

1. B-SAFE SYSTEM

New intelligent system for continuous spindles and machine tools monitoring. B-Safe is the new idea for spindles and machine tools diagnostics based on the continuous analysis of vibrations and temperature. The miniaturized system can be installed into the spindle permitting the real-time monitoring of anomalies and malfunctioning, guaranteeing the maximal productivity by reducing the machine downtime.

1.1. Innovative solution

The hybrid MEMS 3D and piezoelectric technology guarantees a complete signals analysis on a wide band. The presence of a microprocessor with integrated memory allows local detection and memorization of collision event, unbalances, overloads, anomalies of the working cycle, tools wear as well as bearings diagnostics.

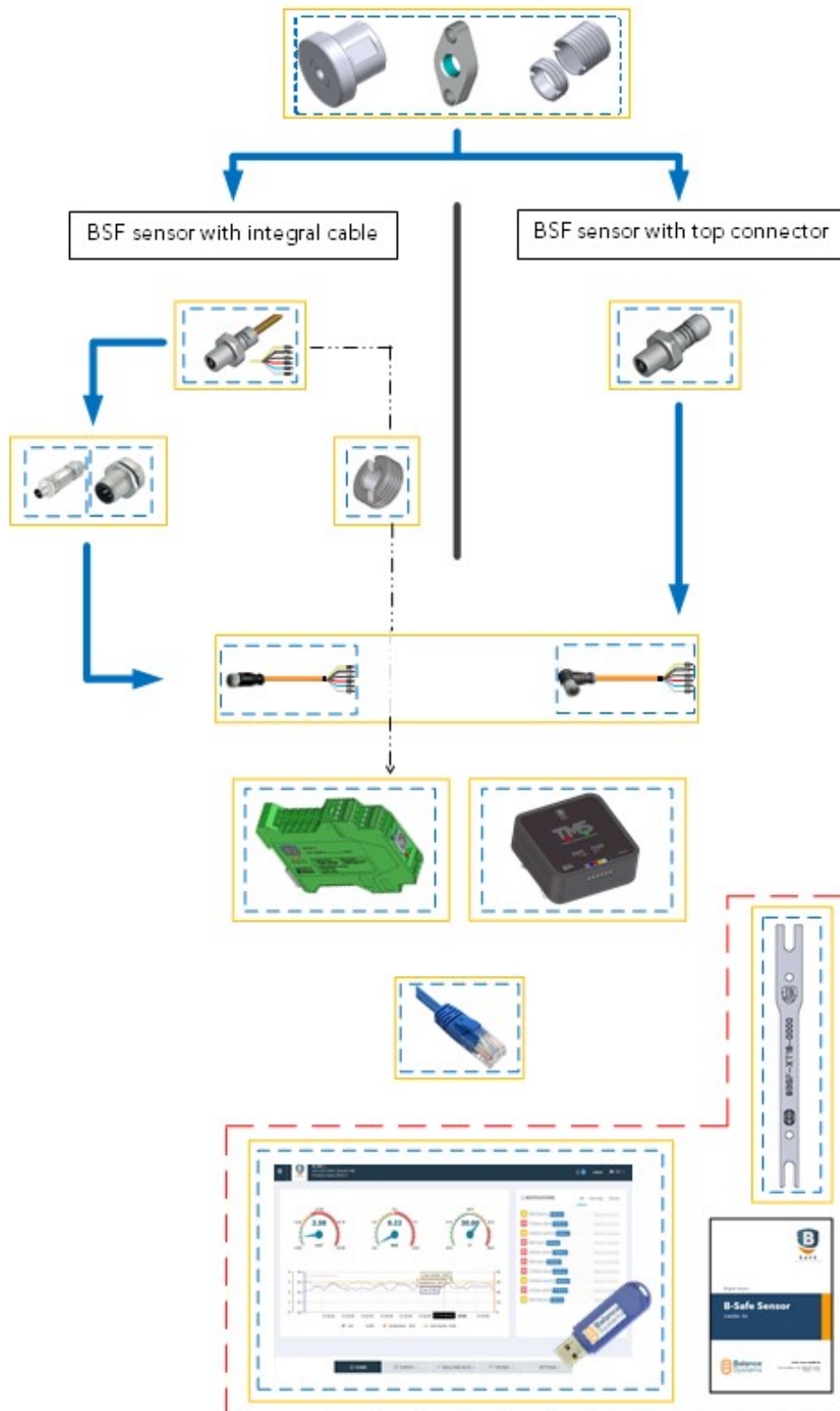
1.2. Benefits

- Smart 3-axis collision protection: immediate alarm and machine stop through fast digital output (reaction time = 1ms). Proven algorithms and filters to avoid false alarms.
- Black box: data conversion, analysis and data recording embedded in the sensor housing
- 2000 log events with date and time + waveform analysis of the last 10 alarms
- Continuous monitoring: data recording even when the machine is switched off
- Predictive maintenance: according to the real use of the spindle
- Industry 4.0: 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.

1.3. Technical Data

Sensor dimensions with 5-pole connector	Ø12mm - L 41mm
Sensor dimensions with cable	Ø12mm - L 32mm
Cable length	Standard 5 m – other length upon request
MEMS sensor	± 16g, 500 Hz
Piezo sensor	± 50g, 10 kHz
Working temperature	-40÷85°C
Shock resistance	10.000g
Connectivity	ModBus TCP or RTU on RS485

2. SYSTEM OVERVIEW











3. SYSTEM VERSIONS



B-SAFE Systems is available in two versions to offer the most suitable solution for each application.



BASIC version

PRO version

-  Collision alarm
-  Overloading alarm
-  Temperature alarm
-  Programmable limits
-  Events data logging
-  Transport monitoring
-  Real-time data for process-monitoring
-  HMI

-  Collision alarm
-  Overloading alarm
-  Temperature alarm
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-  Transport monitoring
-  Real-time data for process-monitoring
-  HMI
-  Waveform recording of the last 10 events
-  Historical trend statistics
-  Continuous monitoring (5 days battery)
-  FFT analysis, wide bandwidth 10kHz
-  Spindle Check UP (the innovative tool for maintenance planning and asset management)
-  Service history book