NEW

4-Channel Analog Voltage Input USB Data Acquisition Modules
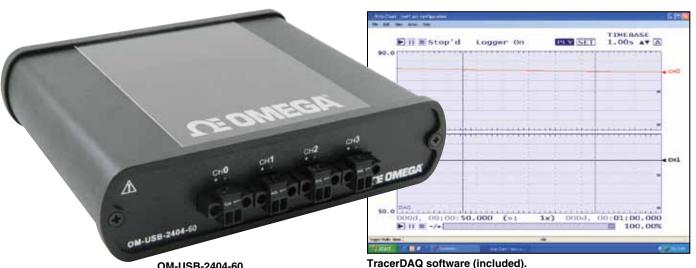
OM-USB-2404 Series

1 YEAR WARRANTY CE

- ✔ **Four 24-Bit Analog Voltage Inputs**
- ✔ **Simultaneous Sampling**
- ✔ **±10 V (OM-USB-2404-10) or ±60 V (OM-USB-2404-60) Input Range**
- ✔ **50 kS/s Per Channel Sampling Rate**
- ✔ **250 Vrms Channel-to-Channel and Channel-to-Ground Isolation**
- ✔ **Four 2-Pole, Detachable Screw Terminals**
- ✔ **Anti-Alias Filter**
- ✔ **No External Power Supply Required**

OM-USB-2404-10

Both models shown smaller than actual size.

OM-USB-2404-60

TracerDAQ software (included).

The new OM-USB-2404 Series are high-speed USB data acquisition modules featuring four 24-bit simultaneous analog voltage inputs with a sampling rate of 50 kS/s per channel, and a ±10V (OM-USB-2404-10) or ±60V (OM-USB-2404-60) input range. These modules are fully compatible with both USB 1.1 and USB 2.0 ports. An anti-alias filter removes noise that may be present in the signals prior to conversion.

Full 250 Vrms channel-to-channel and channel-to-ground isolation protects the module and computer from ground spikes, and ensures a reliable data stream. An on-board LED indicates the status of the device. Field connections are made to four 2-pole, detachable screw terminals. The USB 2.0 high-speed driver transfers data at rates up to 480 Mbps.

Power for the OM-USB-2404 Series comes from the 5V USB supply from your computer. No external power is required.

Software

The OM-USB-2404 Series modules ship with an impressive array of software, including the new TracerDAQ®, a full-featured, out-of-the-box data logging, viewing, and analysis application. Driver support and detailed example programs are included for Universal Library programming libraries for Microsoft® Visual Studio® programming languages, and other languages, including DASYLab®, and ULx for NI LabVIEW® (comprehensive library of VIs and example programs compatible with 32-bit and 64-bit LabVIEW v8.5 through 2013) and InstaCal™ installation, calibration and test utility-powerful solutions for programmers and nonprogrammers alike. These modules operate under Microsoft Windows® XP (32-bit only) and VISTA/7/8 (32-bit and 64-bit) operating systems.

SPECIFICATIONS

ANALOG INPUT
Number of Channels: 4
A/D Converter Resolution: 24-bit
A/D Converter Type: Delta-Sigma with analog pre-filtering
Sampling Mode: Simultaneous
Sample Rate Range (f_s)
  Minimum: 1.613 kS/s
  Maximum: 50 kS/s
  Full performance requires connections to a USB 2.0 high-speed host controller and USB 2.0 high-speed hubs. The maximum sample rate may be lower on USB 1.1 ports.
Sample Rates (f_s): (f_M/256)/n, where n = 1, 2, … 31
Internal Master Timebase (f_M)
  Frequency: 12.8 MHz
  Accuracy: ±100 ppm maximum
Input Voltage Ranges (CH+ to CH-)
  OM-USB-2404-10: ±10V, nominal
                ±10.52V, typical
                ±10.3V, minimum
  OM-USB-2404-60: ±60V, nominal
                ±62.64V, typical
                ±61.5V, minimum
Overvoltage Protection: ±100 V
Input Coupling: DC
Input Impedance (CH+ to CH-): 1 MΩ
Input Noise
  OM-USB-2404-10: 70 μV rms
  OM-USB-2404-60: 320 μV rms
Gain Drift: ±5 ppm/ºC
Offset Drift
  OM-USB-2404-10: ±24 μV/ºC
  OM-USB-2404-60: ±150 μV/ºC
Post Calibration Gain Match (Channel-to-Channel, 20 kHz): 0.22 dB maximum
Crosstalk (1 kHz): -130 dB
Phase Mismatch (Channel-to-Channel)
  OM-USB-2404-10: 0.075º/kHz maximum
  OM-USB-2404-60: 0.045º/kHz maximum
Phase Nonlinearity (f_s = 50 kS/s): 0.11° maximum
Input Delay
  OM-USB-2404-10: 38.4/f_s +3 μs
  OM-USB-2404-60: 38.4/f_s +2.6 μs
Passband Frequency: 0.453 · f_s
Passband Flatness (f_s = 50 kS/s): ±100 mdB maximum
Stopband Frequency: 0.547·f_s
Stopband Rejection: 100 dB
Alias-Free Bandwidth: 0.453·f_s
-3 dB Pre-Filter Bandwidth (f_s = 50 kS/s): 24.56 kHz
Common Mode Rejection Ratio (CMRR), f_{in} = 60 Hz:
  OM-USB-2404-10: 126 dB
  OM-USB-2404-60: 116 dB
Spurious Free Dynamic Range (SFDR), 1 kHz, -60 dBFS: -128 dBFS

Total Harmonic Distortion:
  1 kHz, -1 dBFS: -99 dB
  1 kHz, -20 dBFS: -105 dB

ANALOG INPUT ACCURACY

Measurement Conditions	Percent of Reading (Gain Error)	Percent of Range (Offset Error)*
Calibrated maximum (-0 to 60ºC)	±0.13%	±0.05%
Calibrated typical (25ºC, ±5ºC)	±0.03%	±0.008%
Uncalibrated maximum (-0 to 60ºC) for OM-USB-2404-10	±1.4%	±0.67%
Uncalibrated maximum (-0 to 60ºC) for OM-USB-2404-60	±1.2%	±0.55%
Uncalibrated typical (25ºC, ±5ºC)	±0.3%	±0.11%

*The range is equal to 10.52 V for OM-USB-2404-10. The range is equal to 62.64 V for OM-USB-2404-60.

GENERAL
Operating Temperature Range: 0 to 60°C (32 to 140°F), 10 to 90% RH non-condensing
Storage Temperature Range: -40 to 85°C (-40 to 185°F), 5 to 95% RH non-condensing
Communications: USB 2.0 Hi-Speed mode (480 Mbps) is recommended; otherwise USB 1.1 full-speed mode (12 Mbps)
Current Consumption From USB: 500 mA maximum
Channel-to-Earth Ground Isolation
  Continuous: 250 Vrms (measurement category II for measurements performed on circuits directly connected to the electrical distribution system)
  Withstand: 2300 Vrms (verified by a 5 second dielectric withstand test)
Channel-to-Channel Isolation
  Continuous: 250 Vrms (measurement category II for measurements performed on circuits directly connected to the electrical distribution system)
  Withstand: 1390 Vrms (verified by a 5 second dielectric withstand test)
Signal I/O Connector: Screw terminals
Screw Terminal Wiring: 16 to 28 AWG copper conductor wire with 7 mm (0.28") of insulation stripped from the end
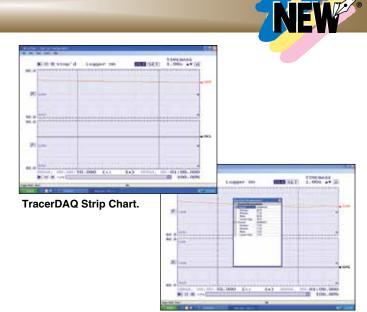**Torque for Screw Terminals:** 0.22 to 0.25 N·m (1.95 to 2.21 lb·in)
Maximum Altitude: 2000 m (6562')
Dimensions: 114 L x 140 W x 38 mm H (4.5 x 5.5 x 1.5")
Weight: 544 grams (1.2 lb)

The OM-USB-2404 Series data acquisition modules are supplied with TracerDAQ® software which is a collection of four virtual instrument applications used to graphically display and store input data and generate output signals:

- Strip Chart—Log and graph values acquired from analog inputs, digital inputs, temperature inputs and counter inputs
- Oscilloscope—Display values acquired from analog inputs
- Function Generator—Generate waveforms for analog outputs
- Rate Generator—Generate waveforms for counter outputs

TracerDAQ PRO is an enhanced version of TracerDAQ. A comparison of some of the features included in TracerDAQ vs TracerDAQ PRO is shown below.

TracerDAQ Strip Chart.

TracerDAQ PRO Strip Chart with Measurements.

Features Comparison

Strip Chart

Feature	TracerDAQ	TracerDAQ PRO
Channel Types	Analog input, temperature input, digital input, event counter	Analog input, temperature input, digital input, event counter
Number of Channels	8	48
Number of Lanes	2	8
Maximum Samples per Channel	32,000	1 million
Alarm Conditions	No	Yes
Measurements Window	No	Yes
Enter Annotations	No	Yes
Software Triggering	No	Yes
Hardware Triggering	No	Yes
Time-of-Day Triggering	No	Yes
Linear Scaling	No	Yes

Oscilloscope

Feature	TracerDAQ	TracerDAQ PRO
Channel Type	Analog input	Analog input
Number of Channels	2	4
Measurements Window	No	Yes
Reference Channel	No	Yes
Math Channel	No	Yes

Function Generator

Feature	TracerDAQ	TracerDAQ PRO
Channel Type	Analog output	Analog output
Number of Channels	1	16
Waveform Types	Sine	Sine, square, triangle, flat, pulse, ramp, random, arbitrary
Duty Cycle	No	Yes
Phase	No	Yes
Gate Ratio	No	Yes
Rate Multiplier	No	Yes
Sweep (Linear and Exponential)	No	Yes

Rate Generator

Feature	TracerDAQ	TracerDAQ PRO
Channel Type	Counter output	Counter output
Number of Channels	1	20

NEW

OM-USB-2404-10

OM-USB-2404-60

**Both models shown
smaller than actual size.**

TracerDAQ software (included).

OMEGACARE[SM] *extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE*[SM] *covers parts, labor and equivalent loaners.*

To Order

Model No.	Description
OM-USB-2404-10	4-channel analog voltage input USB data acquisition module, ±10V range
OM-USB-2404-60	4-channel analog voltage input USB data acquisition module, ±60V range
OM-ACC-102	2-position connector kit for the OM-USB-2404-10 and OM-USB-2404-60 (pack of 10)
OM-ACC-160	Backshell kit for the OM-USB-2404-10 and OM-USB-2404-60 (includes 4 backshells)
SWD-TRACERDAQ-PRO	TracerDAQ PRO software

Comes complete with 2 m (6') USB cable and TracerDAQ software and user manual on CD.

Ordering Example: OM-USB-2404-10 *4-channel analog voltage input USB data acquisition module, ±10V range and* **OCW-1,** *OMEGACARE* [SM] *extends standard 1-year warranty to a total of 2 years.*