

EAGLE

WIRELESS ONLINE CONDITION MONITORING SOLUTIONS

EAGLE is a smart wireless sensor that is easy to set up and allows for the continuous monitoring of the health condition of rotating machinery. Manufacturers can enhance the reliability of their production tools in the simplest way possible, freeing themselves from the restrictions inherent to the set-up of standard wired solutions.

EAGLE guarantees a drastic reduction of installation costs in severe environments or where preliminary engineering phases are necessary.

With its unique measurement capabilities, EAGLE is the first wireless solution with no compromise on diagnosis capabilities. All types of industrial rotating machines can be monitored, thereby enabling you to increase the overall reliability of your industrial facilities.

Eagle Diagnosis Capabilities

Post-processing

On time waves	Filters: High Pass, Low Pass, Band Pass, Shock Finder smart filter
	High Resolution Spectra (400 to 6,400 lines), concatenation
	Automatic parameters: Statistical levels (RMS, peak, peak-peak, mean...), Kurtosis
On spectra	Automatic parameters: Peak Extraction, Energy Narrow band Level, Energy broadband Level
	Bearings frequencies, gear frequencies
	Cepstra (automatic or manual)
On parameters	Logic combination of parameters



Advanced thresholds

Alarm thresholds levels	4 levels (pre Alarm, Alarm, Danger, Error)
Standard thresholds types	HIGH level thresholds, LOW level threshold, IN RANGE thresholds, OUT OF RANGE thresholds,
Advanced thresholds types	Evolution vs. previous control, Evolution vs. reference date, Statistics, Forecast

Data mining

Operating condition	Trends filtered per operating condition for variable operating condition machines
History	Trends, waterfall
	Filter on control history from parameter trend
Comparison	Superimposition of parameters, spectra, time waves
Quick access to results	Quick look matrix: the machine condition in one view of all alarm status (2DG)



EAGLE HARDWARE SPECIFICATIONS

Eagle Sensor

Performances

Number of axes	Uni-axial or Tri-axial
Sensing element	Piezoelectric ceramic, shear mode piezo
Amplitude Range	± 50 g peak, 24 bits
Frequency	1 Hz to 15 kHz
Response @ ±3 dB	6 kHz for X and Y axes
Background noise	1.1 mg RMS
Transverse Sensitivity (Typ.)	< 6%
Temperature measurement range	-20°C to 120°C (-4°F to 248°F) ±2°C accuracy, 0.1°C resolution
Sampling frequency	256 to 51.2 kHz FFT Fmax 100 to 20 kHz
Time waveform number of points	512 to 16,384 points FFT resolution 800 to 3,200 lines
Maximum recording duration	0.3 to 64 s For machine speeds ≥ 100 RPM
Smart sensor	Embedded FFT, Overall velocity and Overall Acceleration
Acquisition modes	Periodic, condition-based, alarm-based, smart on/off
Vibration limit / Shock limit	500 g peak / 5,000 g peak

Eagle Sensor and Expander

Performances

Models	EGL1103000: tri-axial (X, Y, Z), EGL1102000: mono-axis (Z), EGL1104000: Expander
Physical	Size and weight Ø48 mm, 113mm high, 403 grams 44 mm wrench and dedicated tool Case material 316L Stainless steel Reinforced, UV-stabilized polyamide Mounting: M6 x 1 thread Option: cementing pads patented tri-axial mount Sealing IP67 O-ring
Electrical	Standard battery: Li-SOCl ₂ , D cell, 3.6 V, 17 Ah SAFT LS33600 Autonomy 5 years at typical usage, non-rechargeable
Radio	FCC ID 2AC3Z-EGL1102 IC 12336A-EGL1102
Operating requirements	Humidity limits < 95% RH non-condensing Standard operating temperature -20°C to 85°C (-4°F to 185°F) Extreme temperatures reduce optimum battery life Solvent resistance Solvents resistant Hazardous environments I M1 Ex ia I Ma, II 1 G Ex ia IIC T3 Ga -20 °C ≤ Tamb ≤ +85°C Class I, Div I equivalent T3 (-4°F to 185°F)

Contact temperature Withstands a 120°C contact temperature in safe area.
Tested during 7h on a surface at 120°C in an ambient temperature environment <85°C

Eagle Gateway

Technical Models: EGL1101000 (internal antenna) for safe area
Solutions on request for installation in hazardous areas

Power supply: 48 V, 0.3 A, PoE injector (IEEE802.3.af)

Size: 220 x 120 x 38 mm, 360 g

Material: Polycarbonate RAL 7035

Enclosure / dust & water IP67 case and IP68 gland
NEMA 4, 4X, UL 94-V0

Temperature range -20°C to 60 °C (-4°F to 140°F)

Relative humidity < 95% RH non-condensing

Ethernet channel 10/100 Base-T Ethernet Channel,
RJ45 connector
Standard Ethernet class 5e cables

Radio: FCC ID 2AC3Z-EGL1101
IC 12336A-EGL1101

Antenna: Embedded omnidirectional antenna

Mounting: Tough Ball joint mounting

IT and networks TCP/IP, HTTP, DHCP

Features

Variable operating condition machines | Modbus TCP

Sensors network configuration
Gateway Web Interface

Eagle system

Wireless communication

Physical layer (PHY)	IEEE 802.15.4
Frequency	2.4 GHz ISM band International license-free
Security	128bit AES encrypted packets
Output power (peak)	3 dBm Sensor / 14 dBm Expander and Gateway
Reception sensitivity	-101 dBm
Wireless range point to point	100 m / Line of sight Wireless range is highly dependent on the environment, height and orientation.
Wireless range point to point Expander hops	60 m / typical industrial environments up to 8 hops Wireless range is highly dependent on the environment, height and orientation. Extends wireless range or bypass obstacles
Max. nodes per gateway	30 direct nodes, 150 sensors using expanders depending on expanders and measurements scheduling
Compliances	FCC part 15, CE, EN60950-1, 62479, 301489-17, 301489-1, 300328



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