

Eddy Current  
Technology



## eddyguard<sup>®</sup> digital S

Digital eddy current test instrument for one channel nondestructive testing of metal components, mass produced parts and semi-finished products according to the Preventive Multi-Frequency Technology (PMFT).

Testing for material properties such as hardness, case depth, structure, tensile strength, heat treatment or alloy.



Designed for the switching cabinet: eddyguard S in built-in situation.

The eddyguard S distinguishes itself with compact design and concentration on one channel structure applications with one coil at one location combining that with the well-known ibg test reliability and ease of operation. Configuration is effected by means of a PC or a laptop supplied by customer via the USB-port. The ergonomic interface of the PC-software facilitates intuitive and simple operation. After configuration is finished the eddyguard may be disconnected from the PC/laptop. The eddyguard continues testing self-sufficiently.

The eddyguard is based on the ibg system concept proven for decades. All coils and probes of the ibg system family can be used. The eddyguard is therefore recommended not only for the solution of new tasks but also as an upgrade for existing installations to be equipped with state-of-the-art eddy current technology.

Digital processing of the measuring signal with special processors immediately after the pre-amplifier guarantees highly stable test results.

Calibration with ibg's unique "good-part-only-concept" enables setup within a few minutes true to the motto: "Do you still calibrate or are you already testing?" An adequate number of good parts is recorded as reference parts with connected PC/laptop. From the eddy current signals tolerance zones are automatically generated encompassing the metallurgical magnetic fingerprint of the group of good parts for all PMFT test frequencies of the fundamental wave and two harmonics. After recording of good parts, testing can be immediately started. Faster starting yet more reliable eddy current testing is not possible.

## Product features

- **Tolerance zones**

When recording material data with a PC/laptop the eddyguard automatically generates elliptical tolerance zones for a reliable test. A tolerance zone editor is integrated for special applications enabling the skilled user to freely define the zones in rectangular or elliptical form.

- **iSHA Harmonic Analysis**

In addition to the eight fundamental test frequencies, two harmonics (2<sup>nd</sup> to 9<sup>th</sup> harmonic selectable) for each test frequency can be turned on and simultaneously evaluated without increasing the test time thanks to the iSHA-technology (ibg's Simultaneous Harmonic Analysis).

- **Display of results**

(with connected PC/laptop only)

Test results are shown as bargraph, single ellipse or multiple ellipses, selectable.

- **Coils**

A multitude of encircling coils up to a diameter of 500 mm as well as structure test probes are available for standard applications. Customised coils (i.e. ID coils and rectangular coils) for special applications are designed and manufactured in-house. Test coils may be connected either as ibg recommended compensating pair of coils or as self-compensating single coil. Monitoring of coil and cable failure as well as a 50/60 Hz noise suppression can be activated. Ibg offers also a range of durable highspeed sorting devices for test parts up to 60 mm diameter.

- **Activating test**

Start of test can be manually on the PC/laptop via PLC or optional start button. There is an autostart function that detects the part in the test coil and activates testing immediately or after an adjustable delay time.

- **Test speed**

High speed testing within milliseconds. Using eight test frequencies, a cycle rate up to seven parts per second with encircling coils and 25 parts with probes can be realised with standard settings.

- **Part type**

Maximum 20 part types with all settings and reference data can be stored in the device memory and switched over manually via PC/laptop or via PLC for automated processes.

- **Data storage & transfer**

Part types and instrument settings are stored on the PC/laptop and may additionally be saved e.g. onto a USB-stick.

- **Automation without PLC**

Direct control of sorting devices, paint marking systems or indicating lamps is possible with merely an external voltage source 24 Vdc, providing a low-cost solution for small automated systems without an additional PLC, too.

- **Operation / Configuration**

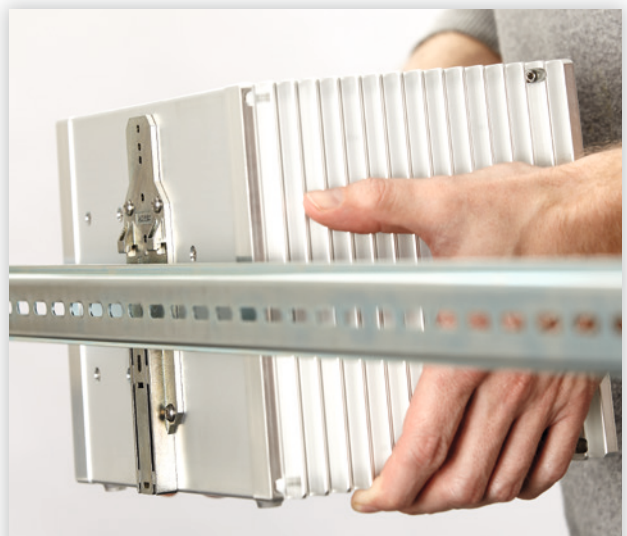
by means of the delivered ibg operating software to be installed on a PC/laptop supplied by customer. System requirements: USB 2.0 and operating system MS Windows 7 (32 or 64 bit) or Windows XP (32 bit).

- **Help function**

The software for the PC/laptop has a context sensitive help function which often renders a look into the manual unnecessary.

- **Languages**

The software for the PC/laptop may be set to German, English, French, Spanish, Italian, Polish, Portuguese, Czech, Hungary, Chinese, Japanese, Korean and Russian. Other languages as option.



Installation on top hat rail



## Connections

- **IO-Ports**  
optically insulated interface for PLC connection with 32 inputs and 32 outputs
- **USB 2.0**  
for connection of a PC/laptop supplied by customer

## Housing

- completely sealed and thus can be used in a dusty production environment
- for installation on top hat rail TH35 as per DIN EN 60715.

## Technical Data

Mains: 100 – 240 V, 50/60 Hz

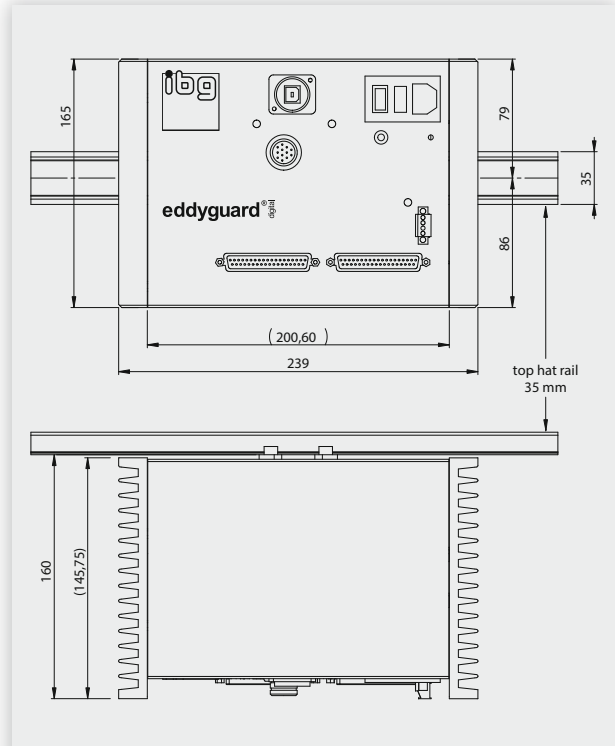
Protection class: IP 41

Ambient temperature: 0 – 45 °C

Relative humidity: max. 85 %, non condensing

Dimensions (w x h x d): 239 x 165 x 169 mm

Weight: 4 kg



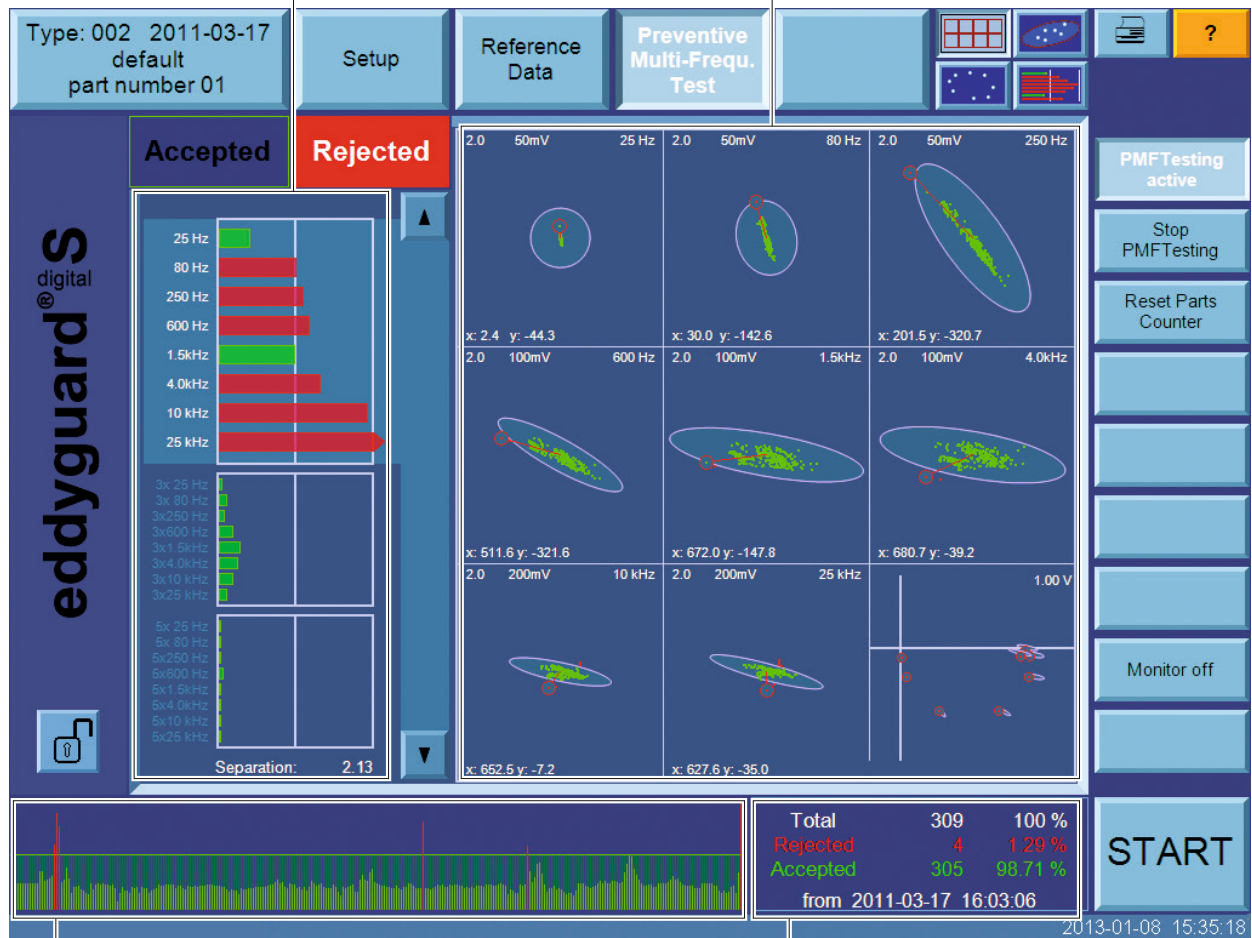
Dimensional drawing of the instrument



High testing accuracy, sensitivity and temperature stability – a broad range of coils and probes provides excellent results in structure testing.

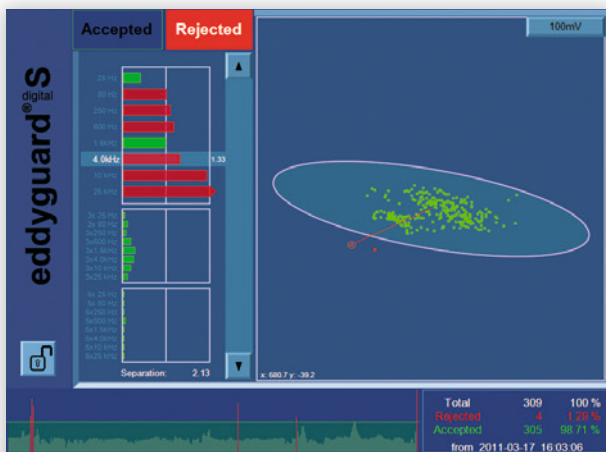
Bargraph display of the latest test result of the eight fundamental wave frequencies (large) and the third and fifth harmonic (small).

Survey of all test results of the eight fundamental wave frequencies in the relating tolerance zone.



Test result history

Parts counter



Single ellipse display of all test results at one fundamental wave frequency



Bargraph display of the test result



**Instruments**



**Coils and Probes**



**Automation**

For more than 30 years, the ibg group has been a market leader manufacturing eddy current test instruments and setting technology standards. Whether for multi-frequency structure verification, automatic tolerance zone generation or multi-filter crack and grinder burn detection – again and again innovations and inventions of the ibg developers shape the market and provide advanced testing solution.

The headquarters is situated in Ebermannstadt, Upper Franconia, and together with subsidiaries in the US, Switzerland and the Czech Republic as well as a competent worldwide partner network, we service our customers in industry and automotive engineering.



#### Headquarters

ibg Prüfcomputer GmbH  
Pretzfelder Straße 27  
91320 Ebermannstadt  
Germany  
Tel. +49 9194 7384 -0  
Fax +49 9194 7384 -10  
info@ibgndt.de

#### Switzerland

ibg SWISS AG  
Galgenried 6  
6370 Stans  
Switzerland  
Tel. +41 41 612 26 50  
Fax +41 41 612 26 51  
info@ibgndt.ch

#### USA

ibg NDT Systems Corp.  
20793 Farmington Rd.  
Farmington Hills,  
MI 48336  
Tel. +1 248 478-9490  
Fax +1 248 478-9491  
sales@ibgndt.com

#### Czech Republic

SORTING Solutions s.r.o.  
Bílinská 915  
418 01 Bílina  
Czech Republic  
Tel. +420 417 823 703  
Fax +420 417 821 021  
info@sorting-solutions.com

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