# iM
## Smart Sensor

### DIGITAL SOLUTIONS
Easy interface with hmi pc or fieldbus of the machine where it is installed on

### PREVENTIVE MAINTENANCE
Machine downtimes can be prevented by monitoring the spindle's operation over the time

### SAFETY
The sensor immediately communicates if the operating conditions are too demanding or dangerous

### MONITORING
Displays the electrospindle machining conditions continuously and in real time

### PRECISION
The sensor's exclusive technology detects the vibrations produced by the electrospindle and ignores those caused by the rest of the machine

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## Smart Sensor

**HITECO**
HIGH TECHNOLOGY COMPONENTS

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# iM
## Smart Sensor

HITECO
EXCLUSIVE
SOLUTION *

### SPINDLE VIBRATION SENSOR
AN INNOVATIVE SENSOR DESIGNED TO MONITOR THE SPINDLE IN REAL TIME

**HITECO**
HIGH TECHNOLOGY COMPONENTS

# Maximize the **productivity** of your machine and increase the **life** of your electrospindle with **iM Smart Sensor**

The **iM Smart Sensor** is an intelligent sensor that constantly monitors the machining conditions of the spindle it is installed on. It can support the whole production process, monitoring the main quantities that the spindle works on: **vibration** and **temperature**. This process monitoring instrument lets users easily identify malfunctions and consequently reduce unexpected machine down times

- Bearings temperature monitoring
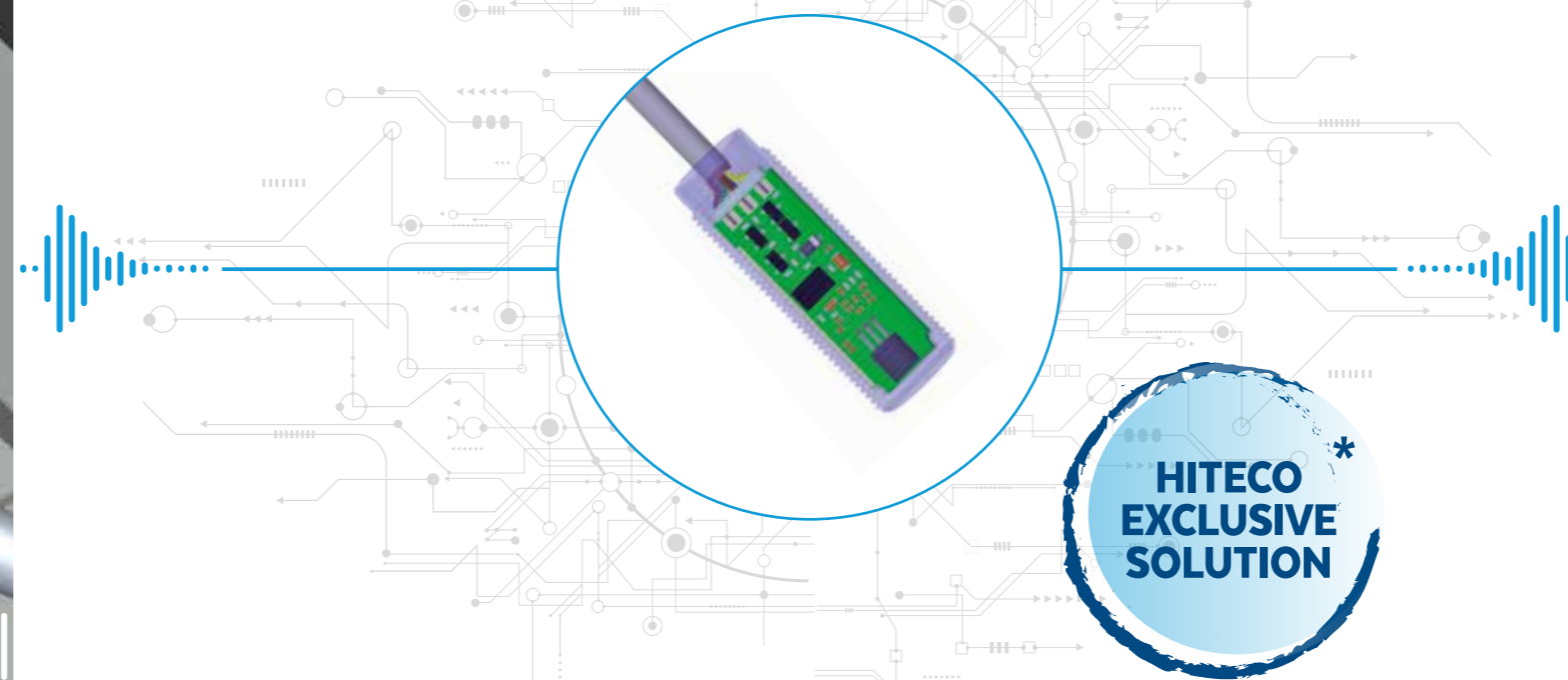- Speed monitoring
- Vibration sensor
- Acceleration

Maximising machine productivity

Programming targeted maintenance interventions

Increase the electrospindle's life

Increase the machine's safety levels

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# AN INTELLIGENT SENSOR FOR A MACHINE THAT WORKS IN COMPLETE SAFETY

**HITECO EXCLUSIVE SOLUTION** *

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Accelerometer | triaxial with three right-angle axes X, Y and Z |
| Type of sensor | MEMS |
| Field of measurement | ±16 g (±156 m/sec^2) |
| Bandwidth | 1000 Hz |
| Resolution | 0,125 g/sample |
| Operating temperature | from 5 to 85°C |
| Impact resistance | 3000 g (29400 m/sec^2) |
| Connectivity | Modbus on RS485 |

- **On-board triaxial accelerometer:** the sensor measures the vibrations in all directions
- **Filtering of measured vibrations:** the sensor detects only the electrospindle vibrations, filtering out those produced by the rest of the machine. Prevention of false alarms
- **Hardware alarm:** the sensor features an on/off electrical contact to communicate whether the vibration level measured is dangerous
- **Communication via modbus on RS485:** fast and universal, it ensures direct and easy communication with other fieldbus (e.g. ethercat, io-link)
- **Available for Powertech electrospindles (3-axis machines) and for Robotech electrospindles (5-axis machines)**

**\*** ITALIAN PATENT 0001369693

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# iM Smart Sensor **HMI** interface

**Your spindle's life** in just a few clicks.

The simple and intuitive **HMI interface** lets you **monitor** in **real time** the **machining conditions** of the electrospindle on a graph and check whether the operation is optimal or not.

The platform lets users collect, process and export a wide range of data autonomously, with the following instruments:

- **Spindle actual values:** it is used to monitor, through an intuitive graph and coloured histograms, the vibration level, the rotation speed and the temperature of the electrospindle bearings

- **Spindle state:** state indicator that checks whether the machining conditions of the electrospindle are optimal or not

  Status: OK     Status: NOT OK

- **Real time values:** graph that displays the vibration level, acceleration and bearings' temperature values over time

**All the Hiteco know-how in one simple interface!**

Plug & Play

No advanced software skills required

Ready-to-use technology

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# iM Smart Sensor **OPEN**

**With the iM Smart Sensor OPEN you can access directly to the data of the sensor by using your own software**

**STRENGHTS:**
- Build your own **4.0 industry interface**
- Customize the information for your end customer
- Implement smart retroactions with the sensor output data such as feed speed adjusted according to the vibration level
  - unbalanced tool check
  - adaptative feed speed based on the vibration level

| OPEN BASIC | OPEN PRO |
|---|---|
| REAL TIME INFORMATION | REAL TIME INFORMATION + STATISTICS and BUMP DETECTION |

**INDUSTRY 4.0**