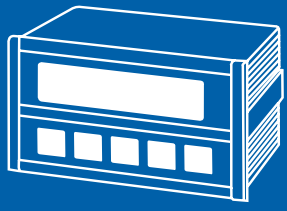
INDUSTRIAL WEIGHING SOLUTION™

CI-1500/1560A

Weighing Indicator

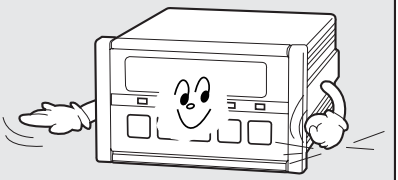


www.globalcas.com

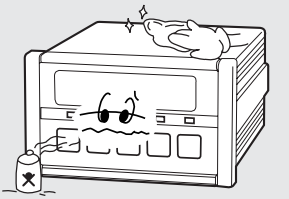
OWNER'S MANUAL

CAS

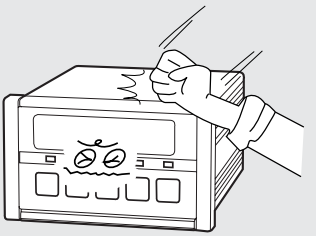
CONTENTS



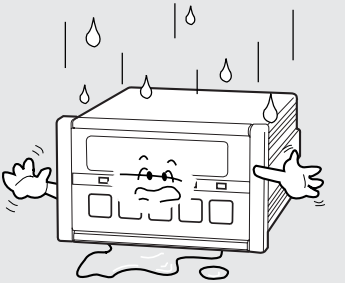
◆ Place the indicator on a flat and stable surface.



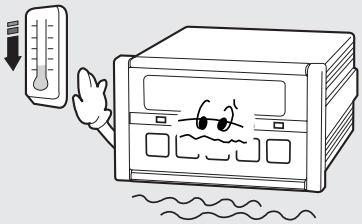
◆ Do not use inflammable materials in cleaning.



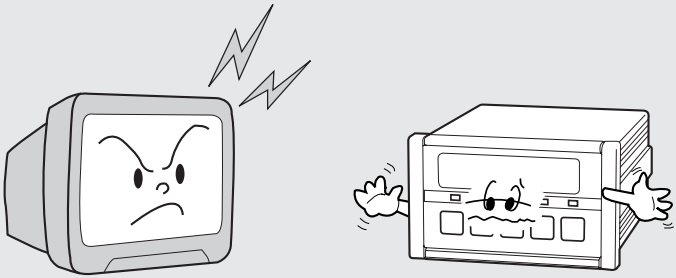
◆ Do not severely press because the light pressing of keys can incite the operation.



◆ Keep the main body from rain and keep in dry area.



◆ Do not subject the scale to sudden temperature changes.



◆ Keep the scale away from strong EMI noises may cause incorrect weight readings.

INTRODUCTION

We greatly appreciate your purchase of the CI-1500A series 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.

THE FEATURES OF CI-1500A SERIES

(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(option)
- ■ Print date and time by inner clock(option)

TECHNICAL SPECIFICATION

Analog Part & A/D Conversion	
Load cell excitation voltage	DC 5V
Zero adjust range	0.05mV～30mV
Input sensitivity	over 1μV/D
Nonlinearity	0.01% F.S.
A/D internal resolution	1/200,000
A/D external resolution	1/10,000(Max.)
A/D conversion speed	10 times/sec

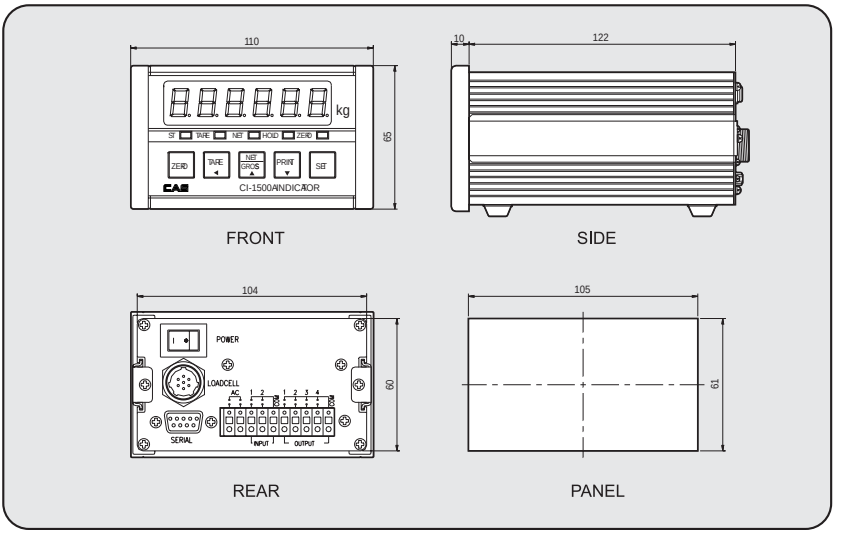
Digital Part	
Span calibration	Full Digital Calibration (Single pass automatic span calibration)
Input noise	below ±0.3μVpp
Input impedance	over 10MΩ
Display	7 Segment(6 digit)
Maximum capacity	999999
Division	×2, ×5, ×10, ×20, ×50
Display below zero	"-" minus signal
Permitted limit tare	Full capacity

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

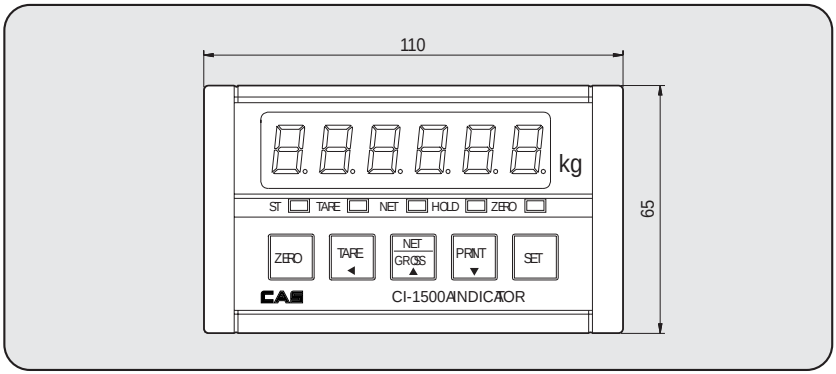
General Specification	
Power	AC 220V, 50/60Hz
Size	110(W)×130(D)×66(H)
Temperature	-10℃～＋40℃
Weight	Approx 750g
Power Consumption	Approx 10W

Option Part	
Option-1	RS-232(Serial)
Option-2	RS-232(Serial, Including clock function)

MEASURE OF APPEARANCE



FRONT PANEL



(1) 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 tare weight.
■ If you press TARE key in unload condition, tare setting is released.
■ Used to enter the SET mode.
■ Used to current value × 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 as well.
■ 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 the current value +1 in CAL, SET mode.

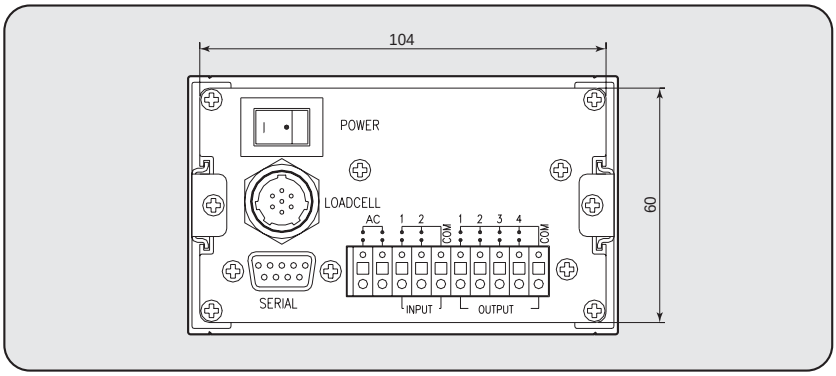
PRINT ▼

■ When you press this key, the current designated printing form is printed.
■ Use this key when weighing data is printed.
■ Used to set the 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



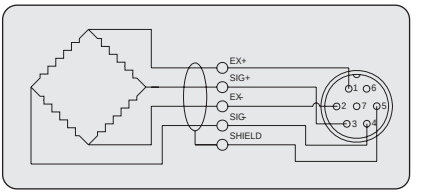
■ INPUT : External input
ZERO key, START key
OUTPUT : External output(relay output)
ZERO, LOW, HIGH, FINAL
■ LOAD CELL : Port for connecting load cell
1 : EX+ 2 : EX- 3 : SIG+ 4 : SIG- 5 : GND
■ POWER : POWER ON/OFF
■ AC : Only for 220V 50/60Hz
■ SERIAL : RS-232C(Option)

INSTALLATION & CONNECTION

(1) Load Cell Connection

Pin 1: Excitation voltage+
Pin 2: Excitation voltage-
Pin 3: Sense voltage+
Pin 4: Sense voltage-
Pin 5: Shield

■ Connecting method



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

■ Manufacturer's wire colors

Connector / Company	Pin 1 (EX+)	Pin 2 (EX-)	Pin 3 (SIG+)	Pin 4 (SIG-)	Pin 5 (GND)
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

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

(2) Connection to AC Power

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

(3) 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.

(4) External Output Port Connection(Relay is 5W)

Multi connector	Recommended resolution	
1	ZERO RELAY	RELAY OUT-PUT
2	1 STEP(LOW RELAY)	
3	2 STEP(HIGH RELAY)	
4	FINAL RELAY	
COM	RELAY OUT-PUT COM	
1	ZERO KEY	EXTERNAL IN-PUT
2	START KEY(F08)	
COM	KEY IN-PUT COM	

TEST MODE

(1) 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.

(2) Available Keys

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

(3) 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(OPTION)
TEST 5 : Printer test(OPTION)
TEST 6 : External input/output test(CI-1560A)

TEST 1

FUNCTION : Key test		
KEY	**DISPLAY**	**DESCRIPTION**
SET : Move to next menu 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 identify with code of key as the follows. If you press Set key, it will be moved to test 2.

<Key List>

Key name	No
ZERO	1
TARE, ◀	2
N/G, ▲	3
PRINT, ▼	4
SET	5

External input	No
IN 1	6
IN 2	7

TEST 2

FUNCTION : Display test		
KEY	**DISPLAY**	**DESCRIPTION**
SET : Move to next menu Other keys: Perform test	8.8.8.8.8.8.	TEST 2 is performed. 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	Display digital value of current weight. ex) 1500	Display digital value of current weight. This value means converted digital value under actual condition. If you press Set key, it will be moved to test 4.

► 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

: Only available if OPTION(RS-232C) is installed

FUNCTION : RS-232 test with computer(Serial port)		
KEY	**DISPLAY**	**DESCRIPTION**
SET: to next menu Other keys: Transmitting key	- - - - - - - - 1 1 - - - - 1 - - - - 1	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(F11) and F03 is 2 in SET mode.

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

1) Connect 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	Good	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(F08).
Note 3. This test can be done under condition of 1 in F03.
Note 4. "GOOD" message will be displayed if the printer connection and specification is done correctly. If or not, "ERR 6" message will be displayed.
Note 5. The test output format of printer is as the follows.

TEST 6 (CI-1560A)

FUNCTION : External input/output test(relay test)		
KEY	**DISPLAY**	**DESCRIPTION**
SET: Move to next menu External key in external input: Perform test ZERO, TARE, N/G, PRINT key in external output: Perform test	O- In- O1 In- O- In1	Waiting condition. In1 : Press 1 and no.1 is stored. ○1 : Indicate external output condition output no.1 is on. If you press Set key, it will be moved to normal mode.

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 ×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 CAL1→CAL2→CAL3→CAL4→CAL5→END→Weighing mode

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

(2) Calibration Menu(CAL 1 - CAL 5)

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: Store and move into next menu ZERO key, ◀, ▲: Change the set value.	**t1. 00** CAL 1 Maximum capacity value 5000	Program version CAL 1 condition 5000kg

► 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: Store and move into next menu ▼, ▲: Change the set value	CAL 2 Maximum division value ex) 0.01 0.001	CAL 2 condition. 0.01kg 0.001kg

► 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: Store and move into next menu ZERO key, ◄, ▲: Change the set value.	CAL 3 Maximum capacity of CAL 1 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 CAL 4.

CAL 4

FUNCTION : Zero calibration		
KEY	**DISPLAY**	**DESCRIPTION**
SET key: Zero calibration	CAL 4 UnLoAd A/D value Checking 33333 Indicator 22222 11111 Good	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 calibration 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	CAL 5 condition
	LoAd	Load the weight which was set in CAL 3
	Setting weight	It is displayed the setting weight. And then, press Set key.
	Checking -33333 Indicator 22222 11111	Under span calibration.
	Good	Span calibration is completed. Check whether the displayed weight is same with setting weight.
	Factor value	The weight converting constant value
	End	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 wetting weight is displayed on VFD screen.
Note 2. If the span value is low, Error message(ERR 24) 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 ×10.

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 usage(Option)
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 remote display

F04

Function	Display	Description
Automatic print (0 ~ 1)	F04 0	Manual print-whenever you press 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 (Digital filter function, (1 ~ 9)	F05 1	In high speed
	F05 5	In normal speed
	F05 9	Very slowly

► Note 1. 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 (1 ~ 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	Weight 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
Extemal 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 1. This function is available to control in long distance. At this time, you can adjust key usage fit for the purpose.

F09

Function	Display	Description
Zero key operation range set (0 ~ 1)	F09 0	4%: zero key operation within 4% of maximum weight
	F09 1	zero key operation within 10% of maximum weight

► Note 1. This function is to set the range of initial zero value.

F10

Function	Display	Description
Device number (Identification 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 1. It shall be just in 2 of F03.

F12

Function	Display	Description
Data set send to computer (0 ~ 3)	F12 0	No data output
	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 1. 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.

C1

Function	Display	Description
Set year (11 ~ 99)	C1 99	Year : 1999
	C1 00	Year : 2000

C2

Function	Display	Description
Set month (01 ~ 12)	C2 10	October

C3

Function	Display	Description
Set day (00 ~ 31)	C3 1	Day : 30

C4

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

C5

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

C6

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

F20

Function	Display	Description
Relay mode usage (0 ~ 5)	F20 0	Not used
	F20 1	Limit mode
	F20 2	Checker mode
	F20 3	Limit type checker mode
	F20 4	Packer mode
	F20 5	4Channel Limit Mode

	Display & Key	On platform	Description
Step 1	H 1 kg ST TARE NET HOLD ZERO		How to input Hi value in set mode.
Step 2	0.0 kg ST TARE NET HOLD ZERO		Display existing value.
Step 3	☞ ▲		As you press ▲ key 9 times, the setting value makes 0.9kg.
Step 4	0.9 kg ST TARE NET HOLD ZERO		
Step 5	☞ ◀		As you press ◀ key 2 times, the setting value makes 90kg.
Step 6	90.0 kg ST TARE NET HOLD ZERO		
Step 7	☞ SET		If you press set key, it will be moved to next menu.

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

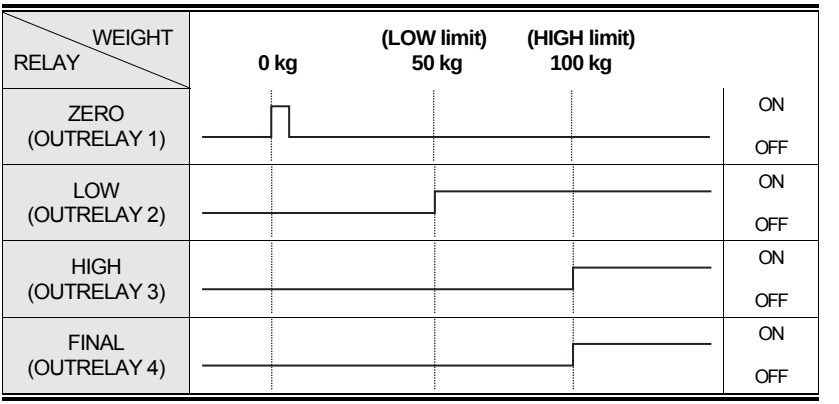
■ HI, Lo, H-FALL, L-FALL

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

■ Delay

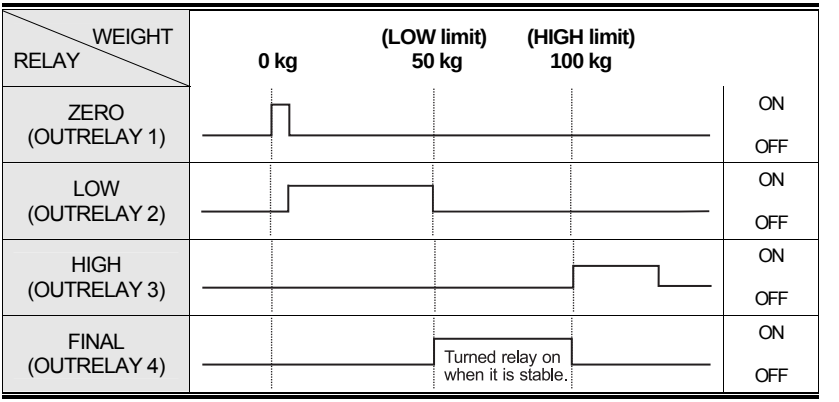
Function	Display	Description
Set delay time(0~9)	1	1 second
	9	9 seconds

■ Limit Mode



► Note : When L-FALL and H-FALL are set,
Low limit relay turns on, when the value is above low limit value.
High limit relay turns on, when the value is above high limit value.
Final relay turns on, when the value is above high limit and it is stable.

■ Checker Mode

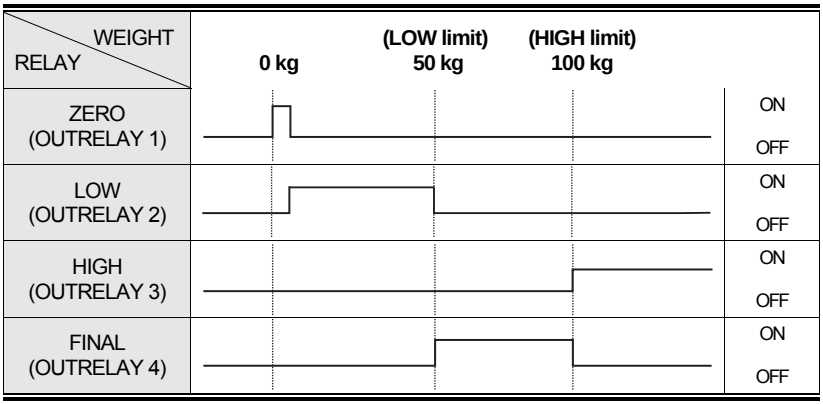


► Note 1 : The Checker Mode Can be started by two different methods: (1) By the second external output after setting F08 to number 3 or (2) by pressing SET after setting F02 to number 2.

Note 2 : When it is stable, the correspondent relay turns on. After the selected time in DELAY, it turns OFF.

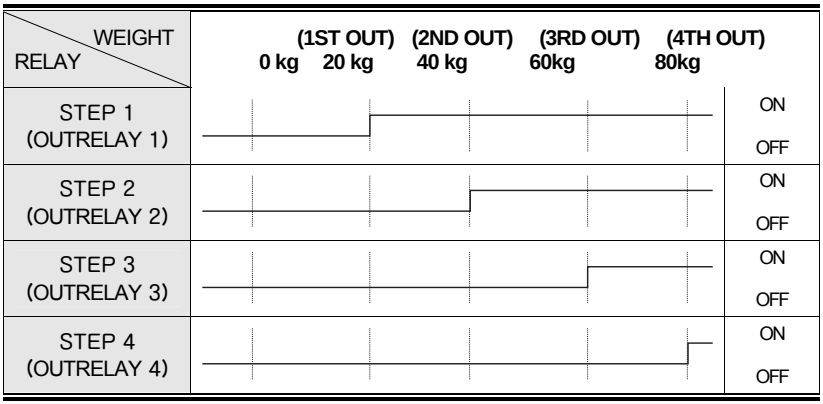
Note 3 : The Low Relay Output works only when it is stable over 10 digits.

■ Limit Type Checker Mode



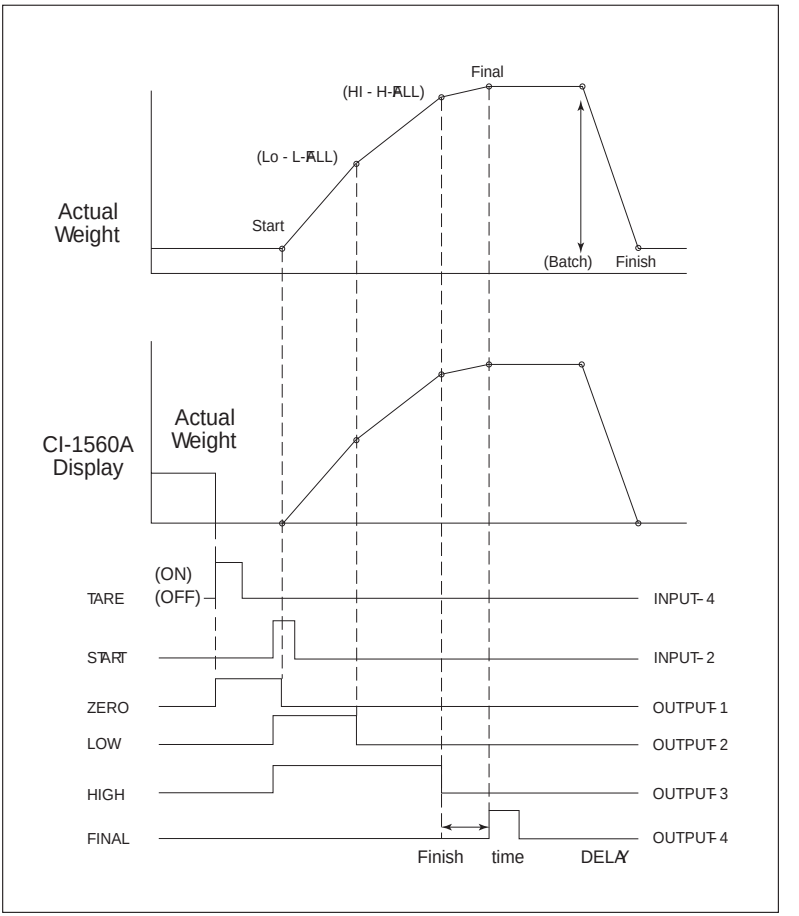
► Note 1 : The Low limit relay when it is in ZERO state, the output signal turns off.

■ 4CH Limit Mode



► Note 1. Weight value is over set value then relay is on.

■ Packer Mode



► Note 1 : The Packer Mode gets start by using the SET key or by using the external output.
Note 2 : The END Output, when the value of the subtraction of the Hi-H-Fall from High Limit Output is higher and also stable, operates for the time selected in Delay before turning OFF.

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.

PRT Used to print the print FORM you've chosen in 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 & Key	On platform	Description
Step 1	0.8 kg ST ■ TARE □ NET □ HOLD □ ZERO □	Empty	Zero point drift.
Step 2	☞ ZERO		Press ZERO key when the weight is stable.
Step 3	0.0 kg ST ■ TARE □ NET □ HOLD □ ZERO ■	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 & Key	On platform	Description
Step 1	200.0 kg ST ■ TARE □ NET □ HOLD □ ZERO □	Container	Tare weight: 200kg
Step 2	☞ TARE	Container	Store current weight as the tare weight.
Step 3	0.0 kg ST ■ TARE ■ NET ■ HOLD □ ZERO ■	Container	To be turned on tare lamp means that tare is registered in. Net weight is on the display.
Step 4	500.0 kg ST ■ TARE ■ NET ■ HOLD □ ZERO □	Container+ Content	Gross: 700kg Net: 500kg TARE and NET key is turned on.
Step 5	- 200.0 kg ST ■ TARE ■ NET ■ HOLD □ ZERO □	Unload	Gross: 0.0kg Net: -200.0kg Tare function is turned on.
Step 6	☞ TARE	Unload	If you press TARE key in unload condition, tare setting is released.
Step 7	0.0 kg ST ■ TARE □ NET □ HOLD □ ZERO ■	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 & Key	On platform	Description
Step 1	10.0 kg ST ■ TARE ■ NET ■ HOLD □ ZERO □	Container And Content (Article)	Article weight: 10.00kg Tare weight: 5.00kg Net weight is on the display now.
Step 2	☞ NET/GROSS		
Step 3	15.0 kg ST ■ TARE ■ NET □ HOLD □ ZERO □	Container and Content (Article)	Gross weight is on the display now.
Step 4	☞ NET/GROSS		
Step 5	10.0 kg ST ■ TARE ■ NET ■ HOLD □ ZERO □	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 & Key	On platform	Description
Step 1	10.0 kg ST ☐ TARE ☐ NET ☐ HOLD ☐ ZERO ☐	Article	Weighing mode.
Step 2	☞ SET		It shall be in 0 of F02.
Step 3	10.0 kg ST ■ TARE ☐ NET ☐ HOLD ■ ZERO ☐	Article	Hold weight is on the display now.
Step 4	☞ SET		If you press SET key in loading condition, HOLD will release.
Step 5	0.0 kg ST ■ TARE ☐ NET ☐ HOLD ☐ ZERO ■	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 F08.

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

	Display & Key	On platform	Description
Step 1	1500.0 kg ST ■ TARE □ NET □ HOLD □ ZERO □	Article	
Step 2	☞ SET		Press PRINT key. (ref ①)
Step 3	1600.0 kg ST ■ TARE □ NET □ HOLD □ ZERO □	Article	Weighing data is printed.
Step 4	☞ SET		Press PRINT key. (ref ①)
Step 5	0.0 kg ST ■ TARE □ NET □ HOLD □ ZERO ■	Unload	
Step 6	☞ **S**SET		Press data print. (ref ②) ※It shall be in 1 of F02.

► Note 1.

```
1999.09.29   16:35:25
001, 1500kg 16:35:25

002,1600kg   16:40:35
```

① Weighing data print format

```
--- Total Print ---

1999. 09. 29 16:35:25
Count:002, 3100.0kg

-------------
```

② Total data print format

OPTIONS

OP-1	RS-232C Interface

■ 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 format

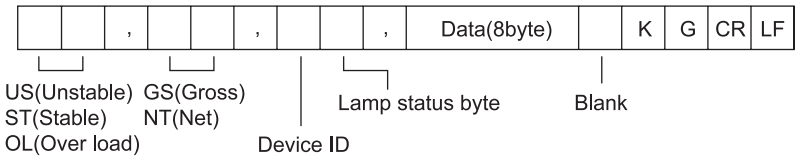
■ Baud rate: 600bps - 19200bps
Choose baud rate in SET mode(F11).
Refer to SET mode.

■ Data bit: 8, Stop bit: 1, Parity bit: None

■ Code: ASCII

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

■ Data Format



■ Simple Communication Program(BASIC)

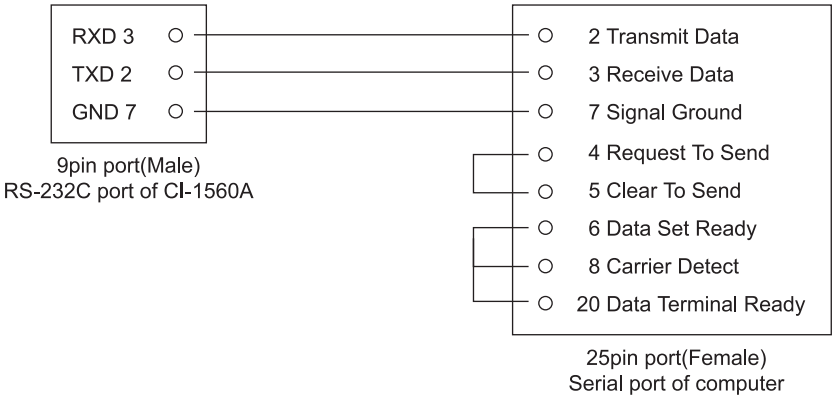
```
10 OPEN "OM1:9600,N,8,1"As #1
20 IF LOC(1) = 0   THEN 60
30 A$ = INPUT$(1,1)
40 PRINT A$ ; "";
50 GO TO 20
60 B$=INKEY$ : IF B$ ="" THEN 20
70 PRINT B$ ; "";
80 PRINT #1,B$;
90 GO TO 20
```

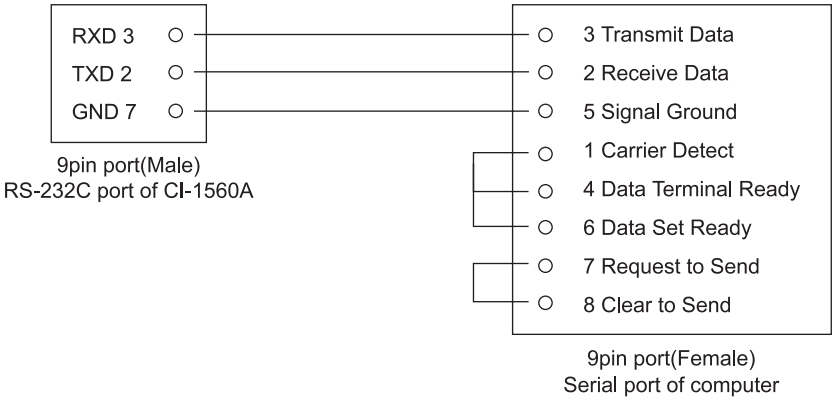
■ Simple Communication Program(C Language)

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

#define COM1            0
#define DATA_READY 0×100
#define TRUE                    1
#define FALSE                   0

#define SETTINGS (0×80 : 0×03 : 0×00 : 0×00)

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) & 0×7F) != 0)
                putch(out);
            if (kbhit( ))
              {
                if ((in = getch( )) == ?×1B?   DONE = TRUE;
                bioscom(1, in, COM1);   }
              }
      return 0;
  }
```

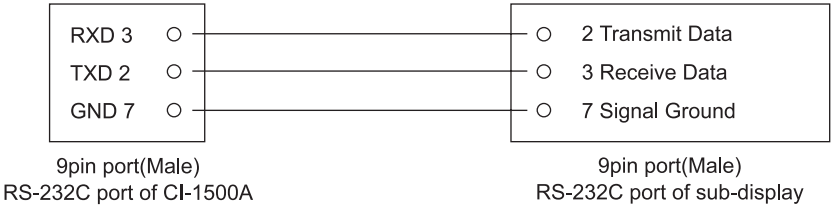
■ RS232C Port Connection

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

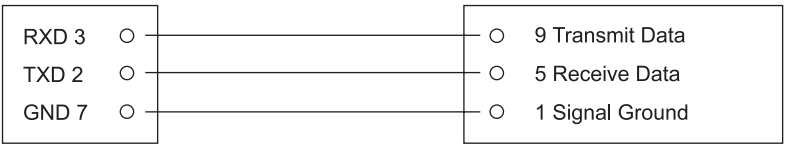




■ Sub-display Connection



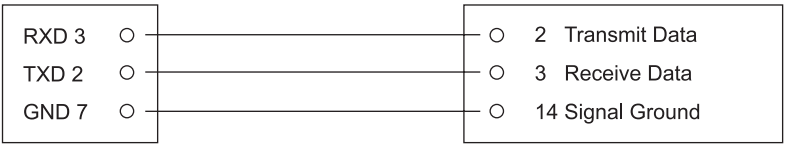
■ CAS TOP Printer Connection(P-202)



9pin port(Male)
RS-232C port of CI-1500A

9pin port(Male)
TOP printer of P-202 port

■ CP-7000 Series Printer Connection



9pin port(Male)
RS-232C port of CI-1500A

9pin port(Male)
Serial printer of CP-7000 port

OP-2	Clock

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

F11	Clock usage	0: unused 1: used
C1-6	Set date and time	yy, mm, dd, hh, mm, ss

ERROR MESSAGE AND TROUBLE SHOOTING

(1) Error 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 deviates 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 : Do not load the article whose weight is larger than the Max. capacity on the platform scale. This may damage load cell.

(2) Errors in Calibration 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. Modify maximum capacity in CAL 1 of calibration menu. 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 23

- ▣ Reason : Span setting weight is set over 100% of the maximum capacity.
- ▣ Trouble shooting : Set span setting weight equal to or under 10% of the maximum capacity in CAL 3 of CAL menu.

Err 24

- ▣ Reason : Load cell output voltage is too low at span calibration.
- ▣ Trouble shooting : This indicator will automatically increase the gain of A/D converter, and move to CAL 3.
  Only that you have to is to retry span calibration in CAL 4 after you perform zero calibration again in CAL 3.

Err 25

- ▣ Reason : Load cell output voltage is too high at span calibration.
- ▣ Trouble shooting : This indicator will automatically decrease the gain of A/D converter, and move to CAL 3.
  Only that you have to is to retry span calibration in CAL 4 after you perform zero calibration again in CAL 3.

CI-1500/1560A

Weighing Indicator

CAS BLDG., # 440-1, SUNGNAE-DONG,
GANGDONG-GU, SEOUL, KOREA
TEL_ 82 2 2225 3500
FAX_ 82 2 475 4668
www.globalcas.com

9007-C15-0033-2 2009.06