CAS
S · C · A · L · E

Owner's Manual (BT Ver.)

CASTON-III

Crane Scale

CONTENTS

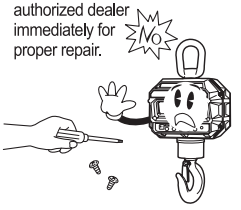
PRECAUTIONS

⚠ Warning

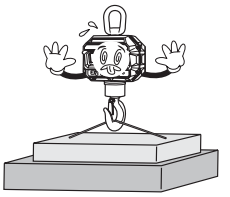
Turn power switch off on rear panel when you don't use the scale for a long time.

Do not disassemble the scale.

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

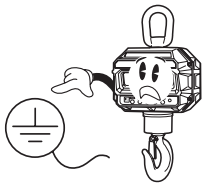


Do not overload beyond the maximum weight limit.



Scale must be grounded to minimize electricity static.

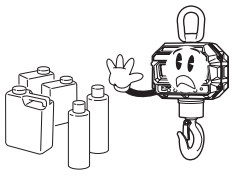
This will minimize defect or electric shock.



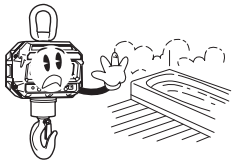
Do not pull the plug by its cord when unplugging.

Damaged cord could cause electric shock or fire.

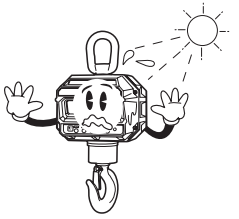
To prevent from fire occurring, Do not place or use the scale near flammable or corrosive gas.



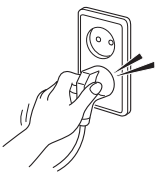
To reduce electric shock or incorrect reading, Do not spill water on the scale or place it in humid condition.



Avoid placing the scale near heater or in direct sunlight.

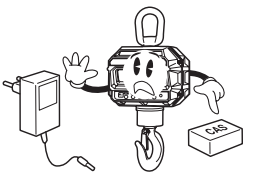


Insert plug firmly to wall outlet to prevent electric shock.



Use proper Adapter.

Incorrect adapter could damage the scale.

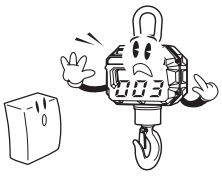


PRECAUTIONS

⚠ Attention

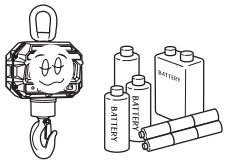
Do not stand under the scale while weighing the load, and you should be careful to provide against a safety accident. To install, safety pin in hook should be fixed to prevent dropping out from lift eye bolt.

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

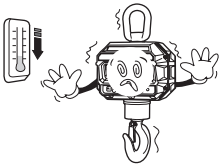


Avoid sudden shock to the scale.

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

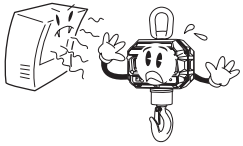


Place the scale on firm and temperature consistent environment.



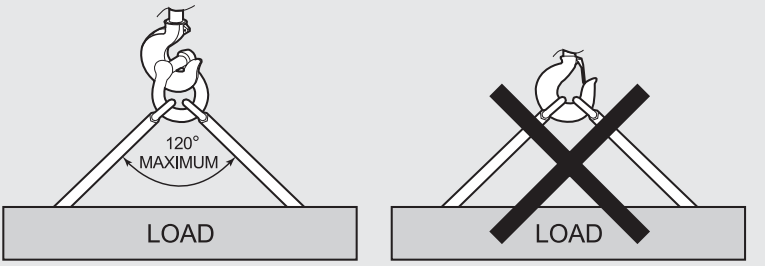
Keep the scale away from other electromagnetic enerating devices.

This may interfere with accurate reading.



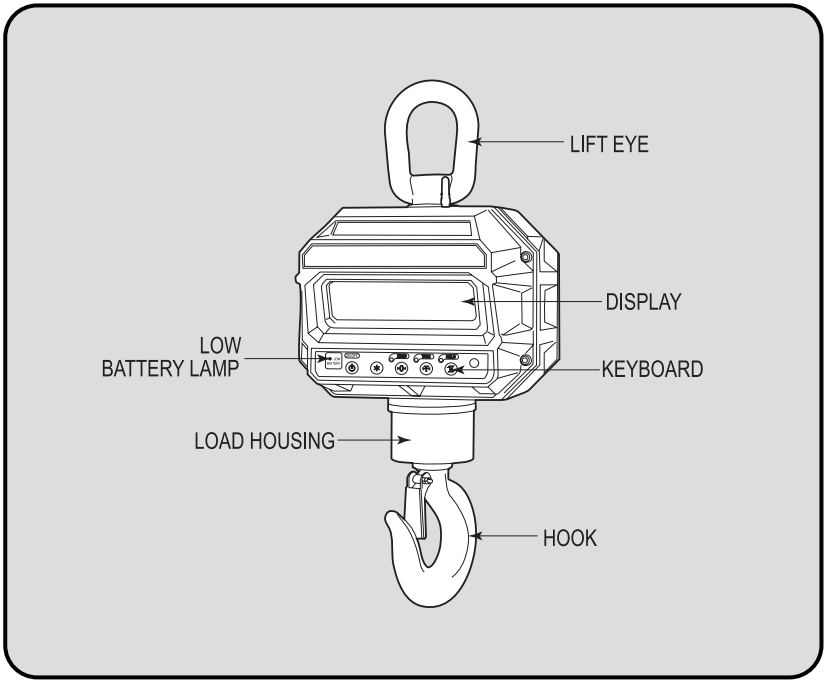
PRECAUTIONS

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



■ The load which hang on the hook should be a vertical load.

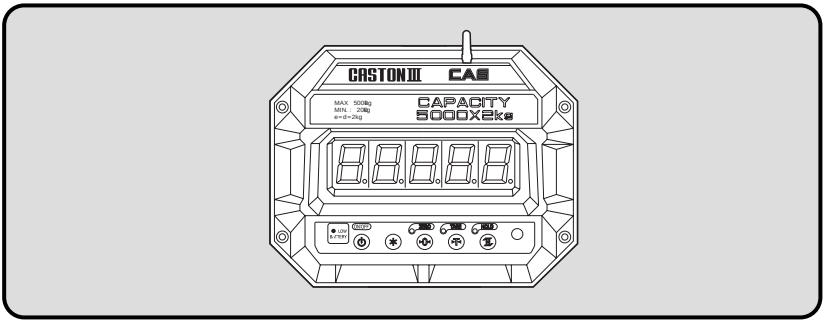
OVERALL VIEW



SPECIFICATIONS

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

DISPLAY & KEY FUNCTIONS



■ 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
ON/OFF	Used to turn the scale ON / OFF or used to released from TEST/SET mode
ZERO	Used to reset the scale zero
TARE	Used to activate tare function and to clear tare entry
HOLD	Used to weigh unstable things (livestock, liquid, etc.) or used to store the set value in SET mode
*	Used to check the current AD value and the voltage of battery in TEST mode

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

BATTERY USAGE

■ 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.

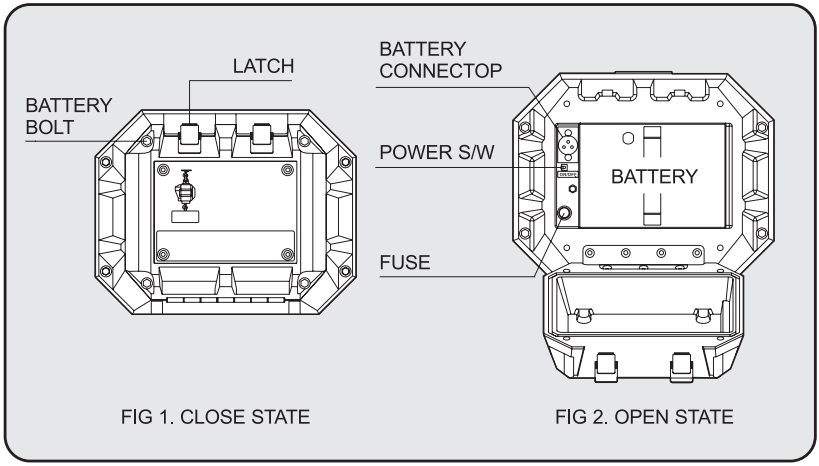


FIG 1. CLOSE STATE

FIG 2. OPEN STATE

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 wiht RED lamp (CHARGE) turn on.

■ When the charging is completed, GREEN lamp(FULL) turns on.

■ Estimated time for charging is 15 hours.
(Charging time can be varying according to the battery condition.)

■ Using period when the battery is charged fully : About 15~30 hours

FUNCTION & DESCRIPTIONS

■ 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 for 0.5 second

■ LED display will be on and then, it will show from 00000 to 99999 continuously (In the case of BlueTooth model, the LED display will show up the above message after checking wireless connections between the scale and the remote contoller)

2. POWER OFF

■ Press ON/OFF key for 2 seconds

■ LED display will show off message and then power turns off

3. ZERO FUNCTION

■ Used to correct drifted zero nalue when the scale is unloaded motion is not detected

You can adjust the zero up to ±10% of the maximum capacity

■ The function does not work when weight is fluctuated ort 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 ort unstable.

■ The weight including TARE weight can't exceed the maximum capacity.

5. HOLD FUNCTION

There are tow HOLD functions : Average Hold function, Peak Hold function

■ Average Hold

- Press the HOLD key while weighing an unstable item
- "hold" will display and then, HOLD lamp is no
- The averaged value of the weight fluctuation will be displayed after few seconds.

■ Peak Hold

- Press the HOLD key while weighing an unstable item.
- "hold" will display and then, peak value of the weight will be updated countinuously until HOLD function is released

■ Release of Hold Functions

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

TEST MODE

Press *key for 1 second after power on, then the scale enter into TEST mode.

■ Key Usage

*** KEY**	Used to display the AD value and the voltage of battery (1.A/D value Display, 2. Voltage of battery)
Other KEY	Used reyurn the normal weighing mode.

■ Voltage of battery indication

1	It will display the current voltage down to two places of decimals
2	It will display battery error Er-04 when the voltage of battery is under10.8V
	(The scale is automatically power off when the voltage of battery is under 10.5V

SET MODE

Press TARE key and press ON key while TARE key is pressed, then you can enter into SET mode.

■ Key Usage

ZERO KEY	Used to increase the input value
TARE KEY	Used to decrease the input value
HOLD KEY	When you press HOLD key for 1 second after saving the input value Used to move the next menu without saving the input value
ON/OFF KEY	Used to move the next menu without saving the input value When you press ON/OFF key for 1 second then, you can go to the next mode

■ Setting Menu

NO	FUNCTION	RANGE	DEFAULT VALUE	DESCRIPTION
F 0	Speed control of weight	1~23	10	1 : fast, 23 : slow
F 1	Zero operation time set	0~9	5	0.5~2.3 sec (Step:0.2)
F 2	Automatic zero range set	0~9	5	0~4.5 digit (Step:0.5)
F 3	Stable interval set	0~9	5	0.5~1.5 sec (Step:0.1)
F 4	Stable range set	0~9	5	0~4.5 digit (Step:0.5)
F 5	Hold type set	0,1	0	0 : Average, 1 : Peak
F 6	LED display On / Off	0,1	0	1 : Off
F 7	Weight Backup	0,1	0	1 : Backup
F8	Communication Type (Product No.)	1	-	Bluetooth 1 Module
		2	-	Bluetooth 2 Module
		3	-	BT1 : Print Output

	Communication Type (Count)	5		Bluetooth 1 Module
		6	-	Bluetooth 2 Module
		7	-	BT1 : Print Output
F 9	Command Mode Type	0	0	Command Mode
		1		Stream (about 1 sec period)
		2		Stable

▶1)F1,2 is not showed in SET mode of RF type, zero operation time is set always as 1 sec.

2)Command mode in F9 is always works regardless of RF mode or Bluetooth mode.

COMMUNICATION MODE

CASTON BT have 6 communication modes ; RS-232C(RF), Bluetooth 1 channel, and Bluetooth 2 channel equipped with product NO. function or counter function.

■ F8 Communication type

-	ID Number (0:232(RF), 1 :BT1, 2 :BT2)
-	Counter (4:232(RF), 5 :BT1, 6 :BT2)

■ Function

-	Producct ID can be stored
-	Functions of CASTON- B can be controlled by PC command such as reading weight data, time and etc.

■ **Available module combination (Adjustable in function set F8)**

Bluetooth 1 module (F8 : 1, 5)	
1)	CASTON - B + PC (232C BT Module)
2)	CASTON - B + TW-100 B (1set) + PC (RS - 232C)

■ **Bluetooth 2 module (F8 : 2, 6)**

Bluetooth 1 module (F8 : 1, 5)	
1) Type	CASTON - B + TW-100 B(2set) + PC (RS - 232C)
2) Function	CASTON - B + PC(232C BT Module 2)
2) Function	Functions of CASTON- B can be controlled by PC command such as reading weight data, time and sending product ID, weight data, time and etc.

■ **RS - 232C(RF) module (F8:0,4)**

RS - 232C (RF) module (F8:0,4)	
1) Type	CASTON- B + PC (RS - 232C RF module)

Command protocol (ASCLL CODE)

-ENQ W (05h 57h)	Weight Data Command (Display)
-ENQ G (05h 47h)	Gross Data Demand (same as W command format)
-ENQ N (05h 4eh)	Net Data Demand (same as W command format)
-ENQ Z (05h 5ah)	Zero set
-ENQ T (05h 54h)	Tare set
-ENQ F (05h 46h)	Display On/Off(toggle)
-ENQ E (05h 45h)	Error Clear
-ENQ H (05h 48h)	Hold On/Off (toggle)
-ENQ S (05h 53h)	Sum (accumulate the current weight data when the scale received this command)
-ENQ C (05h 43h)	Sum Clear
-ENQ D (05h 44h)	Sum Weight Data Demand (same as W command format)
-ENQ y (05h 79h)	Time set
-ENQ Y (05h 59h)	Asking for time data
-ENQ V (05h 56h)	Asking for battery voltage

BAUDRATE

■ Bluetooth Module -9600bps

■ RF(Japan) Module -1200bps

DATA FORMAT

The scale will reply to W , G , N , D Command in below data format.

Bluetooth 1 module (F8 : 1, 5)														
Data Transfer	ACK	COM	ID1	ID2	ID3	ID4	W1	W2	W3	W4	W5	PER	STA	BCC
Example	06H		0	0	1	2	0	2	1	6	2	1	42H	XXH

1) Number	Each number is travsmitted in ASCII type string
2) COM	W or D or G or N Command Char
3) ID	Product No.
4) W	Weight Data
5) BCC	From COM to STA , Exclusive OR value
*****	In the case of Japan RF module, Dummy Code is transmitted additionally before this weight format data
-	Dummy Code(Hex) : 55 55 55 55 55 55 55 55 55 55 55 55 a6 12 e0(14byte)
	(Dummy Code is an typical character of codule)

Status								
BIT	D7	D6	D5	D4	D3	D2	D1	D0
CONTENTS	0	+/-	Error	Hold	+/-	Tare	Stable	Zero
ACTIVE	1	-	Error	Hold	-	Tare	Stable	Zero

■ D6(+/-) : Gloss +/-

■ D3(+/-) : Display +/-

Period			
0 x 30	No decimal point	0 x 31	1st place of decimal point
0 x 32	2nd place of decimal point	0 x 33	3rd place of decimal point
0 x 34	4th place of decimal point		

■ If error is occurred, then the scale transmit error code as below Error table

Error								
BIT	D7	D6	D5	D4	D3	D2	D1	D0
Description	Over	Memory	Bt2	Bt1	Battery	Zero	Load Cell	Calib ration

Product No.(ID) & Counter

These modes are common in all kinds of module in the scale.
Choosing ID mode or Count Mode is done in Set Mode.

■ Product No.(ID)
- Product No.(ID) is allowed to input in 2 digit.
- If BCC is correct then the scale transmit ACK(06H), otherwise it sends NAK(15H)
- BCC : Exclusive OR value from ID 1 to 4

SPECC / CONTENT	ID Format(6 Bytes)					
Data Transfer	ENQ	ID1	ID2	ID3	ID4	BCC
Example	05H	0	0	1	3	XXH

■ Counter
- It shows the number of times of counted weight.
  (When the weight goes to 0kg and the weight is stable, then counter is increasing)

- When the power turns on, the number of count is initialized as zero

Time Setting Command

■ ENQ Y (05h, 79h) : Time Data

SPECC / CONTENT	Time Set Format (15 bytes)														
Data Transfer	ENQ	y	Y1	Y2	M1	M2	D1	D2	H1	H2	m1	M2	S1	S2	BCC
Example	05H	79H	0	4	0	5	1	5	1	2	0	0	0	0	XXH

■ Number : Each number is transmitted in ASCII type string
■ If BCC is correct then the scale transmit ACK(06H), otherwise it sends NAK(15H)
■ BCC : Exclusive OR value from y to S2(Operator should input the value)

Time Data Demand Command

■ ENQ Y (05h, 59h) : Time Data

SPECC / CONTENT	Time Demand Format(14 bytes)													
Data Transfer	ACK	Y1	Y2	M1	M2	D1	D2	H1	H2	m1	M2	S1	S2	BCC
Example	06H	0	4	0	5	1	5	1	2	0	0	0	0	XXH

■ Number : Each number is transmitted in ASCII type string
■ BCC : Exclusive OR value from Y1 to S2

OPTIONS

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

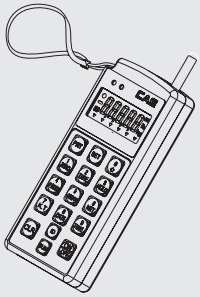


Fig.1 TW-100

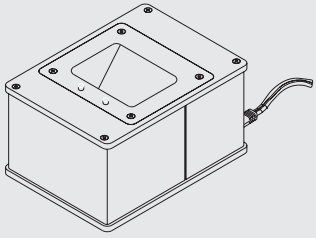


Fig.2 Charger

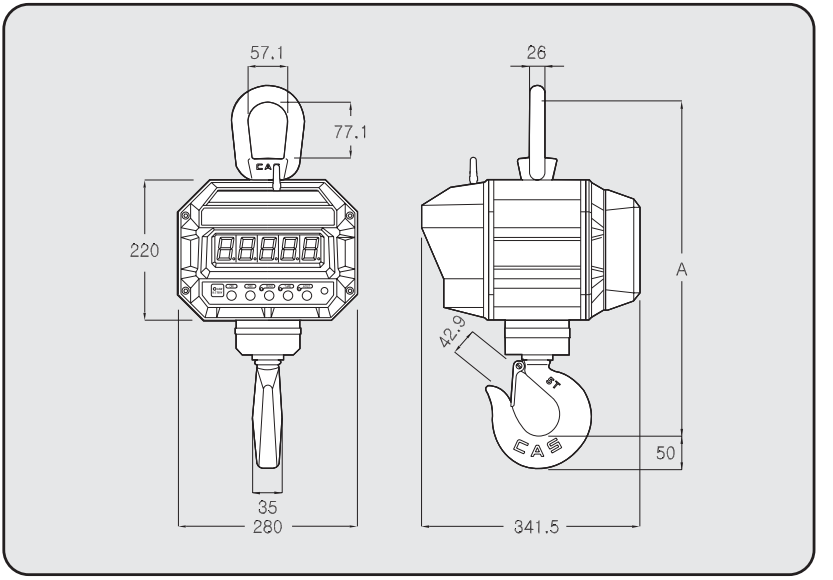
1. TW-100 Specification

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
Using period when the Battery is charged fully	
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, peak hold.

* Valid distance can be varied by the property (substance) of obstacles.
For example, concrete wall or sandwich panels.

PRODUCT SIZE

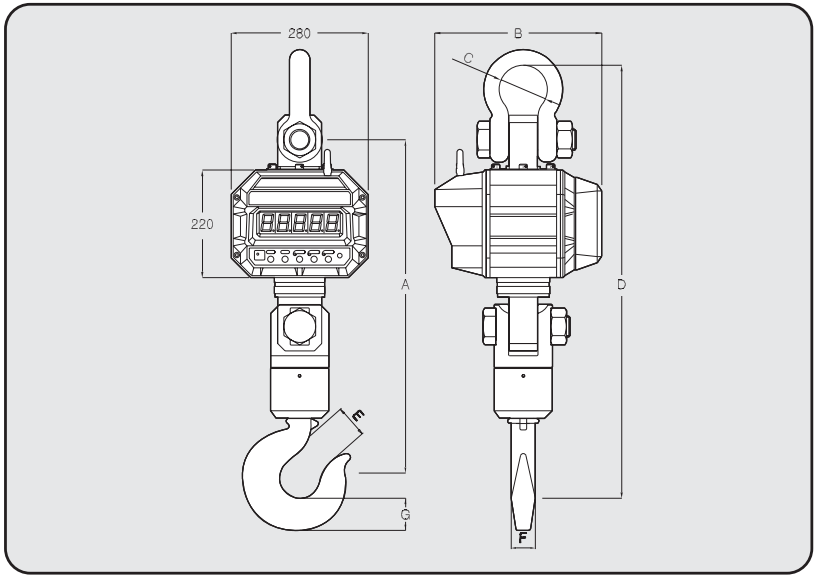
0.5 TON 5 TON



(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	2kg	515	28kg
5THD	5TON	2kg	538	31kg

10 TON 50 TON



(UNIT: mm)

MODEL	MAX.CAPA	DIVISION	A	D	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

ERROR MESSAGE

ovEr

■ Contents
Above the maximum allowable weight reading.

■ Remark
Check weighed material.

Er - 01

■ Contents
Calibration problem.

■ Remark
Perform Calibration.

Er - 02

■ Contents
Load cell connection failure or error in A/D conversion part.

■ Remark
Check L/C connection & test A/D conversion test.

Er - 03

■ Contents
Zero value exceed 10 & of zero range.

■ Remark
Check conditions of L/C and Hook.

Er - 04

■ Contents
Warning of low voltage of battery (Approximately under 10.8V).

■ Remark
If below 10.4V, caston is shut down.

Er - 05

■ Contents
Error in bluetooth module 1.

■ Remark
Check condition of BT1.

Er - 06

■ Contents
Error in bluetooth module 2

■ Remark
Check condition of BT2

Er - 07

■ Contents
Failure in internal memory.

■ Remark
Whole configuration is necessary.

▶ An error which is not removed before clearing the cause of the error
ovEr, Er - 02, Er - 04.
Zero value exceed 10 & of zero range.

▶ An error which will be removed automatically after showing error message
Er - 03

▶ An error which can be removed by deleting error message command \
Er - 01, Er - 05, Er - 06, Er - 07

Removal of Error Message

Deleting error message command is works when On/Off key is pressed or error delete command in command mode from PC.

MEMO

MEMO

MEMO

9002-CT3-BT33-0
2006.11