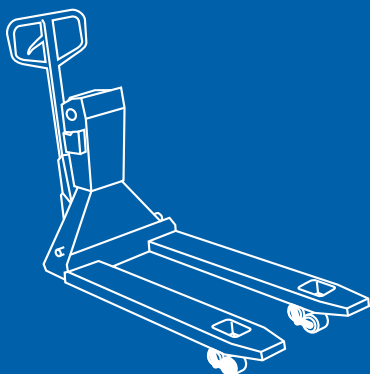


# CPS-Plus

**Pallet Scale**



[www.globalcas.com](http://www.globalcas.com)

**OWNER'S MANUAL**

# CAS

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## Cautions for Your Safety

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

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



**Warning**

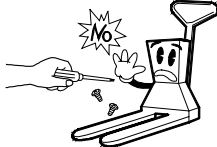
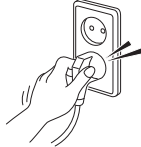
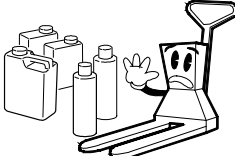

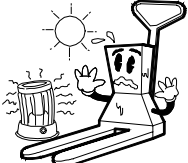
'Warning' means a great possibility led to the death or heavy injury when instructions are violated.



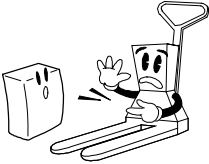

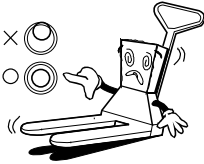



**Attention**

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

**Warning**

<p>When any damage or defect occurs, contact your CAS authorized dealer immediately for proper repair.</p>	<p>Insert plug firmly to wall outlet to prevent electric shock.</p>	<p>Scale must be grounded to minimize electricity static. This will minimize defect or electric shock.</p>
		
<p>Do not pull the plug by its cord when unplugging. Damaged cord could cause electric shock or fire.</p>	<p>To prevent from fire occurring, Do not place or use the scale near flammable or corrosive gas.</p>	<p>To reduce electric shock or incorrect reading, Do not spill water on the scale or place it in humid condition.</p>
		
<p>Avoid placing the scale near heater or in direct sunlight.</p>		
		

 **Attention**

<p>For consistent and accurate reading, maintain periodical check by your CAS authorized dealer.</p>	<p>Avoid sudden shock to the scale. Internal mechanism could be damaged.</p>	<p>Attach the rubber pad to the bottom of the indicator. Elimination is possible.</p>
		
<p>Keep the scale away from other electromagnetic generating devices. This may interfere with accurate reading.</p>	<p>Do not overload beyond the maximum weight limit.</p>	<p>Use proper Adapter. Incorrect adapter could damage the scale.</p>
		

# 1. PREFACE

Thank you for the purchasing of our CAS CPS-PLUS Series.

These series have been designed with CAS reliability, under rigid quality control and with outstanding performances. Your speciality departments can enjoy with these high quality reliable CAS products.

These electronic load cell scales eliminate the all the moving parts and furnish an accurate digital display of all information.

We believe that your needs will be satisfied and you will have proper reliability in variable weight.

This manual will help you with proper operations and care of the CPS scales.

Please keep it handy for the future references.

## CAUTIONS

- ▶ Do not press the keys hardly, for the keys are in operation with soft touch.
- ▶ Do not use ignitable material for cleaning.
- ▶ Keep away CI-2001A from the rain.
- ▶ Avoid sudden temperature change.
- ▶ Do not install CI-2001A in a place with high voltage and excessive electrical noises.
- ▶ Keep it in dry place.
- ▶ Do not use under direct rays and dusty place.
- ▶ Do not use at the place with excessive electrical noises and vibration.

## 2. FEATURES

- ▶ CAS PALLET SCALE (CPS) weigh the pallet loads with accuracy.
- ▶ CPS's "lift and read" technology speed the loading and weighing process.
- ▶ We have 1000kg and 2000kg capacity models.
- ▶ Digital indicator displays the weight.
- ▶ Built-in printer (optional) You can record the weight of loads with printer.
- ▶ Built-in battery. you can use this scale without power outlet.

**NOTICE : Specifications are subject to change for improvement without notice.**

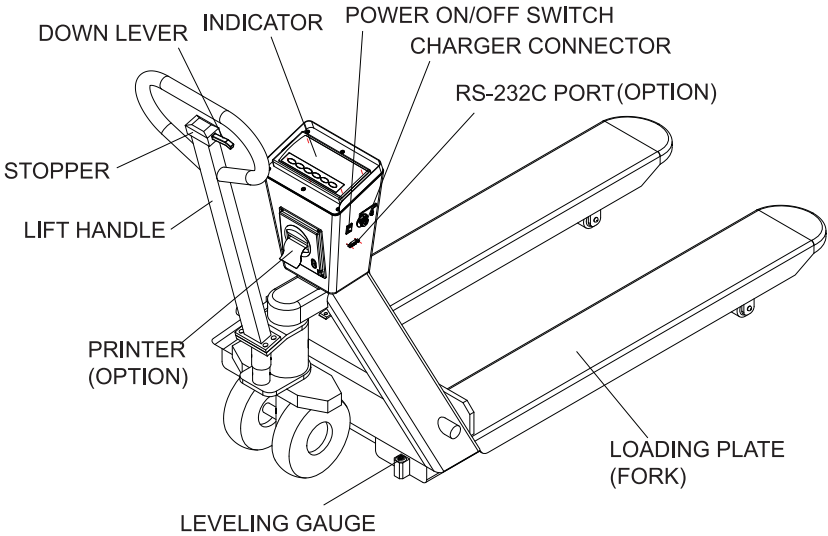
### 3. SPECIFICATIONS

MODEL NAME		CPS-PLUS (1TON)			CPS-PLUS (2TON)		
SIZE	TYPE	A	B	C	A	B	C
	W	540	620	705	540	620	705
	L	1130	1130	1130	1130	1130	1130
Capacity		20kg ~ 1000kg			40kg ~ 2000kg		
Division		0.5kg			1kg		
Display		5 digit LCD (25mm)					
Power		6V/10A PB Battery (AC 110V/220V Charger)					
Option		Printer					

### 4. OPERATING

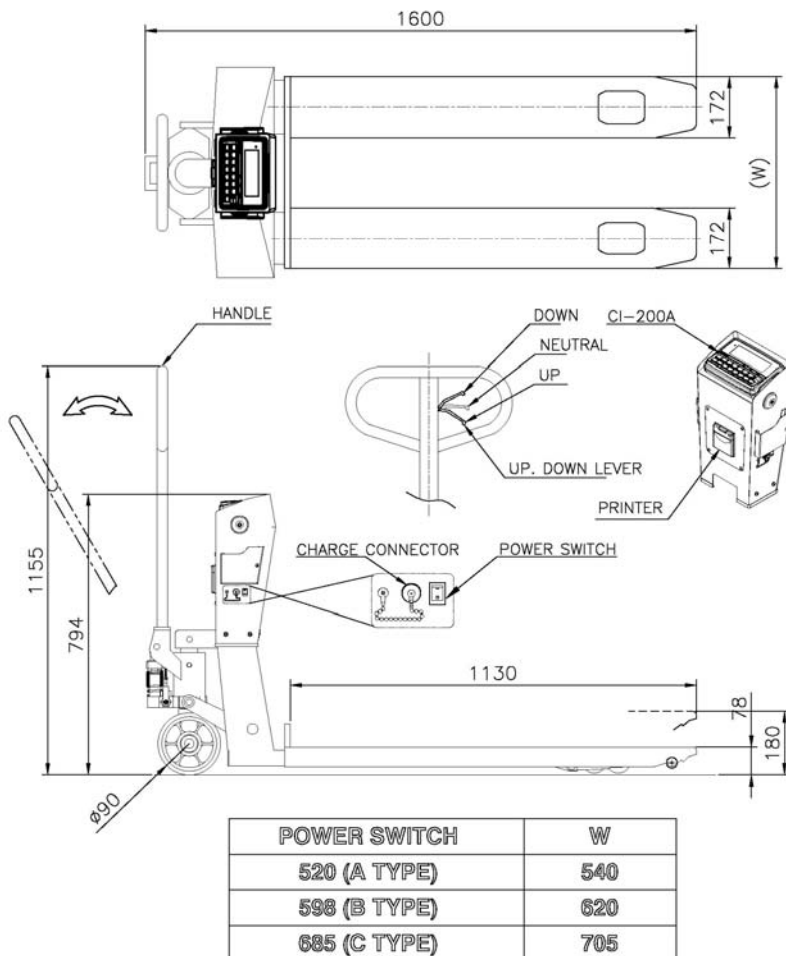
1. Turn the switch on the right side of CPS-PLUS(ON / OFF)  
**WARNING :** Avoid leaving ANY load before turn the power switch ON.
2. Pressing 'POWER' key of front panel.
3. Display will show "0", make sure that ZERO lamp is ON.
4. When the FORK lift the load, weighing is performed.  
**WARNING :** Fork have to properly level so as to center bubble of the leveling gauge inside the indicated circle and fork truck should not move.
5. If you want to adjust zero range, press the ZERO key.
6. If you want to use tare function, press the TARE key.  
 If you don't want to use tare function any more, remove the container (pallet) and press the TARE key.
7. If you want to down the fork, pull the DOWN LEVER.  
 If you want to lift the fork, press the STOPPER and operate the LIFT HANDLE.

# 5. OVERALL VIEW





## 6. CPS-PLUS LAY OUT



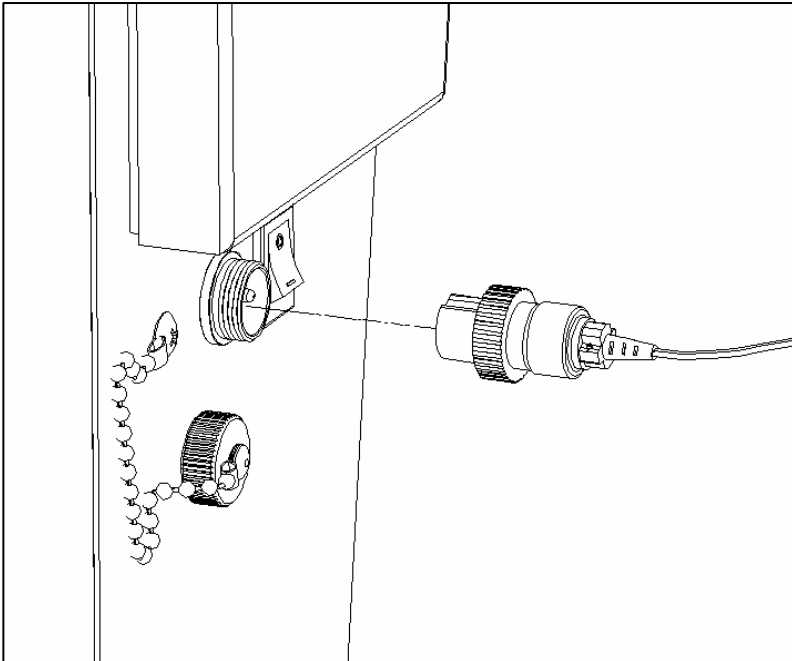
### \* Warning

1. After using CPS-PLUS, the side of the on / off switch must turn off.
2. Batteries can be discharged only indicator at 'OFF'.

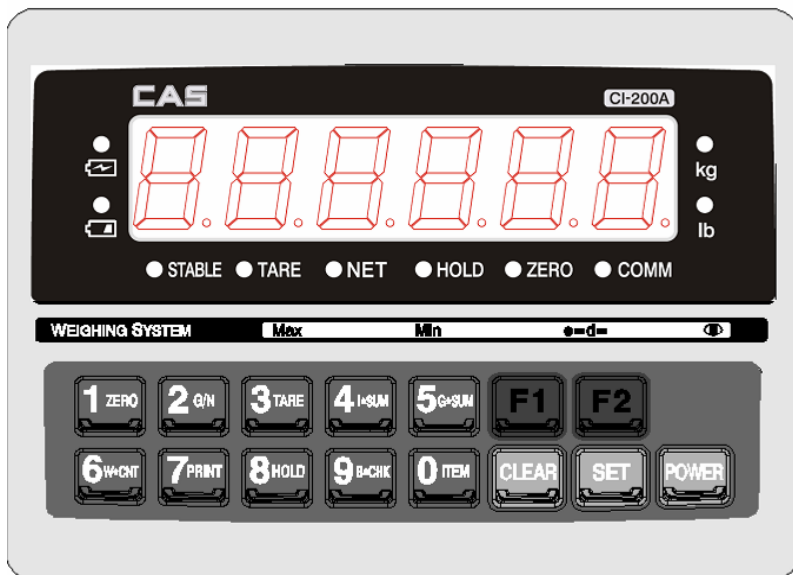
## 7. HOW TO CHARGE

**When the battery lamp is on, use the CPS-PLUS after you charge the battery.**

1. After Putting a Plug of a charger into the outlet, open a socket cover on right side of the Indicator. and then connect the connector.
2. During S/W on right side of the Indicator is ON, if you turn on the charger, power lamp and CHARGE(RED or YELLOW) lamp is on. CHARGE lamp is constantly on until a full battery charging during the battery is connected.
3. When a battery charging is finished, CHARGE(RED or YELLOW) lamp is off and FULL(Green) lamp is on.
4. Generally, a battery charging time can be changed according to a capacity of the battery and the number of using CPS-PLUS but it is approximately 8hours.
5. If you don't use CPS-PLUS for a long time, turn off S/W on right side of indicator for a battery life.




## 8. FRONT PANNEL DISPLAY



### (1) Main Display (Weight Display)



- A. Displaying the value of gross or net weight.
- B. Displaying error messages for any abnormal motion or weigh setup error
- C. Displaying the status value for the Set Mode and weight setup mode.

## (2) Status Display (Lamp)








LED Lamp	Descriptions
<b>Stable</b>	The weighed weight is stable.
<b>Net weight</b>	The current display of weight is a net weight.
<b>Zero point</b>	The current weight is 0 kg.
<b>Hold</b>	The current status is under hold.
	Displayed when the battery should be charged (chargeable battery).
<b>Tare</b>	The current status is at the tare status.
<b>Communication</b>	The current status is at the communication status.






### (3) Keyboard

#### Function Key




	<ul style="list-style-type: none"> <li>* Some functions can be defined to the needs. (The function set at F17 in the Set Mode will be operated.)</li> </ul>
	<ul style="list-style-type: none"> <li>* Some functions can be defined to the needs. (The function set at F18 in the Set Mode will be operated.)</li> </ul>

#### Number Key

	<ul style="list-style-type: none"> <li>* It enters 1 in the input mode.</li> <li>* It sets the weight display near zero point to 0. (A range of 2%, 5%, 10%, 20% and 100% can be selected.)</li> <li>* Long press to enter the test mode.</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 2 in the input mode.</li> <li>* Each press after setting up the tare displays the gross weight and the net weight in turn. (The displayed weight is the net weight when the net weight lamp is on, but the displayed weight is the gross weight when the net weight lamp is off.)</li> <li>* Long press to enter the setup mode.</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 3 in the input mode.</li> <li>* Use it to weigh with the tare.</li> <li>* The current weight is memorized as the tare by pressing the key.</li> <li>* Press the key when the load tray is empty to release the tare.</li> <li>* Long press to enter the system selection mode. (CI-201A Only)</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 4 in the input mode.</li> <li>* Use it to check the subtotal (partial summation).</li> <li>* Long press to enter the system weight setup mode. (CI-201A Only)</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 5 in the input mode.</li> <li>* Use it to check the grand total (entire summation).</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 6 in the input mode.</li> <li>* Use it to check the weighing count.</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 7 in the input mode.</li> <li>* Use it for the manual print. (manual print key) (Print format can be changed in the Set Mode.)</li> </ul>


	<ul style="list-style-type: none"> <li>* It enters 8 in the input mode.</li> <li>* Use it to fix the shaking weight.</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 9 in the input mode.</li> <li>* Use it to check the remaining capacity of battery.</li> </ul>
	<ul style="list-style-type: none"> <li>* Use it to correct any wrong input while entering data.</li> <li>* Use it to enter a decimal point (.) in the weight setup mode and weighing mode.</li> </ul>
	<ul style="list-style-type: none"> <li>* It enters 0 in the input mode.</li> <li>* Use it to register an item number. (0 ~ 19)</li> </ul>
	<ul style="list-style-type: none"> <li>* Use it to save the current status and exit from the weight setup mode, Set Mode and test mode.</li> <li>* Use it to check the current weight value in PCS and percent mode. (CI-201A Only)</li> </ul>

#### Double Key


	<ul style="list-style-type: none"> <li>* Use it to print the subtotal.</li> </ul>
	<ul style="list-style-type: none"> <li>* Use it to print the grand total.</li> </ul>
	<ul style="list-style-type: none"> <li>* Use it for the tare key.</li> <li>* If the tare is known, enter it using the numeric keys. (If the remaining value occurs when the input value is divided into the minimum unit, the value is rounded and entered.)</li> <li>The key tare function cannot be used during the PCS and percent functioning.</li> </ul>

## 9. TEST MODE

### 9-1. How to Enter the Test Mode

Test mode starts when the power is turned on while pressing  key in the front of the indicator.

Press the number for the test menu as you wish.

To enter the weighing mode during test, press  key for a long time.

### 9-2. Test Menu (TEST 1 - TEST10)

Test 1: Key test

Test 2: Display test

Test 3: Load cell test and A/D conversion test

Test 4: RS-232 serial communication test (COM1, COM2)


Test 5: Printer test

Test 8: EEPROM test















Test 9: Battery test

Test 10: Clock (RTC) test


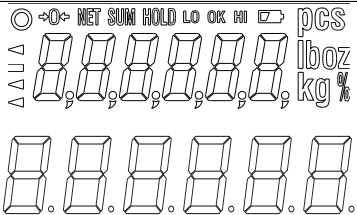
## TEST 1

Function: Key test		
Used key	Display	Descriptions
 : Higher Menu Other keys: Test	1 1	When you press any key to test, the number and code for the key are displayed on the screen.

### <Key List>


Key	Number	Code	Key	Number	Code	Key	Number	Code
	1	1		6	6		0	0
	2	2		7	7		70	30
	3	3		8	8		28	28
	4	4		9	9		29	29
	5	5		11	27			


## TEST 2

Function: Display Screen Test		
Used key	Display	Descriptions
 : Higher Menu Other keys: Test		<p>An LCD lamp is on.</p> <p>An LED lamp is on.</p>




### TEST 3

Function: Load cell test and A/D conversion test		
Used key	Display	Descriptions
 : Higher Menu	XXXXXX X.XX	The internal value for the current weight value is displayed. The output value of the current load cell is displayed in mv/V.

Note 1. If  key is pressed, the internal value of the current weight and the output of load cell (mv/V) are displayed repeatedly.

Note 2. Check this number to see if it moves well, while loading or unloading a weight to the load tray. If the number is fixed or “0” is displayed, check the connection of load cell once again.


### TEST 4

Function: Serial Communication Test		
Used key	Display	Descriptions
 : Higher Menu Other keys: Test	Tx -- Rx ----- 05 --13	Status to wait for transmission or reception Transmission: 5, Reception: 13

Note 1. Run this test while the communication program in the computer (ex: Hyper Terminal) is executing after connecting a serial port in the computer to the serial port on the back.

Note 2. Send ‘1’ from the computer keyboard, check whether or not ‘1’ is received properly on the indicator’s screen, and then check whether or not ‘1’ is received properly on the computer after pressing ‘1’ from the indicator’s keyboard.

## TEST 5


Function: Printer Test		
Used key	Display	Descriptions
 : Higher Menu Other keys: Test	Print	No abnormality in the printer. Check the connection of the printer connector..

Note 1. Designate a printer used in the Set Mode (F30) in advance.


Note 2. If the printer connection and the designation are done correctly, the following details will be shown in the printer.

<p>CAS Corporation Come And Succeed TEL 1577-5578 TEST OK</p>
---


## TEST 8


Function: EEPROM Test		
Used key	Display	Descriptions
 : Higher Menu	ROM OK	Displaying the status of EEPROM operation

## TEST 9

Function: Battery test		
Used key	Display	Descriptions
 : Higher Menu	b 6.15	Displaying the current voltage of battery (6.15V)

## TEST 10


Function: RTC Test		
Used key	Display	Descriptions
 : Higher Menu	SEC XX	XX : Displaying the progress of seconds (SEC)


Note 1. If  key is pressed, the current second changes to '0'.

## 10. SET MODE



### 10-1. How to Enter the Set Mode


Turn on the power while pressing  key at the indicator front to start the Set Mode.


Or, Hold  key for about 3 seconds to move from other mode to the conversion mode.

After finishing the setup in the Set Mode, press  key for a long time

### 10-2. Descriptions on key operations in the Set Mode

 ~  : Use them to change the setup value.

 : Save changes in the setup value and move to the higher menu

 : Cancel the set value and move to the higher menu

### 10-3. Set Menu Descriptions (F00 ~ F99)

General Function		
F01	-	Date Change
F02	-	Time Change
F03	(00)	Auto Power Off
F04	(10)	A/D Converting Speed
F05	(10)	Digital Filter
F06	(00)	Vibration Filter
F07	(02)	Motion Detection Condition
F08	(02)	Automatic Zero Tracking Compensation
F09	(00)	Weight Backup
F10	(00)	Set Hold Type
F12	(00)	SetAuto Hold Range
F13	(10)	Set Zero Range
F14	(01)	Set ZERO, TARE Keys Availability
F16	(00)	Set the Front Key Input to be Allowed
F17	(00)	Set "F1" Key
F18	(00)	Set "F2" Key
F19	(00)	Set Use Unit
F21	(10)	Set Initial Zero Range
F23	(09)	Set Excessive Weight Check
F24	(00)	Set Backlight Operational Condition (LCD)
F25	(03)	Set LED Brightness or Backlight Brightness

\* Note. Number in ( ) is the default at the factory shipment.

<b>RS-232 Serial Communication Function</b>		
F26	(00)	Device ID
F27	(00)	Parity Bit
F28	(04)	COM1 Baud Rate
F29	(00)	COM1 Usage
F30	(00)	COM1 Output Format
F31	(00)	COM1 - Output Mode
F32	(04)	COM2 Baud Rate
F33	(01)	COM2 Usage
F34	(00)	COM2 Output Format
F35	(00)	COM2 - Output Mode
<b>Print Function</b>		
F40	(02)	Set Printer in Use
F41	(00)	Set Print Format
F42	(00)	Automatic Print
F43	(01)	Print Line Feed
F44	-	User Print Message Input
F45	(01)	Print Output
F47	(01)	Data Initialization after Summation Print
F48	(01)	Print Item Number

Checker Function		
F50	(00)	Measurement Mode
F51	(00)	Checker Buzzer On/Off

Set Mode Initialization		
F90		Password Change
F99	-	Set the Set value of Set Mode to the Factory Default

\* Note. Number in () is the default at the factory shipment.

## 10-3-1. General Function

### F01

Function	Date Change	
Numeric key	Display	Meaning
: assigning data	02.01.10	January 10, 2002

### F02

Function	Time Change	
Numeric key	Display	Meaning
: assigning data	11.30.10	11 o'clock 30 minutes and 10 seconds AM

### F03

Function	Auto Power OFF	
Setting range (00 ~ 30)	Display	Meaning
	<b>F03. 00</b>	Not used.
	F03. 10	Automatic power off after 10 minutes in the waiting mode.
	F03. 30	Automatic power off after 30 minutes in the waiting mode.

Note 1. The power is automatically off if the defined time continues at the zero point after the automatic power off is set.

### F04

Function	Setting A/D Converting Speed	
Setting range (00 ~ 99)	Display	Meaning
	<b>F04. 10</b>	10 rounds/second
	F04. 20	20 rounds/second
	F04. 80	80 rounds/second

### F05

Function	Setting digital filter	
Setting range (00 ~ 50)	Display	Meaning
	<b>F05. 10</b>	Display of average for No. 10
	F05. 30	Display of average for No. 30
	F05. 50	Display of average for No. 50



## F06

Function	Setting vibration filter	
Setting range (00 ~ 99)	Display	Meaning
	<b>F06. 00</b>	Vibration filter OFF
	F06. 10	Compensation for the vibration value of 5 divisions (0.5d * 10)
	F06. 99	Compensation for the vibration value of 49.5 divisions (0.5d * 99)

Note 1. Apply this function to a place with heavy vibrations.

(The display response speed becomes slower when the vibration filter is applied.)

Note 2. This function should be adjusted appropriately to the site while the speed of weight variations in F04 is being lowered little by little.

## F07

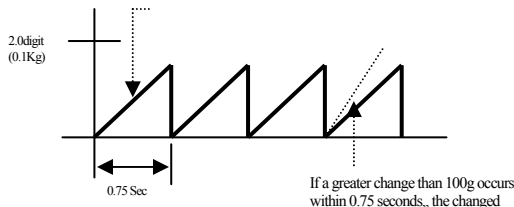
Function	Setting Motion Detection Condition	
Setting range (1 ~ 99)	Display	Meaning
	F07. 1	The 'Stable' lamp is lit if the weight changes within 0.5 division.
	<b>F07. 2</b>	The 'Stable' lamp is lit if the weight changes within 1 division.
	F07. 10	The 'Stable' lamp is lit if the weight changes within 5 division.

## F08

Function	Setting Automatic Zero Tracking Compensation	
Setting range (0 ~ 9)	Display	Meaning
	F08. 0	Automatic zero function is not used.
	F08. 1	If it changes slowly to 0.5 divisions or less, it is compensated.
	<b>F08. 2</b>	If it changes slowly to 1.0 divisions or less, it is compensated.
	F06. 9	If it changes slowly to 4.5 divisions or less, it is compensated.

Note 1. This function compensates zero automatically if the weight at the zero point does not exceed the division in a certain range within a specific time.

Ex) If F08 is set to "4" when the maximum displayed division is 120.0kg and the value of a division is set to 0.05kg;



## F09

Function	Weight Backup Function	
Setting range (0, 1)	Display	Meaning
	<b>F09. 0</b>	Weight backup is not used.
	F09. 1	Weight backup is used.

Note 1. As the backup state memorizes the initial status at zero for the weighing machine even during the blackout or when the power is turned off, the weight value is displayed if there is any weighing object in the weighing machine when the power is turned on.

If the weighing tray is empty, press the "ZERO" key to memorize the zero again.

## F10

Function	Set Hold Type	
Setting range (0~3)	Display	Meaning
	<b>F10. 0</b>	Ordinary hold: calculating the average of weights for shaking Objects
	F10. 1	Peak hold: calculating the maximum value for shaking Objects
	F10. 2	Sampling hold: calculating the sampling value for shaking Objects
	F10. 3	Automatic hold: automatically calculating the average weight of shaking objects

Note 1. If any load more than 'Over' is applied or at the zero, the hold is automatically released.

Note 2. Use automatic hold function, when you weight an animal or moving.

## F12

Function	Auto Hold Range	
Setting range (0~99)	Display	Meaning
	F12. 09	Auto hold range is 9 division
	F12. 99	Auto hold range is 99 division

## F13

Function	Set Zero Range	
Setting range (0~99)	Display	Meaning
	F13. 2	The 'Zero' Key is operated within 2% of the maximum weight.
	<b>F13. 10</b>	The 'Zero' Key is operated within 10% of the maximum weight.
	F13. 99	The 'Zero' Key is operated within 99% of the maximum weight.

Note. Be aware that the load cell can be damaged if you set the value to F13=10% or more.

## F14

Function	ZERO and TARE Keys Availability	
Setting range (0, 1)	Display	Meaning
	F14. 0	Always operated.
	<b>F14. 1</b>	Operated when the weight is 'Stable'.

## F16

Function	Set the front key input to be allowed.	
Setting range (0~1)	Display	Meaning
	<b>F16. 0</b>	The front keys are unlocked.
	F16. 1	The front keys are locked.

Note 1. If it is set to 1, some function keys among the front keys cannot be used.  
(Print, Hold, Tare, Step, Subtotal, Grand total, Weighing count, Item number, Setup, etc)

## F17

Function	Set the use of function key 1	
Setting range (0~15)	Display	Meaning
	F17. XX	Set function key 1 to the key in the code table.

Note 1. Set the desired functions using <Table 1. Function Key Code>.  
(LCD product = "11" and LED product = "0" as the default at the product shipment)

## F18

Function	Set the use of function key 2	
Setting range (0~15)	Display	Meaning
	F18. XX	Set function key 2 to the key in the code table.

Note 1. Set the desired functions using <Table 1. Function Key Code>.  
(LCD product = "12" and LED product = "0" as the default at the product shipment)

Table 1> Function Key Code Table

Function Name	Key Code	Function Name	Key Code
Empty	00	Hold	08
Zero Point	01	Battery	09
Gross Weight *	02	Item Number	10
Net Weight			
Tare	03	High Limit (LCD, SC Only)	11
Subtotal	04	Low Limit(LCD, SC Only)	12
Grand Total	05	Tare Lease	13
Weighing Count	06	Piece Weight Value (LCD Only)	15
Print	07		

## F19

Function	Set the use of unit	
Setting range (0, 1)	Display	Meaning
	<b>F19. 0</b>	The unit is set the 'kg'
	F19. 1	The unit is set the 'lb'

## F21

Function	Set the initial zero range	
Setting range (02~20)	Display	Meaning
	F21. 02	Set the initial zero up to 2% of the maximum weight
	<b>F21. 10</b>	Set the initial zero up to 10% of the maximum weight
	F21. 20	Set the initial zero up to 20% of the maximum weight

Note 1. Please consult with an engineer because setting 10 or larger value might affect the load cell greatly.

## F23

Function	Setting the range of check for the excessive weight (weighing unit)	
Setting range (00~99)	Display	Meaning
	<b>F23 09</b>	Excessive weight from the maximum weight + 9 divisions
	F23. 99	Excessive weight from the maximum weight + 99 divisions

## F24(CI-201A)

Function	Backlight Operation	
Setting range (0~5)	Display	Meaning
	<b>F24 0</b>	Backlight off
	F24 1	Backlight on when any key is operated.
	F24 2	Backlight on when the weight changes.
	F24 3	Backlight on when it is 'Stable' after the weight changes.
	F24 4	Backlight on when a key operates or the weight changes.
F24 5	Backlight on all the time	

Note. Although it is set to 5, press the power key shortly to turn off the backlight.

## F25

Function	Set Backlight and LED Brightness	
Setting range (1~7)	Display	Meaning
	F25 1	Set 10% of brightness
	F25 2	Set 30% of brightness
	<b>F25 3</b>	Set 50% of brightness
	F25 4	Set 60% of brightness
	F25 5	Set 70% of brightness
	F25 6	Set 90% of brightness
	F25 7	Set 100% of brightness

Note 1. Any value out of the setting range, the brightness will be set to '3'.

## 10-3-2. RS-232 (Serial Communication) Function

### F26

Function	Set Device ID	
Setting range (00 ~ 99)	Display	Meaning
	<b>F26. 00</b>	Device ID 00
	F26. 99	Device ID 99

Note 1. This function enables to use the unique indicator ID in the command mode.

### F27

Function	Set Parity Bit – RS232C & PRT	
Setting range (0 ~ 2)	Display	Meaning
	<b>F27. 0</b>	Data bit 8, stop bit 1, parity bit: none
	F27. 1	Data bit 7, stop bit 1, parity bit: even number
F27. 2	Data bit 7, stop bit 1, parity bit: odd number	

Note 1. F26 and F27 apply commonly to 2 serial communications (RS232C and PRT).

## Serial Communication COM1 Function

### F28

Function	Set COM1 Baud Rate	
Setting range (0~8)	Display	Meaning
	F28. 0	600 bps
	F28. 1	1200 bps
	F28. 2	2400 bps
	F28. 3	4800 bps
	<b>F28. 4</b>	9600 bps
	F28. 5	19200 bps
	F28. 6	38400 bps
	F28. 7	57600 bps
F28. 8	115200 bps	

### F29

Function	Set COM1 - Usage	
Setting range (0~1)	Display	Meaning
	<b>F29 0</b>	Connect to a printer
	F29 1	Connect to a computer or auxiliary display

\* If F29: 0 and F33 : 0, "ERR-Set" is displayed with no print.

### F30

Function	Set COM1 - Output Format	
Setting range (0~2)	Display	Meaning
	<b>F30 0</b>	22 bytes for CA
	F30 1	10 bytes for CA
	F30 2	18 bytes for AND

### F31

Function	Set COM1 - Output Mode	
Setting range (0~4)	Display	Meaning
	<b>F31 0</b>	No data out
	F31 1	Transmission for both the stable and instable time (stream mode)
	F31 2	One time transmission after the weight is stabilized.
	F31 3	Transmission only if data is requested. * Data request signal: device ID (F26) _ 1 byte communication (Data on request: 1= 0x01, 10 = 0x0A)
F31 4	Response to the data request - Command Mode	

Set the value of F31 to '1' or more if the print mode is used.

**Note 1. Command Mode Table**

Data Request Signal of CI-200											Descriptions on Request Signal	CI-200 Output Signal	
0	1	2	3	4	5	6	7	8	9	10			11
D	dd	K	Z	CR	LF							Zero Point Key	Received Data Return
D	dd	K	T	CR	LF							Zero Point Key	Received Data Return
D	dd	K	G	CR	LF							Gross Weight Key	Received Data Return
D	dd	K	N	CR	LF							Net Weight Key	Received Data Return
D	dd	H	D	CR	LF							Hold Key	Received Data Return
D	dd	K	B	CR	LF							Print Key	Received Data Return
D	dd	K	C	CR	LF							Total Print Key	Received Data Return
D	dd	K	W	CR	LF							Weight Data Request	Received Data Return
D	dd	I	D	0	0	0	0	0	0	CR	LF	Device Number	Received Data Return
D	dd	H	Y	0	0	0	0	0	0	CR	LF	Key Tare Value	Received Data Return
D	dd	H	I	0	0	0	0	0	0	CR	LF	High Limit(LCD Only)	Received Data Return
D	dd	H	L	0	0	0	0	0	0	CR	LF	Low Limit (LCD Only)	Received Data Return

Note 1. (D : 0x44, dd:00~99, K:0x4B , Z:0x5A , CR : 0x0D, LF: 0x0A)

dd = Device Number (2byte), CR = 0x0D, LF: 0x0A

Ex) If a device number is 10, dd becomes 0x31 and 0x30.

Ex) If you want to operate the zero point key when a device number is 11, the indicator operates zeroing if the hex code of “44 31 31 4B 5A 0D 0A” is sent.

### Note 1. NT-200 Command Mode Table

Command (ASCII Code)	Description		Status
HI	High Limit	LCD, SC	Read / Write
LO	Low Limit		Read / Write
KT	Key Tare Value		Read / Write
CO	Code		Read / Write
WT	Current Weight		Read
ZE	Operation with ZERO Key		Read
TR	Operation with TARE Key		Read
GN	Operation with Gross/Net Key		Read
ID	Device Number (ID) Change		Read
HD	Operation with HOLD Key		Read
PR	Operation with PRINT Key		Read
TP	Operation with Total Print Key		Read
PW	POWER OFF		Read

#### Read

1	2	3	4	5
Device ID	Command		CR	LF

Note 1. Device ID is hex value and Command is ASCII value.

[Ex] If Device ID is 13, a user wants to know the current weight value -> 0x0d  
0x57 0x54 0x0d 0x0a

#### Write

1	2	3	4	5	6	7	8	9	10
Device ID	Command		DATA (Not include decimal point)					CR	LF

#### Format for Device ID Change

1	2	3	4	5	6
Device ID	Command		DATA	CR	LF

Note 2. When you change code and device number, the data value is HEX 1byte.



## Serial Communication COM2 Function

### F32

Function	Set COM2 Baud Rate	
Setting range (0 ~ 8)	Display	Meaning
	F32 0	600 bps
	F32 1	1200 bps
	F32 2	2400 bps
	F32 3	4800 bps
	<b>F32 4</b>	9600 bps
	F32 5	19200 bps
	F32 6	38400 bps
	F32 7	57600 bps
F32 8	115200 bps	

### F33

Function	Set COM2 - Usage	
Setting range (0 ~ 1)	Display	Meaning
	F33 0	Connect to a printer
	<b>F33 1</b>	Connect to a computer or auxiliary display

\* If F29: 0 and F33 : 0, "ERR-Set" is displayed with no print.

\* COM1 and COM2 cannot be used together as the printer function.

### F34

Function	Set COM2 - Output Format	
Setting range (0 ~ 2)	Display	Meaning
	<b>F34 0</b>	22 bytes for CA
	F34 1	10 bytes for CA
	F34 2	18 bytes for AND

### F35

Function	Set COM2 - Output Mode	
Setting range (0 ~ 2)	Display	Meaning
	<b>F35 0</b>	No data out
	F35 1	Transmission for both the stable and instable time (stream mode)
	F35 2	One time transmission after the weight is stabilized.

Set the value of F35 to '1' or more if the print mode is used.

### 10-3-3. Print Function

#### F40

Function	Set a printer to use	
Setting range (0 ~ 2)	Display	Meaning
	F40 0	Not used.
	F40 1	DLP (Label Printer)
	<b>F40 2</b>	DEP (Roll Printer)

#### F41

Function	Set print format	
Setting range (0 ~ 2)	Display	Meaning
	<b>F41 0</b>	Set print format 0
	F41 1	Set print format 1
	F41 2	Set print format 2

#### F42

Function	Set automatic print	
Setting range (0, 1)	Display	Meaning
	<b>F42 0</b>	Manual print
	F42 1	Automatic print

Note 1. If the automatic print is set, print can be done with no press of print key when the weight is stable.

#### F43

Function	Set Line Feed	
Setting range (0 ~ 9)	Display	Meaning
	<b>F43 1</b>	1 Line feed
	F43 9	9 Line feed

### 【 Print Format 0 】

Date, Time, Weighing No. (Item No.), Net Weight

2002. 1. 1	12:30
0001 ID_01:	50.0 kg
0002 ID_01:	100.0 kg
0003 ID_01:	200.5 kg

### 【 Print Format 1 】

Date, Time, Weighing No. (Item No.), Net

2002. 1. 1	12:30
0001 ID_01:	50.0 kg
2002. 1. 1	12:40
0002 ID_01:	50.0 kg
2002. 1. 1	12:50
0003 ID_01:	50.0 kg

### 【 Print Format 2 】

Date, Time, Weighing No. (Item No.), Net Weight

	2002. 1. 112:30
No.0001	ID_01
Gross :	1000.0 kg
Tare :	0.0 kg
Net :	1000.0 kg
	2002. 1. 112:40
No.0002	ID_01
Gross :	2000.0 kg
Tare :	500.0 kg
Net :	1500.0 kg

Note 1. If the power is turned off and then on, the number and total are initialized to 0001.

Note 2. The output of item number (ID\_XX) depends on the setting in "F48".

Note 3. The possible number for print is a range of 1~9999.

## 【 Total Print Format 】

Total Format	
-----	
ID_01 TOTAL	
-----	
2004.06.24	14:32:54
COUNT	22
WEIGHT	4500.05kg
-----	
GRAND TOTAL	
-----	
2004.06.24	14:32:58
COUNT	123
WEIGHT	12500.10kg

Note 1. When a label printer (DLP-50) is used, the subtotal and grand total functions are not supported and Err-12 is displayed.

Note 2. After summation, data are maintained or initialized depending on the set value in F47.

CAS DLP Protocol

Variable	Descriptions
V00	Gross Weight (8 bytes)
V01	Tare (8 bytes)
V02	Net Weight (8 bytes)
V03	Barcode (Net Weight) (8 bytes)
V04	Count in the Count Mode (8 bytes)
V05	Percent in the Percent Mode (8 bytes)

The weight, count and percent cannot be printed at the same time.  
 Values that can be accurately printed are those for [weight, count and percent].

User's Output Message Protocol

Command (ASCII code)	Descriptions	Status
UM	User output message	Write

The maximum length is 40 bytes. 0xFF should be put in the last byte.  
 20 bytes are printed in a line and the message starts from the upper left corner.

## F44

Function	Enter the user output message	
	Display	Meaning
Set Range (32 ~ 255)	12 - 065	Designate a character "A" equivalent to ASCII code 65 in the 12th data
	00 - 032	To print out the added contents, designate ASCII code 32 to 0th data.
	18 - 255	The end has to be meant by designating ASCII code 255 next to the last data.

 ~  : set number,  : coordinate increase,  : end entry

(If a coordinate increase is done when the input range exceed a range of 32 ~ 255, it will be cleared with “255”)

Note 1. This function adds something to write down on the print format.  
(Ex: company name, Phone number)

Note 2. Coordinates that can be designated have a range from 0 to 71, of which 0th data designates whether or not to print the added contents (032: printed, others: not printed). Accordingly, the actually printed contents will include contents from 1st data to the part right before the coordinate where data 255 is assigned.

Note 3. If you want to add the company name “CAS” to the existing print format, you might assign as follows;

P00-032 (ASCII code 32: data starts),  
 P01-067 (ASCII code 67: character C)  
 P02-065 (ASCII code 65: character A)  
 P03-083 (ASCII code 83: character S)  
 P04-255 (ASCII code 255: data ends)

## F45

Function	Set print output	
Setting range (0, 1)	Display	Meaning
	F45 0	Print on both the stable and instable time
	F45 1	Print when the weight is stable.

## F47

Function	Initialize data after the summation is printed.	
Setting range (0, 1)	Display	Meaning
	F45 0	Maintain the status
	F45 1	Initialize data after the summation is printed.

## F48

Function	Setting print item number	
Setting range (0, 1)	Display	Meaning
	F45 0	Not printing item number on print output
	F45 1	Printing item number on print output

## 10-3-4. Checker Function

### F50

Function	Select the weighing mode (LCD, SC Only)	
Setting range (0 ~ 2)	Display	Meaning
	F50 0	Not used.
	F50 1	Use as the checker mode
	F50 2	Use as the limit mode

### [CHECKER MODE]

Weight Comm Signal	(Low Limit)		(High Limit)		OUT PUT
	0 kg	50 kg	100 kg		
LOW	[Pulse from 0 kg to 50 kg]		[Pulse from 100 kg to 50 kg]		1 0
HIGH	[Pulse from 0 kg to 100 kg]			[Pulse from 100 kg to 50 kg]	1 0
OK	[Pulse from 0 kg to 50 kg]		[Pulse from 100 kg to 50 kg]		1 0

Note 1. All the outputs are generated regardless of the stable status.

### [LIMIT MODE]

Weight Comm Signal	(Low Limit)		(High Limit)		OUT PUT
	0 kg	50 kg	100 kg		
LOW	[Pulse from 0 kg to 50 kg]		[Pulse from 100 kg to 50 kg]		1 0
HIGH	[Pulse from 0 kg to 100 kg]			[Pulse from 100 kg to 50 kg]	1 0
OK	[Pulse from 0 kg to 100 kg]			[Pulse from 100 kg to 50 kg]	1 0

Note 1. OK signal is displayed only for the stable status.

## F51

Function	Set Buzzer On/Off on the Checker Function (LCD, SC Only)	
Setting range (0, 1)	Display	Meaning
	F51 0	General functions are operated as the buzzer.
	F51 1	Buzzer ON when the checker function is OK.

## 10-3-5. Other Functions

### F90

Function	Password Change	
Setting range (0, 1)	Display	Meaning
	F98. 0	Password not changed.
	F98. 1	Password Changed
Password Change	Good	Enter the current password using numeric keys.
	PASS	Enter a new password.
	Change	Enter the new password again.

### F99

Function	Set default	
Setting range (0, 1)	Display	Meaning
	0	No initialization functions for indicator.
	1	Carry out the initialization functions for indicator.

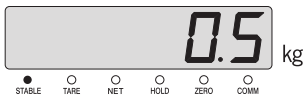
Note 1. To set values to the same as the factory default for the indicator, press the setup key after setting F99 to 1.



# 11. WEIGHING MODE

## 11-1. Zeroing Function (used when the zero point changes) - LED

- Range of zero point: within a range set in F13



Zero cancelled.



Press Zero Key to set the zero lamp on and 0.

## 11-2. Tare Function (used for weighing with a container) - LED

- Maximum tare set range: maximum weight

\* Caution: the weight including the tare cannot exceed the maximum weight.



Put a container on the load tray.  
(Container weight: 10kg)



Press the tare key.  
(Tare is saved.)



Put an object on the load tray.  
(Net weight: 20kg)

- If you want to know the total weight;



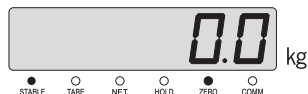
Press the 'total \* net weight' key (the value of object's weight + tare is displayed.)

- If you want to know the net weight;



Press the 'total \* net weight' key (the value of object's weight is displayed.)  
Remove the container and object from the load tray to display the saved tare.

- If the tare is removed;



Remove the container and object from the load tray, and press the tare key (picture on the right) if the saved tare is only displayed (picture on the left).

## 12. ERROR MESSAGE.

### 12-1. Error Message from the Weight Setup Mode

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

## 12-2. Error Message from the Weighing Mode

Error	Cause	Solution
Err 01	The initialization of the scale cannot be done because of the shaking weight.	Turn on the power after placing the scale at a flat place with no vibration.
Err 02	Either the connection of load cell is wrong or there is abnormality in the A/D conversion section.	Check the connection between the load tray and the body.
Err 05	Either you are pressing a key for a long time or there is abnormality in the key section.	Make an inquiry to A/S.
Err 08	The zero key, tare key and start key were disabled at the instable weight.	Set the zero key, tare key and start key to the proper user conditions at F14 in the Set Mode.
Err 09	The current weight is out of the range of zero point.	Set the range of operations for the zero key to within 2% or 10% at F13 in the Set Mode.
Err 10	The tare to set is out of the maximum weight of the scale.	Set the tare to less than the maximum weight.
Err 12	The type of the configured printer is one that cannot support the total print.	DLP printers cannot make the total print. Set "F40" to "2" when DEP printers are used.
Err 13	The set value of zero point on the weight setting is out of range.	Check the status of the load tray and set the weight again.
Err 15	The range exceeded during setting the item code in the command mode.	Check the range of item code.
Err 82	There is abnormalities in the A/D set section.	Make an inquiry to A/S.
Over	The current weight on the load tray is too heavy and out of the allowable tolerance.	Avoid any weight in excess of the maximum allowable limit on the scale. If the load cell is damaged, it should be replaced.

# MEMO

# CPS-Plus

Pallet Scale



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