Digi-Pas®

USER MANUAL

DWL-1500XY

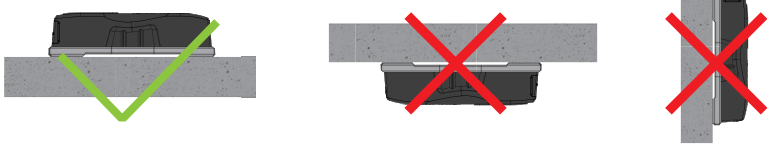
DWL-1300XY

2-Axis Smart Precision Machinist Level

Model: DWL-1500XY & DWL-1300XY

Caution

Device is operable on up-right positions only



www.digipas.com **version 1.11**

Note: Contents in this instruction manual are continuously updated, please check Digi-Pas website for the latest version.

INTELLECTUAL PROPERTY

The information in this manual was correct at the time of printing, stored in CD or uploaded in the Company website. However, Digipas Technologies Inc. will continue to improve products and reserves the rights to change specification and maintenance procedures at any time without prior notice.

Digi-Pas ® Products were manufactured under ISO9001 & ISO14001 standards, tested to comply by the followings certification bodies:

Cert : SG00/0050 **Cert : SG04/00450** **Cert : SG08/50066**

RoHS

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1. DEVICE OVERVIEW

1.1. Technical Specification

	DWL-1300XY	DWL-1500XY
Measuring Range	0° ~ ±5.00° (Dual-Axis)	0° ~ ±2.000° (Dual-Axis)
Resolution	0.002"/ft. or 40-second or 0.01°	0.0002"/ft. or 5-second or 0.001°
Accuracy	±0.004"/ft. or ±0.02° from 0° ~ 0.5° ±0.04° at other angles	± 0.0004"/ft. or ± 0.002° from 0° ~ 0.5° ± 0.004° at other angles
Repeatability	0.002"/ft. or 40-second	0.0002"/ft. or 5-second
Measurement Speed	≤ 3 Sec.	≤ 5 Sec.
Display Type	LED	
Power Supply*	2 x AA 1.5V Batteries / USB	
Connectivity	Bluetooth (≤50 feet range)	
Material	PC ABS / Zinc Alloy	
Operating Temperature	10°F ~ 120°F or -10°C ~ +50°C (Calibrated for the entire temperature range)	
Storage Temperature	-20°C to +60°C	
Dimension (mm)	149 x 51 x 40	
Nett Weight (Approximate)	500 gram	580 gram

Table 1. Technical specification

Notes:

- *Product specification and appearance are subject to change for product improvement without prior notice.*
- **Alternative power can be obtained from External USB Power Source.*
- *Product ACCURACY performance are tested to specification and periodically re-validated by numerous accredited third parties Calibration & Test Laboratories in USA, Japan, UK and Germany traceable to NIST, JIS, UKAS & DIN ensuring the acceptance of conformity assessments all over the world.. For more information, please visit "www.digipas.com".*

1.2. Device Overview

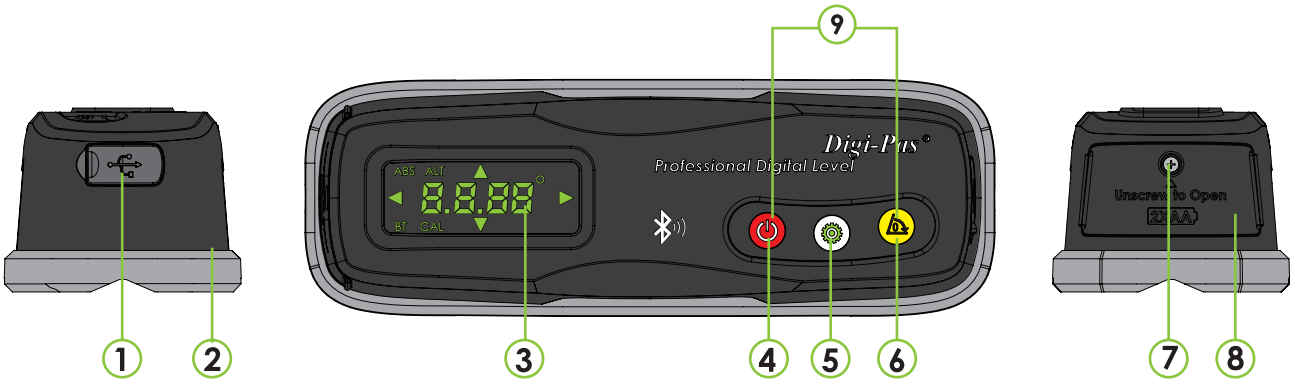
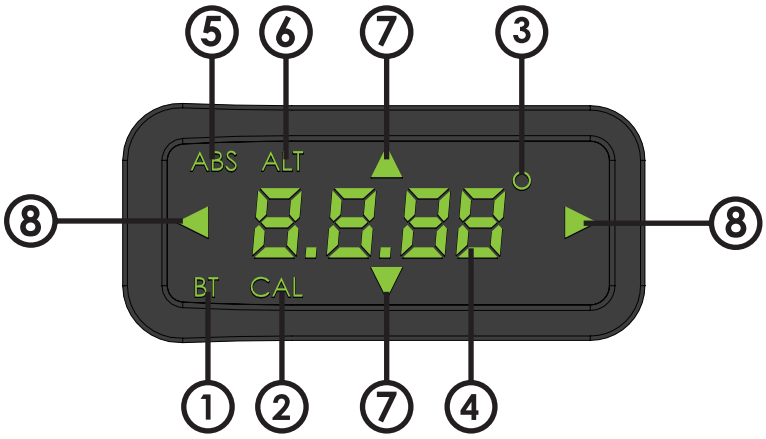


Figure 1. Overview of the Machinist Level

1. USB Port for alternate power supply
2. Zinc Alloy base
3. LED Display
4. ON/OFF button:
   - Power On/Off
   - Exit from "Absolute Level" mode
5. MODE button:
   - Change measurement axis (X or Y)
   - Press & Hold to turn on/off Bluetooth.
6. Alternate Zero button:
   - Press for Alternate Zero mode
   - Press & hold for Absolute level mode
7. Battery cover screw
8. Battery cover
9. Calibration mode buttons (simultaneous press)

"Alternate zero" Mode:
Enable user to measure relative angles at a common plane with respect to a reference angle. Set any angle to 0.000 ° as a reference.

1.3. LED Display overview



1. Bluetooth indicator
2. Calibration mode indicator
3. Degree unit indicator
4. Measurement value
5. Absolute Level mode indicator
6. Alt. Zero mode indicator
7. Y Axis direction indicator
8. X Axis direction indicator

Figure 2. Machinist level display overview

1.4. List of Items

Item No.	Description	Quantity
1	Smart Digital Machinist Level	1 Unit
2	Certificate of calibration	1 Set
3	Quick Guide	1 pc
4	Digipas Smart Levels redemption card	1 pc

Table 1. List of items

2. OPERATION PROCEDURE

Insert 2 pieces of "AA" batteries into the battery compartment and press ON/OFF button. Alternatively, insert USB power source to the USB Port to power up the de- vice. Take note that the device performance might be affected when a poorly regulated USB power source is used.

Please ensure batteries are inserted incorrect polarity direction for a device to work.

2.1. Switching Axis reading

To change display reading value from X to Y axis or vice versa, press "**MODE**" button, the green arrow-head signs on left/right screen indicate X-axis measurement while top & bottom arrow-head signs indicate Y-axis measurement.

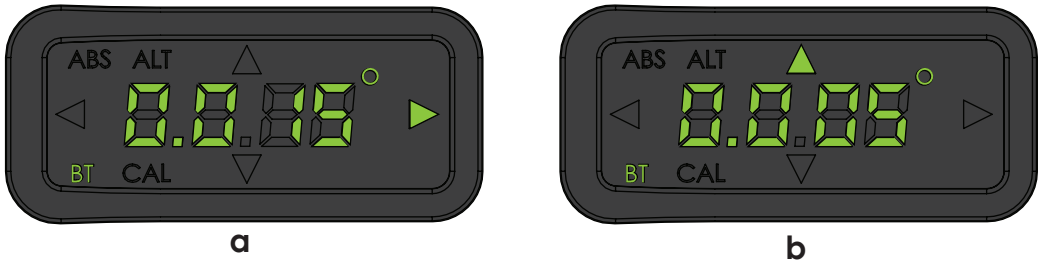
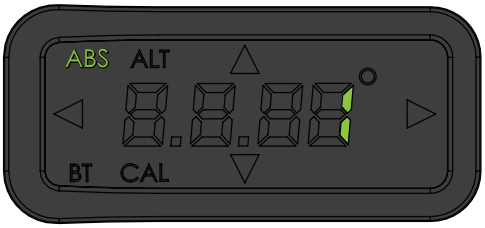


Figure 3. (a) X Axis measurement direction, (b) Y Axis measurement direction

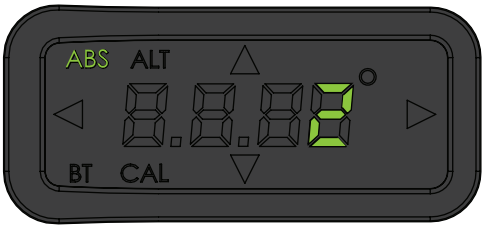
2.2. Absolute Level mode

To operate in "Absolute Level" mode, press & hold **"ALTERNATE ZERO"** button for ≥ 2 seconds, ABS icon (on top-left corner) & number "**1**" show up on LED display.

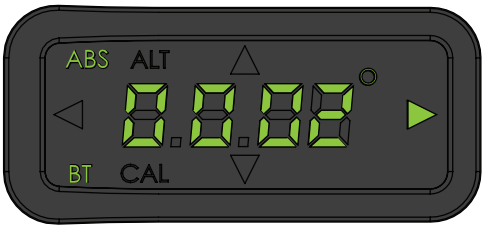


Place the device on the surface to be measured. Press "**MODE**" button to start the measurement and wait until countdown number reaches zero.

Please ensure the contact surfaces of the device and measuring plane are clean and free from dust particles.



Next, the screen displays "**2**" turn the device 180° press (reverse direction) and press "**MODE**" button to start the measurement and wait until countdown reaches zero.



Once completed step 1& 2, "ABS icon" on top left corner of display lights up to indicate that the device is in Absolute Level mode.

To exit ABS Mode press "**ON/OFF**" button.

2.3. Alternate Zero mode

To operate in "Alternate Zero" mode, place device on the surface to be measured & press **"ALTERNATE ZERO"** button, "ALT" icon show up on LED display and measurement value should indicate 0.

To exit Alternate Zero mode, press **"ALTERNATE ZERO"** button once, ALT icon turns off.

Figure 4. Device display in Alternate zero mode

2.4. Turn Device Bluetooth on/off

To turn Bluetooth on/off user needs to press & hold "**MODE**" button until "**BT**" icon turns off.

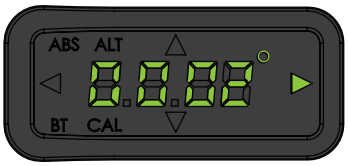


Figure 5. Bluetooth logo turn off on LED Display

2.5. Calibration Mode

1. Turn Off device. Next, Press & Hold "ON/OFF" button & then "ALTERNATE ZERO" button simultaneously, release both buttons when displays flashing "01".

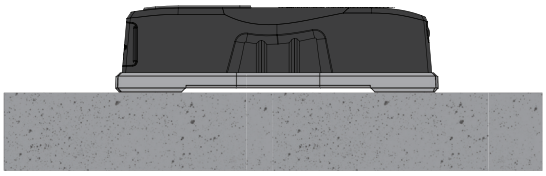


Figure 7. Position 1

2. Place the device to **position 1**. Press "MODE" button once and wait until count-down reaches "0", LCD screen displays flashing "02".

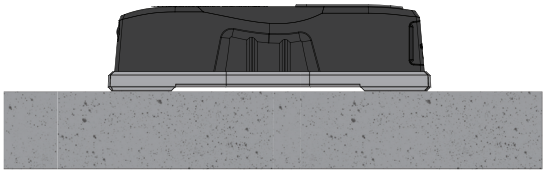


Figure 8. Position 2

3. Turn the device 180° (reverse position) to **position 2**. Press "MODE" button once again and wait until countdown reaches "0". LCD screen automatically switch to measuring mode once calibration step 2 is completed.

a b c

Figure 6. Calibration mode display in LED screen (a) Calibration Step 1, (b) Calibration Step 2, (c) Calibration countdown

4. Verify your calibration result by comparing the measurement value of current position with the device after turning 180° (in reverse position). If displayed measurement value differs **> 0.001°**, the device has not been calibrated properly (e.g. surface unevenness due to rough surfaces or dirt, etc.). Please put a device on smooth surfaces to re-calibrate again.

Calibration tutorial video available on Digipas website, please visit the following link: https://www.digipas.com/support/video.php

3. QUESTION AND ANSWER

1. Why device display value is not zero when placing on a flat surface?

This situation happens when a precision level is placed on a rough, dirty or uneven surface. Precision digital levels are very sensitive to surface unevenness where it is placed. Ensure that contact surfaces are clean and smooth to get consistent readings.

Digi-Pas® precision digital level has a smart built-in feature that allows users to perform self-calibration to completely remove any residue offset value and set the device to its factory accuracy. See video links in **www.youtube.com/watch?v=3Me8C0YhnAs** on how to perform "User-Self Calibration". An alternative to perform self-calibration steps, users may choose an easy 'quick solution' to simply perform the Absolute Level Setting on the surface of the object to be measured to remove any residual offset on each measurement to be taken.

2. Why do I get two different readings when placing the device on front facing, and then replacing it on the reversed facing?

Your precision digital level may have been subjected to extreme physical or temperature shocks during usage, transportation or storage that affected its accuracy. An offset value of reading may have been present in the device. Digi-Pas® precision digital level has a smart built-in feature that allows users to perform self-calibration to completely remove any residue offset in the device and set the device to its factory accuracy. See video links in **www.youtube.com/watch?v=3Me8C0YhnAs** how to perform "User-Self Calibration". An alternative to perform self-calibration steps, users may choose an easy 'quick solution' to simply perform the Absolute Level Setting on the surface of the object to be measured to remove any residual off-set on each measurement to be taken.

3. Digipas Smart Levels App unable to pair with a device. What should I do?

Device battery level might be low, please replace 2 new batteries.

4. Digipas Smart Levels App is unable to find device. What should I do?

Please ensure device Bluetooth is enabled to establish wireless connection. To enable/disable Bluetooth connection, press and hold device's MODE button.

4. WARRANTY

Digi-Pas® 2-Axis High Precision Digital level is warranted to the original purchaser to be free from defects in workmanship and material. Digipas Technologies Inc. will, at its option, repair or replace any defective part which may malfunction under normal and proper use period of 1 (one) year of purchase. The foregoing warranty shall not apply to defects resulting from misuse, abuse, assignment, or transfer by the Buyer. or interfacing, outside of environment the product. Digipas Technologies Inc. that the operation of instrument software, or firmware, will be uninterrupted or error-free. The exclusive remedy under any and all warrants and guarantees expressed herein, and we shall not be liable for damages from loss or delay of equipment uses, consequential, or incidental damage. No other Warranty is expressed or implied. Digipas Technologies Inc. specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

4.1. Limitation of Liability

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5. FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Reorient or relocate the receiving antenna.

The radiated output power of this device meets the limits of FCC radio frequency exposure limits.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance to this equipment would void the users' authority to operate this device.