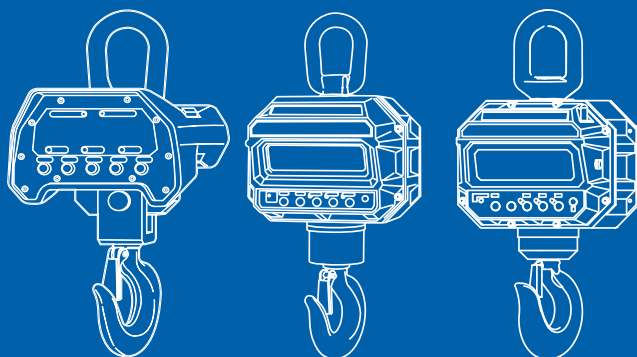


CASTON II/III/III PLUS

Crane Scale



CAS

CONTENTS

1. PRECAUTIONS.....	6
2. OVERALL VIEW	7
3. DISPLAY & KEY FUNCTIONS.....	10
4. BATTERY USAGE	12
5. FUNCTIONS & DESCRIPTIONS.....	15
6. SET Mode Description.....	17
(1) AP MODE	17
(2) SB MODE	17
(3) BA MODE	18
(4) CO MODE	18
(5) ID MODE.....	19
(6) BR MODE	19
(7) OP MODE	20
(8) CH MODE	20
(9) PANID MODE	21
(10) HL MODE	21
7. Communication Protocol & Command.....	23
8. REMOTE CONTROL.....	24
9. TW-100 (OPTION)	25
10. TWN (OPTION).....	26
11. PRODUCT SIZE	27
12. ERROR MESSAGE	32

Warning

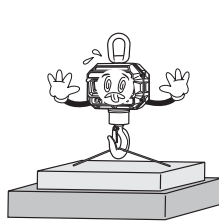
Turn power switch off on rear panel when you don't use the scale for a long time.

Do not disassemble the scale.

When any damage or defect occurs, contact your CAS authorized dealer immediately for proper repair.

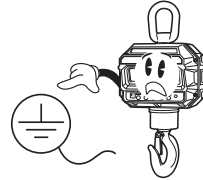


Do not overload beyond the maximum weight limit.



Scale must be grounded to minimize electricity static.

This will minimize defect or electric shock.

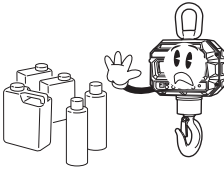


Do not pull the plug by its cord when unplugging.

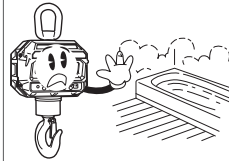
Damaged cord could cause electric shock or fire.



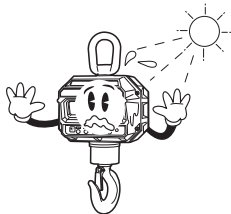
To prevent from fire occurring, Do not place or use the scale near flammable or corrosive gas.



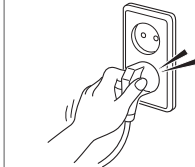
To reduce electric shock or incorrect reading, Do not spill water on the scale or place it in humid condition.



Avoid placing the scale near heater or in direct sunlight.

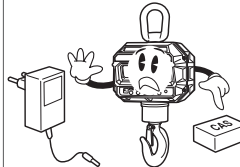


Insert plug firmly to wall outlet to prevent electric shock.



Use proper Adapter.

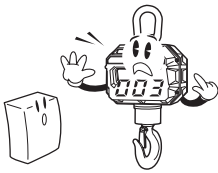
Incorrect adapter could damage the scale.



Attention

Do not stand under the scale while weighing the load, and you should be careful to provide against a safety accident. To install, safety pin in hook should be fixed to prevent dropping out from lift eye bolt.

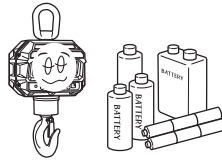
For consistent and accurate reading, maintain periodical check by your CAS authorized dealer.



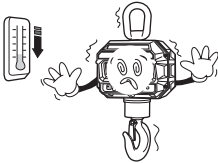
Avoid sudden shock to the scale.



Take the battery out when scale is not in use for long time. Leakage from the batteries is hazardous.

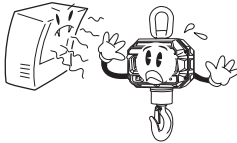


Place the scale on firm and temperature consistent environment.



Keep the scale away from other electromagnetic generating devices.

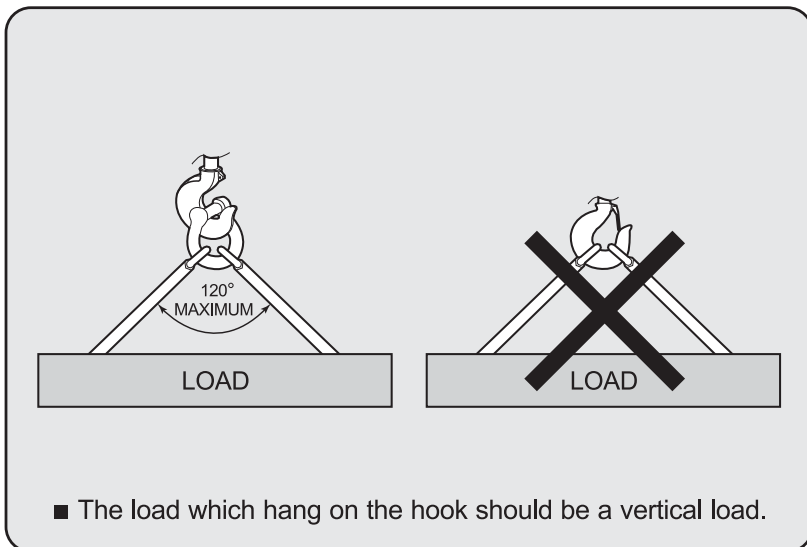
This may interfere with accurate reading.



1. PRECAUTIONS

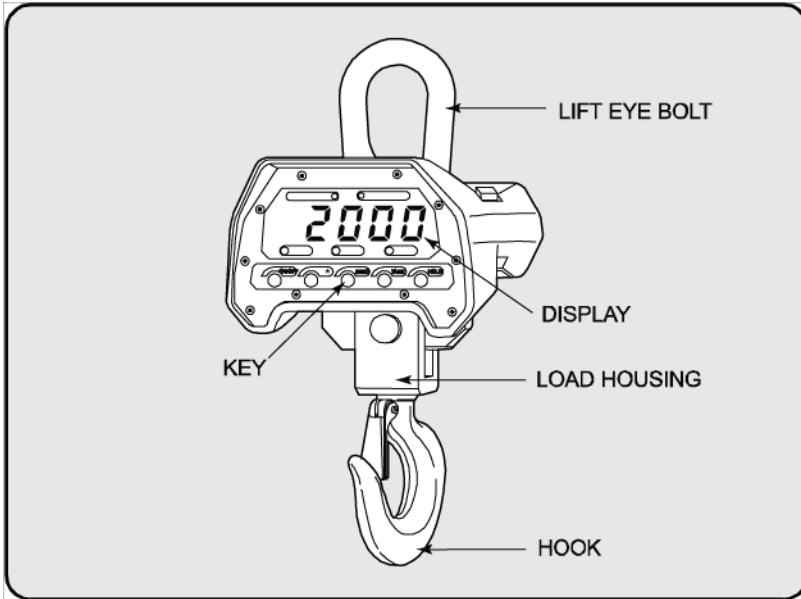


WARNING: The load which hang on the hook should be a vertical load. (Refer to the next features.)



2. OVERALL VIEW

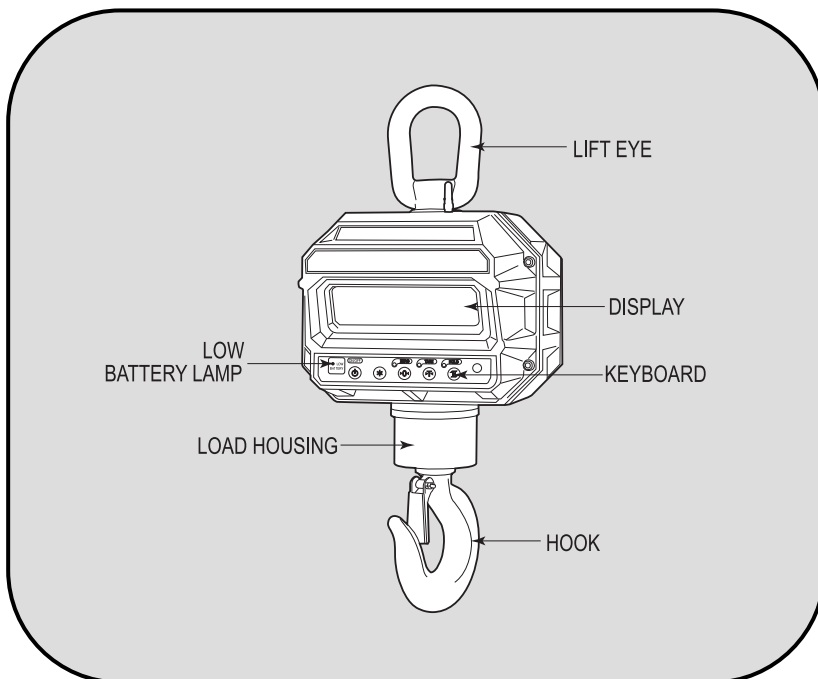
(1) CASTON II



SPECIFICATIONS

MAX. TARE WEIGHT	FULL TARE
DISPLAY	L.E.D(1.2 inch)
OPERATION TEMPERATURE	- 10℃ ~ +40℃
POWER SOURCE	DC 6 V Rechargable Battery / AC Adaptor
POWER CONSUMPTION	0.6 ~ 1W
DISPLAY LAMP	ZERO, TARE, HOLD, LOW BATTERY LAMP
CONTINUOUS USING TIME	60 HOURS

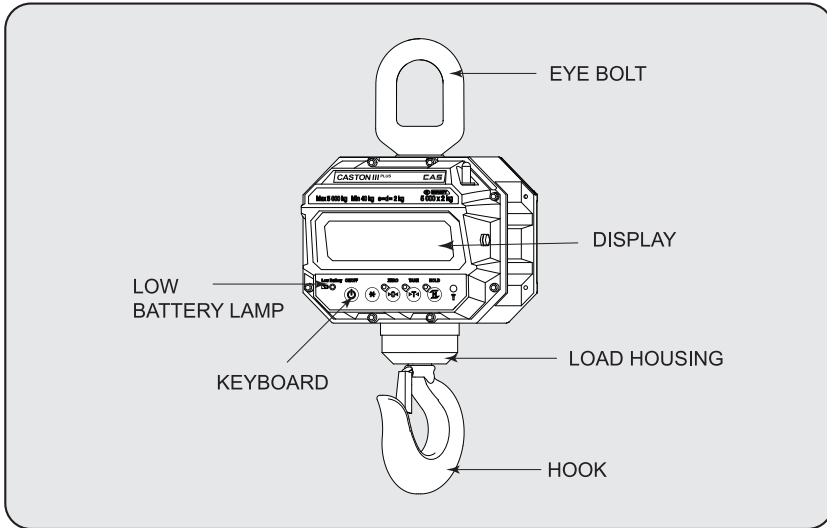
(2) CASTON III



SPECIFICATIONS

MAX. TARE WEIGHT	FULL TARE
DISPLAY	L.E.D(1.5 inch)
OPERATION TEMPERATURE	- 10°C ~ +40°C
POWER SOURCE	DC 12 V Rechargeble Battery / AC Adaptor
POWER CONSUMPTION	1.2 ~ 2.4W
DISPLAY LAMP	ZERO, TARE, HOLD, LOW BATTERY LAMP
CONTINUOUS USING TIME	40 HOURS

(3) CASTON III PLUS

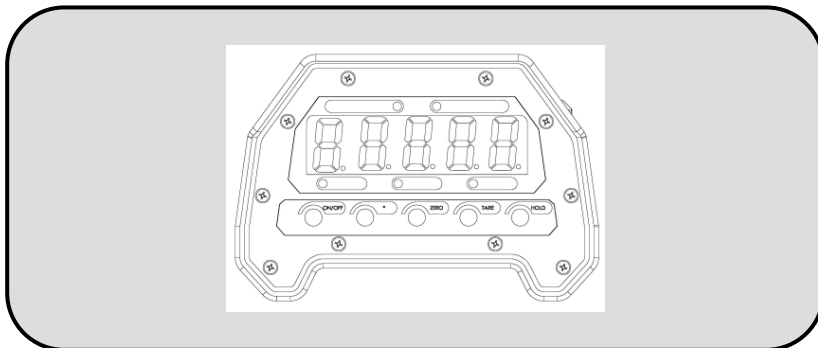


SPECIFICATIONS

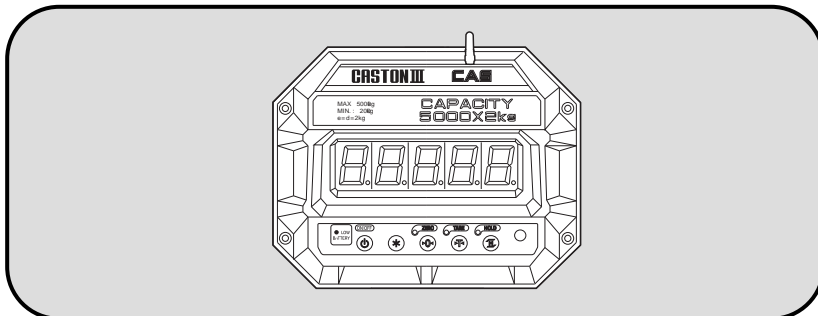
MAX. TARE WEIGHT	FULL TARE
DISPLAY	L.E.D(1.5 inch)
OPERATION TEMPERATURE	- 10°C ~ +40°C
POWER SOURCE	DC 12 V Rechargeble Battery / AC Adaptor
POWER CONSUMPTION	1.2 ~ 2.4W
DISPLAY LAMP	ZERO, TARE, HOLD, LOW BATTERY LAMP
CONTINUOUS USING TIME	40 HOURS

3. DISPLAY & KEY FUNCTIONS

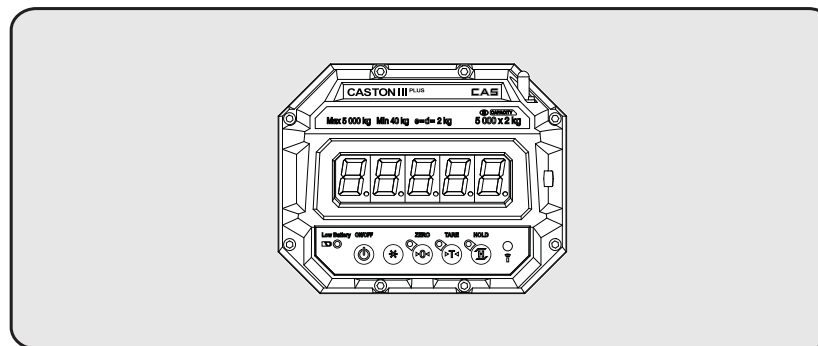
*CASTON II



*CASTON III



*CASTON III PLUS



■ DISPLAY

WEIGHT DISPLAY: Displays weight or messages (5 Digit).






ZERO LAMP: Indicates that scale is stable and at zero.

NET LAMP: Indicates that scale is currently using a tare.

HOLD LAMP: Indicates that the HOLD function is activated.

LOW BATTERY LAMP: Indicates that voltage of battery low and should be changed soon.

■ KEY FUNCTIONS

KEYS	FUNCTIONS
	Used to turn the scale ON / OFF or used to released from AP/HL mode
	Used to reset the scale zero or enter the AP mode
	Used to activate tare function and to clear tare entry
	Used to weigh unstable things (livestock, liquid, etc.) or used to store the set value in 'AP/HL' mode
	Used to increase the set value in 'AP/HL' mode

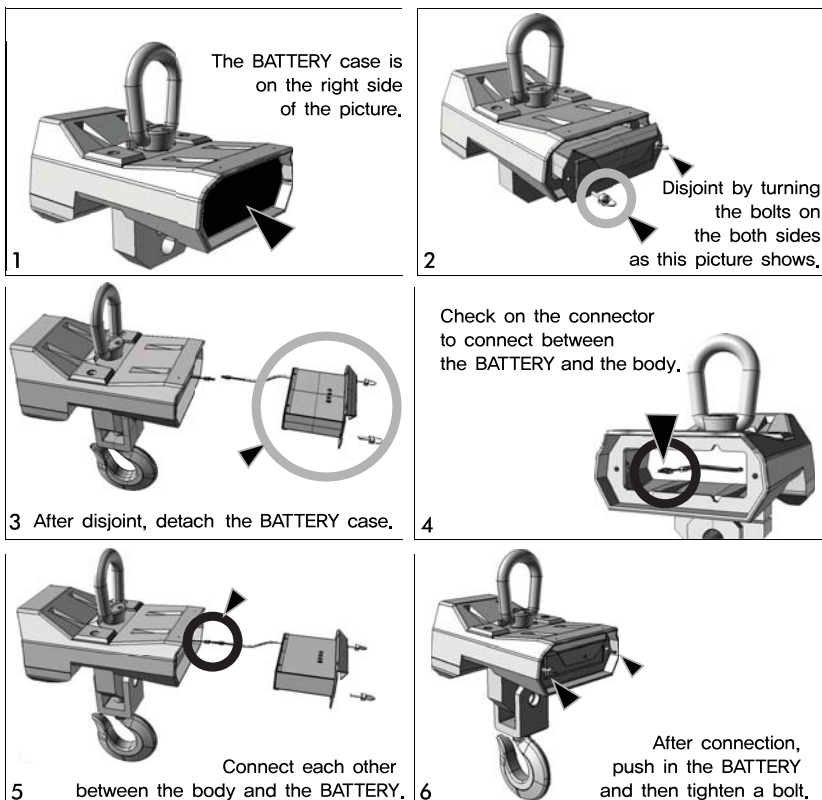


WARNING: Do not press the keys with excessive force, the keys are to be pressed with a soft touch.

4. BATTERY USAGE

(1) CASTON II

- Couple connector in main body with connector in battery portion.
- Insert battery portion to the main body and turn fixing bolt to the right to fix.



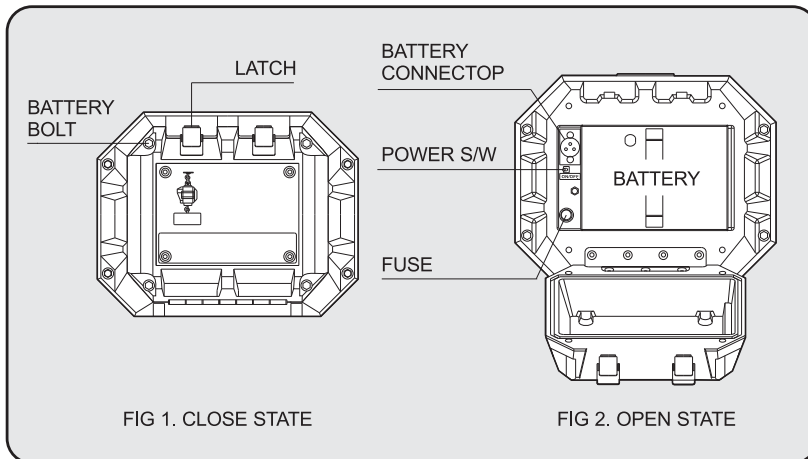
* From now on when we deliver the goods to you, batteries are separated to prevent from discharging batteries of CASTON II.

* After opening a box of the product, you should connect a battery referring to the above content.

(2) CASTON III

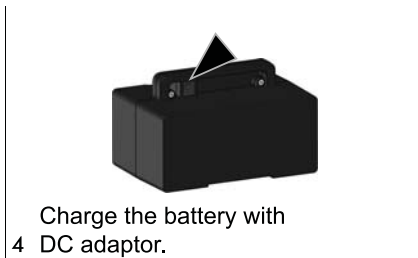
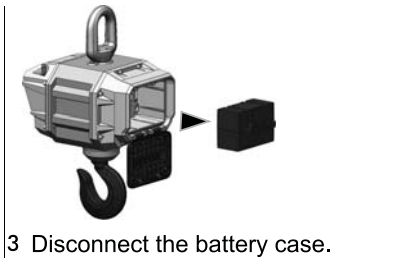
- Open the battery lid located in back of the scale and turn main switch off.
- Separate the battery connector and take out the discharged battery.
- Put a charged battery in rear and connect the battery connector.
Turn main power switch on and cover the battery lid.

- **The drop of battery voltage can affect the brightness of display.
To prevent this, the regular battery recharging is recommended.**
- **In case the battery will be left without recharging for a long time, it is desirable the main power switch is set off. Otherwise, it also can affect the battery life.**



(3) CASTON III PLUS

- The drop of battery voltage can affect the brightness of display.
To prevent this, the regular battery recharging is recommended.
- In case the battery will be left without recharging for a long time, it is desirable the main power switch is set off. Otherwise, it also can affect the battery life.



(4) USE OF BATTERY CHARGER

- Check the voltage of battery charger before use.
(It is fixed to 220V before shipping)
- Insert charger A.C cord into the power source and connect the discharged battery to the connector.
- Turn ON the switch on the battery charger, charging will start with Yellow lamp (CHARGE) turn on.
- When the charging is completed, GREEN lamp (FULL) turns on.
- Estimated time for charging is 6 hours (CASTON II).
Estimated time for charging is 10 hours (CASTON III).
Estimated time for charging is 8 hours (CASTON III PLUS).
(Charging time can be varying according to the battery condition.)
- Using period when the battery is charged fully: About 15~30 hours

5. FUNCTION & DESCRIPTIONS

1. POWER ON

- Press the ON key located in real panel of the scale.
(While the power is off, the ON/OFF key on the remote control wouldn't operate.)
- Press **ON/ OFF** key.
- LED display will be on and then, it will show from 00000 to 99999 continuously

2. POWER OFF

- Press ON/OFF key
- LED display will show off message and then power turns off

3. ZERO FUNCTION

- Used to correct drifted zero value when the scale is unloaded motion is not detected
You can adjust the zero up to $\pm 2\%$ of the maximum capacity
- The function does not work when weight is fluctuated or unstable.

4. TARE FUNCTION

- Use tare function after removing the weighing material from container being used.
- The function does not work when weight is fluctuated or unstable.
- The weight including TARE weight can't exceed the maximum capacity.

5. HOLD FUNCTION

**There are three HOLD functions : Average / Manual / Peak Hold function
To use this function , must be check Hold-type of 'HL' mode.**

■ Auto Hold (HL -> 0)

- Press the HOLD key before weighing an unstable item
- "AHold" will display and then, HOLD lamp is on.
- The averaged value of the weight fluctuation will be displayed after few seconds.

■ Peak Hold (HL -> 1)

- Press the HOLD key while checking peak value.
- "PHold" will display and then, peak value of the weight will be updated continuously until HOLD function is released

■ Average Hold (HL ->2)

- Press the HOLD key while weighing an unstable item
- "Hold" will display and then the averaged value of the weight fluctuation will be displayed after few seconds.

■ Release of Hold Functions

- Press the HOLD key while HOLD functions are activated
- Remove item on the hook.
- hdoFF will display and then, the scale return to normal weighing mode.

6. SET Mode Description.

(1) AP MODE

Press ON key while ZERO key is pressed, then you can enter into 'AP' mode. ('AP' means 'Auto Power off'.)

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value and Return to Normal Mode.
ZERO KEY	Go to Next Mode.

■ Setting Menu

DISPLAY	FUNCTION
AP-00	Not use
AP-10	Power off after keeping '0'kg 10 minute
AP-20	Power off after keeping '0'kg 20 minute
AP-30	Power off after keeping '0'kg 30 minute

(2) SLEEP MODE

Press ON key while ZERO key is pressed and Press ZERO Again, then you can enter into 'SLEEP' mode. ('Sb' means 'SLEEP'.)

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value and Return to Normal Mode
ZERO KEY	Go to Next Mode.

■ Setting Menu.

DISPLAY	FUNCTION
Sb-00	Sleep mode is deactivated.
Sb-20	Sleep mode is activated after 20 seconds.
Sb-40	Sleep mode is activated after 40 seconds.
Sb-60	Sleep mode is activated after 1 minute.

(3)BA MODE

Press ON key while ZERO key is pressed and Press ZERO Twice, then you can enter into 'bA' mode.

('BA' means 'Weight Back up'.)

■ Key Usage

STAR KEY	Used to change the input value
HOLD KEY	Used to save the input value and Return to Normal Mode

■ Setting Menu

DISPLAY	FUNCTION
bA-oF	Weight Back Up OFF
bA-oN	Weight Back Up ON

(4)CO MODE

Press ON key while ZERO key is pressed and Press ZERO Three times, then you can enter into 'CO' mode.

('CO' means 'Communication'.)

■ Key Usage

STAR KEY	Used to change the input value
HOLD KEY	Used to save the input value and Return to Normal Mode

■ Setting Menu

DISPLAY	FUNCTION
CO-CO	Use RS-232 Command Communication
CO-tU	Use Blue Tooth Communication with TW-100
CO-St	Use RS-232 stream.

(5) ID MODE

Press ON key while ZERO key is pressed and Press ZERO Four times, then you can enter into 'ID' mode.

('ID' means 'Device ID'.)

■ Key Usage

STAR KEY	Used to change the input value
HOLD KEY	Used to save the input value and Return to Normal Mode

■ Setting Menu

DISPLAY (from 0 to 9)	FUNCTION
id- 0	Device ID 0
id- 9	Device ID 9

(6) BR MODE

Press ON key while ZERO key is pressed, and Press ZERO Five times, then you can enter into 'BR' mode.

('BR' means 'Display Brightness'.)

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value

■ Setting Menu

DISPLAY	FUNCTION
BR-00	The brightness is set to '0' (Dark)
BR-05	The brightness is set to '5' (Bright)

(7) OP MODE

Press ON key while ZERO key is pressed, and Press ZERO Six times, then you can enter into 'OP' mode.

('OP' means 'Option Communication'.)

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value

■ Setting Menu

DISPLAY	FUNCTION
OP-BT	Use Bluetooth Communication.
OP-ZB	Use ZIGBEE Communication.
OP-nO	NO USE.

(8) CH MODE

Press ON key while ZERO key is pressed, and Press ZERO Seven times, then you can enter into 'CH' mode.

('CH' means 'Channel (ZIGBEE)').

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value

■ Setting Menu

DISPLAY (from11 to 26)	FUNCTION
CH-11	Set ZIGBEE Channel 11
CH-26	Set ZIGBEE Channel 26

Notice : When using multiple ZIGBEE communication, Set up 'CHANNEL' & 'PANID' different for using.

(9) PANID MODE

Press ON key while ZERO key is pressed, and Press ZERO Eight times, then you can enter into 'ID' mode.

('PANID' means 'PANID (ZIGBEE)').

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value

■ Setting Menu

DISPLAY (from 0001 to 9999)	FUNCTION
0001	Auto Hold / Manual Hold
1234	Peak Hold use
9999	Average Hold use

Notice : When using multiple ZIGBEE communication, Set up 'CHANNEL' & 'PANID' different for using.

(10) HL MODE

Press ON key while HOLD key is pressed, then you can enter into 'HL' mode.

('HL' means 'Hold type').

■ Key Usage

STAR KEY	Used to increase the input value
HOLD KEY	Used to save the input value

■ Setting Menu

DISPLAY	FUNCTION
HL-00	Auto Hold / Manual Hold
HL-01	Peak Hold use
HL-02	Average Hold use

Notice : While using the HOLD function, the weight displayed may be not exact.

※ How to set Bluetooth.(With TWN)

(1) Turn on the 'POWER' (⏻) Key while pressing 'ZERO' (0) Key

Display : AP-00

(2) Press 'ZERO' (0) Key three times, enter CO Mode.

Display : CO-CO

(3) Press 'STAR' (*) Key , Set CO-Tu (Reset Bluetooth Moduel)

(4) Press HOLD (H) Key. (If Display 'Err' Press HOLD (H) key again.

(5) Turn off the power, Repeat step (1)~(2) process.

(6) Select CO-CO , Press ZERO (0) Key. (To connect with TWN)

(7) Select id-0 Press HOLD Key (H). (To connect with TWN)

7. Communication PROTOCOL & Command

CAS Protocol (22 bytes) – ASCII Code

Ⓐ	Ⓑ	,	Ⓒ	Ⓓ	,	Ⓔ	Ⓕ	,	Weight Data (8byte)	Ⓖ	Ⓗ	Ⓘ	Ⓚ	Ⓛ
---	---	---	---	---	---	---	---	---	---------------------	---	---	---	---	---

Ⓐ Ⓑ	ST (Stable), US (Unstable), OL (Over Load)				
Ⓒ Ⓓ	GS (Gross), NT (Net)			Ⓔ	Device ID
Ⓘ	Blank	Ⓖ	Blank	Ⓗ	k
Ⓚ	g	Ⓘ	CR	Ⓛ	LF

Note. 1 Device No. is the successive value of ASCII code.

Ex) Device No. 01 : 0x31, Device No. 09 : 0x39, Device No. 13 : 0x3d

Command Mode Protocol

Command (ASCII code)	Description	State
KT	Key Tare Value	Read / Write
WT	Current Weight	Read
ZE	Operating like the ZERO key	Read
TR	Operating like the TARE key	Read
HD	Operating like the ENTER key	Read
PR	Operating like the PRINT key	Read

Read

1	2	3	4	5
Device ID	Command		CR	LF

Note. 1 Device ID is hex and Command is ASCII

[Ex] Device ID is 3 when user want to know the current weight.

→write 03 57 54 0d 0a

Write									
1	2	3	4	5	6	7	8	9	10
Device ID	Command	KEY TARE						CR	LF

Note. 1 Device ID is hex and DATA is ASCII

[Ex] When user want to input Key Tare Value (to 200).

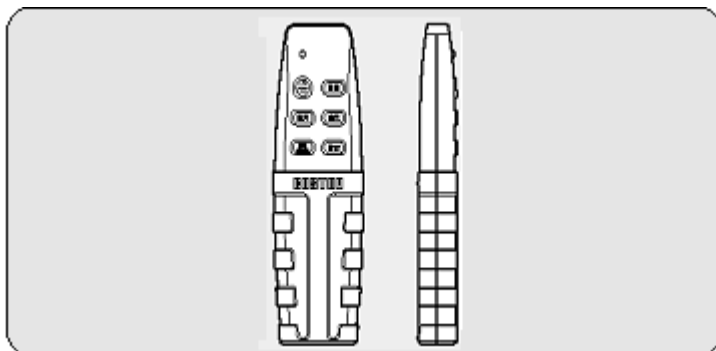
→ write 03 4B 54 30 30 32 30 30 0D 0A

[Ex] When user want to read Key Tare Value.

→ write 03 4B 54 0D 0A

8. Remote Control

- ON/OFF: Button to operate power on/off.
- ZERO: Button to correct zero value.
- TARE: Used to tare value memorizing.
- HOLD: Used to weigh moving thing.
- CLEAR : Used to clear summing weight.
- SUM : Used to sum item



REMOTE CONTROL	
AVAILABLE DISTANCE	6m ~ 9m
AVAILABLE ANGLE	60°
POWER	3V(1.5V AMM x 2)

9. TW-100 (OPTION)

Please refer to handy terminal TW-100 B manual of CASTON-III B
(Crane Scale : Bluetooth Type)

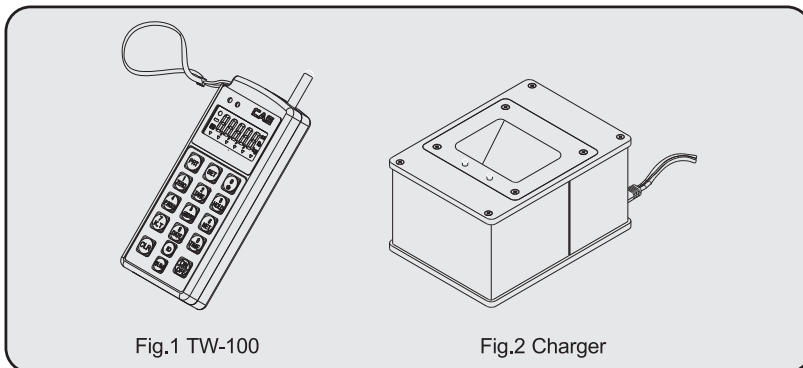


Fig.1 TW-100

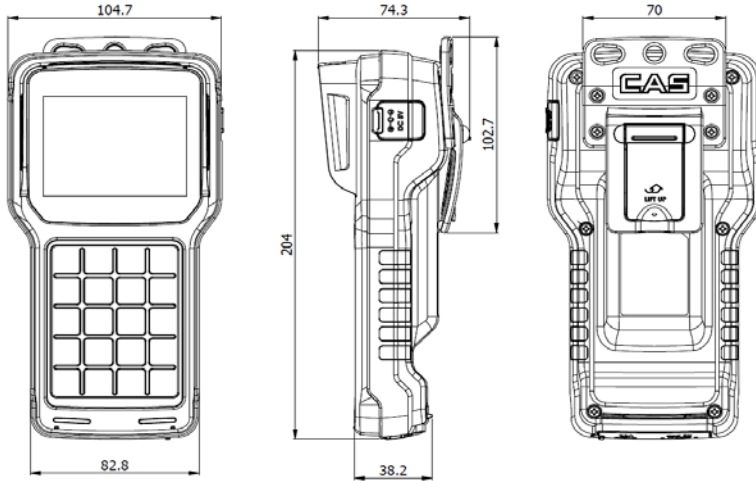
Fig.2 Charger

TW-100 Specification

Frequency	2400~2483.5 MHz
Channel interval	1 Mhz
Channel	78 channel
Communication Type	GFSK(Gaussina Frequency Shift Keying)
Communication Speed	9600
Actual Communication Distance	Maximum. Approximately 50~100M
Display	LCD (5 digit)
Size of letter	12 mm (Height)
Display below zero	“-“ displayed
Battery life time	Approx. 6 hours
Battery charging time	Approx. 3~5 hours
Power	TW -100 : Rechargeable DC Battery7.2V750mA Charger : AC220V/60Hz
Power consumption	0.43~0.72 W
Temperature range	-10℃ ~ +40℃
Function	Printer interface, zero, tare, hold, print, ID setting, weight sum

10. TWN (OPTION)

Please refer to handy terminal TWN manual of CASTON-Series

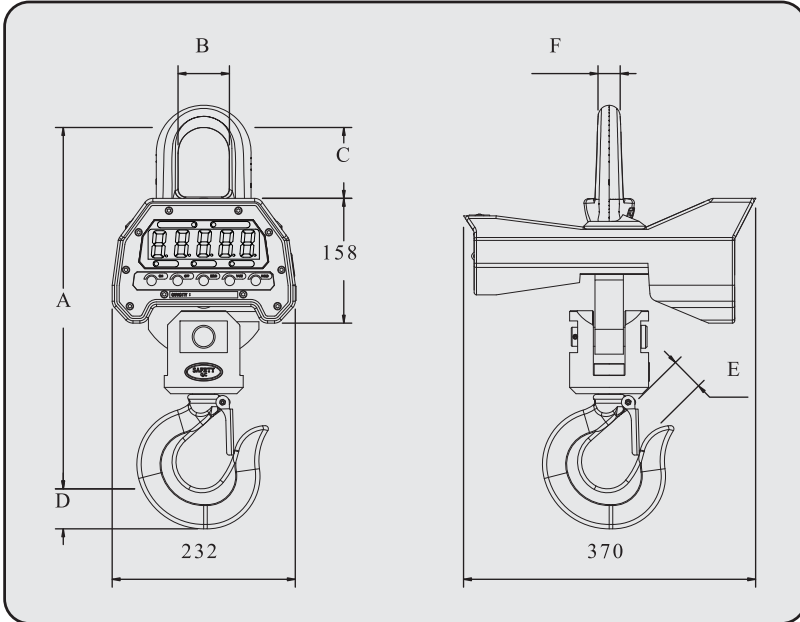


TWN Specification

Frequency	2.4GHz
Communication methods	ZIGBEE (BLUETOOTH)
Baud Rate	9600
Effective distance for communications	Maximum about 50~100M
Display	320*240 TFT LCD
Display below zero	“-” minus signal
Battery life time	Approx. 24hours
Battery changing time	Approx. 5~6 hours
Power	TWN : Rechargeable DC Battery 3.7V Charger: adapter for charging (4.2V 4400mA)
Temperature range	-10°C ~ 55°C
Function	Printer interface, zero, tare, hold, print ID setting, weight sum.

11. PRODUCT SIZE

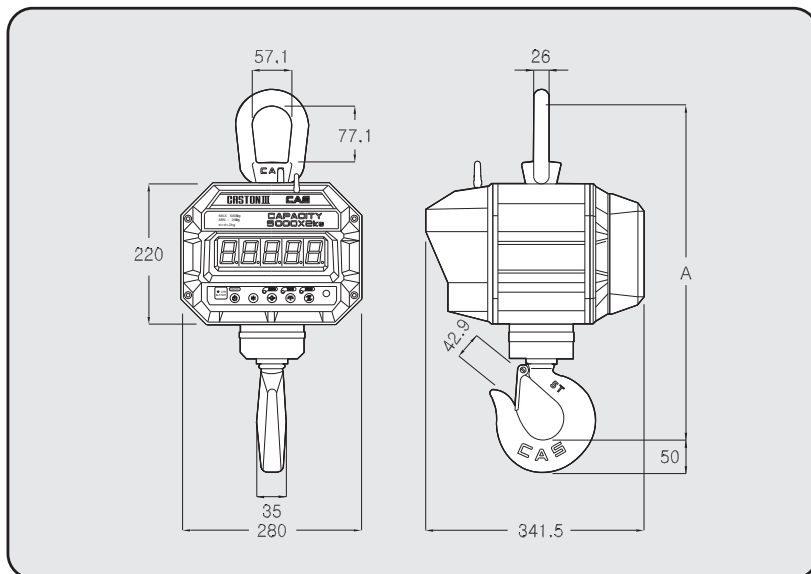
(1)CASTON II



MODEL	MAX.CAPA	DIVISION	A	B	C	D	E	WEIGHT	F
0.5THB	500kg	200g	350	57.1	82	30	26	15kg	26
	1000LB	0.5LB						6.8LB	
1THB	1TON	500g	350	57.1	82	30	26	15kg	26
	2000LB	1LB						15kg	
2THB	2TON	1kg	430	57.1	91	47	45	20kg	30
	5000LB	2LB						9.1LB	
3THB	3TON	1kg	430	57.1	91	47	45	20kg(9.1LB)	30
5THB	5TON	2kg	474	57.1	1	47	45	20kg	30
	10000LB	5LB						9.1LB	

(2) CASTON III(B)

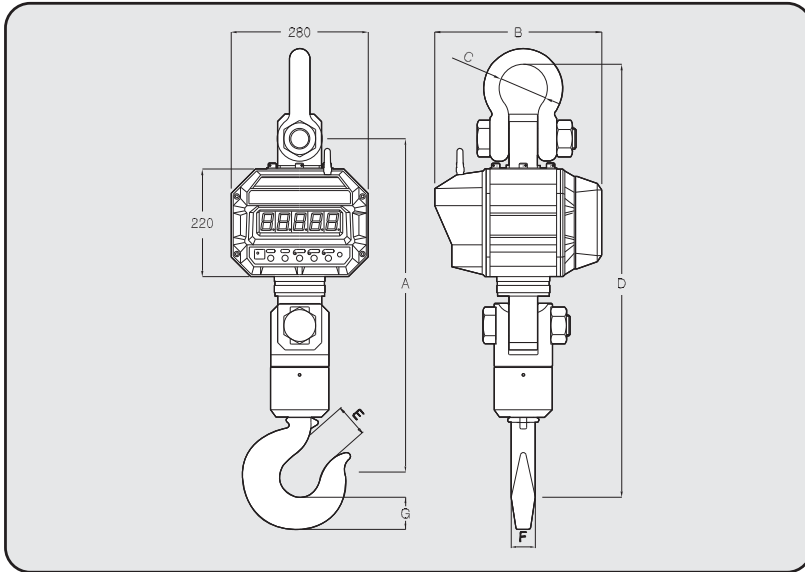
0.5 TON 5 TON



(UNIT: mm)

MODEL	MAX.CAPA	DIVISION	A	WEIGHT
0.5THD	0.5TON	200g	510	26kg
1THD	1TON	500g	510	26kg
2THD	2TON	1kg	515	28kg
3THD	3TON	1kg	515	28kg
5THD	5TON	2kg	538	31kg

10 TON 50 TON(CASTON III(B))

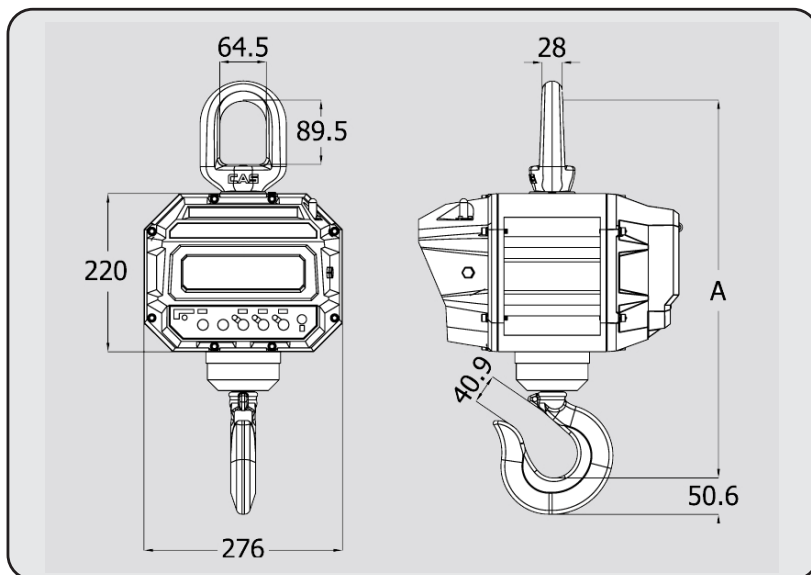


(UNIT: mm)

MODEL	MAX.CAPA	DIVISION	A	B	C	D	E	F	G	WEIGHT
10THD	10TON	5kg	667	360	∅83	845	57.2	42	57.2	44kg
15THD	15TON	10kg	682	360	∅99	886	63.5	50	63.5	53kg
20THD	20TON	10kg	725	360	∅126	990	86	60	86	76kg
30THD	30TON	20kg	895	440	∅138	1200	108	92	108	220kg
50THD	50TON	20kg	1400	440	∅180	1520	146	112.7	146	390kg

(3) CASTON III PLUS

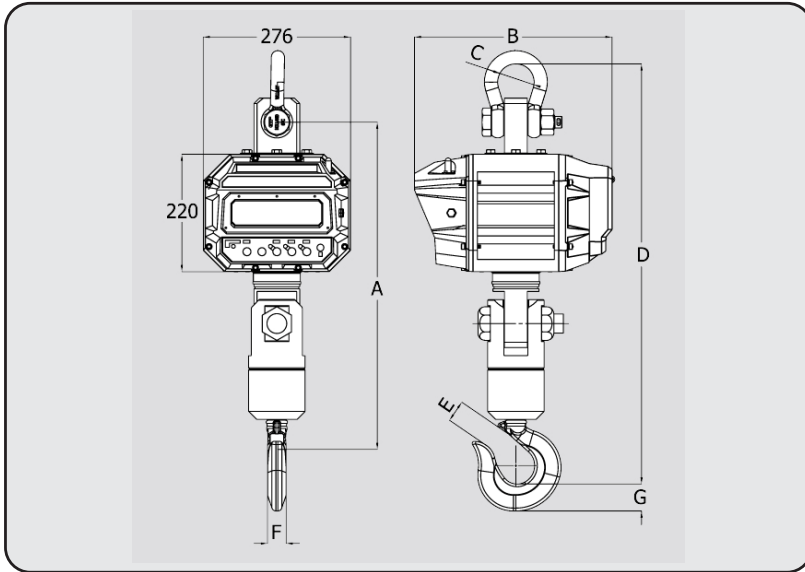
2 TON 5 TON



(UNIT: mm)

MODEL	MAX CAPA	DIVISION	A	WEIGHT
2THD PLUS	2TON	1kg	514.5	28kg
3THD PLUS	3TON	1kg	514.5	28kg
5THD PLUS	5TON	2kg	514.5	31kg

10 TON 20 TON



(UNIT: mm)

MODEL	MAX CAPA	DIVISION	A	B	C	D	E	F	G	WEIGHT
10THD PLUS	10TON	5kg	667	370	∅83	845	57.2	42	57.2	44kg
15THD PLUS	15TON	10kg	682	370	∅99	886	63.5	50	63.5	53kg
20THD PLUS	20TON	10kg	725	370	∅126	990	86	60	86	76kg

12. ERROR MESSAGE

Error Message	Description	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 3"	The "Err 3" is an overload error.	Please remove the weight.

- Notice : Specifications are subject to change for improvement without notice.

MEMO





MEMO

CASTON II/III/III PLUS

Crane Scale



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