*Electronic Price Computing series*

# EP series

## (Multiple ranges)

*EP110/210-2016*

# 1. Precautions before Using the Scale

## Environment

The scale should always be used in an environment, which is free from excessive air currents, corrosives, vibration, and temperature or humidity extremes. These factors will affect displayed weight reading.

**DO NOT** install the scale:

- Next to open windows or doors causing drafts or rapid temperature changes.
- Near air conditioning or heating vents.
- Near vibrating, rotating or reciprocating equipment.
- Near magnetic fields or equipment that generates magnetic fields.
- On an unstable work surface
- In a dusty environment
- In direct sunlight.

## 2. Name and type of the instrument

The EP Series weighing instrument is a self-indicating pricing scale of Class III with multiple ranges, an external AC mains adapter, and an internal rechargeable battery.

## 3. The description of Construction and Function

### 3.1 Construction

### 3.1.1 Enclosure

The scale is housed in a plastic enclosure. One display is placed on the front together with keyboard and another one on the back (or a pole display equipped on the back). It is intended to be used in shops. A level indicator is built into the enclosure near the keyboard and four adjustable leveling feet are located at the bottom.

### 3.1.2 Keys

The scale has been equipped with 20 keys including the numeric keys and function keys, and an On/Off key located at the right side of the scale.

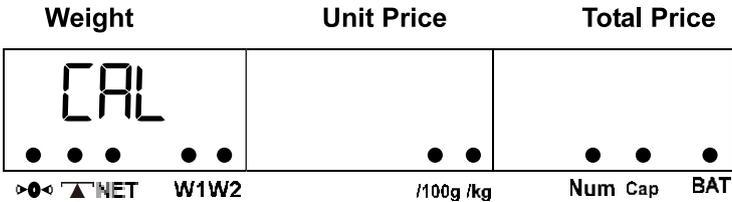| M1 AB | M2 CD | 7 EF | 8 GH | 9 IJ | C/ESC | PLU/ STORE |
|---|---|---|---|---|---|---|
| M3 KL | M4 MN | 4 OP | 5 QR | 6 ST | TARE/ Switch | PRINT/ ← |
| M5 Space - | 0 # 100g /kg | 1 UV | 2 WX | 3 YZ | ZERO/ ENTER | |

## Keypad Function

| keys | Functions |
|------|-----------|
| 0 | Numeric key 0<br>Long press to switch units<br>Selects the "sign" when inputting the PLU data |
| 1-9 | Numeric keys 1-9<br>Select the English letters when inputting the PLU data |
| C | Clear the inputted values<br>Back to last step in setting mode<br>Clear the previous digit when inputting the PLU data |
| PLU | Use this key to store the Item Info.<br>Use this key to recall the stored Item Info.<br>Switch the letter or numeric key function of 1-9 when inputting the PLU data |
| TARE | Use this key to subtract the container's weight<br>Use this key to select the options in Parameters Setting<br>Rotate the PLU data inputting interface |
| ZERO | Use this key to return the display to zero<br>Use this key to confirm |
| M1-M4 | Use this key to store or recall Item Info. directly<br>Input English letters when inputting the PLU data |
| M5 | Use this key to store or recall Item Info. directly<br>Input "Space" or "-" when inputting the PLU data<br>Long press to switch the backlight mode or adjust brightness of the backlight. |
| PRINT | Use this key to print the data<br>Long press to switch the label format<br>Move the flashing digit to left when inputting the PLU data |

## The "sign" available for PLU data

| Sign | ( | ) | / | \ | , | " | " | ' | ' | ? |
|---|---|---|---|---|---|---|---|---|---|---|
| Display | ⌐ | ⌐ | ⌐ | ⌐ | . | ⌐⌐ | ⌐⌐ | ⌐ | ⌐ | ⌐ |

## 3.1.3 Display (LED)

Weight      Unit Price      Total Price

CAL

●0← ▲NET   W1W2     /100g /kg    Num Cap   BAT

## Display (LCD)

Weight   kg    Unit Price      Total Price

888888   888888   888888

▼ ▼ ▼    ▼ ▼     ▼ ▼     ▼ ▼ ▼

●0← ▲NET   W1 W2     /100g /kg    Num Cap   BAT
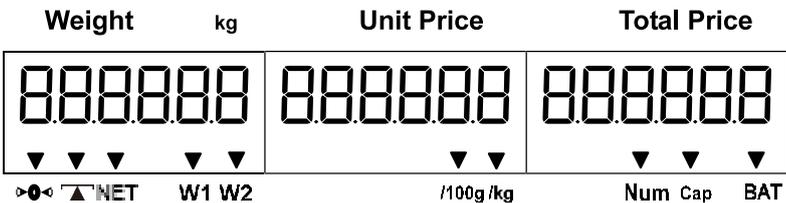
## Indicated symbols

▲ : The scale is in stable mode

●0← : The scale is in zero mode

**NET:** The scale is in tare mode (The display value is net value)

**W1/W2:** Indicates the two weighing ranges.

**Num:** Indicate the 0-9 key to be used as numeric key.

**Cap:** Indicate the 1-9 key to be used as letter key (only Capital letter).

**/100g & /kg:** The price for each 100g or 1kg weighing item.

**BAT:** The battery power consumption

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## 3.2 Function

The scale can be available for operation from mains at 110~240V (50/60Hz) with an external AC/DC adapter with 12V output voltage and an optional internal 6V rechargeable battery.

### 3.2.1 Power-up

When power up the scale, the display will first show the software version (Ver2.00) for 3 seconds and then perform a self display test.

Then it will show the Calibration records for about 1 second. After that it will automatically establish the current weight as a new zero reference point.

"000" is the calibration record. It will be added after each calibration, and it can only reach 999 times (The scale can not be calibrated anymore and the record can not be erased).

### 3.2.2 Zero-setting

**Initial Zero-setting**

The initial zero-setting range: 20% of Max.

If the initial zero has been out of the its range when power on, the display shows "------" in each display windows until the zero point has been kept in its range

**Automatic zero-setting**

The semi-automatic zero-setting range: ±2% of Max

When there is a minor weight displayed (without any load on the pan), press **Zero** key to return to the display to zero, then the Zero (→0←) indictor will be on which indicates that the display now is at the zero point.

Press **Zero** key when the display is unstable, the buzzer will sound beeps for twice without any further performance.

**Zero-tracking**

The instrument is equipped with a zero-tracking feature which operates at a speed of ±0.25e/s and only when the indicator is at gross zero and there is no motion in the weight display.

**3.2.3 Tare**

The instrument is provided with a semi-automatic subtractive tare.

**Semi-automatic tare**

Press **Tare** key to subtract the current displayed weight value as the tare weight value (Consecutive tare operations are allowed, but only when they increase the tare weight). The NET indicator turns on and the display will show a net weight of the object to be weighted.

| Weight    kg | Unit Price | Total Price |
|---|---|---|
| 0.000 | 0.00 | 0.00 |
| ▼ | ▼ | |
| →0← ▲ NET   W1 W2 | /100g /kg | Num Cap BAT |

**To clear the tare value**

When the container is removed, the display will show a minus tare weight value and press **Tare** key to clear the value (But once the tare weight falls into the W2 range, and once the scale is no load, the tare weight will be returned to be zero automatically).

**Note:**

1.  When performing the tare operation(s), make sure the instrument is in stable state, or it will sound beeps.
2.  For EP110 series scale, the max tare value can only reach 4 digits value (because of the minus symbol "-").

**3.2.4 Item data store in memory cell**

Give a long press of **PLU** key to enter into memory cell.

| Weight   kg | Unit Price | Total Price |
|---|---|---|
| 5torE | | |
| ►0◄ ⊤ NET   W1 W2 | /100g /kg | Num Cap BAT |
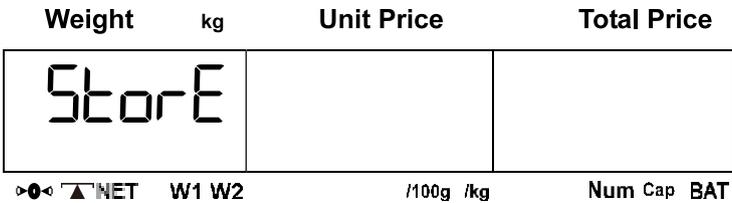
Press **ZERO** key to enter into setting:

**Unit of unit price**

The display shows as below:

| Weight   kg | Unit Price | Total Price |
|---|---|---|
| Un it.P | | 1 |
| ►0◄ ⊤ NET   W1 W2 | ▼ /100g /kg | Num Cap BAT |

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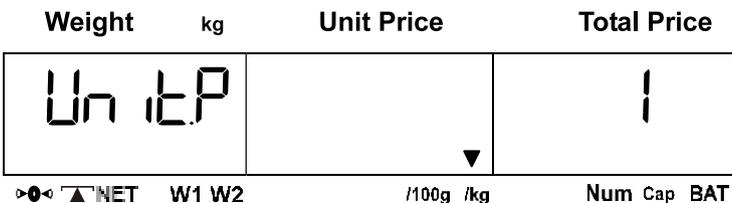
Press **Tare** key to choose the unit of U.P. from 1 (/kg) or 2 (/100g).

The corresponding indicating symbol will be on.

Press **Zero** key confirm and move to set the unit price.

**Unit Price**

Use 0-9 key to input the unit price.

| Weight        kg | Unit Price | Total Price |
|---|---|---|
| $Pr\ icE$ | | $5.00$ |
| ▸0◂ ▲ NET   W1 W2 | /100g  /kg | Num Cap BAT |

Press **Zero** key to confirm and move to set the Item No..

**Note:** The unit price and total price display rule follows the setup under calibration protection.

**Item No.**

| Weight        kg | Unit Price | Total Price |
|---|---|---|
| $No.\ 2$ | | ⌐ |
| ▸0◂ ▲ NET   W1 W2 | /100g  /kg | Num Cap BAT |

The flashing number in Weight display window indicates the current editing interface.

The last digit (cursor) of Total price display window starts flashing, input the numbers or letters of the Item No. (1-9 key is defaulted for number key)

| Weight kg | Unit Price | Total Price |
|---|---|---|

```
  No. 2         123456        APPLE_
```

‣0‣ △NET  W1 W2            /100g /kg        Num Cap BAT

When it exceeds 11 characters, the headmost characters will roll into "page 1". (Press **TARE** key to view the characters in "page 1")

The Item No. is restricted for 16 characters at most (The Item No. can't be set with all "0" or none).

**Note:**

1. If the Item. No. needs to be revised, press **PRINT** key to move the cursor, then use **C** key to clear the character or just key in the new character. If the revised Item No. exceeds 16 digits, the most right characters will be deleted. (Long press **C** key to clear all characters)

2. The Item No. is defaulted to be outputted in right-alignment form.

Press **ZERO** key to confirm and move to set Item name.

**Item Name**

| Weight kg | Unit Price | Total Price |
|---|---|---|

```
  NAME 3                         _
```

‣0‣ △NET                     /100g /kg        Num Cap BAT

Key in the Item Name following the same rule as Item No.. (The Item Name is restrict with 32 digits)

**Note:** For Item Name inputting status, 0-9 key is defaulted to be letter key.

Press **ZERO** key to confirm and move to set the shelf life.

**Shelf life**

| Weight      kg | Unit Price | Total Price |
|---|---|---|
| ShELF | L IFE | 000 |
| ►0◄ ▲ NET   W1 W2 | /100g  /kg | Num Cap BAT |

Use 0-9 keys to input the shelf life of the Item (days).

Press **ZERO** key to confirm and move to check the Item data.

**Address Code**

| Weight      kg | Unit Price | Total Price |
|---|---|---|
| StorE | Addr | S--001 |
| ►0◄ ▲ NET   W1 W2 | /100g  /kg | Num Cap BAT |

Use 0-9 keys to input the address code (1-999).

Once the address code being inputted is beyond the range, "ERROR" will be displayed and correct code needs to be inputted.

Press **Zero** key to confirm and move to check Item data.

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**Item data checking**

| Weight kg | Unit Price | Total Price |
|---|---|---|
| CHECH | ItEП | dAtA |

‣0‣ ⏞ NET  W1 W2          /100g /kg          Num Cap BAT

Press **PRINT** key to print out the item data for checking and store; or just press **ZERO** key to store, and then return for other setting.

**The print format:**

Address:                                              001

No.:                                      NO123456

Name:                                    954878dfafaf

Unit Price:                                 5.00 /kg

Shelf Life:                                  30days

**3.2.5 Downloading Item data (from PC software)**

Connect the scale with PC, and power on the scale, key in "111111" during self-testing, the display shows as below:

| Weight kg | Unit Price | Total Price |
|---|---|---|
| ItEП | | |

‣0‣ ⏞ NET  W1 W2          /100g /kg          Num Cap BAT

Now the PC software can download the Item data to scale.

When the process is finished, press **C** key to exit to normal mode.

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### 3.2.6To recall the stored information

In normal mode, input the Address code and then press **PLU** key to recall the corresponding Item information.

| Weight　kg | Unit Price | Total Price |
|---|---|---|
| 10.000 | 20.00 | 200.00 |
| ▼ | ▼ | |
| ►0◄ ▲ NET　W1 W2 | /100g　/kg | Num Cap BAT |

(Press **M1-M5** to recall the Item information directly)

Once the Item information is recalled, give a long press **PLU** key to modify or revise the information (press **ENTER** key to confirm the modification and move to next one; press **ESC** key to exit).

### 3.2.7 Clear Unit price

Once the weighing operation is finished, the unit price can be kept (cleared by press C key or just key in a new unit price) or cleared automatically. (Refer to section 4.5 in User Menu setting).

### 3.2.8 Backlight

Give a long press of decimal point key "**.**" to enter into backlight setting.

| Weight　kg | Unit Price | Total Price |
|---|---|---|
| MENU | bL | 2 |
| ►0◄ ▲ NET　W1 W2 | $/100g $/kg | Num Cap BAT |

Press **Tare** key to choose the brightness of the LED for EP110 or the backlight mode for EP210: 1, 2 or 3.

For EP110, the larger the number, the brighter the LED.

For EP210:

1---The backlight is always off.

2---The backlight is always on.

3---The backlight is in auto mode (when any key is pressed or any load on the pan, the backlight will be on; after 8 seconds without any operation, it will be off)

The larger the value, the brighter the LED backlight

**3.2.9 Power saving mode (For EP110 only)**

Once the scale is in unloaded mode and without any operation (pressing the key or touching the pan) for 1 minute, the scale will enter into standby mode to save the power (The display shows a short dash)

# 4. User Menu Setting

Power on the scale, during self-procedure, press "5" key four times to enter into User Menu Setting.

## 4.1 COM mode

The display will show as below:

| Weight | Unit Price | Total Price |
|--------|-----------|-------------|
| ᒧᒷᒷᑌ | ᒷᑌ | ᖇᒲᖇᒲ |

Press **TARE** key to choose the setting to be RS232, ECR or off. (Default: RS232)

RS232-To connect with printer or PC

ECR-To connect with ECR/POS system
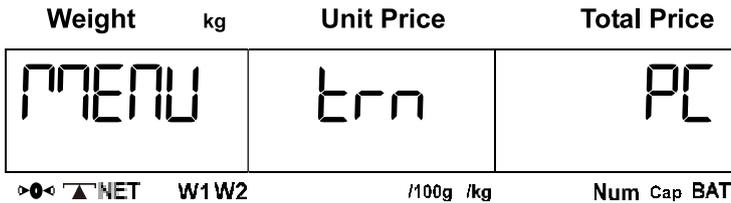
Off-The transmitting is not available

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

**Note:** When ECR is chosen, the user may need to enter into the calibration mode to choose the ECR protocol type. The default type is Type 06. (And there are no next three settings)

## 4.2 Transmitting mode setting

The display will show as below:

| Weight        kg | Unit Price | Total Price |
|:---:|:---:|:---:|
| ΠΙΕΠΙΙ | ᴸᵣᵣ | PΓ |
| ▸0◂ ▲ NET    W1 W2 | /100g  /kg | Num Cap BAT |

Press **TARE** key to choose the transmitting mode to be PC, LP (DATECS LP-50 label printer), DT (GODEX DT/EZ series label printer) (Default: PC)

PC (PΓ): The scale connects with PC. (Refer to section 6.3 for the data format)

LP (ᴸP): The scale connects with LP-50 label printer to output corresponding label format. (Refer to section 6.5 for the variables)

DT (ᵈᵗ): The scale connects with DT-2/4x label printer to output corresponding label format. (Refer to section 6.5 for the variables)

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

## 4.3 Label Format

The display will show as below:

| Weight    kg | Unit Price | Total Price |
|---|---|---|
| ᴄᴇᴎᴜ | ForΓ | 00 |
| ▸0◂ ▲ NET   W1 W2 | /100g /kg | Num Cap BAT |

Use 0-9 keys to input the label format to be FORM00-99. (Default: FORM00)

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

## 4.4 Baud rate

The display will show as below:

| Weight    kg | Unit Price | Total Price |
|---|---|---|
| ᴄᴇᴎᴜ | brAtE | 9600 |
| ▸0◂ ▲ NET   W1 W2 | /100g /kg | Num Cap BAT |

Press **TARE** key to choose the baud rate to be 1200, 2400, 4800 or 9600. (Default: 9600)

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

## 4.5 Zero tracking

The display will show as below:

| Weight kg | Unit Price | Total Price |
|-----------|------------|-------------|
| ᴹᴱᴺᵁ | A2 | oN |

›0‹ ▲ NET  W1 W2  /100g /kg  Num Cap BAT

Press **TARE** key to choose the zero tracking mode to be on or off. (Default: on)

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

## 4.6 Unit price clearing mode

The display will show as below:

| Weight kg | Unit Price | Total Price |
|-----------|------------|-------------|
| ᴹᴱᴺᵁ | C.U.P | Auto |

›0‹ ▲ NET  W1 W2  /100g /kg  Num Cap BAT

Press **TARE** key to choose the unit price clearing mode to be Auto or Manual.

(Refer to section 3.2.7)

Press **C** key to confirm the choice and return to normal mode; or press **ZERO** key to confirm the choice and move to next setting.

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# 5. Power Supply & Battery Operation

POWER SUPPLY

● AC 110~240V(50/60Hz)

● DC 12V/1000mA

BATTERY OPERATION (6V/4Ah)

The scale can be operated from the battery if desired. The battery can continuously supply power approximately 20 hours.

When the battery needs charging, the indicator of "BAT" will turn on. The scale can keep operating for about 10 hours when the symbol appears. The scale will automatically switch off to protect the battery.

To charge the battery, simply attach the power supply module to the scale and plug in. The scale does not need to be turned on.

The battery should be charged for 12 hours for full capacity.

There is an LED to indicate the status of battery charging on the right of display. When the scale is plugged into the mains power the internal battery will be charged. If the LED is **Green** the battery has been charged. If it is **Red** the battery is nearly discharged and **Yellow** indicates the battery is increasing the charge level.

As the battery is used, it may fail to hold a full charge. If the battery life becomes unacceptable, then please contact your distributor.

**Note:** The battery should be recharged every 3 months if the scale is not used for long time.

# 6. RS-232 Output

The scale can be ordered with an optional RS-232 output (PC or Printer)

## 6.1 Mode: EIA-RS 232C's UART signal

## 6.2 Data bytes:

Baud rate:    1200/2400/4800/9600    BPS

Data bits:        8        BITS

Stop bit:         1        BIT

Code format: Code ASC II

Connector: 9 Pin Socket

Pin3    Output

Pin5    Signal Ground

**Connect to PC**



PC                    scale
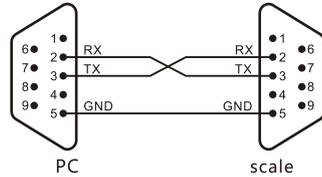
## 6.3 Data format for PC

| Start | Data | | | | | | | | | | | End |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STX | Item No. | 0x0d | Item Name | 0x0d | Weight | 0x0d | Unit price | 0x0d | Total price | 0x0d | | ETX |
| 0X20 | | 0x0d | | 0x0d | | 0x0d | | 0x0d | | 0x0d | | 0X03 |

**Weight:**

| D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 |
|---|---|---|---|---|---|---|---|---|---|
| S | - | 1 | 5 | . | 0 | 0 | 0 | k | g |

| Byte | Description | Specification |
|---|---|---|
| D1 | Status | U-Unstable<br>S-Stable |
| D2 | Symbol | " " indicate positive<br>"-" indicate negtive |
| D3-D8 | C4, C3, DIT, C2, C1, C0 | Displaying data |
| D9-D10 | Unit | kg |

**Unit price:**

| D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 |
|---|---|---|---|---|---|---|---|---|---|
|  |  | 1 | 0 | 0 | . | 0 | 0 |  | unit |

Unit for unit price: 1-/kg      2-/100g

D9 is empty

**Total price:**

| D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 |
|---|---|---|---|---|---|---|---|
|  |  | 1 | 1 | 5 | . | 0 | 0 |

## 6.4 ECR protocol (Type06)

### Configuration

Baud rate 9600

Data bits 8 bytes

Parity bit None

Stop bit 1 byte

### Data format

**1. Only weight value**

| ECR | | SCALE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ENQ<br>（05H） | → | | | | | | | | | |
| | ← | ACK(06H) | | | | | | | | |
| DC1(11H) | → | | | | | | | | | |
| | | Prefix<br>(2byte) | | 1byte | 1byte | Weight<br>(6byte) | UNIT<br>(2byte) | | | Subfix<br>(3byte) | |
| | ← | SOH<br>(01H) | STX<br>(02H) | STA | SIGN | W5~W0 | UN1 | UN2 | BCC | ETX<br>(03H) | EOT<br>(04H) |

**STA:** "S" (53H)——Stable "U" (55H)——Unstable

**SIGN:** " " (Space20H)——Positive "-" (2DH)——Minus

"F" (46H)——Overload

**Weight:**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| W5 | W4 | . | W3 | W2 | W1 |

**UNIT:**

| UN1 | UN2 |
|---|---|
| K(4BH) | G(47H) |
| L(4CH) | B(42H) |
| O(4FH) | Z(5AH) |
| G(47H) | (20H) |

**BCC:** All data bytes except Prefix and Subfix through exclusive OR (XOR)

## 2. Data with weight, unit price and price

| ECR | | SCALE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ENQ（05H） | → | | | | | | | | |
| | ← | ACK(06H) | | | | | | | |
| DC2(12H) | → | | | | | | | | |
| | | Prefix (2byte) | | Data frame | | | | Subfix (3byte) | |
| | ← | SOH (01H) | STX (02H) | DATA3 | DATA1 | DATA2 | BCC | ETX (03H) | EOT (04H) |

**Data for DATA3 (Price) and DATA2 (Unit price):**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| D6 | D5 | D4 | D3 | D2 | | D1 | D0 |

**Data for DATA1 (Weight)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|----|
| STA | SIGN | W4 | W3 | . | W2 | W1 | W0 | UN1 | UN2 |

**STA:**     "S" (53H)——Stable            "U" (55H)——Unstable

**SIGN:**    " " (Space20H)——Positive    "-" (2DH)——Minus        "F" (46H)——Overload

**UNIT:**

| UN1 | UN2 |
|---|---|
| K(4BH) | G(47H) |
| L(4CH) | B(42H) |
| O(4FH) | Z(5AH) |
| G(47H) | (20H) |

**BCC:** All data bytes except Prefix and Subfix through exclusive OR (XOR)

**Note:** If the scale did not receive the command "05H", it will send command "15H" back.

## 6.5 Variables (for LP-50 printer and DT-2/4x printer)

| Variable Name | | Specification | bytes |
|---|---|---|---|
| **LP-50** | **DT-2/4x** | | |
| NWA | V00 | Net weight | 7-byte |
| NWB | V01 | Net weight (no dot) | 6-byte |
| PRI | V02 | Unit Price | 7-byte |
| PRB | V03 | Unit Price (no dot) | 6-byte |
| TOL | V04 | Total Price | 7-byte |
| TOB | V05 | Total Price (no dot) | 6-byte |
| UNT | V06 | Unit of weight | 3-byte |
| UNP | V07 | Unit of U.P | 9-byte |
| CNP | V08 | Currency Unit | 4-byte |
| INA | V09 | Item Name | 32-byte |
| IN | V10 | Item Number | 16-byte |
| SF | V11 | Shelf Time | 3-byte |
| YY | | Year | 4-byte |
| MM | | Month | 2-byte |
| DD | | Day | 2-byte |

# 7. Technical Data

| Model | EP110-3 EP210-3 | EP110 -6 EP210-6 | EP110 -15 EP210-15 | EP110 -30 EP210-30 |
|---|---|---|---|---|
| Cap.× Resolution | 3000*1g | 6000*2g | 15000*5g | 30000*10g |
| Construction | Stainless steel pan, plastic housing | | | |
| Weighing Units | kg/g | | | |
| Application | Price computing, weighing | | | |
| Display | 18mm high (5 digit and 6-digit, 7-segment) LED display; or 18mm high (6-digit, 7-segment) LCD | | | |
| Keyboard | 20 keys Touch Switch | | | |
| Zero range | 4% of Full Scale Capacity | | | |
| Tare Range | Full Capacity by subtraction | | | |
| Power | AC Adapter 12V/1000mA or 6V/4Ah Internal rechargeable lead acid battery | | | |
| Battery Life | 20 hours continuous use with 12 hour recharge time | | | |
| Safe Overload Capacity | 120% of Full Capacity | | | |
| Operating Temp | -10℃-40℃ | | | |
| Humidity Range | ≤85% relative humidity, non-condensing | | | |
| Shipping Protection | Shipping screw to avoid damage to sensitive components | | | |
| Pan Size | 280×220mm | | | |
| Scale Dimension | 290×115×320mm | | | |
| Shipping Dimensions | 440×160×360mm | | | |
| Net Weight | 4.2kg | | | |
| Shipping Weight | 5.3kg | | | |