

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 3,200 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 | Matrix display for automatic fault detection: All machine parameters displayed in a single view |

EAGLE SENSOR METROLOGY

| | |
|-------------------------------|--|
| 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 operating temperature range |
| Sampling frequency | 256 to 51.2 kHz - FFT Fmax 100 to 20 kHz |
| Time waveform | 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 | Smart interval, alarm-based |
| Vibration limit / Shock limit | 500 g peak / 5,000 g peak |

EAGLE SENSOR & EXPANDER

Models

EGL1103000: tri-axial (X, Y, Z), EGL1102000: mono-axis (Z), EGL1104000: Expander


Physical

| | |
|-----------------|---|
| Size and weight | Ø48 mm, 113mm high, 403 grams |
| Case material | 316L Stainless steel, Reinforced, UV-stabilized polyamide |
| Mounting | M6 x 1 thread |
| Sealing | IP67 |

Electrical

| | |
|------------------|---|
| Standard battery | TADIRAN SL-2780/S Li-SOCl ₂ , D cell, 3.6 V, 19 Ah |
| Autonomy | 5 years at typical usage with 1 expert measurement set per day (FFT, overalls...) in an environment of 20°C. <i>Note that the environment temperature may affect significantly the battery lifetime.</i> |

Operating requirements

| | | | | | |
|-------------------------------|--|------------------|------------------------|---------------------|----------------------|
| Humidity limits | < 95% RH non-condensing | | | | |
| Solvent resistance | Common solvents resistant, contact us according to situation | | | | |
| Hazardous environments |  <table border="0"> <tr> <td>I M1 Ex ia I Ma,</td> <td>II 1 G Ex ia IIC T3 Ga</td> </tr> <tr> <td>LCIE 14 ATEX 3058 X</td> <td>IECEX LCIE 14.0048 X</td> </tr> </table> | I M1 Ex ia I Ma, | II 1 G Ex ia IIC T3 Ga | LCIE 14 ATEX 3058 X | IECEX LCIE 14.0048 X |
| I M1 Ex ia I Ma, | II 1 G Ex ia IIC T3 Ga | | | | |
| LCIE 14 ATEX 3058 X | IECEX LCIE 14.0048 X | | | | |
| Operating ambient temperature | -20°C < Ta < +70°C (-4°F < Ta < +158°F) <i>Note that extreme temperatures reduce optimum battery life</i> | | | | |
| Compliances | CE | | | | |

EAGLE STANDARD GATEWAY

| Technical | |
|-------------------------------|---|
| Model | PGW1A 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, Industrial Ethernet class 5e cables (S/FTP) |
| IT and networks | TCP/IP, HTTPS, HTTP, DHCP |
| Mounting | Tough Ball joint mounting, fastening by screws or brackets |
| Features | |
| Variable operating condition | Modbus TCP |
| Sensors network configuration | Gateway Web Interface |

EAGLE WIRELESS COMMUNICATION

| | |
|--------------------------------|---|
| Physical layer (PHY) | IEEE 802.15.4 |
| Frequency | 2.4 GHz ISM band International license-free |
| Antenna | Sensors, Expander & Gateway : Embedded omnidirectional antenna |
| Output power (peak) | 3 dBm Sensor / 14 dBm Expander and Gateway |
| Reception sensitivity | 1-101 dBm |
| Wireless range point to point | 100 m / Line of sight <i>Wireless range is highly dependent on the environment, height and orientation.</i> |
| Wireless range using expanders | Up to 7 Expanders can be added between the gateway and the sensor |
| | In typical industrial environments: 100 m for the 1st expander line of sight, 30m for the 7th expander line of sight |
| Nb. of sensor per gateway | Recommended setup with 30 sensors / Gateway |
| USA / Canada | FCC ID 2AC3Z-EGL1102 / IC 12336A-EGL1102 |