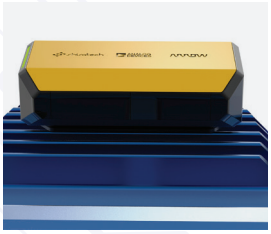
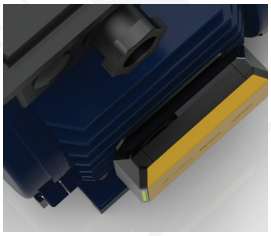
iCoMoX

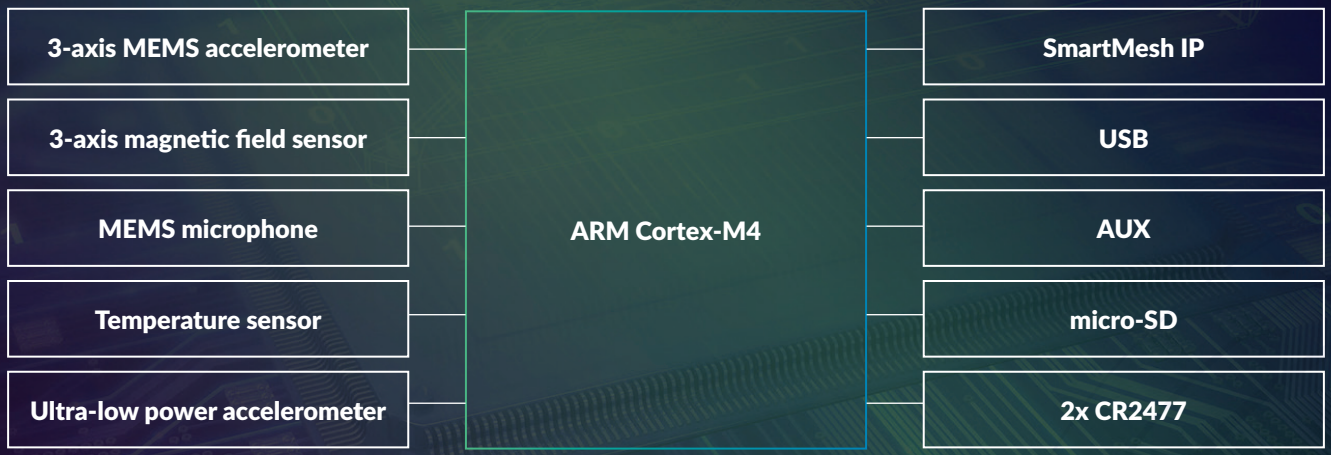
Intelligent Condition Monitoring Box – an open development platform for Condition Based Monitoring (CBM) of industrial equipment, assets and structures. iCoMoX monitors operating conditions from the surface of the equipment to identify potential faults and reduce risks associated with equipment operation and maintenance. This extends the lifetime of the equipment, reduces unplanned downtime, cuts maintenance costs and unlocks potential for energy savings.

KEY FEATURES

- Open embedded sensor-to-cloud platform
- Multi-sensing: vibration, magnetic field, temperature and sound sensors
- High dynamic range and exceptional SNR for vibration analysis
- High performance acoustic emission detection
- Non-invasive current sensing for motor current signature analysis
- Ultra-low power consumption with SensorStrobe™ technology
- Highly reliable wireless SmartMesh™ IP 2.4GHz 802.15.4e communication for tough industrial environments
- Embedded SW and analytics for early detection of machine failures in CBM applications
- Ability to configure warning and alarm levels and timestamp events for each sensor
- CE and FCC certified with IP66 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 platform concept







APPLICATION PROCESSOR

- **ADuCM4050** from **Analog Devices**
- Ultra-low power ARM® Cortex®-M4F MCU with integrated power management
- SensorStrobe™ technology with 10x system-level power savings
- Memory - 512 kB of embedded flash memory with ECC and 128 kB of configurable system SRAM with parity
- Analog peripherals - 12-bit SAR ADC, 1.8 MSPS, 8 channels
- Security - hardware cryptographic accelerator supporting AES-128, AES-256, and SHA-256

VIBRATION SENSOR

- **ADXL356** from **Analog Devices**
- Low noise, low drift, low power, 3-axis MEMS accelerometer
- ±10g, ±20g and ±40g ranges
- 5.5kHz resonant frequency with adjustable analog output bandwidth
- Excellent long-term stability from −40°C to +125°C
- Integrated temperature sensor

MAGNETIC FIELD SENSOR

- **BMM150** from **Bosch**
- Low power and low noise 3-axis magnetic field sensor
- Extended measurement range of ±1300 µt (x-, y- axis) and ±2500µT (z-axis) with 0.3µT resolution
- Adjustable output bandwidth >300Hz

SOUND SENSOR

- **IM69D130** from **Infineon**
- High performance microphone with dual backplane MEMS technology
- 105dB dynamic range and 69 dB(A) SNR
- Below 1% THD at 128 dBSPL
- Flat frequency response with low frequency roll off at 28Hz

TEMPERATURE SENSOR

- **ADT7410** from **Analog Devices**
- ±0.5°C accurate with 16-bit resolution
- −55°C to +150°C temperature range
- Programmable interrupts

COMMUNICATION

- **LTC5800-IPM** from **Analog Devices**
- SmartMesh IP 2.4 GHz, 802.15.4e SoC as either a wireless mote, e-manager, or access point mote in a SmartMesh IP network
- Complete radio transceiver, embedded processor, and networking software for forming a self-healing mesh network
- Micrium µCOS-II real time OS based On-Chip SDK
- >99.999% network reliability achieved in the most challenging RF environments

OTHER FEATURES

- Ultra-low power, low-g **ADXL362** from **Analog Devices** for unlocking additional system-level power savings
- Auxiliary port for connecting additional sensors
- Optional micro-SD card for data logging
- USB to serial UART interface, USB 2.0 full speed compatible
- Two LED status indicator lights
- Up to 2x coin battery CR2477 for extended battery life
- Operating temperature from -40 °C to 85 °C
- Fundamental time-domain and FFT analysis in the MCU per default
- Advanced SW and analytics for early fault detection on demand
- User-programmable sensor interrupts for triggering events
- Cloud connectivity via an optional SmartMesh™ IP gateway or USB network manager
- Optional cloud apps and advanced analytics
- Easy-to-use interface

shiratech

ANALOG DEVICES

ARROW

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