### Table of Content

Instruction for Use ........................................................................................................... 1  
Preparing to Use the Scale ............................................................................................... 1  

#### Chapter 1 Introduction ............................................................................................ 3  
1-1 Features and Specifications ....................................................................................... 3  
1-2 Power Supply ............................................................................................................ 4  
1-3 Display and Keypad Introduction .............................................................................. 4  
1-4 Self-Test Mode .......................................................................................................... 7  
1-5 Error Messages ......................................................................................................... 8  
1-6 Weight Unit .............................................................................................................. 8  

#### Chapter 2 External Function Setting ........................................................................ 9  
2-1 General Function Setting ......................................................................................... 10  
2-1-1 Power Saving Function Setting ............................................................................ 11  
2-1-2 Automatic Power-off Timer Setting ..................................................................... 12  
2-1-3 Hi/Lo/OK Function Setting ................................................................................ 13  
2-1-4 Restore to the Default Setting ............................................................................ 14  
2-1-5 Noise Filter Setting ............................................................................................. 15  
2-1-6 Two Weighing Units Setting ............................................................................... 16  
2-1-7 Unstable Tare ....................................................................................................... 17  
2-1-8 LED Brightness Setting ....................................................................................... 18  
2-2 Weight Calibration .................................................................................................. 19  

Appendix 1 Command Mode &Output data format .......................................................... 20  
Appendix 2 7-Segment Display Characters .................................................................... 22
Thank for your purchasing of our GRAM Weighing Scale. To guide you to use our product correctly, please read this Manual carefully to extend the life of machine and to avoid error.

Instruction for Use

1. Please keep the scale in a cool dry place. Do not store it at high temperature.
2. Avoid objects impacting with the scale. Do not drop loads onto the scale or subject the weigh pan to any strong shock loads.
3. The load placed on the weigh pan must not exceed the maximum weighing capacity of the scale.
4. If the scale is not going to be used for some time, please clean it and store it in a plastic bag in dry conditions. A desiccant sachet may be included to prevent any moisture build up.
5. Please operate or charge the scale in an open area. Do not squeeze the power cord to avoid wire on fire.

Preparing to Use the Scale

1. Adjust the four levelling feet (if fitted) to set the scale pan level using the spirit level bubble located at the front of the scale.
2. Avoid operating the scale in direct sunlight or drafts of any kind.
3. If possible avoid connecting the scale to ac power outlet sockets which are adjacent to other appliances to minimise the possibility of interference affecting the performance of the scale.
4. Remove any weight that might be on the weigh pan before the scale is switched on and avoid leaving weight on the pan for long periods of time.
5. All goods weighed should be placed in the centre of the weigh pan for accurate weighing. The overall dimensions of the goods being weighed should not exceed the dimension of the weigh pan.
6. We suggest to warm up the scale for 15~20 minutes before operation to ensure best accuracy.
7. Please note when the symbol keeps flashing on the screen, the batteries need to be replaced.
8. Introduction of Storage Battery
Due to the storage battery adopt the advanced free-maintaining technique, customers need not to replenish electrolyte. The scale should be recharged every 3 months to prevent failure of the internal rechargeable battery.
1. The battery should be charged for 8~10 hours.
2. The temperature of battery should below 45℃.

**Maintaining**
1. Please do not discharge with over-current when using the battery. Please charge the battery after discharging current.
2. Please take down the battery when the scale is not used for a long time or break the connection of cathode.
3. Do not short the battery terminals to check whether there is current. Please check whether the connection point is firm to guarantee good connection.
4. The battery should be replaced by specialized person. **No reverse-battery or the product will be damaged.**
   a) Anode of battery should be connected with Anode of product battery (usually red cable)
   b) Cathode of battery should be connected with Cathode of product battery (usually brown cable or black cable)
   c) See the picture following

![Battery connection diagram]

**Safety warnings**
1. The electrolyte of battery is caustic which causes metal, cotton, etc to corrode.
2. The hydrogen will be resolved when using or charging the battery and it will cause explosion when approaches fire.

![Safety warning icons]
Chapter 1 Introduction
1-1 Features and Specifications

Features
- Sealed waterproof silica gel strip blocks water from infiltrating into the scale.
- Surrounded by waterproof grade sheeting to ensure the water free.
- 1/3,000~1/6,000 display resolution available.
- DX adopts stainless steel housing.
- High speed of 24bits AD fast reacts and shortens the weighing operation duration.
- Selectable units: Kilogram (kg), gram (g), and pound (lb) weighing units available.
- Built-in rechargeable battery can be easily replaced.
- Vertical placement design battery prevents from electrolyte leakage, and makes more safety and durable.
- Low power indication and auto power off.
- Well-designed protection point for transportation.
- Securable platter with screws at users' needs.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Division</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX-3</td>
<td>3kg</td>
<td>0.5g 1g</td>
<td>1/6,000 1/3,000</td>
</tr>
<tr>
<td>DX-6</td>
<td>6kg</td>
<td>1g 2g</td>
<td>1/6,000 1/3,000</td>
</tr>
<tr>
<td>DX-15</td>
<td>15kg</td>
<td>2g 5g</td>
<td>1/7,500 1/3,000</td>
</tr>
<tr>
<td>DX-30</td>
<td>30Kg</td>
<td>5g 10g</td>
<td>1/6,000 1/3,000</td>
</tr>
</tbody>
</table>

Operating Temperature: -10°C ~ 40°C (14°F ~ 104°F)

Dimensions:
240 x 120 x 280 mm (W x H x D)

Weight of the scale: 3.5 kg approximately;

* Resolutions above 1/3,000 are only available for non-approval models.
1-2 Power Supply

Power Supply Selection for Standard Models
1. DC 6V / 4Ah rechargeable battery
2. AC 110V~240V (±10%) adapter

Power Supply Selection for Wireless Charging Models
1. Power Supply adapter 100V~240V(50~60Hz)
   Output: >5W (meets WPC1.12_Qi Wireless Power Supply’s)
2. DC 6V / 4Ah rechargeable battery or 3.7V/4000mAh lithium battery is used

Power Consumption for Models with lead acid battery
About 120 mA (high brightness); 60 mA (normal brightness); 41.7 mA (low brightness)

Power Consumption for Models with lithium battery
About 180 mA (high brightness); 90 mA (normal brightness); 62.6 mA (low brightness)

Low Battery Warning
Please note when the (  ) symbol keeps flashing on the display, the battery should be recharged right away.
The scale will turn off automatically after 1~2 hours, when the low battery warning symbol shows up. Then the scale must be fully charged, before operating again.

1-3 Display and Keypad Introduction

Icon Introduction
→0←: Zero point indication
STABLE: stable indication
GROSS: gross weight indication
\[
\begin{align*}
\text{\(\pm\)} & : \text{Low battery indication. When this symbol is flashing replace the batteries.} \\
L1, L2 & : \text{only for multiple-unit models; units indications} \\
HI & : \text{The weight on weigh pan is greater than the high limit} \\
LO & : \text{The weight on weigh pan is lower than the check value}
\end{align*}
\]
Keyboard Function

**OFF**: power off

**ON|ZERO**: This key possesses two functions: Power On and Zero function.
- When the scale is off, press the **ON|ZERO** key, the scale will switch on.
- When the scale is on, the **ON|ZERO** key has zero function.
- When the weigh pan is empty (free of load) and the display is not showing zero, press the **ON|ZERO** key to zero the scale. At zero, the “\(\rightarrow 0\)” indication is on.

**UNITS**: switching units

Press the **UNITS** key to switch weight units, the icons or arrows will indicate the active units as appropriate. The units available are dependent on the exact scale model.

- After power off, the scale will memorize the active units. When the scale is powered on again, it displays the previously active units.

**NET|GROSS**: switch NET or GROSS key

- **NET|GROSS** key is only used in Tare mode.
  - In the Tare mode, the screen displays the “Net” icon,
  - In tare mode, when the GROSS icon is on, the weight value on the display is the total amount of the tare value. When the GROSS icon is off, the weight value on the display is the net value. Press the **NET|GROSS** key to switch between the “Net value” and the “Gross value”.
At the Gross status, only [OFF] and [NET|GROSS] keys are functional.

[TARE]: tare / pre-tare key
The tare function will not operate during the following conditions:
When the scale powers on, the weight is still below zero after a container is placed on the weigh pan. Or the tare value is over the full scale capacity.

**Tare function**
(1) Put a container on the weigh pan and after the weight is stable, press the [TARE] key to zero the weight of the container. The screen displays the “à0β” “STABLE” icon.

(2) Put the goods in the container, the screen displays the net weight value of the goods.

(3) Remove the full container; the screen displays the negative weight value of the container. At this time pressing the [TARE] key again will cancel the tare and the scale reverts back to zero. The screen displays the “à0β” “STABLE” icon.

The tare function can be operated continually to the full weighing capacity of the scale.
Continual tare operation is adding or removing tare objects on weigh pan and pressing the [TARE] key each time.

**Power Saving Mode**
To enable the power saving mode, please go to FnC 01 and set as “on”.
When the scale is idle at zero without any key being pressed for 10 seconds, it will enter power saving mode. Only one “-” segment will be the display, and “-” will scrolling from left to right. To exit power saving mode, place weight over 10d or press any key.
1-4 Self-Test Mode

Set the switch SWA1 on the bottom of machine to the LOCK position. When the scale count down, press **NET|GROSS** and **ON|ZERO** keys together, Wait till display shows **01 AdC** to enter “Self-Test Mode”.

**01 AdC INTERNAL VALUE MODE** (must hook up Load Cell to test)
1. Press **TARE** to enter, and the display shows internal value
2. Please check whether the internal value has changed obviously with weight changing.
3. Please check the backlight.
4. Press **ON|ZERO** key to back to the last screen, the display shows **01 AdC**

**02 KEY KEYPAD TEST MODE**
1. Press **TARE** to enter, display shows **KEY 07**
   Keypad's internal code: **TARE** key= 07, **UNIT** key= 06, **NET|GROSS** key=05
2. Press **ON|ZERO** key to back to the last screen, the display shows **02 KEY**

**03 Key** FIRMWARE VERSION DISPLAY MODE
1. Press **TARE** to enter, display shows the firmware version **02026**
2. Press **TARE** key again, the display shows maintenance number **202** for 2 secs for lead acid battery model or “900” for Wipower models with lithium battery
3. Press **ON|ZERO** key to back to the last screen, display shows **03 Key**

**00 ESC** BACK TO THE LAST SCREEN
Press **TARE** key to exit self-test mode, the scale will restart automatically.
1-5 Error Messages

E1 ⇒ Initial zero is higher than the zero range when switching the scale on.

E2 ⇒ Initial zero is lower than the zero range when switching the scale on.

E4 ⇒ Internal value is unstable. (Continuous unstable occurred over 20 secs when
switching the scale on, or after pressing [ON|ZERO] or [TARE] key.)

OL ⇒ The weight of the object is over 9 divisions of the maximum capacity.

----- ⇒ For weight < -20d without tare or pretare device in operation.

1-6 Weight Unit

<table>
<thead>
<tr>
<th>Unit</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>1 g = 0.001 kg</td>
</tr>
<tr>
<td>g</td>
<td>1 g = 1 g</td>
</tr>
<tr>
<td>lb</td>
<td>1 g = 0.002204623 lb</td>
</tr>
<tr>
<td>oz</td>
<td>1 g = 0.03527396 oz</td>
</tr>
</tbody>
</table>
Chapter 2 External Function Setting

In the weighing mode, press [NET] [GROSS] and [ON] [ZERO] keys at the same time to enter the External Function setting mode. The LCD shows 01 FnC.

01 FnC ⇒ General Function setting mode
02 EC ⇒ External Weight Calibration
00 ESC ⇒ Exit the Advanced Function setting mode

Refer to the following sections for the detailed operation procedures of each function setting.
2-1 General Function Setting 01FnC

Workflow of the General Function setting:

**ACTIONS**
- Press TARE key
- Use the keys to select the function
- Key in “00” and Press TARE key to return to the Advanced function setting menu

**DISPLAY**
- 01FnC
- FnC 00
- FnC 00

**NOTE**
- ONZERO key ⇒ Upward key (from 0 to 9)
- UNITS key ⇒ Downward key (from 9 to 0)
- TARE key ⇒ Move the cursor to right
- NET|GROSS key ⇒ Move the cursor to left.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FnC 00</td>
<td>Return to the Advanced Function Setting Mode Menu</td>
</tr>
<tr>
<td>FnC 01</td>
<td>Power saving Function Setting</td>
</tr>
<tr>
<td>FnC 02</td>
<td>Automatic Power-off Timer Setting</td>
</tr>
<tr>
<td>FnC 03</td>
<td>Hi/Lo/OK Setting</td>
</tr>
<tr>
<td>FnC 04</td>
<td>Restore the Default Setting</td>
</tr>
<tr>
<td>FnC 05</td>
<td>Noise Filter Setting</td>
</tr>
<tr>
<td>FnC 06</td>
<td>Two Weighing Units Setting</td>
</tr>
<tr>
<td>FnC 07</td>
<td>Unstable Tare</td>
</tr>
<tr>
<td>FnC 10</td>
<td>LED Brightness Setting</td>
</tr>
</tbody>
</table>

Refer to the following sections for detailed operation procedures of each setting.

FnC 04, FnC 05, FnC 09 are only available for non-approval models.
2-1-1 Power Saving Function Setting \( \text{FnC} \ 0 \ 1 \)

Select \( \text{FnC} \ 0 \ 1 \) in the General Function setting mode \( 0 \ 1 \ \text{FnC} \) to change power saving function setting.

**ACTIONS**

- Press \( \text{TARE} \) key
  - The display shows the last saved status
  - Default setting = off

- Use \( \text{ON|ZERO} \) or \( \text{UNITS} \) key to select function “on” or “off”
  - Power Saving Function Setting
  - Use \( \text{ON|ZERO} \) or \( \text{UNITS} \) key to select
  - On = power saving on
  - Off = power saving off

- Press \( \text{TARE} \) key
  - Key in the parameter “00”

- Press \( \text{TARE} \) key to complete the general setting procedures
  - \( \text{ON|ZERO} \) key ⇒ Upward key (from 0 to 9)
  - \( \text{UNITS} \) key ⇒ Downward key (from 9 to 0)
  - \( \text{TARE} \) key ⇒ Move the cursor to right
  - \( \text{NET|GROSS} \) key ⇒ Move the cursor to left.

**Power saving function**

When the scale is idle at zero without any key being pressed for 10 seconds, it will enter power saving mode. To exit power saving mode, place weight over 10d or press any key.
2-1-2 Automatic Power-off Timer Setting \( \text{FnC 02} \)

Select \( \text{FnC 02} \) in the General Function setting mode \( \text{01 FnC} \) to change the automatic power-off timer setting.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>DISPLAY</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press [TARE] key</td>
<td>( \text{FnC 02} )</td>
<td>LED displays the last saved status</td>
</tr>
<tr>
<td>Use [ON ZERO] or [UNITS] key to key in parameter</td>
<td>( \text{A oFF} )</td>
<td>Automatic power-off timer setting</td>
</tr>
<tr>
<td>Press [TARE] key</td>
<td>( \text{A oFF2} )</td>
<td>Use [ON ZERO] or [UNITS] key to key in parameter</td>
</tr>
<tr>
<td>Key in the parameter “00”</td>
<td>( \text{FnC 00} )</td>
<td>0 ⇒ No auto power-off</td>
</tr>
<tr>
<td>Press [TARE] key to complete the general setting procedures</td>
<td>( \text{01 FnC} )</td>
<td>1 ⇒ When the scale is idle for 1 minute, the scale automatically switches off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 ⇒ When the scale is idle for 2 minutes, the scale automatically switches off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 ⇒ When the scale is idle for 9 minutes, the scale automatically switches off</td>
</tr>
</tbody>
</table>

**Automatic power-off function**

When the weight on weigh pan is less than 10d or keeps idle for the set time, the scale will automatically switch off.

**Key actions**
- [ON ZERO] key ⇒ Upward key (from 0 to 9)
- [UNITS] key ⇒ Downward key (from 9 to 0)
- [TARE] key ⇒ Move the cursor to right
- [NET|GROSS] key ⇒ Move the cursor to left.
**2-1-3 Hi/Lo/OK Function Setting**

Select **FnC 03** in the General Function setting mode to set the Hi/Lo/OK function. This function is available in all unit modes. In one specific unit mode, enter **FnC 03** to set the Hi/Lo/OK values.

### ACTIONS

- When the high limit and low limit are both set as "0", the Hi/Lo/OK function is disabled.

### DISPLAY

Press **TARE** key

Key in the desired high limit value

Press **TARE** key

Key in the desired low limit value

Press **TARE** key

Key in the parameter setting for alarm

Press **TARE** key

Key in the parameter **FnC 00** and then press **TARE** key to go back to the Advanced function setting menu.

### NOTE

- **ONZER0** key ⇒ Upward key (from 0 to 9)
- **UNITS** key ⇒ Downward key (from 9 to 0)
- **TARE** key ⇒ Move the cursor to right
- **NET|GROSS** key ⇒ Move the cursor to left.

### LED displays the last saved status

### Alarm setting

$\text{0}0\text{00000}$

(a) (b) (c)

The definition of a, b, c positions:

(a) ⇒ 1 = beep sound on  
0 = beep sound off

(b) ⇒ 1 = beep sound on when stable  
0 = beep sound on when unstable

(c) ⇒ 1 = beep sound on when the weight is between high and low limits  
0 = beep sound on when the weight is not between high and low limits and higher than 10d
2-1-4 Restore to the Default Setting \(\text{FnC 04}\)

Select \(\text{FnC 04}\) in the General Function setting mode \(01 \text{FnC}\) to restore to the default setting.

**ACTIONS**

1. Press **TARE** key

   **DISPLAY**

   \(\text{FnC 04}\)

   **NOTE**

   \(\text{rReturn} \Rightarrow \text{Return (Cancel the restoration)}\)

2. Use **ONZERO** or **UNITS** key to select “return” or “format”

   **DISPLAY**

   \(\text{Format}\)

   **NOTE**

   \(\text{Format} \Rightarrow \text{Restore to the default setting}\)

3. Press **TARE** key

   **DISPLAY**

   \(\text{FnC 04}\)

   **NOTE**

   \(\text{ONZERO} \text{ key} \Rightarrow \text{Upward key (from 0 to 9)}\)

   \(\text{UNITS} \text{ key} \Rightarrow \text{Downward key (from 9 to 0)}\)

   \(\text{TARE} \text{ key} \Rightarrow \text{Move the cursor to right}\)

   \(\text{NET|GROSS} \text{ key} \Rightarrow \text{Move the cursor to left}\)

4. Key in the parameter “00”

   **DISPLAY**

   \(\text{FnC 00}\)

   **NOTE**

   \(\text{ONZERO} \text{ key} \Rightarrow \text{Upward key (from 0 to 9)}\)

   \(\text{UNITS} \text{ key} \Rightarrow \text{Downward key (from 9 to 0)}\)

   \(\text{TARE} \text{ key} \Rightarrow \text{Move the cursor to right}\)

   \(\text{NET|GROSS} \text{ key} \Rightarrow \text{Move the cursor to left}\)

   **NOTE**

   \(\text{NET|GROSS} \text{ key} \Rightarrow \text{Move the cursor to left}\)

**The default setting includes the following:**

1. External weight calibration
2. HI/LO/OK setting value
3. Noise filter setting (External)

**In approved models, \(\text{FnC 04}\) setting is not available.**

**If \(\text{FnC 04}\) is set to \(\text{Format}\), and the scale has not been restarted automatically. Please ensure to restart the scale manually.**
### 2-1-5 Noise Filter Setting \( \text{FnC 05} \)

Select \( \text{FnC 05} \) in the General Function setting mode \( \text{01 FnC} \) to set the noise filter setting.

#### ACTIONS

- **When modifying \( \text{FnC 05} \), the parameters of \( \text{CFn 01} \) remain un-altered.**

#### DISPLAY

- **Returning to zero point setting**
  - LED displays the last saved status
  
- **Returning to the zero point setting**
  - Use \( \text{ON ZERO or UNITS} \) key to key in the parameters or zero point
  - Default setting = 0
    - 0 ⇒ No skip
    - 1 ⇒ skip 1d
    - 2 ⇒ skip 2d
    - 3 ⇒ skip 3d
    - 4 ⇒ skip 4d
    - 5 ⇒ skip 5d
    - 6 ⇒ skip 6d
    - 7 ⇒ skip 7d
    - 8 ⇒ skip 8d
    - 9 ⇒ skip 9d

- **Digital switch & Stabilization range setting**
  - LED displays the last saved parameter setting
  
- **Digital switch & Stabilization range setting**
  - Use \( \text{ON ZERO or UNITS} \) key to key in the parameters.
  - Default setting = 0
  - Parameter 0 ~ 9, the larger the number, the more stable the weight.

- **Filter parameter setting**
  - LED displays the last saved parameter setting
  
- **Filter parameter setting**
  - Use \( \text{ON ZERO or UNITS} \) key to key in the parameters.
  - Default setting = 5
  - Parameter 0 ~ 9, the larger the number, the faster the filter response. Fast response can lead to weight instability.

#### NOTE

- **Returning to zero point setting**
  - LED displays the last saved status

- **Filter parameter setting**
  - LED displays the last saved parameter setting

- **Filter parameter setting**
  - Use \( \text{ON ZERO or UNITS} \) key to key in the parameters.
  - Default setting = 5
  - Parameter 0 ~ 9, the larger the number, the faster the filter response. Fast response can lead to weight instability.

- **In approved models, \( \text{FnC 05} \) setting is not available.**

---

Key in the parameter \( \text{FnC COO} \) and then press \( \text{TARE} \) key to go back to the Advanced function setting menu \( \text{01 FnC} \).
2-1-6 Two Weighing Units Setting $\text{Fnc 08}$

Select $\text{Fnc 08}$ in the General Function setting mode $01 \text{Fnc}$ to set the two weighing units Setting.

Two weighing units setting
LCD displays the last saved parameter setting

Two weighing units setting
Use $\text{ONZERO}$ or $\text{UNITS}$ key to key in the parameters for two weighing units
Default setting = 1
0 $\Rightarrow$ two weighing units function is not activated
To activate two weighing units, please set the 2nd weighing unit to be:
1 $\Rightarrow$ 2nd weighing unit in CSP 01
2 $\Rightarrow$ 3rd weighing unit in CSP 01
3 $\Rightarrow$ 4th weighing unit in CSP 01
If it set to 1~3, it only displays the 1st weighing unit and the selected 2nd weighing unit

ONZERO key $\Rightarrow$ Upward key (from 0 to 9)
UNITS key $\Rightarrow$ Downward key (from 9 to 0)
TARE key $\Rightarrow$ Move the cursor to right
NET|GROSS key $\Rightarrow$ Move the cursor to left.
2-1-7 Unstable Tare \textit{F_{n}C \ 09}

\begin{itemize}
\item \textbf{Unstable Tare setting}
  \begin{itemize}
  \item LCD displays the last saved parameter setting
  \item Use \textit{ONZERO} or \textit{UNITS} key to key in the parameters for second weighing unit
  \item Default setting = 0
  \item 0 \Rightarrow Disable tare operation while unstable
  \item 1 \Rightarrow Enable tare operation while unstable
  \end{itemize}

\item \textbf{Unstable Tare setting key}
  \begin{itemize}
  \item \textit{ONZERO} key \Rightarrow Upward key (from 0 to 9)
  \item \textit{UNITS} key \Rightarrow Downward key (from 9 to 0)
  \item \textit{TARE} key \Rightarrow Move the cursor to right
  \item \textit{NEXT\_GROSS} key \Rightarrow Move the cursor to left.
  \end{itemize}
\end{itemize}

\textbullet\ Only available for non-approval models. (CFN 02=0)
2-1-8 LED Brightness Setting \( \text{FnC 10} \)

Select \( \text{FnC 10} \) in the General Function setting mode \( 01 \text{FnC} \) to restore to the default setting.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>DISPLAY</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press TARE key</td>
<td>FnC 10</td>
<td><strong>LED brightness setting</strong> LED displays the last saved status</td>
</tr>
</tbody>
</table>
| Press TARE key | LIGHT | **LED brightness setting** Use [ONZERO] or [UNITS] key to select a parameter.
| Use [ONZERO] or [UNITS] key to select a parameter | normal | high \( \Rightarrow \) highest
| | | norMAL \( \Rightarrow \) normal
| | | low \( \Rightarrow \) lowest
| Press TARE key | low | **LED brightness setting**
| | | Key in the parameter “00”
| Press TARE key to complete the general setting procedures | FnC 00 | [ONZERO] key \( \Rightarrow \) Upward key (from 0 to 9)
| | | [UNITS] key \( \Rightarrow \) Downward key (from 9 to 0)
| | | TARE key \( \Rightarrow \) Move the cursor to right
| | | NET|GROSS key \( \Rightarrow \) Move the cursor to left.
2-2 Weight Calibration

In the weighing mode, press \textbf{NET\|GROSS} and \textbf{ON\|ZERO} keys at the same time to enter the External Function setting mode. The LED shows \textbf{0 F\|C} and uses \textbf{ON\|ZERO} or \textbf{UNITS} key to select \textbf{02 EC} to enter the weight calibration mode.

\begin{center}
\begin{tabular}{|c|c|c|}
\hline
\textbf{ACTIONS} & \textbf{DISPLAY} & \textbf{NOTE} \\
\hline
Press \textbf{TARE} key & \textbf{02 EC} & The LED displays the calibration weight value (the maximum capacity of 1$^{\text{st}}$ unit) and the unit. The digit on the right side keeps flashing. \\
When the digit on the right flashes, ensure that the weigh pan is empty. Then Press the \textbf{TARE} key. & \textbf{0030.00} & The scale is calculating the internal value of the zero point. After stabilization, the LED shows the calibration weight value. \\
After stabilization & \textbf{-- -- --} & \\
Place the displayed weight on the weigh pan. Press the \textbf{TARE} key. The scale calculates the full capacity internal value and after stabilization, the buzzer beeps 3 times. Remove the weight from the weigh pan and the procedure is completed. & \textbf{30.00} & \\
\hline
\end{tabular}
\end{center}

For approved models, \textbf{02 EC} is disabled.

Weight calibration conditions:
The calibration weight value placed on the weight pan must be over e100, and the standard deviation of the weight must be within 10\%.
Appendix 1 Command Mode & Output data format

only work with models have WIFI card or BLE card installed inside

Command Mode

Command Format A

<table>
<thead>
<tr>
<th>Host</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave</td>
<td>Command</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MZ</td>
<td>Switch to the first weighing unit</td>
</tr>
<tr>
<td>MT</td>
<td>Switch to the second weighing unit</td>
</tr>
<tr>
<td>MG</td>
<td>Gross weight</td>
</tr>
<tr>
<td>MN</td>
<td>Net weight</td>
</tr>
<tr>
<td>CT</td>
<td>Clear TARE value</td>
</tr>
</tbody>
</table>

Note: UB depends on the setting in FnC08

Command Format B

<table>
<thead>
<tr>
<th>Host</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave</td>
<td>Data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG</td>
<td>Read Gross weight</td>
</tr>
<tr>
<td>RN</td>
<td>Read Net weight</td>
</tr>
<tr>
<td>RT</td>
<td>Read TARE</td>
</tr>
</tbody>
</table>

Note: add % before the command to read continuously

Read HIGH/LOW values in FnC 03

RS○○□□ ○○: Weighing unit (00 ~ 09) □□: Setting Items

<table>
<thead>
<tr>
<th>HI</th>
<th>HIGH value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO</td>
<td>LOW value</td>
</tr>
</tbody>
</table>

Note: ○○(weighing unit) is various depended on models

EX: RS02LO<CR><LF> Read LOW values
ANS: RS02LOXXXXXX<CR><LF>

Command Format C

<table>
<thead>
<tr>
<th>Host</th>
<th>Command+ Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave</td>
<td>Command+ Data</td>
</tr>
</tbody>
</table>

Write HIGH/LOW values in FnC 03

WS○○□□XXXXXX ○○: Weighing unit (00 ~ 09) □□: Setting Items XXXXXX: Setting Value

<table>
<thead>
<tr>
<th>HI</th>
<th>HIGH value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO</td>
<td>LOW value</td>
</tr>
</tbody>
</table>
**Note**: ○○ (Weighing unit) is various depended on models
00 ⇒ The first weighing unit

EX: WS00HI001000<CR><LF> Write HIGH values
ANS: WS00HI001000<CR><LF>

**Command Format D**

<table>
<thead>
<tr>
<th>Host</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value (e.g. Price)</th>
<th>Position of decimal point</th>
<th>CR</th>
<th>LF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When the Slave receives this data format, it will transfer the data and display it on its LCD.

![Display of 12345.6]

Only effective when the weight value is over 10d.

The above 4 (ABCD) command formats are RS232 bi-directional. The following error messages might be received by Slave terminal (scale).

Error messages:
- E1: Wrong command
- E2: Command format error (Wrong parameters)
- E3: Do not match with the executing conditions for Command

**Output Data Format**

6 places (first decimal place not included)

**Weight format**

<table>
<thead>
<tr>
<th>Gross</th>
<th>S T , G S , +</th>
<th>1 2 3 4 5 6 7</th>
<th>SP SP o z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>S T , N T , +</td>
<td>. 2 3 . 4 5 6</td>
<td>t l . g</td>
</tr>
<tr>
<td>Tare</td>
<td>S T , T R , +</td>
<td>1 2 . 3 4 5 6</td>
<td>SP SP k g</td>
</tr>
<tr>
<td>Plus OL</td>
<td>O L , G S , +</td>
<td>SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP</td>
<td></td>
</tr>
<tr>
<td>Minus OL</td>
<td>O L , G S , -</td>
<td>SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP SP</td>
<td></td>
</tr>
<tr>
<td>Unstable</td>
<td>U S , G S , +</td>
<td>1 2 3 4 . 5 6</td>
<td>SP SP l b</td>
</tr>
</tbody>
</table>

**Serial Data Transfer/Receive Format**

\[ n, 8, 1 \]

<table>
<thead>
<tr>
<th>LSB</th>
<th>MSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>8-bit data</td>
</tr>
</tbody>
</table>

Note:
- S: Start bit
- STOP: Stop bit
- P: Parity bit
## Appendix 2 7-Segment Display Characters

<table>
<thead>
<tr>
<th>Number</th>
<th>Display</th>
<th>Letter</th>
<th>Display</th>
<th>Letter</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[ ]</td>
<td>A</td>
<td>[ ]</td>
<td>N</td>
<td>[ ]</td>
</tr>
<tr>
<td>1</td>
<td>[ ]</td>
<td>B</td>
<td>[ ]</td>
<td>O</td>
<td>[ ]</td>
</tr>
<tr>
<td>2</td>
<td>[ ]</td>
<td>C</td>
<td>[ ]</td>
<td>P</td>
<td>[ ]</td>
</tr>
<tr>
<td>3</td>
<td>[ ]</td>
<td>D</td>
<td>[ ]</td>
<td>Q</td>
<td>[ ]</td>
</tr>
<tr>
<td>4</td>
<td>[ ]</td>
<td>E</td>
<td>[ ]</td>
<td>R</td>
<td>[ ]</td>
</tr>
<tr>
<td>5</td>
<td>[ ]</td>
<td>F</td>
<td>[ ]</td>
<td>S</td>
<td>[ ]</td>
</tr>
<tr>
<td>6</td>
<td>[ ]</td>
<td>G</td>
<td>[ ]</td>
<td>T</td>
<td>[ ]</td>
</tr>
<tr>
<td>7</td>
<td>[ ]</td>
<td>H</td>
<td>[ ]</td>
<td>U</td>
<td>[ ]</td>
</tr>
<tr>
<td>8</td>
<td>[ ]</td>
<td>I</td>
<td>[ ]</td>
<td>V</td>
<td>[ ]</td>
</tr>
<tr>
<td>9</td>
<td>[ ]</td>
<td>J</td>
<td>[ ]</td>
<td>W</td>
<td>[ ]</td>
</tr>
<tr>
<td>℃</td>
<td>[ ]</td>
<td>M</td>
<td>[ ]</td>
<td>Z</td>
<td>[ ]</td>
</tr>
</tbody>
</table>