MODULAR SIGNAL CONDITIONING SYSTEM
FOR STRAIN GAGE BRIDGES, mV, AND OTHER SENSOR SIGNALS

OM2 Series

👍 Compact, Light, and Convenient to Use
👍 Easy Access to All Trimpots
👍 Integral Bridge Completion Resistors
👍 Adjustable Bridge Sensor Excitation
👍 Adjustable Filter Frequency—AC or DC Operation
👍 Screw-Clamp Terminal Blocks

The OMEGA® OM2 modular signal conditioning system provides a low-cost, versatile method of interconnecting a variety of analog signals to measurement and control systems. OM2 modules interface directly with sensors and analog signal devices such as strain gages and mV output sensors. The module conditions the input signal to an amplified voltage output of ±10 Vdc, allowing longer signal transmission and interfacing with data acquisition products such as analog/digital cards, data loggers, PLCs, and chart recorders. The backplane includes a power supply (to power the modules) and rails for convenient mounting. All connections are easily made with a screwdriver.

The backplane is available with a 115 Vac, 230 Vac, or 10 to 36 Vdc power supply. The backplane and signal conditioner assembly afford a convenient, lightweight, and accurate method of multiple signal conditioning in instrumentation environments. The signal conditioning modules can also be used by themselves as single amplifier devices. An optional interface mounting block with screw terminations permits easy power and output signal hookup. A typical system includes 6 modules and 1 backplane/power supply assembly.

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OM2 Series

 Starts at $355

OM2-163, modules, $370 each, with OM2-8608, 8-position backplane, $520, shown smaller than actual size.

SGD Series strain gage, shown larger than actual size, see page E-12 for details.

PX209, pressure transducer, $195, shown smaller than actual size, see section B for details.

LC101, $305, shown actual size, see section F for details.
The OM2-162 is a complete signal conditioning system on a card designed expressly for either half- or full-bridge transducers. It consists of a high-performance instrumentation amplifier, a user-adjustable active filter, a high-stability bridge supply, and all the required circuity, trim pots, etc. To get a complete system up and running, the only required point-to-point wiring is for inputs, outputs, and power.

The unit provides coarse and fine gain-adjustment trim pots, along with input and output offset adjustments, DIP switches for setting the bridge supply output, and active low-pass filter cutoff frequency. There are also provisions for mounting a quarter-bridge completion resistor and a calibration resistor, which can be wired to an external CAL switch. Two close-tracking half-bridge completion resistors are included.

**SPECIFICATIONS**

**Gain Range:** 100 to 5000
(2 to 5000 with external resistor)

**External Resistor Calculation:**
R = 100,000/(gain-2)

**Max Output Voltage:** ±10 Vdc

**Linearity:** 0.002%

**Output Offset Range:** ±0 Vdc

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**OM2-162, $355, shown larger than actual size.**
The OM2-163 is a complete signal conditioning system on a card designed expressly for single half- or full-bridge transducers. It consists of a high-performance instrumentation amplifier, a user-adjustable active filter, a high-stability bridge supply, and all the required circuitry, trimpots, etc. To get a complete system up and running, the only required point-to-point wiring is inputs, outputs, and power.

The unit provides coarse and fine gain adjustments, along with input and output offset adjustments, DIP switches for setting the bridge supply output, and active low-pass filter cutoff frequency.

**SPECIFICATIONS**

**Gain Range:** 100 to 500 card only, 2 to 5000 with external resistor

**External Gain Resistor Calculation:**

\[ R = \frac{100,000}{(\text{gain} - 2)} \]

- **Output Max:** ±10 Vdc
- **Linearity:** 0.002%
- **Input Offset Voltage (Adjustable):** ±2 mV
- **Input Power:** ±15 Vdc @ 45 mA
- **Bridge Supply:** 4 to 10 Vdc @ 120 mA
- **Load Regulation:** 0.02% max
- **Noise Voltage:** 1 mVrms max
- **Dynamic Response @ Gain 100:** 10 kHz
- **Gain Temp Coefficient:** ±75 ppm/°C
  - using trimpots; 25 ppm/°C alone

**Input Resistance:**

- Differential 10 MΩ
- Common Mode: 500 MΩ

**Common-Mode Voltage:** -7 to 7 V

**Minimum Load Resistance:** 2 kΩ

**Hysteresis:** 8 mV max

**Leakage Current:** 10 µA

**Response Time:** 70 µs

**Operating Temperature Range:** -25 to 55°C (-13 to 131°F)
STRAIN GAGE BRIDGE AMPLIFIER MODULE
WITH OPEN COLLECTOR OUTPUT

OM2-165
$325

Solid State Open-Collector Output (100 mA max)
Integral Zero and Span Adjustments
Gain of 10 to 1000
Remote Sensing Eliminates Lead Resistance Effects

The OM2-165 module is a complete signal conditioning system designed for use with strain gage–based transducers. It provides 4 to 10 Vdc to excite a strain gage or other type of bridge signal. A sensitive comparator that can be connected to monitor the amplifier output is included. The comparator drives a solid state switch that can be used to operate a relay, light, or audible alarm. The solid state switch has non-latching and latching capability. It is packaged in a state-of-the-art hybrid circuit, which is mounted on a PC board mounting kit containing all required external circuitry and trim potentiometers.

The card has trimpots for coarse and fine gain adjustments, input adjustments, and offset adjustments. DIP switches set the bridge supply output. A complete instrumentation or control system can be set up using the OM2-165, a power source, and a strain gage type transducer. The OM2-165 module has a user-selectable gain between 10 and 1000.

SPECIFICATIONS

Gain Range: 10 to 1000
Output Max: ±10 Vdc
Linearity: 0.01%
Input Offset Voltage (Adjustable): ±2 mV
Input Power: ±15 Vdc @ 45 mA
Bridge Supply: 4 to 10 Vdc @ 100 mA
Load Regulation: 0.01% max
Noise Voltage: 1 mV rms max
Dynamic Response @ Gain 100: 10 kHz
Gain Temp Coefficient: ±50 ppm/°C

Input Resistance:
Differential: 10 MΩ
Common Mode: 500 MΩ
Common-Mode Voltage: -7 to 7V
Minimum Load Resistance: 2 kΩ
Open Collector Output: 16 Vdc @ 100 mA
Hysteresis: 8 mV max
Leakage Current: 10 µA
Response Time: 70 µs
Operating Temperature Range: 0 to 70°C (32 to 158°F)

Dimensions: mm (in)

C-50
### Specifications for OM2 Series Backplanes

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM2-8608-115AC</td>
<td>$520</td>
<td>115 Vac powered backplane for 8 OM2 signal conditioning modules with power supply and mounting rails included</td>
</tr>
<tr>
<td>OM2-8608-230AC</td>
<td>520</td>
<td>230 Vac powered backplane for 8 OM2 signal conditioning modules with power supply and mounting rails included</td>
</tr>
<tr>
<td>OM2-8608-24DC</td>
<td>520</td>
<td>DC-powered backplane for 8 OM2 signal conditioning modules with power supply and mounting rails included; 10 to 36 Vdc power</td>
</tr>
<tr>
<td>OM2-8608-48DC</td>
<td>520</td>
<td>DC-powered backplane for 8 OM2 signal conditioning modules with power supply and mounting rails included; 24 to 72 Vdc power</td>
</tr>
<tr>
<td>OM2-2006</td>
<td>235</td>
<td>115 Vac powered backplane for one OM2 signal conditioning module with power supply (mounting rails not included; not compatible with OM2-163)</td>
</tr>
<tr>
<td>OM2-2005</td>
<td>52</td>
<td>Backplane for one OM2 signal conditioning module (screw terminals only; not compatible with OM2-163)</td>
</tr>
<tr>
<td>OM2-8100</td>
<td>45</td>
<td>Two 16&quot; mounting rails (2 rails already included with OM2-8608)</td>
</tr>
</tbody>
</table>

COMES COMPLETE WITH OPERATOR'S MANUAL.

Ordering Example: Complete system, including OM2-162, signal conditioning module for ½ and full-bridge strain gage measurement, OM2-2006, single module back panel with power supply and OM2-8100, mounting rails, $355 + $235 + $45 = $635.

* Limited supply/product discontinued.

** ACCESSORIES **

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM2-2006, 115 Vac single-position backplane, $235.</td>
<td></td>
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</tr>
<tr>
<td>OM2-2005, single-position backplane, $52.</td>
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<tr>
<td>OM2-8608-115AC, 8-position backplane, $520.</td>
<td></td>
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<tr>
<td>OM2-8100, mounting rails, $45.</td>
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</tbody>
</table>

### Specifications for OM2-8100 Mounting Rails

- **Length:** 16" total; 15" usable
- **Spacing:** 0.5" spaced mounting holes
- **Material:** Black anodized aluminum

**Available for Fast Delivery!**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SPECIFICATIONS FOR OM2 SERIES BACKPLANES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Range</strong></td>
<td>115 Vac ±10V</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50/60 Hz</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>0 to 55°C 32 to 131°F</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>159 x 419 mm (6.25 x 16.5&quot;)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>1.43 kg (3 lb, 3 oz)</td>
</tr>
</tbody>
</table>
More than 100,000 Products Available!

- **Temperature**

- **Data Acquisition**

- **Pressure, Strain and Force**
  Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Strain Gages, Torque Transducers, Valves

- **Flow and Level**
  Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

- **Heaters**

- **pH and Conductivity**
  Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation