

## 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

<b>Post-processing</b>	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
<b>Advanced thresholds</b>	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,
<b>Data mining</b>	Advanced thresholds types	Evolution vs. previous control, Evolution vs. reference date, Statistics, Forecast
	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	Matrix display for automatic fault detection: All machine parameters displayed in a single view



## EAGLE HARDWARE SPECIFICATIONS

### Eagle Sensor

<b>Performances</b>	Number of axes	Uni-axial or Tri-axial		
	Sensing element	Piezoelectric ceramic, shear mode piezo		
	Amplitude Range	± 50 g peak, 24 bits		
	Frequency Response @ ±3 dB	1 Hz to 15 kHz for Z axis	6 kHz for X and Y axes	
	Background noise	1.1 mg RMS		
	Transverse Sensitivity (Typ.)	< 6%		
	Temperature measurement range	±2°C accuracy, 0.1°C resolution, on the operating temperature range of the unit		
	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 & Envelope FFT, Overall velocity and Overall Acceleration, temperature, peak-peak processing on time waveform		
	Acquisition modes	Periodic, condition-based, alarm-based		
	Vibration limit / Shock limit	500 g peak / 5,000 g peak		

### Eagle Sensor and Expander

<b>Models</b>	EGL1103000: tri-axial (X, Y, Z), EGL1102000: mono-axis (Z), EGL1104000: Expander			
<b>Physical</b>	Size and weight	Ø48 mm, 113mm high, 403 grams	dedicated tool or 44 mm wrench	
	Case material	316L Stainless steel	Reinforced, UV-stabilized polyamide	
	Mounting	M6 x 1 thread	Option : cementing pads or patented tri-axial mount	
	Sealing	IP67	O-ring	
<b>Electrical</b>	Standard battery	Li-SOCl <sub>2</sub> , D cell, 3.6 V, 17 Ah	SAFT LS33600 only	
	Autonomy	Non-rechargeable. 5 years at typical usage with 1 expert measurement set per day (incl. time waveform, FFT, overalls...) in an environment of 20°C. Note that the environment temperature may affect significantly the battery lifetime.		
<b>Radio</b>	USA / Canada	FCC ID 2AC3Z-EGL1102	IC 12336A-EGL1102	
<b>Operating requirements</b>	Humidity limits	< 95% RH non-condensing		
	Solvent resistance	Common solvents resistant	Contact us according to situation	
	Hazardous environments	 I M1 Ex ia I Ma, II 1 G Ex ia IIC T3 Ga	LCIE 14 ATEX 3058 X IECEx LCIE 14.0048 X	
		 IS Class 1, Division 1 Group A to D Ex ia IIC/Class I, Zone 0 AEx ia IIC T3	CSA.15.70021530	
	Operating ambient temperature	-20°C < Ta < +85°C	-4°F < Ta < +185°F <i>Note that extreme temperatures reduce optimum battery life</i>	
	Max. Contact temperature	Withstands a 120°C contact temperature in safe area with an ambient temperature compliant with the operating temperature range <i>Tested on a surface at 120°C in an ambient temperature environment &lt;40°C</i>		

### Eagle Standard Gateway

<b>Technical</b>	Model	PGW1A (internal antenna) for safe area		
	Power supply	48 V, 0.3 A, PoE injector (IEEE802.3.af)		
	Size	220 x 120 x 38 mm, 360 g	8.66 x 4.72 x 1.50 in	
	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	
	IT and networks	TCP/IP, HTTP, DHCP		
	Mounting	Tough Ball joint mounting	Fastening by screws or brackets	
	<b>Radio</b>	USA / Canada	FCC ID: 2AFCS-PGW10	IC 20474-PGW10
Japan		R207 – 15GW10		
Antenna		Embedded omnidirectional antenna		
<b>Features</b>	Variable operating condition	Modbus TCP		
	Sensors network configuration	Gateway Web Interface		

## Eagle Atex Gateway (zone 2)

<b>Technical</b>	Model	EGL1107000 with external antenna	
	Power supply	48 V, 0.3 A, PoE injector (IEEE802.3.af)	
	Size	190 x 160 x 95 mm	7.48 x 6.30 x 3.74 in
	Material	Glassfibre-reinforced polyester, graphite added & Polyamide cable glands	RAL9011 (Black)
	Enclosure / dust & water	IP66	Self-extinguishing, UL 94 V-0
	Relative humidity	< 95% RH non-condensing	
	Ethernet channel	10/100 Base-T Ethernet Channel, RJ45 connector	Standard Ethernet class 5e cables
	IT and networks	TCP/IP, HTTP, DHCP	
	Antenna	External omnidirectional antenna	iAnt212
	Mounting	4 M5 Screws	Specific bracket for antenna
	Hazardous environments	 II 3 G Ex ic IIC T4 Gc	LCIE 16ATEX 1029 X IECEX LCIE 16.00049 X
	Operating ambient temperature	-20°C < Ta < +60°C	-4°F < Ta < +140°F
	<b>Features</b>	Variable operating condition	Modbus TCP
Sensors network configuration		Gateway Web Interface	

## Eagle system

<b>Wireless communication</b>	Physical layer (PHY)	IEEE 802.15.4	
	Frequency	2.4 GHz ISM band	International license-free
	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 using expanders	Up to 7 Expanders can be added between the gateway and the EAGLE sensor In typical industrial environments: 100 m for the 1st expander line of sight; 30m for the 7th expander line of sight.	Wireless range is highly dependent on the environment, height and orientation.
	Nb. of sensor per gateway	Recommended setup with 30 sensors / Gateway	
	Compliances	FCC part 15, CE, EN60950-1, 62479, 301489-17, 301489-1, 300328	