FM180S

STAINLESS STEEL WEIGHING INDICATOR

OPERATION MANUAL

PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE ATTEMPT TO OPERATE THIS INSTRUMENT

Specifications subject to change without prior notice

V100 Feb 2013

Content

1. Before Started

1.1 Metrological Legislation

Because of metrological legislation, installation and some metrological parameter settings / changings are limited to be done by authorized personnel only. Do not attempt to change any of the built-in parameters. Contact your dealer for installation and technical assistance.

1.2 Seal & Serial Number.

This instrument is legal for trade only when it is sealed (and/or stamped) and bearing a serial number. Do not attempt to break the seal (or stamp) or serial number affixed to this instrument. Contact your dealer for more information and after sales service.

1.3 Warm up time

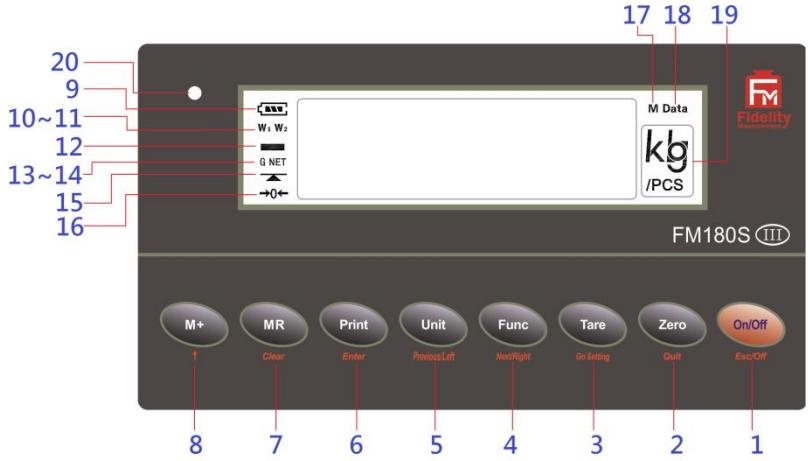
a. Allow warm up period of not less than 60 seconds before calibration. The higher the setup resolution of the scale, the longer the warm up period is required. In most cases, 120 seconds is a safe warm up period for all applications.
b. This warm up period is needed to energy all components to reach a stable status.
c. The internal count value is deemed stable when the internal AD count varies less than 3 counts within 2 seconds.
d. To read the internal AD count value, enter internal function F1. The internal AD count value of a not yet fully energized PCB will go up continuously.

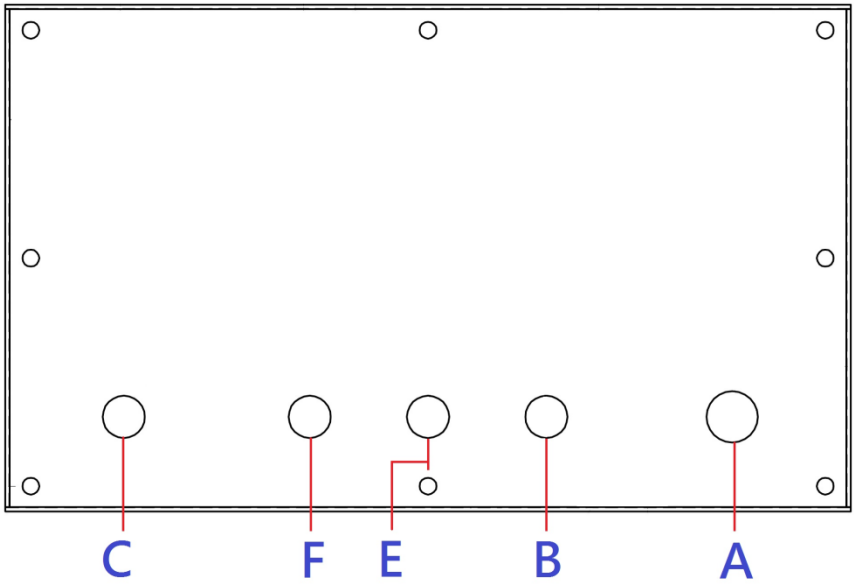
1.4 In case when in Doubt

Always contact your dealer for more information, after sales service and questions when in doubt.

Capacity & Readability	Free Setting
Reliable External Resolution (n_{max}) [(Max / Scale Interval (d)]	• With non-approved Load Cell = Below 10,000 • With C3 Load Cell = 30,000 • With C6 Load Cell = 50,000
Weight Units	kg, g, lb
Internal Resolution	1,600,000 Counts (15 mV)
Max. Tare Range	- Max (Subtractive Tare)
Power Source	• Built-in Rechargeable Battery = 6V, 4AH • External Power Adaptor = DC 12V , 1A with Universal Plugs
Load Cell Excitation Voltage	5V DC
Load Cell Connection	Support both 4-wire & 6-wire
Maximum Load Cell Connection	12 x 350Ω Load Cells or 24 x 700Ω Load Cells
Operation Environment	-10 ~ 40°C. Non-condensed. R.H.≦ 85%
Specifications subject to change prior to notice	

3. Keys, Display & Connections





1. **On/Off Key**
   Press this key to turn this instrument on or off.

2. **Zero Key**
   Press this key to set weight displayed to zero when an empty scale has drifted away from a true zero reading.

3. **Tare Key**
   Press this key to tare off the weight of a container.

4. **Function Key**
   Press this key to shift between weighing, percentage and piece count mode.

5. **Unit Key**
   Press this key to shift among various weight units (if weight unit conversation is enabled).

6. **Print Key**[1]
   Press this key to print the results to a computer or a printer through the RS-232 output.

7. **MR Key**
   Press this key to recall total stored transactions.

8. **M+ Key**
   Press this key to accumulate current weight to memory manually.

[1] This key is also used to accumulate the current weight value to memory when internal function F17 is set to ON.

9. Battery Power / Level Indicator

Visible to show: -

- This instrument is being powered by the built-in rechargeable battery,
- Remaining battery level.

10. W_1 Indicator[2]

(When under dual weighing range mode[3]) Visible when this instrument is in the first weighing range (W_1).

11. W_2 Indicator[4]

(When under dual weighing range mode) Visible when this instrument is in the second weighing range (W_2).

12. Minus Sign

Visible when a negative value is displayed.

13. Gross Indicator

Visible when gross weight reading is displayed.

14. Net Indicator

Visible when the tare function is in effect. Weight reading shown is net value.

15. Stable Indicator

Visible when weight reading is stable.

16. Zero Indicator

Visible when instrument is at true zero weight status.

17. M+ Indicator

Visible when memory contains of accumulated data.

---

2 This indicator will not appear when this instrument is in single range mode.

3 This instrument can support two weighing ranges with different maximum capacities (Max) and different scale intervals (d), each range extending from zero to its maximum capacity.

4 This indicator will not appear when this instrument is in single range mode.

18. **MR Indicator**
    Visible when the total accumulated weight value is displayed.

19. **Weight Units and Functions**
    - kg = kilogram,
    - PCS = Pieces (Piece Count Mode in function),
    - kg/PCS and g/PCS = Weight per piece (when Piece Count Mode in function),
    - lb = pound.

20. **Charge Status Indicator**
    - Red color: Recharging battery,
    - Green color: Charging completed

A. DC Jack Input for Indicator
External power adaptor is plugged in here.
Output requirements of the power adaptor: -
- DC9 ~ 12V 800mA,
- Polarity: - Any kind.

B. Blank
No Function

C. Load Cell Connector (7-Pin)
Signal from load cell (or junction box) is connected here.

E. Blank
No function

F. RS232 (Serial) Comport
RS232 (Serial) communication comport.

4. Getting Started

In order to obtain an accurate weighing result, the weighing platform, (***hereinafter referred as platform***) must be placed on a strong and level surface. Avoid using the platform and this instrument (**hereinafter collectively referred as scale**) in environment where excessive wind flow, vibration and extreme temperature change exist

Cautions: -

- The instrument is not an explosion proof device.
- The instrument is not a water proof device.
- Do not open the instrument, no user serviceable parts inside. Always contact your dealer for service.
- Do not place this instrument in where shock, excessive vibration or extremes of temperature (before or after installation) exist.

4.1 Built-In Rechargeable Battery

The instrument is equipped with a built-in rechargeable battery. Before first time use, recharge it for at least 8 hours to ensure the best battery performance.

4.2 Power Adaptor

One universal voltage power adaptor with 4 power plugs are supplied with this instrument. Select the suitable power plug and slide it into the power adaptor very carefully until a "click" sound comes out.

4.3 About DC Input Connector

The DC input connector and the output plugs of the power adaptor both comes with a cover. Always screw tightly the cover to the DC input connector when not used and battery recharge is in process.

4.4 About Blinder Covers

For maximum penetration protection, there are 3 removable nickel plated brass blinder covers are located at the back housing. Do not remove or make loosen any of these covers unless the covered position has to be used. Contact your dealer for more information and connection information.

4.5 Connecting Other Devices[5] [6] [7]

4.5.1 Connection with Weighing Platform or Load Cell Junction Box

Connect this instrument with a weighing platform (load cell) through load cell connector located at the back according to the below pin assignment table.

Note: - If a 4-wire load cell or junction box is used, short-circuit pin 1&2 and pin 3&4. Otherwise, this instrument will not work.

Load Cell Connector Pin Assignment

LOAD CELL CONNECTOR PIN #	ASSIGNMENT
1	EXCITATION +ve
2	SENSE +ve
3	EXCITATION -ve
4	SENSE -ve
5	SIGNAL +ve
6	SIGNAL -ve
7	GROUND

4.5.2 Connecting RS232 To Computer

RS232 TERMINAL ON BOARD	COM PORT ON COMPUTER	
	(DB9)	(DB25)
RXD	3 = TXD	3 = TXD
TXD	2 = RXD	2 = RXD
GND	5 = GND	7 = GND

[5] Turn this instrument off and cut off power before making any connections or disconnections.

[6] TTL relay and TTL communication are not OIML approved function

[7] It is highly recommended that all inside-housing connections to be done by dealer. Contact your dealer for detailed connection information if required.

4.5.3 Connecting RS232 to Printer (DB25)

RS232 TERMINAL ON BOARD	COMPUTER COM DB25
RXD	3 = TXD
TXD	2 = RXD
GND	7 = GND

5. Initial Setup

5.1 Internal Settings

Application parameters can be checked and set through internal functions. Refer to **5.4** for description of all internal functions.

Set all preferred operation parameters according to **5.4 Internal Function Table**.

Note: -

1. F1 ~ F29 are accessible without restriction,
2. F60 ~ F66 are restricted functions which may request a password or hardware key to access,
3. F80 ~ F99 are restricted functions, which may request a password or hardware key to access. These functions are usually for dealer and authorized personnel only. Do not change any settings of these functions to avoid operation errors.

5.2 How to Enter & Select Internal Function

Follow the below steps to enter and select desired parameter of an internal function.

(For F60 ~ F99) If Setup & Calibration Control Jumper is set to enable position (B & C), instrument will enter internal function automatically after power on.

Should password mode is used to bypass this jumper, follow the below steps to enter and select desired parameter of an internal function.

a. Power this instrument off and then power on again,
b. Press **[Tare]** during countdown,
c. Displays **F1**,
d. This instrument is now in internal function.

5.3 Key Function During Internal Function Mode

Key	Function in Setup & Calibration
[On/Off]	Quit without saving and power off
[Zero]	Quit without saving
[Tare]	Go to internal function during power on countdown or set F1 value being shown to zero and to display the net span gain by applying additional load applied.
[Func]	• Goto next page. • Move cursor to one place right
[Unit]	• Goto previous page. • Move cursor to one place left
[Print]	Enter, save and return
[MR]	Clear
[M+]	Increase numeric number by 1

5.4 Internal Function Table

Refer to the below table for internal function number, parameter and setting notes.

Function No.	TO CHECK AND SET	PARAMETERS / *NOTE* *DEFAULT = ***					
F1	Internal Count Value.	***Press [TARE] to set offset value to zero when unloaded. Then add load on the platform to observe the span value of load applied.***					
F2	All Segment Check	***All display segments will be lit on. Check if there are any missing segments.***					
F3	Capacity, Division & Default Weight Unit	***Display basic metrology characteristics (capacity, division and weight unit) set: -*** ● ***Value displayed when in single range mode = Max + 1d,*** ● ***Values displayed when in dual range mode = Max_1 + d_1 (W_1) & Max_2+d_2 (W_2).***					
F4	Date Format & Date	● ***** DD/MM/YY*** ● YY/MM/DD ● MM/DD/YY					
	To change date, enter a new value through numeric keys then press [ENTER].						
F5	Time	● HH/MM/SS					
	To change time, enter a new value through numeric keys then press [ENTER].						
F6	SET F7 to F24 to Default?	● ***** NO*** ● YES					
	If YES is selected, press [Clear] when SURE is displayed or other key to quit without saving.						
F7	Auto Power Off Time (Minutes)	OFF	1	***** 3***	5	10	20
F8	Backlight	OFF		ON		***** AUTO***	

	Backlight will be turned off when battery is low disregarding setting entered.				
F9	Weight Unit Conversation	***** OFF***		ON	
	This function is not accessible if: - ● ***Dual range mode is selected (value of F84 is not = zero), or*** ● ***When metric (kg) weight unit is selected as the default weight unit for F81.***				
F10	Filter Speed	1 ***(Strong)***	***** 2 (Normal)***	3 ***(Mild)***	4 ***(Least)***
	Select: - ● ***1 for bad working environment where vibration, wind flow… etc affect stable reading,*** ● ***2 for normal environment,*** ● ***3 for good working environment where wind and vibration are not likely to affect stable weighing,*** ● ***4 for very good working environment where wind and vibration have no effect to stable reading.***				
F11	**Reserved. No function now.**				
F12	Auto Tare	***** OFF (Disable)***		ON (Enable)	
	Note 1: - If F63 = ON, set F12 to OFF. Otherwise, preset tare (F63 will not operate)				
F13	Repeated Tare Function	***** OFF (Disable)***		ON (Enable)	
F14	Keypad Buzzer	*OFF (Disable)*		***** ON (Enable)***	
F15	**Reserved. No function now.**				
F16	M+ Working Mode	AUTO 1	AUTO 2	***** MANUAL***	
	● ***AUTO 1 = Auto M+ when weight is stable. M+ key is disabled under this mode,*** ● ***AUTO 2 = Auto M+ after the highest stable weight has been removed (and gross weight returns to zero or minus). M+ key is disabled under this mode,***				

<table>
<tr><td></td><td colspan="6">● MANUAL = Manual M+ (by pressing [M+] key)</td></tr>
<tr><td>F17</td><td>Does [PRINT] key also activate M+?</td><td colspan="2">** OFF (No)</td><td colspan="3">ON (Yes)</td></tr>
<tr><td></td><td colspan="6">This function is only accessible when F16 = MANUAL. When this function is = ON, then set F18 to MODE 3.</td></tr>
<tr><td>F18</td><td>Data Output Mode</td><td colspan="2">MODE 1</td><td colspan="2">** MODE 2</td><td>MODE 3</td></tr>
<tr><td></td><td colspan="6">● MODE 1 = Continuous output,
● MODE 2 = Continuous output when weight reading is stable,
● MODE 3 = Output to printer,

Note 1: - If MODE 1 or 2 is selected, set also: -
● time delay between each data transmission. 4 parameters are available for selection, i.e. 0 = max speed; 0,5 = 0.5 second; 1.0 = 1.0 second; 1.5 = 1.5 second.
Note 2: - If MODE 3 is selected,
● set also number of copies to be printed each time. 8 parameters (1 ~ 8) are available for selection. Copy 1 = Send 1 copy, ……, Copy 8 = Send 8 copies. Number of copy related to current transaction only. Totalized data printout is always = 1 copy. Press PRINT if extra totalized date printout copies are need.
● select the printer type. 2 parameters (normal and LP-50) are available for selection. Normal = receipt/ticket printer; LP-50 = DATECS label printer model LP-50 or LP-50 compatible label printers.
● if LP-50 is selected, then select the label file stored in For 1 (label format group 1) to be print; and then the label file stored in For 2 (label format group 2) to print.
● 5 label file names are available for each label format group are available. Refer to PARAGRAPH 9 for detailed information.</td></tr>
<tr><td>F19</td><td>Output Baud Rate</td><td>1200</td><td>2400</td><td>4800</td><td>** 9600</td><td>19200</td></tr>
</table>

F20	Data Format (Data Bit / Parity / Stop Bit)	***** 8 N 1***	7 O 1	7 E 1
	This function is not accessible when F18 = MODE 3			
F21	Weight Function Output Print Format	***** STD***	CUSTOM	
	When setting = CUSTOM, maximum lines = 15.			
F22	Counting Function Output Print Format	***** STD***	CUSTOM	
	When setting = CUSTOM, maximum lines = 15.			
F23	**Reserved. No function now.**			
F24	**Reserved. No function now.**			
F25	**Reserved. No function now.**			
F26	**Reserved. No function now.**			
F27	Decimal Point Format	*****Dot (.)***	Comm (,)	
F28	**Reserved. No function now.**			
F29	**Reserved. No function now.**			

6. Instruction for Use

6.1 Power On

Powered on this instrument, it will: -

a. Display software number and revision,
b. Display the calibration count value,
c. Display the parameter set count value,
d. Display all display segments,
e. This instrument is now ready for operation.

6.2 Start Weighing

a. If zero weight cannot be obtained when unloaded, press **[Zero]**. After **[Zero]** is pressed, the **Zero Indicator** will appear.
b. Always place an object onto platform gently. Excessive force applied to platform may cause damages to the weight sensor,
c. The weight of the object is displayed automatically,
d. It is a good practice to remove all loads from platform after weighing. It will prolong the life of the weight sensor.

6.3 About Weigh Unit Conversion

The default weight unit is = kg. Depends on the internal settings, this instrument supports also g and lb.

6.3.1 Conversion between Metric Weight Units (kg and g)

When 3 or 4 decimal places (0.000 or 0.0000) is selected in F80, reading in g is possible during normal operation by pressing **[Unit]** disregarding to the setting of **F9**.

The weight unit employed before power off will be employed when powered on again.

6.3.2 Conversion between Metric (kg and/or g) & Imperial[8] (lb) weight units (F9)

This instrument supports conversion among kg, g and lb. To enable this conversion function, set F9 = ON. Press **[Unit]** to shift among various weight units.

The weight unit employed before power off will be employed when powered on again.

6.4 Tare off the Weight of a Container

Tare function is used to temporarily set the scale to zero (such as cancelling the weight of a box or a container) in order to get the net weight result

6.4.1 Manual Tare

When a container is used, follow the below steps to tare off the weight of it and to get a net weight result.

a. Remove all loads from platform,
b. Make sure that the **Zero Indicator** is on. If not, press **[Zero]**,
c. Place container on platform,
d. Press **[Tare]** ,
e. **Net Indicator** appears to indicator tare is in effect and weight displayed display is net weight.
f. To cancel tare effect, remove all loads from platform and press **[Tare]**,
g. **Net Indicator** disappears. **Gross Indicator** appears to indicator tare effect has been removed and weight displayed display is gross weight.

6.4.2 Auto Tare[9] (F12)

If this function is enabled, this instrument will assume the first stable weight applied is a container and will tare off the weight of it automatically.
When container is removed and gross weight result = zero, tare effect will be cancelled automatically.

---

[8] To comply with the laws of certain countries and approval requirements, the imperial weight unit may be disabled. Contact your dealer for more information.

[9] Set F12 = ON to enable Auto Tare Function

6.4.3 Repeated Tare (F13)[10]

When F13 is set to OFF, this instrument does not permit multiple tare operation. Tare effect can only be cancelled when container is removed and gross weight = zero.

When F13 is set to ON, this instrument will permit multiple tare operation provided that both of the below requirements are met: -

a. The tare operation does not permit a reduction of the value of the tare;
b. The tare effect can only be cancelled when there is no load on the platform.

6.4.4 Preset Tare (F63)[11]

A pre-determined tare weight can be entered via keyboard. To enable this function, set F63 to ON, then set also F12 to OFF.

a. During normal operation, press **[Func]** until **PtArE** appears, then press **[Print]** to enter. Input the pre-determined tare weight through **[M+]**, **[Unit]** and **[Func]** keys and press **[Print]**.

To cancel preset tare effect, remove all loads from platform then press **[Tare]**.

Note: -

1. The pre-determined tare weight entered will be rounded to the nearest division of the instrument. This does not affect the accuracy of the subsequent weighing and operation.
2. Manual tare is possible when preset tare is in function.
3. Preset Tare is also governed by Repeated Tare (F13)

[10] Set F13 = ON to enable Repeated Tare Function.

[11] This is not a legal for trade function.

6.5 Memory Accumulation Function

6.5.1 To Accumulate a Transaction to Memory[12] [13] [14]

a. Press **[M+]**[15] to save and accumulate data of current transaction to memory,
b. This instrument displays "**≡ n**". **M+ Indicator** appears to indicate that memory contains stored data. "**≡ n**"" means the total number of transactions accumulated to memory,
c. This instrument returns to normal display status after 2 seconds,
d. Repeat **a** to **c** for subsequent transactions[16],

Note: -

1. Unstable weight will not be accumulated. If **M+** is pressed when weight reading is not unstable, this instrument will reject this command and response with 3 beeps.

6.5.2 Memory Recall and Clearance

a. Press **[MR]** to recall total accumulated weight from memory,
   After **[MR]** is pressed, **Mr Indicator** appears to indicate the total accumulated weight value is displayed. At the same time, instrument displays "**≡ n"** (**n** means the number of transactions accumulated) follow by the total accumulated weight stored in memory,
b. At this point: -
   - Press **[Zero]** to quit, or
   - Press **[MR]** again to clear memory then press **[Zero]** to quit to operation mode. After that, both **MR** and **M+ Indicator** disappear to indicate no data is stored in memory.

---

12 Memory Accumulation Function support weighing function only.

13 Weight less than 20d (or $20d_1$ for dual range) will not be accumulated to memory.

14 All data stored will be erased when this instrument is powered off.

15 or press **[PRINT]** if F17 is = ON

16 Weight must return to or below zero to enable another weight accumulation.

6.6 Piece Count Function[17]

This instrument is equipped piece count function. Follow the below steps to enter **Piece Count Function: -**

a. Refer to **6.3** on how to select the desired weight unit,
b. If a container is used, place it onto the platform and press **[Tare]**,
c. Press **[Func]** until **(CoUnt)** appears,
d. Press **[Print]** to enter,
e. Default[18] sample size appears.
f. Refer to **6.7** for subsequent operation procedures.

6.7 Sampling Process

a. Put samples with same quantity on platform then press **[Print]**. Should a different sample size is required, enter the quantity of the sample size[19] through **[M+]**, **[Unit]** and **[Func]** keys,
b. Apply samples with the same quantity as being displayed on this instrument[20] and press **[Print]**,
c. This instrument will calculate, store the average piece weight and confirm with 2 beeps. The quantity applied to platform is then displayed,
d. Sampling process is now completed.

Add to or remove from the platform, the corresponding quantity will be displayed automatically.

Note: - To count different articles, press **[Func]** and repeat procedures listed on **6.6** and **6.7.**

---

17 Piece Count Function Mode does not support memory accumulation (M+) function.

18 Default sample size value = 50 pieces

19 Usually, the more the sample size, the better the counting accuracy.

20 Although there is no restrictions on the minimum average price weight, for counting accuracy, it is recommended that the average piece weight should not be less than 0.25d or $0.25d_1$ (dual range mode)

6.8 Shift among Quantity, Average Piece Weight and Weight Info

a. Press **[Unit]** to shift among quantity, average piece weight and weight info,
b. Quantity Display format = numeric numbers & PCS (e.g**1000 PCS**) ,
c. Average piece weight display format = numeric numbers & weight unit & / (slash) & PCS (e.g. **499.960g/PCS**) ,
d. Weight display format (when Piece Count Function is in effect) = numeric numbers & weight unit & PCS (e.g. **500 kg PCS**).

6.9 To quit Piece Count Function[21]

To quit Piece Count Function, press **[Func]**, then press **[Zero]**.

[21] After quitting, the average piece weight stored will be erased.

7. RS232 Data Output Mode

There are 3 data output modes are available[22]: -

- **Mode 1** and **Mode 2** are for communication with computer and other peripherals which accepts and processes continuous data communication,
- **Mode 3** is for transmission to printer or other peripherals which accept only single or manual data transmission.

7.1 Auto Weight Format String[23] [24]

Data is transmitted in ASCII code. Data format is listed on below table.

DATA BIT	DESCRIPTION
1~2	**MOTION STATUS** US = UNSTABLE ST = STABLE
3	**COMMA SEPARATION**
4~5	**NET/GROSS** NT = NET WEIGHT GS = GROSS WEIGHT
6	**SIGN** (Sign of weight reading) Positive = space. Negative = minus (-)
7~13	**WEIGHT VALUE** 7 digits weight value including location of decimal point. If there is no decimal point, then the first character = space.
14	**COMMA SEPARATION**
15~16	**UNIT** **kg = kilogram** **lb = pound**
17	**Cr**
18	**LF**

[22] Refer to F18 for more information.

[23] When F18 is either set to **MODE 1** or **Mode 2**

[24] Overloaded weight will not be sent.

8. Ticket / Receipt Printing

If a ticket/receipt printer is used, select **Mode 3**… **normal** should be selected in internal function F18.

8.1 Standard Print Output Format[25] [26]

Standard ticket/receipt printout of various function modes are illustrated below. Press **[PRINT]** for manual output or set F17 = ON for automatic output.

8.1.1 Standard Output Print Format

8.1.1.1 Weighing function

7 lines will be transmitted as below: -

1. Time of print,
2. Date of printing,
3. Transaction sequent number (if this transaction is accumulated to memory),
4. Net weight,
5. Tare Weight,
6. Gross Weight,
7. Total accumulated net weight (if accumulation function is in effect).

Sample 1

TIME	15:21:00	
DATE	14.04.2009	
NO.	1	(First transaction added to memory)
NET	500.0kg	
TARE	0.0kg	
GROSS	500.0kg	
TOTAL	500.0kg	(Total accumulated net weight)

[25] When **Normal** is selected under **MODE 3** of F18

[26] This instrument does not support DTR (data of offline detection)

Sample 2

TIME	15:21:16	
DATE	14.04.2009	
NO.	2	(Second transaction added to memory)
NET	200.0kg	
TARE	0.0kg	
GROSS	200.0kg	
TOTAL	700.0kg	(Total accumulated net weight)

Sample 3

TIME	15:21:25	
DATE	14.04.2009	
NO.	3	(Third transaction added to memory)
NET	500.0kg	
TARE	200.0kg	
GROSS	700.0kg	
TOTAL	1200.0kg	(Total accumulated net weight)

8.1.1.2 Piece count function

5 lines will be transmitted as below: -

1. Time of print,
2. Date of printing,
3. Net weight,
4. Unit weight (average piece weight),
5. Count (quantity in terms of number of pieces).

Sample 1

TIME	15:30:44
DATE	14.04.2009
NET	300.0kg
UNIT.W	599.949 g
COUNT	500PCS

Sample 2

TIME	15:31:54
DATE	14.04.2009
NET	500.0kg
UNIT.W	599.949 g
COUNT	833PCS

8.2 Custom Print Output Format[27] [28]

Maximum 15 lines can be entered.

16 variants + 2 commands (**Cr LF and End**) are available for custom print output format. Refer to the Below **Print Output Format Variants Table** for more detail.

8.2.1 To Edit Custom Print Output Format

Follow the below steps to create custom printout.

a. Go to internal function and select the desired function number to edit,
b. Select CUSTOM and press **[M+]**,
c. This instrument displays **Line 1** and the last variant or command (see **8.2.2** for details) stored,
d. Press **[M+]** to confirm or select other variant or command by press **[FUNC]** or **[UNIT]**. Then press **[M+]** to confirm and save,
e. This instrument displays **Line 2** and the last variant or command stored,
f. Repeat steps **d** and **e** for other lines,
g. (In case, number of lines to be printed is less than 15 lines) To finish editing, select command **End**, then pres **[M+]** to confirm.
h. This instrument returns to and displays the current internal function number,
i. If required, repeat steps **a** to **h** to create and edit custom printout format for other functions.

---

[27] When F18 is either set to **MODE 3**

[28] This instrument does not support DTR (data of offline detection)

Notes: -

1. Disregarding the total number of lines, the last line must be = **End**.
2. This instrument will automatically add **End** on line number 15th for Weighing, Piece Count and Percentage function, and on line number 10th for animal weighing function.

8.2.2 Print Output Format Variants Table

SYMBOL	DESCRIPTION
End	Edit finished
Cr LF	Goto next line
dAtE	Date of printing
tiME	Time of print
nEt	Net weight
tArE	Tare weight
GroSS	Gross weight
Unit	Average piece weight
cOuNT	Number of piece
ACC	Total accumulated weight (when accumulation function is in effect)
SiGn	Signature

8.2.3 Edit Sample for Custom Print Output Format

PRINT CONTENT

TIME 17:39:05

DATE 14.04.2009

NET 200.0kg

TARE 0.0kg

GROSS 200.0kg

(Blank line)

Signature _____

Line No.	Select
1	tiME
2	dAtE
3	nEt
4	tArE
5	GroSS
6	Cr LF
7	SiGn
8	End

9. Label Printing (LP-50 or Compatible)

This instrument supports label printing by LP-50 and any LP-50 compatible label printers. Contract your dealer for more information about label printers.

Set all preferred operation parameters according to F18 listed on **5.4 Internal Function Table**.

Caution: -

1. Always design independent labels for different working modes. Do not combine data of different working modes on the same label.
2. Do not print any labels of non-current working mode. This will retrieve wrong data of non-current working mode.
3. Print only label data when the same working mode is in operation.
4. Do not combine data of various working modes on same label. This will retrieve wrong data of non-current working mode.

9.1 Label Format Groups & Label File Names

2 label format groups are available, these are For 2 (label format group 1) and For 2 (label format group 1).

9.1.1 For 1 (Label Format Group 1)

For 1 (format group 1) is for current transaction data printing (during normal working status).

In order to trigger the right label to be printed, label files stored in printer for this format group 1 must have a file name of AA1.dlb, AA2.dlb, AA3.dlb, AA4.dlb and AA5.dlb.

In this instrument, 5 printout selections are available in format group 1: -

- **For 1 1**: - Select this to print label file AA1.dlb stored in printer.
- **For 1 2**: - Select this to print label file AA2.dlb stored in printer.
- **For 1 3**: - Select this to print label file AA3.dlb stored in printer.
- **For 1 4**: - Select this to print label file AA4.dlb stored in printer.
- **For 1 5**: - Select this to print label file AA5.dlb stored in printer.

9.1.2 For 2 (Label Format Group 2)

For 2 (format group 2) is for totalized data printing (after **MR** is pressed and memory recall is in effect).

In order to trigger the right label to be printed, label files stored in printer for this format group 1 must have a file name of BB1.dlb, BB2.dlb, BB3.dlb, BB4.dlb and BB5.dlb.

In this instrument, 5 printout selections are available in format group 2: -

- **For 2 1**: - Select this to print label file BB1.dlb stored in printer.
- **For 2 2**: - Select this to print label file BB2.dlb stored in printer.
- **For 2 3**: - Select this to print label file BB3.dlb stored in printer.
- **For 2 4**: - Select this to print label file BB4.dlb stored in printer.
- **For 2 5**: - Select this to print label file BB5.dlb stored in printer.

9.2 Label Programming

Prompt commands, information description, working mode and suggested length on label are listed on the below table**.**

Caution: - Do not combine information of different working mode on the same label.

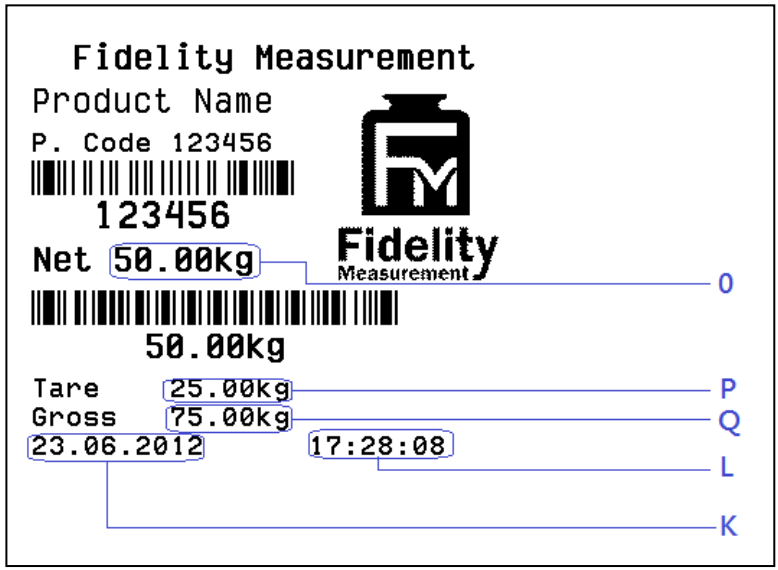
For other programming details, refer to user manual of printer and label editing software.

9.2.1 Label Programing Information Table

Prompt Command[29]	Description	Working Mode[30]	Suggested Length
K	Date of printing	All	10
L	Time of print	All	8
M	No. of accumulated transaction	Weighing	7
N	Total accumulated weight	Weighing	9
O	Net weight	All	10
P	Tare weight	All	10
Q	Gross weight	All	10
U	Number of piece	Piece Count	10
V	Average piece weight	Piece Count	9

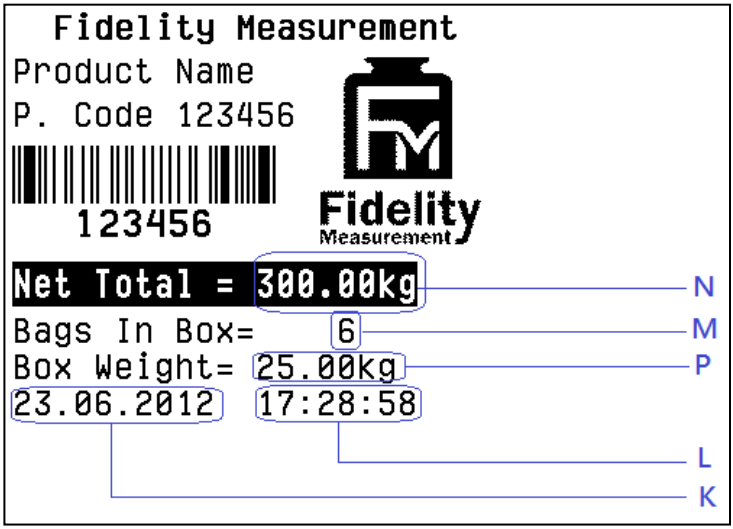
9.2.2 Label Programming Sample

9.2.2.1 Sample Label of Current Transaction (For 1)



[29] Commands must be in capital letter.
[30] "All" means the information is good for all working modes.

9.2.2.2 Sample Label of Totalized Data (For 2)



10. Battery Power & Recharging

Remaining battery power of the built-in rechargeable battery is displayed on the **BATTERY POWER / LEVEL INDICATOR.**

10.1 Symbols and Remaining Power: -

 Full Battery: ≥ 6.3V

 2 Blocks: ≥6.0V

 1Block: ≥5.7V

 Frame only: ＜5.7V

10.2 Battery Operation Time

Depends on the battery condition, a new and fully charged rechargeable battery can provide[31]: -

- around 70 hours of continuous operation with backlight on, or
- around 200 hours of continuous operation without backlight.

10.3 Recharge Battery

When  appears, (when battery is less than 5.7V), it means that the built-in rechargeable battery is at low voltage status. It is recommended to recharge as soon as possible.

To protect the built-in rechargeable battery, this instrument will be powered off automatically when battery is at extremely low level. If this is the case, do not attempt to power this instrument on. Recharge this instrument immediately. Fail to do so may cause unrecoverable damages to the built-in rechargeable battery.

Battery charging status is shown on the dual color **CHARGE STATUS INDICATOR**: -

- Red: - Recharging in process,
- Green: - Charging completed.

Battery recharge is possible while operating. Overcharge protection circuit is inside to prevent battery damages from overcharge.

Heat generated during recharging and it is normal to feel minor heat at front housing of this instrument.

[31] When connect to one 350-ohm load cell

11. Error Codes

Error Code No.	Description
Err 1	Time value error
Err 2	Date value error
Err 3	Exceed maximum power on / manual zero range
Err 4	Offset out of range / unstable during power on
Err 5	No load cell signal detected
Err 6	Tare operation error
Err 7	**Reserved, no definition**
Err 8	**Reserved, no definition**
Err 9	**Reserved, no definition**
Err 10	**Reserved, no definition**
Err 11	**Reserved, no definition**
Err 12	**Reserved, no definition**
--oL--	Overload (Gross weight is more than Max plus 9d)
UndEr	Negative Weight values exceeds display range
------	Negative Tare value exceeds display range

12. Daily Care & Maintenance

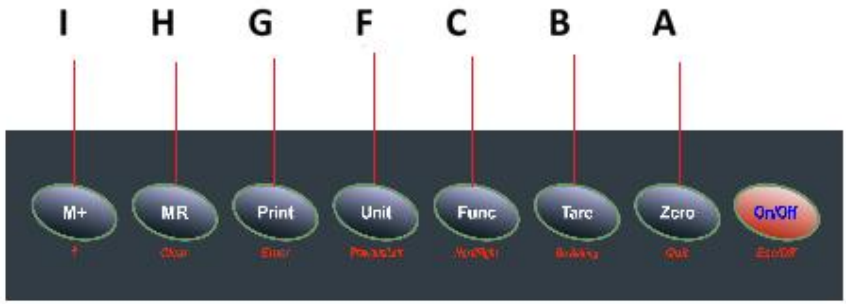
- Clean the instrument with a soft, damp cloth. If necessary, use a mild detergent in water,
- Do not use any harsh, abrasive material, acetone, volatile solvent, thinner or alcohol for cleaning,
- Verify the accuracy of this instrument periodically. Re-calibrate if necessary. In some countries, calibration requires authorized / qualified agent. Contact your dealer for more information,
- Store this instrument in a dry and clean place,
- Recharge battery before and every 2 months during long time storage.

Appendix A: - Bi-Directional Communication Commands

Direct Control commands and information request commands can be sent to this instrument through any standard communication programs like Hyper Terminal, which comes with most of the Windows operating system in computer.

A. Direct Control Commands[32] (F18 = Mode 1 or 2)

Equivalent direct control commands for each of the key on panel from computer are shown below.



Note: -

There is no direct control command to simulate the **ON/OFF** key on panel. Thus, power on and off this instrument must be done through the **ON/OFF** key on panel.

[32] Direct Control Commands to be transmitted to this instrument are not case sensitive.