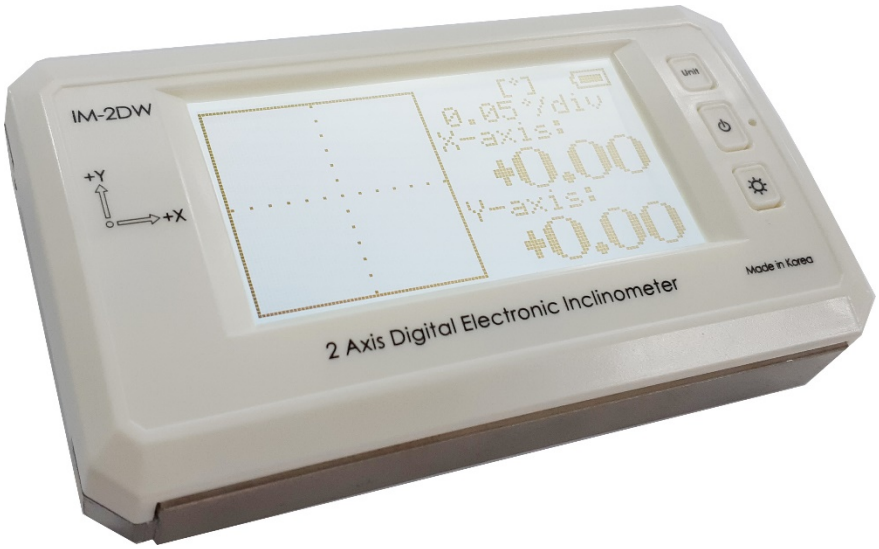
DONG DO EI

Resolution : 0.01°
Accuracy : ±0.03°



High Precision 2-Axis Digital Electronic Inclinometer

IM-2DW

User's Guide

The contents of this manual could be different according to the software version and it can be changed without notice.
Please use this good after reading the manual thoroughly.

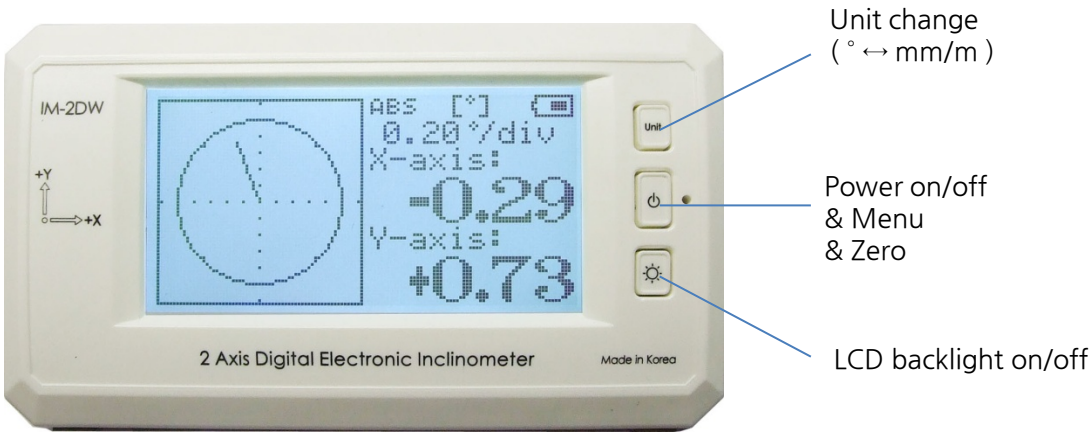
Table of Contents

Introduction

Thanks for buying our product.
IM-2DW is a high precision dual axis inclinometer with LCD display.
It is different from analogue method. It indicates digital method of numerical value and direction of dual axis angle.
It is possible to do high speed horizontal plane setting for high precision machines or home appliance as like laundry machine.

Specialty of IM-2DW
1. Easy to set the level of the space with 2 axis angles display at once.
2. Small & light so that possible to use to a sensor unit.
3. Possible to insert to high precision systems.
4. Included the RS232C output.
5. Built-in Li-ion rechargeable battery. (Rechargeable to USB port on PC)

Product features and function



- **Unit change button:**

1. To change the measurement unit. (°↔ mm/m)
2. To move up the cursor or increase the value in the setup menu.

- **Power on/off button :**

1. To turn on the power or off the power.
 - Power on: Pushing the button once if the power is off then the power is on with a sound.
 - Power off: Pushing the button for around 2 sec when the power is on. Then the power is off.
2. To enter the setup menu.
 - Pushing the button for around 2 sec when the power is off. Then the setup menu is displayed.
3. To change the absolute value and relative value.
 - Abs. value → Rel. value : After pushing the button, 'ABS' mark is disappeared on the LCD and set the current angle to zero in 5 seconds.
 - Rel. value → Abs. value : If push the button, 'ABS' mark is appeared on the LCD and the absolute X/Y angle values are displayed.
4. To select item on the cursor in setup menu.

- **Backlight on/off button:**

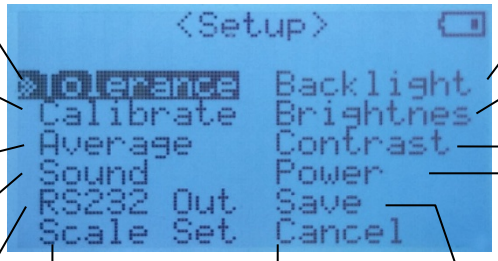
1. To turn on/off the backlight of the LCD.
2. To move down the cursor or decrease the value in the setup menu.

Setup

Turn on the power in condition of push the 'Power on/off' button for around 2 sec. then the setup menu is come up. Using (Up) key and (Down) key, you can move the cursor, or increase/decrease of the setting values.
Locate the cursor at item you're going to change, and push the key in the middle. Then you can enter the item.
※ You must choose the 'Save' item to save the changes you've done.

Setting the tolerance that be indicated by circle

Setting LCD backlight auto off mode.



To enter Calibration Menu. *see page 5

Setting brightness of the LCD backlight.

Setting LCD Contrast.

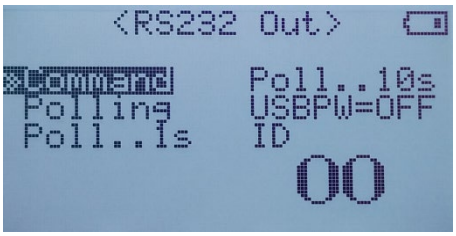
Setting how many times of averaging measurement value

Setting sound ON/OFF.

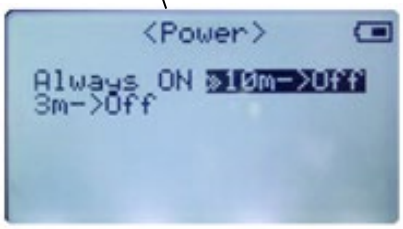
Only for IM-2DC

Save the setup.
*You must save if there're any changes.

Cancel setting & out of the menu



Setting RS232C Communication
*Check page 6 for USBPW.



Setting power auto ON/OFF mode.

Calibration

*** To calibrate the absolute zero. Please follow the steps carefully. If not, it can not be guaranteed the angle data.**

Step 1 [XY Calibration]

1. Choose the 'Calibrate' item on the menu.
2. Move the cursor to the 'Set-XY'
3. Put the inclinometer on the surface as like Fig.1 and wait until the values are settled.
4. Push the button in the middle. Then you might see 'Please rotate 180° and Push button again' on the screen.
5. Turn around the inclinometer 180° and push the same button again if the values are settled.
6. Finished the XY calibration.

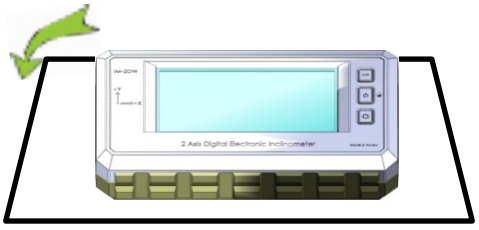


Fig.1

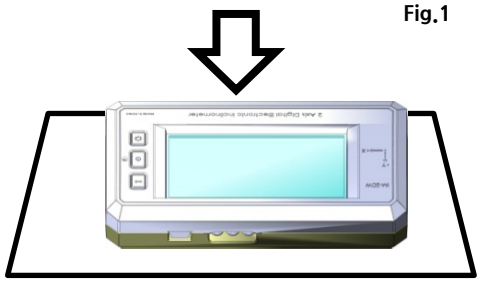


Fig.2

Step 2 [X Calibration]

1. Choose the 'Calibrate' item on the menu.
2. Move the cursor to the 'Set-X'
3. Put the inclinometer on the surface as like Fig.3 and wait until the values are settled.
4. Push the button in the middle. Then you might see 'Please rotate 180° and Push button again' on the screen.
5. Turn around the inclinometer 180° and push the same button again if the values are settled.
6. Finished the X calibration.

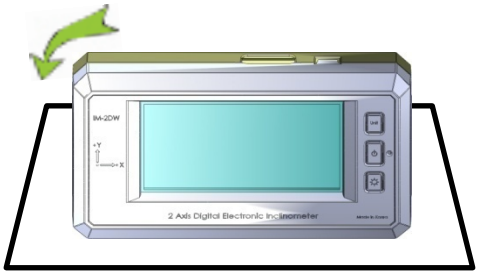


Fig.3

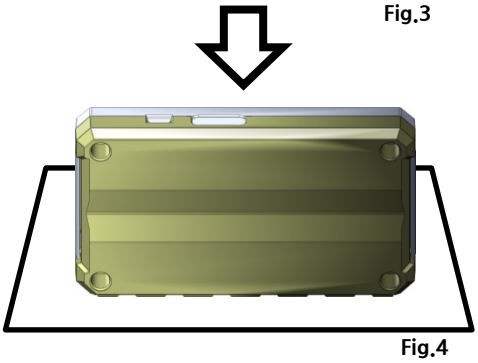


Fig.4

* [Y Calibration]

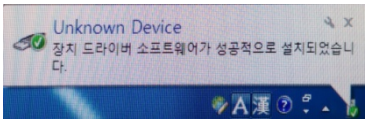
User doesn't have to do the Y calibration because the Y calibration is done automatically if the X calibration is done.

RS232C serial communication

*** ISC-T :**
It is necessary to do RS232C serial communication with IM-2DW / IM-2DT.

•ISC-TP :
RS232C serial cable with USB recharging.

•'USBPW' setting on 'RS232 Out' Menu



'USBPW = OFF'
Not to see 'Unknown Device' message from windows when the mini-usb cable is used for only recharging,

'USBPW = ON'
To use ISC-TP cable to connect RS232C with recharging. If it is set 'OFF', the RS232C doesn't work when usb power is connected.

'USBPW = ON & OFF'
Both setting is fine to use ISC-T cable for RS232C connection.

Communication protocol(ASCII)

Baud Rate	9600bps
Parity	None
Data bit	8
Stop bit	1

Output Data :

1	1	6						1	1	1	6						1	1
x	=		+	3	.	0	2	,	y	=	-	1	7	.	4	5	CR	LF

When calling in master :

4				2	
C	A	L	L	0	0

ID number

Specifications

System

Model	IM-2DW
Measuring range	± 30°
Resolution	0.01° (0.17mm/m)
Accuracy	±0.03° at +/-3° ±0.05° at +/-30°
Non linearity	< 1% FS
Response time	< 1.0 sec

•Caution: Upper specifications are guaranteed on XY surface only.
For X or Y view, the value can be different. But 0 position should be ok.

Input / Output port

Charging / RS232C	Mini type 5 pin USB connector

Power & Other features

Power	Li-ion Battery 3.7V (Rechargeable)
Operation time	Around 7 hours with fully charged battery. *
Charging	5 pin mini type USB cable to PC or USB connector type adapters.
LCD	128 x 64 pixel, Black & White LCD.
Size(W/L./H)	115 x 66 x 24.5mm
Weight	180g
Operation environment	Temp. : 0°C ~ +45°C / Humidity : below 80%

* Tip to save the battery power:
1. Reduce the brightness of the LCD.
2. Reduce the backlight turn on time if it's not uncomfortable.
3. Reduce the power on time if it's not uncomfortable.

Dimensions