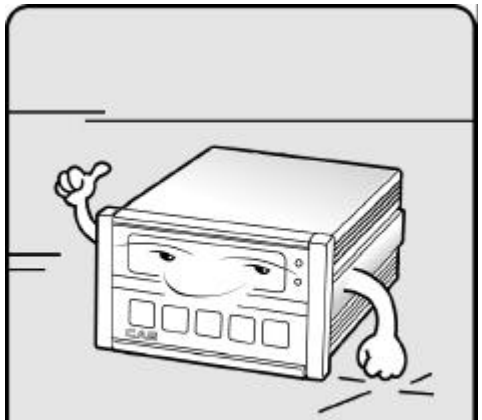
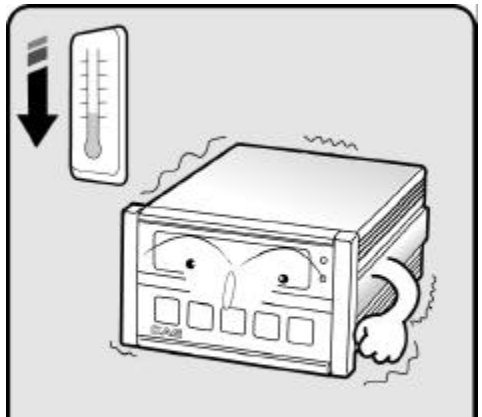
CONTENTS

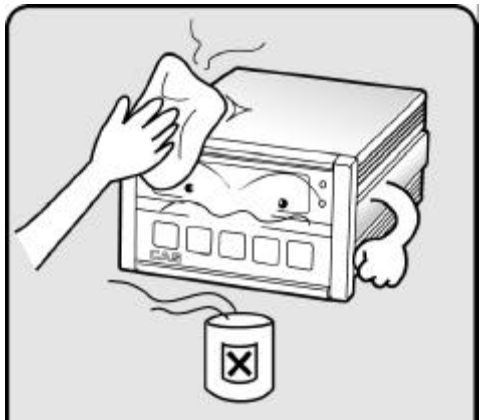
PRECATUTIONS



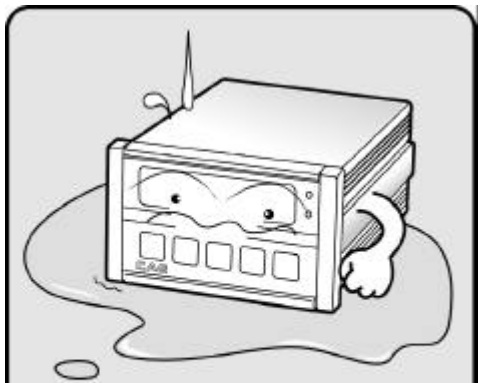
■ Place the indicator on a flat and stable surface.



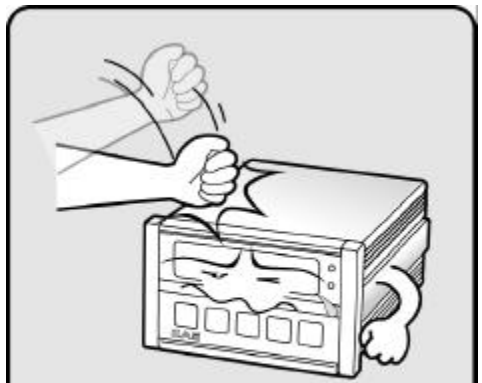
■ Do not subject the scale to sudden temperature changes.



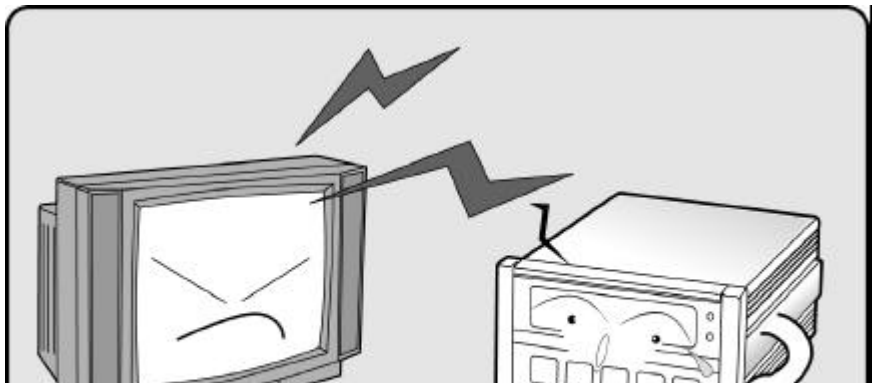
■ Do not use inflammable materials in cleaning



■ This scale must be installed in a dry and liquid free environment.



■ Do not severely press because the light pressing of keys can incite the operation.



■ Keep the scale away from strong EMI noises may cause incorrect weight reading

INTRODUCTION

We greatly appreciate your purchase of the **CI-1500** weighing indicator. These goods perform excellently and exhibit splendid properties through strike tests. CAS indicator (CI-series) is delicately designed to coincide with the special requirements of several industrial fields and includes many functions and various external interfaces. Also, it is programmed for the user's convenience and contains help display functions that are easily accessible.
Before using **CI-1500A Series**, It is recommended that you read this manual carefully so you may use this device to its full potential.

CI-1500/1560A FEATURES

1. Features

- High quality, High accuracy
- Appropriate for weight and measurement system
- Easy operation and various options
- Display of 6 digit(7 Segment)
- RFI/EMI screened
- WATCHDOG circuitry (System restoration)
- WEIGHT BACK-UP (Memory the weight at sudden power failure)

2. Main Function

- Store date, time and calculated data at sudden power failure
- Adjustable display rate(Digital filter function)
- Tare weight setting with keys
- Users can set maximum weight which users want to and division at one's disposal
- Self test hardware function
- Independent zero calibration
- External Input/Output -(CI-1560A)
  : 2 External Input - (zero, F08)
  4 External Output - (zero, 1 Step, 2 Step, Final)
- Serial printer connection
- Print date and time by inner clock

TECHNICAL SPECIFICATION

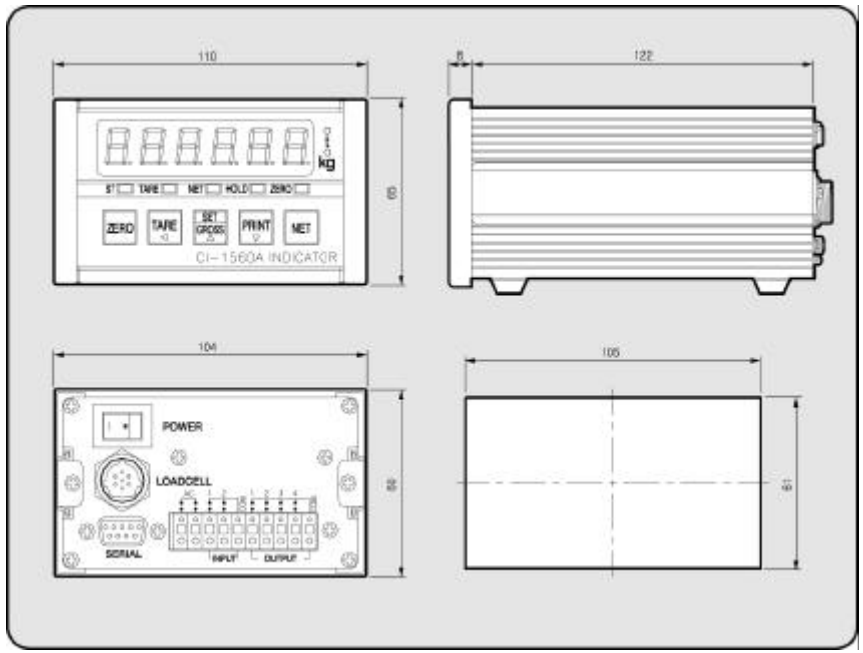
Analog Part & A/D Conversion	
Load cell Excitation Voltage	DC 5V
Zero adjust range	0.05 mV~30mV
Input Sensitivity	over 1 μV/D
Nonlinearity	0.01% F.S.
A/D internal resolution	1/100,000
A/D external resolution	1/10,000(Max.)
A/D conversion speed	10 times/sec

Digital Part	
Span Calibration	Full Digital Calibration (Single pass automatic span calibration)
Input noise	below ±0.3 μVpp
Input impedance	over 10 MΩ
Display	7 Segment (6 digit)
Maximum Capacity	999999
Division	x 2, x 5, x 10, x 20, x 50
Display below zero	"-" minus signal
Permitted limit tare	Full capacity

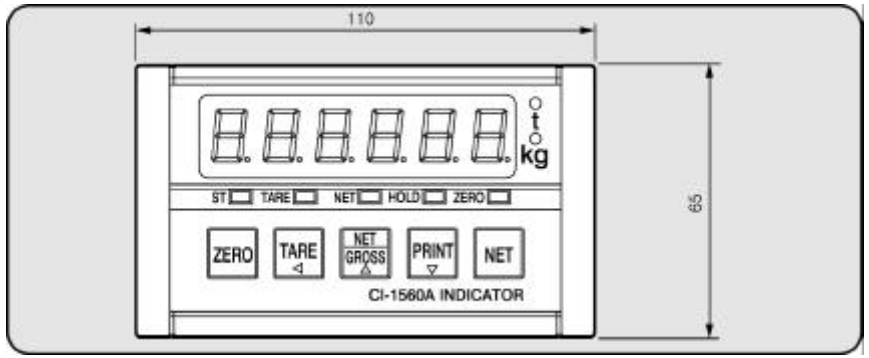
Lamp		Description
" STABLE "	LAMP	Weight is stable
" TARE "	LAMP	Tare is used
" NET "	LAMP	ON(NET weight), OFF(GROSS weight)
" HOLD "	LAMP	Hold in Weight
" ZERO "	LAMP	"0" kg

GENERAL SPECIFICATION	
Power	AC 220V, 50/60 Hz
Size	110(W) x 130(D) x 66(H)
Temperature	-10℃~+40℃
Weight	Approx 750g
Power Consumption	Approx 10W

MEASURE OF APPEARANCE



FRONT PANEL



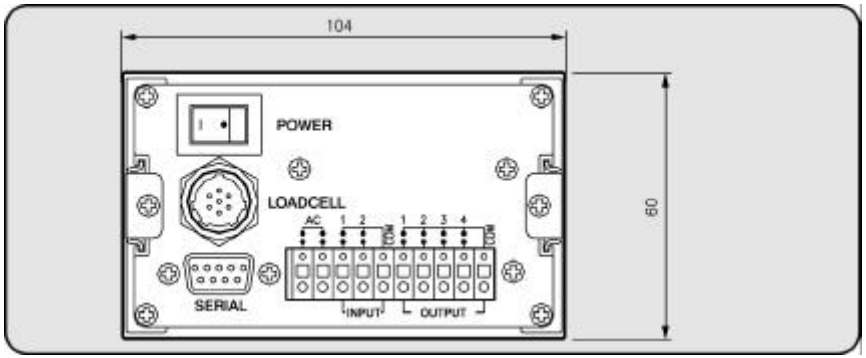
1. Weight display Lamp

- ST Lamp : turn on when the weight is stable.
- TARE Lamp : turn on when tare weight is stored.
- NET Lamp : turn on when the current weight is Net weight.
- HOLD Lamp: turn on when the weight is held while weighing moving or alive things.
- ZERO Lamp : turn on when the current weight is 0 kg.

2. Keyboard

ZERO	Used to return the display to the 0. User set the zero range within 4% or 10% of the maximum capacity(F09). Used to enter the TEST mode.
TARE ◀	Used to weigh item by using the container. When this key is pressed, the scale stores current weight as the tareweight. If you press TARE key in unload condition, tare setting is released. Used to enter the SET mode. Used to current value X 10 in CAL, SET mode.
NET GROSS ▲	Use this key to switch from GROSS to NET weight. The annunciators and display will alternate between GROSS and NET aswell. In case tare weight is REGISTERED, tare plus item's weight is GROSS weight and only item's weight is NET weight. When the Lamp turning on, it means NET weight. Used to set current value+1 in CAL, SET mode.
PRINT ◀	When you press this key, the current designated printing form is printed. Use this key when weighing data is printed. Used to set the when weighing data is printed. Used to set the current value - 1 in SET mode.
SET	Used to store current condition and exit in CALIBRATION, TEST, SET mode. Used to enter the CAL mode.

REAR PANEL



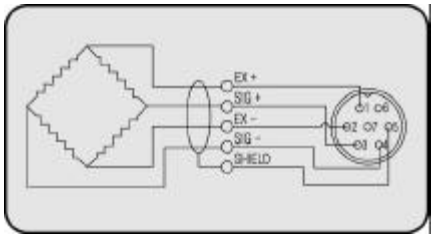
■ INPUT : External input
ZERO key, **START** key(F08)
■ OUTPUT : External output (relay output)
ZERO, LOW, HIGH, FINAL
■ LOAD CELL : Port for connecting load cell.
1: EX+ 2: EX- 3: SIG+ 4: SIG- 5: GND
■ POWER : POWER ON/OFF
■ AC : Only for 220V 50/60 Hz
■ SERIAL : RS-232C

INSTALLATION & CONNECTION

Load cell connection

Pin1: Excitation voltage+
Pin2: Excitation voltage-
Pin3: Sense voltage+
Pin4: Sense voltage-
Pin5: Shield

■ **Connecting method**



▸ Each L/C manufacturer's or model's wire color could be different. In that case, please note the following diagram.

■ **Manufacturer's wire color**

Connector / Company	Pin 1 (EX +)	Pin 3 (EX -)	Pin 5 (SIG +)	Pin 6 (SIG -)	Pin 7 (SHIELD)
CAS	RED	WHITE	GREEN	BLUE	CASE
KYOWA	RED	BLACK	GREEN	WHITE	CASE
INTERFACE	RED	BLACK	GREEN	WHITE	CASE
P.T	RED	BLACK	GREEN	WHITE	CASE
BLS	GREEN	BLACK	WHITE	RED	YELLOW
SHOWA	RED	BLUE	WHITE	BLACK	CASE
SHINKOH	RED	BLACK	GREEN	WHITE	CASE
TMI	RED	WHITE	GREEN	BLUE	YELLOW
TML	RED	BLACK	WHITE	GREEN	CASE
TFAC	RED	BLUE	WHITE	BLACK	YELLOW
HUNTLEIGH	GREEN	BLACK	RED	WHITE	CASE

■ **Resolution to load cell output rate**

10V impression to load cell Max. load cell output	Recommended resolution
2 mV	1/1,000(Max)
4 mV	1/2,000(Max)
8 mV	1/5,000(Max)

Connection to AC power

Connect to the AC power and turn the power switch on.
The Input Voltage is only for 220V 50/60 Hz

External input port connection

If you are away from CI-1500A and you want to control key, Please connect the CI-1500A with **remote key** via rear panel.

External Output port connection (realy is 5W)

Multi Connector	Relay	
1	ZERO RELAY	REALY OUT-PUT
2	1 STEP(LOW RELAY)	
3	2 STEP(HIGH RELAY)	
4	FINAL RELAY	
COM	RELAY OUT-PUT COM	
1	ZERO KEY	KEY IN-PUT
2	START KEY(F08)	
COM	KEY IN-PUT COM	

TEST MODE

■ **How to enter**

Turn on the power while pressing the **ZERO** key on the front of the indicator.
▸ When test is done, Press **SET** key.

■ **Available keys**

- Set key **:** Used for moving to the next test menu.
- Other keys **:** Used for changing the preset value.

■ **Test Menu (TEST 1- TEST 6)**

TEST 1 : Key test
TEST 2 : Display test
TEST 3 : Load cell test and A/D conversion test
TEST 4 : Serial interface test
TEST 5 : Printer test
TEST 6 : External input/output test (CI-1560A)

TEST 1

■ **FUNCTION : KEY TEST**

KEY	Display	Description
SET : Move to nextmenu Other keys : Perform test	Key number ex) In case of Zero key 1	-Press the key to be test and the No of key mode should be indentify with code of key as the follows -If you press Set key. it will be moved to test 2.

■ **KEY LIST**

KEY NAME	No	EXTERNAL INPUT	No
ZERO	1	IN 1	6
TARE, ◀	2	IN 2	7
NET/GROSS, ▲	3		
PRINT, ▼	4		
SET	5		

TEST 2

■ **FUNCTION : Display test**

KEY	DISPLAY	DESCRIPTION
SET : Move to next menu Other keys : Perform test		- TEST 2 is perormed. - After this test completing, it will be moved to test 3 automatically

TEST 3

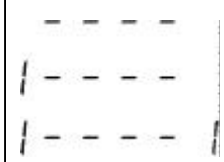
■ **FUNCTION : A/D converter test**

KEY	DISPLAY	DESCRIPTION
SET : Move to next menu ZERO KEY : Set the current value to 0	Digital value of current weight ex) 1 5 0 0	- TEST 2 is perormed. - After this test completing, it will be moved to test 3 automatically

▸ Note 1. Check whether digital value is changing.
If the digital value is fixed or zero is displayed, please check the connection of load cell.

TEST 4

■ **FUNCTION : RS-232 test with computer (SERIAL port)**

KEY	DISPLAY	DESCRIPTION
SET : to next menu Other keys : Transmitting key		Waiting for transmission and reception Transmitted : none, Received : 1 Transmitted : 1, Received : none Transmitted : 1, Received : 1

▸ Note 1. Do this test after the connection of serial port of computer and serial port of indicator is done.
Note 2. Send no.1 in computer keyboard and check if indicator receives no.1
Send no.1 in indicator keyboard and check if computer receives no.1
Note 3. Do this test after baud rate is specified in **SET** mode and F03 is 2 in **SET** mode.

※ **INDICATOR TEST (When it isn't connected with PC)**

① Conect directly between No. 2(TXD) and No. 3(RXD) in indicator of serial port.
② If transmitting data is identical with receiving data by pressing key of front panel, this test will be done.

TEST 5

Only available if OPTION is installed.If or not, this test will be skipped and moved to test 6

■ **FUNCTION : Printer test (PRINTER)**

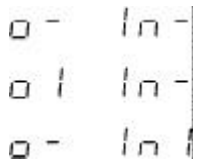
KEY	DISPLAY	DESCRIPTION
SET : Move to next menu Other keys : Perform test		No error in printer Do this test after connection Serial printer

▸ Note 1. Perform test only when the printer connection are installed.
Note 2. Previously specify the printer which will be used in the conversion mode
Note 3. This test can be done under condition of 1 in F03.
Note 4. "**GOOD**" message is displayed if the printer connection and specification is done correctly. If or not, "**ERR 6**" message is displayed.
Note 5. The test output format of printer is as the follows.

```
----------------
CI-1500A
http://www.cas.co.kr
TEST OK
----------------
```

TEST 6 (CI-1560A)

■ **FUNCTION : External input/output (relay test)**

KEY	DISPLAY	DESCRIPTION
SET : Move to next menu		Waiting for key and External input
External key in external input : Perform test		out put : none, input : 1
ZERO, TARE, N/G, PRINT key in external output : Perform test		out put : 1, input : none out put : 1, input : 1

CALIBRATION MODE

1.How to enter

Turn on the power while pressing **SET** key on the front of the indicator.

2. Available keys

SET	- used to move to the next test menu. - used to enter "Weighing mode".
ZERO	used to set the current value to zero in CAL 1,3.
TARE ◀	used to set the current value x 10 in CAL 1,3.
NET GROSS ▲	- used to set the current value +1 in CAL 1,3. - used to increase one division value in CAL 2.
PRINT ◀	used to decrease one division in CAL 2.

※ Calibration mode follow as these steps.

	SET key	**SET** key	**SET** key	**AUTOMATIC**	**SET** key	**SET** key	
CAL 1	**CAL 2**	**CAL 3**	**CAL 4**	**CAL 5**	**END**	**Weighing mode**

When you press **SET** key in CAL1, it is shifted to the next menu.

3. Calibration Menu (CAL 1- CAL 7)

CAL 1 : Maximum Capacity Set
CAL 2 : Minimum Division Set
CAL 3 : Setting Weight in Span Calibration
CAL 4 : Zero Calibration
CAL 5 : Span Calibration

CAL 1

■ **FUNCTION : Maximum Capacity Set**
RANGE ※ 1~ 999,999

KEY	DISPLAY	DESCRIPTION
SET key : store and into next menu	t1. 00	Program version
	CAL 1	CAL 1 condition
ZERO key , ◀ , ▲ : change the set value	Maximum capacity value(ex:5000)	5000 kg

▸ Note 1. The maximum capacity means the maximum weight that scale can measure.
Note 2. Do not input the resolution, there is no need to input the resolution which is automatically calculated.
Note 3. If you press **SET** key, it will be moved to CAL 2.

CAL 2

■ **FUNCTION : Minimum Division Set**
RANGE ※ 0.001~500

KEY	DISPLAY	DESCRIPTION
SET key : store and move into next menu	CAL 2	CAL 2 CONDITION
◀ , ▲ : change the set value	Minimum division value(ex : 0.01	0.01 kg
	0.001)	0.001 kg

▸ Note 1. The minimum division means the value of one division.
Note 2. External resolution is obtained by dividing the min. division by the maximum capacity. Set the resolution to be within 1/10,000.
Note 3. If you press Set key, it will be moved to CAL 3.

CAL 3

■ **FUNCTION : Setting Weight In Span Calibration**

RANGE : 1~Maximum capacity of CAL 1

KEY	DISPLAY	DESCRIPTION
SET key : store and move into next menu **ZERO** key, ◀ , ▲ : change the set value	CAL 3 Maximum capacity of CAL1(ex:5000) Setting weight(ex:500)	CAL 3 condition 5000 kg 500kg

▸Note 1. The setting weight shall be within the range of 10 % ~100 % of maximum weight.

Note 2. If the Setting Weight is under the 10% of the Maximum Capacity, Error message **ERR 22** will occur.

Note 3. If the Setting Weight over the Maximum Capacity, Error message **ERR 23** will occur.

Note 4. If you press Set key, it will be moved to test 4.

CAL 4

■ **FUNCTION : Zero Calibration**

KEY	DISPLAY	DESCRIPTION
SET key : Zero calibration	CAL 5 LOAd setting weight checking - 333333 indicator 222222 111111 GOOd Factor value End	CAL 4 condition Unload the tray and press SET Display A/D Value Under zero calibration Zero calibration is completed. The program moves into Span calibrayion automatically.

▸Note 1. If Zero calibration is done without any error, GOOD message is displayed and program moves into CAL 5 automatically.

Note 2. If the zero value is too low, ERROR message **ERR 27** is displayed.

Note 3. If the zero value is too high, ERROR message **ERR 26** is displayed.

Note 4. Zero calibration can be done independently. If you press **ZERO** key instead of **SET** key, zero calibration will perform.

CAL 5

■ **FUNCTION : Span Calibration**

KEY	DISPLAY	DESCRIPTION
SET key : Span calibration	CAL 5 LOAd setting weight checking - 333333 indicator 222222 111111 GOOd Factor value End	CAL 5 condition Load the weight which was set in CAL 3 It is displayed the setting weight. And then, press Set key. Under span calibration. Span calibration is completed. Check whether the displayed weight is same with setting weight. The weight converting constant value Calibration is completed. Under this condition, release the load.

▸Note 1. If Span calibration is done without any error, GOOD message is displayed. The weight of setting weight is displayed on VFD screen. Check the weight.

Note 2. If the span value is low, Error message **ERR 24** is displayed. If the span value is high, Error message **ERR 25** is displayed. In that case, calibrate with lower resolution. Please check the span value to be resolution 4 in TEST 3.

Note 3. If you press **SET** key, it will be moved to NORMAL MODE.

SET MODE

1. How to enter

Turn on the power while pressing the **TARE** key on the front of the indicator.

2. Available keys

SET	used to save inputted value and exit to menu selection.
ZERO	used to set the current value to zero
TARE ◀	used to set the current value x10.
NET GROSS ▲	used to set the current value +1.
PRINT ◀	used to set the current value -1.

3. Set Value Conversion Menu

F01 Change of display unit
F02 **SET** Key usage
F03 Serial port Usage
F04 Auto Print Usage
F05 Speed control of weigh display
F06 Automatic zero condition set
F07 Weight backup function set
F08 External Input 2 Usage
F09 **ZERO** key operation range set
F10 Device number
F11 Baud rate set
F12 Data set sent to Computer
F13 Hold type set
F14 Set Clock
F20 Relay mode (CI-1560A)

F01	Function	Display	Description
	SET display unit(0~1)	F01 0	Unit : kg
		F01 1	Unit : ton

F02	Function	Display	Description
	SET key usage(0~2)	F02 0	is Hold key
		F02 1	is Total data print
		F02 2	is Start key in relay mode

F03	Function	Display	Description
	Serial Port usage (0~2)	F03 0	Not Used
		F03 1	Connection to Serial Printer
		F03 2	Connection to P.C or RemoteDisplay

F04	Function	Display	Description
	Automatic print(0~1)	F04 0	Manual print-whenever you press the key, it will be printed.
		F04 1	Automatic print-when the weight is stable or you press the key, it will be printed.

▸ Note 1. Upon setting the automatic print, the print is carried out without pressing the print key when the weight is in stable state.
Note 2. It shall be in 1 of F03.

F05	Function	Display	Description
	Speed control of weighing display (Digial filter function, 1~9)	F05 1	In high speed
		F05 5	In normal speed
		F05 9	Very slowly

▸ Note . Adjust the speed variation of the weight on the screen to be suitable for the current usage.

F06	Function	Display	Description
	Automatic zero condition set(0~9)	F06 0	No compensation
		F06 2	Compensation for gradual change below two division for 3 seconds.
		F06 9	Compensation for gradual change below nine division for 3 sec.

F07	Function	Display	Description
	Weight backup (OFF, ON)	F07 0	weight backup is off
		F07 1	weght backup is on

▸Note 1. In case occurring sudden power failure, it can be memoried the moment value by this function

Note 2. If the AC power is OFF suddenly and weight backup is ON, the scale recovers previous weight after the power is ON.

Note 3. On and Off are alternately displayed by pressing the numeric keys.

F08	Function	Display	Description
	External Input 2 Usage(0~3)	F08 0	Tare Key
		F08 1	Print Key
		F08 2	Hold Key
		F08 3	Start Key in Realy Mode

▸Note. This function is available to control in long disitance. At this time, you can adjust key usage fit for the purpose.

F09	Function	Display	Description
	Zero key op	F09 0	4% : zero key opearation within 4% of maximum weight
		F09 1	10% : zero key opearation within 10% of maximum weight

▸Note. This function is to set the range of initial zero value.

F10	Function	Display	Description
	Device number (Identifcation number of each indicator, 00~99)	F10 00	Device No. 00
		F10 05	Device No. 05

▸Note 1. This device number is the data demanding signal in serial communication.

Note 2. It shall be in 2 in F03.

F11	Function	Display	Description
	Baud rate (Unit of speed In data transmission, 0~5)	F11 0	600bps(bit per second)
		F11 1	1200bps
		F11 2	2400bps
		F11 3	4800bps
		F11 4	9600bps
		F11 5	19200bps

▸Note. It shall be just in 2 of F03.

F12	Function	Display	Description
	Data set send to computer (0~3)	F12 0	No data out put
		F12 1	Transmission in state of stable or unstable
		F12 2	Transmission only in stable state
		F12 3	Transmission only when requiring data

▸Note 1. When the scale is shipped out, the setting value is 0.

Note 2. In case of setting 3 of F12, weighing data will be transmitted after receiving one byte which is specified in F10

Note 3. It shall be just in 2 of F03.

F13	Function	Display	Description
	Hold type set (0~2)	F13 0	Average Hold
		F13 1	Peak Hold
		F13 2	Sampling Hold

▸Note. Average hold : Compute the average weight of oscillating weights.
Peak hold : Compute the maximum weight of oscillating weights.
Sampling hold: Compute the moment weight of oscillating weights.

F14	Function	Display	Description
	Clock usage (0~1)	F14 0	Not using Clock
		F14 1	Using Clock

※ **When you select 1 of F14.**

	Function	Display	Description
C1	Set Year (00~99)	C1 99	Year : 1999
		C1 00	Year : 2000

	Function	Display	Description
C2	Set Day (00~12)	C2 10	October

	Function	Display	Description
C3	Set Day (00~31)	C3 30	Day : 30

	Function	Display	Description
C4	Set Hour (00~23)	C4 15	P.M 3

	Function	Display	Description
C5	Set Minute (00~59)	C5 59	Minute : 59

	Function	Display	Description
C6	Set Second (00~59)	C6 39	Second : 39

	Function	Display	Description
F20	RELAY MODE USAGE (0~4)	F20 0	Not used
		F20 1	Limit Mode
		F20 2	Checker Mode
		F20 3	Limit type Chcker Mode
		F20 4	Packer Mode

※ **You can set Lo, H - FALL, L - FALL value same as above.**

■ **HI, Lo, H - FALL, L - FALL**

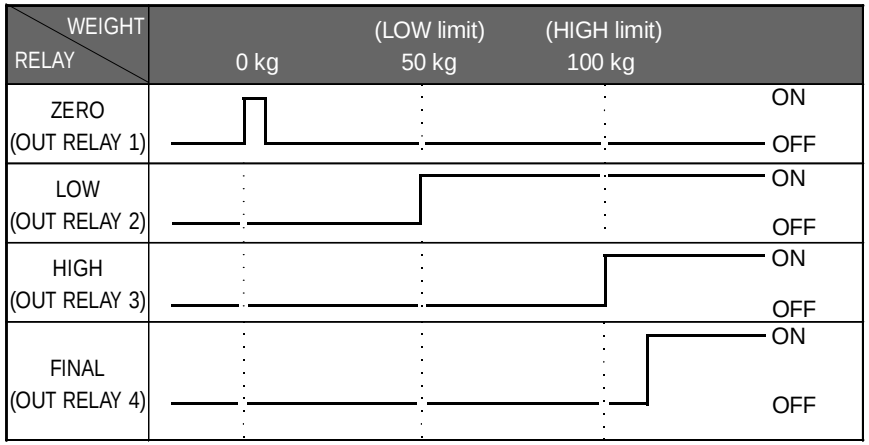
Function	Display	Description
Set Hi, Lo, H - FALL, L - FALL value	100	100 kg

■ **DELAY**

Function	Display	Description
Set Delay Time (0~9)	1	1 second
	9	9 seconds

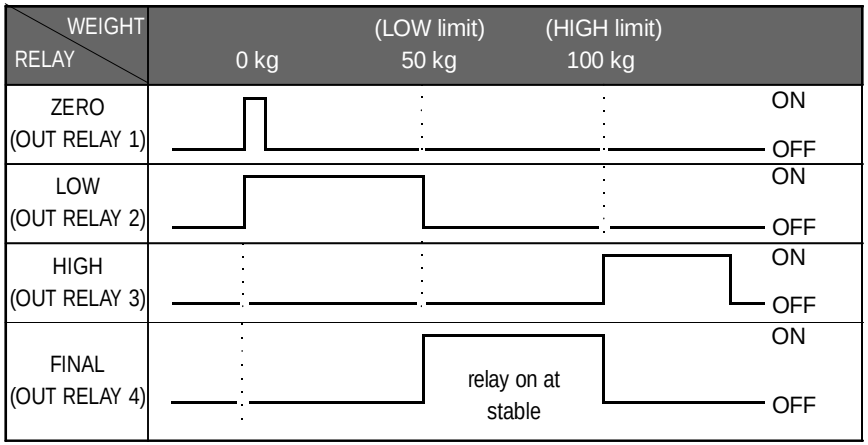
	Display	Description
step 1	H 1	How to input Hi value in set mode.
step 2	0.0	Display existing value.
step 3	▲	As you press ▲ key 9 times, the setting value makes 0.9 kg.
step 4	0.9	
step 5	◀	As you press ◀ key 2 times, the setting value makes 90 kg.
step 6	90.0	
step 7	SET	If you press **SET** key, it will be moved to next menu.

■ **Limit Mode**

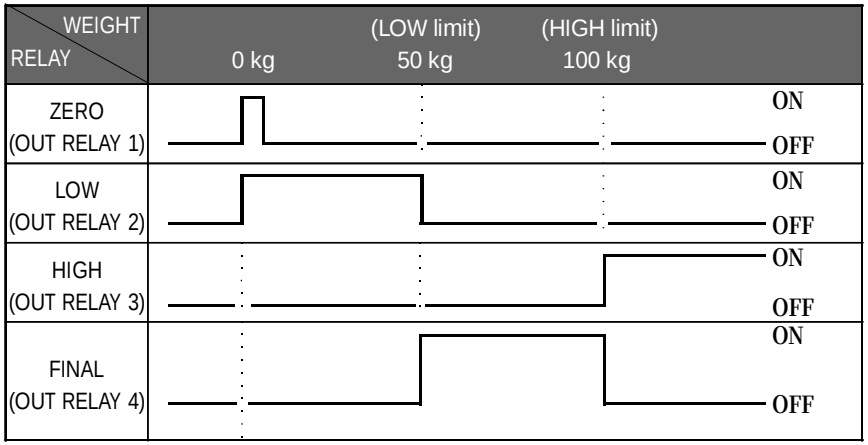


▸Note. When L-FALL and H-FALL are set,
Low limit relay will come ON (Weight = Lo - L-FALL).
High limit relay will come ON (Weight = HI - H-FALL).

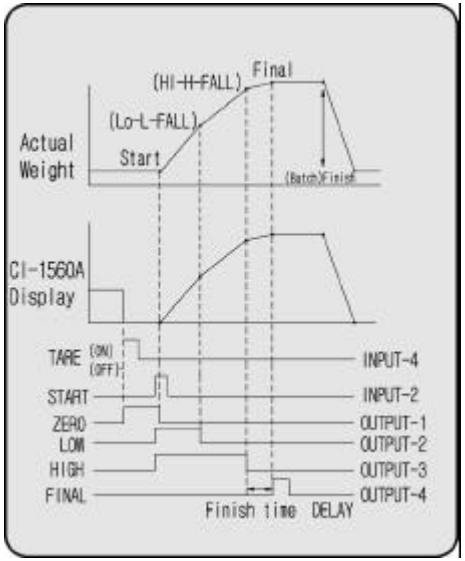
■ **Checker Mode**



■ **Limit Type Checker Mode**



■ **Paker Mode**



WEIGHING MODE

1.How to enter

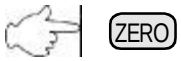
Turn ON/OFF switch on and you will enter the WEIGHING Mode.

2. Key usage in Weighing mode

ZERO	Return the display to the ZERO
TARE ◀	Used to subtract the weight of container placed on the platform. When this key is pressed, the scale stores current weight as the tare weight. If you press **TARE** key in unload condition. tare setting is released.
NET GROSS ▲	Toggle key between GROSS weight and NET weight. The annunciators and display will alternate between GROSS and NET as well. In case tare weight is registered, tare and item's total weight is G. weight and only item's weight is N, weight.
PRINT ◀	Used to print thee print FORM you've chosen is **SET** Mode.
SET	- Used as **START** key in relay mode. (under 2 of F02) - Used to set total print. (under 1 of F02) - Used as **HOLD** key. (under 0 of F2) - Used to store current condition and exit in CALIBRATION, TEST, SET mode.

3. Main Usage of CI-1500A/1560A (Example 1 - Example 6)

■ **Example 1. Zero compensation**

	Display or Key	On platform	Description
step 1		Empty	Zero point drift.
step 2			Press **ZERO** key when the weight is stable.
step 3		Empty	ZERO Compensation; The present value is returned the display to the ZERO.

▸Note 1. It shall be in zero range to 4% or 10% of maximum capacity in Set Menu of F09.

Note 2. Non-ability in HOLD state of the weight.

Note 3. Non-ability in setting tare.

■ **Example 2. Tare Function Usage**

	Display or Key	On platform	Description
step 1		Contaiiner	Tare weight : 200kg
step 2			Store current weight as the tare weight
step 3		Empty	To be turned on tare lamp means that tare isregistered in. Net Weight is on the display
step 4		Container + Content	Gross : 700kg Net : 500kg **TARE** and **NET** key is turned on.
step 5		Unload	Gross : 0.0kg Net : -200.0kg Tare function is turned on.
step 6		Unload	If you press **TARE** key in unload condition, tare setting is released.
		Unload	Gross : 0.0kg Net : 0.0kg Tare function is turned off.

▸Note. TARE Range maximum capacity.

Press **TARE** key when the weight is stable.

※ If you press TARE key in unload condition, tare setting is released.

■ **Example 3. To display NET or GROSS weight.**

	Display or Key	On platform	Description
step 1		Container and Content (Article)	Article weight : 10.00kg Tare weight : 5.00kg Net weight is on the display now.
step 2			
step 3		Container and Content (Article)	Gross weight is on the display now.
stpe 4			
step 5		Container and Content (Article)	Net weight is on the display now.

▸Note. GROSS annunciator appears when gross weight is on the display.
GROSS annunciator disappears when net weight is on the display.

■ **Example 4. To HOLD function (It shall be in 0 of F02)**

	Display or Key	On platform	Description
step 1		Article	Weighing mode.
step 2			It shall be in 0 of F02.
step 3		Article	Hold weight is on the display now.
step 4			If you press SET key in loading condition, HOLD will release.
step 5		Unload	When it is became unloading condition, HOLD will release automatically.

▸Note 1. Choose HOLD type in SET menu (F13)
Average HOLD(F13 0): Compute the average weight of oscillating weights.
Peak HOLD(F13 1) : Choose the maximum weight among oscillating weights.
Sampling HOLD(F13 2): Choose the current weight of oscillating weights.
Note 2. In case of using external input 2, it shall be in 2 of FO8.

■ **Example 5. Print weighing data (OPTION : It shall be in 1 of F03.)**

	Display or Key	On platform	Description
stpe 1		Article	
step 2			Press PRINT key. (ref ①)
step 3		Article	Weighing data is printed.
step 4			Press PRINT key. (ref ①)
step 5		Unload	
step 6			Total data print (ref ②) ※**It shall be in 1 of F02**

1999. 09. 29 16:35:25
001, 1500kg 16:35:25

002, 1600kg 16:40:35

003, 1400kg 16:45:45

① Weighing data print format

----Total Print -----
1999.09.29 16:35:25
Count: 003, 1500 kg
- - - - - - - - - - - - - - - - -

② Total data print format

RS-232C INTERFACE/CLOCK

Transmit mode : RS-232C interface

F11	Baud rate	600, 1200, 2400, 4800, 9600, 19200
F12	Output mode	stable, Unstable, Data is required

■ **Type : EIA - RS - 232C**

■ **Method : Full-duplex, asynchronous transmission Fomat**

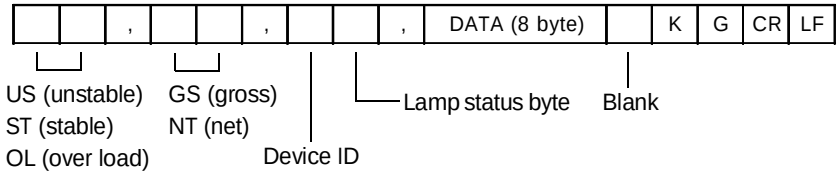
① Baud rate : 600 bps - 19200 bps
Choose Baud rate in SET mode (F11).
Refer to SET mode.

② Data bit : 8, Stop bit : 1, Parity blt : None

③ Code : ASCII

④ When data is sent to computer ?
Set in SET mode (F12).

⑤ Data Fomat



※ Simple communication program (BASIC)

```
10 OPEN "COM1:9600,N,8,1" As #1
20 IF LOC(1) = 0  THEN 60
30 A$ = INPUT$(1,1)
40 PRINT A$ ; " ";
50 GO TO 20
60 B$=IN KEY$ : IF B$ ="" THEN 20
70 PRINT B$ ; " ";
80 PRINT #1,B$;
90 GO TO 20
```

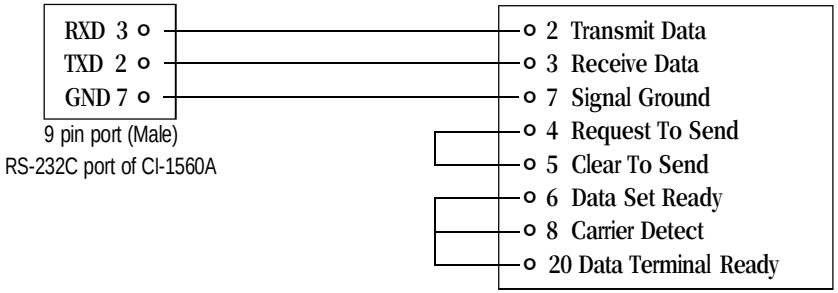
※ Simple communication program (C)

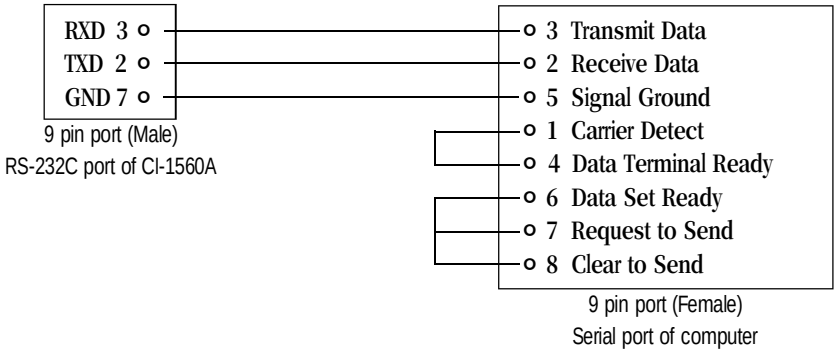
```
#include <bios.h>
#include <conio.h>

#define COM1      0
#define DATA_READY 0x100
#define TRUE      1
#define FALSE     0

#define SETTINGS ( 0x80 | 0x03 | 0x00 | 0x00)

int main(void)
{
  int in, out, status, DONE = FALSE;
  bioscom(0, SETTINGS, COM1);
  cprintf("... BIOSCOM [ESC] to exit ...\n");
  while (!DONE)
  {
    status = bioscom(3, 0, COM1);
    if (status & DATA_READY)
      if ((out = bioscom(2, 0, COM1) & 0x7F) != 0)
          putch(out);
    if (kbhit())
    {
      if ((in = getch()) = = '\x1B')  DONE = TRUE;
      bioscom(1, in, COM1); }
    }
  return 0;
}
```

RS- 232C Port Connection

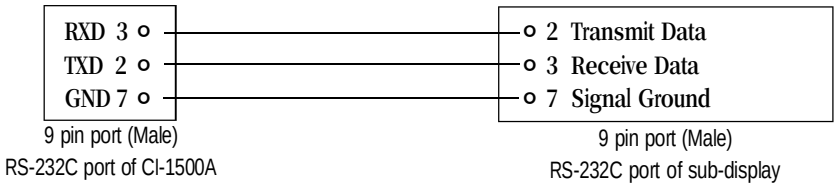
■ **RS 232C port connection to PC**

Connect SERIAL port on the rear panel of the indicator to serial port of PC as the follows.

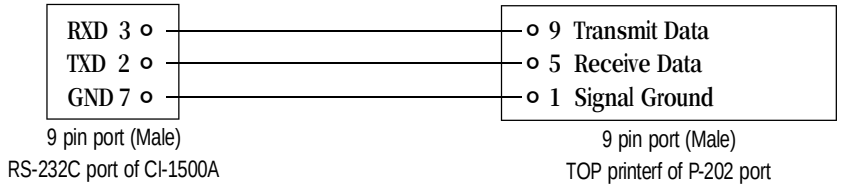




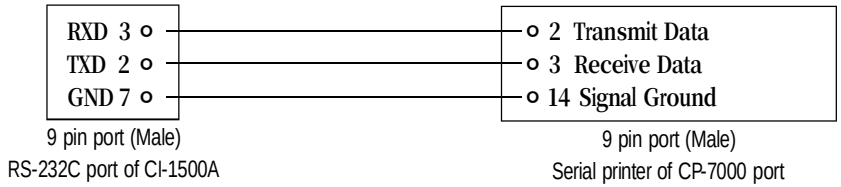
■ **Sub - display connection**



■ **CAS TOP printer connection (P-202)**



■ **CP - 7000 Series printer connection**



Clock

■ **Connect serial port on rear panel of indicator to serial printer.**

F14	Clock usage	0 : unused 1 : used
CI - 6	Set date and time	yy, mm, dd, hh, mm, ss

ERROR MESSAGE & TROUBLE SHOOTING

(1) In Weighing Mode

ERR 02

■ **Reason**
Load cell connection failure or error in A/D conversion part.

■ **Trouble shooting**
Check the Load Cell connector to see if the polarity of signal is reversed.

ERR 13

■ **Reason**
Zero range deviate from the set range.

■ **Trouble shooting**
Confirm that there is nothing on the weighing platform.
If nothing exist, do Calibration in CAL mode.

OVER

■ **Reason**
The display weight is larger than the Maximum Capacity you've set.

■ **Trouble shooting**
Don't load the article whose weight is larger than the Max. Capacity on the platform scale. This may damage Load Cell.

(2) In CAL Mode

ERR 21

■ **Reason**
Resolution (Maximum Capacity ÷ Minimum Division) is over the limit (1/10,000).

■ **Trouble shooting**
Lower the resolution in one of the below ways.
① Modify Maximum Capacity in CAL 1 of Calibration Menu.
② Modify Minimum Division in CAL 2 of Calibration Menu.

ERR 22

■ **Reason**
Setting weight is set under 10% of the Maximum Capacity.

■ **Trouble shooting**
Set span setting weight equal to or over 10% of the Maximum Capacity in CAL 3 of CAL Menu.

ERR 24

■ **Reason**
Load Cell output Volltage is too low at span Calibration.

ERR 25

■ **Reason**
Load Cell output Volltage is too high at span Calibration.