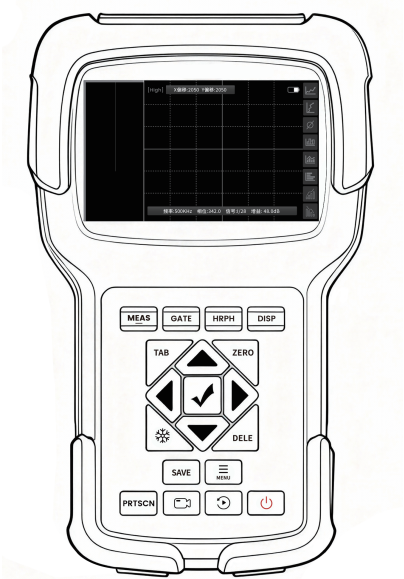
BRK

Vortex Series Eddy Current Flaw Detector

Using Manual

One Stop Non-destrutive Testing Solution Supplier



Guangzhou Botech Testing Instrument Co, LTD
Address: Building 11, Weifa High-tech Park, Panyu District, Guangzhou, China 511400
Tel：400-990-6355
Email：sales3@botech-gz.com
Website: ：http://www.brkndt.com

Product Introduction

This eddy current flaw detector integrates cutting-edge microelectronics-based digital signal processing with real-time dual-frequency eddy current technology. Powered by a high-performance microprocessor, it enables real-time and precise identification of flaws in metal components. The design embodies a compact philosophy, achieving a lightweight and portable form factor while significantly enhancing battery life to reliably support extended continuous operation. Its user-centric interface design streamlines parameter configuration and inspection workflows, making operations more intuitive and efficient, thereby substantially boosting productivity. The unit features robust IP65/IP67 protection, offering resistance to water, dust, and impact, ensuring reliable performance in challenging environments. It is particularly suited for inspection tasks in elevated or confined spaces, standing as a powerful industrial testing tool that expertly balances performance, portability, and durability.

Product Advantages

- Portable design: Lightweight and portable, intuitive operation for highly efficient inspection.
- Supports three probe modes (single-ended, bridge, and coupled) to adapt to diverse inspection scenarios.
- Outstanding core performance with an ultra-wide excitation frequency range of 10 kHz–20 MHz.
- Multi-dimensional gain adjustment: In addition to conventional gain, both high-and low-amplification gains can be finely adjusted in stages, and independent X/Y-axis bidirectional gain compensation/suppression is available.
- Smart gate technology: Apart from standard gates (circular, rectangular, linear), a unique smart-gate mode effectively identifies and automatically ignores non-defect signals, improving detection accuracy.
- Dual-mode display: Simultaneous impedance-plane and time-base scan display provides a comprehensive view for defect analysis.
- Multiple filtering options: Built-in digital filters effectively suppress noise interference.
- Easy data export: Inspection data and videos can be exported directly to a PC via a universal Type-C interface without additional software, making it convenient and efficient.
- Multi-language interface: Supports one-key switching between Chinese and English operation interfaces.
- High-spec hardware: Overall high definition and sensitivity ensure accurate and reliable detection results.
- Long battery life: A built-in high-capacity lithium-ion battery enables over 18 hours of continuous operation.
- Compliant standards: IP65/IP67 waterproof rating, drop- and shock-resistant, suitable for harsh working environments.

Technical Parameters

Project \ Model	vortex-1	vortex-2
★ Supported Probe Types	single-ended, bridge	single-ended, bridge, and coupled
★Incentive Frequency	10Hz～10MHz	10Hz～20MHz
★ Excitation Voltage	0-10V continuously adjustable, with a step size of 0.1	0-12V continuously adjustable, with a step size of 0.1
★High Amplification Gain	0-50, step 1 continuously adjustable	0-100, step 1 continuously adjustable
Drive	Level8	Level8
★Microprocessor	32-bit (dual core)	64-bit (dual core)
★Pre-storable Detection Parameter	500,000	100,000
★Memory	32G(non expandable)	64G（(expandable up to 1TB)
★ Waterproof Rating	IP65	IP67 compliant design
★Low Amplification Gain	0-250, step 1 continuously adjustable	
★Low-end Frequency/ High-end Frequency	0-120, step 1 continuously adjustable	
★Grid grayscale	10 levels adjustable	
X-axis Gain/ Y-axis Gain	X:-100～100 Y:-100～100	
High-pass Filter/ Low-pass Filter	High：0～500Hz Low：10Hz～10KHz	
Digital Filter	1～100	
★Filter Type	HR Filter, Smooth Filter selectable	
★Pre-amplification	1x, 2x, 5x, 10x selectable	
★Refresh Time	Levels 1-10 are optional, step 1	
★Bandwidth Limitation	High, medium, and low adjustable	
★Amplitude and Phase Measurement	One -click automatic phase adjustment/or manual adjustment	
★Zero adjustment	One-click adjustment of the zero position	
Freeze	Can pause image detection at any time for better analysis	
Phase	0-360 degree	
★Gate Type	Circular, rectangular, straight, intelligent (automatically ignores non-defect signals)	
Gate Alarm	audible alarm	
Balanced Approach	Digital electronic	
★Screen Display Mode	Normal and strong light modes (suitable for working under strong sunlight)	
★Data Recording and Management	Stores images and videos, and can directly connect to a PC to export images/videos without requiring software installation.	

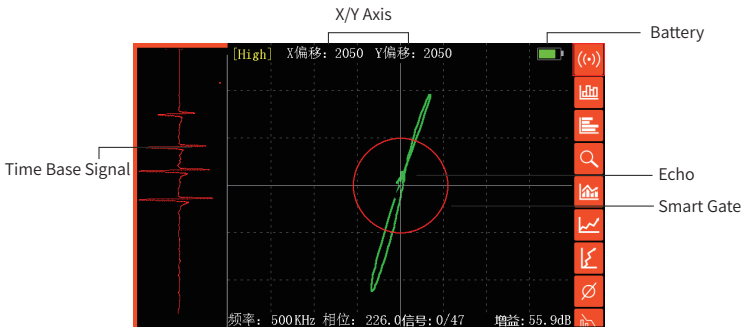
Other Performance Indicators

★Interface Support	TYPE-C/FFA.00/00B
★Display Screen	3.5"high brightness TFT color LCD screen,800*480 pixels
Working Temperature Range	-10～+50℃
★Dimension	200 (length) ×120 (width) ×55mm (Height)
★Weight	The total weight (including battery) is approximately 678g.
External Power Supply	AC:100-240V DC:15V3.8A

Packing List

NO.	Name	Qty	Unit
1	Main Unit	1	unit
2	Adapter	1	pc
3	Lithium Battery	1	pc
4	Digital Cable	1	pc
5	Instrument Case	1	pc
6	Carrying Strap	1	pc
7	Operating Manual, Warranty Card, and Certificate of Confotmity	1	set
8	Probe	/	optional
9	Soft Rubber Protective Case	/	optional
10	Portable Battery Charging Dock (with Adapter)	/	optional
11	Test Block	/	optional

Interface



Key Function

【TAB】 Control the gate, refresh time, and system time settings in the [MENU]
Set the remark information in the [SAVE] menu. (Enable or disable the functions above as needed.)

【MEAS】 Click to enter the detection interface.

【HRPH】 With the "Phase" menu selected in the right sidebar, press this key to adjust the phase to horizontal.

【ZERO】 If the signal deviates from the center point, press this key to adjust the signal back to the center zero point.

【GATE】 Press this key to toggle the gate on/off. Note: Different gate modes must be pre-selected in the settings.

【SAVE】 Use this to save or select preset parameters.

【DISP】 Press this key to switch between normal screen mode and high-brightness work screen mode.

【MENU】 Used for switching languages, adjusting grid grayscale, toggling alarm on/off, selecting gate types, setting keypress sounds, choosing sensor types, setting pre-amplification levels, selecting filter types, setting bandwidth, and adjusting refresh time, among other functions.

【DELE】 Used to delete parameters in the【SAVE】menu or to delete stored pictures & videos in the【 】menu.

【 】 Click this key to pause or resume the live display of the current screen.

【PRTSCN】 is used to save the current screen image.

【 】 Click this key to record the current inspection screen. A flashing REC indicator in the upper right corner of the screen means recording is in progress; click again to end recording.

【 】 Use▲▼keys to select a video or picture, and press the【 】key to view the data; click again to return.

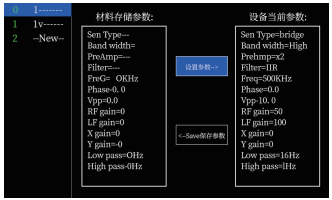
【 ▲ 】【 ▼ 】【 ▶ 】【 ◀ 】 serve as up, down, left, and right arrow keys for navigation within the menu interface.

【 】 is used to confirm and save parameter changes after making adjustments in the function menus.

Operating Manual

The instrument can be optionally configured ex-factory with one set each of iron and aluminum calibration blocks. By default, the parameters for steel/iron are stored in Parameter Slot 0 and Slot 2, while the parameters for aluminum are stored in Parameter Slot 1 and Slot 3. If the workpiece under inspection is made of steel/iron or aluminum, you can directly recall and use these preset parameters. The procedure is as follows:

- Press the【SAVE】key，use the▲▼keys to navigate to and select the parameter set you wish to call，press the ▶ key to enter to set the parameter, press the confirm key once, the selected parameters will now be loaded as the current active parameters for the device. Please refer to Figure A1 for a visual guide.



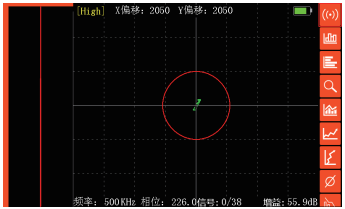
A1

- Press the【MEAS】key to begin normal inspection. During measurement, keep the probe moving steadily and vertically on the workpiece. Click the【GATE】key to switch the gate ON/OFF during inspection.
- Gate Setup: To assist in flaw detection, you can set up the gate during inspection. First, navigate to the Gate Type option in the【MENU】menu. Use the ◀/▶ keys to select the desired gate type, then press【√】to confirm.
- Flaw Identification

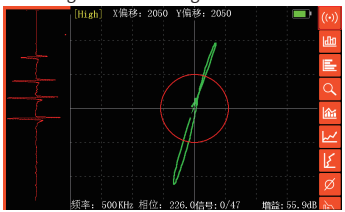
  1.Normal (Flaw-Free) Signal: At a location with no defects, the signal waveform is very small. Its amplitude does not exceed the gate threshold, and the time-base signal is stable without spikes or bifurcations, as shown in Figure A2 below.

  2.Monitor the time-base signal display during inspection. If a spiked waveform signal appears and a defect echo is consistently confirmed upon repeated checks at the same location, it can be judged as a defect. See Figure A3.

  3.A defect can also be confirmed by setting a gate in the signal zone. See Figure A3.



A2



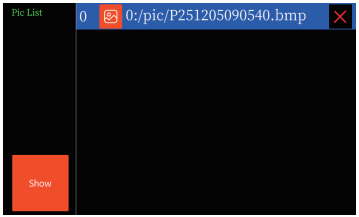
A3

- Mage Storage and Playback: First, when the image to be saved appears on the screen, press the [Freeze] button to pause the display. Press the [Save Image] button— a beep will sound to confirm that the image has been saved. To view the saved images, press the [Playback] button; press the button again to exit the playback mode and return to the main interface.

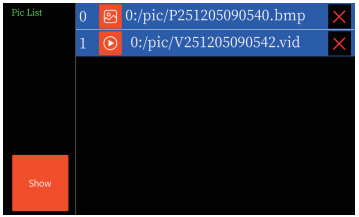
  Explanation of Image File Numbering: The file number P251205090540 indicates: it is the 40th image saved at 09:05 on December 5, 2025 (see Figure A4).

- Video Storage and Playback: Press the [Record] button, and the "REC" icon at the top-right corner of the screen will flash to indicate the start of video recording. Press the button again to stop recording. To view the recorded footage, press the [Playback] button; press it once more to exit playback mode.

  Explanation of Video File Numbering: The file number V251205090542 denotes the following information: it is the 42nd video file recorded at 09:05 on December 5, 2025 (see Figure A5).



A4



A5

- Methods for adjusting non-default parameters: Add a new parameter
- Data Export Procedure：

  Power off the instrument.
  Connect one end of the original factory data cable to the instrument's Type-C port.
  Connect the other end directly to your computer.
  On the computer, a new drive letter will appear. Open this drive.
  Locate and open the "pic" folder.
  Copy the desired image and video files from this folder to your computer.
  ⚠□ Important: Do not delete or move files within other folders on this drive, as this may cause system errors.

- Instrument Charging: Use only the original factory charging adapter.
  Connect the adapter to the instrument's port marked with the "DC" symbol.
  Align the red dots on the connector and the port, then insert straight in—do not twist.
  Disconnect by pulling straight out.
  ⚠Important: This instrument operates on the eddy current principle. To prevent potential electromagnetic interference, avoid using the instrument while it is charging.