Much more
than **you see**

New **intelligent system** for continuous
spindles and machine tools monitoring

Balance
Systems

SAFE
SECURITY SENSOR

Your **safety** solution

B-Safe is the new idea for the spindles and machine tools diagnostics according to the vibration and temperature analysis. **The miniaturised system can be directly installed into your spindle guaranteeing a real-time monitoring** about all anomalies, predicting malfunctions and safeguarding your business reducing the machine downtime.

Collisions **protection**
Instant stop of the machine

Continuous **monitoring**
Continues to record data when the machine is off

Black box
Embedded data logger

Industry 4.0 upgrade
Information sharing
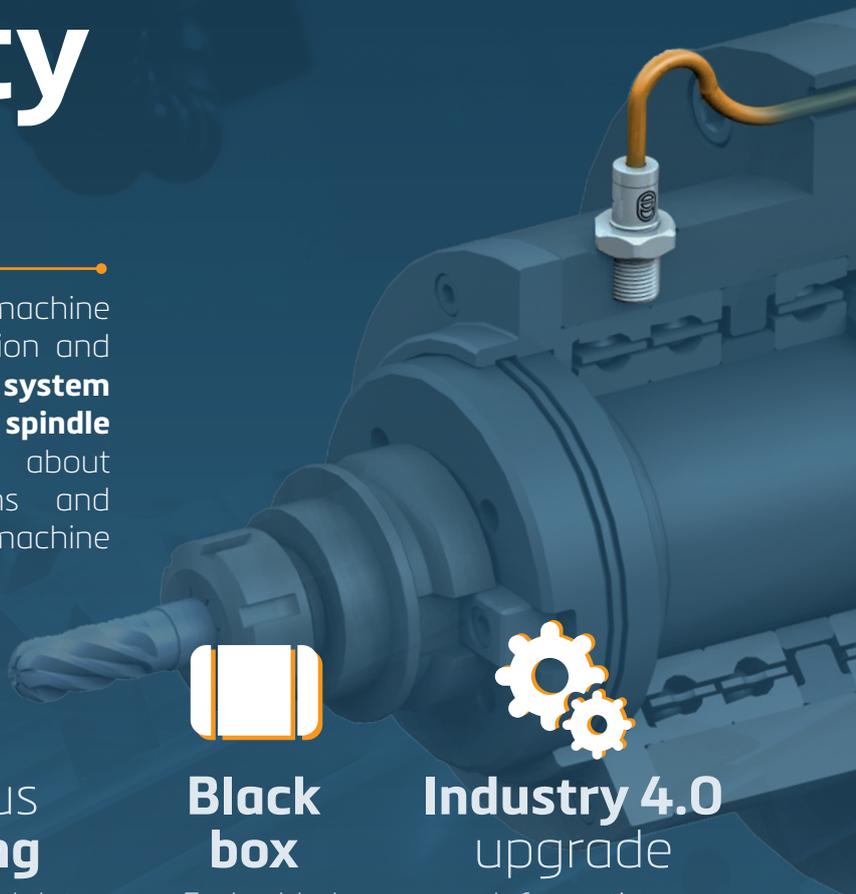
Innovative solution

The hybrid technology MEMS 3D and piezoelectric **guarantees a complete signals analysis on a wide band**. The presence of a **microprocessor with integrated memory** allows local detection and memorization of collision phenomena, unbalances, overloads, anomalies of the working cycle, tools wear and bearings diagnostics.
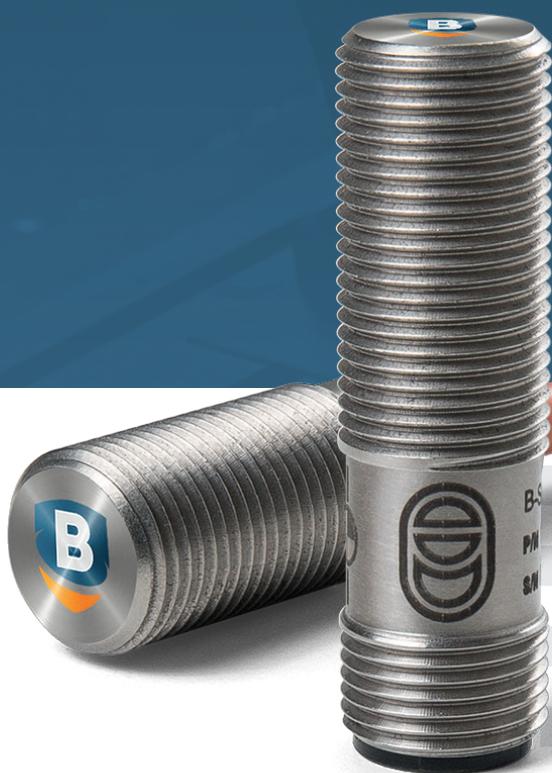
B-Safe versions	Basic-PRO
Sensor dimensions with 5-pin connector	Ø12mm - L 41mm
Sensor dimensions with integrated cable	Ø12mm - L 32mm
Cable length	5m*
MEMS Sensor	±16g 500Hz
Piezo Sensor	±50g 10kHz
Working temperature	-40÷85°C
Shock resistance	10.000g
Connectivity	ModBus TCP or RTU on RS485

* The B-Safe sensor is available in two versions to guarantee all installation types inside the machine tool:
5-pin connector version -
Integrated cable version -

Both versions have a 5m standard cable kit and a wide range of extensions.

Predictive maintenance
at your service

B-Safe Spindle Check-Up function includes a series of algorithms to check the efficiency level of your productive process, with the aim of **maximizing the productivity of your machines and the quality of your products**. The statistical analysis provided by the system gives an essential support for **planning maintenance interventions, according to the real use of your equipment**.

B
S A F E
SECURITY SENSOR

Suitable for **each application**

A wide range of functions, allows you to manage the whole process with one single system.

Collision alarm	Waveform recording of the last 10 events
Overloading alarm	Statistical data recording
Temperature alarm	Hystorical trend recording
Programmable thresholds	Real-time data for process-monitoring
Memory integrated on the sensor	Digital data for post-processing
Events data logging	5 days back-up battery

The B-Safe kit includes:

Sensor
5-pin or **integrated cable** version

Cable
5m connecting cable

Interface
Battery and connection device **TCP-IP**

Software
Software, converters, assembly **instructions**

Today you can start the path
for a **safer company**

B-Safe is a combination of advanced technologies. It allows the **realisation of an interconnected system for the analysis and supervision** of your manufacturing plant.

SCAN
Watch the **VIDEO**

b-safesensor.**balancesystems**.com

Always
connected

The always-connected interface and multi-platform software allow **to have the full control anywhere**, obtaining the maximum results from your machine.

Dashboard

HMI B-Safe was developed **to guarantee simplicity and intuitiveness** in order to make you understand all the useful information at a glance.
The system allows **the interaction with more sensors** to facilitate the complete monitoring of your machines.
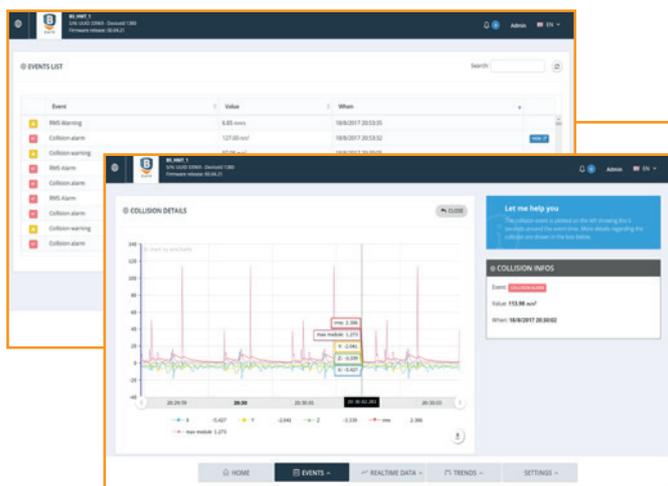
Events

Logbook   **Details**

The advantage of the events session is **to look at your machine history**, recording all activities with an intuitive infographic that includes the following functions: **Alarms, Warnings, Check-Up and Downtimes.**
In the case of collision the system will allow you to examine in a greater detail the waveform during, before and after the event.

FACTORY CONTROL

Discover the system and

With B-Safe Sensor you can enforce easily a **line or remote assets innovative monitoring**, thanks to the integration with SAM software (Smart Asset Monitoring).
Integration allows to have in a single dashboard the all connected assets state, some functioning KPI, registration of alarm events and real-time collision, vibration profiles and machineries function.

Real Time Data

Status **RMS** **AXIS**

Through the 3 factors visualization you can monitor in a single moment the productive process.
The HMI B-Safe **allows to export the** evident **information in every moment** in real or non-real time, to manage data in complete autonomy.
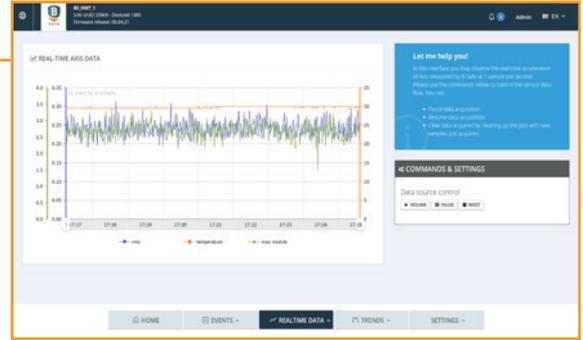
Trend

Trend **Statistics**

Understanding trends, creating productivity statistics and **sharing all the information are the bases of the mandatory evolving process today**.
Thanks to the objective data colleted, HMI functions help you to plan production and maintenance at your best with the benefit of **reduced the machine downtimes**.
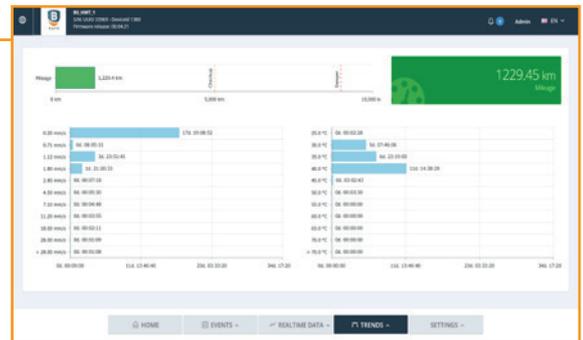
Settings

HMI **Sensor**

The system is able to propose independently specific configurations to make the interaction more user-friendly.
The HMI has three protection logins giving the ability to manage different levels of authorization (e.g. operator, manufacturing engineer, plant manager...). Both HMI and Sensor can be configured according to your machine specifications and features.

EVOLVE your company

IBM WATSON

Proven integration with IBM Watson IoT Platform, a fully managed, cloud hosted service that makes it simple to build and deploy apps for IoT devices, sensors and gateways.
When combined with the IBM Bluemix®, the platform allows you to enrich IoT apps with Natural Language Processing, Machine Learning and predictive, cognitive, and contextual analytics for stronger decision making.
For instance, this technology enables the analysis of vibration signal patterns coming from the sensors, the recognition of the machine status (working, stand by, need for tool replacement) and the prediction of the estimated time to maintenance.

Discover all information
b–safesensor.balancesystems.com

Balance Systems

- **Balancing machines** for rotating components
- **Process control systems** for machine tools

Balance Systems S.r.l. *(Headquarters)*
Via Roberto Ruffilli, 8/10
20060 Pessano con Bornago, Milan
ITALY
Ph: +39 02 9504955
Fax: +39 02 9504977
info@balancesystems.it

Balance Systems Corporation
28003 Center Oaks Ct #107
Wixom, MI 48393
U.S.A.
Ph: +1 248 3083636
Fax: +1 248 4935920
info@balancesystems.com

GT Elettronica France SARL
Zone d'Activités des Forboeufs
5 Rue des Frères Lumière
95280 Jouy-le-Moutier - FRANCE
Ph: +33 1 34464972
Fax: +33 1 34413130
info@balancesystems.fr

Balance Systems GmbH *(Sales)*
Albert-Einstein-Straße 2
70806 Kornwestheim
GERMANY
Ph: +49 7154 8160471
Fax: +49 7154 8160440
sales@balancesystems.de

Balance Systems GmbH *(Service)*
Kelterstraße 3
75236 Kämpfelbach
GERMANY
Ph: +49 7231 426746
Fax: +49 7231 426747
info@balancesystems.de