

# RW-2601P/ RW-P

Vehicle Weighing Scale



# CAS

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## - RW-P Series

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# Caution

## ⦿ Safety Caution

Make sure to comply with the safety cautions as they are designed to prevent dangers in advance by using the products safely and properly.

Cautions are categorized into 2 types and the significances of 'Warning' and 'Caution' are as follows.

### Warning

Refers to situation that may result in high possibility of substantial danger including death or serious injuries if the directions are infringed.

### Caution

Refers to situation that may result in high possibility of injuries or material losses if the directions are infringed.

### Warning

1. Never disassemble, repair or modify.  
Such will not only exempt the product from warranty but also cause damages to the apparatus, electrocution or fire.
2. Do not damage, process or excessively pull, bend or twist the power supply cord.  
This may damage the power supply cord and may cause fire or electrocution.
3. Do not place combustible spray or fire in nearby location.
4. Do not water to external aspect of the product of use in humid location. This may cause insulation to be deteriorated, thereby causing risk of electrocution or fire, or occurrence of error in weighing.
5. Do not place at location exposed to direct sunlight or near hot objects such as stove. It may cause fire.
6. Make sure to insert the power supply plug fully in order to prevent the plug from becoming loose. If the contact is not stable, electrical spark may occur and cause fire.

# 1. Introduction

Thank you for purchasing the CAS RW(2201P/2401P/2601P)\_Series (hereinafter referred to as RW\_Series) weighing indicator.

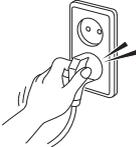
We have designed this equipment with many advanced features, high quality construction, and user-friendly menu driven programming. We are confident that you will find the CAS RW\_Series will meet all of your most demanding needs. CAS indicator is shaped firmly and delicately designed to coincide with the special requirements of several industrial fields and includes many functions and various external interfaces. Also, it contains help display functions to be used easily.

Before using RW\_Series, It is recommended to read this manual carefully and to apply the function application fully.

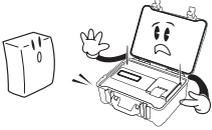
## Precautions

Observe the following safety precautions :

### **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>Avoid placing the scale near heater or in direct sunlight.</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>
		

## 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>Place the scale on firm and temperature consistent environment.</p>	<p>Keep the scale away from the electromagnetic generation devices. This may interfere with accurate reading.</p>	
		

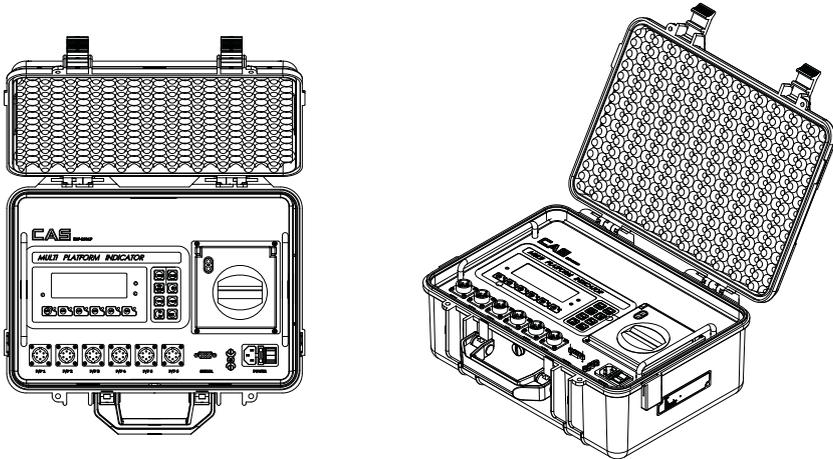
**Our Dealers :** CAS feels that each of its valued customers should get the best service available. Whether it's the initial installation of our product, maintenance/repair work, or simply answering questions about our products, CAS Corporation and all of its Authorized Dealers are highly trained to assist you with any need regarding CAS products.

## 2. Features

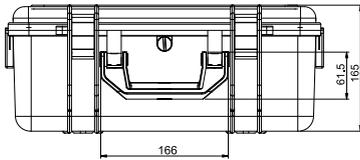
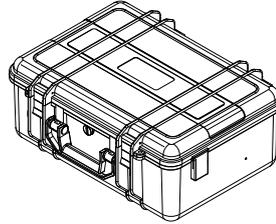
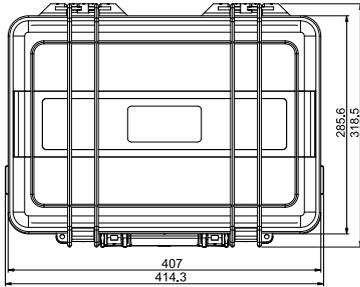
Features
<input type="checkbox"/> Up to 6 axle(P/F) scales.
<input type="checkbox"/> Compact size & light weight Box type.
<input type="checkbox"/> Built in inner clock for date / time print.
<input type="checkbox"/> Built in printer.
<input type="checkbox"/> Built in Battery Charger & Large Capacity Battery. (6V/10A x 2 ea)

## 3. Technical Specification

### ■ Overview



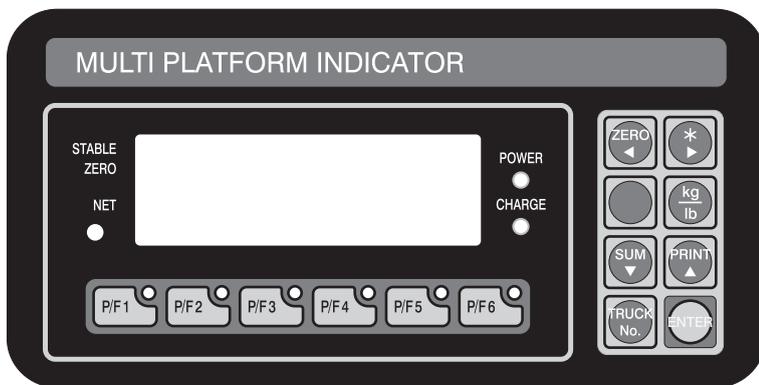
## ■ Dimension



## ■ Specification

Model Name	RW-2201P/2401P/2601P	RW-Printer Box	Accessory Box
Operating Power	Inner Battery Operation. (DC 6V)		Cable AC Cord, Adaptor.
Power Source	AC 110/220 V , 50/60 Hz( For Battery Charger))		
Display Type	LCD 6 Digit(25mm)	Built In Printer Without Display.	
Display Designators	Stable, Zero, Kg/ lb		
Product Weight	9.2 kg	6.5 Kg	3.5 Kg

## 4. Front panel Description



### (1) Display lamp

**STABLE lamp** : Turn on when the weight is stable.

**ZERO lamp** : Turn on when the current weight is 0 kg(0 lb).

**GROSS/NET lamp** : Turn on when the current weight is NET weight.

**lb/kg** : Turn on when the weight unit is lb or kg.

### (2) Key Usage

-  TARE Key : Current weight is memorized as TARE weight. If you press TARE key in unload condition, tare setting is automatically released.
-  ZERO Key : Used to return the display to the center of ZERO when the platform is empty.
-  GROSS/NET Key : Display gross and net weight by turn.
-  kg/lb Key : Toggles between lb and kg units. (only USA Version)
-  SUM Key : Used to print sum total weights.

-  PRINT Key : Used to print the current weight.
-  TRUCK No. Key : Used to input the number plate of vehicle which is used to weigh.  
Only you can input number within five digits.
-  PRINT Key : Used to store current condition and exit in CALIBRATION, TEST, SET mode.
- PF1 Key : Used to display the weight which is connected to Platform 1.
- PF2 Key : Used to display the weight which is connected to Platform 2.
- PF3 Key : Used to display the weight which is connected to Platform 3.
- PF4 Key : Used to display the weight which is connected to Platform 4.
- PF5 Key : Used to display the weight which is connected to Platform 5.
- PF6 Key : Used to display the weight which is connected to Platform 6.

### **(3) How to enter TEST mode**

Turn on the Power while pressing the key, and TEST mode starts.

### **(4) How to enter SET mode**

Turn on the Power while pressing the key, and SET mode starts.

### **(5) How to enter CAL mode**

Turn on the Power while pressing the key and press key, and CAL mode starts.

## 5. Test Mode

### (1) How to enter

Press the "ON/OFF" key while pressing the  key, and TEST menu starts.

### (2) Available keys



**Key** : Change the set value. Used to increase the set value + 1.



**Key** : Change the digit of the set value. Used to increase the set value  $\times 10$ .



**Key** : Move to the next menu.

### (3) Test Menu(TEST 1 - TEST 5)

Test 1 : Key Test

Test 2 : LCD Display Test

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

Test 4 : Serial Interface / Printer Test(RS-232)

#### TEST 1

FUNCTION : Key test		
Key	Display	Description
ENTER key : Move to the next menu. Other key : Perform test.	<b>tEst 1</b> Key number ex)In case of Zero key <b>1</b>	TEST 1 condition. Press the key to be test and the No of key mode should be identify with code of key. If you press Enter key, it will be moved to test 2.

### < Key List >

Key	Code Number	Key	Code Number
P/F 1	03	Tare	05
P/F 2	07	Gross/Net	09
P/F 3	11	kg/lb	13
P/F 4	15	Sum	02
P/F 5	04	Print	06
P/F 6	08	Truck No.	10
Zero	01	Enter	14

## TEST 2

FUNCTION : LCD display test		
Key	Display	Description
ENTER key : Move to the next menu. Other key : Perform test.	<b>tEst 2</b> <b>8.8.8.8.8.8</b> ■■■■■■■■	TEST 2 condition. TEST 2 is automatically performed. After this test completing, it will be moved to test3 automatically.

Ref 1. Program is automatically shifted to test 3 after completing Test 2.

## TEST 3

FUNCTION : Load cell test and A/D conversion		
Key	Display	Description
ENTER key : Move to the next menu. Other key : Perform test.	<b>tEst 3</b> Digital value of current weight in PF which you set. ex) 1500	TEST 3 condition Display digital value of current weight. This value means converted digital value under actual condition. If you press Enter key, it will be moved to test 4.

Ref 1. A/D converter test is automatically completed by displaying converted digital value of current weight.

Ref 2. L/C test is also completed by loading the weight on the platform.

Check whether digital value is changing.

If the digital value is fixed or zero is displayed, please check the connection of the load cell.

## TEST 4

FUNCTION : Serial Interface / Printer test		
Key	Display	Description
ENTER key :	<b>tEst 4</b>	Test 4 condition Press Enter key.
Exit from the Test Mode	----	
Other key :	<b>GOOD</b>	It will be moved to Normal Mode after test mode.
Perform test.	<b>2601P</b>	

Ref 1. Perform test only when the printer connection are installed.

Ref 2. "GOOD" message is displayed if the printer connection and specification is done correctly. If or not, "ERR 6" message is displayed.

Ref 3. The test output format of printer is as the follows.

TEST OK
---------

If you press the Enter key, it will be returned to NORMAL MODE.

However, only when it is connected with printer, this test can be performed.

### \* PRINTER FORM \*

2010. 8. 25 10:15:20 WEIGHT 1 1200 kg WEIGHT 2 1200 kg WEIGHT 3 1100 kg WEIGHT 4 1100 kg ----- TOTAL 4600 kg
--

## 6. Set Mode

### (1) How to enter

Press the "ON/OFF" key while pressing the  key, and TEST menu starts.

### (2) Available keys



**Key** : Change the set value. Used to increase the set value + 1.



**Key** : Change the digit of the set value. Used to increase the set value  $\times 10$ .



**Key** : Move to the next menu.

### (3) Set Menu(F01 - F14)

F01 : Select Primary Base Unit (kg/lb)-U.S.A version.

F02 : Designation of Serial Port Usage(RS-232C).

F03 : Automatic Zero Tracking Function

F04 : Digital Filter Function.

F13 : Quantity of Scales (P/F, Axle Scale)

F14 : Select Option Clock.

Select Primary Base-unit		
<b>F01</b>	0	Primary unit is kg
	1	Primary unit is lb

Select Primary Base-unit		
<b>F02</b>	0	Not used
	1	Connection with Serial printer

Automatic Zero Tracking			
<b>F03</b>	0	Not used	
	1	1 : 0.5 division	Auto zero tracking will automatically bring the displayed back to "0" when there are small deviations.
	~	~	
9	9 : 4.5 division		

Digital Filter Function			
<b>F04</b>	1	1 : Less Vibration	Adjust set value according to the condition.
	~	~	
	9	9 : Much Vibration	

Select the Back-Light Usage		
<b>F08</b>	0	Manual Back Light
	1	Automatic Back Light

Quantity of Scales		
<b>F13</b>	1	One scale
	2	Two scales
	3	Three scales
	4	Four scales
	5	Five scales
	6	Six scales

Select Option Clock		
<b>F14</b>	0	Not used
	1	Used

Quantity of Scales		
<p>▲ : Increase of no.            ◀ : Shift of digit.            Enter : Store and move to the next menu.</p>	Display	Description
	C1 10	YEAR : 10
	C2 08	MONTH : 08
	C3 25	DAY : 15
	C4 13	HOUR : 13
	C5 10	MINUTE : 10
	C6 01	SECOND : 01

## 7. Calibration Mode

### (1) How to enter

Turn on the Power while pressing the  key, and then press  key, and press Enter key as soon as you selecting the number of platform.

If you don't set the number of platform, it will automatically be moved to Normal Mode. F13 should be set before entering to CAL mode.

### (2) Available keys



**Key** : Change the set value. Used to increase the set value + 1.



**Key** : Change the digit of the set value. Used to increase the set value  $\times 10$ .



**Key** : Move to the next menu.

### (3) Calibration Menu(CAL 1 - CAL 5)

CAL 1 : Maximum Capacity Setting

CAL 2 : Minimum Division Setting

CAL 3 : Setting Weight

CAL 4 : Zero Calibration

CAL 5 : Span Calibration

## CAL 1

FUNCTION : Maximum Capacity Set RANGE → 1 ~ 99,999 kg/lb		
Key	Display	Description
▲ : Increase of no. ◀ : Shift of digit. Enter : Store and move to the next menu.	<b>ti. 03</b> <b>CAL 1</b> <b>10000</b> <b>Maximum</b> <b>Capacity</b> <b>Value</b>	Program version CAL 1 condition  10000 kg / lb

- Ref 1. The maximum capacity means the maximum weight that scale can measure.  
 Ref 2. Do not input the resolution, there is no need to input the resolution which is  
 Automatically calculated.  
 Ref 3. If you press Enter key, it will be moved to CAL 2.

## CAL 2

FUNCTION : Minimum Division Set RANGE → 0.0005 ~ 100 kg/lb		
Key	Display	Description
▲ : Input the next division. Enter : Store and move to the next menu.	<b>CAL 2</b> <b>0.01</b> <b>Minimum</b> <b>Division</b> <b>Value</b>	CAL 2 condition  0.01 kg / lb

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

## CAL 3

FUNCTION : Setting Weight In Span RANGE → 1 ~ 99,999 kg/lb		
Key	Display	Description
▲ : Increase of no. ◀ : Shift of digit. Enter : Store and move to the next menu.	<b>CAL 3</b> <b>Maximum</b> <b>Capacity of CAL 1</b> <b>(ex : 10000)</b> <b>Setting weight</b> <b>(ex : 100)</b>	CAL 3 condition  10000 kg / lb  100 kg / lb

Ref 1. The weight shall be within the range of 1 % ~ 100 % of maximum weight.

Ref 2. If the Setting Weight is under the 1% of the Maximum Capacity,

Error message ("ERR 22") will occur.

Ref 3. If the Setting Weight over the Maximum Capacity,

Error message ("ERR 23") will occur.

Ref 4. If you press Enter key, it will be moved to CAL 3.

## CAL 4

FUNCTION : Zero Calibration Function		
Key	Display	Description
Enter : Zero Calibration and move to the next menu.	<b>CAL 4</b>  <b>UnLOAD</b>  <b>A/D value</b> ----  <b>GOOD</b>	CAL 4 condition  Unload the tray and press Enter key  Display A/D Value. Press Enter Key.  Under zero calibration Zero Calibration is completed.  The program moves into Span Calibration automatically.

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

Ref 2. If the zero value is too high, ERROR message (ERR 26) is displayed.

Ref 3. Zero calibration can be done independently. If you press ZERO key instead of Enter key, zero calibration will perform.

After that, it will be moved to SAVE & EXIT mode.

## CAL 5

FUNCTION : Span Calibration Function		
Key	Display	Description
Enter : Span calibration and move to the next menu.	<b>CAL 5</b>	CAL 5 condition
	<b>LOAD</b>	Unload the weight which was set in CAL 3.
	<b>Setting weight</b>	It is displayed the setting weight. And then, press Enter key.
	<b>---</b>	Under span calibration.
	<b>GOOD</b>	Span calibration is completed. Check whether the displayed weight is same with setting weight.
	<b>Save</b>	Calibration is completed. Under this condition, release the load. Press the "ENTER" key to save the value.

- Ref 1. If Span calibration is done without any error, GOOD message is displayed  
The weight of setting weight is displayed on Display screen. Check the weight.
- Ref 2. If the span is low, Error message (ERR 24) is displayed.  
Calibrate with lower resolution.
- Ref 3. After setting the exact value, remove the setting weight and Press the "ENTER" key to save the value.
- Ref 4. In case of setting F13, it can be moved to another Platform.  
If all of platform is finished, it will be moved to Normal Mode.

## 8. Error message and Trouble shooting

### 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 06

#### ■ Reason

Error in printer connection

#### ☞ Trouble shooting

Check with printer connector

If there is no problem with printer connector, please request A/S to head office.

### Err 13

#### ■ Reason

The zero range deviates from the set range.

#### ☞ Trouble shooting

Confirm that there is nothing on the weighing platform.

If there is nothing exist, do calibration in CAL mode.

### Over

#### ■ Reason

The weight on platform is too heavy to be measured.

#### ☞ Trouble shooting

Do not load cell item exceeds the maximum tolerance.

If the load cell is damaged, the load cell should be replaced.

### Err 21

#### ■ Reason

The resolution is set to be exceeded the limit 1/10,000.

#### ☞ Trouble shooting

Lower the resolution.

The resolution = allowed weight/one division

Modify the allowed weight in CAL1 or modify the division in CAL2 so that the resolution should be below 1/10,000.

### **Err 22**

#### **■ Reason**

The weight for span calibration is set to be lower than 10 % of the maximum capacity of the scale.

#### **🔍 Trouble shooting**

Set the weight for span calibration in CAL3 to be more than 10% of the maximum capacity.

### **Err 23**

#### **■ Reason**

The weight for span calibration is set to be exceeded 100 % of the maximum capacity of the scale.

#### **🔍 Trouble shooting**

Set the weight for span calibration to be within the maximum capacity of the scale in CAL 1.

### **Err 24**

#### **■ Reason**

The load cell output is too small at SPAN calibration.

#### **🔍 Trouble shooting**

Setting of current resolution is not possible due to the error in load cell. Proceed calibration again with less resolution.

Load cell Sense Voltage for 5V Excitation Voltage	Recommended Resolution
2 mV	1/1,000
4 mV	1/2,000
10 mV	1/5,000

### **Err 25**

■ Reason

The load cell output is too large at SPAN calibration.

☞ Trouble shooting

Setting of current resolution is not possible due to the error in load cell.

Proceed calibration again with less resolution.

### **Err 26**

■ Reason

The load cell output is too large at ZERO calibration.

☞ Trouble shooting

Check whether the platform empty.

Proceed calibration again after checking i

# RW-P Series

## 1. PREFACE

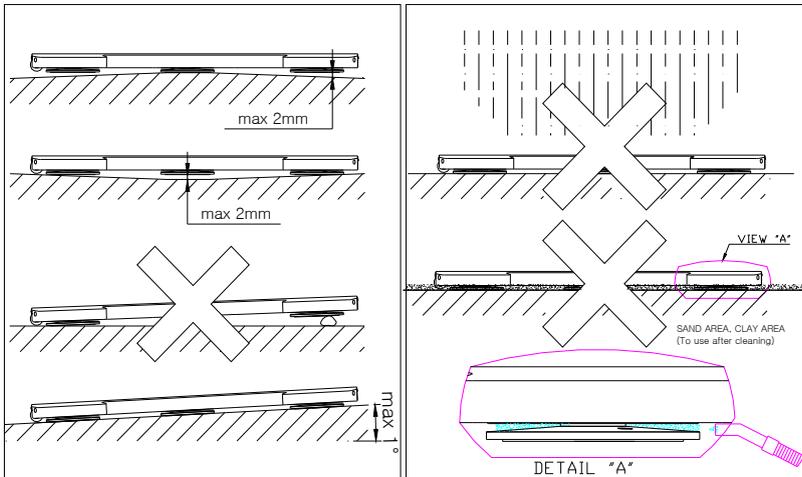
We greatly appreciate your purchase of CAS Road Weigher, which is used for displaying the value of weight loaded on each shaft of vehicle.

These goods have hold excellent performance and splendid properties through strike tests as well as devoting ourselves under severe quality management.

Before using road Weigher, It is recommended to read this manual carefully and to apply the function application fully.

### ■ CAUTIONS

- Avoid sudden temperature change.
- Keep it in dry place.
- Use this product the place where the ground is flatness and hardness
- Don't use this product when it is raining
- Keep out of muddy area and sandy area
- When the sands get in the gap between loadcell and foot, remove to use air cleaner

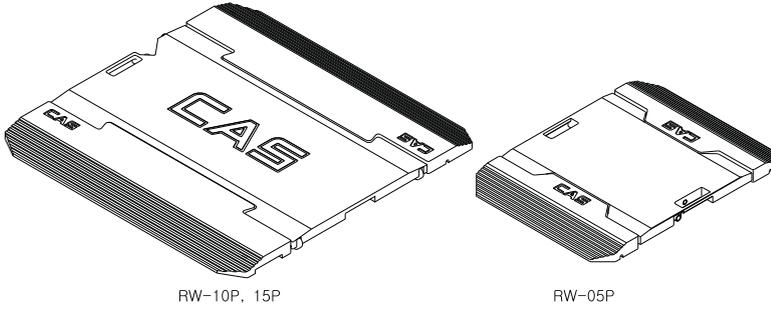


## 2. FEATURE

- ◆ Slim(height 40mm) type
- ◆ built in high accuracy load cell

### 3. TECHNICAL SPECIFICATION

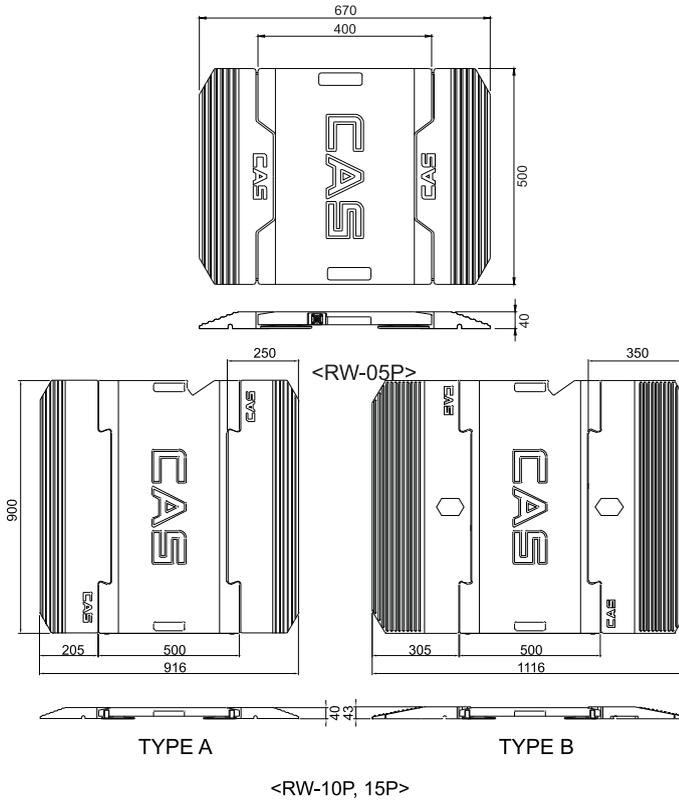
#### ■ OVERVIEW



RW-10P, 15P

RW-05P

#### ■ DIMENSION



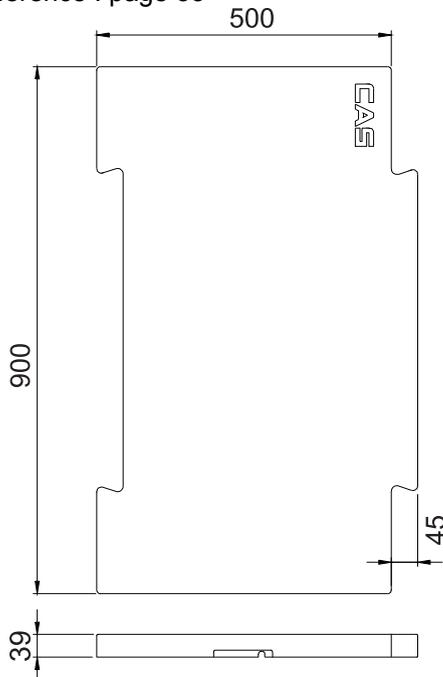
## ■ PRODUCT SPECIFICATION

MODEL		RW-01P	RW-05P	RW-10P	RW-15P
Max		1,000 kg (2,000lb)	5,000 kg (10,000lb)	10,000 kg (20,000lb)	15,000 kg (30,000lb)
Division		-	-	-	10kg (20lb)
Accuracy		0.1%			
Size	LxW	500x400(19.7"x15.7")		900x500(35.4"x19.7")	
	H	40(1.6")			
WEIGHT		15.8kg		30.2kg	

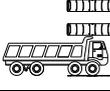
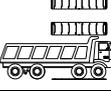
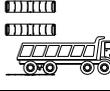
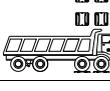
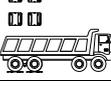
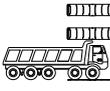
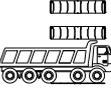
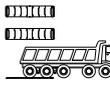
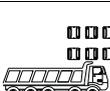
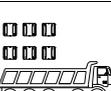
## ◆ OPTION

### 1) Dummy Plate

- Material : Rubber (NBR)
- Reference : page 33



## 4. Application of Dummy Plate

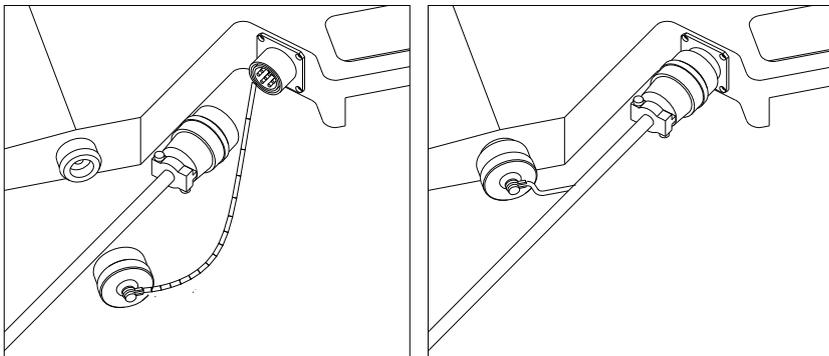
Classification		ACCURACY	First Weighing	2 <sup>nd</sup> Weighing	3 <sup>rd</sup> Weighing	4 <sup>rd</sup> Weighing
	QTY					
2 A X L E	PLATE: 2EA	±1~3%				
	PLATE: 4EA	±0.1%				
3 A X L E	PLATE: 2EA DUMMY: 12EA	±1~3%				
	PLATE: 4EA	±1~2%				
	PLATE: 6EA	±0.1%				
4 A X L E	PLATE: 2EA DUMMY: 12EA	±1~2%				
	PLATE: 4EA	±0.5%				
5 A X L E	PLATE: 2EA DUMMY: 12EA	±1~3%			• • • •	
	PLATE: 6EA	±0.5%				

(The ground condition : flatness, hardness, zero declination of close axis)

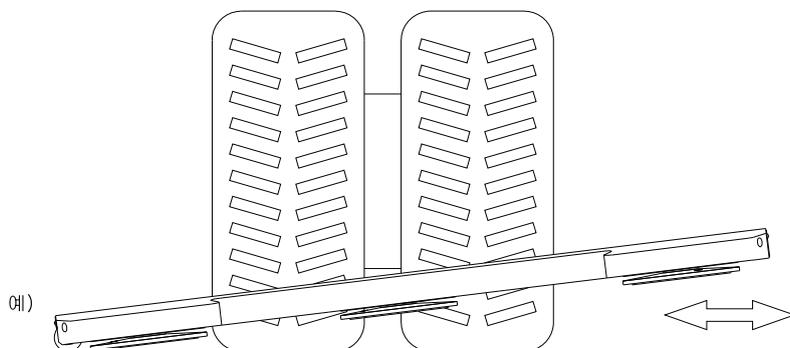
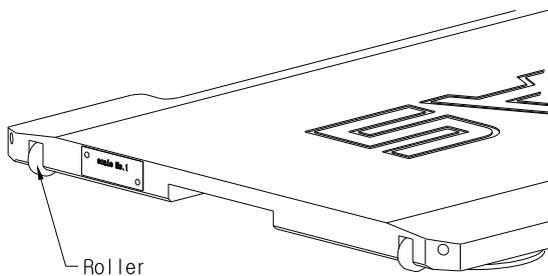
\* Application data of dummy plate is possible to be changed according to the ground condition and vehicle condition(old vehicle' occasion)

## 5. Usage of Connector & Roller

### ■ Connection of connector



### ■ Moving roller (RW-10P,15P)



# MEMO



# MEMO

# **RW-2601P/ RW-P**

**Vehicle Weighing Scale**