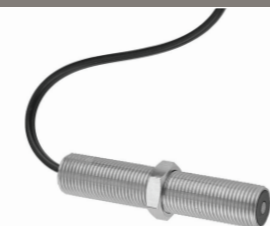


ENGINE CONDITION MONITORING SYSTEMS

We are at the forefront of revolutionising engine management through our unique and groundbreaking predictive maintenance technologies. We have redefined the standards of reliability. We provide operators with unparalleled capabilities to foresee and preemptively address faults and transition to Condition Based Maintenance. Cut down the risks of unexpected downtime and significantly extend MTBO.



ENGINE CONDITION MONITORING SYSTEM



MPU Sensor

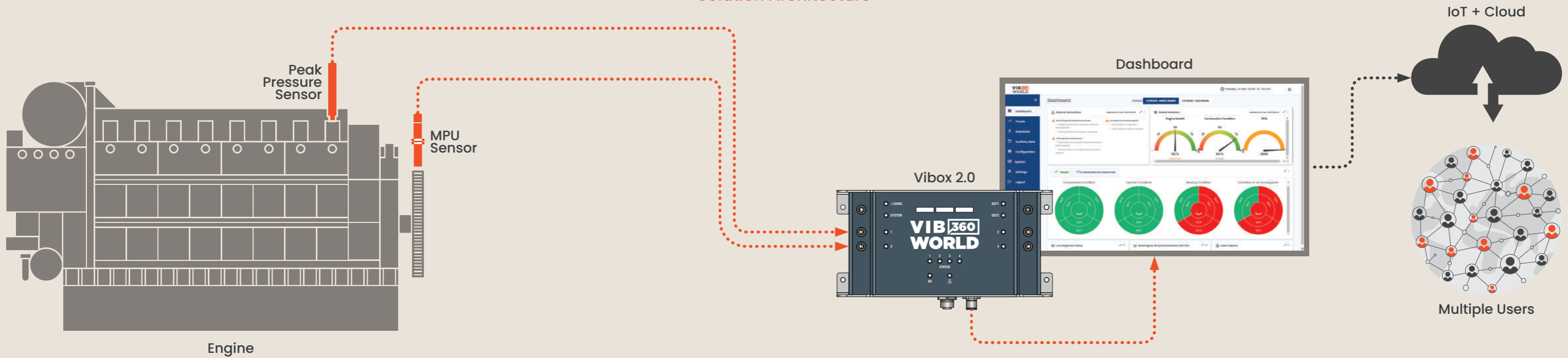


Peak Pressure Sensor



Vibox 2.0

Solution Architecture



System Versatility

- Implement CBM Transition
- Intelligent Controller can display ShaPoLi System Data
- Embed online Lube Oil Monitoring on the same Controller for more insights
- Integrate all Engine Mounted Sensors on a single platform

The Engine Condition Monitoring System (ECMS) is an innovative, engine-agnostic solution, seamlessly integrating with both 2-stroke and 4-stroke engines. Utilizing two non-contact, non-intrusive sensors, it is effortlessly retrofit-friendly. The system analyses the instantaneous angular speed of the crankshaft, facilitating early detection of defects. Unique in its operation, ECMS processes data in real-time right at the engine side, eliminating the need for cloud-based data transfer. With a local storage capacity of 50,000 data points in its intelligent controller, the solution provides data trending, real-time alerts, troubleshooting prompts, and lays the groundwork for future AI and ML applications.

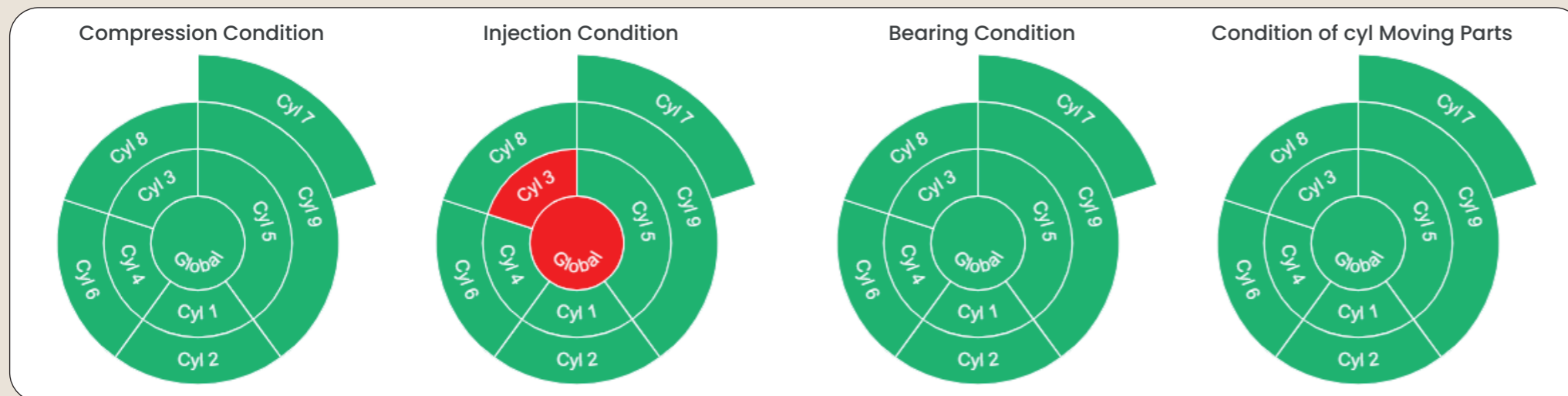
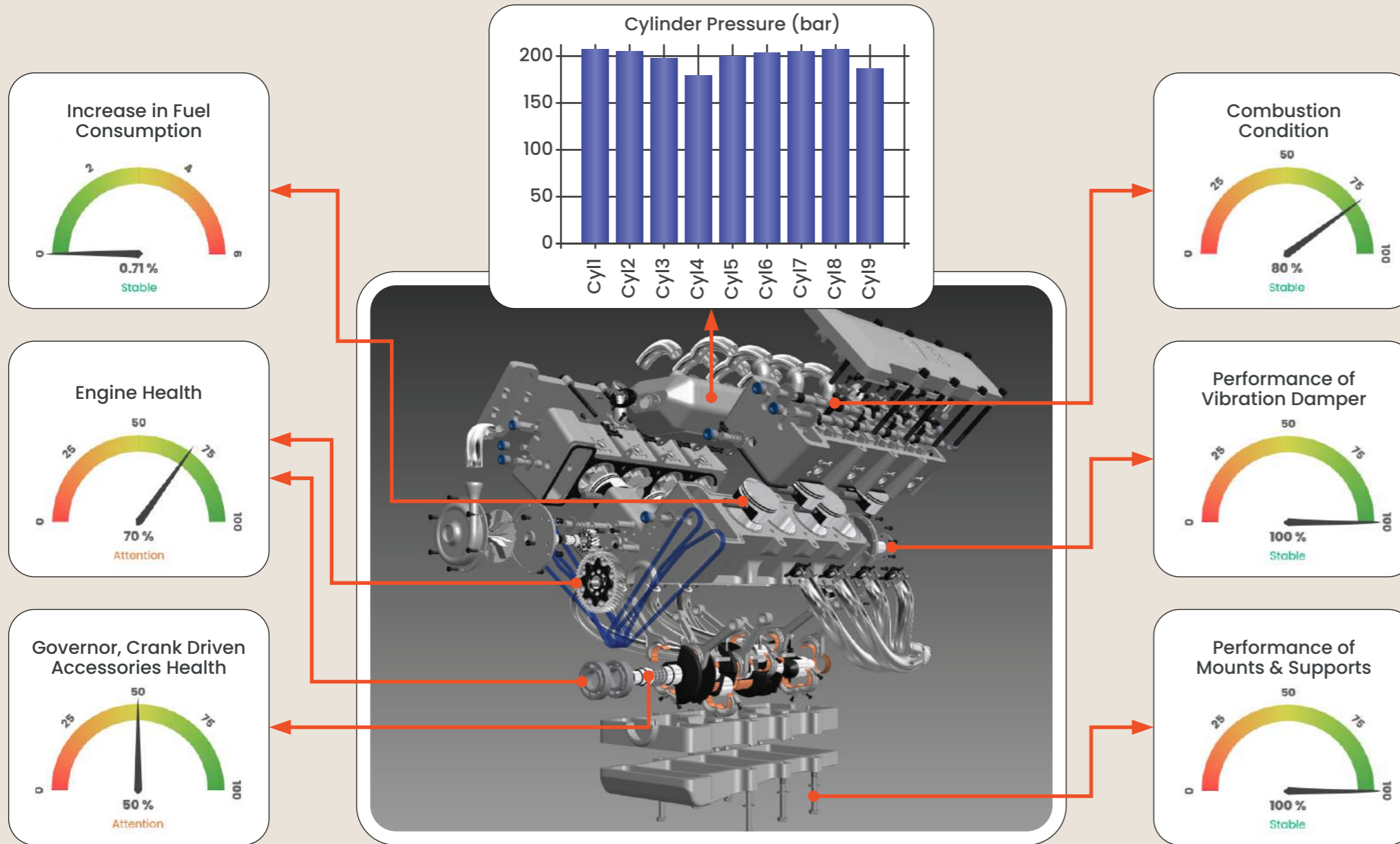
It is a Class IR and ABS-approved system, ensuring compliance with top industry standards. It's IoT-ready, enhancing connectivity and smart monitoring.

Hardware Specifications

● Nominal Input Voltage	24 VDC
● Operating Temperature	-40° to +75° C
● Communication Interfaces	Ethernet RJ45 USB 2.0 CAN 2.0B
● Sensor	IP67
● RAM	1GB DDR3L
● Internal Memory	64GB
● Processor	8GB eMMC
● Sampling Rate	60ksps

ENGINE CONDITION MONITORING SYSTEM

Indicators



Comparison of available systems for CM		
	VIB360 WORLD	Others
• Analysis using Advanced Torsional Vibration Data	Yes. Unique	Uses Engine Mounted Sensors
• No. of Sensors	Only 2	Multiple
• Peak Pressures of all Cylinders	With one Sensor	Requires One on each Cylinder
• Need for historical Engine Data	No	Yes
• Class Approved	ABS and IR Class	-
• Real time online data without Internet	Yes	No
• Transition to CBM	Yes	Maybe

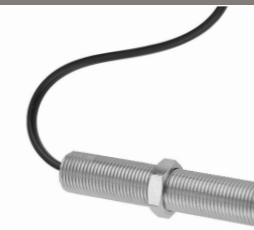


TorqueSense – EEXI ShaPoLi

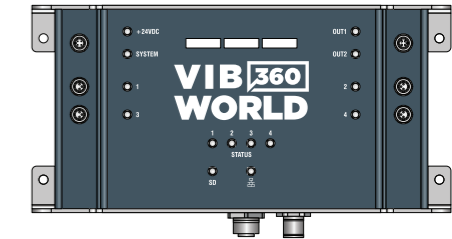


Applications

- All vessels with gross weight 400 Tonnes or above.

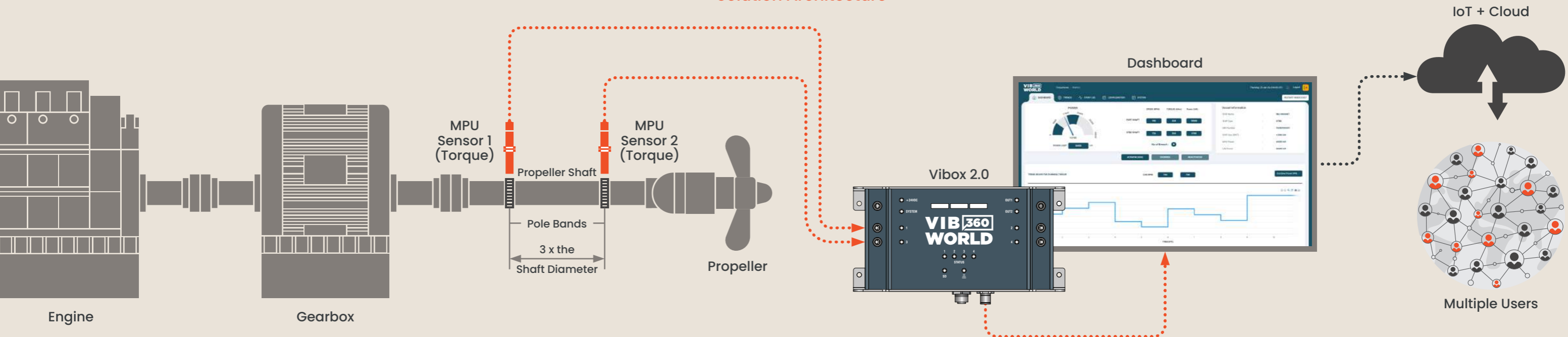


MPU Sensor



Vibox 2.0

Solution Architecture



System Highlights

- Two non contact Sensors, no moving parts, no electronics
- Low Maintenance
- Can be integrated with our ECMS
- IR Class Approved

Technical Specification

- Power : 300kW to 90,000kW
- RPM : 30RPM to 3000RPM
- Shaft Diameter : 130mm to 800mm



Hardware Specifications

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● Processor	8GB eMMC
● Sampling Rate	60ksps

Other Cutting-edge Solutions

- Steam and Gas Turbines
- Wind Turbines
- Motors
- Bearings
- Gearboxes
- Compressors
- Pumps



Neptunus Power Plant Services Pvt. Ltd.
A-554/555, TTC Industrial Area,
MIDC, Mahape, Navi
Mumbai-400710, India

✉ info@neptunus-power.com

🌐 www.neptunus-power.com



SIÈGE SOCIAL
80 domaine de Montvoisin
91400 Gometz la Ville
France

☎ +33 1 69 35 15 25

✉ support-vib360@impedance.fr

🌐 www.vib360world.com