

Weighing
Q1-W
Operation Manual

Weighing

Power Source

100~240V 50/60hz AC INPUT

12V/1A DC OUTPUT 12W

6V/4AH Lead-acid rechargeable battery included

Power Consumption

Approx. 12mA

Approx. 36mA with backlight

Approx. 48mA with backlight and RS232 interface

Battery hours per charge

Approx. 320 hours (backlight off)

OPTION

RS232 Interface

LOADCELL connection (for indicator)

PIN1 : E +	PIN2 : E-	PIN3 : S+	PIN4 : S -
PIN5 : SEN +	PIN6 : SEN-	PIN7 : GND	

How to display version number?

Turn on the scale and press and hold the **PRINT** key until the countdown sequence has completed. The LCD display will show **100112**. The shown number is the main-board version of the scale. Release the **PRINT** key and the scale will start the functions setup

Functions description

OFF key:

Press and hold the **OFF** key and the display will show “oFF” for 2 seconds then the scale will turn off automatically.

ON key:

Press the **ON** key to turn on the scale. The scale will start self-adjusting sequence then will stabilize in 0.

UNITS / ESC key:

Weighing

UNITS: To select desired weighing unit.

ESC : To escape (exit) setting in setup mode.

ZERO / ◀ key:

ZERO : To reset the weight to 0, but the displayed weight value has to be less than $\pm 2\%$ of maximum capacity.

◀ : To move one space to the left or downward in setup mode.

To the left

000000 → 000000 → 000000 → 000000 → 000000 → 000000 → 000000

Downward

LF 9 → LF 8 → LF 7 → → LF 1

UF-9 → UF-8 → UF-7 → → UF-1

ECF-3 → ECF-2 → ECF- 1

TARE / ▶ key:

TARE : To subtract the container weight. Maximum tare = full capacity

▶ : To move one space to the right or upward in setup mode.

To the right

000000 → 0000000 → 00000000 → 00000000 → 00000000 → 000000

Upward

LF 1 → LF 2 → LF 3 → → LF 9

UF-1 → UF-2 → UF-3 → → UF-9

ECF-1 → ECF-2 → ECF-3

Net/Gross / ▲ key:

Net/Gross : To see gross and net weight when the scale is on tare status. All other keys will be disabled when gross weight is activated.

▲ : To increase values upward in setup mode.

例如 : 232 0 → 232 1 → 232 2 → 232 3 → → 232 6

PRINT / ↵ key:

PRINT : Manually transmitting data through RS232 to computer or printer at normal weighing mode (RS232 setup must be set at keyboard transmission 232 3 or 232 6)

↵ : Works as enter key in setup mode

※ Error messages:

Err H Initial zero too high (over FULL SCALE + 10%) ,

Weighing

For approval models

Err L Initial zero too low (under FULL SCALE – 10%) ,

For approval models

Err N Unstable internal count

-OL- Overload, when the weight is heavier than the full capacity + 9d of the scale

Functions Setup

Approval Calibrations and Functions Setup (Lock section) L F 1 ~ 8

Standard Functions Setup UF – 1 ~ 9

Standard Calibrations ECF – 1 ~ 3

Standard Calibrations:

Press the **ZERO / ◀** key and the **PRINT / ⏎** key in weighing mode to start Standard Calibrations

ECF-1 Weight Calibration (Zero and Span)

ECF-2 Zero Calibration

ECF-3 Span Calibration

※ When the scale is programmed for Approval (LF 6), standard calibration will be locked

PRINT / ⏎	:	⏎	Net/Gross / ▲	:	▲
ZERO / ◀	:	◀	UNITS / ESC	:	ESC
TARE / ▶	:	▶			

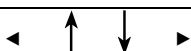
ECF-1

Press the ⏎ key to start or press the ESC key to exit menu and back to weighing mode



ECF-2

Press the ⏎ key to start or press the ESC key to exit menu and back to weighing mode



ECF-3

Press the ⏎ key to start or press the ESC key to exit menu and back to weighing mode

Weighing

ECF-1 Weight Calibration :

ECF-1

Press the \leftarrow key to start Weight Calibration (Press the ESC key to exit back to weighing mode)

CALZ

Press the \leftarrow key to calibrate zero point (Press the ESC key to terminate calibration back to menu ECF-1)

150.00kg

Use \leftarrow , \rightarrow , \uparrow , 0~9 and then \leftarrow key to enter the weight to be calibrated

150.00kg

(Press the ESC key to terminate calibration back to menu ECF-1)

150.00kg

Place the required weight mass onto the scale as indicated on display and press the \leftarrow key to calibrate the scale

150.00kg

(Press the ESC key to terminate calibration back to menu ECF-1)

Calibration procedure completed and the scale will return back to weighing mode automatically

ECF-2 Zero Calibration :

ECF-2

Press the \leftarrow key to start Zero Calibration (Press the ESC key to exit back to weighing mode)

CALZ

Press the \leftarrow key to calibrate zero point (Press the ESC key to terminate calibration back to menu ECF-2)

0.00kg

Zero Calibration procedure completed and the scale will return back to weighing mode automatically

ECF-3 SPAN Calibration :

ECF-3

Press the \leftarrow key to start Span Calibration (Press the ESC key to exit back to weighing mode)

Weighing

150.00kg Use ◀, ▶, ▲, 0~9 and then ↵ key to enter the weight to be calibrated



(Press the ESC key to terminate calibration back to menu ECF-3)

150.00kg Place the required weight mass onto the scale as indicated on display and press the ↵ key to calibrate the scale



(Press the ESC key to terminate calibration back to menu ECF-3)

150.00kg Calibration procedure completed and the scale will return back to weighing mode automatically

Standard Functions Setup :

Press the TARE / ▶ and the PRINT / ↵ key in weighing mode to start Standard Functions Setup

UF-1 Internal Value

UF-2 Check Weighing

UF-3 Auto Power-off

UF-4 Backlight

✦UF-5 Hold

UF-6 RS232 Output

✦UF-7 ADC Update Rate

✦UF-8 Display Condition at Zero

UF-9 Gravitational (G value) Pre-Calibration

※ ✦ marks function locked when LF 6 is set as "Approval Version"

PRINT / ↵

: ↵

Net/Gross / ▲

: ▲

ZERO / ◀

: ◀

UNITS / ESC

: ESC

TARE / ▶

: ▶

UF-1

Press the ↵ key to start or press the ESC key to exit menu and back to weighing mode



UF-2

Press the ↵ key to start or press the ESC key to exit menu and back to weighing mode



Weighing

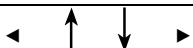
UF-3 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



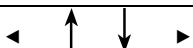
UF-4 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



UF-5 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



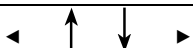
UF-6 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



UF-7 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



UF-8 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode



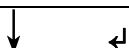
UF-9 Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

UF-1 Internal Value:

UF-1 Press the \leftarrow key to see the internal value or press the ESC key to exit menu and back to weighing mode



2704565 Press the \leftarrow key to continue or the ESC key to exit back to menu UF-1



bAt469 Press the \leftarrow key to see the battery voltage or the ESC key to exit back to menu UF-1

UF-1 Use \rightarrow and then \leftarrow keys to continue with other setups or press the ESC key to exit menu and back to weighing mode

Weighing

UF-2 Check Weighing :

0000.0L Set LO (low) weight

0000.0H Set HI (high) weight

O 000 Program I/O conditions

- ※ LO set as 0 will clear all check weigh values
- ※ Check weighing conditions can be set independently for each of the weighing units and counting mode
- ※ All settings will be saved until manually cleared
- ※ Last entry will be displayed before setup
- ※ This function is locked when UF-5 is set as "HOLD 1"

UF-2

Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

0000.0L

Use \leftarrow , \rightarrow , \uparrow , 0~9 and then \leftarrow key to set LO weight value
(Press the ESC key to exit the setup and back to menu UF-2)

0000.0H

Use \leftarrow , \rightarrow , \uparrow , 0~9 and then \leftarrow key to set HI weight value
(Press the ESC key to exit the setup and back to menu UF-2)

O 000

Use \leftarrow , \rightarrow , \uparrow , 0~9 and then \leftarrow key to set I/O SET value
(Press the ESC key to exit the setup and back to menu UF-2)

UF-2

Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or press the ESC key to exit menu and back to weighing mode

UF-3 Auto Power-off :

AoFF 00 Auto power-off disable

AoFF 01 The scale turns off automatically in 1 minute when the scale is not in operation and weight at 0

Auto power-off timer up to 99 minutes (AoFF01~AoFF 99)

※ Factory default: AoFF 10

UF-3

Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

AoFF10

Use \leftarrow , \rightarrow , \uparrow and then \leftarrow key to enter Auto Power-off time
(Press the ESC key to exit the setup and back to menu UF-3)

Weighing

↵

UF-3

Use ◀, ▶ and then ↵ key to continue with other setups or press the ESC key to exit menu and back to weighing mode

UF-4 Backlight :

Lit oFF :Backlight off Lit A :Auto light up Lit on :Backlight on

※ Factory default: Lit A

UF-4

Press the ↵ key to start or press the ESC key to exit menu and back to weighing mode

↵
Lit A

Use ▲ and then ↵ key to select backlight modes
(Press the ESC key to exit the setup and back to menu UF-4)

↵
UF-4

Use ◀, ▶ and then ↵ key to continue with other setups or press the ESC key to exit menu and back to weighing mode

UF-5 Hold :

HOLD 0 Hold function off

HOLD 1 Animal (motion) Hold function

PCt XXX To set the range from 001 ~ 100 of the animal hold

(for HOLD 1 only)

timEXX To set 1.2.4.8.16.32.64 times within the hold range

(for HOLD 1 only)

※ This function is locked when LF 6 is set as “Approval Version”

※ Factory default: HOLD 0

UF-5

Press the ↵ key to start or press the ESC key to exit menu and back to weighing mode

↵
HOLD 0

Use ▲ and then ↵ key to select Hold modes
(Press the ESC key to exit the setup and back to menu UF-5)

↵
UF-5

Use ◀, ▶ and then ↵ key to continue with other setups or

Weighing

press the ESC key to exit menu and back to weighing mode

HOLD 1 mode :

Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

\downarrow \leftarrow
 Use \blacktriangle and then \leftarrow key to select Hold 1 mode
(Press the ESC key to exit the setup and back to menu UF-5)

\downarrow \leftarrow
 Use \leftarrow , \rightarrow , \blacktriangle , 0~9 and then \leftarrow key to enter the hold range
(Press the ESC key to exit the setup and back to menu UF-5)

\downarrow \leftarrow
 Use \blacktriangle and then \leftarrow key to select times
(Press the ESC key to exit the setup and back to menu UF-5)

\downarrow \leftarrow
 Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or press the ESC key to exit menu and back to weighing mode

UF-6 RS232 :

232 0	RS232 disable
232 1	Stable output – Format 1
232 2	Stream output – Format 1
232 3	Manual output – Format 1
232 4	Stable output – Format 2
232 5	Stream output – Format 2
232 6	Manual output – Format 2

RS232 Baud rate

b 1200	Baud rate 1200
b 2400	Baud rate 2400
b 4800	Baud rate 4800
b 9600	Baud rate 9600
b19200	Baud rate 19200
b38400	Baud rate 38400

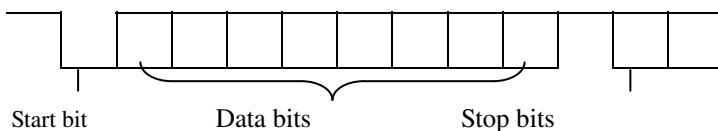
Communication Protocol

Weighing

UART signal of EIA-RS232 C

Format:

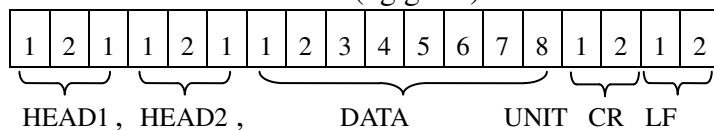
1. Serial output: 1200 / 2400 / 4800 / 9600 / 19200 / 38400 BPS
2. Data bits : 8 BITS
3. Parity bits : None
4. Stop bits : 1 BIT



Format 1 (232 1 ~ 3) :

HEAD1 (2 BYTES)	HEAD2 (2 BYTES)
OL - Over Load	
ST - Stable	NT - Net Weight
US - Unstable	GS - Gross Weight

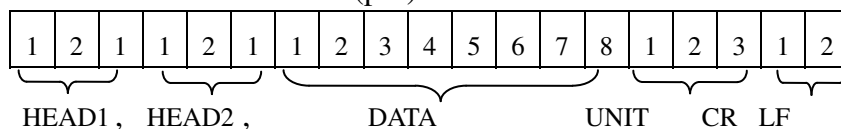
Fixed 18 BYTES ASCII (kg g t lb)



Fixed 21 BYTES ASCII (tl.T lboz)

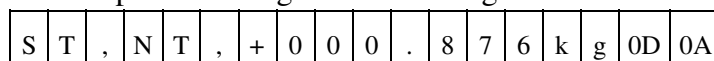


Fixed 19 BYTES ASCII (pcs)

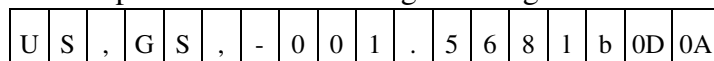


Output examples :

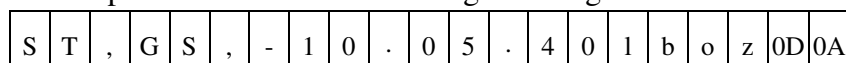
1. Example +0.876 kg Stable net weight :



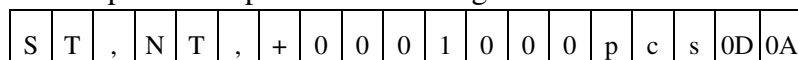
2. Example -1.568 lb unstable gross weight :



3 Example -20. 5.40 lb oz unstable gross weight :



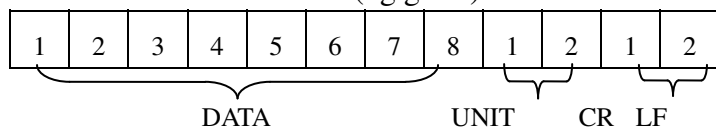
4 Example +1000 pcs stable net weight :



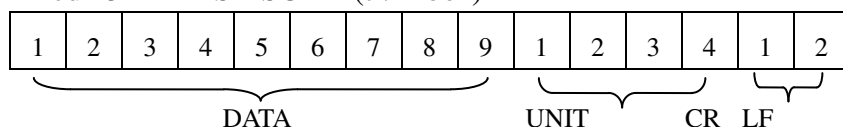
Weighing

Format 2 (232 4 ~ 6) :

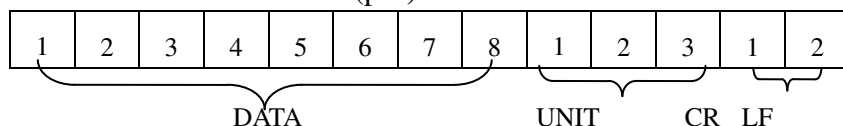
Fixed 12 BYTES ASCII (kg g t lb)



Fixed 15 BYTES ASCII (tl.T lboz)

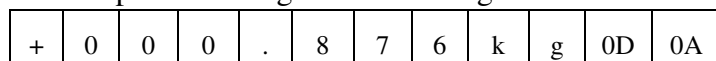


Fixed 13 BYTES ASCII (pcs)

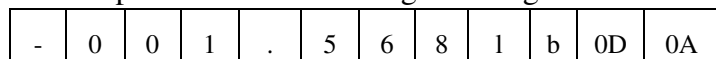


Output examples :

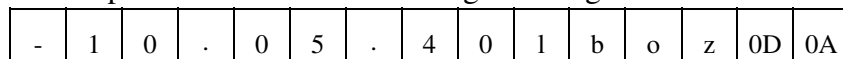
1. Example +0.876 kg stable net weight :



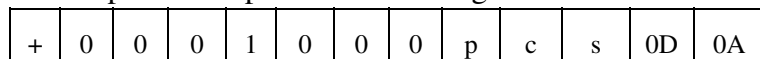
2. Example -1.568 lb unstable gross weight :



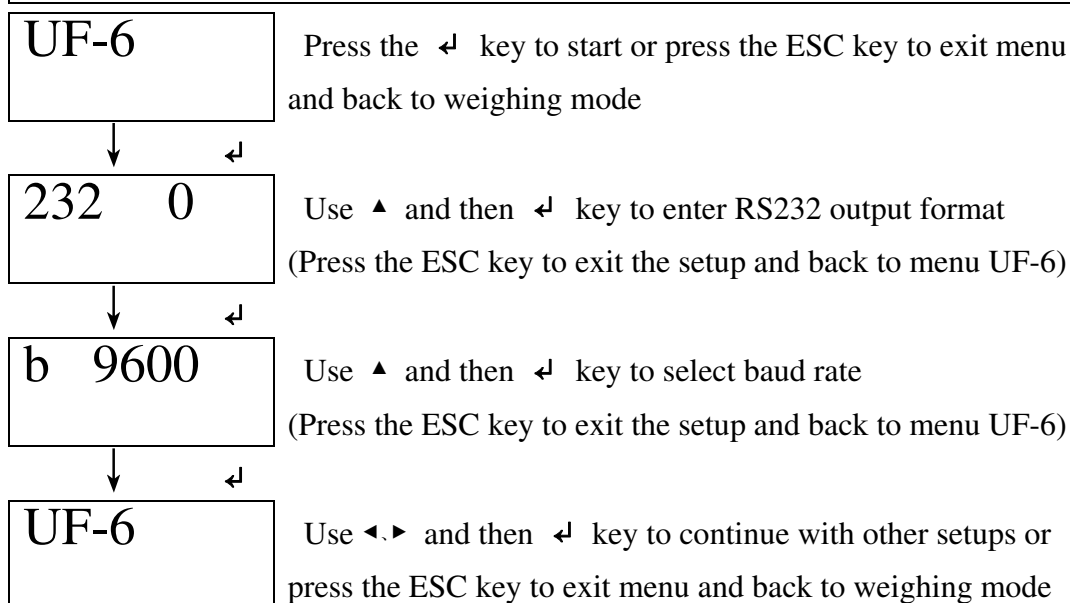
3 Example -20. 5.40 lb oz unstable gross weight :



4 Example +1000 pcs stable net weight :



※ Factory default: 232 0



Weighing

UF-7 ADC Update Rate :

SPEED 1 Standard speed 15 hz

SPEED 2 High speed 30 hz

SPEED 3 Low speed 7.5 hz

※ This function is locked when UF-5 is set as “HOLD 1”

※ This function is locked when LF 6 is set as “Approval Version”

※ Factory default: SPEED 1

UF-7

Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

SPEED 1

Use \blacktriangle and then \leftarrow key to select ADC speed
(Press the ESC key to exit the setup and back to menu UF-7)

UF-7

Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or press the ESC key to exit menu and back to weighing mode

UF-8 Zero Weight Display Condition :

ZP 0 Off

ZP 1 One division not to display at zero

ZP 2 Two divisions not to display at zero

ZP 3 Three divisions not to display at zero

ZP 4 Four divisions not to display at zero

ZP 5 Five divisions not to display at zero

※ This function is locked when UF-5 is set as “HOLD 1”

※ This function is locked when LF 6 is set as “Approval Version”

※ Factory default: ZP 0

UF-8

Press the \leftarrow key to start or press the ESC key to exit menu and back to weighing mode

ZP 0

Use \blacktriangle and then \leftarrow key to select how many divisions not to display at zero
(Press the ESC key to exit the setup and back to menu UF-8)

UF-8

Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or

Weighing

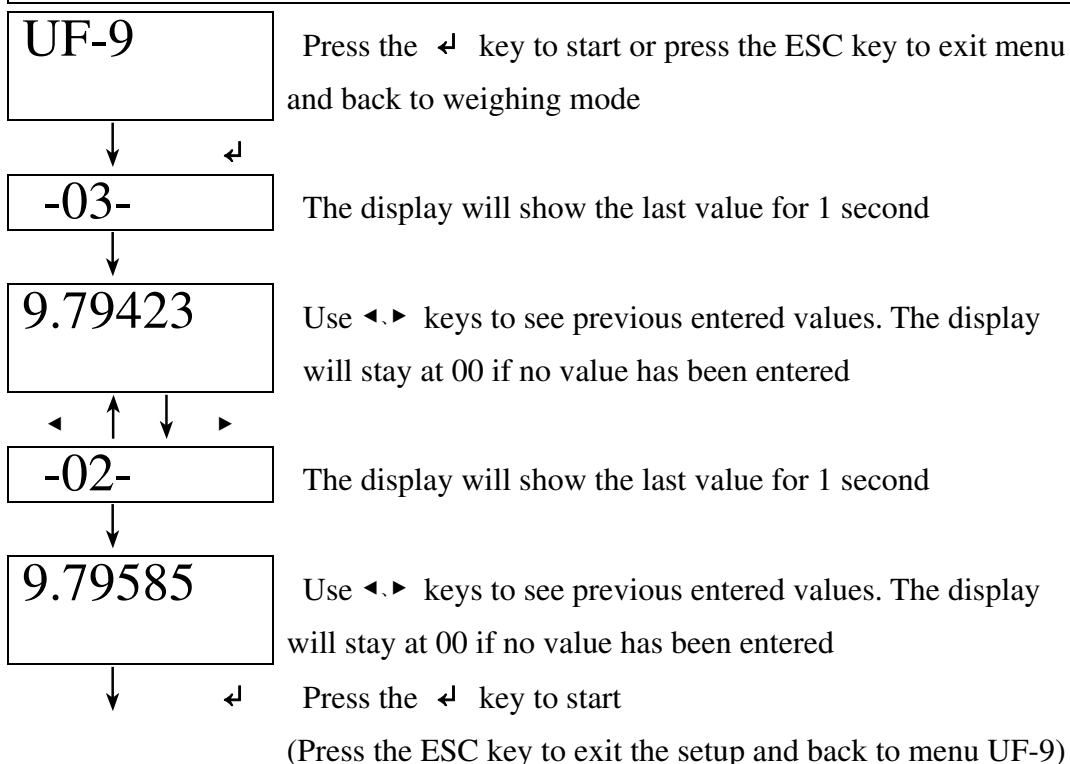
press the ESC key to exit menu and back to weighing mode

UF-9 Standard Gravitational (G value) Pre-Calibration:

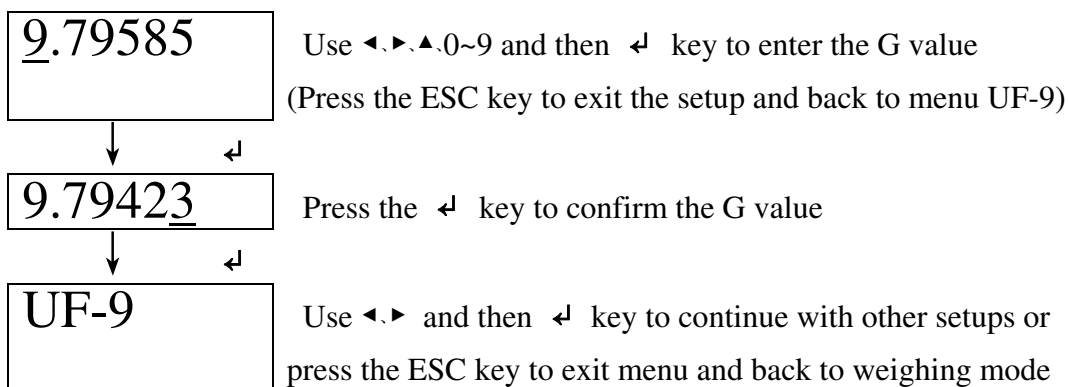
Approval Model: When the CAL switch is at OFF, 10 gravitational values can be entered and can be also recalled for reference. After 10 gravitational values have been filled, the scale will only allow recalling previous 10 values (-00- ~ -09-) for reference and adding new value will not be allowed. Internal Gravitational Calibration or LF1 Internal Weight Calibration has to be done to erase previously entered values.

Non-approval Model: Even the scale allows to do the Standard Calibration, Gravitational Calibration can help to provide accurate scale when end users received it without all the trouble to recalibrate the scale. Pre-calibration is allowed when the scale is setup as non-approval model or the CAL switch is at ADJ position. Gravitational value will be saved at -00- and will be replaced each time a new value has been entered.

- ※ Sender G value: Set it before Weight Calibration
- ※ Recipient G value: Set it after Weight Calibration
- ※ The G value will be denied when the value is greater than 9.83217 (Polar G value) or less than 9.78031 (Equator G value)
- ※ Factory Default: 9.79423



Weighing



Approval Calibrations and Functions Setup (Lock section):

Turn on the scale and press and hold the **ZERO / ◀** key until the countdown sequence becomes 1001, then release the **ZERO / ◀** key and the scale will show LF

1

LF 1 Weight Calibration

LF 2 Spec Calibration

LF 3 Linearity Calibration

LF 4 ADC Update Speed

LF 5 Zero Weight Display Condition

LF 6 Approval Conformity

LF 7 Gravitational (G value) Pre-Calibration

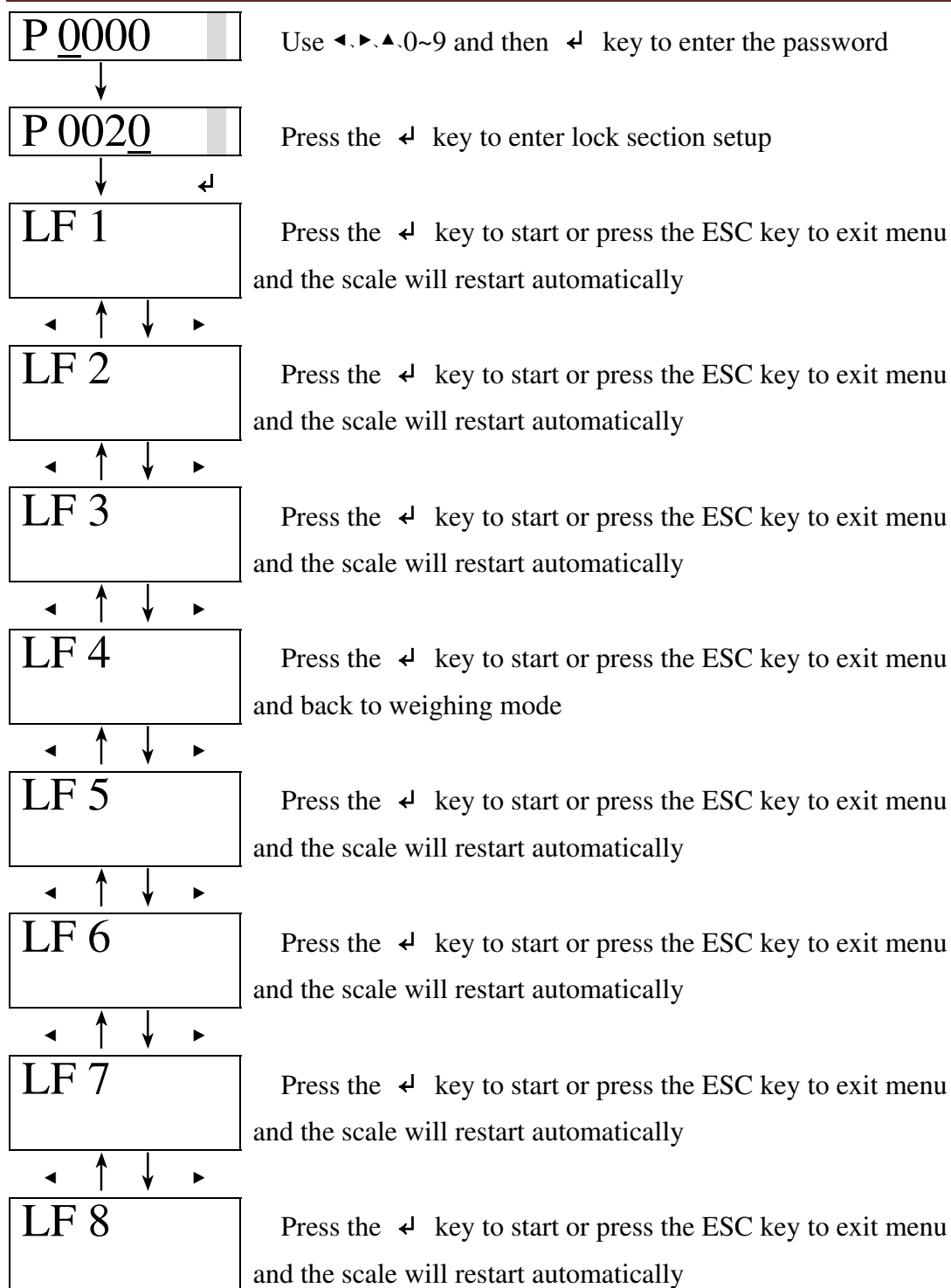
LF 8 Zero Weight Display Condition

※ CAL switch has to be ON

※ Password is required to use Lock Section when LF 6 is set as “none” and CAL switch is OFF

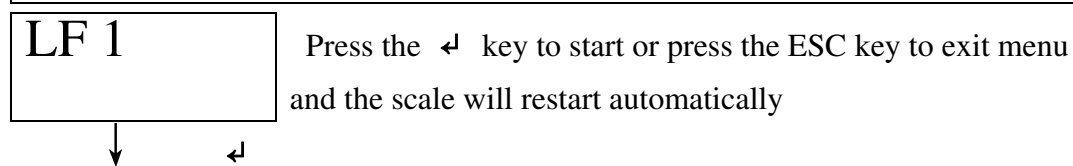
PRINT / ↵	:	↵	Net/Gross / ▲	:	▲
ZERO / ◀	:	◀	UNITS / ESC	:	ESC
TARE / ▶	:	▶			

Weighing

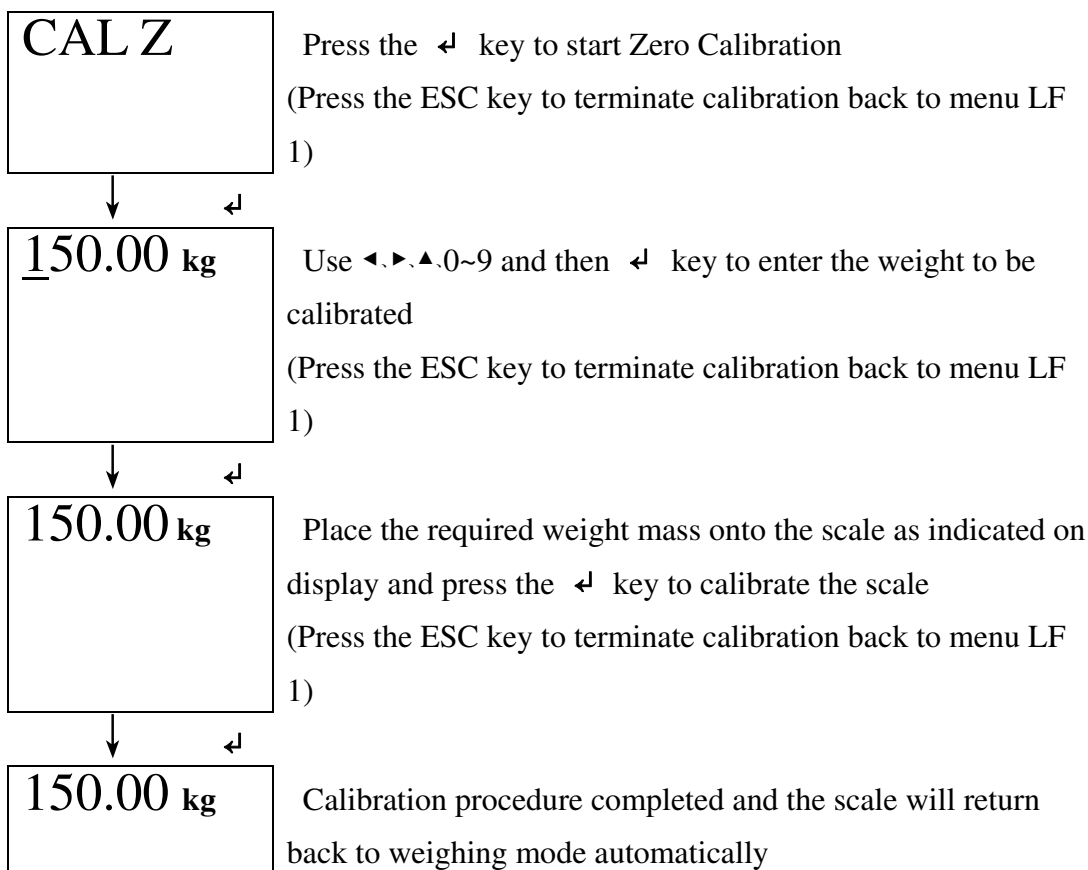


LF 1 Weight Calibration :

※ Calibration can be done with any weight, but the weight should not be less than 1/100 of the max. capacity and not to exceed the max. capacity



Weighing



LF 2 Spec Calibration:

First step

2 6 2 1 4 4

 Display Internal Value

Second step

1	0	0	0	0	1
A	B	C	D	E	F

A : Metric System 0 : None 1 : kg 2 : T 3 : g

B : American System 0 : None 1 : lb 2 : lb oz

C : Other Units 0 : None 1 : TW Kg 2 : HK Kg 3 : VISS

D : PCS 0 : Off

 1 : On

E : Duo range 0 : Off

 1 : MULTI INTERVAL

 2 : MULTIRANGE

F : Calibration Unit 1 : Metric units as calibration unit

 2 : American units as calibration unit

Weighing

※ lb oz unit cannot be selected as calibration unit

※ The scale will not allow to continue to the next setup step if an error has occurred during the programming

Third step

000000kg

Use ◀, ▶, ▲, 0~9 and then ↵ key to enter the max. capacity

→ Showing the calibration unit

Forth step

d 0.0

Use ◀, ▶ keys to move the position of the decimal point

d 0.00

d 0.000

d 0.0000

0.00000

Fifth step

div 01

Press the ▲ key to select division

div 02

div 05

div 10

div 20

div 50

※ After entering LF 2, the scale will display the last saved setup. All steps have to be completed to save the changes, otherwise the scale will keep the last setup

※ Proceed with Weight Calibration after LF2 Spec Calibration

LF 2

Press the ↵ key to start and will display the internal value or press the ESC key to exit menu and the scale will restart automatically

↓ ↵

262144

Press the ↵ key to continue with the setup

(Press the ESC key to exit the setup and back to menu LF 2)

↓ ↵

100001

Use ◀, ▶, ▲, 0~9 and then ↵ key to select weighing units

(Press the ESC key to exit the setup and back to menu LF 2)

↓ ↵

000000kg

Use ◀, ▶, ▲, 0~9 and then ↵ key to enter the max. capacity

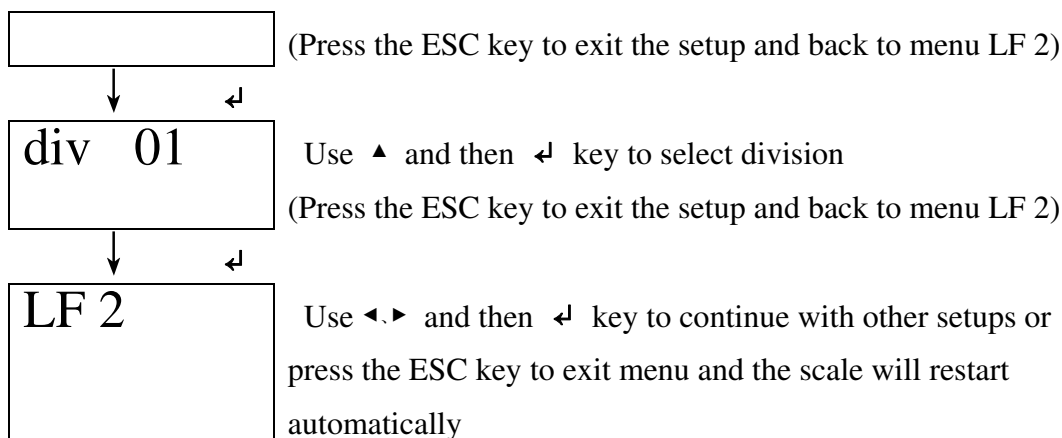
(Press the ESC key to exit the setup and back to menu LF 2)

↓ ↵

d 0.0kg

Use ◀, ▶ and then ↵ key to move the decimal point

Weighing



LF 3 Linearity Calibration :

Up to six calibration sections W0 ~ W6

Be sure that the scale pan is empty before start the calibration. Press ▶ key for first calibration point. Previously saved calibration point will be erased and the display will show CLEAR

Press the ▶ key to proceed to the next calibration point

Press the ◀ key to return back to the previous calibration point

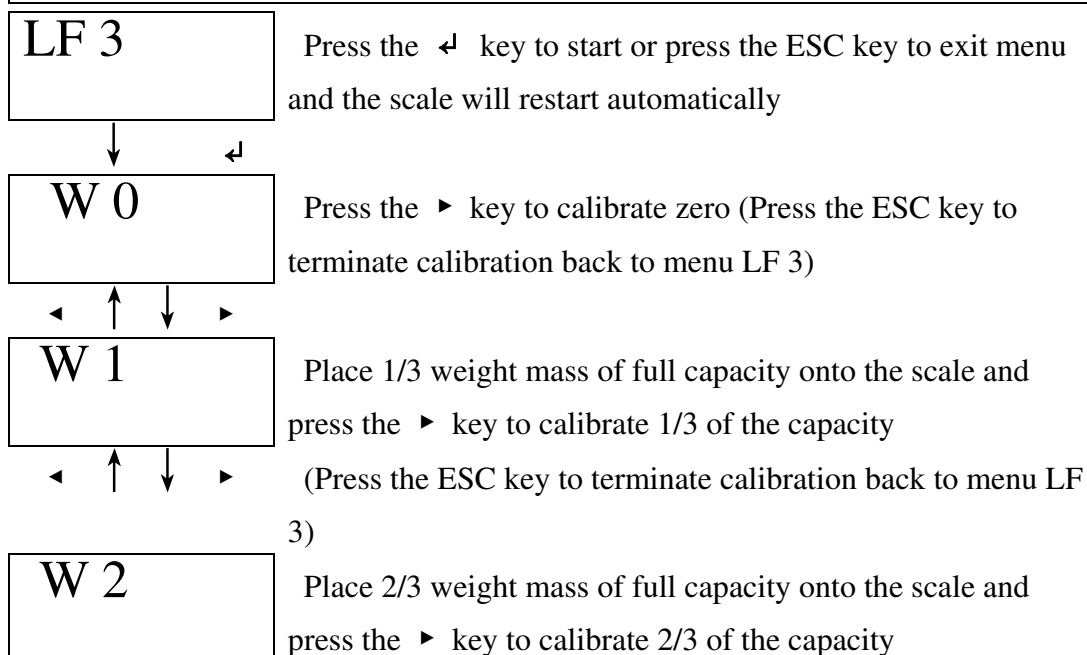
Press the ↵ key to save the calibration

Press the ESC key to terminate calibration back to menu LF 3

Suggest that the correction value is greater than max. capacity to ensure the measuring range is within linearity range

Suggest the linearity calibration should be in three points 0 、 1/3 、 2/3 、 1

※ Proceed with Weight Calibration after Linearity Calibration



Weighing

◀ ↑ ↓ ▶	(Press the ESC key to terminate calibration back to menu LF 3)
W 3	Place weight mass of full capacity onto the scale and press the ▶ key to calibrate full capacity 放
◀ ↑ ↓ ▶	(Press the ESC key to terminate calibration back to menu LF 3)
W 4	Press the ⏪ key to complete linearity calibration
↓ ⏪	(Press the ESC key to terminate calibration back to menu LF 3)
LF 3	Use ◀, ▶ and then ⏪ key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically

LF 4 ADC Update Rate :

SPEED 1	Standard speed	15 hz
SPEED 2	High speed	30 hz
SPEED 3	Low speed	7.5 hz
※ This function is locked when UF-5 is set as “HOLD 1”		
※ Factory default: SPEED 1		

LF 4	Press the ⏪ key to start or press the ESC key to exit menu and back to weighing mode
↓ ⏪	
SPEED 1	Use ▲ and then ⏪ key to select ADC speed (Press the ESC key to exit the setup and back to menu LF 4)
↓ ⏪	
LF 4	Use ◀, ▶ and then ⏪ key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically

LF 5 Zero Weight Display Condition :

ZP 0	Off
ZP 1	One division not to display at zero
ZP 2	Two divisions not to display at zero
ZP 3	Three divisions not to display at zero

Weighing

ZP 4 Four divisions not to display at zero

ZP 5 Five divisions not to display at zero

※ This function is locked when UF-5 is set as “HOLD 1”

※ Factory default: ZP 0

LF 5

Press the \leftarrow key to start or press the ESC key to exit menu and the scale will restart automatically

ZP 0

Use \blacktriangle and then \leftarrow key to select how many divisions not to display at zero
(Press the ESC key to exit the setup and back to menu LF 5)

LF 5

Use \blacktriangleleft , \blacktriangleright and then \leftarrow key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically

LF 6 Approval Conformity:

nonE Non-approval version; Initial Zero not restricted, Standard calibration allowed

oiML EC approval; Initial Zero FULL SCALE $\pm 10\%$, Manual Zero FULL SCALE $\pm 2\%$, No standard calibration allowed

※ Factory default: nonE

LF 6

Press the \leftarrow key to start or press the ESC key to exit menu and the scale will restart automatically

nonE

Use \blacktriangle and then \leftarrow key to select approval or non-approval
(Press the ESC key to exit the setup and back to menu LF 6)

LF 6

Use \blacktriangleleft , \blacktriangleright and then \leftarrow key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically

LF 7 Internal Gravitational (G value) Pre-Calibration:

※ Sender G value: Set it before Weight Calibration

Weighing

- ※ Recipient G value: Set it after Weight Calibration
- ※ The G value will be denied when the value is greater than 9.83217 (Polar G value) or less than 9.78031 (Equator G value)
- ※ Factory Default: 9.79423

LF 7

Press the \leftarrow key to start or press the ESC key to exit menu and the scale will restart automatically

-00-

The display will show the number of pre-calibration for a second

9.79423

Press the \leftarrow key to continue

9.79423

Use \leftarrow , \rightarrow , \uparrow , 0~9 and then \leftarrow key to enter the G value (Press the ESC key to exit the setup and back to menu LF 7)

LF 7

Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically

LF 8 Initial Zero:

SEtZ Y Reset zero point every time the scale has been switched on

SEtZ n Zero point reset off

※ Factory Default: SEtZ Y

LF 8

Press the \leftarrow key to start or press the ESC key to exit menu and the scale will restart automatically

SEtZ Y

Use \uparrow and then \leftarrow key to select initial zero mode (Press the ESC key to exit the setup and back to menu LF 8)

LF 8

Use \leftarrow , \rightarrow and then \leftarrow key to continue with other setups or press the ESC key to exit menu and the scale will restart automatically