

DI-166SS

WEIGHING SCALE USER MANUAL



Teraoka Seiko Co., Ltd.

< Head office >

13-12 Kugahara 5-chome, Ohta-Ku, Tokyo 146-8580 Japan

TEL: +81-3-3752-2131, FAX: +81-3-3752-2801

< Ohsaki office >

2-3-13 Ohsaki, Shinagawa-Ku, Tokyo 141-8566 Japan

TEL: +81-3-5496-7600, FAX: +81-3-5496-7620

<http://www.digisystem.com> : [email:info@hq.digi.co.jp](mailto:info@hq.digi.co.jp)

CONTENT

- I . BEFORE USING THE SCALE**
- II . PREPARING TO USE THE SCALE**
- III . INTRODUCTION**
- IV . LED DISPLAY SYMBOLS**
- V . KEYBOARD FUNCTION**
- VI . GENERAL FUNCTION**
- VII . COUNTING FUNCTION OPERATION**
- VIII . CONNECTION OF INTERFACE**
- IX . MEANS OF POWER SUPPLY & CHARGING**
- X . CALIBRATION**
- XI . CONFIGURATION SETTINGS**
- XII . ERROR SIGNAL**
- XII . WARRANTY**

BEFORE USING THE SCALE

To enable you to use this scale correctly, we suggest you read this manual carefully.

1. Do not use scale in areas with excessive water and don't spray the scale or indicator with water when cleaning. Erase all water from the scale and indicator with a clean dry duster cloth.
2. Load placed on platter must not exceed the maximum weighing capacity of the scale.
3. Keep the scale away from high temperature and damp conditions.
4. If the scale is not going to be used for some time, please clean and store it in a plastic bag under dry condition. A desiccant sachet is suggested to be included to prevent moisture build up. In addition, the internal rechargeable battery should be recharged very three months.
5. Before using the scale after a long period of storage, please ensure that the internal battery is fully charged. **Note** : Care should be taken not to leave the internal battery on charge for too long, as this may decrease life of battery.

PREPARING TO USE THE SCALE

1. Put the scale on a firm level surface from vibrations for accurate weight readings.
2. Adjust the four leveling feet to set the level of scale platform.
3. Avoid operating the scale in direct sunlight or drafts of any kind.
4. Take away any weight that might be on the platform before the scale is switched on.
5. Once the scale has been switched on, it will go through a LED display test and then re-zero to be ready for use.
6. Please note when [BAT] LED is shine on the display, the internal battery needs to be charged.
7. All goods weighed should be placed in the centre of platform for accurate weighing. The footprint of the goods being weighed should not overstep the edges of platform.

INTRODUCTION

A. FEATURES

1. Dual-weighing units: Kilogram (kg) and pound (lb).
2. Working temperature: -5°C~40°C.
3. User-friendly design:
 - ✧ Auto calibration
 - ✧ AC / DC power supply
 - ✧ Large LED display
 - ✧ Auto power-off design to ensure the performance stability
4. Variable calibration settings depending on the different calibration division.

- ◇ Standard division (under 10,000 internal resolution): Capacity and weight calibrations are available for accurate weighing.
 - ◇ High precision division (over 10,000 to 40,000 internal resolution): Linearity, capacity and weight calibrations are available for accurate weighing.
5. Options
- ◇ RS-232 & RS-485 interface
 - ◇ Print-out interface
6. High performance in A/D converter
- ◇ Conversion speed: up to 40 times / second
 - ◇ Internal resolution: 400,000
 - ◇ External resolution: 1/1000 ~ 1/15000
 - ◇ Non-linearity: < 0.016% of full scale
 - ◇ Input range of load cell: 0 ~ 20 mv
 - ◇ Load cell excitation: + DC5V
 - ◇ Load cell drive capacity: up to 4 350Ω or 1000Ω load cell

B. POWER SUPPLY

1. Rechargeable battery: DC 6V / 4Ah
2. Adapter power: AC/DC 12V / 500mA

C. LOW BATTERY WARNING

- ◇ Please note when [BAT] LED is shine on the display, the internal battery needs to be recharged.
- ◇ The scale will power off automatically without recharging after the low battery symbol shows upon for 20 to 30 hours on the display. As a recommendation, the scale should be fully recharged before using the scale again.

LED light SYMBOLS

STB : “Stable” indication

Ct : “ Ct” unit

NET : “Net Weight” indication

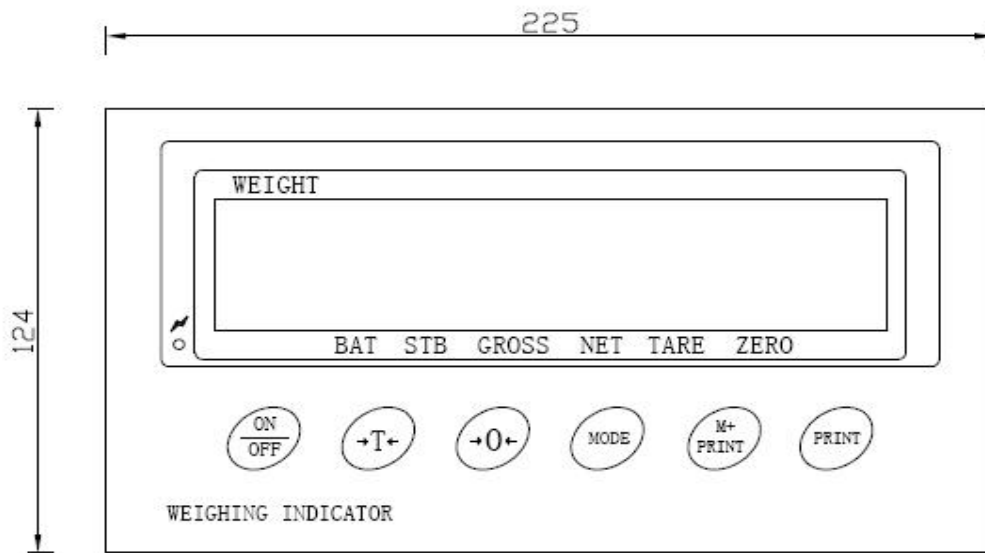
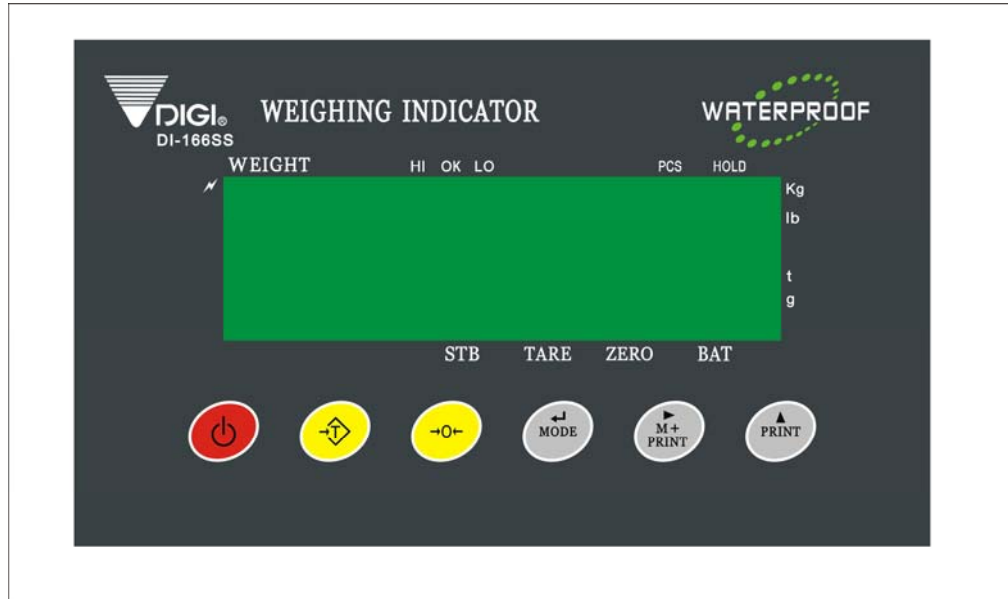
Lb : “Lb” unit

GROSS: “Gross” indication

kg : “kg” unit









BAT : “Battery” indication

ZERO : ‘Zero’ indication




Keyboard

KEYBOARD FUNCTION



1.  : Turn on / off. The indicator will be turned on when pressing the key. Press and hold the key for 1.5 seconds, the battery charge percentage 'bpt - -' will show on the screen, then the indicator will power off.
2.  : Deduct the container weight. Press this key to deduct container weight and net weight will display.
3.  : To re-zero the scale. Range of re-zero is $\pm 2\%$ of full scale.
3.  : For lb/kg switch or selecting the backlight mode. Press this key to choose the desired weight unit. Press and hold it for 1.5 second to turn on/off backlight.
5.  : Press this key to print out the current weight. Press  to clear the current weight
6.  : For printing out the accumulative weight. All the printed weight will be added up and print out accumulatively by pressing this key. Accumulative time and weight will display on the screen for 1.5 second respectively. Press  to clear accumulative weight and time.

SETTING OF AUTOMATIC POWER OFF

Plug the circuit breaker JP1 into 'off', and the following operation can be performed:


Press and hold  for 1.5 second, the screen will display 'off - -', '- -' refers to preset shut down time.

There are five choices for preset shut down time: 3, 10, 15, 30 and 0. Choices 3, 10, 15, 30 denote respectively that indicator will power off automatically if there is no changes on weighing value and no operation on keyboard in 3mins, 10mins, 15mins and 30mins. Choice 0 denote that automatic power off

function is not available. Press  to select then press  to confirm the selected preset time.

BUZZER

After setting the function of automatic power off, the indicator will display 'bp on' or 'bp off'.

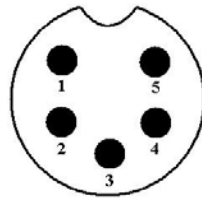
Press  to select 'on' or 'off' to turn on/off the buzzer. Non-buzzing mode will help

decreasing power consumption.

CONNECTION OF INTERFACE

A. CONNECTION OF LOAD CELL SIGNAL WIRE

For better performance of the electronic scale, make sure to connect the 5 round pin plug to the 5 pin socket firmly and tighten the screw up. Please see figure 1:



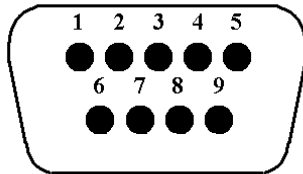
- | | |
|---------------|-------------------------|
| 1: Pin +IN | +signal |
| 2: Pin -IN | -signal |
| 3: Pin AGND | shield |
| 4: Pin +E, +S | +excitation, +feed back |
| 5: Pin -E, +S | -excitation, -feed back |

Figure 1: Diagram of 5 round pin plug of the load cell

NOTE: For 6 pin load cell, please connect +E, +S and -E, -S in short circuit.

B. CONNECTION OF RS-232 (Please specify in the order if needed)

RS-232 serial interface is a D-SUB-9 needle slot as figure 2 shows:

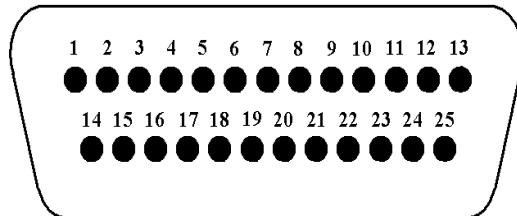


- | | |
|--------------|--------------|
| 2: Pin RXD | |
| 3: Pin TXD 1 | 9: Pin TXD 2 |
| 5: Pin GND | |

Figure 2: Diagram of RS-232 slot

C. CONNECTION OF PRINTOUT INTERFACE

Printout interface is a parallel printing outlet with 25 pins as figure 3 shows:



- | | |
|------------|------------|
| 1: | Pin STRB |
| 2~9: | Pin D0-D7 |
| 11: | Pin BUSY |
| 10, 12~18: | Pin: empty |
| 19~25: | Pin GND |

Figure 3: Diagram of parallel printing outlet with 25 pins

MEANS OF POWER SUPPLY

A. RECHARGEABLE BATTERY










The rechargeable battery is 6V/4.5Ah. The end of red line is positive pole, while the end of black line is negative pole. Connect the wiring terminals and tighten the screw up to fix battery well. The rechargeable battery should be charged through adapter by plugging the adapter into power supply to achieve automatic charge.

B. AC/DC ADAPTER

Insert DC plug of the adapter, whose specification is 12V/500mA, into a DC socket, insert the other end into relevant AC socket and connect to power supply.

In case there is no AC supply and dry battery is used as substitute, do remember to pull out DC plug of the adapter, otherwise the indicator will fail to work.




CALIBRATION

1. Open up the outer case of indicator before calibrate, plug the circuit breaker JP1 into 'on'.
2. Press and hold  for 1.5 second, indicator will display 'CAL SP'.
3. Press  to enter calibration mode, 'CAL 00' which denotes that there is nothing being weighed on the scale will display on the screen.
4. Press  to enter mode of automatic zero correction and '- - - - -' will display. After few seconds, the previous weight will show on the screen.
5. Load weight on the scale, say weight of 20kg. After stable indication  displays, press  to select digit position (the selected digit position will blink). Digit position will carry forward to the right side when pressing  every time. Press  to set the digit among 0~9. Repeat the above operation till '20.00' is displayed, then press  to confirm.
6. '- - - - -' will display on the screen automatically after finished the operation as Point 4 describe, indicating the scale enter into calibration and weighing mode.
7. If '20kg' displays on the screen, it denotes the consistency with weigh value; in case of none consistency, please recalibrate again.
8. Offload the weight, reading '0.00kg' will display and  will show denoting there is nothing being weighted on the scale.
9. The scale will return to weighing mode after calibration is finished. Do remember to plug the circuit breaker into 'off' position.

CONFIGURATION SETTINGS

Please open up the outer case of indicator before calibrate, plug the circuit breaker JP1 into 'on'.

Step 1: Enter Setup

Press and hold  until 'CAL SP' display on the screen. Press  to enter into setup mode and 'SET' will display. Press  to enter menu.

Step 2: Division


Either 'd1 X.XXX' or 'd2 X.XXX' will display.


'd1' is the division for single range display. (from 0.0001~50)


'd2' is the smaller division for the dual range display. (form 0.0001~50)

Example: For a 60kg scale, if 'd1' is set to 0.02kg, the scale will show a division of 0.02kg among 0kg~60kg.

If 'd2' is set to 0.005kg, the scale will show a division of 0.005kg from 0~30kg and show a division of 0.01kg among 30~60kg.

Press  to switch between 'd1' and 'd2'.

Press  to change division.

Press  to confirm and enter into the next step.

Note: If 'd1' is set, the scale will only be in single range display mode and 'd2' will be ignored.

If 'd2' is set, the scale will only be in dual range display mode and 'd1' will be ignored.

Please refer to Table 1 for division values of 'd1' and 'd2'.

Step 3: Display Resolution


'n XXX.XX' will display on screen. The value shown is the display resolution.


Display resolution = (division) kg/ (full capacity) kg

For dual range display, please refer to Tale 1 for value of 'n'.

Ignore the decimal point shown and take the value as a whole number.

Example: tale 'n 060.00' as 6000, take 'n 120.00' as 12000.

Press  to change the value of the selected digit.

Press  to confirm value and enter in to the next step.


Note: Please calibrate the scale again after changing 'Division' and 'Display Resolution' settings.

Step 4: Zero range / Zero tracking / Weigh Unit setup

'Ut ABCD' will display.


A : Zero range when power on, 1~9 mean 10%~90%FS to zero, 0 mean not to zero

B: Zero tracking range

Press  to change basic unit and press 'ADD PRINGT' to change secondary unit.


Press  to confirm.

Note:

1. In normal weighing mode, indicator will only be able to switch between 'kg' and 'lb' by pressing  if 'Unit YX' is set to 'Unit 10'.
2. For the other digit combinations of 'Unit YX', indicator will only display the assigned unit as the basic unit.

Step 5: Baud Rate


'b XXXX' will display on screen. The value shown is the baud rate.


Press  to switch between baud rate of 1200, 2400, 4800 and 9600.


Press  to confirm.



Step 6: Serial Printout Port Configuration

'Ads XX' will display on screen. XX values decide the print mode.


Press  to select digit position of X.

Press  to change the value of the selected digit.

Press  to confirm and return to normal weighing mode.

1. XX=99: Indicator will not send out weight data unless when  or  is pressed in normal weighing mode.
2. XX=01~98: Indicator will send out data after received command.
3. XX=00: Indicator will send out continuous data automatically reach to 10 times per second.

Step 7: Automatic Backlight

'bAn X' will display. Press  to change value of 'X'.

X=1: Automatic backlight. The backlight will on automatically when weight load on the scale, and will off after unload the weight.

X=0: manual backlight. Press and hold MODE for 1.5 second to turn on/off the backlight.

Step 8: Configuration is done

Plug the circuit breaker JP1 into 'off'.

Table 1

No.	Capacity	Division d1	Division d2
1	1.5000kg	0.0001, 0.0002, 0.0005	0.0001kg(0~0.6kg), 0.0002kg (0.6~1.5kg), n=1500
2	3.0000kg	0.0002, 0.0005, 0.001	0.0002kg(0~1.5kg), 0.0005kg (1.5~3kg), n=1500
3	6.0000kg	0.0005, 0.001, 0.002	0.0005kg(0~3kg), 0.0001kg (3~6kg), n=1200
4	15.000kg	0.001, 0.002, 0.005	0.001kg(0~6kg), 0.002kg (6~15kg), n=1500
5	30.000kg	0.002, 0.005, 0.01	0.002kg(0~15kg), 0.005kg (15~30kg), n=1500
6	60.000kg	0.005, 0.01, 0.02	0.005kg(0~30kg), 0.01kg (30~60kg), n=1200
7	150.00kg	0.01, 0.02, 0.05	0.01kg(0~60kg), 0.02kg (60~150kg), n=1500
8	300.00kg	0.02, 0.05, 0.1	0.02kg(0~150kg), 0.05kg (150~300kg), n=1500
9	600.00kg	0.005, 0.1, 0.2	0.05kg(0~300kg), 0.1kg (300~600kg), n=1200
10	1000.0kg	0.1, 0.2, 0.5	0.1kg(0~600kg), 0.2kg (600~1000kg), n=10000
11	1500.0kg	0.1, 0.2, 0.5	0.1kg(0~600kg), 0.2kg (600~1000kg), n=15000
12	2000.0kg	0.2, 0.5, 1	0.2kg(0~1t), 0.5kg (1t~2t), n=10000
13	3000.0kg	0.2, 0.5, 1	0.2kg(0~1.5t), 0.5kg (1.5t~3t), n=15000
14	5000.0kg	0.5, 1, 2	0.5kg(0~3t), 1kg (3t~5t), n=10000
15	8000.0kg	1, 2, 5	1kg(0~4t), 2kg (4t~8t), n=8000
16	10000kg	1, 2, 5	1kg(0~5t), 2kg (5t~10t), n=10000
17	15000kg	1, 2, 5	1kg(0~6t), 2kg (6t~15t), n=15000
18	20000kg	2, 5, 10	2kg(0~10t), 5kg (10t~20t), n=10000
19	30000kg	2, 5, 10	2kg(0~15t), 5kg (15t~30t), n=15000
20	40000kg	5, 10, 20	5kg(0~30t), 10kg (30t~40t), n=8000