

xSensus™



xSensus™ Bian Que: Condition Monitoring

based on LANGYANG Primate AloC Embedded AI chip

OVERVIEWS

LANGYANG Technologies offer an extensive product range, from high-tech portable instruments to powerful online systems and comprehensive software to meet the needs of your maintenance organization. xSensus™ intelligent condition monitoring box monitors operating conditions from the surface of the equipment to identify potential faults and reduce risks associated with equipment operation and maintenance. Cost-effective and complete, our intelligent solutions keep critical machinery up and running.

KEY FEATURES

- **Sensor fusion technologies:** vibration, magnetic field, temperature and sound sensors
- **Edge AI:** based on LANGYANG embedded AI chip
- **Advanced algorithms:** combined common signal processing and ML algorithms on AI chip
- **High accuracy:** best-in-class sensors
 - High dynamic range and exceptional SNR for vibration analysis
 - High performance acoustic emission detection
- **Ultra-low power:** battery-powered
- **5G ready:** small form factor
- Various industrial wireless communication and LPWAN supported
 - Modbus, IO-Link
 - NB-IoT, Sigfox, LoRaWAN
- IP67 enclosure
- Very compact form factor for external and under hood mounting
- Various mounting adapters to accommodate a wide range of monitored equipment
- Easy to install, use and maintain



xSensus™

Embedded AI chip

- LANGYANG Primate AIoC AI chip
- 3xDSP Core: $\geq 500\text{MHz}/\text{core}$, cache 256KB/core;
- 1xARM9: $\geq 300\text{MHz}$, cache 16KB/16KB
- AI: 0.5 TOPS
- Power consumption: $\leq 0.5\text{W}$ (full speed), $\leq 50\text{uW}$ (standby)

Vibration sensor

- ADcmXL3021 from Analog Devices
- Triaxial vibration sensor
- Triaxial, digital output MEMS vibration sensing module
- $\pm 50\text{ g}$ measurement range
- Ultralow output noise density, $26\mu\text{g}/\sqrt{\text{Hz}}$ (MTC mode)
- Wide bandwidth: DC to 10kHz within 3dB flatness (RTS mode)
- Embedded fast data sampling: 220kSPS per axis

Magnetic field sensor

- BMMI50 from Bosch
- Low power and low noise 3-axis magnetic field sensor
- Extended measurement range of $\pm 1300\mu\text{T}$ (x-, y- axis) and $\pm 2500\mu\text{T}$ (z-axis) with $0.3\mu\text{T}$ resolution
- Adjustable output bandwidth $>300\text{Hz}$

Temperature sensor

- ADT7410 from Analog Devices
- $\pm 0.5^\circ\text{C}$ accurate with 16-bit resolution
- -55°C to $+150^\circ\text{C}$ temperature range
- Programmable interrupts

Sound sensor

- IM69DI30 from Infineon
- High performance microphone with dual backplane MEMS technology
- 105dB dynamic range and 69 dB(A) SNR
- Below 1% THD at 128 dB SPL
- Flat frequency response with low frequency roll off at 28Hz

Communication

- LPWAN: NB-IoT, Sigfox, LoRaWAN
- Wi-Fi
- 4G/Cat.1
- Modbus, IO-Link
- 5G

Online diagnostic platform

- Powerful, easy to use



WORLD WIDE OFFICE LOCATIONS

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For more information
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