CI-501A

Weighing Indicator

CAS

Contents

Precautions for 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.
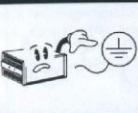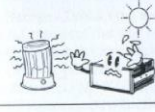
⚠ **Warning**

'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**

When any damage or defect occurs, contact your CAS authorized dealer immediately for proper repair.

Insert plug firmly to wall outlet to prevent electric shock.

Scale must be grounded to minimize electricity static. This will minimize defect or electric shock.

Do not pull the plug by its cord when unplugging. Damaged cord could cause electric shock or fire.

To prevent from fire occurring, Do not place or use the scale near flammable or corrosive gas.

To reduce electric shock or incorrect reading, Do not spill water on the scale or place it in humid condition.

Avoid placing the scale near heather or in direct sunlight.

⚠ Attention

For consistent and accurate reading, maintain periodical check by your CAS authorized dealer.	Avoid sudden shock to the scale. Internal mechanism could by damaged.	Attach the rubber pad to the bottom of the indicator. Elimination is possible.
Place the scale on firm and temperature consistent environment.	Keep the scale away from the electromagnetic generation devices. This may interfere with accurate reading.	

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.

Introduction

Thank you for purchasing our CAS Industrial Indicator.
This product has superior function and outstanding features from undergoing strict examinations as well as our devotion to every detail under strict quality control.
CAS Indicator (CI-500A Series) is a product with diverse functions and various external interface functions. It was designed to be suitable for specific requirements of a variety of industrial sites, and its external design is based on both durability and beauty.
In addition, in order to make the Indicator easy to use for the users, it was programmed for the convenient use of its users, and a message indicator function is internalized to help the understanding of its user.
Thoroughly read this instruction manuarl before using our product, CI-501A series, and use it accordingly in order to utilize it to its maximum potential.

Features and Main Functions

Features

- High-speed, High-accuracy Indicator for Industrial Use
- Suitable for measurement and weighing systems
- Easy to operate with diverse functions
- Simple Calibration (FULL DIGITAL CALIBRATION)
- Panel-type Indicator
- Shielded against RFI/EMI
- Self-diagnosis and self-recovery functions
- Data recovery function during blackouts (WEIGHT BACK-UP)
- A variety of options

Main Functions

- Saving of Date & time, and total data in case of blackouts,
- Adjustment of changing speed of weights (digital filter function)
- Connection to various types of printers (Serial)
  -Sub total print function according to item and grand total function
  -Built-in clock(RTC-Real Time Clock) allows print-out of weighing date and time
- PC communication function (PC Command mode)
- 4 Built-in external relay input terminals
- The user may set the desired maximum weight and the arbitrary value of 1 division
- Zero or span calibration may be operated separately
- Self-hardware test function
  -Circuits can be tested according to modules; thus, repair services can be handled immediately in case of problems

Technical Specification

■ Analog Part & A/D Conversion

Input sensitivity	0.45μV / D
Adjustment range of Zero	- 0.6mV ~ + 42.0mV
Load Cell Excitation Voltage	DC 10V (±5V)
Temperature Coefficient	Zero: ±20 PPM / ℃ SPAN : ± 20 PPM / ℃
Input Noise	±0.6μV P.P
Input Impedance	Over 10MΩ
A/D conversion method	ΔΣ
A/D Internal resolution	1/520,000
A/D External resolution	1/10,000
A/D conversion speed	200 times / sec
Nonlinearity	0.01% FS

■ Digital Part

Span Calibration	Full Digital Calibration (Set one automatic weight calibration)
Display	7Segment 6 red-colored digits FND 2EA Character size : 20.9(H) X 13.0(W) mm
Key	Function key (4EA), Number and Function key (12 EA)
Division	X1, X2, X5, X10, X20, X50
Below Zero Indication	Negative "-" sign
Allowed Tare Range	Full capacity
Status lamp(lamp)	STABLE, ZERO, TARE, NET, AUTO, PRINT, HOLD, TX, RX

■ General Specifications

Power	SMPS Free Voltage AC 100V ~ 250V , 50/60 Hz
Product Size	195(W) x 189(D) x 98(H)
Operating Temperature	-10℃ ~ +40℃
Product Weight	Approx.1.8 kg
Fuse Capacity	6A L250V
Power Consumption	Approx. 10W

■ Options

Option - 1	RS-422/RS-485 Interface
Option – 2	Analog Output (V-out: 0~10V)
Option – 3	Analog Output (I-out : 4~20mA)
Option – 4	BCD Output
Option - 5	BCD Input

External Appearance and Dimensions

External Appearance
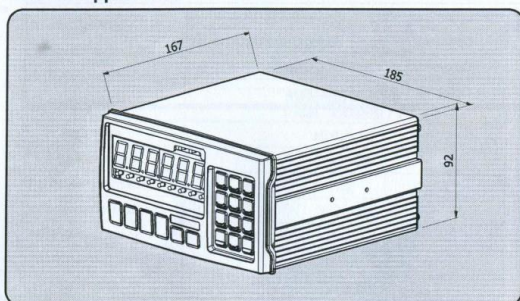
Dimensions of the Product

FRONT   SIDE

REAR   PANEL CUTTING SIZE

Front Panel Descriptions

CI-501A ● kg ● g ● ton

● STABLE ● ZERO ● TARE ● NET ● AUTO ● PRINT ● HOLD ● RX ● TX

Max   Min   e=d=
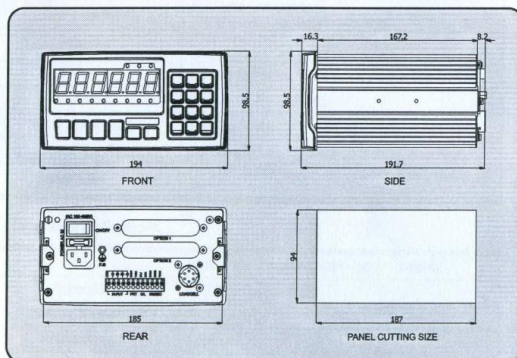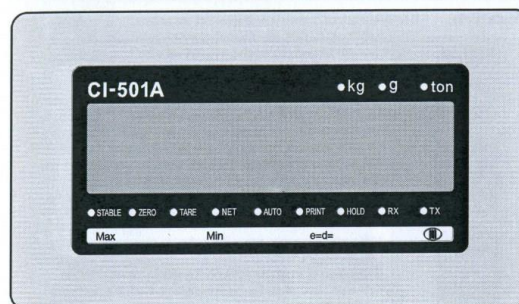
Status Lamp

STABLE	Indicated when the weight is stable
ZERO	Indicated when the weight is "0"
TARE	Indicated when tare is entered
NET	Indicates gross and net weight after setting tare
AUTO	Indicated when the Data Print-out is Automatic during Stable Weight
PRINT	Indicated during data transmission to an External Print Communication Port
HOLD	Indicated when operating the hold function
RX	Indicates status of receiving data during communication
TX	Indicates status of transmitting data during communication

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■ How-to-use the Keys

Function Key

Key	Description
ZERO ►0◄	*Used to set the weight near zero to be displayed as 0. (select range from 2%, 5%, 10%, 20%, 100%)
TARE ►T◄	*Used to measure the weight using a container. *When this key is pressed, the scale stores a current weight as the tare. *To clear this function, press this key when the scale is cleared of any weight.
GROSS NET	*After setting the tare, press this button to alternate from gross to net weight. (When the net weight lamp is on, the displayed weight is the net weight, and when the net weight lamp is off, the displayed weight is the gross weight.)
PRINT	* Used to print manually. (Manual Print Key) * Used to transmit data manually. * Print format can be changed in the Set Mode.
F1	*Some functions may be assigned according to the purpose of utilization. (Set the purpose of utilization at number F16)
F2	* Some functions may be assigned according to the purpose of utilization. (Set the purpose of utilization at number F17)

Number Key

Key	Description
1 ZERO	* Used to set the weight near zero to be displayed as 0. (Select the range from 2%, 5%, 10%, 20%, 100% in F-11) * Press this key (for 3 seconds) to enter the test mode.
2 G/N	*After setting the tare, press this button to alternate from gross to net weight. (When the net weight lamp is on, the displayed weight is the net weight, and when the net weight lamp is off, the displayed weight is the gross weight.) * Press this key (for 3 seconds) to enter the set mode.
3 TARE	* Used to measure the weight using a container. *When this key is pressed, the scale stores a current weight as the tare. * To clear this function, press this key when the scale is cleared of any weight. * Press this key in order to enter the calibration mode.
4 I.SUM	* Used to print the number of weighing and the sub-total weight of the selected ID Number.
5 G.SUM	* Used to print the number of total weighing and the total weight of the ID Numbers from 1 to 99. * Press the Clear key and then "5" key to delete the stored data of the Grand-total . It can be changed in F33 in the Set Mode.
6 W.CNT	* Used to check or change the weighing number that has been weighed until present. ► Checking the Order: - Press "6" to return to the previous display after checking the order for 3 seconds or by pressing the Clear key. ► Changing the Order: Press "6" After changing the order, press the Set key to change the entry.
7 PRINT	* Used to print manually. (Manual Print Key) * Used to transmit data manually. * Print format may be changed using F31 in the Set Mode.
8 HOLD	*Used when Indicating the maximum value of the changes in weight (Peak-Hole), the value at the moment (Sample-Hold) or the average weight (Average Hold). * Used to clear the hold function.
9	* Some functions may be assigned according to the purpose of utilization. (Set the purpose of utilization in number F18)

CLEAR		* Used to edit wrong information during data input. * Used when entering a decimal (.) in the Calibration mode
0 ITEM		* Used to register an ID number. (1~99)
SET		* Used to save and/or clear the current status in the calibration mode, set mode, and test mode. * Press this key (for 5 seconds) to enter the Calibration mode.

Double Key (*After pressing the Clear or Set Key, enter the number key)

CLEAR	1 ZERO	* Time Indication and/or Change
CLEAR	2 G/N	* Date Indication and/or Change
CLEAR	4 LSUM	* Press the Clear key and then the "4" key to delete the stored data of the Sub-total. It can be changed in F33 of the Set Mode.
CLEAR	5 G.SUM	* Press the Clear key and then the "5" key to delete the stored data of the Grand-Total. It can be changed in F33 of the Set Mode.
CLEAR	6 W.CNT	* Press the Clear key and then the "6" key to check the total sum weight value of the ID numbers currently stored.

CLEAR	7 PRINT	* Code Indication and/or Change Press the Clear key and then "7" key to check.
SET	3 TARE	* Used as the Tare key * When the tare is known, use the number keys to input the tare(the weight of container).

Rear Panel Descriptions
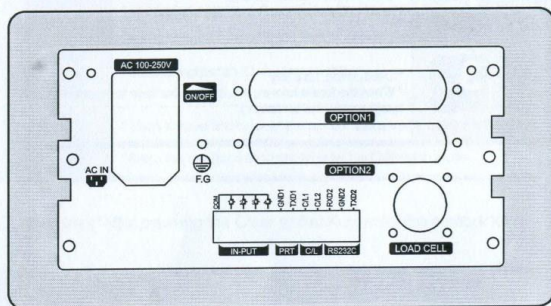
■ PRT : Serial Printer Interface
■ C/L : Use when connecting an external indicator (Current Loop)
■ INPUT : External relay Input – Use for remote control (Refer to F50 of the Set Mode)
■ RS-232C : RS-232C Serial interface
■ Fuse: Input Fuse (Fuse Capacity: T6A L250V)
■ LOAD CELL :: Load Cell Connection Port (6-wired type)
■ OPTION: BCD Input/ Output, Analog Output (4~20mA or 0~10V), RS-422/RS-485
■ POWER S/W:: Power Switch

For a precise measurement, it is recommended that you use the indicator 'CI-501A' approximately 10 minutes after powering on.

Installation & Connection

1) Load cell connection

Connect load cell connector to load cell port which is in the backside of the indicator.
* Connecting method
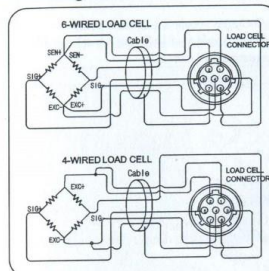
Pin #	Pin Function	Color
1	EXC+	Red
2	SEN+	Brown
3	EXC-	White
4	SEN-	Black
5	SIG+	Green
6	SIG-	Blue
7	SHIELD	External

Note 1. When using the 4-wired type Load Cell,
Connect EXC+ and SEN+ to "EXC+" terminal (LoadCell Input + terminal) to use
Connect EXC- and SEN- to "EXC-" terminal (LoadCell Input - terminal) to use

Note 2. The color of the connectors may be different depending on the model and/or the Load Cell manufacturer

Note 3. A maximum number of 8 similar loadcells may be used. (Reference: 350Ω)

Note 4. The calculated value of 1 division may not be set based on resolution and/or capacity.

* The Relationship Between the Load Cell Output and Input Sensitivity

The input sensitivity of this product is over 0.2uV/digit maximum.

The system design must satisfy the following formula:

$$0.2uV \leq \frac{\text{LoadCell excitation Voltage x LoadCell Output Voltage x 1 Division Value}}{\text{LoadCell Max.Capacity x The number of Load Cells}}$$

Example #1)
  The number of LoadCells: 4 EA
  LoadCell Max.Capacity: 500 Kg
  Load Cell Rate Output: 2mV/V
  1 Division: 0.10 Kg
  Load Cell excitation Voltage: 10V (= 10,000 mV)
According to the equation ➔ (10000 mV* 2mV * 0.1Kg)/(500Kg * 4) = 1 ≥ 0.2uV
Since the calculated value is higher than 0.2uV, this weight system design does not have any problems.

Note 5: Internal LOAD CELL Output Switch (SW2)

Turning on the A_UP S/W2 in the interior of the indicator will increase the 1mV/V Zero Value.

● In the Test Mode 3 LoadCell Test Mode, mV/V value can be checked by pressing the Clear key.
● Set the F02 to 1, and turn on the A_UP S/W2 to use compression and tension simultaneously.

Calibration Mode

What is Calibration?

It refers to adjusting the indicated numerical value of the weight to represent the actual weight.

(1) How to enter Calibration Mode

① Loosen the bolts in the Rear panel of the Indicator and set the CAL
  switch to the ON position as shown in the figure above.
  ※ CAL is at the ON position originally.

② Close the Rear panel of the Indicator, and while pressing the [3 TARE] (3 Tare) key, turn on the power.
③ Calibrate.
④ Upon completion of calibration, set the CAL switch to the OFF position, assemble, and seal.
⑤ If it is calibrated with the CAL switch in the OFF position, SLOC will be displayed.

  ※ Refer to the sealing method on pg. 61
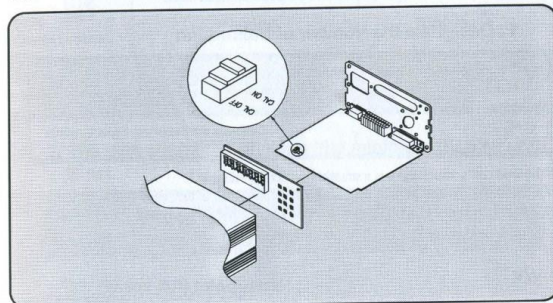
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(2) Calibration Menu (CAL 1 ~ CAL 7)

P   1 : Multi-calibration range set-up
CAL 1 : Maximum Capacity Set-up
CAL 2 : Minimum Division Set-up
CAL 3 : Zero Calibration
CAL 4 : Setting the Balance Weight (Setting Weight) during Span Calibration
CAL 5 : Span Calibration
CAL 6 : Weigh Constant Calibration
CAL 7 : Equivalence input mode(DIRECT Loadcell input mode

P   1 : Designate the Number of Calibration

Function: Multi-calibration range set-up		
Set Value (1~4)	Display	Description
	P 1	Calibrate the maximum capacity within 1~4 value range

* If the load cell's actual curve is a straight line, set the value to 1.
* If the load cell's actual curve is not a straight line as shown in the figure below, this function is used to set multi-points to compensate for the load cell's output.

Zero and Span points to interpolate weight from Load Cell
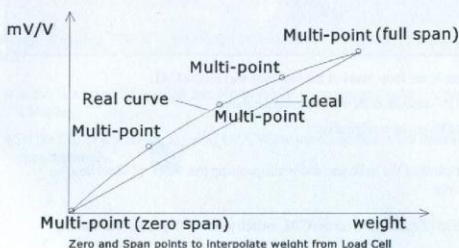
* How to enter the Calibration mode

Upon specifying the number of calibration steps, the display for entry into calibration will be displayed.

* Screen Display: 1-7 displayed

You can select and designate according to steps.

CAL 1: The step where the maximum capacity is set.

Function: Maximum capacity set-up (Range: 1~99,999)		
Key used	Display	Description
SET : Save and/or move to the next menu 0 ~ 9 : Change the value CLEAR : Finish	C= 500 C=2000	500 kg 2000 kg

Note 1. The maximum capacity refers to the maximum value of weight the scale can measure.

CAL 2: The step where the division (the minimum display unit) is set.

Function: Minimum division set-up (range: 0.001~50)		
Key used	Display	Description
SET : Save and/or move to the next menu 0 ~ 9 : Change the value CLEAR : Enter a decimal(.)	d= 1 d= 0.2 d= 0.05 d=0.001	1 kg 0.2 kg 0.05 kg 0.001 kg

Note 1. The minimum division refers to the value of 1 division.
Note 2. The minimum division can be set from 0.001 ~ 50. The minimum division in single digit is available as 1, 2, and 5. In double digits, it is available as 10, 20, and 50. Same goes for numbers with decimals.
Note 3. Do not set the value of 'one division/the maximum capacity' as more than '1/ 50,000', respectively. If it is over 1/50,000, an error message will be displayed. 1/50,000 is the maximum value.

CAL 3: The step of Zero Calibration.

Function: Zero Calibration		
Key used	Display	Description
SET : Zero Calibration CLEAR : Finish	UnLoAd — Good	Clear the scale and press SET During Zero Calibration Zero Calibration complete. Automatically move to the Span Calibration menu after this display.

Note 1. If the Zero Calibration is successful without error, a 'Good' message is displayed and it automatically moves to the Setting Weight Menu for Span Calibration (CAL 4).

Note2. If the Zero value is too low or high, an error message 'Err 33' or 'Err 34' is displayed.

Note3 . If you wish to only perform a Zero Calibration, then clear the scale and press 1 ZERO

Press the Zero Key: Zero Calibration, Press the Clear key: escape from Zero Calibration

CAL 4: Setting Balance Weight Step

Function: Setting Balance Weight during Span Calibration (Range: 1 ~ 99,999)		
Key used	Display	Description
SET : Save and/or move to the next menu 0 ~ 9 : Change the value CLEAR : Enter a decimal(.)	L=5000 L= 500	5000 kg 500 kg

Note 1. Initially, 100% of the maximum weight is given, but if the known weight of the balance weight is different, then re-enter the desired weight value.
If the resolution of the balance weight is less than 1/5,000, then set it above 10%, and if the resolution is over 1/5,000, then set it above 20% in order to measure the most accurate weight.

Note 2. Do not enter the sum amount of the balance weight on the scale and the weight to be on scale. Enter the amount of weight to be put on the scale excluding the weight already on the scale.

Note 3. If the set weight is less than the maximum weight by 2%, then Err 32 is displayed.

CAL 5: Span Calibration with a Balance Weight

Function: Span Calibration		
Key used	Display	Description
SET : Span Calibration CLEAR : Finish	UP — Good	After placing the balance weight used in CAL 3 step on the scale, press the SET key. During Span Calibration… Span Calibration complete. Check if the weight value on the display is the same as the calibrated weight.

Note 1. If the Span Calibration is successful without error, a 'Good' message is displayed and it automatically moves to the next menu.

Note 2. If the Span is too high or low, Err 33 or Err 34 is displayed. Please calibrate again after decreasing resolution.

Note 3. Depending on the multi-calibration range set-up, repeat the steps of CAL 4 and CAL 5.

CAL 6: Weight Constant Calibration Menu (Without a Balance Weight)

Function: Weight Constant Calibration		
Key used	Display	Description
0 ~ 9 : Enter PIN CLEAR - SET : Escape CAL mode	PASS	Enter Your PIN

Note 1. This menu is displayed automatically.

Note 2. This menu is for Setting Weight when there isn't a balance weight. Therefore, general users do not need to use this menu.

Note 3. Pressing CLEAR key moves you to the Weighing Mode after a "CAL End" message. If you need to check the constant value for Span, then enter your PIN.

Note 4. The number for CAL 6 may be subjected to change depending on the value of multi-calibration range set-up.

CAL 7 Weight Measurement Mode using an Equivalent Circuit

	Display or Key Used	Description
CAL 1	C = 200	Enter the maximum capacity allowed indicated on the label of the load cell EX) Weight: 200kg
CAL 2	d = 0.05	Abbreviation of DIVISION, indicating the division value EX) The minimum division value 0.05
	SET	
CAL 3	UnLoAd	Start the process without weight on scale
	SET	After 3 beeps, a 'Good' message is displayed if normal
CAL 4	0.00000	The maximum output value of the loadcell Input as (Rated Output Voltage / mV/V) EX) For 2mV/V, enter as 2.00000
	SET	If entered value is normal, Good → PASS
CAL 5	PASS	Displayed in a normal progress
	SET	After the display from CAL.END → BYE… moves to the Weighing Mode

Weighing Mode

(1) Zero Compensation

	Display or Key Used	Scale	Description
1st Step	• kg 0.2 • STABLE	Empty	Change in Zero
2nd Step	☞ ZERO ►0◄		
3rd Step	• kg 0.0 • STABLE ● ZERO	Empty	Zero Compensation has been performed. In other words, the current weight is designated as '0'Kg.

Note 1. The possible operating range of the Zero key is from ±2% ~±100% of the maximum weight. The operating range of the Zero key can be designated in F11 of the Set Mode.

Note 2. You can specify in F10 of the set mode to only perform Zero Compensation when the current weight is stable or if it is possible to perform Zero Compensation when the weight is unstable.

(2) select Net Weight / Gross Weight

	Display or Key Used	Scale	Description
1st Step	• kg 5.00 • STABLE	Container	Tare : 5.00 kg
2nd Step	☞ TARE ►T◄		
3rd Step	• kg 0.00 • STABLE ● ZERO ● TARE	Container	Tare lamp is on to indicate that the tare has been registered by the indicator.
4th Step	• kg 13.00 • STABLE ● TARE ● NET	Container + Item	Net Weight (weight of the item): 13.00 kg
5th Step	☞ GROSS NET		

6th Step	**18.00** kg ⊙ STABLE ⊙ TARE	con + Item	Gross Weight (Weight of container and item): 18.00 kg. When the Net Weight lamp is turned off, the gross weight is displayed.

Note 1. In order to clear Tare, press [3 TARE] (the Tare) key when the scale is empty.

(3)Change in Digital Filter

	Display or Key Used	Scale	Description
1st Step	**13.00** kg ⊙ STABLE ⊙ TARE ⊙ NET	Item	In the Weighing Mode.
2nd Step	Press [2 G/TS] key for more than 2 seconds		Moves to the Set Mode.
3rd Step	**F0 1-F 99** kg	Item	Select a number from 1 ~ 99
4th Step	☞ [0 ITEM], [4 L/S/M]		Select Menu #4 (Digital Filter)
5th Step	**F04 5** kg	Item	The current set value of menu #4 is '5.' '5': displays 5 number of times of average value
6th Step	☞ [9]		
7th Step	**9** kg	Item	Change '5' to '9.' '9': displays 9 number of times of average value
8th Step	☞ [SET], [SET]		Save and Finish
9th Step	**13.00** kg ⊙ STABLE ⊙ TARE ⊙ NET	Item	Move back to the Weighing Mode.

(4) ID Number Change

	Display or Key Used	Scale	Description
1st Step	**0.0** kg ⊙STABLE⊙ ZERO	Empty	Tare : 5.00 kg
2nd Step	**1500.0** kg ⊙ STABLE	Item (Steel)	
3rd Step	☞ [0 ITEM]		
4th Step	☞ [1 ZERO], [0 ITEM]		Enter '10,' the ID number for Steel
5th Step	**10** kg	Item (Steel)	
6th Step	☞ [SET]		ID number is saved.
7th Step	**1500.0** kg ⊙ STABLE	Item (Steel)	Move back to the Weighing Mode.

Note 1. ID number can be designated from 01~99.

(5) Print-out of the Sub-total

■ Suppose the ID number for Steel is '10.'

	Display or Key Used	Scale	Description
1st Step	☞ [0 ITEM]		Changes to the desired ID number
2nd Step	☞ [1 ZERO], [0 ITEM], [SET]		Enter the ID number for Steel, '10'
3rd Step	☞ [4 L/S/M]		The sub-total for the specified ID number is printed
4th Step	☞ [7 PRINT]		The displayed value is printed out in the designated print-out format.

Note 1. The print-out format is as follows:

```
========================
        SUB-TOTAL
DATE      :   2009/07/07 TUE
TIME      :       09:30:45
ID        :              1
CODE      :             49
T-COUNT   :              5
T-WEIGHT  :       350.0 kg
```

Note 1. To delete the sub-total data, press [CLEAR] key and then [4 L/S/M].

(6) Print-out of the Grand Total

	Display or Key Used	Scale	Description
1st Step	☞ [5 G/S/M]		Prints out the Total Weight Value of the ID numbers from 1~99.
2nd Step	☞ [7 PRINT]		Printed out in the designated print-out format.

Note 1. The print-out format is as follows:

```
========================
        OVERALL-TOTAL
DATE   :      2009/07/07 TUE
TIME   :          09:30:45
ID   CODE    SERIAL    WEIGHT
1     12        3     300.0 kg
2     78        2     200.0 kg

T-ID      :            2
T-COUNT   :            5
T-WEIGHT  :      500.0 kg
```

Note 1. Press [CLEAR] and then [5 G/S/M] to delete the Data of the Grand Total.

Test Mode

(1) How to enter the Test Mode

Turning on the power while pressing [1 ZERO] on the front of the Indicator starts it in the Test Mode. Press the number dorresponding to the desired Test Menu.

(2) Test Menu (TEST 1 ~ TEST 8)

Test 1 : Key Test
Test 2 : Display Test
Test 3 : Load Cell and A/D Conversion Test
Test 4 : Serial Communication Test
Test 5 : Printer Test
Test 6 : External relay Input/Output Test
Test 7 : BCD Output Test
Test 8 : ANALOG Output Test

TEST 1

Function: Key Test		
Key Used	Display	Description
[SET] : Upper Menu Other keys: Test	1 1	If pressing the Key to be tested, the number or code corresponded to it is indicated on display

<Key List>

Key	Number	Code	Key	Number	Code	Key	Number	Code
[1 ZERO]	1	1	[6 RIGHT]	6	6	[0 ITEM]	0	0
[2 G/TS]	2	2	[7 PRINT]	7	7	[SET]	70	70
[3 TARE]	3	3	[8 HOLD]	8	8			
[4 L/S/M]	4	4	[9]	9	9			
[5 G/S/M]	5	5	[CLEAR]	11	11			

TEST 2

Function: Display Test		
Key Used	**Display**	**Description**
SET : Upper Menu Other keys: Test	8.8.8.8.8.8. (3 sec)	Test 2 is performed.

Note 1. Press '9' to run the Display Test. Test according to types of FND Dot.

TEST 3

Function: Load Cell Test and A/D Conversion Test		
Key Used	**Display**	**Description**
SET : Upper Menu	XXXXX X.XXXX	Indicates internal value corresponding to the current weight value. Indicates the current output value of the load cell in mV/V unit.

Note 1. When Pressing CLEAR, the internal value and the current weight and the output value of the load cell(mV/V) are displayed in alternation.
Note 2. Place and remove a weight on the scale, and check if the number on the display changes accordingly. If the number remains the same or is indicated as "0", check to see if the load cell is connected properly.

TEST 4

Function: Serial Communication Test		
Key Used	**Display**	**Description**
SET : Upper Menu Other keys: Test	t – r –––– 05 –13	Waiting to transmit or receive Transmit: 5, Receive: 13

Note 1. Run this test after connecting the serial port of the computer to the RS-232 port on the back of the Indicator, and then turning on the communication program (eg. Hyper Terminal) on the computer.
Note 2. Transmit '1' from the keyboard of the computer, and check if '1' is correctly displayed on the Indicator's display. Press '1' on the Indicator's keyboard to check if the computer receives the information properly.
Note 3. Run this test after designating it as F23-4 (Baud Rate 9,600bps) in the Set Mode.

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TEST 5

Function: Printer Test		
Key Used	**Display**	**Description**
SET : Upper Menu Other keys: Test	Print	Normal printer function Check if the printer is connected properly.

Note 1. Interface: RS-232C , Protocol : 9600bps, N, 8, 1 , Column : 30
Note 2. When the printer is properly connected and specified, the print-out is as follows.

```
Come And Success
CAS Corporation
http : //www.cas.co.kr
TEL 82-2-2225-3500
FAX 82-2-475-4669
TEST OK
```

TEST 6

Function: External Input / Output Test		
Key Used	**Display**	**Description**
SET : Upper Menu External Input: External Keys External Output [1] [2] [3] [4]	In _ ot In3ot4	IN1: Enter External Key #1 to input number 1. OUT2: Indicates the status of the External Output. That is, Output 2 is ON.

Note 1. Only external relay input is availble for CI-501A

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TEST 7

Function: BCD Output Test		
Key Used	**Display**	**Description**
SET : Upper Menu CLEAR : ON/OFF Switch	OFF ON	ALL ON : All BCD Outputs are ON ALL OFF : All BCD Outputs are OFF

TEST 8

Function: ANALOG Output Test (0-24mA, 0-10V)		
Key Used	**Display**	**Description**
SET : Upper Menu CLEAR : HIGH/ZERO Switch	HIGH ZEro	HIGH : the value of Max. Capacity is output. ZERO : the value of Zero is output.

Note 1. Press CLEAR key during Test 8 to repeat ANALOG Output of ZERO/HIGH.
Note 2. The value of ZERO/HIGH is outputted as the values set in F71 and F72.
Note 3. Use 1~5 keys to run the output test of the default values.
(In case of setting the Analog Output Card as 0~24mA)
#1 key: 0.00mA, #2 key: 6.00mA , #3 key: 12.00mA
#4 key: 18.00mA , #5 key: 24.00mA will be outputted.

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Set Mode

(1) How to Enter the Set Mode

Turning on the power while pressing [2] key on the front of the Indicator starts it in Set Mode.
To enter into the Set Mode while using the Indicator normally,

Press [2] key fot approximately 3 seconds.

(2) Key Used

[0] ~ [9] : use to change the set value.

[SET] : saves the changed set values, and moves to the initial display of the Set Mode.

[CLEAR] : cancels and clears the set values, and moves to the initial display of the Set Mode.

(3) Set-up Menu for the Set Value Changes (F01~F99)

*Note. The number in bracket ( ) is the default value.

General Function			
F01	(0)	Set-up for the weight unit (0~2)	kg , g , ton
F02	(0)	Set-up for the load cell type(0~1) (Tension or Compression, Tension & Compression)	Adjust with A_UP S/W3 ON in case of General / Tension & Compression
F03	(0)	Set-up for the weight indication rate (0~9) (FND display indication rate)	200 times / sec ~ 1 time / sec
F04	(25)	Set-up for the Digital Filter (01 ~ 49)	Places with low levels of vibration ~ high levels of vibration
F05	(5)	Set-up for the Stability Condition of weight(0~9)	Places with low levels of vibration ~ high levels of vibration
F06	(5)	Set-up for the Automatic Zero Tracking Compensation (0~9)	Select from 'do not use automatic settings' to differential settings based on the weight calibration value.
F07	(0)	Weight Backup function(0~2)	0: Do not use Weight Backup 1: Use Weight Backup (calibration) 2: Use Weight Backup (reference: operation)
F08	(0)	Set the Hold Type (0~2)	Average Hold/ Peak Hold / Sampling Hold
F09	(30)	Set-up for the average hold time (01~99)	0.1 sec ~ 9.9 sec
F10	(1)	Set-up for the operation condition of Zero key and the Tare key (0 ~ 1)	0: Zero and Tare key always available 1: Zero and Tare key only available when the weight is stable

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F11	(0)	Set the Zero Range	±2% ~ ±100%
F12	(9)	Set the Tare Range	±2% ~ ±100%
F13	(2)	Set Initial Zero Range (Init Zero)	±2% ~ ±100%
F14	(09)	Set the Excessive Weight Check Range (Weight Unit)	Excessive weight is from maximum weight value to +99 division unit above the maximum weight value.
F15	(0)	Set-up for allowing key input in the front of the indicator	All keys functional / only the specified keys functional
F16	(5)	Set the purpose for Function key 1 (0~29)	Use it in 22 code types *(Function Code Table)
F17	(6)	Set the purpose for Function key 2 (0~29)	Use it in 22 code types *(Function Code Table)
F18	(1)	Set the purpose for key 9 (0~29)	Use it in 22 code types *(Function Code Table)

Communication & Print Function			
F20	(01)	Set the Device ID (00~99)	Device ID
F21	(0)	Set the parity bit (0~2)	Data bit, stop bit, parity bit
F22	(0)	Set the communication data (0~2)	Transmissions of indicated value / gross weight / net weight
F23	(4)	Set the RS-232C Baud Rate (0~8)	600bps ~ 115,200 bps
F24	(0)	Set the RS-232C-output format (0~2)	22 bytes / 10 bytes / 18 bytes
F25	(0)	Set the RS-232C output mode (0~7)	Set 8 types of output modes
F26	(4)	Set the PRINT Baud Rate	600bps ~ 115,200 bps
F27	(3)	Set the PRT-output mode	Set 4 types of output modes
F31	(3)	Set the output data and/or print format	Set 3 types of output data and/or 6 types of print format
F32	(0)	Automatic Print Set-up (0~2)	Manual print / Automatic print / Print in series
F33	(0)	Initialization of Number Measured Daily (0~1)	Maintain current number / Initialize data after print-out
F34	(1)	User Output Message (0~1)	Do not use / Use
F35	(1)	Set the Line Feed for Print	From no line feed to adjustment in lines after printing out 1~9 lines
F36	(00)	Set the Print Delay Time (00~99)	00: No delay in printing 99: Print after a 9.9 sec delay
F37	(0)	In Sub-total Print, Print Maximum, Minimum and Average Values (0~1)	Print weight value / Print maximum, minimum, and average values
F38	(0)	Select the Print Characters	CP-7100/7200, DEP-50 DLP-50
F39	(0)	Set the Print Output Range	0: All Weights (+),(-) possible for print-out 1: Weight must be (+) for print-out

Set-up for the External relay Input Function			
F50	(0)	Set-up for the external relay input	Set 7 types of external relay input
F57	(02)	Set the near Zero (Empty) range (00 ~ 99)	Set near Zero in a range of 00~99 division units

Additional Set-up Functions			
F60	(00)	Set the Forced Zero Range (00~99)	00: Do not use 99: Automatic Zero if the indicated weight is below 99
F61	(00)	Hold OFF Time (0.0~9.9)	0.0 sec ~ 9.9 sec
F62	(0)	Designate the Code Number (0~2)	Fixed / after 1 time of weighing increase by 1 / decrease by 1
F63	(0)	RS-232C Communication Set the STREAM rate (0~9)	16 times / sec ~ 1 time / sec
F64	(0)	Set the Maximum Hold Range (0~1)	0: When the weight is '0', automatic hold function is cleared 1: (+) range, (-) range all available
F65	(0)	Indicate time when the weight is '0' (0~1)	0: Do not indicate time 1: Indicate time

External Output Function Set-up			
F70	(0)	Designate the Output Mode When BCD Out Option is in Use (0~1)	Positive logic / Negative logic
F71	(4000)	Zero Output Calibration when Analog Out Option is in Use Low-A (0 ~ 24000)	4.000 mA
F72	(20000)	Maximum Output Calibration when Analog Out Option is in Use HIGH-A (0 ~ 24000)	20.000 mA
F73	(1000)	Maximum output weight value when Analog Out Option is in Use CAPA-A (0 ~ 999999)	Maximum output at 1000 kg

Hardware set Function		
F90	Date change	(Year, Month, Day)
F91	Time change	(Hour, Minute, Second)
F99	Initialization set-up	Set the functions and set values to default

General Function

F01

Function	Set-up for the Weighing Unit (Weighing Unit)	
	Display	Signification
Set-up Range (0, 1)	F01. 0	Kilogram (kg)
	F01. 1	Gram (g)
	F01. 2	Ton (t)

F02

Function	Set-up for the Load Cell Type (Tension or Compress, Tension & Compression)	
	Display	Signification
Set-up Range (0, 1)	F02. 0	Load cell in compression type or tension type
	F02. 1	Load cell in both compression and tension type *When A_UP S/W3 is ON, the value of Zero increases

F03

Function	Set-up for the weight indication rate (FND display indication rate)			
	Display	Signification	Display	Signification
Set-up Range (0~9)	F03. 0	200 times / sec	F03. 5	16 times / sec
	F03. 1	100 times / sec	F03. 6	18 times / sec
	F03. 2	80 times / sec	F03. 7	4 times / sec
	F03. 3	64 times / sec	F03. 8	2 times / sec
	F03. 4	32 times / sec	F03. 9	1 time / sec

F04

Function	Set-up for the Digital Filter	
	Display	Signification
Set-up Range (1~49)	F04. 1~49	1: Places with low levels of vibration ~ 49: Places with high levels of vibration 25 in case of general weighing operation

F05

Function	Set-up for the Stability Condition of weight	
	Display	Signification
Set-up Range (0~9)	F05. 0	Stable lamp is on if there is a variation in weight within 0.5 divisions in the designated time.
	F05. 5	Stable lamp is on if there is a variation in weight within 2.5 divisions in the designated time.
	F05. 9	Stable lamp is on if there is a variation in weight within 5 divisions in the designated time.

Note 1. This function recognizes it as stable if the variation in weight does not exceed the set range of A/D Count within the designated time. If the Indicator is located in a place with high levels of vibration, then increase the number, and if the Indicator is located in a place with low levels of vibration, then decrease the number in order to quickly reach stability in weight measurement.

F06

Function	Set-up for the Automatic Zero Tracking Compensation	
	Display	Signification
Set-up Range (0~9)	F06. 0	Do not use the automatic zero tracking compensation
	F06. 1	Compensate if slowly changes to below 0.5 divisions
	F06. 5	Compensate if slowly changes to below 2.5 divisions
	F06. 9	Compensate if slowly changes to below 4.5 divisions

Note 1. This function automatically compensates to zero if the weight does not exceed a designated range of division within a designated time at a zero status.

Ex) If the maximum indicated division is 120.0 kg and the value of one division is set to 0.05 kg, and F06 is set to "4", then…
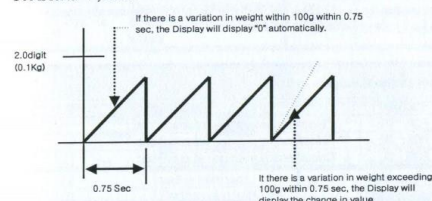
F07

Function	Weight Backup function	
	Display	Signification
Set-up Range (0~2)	F07. 0	Do not use Weight Backup
	F07. 1	Use Weight Backup (reference: calibration)
	F07. 2	Use Weight Backup (reference: operation)

Note 1. Backup status stores the initial zero status when the power is off, even during power outages. Therefore, if there is an item on the scale when the power is on, it displays the weight value. If the scale is empty, press the Zero key to re-enter the zero value.

F08

Function	Set the Hold Type		
	Display		Signification
Set-up Range (0 ~ 2)	F08. 0		Average Hold: Holds the average of the varying weight for f-09 time when the Hold key is pressed or externally entered.
	F08. 1		Peak Hold: Holds the peak value of varying weight
	F08. 2		Sampling Hold: Holds the sample or momentary value of the varying weight when the Hold key is pressed or externally entered.

Note 1. The hold function does not work if the loaded weight value exceeds the maximum capacity or the hold key is pressed during Hold.
Note 2. When set to #2, if the weight is loaded when the scale is empty, the maximum value of the loaded weight is calculated and displayed.
Note 3. If the weight is zero when the Hold LED is ON, the Hold function is automatically cleared.
Note 4. Cannot enter the Set Mode while using the Hold function.

F09

Function	Set-up for the Average hold time	
	Display	Signification
Set-up Range (01 ~ 99)	F09. 01	Calculates the average value in 0.1 sec
	F09. 30	Calculates the average value in 3 sec
	F09. 90	Calculates the average value in 9 sec

F10

Function	Set-up for the operation condition of ZERO and TARE Key	
	Display	Signification
Set-up Range (0, 1)	F10. 0	Always available
	F10. 1	Only available when the weight is stable

F11

Function	Set the Zero Range			
	Display	Signification	Display	Signification
Set-up Range (0~9)	F11. 0	Zero key is available within 2% of the maximum weight	F11. 5	Zero key is available within 50% of the maximum weight
	F11. 1	Zero key is available within 5% of the maximum weight	F11. 6	Zero key is available within 60% of the maximum weight
	F11. 2	Zero key is available within 10% of the maximum weight	F11. 7	Zero key is available within 70% of the maximum weight
	F11. 3	Zero key is available within 20% of the maximum weight	F11. 8	Zero key is available within 80% of the maximum weight
	F11. 4	Zero key is available within 40% of the maximum weight	F11. 9	Zero key is available within 100% of the maximum weight

F12

Function	Set the Tare Range			
	Display	Signification	Display	Signification
Set-up Range (0~9)	F11. 0	Tare key is available within 2% of the maximum weight	F11. 5	Tare key is available within 50% of the maximum weight
	F11. 1	Tare key is available within 5% of the maximum weight	F11. 6	Tare key is available within 60% of the maximum weight
	F11. 2	Tare key is available within 10% of the maximum weight	F11. 7	Tare key is available within 70% of the maximum weight
	F11. 3	Tare key is available within 20% of the maximum weight	F11. 8	Tare key is available within 80% of the maximum weight
	F11. 4	Tare key is available within 40% of the maximum weight	F11. 9	Tare key is available within 100% of the maximum weight

F13

Function	Set the Initial Zero Range (Init Zero)			
	Display	Signification	Display	Signification
Set-up Range (0~9)	F11. 0	Set the value within 2% of the maximum weight as the initial zero	F11. 5	Set the value within 50% of the maximum weight as the initial zero
	F11. 1	Set the value within 5% of the maximum weight as the initial zero	F11. 6	Set the value within 60% of the maximum weight as the initial zero
	F11. 2	Set the value within 10% of the maximum weight as the initial zero	F11. 7	Set the value within 70% of the maximum weight as the initial zero
	F11. 3	Set the value within 20% of the maximum weight as the initial zero	F11. 8	Set the value within 80% of the maximum weight as the initial zero
	F11.4	Set the value within 40% of the maximum weight as the initial zero	F11. 9	Set the value within 100% of the maximum weight as the initial zero

F14

Function	Set the Excessive Weight Check Range (Weighing Unit)	
	Display	Signification
Set-up Range (0~99)	F14. 9	Excessive weight starts from +9 division units above the maximum weight value.
	F14. 99	Excessive weight starts from +99 division units above the maximum weight value.

F15

Function	Set-up for the allowing key input in the front of the indicator	
	Display	Signification
Set-up Range (0 ~ 1)	F15. 0	Do not use (All Keys available for use)
	F15. 1	Use (Only Zero, F1, F2 Key are available for use)

F16

Function	Set the purpose for Function key 1 (F1 key)	
	Display	Signification
Set-up Range (0~29)	F16. 05	Tare

Note 1. Refer to <Table 1. Function Key Code> to select the desired function.

F17

Function	Set the purpose for Function key 2 (F2 key)	
	Display	Signification
Set-up Range (0~29)	F17. 06	Clear Tare

Note 1. Refer to <Table 1. Function Key Code> to select the desired function.

F18

Function	Set the purpose for key 9 (#9 key)	
	Display	Signification
Set-up Range (0~29)	F18. 01	Set the Automatic / Manual Print

Note 1. Refer to <Table 1. Function Key Code> to select the desired function.

Table 1) Function Key Code Table

Function Name	Key Code	Function Name	Key Code	Function Name	Key Code
Empty : Do not use	00	Delete Grand-Total	10	Print	20
Print: Automatic / Manual	01	Indicate Number of Sub-total	11	Order	21
Code Input	02	Indicate Number of Grand-Total	12	Hold / Remove Hold	22
Hold	03	Indicate Sub-total Weight	13	Unspecified	23
Remove Hold	04	Indicate Grand-Total Weight	14	Unspecified	24
Tare	05	Zero	15	Unspecified	25
Clear Tare	06	Net Weight / Gross Weight	16	Unspecified	26
Set Time	07	/Tare / Clear Tare	17	Unspecified	27
Set Date	08	Sub-total	18	Unspecified	28
Delete Sub-total	09	Grand-Total	19	Unspecified	29

Communication & Print Function

F20

Function	Set the Device ID (Device ID)	
	Display	Signification
Set-up Range (00 ~ 99)	F20. 01	Device ID 01
	F20. 99	Device ID 99

Not 1. This function can be used as custom ID for the Indicator in Command Mode.

F21

Function	Set the Parity Bit (Parity Bit – RS-232C & PRT)	
	Display	Signification
Set-up Range (0 ~ 2)	F21. 0	Data Bit 8, Stop Bit 1, Parity Bit: None
	F21. 1	Data Bit 7, Stop Bit 1, Parity Bit: even number
	F21. 2	Data bit 7, Stop Bit 1, Parity Bit: odd number

Note 1. F21, F22, F23 are equally applicable in 2 serial communications (RS-232C, PRT)

F22

Function	Set the Communication Data	
	Display	Signification
Set-up Range (0~2)	F22. 0	Transmit displayed value
	F22. 1	Transmit gross weight
	F22. 2	Transmit net weight

RS-232C Communication

F23

Function	Set the RS-232C Baud Rate	
	Display	Signification
Set-up Range (0 ~ 8)	F23. 0	600 bps
	F23. 1	1,200 bps
	F23. 2	2,400 bps
	F23. 3	4,800 bps
	F23. 4	**9,600 bps**
	F23. 5	19,200 bps
	F23. 6	38,400 bps
	F23. 7	57,600 bps
	F23. 8	115,200 bps

F24

Function	Set the RS-232C – Output Format	
	Display	Signification
Set-up Range (0 ~ 2)	**F24. 0**	CAS's 22 bytes
	F24. 1	CAS's 10 bytes
	F24. 2	18-byte format (AND, FINE)

F25

Function	Set the RS-232C - Output Mode	
	Display	Signification
Set-up Range (0 ~ 7)	**F25. 0**	Use BCC (ERROR CHECK) in the Extended Command Mode
	F25. 1	Transmit when stable / unstable (Stream Mode)
	F25. 2	Transmit only when weight is stable
	F25. 3	Simple Command Mode
	F25. 4	Extended Command Mode / Do not use BCC (ERROR CHECK)
	F25. 5	Transmit weight value when ID number is entered (KEY) / Change to ID number value at the location of (CAS 22 BYTE) 6,7 BYTE and transmit
	F25. 6	Use the Indicator as the External Indicator. Use 18 BYTE Communication Format (CI-501A GND2,RXD2 Connection)
	F25. 7	Transmit only when weight is stable(F32.1 set to Automatic Print) / Transmit only when the Print key is pressed

Note 1. When setting F25 to 3, refer to the <Simple Command Mode Table> below.
Note. When setting F25 to 0 or 4, refer to the appendix 2 <How-to-Use the Extended Command Mode>.

<Simple Command Mode Table>

Indicator Reception	Function	Indicator Response
dd RW CR LF	Request for weight data	If this command is received, it sends the data in the designated format.
dd MZ CR LF	Same as the Zero key	If this command is received, it performs the Zero compensation is performed and re-transmits dd MZ CR LF to the PC.
dd MT CR LF	Same as the Tare key	If this command is received, it operates the tare and re-transmits dd MT CR LF to the PC.
dd PN 00 CR LF	ID number input (01~99)	If this command is received, it changes the ID number and re-sends dd PN 00 CR LF to the PC.

Note 1. dd= Device ID (2byte), CR = 0X0D, LF: 0X0A
　Ex) If the Device ID is 10, dd is 0X31, 0X30
Note 2. If F25 is set to 5, transmit Device ID 1 byte as a Hex value.

Ex>

Device ID	Input Signal
03	03
10	0A
99	63

PRT Communication

F26

Function	Set the PRT Baud Rate	
	Display	Signification
Set-up Range (0 ~ 8)	F26. 0	600 bps
	F26. 1	1,200 bps
	F26. 2	2,400 bps
	F26. 3	4,800 bps
	F26. 4	**9,600 bps**
	F26. 5	19,200 bps
	F26. 6	38,400 bps
	F26. 7	57,600 bps
	F26. 8	115,200 bps

F27

Function	Set the PRT – Output Mode	
	Display	Signification
Set-up Range (0 ~ 3)	F27. 0	Do not send data
	F27. 1	Transmit when stable / unstable (Stream Mode)
	F27. 2	Transmit only when weight is stable
	F27. 3	**Transmit only when the Print key is pressed**

F31

Function	Set the Output Data and/or Print Format	
	Display	Signification
Set-up Range (0 ~ 8)	F31. 0	CAS's 22 bytes
	F31. 1	CAS's 10 bytes
	F31. 2	AND's 18 bytes
	F31. 3	Print format 0 (Date, Time, Serial Number, ID Number, Net Weight)
	F31. 4	Print format 1 (Date, Time, Weighing Number, Net Weight)
	F31. 5	Print format 2 (Date, Time, Gross Weight, Tare, Net Weight)
	F31. 6	Print format 3 (Date, Time, Net Weight)
	F31. 7	Print format 4 (Date, Time, ID Number, Net Weight)
	F31. 8	Print format 5 (Date, Time, Serial Number, Net Weight)

【 Format 0 】
Date, Time, Serial Number, ID Number, Net Weight

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

【 Format 1 】
Date, Time, Weighing Number, Net Weight

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

【 Format 2 】
Date, Time, Gross Weight, Tare, Net Weight

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

【 Format 3 】
Date, Time, Net Weight

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

【 Format 4 】
Date, Time, ID Number, Net Weight

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

【 Format 5 】
Date, Time, Serial Number, Net Weight

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

F32

Function	Automatic Print Set-up	
	Display	Signification
Set-up Range (0, 1)	**F32. 0**	Manual Print
	F32. 1	Automatic Print (Once)
	F32. 2	Automatic Print (Sequential)

Note 1. At the Automatic Print mode, if the weight is stable, it will be printed without pressing the Print key.
Note 2. If it is set to Automatic Print (Once), there will be one automatic print-out when the weight is stable. Clear and place the weight on the scale again, and it will print when the weight is stable.
Note 3. If it is set to Automatic Print (Sequential), there will be automatic print-out when the Stable light indicating the weight's stability on scale turns OFF and then turns back ON.

F33

Function	Initialization of the weight number and/or the accumulated value (Initialization of number measured daily)	
	Display	Signification
Set-up Range (0, 1)	**F33. 0**	Delete Sub-total: After pressing Clear key, enter the sub-total / Delete Total: After pressing Clear key, enter the grand-total
	F33. 1	After printing sub-total and grand-total, automatic data initialization

Note 1. Double Key: If other sub-total or total key is pressed within 2 seconds after pressing the Clear key.

F34

Function	User Output Message	
	Display	Signification
Set-up Range (0, 1)	P00. 0	Do not use
	P00. 1	Use

Note 1. If F34 is set to 1, the input mode for user output message will be displayed as follows.

User Output Message Input Method

Function	Entering User Output Message	
Key Used	Display	Signification
Number Keys : Designate Data	P12 - 065	Designate the character corresponding to the ASCII Code 65 in the 12th Data as "A"
F1 : Co-ordinate Increase	P01 - 067	Designate the character corresponding to the ASCII Code 67 in the 1st Data as "C"
F2 : Co-ordinate Decrease	P18 - 255	At the end of the desired character, enter O to mark completion.
SET : Complete		

Note 1. This function is to enter additional information in the print-out format. (ex. company name, phone number)
Note 2. Available co-ordinates are from 1 to 71. From the 1st data to the information right before the end data designed as 0 is the information to be printed.

Note 3. To add the company name, "CAS," to the existing print format, enter the following:
P01-067 (ASCII Code 67 : Character C)
P02-065 (ASCII Code 65 : Character A)
P03-083 (ASCII Code 83 : Character S)
P04-255 (ASCII Code 0 : Data End)
Note 4. When printing in Korean characters, use a combination of codes.

F35

Function	Set the Line Feed for Print (Line Feed)	
	Display	Signification
Set-up Range (0 ~ 9)	F35. 0	No line feed
	F35. 1	1 Line feed
	F35. 9	9 Line feed

F36

Function	Set the Print Delay Time	
	Display	Signification
Set-up Range (00 ~ 99)	F36. 00	Do not set print delay time
	F36. 49	Delay print to after 4.9 sec

F37

Function	In Sub-total Print, Print Maximum, Minimum and Average Values	
	Display	Signification
Set-up Range (0 ~ 1)	F37. 0	In sub-total print, print weight value
	F37. 1	In sub-total print, print maximum, minimum and average values

F38

Function	Select the Print Characters	
	Display	Signification
Set-up Range (0 ~ 3)	F38. 0	CP-7100 /7200(Print in English)
	F38. 1	CP-7100 /7200(Print in Korean, Completed Form)
	F38. 2	DEP-50 (Thermal)
	F38. 3	DLP-50 (Ticket Print)

F39

Function	Set the Print Output Range	
	Display	Signification
Set-up Range (0 ~ 1)	F39. 0	All weights (+),(-) possible for a print-out
	F39. 1	Weight must be (+) for a print-out

Set External Relay Input Function (Relay Function)

F50

Function	Set-up for the Relay Input (function external relay input set)				
	Display	COM1	COM2	COM3	COM4
Set-up Range (0 ~ 6)	F50. 0	Zero	Tare	Forced Removal of Tare	Print
	F50. 1	Zero	Tare / Clear Tare	Hold	Forced Removal of Tare
	F50. 2	Zero	Tare / Clear Tare	Sub-total	Print
	F50. 3	Zero	Hold	Forced Removal of Tare	Print
	F50. 4	Zero	Sub-total	Grand-total	Print
	F50. 5	Zero	Tare	Forced Removal of Tare	Gross / Net Weight
	F50. 6	Zero	Tare / Clear Tare	Net Weight	Gross Weight

Note. With the Tare / Clear Tare function, tare is only cleared if all the criteria are met.
Note. Forced Removal of Tare clears tare without meeting the required criteria .

F57

Function	Set the Near Zero Range (NEAR ZERO(EMPTY))	
	Display	Signification
Set-up Range (0 ~ 99)	F05. 0	Operation of near zero when weight indicated is 0
	F05. 2	Operation of near zero when weight indicated is under 2 divisions
	F05. 9	Operation of near zero when weight indicated is under 9 divisions

Note 1. This is used to detect that there is no weight when automatically printing.

Additional Set-up Functions

F60

Function	Set the Forced Zero Range	
	Display	Signification
Set-up Range (00 ~ 99)	00 F60 ~ 99	A function when weight is indicated below the set value and when it's stabilized, its value is indicated as "O."

Note 1. If you select this function, you can automatically perform zero compensation (before re-weighing) when it is
under the set value without using ![Zero key] Zero key.
Ex) On a scale with the maximum indicated weight set as 120.00 kg, the division unit
value set as 0.02 kg, and F60 set as 30, when the stable LED turns ON with a
mass that is up to ±(0.02 ~ 0.30kg), then zero compensation will automatically occur
and the indicated value will be "0.00 kg."

F61

Function	Set the Hold OFF time	
	Display	Signification
Set-up Range (00 ~ 99)	0.0 F61 ~ 9.9	Set the Hold OFF time from 0.0 sec ~ 9.9 sec.

F62

Function	Designate the Code Number	
	Display	Signification
Set-up Range (0 ~ 2)	F62 0	Fixed
	F62 1	After 1 weighing operation, increase by 1
	F62 2	After 1 weighing operation, decrease by 1

F63

Function	Set the RS-232C Communication – One-way Transmission Rate (STREAM)	
	Display	Signification
Set-up Range (0 ~ 9)	F63 0	Set as F25. 1 Stream Mode, F23,4 9,600bps, transmission rate of 16 times/sec
	F63 1	Set as F25. 1 Stream Mode, F23,4 9,600bps, transmission rate of 10 times/sec
	F63 2	Set as F25. 1 Stream Mode, F23,4 9,600bps, transmission rate of 6 times/sec
	F63 5	Set as F25. 1 Stream Mode, F23,4 9,600bps, transmission rate of 3 times/sec
	F63 9	Set as F25. 1 Stream Mode, F23,4 9,600bps, transmission rate of 1 time/sec

F64

Function	Set the Maximum Hold Range	
	Display	Signification
Set-up Range (0 ~ 1)	F66. 0	When the weight is 0, Hold removed automatically
	F66. 1	Hold removal (+), (-) range all available with Hold button

Note 1. It is only applicable when F08 is set to 1 (Maximum Hold).

F65

Function	Indicate Time when Weight is 0	
	Display	Signification
Set-up Range (0 ~ 1)	F68. 0	Do not indicate time on the display
	F68. 1	Indicate time on the display when weight is 0.

Option Series

F70

Function	Designate the Output Mode When BCD Out Option is in Use	
Set-up Range (0, 1)	Display	Signification
	F70 0	Positive Logic
	F70 1	Negative Logic

F71

Function	Zero Output Calibration when Analogout Option is in Use	
Set-up Range (0 ~ 24,000)	Display	Signification
	Low-A , L 0.000	0.000 mA, 0 V
	Low-A , L 4.000	4.000 mA, 2 V
	Low-A , L 4.015	4.015 mA, 2.007 V

F72

Function	Maximum Output Calibration when Analog Out Option is in Use	
Set-up Range (0 ~ 24000)	Display	Signification
	HiGH-A , H 10.000	10.000 mA, 4.16 V
	HiGH-A , H 20.000	20.000 mA, 8.33 V
	HiGH-A , H 24.000	24.000 mA, 10 V

F73

Function	Maximum Output Weight Value when Analog Out Option is in Use	
Set-up Range (0 ~ 99999)	Display	Signification
	CAPA-A , C 1000	Maximum output at 1000 kg
	CAPA-A , C 2000	Maximum output at 2000 kg
	CAPA-A , C 50.30	Maximum output at 50.30 kg

Hardware Set Function

F90

Function	Date Change	
Number Keys:	Display	Signification
Designate Data	10.08.17	2010. August 17th

F91

Function	Time Change	
Number Keys:	Display	Signification
Designate Data	11.30.10	11:30:10 AM

*F99 setting is a menu that changes the entire setting for the Indicator, so careful attention is required during set-up.

F99

Function	Initialization Set-up	
Set-up Range (0, 1)	Display	Signification
	0	Do not initialize the Indicator
	1	Initialize the Indicator

Note 1. After setting F99 to 1, press `SET` key to initialize the Indicator to the default setting.

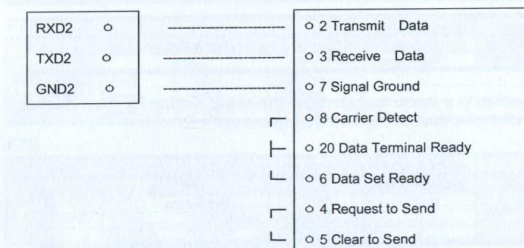Note 2. F99 Initialization Method: In the Set Mode, press number 99 → number 1 → `SET` key to initialize data.

Serial Communication (RS-232C)
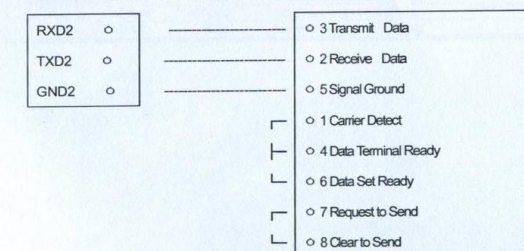
1) RS232C connection

① How to Connect PC
Connect the RS-232C port on the back of the Indicator to the serial port of the PC as shown below:

```
RXD2  o  ----------------  o 2 Transmit  Data
TXD2  o  ----------------  o 3 Receive   Data
GND2  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
```

RS-232C Terminal   25 pin port(Female)
Indicator's RS-232C Port   Serial port of computer

```
RXD2  o  ----------------  o 3 Transmit  Data
TXD2  o  ----------------  o 2 Receive   Data
GND2  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
```

RS-232C Terminal   9 pin port(Female)
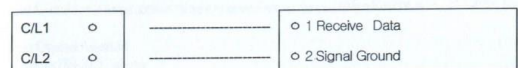Indicator's RS-232C Port   Serial port of computer

② Remote Display Connection (CD-SERIES)
Connect the C/L Port on the back side of the Indicator to the 2 PIN connector of the Remote display as shown below:
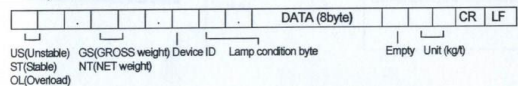
```
C/L1  o  ----------------  o 1 Receive  Data
C/L2  o  ----------------  o 2 Signal Ground
```

C/L Terminal   2 PIN Connector (Female)
Indicator's C/L Port   2 PIN Connector of the Remote Display

2) Data format

① Communication Rate: 1,200 bps – 115,200 bps
(Set at the F23 set value)
② Data bit: 8, Stop bit: 1, Parity bit: None
Data bit: 7, Stop bit: 1, Parity bit: Even #/odd #
(Set at F21 Parity Bit set value)
③ Code : ASCII
④ When data is sent to computer?
(Set at F22 Communication Data Set-up)
⑤ Transmission Data Format (set at F24 output format)
* 22 byte of CAS

	.		.		.		DATA (8byte)			CR	LF

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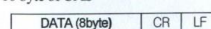ST(Stable)   NT(NET weight)
OL(Overload)

- Device ID : Transmit 1 byte so that the receiver can receive data selectively which indicator sent.(Device ID is selected in F23 .)
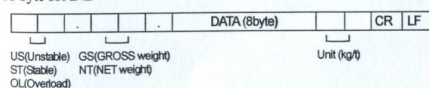- Byte for Status Lamp

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	Stable	1	Hold	Print	Net	Tare	Zero

* 10 byte of CAS

DATA (8byte)	CR	LF

* 18 byte of AND

	.		.		DATA (8byte)			CR	LF

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

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

Current loop

Current Loop Interface has stronger resistance to electric noise than the RS-232C Interface; therefore, it is more favorable for intermediate-distance transmissions. (approximately 100M)
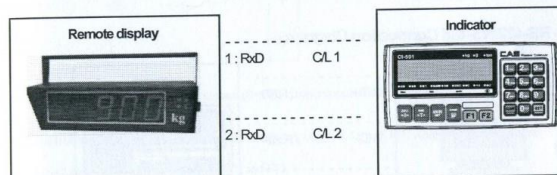
▶ **Set Output Method**
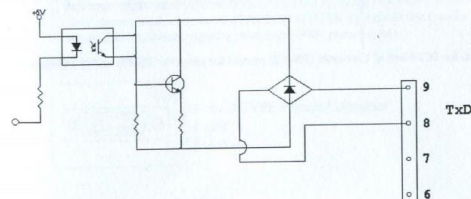   Same as RS-232C above

▶ **Signal Format**
   Same as RS-232C above

▶ **Data Format**
   Same as RS-232C above

1	20mA
0	0mA

▶ **Connection to External Indicator and/or Other Devices**

Remote display		Indicator
	1 : RxD C/L 1	
	2 : RxD C/L 2	

▶ **Current Loop Circuit Schematic**

TxD

RS-422 / RS-485 Serial Communication

RS-422 delivers signals via power differences and is more resistant to electric noise than other signal methods.
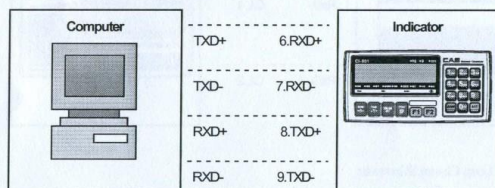Also, place the AC Power Cable and electrical wirings separately, and use a communication-purpose Shield Cable (over 0.5Φ) as the Cable.
Recommended distance for use is within 1.2 km.

▶ **Set Output Method**
   Same as RS-232C above

▶ **Signal Format**
   Same as RS-232C above

▶ **Data Format**
   Same as RS-232C above

- RS-422/RS-485 Connection Diagram -

Computer		Indicator
	TXD+ 6.RXD+	
	TXD- 7.RXD-	
	RXD+ 8.TXD+	
	RXD- 9.TXD-	

**** Please refer to the PCI Card of Converter (RS-422) manual for computer RS-422 and/or RS-485 line PIN numbers.
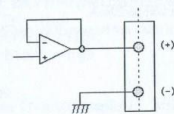
ANALOG OUT(0~10V) INTERFACE

This option transmits the indicated weight value to external devices (Recoder, P.L.C Central Control Room, etc.) that is adjusted by the Analog Signals via Voltage Out.

▶ **SPECIFICATIONS**

Output Voltage	0~10V DC Output
Precision	Over 1/1000

▶ **CONNECTOR (9P D-TYPE Female) and Circuit**

(+)1

(−)5

※ This voltage output outputs analog voltage (0~10V) proportional to the weight indication signal input.

▶ **ADJUST**
1. The default value of the unit is 10V when the indicated weight is O, and 10V when it is at a maximum load.
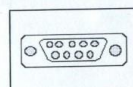2. To adjust the output value range, adjust F70 and F71.
3. When using the DIGITAL MULTI-METER to measure the output voltage does not allow accurate output, fine-tune VR₁ (Zero), VR₂ (SPAN) on ANALOG OUT PCB in the interior side of the Indicator.
   ※ Warning: This ANALOG OUTPUT outputs the ANALOG value converted from the indicated weight value (MICRO PROCESS DATA) by the D/A CONVERTER.
   ※ Also, please note that because the D/A CONVERTER's precision rate is under 1/4000, it is not suitable for devices requiring more than 1/3000 precision rate.

▶ CONNECTOR

9 Pin D-TYPE Female Connector
1 : HI(+)
5 : Lo(-)

ANALOG OUT(4~20mA) INTERFACE

This option transmits the indicated weight value to external devices (Recoder, P.L.C Central Control Room, etc.) that is adjusted by the Analog Signals via Current Out.
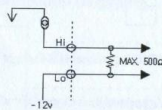
▶ **SPECIFICATIONS**

Output Current	4~20 mA
Precision	Over 1/1000
Temperature Coefficient	0.01%℃
Maximum Load Impedance	500Ω MAX.

▶ When the indicated weight is O, the output current will be 4mA, and when the indicated weight is at full capacity, the output current will be 20mA.
▶ Lo(-) Terminal is not GND. Therefore, it must not be connected to GND Line, Body GND or other similar devices of other equipment.
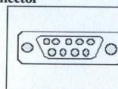
*Equivalent Circuit

▶ **ADJUST**

1. The default value of the unit is 4mA when the indicated weight is O, and 20mA when it is at the maximum load.
2. If you wish to adjust the output value range, adjust F70 and F71.
3. When using the DIGITAL MULTI-METER to measure the output voltage does not allow accurate output, fine-tune VR_1 (Zero), VR_2 (SPAN) on ANALOG OUT PCB in the interior side of the Indicator.

※ Warning: This ANALOG OUTPUT outputs the ANALOG value converted from the indicated weight value (MICRO PROCESS DATA) by the D/A CONVERTER. Also, please note that as the D/A CONVERTER's precision rate is under 1/4000, it is not suitable for devices requiring more than 1/3000 precision rate.

▶ **Connector**

9 Pin D-TYPE Female Connector
1 : HI(+)
5 : Lo(-)

BCD OUT INTERFACE

Parallel BCD Out is an Interface that outputs the indicated weight value on display after converting into BCD CDDE. The internal circuit of the input/output circuits is electrically isolated from the outside by using a Photo-Coupler.

▶ **Connector**
  50 PIN CONNECTOR: CHAMP 57-40500 (Amphenol - Female)

▶ **Input / Output Signal**
  TTL Open - Collector Output
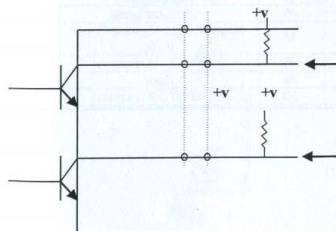 Signal Logic
  (1) BCD Data Output: Refer to Positive Logic (F82:BCD Output Signal)
  (2) Polarity Output: "+" = High
  (3) OVER Output: "OVER" = High
  (4) BUSY Output: "BUSY" = High

▶ **Standard Accessory:**
  Mating Connector 57-30500(Amphenol - Male) 1 EA
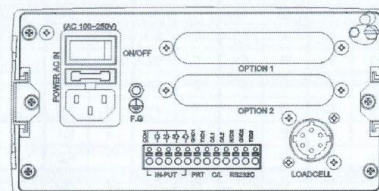
▶ **BCD Output Circuit**

Voltage	30v max
Current	30mA max
Output voltage when on	0.2v txp

▶ **PIN Connecting Table**

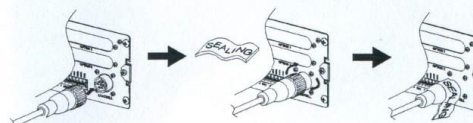| PIN #	Signal	PIN #	Signal
1	Ground (GND)	26	High: Net Weight, Low: Gross Weight
2	$1×10^0$	27	N.C
3	$2×10^0$	28	N.C
4	$4×10^0$	29	N.C
5	$8×10^0$	30	N.C
6	$1×10^1$	31	EX INPUT 3 (ID Number)
7	$2×10^1$	32	EX INPUT 2 (ID Number)
8	$4×10^1$	33	N.C
9	$8×10^1$	34	N.C
10	$1×10^2$	35	N.C
11	$2×10^2$	36	N.C
12	$4×10^2$	37	N.C
13	$8×10^2$	38	N.C
14	$1×10^3$	39	N.C
15	$2×10^3$	40	N.C
16	$4×10^3$	41	N.C
17	$8×10^3$	42	High : + Polarity, Low : - Polarity
18	$1×10^4$	43	High : Decimal Place: 10^1
19	$2×10^4$	44	High : Decimal Place: 10^2
20	$4×10^4$	45	High : Decimal Place: 10^3
21	$8×10^4$	46	High : Over Load
22	$1×10^5$	47	Positive Output, Negative Output (F70)
23	$2×10^5$	48	EX INPUT 1 (ID Number)
24	$4×10^5$	49	Busy
25	$8×10^5$	50	EX INPUT 0 (ID Number)

Sealing Method (Sealing)

(1) Sealing the Indicator

(2) Sealing the Load Cell Connector

Appendix 1. ASCII Code Table

Character	Code	Character	Code	Character	Code	Character	Code	Character	Code	Character	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	0

Appendix 2. <How-to-Use the Extended Command Mode>

1. BCC (Check sum) used. (Set F25 – 00)

TO → INDICATOR	Command Description	Indicator Response
STX ID. NO. WZER BCC ETX	Command to set "ZERO"	STX ID. NO. WZER ACK BCC ETX or STX ID. NO. WZER NAK BCC ETX

▶ Format when Commanded by PC

STX(1) ID.NO.(2) COMMAND(4) BCC(2) ETX(1)

STX	ID.NO		WZER				A9 (BCC)		ETX
02H	30H	31H	57H	5AH	45H	52H	41H	39H	03H

※ Calculation on the Check-Sum computes the total sum of values from "STX" to prior to "BCC," and only transmits single digit and double digit numbers in the range of 10's. For example, if the calculated Check-Sum value is "1A9," then the last two characters "A" and "9" will be converted to ASCII and be transmitted as "41H" and "39H."
(Recommended) To prevent DATA ERROR, BCC is recommended for use.

▶ Indicator Data Transmission Format

STX(1) ID.NO.(2) COMMAND(4) ACK(1) BCC(2) ETX(1)

STX	ID.NO.		WZER				ACK	AF(BCC)	ETX
2H	30H	31H	57H	5AH	45H	52H	06H	41H 46H	03H

● ACK :06H = Transmission Complete (Normal Operation) , NAK : 15H Transmission Unsuccessful (Re-transmit)
● BCC : 30H + 31H + 57H + 5AH + 45H + 52H + 06H= 1AFH

---

2. BCC (Check-Sum) not used. (Set F25 – 04)

TO → INDICATOR	Command Description	Indicator Response
STX ID. NO. WZER ETX	Command to set "ZERO"	TX ID. NO. WZER ACK ETX or STX ID. NO. WZER NAK ETX

▶ Format when Commanded by PC
STX(1) ID.NO.(2) COMMAND(4) ETX(1)

STX	ID.NO.		WZER				ETX
2H	30H	31H	57H	5AH	45H	52H	03H

● ID.NO. : F20 Set Device Number = 01(30H 31H)

▶ Indicator Data Transmission Format
STX(1) ID.NO.(2) COMMAND(4) ACK(1) ETX(1)

STX	ID.NO.		WZER				ACK	ETX
2H	30H	31H	57H	5AH	45H	52H	06H	03H

● ACK : 06H = Transmission Complete (Normal Operation) , NAK : 15H Transmission Unsuccessful (Re-transmit)

▶ COMMAND MODE (READ COMMAND)

TO → INDICATOR	Command Description	Indicator Response
STX ID. NO. RTIM BCC(9D) ETX	Command to transmit the Indicator's TIME DATA	Transmit TIME DATA (6) - STX ID.NO. RTIM 000000 BCC ETX
STX ID. NO. RDAT BCC(8C) ETX	Command to transmit the Indicator's DATE DATA	Transmit DATE DATA (6) - STX ID. NO. RDAT 000000 BCC ETX
STX ID. NO. RSNO BCC(A3) ETX	Command to transmit the Serial Number	Transmit S/N (6) - STX ID. NO. RSNO 000000 BCC ETX
STX ID. NO. RCNO BCC(93) ETX	Command to transmit the Code Number	Transmit Code Number (6) - STX ID. NO. RCNO 000000 BCC ETX
STX ID. NO. RPNO BCC(A0) ETX	Command to transmit the Part Number	Transmit P/N (2) - STX ID. NO. RPNO 00 BCC ETX
STX ID. NO. RTAR BCC(9A) ETX	Command to transmit the weight value of "KEY Tare"	Transmit KEY Tare (6) - STX ID. NO. RTAR 000000 BCC ETX
STX ID. NO. RCWT BCC(A1) ETX	Command to transmit the "Current Weight Value"	Transmit the "Current Weight Value" - STX ID. NO. RCWT DATA1 BCC ETX
STX ID. NO. RSUB BCC(9D) ETX	Command to transmit the "Sub-total"	- STX ID. NO. RSUB P/N(2) CODE(6) COUNT(6) S.T.W(8) BCC ETX No Decimal Place
STX ID. NO. RGRD BCC(90) ETX	Command to transmit the "Grand-Total"	- STX ID.NO. RGRD P/N(2) CODE(6) T_COUNT(6) G.T.W(10) BCC ETX No Decimal Place
STX ID. NO. RFIN BCC(90) ETX	Command to transmit the Weighing Completion Value	Transmit the Weighing Completion Value - STX ID. NO. RFIN RN(Weight of 6 digit) BCC ETX
STX ID. NO. RCWD BCC(91) ETX	Command to transmit the all the current data stored in the Indicator	Transmit the all the "current weight" - STX ID. NO. RCWD DATA2 BCC ETX

STX (1)	ID.NO (2)	COMMAND (4)	DATA (16)	BCC (2)	ETX (1)

			※ DATA1 (16)		

Header1 (2)	,(1)	Header2 (2)	,(1)	DATA (8)	UNIT (2)

1. Header1
ST = Stable, US = Unstable, OL = Over Load

2. Header2
NT = Net Weight , GS = Gross Weight

3. DATA
Weight including code and decimals

4. UNIT
Kg = kg, t = t, g = g

※ DATA2 (38)

DATE (6)	TIME (6)	P/N (2)	CODE (6)	S/N (6)	KEY TARE (6)	Current Weight (6)

► COMMAND MODE (WRITE COMMAND)

PC → INDICATOR	Command Description	Indicator Response
STX ID. NO. WTAR BCC(9F) ETX	Command to set "TARE"	STX ID. NO. WTAR ACK BCC ETX or STX ID. NO. WTAR NAK BCC ETX
STX ID. NO. WTRS BCC(B1) ETX	Command for "TARE RESET"	STX ID. NO. WTRS ACK BCC ETX or STX ID. NO. WTRS NAK BCC ETX
STX ID. NO. WZER BCC(A9) ETX	Command to set "ZERO"	STX ID. NO. WZER ACK BCC ETX or STX ID. NO. WZER NAK BCC ETX
STX ID. NO. WPRT BCC(AE) ETX	Command to run "PRINT"	STX ID. NO. WPRT ACK BCC ETX or STX ID. NO. WPRT NAK BCC ETX
STX ID. NO.(01) WSPR BCC(AD) ETX	Command to run "SUB-PRINT"	STX ID. NO. WSPR ACK BCC ETX or STX ID. NO. WSPR NAK BCC ETX
STX ID. NO. WGPR BCC(A1) ETX	Command to run "GRAND-PRINT"	STX ID. NO. WGPR ACK BCC ETX or STX ID. NO. WGPR NAK BCC ETX
STX ID. NO. WDAT DATE BCC(C8) ETX ex) STX ID.NO WDAT 090903 C6 ETX	Command to convert the date of the TIMER stored in the Indicator to 2009. Sept. 3rd.	STX ID. NO. WDAT ACK BCC ETX or STX ID. NO. WDAT NAK BCC ETX
STX ID. NO. WTIM TIME BCC(D7) ETX ex) STX 01 WTIM 123456 D7 ETX	Command to convert the time of the TIMER stored in the Indicator to 12: 34: 56.	STX ID. NO. WTIM WCK BCC ETX or STX ID. NO. WTIM NAK BCC ETX
STX ID. NO. WSNO S/N(6) BCC(DD) ETX ex) STX 01 WSNO 123456 DD ETX	Command to change the "order" value stored internally to 123456.	STX ID. NO. WSNO ACK BCC ETX or STX ID. NO. WSNO NAK BCC ETX
STX ID.NO. WPNO P/N(2) BCC(06) ETX ex) STX 01 WPNO 01 06 ETX	Command to change the "PART NUMBER" to 01 value that is being sent.	STX ID. NO. WPNO ACK BCC ETX or STX ID. NO. WPNO NAK BCC ETX
STX ID. NO. WCNO C/N(6) BCC(CD) ETX ex) STX 01 WCNO 123456 CD ETX	Command to change the "CODE" to the 123456 value that is being sent.	STX ID. NO. WCNO ACK BCC ETX or STX ID. NO. WCNO NAK BCC ETX
STX ID. NO. WHOL BCC(9B) ETX	Command to set "HOLD"	STX ID. NO. WHOL ACK BCC ETX or STX ID. NO. WHOL NAK BCC ETX
STX ID. NO. WHRS BCC(A5) ETX	Command for "HOLD RESET"	STX ID. NO. WHRS ACK BCC ETX or STX ID. NO. WHRS NAK BCC ETX
STX ID. NO. WSTC BCC(A2) ETX	Command for "SUB TOTAL CLEAR"	STX ID. NO. WSTC ACK BCC ETX or STX ID. NO. WSTC NAK BCC ETX
STX ID. NO. WGTC BCC(96) ETX	Command for "GRAND TOTAL CLEAR"	STX ID. NO. WGTC ACK BCC ETX or STX ID. NO. WGTC NAK BCC ETX
STX ID. NO. WAUT BCC(A2) ETX	Command for "AUTO KEY"	STX ID. NO. WAUT ACK BCC ETX or STX ID. NO. WAUT NAK BCC ETX

STX ID. NO. WMUL BCC(A6) ETX	Command for "MANUAL KEY"	STX ID. NO. WMUL ACK BCC ETX or STX ID. NO. WMUL NAK BCC ETX
STX ID. NO. WGRO BCC(A0) ETX	Command for "GROSS / NET KEY"	STX ID. NO. WGRO ACK BCC ETX or STX ID. NO. WGRO NAK BCC ETX

※ ACK = Transmission Complete (Normal Operation) , NAK = Transmission Unsuccessful (Re-transmit)

※ BCC(XX) = XX is the BCC value when ID. NO. is set as 01.

Appendix 3. Error Code Table

(1) Error that can occur in the Weighing Mode

ERROR 01

■ Reason for Error
Data stored in the internal memory was deleted due to electric shock.

☞ Troubleshoot
Do the necessary designations in the Set Mode.

ERROR Lc

■ Reason for Error
The load cell is not connected properly or there is a problem in the A/D Converter.

☞ Troubleshoot
Check the connection between the scale and the unit.

UNPASS

■ Reason for Error
The initial zero range has exceed the F13 intial zero range in the Set Mode.

☞ Troubleshoot
Check the weight on scale, and change the F13 value range in the Set Mode.

ERROR 04

■ Reason for Error
A key was pressed for a long time or there is a problem in the key part.

☞ Troubleshoot
Do the key test in Test Mode 1, and if this message continues to appear without any actual problems, contact the A/S department of our company.

OVER

■ Reason for Error
A key was pressed for a long time or there is a problem in the key part.

☞ Troubleshoot
Do the key test in Test Mode 1, and if this message continues to appear without any actual problems, contact the A/S department of our company.

(2) Errors that can occur in Weight Calibration Mode

ERROR 31

■ Reason for Error
The set resolution exceeds the allowed resolution value, 1/50,000.

☞ Troubleshoot
Lower the resolution. Resolution = Maximum weight / 1 division unit value. Modify the maximum weight in CAL 1 of the Weight Calibration Menu or modify the division unit value in CAL 2 of the Weight Calibration Menu to lower the resolution below 1/50,000.

ERROR 32

■ Reason for Error
The balance weight for Span Calibration is set to less than 2% of the scale's full capacity or exceeds it.

☞ Troubleshoot
Set the balance weight for Span Calibration in between 2~100% of the scale's full capacity in CAL 3 of the Weight Calibration Menu.

ERROR 33

■ Reason for Error
The output value of the load cell is too low. Span is too low.

☞ Troubleshoot
There is a problem in the load cell or the load cell's output is too low. With the current output from the load cell, Weight Calibration cannot be carried out.
If in Zero Calibration, place a cover on the scale.
If in Weight Calibration, set a heavier balance weight.

ERROR 34

■ Reason for Error
The output value of the load cell is too high. Span is too high.

☞ Troubleshoot
There is a problem in the load cell or the load cell's output is too high. With the current output from the load cell, Weight Calibration cannot be carried out. If in Zero Calibration, remove the item from the scale. If in Calibration, place a lighter balance weight on the scale.
If this message appears even when the scale is empty, contact the A/S department of our company.

CI-501A
Weighing Indicator

CAS

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