WIRELESS SHACKLE LOADCELL USER MANUAL

MODEL: LQW-2D

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SAFE OPERATION GUIDE：

1. The capacity of shackle loadcell have been showed on the overlay, Don't make lifts beyond rated capacity of the shackle loadcell.

2. Operators should not maneuver a loaded shackle loadcell over personnel.

3.The shackle loadcell must be routinely checked for operation. Don't operate if shackle, sling, cable, etc show any sign of defects or excessive wear.

4. If the shackle loadcell is not going to be used for long time, recharging the battery every three months to preserve the life-span of the battery and recharge it before operation.

5. The battery charger is included in the shackle loadcell package. Please use this charger, It's normal that the charger will become warm when the battery is charging.

6. Please note when the digits flash on the display, it means that the battery needs to be recharged.

7. Check shackle, safety pins, and latches periodically. Contact your dealer for parts replacement in case defect, deform or wearing is found.

CHAPTER 1 FEATURES AND SPECIFICATION

1. Features

◆ **Wireless communication and display**

Wireless indicator, 5 digits LCD display with backlight, Many functions on handheld indicator 280D. Such as tare, zero, peak, filter setting, gravity regulation.calibration is easy through wireless indicator. ,

◆ **Two set point**

Two user programmable Set-Point can be used for safety and warning applications or for limit weighing.

◆ **User-friendly design:**

Cast aluminum housing for maximum protection; water proof design, gravity compensation; safety factor up to 4 times capacity; battery operated with low battery indication; automatic turn off , power-saving function.

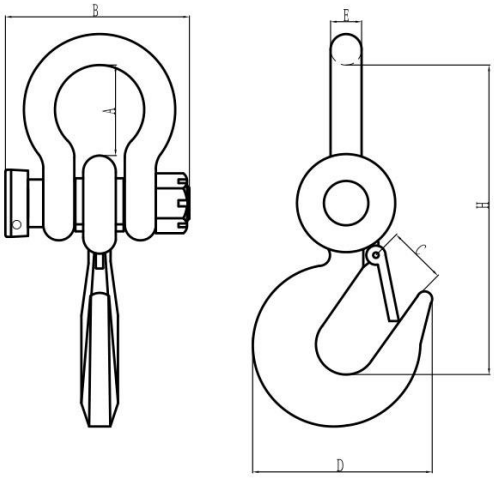
2. Main technical data

Accuracy Standard	According to OIML class III
Indicator Display	25mm(1") 5digits LCD
Water Proof Class	IP66
Zero Range	4% F.S.
Tare Range	100% F.S.
Stable Time	≤5 seconds
Overload Indication	100% F.S. + 9e
Max. Safety Load	125% F.S.
Ultimate Load	400% F.S.
Shackle loadcell battery Life	Continous using 90 hours after recharged
Shackle loadcell battery type	Standard 18650 Lithium battery, 3.7V/3100mAh
Indicator Battery	SC3300mAh NiH Battery. 1.2Vx4
Shackle loadcell Charger	DC4.2V/1000mA
Nominal operating Temp.	- 10℃~ + 40℃
Operating Humidity	≤85% RH under 20℃
Wireless Distance	100M without obstacle
Wireless Frequency	433MHz

3. Specification

MODEL	Max. capacity (kg)	Min. weigh (kg)	Division (kg)	Total display counts (n)
LQW-5	5000	40	2	2500
LQW-10	10000	100	5	2000
LQW-20	20000	200	10	2000
LQW-30	30000	200	10	3000
LQW-50	50000	400	20	2500

4. Appearance illustration



MODEL	Cap. (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	H (mm)	N.W. (kg)
LQW-5	5000	80	200	45	160	29	290	8
LQW-10	10000	99	216	51	205	35	361	13
LQW-20	20000	129	270	86	280	44	307	31
LQW-30	30000	143	295	100	327	50	540	46
LQW-50	50000	190	345	148	436	65	760	102

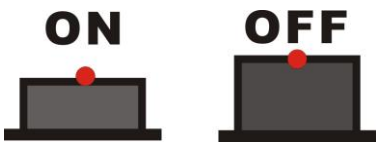
5. Power supply

Battery: Standard 18650 Lithium battery, 3.7V/3100mAh
Adapter: Standard 18650 Lithium battery charger
Current: the shackle loadcell average current is about DC 30mA±10%, if battery charged, it can be used for about 90hours.the battery voltge should be between 3.40-4.20, When the voltage below 3.40, it means the battery needs to be recharged. User can remove the battery cover to change new battery, and charge the old battery with adapter.
Charging method: Take out the18650 Lithium battery, put in the charger for charging, the charge lamp on the front panel will become orange when charging, and it will become green when the charging finish. Generally, charging time should not less than 4hours, it have charging protection, long time charging can't damage the battery.

CHAPTER 2 INDICATOR DISPLAY

1. Shackle loadcell transmitter

1. ON/OFF KEY



When the key is pressed ON, the red light will flash

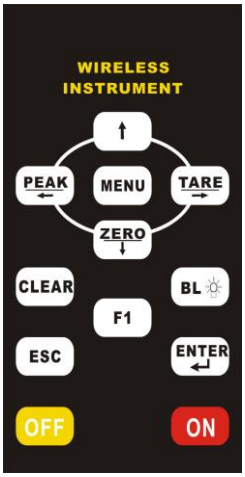
2. ANTENNA

The antenna is install with water proof connector.

3. Battery cover

User can removed the battery cover to change battery (lithium battery 18650)

2. Indicator display



1. LCD DISPLAY

25mm(1") 5digits LCD with backlight

2. Signal on LCD

a. : Wireless signal, it Appear means signal stable, it disappear while signal miss. it flash means signal weak.

b. **:** Battery Voltage, **:** Full, **:** Low**,** **:** Empty

c. **PEAK**：Current value is Peak Hold value(maximum value).

d. **MEM**：Appear one time when Parameter or calibration value storage. long time appearance means current value is Accumulation data.

e. **STB:** Stable Status.

f. **kN**: "kilonewton", **N**："Newton". Tare status "N" will flash.

g. **t** ："ton".

h. **lb** ："pound".

i. **kg** ："kilogram ".

3.Key

a. ON,OFF

1. Press ON Key 1 Second, the indicator turn on.
2. In ON status，Press OFF Key 1 Second，the indicator turn off.

b. ZERO

1.In testing status ,there are small digits on screen, press this key to obtain the zero reading.

2.In Parameter Setting status · it used as scrolling down digit.

c. TARE

1. When there is tare weight such as container, after the reading stable, press this key, it will display "0", and "**N**" indicator Flash.
2. Put the goods into container, the shackle loadcell will display goods net weight.
3. If move goods and container, the shackle loadcell will display minus value of tare weight.
4. In Parameter Setting status, it used as digits movement.

d. [MENU]

Used as function shift, or be combined with other keys.

◆ Press [MENU] key once, it display “P0000”, press [ENTER] [↑] [PEAK] [TARE] key , it can be input password to access parameter setting or calibration status.(refer to P12 CHAPTER 4)

◆ Press [MENU] key twice, it display “unit”, Press [ENTER] key access unit Setting status. Press [↑] key to select unit (kg,lb,N,kN,t,), After setting finish, press [MENU] key to confirm setting and back to test mode.

◆ Press [MENU] key 3 times, it display “SACCU”,Press [ENTER] key to read accumulate data, it will display “no.xxx” and “Hxxxx”,”Lxxxx”, “no.xxx” means accumulate numbers, “Hxxxx”,”Lxxxx” means accumulate data, if there is no accumulate data ,it will display “noACC”, press [ESC] key back to test mode.

◆ Press [MENU] key 4 times, it display “SEttr”, Press [ENTER] key access pre-tare value setting. Press [↑] key to adjust digit, press [TARE] key to move digit, press [MENU] key again back to test mode. after Pre-tare value setting, the “N” will flash on LCD.(NOTE: All pre-tare value will set by unit kg)

◆Press [MENU] key 5 times, it display “dISrU”, Press [ENTER] key will display shackle loadcell voltage, press [ESC] key back to test mode.

◆ Press [MENU] key 6 times, it display “dISLU”, Press [ENTER] Key will display indicator’s voltage, press [ESC] key back to test mode.

◆Press [MENU] key 7 times, it display “dIS 0”, Press [ENTER] Key will display shackle loadcell’s AD Value. After 2 seconds,it auto back to test mode.

◆Press [MENU] key 8 times, it display “dISOL”, Press [ENTER] Key will display “OL=xx” it means shackle loadcell’s overload numbers,Press [ESC] Key back to test mode.

e. [ENTER] Used as function selection, normally combined with [MENU] Key.

f. [PEAK]

When load is changing, press this key will catch and display the maximum reading of the load. Press this key again, reading will return to normal.(in setting mode it can move digit to left).

g. [BL ☼]

It is LCD backlight switch. Press once, LCD backlight ON, press again, LCD backlight OFF.

h. [F1]

It is accumulation key,In weighing status press this key will accumulate data(the value must be stable and more than 20e)

I. [CLEAR]

Press [CLEAR] key one time, it will display “CLr 1” Press [ENTER] key to clear single accumulation value, Press [CLEAR] key 2 times, it will display “CLr 2” Press [ENTER] key to clear all Accumulation value, Press [CLEAR] key 3 times, it will display “CLr 3” Press [ENTER] key to clear over load records,

CHAPTER 3 OPERATION GUIDE

Note： 〖 〗means the display content

1 TURN ON/OFF

◆Turn on shackle loadcell

Press ON/OFF key ,the key light will flash.

◆Turn on indicator(Turn on shackle loadcell at first)

OPERATION	DISPLAY	ILLUSTRATION
ON	〖88888〗	Display twice, self test
	〖 Ert 〗	Display twice， abbreviation
	〖u 2.03〗	Display current software version
	〖 5000〗	Display maximum capacity
	〖U=4.80〗	Display current indicator battery voltage
	〖———〗	Waiting stable
	〖 0〗or 〖noSIG〗	If display 0, means the indicator can communicate with the shackle loadcell, if display noSIG, means no signal from shackle loadcell

◆Turn off shackle loadcell

Press ON/OFF key when power ON status, ,the key light will not flash

◆Turn off indicator

1	Manual Power OFF	Press OFF Key 1 Second
2	Auto Power OFF	The indicator will turn off automatically after 3 minutes if no operation

2 ZERO

OPERATION	DISPLAY	
Press ZERO	〖 0〗	When shackle loadcell turn on, generally shackle loadcell displays 〖 0〗,if display small digits when no load, press this key.

3 TARE

◆ TARE DIRECTLY

OPERATION	DISPLAY	
Press TARE	〖 0〗	After turn on, hanging tare weight such as sling, cable at first, press this key, “N” light flash, then the indicator will display net weight of the goods. Press TARE again, “N” light wil not flash, the indicator display gross weight

4 PEAK HOLD

OPERATION	ILLUSTRATION
Press PEAK	Hold the maximum weight reading when load changing, PEAK signal will show on indicator
Press PEAK again	Return and PEAK signal disappear

5.ACCUMULATION

OPERATION	DISPLAY	ILLUSTRATION
When load and stable,Press F1	〖No***〗	Current accumulation time
	〖H****〗	Front four digits of total value
	〖L****〗	Rear four digits of total value
Press ESC		Return to weighing status

6.ACCUMULATION SEARCH

OPERATION	DISPLAY	ILLUSTRATION
Press MENU key 3 times	〖SACCU〗	
Press ENTER	〖No***〗	Current accumulation time
	〖*****〗	Current weight reading
	〖H****〗	Front four digits of total value
	〖L****〗	Rear four digits of total value
Press ESC key again		Return

Press TARE or PEAK key can check different times weight and accumulation.

7. ACCUMULATION CLEAR

OPERATION	DISPLAY	ILLUSTRATION
Press CLEAR key	〖CLr 1〗	Ask if you want to clear the current data
Press CLEAR key again	〖CLr 2〗	Ask if you want to clear the total data
Press CLEAR key again	〖noCLr〗	Press ENTER key Cancel clear and return

Press ESC to return directly

8. BATTERY VOLTAGE

OPERATION	DISPLAY	ILLUSTRATION
Press MENU key 5 times, press ENTER key.	〖dISrU〗	display shackle loadcell voltage
	〖U *.**〗	shackle loadcell voltage
Press ESC key		Return
Press MENU key 6 times, press ENTER key.	〖dISLU〗	display indicator voltage
	〖U *.**〗	Indicator voltage
Press ESC key		Return

Note：Shackle loadcell and indicator battery voltage normally between 〖U 3.40〗to 〖U 4.20〗, if shackle loadcell battery below 〖U 3.40〗, indicator will show 〖-Lb-〗,it means user need to change new battery.if indicator battery voltage below 〖U 3.40〗, the display will flash, and battery signal show : Empty, indicator should be recharged immediately

9. UNIT

OPERATIO	DISPLAY	ILLUSTRATION
Press MENU key 2 times	〖UnIt 〗	
press ENTER key	〖Un=0〗	Press ↑ to select unit from 0-4, 0 means kg 1 means lb,2 means N, 3 means KN, 4means ton.
Press MENU key	〖 0〗	Confirm unit chosen and return

10. RETURN

OPERATION	DISPLAY	ILLUSTRATION
Press ESC	〖 0〗	Return to normal testing status

11. SET POINT

There are two user programmable Set-Point can be used for safety and warning applications or for limit weighing.

_ 1 LO SP1 1 HI 2 LO SP2 2 HI

OPERATION	DISPLAY	ILLUSTRATION
Press MENU key	〖P0000〗	Press ↑ and TARE input P8088
Press ENTER 12 times	〖SP1 〗	Set point 1
Press ENTER to confirm	〖1 OFF〗	New shackle loadcell, it display 1 OFF, if parameter set, it display set value.
Press ↑ to choose	〖1 HI〗or 〖1 LO〗	There are 3 choice,1 OFF means you don't set point, 1 HI means the indicator will alarm when load exceed the value you set, 1 LO means the indicator will alarm when load smaller than the value
Press ENTER to confirm	〖02000〗	New shackle loadcell it display 02000, if parameter set, the screen display set value.
Press ↑ and TARE to change value	〖01000〗	Set "1 HI" or "1 LO" Value. e.g. 1000kg
Press ENTER to confirm	〖 SP2〗	Set point 2
Press ENTER to confirm	〖2 OFF〗	New shackle loadcell, it display 2 OFF, if parameter set, it display set value.

Press ↑ to choose	〖2 HI〗or 〖2 LO〗	There are 3 choice,2 OFF means you don't set point, 2 HI means the indicator will alarm when load exceed the value you set, 2 LO means the indicator will alarm when load smaller than the value
Press ENTER to confirm	〖01200〗	New shackle loadcell it display 01200, if parameter set, the screen display set value.
Press ↑ and TARE to change value	〖03000〗	Set "2 LO" or "2 HI" Value. e.g.3000kg
Press MENU key	〖 End 〗 〖 0〗	Confirm above parameter setting，Exit parameter setting program.

If you needn't to set point, you only need to press ENTER until it display next function 〖g= 〗

CHAPTER 4 PARAMETER SETTING &CALIBRATION

1. PARAMETER SETTING

OPERATION	DISPLAY	ILLUSTRATION
Press ON key and ON	〖 0〗	Turn on shackle loadcell and indicator
Press MENU	〖P0000〗	Press ↑ and TARE input P8088
Press ENTER	〖SETUP〗	Enter into parameter setting
Press ENTER	〖FS=06〗	New shackle loadcell, it display FS=06 · if shackle loadcell calibrated, it will display capacity.
Press ↑ to choose	〖FS=05〗	Choose capacity, the screen display02/03/05/06/10/15/20/30/50/60/75/80/A0/F0 circularly ·take cap:5000kg/2kg as example, choose FS=05, See following list about FS, Id, Pt chosen.
Press ENTER to confirm	〖Id=02〗	New loadcell ,the screen display Id=02, if shackle loadcell calibrated, it display calibrated division.
Press ↑ to choose	〖Id=02〗	Choose division, it display 01/02/05/10/20/50/A0 circularly. 5000kg division is 2kg, so choose Id=02
Press ENTER	〖Pt=0〗	New loadcell, it display Pt=0, if shackle loadcell calibrated, it will display calibrated decimal position
Press ↑ to choose	〖Pt=0〗	Choose decimal position, the screen display 0/1/2/3 circularly, 0=xxxxx, 1=xxxx.x, 2=xxx.xx, 3=xx.xxx · Cap.5000kg ,we choose Pt=0
Press ENTER to confirm	〖Ab=24〗	Display zero range , A: zero range by hand; B: zero range automatically, 0~5 total 6 options: 0=0%F. S; 1=2%F.S; 2=4%F.S; 3=10%F.S; 4=20%F.S; 5=50%F.S, Generally Don't change this parameter.
Press ENTER to confirm	〖Cd=01〗	New loadcell, the screen display Cd=01,if Scale calibrated, it display calibrated value.
Press ↑ to choose	〖Cd=12〗	C: zero-tracking range, 0~5 total 6 options; 0=0d; 1=0.5d; 2=1d; 3=1.5d; 4=2d; 5=2.5d d: display speed，0~2 total 3 options; 0=slow;

		1=average; 2=fast; before calibration, set Cd=00 to achieve high accuracy, after calibration, set Cd=11 again, generally choose Cd==12 when ex-stock..

Press ENTER to confirm	〖LL=0〗	New shackle loadcell, it display LL=0, if shackle loadcell calibrated，it display calibrated value.
Press ↑ to choose	〖LL=1〗	LL：filter parameter，0~5 total 6 options， from smallest to biggest ， before calibration, set LL=0, after calibration, set LL=1 , generally choose LL=1 when ex-stock..
Press ENTER to confirm	〖Un=0〗	New shackle loadcell, it display Un=0, if shackle loadcell calibrated，the screen display calibrated unit.
Press ↑ to choose	〖Un=0〗	Choose unit，Un=0 :kg, Un=1: lb, Un=2: N,Un=3: KN, Un=4: ton, Generally, choose Un=0 when ex-stock.
Press ENTER to confirm	〖OFF 1〗	New shackle loadcell, it display OFF 1,if shackle loadcell calibrated，it display calibrated value.
Press ↑ to choose	〖OFF 2〗	Choose turn off method, 0~2 total 3 options if no communication. 0: turn off by hand; 1: turn off 10minutes later; 2: turn off 30minutes later. Generally, choose OFF=2 when ex-stock.
Press ENTER to confirm	〖SP1 〗	Set point 1
Press ENTER to confirm	〖1 OFF〗	New shackle loadcell, it display 1 OFF, if parameter set, it display set value.
Press ↑ to choose	〖1 HI〗or 〖1 LO〗	There are 3 choice,1 OFF means you don't set point 1, 1 HI means the indicator will alarm when load exceed the value you set, 1 LO means the indicator will alarm when load smaller than the value
Press ENTER to confirm	〖02000〗	New shackle loadcell it display 02000, if parameter set, the screen display set value.
Press ↑ and TARE to change value	〖01000〗	Set "1 HI" or "1 LO" Value. e.g. 1000kg
Press ENTER to confirm	〖 SP2〗	Set point 2
Press ENTER to confirm	〖2 OFF〗	

Press ↑ to choose	〖2 HI〗 or	There are 3 choice,2 OFF means you don't set point, 2 HI means the indicator will alarm when load
Press ENTER to confirm	〖01200〗	New shackle loadcell it display 01200, if parameter set, the screen display set value.

Press ↑ and TARE to change value	〖03000〗	Set "2 LO" or "2 HI" value. e.g.3000kg
Press ENTER to confirm	〖g= 〗	Acceleration of gravity
Press ENTER to confirm Then Press ↑ and TARE to change value	〖9.7930〗	New shackle loadcell , it display 9.7930（here in Hangzhou）, if shackle loadcell calibrated, it display calibrated value. user can change it according to local area gravity value, the value range is 9.783-9.832.
Press MENU key	〖 End 〗 〖 0〗	Confirm above parameter setting，Exit parameter setting program.

The capacity you choose relate to division, decimal position, below is detail list:

CAPACITY/DIVISION	FS （CAP）	Id (DIVISION)	Pt（DECIMAL POSITION）
5000kg/2kg	05	02	0
10000kg/5kg	10	05	0
15000kg/5kg	15	05	0
20000kg/10kg	20	10	0
30000kg/10kg	30	10	0
50000kg/20kg	50	20	0
100000kg/50kg	A0	50	0
1500000kg/50kg	F0	50	0

200t use specail software, no need to set FS,Id,Pt.

2. Calibration

User must set all parameter before calibration

OPERATION	DISPLAY	ILLUSTRATION
Press(ON/OFF) and ON	〖 0〗	Turn on shackle loadcell and indicator .Take Cap:5000kg shackle loadcell as example , make sure it display〖 0〗 before calibration, you can hang tare weight first, then turn on to get zero reading
Press MENU	〖P0000〗	Press ↑ and TARE input P1358
Press ENTER	〖CLIbr〗	Access calibration Status

Press ENTER	〖CALSP〗	Zero point calibration
Press ENTER	〖LoAd 1〗	First load calibration

Press ENTER	〖05000〗	Display capacity you choose in parameter setting · and first digit flash · Do wait until "STB" signal display
Press ↑ and TARE	〖01000〗	Press ↑ to change value, press TARE to move the digit, input actual weight 1000kg
Waiting until stable Press ENTER	〖LoAd2〗	Confirm and storage, into second load calibration
Hanging second standard weight, e.g. 3000kg		Second load must exceed Load 1+20% capacity, Waiting until STB light on.Waiting until STB signal on screen,
Press ENTER	〖02000〗	Mention you Load2 must exceed 2000kg ,and first digit flash · Do wait until "STB" signal display
Press ↑ and TARE	〖03000〗	Press ↑ to change value, press TARE to move the digit, input actual weight 3000kg
Waiting until stable Press ENTER	〖LoAd3〗	Confirm and storage, into third load calibration
Hanging third standard weight, e.g. 5000kg		Third load must exceed Load 2+20% capacity, Waiting until STB light on.Waiting until STB signal on screen,
Press ENTER	〖04000〗	Mention you Load3 must exceed 4000kg ,and first digit flash · Do wait until "STB" signal display
Press ↑ and TARE	〖05000〗	Press ↑ to change value, press TARE to move the digit, input actual weight 5000kg
Press ENTER	〖 End 〗	
	〖05000〗	Calibration finish

Attention:

1. **LOAD1 must larger than 20% capacity，and LOAD1<LOAD2<LOAD3, at the same time, between LOAD1 and LOAD2， LOAD2 and LOAD3, the interval must bigger than 20% capacity**
2. **If LOAD1 is bigger than 80% capacity, such as full capacity, after first load calibration, it will finish automatically,. Generally, we strongly recommend you to use this one point calibration program if you have 100% capacity standard weight**
3. **If you only have 20% standard weight, after first load calibration, when it display 〖LoAd2〗, press ESC 2times, it will display End. Calibration finish.**

CHAPTER 5 DISPLAY ILLUSTRATION

DISPLAY	ILLUSTRATION	REMARK
〖noSIg〗	Without wireless signal	Distance too far.
〖SEtUP〗	Enter into parameter setting	
〖dISrU〗	display AD transmitter voltage	
〖dISLU〗	display indicator voltage	
〖LoAd X〗	Calibration point	
〖------〗	Exceed high limit	Tare weight can't exceed full capacity
〖------〗	Exceed low limit	Tare weight can't be negative
〖----- 〗	Waiting stable	
〖Err10〗	Weight less than Min. Capacity	Can't accumulate the value
〖Err11〗	Accumumated times overflow	Can't accumulate after 30times
〖Err12〗	Accumulated weight overflow	Can't accumulate after 99999
〖Err13〗	Error in repeat accumulation	Can't accumulate one weight repeatedly
〖no***〗	Current accumulation times	
〖H****〗	Front four digit of accumulated	Total weight=front four digit + rare four digit
〖L****〗	Rare four digit of accumulated	Total weight=front four digit + rare four digit
〖 CLr 〗	Ask if you really want to delete accumulated weight	In case error deletion
〖noCLr〗	Give up deletion	
〖88888〗	Confirm deletion	
〖 ---〗	Input value is too large	When you input tare or weight value
〖 ---〗	Input value is too small	When you input tare or weight value
〖noACC〗	No any accumulated content	when you check accumulation
〖-oL0- 〗	Overload warning	Tare + Net weight exceed full capacity + 9e
〖-oL1- 〗	Overload warning	Tare + Net weight exceed full capacity 125%
〖-Lb- 〗	Low battery warning	Turn off automatically one minute later
〖U*.**〗	The voltage of current battery	
〖 End 〗	End	when parameter setting or calibration ready
〖 OFF 〗	Turn off	
〖Unstb〗	Input value before STB light on	

CHAPTER 6 TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOUTION
No display	Defective battery	Replace
	Defective button	Requires authorized service
	Power button not properly pressed	Press ON/OFF key firmly in three seconds
Digits flash	Low battery	Replace battery
Display doesn't respond to load changes	Faulty load cell or PCB	Requires authorized service
	Out of calibration	Re- calibration
Display experiences excessive Zero drift between weighment	shackle loadcell do not stabilize after turning on	After turning on, heating 3-5 minutes.
Displayed weight shows large error	shackle loadcell not Zeroed before applying weight	Depress ZERO before applying weight
	Requires recalibration	See calibration
	Kg/lb wrong selection	See operation
Wireless distance shortened	Wireless indicator's battery is low	Replace battery.

CHAPTER 7 RS232 PROTOCOL

Pre-code		Data(ASCII)					0X +/-(0 means+ F means -) X is decimal position	39 39 Commodity number	F0 Stable Signal F0: (stable) 00: (unstable)	F0 Wireless Signal F0: Have signal 00: Without signal
FF	AA	data (H)	data	data	data	data (L)				

RS-232 Setup Instructions

Communication Configuration

Port : COM1
Baud Rate: 4800
Data Bits : 8
Stop Bits : 1
Parity : None
Display mode HEX