3	Command Type 3
	▱ 8_Transmit upon Completion Signal	Transmitted only upon completion signal

Note 1. See Appendices 2, 3, 4 for command types

7-4. Print Function Setting

Menu-2301

Function	Set Printer Type	
	Display Part	Meaning
Set Range (1 ~ 6)	▭ **1_Printer Not Used**	Printer is not used
	▭ 2_DEP_CAS Ticket Printer	CAS Ticket Print Standard Type
	▭ 3_DLP Label Printer	CAS Label Print Standard Type
	▭ 4_BP Label Printer	CAS BP Label Printer
	▭ 5_CP7100/7200 (ENG)	CP7100/7200 English
	▭ 6_CP7100/7200 (KOR)	CP7100/7200 Korean

Menu-2302

Function	Set Print Form	
	Display Part	Meaning
Set Range (1 ~ 8)	▭ **1_ Print Form_ 1/BP Form1**	Print Form 1 (Date, Time, Serial No., Item No., Net Weight)
	▭ 2_Print Form_ 2/BP Form2	Print Form 2 (Date, Time, Weighing No., Net Weight)
	▭ 3_ Print Form _ 3/BP Form3	Print Form 3 (Date, Time, Gross Weight, Tare, Net Weight)
	▭ 4_ Print Form _ 4/BP Form4	Print Form 4 (Date, Time, Net Weight)
	▭ 5_ Print Form _ 5/BP Form5	Print Form 5 (Date, Time, Item No., Net Weight)
	▭ 6_ Print Form _ 6/BP Form6	Print Form 6 (Date, Time, Serial No., Net Weight)
	▭ 7_BP Form7	BP Print Form 7
	▭ 8_BP Form8	BP Print Form 8

【 Form 1 】
Date, Time,
Serial No., Item No., Net Weight

```
2009.07.07[TUE]  12:30:46
  1,    ID_11,    50.0 kg
  2,    ID_12,   100.0 kg
  3,    ID_19,   200.5 kg
```

【 Form 2 】
Date, Time,
Weighing No., Net Weight

```
2009.07.07[TUE]12:30:46
No.     1      50.0 kg
No.     2     100.0 kg
No.     3     200.5 kg
```

【 Form 3 】
Date, Time,
Gross Weight, Tare, Net Weight

```
2009.07.07[TUE]  12:30:46
Gross :          1000.0 kg
Tare  :             0.0 kg
Net   :          1000.0 kg
Gross :          2000.0 kg
Tare  :           500.0 kg
Net   :          1500.0 kg
```

【 Form 4 】
Date, Time,
Net Weight

```
2009.07.07[TUE]   12:30:46
10:10:30   Net :    50.0 kg
11:00:32   Net :   100.0 kg
12:30:34   Net :   200.5 kg
```

【 Form 5 】
Date, Time,
Item No., Net Weight

```
2009.07.07[TUE] 12:30:46
ID_11,   Net :    50.0 kg
ID_12,   Net :   100.0 kg
ID_19,   Net :   200.5 kg
```

【 Form 6 】
Date, Time,
Serial No., Net Weight

```
2009.07.07[TUE]   12:30:46
  1,             1000.0 kg
2009.07.07[TUE]   12:32:56
  2 ,             200.5 kg
```

□ CAS DLP Protocol

Parameter	Description
V00	Gross Weight (8 bytes)
V01	Tare Value (8 bytes)
V02	Net Weight (8 bytes)
V03	Barcode (net weight) (8 bytes)
V04	Count value in count mode (8 bytes)
V05	Percent value in percent mode (8 bytes)

Can't print weight data, count value, percent value same time

□ CAS DLP(BP-DT-4) Protocol

Parameter	Description	Data Length
V00	Net Weight	7 byte
V01	Unit (kg)	2 byte
V02	Gross Weight	7 byte
V03	Tare value	7 byte
V04	Date	10 byte
V05	Time	8 byte
V06	Item Number	2 byte
V07	Count	3 byte
V08	Net ('.' omit) : for bar code	6 byte
V09	Total Net ('.' include)	9 byte

Menu-2303

Function	Manage Print Data	
	Display Part	Meaning
Set Range (1 ~ 2)	▭ 1_ Acc Value Cleared upon Printing	Accumulated value is cleared upon printing
	▭ 2_ Acc Value Not Cleared upon Printing	Cleared when the clearing key is pushed

Menu-2304

Function	Set Print Line feed	
	Display Part	Meaning
Set Range (0~99)	○○ Line Initial Value: 1 Line	Set a spacing between lines as the set value upon printing

Menu-2305

Function	Set Print Head Message	
Set Range	Display Part	Meaning
50 byte	message	Enter Message

Note 1. A function entering the desired head message upon printing.

Menu-2306

Function	Set Printing Delay Time	
	Display Part	Meaning
Set Range (0 ~ 200)	00 x 10ms **Initial Value: 1** x 10ms	Issue print after 00 x 10ms

Menu-2307

Function	Set Print Condition	
	Display Part	Meaning
Set Range (1~3)	▢ 1_Print Only If Weight Value Is +	Print out only if the weight value is +
	▢ 2_Print Only If Weight Value Is –	Print out only if the weight value is -
	▢ 3_Print Regardless of Whether Weight Value Is +/-	Print out regardless of whether the weight value is +/-

Menu-2308

Function	Set Print Out Condition (Printing condition)	
	Display Part	Meaning
Set Range (1~2)	▢ 1_ Manual Print	Printed only if the print key is pushed
	▢ 2_Automatic Print	Printed automatically if the weight value is stabilized

Menu-2309:   Printing Count Number

Function	Print Count Number	
	Display Part	Meaning
Set Range (1 ~ 3)	▢ **1_No Change**	Fixed
	▢ 2_ Increased 1	Printing times are increased automatically by one at a time after weighing operation
	▢ 3_Decreased 1	Decreased by one at a time after weighing operation once

7-5. Option Setting

Menu-2401: Option 1 Setting
Menu-2402: Option 2 Setting
Menu-2403: Option 3 Setting

Function	Option Card Selection (option card select)	
	Display Part	Meaning
Set Range (1~8)	▭ 1_ no option t	Option is not used
	▭ 2_Analog out	Analog Output V-out (0 ~10V) or I-out (4~20mA)
	▭ 3_Weighing Out(4,6)	Weighing module Type 1 (4in – 6out)
	▭ 4_ Bcd Out	BCD Out
	▭ 5_ZigBee/BT	ZigBee/Bluetooth
	▭ 6_USB(Serial)	RS232 to USB Conversion Card
	▭ 7_RS422/485	RS232 or RS485 Card
	▭ 8_Ethernet	Ethernet Card
	▭ 9_ Weighing Out(8,10)	Weighing module Type 2 (8in – 10out)

Note 1. Ensure to affirm before purchasing the product since there may be a limitation for the option module that can be used depending on the program version.

Menu-2404

Function	Adjust the Zero Output upon Using Analog Out option	
	Display Part	Meaning
Set Range (0 ~ 24000)	0000	0.000 mA, 0 V output
	4000	4.000 mA, 2 V output
	4015	4.015 mA, 2.007 V output

Menu-2405

Function	Adjust the Maximum Output upon Using Analog Out option	
	Display Part	Meaning
Set Range (0 ~ 25000)	10000	10.000 mA , 4.16 V output
	20000	20.000 mA , 8.33 V output
	24000	24.000 mA , 10 V output

Menu-2406

Function	Maximum Output Weight Value upon Using Analog Out option	
	Display Part	Meaning
Set Range (0 ~ 99999)	**1000** 2000	Maximum output at 1000 kg Maximum output at 2000 kg

7-6. Hardware Set Function

Menu-2501

Function	Set Value Initialization	
	Display Part	Meaning
Set Range (1 ~ 2)	▭ **1_ Set Value Not Initialized**	No set values of the product are initialized to factory shipping state
	▭ 2_ Set Value Initialization Executed	All set values of the product are initialized to factory shipping state

Menu-2502

Function	PC Connection	
	Display Part	Meaning
PC and Data Communication	PC Connection	Used when Item data or Setting data backup function is performed through PC

Menu-2503

Function	Set Date	
Numeric Key : Data Designation	Display Part	Meaning
	10.08.17	August 17th, 2010

Menu-2504

Function	Set Time	
Numeric Key : Data Designation	Display Part	Meaning
	11.30.10	30 minutes and 10seconds past 11 o'clock in the morning

Menu-2505

Function	Set Password	
Set Range (1 ~ 2)	Display Part	Meaning
	▭ **1_ Password Not Used upon Moving the Mode**	Password entry is not used upon entering the setting mode
	▭ 2_ Password Used upon Moving the Mode	Password entry is used upon entering the setting mode

Function	Set Password	
Set Range (0 ~ 9999)	Display Part	Meaning
	XXXX	4-digit number entered is used as the password

Menu-2506

Function	USB Back up Function	
Set Range (1 ~ 2)	Display Part	Meaning
	▭ **1_ Data Not Stored**	Only the quantity of the stored Data is affirmed
	▭ 2_ Data Stored	Data are stored in the USB memory

Note1. Data are stored in the following format upon Data Backup.

```
Item_01      count_01
13.01.01     12:00:00
Weight:      10,000kg
Tare    :     5,000kg
Gross  :     15,000kg
```

Menu-2507

Function	Set LCD Bright	
Set Range (1 ~ 7)	Display Part	Meaning
	Set Value _ 1	LCD brightness 10%
	Set Value _ 2	LCD brightness 30%
	Set Value _ 3	LCD brightness 50%
	Set Value _ **4**	LCD brightness 70%
	Set Value _ 5	LCD brightness 80%
	Set Value _ 6	LCD brightness 90%
	Set Value _ 7	LCD brightness 100%

7-7. Relay Batching Function

Menu-2601

Function	External Input Setting Function (function external input set)				
	Set Value	**INPUT1**	**INPUT2**	**INPUT3**	**INPUT4**
	▭ 1_ExtInput Type1	Zero	Tare	Tare Removed	Print
	▭ 2_ExtInput Type2	Zero	Tare/Tare Removed	Hold	Hold Cancelled
	▭3_ExtInput Type3	Zero	Tare/Tare Removed	Subtotal	Print
	▭4_ExtInput Type4	Zero	Hold	Hold Cancelled	Print
Set Range (1 ~10)	▭5_ExtInput Type5	Zero	Subtotal	Total	Print
	▭6_ExtInput Type6	Zero	Tare	Tare Cancelled	Gross/Net Weight
	▭7_ExtInput Type7	Zero	Tare/Tare Removed	Decision	Print
	▭8_ExtInput Type8	Zero	Print	Start	Stop
	▭9_ExtInput Type9	Start	Stop	Hold	Gross/Net Weight
	▭10_ExtInput Type 10	Tare	Print	Hold	Stop

Menu-2602

Function	Set Relay Mode	
	Display Part	Meaning
	▭ 1_Limit Mode1	Limit Mode 1 (Step 4 Contact Point A Output)
	▭ 2_Limit Mode2	Limit Mode 2 (Fall and Weighing Decision)
	▭ 3_Packer Mode1	Packer Mode 1 (StepI4 Contact Point B Output)
Set Range (1 ~ 9)	▭ 4_Packer Mode2	Packer Mode 2 (Fall and Weighing Decision)
	▭ 5_CheckerMode1	Checker Mode 1 (Step 5 Decision upon Weight Stabilization)
	▭ 6_CheckerMode2	Checker Mode 2 (Step 3 Decision upon Weight Stabilization)
	▭ 7_CheckerMode3	Checker Mode 3 (Weight Level)
	▭ 8_CheckerMode4	Checker Mode 4 (Indentation Management)
	▭ 9_CheckerMode5	Checker Mode 5 (Weight Sorting)

Weighing Output Information per Mode

	Weighing Output	OUT1	OUT2	OUT3	OUT4	OUT5	OUT 6
1	Limit Mode 1	Step 1	Step 2	Step 3	Step 4	Completed	Zero
2	Limit Mode 2	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
3	Packer Mode1	Step 1	Step 2	Step 3	Step 4	Completed	Zero
4	Packer Mode 2	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
5	Checker Mode 1	Step 1	Step 2	Step 3	Step 4	Above Step 4	Zero
6	Checker Mode 2	Step 1 (LOW)	Step 2 (HIGH)	Step 3 (OK)	Lower LimitNG	Upper LimitNG	Zero
7	Checker Mode 3	Step 1	Step 2	Step 3	Step 4	Above Step 4	Zero
8	Checker Mode4	Step 1 (LOW)	Step 2 (HIGH)	Step 3(OK)	Lower LimitNG	Upper LimitG	Zero
9	Checker Mode5	Step 1 (LOW)	Step 2 (HIGH)	Step 3 (OK)	Lower LimitNG	Upper LimitNG	Zero

Set Point Mapping Information per Mode

Set Point Mapping		SP1	SP2	SP3	SP4	SP5	SP6
1	Limit Mode 1	Step 1	Step 2	Step 3	Step 4		
2	Limit Mode 2	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
3	Packer Mode 1	Step 1	Step 2	Step 3	Step 4		
4	Packer Mode 2	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
5	Checker Mode 1	Step 1	Step 2	Step 3	Step 4		
6	Checker Mode 2	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit
7	Checker Mode 3	Step 1	Step 2	Step 3	Step 4		
8	Checker Mode4	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit
9	Checker Mode5	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit

Note 1. See the above Table for Set Point Values applied for each weighing per mode.

<Limit mode 1>
Relay Operation Graph upon Setting No. 1 of Menu 2-06-02

Note.
1. Required set value input: Step4 > Step3 > Step2 > Step1
2. Near zero output is according to the specified range in F57.
3. T1: Refer to F52 (Delay time of weighing Finish relay output)
   T2: Refer to F53 (Operation time of weighing Finish relay output)
4. Relay Output

SP1 : ON when the set value of Step1 is reached
SP2 : ON when the set value of Step2 is reached
SP3 : ON when the set value of Step3 is reached
SP4 : ON when the set value of Step4 is reached
Finish : ON after T1(set time), ON for the during of T2 (set time)
Near Zero: F57 set value ≥ 0 range output

5. Step1`-4(SP1-4)'s status lamp in the front panel is operated in the same manner as the RELAY output.

<Limit mode 2>
Relay Operation Graph upon Setting No. 2 of Menu 2-06-02

Note.
1. Set value input requirement: Step2 – Free Fall > Step1
2. Near zero output is according to the specified range in F57.
3. T1: Refer to F52 (Delay time of weighing Finish relay output)
   T2: Refer to F53 (Operation time of weighing Finish relay output)
   T5: Refer to F56 (Operation(ON) time of Weighing NG relay output)
4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step1 – free fall is reached
Finish : On after T1 (set time), ON after T2 (set time)
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG
Near zero: F57 set value ≥ 0 range output

5. SP1,2 's status lamps in the front panel are operated in the same manner as the RELAY output.

<Packer Mode 1>
Relay Operation Graph upon Setting No. 3 of Menu 2-06-02

Weight

Step4

Step3

Step2

Step1

Near Zero

Start — External Input

SP1 — Output 1

SP2 — Output2

SP3 — Output 3

SP4 — Output 4

T1 T2

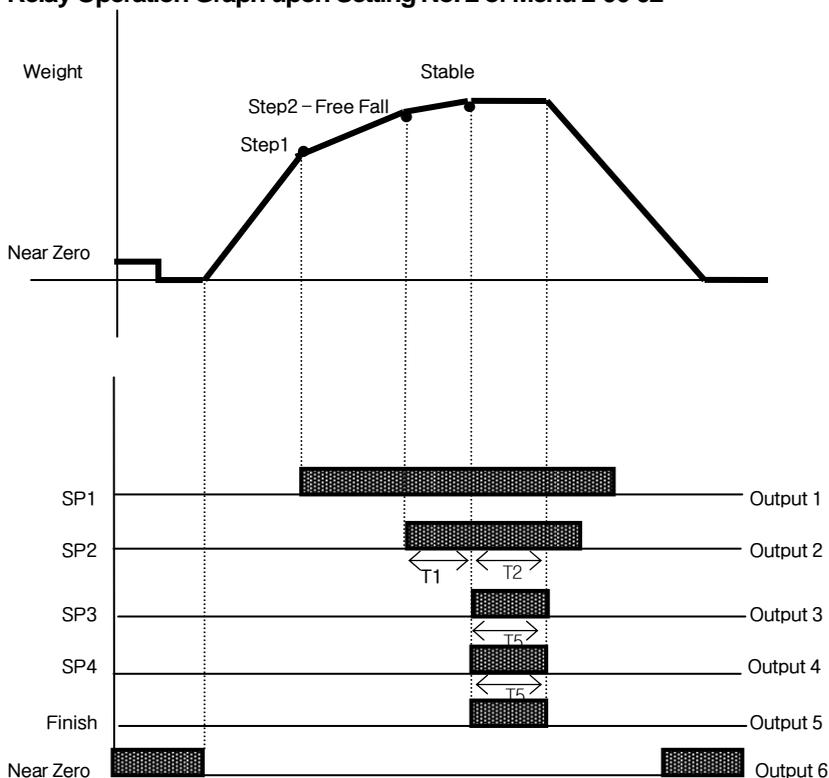Finish — Output 5

Near Zero — Output 6

Note.
1. Required set value input: Step4> Step3 > Step2> Step1
2. Near zero output is according to the specified range in F57.
3. T1: Refer to F52 (Delay time of weighing Finish relay output)
   T2: Refer to F53 (Operation time of weighing Finish relay output)

4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step2 is reached
SP3: ON when the set value of Step3 is reached
SP4: ON when the set value of Step4 is reached
Finish: ON after T1(set time), ON for the during of T2 (set time)
Near Zero: F57 set value ≥ 0 range output

5. SP 1-4 's status lamps in the front panel are operated in the same manner as the RELAY output.

\<Packer Mode 2\>
Relay Operation Graph upon Setting No.4 of Menu 2-06-02

Weight

Stable

Step 2– Free Fall

Step1

Near Zero

Start .... External Input

SP1 .... Output 1

SP2 .... Output 2

T1 T2

Finish .... Output 3

T5

Lowest Limit NG .... Output 4

T5

Upper Limit NG .... Output 5

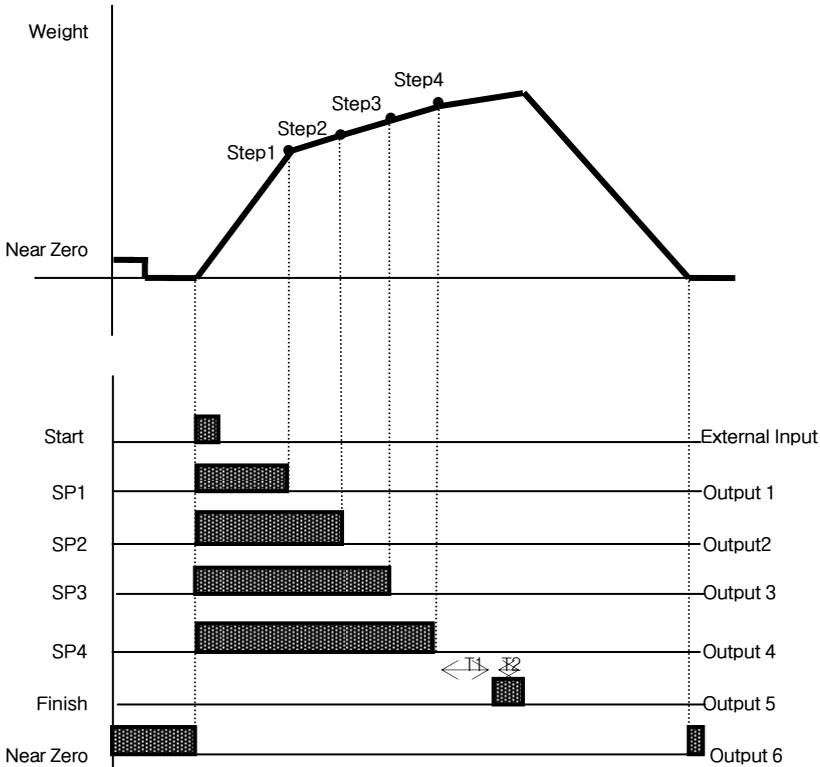Near Zero .... Output 6

Note.

1. Set value input requirement: Step2– Free Fall > Step1

2. Near zero output is according to the specified range in F57.

3. T1: Refer to F52 (Delay time of weighing Finish relay output)

   T2: Refer to F53 (Operation time of weighing Finish relay output)

   T5: Refer to F56 (Operation(ON) time of weighing NG   relay output)

4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step2– free fall is reached
Finish: On after T1 (set time), ON after T2 (set time)
Lower Limit NG: ON when smaller than the value of Step2 – Free Fall
Lowest Limit NG: Upon weighing finish, ON when lower than the set value   of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG

5. SP1-2 's status lamps in the front panel are operated in the same manner as the RELAY output.

<Checker mode1>

Relay Operation Graph upon Setting No. 5 of Menu 2-06-02
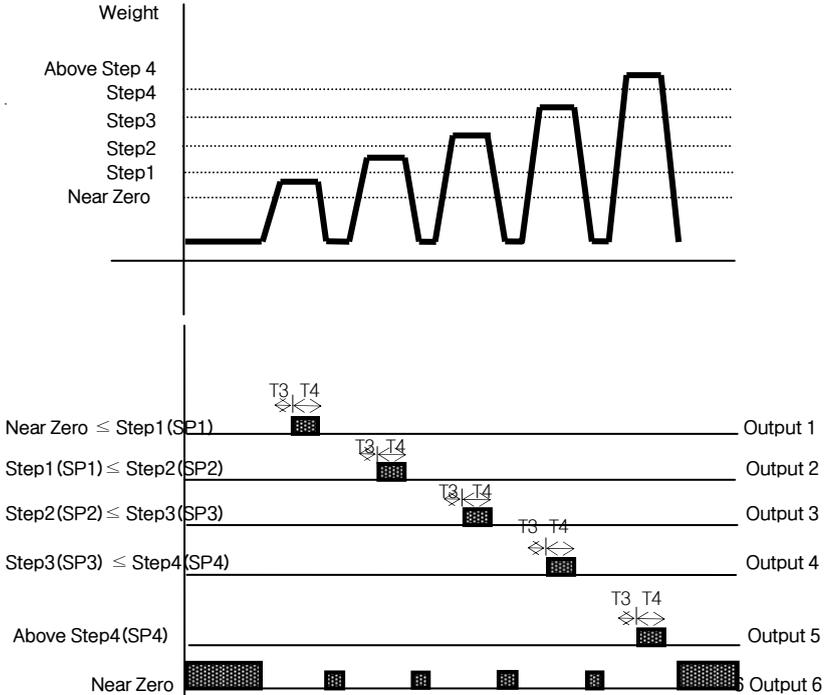
Note.
1. Required set value input: Step4> Step3) > Step2) > Step1
2. Near zero output is according to the specified range in F57.
3. T3: Refer to F54 (Delay time of judgment-relay output)
   T4: Refer to F55 (Operation time of judgment-relay output)

4. Relay Output

SP1: Near Zero < Stable Weight ≤Step1
SP2: Step1< Stable Weight ≤ Step2
SP3: Step2< Stable Weight ≤ Step3
SP4: Step3< Stable Weight ≤ Step4
Above SP4: Stable Weight ≤Above Step4
Near Zero: F57 Set Value≥ 0 range output

5. SP 1-4's status lamps in the front panel are operated in the same manner as the RELAY output.

<Checker mode2>
Relay Operation Graph upon Setting No. 6 of Menu 2-06-02

Step2

Step2 (HIGH)

Step3

Step1 (LOW)

Step3

Step1

Weight Value

T3 T4

SP1(LOW)　　　　　　　　　　　　　　　　　　　　　　　　　　　Output1

T3 T4

SP2(HIGH)　　　　　　　　　　　　　　　　　　　　　　　　　　Output2

T3 T4

SP3 (OK)　　　　　　　　　　　　　　　　　　　　　　　　　　Output 3

T5

Lowest Limit NG　　　　　　　　　　　　　　　　　　　　　　Output 4

T5

Upper Limit NG　　　　　　　　　　　　　　　　　　　　　　Output 5

Near Zero　　　　　　　　　　　　　　　　　　　　　　　　　Output 6

Note.
1. Required set value input: Step2 > Step1
2. Near zero output is according to the specified range in F57.
3. T3: Refer to F54 (Delay time of judgment-relay output)
　　T4: Refer to F55 (Operation time of judgment-relay output)
　　T5: Refer to F56 (Operation(ON) time of weighing NG relay output)
4. Relay Output

SP1(LOW): ON when the weight is stable and below the set value of Step1
SP2(HIGH): ON when the weight is stable and over the set value of Step2
SP3(OK): ON when the weight is stable and in between Step 1 ≤Step 2
Lowest Limit NG: ON during SP1 Output, adjust Output Time on T5
Upper Limit NG: ON during SP2 Output, adjust Output Time on T5
Near Zero: F57 Set Value ≥ 0 Range Output

5. SP 1-4's status lamps in the front panel are operated in the same manner as the RELAY output.

<Checker mode3>

Relay Operation Graph upon Setting No. 7 of Menu 2-06-02

Note.

1. Required set value input: Step4(SP4) > Step3(SP3) > Step2(SP2) > Step1(SP1)

2. Near zero output is according to the specified range in F57.

3. Each output relay will output if it reaches the set value or is within the range

4. Relay Output

SP1: Output(operated) in between Near Zero and Step 1
SP2: Output(operated) in between Step 1 and Step 2
SP3: Output(operated) in between Step 2 and Step 3
SP4: Output(operated) in between Step 3 and Step 4
Above SP4: Output(operated) when over Step 4 value
Near Zero: F57 Set Value ≥ 0 Range Output

5. Step1`-4(SP1-4)'s status lamp in the front panel is operated in the same manner as the RELAY output.

\<Checker mode4\>

Relay Operation Graph upon Setting No. 8 of Menu 2-06-02
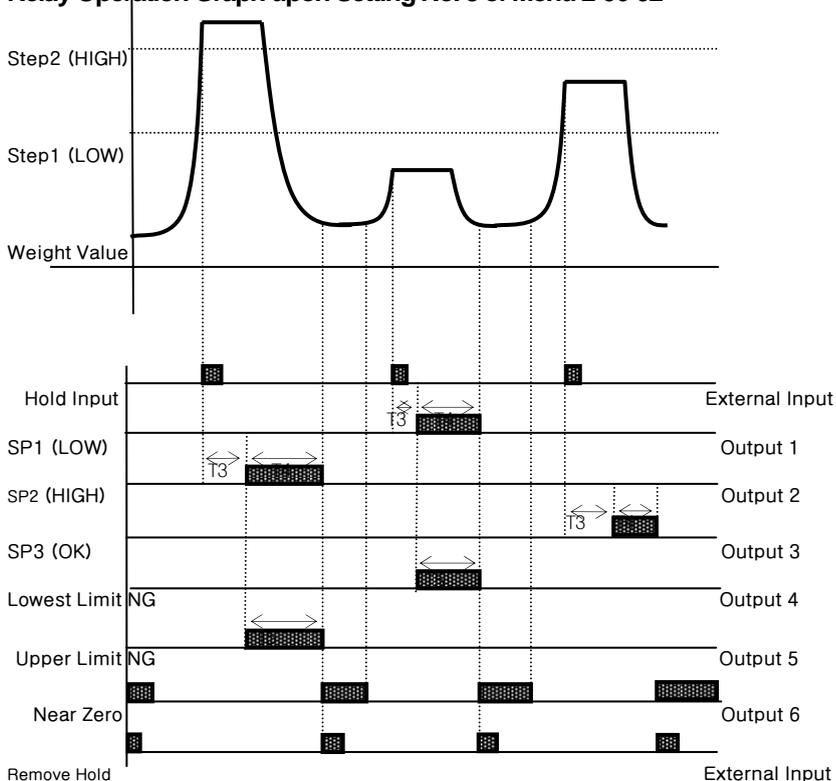
Note.
1. Required set value input: Step2 > Step1
2. Near zero output is according to the specified range in F57.
3. T3: Refer to F54 (Delay time of judgment-relay output)
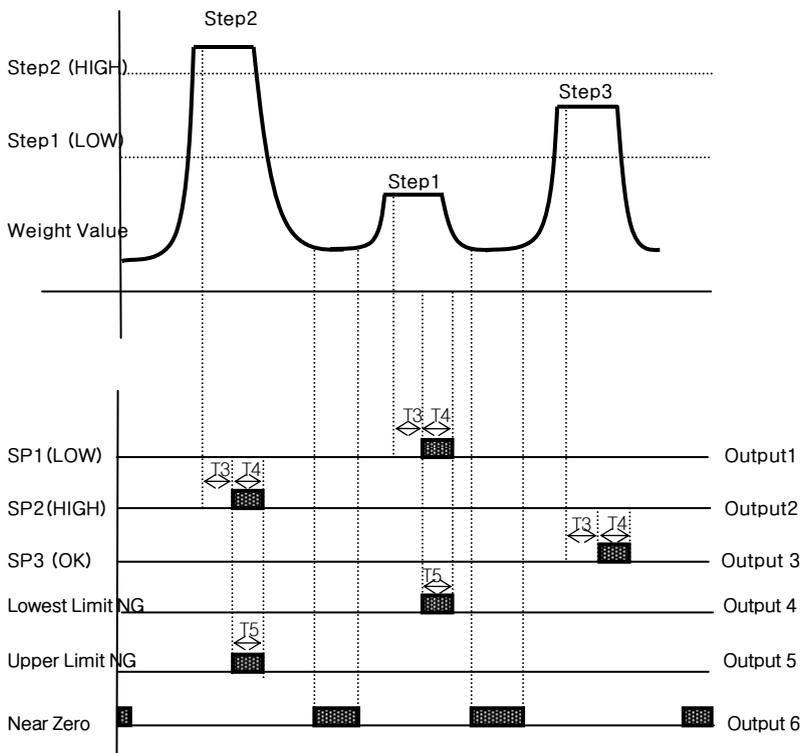   T4: Refer to F55 (Operation time of judgment-relay output)
   T5: Refer to F56 (Operation(ON) time of weighing NG relay output)
4. This is the mode that judges via Hold Input
5. Relay Output

SP1 (LOW): During Hold Input, ON when it is below the value of Step1
SP2 (HIGH): During Hold Input, ON when it is over the set value of Step2.
SP3 (OK): During Hold Input, ON when it is in between Step1 ≤ Step2
Lowest Limit NG: ON during Step1 Output, adjust Output Time on T5
Upper Limit NG: ON during Step 2 Output, adjust Output Time on T5
Near Zero: F57 Set Value ≥ 0 Range Output

5. Step1`-4(SP1-4)'s status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode5>
Relay Operation Graph upon Setting No. 9 of Menu 2-06-02
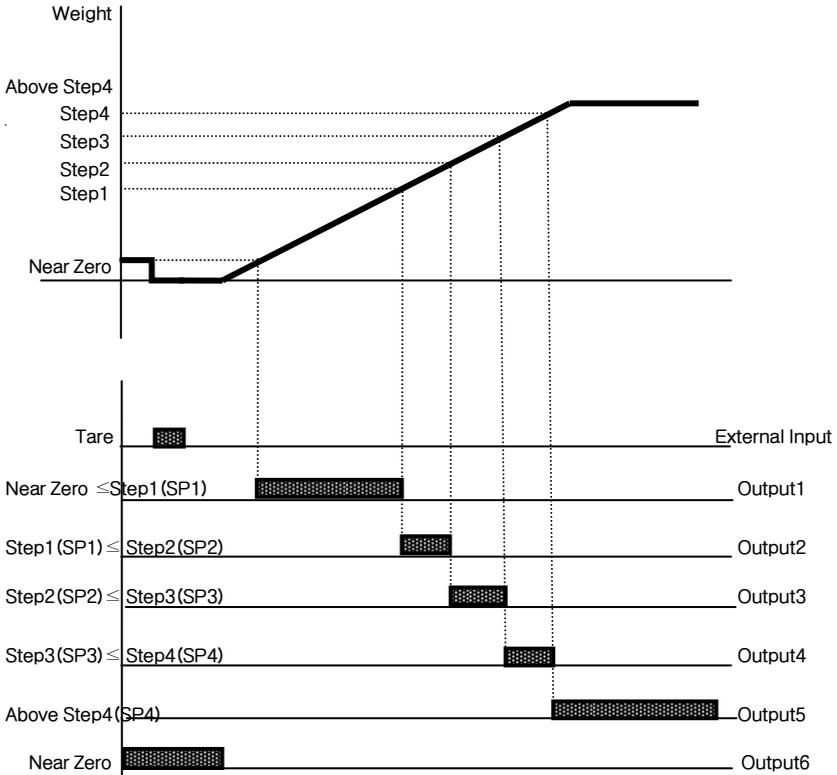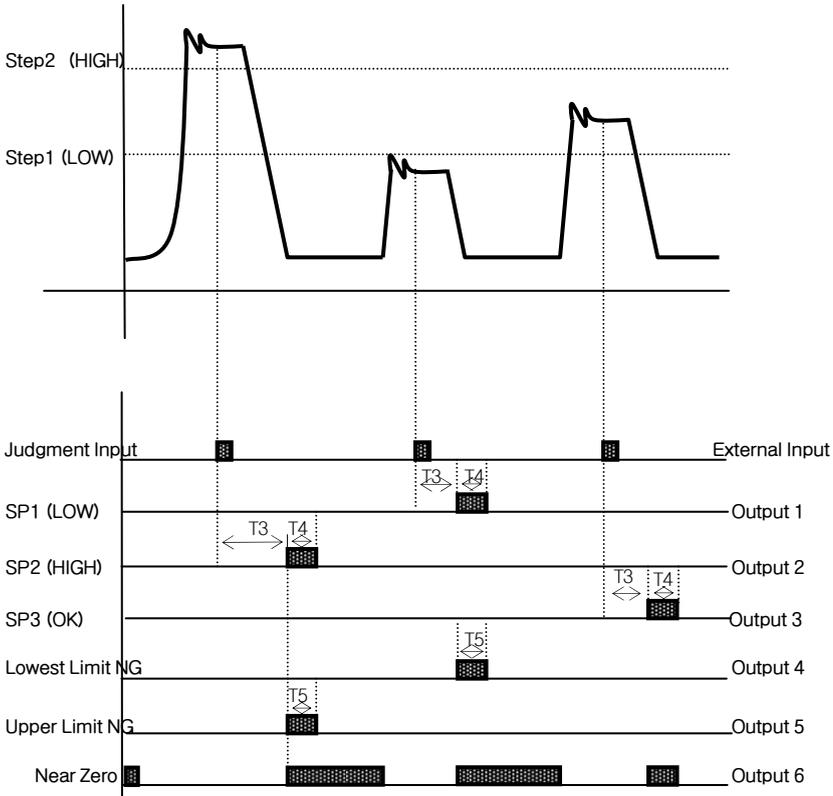

Note.

1. Required set value input: Step 2 > Step 1

2. Near zero output is according to the specified range in F57.

3. T3: Refer to F54 (Delay time of judgment-relay output)

   T4: Refer to F55 (Operation time of judgment-relay output)

   T5: Refer to F56 (Operation(ON) time of weighing NG relay output)

4. Relay Output

SP1(LOW): During Judgment Input, ON when it is below the value of Step1
SP2(HIGH): During Judgment Input, ON when it is over the set value of Step2
SP3 (OK): During Judgment Input, ON when it is in between Step1 ≤Step2
Lowest Limit NG: ON during Step1 Output, adjust Output Time on T5
Upper Limit NG: ON during Step2 Output, adjust Output Time on T5
Near Zero: F57 Set Value ≥ 0 Range Output

5. Step1`-4(SP 1-4)'s status lamp in the front panel is operated in the same manner as the RELAY output

Menu-2603

Function	Set Start Delay Time for completed Relay(T1)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: 10 x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2604

Function	Set Operating Duration Time for completed Relay(T2)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: 10 x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2605

Function	Set Start Delay Time for Decision Relay(T3)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: 10 x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2606

Function	Set Operating Duration Time for Decision Relay(T4)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: 00 x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2607

Function	Set Operating Time for Weighing NG Relay(T5)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: 00 x 0.1 Sec	Delayed by 00 x 0.1 Sec

8. RS-232C Interface in Detail

8-1. RS-232C Port Connection

(1) COM1 - RXD: Pin No. 2, TXD: Pin No. 3, GND: Pin No. 7

RXD	2 O	---------------	**O 2 Transmit Data**
TXD	3 O	---------------	**O 3 Receive Data**
GND	7 O	---------------	**O 7 Signal Ground**
			O 8 Carrier Detect
			O 20 Data Terminal Ready
			O 6 Data Set Ready
			O 4 Request to Send
			O 5 Clear to Send

9 pin port (male)
RS-232C port of CI-600

25 pin port (female)
Serial port of the computer
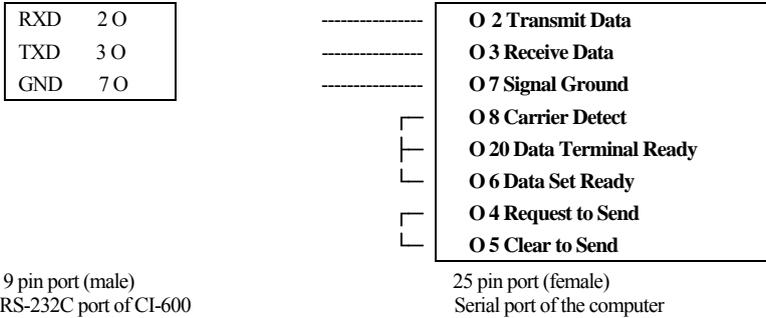
(2) COM2 - RXD: Pin No. 2, TXD: Pin No. 3, GND: Pin No. 7 (Option)

RXD	2 O	---------------	**O 2 Transmit Data**
TXD	3 O	---------------	**O 3 Receive Data**
GND	7 O	---------------	**O 5 Signal Ground**
			O 1 Carrier Detect
			O 4 Data Terminal Ready
			O 6 Data Set Ready
			O 7 Request to Send
			O 8 Clear to Send

9 pin port (male)
RS-232C port of CI-600

9 pin port (female)
Serial port of the computer
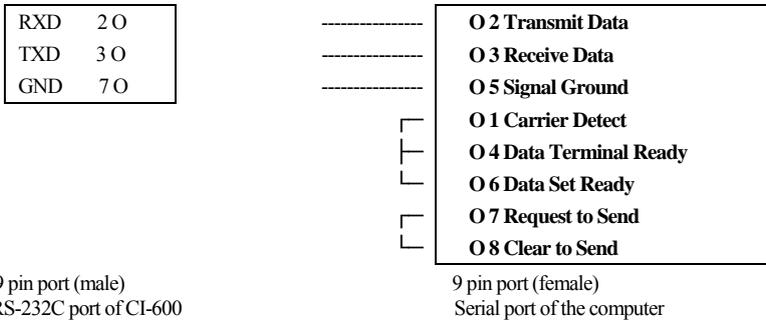
8-2. How to Connect an Auxiliary Display

TXD	3 O	---------------	**O 3 Receive Data**
GND	7 O	---------------	**O 7 Signal Ground**

9 pin port (male)
RS-232C port of CI-600

9 pin port (male)
Serial port of an auxiliary display
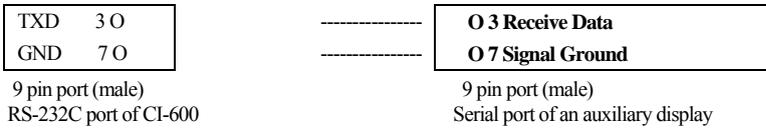
8-3. How to Connect a Label Printer (DLP)

RXD	2 O	---------------	**O 3 Transmit Data**
TXD	3 O	---------------	**O 2 Receive Data**
GND	7 O	---------------	**O 5 Signal Ground**

9 pin port (male)
RS-232C port of CI-600

9 pin port (male)
Serial port of DLP printer
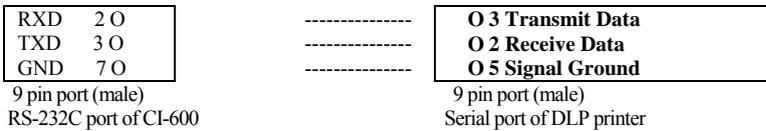
Note. Refer to page 38 (Set Mode) for RS-232C communication and setting method.

8-4. RS-422 & 485 Serial Communications

RS-422 & 485 transmit signals with the voltage difference, which are more stable for electric noises than other communication methods.

In addition, the AC Power Cable or other electric wires should be placed separately, and the shield cable (0.5Φ or more) dedicated to communications should be applied.

The recommended use distance is within 1.2km.

▶ **Setting output method**
  The same as RC232C before
▶ **Signal Format and Data Format**
  The same as RC232C before

- 422 Connection Diagram -

Computer		Indicator
TXD+	1.RXD+	
TXD−	5.RXD−	
RXD+	6.TXD+	
RXD−	4.TXD−	

- 485 Connection Diagram -

Computer		Indicator
P	1.RXD+	
N	5.RXD-	
	6.TXD+	
	4.TXD-	

9. Serial Data Information

9-1. CAS 22Bytes Format

		.		.			.	DATA (8byte)				CR	LF

US(Unstable)   GS(GROSS weight)   Device ID   Lamp condition byte   Empty   Unit (kg/t)
ST(Stable)   NT(NET weight)
OL(Overload)

▣ Device ID: Send ing1 byte of device ID to selectively receive the information from the indicator to the receiver.

(Device ID is set in F26.)

▣ Data (8 bytes): When the weight date including a decimal, for example, 13.5 kg, 8 bytes of ASCII code corresponding to 0','0','0', '0','1','3','.'and'5' are sent.

▣ Lamp Status Byte

Bt7 1	Bt6 Stable	Bt5 0	Bt4 Hold	Bt3 Printer	Bt2 Gross Weight	Bt1 Tare	Bt0 Zero Point

9-2. CAS 10Bytes

(1) Code: ASCII   (2) Transmission data format: (10 bytes)

Data (8 bytes)	CR	LF

9-3. AND 18bytes

(1) Code: ASCII   (2) Transmission data format (18 bytes)

		.			.	DATA (8byte)			CR	LF

US(Unstable)   GS(GROSS weight)   Unit (kg/t)
ST(Stable)   NT(NET weight)
OL(Overload)

 *Weight Date (8 byte)
a. 13.5kg : ' ', ' ', ' ', ' ', '1', '3', '.', '5'
b. 135kg : ' ', ' ', ' ', ' ', '1', '3', '5', ' '
c. -135kg : '-', ' ', ' ', ' ', '1', '3', '5', ' '

10. Appendix

Indicator Reception	Function	Indicator Response
dd RW CR LF	Request for Weight Data	Transmit the data in the set format upon command input
dd MZ CR LF	Same as Zero Key	Execute the zero and retransmit dd MZ CR LF to PC upon command input
dd MT CR LF	Same as Tare Key	Execute tare and retransmit dd MT CR LF to PC upon command input
dd PN 00 CR LF	Input Item No.(00~50)	Change the item no. and retransmit dd PN 00 CR LF to PC로 upon command input.
dd OP CR LF	Same as Start Key	Execute the start and retransmit dd OP CR LF to PC upon command input
dd EM CR LF	Same as Stop Key	Execute the stop and retransmit dd EM CR LF to PC upon command input

 * dd : Device ID. (ASCII Code : 0×30 (hex), 0×31
   (hex if the Device ID is "01")
 * 00000,00 : Set value for upper limit/lower limit/upper limit
   fall/lower limit fall
   (ASCII Code : 0x30(hex), 0x30(hex), 0x33(hex), 0x34(hex),
                 0x35(hex)   if the set value is "00345")
 * When it fails to execute the command : ! CR LF is transmitted to
   the computer.
 * When there is an error in the command : ? CR LF is transmitted to
   the computer.

Appendix 2> Command Mode 2 Description

CAS <NT-570 Command>

Command data to NT-570A												Command description	NT-570A Respond
0	1	2	0	1	2	0	1	2	0	1	2		
D	ID	K	Z	CR	LF							ZERO key	
D	ID	K	T	CR	LF							TARE key	Return the received
D	ID	K	G	CR	LF							GROSS key	Return the received
D	ID	K	N	CR	LF							NET key	Return the received
D	ID	K	S	CR	LF							START key	Return the received
D	ID	K	P	CR	LF							STOP key	Return the received
D	ID	K	B	CR	LF							Print key	Return the received
D	ID	K	C	CR	LF							Total print key	Return the received
D	ID	K	W	CR	LF							Request weight data	Return the received
D	ID	H	T	CR	LF							Request set point value	Send Format 2
D	ID	S	1	0	0	0	0	0	CR	LF		1st Step value	Return the received
D	ID	S	2	0	0	0	0	0	CR	LF		2nd Step value	Return the received
D	ID	S	3	0	0	0	0	0	CR	LF		3rd Step value	Return the received
D	ID	S	4	0	0	0	0	0	CR	LF		4th Step value	Return the received
D	ID	S	5	0	0	0	0	0	CR	LF		High limit value	Return the received
D	ID	S	6	0	0	0	0	0	CR	LF		Low limit value	Return the received
D	ID	H	E	0	0	0	0	0	CR	LF		Set point code(00-99)	Return the received

(D, ID:00~99, CR : 0×13, LF: 0×10, Command   HC, HE range＝00～99)

* Format 1 : PC send set point all data to indicator NT-580A

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
D	ID		H	A	Set point code				,	Zero Band					,	Optional-			
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Preli		,	Preliminary					,		Final value				,		Free Fall			
40	41	42	43	44	45	46	47	48	49	50	51	52	53							
,	High limit				,	Low limit					CR	LF							

* Format 2 : Recieve the request data from PC then response of Indicator

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
D	ID		H	T	Set point code				,	Zero Band					,	Optional-			
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Preli		,	Preliminary					,		Final value				,		Free Fall			
40	41	42	43	44	45	46	47	48	49	50	51	52	53							
,	High limit				,	Low limit					CR	LF							

* Please input without the decimal point.

Appendix 3> Command Mode 3 Description

CI-5000 : Transmission only if data is requested (1 byte communication)

Appendix 4> ASCII Table

| CHA	CODE	CHA	CODE	CHA	CODE	CHA	CODE	CHA	CODE	CHA	CODE
Space	32	0	48	@	64	P	80	`	96	p	112
!	33	1	49	A	65	Q	81	a	97	q	113
"	34	2	50	B	66	R	82	b	98	r	114
#	35	3	51	C	67	S	83	c	99	s	115
$	36	4	52	D	68	T	84	d	100	t	116
%	37	5	53	E	69	U	85	e	101	u	117
&	38	6	54	F	70	V	86	f	102	v	118
'	39	7	55	G	71	W	87	g	103	w	119
(	40	8	56	H	72	X	88	h	104	x	120
)	41	9	57	I	73	Y	89	i	105	y	121
*	42	:	58	J	74	Z	90	j	106	z	122
+	43	;	59	K	75	[	91	k	107	{	123
,	44	<	60	L	76	\	92	l	108			124
-	45	=	61	M	77	]	93	m	109	}	125
.	46	>	62	N	78	^	94	n	110	~	126
/	47	?	63	O	79	_	95	o	111	End	255

Appendix 5> ANALOG OUT(0~10V) INTERFACE

This is an Option for transmitting the weight values displayed in the external apparatus(Recoder, PLC   control center etc.) adjusted by   Analog signal in Voltage out or Current-out.
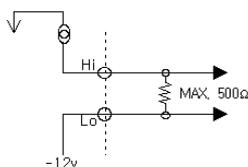
▶ SPECIFICATIONS

	Output	Precision	Max. Load Impedance
V-OUT	0~10V(DC)	Higher than 1/1000	-
I-OUT	0~24mA	Higher than 1/1000	500Ω MAX
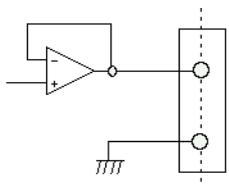
▶ V-out Equivalent Circuit　　　　　　　　**I-out Equivalent Circuit**

※ V-out output puts out ANALOG voltages(0 ~10V) proportional to the signal input displaying the weight.

※ I-out output is adjusted so as to be 4ma when the weight display is 0, and 20mA when it is the maximum load.

▶ Since the Lo(-) terminal is not GND, it should not be connected to GND Line or Body GND of some other equipment or similar apparatus.

▶ ADJUST

1. Adjust M2404, M2405 if the range of the output values needs to be adjusted.

▶ CONNECTOR


```
5.SHILED     3.GND      1.I-OUT
       4.NC       2.V-OUT
```

11. Error Message

11-1. Error Message from the Weight Setup Mode

Error	Cause	Solution
Err 20	The resolution was set in excess of the tolerance 1/10,000.	Lower the resolution. As the resolution = maximum tolerance / value of one division, adjust the resolution to 1/10,000 or less by correcting either the maximum allowable weight in CAL 1 or the value of one division in CAL3 in the weight setup mode.
Err 21	The resolution was set in excess of the tolerance 1/30,000.	Lower the resolution. As the resolution = maximum tolerance / value of one division, adjust the resolution to 1/30,000 or less by correcting either the maximum allowable weight in CAL 1 or the value of one division in CAL3 in the weight setup mode.
Err 22	The weight for the span adjustment was set to less than 10% of the maximum capacity.	Set the weight to 10% or more of the maximum capacity (set in CAL 1) from CAL 4 in the weight setup mode.
Err 23	The weight for the span adjustment was set to more than 100% of the maximum capacity.	Set the weight within the maximum capacity (set in CAL 1) from CAL 4 in the weight setup mode.
Err 24	Too low span.	Set the weight again by lowering the resolution as the setting of the current resolution is not possible because of either abnormality or lower output in the load cell. Two low weight for PCS and percent sample.
Err 25	Too high span.	There is either any abnormality or too high output in the load cell. Execute steps from the zeroing step in CAL 4 in the weight set up again. Two high weight for PCS and percent sample.
Err 26	Too high zero point.	Check whether or not the load tray is empty. Retry the weight setup after check at the test mode 3.
Err 27	Too low zero point.	Set the weight setting again after confirming what force is given to the load tray of the scale in the test mode 3.
Err 28	Weight is shaking.	Check the connection of the load cell connector.

11-2. Error Message from the Weighing Mode

Error	Cause	Solution
Err 01	The initialization of the scale cannot be done because of the shaking weight.	Turn on the power after placing the scale at a flat place with no vibration.
Err 02	Either the connection of load cell is wrong or there is abnormality in the A/D conversion section.	Check the connection between the load tray and the body.
Err 08	The zero key, tare key and start key were disabled at the instable weight.	Set the zero key, tare key and start key to the proper user conditions at F14 in the Set Mode.
Err 09	The current weight is out of the range of zero point.	Set the range of operations for the zero key to within 2% or 10% at F13 in the Set Mode.
Err 10	The tare to set is out of the maximum weight of the scale.	Set the tare to less than the maximum weight.
Err 12	The type of the configured printer is one that cannot support the total print.	DLP printers cannot make the total print. Set "F40" to '2' when DEP printers are used.
Err 13	The set value of zero point on the weight setting is out of range.	Check the status of the load tray and set the weight again.
Err 15	The range exceeded during setting the item code in the command mode.	Check the range of item code.
999999	The current weight on the load tray is too heavy and out of the allowable tolerance.	Avoid any weight in excess of the maximum allowable limit on the scale. If the load cell is damaged, it should be replaced.

MEMO

MEMO

CI-600A SERIES
Weighing Indicator

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