AP Series

Service Manual

LAST Rev. NO : 1

LAST Rev. Date : 2010. 05. 03

Service Manual – AP Series REV NO : 1

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1. Proper Operation / Introduction

1.1. Preface

Thank you for purchasing of our CAS scale.

This scale has been designed with CAS reliability, under rigid quality control and with outstanding performance.

WE hope that your departments enjoy with high quality of CAS product.

This manual will help you with proper operations and care of the AD series.

Please keep it handy for the future references.

1.2. Precaution

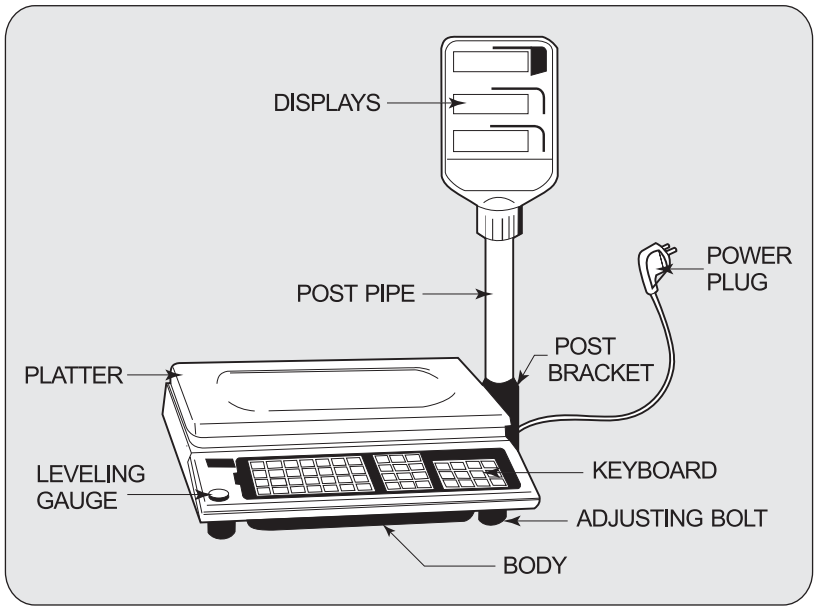
- Make sure that you plug your scale into the proper power outlet.
- Place the scale on a flat and stable surface.
- Plug into a power outlet 30 minutes before operations.
- Keep the scale away from strong EMI noises may cause incorrect weight readings.
- This scale must be installed in a dry and liquid free environment.
- Do not subject the scale to sudden temperature changes.
- Do not subject the platter to sudden shocks.
- If the scale is not properly level, please adjust the 4 legs at the bottom of the scale (turn legs clockwise or counterclockwise) so as to center the bubble of the leveling gauge inside the indicated circle.

1.3. Specification

MODEL	AP-1		
CAPACITY (Dual)	3 x 0.001 kg (6 x 0.002 lb)	6 x 0.002 kg (15 x 0.005 lb)	15 x 0.005 kg (30 x 0.01 lb)
	6 x 0.002 kg (15 x 0.005 lb)	15 x 0.005 kg (30 0.01 lb)	30 x 0.01 kg (60 x 0.02 lb)
CAPACITY (Single)	6 x 0.002 kg (15 x 0.005 lb)	15 x 0.005 kg (30 x 0.01 lb)	30 x 0.01 kg (60 x 0.02 lb)
DISPLAYS:	TOTAL PRICE / WEIGHT / UNIT PRICE (7 / 6 / 6)		
DISPLAY DESIGNATORS	ZERO, TARE, NET, UNIT		
MAXIMUM TARE	-2.999kg (dual) -6.000kg(single)	-5.998kg(dual) -15.000kg(single)	-14.995kg(dual) -30.00kg(single)
TEMPERATURE RANGE	- 10°C ~ + 40°C		
POWER SOURCE	AC 110V / 220V / 240V, 50Hz / 60Hz		
POWER CONSUMPTION	APPROX. 10W		
PLATTER SIZE (mm)	340(W) x 222(D)		
PRODUCT SIZE (mm)	350(W) x 325(D) x 490(H)		

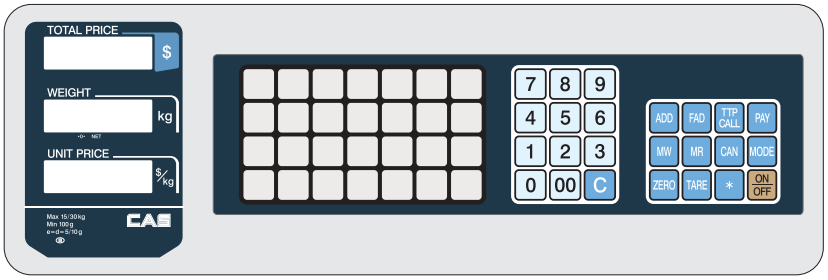
2. Classification

2.1. Overall View

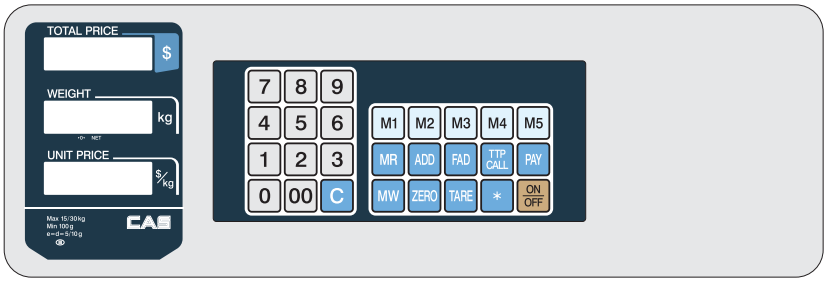


2.2. Display Pad (Key Pad)

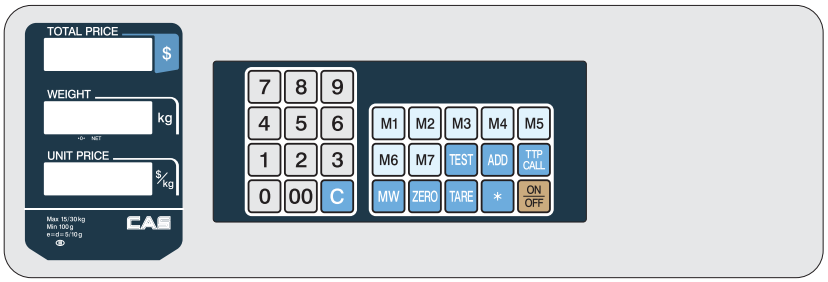
2.2.1. AP-EX Type



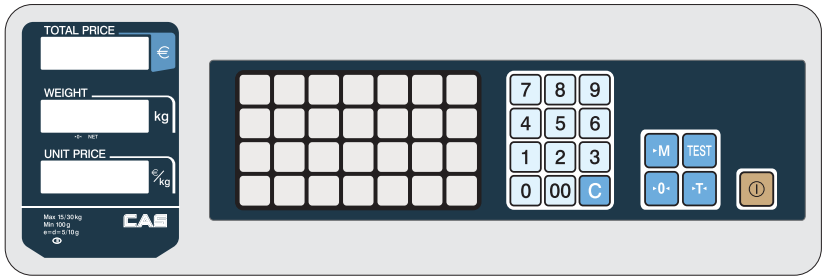
2.2.2. AP-MX Type



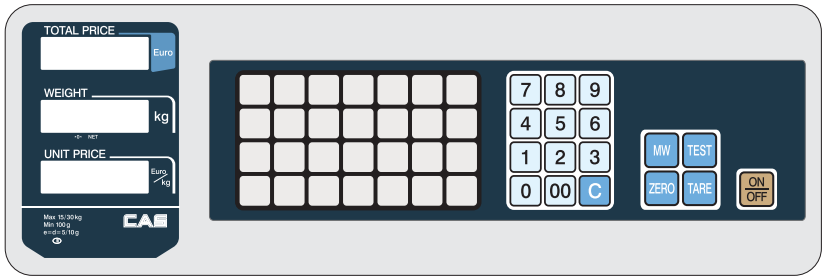
2.2.3. AP-M Type



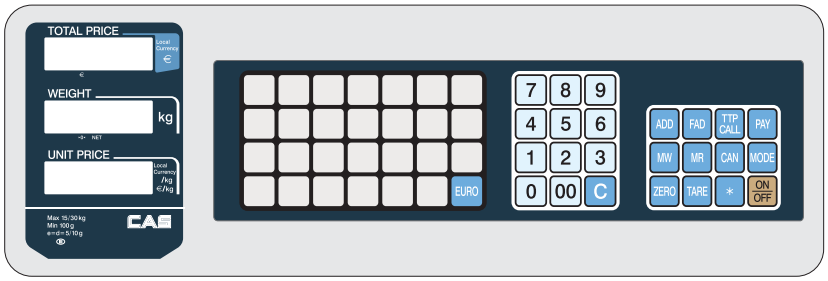
2.2.4. AP-EC Type(Symbol Type)



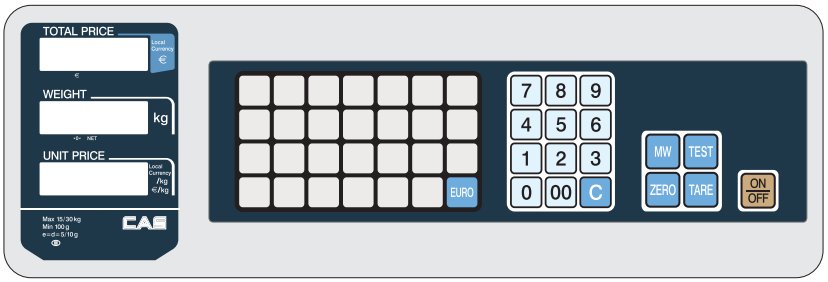
2.2.5. AP-EC Type(Standard Type)



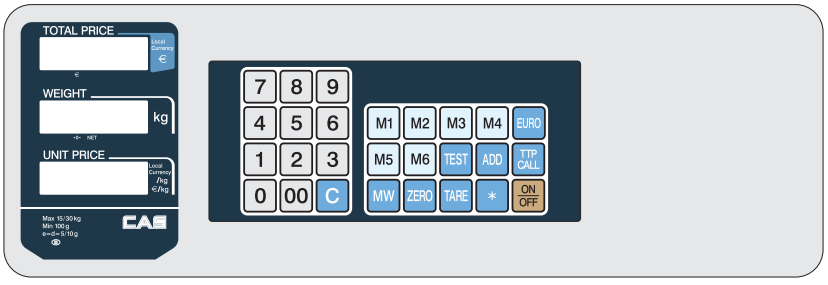
2.2.6. AP-EURO(AP-EX Type)



2.2.7. AP-EURO(AP-EC Type)



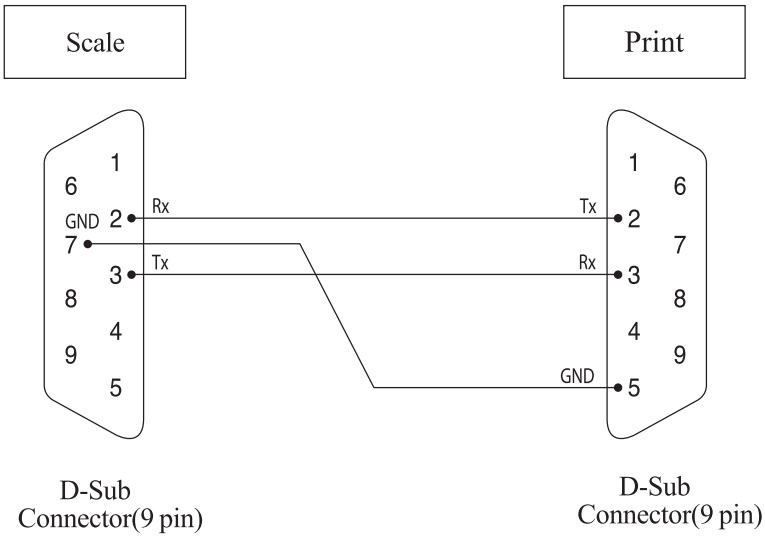
2.2.8. AP-EURO(AP-M Type)



■ KEY FUNCTIONS

KEY	FUNCTIONS
0 ~ 9	Used to enter all the numeric data.
00	Used to enter a double zeros.
C	Used to clear all the numerics on the unit price display. Used to clear sum total price. Used to clear all the daily total prices. Used to move to next byte when inputting ASCII code.
ZERO	Used to correct the zero point. Used to move to previous byte when inputting ASCII code. Used to move to user set-up mode.
TARE	Used to enter a tare weight. Used to delete a tare weight. Used to move to next printing ticket format setting mode when inputting ASCII code.
ON/OFF	Turns on and off the displays.
FAD	Used to add up a fixed price item.(non weighed)
ADD	Used to add up a weighed item.
PAY	Used to calculate a change.
CAN	Used to cancel a prior accumulation.
M1 ~ M7	Direct PLU(Price Look Up) keys.
TEST	Used to check the all displays.
TTP CALL	Used to call a total price of add up transactions.
MODE	Used to convert the modes. A default is weight mode after the power on.
MR	Used to call an indirect PLU(Price Look Up) in memory.
MW	Used to save a PLU(Price Look Up) to memory.
SUM	Used to finalize sales transaction.
▢▢▢▢▢ ▢▢▢▢▢	Direct PLU keys.
EURO	Used to set Euro to local currency, and vice versa.

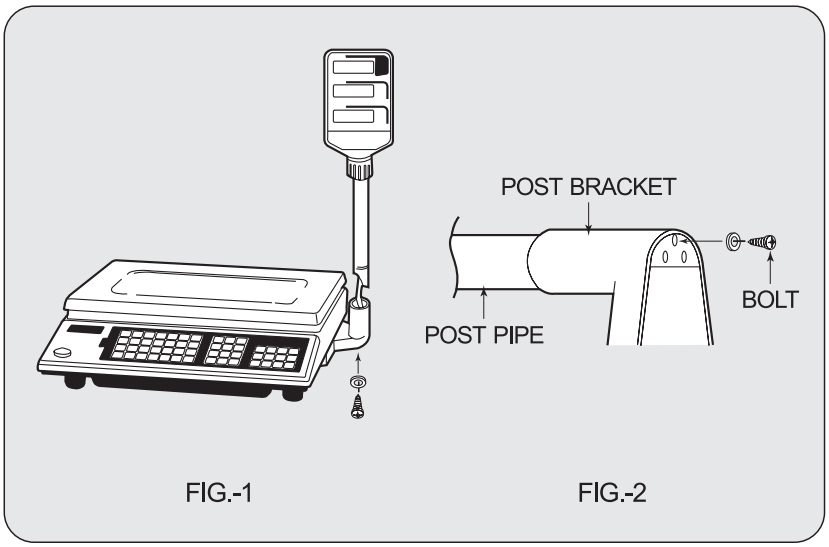
2.3. Serial Communiction



3. Getting Started

3.1. Installation

Put a post pipe into a post bracket as Fig. -1
Screw the post bracket and the post pipe as Fig. -2



4. Calibration Mode

4.1. To enter Calibration mode

Hold down " Calibration Switch" and " [POWER] key" to enter Calibration mode and then the scale displays " CAL 1" after " onE" .

User can move to other menu by using [ZERO] key (Next) or [CAN] key (Previous).

User can also enter the sub-menus in each mode by using [TARE] key.

If you want to escape from the selected mode, Press the [C] key.

To confirm the modified setting, press the [TARE] key.

MODE	Function
CAL 1	Display normalized AD value
CAL 2	Display Keypad information
CAL 3	Weight Setting Mode "Unload" → [TARE] → "MIDD" → [TARE] after loading for 1/3 weight → "FULL" → [TARE] after loading for Full weight → "MIDD" → [TARE] after loading for 1/3 weight → "END"
CAL 4	Optional Setting (See "C-4 Table" on the next page)
CAL 5	Display filtered Raw AD value
CAL 6	Function settings on each Key (See "C-6 Table" on the page 17)
CAL 7	% Calibration
CAL 8	Battery calibration
CAL 9	Gravity constant
CAL 10	Set calibration factor "Unit" → [TARE] → select 0, 1 (0:kg, 1: lb) → [TARE] "CAPA" → [TARE] → select capacity → [TARE] "Mid" → [TARE] → select mid-capacity → [TARE] "W-dP" → [TARE] → Select Decimal Point → [TARE] " 1 d " → [TARE] → Select division → [TARE] "Dual" → [TARE] → Enable dual interval (0:disable, 1:enable) → [TARE] "tare" → [TARE] → Enable custom tare (0:disable, 1:enable) → [TARE]
CAL 11	Initialize settings(00 : OIML , 01 : NTEP , 02: KOREA), Set AD as default (99), Set KEY as default (98)

4.2. C4 Setting

ER^{PLUS} stores optional settings by using hexadecimal number in C-4 menu. When you entered CAL-4, it will display hexadecimal number on the Total Price Display panel. For example, it displays B0 in C41 setting. $B0_{(16)}$ represents $10110000_{(2)}$ in the binary system. It means that scale has been set by (+/-)10% zero range, last digit invalid enable, (+/-)2% key zero percent, proper successive tare type and gross zero indication settings. Please refer to below table.

Bit	7(MSB)	6	5	4	3	2	1	0(LSB)
Value	1	0	1	1	0	0	0	0

4.2.1. C4-1 Setting (AD)

* Default values are highlighted

Bit	Set (1)	Clear (0)	Remark
7, 6	Initial Zero Range		00 : ±2%
			01 : ±3%
			10 : ±10%
			11 : ±5%
5	Last Digit Invalid Enable	Last Digit Invalid Disable	Same as 4-4 3rd bit
4	±2% Key zero percent	±3% Key zero percent	For Sri Lanka
3, 2	Successive Tare Type		00 : Proper
			01 : Positive Direction
			10 : Negative Direction
			11 : All Direction
1, 0	Zero mark type		00 : Gross zero indication
			01 : Net zero indication
			10 : Both zero indication

4.2.2. C4-2 Setting (Sale functions)

Bit	Set (1)	Clear (0)	Remark
7	USE PLU Valid date	Don't Use PLU Valid date	
6	Use PLU Tare	Don't Use PLU Tare	
5	Use PLU Name	Don't Use PLU Name	
4	Use Daily Total	Don't Use Daily Total	
3	Use Price Clear	Don't Use Price Clear	
2	Use Tare Clear	Don't Use Tare Clear	
1	Use Euro Conversion	Don't Use Euro Conversion	
0	Use Power On Euro Conversion	Don't Use Power On Euro Conversion	

4.2.3. C4-3 Setting (Sale functions)

Bit	Set (1)	Clear (0)	Remark
7	Dot type Comma	Dot type Dot	

6	Use Preset Tare	Don't Use Preset Tare	
5	Use Backlight	Don't Use Backlight	
4	Use Head Message	Don't Use Head Message	
3	Use Gram Unit	Don't Use Gram Unit	
2	Use Ounce Unit	Don't Use Ounce Unit	
1	Use Pound Unit	Don't Use Pound Unit	
0	Use Kilo Gram Unit	Don't Use Kilo Gram Unit	

4.2.4. C4-4 Setting (Sale functions)

Bit	Set (1)	Clear (0)	Remark
7	RESERVED		
6			
5, 4	Round Off		00 : Normal, Don't Use
			01 : 5
			10 : 10
			11 : 25
3	Last Digit Invalid Enable	Last Digit Invalid Disable	Same as 4-1 5th bit
2	Use Unit Price Per 100g	Use Unit Price Per 1kg	
1, 0	Price for Unit		00 : 10
			01 : 100
			10 : 1000
			11 : 10000

4.2.5. C4-5 Setting (Sale functions)

Bit	Set (1)	Clear (0)	Remark
7	RESERVED		
6, 5, 4	Price Decimal Position		000 : 0
			001 : 0.0
			010 : 0.00
			011 : 0.000
			100 : 0.0000
3	Use Canada Message	Don't Use Canada Message	Kg : METRIC, Lb : POUND
2	RESERVED		
1, 0	Usable Printer List		00 : Don't Use
			01 : DEP-50
			10 : DLP-50

4.3. SPAN Calibration Setting (C-3) *Set the CAL-10 setting first.

(1) Hold down " Calibration Switch" and " [POWER] key" to enter Calibration mode.
(2) Then, the scale displays " CAL 1" message after " ONE" message.
(3) Press [ZERO] key two times to display " CAL-3".
(4) Press [TARE] key and then it displays " zero " message.
(5) Press [TARE] key and then it displays " midup" message
(6) Load middle weight (ex:1/3 of full capacity) on the platform
(7) Press [TARE] key and then it displays " FULL " message
(8) Load full weight on the platform
(9) Press [TARE] key and then it displays " middn" message
(10) Load middle weight (ex:1/3 of full capacity) on the platform
(11) Press [TARE] key and then it display " CAL 3" message
* It uses 3 points calibration to weigh precisely. However, if you want to use 1 point calibration, set mid-value as " 0" in " CAL-10" setting.

4.4. Gravity Constant Value Setting (C-9)

Current gravitational Acceleration value is set to 9.7946 m/s^2.
(1) Hold down " Calibration Switch" and " [POWER] key" to enter Calibration mode.
(2) Then, the scale " CAL 1" message after " ONE" message.
(3) Press [ZERO] to display " C-9".
(4) Press [TARE] key, and then " G-1" message and " 9.7946" will be shown. G-1 means Gravity constant value at the location that the span of scale has been calibrated.
(5) Input a gravitational acceleration value by keypad and press [TARE] key to set.
(6) And then " G-2" message and " 9.7946" will be shown. G-2 means Gravity constant value in the location that the scale will be used. In this case, G-2 value is not modified yet.
(7) Input a gravitational acceleration value by keypad.
(8) Press [TARE] key to save the gravitational acceleration value, and then " C-9 " message will be shown. It indicates
(9) In addition, ER Plus will set G-1 value to G-2 value automatically when you recalibrate at the new place. Therefore, just set the G-1 value before calibrating the scale.

4.5. Calibration factor Setting (C-10) * Refer to CAL-10 Table.

(1) Hold down " Calibration Switch" and " [POWER] key" to enter Calibration mode.
(2) Then, the scale displays " CAL 1" message after " ONE" message.
(3) Press [ZERO] to display " C-10".
(4) Press [TARE] key, and then " UNIT " message and " 0" will be shown. The first digit," 0" It means calibration unit is " kg" (0 : kg, 1 : lb)

(5) Input a calibration unit by using keypad.

(6) Press [TARE] key to set the value, and then the scale displays " CAPA" and " 15". It means that full-capability is " 15 (calibration unit, kg or lb)"

(7) Input a capability by using [TARE] key.

(8) And then " mid" message is displayed. " 5" will be shown. It means that mid-capability is " 5 (calibration unit, kg or lb)"

(9) Input a mid-capability by using keypad.

(10) Press [TARE] key, and then " W-dP " message and " 3" will be shown. It means that weight decimal point is " 3 (will display 0.000)"

(11) Input a weight decimal point by keypad.

(12) Press [TARE] key, and then " 1d " message and " 0.005" will be shown. It means that the one division is " 0.005 (calibration unit, kg or lb)"

(13) Input an one division by using keypad.

(14) Press [TARE] key, and then " dual" message and " 1" will be shown. It means that dual interval is enabled. (0 : disable, 1 : enable)"

(15) Input a dual interval setting by using keypad.

(16) Press [TARE] key, and then " tare" message and " 0" will be shown. You can **enable or disable custom tare (0:disable, 1:enable)**

(17) Input a Tare Setting Enable by using [ZERO] key.

(18) Press [TARE] key, and then " 60000" will be shown. It means a Tare weight is Full Tare. (Enable set value: 0~60000, 30000: Half Tare, 60000: Full Tare)

(19) Press [TARE] key to save calibration factor and then " C-10 " message will be shown. Add to this you can browse any menu to reset value by using [ZERO]key and [-] or [CAN] key in the C-10 Mode.

* CAL-10 TABLE

CAPA(Kg)	Interval	Resolution	CAL 10 SETTING						
			Unit	CAPA	Mid	W-dp	1d	dual	tare
1	Dual	1/2000	3	1000	500	1	0.5	1	0 or 1
2	Single	1/10000	3	2000	1000	1	0.2	0	0 or 1
2	Dual	1/2000	0	2	1	3	0.001	1	0 or 1
3	Dual	1/3000	0	3	1	3	0.001	1	0 or 1
5	Single	1/10000	3	5000	2000	1	0.5	0	0 or 1
5	Dual	1/2500	0	5	2	3	0.002	1	0 or 1
6	Dual	1/3000	0	6	3	3	0.002	1	0 or 1
10	Single	1/10000	0	10	5	3	0.001	0	0 or 1
10	Dual	1/2000	0	10	5	3	0.005	1	0 or 1
12	Dual	1/2400	0	12	5	3	0.005	1	0 or 1
15	Dual	1/3000	0	15	5	3	0.005	1	0 or 1

20	Single	1/10000	0	20	10	3	0.002	0	0 or 1
20	Dual	1/2000	0	20	10	2	0.01	1	0 or 1
25	Dual	1/2500	0	25	10	2	0.01	1	0 or 1
30	Single	1/15000	0	30	10	3	0.002	0	0 or 1
30	Dual	1/3000	0	30	10	2	0.01	1	0 or 1
50	Dual	1/2500	0	50	20	2	0.02	1	0 or 1
60	Dual	1/3000	0	60	20	2	0.02	1	0 or 1
100	Dual	1/2000	0	100	40	2	0.02	1	0 or 1
150	Dual	1/3000	0	150	60	2	0.05	1	0 or 1
200	Dual	1/2000	0	200	100	1	0.1	1	0 or 1
300	Dual	1/3000	0	300	100	1	0.1	1	0 or 1
500	Dual	1/2500	0	500	200	1	0.2	1	0 or 1
600	Dual	1/3000	0	600	200	1	0.2	1	0 or 1
1000	Dual	1/2000	0	1000	500	1	0.5	1	0 or 1
2000	Dual	1/2000	0	2000	1000	0	1	1	0 or 1
3000	Dual	1/3000	0	3000	1000	0	1	1	0 or 1
5000	Dual	1/2500	4	5	2	3	0.002	1	0 or 1
10000	Dual	1/2000	4	10	5	3	0.005	1	0 or 1
15000	Dual	1/3000	4	15	5	3	0.005	1	0 or 1
20000	Dual	1/2000	4	20	10	2	0.01	1	0 or 1
30000	Dual	1/3000	4	30	10	2	0.01	1	0 or 1
50000	Dual	1/2500	4	50	20	2	0.02	1	0 or 1
60000	Dual	1/3000	4	60	20	2	0.02	1	0 or 1

Unit	Meaning	Remark
0	Kilo gram	
1	Pound	
3	Gram	
4	Ton	

CAPA	Max capa
Mid	Mid capa
W-dp	Position of decimal point
1d	Actual scale interval
dual	Dual Interval setting (1: use, 0: nonuse)
tare	Tare setting (1: Custom, 0: Proper)
"W-dp" and "1d" are high interval in dual.	

4.6. Displaying Raw A/D Value (C-5)

It displays Raw AD value. This value is used to check status of Load cell when displayed weight is unstable.

4.7. Allocate Function Key Codes to Changeable keys (C-6)

(1) Under the calibration switch on and press [POWER] key.

(2) Move to C-6 Mode by pressing [ZERO] or [-] or [CAN] key and press [TARE] key to enter the mode.

(3) " E-SET" will be displayed on the weight window.

(4) Input " Soft Key Code" in the following table.

(5) Input the number ' 16' as SOFT KEY CODE and then press [ADD] or [+] key. That means, allocate " add" function to [ADD] or [+] key.

(6) Press ' C' key to exit from " Input Soft Key Code" mode.

NOTE: User doesn't need MATRIX KEY CODES to input soft key code, because MATRIX KEY CODES are fixed in hardware.

* CHANGEABLE KEYS & SOFT KEY CODES

FUNCTION	SOFT KEY CODES	REMARK
"00"	11	
ADD	16	
FIXED ADD	17	
SUM	18	
PAY	19	
PLU CALL	20	
PLU SAVE	21	
CANCLE	22	
MODE	23	
1/2	24	
1/4	61	25 (in previous version)
PRE PACK	26	
UNIT CHANGE (KG/LB)	27	
DISPLAY TEST	28	
HOLD	29	
PRINT ENABLE	30	
NO FUNCTION	31	
EURO	60	
PERCENT TARE	62	
TARE SAVE	63	

BOTH SAVE	64	
PERCENT TARE SET	65	
MUL "X"	66	
100 gram	67	
BATTERY CHECK	70	
BACK LIGHT ON/OFF	71	
STAR	80	
SET	81	
SAMPLE	82	
PRINT	83	
CLERK 1^{ST}~5^{TH}	84~88	
OPEN CLERK	89	
SEND CLERK	90	
SEND BARCODE	91	
DIRECT PLU	128~168	

* FIXED KEYS & THEIR SOFT KEY CODES

KEYS	MATRIX KEY CODES	SOFT KEY CODES
"0"	20	0
"1"	15	1
"2"	16	2
"3"	17	3
"4"	10	4
"5"	11	5
"6"	12	6
"7"	5	7
"8"	6	8
"9"	7	9
"C"	21	10
"ON/OFF"	24	12
"ZERO"	22	13
"TARE"	23	14

4.8. Percent Calibration (C-7)

(1) Hold down " Calibration Switch" and " [POWER] key" to enter Calibration mode.
(2) Then, the scale displays " CAL 1" message after " ONE" message.
(3) Press [ZERO] key to display " CAL-7".
(4) Press [TARE] key and then it displays " PER" and " 5" message. Select the percent value using numerical keypad. You can choose 5~90 percent.
(5) Press [TARE] key and then it displays " zero" message
(6) Press [TARE] key and then it displays " pspan " message
(7) Load chosen percentage weight of full weight on the platform
(8) Press [TARE] key and then it displays " CAL 7" message

4.9. Battery Calibration (C-8)

* AP Model can not use this function. (AP Model use AC Power)

5. Servicing & Parts Replacement

5.1. Trouble shooting

SYMPTOM	PROBABLE CAUSE	REMEDY
ERROR 0 (unstable error)	1)The Scale is not put on the flat part. 2)A Vibration or wind is exist around The Scale.	- Check a foot. (Foots are must all touched in flat part.) -Check a PCB's field ground. (Field ground is must connected to platform.) - Move the scale to the stable place.
ERROR 1(initial zero)	1)The Scale is not operate Calibration 2)Cable is not connected between Loadcell and PCB.	-Operate Calibration. -Check a L/C and PCB. (L/C and PCB are must connected.)
Batt -> Error 0	1)ONEMODULE(A/D Converter) is damaged. 2)The Scale is not operate Battery Calibration	-Check a battery voltage(C-8) and then operate a battery calibration. -Check the A/D value. (C-1) If

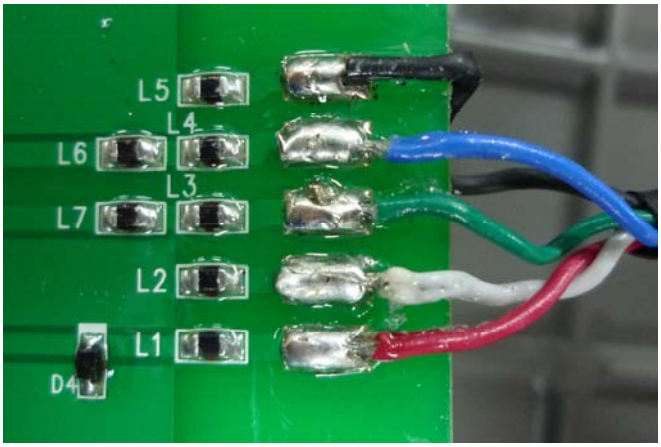
		place a weight, A/D value have to changed.
NOT OPERATION(POWER OFF)	1)Power ON/OFF Key is damaged. 2) Battery discharge or not connected. 3)Fuse is down.(Open) 4)Power cable is down.	-Check a output voltage, holding a Tact S/W. -Check a battery connection and Battery voltage. -Check a fuse connection

5.2. Error Message

오류 종류(ERROR)	원인(REASONS)	(SOLUTION)
"Err 0"	The "Err 0" occurs when scale is not stable.	Remove unstable facts.
"Err 1"	The "Err 1" occurs when a current zero point has shifted from the last span calibration.	Please call your CAS dealer.
"Err 2"	The "Err 2" is not a real error. Only it prompts return CAL switch to the normal position.	Please call your CAS dealer.
"Err 3"	The "Err 3" is an overload error.	Please remove the weight.
"Err 9"	The "Err 9" is no weight error. When scale is in counting mode, you must load the weight. If you have no weight on your scale, you can see this error message.	Please load the weight on your tray.
“Err 11”	The "Err 11" means a writing error of the internal nonvolatile memory. To recognize this error, be sure to check the voltage on the circuit and do calibration procedures.	If it still has "Err 11", replace the digital module.
“Err 12”	The "Err 12" warns that the scale has lost the parameters for weighing regulations or has lost the factors for a digital span calculation.	Enter each condition codes again. Please try a span calibration again if still not fixed.
“Err 14”	The "Err 14" means calibration range is not correct.	Please call your CAS dealer.

5.3. The way to exchange parts

5.3.1. To change Load cell

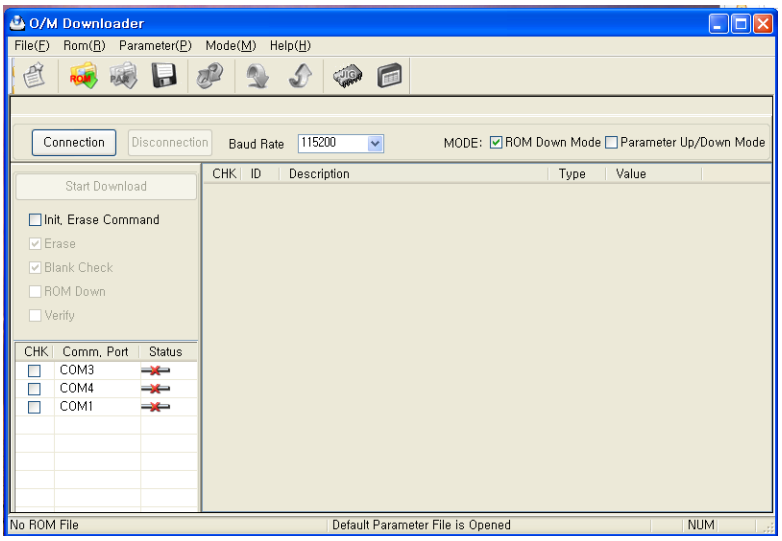


Connect RED wire to L1, WHITE to L2, GREEN wire to L3, BLUE wire to L4 and BLACK wire to L5 using solder.

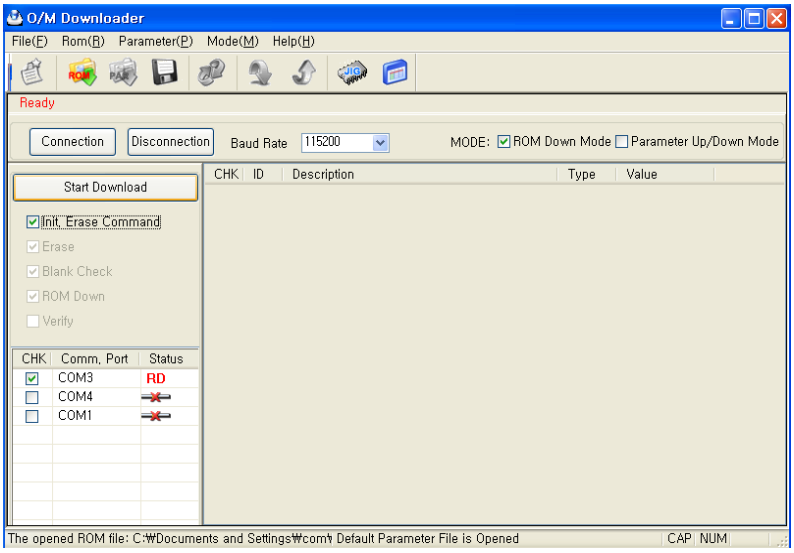
6. Update

6.1. ROM Download Method

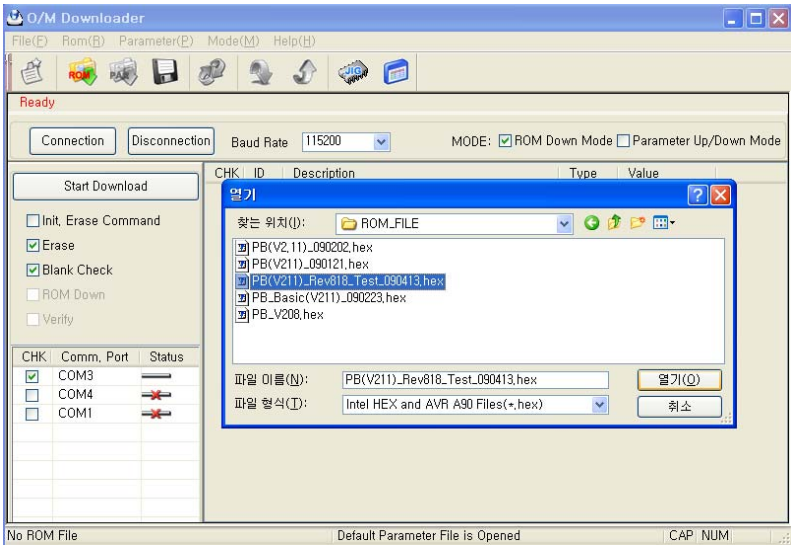
(1) Connect a RS-232C Cable, between the scale and PC and then excute a O/M Downloader program.



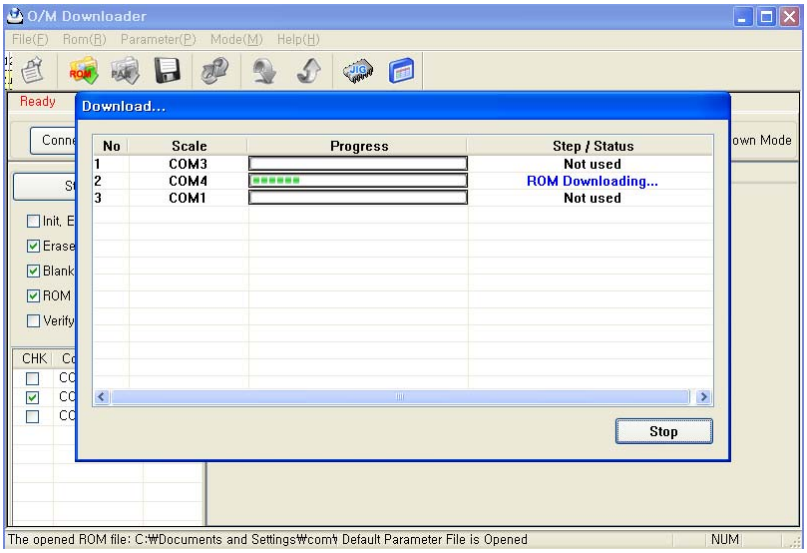
(2) Check a ‘Communication port’ and click the ‘Init. Erase Command’. And then Click the ‘Start Download’, Communication port will be “Ready” status.



(3) Push a 'Open ROM File' button and then open the ROM File.

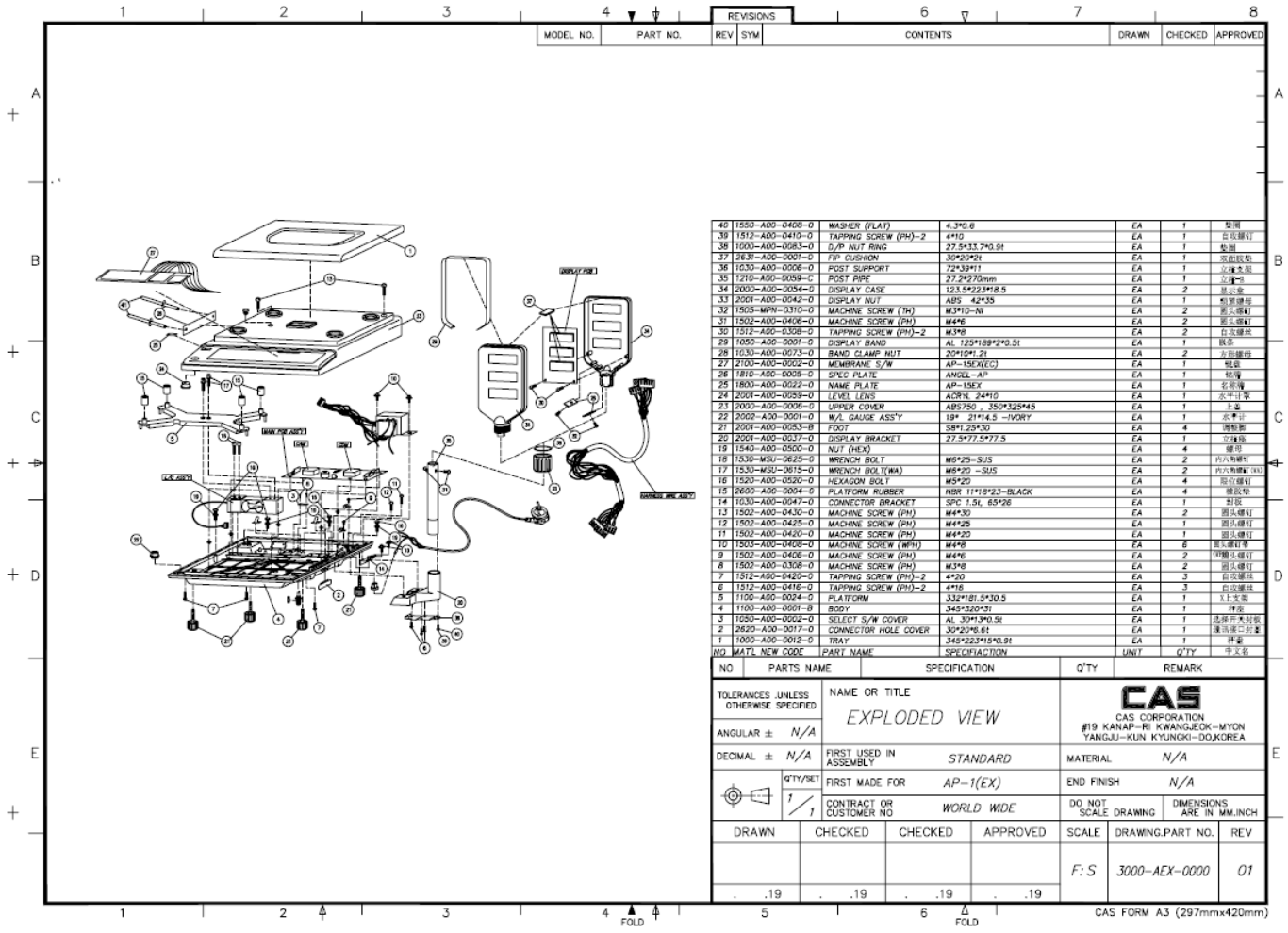


(4) If click the 'Start Download' holding a power ON/OFF key, You will see ROM Downloading display and then ROM download will be finished.



7. Exploded View & Part List

7.1. Exploded View



NO	MODEL NO.	PART NO.	REV	SYM	CONTENTS	DRAWN	CHECKED	APPROVED
					REVISIONS			

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	中文名
40	1550-A00-0408-0	WASHER (FLAT)	4.3*0.8	EA	1	垫圈
39	1512-A00-0410-0	TAPPING SCREW (PH)-2	4*10	EA	1	自攻螺钉
38	1000-A00-0083-0	D/P NUT RING	27.5*33.7*0.9t	EA	1	垫圈
37	2631-A00-0001-0	FIP CUSHION	30*20*21	EA	1	双面胶垫
36	1030-A00-0006-0	POST SUPPORT	72*39*11	EA	1	立柱支架
35	1210-A00-0059-C	POST PIPE	27.2*270mm	EA	1	立柱管
34	2000-A00-0054-0	DISPLAY CASE	123.5*223*18.5	EA	2	显示盒
33	2001-A00-0042-0	DISPLAY NUT	ABS 42*35	EA	1	显示螺母
32	1505-MPH-0310-0	MACHINE SCREW (TH)	M3*10-NI	EA	2	圆头螺钉
31	1502-A00-0406-0	MACHINE SCREW (PH)	M4*6	EA	2	圆头螺钉
30	1512-A00-0308-0	TAPPING SCREW (PH)-2	M3*8	EA	2	自攻螺丝
29	1050-A00-0001-0	DISPLAY BAND	AL 125*189*2*0.5t	EA	1	铁条
28	1030-A00-0073-0	BAND CLAMP NUT	20*10*1.2t	EA	2	方形螺母
27	2100-A00-0002-0	MEMBRANE S/W	AP-15EX(EC)	EA	1	贴膜
26	1810-A00-0005-0	SPEC PLATE	ANGEL-AP	EA	1	铭牌
25	1800-A00-0022-0	NAME PLATE	AP-15EX	EA	1	名称牌
24	2001-A00-0059-0	LEVEL LENS	ACRYL 24*10	EA	1	水平计罩
23	2000-A00-0006-0	UPPER COVER	ABS750 , 350*325*45	EA	1	上盖
22	2002-A00-0001-0	W/L GAUGE ASS'Y	19* 21*14.5 -IVORY	EA	1	水平计
21	2001-A00-0053-B	FOOT	58*1.25*30	EA	4	调整脚
20	2001-A00-0037-0	DISPLAY BRACKET	27.5*77.5*77.5	EA	1	立座板
19	1540-A00-0500-0	NUT (HEX)		EA	4	螺母
18	1530-WSU-0625-0	WRENCH BOLT	M6*25-SUS	EA	2	内六角螺钉
17	1530-WSU-0615-0	WRENCH BOLT(WA)	M6*20 -SUS	EA	2	内六角螺钉(垫)
16	1520-A00-0520-0	HEXAGON BOLT	M5*20	EA	4	双位螺钉
15	2600-A00-0004-0	PLATFORM RUBBER	NBR 17*18*23-BLACK	EA	4	橡胶垫
14	1030-A00-0047-0	CONNECTOR BRACKET	SPC 1.5t, 65*26	EA	1	封板
13	1502-A00-0430-0	MACHINE SCREW (PH)	M4*30	EA	2	圆头螺钉
12	1502-A00-0425-0	MACHINE SCREW (PH)	M4*25	EA	1	圆头螺钉
11	1502-A00-0420-0	MACHINE SCREW (PH)	M4*20	EA	1	圆头螺钉
10	1503-A00-0408-0	MACHINE SCREW (WPH)	M4*8	EA	6	圆头螺钉带
9	1502-A00-0406-0	MACHINE SCREW (PH)	M4*6	EA	2	圆头螺钉
8	1502-A00-0308-0	MACHINE SCREW (PH)	M3*8	EA	2	圆头螺钉
7	1512-A00-0420-0	TAPPING SCREW (PH)-2	4*20	EA	3	自攻螺丝
6	1512-A00-0416-0	TAPPING SCREW (PH)-2	4*16	EA	3	自攻螺丝
5	1100-A00-0024-0	PLATFORM	332*181.5*30.5	EA	1	支上支架
4	1100-A00-0001-B	BODY	345*320*31	EA	1	件座
3	1030-A00-0002-0	SELECT S/W COVER	AL 30*13*0.5t	EA	1	选择开关封板
2	2620-A00-0017-0	CONNECTOR HOLE COVER	30*20*6.6t	EA	1	接插座口封盖
1	1000-A00-0012-0	TRAY	345*223*15*0.9t	EA	1	件盒

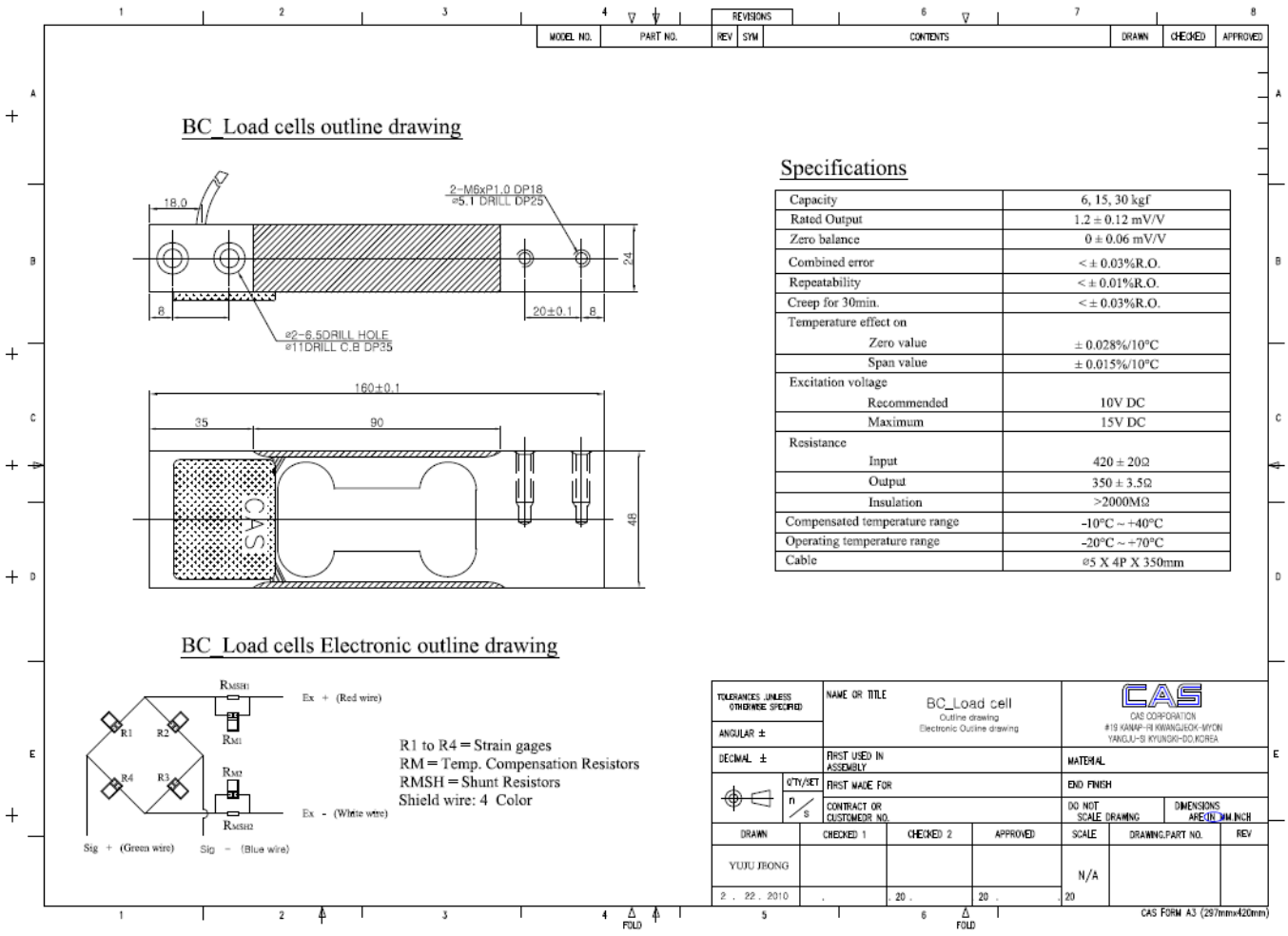
NO	PARTS NAME	SPECIFICATION	Q'TY	REMARK

TOLERANCES UNLESS OTHERWISE SPECIFIED	NAME OR TITLE: EXPLODED VIEW	CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO,KOREA	
ANGULAR ± N/A			
DECIMAL ± N/A	FIRST USED IN ASSEMBLY: STANDARD	MATERIAL: N/A	
Q'TY/SET: 1/1	FIRST MADE FOR: AP-1(EX)	END FINISH: N/A	
	CONTRACT OR CUSTOMER NO: WORLD WIDE	DO NOT SCALE DRAWING	DIMENSIONS ARE IN MM,INCH

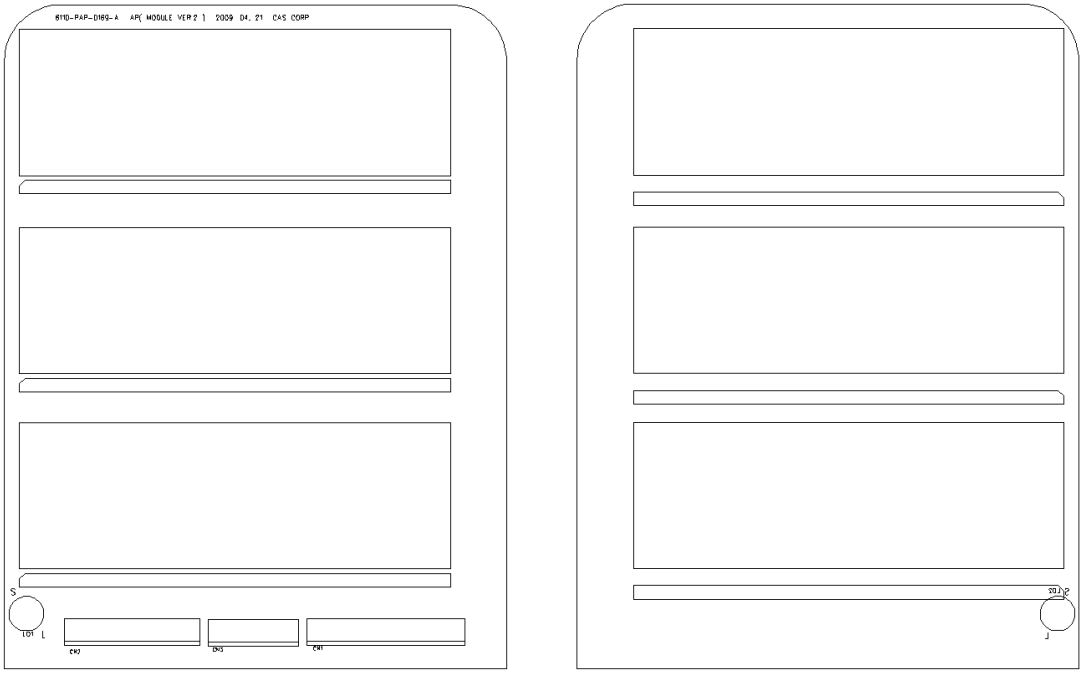
DRAWN	CHECKED	CHECKED	APPROVED	SCALE	DRAWING.PART NO.	REV
.19	.19	.19	.19	F:S	3000-AEX-0000	01

CAS FORM A3 (297mmx420mm)

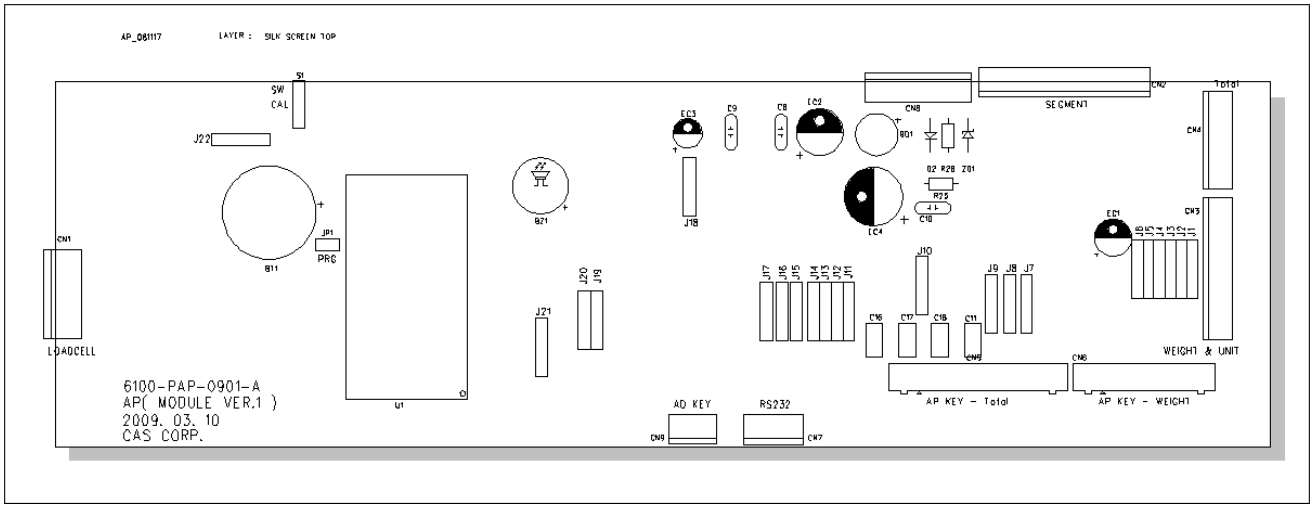
7.2. Loadcell Ass'y

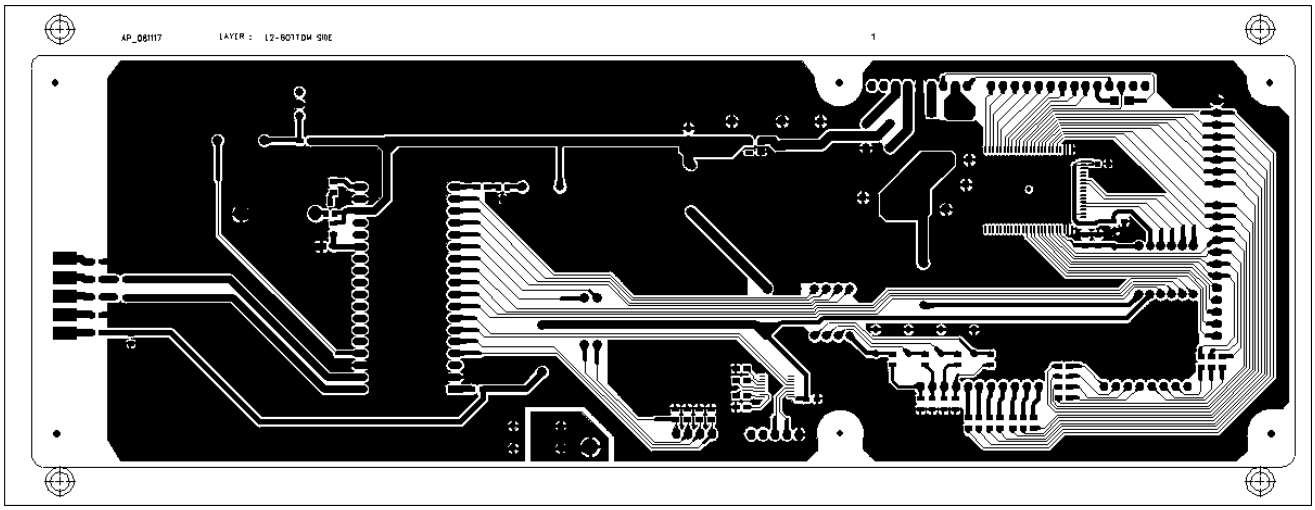


7.3. Display PCB(TOP & BOTTOM)

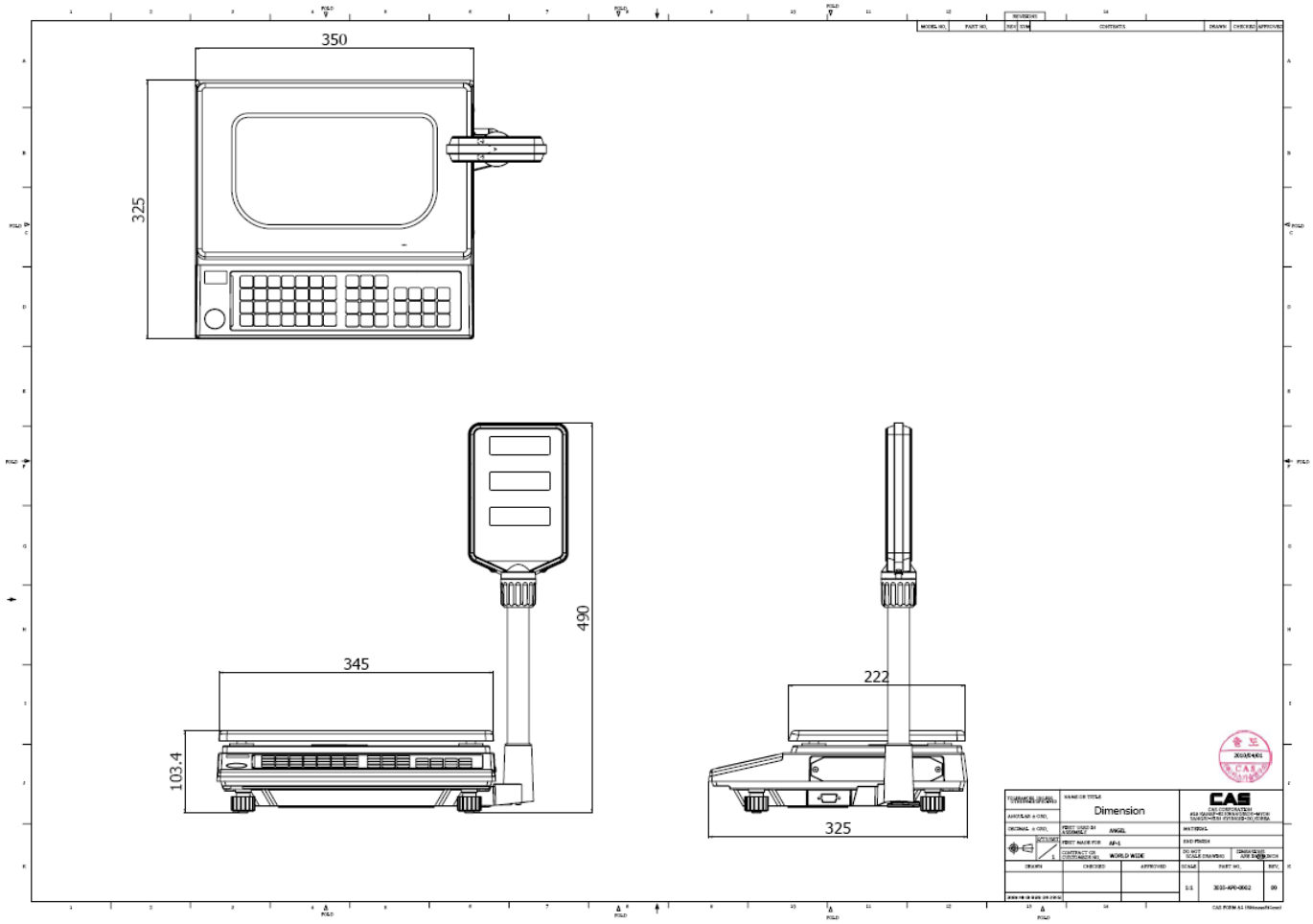


7.4. MAIN PCB(TOP & BOTTOM)





7.5. SCALE DIMENSION



7. Parts List

ASS'Y CODE	ASS'Y NAME	PART CODE	PART NAME	SPECIFICATION	Q'ty
110AP1MBODUN0109	BODY ASS'Y	1000A0000150	TRAY	440*330*55*1.5T(ANGLE,GREECE)	1
		1030A0000060	POST SUPPORT	72.0*39.0*11.0(ANGEL)	1
		1100AZ100240	PLATFORM	ANGEL (일반) 샌딩	1
		1502A0004200	SCREW-MACHINE(PH)	M4*20	1
		1502A0004250	SCREW-MACHINE(PH)	M4*25	1
		1502A0004300	SCREW-MACHINE(PH)	M4*30	2
		1503A0004080	SCREW-MACHINE(WPH)	M4*8	1
		1503A0004120	SCREW-MACHINE(WPH)	M4*12	2
		1510A0004160	SCREW-TAPPING(PH)-1	M4*16	2
		1510A0004200	SCREW-TAPPING(PH)-1	M4*20	3
		1530MSU06250	BOLT-WRENCH	M6*25-SUS	2
		1535MSU06200	BOLT-WRENCH(WA)	M6*20-SUS	2
		2001A0000370	BRACKET-DISPLAY	ø27.5*77.5*77.5-ANGEL	1
		2022A0000011	WATER LEVEL GAGE ASS'Y	ø18.9*23*12.6(IVORY)상보	1
		7642S0000070	CABLE CLAMP	DA-6N	1
		7642S0000600	METAL CLAMP	6N	2
		7650S0000100	TIE BAND	100mm	4

ASS'Y CODE	ASS'Y NAME	PART CODE	PART NAME	SPECIFICATION	Q'ty
110AP1MCTBUN0109	C/T BOX ASS'Y	1503A0004080	SCREW-MACHINE(WPH)	M4*8	1
		1510A0004120	SCREW-TAPPING(PH)-1	M4*12	1
		2002A0000020	SPAN COVER	NYLON#6ø23*10*165	1
		7620S0502500	FUSE	250mA/250V ø5 UL,S,VDE,BSI	1
		9002AP200330	MANUAL	AP 통합(영문, ONEMODULE)	1
		9100AP001330	C/T BOX	505*385*205(CAS)ANGEL	1
		9100AP002300	C/T BOX	525*405*450(ANGEL-2)	0.5
		9102AP001000	PAD	495*375(ANGEL)	1
		9201AS200020	STYROFOAM PAD	155*100*20t	1
		9203AS00004A	STYROFOAM BOX	380*170*220 ANGEL-L	1
		9203AS00005A	STYROFOAM BOX	380*170*220 ANGEL-R	1
		9206AS000110	STYROFOAM BOX	599*440*54(AP-MX,상)	1
		9206AS000120	STYROFOAM BOX	599*440*125(AP-MX,하)	1
		9300A0000020	POLY BAG	90*150*0.05T(FUSE)	1
		9301A0000030	POLY BAG	170*250*0.05T(MANUAL)	1

		9301A0000040	POLY BAG	190*260*0.03T(DISPLAY)	1
		9305A000001B	POLY BAG	500*650*0.04T(S2000)(SET,HD)	1
		9400A0000460	SILICAGEL	10g	2

ASS'Y CODE	ASS'Y NAME	PART CODE	PART NAME	SPECIFICATION	Q'ty
110AP1MDICUN0109	DISPLAY CASE ASS'Y	1000A0000830	DISPLAY NUT RING	ø27.5*ø33.7*0.9T	1
		1030A000073A	BAND CLAMP NUT	20.0*10.0*1.2T*M3	2
		1050A0000010	DISPLAY BAND	AL125*189*2*0.5T	1
		1210A000059D	POST PIPE	Φ27.2*270*0.8T(ANGEL)	1
		1502A0004060	SCREW-MACHINE(PH)	M4*6	2
		1505MPN03100	SCREW-MACHINE(TH)	M3*10-NI	2
		1510A0003080	SCREW-TAPPING(PH)-1	M3*8	2
		2001A0000420	DISPLAY NUT	ø42*35(ABS)	1
		2631A0000010	CUSHION-VFD	30*20*2T	1
		7650S0000100	TIE BAND	100mm	1
		7830W0030650	HARNESS WIRE	30P*650mm(AP)	1

ASS'Y CODE	ASS'Y NAME	PART CODE	PART NAME	SPECIFICATION	Q'ty
110AP1MUPCUN0109	UPPER CASE ASS'Y	1563A0003080	RIVET	@3.2*8	2
		1800APM0000A	NAME PLATE	AP-M(양면테잎용)ENGLISH	1
		1810AP000330	SPEC PLATE	AP-1(영공)MADE IN KOREA	1
		2001A0000590	LENS	ACRYL ø24*10(ANGEL)	1
		2004A0000860	UPPER CASE	350*325*45(M)(난연)	1
		2100AMX00332	MEMBRANE S/W	AP-MX(영공,sum)	1

ASS'Y CODE	ASS'Y NAME	PART CODE	PART NAME	SPECIFICATION	Q'ty
110AP1SBODUN0109	BODY ASS'Y	1030A0000470	CONNECTOR BRACKET	65*26*1.5T(ANGEL) (외주)	1
		1050A0000021	SELECT S/W COVER	AL31*12.2*0.5t (외주)	1
		1100A000001B	BODY	AL345*320*31(일반공용)(외주)	1
		1261A0000090	BOLT-LIMIT	M5*0.8*9.2(BSBM 6Kg)(AP)(외주)	1
		1502A0003080	SCREW-MACHINE(PH)	M3*8 (외주)	2
		1502A0004080	SCREW-MACHINE(PH)	M4*8	1
		1503A0004080	SCREW-MACHINE(WPH)	M4*8	2
		1520A0005200	BOLT-HEXAGON	M5*20	4
		1540A0005000	NUT(HEX)	M5*0.8	4
		2001A000053B	FOOT	M8.0*1.25*30.0(ANGEL)(외주)	4
		2013A0000060	HARNESS HOLE COVER	PE 43*23*6.7(AP,AD,ADH,CS)외주	1

		2013A0000080	CONNECTOR HOLE COVER	PE 30*16*7.5T-ANGEL	1
		7502PAP02200	POWER TRANS(48)	220V/50~60Hz(AP) (외주)	1
		7560PAC00030	POWER CORD	SP-14(30/2.5)(내수)	1
		7620S0502500	FUSE	250mA/250V ø5 UL,S,VDE,BSI	1
		7630S0000020	FUSE HOLDER	FH-02A(LOCK-TYPE)	1
		7640S0006040	CORD STOPPER	SR-6N-4	1
		7650S0000110	TIE BAND	PMT-152	4
		7702G0000060	PCB SUPPORT	6N-(T)	4
		7704G0000400	SLEEVE	DDITC-SQ1.25(투명파랑)UL	7
		7760GND01250	EARTH TERMINAL	4ø*1.25m/m	1
		7870W0000700	LEAD WIRE	0.18*20C*110M/M(BLACK)(MW)	1
		7832W0014180	D-SUB CONNECTOR WIRE	D9P*5P*180(AP-RS232)	1

8. Revision

NO	변경 사유(CAUSE)	DATE	변경자 (APPROVAL)	
1	제품 사양 추가 및 기능 수정	2010.5.11	김광현	