

## 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
- **Wi-Fi:** 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),  $\leq 50\mu\text{W}$  (standby)

## Vibration sensor

- ADXL356/357 from Analog Devices
- Triaxial vibration sensor
- Triaxial, digital output MEMS vibration sensing module
- $\pm 40\text{ g}$  measurement range
- Low output noise density,  $80\mu\text{g}/\sqrt{\text{Hz}}$
- Wide bandwidth: DC to 5.5kHz within 3dB flatness

## 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
- $-55^\circ\text{C}$  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

**Headquarters:**  
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For more information  
Visit [langyangtech.com](http://langyangtech.com) for the complete product specification about this and any other products.

