



Direct Connect Board with High Isolation



Model OMD-5508SCI

\$1575
Basic Unit

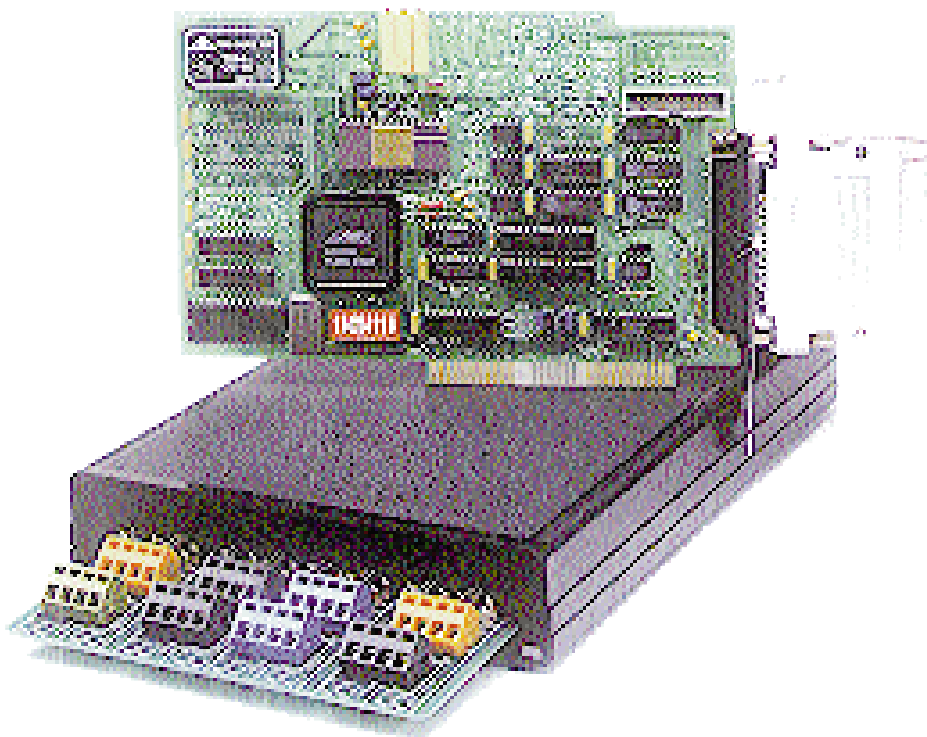
- ✓ 1500 V Isolation
- ✓ Choice of Input Type Per Channel:
Thermocouple, Strain Gage, Load Cell, 4 to 20 mA, ± 50 mV, ± 10 V
- ✓ 100 kHz A/D
- ✓ Software Programmable DMA and Interrupts
- ✓ Software Programmable Ranges
- ✓ Anti-Alias Filtering Options (Special Order)

GENERAL

The OMD-5508SCI is a complete data acquisition system on a plug-in PC board. The OMD-5508SCI combines all the functions of external analog signal conditioning, isolation modules, module panels, power supplies, cabling, and the A/D converter into one product. The OMD-5508SCI consists of a high performance plug-in PC A/D board, and a detachable isolated screw terminal panel configured for most types of transducer inputs on a channel-to-channel basis. In addition, when used in anti-alias filtering applications, the OMD-5508SCI's filtering option completely eliminates the need for expensive external filter boxes or accessories.

SIGNAL CONDITIONING

The OMD-5508SCI contains 8 (expandable to 32) high performance isolated analog inputs, user specified for transducer input type. Thermocouple, strain gage, 4 to 20 mA, ± 50 mV and ± 10 V inputs are configured on a per channel basis, allowing a custom match to user applications. As with all OMD-5508 products, the OMD-5508SCI provides a complete solution. The OMD-5508SCI includes everything required to wire directly to the screw terminal panel. On-board cold junction compensation for thermocouples, precision bridge completion and excitation voltage for strain



gages, completely eliminate the need for external accessories, or user-supplied circuitry.

ANTI-ALIAS FILTERING

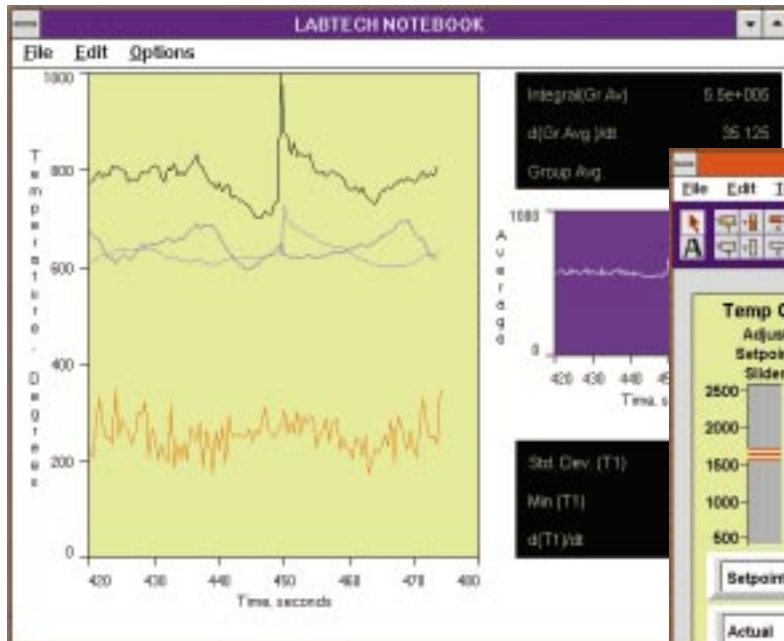
For applications that have the potential for signal alias problems, the OMD-5508SCI can be ordered with integral 10 pole anti-alias filtering. Available as either Bessel or Butterworth filtering, the OMD-5508SCI cut-off frequency is user specified from 2 Hz to 20 kHz (special order only).

LAB TO FACTORY

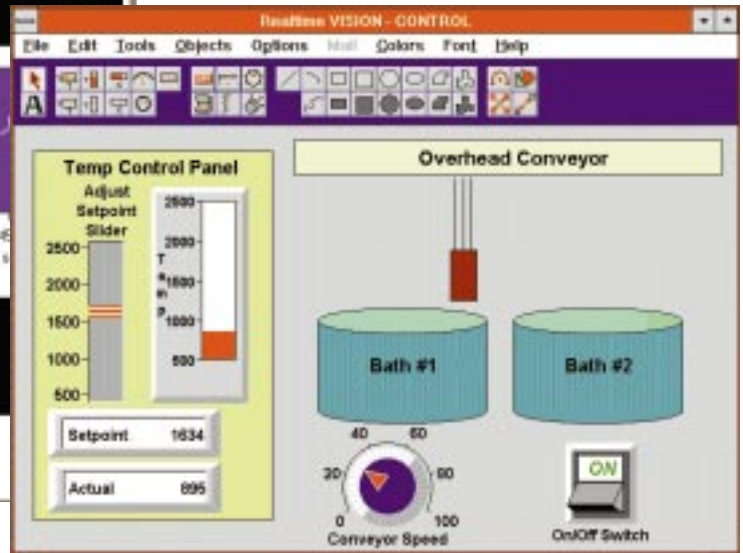
The OMD-5508SCI design flexibility provides the perfect solution for both small channel I/O applications in the laboratory and large scale I/O systems for process control. Over one hundred boards can be interfaced to a single PC to create an industrial I/O system completely contained on the industry standard PC/XT/AT bus.

SIGNAL CONNECTION

The OMD-5508SCI board works with the OMD-DC-SCI mating screw termination panel complete with 1500 V isolation and all necessary signal conditioning to accept transducer field wiring directly. To facilitate ease in wiring and customer use, the OMD-DC-SCI has color coded screw terminals which indicate input transducer type.



Labtech Notebook and Labtech Control are supported.



Shown smaller than actual size.

The OMD-DC-SCI isolated screw termination panel can be either mounted directly to the OMD-5508SCI board at the rear of the PC, or the user can remote the panel with the optional OMD-G37 ribbon cable.

SOFTWARE SUPPORT

For those users writing their own programs, driver software is available. ADLIBPC provides the custom programmer with high level, callable subroutines that allow access to all the I/O functions on the OMD-5508SCI boards. ALDIBPC supports a wide selection of DOS based programming languages including Microsoft Fortran, Pascal, GW-BASIC, Quick BASIC, Quick C and C. Borland Turbo C, C++ and Turbo Pascal are also supported.

For an off-the-shelf software solution, the OMD-5508SCI is also supported by Labtech Notebook and Labtech Control Software.

Specifications

INPUT CHARACTERISTICS

THERMOCOUPLE & MV INPUTS

OMD-TCI

Isolation: 1500 V input-to-output, 750 V channel-to-channel

Cold Junction Compensation: software selectable for J, K, T, E, R, S, B or none (for straight mV inputs) on a channel-to-channel basis

Open Thermocouple Detection: broken T/C wire produces + full scale

Fixed Channel Gain: x200 (prior to prog. A/D gain)

Programmable Input Ranges: 50 mV, 25 mV, 10 mV, 5 mV

Resolution: J-Type: 0.025°C at 0°C unipolar;
K-Type: 0.03°C at 0°C unipolar

OMD-TCI INPUT RANGE SETTINGS

Straight Millivolts

Unipolar: 0-50 mV, 0-25 mV, 0-10 mV, 0-5 mV

Bipolar: ±50 mV, ±25 mV, ±10 mV, ±5 mV

Type J Thermocouple: -210 to 760°C, -210 to 450°C, -210 to 180°C, -100 to 90°C

Type K Thermocouple: -270 to 1230°C, -270 to 600°C, -270 to 240°C, -150 to 120°C

Type T Thermocouple: -270 to 400°C, -270 to 210°C, -160 to 110°C

Type E Thermocouple: -270 to 660°C, -270 to 350°C, -270 to 150°C, -90 to 80°C

Type R Thermocouple: 0 to 1760, 0 to 960°C, 0 to 540°C

Type S Thermocouple: 0 to 1760, 0 to 1030°C, 0 to 570°C

Type B Thermocouple: 0 to 1820°C, 0 to 1490°C, 0 to 1010°C

STRAIN GAGE & LOAD CELL INPUTS

OMD-BGI

Isolation: 1500 V input-to-output, 750 V channel-to-channel

Excitation Voltage: 10.000 V, 5.000 V, 2.500 V; jumper selectable per channel

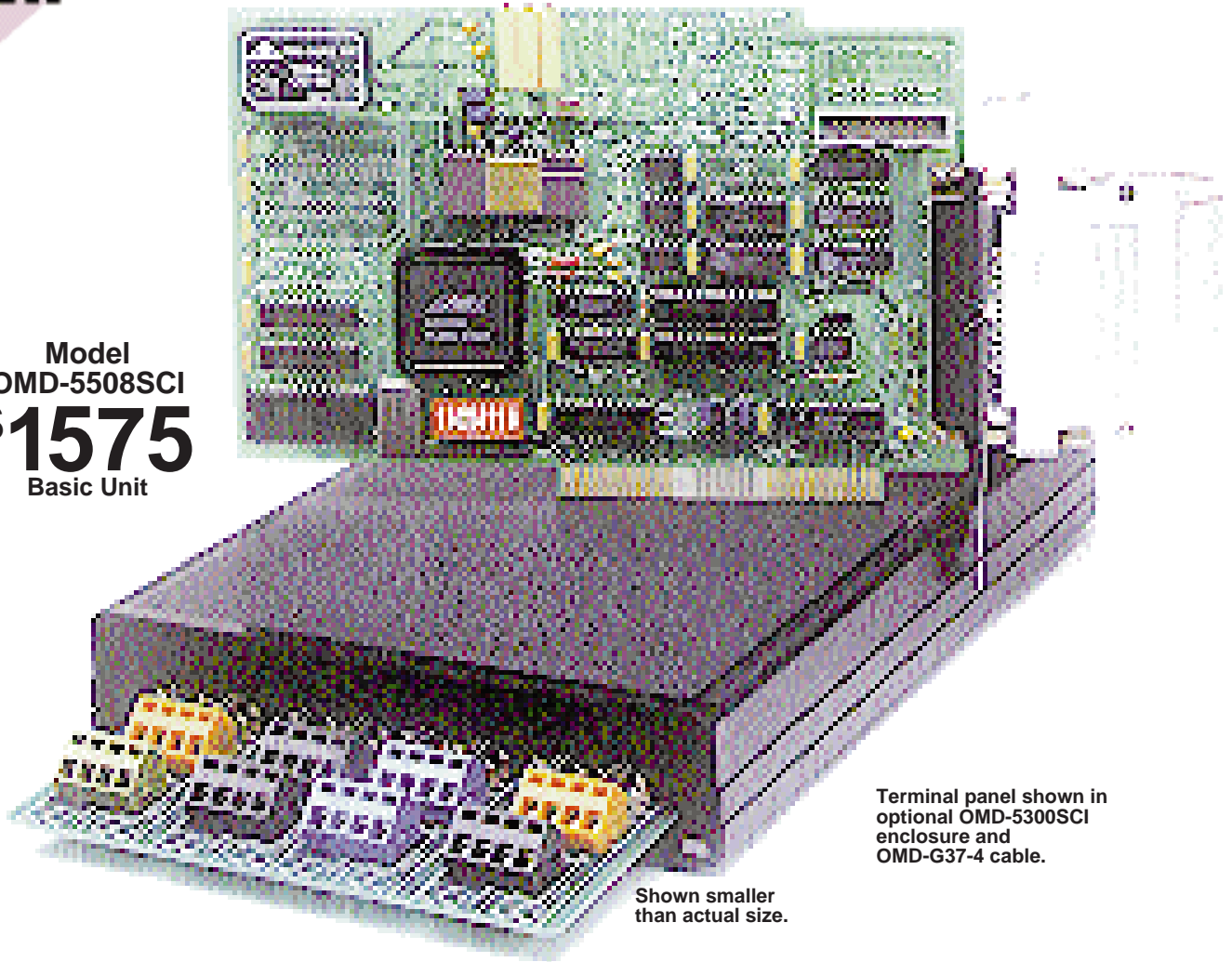
Voltage Error: adjustable to zero

Temperature Drift: 30 ppm/°C



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Terminal panel shown in optional OMD-5300SCI enclosure and OMD-G37-4 cable.

Shown smaller than actual size.

Power Source: isolated on-board or user supplied unregulated 15 V
Fixed Channel Gain: x250 (prior to programmable A/D gain)
Programmable Input Ranges: 40 mV, 25 mV, 8 mV, 4 mV
Resolution: 0.4 μ strain Unipolar, 5.0 V Exc., GF2, 1/4 bridge
Type of Measurement: bridge completion circuit with Quarter, Half, or Full bridge configuration
Resistance: 350 or 120 Ω operation

HIGH LEVEL (± 10 V) INPUTS

OMD-HLI

Isolation: 1500 V input-to-output, 750 V channel-to-channel
Input Type: ± 10 Vdc
Programmable Input Ranges
Bipolar: ± 10 V, ± 5 V, ± 2 V, ± 1 V (software selectable)
Unipolar: 0-10 V, 0-5 V, 0-2 V, 0-1 V (software selectable)
Resolution: 244 μ V unipolar, 0-1 V

4-20MA CURRENT LOOP INPUTS

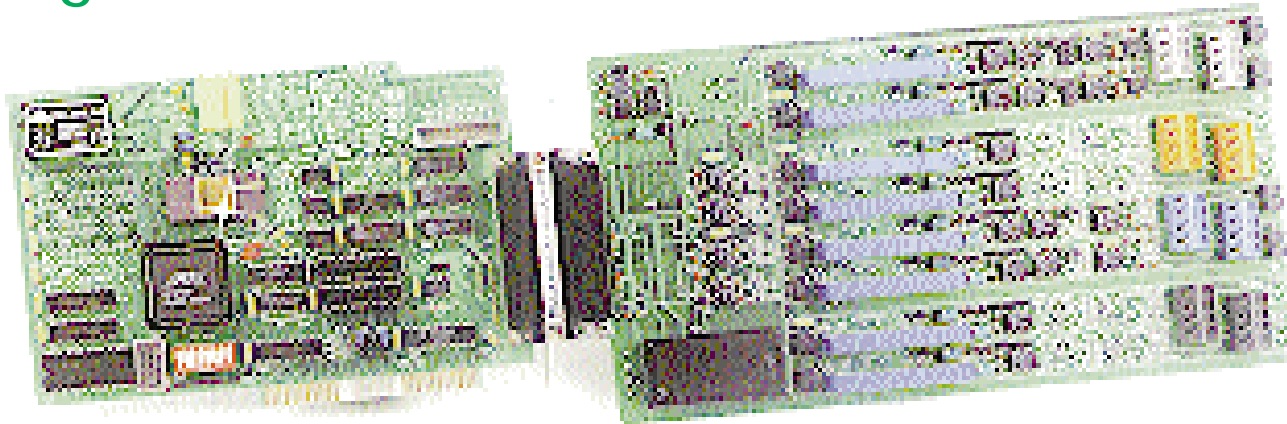
OMD-CLI

Isolation: 1500 V input-to-output, 750 V channel-to-channel
Input Type: 4 to 20 mA current loop
Input Range: 0 to 20 mA
Resolution: 4.88 μ Amps unipolar, 0 to 1 V
Channel to Channel Offset: ± 3 μ V
Noise Referred to Input: 10 μ V peak-to-peak max.
Screw Terminations (all models)
DC-SCI: 5.25" x 10.2" (13.34 cm x 25.91 cm) PC board with 36 clamping terminals to accept 14-22 AWG wire

GENERAL

Function: high speed, 8 channel analog to digital converter with programmable converter with programmable gain, DMA, interrupts, and on-board A/S counter/timer; Half-size for the IBM PC/286/386/486 (or compatible) series of computers
Bus Interface: the OMD-5508SCI is designed to plug directly into the IBM PC/XT/AT or true compatible bus
A/D Converter
Number of Inputs: 8 fully differential

High Isolation



Resolution: 12 bits
Linearity: $\pm 1/2$ LSB
Differential Linearity (No Missing Codes): 12-bits
A/D Conversion Time: 10 μ seconds
Multiplexer Settling Time: 10 μ seconds
Max. Acquisition Rate: single channel 100 kHz; hardware channel sequencing (0-n): 100 kHz aggregate; software control of gain and channel: 50 kHz aggregate
Input Range: bipolar (± 10 V, 5 V) or unipolar ($\pm 0-10$ V), jumper selectable
Programmable Gain: 1, 2, 5, 10
Data Coding: unipolar right justified, true binary bipolar two's complement, or offset binary
Gain Error: adjustable to zero
Gain Drift: ± 3 LSB over temperature range
Zero Error (Offset): adjustable to zero
Zero Drift: ± 1 LSB max
Signal to Noise and Distortion: 70 dB
Total Harmonic Distortion: 82 dB
Full Linear Bandwidth: 500 kHz
A/D Trigger
Source: on-board counter/timer (8254), or S/W trigger, (software selectable, external triggered)

MODES

Continuous: selected trigger causes one conversion for each trigger; multiplexer can be set for single channel or auto-increments of 2-8 channels
Frame: each external trigger or pulse from Timer 1 causes one auto-incrementing scan of 2-8 channels; channel-to-channel time set by on-board clock

OMD-5508SCI A/D Input Boards

To Order (<i>Specify Model Number</i>)		
Model No.	Price	Description
OMD-5508SCI-100-0-0-1	\$695	100 kHz sampling speed, no strain gage excitation
OMD-5508SCI-100-0-1-1	795	100 kHz sampling speed, with strain gage excitation

A/D boards do not include input terminal panels, order below. Each OMD-5508SCI board accepts up to 8 analog inputs with 1500 V isolation, 12-bit resolution, programmable gain, DMA and interrupts.

PHYSICAL & ENVIRONMENTAL

Dimensions: 122 x 183 mm (4.8" x 7.2")
Operating Ambient: 0 to 55°C (32 to 131°F)
Connector: 37-Pin "D" subminiature socket
Power Consumption (Typ.): +5 V @ 1.15 A

OMD-DC-SCI Screw Terminal Panels (Required for Each OMD-5508SCI Board)

To Order (<i>Specify Model Number</i>)		
Model No.	Price	Description
OMD-TCI-8	\$960	8-channel thermocouple input terminal board
OMD-BGI-8-(*)	1200	8-channel strain gage/load cell input terminal board; requires OMD-5508SCI-100-0-1-1 A/D board
OMD-HLI-8	880	8-channel high level voltage input terminal board
OMD-CLI-8	1120	8-channel current loop input terminal board

Custom terminal panels also available on special order; panel options include different input types per channel, and Bessel and/or Butterworth filtering. Consult engineering for complete details.

** Insert 120 or 350 for 120 or 350 Ω bridge completion.*

Expansion Boards and Accessories

To Order (<i>Specify Model Number</i>)		
Model No.	Price	Description
OMD-G37-4	\$75	Ribbon cable for remote connection of screw terminal board to OMD-5508SCI; not required for direct attachment applications; 4 ft length
ADLIBPC-3.5	\$50	Software drivers for the following DOS based languages: Microsoft FORTRAN, Pascal, GW-BASIC, Quick BASIC, C and QUICK C, IBM BASICA, Borland Turbo C, C++, Turbo Pascal (provided on 3.5" Disk)
OMD-5300SCI	45	Screw terminal panel enclosure; not required for direct attachment applications

Ordering example: OMD-5508SCI-100-0-0-1 A/D board, OMD-TCI-8 terminal panel, OMD-5300SCI enclosure and OMD-G37-4 cable, \$695 + 960 + 45 + 75 = \$1775.