# MCM-100 Series

*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 2 or 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 processor (Quad core)
- Extremely compact with versatile I/O support
- Optional Wi-Fi kit




MCM-100




MCM-102

## Introduction

ADLINK's new MCM-100 series ultra-compact machine condition monitoring edge platform, based on Intel Atom® x7-E3950 processors and built-in two or 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 with connection via Wi-Fi, the MCM-100 provides seamless interconnection, ensuring interoperability between systems.

With the optional Phoenix GM Lite vibration monitoring software supported by MCM-100 and MCM-100/Win 10 models only (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.

## SDK Support

- For Windows: LabVIEW, C/C++, C#, VB. NET
  For Linux: C/C++

## Driver Support

- Windows® 10, Linux

## Ordering Information

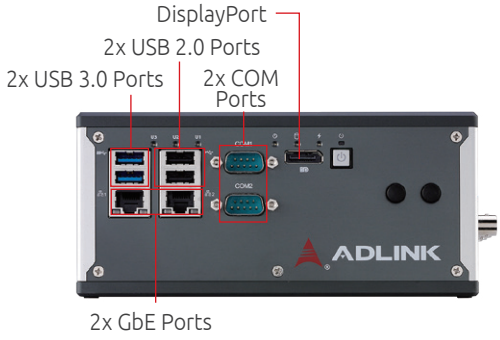
- **MCM-100**
  MCM-100 Intel Atom® E3950 Processor-Based Machine Condition Monitoring Edge Platform with built-in 4-ch 24-bit DSA, 4GB RAM, 128G mSATA SSD
- **MCM-100/Win10**
  MCM-100 Intel Atom® E3950 Processor-Based Machine Condition Monitoring Edge Platform with built-in 4-ch 24-bit DSA, 4GB RAM, 128G mSATA SSD, Windows 10 IoT Enterprise, LTSC x64 English version installed.
- **MCM-102**
  MCM-100 Intel Atom® E3950 Processor-Based Machine Condition Monitoring Edge Platform with built-in 2-ch 24-bit DSA, 4GB RAM, 128G mSATA SSD
- **MCM-102/Win10**
  MCM-100 Intel Atom® E3950 Processor-Based Machine Condition Monitoring Edge Platform with built-in 2-ch 24-bit DSA, 4GB RAM, 128G mSATA SSD, Windows 10 IoT Enterprise, LTSC x64 English version installed.

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## 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
- **WIFI/BT KIT**
  LITEON QCNFA324 WIFI/BT KIT (PCI-e)
- **WiFi/BT USB Dongle**
  JJPlus_WMI6201, Realtek RTL8822BU (USB 2.0)
- **AC-DC ADAPTER 40W**
  MEANWELL,GST40A24-AD, Input: 90~264Vac/40W Output: 24Vdc/1.67A (P/N: 31-62138-0000)
- **AC-DC ADAPTER 90W**
  MEANWELL,GST90A24-AD,Input: 90~264Vac/90W, Output: 24Vdc/3.75A (P/N: 31-62139-0000)
- **DataConnect Pro**
  Azure Cloud-based Web Service Platform
- **Phoenix GM Lite License Key (Supported by MCM-100 and MCM-100/Win 10 models only)**
  Software License key for Phoenix GM Lite

## Product Illustration




**Front view of MCM-100 Series**

## Phoenix GM Lite Rotary Machine Condition Monitoring Application

- 2CH / 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



## DataConnect Pro Azure Cloud-based Web Service Platform

Via the dashboard the users can keep an eye on the operational status of multiple remote facilities in the real time and build strategies for effective preventive maintenance based on actionable intelligence, so as to improve equipment reliability.

- Factory and equipment dashboards provide remote equipment condition monitoring & management for the entire facility
- Enables fast dashboard configuration with no need for programming, reducing development time
- Supports historical data, alarm notification, mobile phone browsing and other functionality



# Specifications

| Model Name | MCM-100/MCM-102 |
|---|---|
| **System Specification** | |
| Processor | Intel Atom® x7-E3950 processor |
| Video | 1x DisplayPort |
| Memory | DDR3L 1600 SODIMM 4 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 Kit |
| Power Supply | 6 ~ 36 VDC |
| Power Consumption | System full load: 25W. Processor full load: 35.2W. USB port full load: 38 W |
| **Vibration Measurement I/O Specification** | |
| Channels | 4CH (MCM-100) / 2CH (MCM-102) |
| 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 Frequency | 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 A (EN61000-6-4/EN61000-6-2) |

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