

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 (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

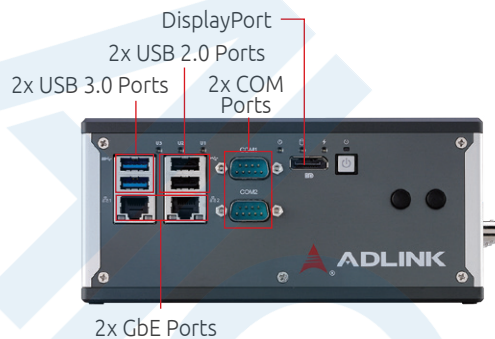
Ordering Information

- **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.

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**
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)