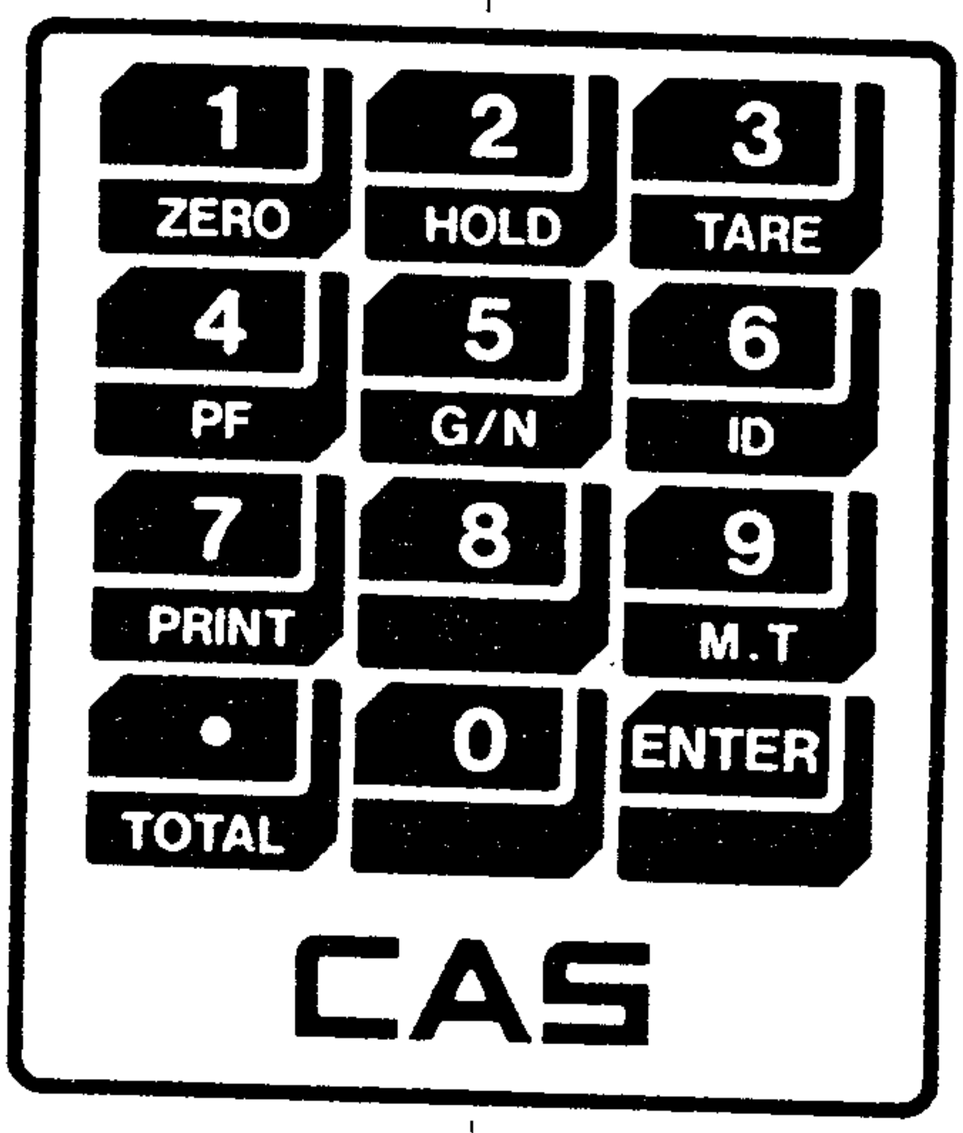
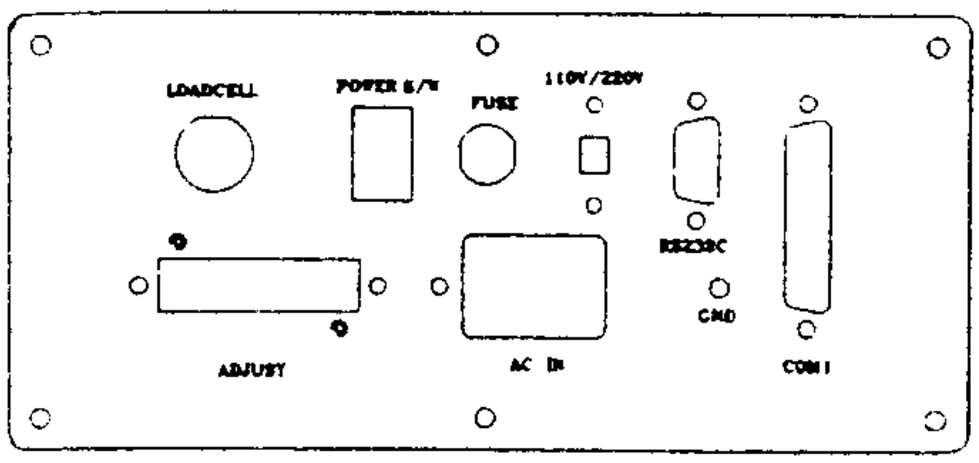


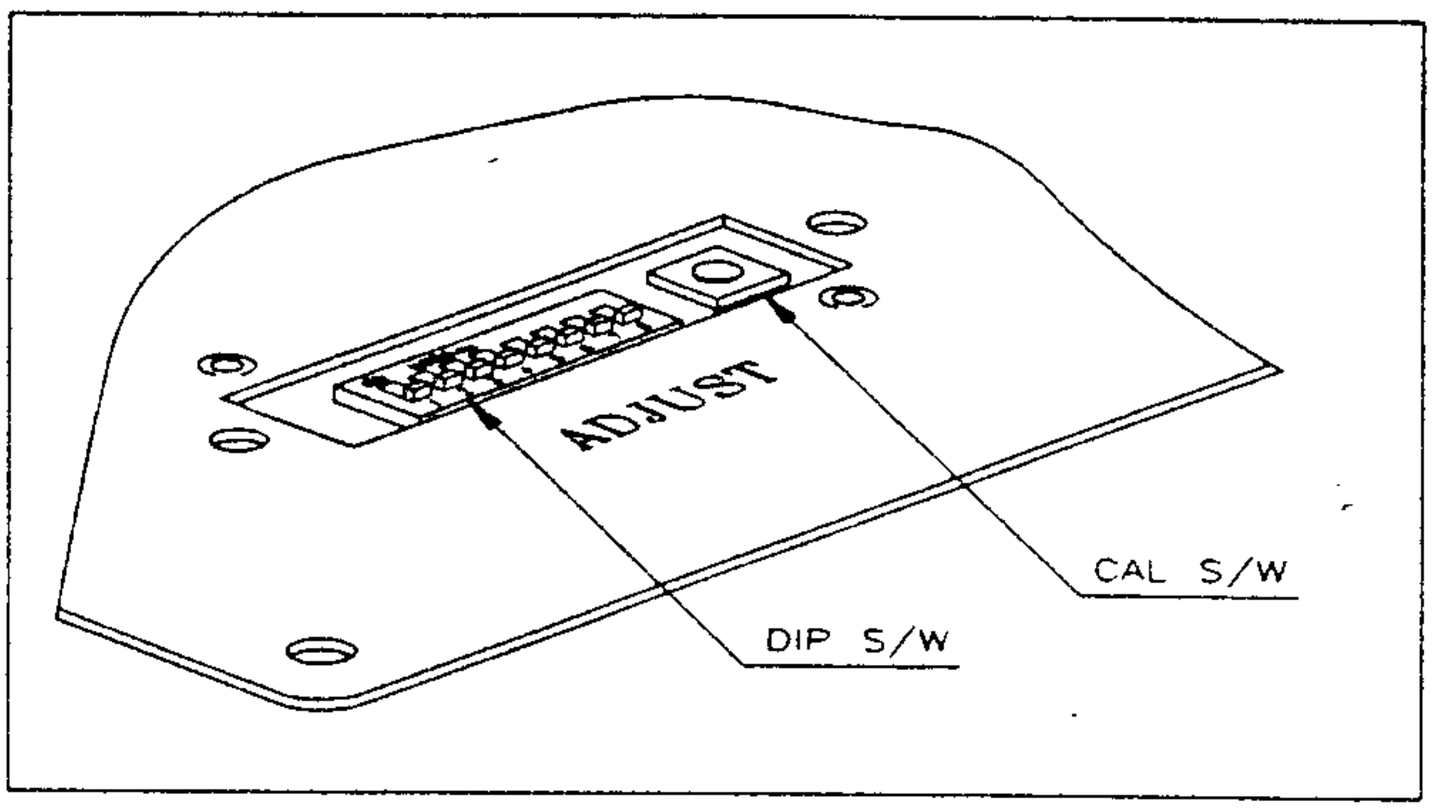
Key Usage

- NUMERIC key (0~9)
  usage 1: used to input the ID(article identifier) code.
  usage 2: used to input the tare weight.
- ZERO key: used to return the display to the center of zero when the platform(baggage plate) is empty.
- TARE key: used for weighing the item by using the container. when this key is pressed, The scale stores the current weight as the tare weight. If the baggage plate is empty and "TARE" key is pressed, tare setting is released.
- M.T key: Used to input the tare weight using numeric key. That is, if you already knew the tare weight, press this key and tare weight and "Enter" key.
- ID (Article Identifier or Item No.) key
  Type "ID" key, the ID code by numeric key, and then the ID code is registered. The code range is from 100 to 999.
- PF (feed) key: Forwards the print sheet by one line.
- PRINT key : Manual print key
  If this key is pressed, the machine prints according to the print format you chose in SET mode.
- ·/TOTAL key
  Usage 1: Used to input the numeric chracter with the decimal point such as 12.5, 0.01. If the position of the decimal point of weight entered is left to that of the weight displayed currently, the error message(ERR 11) will be displayed.
  Usage 2: Used to print the sum of the weight.
- HOLD key: Used to calculate the average and maximum of weight values and display it at VFD Display, depending on SET mode.
- ENTER key. Used to move to the next menu.

REAR PANEL DESCRIPTION



- COM1 Port: Parallel interface port (Option).
- RS-232C Port: Serial interface port (Option).
- FUSE HOLDER: Inlet of fuse. Fuse capacity - 160mA 250V.
- ADJUST: CAL switch and DIP switch are included therein.



- In order to enter to the Calibration mode, turn on a power switch while pressing CAL switch.
  In adjusting the zero and span calibration, adjust the position of the DIP switch.

DIP S/W							
1	2	3	4	5	6	7	8

zero calibration span calibration

- LOAD CELL Connector: Loadcell connection port.
- 110/220V shift switch: Control this switch in accordance with the supplied power.

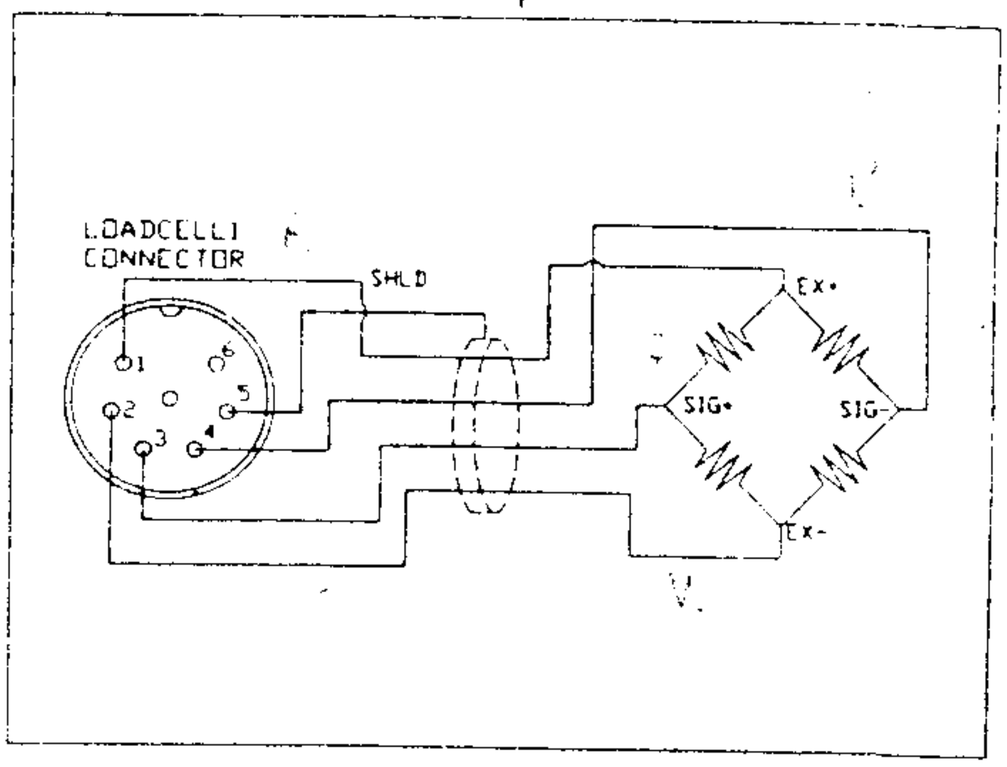
INSTALLATION

LOAD CELL CONNECTION

■ Connect a load cell connector to a LOAD CELL1 port on the rear panel of the indicator.

ref. EX+: positive excitation voltage, Red
EX-: negative excitation voltage, White
SIG+: positive sense voltage, Green
SIG-: negative sense voltage, Blue

Note: The electric wire color may differ for each loadcell manufacturer and model, therefore, refer to the following color charts.



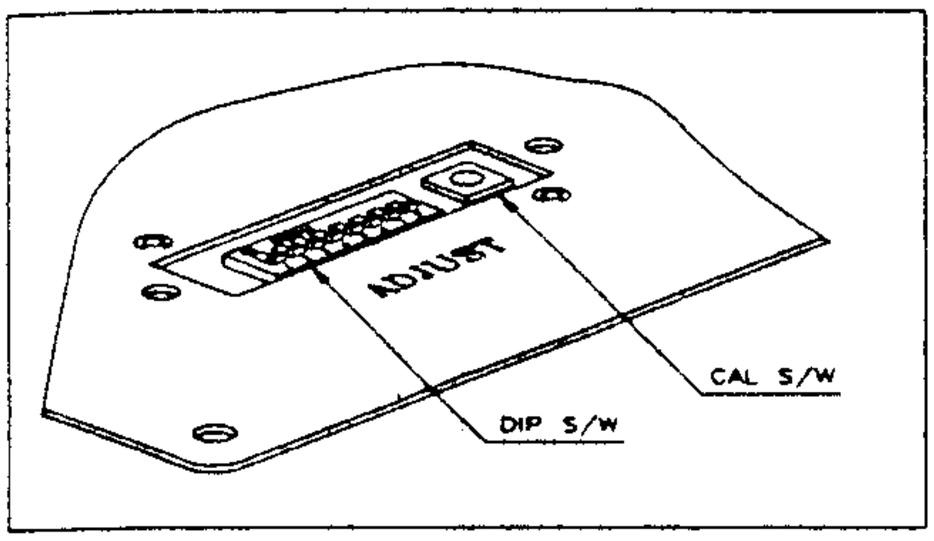
* Connection of LOAD CELL and Connector

■ Color Chart according to companies

Connector Co.	No.1(EX+)	No.2(EX-)	No.3(SIG+)	No.4(SIG-)	No.5(SHILD)
CAS	Red	White	Green	Blue	Case
BONGSIN	Red	White	Green	Blue	Yellow
JUNGWOO	Red	White	Green	Blue	Yellow
KYOWA	Red	Black	Green	White	Case
INTERFACE	Red	Black	Green	White	Case
P.T	Red	Black	Green	White	Case
BLH	.Green	Black	White	Red	Yellow
SHOWA	Red	Blue	White	Black	Case
SHINKOH	Red	White	Green	White	Case
TM1	Red	White	Green	Blue	Yellow
TML	Red	Black	White	Green	Case
TFAC	Red	Blue	White	Black	Yellow
HUNTLEIGH	Green	Black	Red	White	Case

POWER SUPPLY CONNECTION

Adjust the 110/220V shift switch according to the supplied power, and turn on the power to use it.



CAL SWITCH LOCKING METHOD

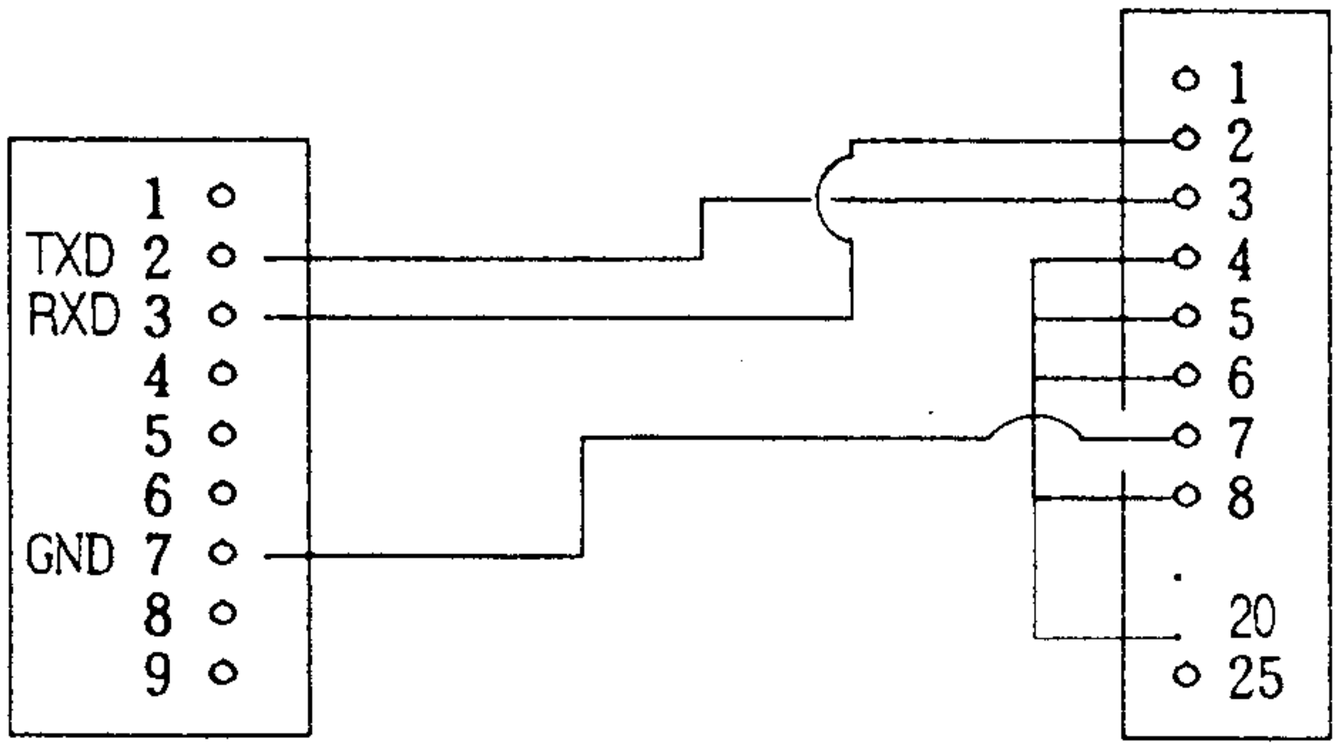
In order to reset the Calibration, turn on the power while pressing the CAL switch on the rear panel.
After finishing the calibration, close with an iron plate and screw down.

PRINTER CONNECTION METHOD

Connect COM1 port on the rear panel of the indicator to the printer(except CAS TOP printer).
Then, set the desired printer in the SET mode and set the print form you want in the SET mode.

RS 232C PORT CONNECTION METHOD

This port is for connecting to a CAS Top printer or a computer. When the CAS TOP printer is connected, another printer cannot be connected to the COM1 port. In order to communicate with the computer for receiving and sending the data, connect RS232C port on the rear panel of the indicator to serial port of the computer as follows:



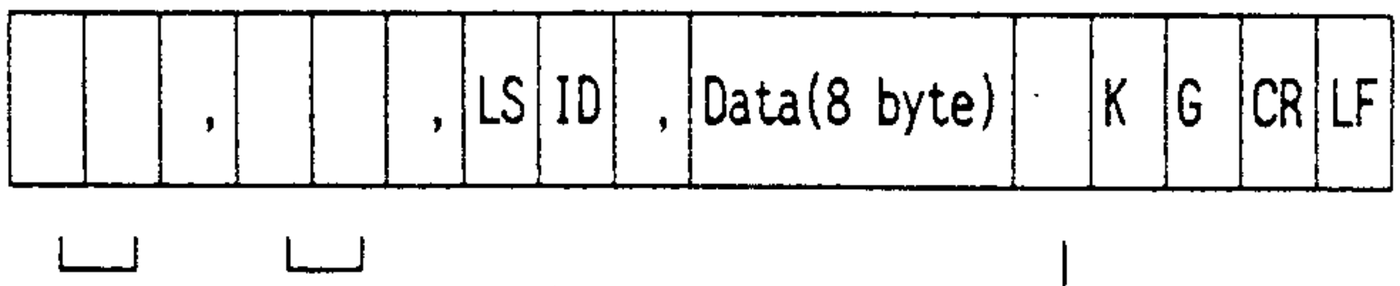
RS-232C port of CI-3000A Computer serial port

When the computer is connected to CI-3000A, the output data speed and output method shall be set in the conversion mode.

RS-232C OUTPUT DATA FORMAT

- Baud rate: 1200 bps - 19200 bps
  Set it in SET menu 09 (refer to the SET mode)
- Data bit: 8, Stop bit: 1, Parity bit: none
- Code: ASCII
- When data is sent to computer?
  Set it in SET menu 14 (refer to the SET mode)

- Data Format



US(unstable) GS(gross weight)
ST(stable) NT(net weight)
OL(overload)

blank

☞ LS(Lamp status byte): indicates whether current indicator lamp is on or off.

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
1	stable	0	hold	print	gross	tare	zero

☞ ID(Device ID): 1 byte device ID is output to allow the receiver side to selectively receive information supplied from the indicator.

* When supplying to a first device, 31 (hexa decimal), '1'(ASCII code)
* When supplying to a second device, 32 (hexa decimal), '2'(ASCII code)
* When supplying to a third device, 33 (hexa decimal), '3'(ASCII code)

CALIBRATION MODE

HOW DO YOU ENTER THIS MODE

Turn on the power while pressing the CAL switch on the rear panel of the indicator. At this time, a message, "1.TEST 2.CAL" is displayed on the VFD, and the mode is set to the Calibration mode by pressing "2" key.

KEYS USED IN CALIBRATION MODE

NUMERIC key: used for changing the preset value.
ENTER key: used for moving to the next test menu after storing the preset value.

"CAL 1" ——enter key——> "CAL 2" ——enter key——> "CAL 3"

In more detail, when pressing the Enter key in CAL 1, it is shifted to the next menu, CAL 2.
When pressing the Enter key again, it is shifted to the CAL3.
When pressing the Enter key at the last menu, the program exits from the Calibration mode to display the message, "1.TEST 2.CAL". By pressing the Enter key under this state, the program is shifted to a Weight measure mode (Normal mode), thereby initiating the operation of scales.

WHAT IS CALIBRATION ?

The purpose of calibration is to proof the weight shown on the display as real one. With Zero Calibration, you set an empty weighing device as your zero point, and with Span Calibration, you set another point for weighing. Connect these points to be a line. This makes the CI-101A know the correct weight and accurately calculate what the weights are in between. while the most accurate Span Calibration is with Maximum Capacity as your Setting Weight, this might not be always possible.

In those cases, use the weight close to Maximum Capacity as practical. The closer to Maximum Capacity the Setting Weight is, the more highly accurate the readout is.

WHEN THE CI-3000A SHOULD BE CALIBRATIONED ?

In any the conditions described below, the CI-4000A should be calibrated.

- The system is first installed.
- Any part of weighing device is changed.
- If any drift is detected.
- If error messgae "ERR 13" is occurred on FIP display.

During calibration, the weighing system must be kept stable for accurate adjustment and Use a high quality Standard Mass.

CALIBRATION MENU(CAL 1 - CAL 7)

- CAL 1: Maximum capacity
- CAL 2: Minimum division
- CAL 3: Setting weight
- CAL 4: Zero calibration
- CAL 5: Span calibration
- CAL 6: Micro-span calibration
- CAL 7: Weight factor

CAL 1

(Once entered into the Calibration mode, the program starts with CAL1.)

Function: Maximum capacity setting The range of set value ---> from 1kg to 99,999kg		
Keys used	VFD	Description
0-9: Set value change Enter key: store current value and shift to next menu (to CAL2).	C= 5000 C=20000	5000kg 20 ton (20,000kg)

* Note 1. The maximum capacity means the maximum value of the weigh to be measured by scales. That is, in order to set by 2 ton scale, 2,000 kg must be input.
In other words, the maximum capacity is the full weight that you want your scale to handle. This could be the rated capacity of the Load Cell, or some other limit you wish to set. this is also limited by minimum division.
* Note 2. Do not input the resolution.
The is no need to input the resolution which is automatically calculated.

CAL 2

Function: Minimum division (weight unit) setting The range of set value ---> from 0.001kg to 500kg		
Keys used	VFD	Description
1,2,5,0: set value change Enter key: store current value and shift to next menu (to CAL3).	d= 1 d= 0.2 d= 0.05 d=0.001	1kg 0.2kg(200g) 0.05kg(50g) 0.001kg(1g)

* Note 1. The minimum division means the value of one division. In other words, The minimum division is the block in which the display will be able to show changes in weight.
* Note 2. When pressing other keys except '1', '2', '5' and '0', an error message will be displayed.
* Note 3. External resolution is the value obtained by dividing the minimum division by the maximum capacity, and set the resolution to be within 1/5,000.

CAL3

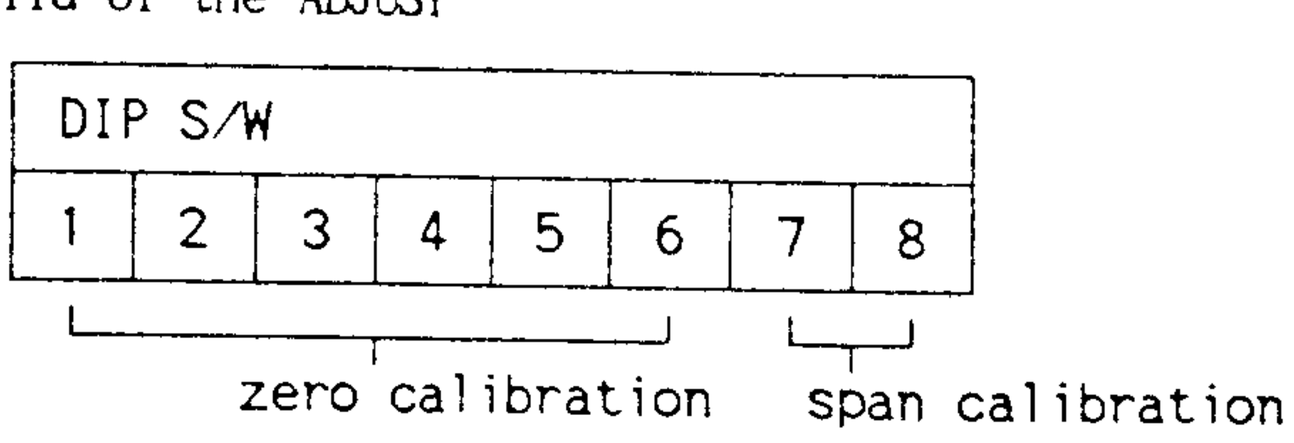
Function: Setting weight setting during span calibration The range of set value ---> from 1kg to 99,999kg		
Keys used	VFD	Description
0-9: Set value change Enter key: store current value and shift to next menu (to CAL3)	L=5000 L=1000	Set the setting weight to 5,000kg. Set the setting weight to 1,000kg.

* Note 1. The setting weight shall be within the range of 10% to 100%.
  It is given by 100% weight in the initial stage, but input the desired weight when the taken setting weight is different from the initial value.
* Note 2. The setting weight must be more than 10% of the maximum capacity.
  If not, an error message (ERR 22) will be displayed.
* Note 3. Do not set the setting weight higher than the maximum capacity. If it is set higher than the maximum capacity, an error message (ERR 23) will be displayed.

CAL 4

Function: Zero Calibration		
Keys used	VFD	Description
Enter key: shift to next menu (to CAL 5) Other keys: perform zero calibration.	UnLOAd	Clear out the baggage plate and press any key (except the Enter key).
	5010	Display current value of zero. Adjust DIP switch to be set to 2000 through 8000.
	-----	During zero calibration.
	SUCCESS	Zero calibration is finished. Then, the program is automatically shift to span calibration following this display.
	ERR 27	Error occurrence (zero point is low).
	ERR 28	Error occurrence (zero point is high).

* Note 1. After finishing the zero calibration without an error, the message, "SUCCESS" is displayed and the program is automatically shifted to CAL 5 even though the Enter key is not pressed.
* Note 2. The zero is adjusted with the DIP switch under the lid of the ADJUST



The DIP switch for zero calibration is as follows.

	DIP S/W					
Switch No.	1	2	3	4	5	6
pace value	small <--------> large					

■ Zero level calibration:

Under the state of turning off the switch, carry out the zero calibration while No. 5 and 6 are turned on and off, and then adjust with 1, 2, 3 and 4 pins. As the pace value of the switch is greater, the varied range of the zero when turning on the switch becomes greater.

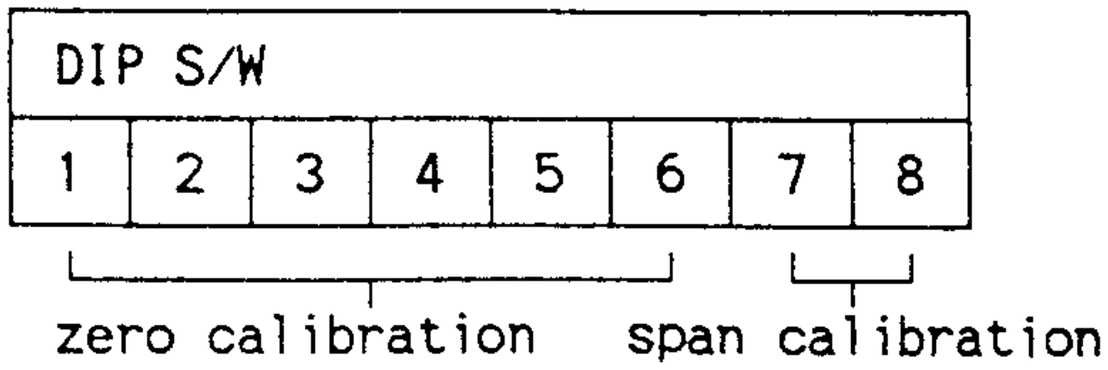
* Note 2. When zero is too low, an error message (ERR 27) appears. At this time, the zero level shall be heightened.
* Note 3. When zero is too high, an error message (ERR 26) appears. At this time, the zero level shall be lowered.

CAL 5

Function: Span Calibratio		
Keys used	VFD	Description
Enter key: shift to next menu (to CAL 6) Other keys:execute span calibration	LOAd ----- SUCCESS ERR 24	Put the balance weight of the weight set in CAL 3 on the baggage plate, and press any key (except, enter key). During span calibration... Span calibration is finished. Error occurrence. Following this display, the program automatically shifted to zero calibration.

* Note 1. When finishing the span calibration without any error, a message, "SUCCESS" is displayed. At this time, by pressing the Enter key, the program is moved to calibration mode.
* Note 2. In order to confirm the correct span calibration after displaying the message, "SUCCESS", the balance weight is put down from the baggage plate to press the Enter key to be moved to CAL 6.

* Note 3. The span is adjusted with the DIP switch under the lid of the CAL S/W.



The setting method of the DIP switch for span calibration is as follows.

DIP S/W		Gain
7	8	
OFF	OFF	larger
ON	OFF	larger
OFF	ON	normal
ON	ON	small

* Note 3. When an error occurs due to small or large span, it is automatically shifted to CAL 4. At this time, adjust the "DIP switch for zero and span calibration" to increase or decrease the span, and continue the operation from the zero calibration.
* Note 4. When the span is low, an error message (ERR 24) appears. At this time, heighten the gain and put down the balance weight to adjust the zero DIP S/W to make the zero in the range of 2000 to 8000.
* Note 5. When the span is high, an error message (ERR 25) appears. At this time, lower the gain and put down the balance weight to adjust the zero DIP switch to make the zero in the range of 2000 to 8000.
* Note 6. Range of proper span
  In case that the resolution is below 1/5000: more than "resolution x 10"
  In case that the resolution is over 1/5000: more than "resolution x 5".
  Adjust the span not to exceed 60000 in maximum.

CAL 6

Function: Micro-span calibration		
Keys used	VFD	Description
Print key: Elimination of bias 8 key: Increase by one division 9 key: Decrease by one division Zero key: zero adjust Enter key: shift to next menu (to CAL 7)	5000kg	The calibration is finished to show the weigh of a current balance weight on VFD screen. The lamp of the VFD designates internal bias.

* Note 1. Clear out the baggage plate prior to being moved to this menu.
* Note 2. The bias is "0" when the central lamp lights up as in the above VFD screen, and each lamp denotes the bias of -3, -2, -1, 0, 1, 2, 3 from the left lamp.

CAL 7

Function: Weigh constant calibration		
Keys used	VFD	Description
0-9: input of password Enter key: exit (exit from the test mode)	FACtOr	Type a password

* Note 1. The ordinary user need not to use this menu, since it is used for calibration when there is no balance weight.

OUTPUT RATIO OF RESOLUTION VS. LOAD CELL

Loadcell Sense Voltage for 10V Excitation voltage	Resolution
4mV	1/2,000 (Max.)
8mV	1/5,000 (Max.)

* Note. The reliability may be changed in accordance with the variations of temperature and other variances.

SET MODE

SHIFT ENTER THIS MODE

Turn on the power switch to enter Weighing mode. In order to be shifted to the conversion mode, press "Enter" key more than 2 sec. in the weigh measure mode. While pressing the key, if a buzzer warns an error, press the key again.

KEYS USED IN CONVERSION MODE

- NUMERIC key: used for inputting a set value.
- ENTER key: stores set values and moves to the following test menu.
  In more detail, when pressing it in F03, it is shifted to F04.
  Upon pressing the enter key again in the last menu, theprogram exits from the test mode to be shifted to the Weighing mode(Normal mode).

SET MENU(F01 - F15)

- F01 --- Unused ---
- F02 --- Unused ---
- F03 Automatic print/Manual print
- F04 Weigh display speed control
- F05 Motion detect condition
- F06 Automatic-zero compensation
- F07 --- Unused ---
- F08 Employed printer set
- F09 Baudrate set
- F10 Hold-type set(Nomal HOLd/Peak HOLD)
- F11 Zero key operation range set
- F12 Which print mode is desired?
- F13 Operation condition of Zero key, Tare key (stable/unstable)
- F14 Set of data set sent to computer
- F15 Initialization of daily weight number

F01 ---- Unused ----

(For other models such as CI-4000A and CI-4010L, it is used for modifying the date.)

F02 ---- Unused ----

(For other models such as CI-4000A and CI-4010L, it is used for modifying the time.)

F03

Function	Automatic print	
Set value (0,1)	Example VFD	Meaning
	F03 0	0: Manual print
	F03 1	1: Automatic print

* Note 1. Upon setting the automatic print, the print is carried out without pressing the Print key when the weight is stable.
* Note 2. 0 and 1 are alternately displayed by pressing the numeric keys.

F04

Function	Weight variation speed control	
Set value (from 1 to 9)	Example VFD	Meaning
	F04 1	in high speed
	F04 5	in normal speed
	F04 9	very slowly

* Note 1. Adjust the variation speed of the weight on the screen to be suitable for the current usage.

F05

Function	Stable condition set of weight	
Set value (from 1 to 9)	Example VFD	Meaning
	F05 1	Stable lamp is on with changing of the weight within one division.
	F05 5	Stable lamp is on with changing of the weight within five divisions.
	F05 9	Stable lamp is on with changing of the weight within nine divisions.

F06

Function	Automatic zero condition set	
	Example VFD	Meaning
Set value (from 00 to 99)	F06 00	Compensation for minute variation of zero (due by dust, etc.).
	F06 23	Compensation for gradual change of the weight below two divisions for 3 sec.
	F06 89	Compensation for gradual change of the weigh below eight divisions for 9 sec.

* Note 1. The first number of the set value show the number of divisions, and the second numer shows the seconds.
* Note 2. Use the weight with setting the set value to 23 normally.

F07 ---- Unused ----

(For other models such as CI-4000A and CI-4010L, it is used for storing the weight in case of the power failure.)

F08

Function	Employed printer set	
	Example VFD	Meaning
Set value (from 0 to 5)	F08 0	Printer is not used.
	F08 1	CAS printer (Model No.: CP-100A,CP-200A)
	F08 2	Model No.: BSP-100
	F08 3	EPSON printer (LQ-550H, LQ-1550H, etc.)
	F08 4	CAS TOP printer (No.: P-202)
	F09 5	EPSON printer (Korean)

F09

Function	Baud rate set			
	Example VFD	Meaning	Example VFD	Meaning
Set value (from 0 to 3)	F09 0	1200 bps	F09 2	9600 bps
	F09 1	4800 bps	F09 3	19200 bps

F10

Function	Automatic hold selection	
	Example VFD	Meaning
Set value (0, 1)	F10 0	Normal hold: calculates the average value of unfixed weight.
	F10 1	Peak hold: calculates maximum value the of unfixed weight.

F11

Function	Operational range of zero key set	
	Example VFD	Meaning
Set value (0, 1)	F11 0	4%: Zero key operation within 4% of the maximum capacity.
	F11 1	10%: Zero key operation within 10% of the maximum capacity.

F12

Function	Output format set when pressing Print key	
	Example VFD	Meaning
Set value (from 0 to 5)	F12 0	Output item 1 (serial number, item no.,net weight)
	F12 3	Output item 3 (net weight)

[Output format 0]

Serial number, item number, net weight

001. ID_101,	50.0kg
002. ID_102,	100.0kg
003. ID_199,	200.5kg
TOTAL	350.5kg

[Output format 1]

Measure number, net weight

No. 10	50.0kg
No. 11	100.0kg
No. 12	200.5kg
TOTAL	350.5kg

[Output format 2]

Gross weight, tare, net weight

Tare :	0kg
Net :	1000.0kg
Gross:	2000.0kg
Tare :	500.0kg
Net :	1500.0kg
TOTAL	2500.0kg

[Output format 3]

Net weight

100.0kg
200.0kg
200.0kg
100.0kg
200.0kg
500.0kg
TOTAL 1300.0kg

[Output format 4]

Item number, net weight

ID_101,	50.0kg
ID_199,	200.5kg
TOTAL	250.5kg

[Output format 5]

Serial number, net weight

001.	1000.0kg
002.	2000.0kg
TOTAL	3000.0kg

F13

Function	Operation of Zero key, Tare key: constantly or only in weight stable state	
Set value (0, 1)	Example VFD	Meaning
	F13 0	Operation only in weigh stable state
	F13 1	Constant operation

F14

Function	Transmission method of serial communication data (communication with computer)	
Set value (0-3)	Example VFD	Meaning
	F14 0	No data output
	F14 1	Transmission in any state of stable and unstable
	F14 2	Transmission only when weight is stable
	F14 3	Transmission only when requiring the data

F15

Function	Initialization of number daily weight No.	
Set value (0, 1)	Example VFD	Meaning
	F15 0	Maintain the current number
	F15 1	Initialization (starting from No.1)

PREFACE

Thank you for purchasing a CI-3000A weighing indicator. The CI-3000A is the product of years of research, development, and in-field testing. Every care has been taken during the mannufacturing process of this indicator to ensure that it is a reliable instrument that perform accurately. This product has an excellent performance and high-class features, devoting ourselves to each one and passing the inspection under the strict quality control. CAS indicator(CI-series) is designed to meet the various industrial site's needs and have more excellent external shape than the other product, Additionally, user-oriented program enables you to use a indicator easy and message display function is built-in to assist your understanding. Before using CI-3000A indicator, read this manual thoroughly, use this product correctly, and then fully utilize this product's function.

NOTICE

- Keys act even you press these slightly, therefore, you should not press the key with over-strength.
- Do not use ignitable material on cleanining.
- Keep the body from the rain.
- Away from heaters and air conditioners, to avoid sudden changes of temperature.
- Use an AC regulators if the AC power supply fluctuates by more than ±10% of standard voltage.
- Do not install the machine at the place where has high voltage and electrical noise.
- Keep dry.
- Do not use the machine at the place where is exposed to the direct rays and dusty.
- Do not use the machine at the place where is disturbed by electrical noise and vibration.

FEATURES OF CI-3000A

FEATURE

- 7 digit unit weight display
- Self hardware test function. This enables to test the state of each part of circuit, and then repair the malfunctioned part quickly in A/S
- Adjust the zero and the span range by using DIP switch

MAIN FUNCTION

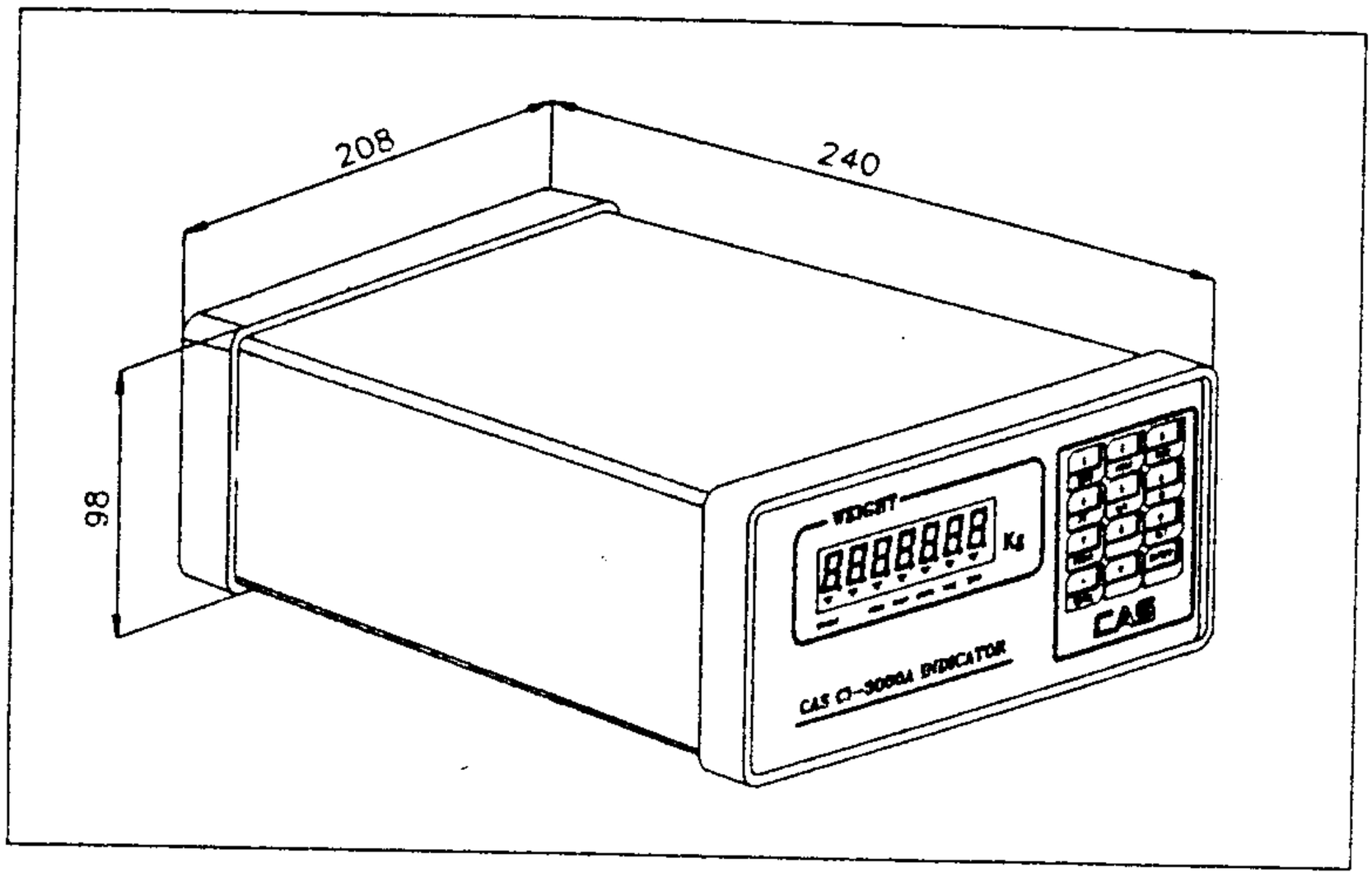
You can do the following;

- Specify the change speed of weight variously (digital filter function)
- Caculate the average and maximum of the weight (weight hold function)
- Perform automatic zero tracking
- Connect the machine to various printer (ex: CAS TOP Printer, EPSON-compatible Printer, SAMMI Printer)
- Provide the various print form
- Type the tare-weight with the key
- Modify the internal weight factor.

TECHNICAL SPECIFICATION

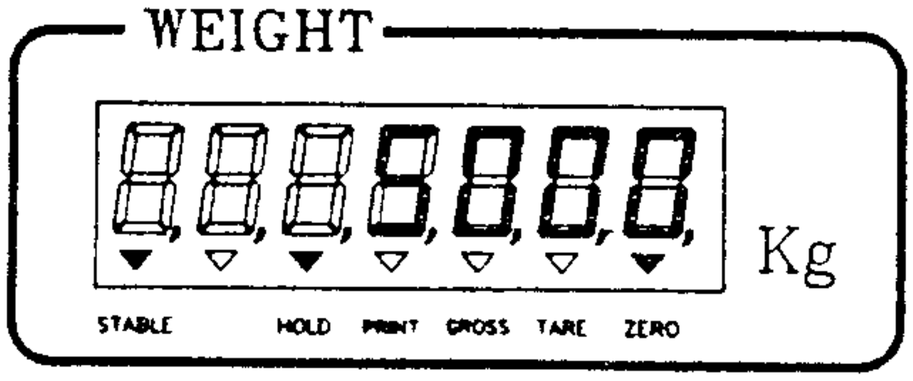
Input Sensivity	0.5 μV/D ~ 240 μV/D
Loadcell exciting voltage	12V DC
Operating Temperature	-5℃ ~ 35℃
Input Impedance	100MΩ(min)
A/D conversion method	Dual-slope Integrated circuit
A/D resolution	100,000 counts(Max.)
A/D conversion speed	6 times/sec.
Display	7 digit fluorescent tube
Supplied voltage	110V/220V(±10%) 50/60Hz
Power Consumption	10W

EXTERNAL SHAPE AND DIMENSION



FRONT PANEL DESCRIPTION

DISPLAY SUB-LAMP(▽)



- STABLE: indicates the weight to be in stable condition
- ZERO: turns on when the current weigiht is 0 kg.
- TARE: turns on when the tare is stored.
- HOLD: turns on when you press "HOLD" key to weigh a moving or alive object.
- GROSS: turns on when the weight to be displayed currently is gross weight.

  ON - gross weight (tare + item)

  OFF - net weight (only item)
- PRINT: turns on when the auto-print is selected