Electrical Black Box Machine – EMBB

The EMBB system records all harmful working conditions that are not allowed or represent a potential danger to the machine’s lifetime. By equipping the synchronous and asynchronous machines with EMBB system owners and users get an additional insight into the harmful working conditions during machine operation. EMBB allows a better asset management, and a reliable monitoring of the machine, especially during the warranty period.

EMBB Features
» Detects and records harmful working conditions
» Reveals failures caused by harmful machine use
» Reduces the potential damage costs
» Modular and upgradeable on-line system for new, as well as for existing, machines
» Long term data storage
» Local and remote system access
» Enables a better asset management

SENSORS:
1 – voltage and current measurement
2 – vibration measurement
3 – temperature measurement
4 – speed measurement

asynchronous operation
incorrect synchronization
significant asymmetry
two-phase operation
extensive vibrations
overheating
overloading
run-out

Local/remote HMI (real time data, events)
EMBB specification

Architecture:
- Data acquisition unit with the real time controller

Inputs:
- Three voltage inputs for stator voltage measurement (0-500 V)
- Three current inputs for stator currents measurement (1A/5A)
- One voltage input for excitation current measurement (0-10 V)
- One voltage input for speed measurement (0-10 V)
- Two RTD (Pt100) or thermocouple inputs
- Two vibration inputs (IEPE)

Digital/relay outputs:
- Number of outputs: 2 to 8
- Continuous current: 6 A
- Maximum switching power: 1500 VA
- Maximum switching voltage: 250 VAC/DC
- Maximum switching frequency: 0.1 Hz
- Rated isolation voltage: 300 V overload (category III) by EN 50178
- Surge withstand: 4 kV (1,25/50 μs), by IEC 5017

Communication:
- Ethernet 10/100

Power supply:
- DC: 80 V to 370 V
- AC: 85 to 264 V, frequency 47 to 63 Hz
- Maximum allowed power supply interruption: 100 ms for 230 VAC/ 20 ms for 115 VAC
- Test voltage: 3 kV (2 kV against ground)

Temperature range:
- Operational temperature range: -20°C to +70°C (storage temperature: -40° to +85°C)

Dimensions:
- Cabinet IP 54 (IP 66 on request) – typical dimensions W/H/D: 400x400x200

Data visualization:
- Web browser for local and remote access

Data logging:
- Database for long-term data, alarm and events archival

Standards compliance:
- EMC immunity/ emission: EN 61326-1 (IEC 61326-1:2005), EN 61000-3-2+A1+A2 (IEC 61000-3-2+A1+A2), EN 61000-3-3 (IEC 61000-3-3), EN 61000-4-10+A1 (IEC 61000-4-10+A1), EN 61000-4-12 (IEC 61000-4-12), EN 61000-4-18+A1 (IEC 61000-4-18+A1)
- Vibration/shock resistance (EN 60068-2-6/EN 60068-2-27/29)

Who we are

60 years of know-how in rotating machines & energy field

Helping our clients to solve their problems and increase their productivity has been motivating us since the first day. Located in Zagreb, Croatia, as a part of KONCAR Group, we develop products for applications in hydro, wind, process industries and other areas.

Our passion for new and innovative products is motivating us to grow and create value for our clients. With our educated and experienced team, we extend the lifetime of most complex equipment and solve problems that others can’t. Because of our expertise and flexibility we are a preferred supplier of many international companies in power generation and energy sector.

Worldwide recognized and implemented

More than 20 GVA monitored with our solutions!