# MCM-100

*Intel Atom® x7-E3950 Processor-Based Machine Condition Monitoring Edge Platform*

## Features

- Easy to set up, ready-to-go rotary machine vibration/condition monitoring edge platform
- Built-in 4CH, 24-bit simultaneous sampling analog inputs, up to 128kS/s
- Supports IEPE 2mA excitation current output on each analog input to drive accelerometer
- Equipped with Intel Atom® x7-E3950 processors (Quad core)
- Extremely compact with versatile I/O support
- Optional Phoenix GM Lite machine condition monitoring software
- Optional PCB 603C01 vibration sensor accelerometer
- Optional Wi-Fi/ 4G LTE wireless kit

## Introduction

ADLINK's new MCM-100 ultra-compact machine condition monitoring edge platform, based on Intel Atom® x7-E3950 processors and built-in four-channel, 24-bit high-resolution analog input, is ideally suited for data acquisition and vibration measurement applications, delivering 24-hour vibration monitoring for rotating machinery and equipment. A full aluminum alloy enclosure with industry-class construction makes the MCM-100 the embedded system of choice for condition monitoring applications demanding reliability in harsh environments. With dual GbE LAN, two COM, two USB 2.0 and two USB 3.0 host ports, and dual Mini PCIe slots and USIM socket support communication with connections via Wi-Fi and 4G LTE, the MCM-100 provides seamless interconnection, ensuring interoperability between systems.

With the optional Phoenix GM Lite vibration monitoring software (built-in ISO 10816 vibration severity standards), and simply installed magnetic mounted accelerometer and cable, the MCM-100 allowing users trouble-free access to vibration monitoring on any rotary device. With automatic event alarm notices effectively achieving intelligent predictive maintenance, the MCM-100 significantly reduces loss from unexpected anomalies in rotating equipment applications.

## Software Support

- Windows® 10 IoT Enterprise/ Windows® 10 IoT Core
- Ubuntu Linux

## Driver and SDK

- LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio. NET

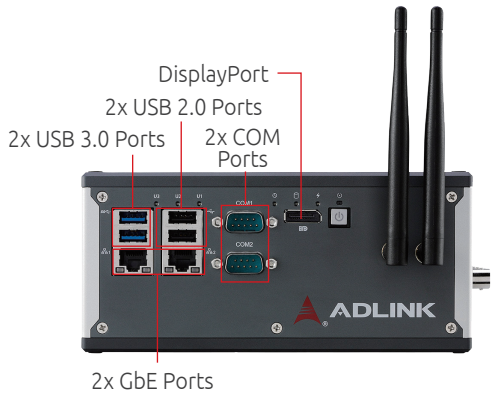
## Ordering Information

- **MCM-100**
  MCM-100 Intel Atom® E3950 Processor-Based Machine Condition Monitoring Edge Platform with built-in 4-ch 24-bit DSA, 4GB RAM, 128G mSATA SSD

## Optional Accessories

- **ICP Accelerometer IMI_603C01**
  ICP Accelerometer IMI_603C01, 100mV/g, 0.5 to 10kHz, 2-pinn conn. w/ 10-ft cable and magnetic mount
- **GM Lite License Key**
  Software License key for Phoenix GM Lite
- **WIFI/BT KIT**
  FANGTEC WIFI/BT KIT(EA) WLAN 802.11ac 2T2R+BT4.0 Half Mini Card
- **AC-DC ADAPTER 40W**
  MEANWELL,GST40A24-AD, Input: 90~264Vac/40W Output: 24Vdc/1.67A

## Product Illustration



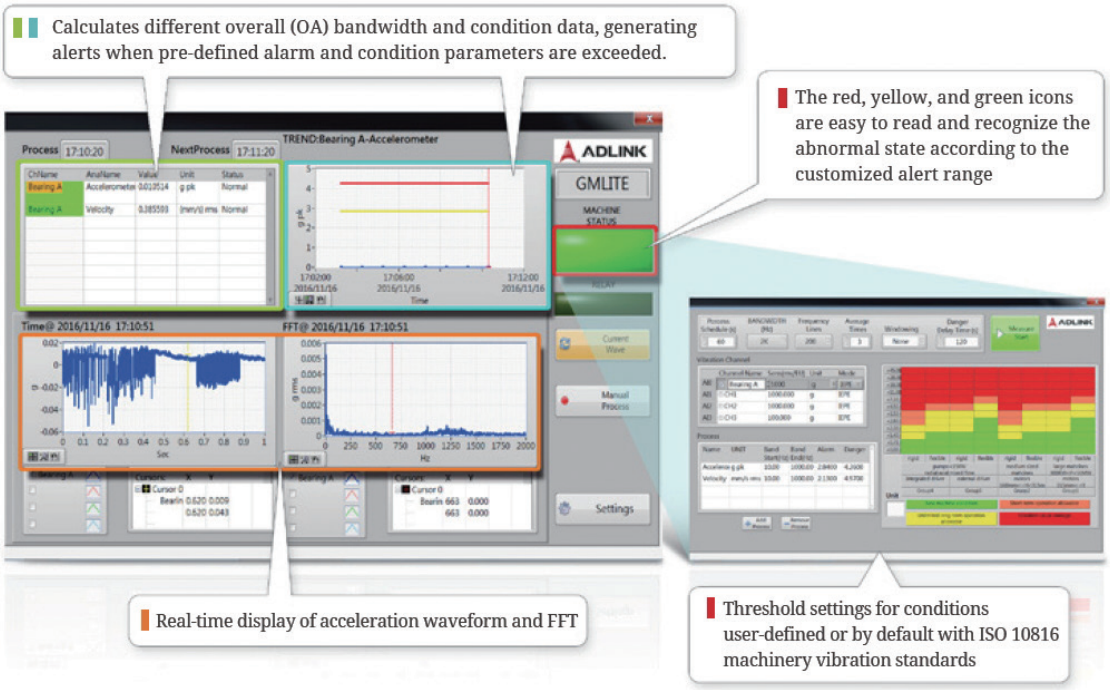

**Front view of MCM-100**

## Specifications

| Model Name | MCM-100 |
|---|---|
| **System Specification** | |
| Processor | Intel Atom® x7-E3950 processor |
| Video | 1x DisplayPort |
| Memory | DDR3L 1066 SODIMM 2 GB |
| Storage | Factory installed 128 GB mSATA SSD |
| Ethernet | 2x GbE LAN (Intel® I210-IT) |
| Serial Port | 2x COM (2 x RS-232/422/485) |
| USB | 2x USB 2.0 + 2x USB 3.0 |
| Mini PCIe | 2x Mini PCIe card slots |
| Wireless Kit (option) | Wi-Fi/4G LTE wireless Kit |
| Power Supply | 6 ~ 36 VDC, Optional 40W AC/DC adapter |
| **Vibration Measurement I/O Specification** | |
| Channels | 4CH |
| Resolution | 24-Bit |
| Max. Sampling Rate | 128 kS/s |
| Input Range | ±10V |
| Input Mode | Diff/P-Diff |
| Input Coupling | AC/DC |
| IEPE Excitation Current | 0 or 2mA (IEPE compliance: 24V) |
| Over-Voltage Protection | ±60V |
| DC accuracy - Offset Error | Typical: ±0.15mV, Max. ±0.3mV |
| DC accuracy - Gain Error | Typical: ±0.15%, Max. ±0.3% |
| System Noise | 50 µVrms |
| -3dB Bandwidth | 0.49 * sampling rate |
| AC Cutoff | 0.4Hz (-3dB), 2.4Hz (-0.1dB) |
| Flatness | ±0.01 dB (20 Hz to 1 kHz) |
| CMRR | 60 dB (20 Hz to 1 kHz) |
| Crosstalk | -100 dB |
| Dynamic Range | 100 dB |
| SFDR | 104 dB |
| THD | -94 dB |
| THD+N | -91 dB |
| Trigger Source | Analog or digital, software selectable |
| Trigger Mode | Post, delay, middle, pre-trigger, re-trigger |
| Auto-Calibration | Yes |
| DIO | 2 programmable function I/O |
| **Mechanical** | |
| Dimensions | 183 (W) x 110 (D) x 83.85 (H) mm |
| Construction | Full Aluminum Alloy |
| Mounting | DIN-rail/wall mountable |
| **Environmental** | |
| Operating Temperature | 0 to 55°C (32 to 131˚F) |
| Storage Temperature | -20 to 70°C (-4 to 158˚F) |
| Humidity | approx. 95% @ 40°C (non-condensing) |
| Vibration | Operating 5 Grms, 5-500 Hz, 3 axes w/ mSATA SSD |
| ESD | Contact +/-4 KV, Air +/-8 KV |
| Shock | Operating 100 G, half sine 11 ms duration w/ mSATA SSD |
| EMC | CE & FCC Class B (EN61000-6-4/EN61000-6-2) |

# Phoenix GM Lite Rotary Machine Condition Monitoring Application

- 4CH simultaneous sampling at pre-defined intervals (min. 60 seconds)
- Automatic OA (overall) calculation of displacement, velocity, and acceleration
- Real-time display of acceleration waveform and FFT
- Threshold settings for conditions user-defined or by default with ISO 10816
- Machinery vibration standards
- Trend display and report generation
- Efficient raw data storage:
  Below alarm level: recording OA only
  Exceeding alarm level: recording raw data for further analysis



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