OMB-DAQSCAN-2000 Series

Ethernet-Based Data Acquisition System Components

OMB-DAQSCAN-2005, $1999, front and back, shown smaller than actual size

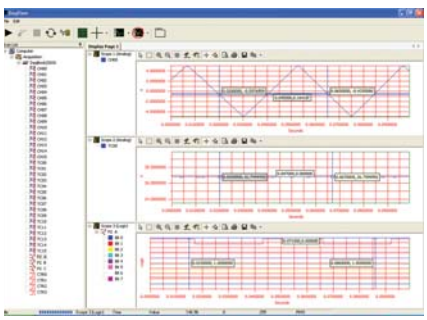
$1999
Basic Unit

1 YEAR WARRANTY | OMEGACARE Extended Warranty Program | CE

- **Adds Analog I/O, Digital I/O and Frequency I/O to Ethernet-Based Test Systems**
- **All I/O Can Be Synchronous, Enabling Precise Timing Between Various I/O Functions**
- **8 Differential or 16 Single-Ended Inputs, Expandable up to 256 Voltage or 896 Thermocouple Channels Using Signal Conditioning and Expansion Options**
- **Up to 40 Built-In TTL-Level Digital I/O, Expandable Up to 256 Channels of Isolated I/O Using Low-Cost Isolation Modules**
- **Includes Support for Visual Basic, C/C++, Windows 98/2000/ME/XP/VISTA ActiveX/COM, LabVIEW, MATLAB and DASYLab**
- **Convenient 1U high 19" Rack-Mount Package Minimizes Rack Space in Test Systems**
- **Includes Out-of-the-Box DaqView Software to Facilitate Signal and Wiring Verification with No Programming Required**

The OMB-DAQSCAN-2000 Series of Ethernet-based data acquisition system components provides analog, digital and frequency I/O capability for Ethernet-based test systems.

All OMB-DAQSCAN-2000 models are packaged in a 1U high-full rack package and include a rack-mount kit that can attach to either the front or the rear of the enclosure. Multiple OMB-DAQSCAN models can be combined in the same system and synchronized using a simple SYNC connection between units. All I/O is accessed via female DB37 connectors located at the rear of the unit, making cabling easy from the OMB-DAQSCAN-2000 to your device-under-test.



DaqView Software Real-Time Chart

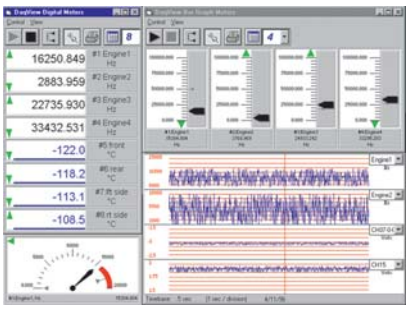
The OMB-DAQSCAN-2000 Series includes comprehensive drivers for all popular Windows-based environments, including Visual Basic, C/C++, ActiveX/COM, LabVIEW, MATLAB, and DASYLab.

OMB-DAQSCAN-2000 Series Selection Chart					
Model Number	Analog Inputs	Dgital I/O	Frequency/Pulse Inputs	Timer Outputs	Analog Outputs
OMB-DAQSCAN-2001	16 single-ended/8 differential	40	4	2	4
OMB-DAQSCAN-2005	16 single-ended/8 differential	40	4	2	0

Also included with the OMB-DAQSCAN-2000 Series is DaqView, an interactive spreadsheet-style application that is ideal for verifying signal connections during system design.

The compact 1U high 19" rack packaging of the OMB-DAQSCAN-2000 make it a compact component for rack-based systems. In addition to the built-in I/O provided by the OMB-DAQSCAN-2000 Series, a wide variety of signal conditioning and expansion options are available.

Below are some sample systems that can be derived from the OMB-DAQSCAN-2000 along with OMB-DBK options.



DaqView Software Real-Time Display

High Channel Count Thermocouple Measurements

When combined with the OMB-DBK90 thermocouple input module, the OMB-DAQSCAN-2000 Series can measure up to 896 channels of T/C input. In the example system to the right, any T/C type can be installed into any channel using standard mini T/C connectors. Each 56-channel OMB-DBK90 option consumes 2U of rack space and can be mounted on the front or rear of the rack chassis. Built-in cold junction compensation coupled with T/C conversion algorithms built into the software make temperature measurements easy. Thermocouples are measured at 1 ms/channel in a system based on the OMB-DBK90.

The 168 TC channel system consists of one OMB-DAQSCAN-2005 plus three OMB-DK90 modules with rack-mount kits

High-Isolation Voltage and Thermocouple Measurements

The OMB-DAQSCAN can be combined with the OMB-DBK207/CJC options to create an isolated system capable of measuring up to 256 channels of voltage, thermocouple, RTD and strain gage inputs. All input channels can be scanned up to 200 kHz and are isolated by 500 V from other channels and from system common. Any combination of input signals is possible by selecting the appropriate OM5 signal conditioning module for the OMB-DBK207/CJC.

OMB-DBK207/CJCs can be mounted at the front or rear of the rack. They attach to the OMB-DAQSCAN via a simple OMB-CA-37-10 cable.

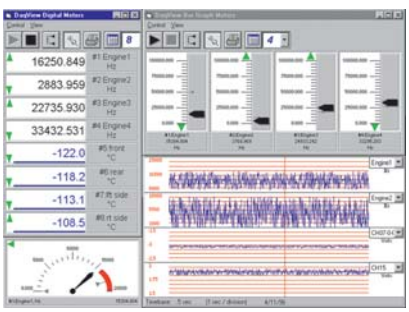
The 24-channel isolated system includes an OMB-DAQSCAN-2005 plus two OMB-DBK207/CJC boards. The system is capable of scanning all channel and provides 500 V isolated for all inputs

High-Speed Voltage Measurement System

The OMB-DAQSCAN-2005 can be combined with OMB-DBK85 16-channel voltage input modules to build a 5 µs/channel voltage measurement system with up to 256 channels. All inputs can have a different software programmable input range, from 156 mV FS to 10 V FS, programmable on a per-channel basis. The 16 BNC inputs on the OMB-DBK85 can be accessed from either the front or the rear of a rack system.

The 80-channel high-speed scanning system consists of an OMB-DAQSCAN-2005 plus five OMB-DBK85 16-channel voltage scanning modules. All channels can be measured at the maximum rate of 5 µs/channel

OMB-DAQSCAN-2005, $1999, front and back, shown smaller than actual size



DaqView Software Real-Time Display

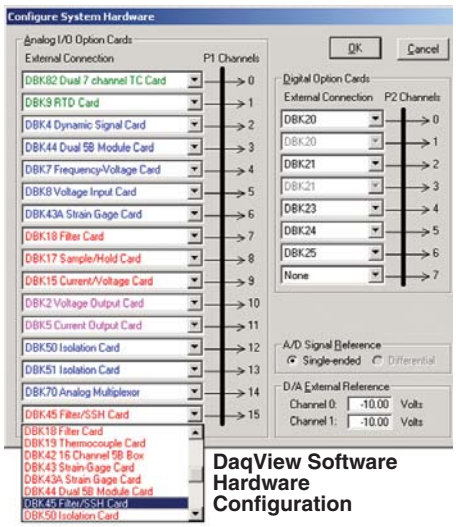
1 YEAR WARRANTY · OMEGA CARE Extended Warranty Program · CE

Multifunction I/O System

All of the foregoing capabilities can be combined into a single system using one OMB-DAQSCAN-2001 as the system centerpiece.

The system provides 56 non-isolated TC inputs, 16 isolated voltage inputs, 4 analog outputs, 4 frequency inputs and 32 isolated discrete high-volage outputs.

Shown from top to bottom with 1 OMB-DBK208 screw-terminal board, 1 OMB-DBK207, 1 OMB-210, 1 OMG-DBK90 and 1 OMB-DBK85



DaqView Software Hardware Configuration

Specifications

GENERAL

Supply Voltage Range: 90 to 250 Vac
Power Required: 15 W (assuming no OMB-DBK options)
Operating Temperature: 0 to 50°C (32 to 122°F)
Storage Temperature: -40 to 80°C (-40 to 176° F)
Relative Humidity: 0 to 95%, non-condensing
Signal I/O Connector: DB37 male for P1, P2 and P3
Dimensions: 425 W x 220 D x 45 mm H (16.75 x 8.5 x 1.75")
Weight: 2.3 kg (5 lbs)
Power Available for External DBK Options: 10W

A/D SPECIFICATIONS

Type: Successive approximation
Resolution: 16-bit
Conversion Time: 5 µs
Maximum Sample Rate: 200 kHz
Non-linearity (Integral): ±1 LSB
Non-linearity (Differential): No missing codes

ANALOG INPUTS

Channels
OMB-DAQSCAN-2001, OMB-DAQSCAN-2005: 16 single-ended or 8 differential, programmable on a per-channel basis as single-ended or differential and unipolar or bipolar
Expansion: Up to 896 TC channels when used with OMB-DBK90 expansion option (1 ms/channel), or up to 256 channels when used with all other expansion options (5 µs/channel)
Settling Time: 5 µsec to 1 LSB for full-scale step
Temperature Coefficient: ±(10 ppm +0.3 LSB)/˚C outside the range of 0 to 35°C
Input Impedance: 10 MΩ (single-ended), 20M Ω (differential)

Voltage Range*	Accuracy** One Year, 0 to 35°C (% reading + % range Absolute
0 to +10 V	0.015 + 0.005
0 to +5 V	0.015 + 0.005
0 to +2.5 V	0.015 + 0.005
0 to +1.25 V	0.015 + 0.008
0 to +0.625 V	0.015 + 0.008
0 to +0.3125 V	0.015 + 0.008
-10 to +10 V	0.015 + 0.005
-5 to +5 V	0.015 + 0.005
-2.5 to +2.5 V	0.015 + 0.005
-1.25 to +1.25 V	0.015 + 0.005
-0.625 to +0.625 V	0.015 + 0.008
-0.3125 to +0.3125 V	0.015 + 0.008
-0.156 to +0.156 V	0.02 + 0.008

** Specifications ussume differential input single channel scan, 2000 kHz scan rate, unfiltered*
*** Accuracy specficiation is exclusive of noise*

Bias Current: <1nA (0 to 35°C)
Common Mode Rejection: 86 dB, DC to 60 Hz for gains < = 8; >100 dB for gains > = 16
Maximum Input Voltage (Without Damage): ±11 V relative to analog common
Over-Voltage Protection: ±35 V
Ranges: Software or sequencer-selectable on a per-channel basis
Crosstalk: -100 dB DC to 60 Hz; 86 dB @ 10 kHz

INPUT SEQUENCER

Analog, digital and frequency inputs can be scanned synchronously, based on either an internal programmable timer or an external clock source.
Scan Clock Sources: 2
1. Internal, programmable from 5 µs to 5.96 hours in 1 µs steps
2. External, TTL level input up to 200 kHz max:
Programmable parameters per scan: Channel (random order), gain, unipolar/bipolar
Depth: 16,384 locations
On-Board Channel-to-Channel Scan Rate: 5 or 10 µs per channel, programmable
Expansion Channel Scan Rate: 5 µs, 10 µs, or 1000 µsec per channel, programmable

External Acquisition Scan Clock Input

Maximum Rate: 200 kHz
Clock Signal Range: 0 V to 5 V
Minimum Pulse Width: 50 ns high, 50 ns low
External SYNC Port: Available on rear panel, allows multiple DaqScan units to be scan-synchronous (post trigger)

TRIGGERING

Trigger Sources: 6, individually selectable for starting and stopping an acquisition. Stop acquisition can occur on a different channel than start acquisition; stop acquisition can be triggered via modes 2, 4, 5 or 6, described below.

1. Single-Channel Analog Hardware Trigger
Any analog input channel can be software-programmed as the analog trigger channel, including any of the 256 analog expansion channels.

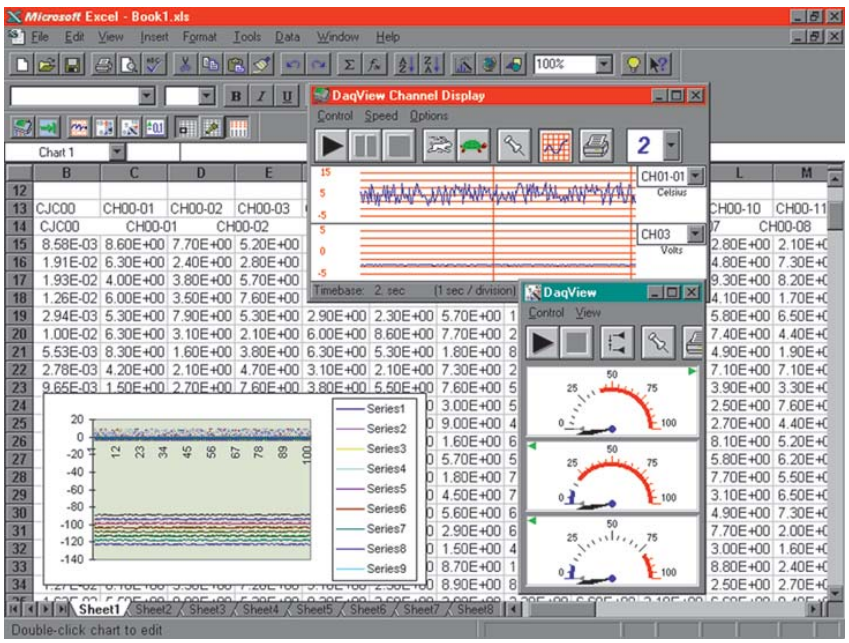
2. Single-Channel Analog Software Trigger
Any analog input channel, including any of the 256 analog expansion channels, can be selected as the software trigger channel. If the trigger channel involves a calculation, such as temperature, then the driver automatically compensates for the delay required to obtain the reading, resulting in a maximum latency of one scan period.

3. Single-Channel Digital Trigger
A separate digital input is provided for digital-triggering.

4. Digital Pattern Triggering
8- or 16-bit pattern triggering on any of the digital input ports. Programmable for trigger on equal, above, below, or within/outside of a window. Individual bits can be masked for “don’t care” condition.

5. Counter/Totalizer Triggering
Counter/totalizer inputs can trigger an acquisition. User can select to trigger on a frequency or on total counts that are equal, above, below or within/outside of a window.

6. Software Triggering
Trigger can be initiated under program control.



DaqView-Software includes an Excel add-on for seamless execution with Microsoft Excel’s tool palette

ANALOG OUTPUT (MODELS OMB-DAQSCAN-2001 AND OMB-DAQSCAN-2004)

The four analog output channels are updated synchronously relative to scanned inputs, and clocked from either an internal onboard clock or an external clock source. Analog outputs can also be updated asynchronously, independent of any other scanning in the system.
Channels: 4
Resolution: 16-bits
Data Buffer: 256 Ksample
Output Voltage Range: ±10 V
Output Current: ±10 mA
Offset Error: ±0.0045 V max
Digital Feedthrough: 50 mV when updated
Gain Error: ±0.01%
Update Rate: 100 kHz max, 1.5 Hz min (no minimum with external clock)
Settling Time: 10 µsec max to 1 LSB for full-scale step
Clock Sources: 4, programmable
1. Onboard D/A clock, independent of scanning input clock
2. Onboard scanning input clock
3. External D/A input clock, independent of external scanning input clock
4. External scanning input clock

DIGITAL I/O

Channels: 40, expandable up to 272 with external digital OMB-DBK options
Input Scanning Modes: 2
1. Asynchronous, under program control at any time relative to input scanning
2. Synchronous with input scanning

Ports: 3x 8-bit (82C55 emulation), and 1x 16-bit; each port is programmable as input or output
Input Protection: ±8 KV ESD clamp diodes parallel
I/O Levels: TTL
Sampling Rate: 200 kHz max
Update Rate: Asynchronous under program control

FREQUENCY/PULSE COUNTERS

Counter inputs can be scanned synchronously along with analog and digital scanned inputs, based either on internal programmable timer or an external clock source. Counters can be configured to clear when read or to totalize and clear under program control.
Channels: 4x 16-bit; cascadable as 2x 32-bit
Frequency Measurement Rate: 10 MHz max
Input Signal Range: -15 V to 15 V
Trigger Level: TTL

ALL MODELS AVAILABLE FOR FAST DELIVERY!

To Order *(Specify Model Number)*		
Model Number	**Price**	**Description**
OMB-DAQSCAN-2001	**$2499**	Ethernet system with 16 single-ended/8 differential 250 Khz 16-bit analog inputs, 40 digital I/O, 4 analog outputs, 4 frequency/pulse counters and 2 frequency/pulse generators
OMB-DAQSCAN-2005	**1999**	Ethernet system with 16 single-ended/8 differential 250 Khz 16 bit analog inputs, 40 digital I/O, 4 frequency/pulse counters and 2 frequency/pulse generators

All OMB-DAQSCAN-2000 models include 10/100 BaseT Ethernet interface, Daqview Software, drivers for LabVIEW, DASYLab, C++, Visual Basic and ActiveX/COM; DB37 connectors, external SYNC, complete operator's manual on CD ROM and rack-mount kit also included.

Ordering Example: OMB-DAQSCAN-2005, *Ethernet system and* ***OMEGACARE*** [SM] *1 year extended warranty (adds 1 year to standard 1 year warranty) for* ***OMB-DAQSCAN-2005*** *and* ***OMB-DBK206*** *screw-terminal board and* ***OMB-CA-37-1*** *cable, $1999+ 150 + 249 + 51 =* ***$2449****.*

Terminal Panels Expansion/Signal Conditioning Options

Model Number	Price	Description
OMB-DBK84*	**$1099**	14-channel thermocouple/mV input module, requires OMB-CA-37-x cable
OMB-DBK90*	**1699**	56-channel thermocouple input module, requires OMB-CA-37-x cable
OMB-DBK85*	**899**	16-channel differential input module with BNC connectors, requires OMB-CA-37-x cable
OMB-DBK207/CJC*	**399**	16-channel isolated Analog Signal Conditioning, requires OM5 signal conditioning modules and OMB-CA-137-x cable
OMB-DBK208	**219**	16-channel isolated discrete I/O signal conditioning, requires isolated I/O modules and OMB-CA-137-x cable
OMB-DBK206	**249**	Screw terminal board, requires OMB-CA-37-x cable

** Used with OMB-DAQSCAN's analog inputs, i.e., OMB-DAQSCAN-2001 and OMB-DAQSCAN-2005*

Cables and Rack Mount Kits

Model Number	Price	Description
OMB-CA-37-1	**$51**	37-pin cable, 7" long, connects OMB-DAQSCAN to expansion panels

Minimum Pulse Width: 50 ns high, 50 ns low
Channels: 4x 16-bit; cascadable as 2x 32-bit
Frequency Measurement Rate: 10 MHz max
Input Signal Range: -15 V to 15 V
Trigger Level: TTL
Minimum Pulse Width: 50 ns high, 50 ns low
FREQUENCY/PULSE GENERATORS
Channels: 2x 16-bit
Output Waveform: Square wave
Output Rate: 1 MHz base rate divided by 1 to 65,535 (programmable)
High-Level Output Voltage: 2.0 V min @ -3.75 mA 3.0 V min @ -2.5 mA
Low-Level Output Voltage: 0.4 V max @ 2.5 mA

Other Compatible Signal Conditioner/Expansion Modules and Cards

Model Number	Price	Description
OMB-DBK2	**649**	4-channel D/A voltage-output card
OMB-DBK4	**999**	2-channel dynamic signal-input card
OMB-DBK5	**519**	4-channel current output card
OMB-DBK7	**749**	4-channel frequency-input card
OMB-DBK8	**749**	8-channel high-voltage input card
OMB-DBK9	**549**	8-channel RTD Measurement card
OMB-DBK15	**649**	Universal current/voltage input card
OMB-DBK16	**649**	2-channel strain-gage card
OMB-DBK20	**209**	48-line digital I/O card with screw-terminal connectors
OMB-DBK21	**209**	48-line digital I/O card with screw-terminal connectors
OMB-DBK24	**549**	24-line optically isolated digital-output module
OMB-DBK43A	**2799**	8-channel strain-gage module
OMB-DBK50	**2099**	8-channel isolated voltage-input module
OMB-DBK80	**549**	16-channel differential input voltage card

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