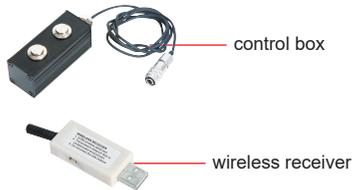
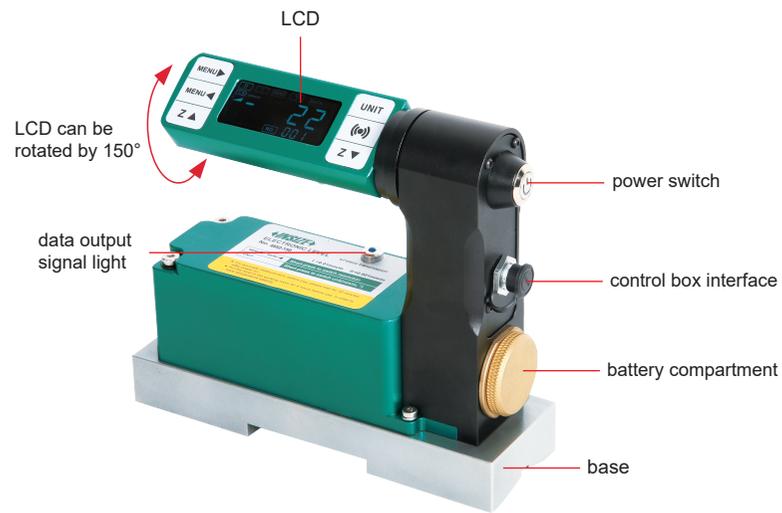




**4952**  
**WIRELESS ELECTRONIC L EVELS**  
**OPERATION MANUAL**



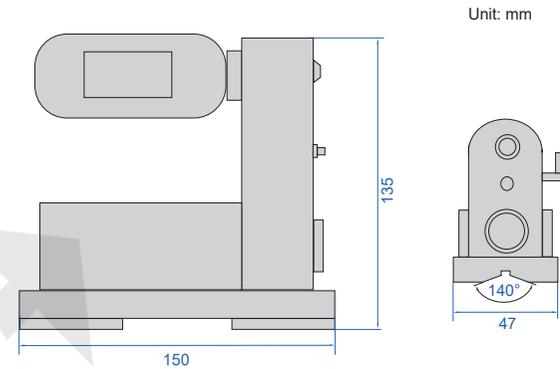
### Hardware Information



#### STANDARD DELIVERY

Main unit	1 pc
Wireless receiver	1 pc
Control box	1 pc
Measuring and analysis software (with dongle)	1 set
Charger	1 pc
21700 Li-ion battery	4 pcs

### Specification



#### SPECIFICATION

Code	4952-150		4952-150L	
	Resolution (adjustable)	0.001mm/m (0.2")	0.01mm/m (2")	0.005mm/m (1")
Range*	±0.5mm/m	±5mm/m	±2.5mm/m	±5mm/m
Repeatability	0.001mm/m	0.01mm/m	0.005mm/m	0.01mm/m
Response time	<10s	<3s	<5s	<3s
Accuracy*	±(1+Ax2%) Δ			
Power supply	1 x 21700 Li-ion battery, for 50h continuous working			
Weight	1.8kg			

\*Range: ±500 resolutions (corresponding to the values in the table above)

\*A is the measured value, Δ is the resolution

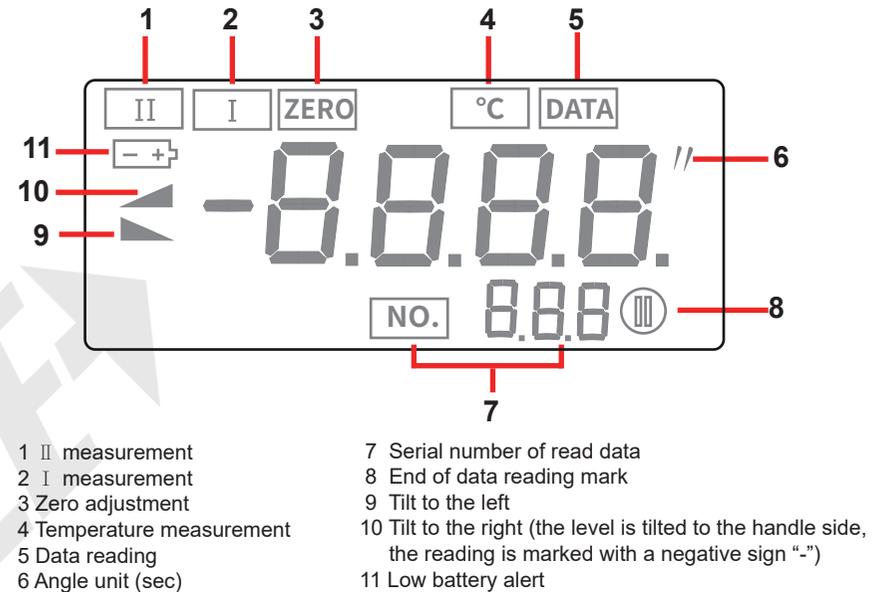
**Warning**

- Before use, wipe the metal base with a dust-free cloth moistened with alcohol or a non-corrosive chemical cleaner, do not use water to wipe.
- Do not place the level in a magnetic environment.
- The level must be temperature equilibrated before use and put it in working environment for more than 4 hours (no need to energize it).
- The level should be energized for 20~30 minutes before use
- For high-precision workpieces to be inspected, the base of the location should be solid, there should be no vibration effects.
- The temperature of the working environment is  $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and the humidity is not more than 75%.
- The temperature change is not more than  $1\text{ }^{\circ}\text{C}$  per hour.
- In order to ensure the accuracy of the level measurement, it need regular calibration.

Tip:

- When the environmental conditions do not meet the above requirements, the level meter may skip counting.
- If the working environment changes frequently during use, please allow enough time for temperature equilibrium.
- If the display of level exceeds  $\pm 2500$ ( Menu **II** ) or  $\pm 1600$ ( Menu **I** ), the display will keep jumping and flashing, indicating that it is out of the display range. The display can be normalized by setting the relative zero position.
- When the display **BATT** flashes, the battery is low and should be replaced.

**Display**



- 1 II measurement
- 2 I measurement
- 3 Zero adjustment
- 4 Temperature measurement
- 5 Data reading
- 6 Angle unit (sec)
- 7 Serial number of read data
- 8 End of data reading mark
- 9 Tilt to the left
- 10 Tilt to the right (the level is tilted to the handle side, the reading is marked with a negative sign "-")
- 11 Low battery alert

**Button Functions**

<b>MENU</b> ▶ or <b>MENU</b> ◀	Press, switch menu functions: <b>II</b> <b>I</b> <b>ZERO</b> <b>°C</b> <b>DATA</b>
<b>Z</b> ▲	Press, switch fine-adjustment, zero setting, reading
<b>Z</b> ▼	Press, switch fine-adjustment, zero setting, reading
<b>UNIT</b>	Press, switch unit : radian (mm/m) and angle (")
<b>(Ⓜ)</b>	Wireless transmission switch button, the indicator light flashes when wireless transmission is turned on.

## Menu functions

In the power-on state, you can select different functions by clicking on the keys **MENU** or **MENU**.

Menu **II**



The instrument's high-precision measuring range, II range resolution is 0.001mm/m, suitable for flatness and straightness inspection of products with grade 0.

Menu **I**



The instrument's low-precision measuring range, I range resolution is 0.01mm/m, suitable for flatness and straightness inspection of products with grade 1.

### Notes:

- (1) The resolution of each range of the instrument is suitable for the needs of different accuracy level testing, please select the appropriate measurement range for testing work according to the regulations.
- (2) The high precision measurement range has high requirements on temperature and environment, etc. When the environment cannot meet the relevant requirements, it will bring instability to the instrument.

Menu **ZERO**



In the ZERO menu, the digital level can be zeroed by press the **Z▲** and **Z▼** buttons.

- (1) Zero setting at any position on the inspected working surface. (Relative zero position)
- (2) Absolute zero adjustment.
- (3) Fine zero adjustment by adding or subtracting digits after clicking.

•For detailed procedures on zero setting of the level meter, see the Instrument zero setting section.

Menu **°C**



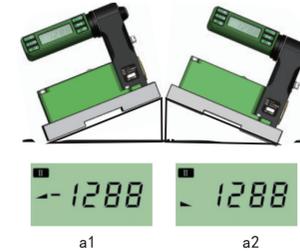
Automatic temperature measurement function, LCD screen displays the current ambient temperature (°C).

Menu **DATA**



In this function, the data stored in the digital level meter and its serial number can be displayed sequentially by operations **Z▲** and **Z▼**, and up to 120 datas can be stored in the digital level.

## Reading



- (1) LCD display of number and the digital level of the corresponding range of the resolution of the same value.  
For example: 0 indicates that the digital level has been zeroed (relative zero position).  
0012 indicates that the digital level display value is 12 numbers.  
-1288 indicates that the digital level display value is -1288 numbers.
- (2) The symbol of the displayed value represents the direction of the level tilting left and right. It is indicated by "▲" and "▼". Face the front side of the spirit level and set the spirit level to zero. The right side of the levelling device (switch side) is raised and the displayed value is negative, at this time the symbol "▲" is displayed on the left side of the displayed value and the tilt direction is displayed as "▲" (Fig. a1). When the left side of the level is raised, the displayed value is positive. At this time in the display of the value of the left side of no symbol display, tilt direction is displayed as "▼" (Fig. a2).
- (3) The tilt angle is beyond the display range (+-2500), then the display value keeps flashing, the maximum display is 2500.

## Leveling and adjustment of measured plane

- (1) Place the level on the measured plane and note down the displayed value of the first measurement, a1. Then turn the level by 180° in the original position and the displayed value of the second measurement is a2. Then the levelling error of the measured plane is.

$$\frac{a1-a2}{2}$$

Adjust the measured plane according to the calculation result, so that the display value of the level in the above two positions is equal and has the same sign.

At this time, the measured working plane is adjusted to the horizontal.

- (2) Adjust the level to absolute zero, according to the display value and tilt direction, adjust the measured plane, so that the level display value is 0, then the measured working surface is adjusted to level.

### Notes:

- The appropriate resolution should be selected according to the need of measurement accuracy generally I range can be used first for coarse adjustment, and then II range for fine adjustment is used.
- Horizontal adjustment should be carried out in the "X, Y" direction of the measured plane.

## Zero setting

When set zero, press **MENU** or **MENU** and choose **ZERO** menu.

### Relative zero setting:

- (1) Zero setting: The position of the level remains unchanged, press **z▲** and **z▼** button once each, and the level will display "0".
- (2) In **II** and **I** menu, press **z▲** and **z▼** button, make the number increment or decrement for fine adjustment.

### Notes:

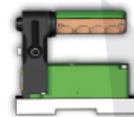
When measuring flatness and straightness, it is recommended to use the zero setting function, that is, it simplifies the steps of zero adjustment and reduces the influence of the indication error of the level on the measurement result.

### Absolute zero setting:

- (1) Keep the position of the level meter unchanged, press the **z▲** (or **z▼**) button once, then turn the level meter 180° and place it in the initial position, then click the **z▼** (or **z▲**) button once more, then the level meter will be set to the absolute zero, and the display value of the level meter at this time will be the offset of the absolute level of the measured plane working surface.
- (2) Place the level meter on the measured plane working surface and write down the display value a1 of the first measurement, then turn the level meter 180° and place it in the initial position. This time the display value is a2. then the zero error of the level meters should be:  $(a1 + a2)/2$

### Tips:

- (1) The measurement of zero error of the level meter should be carried out after setting the absolute zero.
- (2) When carrying out the level measurement of the measured plane working surface, it is recommended to adjust the level meter to the absolute zero first to make the level adjustment work simple and clear.



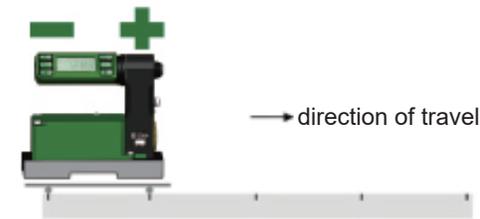
rotate 180°, and place it in the initial position

## Straightness and flatness measurement

- (1) Level measurement of straightness and flatness, using the pitch method to divide the measured surface into a number of segments, use the level to measure the change in inclination relative to the natural level, and then converted to a line value based on the length of this segment. Through data processing, the straightness error of the measured section is obtained.
- (2) The flatness measurement is through the measurement of some representative cross-section straightness error, according to the interrelationship of these sections, according to the evaluation rules for data processing, to obtain the flatness of the measured plane. The measured flatness measurement point generally according to the diagonal layout or grid layout.
- (3) For details of straightness and flatness measurement and data processing, please refer to the relevant calibration standards.

### Remarks:

- (1) The measured working surface should be adjusted to be basically horizontal before measurement.
- (2) The level should be reliably fixed on the collapsed bridge.
- (3) Appropriate measurement resolution should be selected
- (4) The placement direction of the level and the moving direction should be the same when measuring.



- (5) Pay attention to the trajectory of the bridge plate during the measurement, and make sure that the first and the last are connected and the trajectory is straight during the movement.
- (6) When using diagonal distribution point measurement, the level can not be adjusted to the zero position after each measurement point of each measured section starts to measure.
- (7) When using the grid layout measurement, if the equal span measurement, the level can not be adjusted to the zero position during the whole measurement process.

## Data storage

- (1) When using the level meter storage function, please insert the plug of the control box into the data transmission socket of the level meter.
- (2) When using the four functions, when the measurement data display is stabilized, press the "Save" button on the control box, the current data will be saved in the instrument, and the sequence number of the stored data will be displayed at the same time. If you want to delete the stored measurement data, press the "Delete" button on the control box, the data will be deleted from the last stored data.
- (3) The level meter can store up to 120 datas, the unit of which is based on the first stored data unit.
- (4) Press and hold the "Delete" button for 3 seconds to delete all the stored data.

### Notes:

When using the memory function for measurement, the data of several measured workpieces can be saved. When calculating on-line with the measuring software, you should pay attention to the reading order of the data to avoid confusion.

## PC software data storage

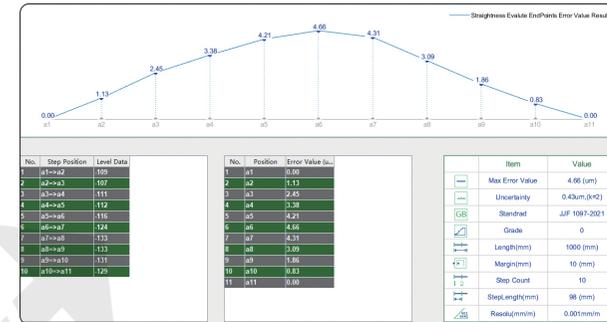
- (1) Data acquisition mode:  
Direct data acquisition (the level meter readings are directly transmitted to the processing software)  
Batch reading data (the level meter can store 120 measurement datas internally)
- (2) Interface standard: wireless transmission 433
- (3) Data format: data can be stored in text format, EXCEL, PDF format.

## Maintenance Guide

- (1) Keep the instrument dry and do not store it in a humid place.
- (2) Long-term storage of the instrument should be packed into the packing box and kept upright, prohibit the instrument from standing on its side for a long time.
- (3) The sensor of the level meter is a sensitive element, it should be lightly held and placed in use to prevent the instrument from being subjected to violent vibration, and avoid using it in a dusty environment.
- (4) The working surface of the instrument should be protected against rust and should be coated with anti-rust grease when it is not used for a long time.
- (5) If you stop using the instrument for a long time, please take out the battery.
- (6) Lithium battery power supply, pay attention to regular charging of batteries

## Measurement and analysis software

### straightness measuring and analysis



### parallelism measuring and analysis



### flatness measuring and analysis

