DP 100

User Manual

Table of Contents

Version: March 2015
Software versions: 8075 or higher

SAFETY PRECAUTIONS

WARNING-SHOCK HAZARD
Due to the risk of electrical shock, this instrument must be installed only by qualified personnel.

WARNING- SHOCK HAZARD
Due to the risk of electrical shock, the cover must be removed only by qualified personnel.

WARNING
No ground or incorrect ground connection might cause electric shocks and/or breakdowns.

CAUTION
Calibration and configuration must be performed only by qualified personnel.

CAUTION
Turn off power before installing or disassembling.

CAUTION
The integrated circuits in the DP 100 are sensitive to electrostatic discharge (ESD). Be sure to follow proper procedures for transporting, storing and handling ESD-sensitive components.

CAUTION
Never use alcohol or solvents to clean the indicator. These chemical products could damage it
Make sure that water does not enter the indicator. It could damage electronic components.

1 Keypad Instruction

Function	Operation	Description
General Function Setting	Press and hold ENTER, and then press F1	Refer to section **5** for details.
Weighing Parameter Setting	Adjust calibration switch to ON	Refer to section **6.1** for details.
Calibration	Adjust calibration switch to ON	Refer to section **6.2** for details.
Default Recovery for All Parameters	Adjust calibration switch to ON, and then press and hold F1 ENTER	Refer to section **9.1** for details.
Default Recovery for General Function Parameters	While turning on with countdown, press and hold F1 ENTER	Refer to section **9.2** for details.
Self-diagnosis Mode	While turning on with countdown, press and hold ZERO +	Refer to section **9.3** for details.

2 Specifications

Analog Specification

- Load Cell Current : 5 V DC ±5% 60 mA (Up to four 350 Ω Load Cells)
- Max. Load Cell Input Signal : 3 mV/V
- Input Sensitivity : 0.15 μV/d or more
- Conversion Rate : 120 times/s (max.)
- Resolution : 20 bits

Digital Specification

- Display : LCD, 6 digits, 25.4 x 10 mm (W x H), LED backlight
- Display Frequency : 50 times/s (max)
- Display Range : - 999 999 ~ 999 999
- Min. Division : 1, 2, 5, 10, 20, 50
- Decimal Point : 0, 0.0, 0.00, 0.000, 0.0000
- Memory : Calibration parameter and function setting are all stored in EEPROM.

Serial interface

- RS-232 port for PC or printer connection

Power Requirement

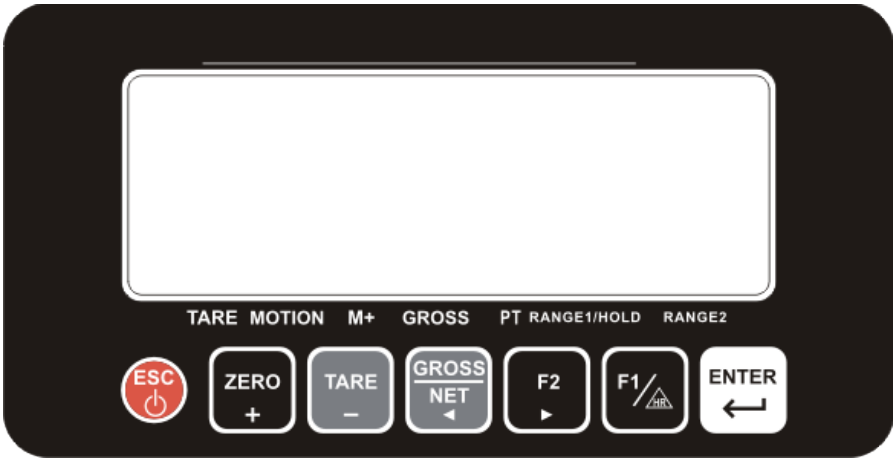
- Adaptor Spec : Input 230 V AC 50 ~ 60 Hz
  Output 9 V DC / 1000 mA
- Batteries : General AA batteries (5 pcs)
- Max. Power Consumption :110 mA (with 4 Load Cells + backlight + RS-232 interface)

Others

- Operation Temperature : 0 ~ 40 °C
- Operation Humidity : < 85% R.H.
- Dimensions (W × D × H) (mm) : 193 × 49.5 × 94.4 (indicator housing)
  225 × 60 × 134.7 (mounting hardware included)
- Weight : 1500 g

3 Front and Rear Panels

3.1 *Front Panel*



Indication:

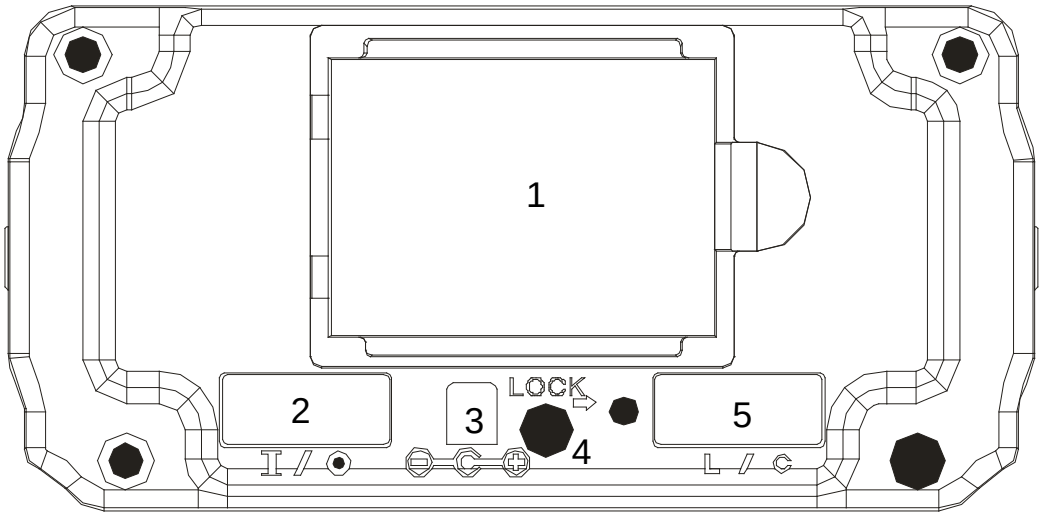
TARE	:	Tare mode
MOTION	:	Unstable weighing indication
M +	:	Accumulation mode indication
GROSS	:	Gross weight
PT	:	Manual tare
RANGE1/HOLD	:	Dual-range resolution indication: range 1/ HOLD indication
RANGE2	:	Dual-range resolution indication: range 2

RANGE1 and HOLD description:
The led is ON by default. When using CNF-05 function (animal scale mode) or FNC-07 function (HOLD function setting) it works as a hold led. In the other hand when using the multi-range mode, this led is used to indicate the range situation where we are.
CFN-05 (animal scale mode) and FNC-07(HOLD function setting) functions can not work at the same time.

Keypad:

ESC	1) Power ON / OFF. Press and hold this key for 3 seconds to shut down. 2) Abort or exit when setting.
ZERO +	1) Weight re-zero. 2) Increase the flashing value by one when setting.
TARE –	1) Eliminate the gross weight. 2) Decrease the flashing value by one when setting.
GROSS NET ◄	1) Switch Gross / Net weight shown on display. 2) Move the cursor leftward when setting.
F2 ►	1) Keypad function (FNC-02 & FNC-03). 2) Move the cursor rightward when setting.
F1	Keypad function (FNC-02 & FNC-03).
ENTER	Confirm key.

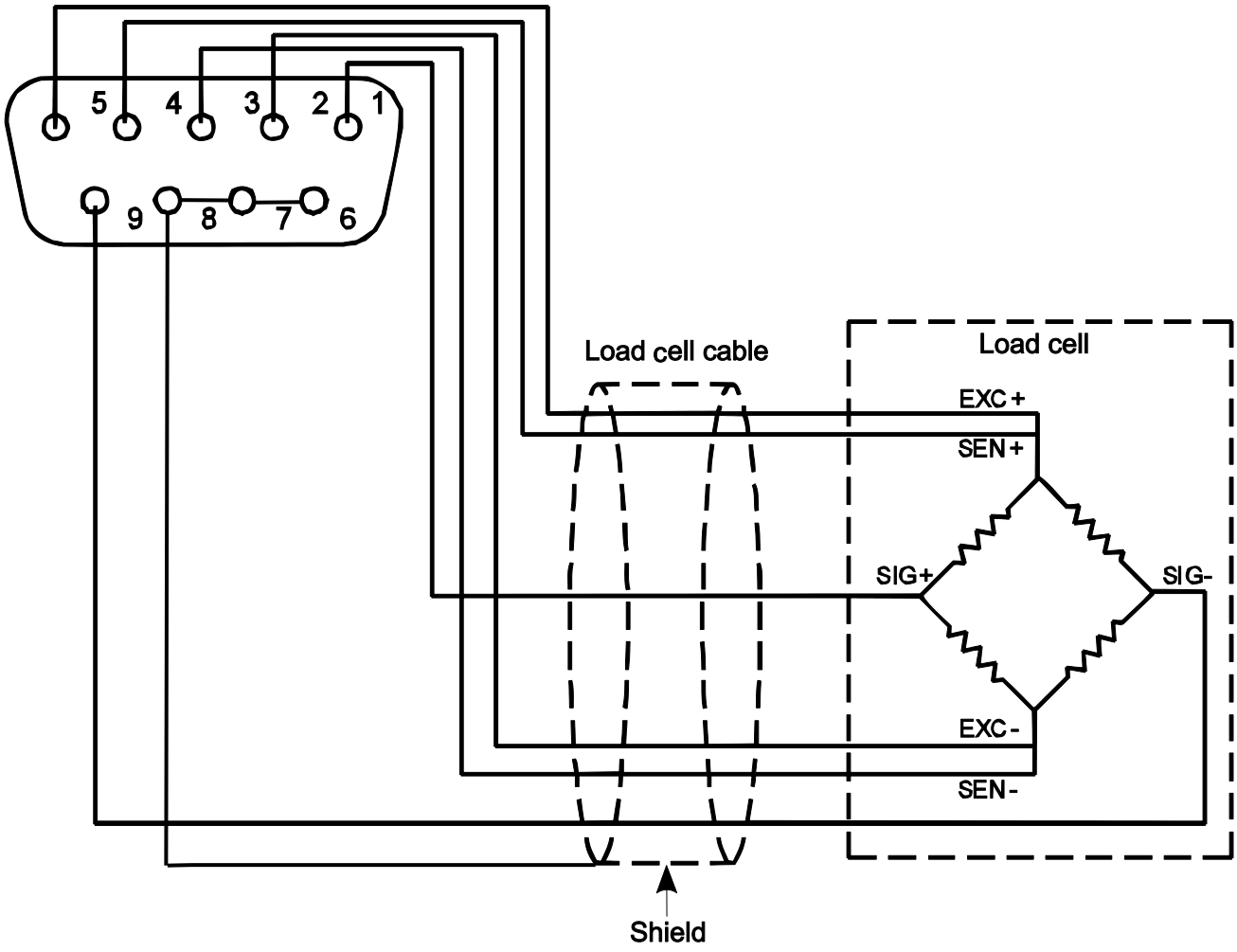
3.2 *Rear Panel*



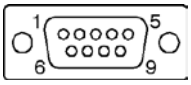
1. Battery Case
2. RS-232 Plug
3. 9 V DC Power Input
4. Calibration Switch
5. Load Cell Connect Socket

4 Installation

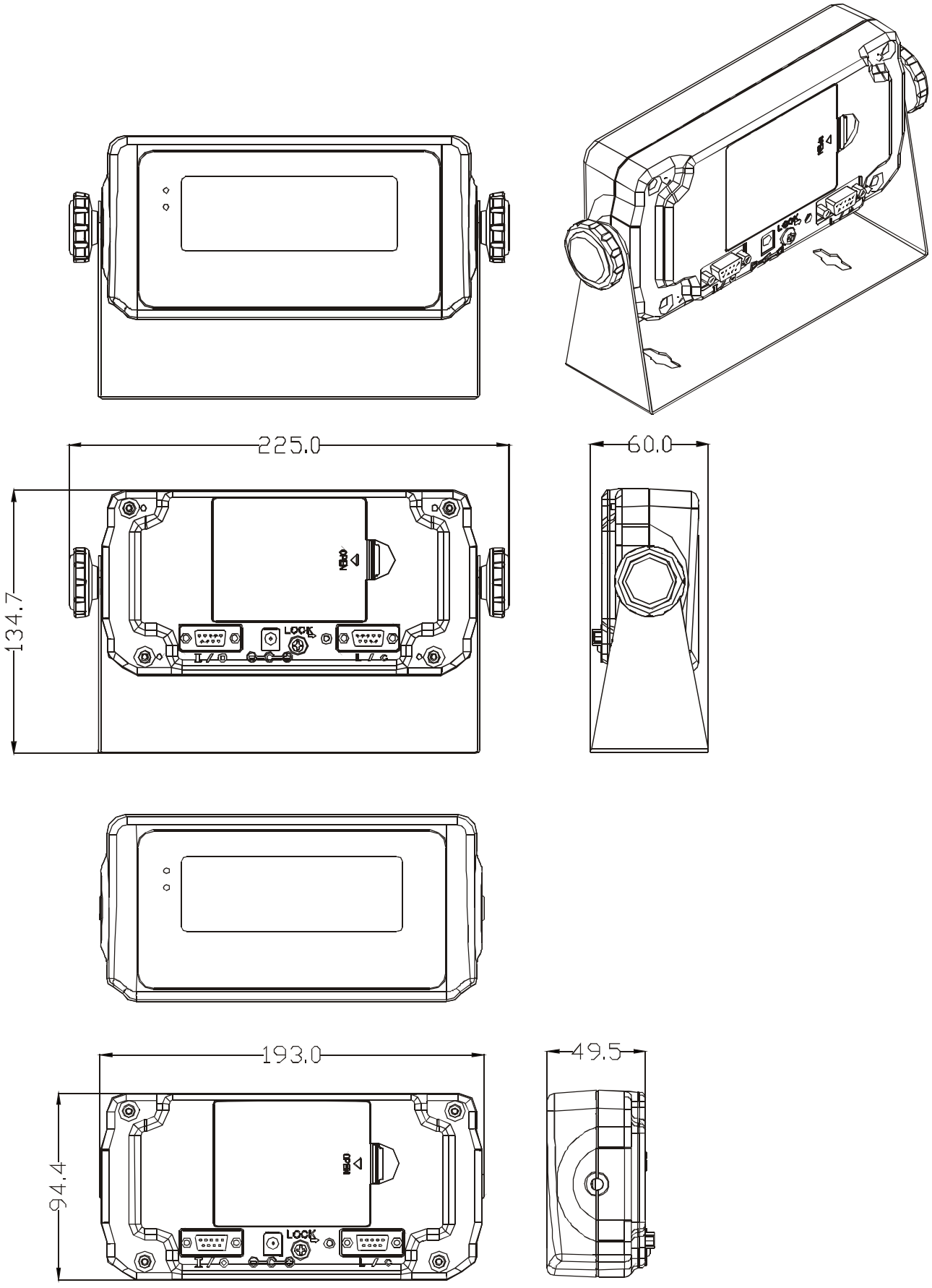
4.1 *Load Cell*



The indicator connector is a SUB-D 9 Male.

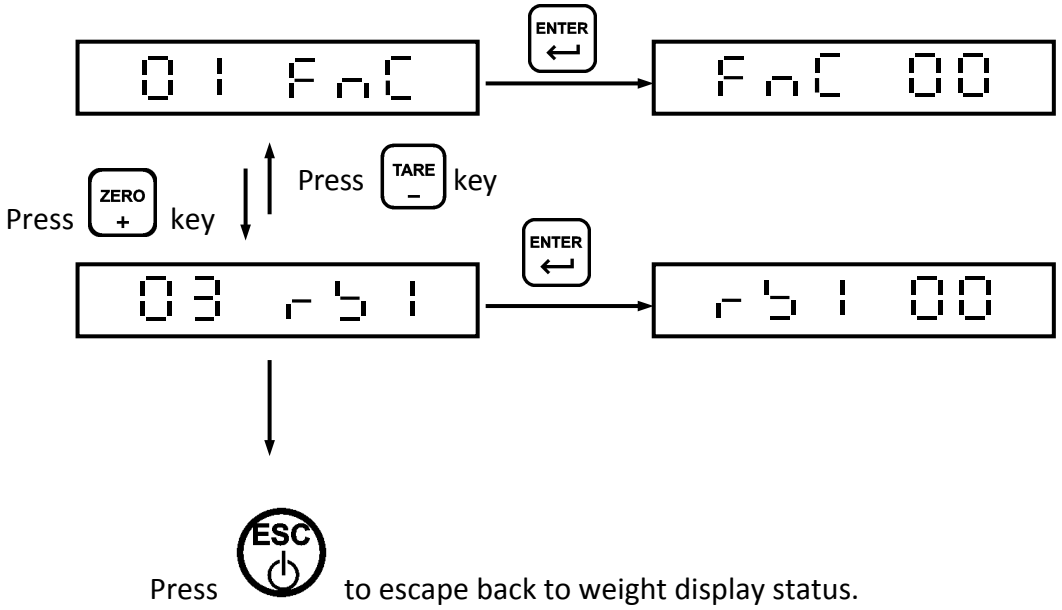
SUB-D 9 Connector Aerial female  Pin Assignment View from welded side	4-Wire Load Cell		6-Wire Load Cell	
	PIN	**SIGNAL**	**PIN**	**SIGNAL**
	1	SIG +	1	SIG +
	2-3	EXC-	2	EXC-
	4-5	EXC+	3	SEN-
	6-7-8	SHIELD	4	SEN+
	9	SIG-	5	EXC+
	Bridge pins 2-3 (EXC- and SENSE-), 4-5 (EXC+ and SENSE+) and 6-7-8 (SHIELD)		6-7-8	SHIELD
			9	SIG-
			Bridge pins 6-7-8 (SHIELD)	

4.2 *Dimensions*



5 External Function Parameter Setting

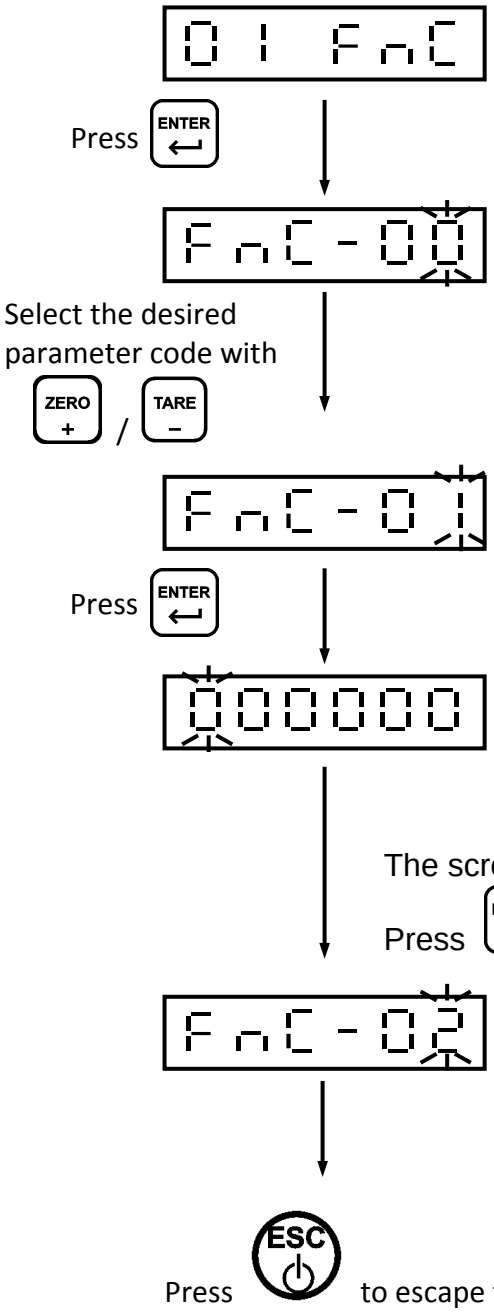
Under general weight display status, press ENTER F1, and the screen will show:



01 FnC ⇒ External function setting

03 r51 ⇒ RS-232 interface function

5.1 01 FnC *External Function Setting*



***Parameter Code**

- FnC-00 ⇒ Key Disable
- FnC-01 ⇒ DSP Update (Display Update)
- FnC-02 ⇒ F1 Key Function Setting
- FnC-03 ⇒ F2 Key Function Setting
- FnC-04 ⇒ ENTER+F2 Function Setting
- FnC-05 ⇒ Backlight Function Setting
- FnC-06 ⇒ Beeper Setting
- FnC-07 ⇒ HOLD Function Setting
- FnC-08 ⇒ Auto-Switch-off Setting

The screen shows previous parameter setting.

Press ENTER to finish and confirm your changes

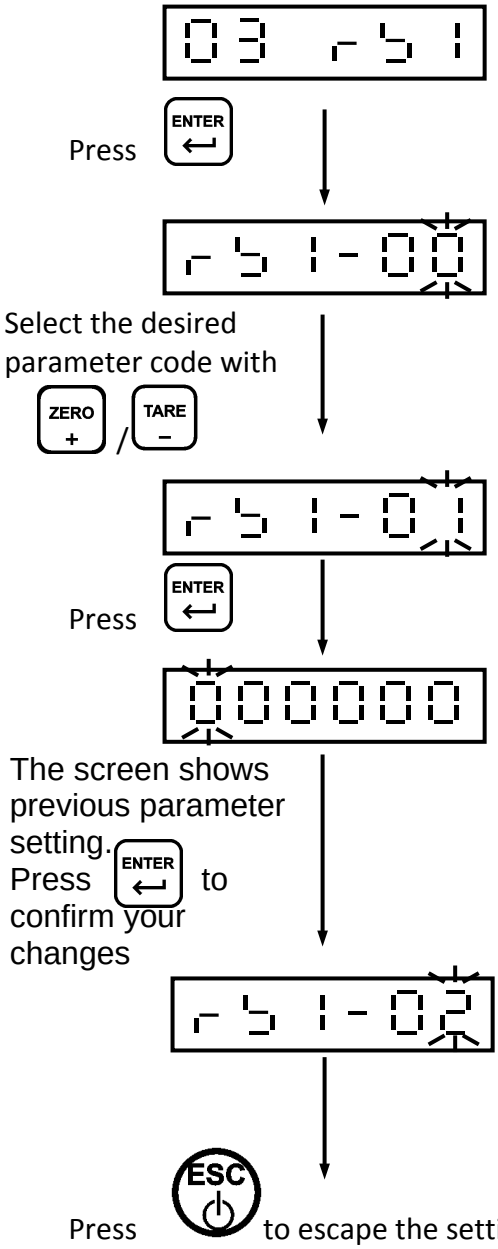
ZERO +	⇒	Increase the flashing value by one
TARE −	⇒	Decrease the flashing value by one
GROSS NET ◄	⇒	Move the cursor leftward
F2 ►	⇒	Move the cursor rightward
ENTER	⇒	Save setting
ESC	⇒	Abort setting or exit

External Function Parameter Setting

Parameter Code	Function	Setting Value				Default Setting
		Parameter	Description			
FNC-00	Key disable	0000 ↓ 1111	0	ON	0000 is corresponding to (from left to right): ZERO + TARE − GROSS NET ◄ F2 ►	0000
			1	OFF		
FNC-01	DSP Update	0	No Limit			1
		1	20 times/s			
		2	10 times/s			
		3	5 times/s			
		4	1 times/s			
FNC-02	F1 Key Function Setting	0	Print (printing)			5
		1	Units (units switch)			
		2	M+ (accumulation and printing)			
		3	MC (memory clearing)			
		4	Weight / Weight Accumulation / Time Accumulation Display Switch			
		5	HR (high resolution switch)			
		6	Manual tare (Manual tare function)			
FNC-03	F2 Key Function Setting	0	Print (printing)			1
		1	Units (units switch)			
		2	M+ (accumulation and printing)			
		3	MC (memory clearing)			
		4	Weight / Weight Accumulation / Time Accumulation Display Switch			
		5	HR (high resolution switch)			
		6	Manual tare (Manual tare function)			
FNC-04	ENTER+F2 Function Setting	0	Print (printing)			0
		1	Units (units switch)			
		2	M+ (accumulation and printing)			
		3	MC (memory clearing)			
		4	Weight / Weight Accumulation / Time Accumulation Display Switch			
		5	Resolution Conversion			
		6	Manual tare (Manual tare function)			
FNC-05	Backlight Setting	0	Auto Backlight On (backlight on in operation only)			1
		1	Backlight On (backlight always on)			
		2	Backlight Off			
FNC-06	Beeper Setting	0	Beeper off			1
		1	Beeper on			

FNC-07	HOLD function setting	0	Disabled function	0
		1	Mode 1	
		2	Mode 2	
FNC-08	Auto Switch-off (minutes)	0	Disabled function	0
		1 ~ 60	It works in a stable weight and no key pressed	

5.2 03 r51 *RS-232 Setting*



***Parameter Code**

- r51-00 ⇒ Information Pattern
- r51-01 ⇒ Transmission Method
- r51-02 ⇒ Transmission Rate
- r51-03 ⇒ Parity, Bit Length, Stop Bit
- r51-04 ⇒ Unstable or Overload
- r51-05 ⇒ Auto Transmission Condition
- r51-06 ⇒ Reserved
- r51-07 ⇒ Output Format
- r51-08 ⇒ Transmission Times
- r51-09 ⇒ Reserved
- r51-10 ⇒ Reserved

ZERO +	⇒	Increase the flashing value by one
TARE –	⇒	Decrease the flashing value by one
GROSS NET ◄	⇒	Move the cursor leftward
F2 ►	⇒	Move the cursor rightward
ENTER	⇒	Save setting
ESC	⇒	Abort setting or exit

RS-232 Interface Function

Parameter Code	Function	Setting Value			Default Setting
		Parameter	Description		
RS1-00	Information Pattern (Please refer to page 16)	0	Display Correspondingly		0
		1	Gross Weight		
		2	Net Weight		
		3	Tare		
		4	Accumulated Weight		
		5	Numero of accumulations		
		6	Ticket		
		7	PT output		
RS1-01	Transmission Method	0	Continuous Transmission		0
		1	Auto Transmission		
		2	Press F1 or F2 to transmit		
		3	Command Mode (no address)		
		4	Reserved		
RS1-02	Transmission Rate	0	1200		3
		1	2400		
		2	4800		
		3	9600		
RS1-03	Parity, Bit Length, Stop Bit	0	N、8、1	No Parity 8 Bits Length 1 Stop Bit	0
		1	O、7、1	Odd Parity, 7 Bits Length, 1 Stop Bit	
		2	E、7、1	Even Parity, 7 Bits Length, 1 Stop Bit	
RS1-04	Unstable or Over Load	0	Continue Output		0
		1	Stop Output		
RS1-05	Auto Transmission Condition	0	Positive (over + 10d)		0
		1	Positive / Negative (over + 10d, under – 10d)		
RS1-06	Reserved	Reserved	Reserved		Reserved
RS1-07	Output Format	0	Standard Format		0
		1	UMC 600		
		2,3,4,5,6	Reserved		
RS1-08	Transmission Times	0	No Limit		4
		1	1 times/s		
		2	2 times/s		
		3	5 times/s		
		4	10 times/s		
		5	20 times/s		

RS1-09	Reserved	Reserved	Reserved	Reserved
RS1-10	Reserved	Reserved	Reserved	Reserved

Transmission Format

RS1-00 ⇒ 0 ~ 3

S	T	,	G	S	,	+	1	2	3	4	.	5	6		g	CR	LF

Header 1 Header 2 Weight Data (8 digits) Unit Terminators

Header 1

ST: Stable Weight / US: Unstable Weight / OL: Weight Overload

Header 2

GS: Gross Weight / NT: Net Weight / TR: Tare

Weight Data (8 digits)

The first digit of weight data represents "+ / -" indication for weight value. The other 7 digits, including decimal point, represent the weight value. If the weight is over load (Header 1: OL), the screen turns into "blank" except "+ / -" indication and decimal point.

Unit

kg, lb, t or "blank"

Terminators

CR and LF are data termination code.

RS1-00 = 4

T	N	,	1	2	3	CR	LF

RS1-00 = 5

T	W	,	+	1	2	3	4	.	5	6	k	g	CR	LF

RS1-00 = 6

D	A	T	E		:	2	0	X	X	/	X	X	/	X	X	CR	LF
T	I	M	E		:	X	X	:	X	X	:	X	X	CR	LF		
G	R	O	S	S	:	+	1	2	3	4	.	5	6	k	g	CR	LF
N	E	T			:	+	1	2	3	4	.	5	6	k	g	CR	LF
T	A	R	E		:	+	1	2	3	4	.	5	6	k	g	CR	LF
T	N				:	X	X	X	CR	LF							
T	W				:	+	1	2	3	4	.	5	6	k	g	CR	LF

RS1-00 = 7

D	A	T	E		:	2	0	X	X	/	X	X	/	X	X	CR	LF
T	I	M	E		:	X	X	:	X	X	:	X	X	CR	LF		
G	R	O	S	S	:	+	1	2	3	4	.	5	6	k	g	CR	LF
N	E	T			:	+	1	2	3	4	.	5	6	k	g	CR	LF
T	A	R	E		:	+	1	2	3	4	.	5	6	k	g	CR	LF
P	T				:	+	1	2	3	4	.	5	6	k	g	CR	LF
T	N				:	X	X	X	CR	LF							
T	W				:	+	1	2	3	4	.	5	6	k	g	CR	LF

Command Mode

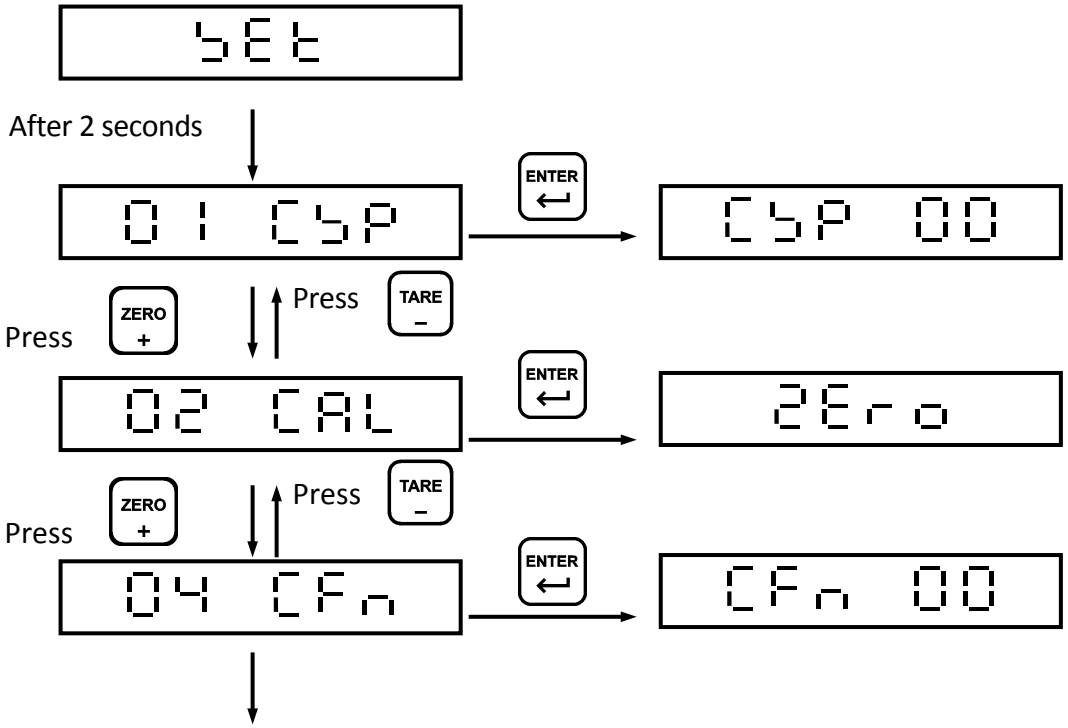
Command	Function	Command	Function
READ / RW	Weight Reading	CT	Tare Clearing
ZERO / MZ	Weight Re-zeroing	Rl	Weight Accumulation
TARE / MT	Gross Weight Deducting	Rm	Times Accumulation
NTGS	Gross / Net Switch	AT	Weight and Times Accumulation
MG	Gross Weight Indicating	DT	Weight and Times Accumulation Clearing
MN	Net Weight Indicating		

❶ After setting the commands mentioned above, it's necessary to add the termination code "CR (0DH) and LF (0AH)".

❷ If the command is not correct, it will reply "E" + "Command Unidentified".

6 Internal Calibration

Adjust calibration switch to "ON". The screen displays:



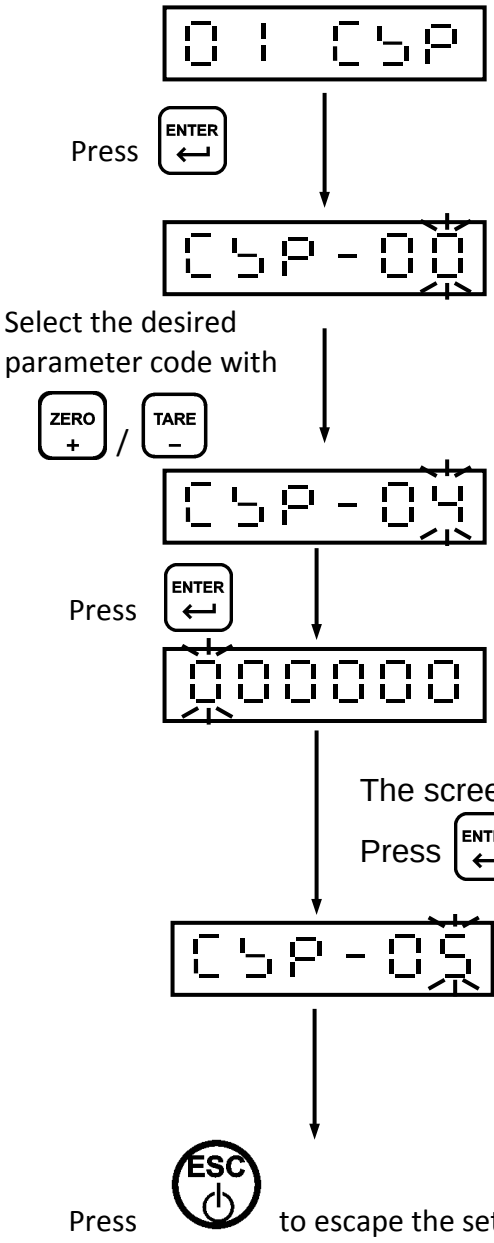
Adjust calibration switch back to "LOCK".

01 CSP ⇒ Scale definition

02 CAL ⇒ Weight Calibration

04 CFn ⇒ Internal Function Setting

6.1 01 CSP *Scale definition*



***Parameter Code**

CSP-00 ⇒ Decimal Point

CSP-01 ⇒ Maximum Weighing Capacity

CSP-02 ⇒ Division 1

CSP-03 ⇒ Division 2

CSP-04 ⇒ Zero Tracking Setting

CSP-05 ⇒ Unstable Detection Setting

ZERO +	⇒	Increase the flashing value by one
TARE –	⇒	Decrease the flashing value by one
GROSS NET ◄	⇒	Move the cursor leftward
F2 ►	⇒	Move the cursor rightward
ENTER	⇒	Save setting
ESC	⇒	Abort setting or exit

Specification Parameter Description

Parameter Code	Function	Setting Value		Default Setting
		Parameter	Description	
CSP-00	Decimal Point		Refer to the description on next page	0
CSP-01	Maximum Weighing Capacity	999 999 ↓ 000 000	Max. value for weight display	999 999
CSP-02	Division 1	1	Division for range 1	1
		2		
		5		
		10		
		20		
		50		
CSP-03	Division 2	1	Division for range 2	1
		2		
		5		
		10		
		20		
		50		
CSP-04	Zero Tracking Setting		Refer to description on next page	0,25d/sec.
CSP-05	Unstable Detection Setting		Refer to description on next page	0,25d/sec.

Parameter Display Description

CSP-00 Decimal Point

Display	Decimal Point Digit
d 0	None
d 0.0	1 digit
d 0.00	2 digits
d 0.000	3 digits
d 0.0000	4 digits

CSP-04 Zero Tracking Setting

Display	Division/Time
0.25 d	0.25 d / 1 s
0.5 d	0.5 d / 1 s
0.75 d	0.75 d / 1 s
1 d	1d / 1 s
1.25 d	1.25 d / 2 s
1.5 d	1.5 d / 2 s
1.75 d	1.75 d / 2 s
2 d	2 d / 2 s
no	No Zero Tracking

CSP-05 Unstable Detection Setting

Display	Division / Time
0.25 d	0.25 d / 1 s
0.5 d	0.5 d / 1 s
0.75 d	0.75 d / 1 s
1 d	1d / 1 s
1.25 d	1.25 d / 2 s
1.5 d	1.5 d / 2 s
1.75 d	1.75 d / 2 s
2 d	2 d / 2 s
no	No Unstable Detection

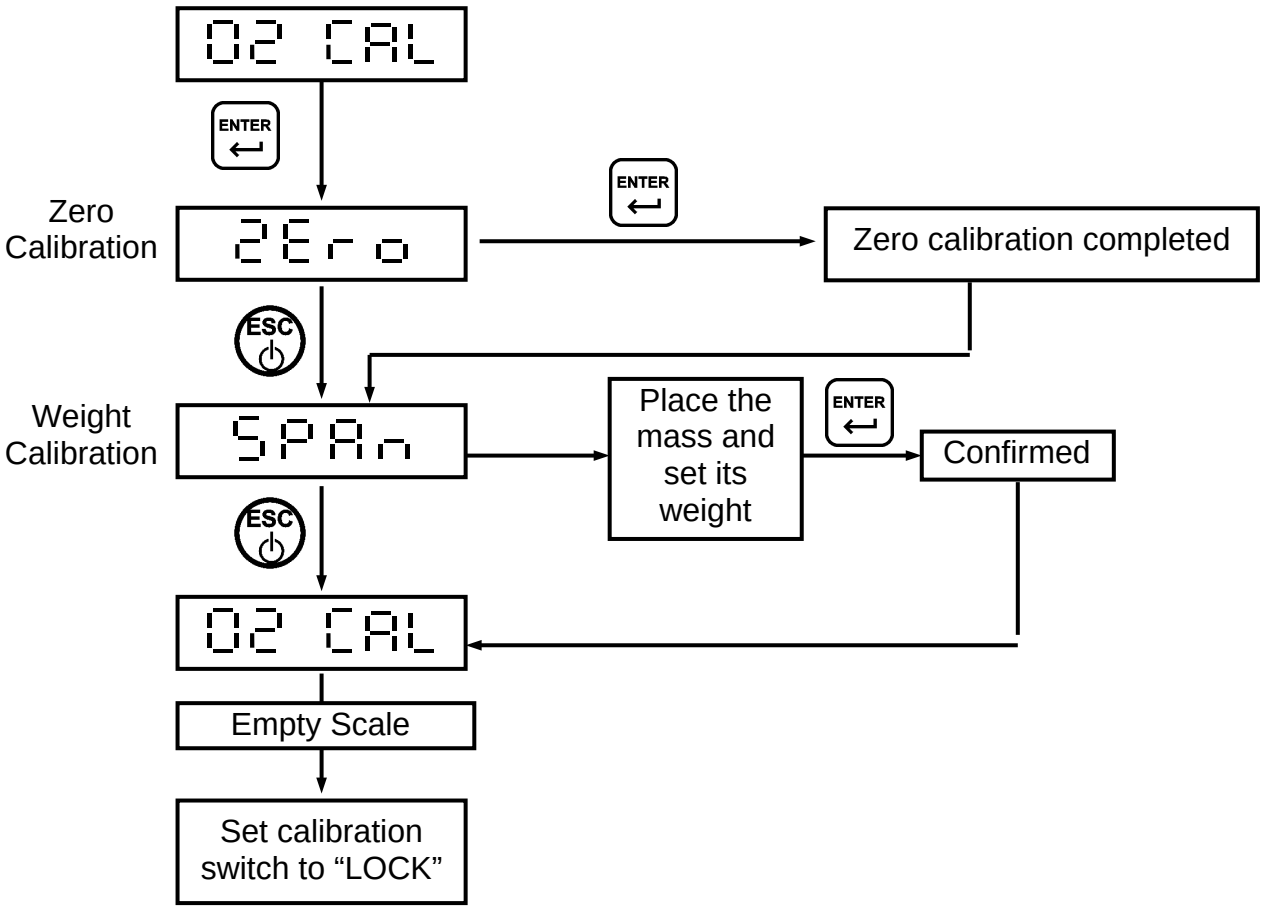
6.2 02 CAL *Weight Calibration*

Turn on and warm up the indicator for 15 to 30 minutes before calibration.

Adjust the calibration switch to "ON". The screen will show SEt.

Press TARE – or ZERO + to select 02 CAL.

Procedure



Zero Calibration

a) Ensure there is nothing on the platform; after being stable, press ENTER, the screen will display "**.....** ". The zero calibration will be completed 5 seconds later.

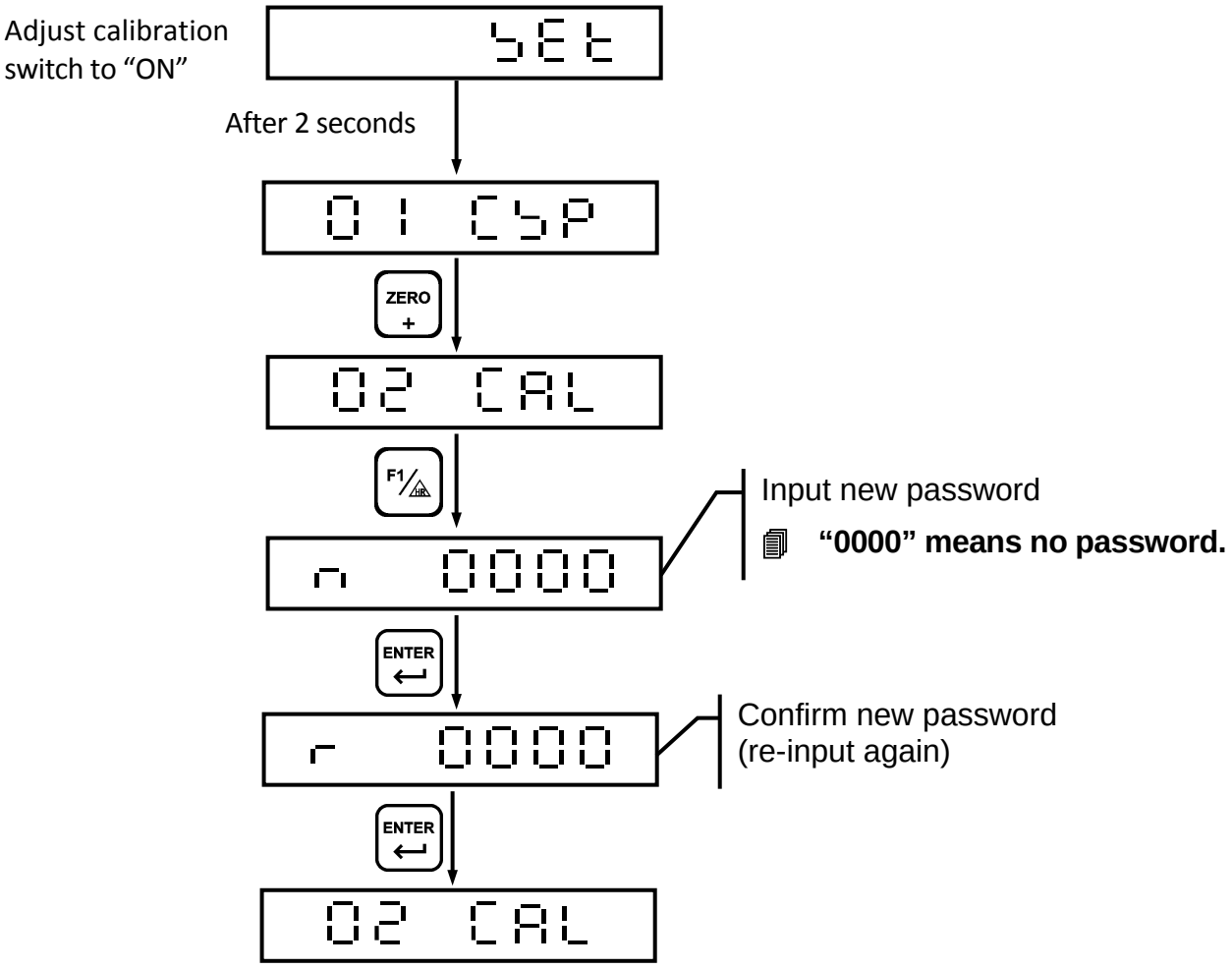
b) To abort zero calibration, just press ESC.

Weight Calibration

a) Place an object with a known weight on the platform. Input the weight value from front panel. After being stable, press ENTER. The screen will show "**.....** ". The weight calibration will be completed 5 seconds later.

b) To abort weight calibration, just press ESC.

6.3 *Password Setting*

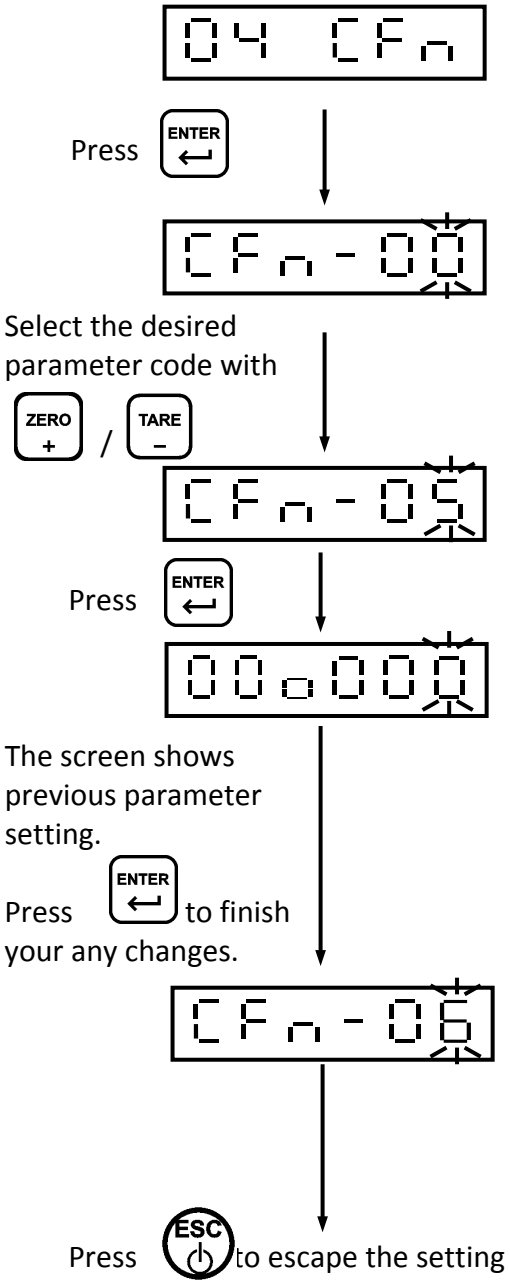


Once password setting is completed, when entering to calibration mode or function setting mode, the screen shows PW for 1 second, and then 0000. Then it is necessary to input the password correctly to access these modes.

If the input password is not correct, the screen will show Err.

WARNING
Keep this number in a safe place. This will be the only one that will let you access calibration mode or function setting mode

6.4 04 CFn *Internal Function Setting*



***Parameter Code**

- CFn-00 ⇒ Tare or Zero Function under Unstable Status
- CFn-01 ⇒ Re-zeroing after Turning on
- CFn-02 ⇒ Re-zero Range
- CFn-03 ⇒ Animal Scale Sampling Rate
- CFn-04 ⇒ Filter Strength
- CFn-05 ⇒ Animal Scale Mode
- CFn-06 ⇒ Animal Scale Stable Range
- CFn-07 ⇒ Animal Scale Sampling Frequency
- CFn-08 ⇒ Dual Range Resolution Setting
- CFn-09 ⇒ Dual Range Resolution Middle Point Setting
- CFn-10 ⇒ G Value Calibration
- CFn-11 ⇒ Weight accumulation operation

Internal Function Parameter Description

Parameter Code	Function	Setting Value		Default Setting
		Parameter	Description	
CFN-00	Tare or Zero Function under Unstable Status	0	ON	1
		1	OFF	
CFN-01	Re-zeroing after Turning on	0	OFF	1
		1	ON	
CFN-02	Re-zero Range	0% ~ 30%	0%: Full range re-zero 1% ~ 30%: Capacity × ± setting value%	2
CNF-03	Animal Scale Sampling Rate	0 ~ 9	The higher the number, the lower the speed	6
CFN-04	Filter Strength	0 ~ 5	Strength increases by number	2
CFN-05	Animal Scale Mode	0	OFF	0
		1	Mode 1: No weight is showed under unstable status	
		2	Mode 2: Weight is showed in both stable or unstable status	
CFN-06	Animal Scale Stable Range	0 ~ 100	Mode 2: Stable Range Setting	10
CFN-07	Animal Scale Sampling Frequency	0	8 times	2
		1	16 times	
		2	32 times	
		3	64 times	
		4	128 times	
CFN-08	Dual Range Resolution Setting	0	Multi - interval	0
		1	Multi - range	
CFN-09	Dual Range Resolution Middle Point Setting	0 ~ 999 999	Set point of dual-range resolution	5000
CFN-10	G Value Calibration	9.78032 | 9.83218	Adjust G value	9.79432
CFN-11	Weight accumulation operation/ Switch to time accumulation in screen under stability condition	0	ON	1
		1	OFF	

6.5 *Error Messages*

(1)  Load Cell or A/D circuit is not working properly

(2)  Weighing value is lower or equal to zero

(3)  Internal resolution is lower than 0.15 μV/d range

(4)  Incorrect password

(5)  Weight is higher than zero range

(6)  Weight value is lower than zero range

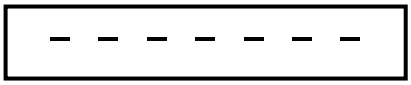
7 Special Function

7.1 *Animal Scale Setting*

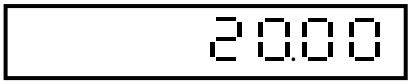
CFN-05 = 1

(Animal Scale Mode1: No weight is displayed under unstable status)

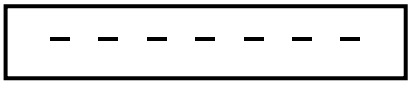
When there is nothing on the platform, the screen shows:



When an object is on the platform, taking an object of 20 g as an example, the screen shows:



If the display weight value keeps being lower than zero plus 10d or press Enter key to start weighing, then the screen shows:



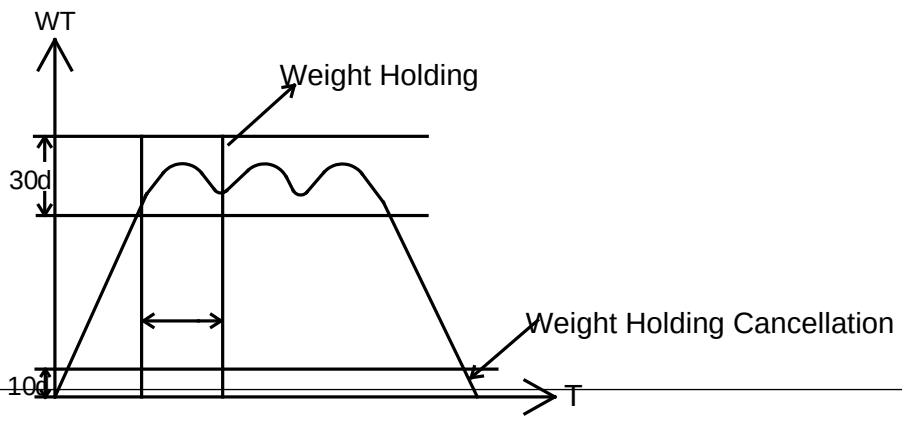
CFN-05 = 2

(Animal Scale Mode 2: Weight is displayed both under unstable or stable status)

When the weight value reaches the range of CFN-06 and CFN-07 setting, the screen will keep showing the weight value.

When the weight value is over the range of CFN-06 and CFN-07 setting, the screen will show the normal weight measurement.

For example: CFN-06=30 CFN-07=2

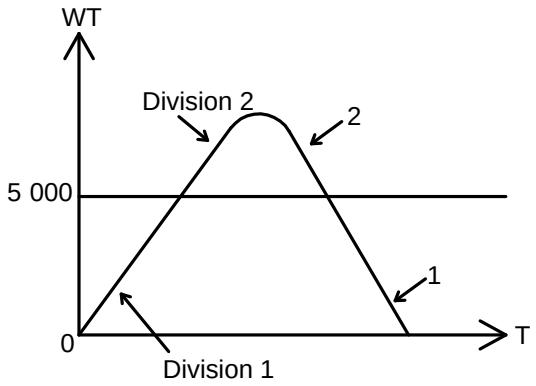


7.2 *Dual Range Resolution Switch Function*

If the setting of CSP-02 is not the same as CSP-03, the dual range resolution will be available.

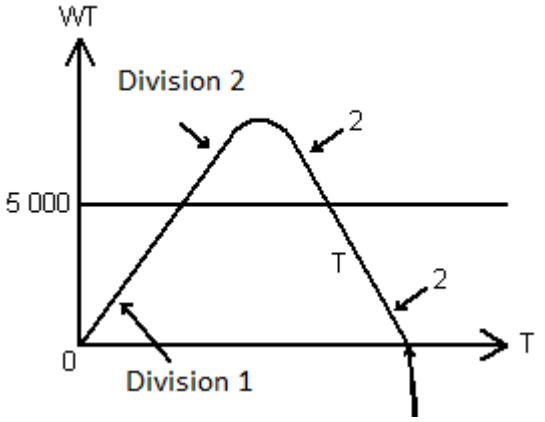
CFN-08 = 0 Multi - interval

If CFN-09 = 5 000



CFN-08 = 1 Multi - range

If CFN-09 = 5 000

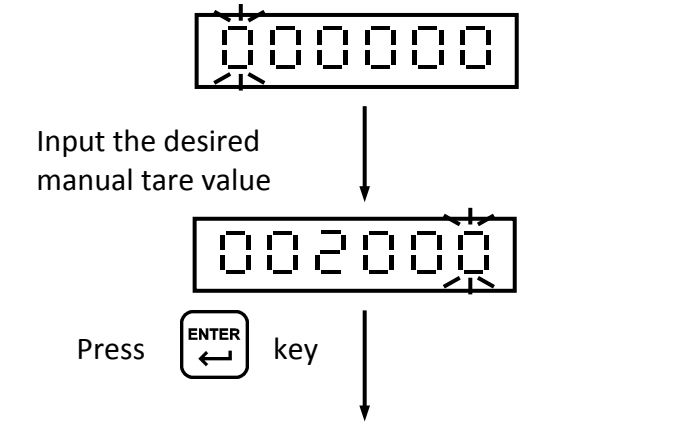


Recover the division when back to zero

7.3 *Manual tare function*

FNC-02, FNC-03 or FNC-04 setting is at parameter 6. (Manual tare function)

Under weight display status, press F1 or F2 key (according to FNC setting), the screen will show:



Back to weight display status (PT indication lights up)

Manual tare cancellation

When the gross weight column shows "0", press TARE key to cancel the manual tare value.

7.4 *Resolution Switch Function*

FNC-02, FNC-03 or FNC-04 setting is at parameter 5.

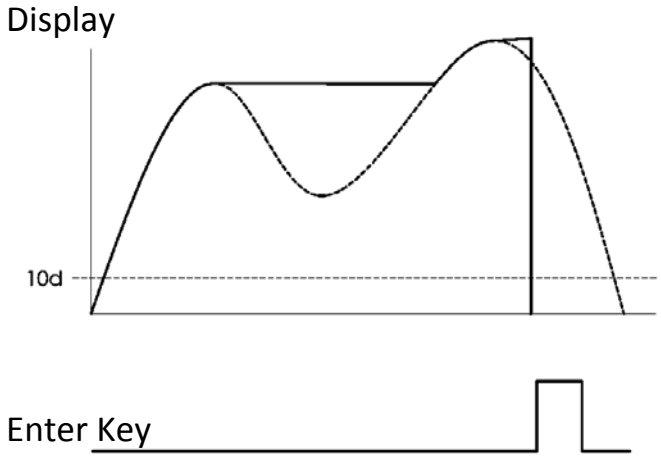
Under weight display status, press F1 or F2 key (according to FNC setting), the screen will show 10 times resolution and recover the original resolution after 5 seconds.

7.5 *Peak value function- HOLD*

Mode 1

The RS-232 port gets into transmission the HOLD value automatically when the weight is higher than 10d; the indicator keeps the maximum weight value. By pressing the ENTER key you will unlock the HOLD mode.

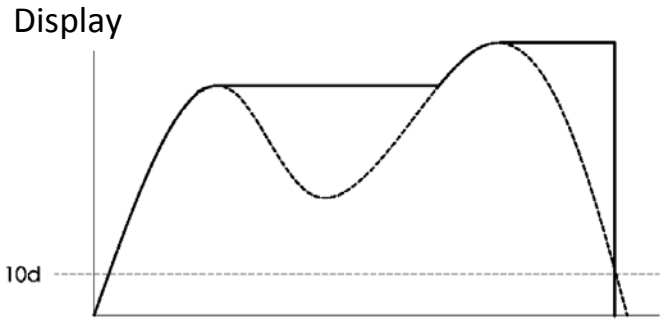
The RS-232 port sends the PEAK value stored in HOLD when pressing the ENTER key.



Mode 2

The RS-232 port gets into transmission the HOLD value automatically when the weight is higher than 10d and the indicator keeps the maximum weight value. When the weight is lower than 10d, the indicator frees the HOLD value automatically and shows the value lower to 10d.

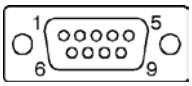
The RS-232 port sends the PEAK value stored in HOLD. The transmission starts in the PEAK value and ends when the weight is below 10d.



8 Interface

RS-232 Pin Allocation

The indicator connector is a SUB-D 9 Female.

SUB-D 9 Connector Aerial male  Pin Assignment View from welded side	INDICATOR		PC	
	Pin	**Signal**	**Pin**	**Signal**
	2	RXD	3	TXD
	3	TXD	2	RXD
	5	GND	5	GND

9 Maintenance

9.1 *Default Recovery for All Parameters*

(1) Unplug the power supply from the indicator. Adjust the calibration switch to "ON".
(2) Press and hold simultaneously F1 ENTER
(3) Plug in the power supply and turn on the indicator.
(4) The screen will show Init.ALL
(5) To confirm, press ENTER and hold (aprox 10s) until showing End, and then adjust the calibration switch to "OFF".

WARNING
Once the device reset, verify if the values correspond with the desired application.

9.2 *Default Recovery for General Function Parameters*

(1) Turn off the indicator. Adjust the calibration switch to "OFF".
(2) Press and hold simultaneously F1 ENTER
(3) Turn on the indicator.
(4) The screen will show Init.Fn
(5) To confirm, press ENTER and hold (aprox 10s) until re-turning on.

WARNING
Once the device reset, verify if the values correspond with the desired application.

9.3 *Self-diagnosis Mode*

(1) Turn off the indicator.
(2) Press and hold ZERO +
(3) Turn on the indicator.
(4) The screen will show UEr, which means entered self-diagnosis mode.
(5) Use ZERO + or TARE − keys to select item intended to test.
Press ENTER key to enter self-diagnosis, and press ESC key to exit.

Item	Display	Testing Item
1	VEr	Program Version Number Displaying
2	d5P	7-Segment Display Testing
3	KEY	Keypad and Calibration Switch Testing
4	AdC	A/D Conversion Value Displaying
5	EEP	EEPROM Testing
6	Reserved	Reserved
7	232	OP-1 RS-232 Serial Output Interface Testing

9.3.1 Program Version Number

7-Segment display shows program version number 0080 XX.

9.3.2 7-segment Display Testing

7-Segment display shows 0 to 9 and ".".

9.3.3 Keypad & Calibration Switch Testing

Adjust calibration switch to "ON", and press any key, the corresponding bit will be changed from ' to !.

9.3.4 A/D Conversion Value

7-Segment display shows the internal value of the scale.

9.3.5 EEPROM Testing

Showing PASS represents in normal condition.

Showing FAIL represents in abnormal condition.

9.3.6 RS-232 Serial Output Interface Testing

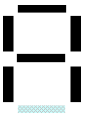
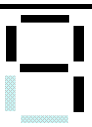
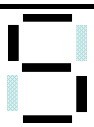
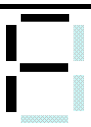
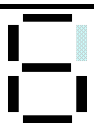
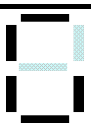
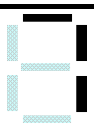
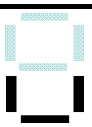
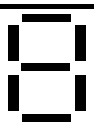
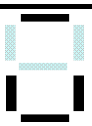
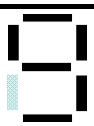
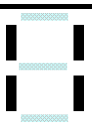
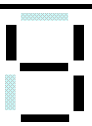
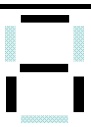
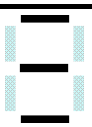
(1) Short Pin 2 and Pin 3 of the 9-pin D-SUB socket of serial output.

Showing PASS represents in normal condition.

Showing FAIL represents in abnormal condition.

(2) If connected with a computer (protocol have to match), the screen will show 0 to 9, which means RS-232 output is in normal condition.

Appendix 7-SEGMENT DISPLAY CHARACTERS

Number	Display	Letter	Display	Letter	Display
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
4		E		R	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		W	
		K		X	
		L		Y	
°C		M		Z	

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