• Conductivity & Dissolved Oxygen Meters, Controllers & Transmitters
• Flow Meters, Signal Conditioners & Switches
• Handheld Instruments for pH, Temperature, Pressure & Air Flow
• Industrial Pressure Transducers & Transmitters
• Level Switches & Indicators
Introducing The
Made In USA Handbook!
The New Horizons® Vol 1 and 2 previews a selection of exciting products that will be featured in the upcoming OMEGA® Made in the USA Edition Handbook™. Vol. 2 contains pressure transducers; transmitters; level switches & indicators; handheld instruments for pH, temperature, pressure & airflow; flow meters; signal conditioners & switches; conductivity & dissolved oxygen meters.

Exceeding Your Expectations
Since 1962, OMEGA has grown from manufacturing a single product line of thermocouples to being an established global leader in the technical marketplace, offering more than 100,000 state-of-the-art products for measurement and control of temperature, humidity, pressure, strain, force, flow, level, pH and conductivity. OMEGA also provides customers with a complete line of data acquisition, electric heating and custom engineered products. It is our commitment to quality instrumentation and exceptional customer service that has remained the cornerstone of our success. OMEGA’s priority is clear: Our facilities exist to facilitate solutions to your needs.

Easy to Order Phone
Ordering is as easy as picking up the phone and dialing: (USA and Canada)

1-800-82-66 342®

One of our courteous, trained sales representative will assist you with product selection and placing your order. If you need more technical assistance, we have degreed application engineers available to help you solve your application problem.

Internet
Use your web browser to go to

www.omega.com

Our online store has over 100,000 products available at the click of a mouse. After you place your order, it is reviewed and delivery confirmation is promptly emailed to you.

Fast Delivery
OMEGA ships most of its orders within 48 hours. We also have overnight service available for customers who need product the next day.

Prices in U.S. Dollars

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For the complete selection of OMEGA products, visit OMEGA online at our website at www.omega.com
PC BOARD MOUNTABLE PRESSURE SENSORS IN A TRANSISTOR (TO-5*) PACKAGE, LOW COST, HIGH PERFORMANCE

- TO-5 Package Suitable for PC Board Mounting
- Gage, Absolute and Differential Models
- Full Scale Ranges from 0.3 to 100 psi
- For Clean Dry Gases

The PX70 Series is a piezoresistive pressure sensor, packaged in a TO-5 case suitable for PC board mounting. The PX70 is available in full scale ranges from 0.3 to 100 psi as well as four standard package options. The PX71 for gage and absolute ranges, is available without fittings while the PX72 has a top mounted tube fitting (bottom is vent for gage). The PX73 is also available in gage ranges and has a bottom tube fitting (top is vent). For differential measurements the PX74 has top and bottom tubes and can be used for uni- or bidirectional measurement.

SPECIFICATIONS:
- Linearity: ±0.5% FS
- Repeatability: ±0.3% FS
- Excitation: 5 Vdc (10 Vdc Max)
- Storage Temp. Range: -40 to 125°C (-40 to 257°F)
- Compensated Temp. Range: -15 to 85°C (5 to 185°F)
- Zero Temp Coefficient: 0.07% FS/°C

MOST POPULAR MODELS HIGHLIGHTED

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>GAGE AND DIFFERENTIAL PRESSURE RANGES</th>
<th>NO FITTING</th>
<th>TOP FITTING</th>
<th>BOTTOM FITTING</th>
<th>DIFFERENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NO.</td>
<td>PRICE</td>
<td>MODEL NO.</td>
<td>PRICE</td>
<td>MODEL NO.</td>
</tr>
<tr>
<td>0 to 0.3 psi</td>
<td>20.7 mb</td>
<td>PX71-0.3GV</td>
<td>$44</td>
<td>PX72-0.3GV</td>
</tr>
<tr>
<td>0 to 0.8 psi</td>
<td>55.1 mb</td>
<td>PX71-0.8GV</td>
<td>44</td>
<td>PX72-0.8GV</td>
</tr>
<tr>
<td>0 to 1.5 psi</td>
<td>103 mb</td>
<td>PX71-1.5GV</td>
<td>37</td>
<td>PX72-1.5GV</td>
</tr>
<tr>
<td>0 to 5.0 psi</td>
<td>345 mb</td>
<td>PX71-005GV</td>
<td>37</td>
<td>PX72-005GV</td>
</tr>
<tr>
<td>0 to 15 psi</td>
<td>1 bar</td>
<td>PX71-015GV</td>
<td>37</td>
<td>PX72-015GV</td>
</tr>
<tr>
<td>0 to 30 psi</td>
<td>2 bar</td>
<td>PX71-030GV</td>
<td>37</td>
<td>PX72-030GV</td>
</tr>
<tr>
<td>0 to 60 psi</td>
<td>3 bar</td>
<td>PX71-060GV</td>
<td>37</td>
<td>PX72-060GV</td>
</tr>
<tr>
<td>0 to 100 psi</td>
<td>6.9 bar</td>
<td>PX71-100GV</td>
<td>40</td>
<td>PX72-100GV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ABSOLUTE PRESSURE RANGES</th>
<th>NO FITTING</th>
<th>TOP FITTING</th>
<th>BOTTOM FITTING</th>
<th>DIFFERENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NO.</td>
<td>PRICE</td>
<td>MODEL NO.</td>
<td>PRICE</td>
<td>MODEL NO.</td>
</tr>
<tr>
<td>0 to 5.0 psia</td>
<td>345 mb</td>
<td>PX71-005AV</td>
<td>40</td>
<td>PX72-005AV</td>
</tr>
<tr>
<td>0 to 15 psia</td>
<td>1 bar</td>
<td>PX71-015AV</td>
<td>40</td>
<td>PX72-015AV</td>
</tr>
<tr>
<td>0 to 30 psia</td>
<td>2 bar</td>
<td>PX71-030AV</td>
<td>40</td>
<td>PX72-030AV</td>
</tr>
<tr>
<td>0 to 60 psia</td>
<td>3 bar</td>
<td>PX71-060AV</td>
<td>40</td>
<td>PX72-060AV</td>
</tr>
<tr>
<td>0 to 100 psia</td>
<td>6.9 bar</td>
<td>PX71-100AV</td>
<td>40</td>
<td>PX72-100AV</td>
</tr>
</tbody>
</table>

Sensitivity (@5Vdc excitation):
- Range
- min
- Typ
- Max

<table>
<thead>
<tr>
<th>Range</th>
<th>min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 to 0.3 psi</td>
<td>80</td>
<td>165</td>
<td>250 mV/psi</td>
</tr>
<tr>
<td>0.0 to 0.8 psi</td>
<td>30</td>
<td>65</td>
<td>100 mV/psi</td>
</tr>
<tr>
<td>0.0 to 1.5 psi</td>
<td>15</td>
<td>35</td>
<td>55 mV/psi</td>
</tr>
<tr>
<td>0.0 to 5.0 psi</td>
<td>12</td>
<td>20</td>
<td>25 mV/psi</td>
</tr>
<tr>
<td>0.1 to 15 psi</td>
<td>7.0</td>
<td>9.5</td>
<td>12 mV/psi</td>
</tr>
<tr>
<td>0.1 to 30 psi</td>
<td>4.0</td>
<td>5.5</td>
<td>7.0 mV/psi</td>
</tr>
<tr>
<td>0.1 to 60 psi</td>
<td>2.0</td>
<td>3.0</td>
<td>4.0 mV/psi</td>
</tr>
<tr>
<td>0.1 to 100 psi</td>
<td>1.0</td>
<td>2.0</td>
<td>2.5 mV/psi</td>
</tr>
</tbody>
</table>

Comes with complete operator’s manual.

Ordering Example: PX71-005AV is a PC mountable pressure sensor with no fittings, a 0 to 5 psi absolute pressure range, $40.

© TO-5 refers to the industries name for this size case.

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
SUBMINIATURE MILLIVOLT OUTPUT
TYPE PRESSURE TRANSDUCER
WITH FLUSH MOUNT DIAPHRAGM

PX600 Series
0-200 to 0-10k psi

$495
All Ranges

All Stainless Steel Diaphragm and Threaded Side Wall Construction
Rugged Stainless Steel Case Protects Components in Industrial Environments
Uses a Standard 5 Vdc Regulated Power Supply for Maximum Versatility
Custom Subminiature Design Techniques Provide Small Size and Preserves Accuracy

SPECIFICATIONS
Excitation: 5 Vdc @15 mA
Output: 10 mV typical @ 5 Vdc
Sensitivity: 2 mV/V Nominal
Input Impedance: 360 Ω min
Output Resistance: 350 Ω min
Insulation Resistance: 5 MΩ @ 75 Vdc
Accuracy: ±1% FS (Linearity and Hysteresis combined)
Repeatability: ±0.1% FS
Zero Balance: ±3% FS
Operable Temperature Range: -65 to 300°F (-54 to 150°C)
Compensated Temperature Range: 60 to 160°F (16 to 71°C)
Thermal Zero Effect: <±0.01% full scale/°F
Thermal Sensitivity Effect: ±0.02% Reading/ °F
Proof Pressure: 150% Range
Burst Pressure: 400% Range

Body and Diaphragm Material: 17-4 PH Stainless Steel
O-Ring: 2-011 Polyvinyl: 2-011-P $15/10 pack
Viton: 2-011-V $10/10 pack
Electrical Connection: 4 Cond Cable
Weight: 0.5 oz (14 g)

To Order: (Specify Model Number)

<table>
<thead>
<tr>
<th>RANGE (psig)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 200</td>
<td>PX600-200GV</td>
<td>$495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 500</td>
<td>PX600-500GV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 1000</td>
<td>PX600-1KGV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 2000</td>
<td>PX600-2KGV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 3000</td>
<td>PX600-3KGV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 5000</td>
<td>PX600-5KGV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
<tr>
<td>0 to 10,000</td>
<td>PX600-10KGV</td>
<td>495</td>
<td>DP41-S**, DP25-S**, DP87**</td>
</tr>
</tbody>
</table>

** Meter Excitation Voltage requires field adjustment by customer to 5 Vdc.
Ordering Example: PX600-200GV is a 200 psig subminiature transducer, $495.

To Order, Call 1-800-325-6522® or Shop Online at www.omega.com
MINIATURE PRESSURE TRANSDUCER
1⁄4 NPT PRESSURE CONNECTION

PX61C Series
mV/V Output
0-50 to 0-5,000 psi
0-3.5 to 0-350 bar

✔ Miniature Flush Diaphragm
✔ Hermetically Sealed in Stainless Steel Case
✔ Flush Diaphragm for Precise Measurements

SPECIFICATIONS:

Excitation: 5Vdc
Output: Range > 100 psi: 2mV/V
Range ≤100 psi: 0.1mV/psi @ 5Vdc
Bridge Resistance: 350 Ω nominal
Zero Balance: ±1.0% of FSO
Accuracy Class: 1.0% Linearity & Hysteresis Combined
Calibrated at 0%, 50%, 100%, 50%, 0%
Shunt Calibration Data included
Repeatability: 0.1% of FSO
Operating Temperature Range:
-54 to +150°C  (-65 to +300°F)
Compensated Temperature Range:
+16 to +71°C  (+60 to +160°F)
Thermal Effects: Span and Zero Combined: ±0.02% of FSO/°F
Proof Pressure: 150% of capacity
Burst Pressure: 500% of capacity or 10,000 psi whichever is less
Electrical Connections: PT1H-10-6P connector
Mating Connector: PT06F-10-6S (not included)
Pressure Connection: 1/4-18 NPT
Wetted Parts: 17-4 PH Stainless Steel

MOST POPULAR MODELS HIGHLIGHTED

To Order: (Specify Model Number)

<table>
<thead>
<tr>
<th>RANGE (psi)</th>
<th>MODEL NUMBER</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Pressure (All Ranges Available in Absolute Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 50</td>
<td>PX61C1-050AV</td>
<td>$425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 100</td>
<td>PX61C1-100AV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>Gage Pressure (All Ranges Available in Sealed Gage Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 50</td>
<td>PX61C1-050GV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 100</td>
<td>PX61C1-100GV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 200</td>
<td>PX61C1-200GV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 300</td>
<td>PX61C1-300GV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 500</td>
<td>PX61C1-500GV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 1,000</td>
<td>PX61C1-1KGV</td>
<td>425</td>
<td>DP41-S, DP25-S</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering
To order Sealed Gage Pressure models, change the “G” in the part number to “S” No charge.
To order Absolute Pressure models, change the “G” in the part number to “A” No charge.
Ordering Examples: 1.) PX61C1-100AV is a 100 psi Absolute Pressure transducer with PT1H-10-6P electrical connection and 1/4-18 NPT male pressure port, $425 ea. Mating connector (not included) PT06F-10-6S, $26.50. 2.) PX61C1-100S is a 100 psi Sealed Gage Pressure transducer with PT1H-10-6P electrical connection and 1/4-18 NPT male pressure port, $425 ea. Mating connector (not included) PT06F-10-6S, $26.50.

To Order, Call 1-800-TC-OMEGA® or Shop Online at www.omega.com
ECONOMICAL ALL STAINLESS STEEL PRESSURE TRANSDUCER
WITH FULL BRIDGE DESIGN FOR HIGH SENSITIVITY

PX906
0-300 to 0-7500 PSI

- Supplied with .9 m (36")
  Color Coded, Shielded Leads for Easy
  Connections and High Noise Immunity
- Uses a Standard 10 Vdc
  Regulated Power Supply for Maximum Versatility
- Compact Design for Use in Restricted Areas
- 1/4 NPT Female Process Thread for Easy
  Installations on Piping Systems

$219
All Ranges

Dimensions in mm (in.)

<table>
<thead>
<tr>
<th>0.9m (3') 4-COND SHIELDED CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 (.75)</td>
</tr>
<tr>
<td>62 (2.4) MAX</td>
</tr>
<tr>
<td>16 (.63)</td>
</tr>
<tr>
<td>32 (1.3)</td>
</tr>
<tr>
<td>3/8-18 NPT</td>
</tr>
<tr>
<td>1/4-18 NPT</td>
</tr>
</tbody>
</table>

WIRING CODE
GREEN - OUTPUT
WHITE + OUTPUT
BLACK - INPUT
RED + INPUT

Most Popular Models Highlighted

<table>
<thead>
<tr>
<th>RANGE</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 300 psig</td>
<td>PX906-300GV</td>
<td>$219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 500 psig</td>
<td>PX906-500GV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 750 psig</td>
<td>PX906-750GV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 1000 psig</td>
<td>PX906-1KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 1500 psig</td>
<td>PX906-1.5KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 2000 psig</td>
<td>PX906-2KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 3000 psig</td>
<td>PX906-3KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 5000 psig</td>
<td>PX906-5KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
<tr>
<td>0 to 7500 psig</td>
<td>PX906-7.5KGV</td>
<td>219</td>
<td>DP41-S, DP25-S, DP87</td>
</tr>
</tbody>
</table>

Ordering Example: PX906-2KGV is a 2000 psig transducer, $219.
OMEGA’s PX44 Series is a high accuracy, current output, industrial pressure transmitter with a high pressure flush diaphragm for use with high pressure industrial fluids and slurries. Its hermetically sealed, all stainless steel construction make it suitable for the harshest industrial environments. Ten feet of two-conductor shielded cable is standard with a second ½” NPT fitting on the body for conduit installation. Pressure ranges from 0-500 up to 5000 psi are available to cover most industrial applications.

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>RANGE (psi)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 500</td>
<td>PX44E0-500GI</td>
<td>$530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 1000</td>
<td>PX44E0-1KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 1500</td>
<td>PX44E0-1.5KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 2000</td>
<td>PX44E0-2KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 2500</td>
<td>PX44E0-2.5KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 3000</td>
<td>PX44E0-3KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 5000</td>
<td>PX44E0-5KGI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering
To Order Sealed Gage replace “G” in model number with an “S”.
To Order Absolute replace “G” in model number with an “A”.

**Ordering Examples:**
1.) PX44E0-1KAI is a 1000 psi Absolute Pressure transducer with Stainless Steel wetted parts, 10 ft (3m) cable and 4-20 mA output, $530.
2.) PX44E0-500SI is a 500 psi Sealed Gage Pressure transducer with Stainless Steel wetted parts, 10 ft (3m) cable and 4-20 mA output, $530.
HEAVY DUTY FLUSH DIAPHRAGM TRANSMITTER

PX43 Series
4-20 mA Output
0-50 to 0-750 psi
0-3 to 0-50 bar

$530
Model Shown

OMEGA’s PX43 Series is a high accuracy, current output, industrial pressure transmitter with a heavy duty flush diaphragm. It is designed for use with food and industrial fluids and slurries that are difficult to measure due to sticking or plugging of orifices. Its hermetically sealed, all stainless steel construction make it suitable for the harshest industrial environments. Ten feet of two-conductor shielded cable is standard with a second ½” NPT fitting on the body for conduit installation. Pressure ranges from 0-50 up to 750 psi are available to cover most processing and industrial applications.

SPECIFICATIONS:
Excitation: 10 to 40 Vdc
Output: 4-20 mA ±10% adj
Zero Balance: 4 mA +10% -2% adj
Accuracy: 0.25% Linearity, Hysteresis and Repeatability Combined
Operational Temp Range: -46 to 121°C (-50 to 250°F)
Compensated Temp Range: 16 to 71°C (60 to 160°F)
Span: ±0.003% of Rdg/°F
Zero: ±0.0045% of FSO/°F
Proof Pressure: 150% of Range
Burst Pressure: 300% of Range
Wetted Parts: 17-4PH Stainless Steel w/ 316 Stainless Steel Diaphragm
Pressure Port: ½ -14 NPT Male
Electrical Connection: 10 ft (3 m) 2-conductor shielded PVC cable with ½ -14 NPT fitting

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>RANGE (psig)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 50</td>
<td>PX43E0-050GI</td>
<td>$530</td>
<td>DP41-E, DP25-E, DP24-E</td>
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<td>0 to 60</td>
<td>PX43E0-060GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
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<tr>
<td>0 to 100</td>
<td>PX43E0-100GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 200</td>
<td>PX43E0-200GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
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<tr>
<td>0 to 300</td>
<td>PX43E0-300GI</td>
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<td>DP41-E, DP25-E, DP24-E</td>
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<tr>
<td>0 to 500</td>
<td>PX43E0-500GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
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<tr>
<td>0 to 750</td>
<td>PX43E0-750GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering

Ordering Examples:
1.) PX43E0-100GI is an 100 psi gage model with Stainless Steel wetted parts, 10 ft cable and 4-20 mA output, $530.
2.) PX43E0-050GI is a 50 psi gage model with Stainless Steel wetted parts, 10 ft cable and 4-20 mA output, $530.
PX78 Series
4-20 mA Output
0-4 to 0-500 psi
0-350 mbar to 0-35 bar

Notice: OMEGA does not offer a warranty on this product, its use or application. It is the end user’s responsibility to assure proper installation and use of this transducer.

✓ All Stainless Steel Casing
✓ Hermetically Sealed Housing
✓ Protective Cap Included
✓ 15.2 m (50’) Vented Cable Standard

OMEGA’s PX78 Series transmitter is a submersible transducer suitable for liquid level and depth measurement. Its all stainless steel, hermetically sealed housing make it suitable for immersion in most industrial liquids and oils. A 50 foot vented cable (longer lengths available) provides an atmospheric pressure reference.

SPECIFICATIONS:
Excitation: 10-40 Vdc
Output: 4-20 mA ±10%
Max Loop Resistance: (Input Voltage -10) x 50
Zero Balance: 4 mA ±0.5%
Accuracy: 0.25% Linearity, Hysteresis, and Repeatability Combined
Operational Temp Range: -29 to 93°C (-20 to 200°F)
Compensated Temp Range: 16 to 71°C (60 to 160°F)
Thermal Effects:
Span: 0.003% of Rdg/°F
Zero: 0.0045% of FSO/°F

Proof Pressure:
150% of rated pressure

Burst Pressure:
300% of rated pressure

Wetted Parts:
316 Stainless Steel Diaphragm
17-4 Stainless Steel Housing

Pressure Port: Nose protector included

Electrical Connection:
50 ft (15.2m) PVC insulated shielded and vented cable

To Order (Specify Model Number) 50 ft (15.2m) Cable Standard

<table>
<thead>
<tr>
<th>RANGE (psig)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 4</td>
<td>PX78U7-004GI</td>
<td>$725</td>
<td>DP41-E, DP25-E, DP24-E</td>
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<tr>
<td>0 to 5</td>
<td>PX78U7-005GI</td>
<td>725</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 10</td>
<td>PX78U7-010GI</td>
<td>725</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
<tr>
<td>0 to 15</td>
<td>PX78U7-015GI</td>
<td>725</td>
<td>DP41-E, DP25-E, DP24-E</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering
To order with extra cable add “+(length in feet)FT” and add $2.00 per foot over 50 ft.
Ordering Examples:
1.) PX78U7-015GI-100FT is a 15 psi transducer with 4-20 mA output and 100 ft vented cable, $725 + 50 x 2.00 = $825.00.
2.) PX78U7-005GI is a 5 psi Gage Pressure transmitter with 4-20 mA output and the standard 50 ft of vented cable, $725.
To Order:
(Specify Model Number)

RANGE (psig) | MODEL NUMBER | PRICE | COMPATIBLE METERS
--- | --- | --- | ---
0 to 8 | PX42G7-008GV | 380 | DP41-S, DP25-S
0 to 10 | PX42G7-010GV | 380 | DP41-S, DP25-S
0 to 15 | PX42G7-015GV | 380 | DP41-S, DP25-S
0 to 30 | PX42G7-030GV | 380 | DP41-S, DP25-S

Metric Ranges Available - Consult Engineering
Ordering Example:
1.) PX42G7-003GV is a 3 psi gage model with Stainless Steel wetted parts, $380.

All Stainless Steel Construction
Optional Hastelloy C Construction
Processing and Industrial Applications
Large Flush Diaphragm for Plug Free Measurement of Difficult Fluids
3.05 m (10’) Vented Cable with Conduit Connection on Body for Installation in Harsh Environments
Heavy Duty 1” NPT Fitting

OMEGA’s PX42 Series is a high accuracy, millivolt output, industrial pressure transducer with a specially designed flush diaphragm for use with industrial fluids and slurries that are difficult to measure due to sticking or plugging of orifices. Its hermetically sealed, all stainless steel construction makes it suitable for the harshest industrial environments. Ten feet of vented four conductor shielded cable is standard with a ¾” NPT fitting on the body for conduit installation. Pressure ranges from 0-3 up to 30 psi are available to cover most processing and industrial applications.
OMEGA’s PX6000 Series pressure transducers fit easily into your application. These low cost transducers are small and light, and mounting requires no bulky structures. You select from three electrical terminations and six pressure fittings. The sensor is a small (about 0.1in) square silicon chip with four diffused strain gages, mounted in the stainless steel case. Laser trimmed resistors provide temperature compensation and adjust zero balance and span. The 30 mV full range output is compatible with most amplifiers and data acquisition systems.

The PX6000 uses solid state media isolation for improved reliability. Thin films of chemically inert materials are deposited or grown on the chip surface to provide electrical isolation between the sensor and pressure medium. The sensor is less sensitive to vibration and more dependable in high shock environments. Corrosion resistance is outstanding, and the isolation will remain effective because there is no gel or oil columns to deteriorate.

To Order, Call 1-800-686-3426 or Shop Online at www.omega.com
HIGH PERFORMANCE PRESSURE TRANSUDER
LONG TERM RELIABILITY

PX5500 Series
mV/V Output
0-15 to 0-10,000 psi
0-1 to 0-700 bar

- High Accuracy 0.1%
- Solid State Reliability
- Sputtered Strain Gage Design
- High Shock and Vibration
- Low Drift

OMEGA’s PX5500 Transducer Series provides high performance in demanding industrial and research applications where accuracy, reliability, and price are important. This transducer has a 10 year MTBF rate and is stable to 0.1% of FSO over an 18 month period. This translates into less down time, fewer test reruns, more time between calibrations, and high confidence in your pressure data. When recalibration is impossible, relying on the high stability of the PX5500 Series transducer may be the only cost-effective way to obtain pressure data over the long term. OMEGA’s thin film technology makes this premium performance possible. The strain gages and associated structures are sputter-deposited directly onto the pressure sensing element thus eliminating the need for adhesives. The resulting molecular bond between the sensing element and the strain gages ensures virtually no shifting, drifting, or “creep” in the performance of the transducer.

SPECIFICATIONS:
mV/V MODELS
Excitation: 10 Vdc
Output FSO:
30 mV typical, 26 mV minimum
Accuracy: Combined Linearity, Hysteresis and Nonrepeatability: ±0.10% FSO (BFSL) <1000 psi
±0.15% FSO 1000 psi and above
Calibration Stability: ±0.1% for 18 months

To Order: (Specify Model Number)
Models with mV/V Output, MS33656-4 Connection, Integral Connector

<table>
<thead>
<tr>
<th>RANGE (psi)</th>
<th>MODEL NUMBER</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Pressure (All Ranges Available in Absolute Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 15</td>
<td>PX5500L1-015AV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 25</td>
<td>PX5500L1-025AV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 50</td>
<td>PX5500L1-050AV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 100</td>
<td>PX5500L1-100AV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>Gage Pressure (All Ranges also Available in Sealed Gage Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 15</td>
<td>PX5500L1-015GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 25</td>
<td>PX5500L1-025GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 50</td>
<td>PX5500L1-050GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 100</td>
<td>PX5500L1-100GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 250</td>
<td>PX5500L1-250GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 500</td>
<td>PX5500L1-500GV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 1,000</td>
<td>PX5500L1-1KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 1,500</td>
<td>PX5500L1-1.5KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 2,500</td>
<td>PX5500L1-2.5KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
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<tr>
<td>0 to 3,000</td>
<td>PX5500L1-3KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 5,000</td>
<td>PX5500L1-5KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-10,000</td>
<td>PX5500L1-10KGV</td>
<td>$550</td>
<td>DP41-S, DP25-S</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering
To order Absolute Pressure models, change “G” in the part number to “A”. No charge.
To order Sealed Gage models, change “G” in the part number to “S”. No charge.
Ordering Examples: 1.) PX5500L1-1KSV is a 1,000 psi Sealed Gage transducer with PT1H-10-6P electrical connection and MS33656-4 Male Pressure Port. $550. Mating Connector (not included) PTS06A-10-6S, $47.00. 2.) PX5500L1-100AV is a 100 psi Absolute Pressure transducer with PT1H-10-6P electrical connection and MS33656-4 Male Pressure Port. $550. Mating Connector (not included) PTS06A-10-6S, $47.00.

MODEL PX5500L1-100GV
Shown Actual Size

Vibration Sensitivity: At 35g peak sinusoidal vibration from 10 Hz to 2000 Hz (½ D.A.), the output shall not exceed 0.04% FSO/g for 15 psi range, decreasing to 0.003% FSO/g for 1000 psi and above
Shock: Qualification level of 100g, 11 ms half sine wave without damage
Compensated Temp Range:
-18° to +82° C (0° to +180°F)
Complete specifications available online at www.omega.com

To Order, Call 1-800-626-342 or Shop Online at www.omega.com
PX41 Series

4-20 mA Output
0-15 to 0-30,000 psi
0-1 to 0-2,000 bar

1 bar = 14.5 psi
1 kg/cm² = 14.22 psi
1 Atmosphere = 14.7 psi
= 29.93 in-Hg = 760.2 mm-Hg
= 1.014 bar

☑ FM Intrinsically Safe – Standard
☑ Optional FM Approved for Hazardous Locations
☑ MSHA Approved Version Available
☑ All Stainless Steel Construction
☑ Sealed SS Case for Harsh Environments

OMEGA’s PX41 Series are high accuracy, low cost pressure transmitters. Their sealed, all stainless steel construction makes them suitable for the harshest environments. They are available in Gage, Absolute or Sealed Gage models. Ten feet of PVC insulated shielded cable is standard or a Bendix style connector is also available. A wide selection of amplified voltage and current outputs in the PX41 family makes this a truly versatile family of industrial transducers.

SPECIFICATIONS: 4-20 mA Output
Excitation: 10 - 40 Vdc
Output: 4-20 mA (±10% adj)
Zero Balance: 4mA +10% -2% adj
Agency Approvals:
Must be specified at time of order
FM Intrinsically Safe:
IS/I.II/I/1/C/DEFG - Standard
FM Hazardous Location:
S/I/1/ABCD
Optional-Must be specified at time of order
MSHA:
Mine Safety and Health Administration - Optional-Must be specified at time of order
Accuracy:
0.25% Linearity, Hysteresis and Repeatability combined.
Complete specifications available online at www.omega.com

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>RANGE (psi)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Pressure (All Ranges Available in Absolute Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 15</td>
<td>PX41T0-015AI</td>
<td>$530</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 20</td>
<td>PX41T0-020AI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 30</td>
<td>PX41T0-030AI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 50</td>
<td>PX41T0-050AI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>Gage Pressure (All Ranges Also Available in Sealed Gage Pressure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 10</td>
<td>PX41T0-010GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP25-E</td>
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<tr>
<td>0 to 15</td>
<td>PX41T0-015GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 20</td>
<td>PX41T0-020GI</td>
<td>530</td>
<td>DP41-E, DP25-E, DP25-E</td>
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<td>0 to 30</td>
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</tr>
<tr>
<td>0 to 50</td>
<td>PX41T0-050GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
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<td>0 to 75</td>
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<td>0 to 100</td>
<td>PX41T0-100GI</td>
<td>480</td>
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<tr>
<td>0 to 200</td>
<td>PX41T0-200GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 300</td>
<td>PX41T0-300GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 500</td>
<td>PX41T0-500GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 750</td>
<td>PX41T0-750GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 1000</td>
<td>PX41T0-1000GI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 1500</td>
<td>PX41T0-1.5KGI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
<tr>
<td>0 to 2000</td>
<td>PX41T0-2KGI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
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<tr>
<td>0 to 3500</td>
<td>PX41T0-3.5KGI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
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<tr>
<td>0 to 5000</td>
<td>PX41T0-5KGI</td>
<td>480</td>
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<td>0 to 7500</td>
<td>PX41T0-7.5KGI</td>
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<td>PX41S0-10KGI</td>
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<tr>
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<td>PX41S0-20KGI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
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<td>0 to 30000</td>
<td>PX41S0-30KGI</td>
<td>480</td>
<td>DP41-E, DP25-E, DP25-E</td>
</tr>
</tbody>
</table>

* 4-Digit Meter, Counts by 10 Units.

Metric Ranges Available - Consult Engineering
To order an FM approved for Hazardous Locations version add suffix “-FM” to the part number. (+$150)
To order Sealed Gage Pressure models, replace “G” in model number with “S” (no charge).
To order Absolute Pressure models replace “G” in model number with “A” (no charge).

Ordering Examples: 1.) PX41T0-10KSI is a 10,000 psi Sealed Gage transmitter with 10 ft cable, $480.
2.) PX41T0-5KGI-FM is a 5,000 psi Gage Pressure transmitter with 10 ft cable and FM for Hazardous Locations rating, $480+150 = $630.
3.) PX41T0-015AI is a 15 psi Absolute Pressure transmitter with 10 ft cable, $530.

OMEGA’s PX41 Series are high accuracy, low cost pressure transmitters. Their sealed, all stainless steel construction makes them suitable for the harshest environments. They are available in Gage, Absolute or Sealed Gage models. Ten feet of PVC insulated shielded cable is standard or a Bendix style connector is also available. A wide selection of amplified voltage and current outputs in the PX41 family makes this a truly versatile family of industrial transducers.

PX41 Series

4-20 mA Output
0-15 to 0-30,000 psi
0-1 to 0-2,000 bar

1 bar = 14.5 psi
1 kg/cm² = 14.22 psi
1 Atmosphere = 14.7 psi
= 29.93 in-Hg = 760.2 mm-Hg
= 1.014 bar

☑ FM Intrinsically Safe – Standard
☑ Optional FM Approved for Hazardous Locations
☑ MSHA Approved Version Available
☑ All Stainless Steel Construction
☑ Sealed SS Case for Harsh Environments

OMEGA’s PX41 Series are high accuracy, low cost pressure transmitters. Their sealed, all stainless steel construction makes them suitable for the harshest environments. They are available in Gage, Absolute or Sealed Gage models. Ten feet of PVC insulated shielded cable is standard or a Bendix style connector is also available. A wide selection of amplified voltage and current outputs in the PX41 family makes this a truly versatile family of industrial transducers.

SPECIFICATIONS: 4-20 mA Output
Excitation: 10 - 40 Vdc
Output: 4-20 mA (±10% adj)
Zero Balance: 4 mA +10% -2% adj
Agency Approvals:
Must be specified at time of order
FM Intrinsically Safe:
IS/I.II/I/1/C/DEFG - Standard
FM Hazardous Location:
S/I/1/ABCD
Optional-Must be specified at time of order
MSHA:
Mine Safety and Health Administration - Optional-Must be specified at time of order
Accuracy:
0.25% Linearity, Hysteresis and Repeatability combined.
Complete specifications available online at www.omega.com

Model PX41T0-100GI
Shown Smaller than actual size

PX41T0-1000GI
Shown Smaller than actual size

Ordering Examples:
1.) PX41T0-10KSI is a 10,000 psi Sealed Gage transmitter with 10 ft cable, $480.
2.) PX41T0-5KGI-FM is a 5,000 psi Gage Pressure transmitter with 10 ft cable and FM for Hazardous Locations rating, $480+150 = $630.
3.) PX41T0-015AI is a 15 psi Absolute Pressure transmitter with 10 ft cable, $530.

To Order, Call 1-800-TC-Omega or Shop Online at www.omega.com
Hundreds of Pressure Transducers Available

See OMEGA’s Broad Selection of Pressure Transducers in The OMEGA® Made in the USA Edition Handbook™ or online at www.omega.com

PX01 Very High Accuracy
Featured on page B-96 in the Pressure Section of the Made in USA Handbook

PX02 High Accuracy Series
Featured on page B-94 in the Pressure Section of the Made in USA Handbook

PX02 Electronic Barometer
Featured on page B-146 in the Pressure Section of the Made in USA Handbook

PX78 Submersible Transducers
Featured on page B-208 in the Pressure Section of the Made in USA Handbook

PX4600 Miniature Aerospace Grade
Featured on page B-15 in the Pressure Section of the Made in USA Handbook

PX80 Series Differential Pressure
Featured on page B-185 in the Pressure Section of the Made in USA Handbook

Pressures Conversion Chart

<table>
<thead>
<tr>
<th>psi</th>
<th>kips/ft²</th>
<th>kips/linear foot</th>
<th>in H₂O (4°C)</th>
<th>kg/cm²</th>
<th>Meters H₂O</th>
<th>in Hg (0°C)</th>
<th>mm Hg (0°C)</th>
<th>cm Hg (0°C)</th>
<th>bar</th>
<th>mbar</th>
<th>kPa</th>
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<td>0.7501</td>
<td>0.0750</td>
<td>0.0010</td>
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<td>0.1000</td>
</tr>
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<td>0.0099</td>
<td>0.3346</td>
<td>4.0132</td>
<td>0.0102</td>
<td>0.1019</td>
<td>0.2953</td>
<td>7.5006</td>
<td>0.7501</td>
<td>0.0100</td>
<td>10.000</td>
<td>1</td>
</tr>
</tbody>
</table>

To Order, Call 1-800-TC-OMEGA® or Shop Online at www.omega.com
FULL BRIDGE THIN BEAM LOAD CELLS
FOR LOADS ¼ TO 40 LB

When small load measurements are required, the OMEGA® LCL Series thin beam load cells are exceptionally well suited. The LCL Series is designed to measure many different parameters found in medical instrumentation, home appliances, process control, robotics, automotive and many other high volume applications.

A specially developed integrated strain gage includes all balancing, compensating and conductive elements and is laminated to the beam to provide excellent stability and reliability.

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>RATED CAPACITY</th>
<th>COMPATIBLE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCL-113G</td>
<td>$69</td>
<td>¼ lb (113 g)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-227G</td>
<td>$69</td>
<td>½ lb (227.9 g)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-454G</td>
<td>$69</td>
<td>1 lb (454 g)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-816G</td>
<td>$69</td>
<td>2 lb (896 g)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-005</td>
<td>$69</td>
<td>5 lb (2.27 kg)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-010</td>
<td>$69</td>
<td>10 lb (4.54 kg)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-020</td>
<td>$69</td>
<td>20 lb (9.07 kg)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
<tr>
<td>LCL-040</td>
<td>$69</td>
<td>40 lb (18.14 kg)</td>
<td>DP2000S5, DP25-S, DP302-S</td>
</tr>
</tbody>
</table>

ORDERING EXAMPLES: 1.) LCL-113G beam and LCL-CL1 Mounting Bracket, $69 + $15 = $84. 2.) LCL-020 beam and LCM-CL1 Mounting Bracket, $69 + $30 = $99.

*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.
Careful design considerations must be taken into account when mounting OMEGA’s LCL Series thin beam load cells. The sensor’s performance is dependent upon the mechanical interface. All thin beam load cells require mounting clamps to create a “double bend” during loading as shown in Figure A. This illustration is exaggerated to show the clamp’s effectiveness in producing opposing moments that create the double bend. An electrical output is generated as the double bend causes tension and compression on the sensor strain gage.

Two typical mounting arrangements are shown below. For high accuracy applications, reinforcement plates should be slightly harder than the beam material, and the interfacing corners should be sharp. Due to low loads and sensor construction associated with the LCL113G thru LCL-816G, in-line loading (Type 2) is not recommended.

LCL-CL1 Mounting Kit
Mounting Kit LCL-CL1 for thin beam sensors LCL-113G to LCL-816G. Type 1 mounting only. Kit includes: Mounting blocks A, B, and C.

LCM-CL1 Mounting Kit
Mounting Kit LCM-CL1 mounting kit for thin beam sensors LCL-005 thru LCL-040. Kit includes 4 mounting blocks, 2 of each blocks A & B.
**SUBMINIATURE INDUSTRIAL LOAD CELL**  
**VERY LOW PROFILE**

**LCKD Series**  
**Compression**  
0-1 kg to 0-1,000 lb  
0-10 N to 0-4,000 N

1 Newton = 0.2248 lb  
1 daNewton = 10 Newtons  
1 lb = 454 g  
1 t = 1000 kg = 2204 lb

---

Model LCKD Shown Larger Than Actual Size

Small in size but not in performance, OMEGA’s LCKD Series compression load cells are designed to measure load ranges from 1 kg to 1000 lb. Rugged all stainless steel construction and high performance strain gages assure superior linearity and stability. Temperature compensation is achieved through a miniature circuit board which is included in the load cell’s cable. These units are designed to be mounted on a smooth, flat surface.

**SPECIFICATIONS:**

- **Excitation:** 5 Vdc, 7 Vdc max  
- **Output:** 2 mV/V nominal  
- **5-Point Calibration:**  
  - 0%, 50%, 100%, 50%, 0%  
- **Linearity:** ±0.25% FSO  
- **Hysteresis:** ±0.25% FSO  
- **Repeatability:** ±0.10% FSO  
- **Zero Balance:** ±2% FSO  
- **Operating Temp Range:** –54 to 107°C (–65 to 225°F)  
- **Compensated Temp Range:** 16 to 71°C (60 to 160°F)  
- **Thermal Effects:**  
  - **Span:** ±0.01% of FSO/°F  
  - **Zero:** ±0.005% of FSO/°F  
- **Safe Overload:** 150% of Capacity  
- **Ultimate Overload:** 300% of Capacity  
- **Bridge Resistance:** 350 Ω min  
- **Full Scale Deflection:** 0.001 to 0.003"  

**Electrical Connection:** 5 ft (1.5 m)  
4-conductor Teflon® insulated cable with temperature compensation board.  

**Weight:** < 0.5 oz (< 14 g)

---

**To Order, Call 1-800-92-6342® or Shop Online at www.omega.com**

---

**Model LCKD Shown Larger Than Actual Size**

**Dimensions Shown in Inches (mm)**

<table>
<thead>
<tr>
<th>Ranges</th>
<th>D1</th>
<th>D2</th>
<th>H</th>
<th>B</th>
<th>C</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg to 50 lb</td>
<td>.38</td>
<td>.09</td>
<td>.12</td>
<td>.03</td>
<td>.04</td>
<td>.05</td>
</tr>
<tr>
<td>100 to 250 lb</td>
<td>.50</td>
<td>.12</td>
<td>.15</td>
<td>.02</td>
<td>.06</td>
<td>.05</td>
</tr>
<tr>
<td>500 to 1000 lb</td>
<td>.75</td>
<td>.24</td>
<td>.25</td>
<td>.03</td>
<td>.10</td>
<td>.05</td>
</tr>
</tbody>
</table>

**Most Popular Models Highlighted**

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>CAPACITY</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1 kg</td>
<td>LCKD-1KG</td>
<td>$585</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0 to 5 lb</td>
<td>LCKD-5</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 10 lb</td>
<td>LCKD-10</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 25 lb</td>
<td>LCKD-25</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 50 lb</td>
<td>LCKD-50</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 100 lb</td>
<td>LCKD-100</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 250 lb</td>
<td>LCKD-250</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0 to 500 lb</td>
<td>LCKD-500</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0 to 1000 lb</td>
<td>LCKD-1000</td>
<td>550</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering

**Ordering Examples:**

1) LCKD-1KG is a 1 kg capacity load cell, $585.  
2) LCKD-25 is a 25 lb capacity load cell, $550.

*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters."
MINIATURE INDUSTRIAL COMPRESSION LOAD CELL
FOR INDUSTRIAL APPLICATIONS TO 50,000 LB

LCGD Series
Compression
0-25 lb to 0-50,000 lb
0-100 N to 0-200 kN

$460
Model Shown

High Accuracy
Low Profile
Miniature Size

The LCGD Series miniature low profile load cells are compression load cells with excellent long term stability. An all stainless steel construction assures reliability in severe industrial environments. These units are designed to operate by mounting on a flat surface, and they have a load button machined as an integral part of the basic load cell.

SPECIFICATIONS:
Excitation: 10 Vdc
Output: 2 mV/V nominal
5-Point Calibration:
0%, 50% 100%, 50%, 0%
Linearity: ±0.25% FSO
Hysteresis: ±0.2% FSO
Repeatability: ±0.1% FSO
Zero Balance: ±0.2% FSO
Operating Temp Range:
-54 to 121°C (-65 to 250°F)
Compensated Temp Range:
16 to 71°C (60 to 160°F)
Thermal Effects: Span: ±0.01% of Rdg°/F; Zero: ±0.005% of FSO°/F
Safe Overload: 150% of Capacity
Ultimate Overload: 300% of Capacity
Bridge Resistance: 350 Ω minimum
Deflection: 0.076 mm (0.003")
Construction: Stainless Steel
Electrical Connection: 5 ft. (1.5 m) Shielded Cable

Dimensions Shown in Inches (mm)

<table>
<thead>
<tr>
<th>RANGES</th>
<th>D1</th>
<th>D2</th>
<th>H</th>
<th>L</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>25 to 100 lb</td>
<td>1.00</td>
<td>1.25</td>
<td>.32</td>
<td>.39</td>
<td>.07</td>
<td>.63</td>
<td>.08</td>
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<tr>
<td>250 to 2000 lb</td>
<td>(25.4)</td>
<td>(31.8)</td>
<td>(8.1)</td>
<td>(9.9)</td>
<td>(1.78)</td>
<td>(16)</td>
<td>(2.03)</td>
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<tr>
<td>5,000 to 10,000 lb</td>
<td>1.50</td>
<td>1.50</td>
<td>.43</td>
<td>.63</td>
<td>.08</td>
<td>.38</td>
<td>(4.57)</td>
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<tr>
<td>50,000 lb</td>
<td>(38.1)</td>
<td>(76.2)</td>
<td>(19.8)</td>
<td>(38.1)</td>
<td>(19.8)</td>
<td>(1.50)</td>
<td>(1.8)</td>
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Most Popular Models Highlighted

<table>
<thead>
<tr>
<th>To Order (Specify Model Number)</th>
<th>CAPACITY (lb)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS*</th>
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</thead>
<tbody>
<tr>
<td>0-25</td>
<td>LCGD-25</td>
<td>$990</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<td>0-50</td>
<td>LCGD-50</td>
<td>590</td>
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<td>LCGD-100</td>
<td>590</td>
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<tr>
<td>0-250</td>
<td>LCGD-250</td>
<td>490</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0-500</td>
<td>LCGD-500</td>
<td>460</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0-1,000</td>
<td>LCGD-1K</td>
<td>460</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0-2,000</td>
<td>LCGD-2K</td>
<td>460</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<td>LCGD-10K</td>
<td>525</td>
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<tr>
<td>0-50,000</td>
<td>LCGD-50K</td>
<td>695</td>
<td>DP41-W, DP41-S, DP25-S</td>
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</tbody>
</table>

Metric Ranges Available—Consult Engineering.
Ordering Examples: 1) LCGD-5K is a 5,000 lb capacity load cell, $525.
2) LCGD-25 is a 25 lb capacity load cell, $590.

*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.
WE’VE DISCOVERED OIL IN THE ELBONIAN WILDLIFE PRESERVE.

DON'T WORRY ABOUT THE ENDANGERED SPECIES. OUR DRILLING WILL HAVE NO IMPACT.

I’M SAD TO REPORT THAT OUR OIL DRILLING HAS CAUSED THE EXTINCTION OF THE ELBONIAN UNICORN.

SAVE A SAMPLE OF THE ANIMAL’S DNA SO WE CAN CLONE A NEW ONE.

DON'T FINISH THAT.

OUR OIL WELLS IN THE ELBONIAN WILDLIFE PRESERVE HAVE CAUSED THE EXTINCTION OF SEVEN SPECIES.

LUCKILY, THEY WERE USELESS SPECIES WHO DID NOTHING BUT EAT AND GRUNT.

MM... MM... MM...
YOU'RE RUINING THE PRISTINE BEAUTY OF ELBONIA!

STOP DRILLING!

THIS IS A PICTURE OF PRISTINE ELBONIA.

...AND THEN YOU SAID, "IT DOESN'T MATTER IF WE SEE IT FIRST." THEN I SAID...
**50.8 mm (2") MINIATURE STAINLESS STEEL COMPRESSION LOAD CELL WITH MOUNTING HOLES**

**LC305 Series**
Compression
0-25 lb to 0-20,000 lb
0-100 N to 0-90,000 N

**$480 Model Shown**

- FM Intrinsically Safe
- 0.25% Interchangeability for Scale Applications
- Rugged, Heavy Duty Design
- Built-in Load Button for Easy Installation
- 5-Point Calibration

OMEGA’s LC305 Series Load Cell is a heavy duty miniature (2" diameter) compression load cell. Factory Mutual Intrinsically Safe rating is standard. Its small size and low profile make it ideal for test benches, prototype structures and industrial weighing applications.

**SPECIFICATIONS:**
- Excitation: 10 Vdc, 15 Vdc max
- Output: 2 mV/V (±0.25%)
- 5-Point Calibration: 0%, 50%, 100%, 50%, 0%
- Linearity: ±0.15% FSO
- Hysteresis: ±0.1% FSO
- Repeatability: ±0.05% FSO
- Agency Approvals: FM IS/I.II/Ill/I/CDEFG – Standard
- Zero Balance: ±2% FSO
- Operating Temp Range: -46 to 107°C (-50 to 225°F)
- Compensated Temp Range: 16 to 71°C (60 to 160°F)
- Thermal Effects:
  - Zero: 0.0025% FSO/°F
  - Span: 0.005% FSO/°F
- Safe Overload: 150% of Capacity
- Ultimate Overload: 300% of Capacity
- Input Resistance: 360 Ω minimum
- Output Resistance: 350 Ω ±10 Ω
- Construction: Stainless Steel
- Electrical: 10 ft (3 m) 4-conductor color coded, shielded PVC cable

**Most Popular Models Highlighted**

<table>
<thead>
<tr>
<th>CAPACITY (lb)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 25</td>
<td>LC305-25</td>
<td>$480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 50</td>
<td>LC305-50</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<td>0 to 100</td>
<td>LC305-100</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0 to 200</td>
<td>LC305-200</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0 to 300</td>
<td>LC305-300</td>
<td>480</td>
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<tr>
<td>0 to 500</td>
<td>LC305-500</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 1,000</td>
<td>LC305-1K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 2,000</td>
<td>LC305-2K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 2,500</td>
<td>LC305-2.5K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 5,000</td>
<td>LC305-5K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 10,000</td>
<td>LC305-10K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0 to 20,000</td>
<td>LC305-20K</td>
<td>480</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
</tbody>
</table>

*4-Digit meter
**See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters. Metric Ranges Available - Consult Engineering

Ordering Examples: 1) LC305-1K is a 1000 lb capacity load cell, $480.
2) LC305-20K is a 20,000 lb capacity load cell, $480.

To Order, Call 1-800-TG-Omega or Shop Online at www.omega.com
HIGH ACCURACY LOW PROFILE COMPRESSION LOAD CELL
FOR INDUSTRIAL WEIGHING APPLICATIONS

LC401 = Cable Style
LC411 = Connector Style

Compression
0-50 lb to 0-400,000 lb
0-200 N to 0-1.8 MN

LC401
$595
Ranges to 1000 lb

FM Intrinsically Safe Standard
Dual Bridge Models Available
Models Available with Built-In 5 V Amplifiers
All Stainless Steel for Harsh Industrial Applications
0.25% Interchangeable for Multiple Load Cell Applications
5-Point Calibration Provided

SPECIFICATIONS:
Excitation: 10 Vdc (15 Vdc max)
Output: 3 mV/V ±0.25%
5-Point Calibration:
Calibrated at 0%, 50%, 100%, 50%, 0%
Note: Models >300,000 lb are calibrated to 300,000 lb. Full scale calibration above 300,000 lb within ±1% available.
Linearity:
>300 lb: 0.10% FSO;
≤300 lb: 0.13% FSO
Hysteresis:
>300 lb: 0.10% FSO;
≤300 lb: 0.12 % FSO
Repeatability:
0.05% FSO

Built-in Amplifiers Available
See Section F in the Pressure Section of the Made in USA Handbook.

Most Popular Models Highlighted

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>CAPACITY (lb)</th>
<th>CABLE STYLE MODEL NO.</th>
<th>CONNECTOR MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>LC401-50</td>
<td>LC411-50</td>
<td>$595</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-100</td>
<td>LC401-100</td>
<td>LC411-100</td>
<td>595</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-250</td>
<td>LC401-250</td>
<td>LC411-250</td>
<td>595</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-500</td>
<td>LC401-500</td>
<td>LC411-500</td>
<td>595</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>0-1,000</td>
<td>LC401-1K</td>
<td>LC411-1K</td>
<td>595</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-1,500</td>
<td>LC401-1.5K</td>
<td>LC411-1.5K</td>
<td>635</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-2,000</td>
<td>LC401-2K</td>
<td>LC411-2K</td>
<td>635</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-3,000</td>
<td>LC401-3K</td>
<td>LC411-3K</td>
<td>635</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-5,000</td>
<td>LC401-5K</td>
<td>LC411-5K</td>
<td>635</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-10,000</td>
<td>LC401-10K</td>
<td>LC411-10K</td>
<td>790</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>0-15,000</td>
<td>LC401-15K</td>
<td>LC411-15K</td>
<td>790</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>0-20,000</td>
<td>LC401-20K</td>
<td>LC411-20K</td>
<td>975</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>0-25,000</td>
<td>LC401-25K</td>
<td>LC411-25K</td>
<td>975</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>0-50,000</td>
<td>LC401-50K</td>
<td>LC411-50K</td>
<td>1150</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<tr>
<td>0-75,000</td>
<td>LC401-75K</td>
<td>LC411-75K</td>
<td>1150</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<tr>
<td>0-100,000</td>
<td>LC401-100K</td>
<td>LC411-100K</td>
<td>1390</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<tr>
<td>0-200,000</td>
<td>LC401-200K</td>
<td>LC411-200K</td>
<td>1850</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<tr>
<td>0-300,000</td>
<td>LC401-300K</td>
<td>LC411-300K</td>
<td>2200</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<td>0-400,000</td>
<td>LC401-400K</td>
<td>LC411-400K</td>
<td>3100</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
</tbody>
</table>

*4-Digit meter
**See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.

Metric Ranges Available – Consult Engineering

To order Dual Bridge Models, add suffix “-DUAL” to the model number;
Price: ≤5000 lb add $250; >5000 lb add $350
To order optional 0-5 V output, add suffix “-5V” to model number and add $135 to price.
Note: Models >300,000 lb are calibrated at 300,000 lb. Full scale calibration above 300,000 lb within ±1% available. Add Suffix “-FS” to the model number and add $1,500 to the price.

Ordering Examples:
1) LC401-1K is a 1,000 lb capacity cable style load cell, $595
2) LC411-10K-DUAL is a 10,000 lb capacity connector style load cell with the dual bridge option, $790 + 350 = $1140.
Mating Connector (two required on dual models) not included, PT06F10-6S, $26.50 ea.

To Order, Call 1-800-32-66348® or Shop Online at www.omega.com

Consent to Digital Storage and Use of Data: I consent to the use of my personal information for direct marketing and other purposes as described in the Privacy Statement.

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Small in size and capable of providing highly accurate readings, the LCFD Series load cells are precision subminiature load cells for industrial applications requiring a small size and high accuracy. They are all stainless steel, measure both tension and compression loads and have male thread studs for load attachment. The exclusive internal design provides superior long term stability and minimizes the effects of small off-axis loads.

**SPECIFICATIONS**

**Excitation:** 1 kg to 10 lb: 5 Vdc
≥25 lb: 10 Vdc

**Output:** 1 kg: 1.5 mV/V (nom)
5-500 lb: 2 mV/V (nom)

**Accuracy:** (Linearity and Hysteresis combined)
≤250 lb: ±0.15% FSO
≥500 lb: ±0.20% FSO

**Repeatability:** ≤ 1 kg: ± 0.15% FSO
≥ 5 lb: 0.20% FSO

**5-Point Calibration:** (in tension) 0%, 50%, 100%, 50%, 0%

**Zero Balance:** ±2% FSO

**Operating Temp Range:** –54 to 121°C (–65 to 250°F)

**Compensated Temp Range:** 16 to 71°C (60 to 160°F)

**Thermal Effects:**
- Span: ±1 kg: ±0.005% FSO/°F
- Zero: ±1 kg: ±0.005% FSO/°F

**Safe Overload:** 150% of Capacity
**Ultimate Overload:** 300% of Capacity

**Bridge Resistance:** 350 Ω minimum

**Connections:**
- Red E+
- Black E–
- White S+
- Green S–

**To Order**

To Order, Call or Shop Online at www.omega.com

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>CAPACITY</th>
<th>MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS*</th>
<th>ACCESSORY</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>±1 kg</td>
<td>LCFD-1KG</td>
<td>$750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-006F</td>
<td>$10</td>
</tr>
<tr>
<td>±5 lb</td>
<td>LCFD-5</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-006F</td>
<td>10</td>
</tr>
<tr>
<td>±10 lb</td>
<td>LCFD-10</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-006F</td>
<td>10</td>
</tr>
<tr>
<td>±25 lb</td>
<td>LCFD-25</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-010F</td>
<td>10</td>
</tr>
<tr>
<td>±50 lb</td>
<td>LCFD-50</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-010F</td>
<td>10</td>
</tr>
<tr>
<td>±100 lb</td>
<td>LCFD-100</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-010F</td>
<td>10</td>
</tr>
<tr>
<td>±250 lb</td>
<td>LCFD-250</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-014F</td>
<td>10</td>
</tr>
<tr>
<td>±500 lb</td>
<td>LCFD-500</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-014F</td>
<td>10</td>
</tr>
<tr>
<td>±1000 lb</td>
<td>LCFD-1K</td>
<td>750</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>REC-014F</td>
<td>10</td>
</tr>
</tbody>
</table>

**Most Popular Models Highlighted**

- **±1 kg** LCFD-1KG
- **±5 lb** LCFD-5
- **±10 lb** LCFD-10
- **±25 lb** LCFD-25
- **±50 lb** LCFD-50
- **±100 lb** LCFD-100
- **±250 lb** LCFD-250
- **±500 lb** LCFD-500
- **±1000 lb** LCFD-1K

Metric Ranges Available – Consult Engineering.

*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.

Ordering Examples:
1) LCFD-1KG is a 1000 gram load cell, $750; matching rod end, REC-006F, $10 ea.
2) LCFD-500 is a 500 lb capacity load cell, $750; matching rod end, REC-014F, $10 ea.
3) LCFD-100 is a 100 lb capacity load cell, $750; matching rod end, REC-010F, $10 ea.
LC203 Series
Tension/Compression
Calibrated in Tension
0-25 lb to 0-10,000 lb
0-100 N to 0-45,000 N

1 Newton = 0.2248 lb
1 daNewton = 10 Newtons
1 lb = 454 g
1 t = 1000 kg = 2204 lb

FM Intrinsically Safe
0.25% Interchangeability for Scale Applications
Hermetically Sealed
Miniature Package for Test Stands and Difficult Locations
Rugged, Heavy Duty Construction
5-Point Calibration

OMEGA’s LC203 Series is a high accuracy, miniature, low profile industrial load cell. It is supplied with a stud at each end for easy in-line mounting. The tough, corrosion resistant steel construction and high accuracy strain gages plus FM Intrinsically Safe rating make them suitable for most industrial weighing applications.

SPECIFICATIONS:
Excitation: 10 Vdc, 15 Vdc max
Output: 2 mV/V ±0.25%
5-Point Calibration:
0%, 50%, 100%, 50%, 0%
Linearity: ±0.15% FSO
Hysteresis: ±0.1% FSO
Repeatability: ±0.05% FSO
Zero Balance: ±2% FSO
Agency Approvals: FM IS/I.II.III/1/CDEFG – Standard
Operating Temp Range: -46 to 107°C (-50 to 225°F)
Compensated Temp Range: 16 to 71°C (60 to 160°F)
Thermal Effects:
Zero: 0.0025% FSO/°F
Span: 0.005% FSO/°F

Safe Overload: 150% of Capacity
Ultimate Overload: 300% of Capacity
Input Resistance: 360 Ω minimum
Output Resistance: 350 Ω ±10 Ω
Construction: Stainless Steel
Electrical: 10 ft (3 m) 4-conductor PVC shielded cable

Most Popular Models Highlighted

<table>
<thead>
<tr>
<th>CAPACITY (lb)</th>
<th>MODEL NO.</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>±25</td>
<td>LC203-25</td>
<td>$575</td>
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<tr>
<td>±50</td>
<td>LC203-50</td>
<td>575</td>
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<tr>
<td>±100</td>
<td>LC203-100</td>
<td>575</td>
</tr>
<tr>
<td>±200</td>
<td>LC203-200</td>
<td>575</td>
</tr>
<tr>
<td>±500</td>
<td>LC203-500</td>
<td>575</td>
</tr>
<tr>
<td>±1,000</td>
<td>LC203-1K</td>
<td>575</td>
</tr>
<tr>
<td>±2,000</td>
<td>LC203-2K</td>
<td>575</td>
</tr>
<tr>
<td>±2,500</td>
<td>LC203-2.5K</td>
<td>575</td>
</tr>
<tr>
<td>±5,000</td>
<td>LC203-5K</td>
<td>575</td>
</tr>
<tr>
<td>±8,000</td>
<td>LC203-8K</td>
<td>575</td>
</tr>
<tr>
<td>±10,000</td>
<td>LC203-10K</td>
<td>575</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering

Ordering Examples:
1) LC203-500 is a 500 lb capacity dual stud mount load cell, $575.
2) LC203-2K is an 2000 lb capacity dual stud mount load cell, $575.
**ALUMINUM “S” BEAM LOAD CELLS**
HIGH ACCURACY, ECONOMICAL PRICE

**LC105 Series**
$295

Model LC105-25, Shown Smaller Than Actual Size

**LC105 Series Tension/Compression**

±25 lb to ±1,000 lb or
±100 N to ±4,500 N

✓ FM Intrinsically Safe
✓ Aluminum for Light Weight and Durability
✓ Calibrated in Tension
✓ 5-Point Calibration Optional

**SPECIFICATIONS:**

Excitation: 10 Vdc, 15 Vdc max
Output: 3 mV/V ±0.0075 mV/V
Linearity: ±0.03% FSO
Hysteresis: ±0.02% FSO
Repeatability: ±0.01% FSO
Zero Balance: ±1% FSO
Operating Temp Range: -40 to 93°C (-40 to +200°F)
Compensated Temp Range: 17 to 71°C (60 to 160°F)
Thermal Effects: Zero: 0.001% FSO/°F, Span: 0.001% Rdg/°F
Safe Overload: 150% of Capacity
Ultimate Overload: 300% of Capacity
Bridge Resistance: 350 ± 5 Ω
Full Scale Deflection: .010 to .020"
Construction: Aluminum
Electrical: ±200 lb: 30 ft (9.1 m) 24 AWG
≥250 lb: 30 ft (9.1 m) 20 AWG
4-conductor shielded PVC cable

**Dimensions Shown in Inches (mm)**

<table>
<thead>
<tr>
<th>CAPACITY (lb)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>WEIGHT (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250-1000</td>
<td>½-20</td>
<td>1.25 (32)</td>
<td>1.0 (25)</td>
<td>2.0 (51)</td>
<td>3.0 (76)</td>
<td>1.1 (0.5)</td>
</tr>
</tbody>
</table>

**Most Popular Models Highlighted**

<table>
<thead>
<tr>
<th>CAPACITY (LB)</th>
<th>MODEL NUMBER</th>
<th>PRICE</th>
<th>COMPATIBLE METER*</th>
</tr>
</thead>
<tbody>
<tr>
<td>±25</td>
<td>LC105-25</td>
<td>$295</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±50</td>
<td>LC105-50</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±100</td>
<td>LC105-100</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±200</td>
<td>LC105-200</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>±250</td>
<td>LC105-250</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>±500</td>
<td>LC105-500</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
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<tr>
<td>±1,000</td>
<td>LC105-1K</td>
<td>295</td>
<td>DP41-W, DP41-S, DP25-S</td>
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</table>

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>LOAD BUTTON</th>
<th>ROD END</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL NO.</td>
<td>PRICE</td>
</tr>
<tr>
<td>±25</td>
<td></td>
</tr>
<tr>
<td>±50</td>
<td></td>
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<tr>
<td>±100</td>
<td></td>
</tr>
<tr>
<td>±200</td>
<td></td>
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<tr>
<td>±250</td>
<td></td>
</tr>
<tr>
<td>±500</td>
<td></td>
</tr>
<tr>
<td>±1,000</td>
<td></td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering

*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters. Ordering Examples: 1) LC105-200 is a ±200 lb capacity load cell, $295. 2) LC105-1K is a ±1,000 lb capacity load cell, $295. Matching Rod End, REC-012M, $35 ea.

To Order, Call 1-800-TYO-Omega® or Shop Online at www.omega.com
ALL STAINLESS STEEL “S” BEAM LOAD CELLS HIGH ACCURACY, ECONOMICAL PRICE

LC101/LC111 Series
Tension/Compression
LC101 = CABLE STYLE
LC111 = CONNECTOR STYLE
±25 lb to ± 40,000 lb
±100 N to ± 200,000 N

$305
Model Shown

**LC101**

- FM Intrinsically Safe
- All Stainless Steel for Harsh Industrial Applications
- 0.25% Interchangeable for Multiple Load Cell Applications
- Calibrated in Tension
- 5-Point Calibration Optional

**SPECIFICATIONS:**
Excitation: 10 Vdc, 15 Vdc max
Output: 3 mV/V ±.0075 mV/V
Linearity: ±0.03% FSO (0.1% 40 K)
Hysteresis: ±0.02% FSO(0.1% 40 K)
Repeatability: ±0.01% FSO (0.05% 40 K)
Zero Balance: ±1% FSO
Agency Approval: FM Intrinsically Safe
IS/I.II.I/1/CDEFG — Standard
Operating Temp Range: -40 to +93°C (-40 to 200°F)
Compensated Temp Range: 17 to 71°C (60 to 160°F)
Thermal Effects: Zero: 0.001% FSO/F Span: 0.001% FSO/F
Safe Overload: 150% of Capacity
Ultimate Overload: 300% of Capacity
Input Resistance: 350 Ω ±10 Ω
Output Resistance: 350 Ω ±10 Ω
Full Scale Deflection: 0.010 to 0.020"
Construction: 17-4 PH Stainless Steel
Electrical: LC101: <250 lb = 30 ft AWG; ≥250 lb = 30 ft 20 AWG; ≥3000 lb 15 ft 20 AWG 4-conductor shielded cable
LC111: PTIH-10-6P Connector. Mating Connector (not included) > 200 lb = PT06F10-6S; 300 lb = PT06F10-6S

**Most Popular Models Highlighted**

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>CAPACITY (LB)</th>
<th>MODEL NUMBER</th>
<th>PRICE</th>
<th>COMPATIBLE METERS*</th>
<th>LOAD BUTTON</th>
<th>ROD END</th>
</tr>
</thead>
<tbody>
<tr>
<td>±25</td>
<td>LC101-25</td>
<td>$305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-014</td>
<td>REC-014M</td>
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<td>LC101-50</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-014</td>
<td>REC-014M</td>
</tr>
<tr>
<td>±100</td>
<td>LC101-100</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-014</td>
<td>REC-014M</td>
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<tr>
<td>±200</td>
<td>LC101-200</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-014</td>
<td>REC-014M</td>
</tr>
<tr>
<td>±250</td>
<td>LC101-250</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-012</td>
<td>REC-012M</td>
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<tr>
<td>±350</td>
<td>LC101-350</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-012</td>
<td>REC-012M</td>
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<tr>
<td>±1,000</td>
<td>LC101-1K</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-012</td>
<td>REC-012M</td>
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<tr>
<td>±2,000</td>
<td>LC101-2K</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-012</td>
<td>REC-012M</td>
</tr>
<tr>
<td>±3,000</td>
<td>LC101-3K</td>
<td>305</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-012</td>
<td>REC-012M</td>
</tr>
<tr>
<td>±5,000</td>
<td>LC101-5K</td>
<td>445</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-058</td>
<td>REC-058M</td>
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<tr>
<td>±10,000</td>
<td>LC101-10K</td>
<td>465</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-100</td>
<td>REC-100M</td>
</tr>
<tr>
<td>±20,000</td>
<td>LC101-20K</td>
<td>675</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-100</td>
<td>REC-100M</td>
</tr>
<tr>
<td>±25,000</td>
<td>LC101-25K</td>
<td>825</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-100</td>
<td>REC-100M</td>
</tr>
<tr>
<td>±30,000</td>
<td>LC101-30K</td>
<td>825</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-100</td>
<td>REC-100M</td>
</tr>
<tr>
<td>±40,000</td>
<td>LC101-40K</td>
<td>875</td>
<td>DP41-W, DP41-S, DP25-S</td>
<td>LBC-114</td>
<td>REC-114M</td>
</tr>
</tbody>
</table>

Metric Ranges Available - Consult Engineering
*See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.
To order connector style, change Model No. to LC111, no extra charge. Mating Connector not included.
Ordering Examples: 1) LC111-200 is a ±200 lb capacity connector style load cell, $305. Mating Connector PT06F10-6S, $26.50 ea, Matching Rod End, REC-014M, $15 ea, matching Load Button, LBC-014, $40.
2) LC101-5K is a ±5,000 lb capacity cable style load cell, $445. Matching Rod End, REC-058M, $69 ea.

1-800-TC-OMEGA or Shop Online at www.omega.com
**SPECIFICATIONS:**

Excitation: 10 Vdc (15 Vdc max)

Output: 3 mV/V ±0.25%

5-Point Calibration:
0%, 50%, 100%, 50%, 0%
in compression. Units ordered with
optional tension plate calibrated in tension

Linearity: 0.10% FSO

Hysteresis: 0.10% FSO

Repeatability: 0.05% FSO

Zero Balance: ±1% FSO

Agency Approval:
FM Intrinsically Safe
IS/I.II.III/1/CDEFG

Operating Temp Range:
LC402: -54 to 107°C  (-65 to 225°F)
LC412: -54 to 127°C  (-65 to 260°F)

Compensated Temp Range:
16 to 71°C  (60 to 160°F)

Thermal Effects:
Zero: 0.0025% FSO/°F
Span: 0.0025% FSO/°F

Safe Overload: 150% of Capacity
Ultimate Overload: 300% of Capacity for ranges ≤400,000 lb
200% of Capacity for ranges >400,000 lb

Bridge Resistance: 350 ±10 Ω

FS Deflection: .001 to .003 in. typical

Construction: 17-4 PH Stainless Steel

Electrical Connection:
LC402: 15 ft (4.8 m) 4-conductor shielded PVC cable
LC412: DT02H-10-6P connect (or equivalent)

Mating Connector:
PT06F-10-6S (not included) $26.50

Complete specifications available online at www.omega.com

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>CAPACITY (lb)</th>
<th>CABLE MODEL NO.</th>
<th>CONNECTOR MODEL NO.</th>
<th>PRICE</th>
<th>COMPATIBLE METERS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>±50</td>
<td>LC402-50</td>
<td>LC412-50</td>
<td>$730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±100</td>
<td>LC402-100</td>
<td>LC412-100</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±250</td>
<td>LC402-250</td>
<td>LC412-250</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±500</td>
<td>LC402-500</td>
<td>LC412-500</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±1000</td>
<td>LC402-1K</td>
<td>LC412-1K</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±3000</td>
<td>LC402-3K</td>
<td>LC412-3K</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±5000</td>
<td>LC402-5K</td>
<td>LC412-5K</td>
<td>730</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±10,000</td>
<td>LC402-10K</td>
<td>LC412-10K</td>
<td>925</td>
<td>DP41-W, DP41-S, DP25-S</td>
</tr>
<tr>
<td>±15,000</td>
<td>LC402-15K</td>
<td>LC412-15K</td>
<td>995</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±20,000</td>
<td>LC402-20K</td>
<td>LC412-20K</td>
<td>995</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±25,000</td>
<td>LC402-25K</td>
<td>LC412-25K</td>
<td>995</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±50,000</td>
<td>LC402-50K</td>
<td>LC412-50K</td>
<td>1375</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±75,000</td>
<td>LC402-75K</td>
<td>LC412-75K</td>
<td>1580</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±100,000</td>
<td>LC402-100K</td>
<td>LC412-100K</td>
<td>2800</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±200,000</td>
<td>LC402-200K</td>
<td>LC412-200K</td>
<td>3600</td>
<td>DP41-W, DP41-S, DP25-S*</td>
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<tr>
<td>±300,000</td>
<td>LC402-300K</td>
<td>LC412-300K</td>
<td>6200</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±400,000</td>
<td>LC402-400K</td>
<td>LC412-400K</td>
<td>7200</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±500,000</td>
<td>LC402-500K</td>
<td>LC412-500K</td>
<td>9000</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
<tr>
<td>±750,000</td>
<td>LC402-750K</td>
<td>LC412-750K</td>
<td>11,000</td>
<td>DP41-W, DP41-S, DP25-S*</td>
</tr>
</tbody>
</table>

**See Section D in the Pressure Section of the Made in USA Handbook for Compatible Meters.**

**To Order, Call 1-800-TC-Omega or Shop Online at www.omega.com**

---

**LC402 = Cable Style**

**LC412 = Connector Style**

**Tension/Compression**

±50 lb to ±750,000 lb
±200 N to ±3.3 MN

1 Newton = 0.2248 lb
1 daNewton = 10 Newtons
1 lb = 454 g
1 t = 1000 kg = 2204 lb
Hundreds of Load and Force Cells Available

See OMEGA’s Broad Selection of Load and Force Transducers in The OMEGA® Made in the USA Edition Handbook™ or online at www.omega.com

You Can Also Download Complete Specifications or order online!

LCWD Load Washers
Featured on page F-42 in the Pressure Section of the Made in USA Handbook

See OMEGA’s Broad Selection of Load and Force Transducers in The OMEGA® Made in the USA Edition Handbook™ or online at www.omega.com

You Can Also Download Complete Specifications or order online!

LC501 High Accuracy Beam
Featured on page F-37 in the Pressure Section of the Made in USA Handbook

$340
Basic Unit

TWA5 Self-Adjusting Weigh Assemblies
Featured on page B-96 in the Pressure Section of the Made in USA Handbook

$560
Basic Unit

LC1102 Canister Load Cells
Featured on page F-56 in the Pressure Section of the Made in USA Handbook

$375
Basic Unit

LCAD Platform Load Cell
Featured on page F-41 in the Pressure Section of the Made in USA Handbook

$495
Basic Unit

LCUW Hydrostatically Compensated Load Cell
Featured on page F-61 in the Pressure Section of the Made in USA Handbook

$1175
Basic Unit

LC1102 Canister Load Cells
Featured on page F-56 in the Pressure Section of the Made in USA Handbook

$995
Basic Unit

You Can Also Download Complete Specifications or order online!

To Order, Call 1-800-226-3422® or Shop Online at www.omega.com
DILBERT® by Scott Adams

Collection Series #14-001013

One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

4/16/01 DILBERT © United Feature Syndicate, Inc.

Collection Series #14-001014

One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

4/17/01 DILBERT © United Feature Syndicate, Inc.

Collection Series #14-001015

One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

4/20/01 DILBERT © United Feature Syndicate, Inc.
The unique FMA-900 air velocity transducer utilizes both a velocity sensor and a temperature sensor to accurately measure air velocity (in SFPM, standard feet per minute). The built-in temperature sensor automatically corrects the flowrate for temperature variations. Both sensors are rugged glass-coated platinum resistance detectors (RTDs). The circuit heats the velocity sensor to a constant temperature differential above ambient temperature and measures the cooling effect of the air flow. This design provides excellent low velocity sensitivity and high accuracy. The FMA-900 also features negligible pressure drop.

To obtain mass flowrate in SCFM (standard cubic feet/minute), the SFPM velocity indicated by the FMA-900 is multiplied by the cross-sectional area of the pipe or duct in square feet. A traverse across the pipe or duct can be performed to determine the mounting location for average velocity indication. The FMA-900 can be mounted in pipes (down to 1” size) with the use of OMEGA® SSLK compression fittings (SSLK-14-14). Teflon® ferrules are required. (model T-FER-14).

Each unit is individually calibrated in OMEGA’s NIST-traceable wind tunnel. Suggested power supply; FPW-15, ($75).

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No. 0-5 V Output</th>
<th>Price</th>
<th>Model No. 4-20 mA Output</th>
<th>Price</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMA-900-V</td>
<td>$822</td>
<td>FMA-900-I</td>
<td>$882</td>
<td>0-100 SFPM</td>
</tr>
<tr>
<td>FMA-901-V</td>
<td>822</td>
<td>FMA-901-I</td>
<td>882</td>
<td>0-200 SFPM</td>
</tr>
<tr>
<td>FMA-902-V</td>
<td>822</td>
<td>FMA-902-I</td>
<td>882</td>
<td>0-500 SFPM</td>
</tr>
<tr>
<td>FMA-903-V</td>
<td>822</td>
<td>FMA-903-I</td>
<td>882</td>
<td>0-1000 SFPM</td>
</tr>
<tr>
<td>FMA-904-V</td>
<td>822</td>
<td>FMA-904-I</td>
<td>882</td>
<td>0-2000 SFPM</td>
</tr>
<tr>
<td>FMA-905-V</td>
<td>822</td>
<td>FMA-905-I</td>
<td>882</td>
<td>0-5000 SFPM</td>
</tr>
<tr>
<td>FMA-906-V</td>
<td>822</td>
<td>FMA-906-I</td>
<td>882</td>
<td>0-10,000 SFPM</td>
</tr>
</tbody>
</table>

Suggested power supply; FPW-15, ($75).

IN STOCK FOR FAST DELIVERY!

Replacement mating connector, Model No. FMA-3CON, $25.
OMEGA'S LABORATORY-GRADE BENCHTOP WINDTUNNEL

- Precise Motor Control for Adjusting Flowrates
- NIST Calibration Supplied with Each Windtunnel
- Highly Accurate to 1% of Reading
- Large 101.6 x 101.6 mm (4" by 4") Test Chamber
- Highly Stable Delta Pressure Sensor and Readout Included with Each Windtunnel
- Fully Instrumented
- Optional Environmental Monitoring Package of Temp, Humidity, Barometric Pressure and Delta P Available

OMEGA's state-of-the-art windtunnel is designed to give a highly uniform flow rate over a 6" test section. A powerful 12 amp motor with variable speed from 0 to 10,000 RPM is adjustable to give a particular flowrate by a precise motor control unit. Each windtunnel is supplied with an NIST traceable certificate. The uniform flowrate is determined by monitoring a highly repeatable differential pressure sensor which has been calibrated to each individual wind tunnel as a system. Each windtunnel is supplied with two restrictive plates for achieving optimum low flowrates. The established differential pressure measurements versus flowrates are listed from 25 to 9000 FPM. Calibration sheets are included, which makes calibrating different flow sensors simple. The differential pressure measurement used to establish known flowrates will be affected by barometric pressure and temperature conditions during testing. Depending on the probe being calibrated, humidity may also be a factor.

OMEGA's deluxe windtunnel package is an environmental monitoring system that measures barometric pressure, room temperature, humidity and differential pressure. By monitoring room conditions, standard differential pressures can be converted to actual differential pressure readings to ensure accurate flowrates.

For testing different probes, a ½" NPT connection is available. An assortment of compression fittings is provided to help mount the probe under calibration.

WT4400 Series

$8995
Basic Unit

SPECIFICATIONS

Windtunnel
- Accuracy: 1% rdg (2% rdg with restrictive plates)
- Flow Rates: 25 to 9000 fpm (0.15 to 45 m/s)
- Noise: 95 dBA max.

Motor
- Power: 120 Vac
- Current: 12 amps
- Speed: 10,000 RPM

Motor Control
- Power: 120 Vac
- Speed Adj.: 10 turn pot.
- Internal Adj.: Min., Max., Acceleration & Current Limit

Size: 140 W x 184 L x 89 mm H (5.53 x 7.25 x 3.5")

Weight: tunnel: 22.5 kg (49.5 lb); Standard elec. 3.2 kg (7 lb); deluxe elec. 7 kg (15.3 lb)

To Order, Call 1-800-TG-OMEGA or Shop Online at www.omega.com
Standard and Deluxe Packages Establish Flowrates from 25 to 9000 FPM

Monitoring Systems

Standard Package
PX657 127 mm (5") H₂O differential pressure sensor and DP41-S-A meter with analog output in benchtop case

Deluxe Package
Same differential system as above, plus HX10-A sensor for temperature and humidity, PX02C1-16A5T barometric sensor, PSS-D15B power supply and 3 DP25-E panel meters mounted in a benchtop case.

All 4 meters have 10 Vdc analog outputs. Windtunnels come complete with ¼, ⅜, ½ and ¾" brass compression fittings with Teflon® ferrules, two 5' lengths of silicone tubing, operator's manual with NIST calibration data and pressure sensor with benchtop meter.

The entrance to this precise windtunnel is a fiberglass-constructed baffle. The honeycomb baffle design insures constant and evenly distributed air intake. The design minimizes turbulent air flow created by movement in front of the intake.

The back of the baffle has a profile design that keeps the stream uniform, while decreasing the area to a 101.6 mm x 101.6 mm (4" by 4") cross-section. The 4" by 4" cross-section is 152 mm (6") in length and constructed of clear plastic for easy viewing. In back of this test section, the motor pulls the air through the windtunnel. The motor and intake profiles utilize fiberglass construction, which minimizes airflow distortion.

Dimensions in mm (in)

A deluxe monitoring package keeps track of ambient conditions as well as the precise differential pressure measurement. The monitoring sensors and instruments are all packaged inside a single powerful housing. Each sensor has an analog output for use with a strip chart recorder or computer datalogging system. Humidity, temperature and barometric sensors are enclosed in the benchtop case for monitoring atmospheric conditions which can influence the exact air speed. The differential pressure cell is connected to the wind tunnel via silicone tubing. The entrance and test chambers' pressures are monitored, which determines true air speed.

The tunnel comes complete with everything you need to calibrate probes quickly. All accessories, NIST documents, manuals, fitting, etc. are supplied for most any application. Ordering Example: WT4401-D, deluxe windtunnel package, $11,700.

<table>
<thead>
<tr>
<th>Windtunnel Configuration</th>
<th>Flow Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FPM</td>
</tr>
<tr>
<td>No restrictive plates</td>
<td>1000 to 9000</td>
</tr>
<tr>
<td>Restrictive plate A</td>
<td>250 to 1250</td>
</tr>
<tr>
<td>Restrictive plate B</td>
<td>25 to 350 FPM</td>
</tr>
</tbody>
</table>

IN STOCK FOR FAST OFF-THE-SHELF DELIVERY!

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT4401-S</td>
<td>$8,995</td>
<td>Windtunnel with differential pressure monitor</td>
</tr>
<tr>
<td>WT4401-D</td>
<td>11,700</td>
<td>Windtunnel deluxe package (barometric pressure, temperature, humidity and differential pressure monitoring system)</td>
</tr>
</tbody>
</table>

To Order, Call 1-800-TC-Omega® or Shop Online at www.omega.com
**LIGHTSPEED™ FIBER OPTIC PADDLEWHEEL FLOW SENSORS – INHERENTLY SAFE DESIGN**

FP9000 Series

$225

Unique Fiber-Optic Design for Hazardous Areas
Fiber-Optic Signal – Insensitive to Electrical Interference
Non-Magnetic Design Resists Fouling from Rust
Optical Interface

FP9000 Series LIGHTSPEED™ paddlewheel flow sensors are ideal for applications with low viscosity solutions (like water) which are low in suspended solids.

A patented fiber-optic sensing mechanism makes these sensors especially well suited for applications in hazardous environments, where the paddlewheel electronics can be mounted in a non-hazardous location and the near-infrared light signal can be sent down an optic cable to the paddlewheel inside the hazardous location. This non-magnetic design tolerates some rust, often found in iron pipes. FP9000 Series flow sensors must be used with the companion FP9000 Series pipe installation fittings.

The high amplitude pulse output from the FP9P opto-electronic interface is ideally suited for hook up to the model INF7 ratemeter/totalizer. For 4-20 mA output, connect to OMEGA’s FLSC90 Series signal conditioner. (Please specify fitting and calibration range for the 4-20 mA output.) The FLSC90 includes the required optical interface for the FP9000 sensor.

**Flow Sensor Specifications**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Range (gpm)</th>
<th>Accuracy</th>
<th>Repeatability</th>
<th>Nominal</th>
<th>Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5'</td>
<td>1.0 - 20</td>
<td>±2%</td>
<td>±2%</td>
<td>938</td>
<td>15.6</td>
</tr>
<tr>
<td>0.75'</td>
<td>2.0 - 30</td>
<td>±2%</td>
<td>±2%</td>
<td>528</td>
<td>8.80</td>
</tr>
<tr>
<td>1.0'</td>
<td>4.0 - 55</td>
<td>±2%</td>
<td>±2%</td>
<td>322</td>
<td>5.37</td>
</tr>
<tr>
<td>1.25'</td>
<td>4.5 - 90</td>
<td>±2%</td>
<td>±2%</td>
<td>161</td>
<td>2.68</td>
</tr>
<tr>
<td>1.5'</td>
<td>8.0 - 125</td>
<td>±2%</td>
<td>±2%</td>
<td>112</td>
<td>1.87</td>
</tr>
<tr>
<td>2.0'</td>
<td>15.0 - 200</td>
<td>±2%</td>
<td>±2%</td>
<td>63.6</td>
<td>1.06</td>
</tr>
<tr>
<td>2.5'</td>
<td>20 - 300</td>
<td>±2%</td>
<td>±2%</td>
<td>48.4</td>
<td>0.807</td>
</tr>
<tr>
<td>3.0'</td>
<td>25 - 500</td>
<td>±3%</td>
<td>±3%</td>
<td>15.5</td>
<td>0.258</td>
</tr>
</tbody>
</table>

Covered by U.S. and Foreign Patents and Pending Applications
### Flow Sensor Ordering Guide

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP9001*</td>
<td>$225</td>
<td>Paddlewheel sensor for pipes 1⁄2&quot; to 3&quot;</td>
</tr>
</tbody>
</table>

*Must be used with FP9P, FP9250, or FLSC90. Please order separately below.*

**Works With:**
- **FP9001 Sensor**
  - *Wetted Parts:* Polypropylene body and impeller, Hastelloy C shaft, Viton® O-rings, acrylic fiber-optic cable
  - *Maximum Fluid Viscosity:* 1 centipoise
  - *Temperature/Pressure:* 1⁄2" PVC fitting: 100 psi @ 23°C, 50 psi @ 60°C; 1⁄2" through 1⅛": 200 psi @ 23°C, 100 psi @ 60°C; 2" through 3½: 200 psi @ 23°C (73°F), 50 psi @ 60°C (140°F)
  - *Fiber-Optic Cable Length:* 2.7 m (9')
  - *Sensor Weight:* 0.45 kg (1 lb)

### Accessories

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP9P-T</td>
<td>$155.00</td>
<td>Optical-to-TTL pulse interface</td>
</tr>
<tr>
<td>PSU-93</td>
<td>40.00</td>
<td>Wall socket plug-in transformer, 115 Vac in, 24 Vdc out on screw terminals</td>
</tr>
<tr>
<td>TX4-100</td>
<td>28.50</td>
<td>4-wire shielded cable, 30 m (100')</td>
</tr>
</tbody>
</table>

**Ordering Example:**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FP9001, sensor</td>
<td>$225.00</td>
</tr>
<tr>
<td>1</td>
<td>FP9010, fitting for 1&quot; pipe</td>
<td>90.00</td>
</tr>
<tr>
<td>1</td>
<td>FP9P-T, DP701, DP700-A optical pulse interface</td>
<td>155.00</td>
</tr>
<tr>
<td>1</td>
<td>TX4-100 4-wire shielded cable, 100 ft</td>
<td>28.50</td>
</tr>
</tbody>
</table>

**Total:** $498.50

**Viton®** is a registered trademark of DuPont Dow Elastomers.

---

**Installation Fittings** PVC Schedule 80

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Pipe Size</th>
<th>Flow Range (GPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP9005</td>
<td>$80</td>
<td>1⁄2&quot;</td>
<td>1.0-20</td>
</tr>
<tr>
<td>FP9007</td>
<td>90</td>
<td>3⁄4&quot;</td>
<td>2.0-30</td>
</tr>
<tr>
<td>FP9010</td>
<td>90</td>
<td>1&quot;</td>
<td>4.0-55</td>
</tr>
<tr>
<td>FP9012</td>
<td>100</td>
<td>1⅛&quot;</td>
<td>4.5-90</td>
</tr>
<tr>
<td>FP9015</td>
<td>100</td>
<td>1½&quot;</td>
<td>8.0-125</td>
</tr>
<tr>
<td>FP9020</td>
<td>100</td>
<td>2&quot;</td>
<td>15.0-200</td>
</tr>
<tr>
<td>FP9025</td>
<td>100</td>
<td>2½&quot;</td>
<td>20-300</td>
</tr>
<tr>
<td>FP9030</td>
<td>120</td>
<td>3&quot;</td>
<td>25-500</td>
</tr>
</tbody>
</table>

**Note:** PVC fittings from 1⁄2" through 1⅛" are tee-style; those from 2" to 3" are saddle-type.

---

**VPC Tee Fitting, for Pipes ½" Through 1½"**

Covered by U.S. and Foreign Patents and Pending Applications

- PVC Tee Fitting
- for Pipes 1⁄2" Through 1½"

To Order, Call 1-800-626-342® or Shop Online at www.omega.com

®
OMEGA® FP7000 paddlewheel flow sensors are ideal for accurate monitoring of typical industrial water flows, hard-to-handle corrosive aqueous solutions, and high purity fluids (see “Wetted Materials” for details). The FP7000 utilizes a paddlewheel-like rotor whose motion is converted into a high-level square wave pulse output by an open collector Hall effect sensor. Pulse amplitudes from 5 to 18 V are possible, depending on input power. The FPW-15 115 Vdc converter plugs directly into a wall socket and outputs 400 mA at Vdc.

The DPF700 Series panel meter supplies power for the flow sensor and provides rate indication, or totalization and batch control (when ordered with the dual relay option). When ordered with the analog output option, the DPF700 can be used to interface the FP7000 flow signal to such items as strip chart recorders, dataloggers, and computer interfaces.

The system consists of the flow sensor, an installing fitting, and the electronics. The PVC tee fittings are supplied with a PVC locking nut, and the galvanized iron tee fittings are supplied with a brass locking nut to provide secure metal-to-metal mounting to the threaded brass insert.

The FP7000 is not compatible with FP-5300 or FMG-5300 Series installation fittings. When powered by the FPW-5 five Vdc wall socket converter, the FP7000 has a TTL level pulse output which can be used with a variety of pulse input flow indicators, signal conditioners and controllers. It is not compatible with the FPM 5500/5740.

To Order, Call 1-800-FLOW-OMEGA® or Shop Online at www.omega.com
Preliminary Specifications
Accuracy: ±2% of full scale
Repeatability: ±1% of full scale
Power: 5 to 18 Vdc @ 10 mA maximum
Wetted Materials: FP7000 Series sensor: polypropylene body, PVDF paddle, Viton® O-ring, 316SS shaft. Galvanized iron tee includes brass insert and locking nut. PVC tee has PVC insert and locking nut.

Fluid Temperature/Pressure Range:
Do not exceed the maximum ratings of your piping. Depending on the material of the fitting, the operating temperature/pressure may be limited by your piping and not by the sensor. For all PVC tee fittings, do not exceed 150 PSIG @ 27°C (80°F), 100 psig @ 38°C (100°F), 60 psig @ 49°C (120°F) 30 psig @ 60°C (140°F), due to the insert in the tee. FP7000 sensor: 0 to 26°C (32 to 80°F) up to 150 psig; max. pressure decreases 1.1 psig per each .56°C (1°F) above 27°C (80°F) for a max. temperature of 93°C (200°F) at 18 psig max.

Frequency Output: Nominal 1 Hz/fts. amplitude of open collector pulse = Vdc input power
Cable Length: 2.4 m (8 feet)
Weight:
FP7001: 0.2 kg (½ lb)
FP7030GI: 2.8 kg (6½ lb)
FP7030: 4.3 kg (9½ lb)
Max Viscosity: 5 cps

Ordering Example: To purchase a complete system, order:
1) Flow Sensor
2) Installation Fitting
3) Electronics (see Page 35).

Example: FP7001 sensor (polypropylene body/316SS shaft), FP7012 PVC installation fitting, plus DP701 panel meter, $200 + 80 + 260 = $540.

Available with PVC or Galvanized Iron Fittings

Sensors

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP7001</td>
<td>$200</td>
<td>Polypropylene body/316SS shaft</td>
</tr>
</tbody>
</table>

To Order (Specify Model Number)

Comes with complete operator’s manual.

Ordering Example: FP7001 plus FP7007, paddlewheel sensor and fitting, $200 + 77 = $277

Required Installation Fittings (Includes Locking Nut)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Lay Length mm (in)</th>
<th>K Factor</th>
<th>Model No.</th>
<th>Price</th>
<th>Pipe Size NPT</th>
<th>K Factor</th>
<th>Range (GPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP7007</td>
<td>$77</td>
<td>0.53 (21)</td>
<td>108.78</td>
<td>FP7007-GI</td>
<td>$125</td>
<td>¾&quot;</td>
<td>159.85</td>
<td>2-30</td>
</tr>
<tr>
<td>FP7010</td>
<td>77</td>
<td>0.66 (26)</td>
<td>70.53</td>
<td>FP7010-GI</td>
<td>110</td>
<td>1&quot;</td>
<td>82.94</td>
<td>3-50</td>
</tr>
<tr>
<td>FP7012</td>
<td>80</td>
<td>0.79 (31.25)</td>
<td>41.16</td>
<td>FP7012-GI</td>
<td>110</td>
<td>1½&quot;</td>
<td>48.81</td>
<td>5-90</td>
</tr>
<tr>
<td>FP7015</td>
<td>90</td>
<td>0.95 (37.5)</td>
<td>29.46</td>
<td>FP7015-GI</td>
<td>100</td>
<td>1½&quot;</td>
<td>35.52</td>
<td>7-125</td>
</tr>
<tr>
<td>FP7020</td>
<td>100</td>
<td>1.27 (50)</td>
<td>15.52</td>
<td>FP7020-GI</td>
<td>105</td>
<td>2&quot;</td>
<td>20.62</td>
<td>11-205</td>
</tr>
<tr>
<td>FP7025</td>
<td>105</td>
<td>1.59 (62.5)</td>
<td>11.40</td>
<td>FP7025-GI</td>
<td>150</td>
<td>2½&quot;</td>
<td>12.44</td>
<td>15-285</td>
</tr>
<tr>
<td>FP7030</td>
<td>125</td>
<td>1.91 (75)</td>
<td>6.64</td>
<td>FP7030-GI</td>
<td>170</td>
<td>3&quot;</td>
<td>7.22</td>
<td>25-460</td>
</tr>
</tbody>
</table>

*All PVC fittings include some straight pipe.

To Order, Call 1-800-TC-Omega® or Shop Online at www.omega.com
HIGH ACCURACY FREQUENCY OR ANALOG INPUT FLOW INDICATOR
For Flowrate, Total or Batch Control

DPF400 Series
$395 Basic Unit

- Easy to Read Alpha-numeric 6-Digit Display
- UL Listed
- Versions Available to Accept Low-Level Frequency Input Directly
- Analog Input for Linear or Square Root Input Optional
- 5 Open Collector Outputs Standard
- Optional Scalable Analog, BCD, RS-232 or RS-485 Outputs
- Optional Dual 7A Relays

The DPF400 Series is a complete line of flowrate indicators offering exceptional performance at an economical price. Individual models are available for flowrate and totalization (with or without square root extraction) batch control.

The DPF400 is front panel programmable to scale any input range to display in desired engineering units. Independent scale factors for rate and total allow rate indication and totalization in different units, such as GPM rate and total barrels. If the optional RS-232 or RS-485 communications are installed, the unit may also be programmed by remote computer. The DPF400 is available with 4 input types, including TTL/open collector pulse, low level frequency, analog voltage or analog current. The unit can be user-configured for one of three functions:

1) a ratemeter/totalizer/batcher
2) a ratemeter/totalizer/batcher with square root extraction (for differential pressure flow measurement)
3) a batch controller only with multibatch counting, auto/manual batch recycle, and remote or local STOP/CONTINUE control (START control can be obtained with a user supplied switch in series with the control relay)

Options to the DPF400 include analog and BCD outputs, alarm/control outputs, and RS-232 or RS-485 communications. The RS-232 or RS-485 communications options are bi-directional, allowing the user to configure the DPF400 as well as read current values.

While each DPF400 comes standard with 5 open collector outputs, the optional DP40-R board provides dual 7A mechanical relays which replace two of the open collector alarms, for a total of two 7A relay and three open collector alarms.

**SPECIFICATIONS**

TTL Level Inputs (DPF401): 0.7 to 2.0 V threshold; 0.2 Hz to 20 kHz frequency; 24 V protection, positive trigger slope; 16-30 V unregulated 75 mA sensor excitation

Isolated Pulse Input with Excitation (DPF402): 60 Vrms with protection to 240 V max signal

<table>
<thead>
<tr>
<th>Excitation</th>
<th>Hysteresis</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPF402</td>
<td>5 V</td>
<td>13 mV</td>
</tr>
<tr>
<td>Low</td>
<td>8.2 V</td>
<td>22 mV</td>
</tr>
<tr>
<td>Level</td>
<td>2.4 V</td>
<td>35 mV</td>
</tr>
</tbody>
</table>

NPN Open Collector Input (DPF402): 3-wire connection; 12 V regulated excitation

NAMUR Input (DPF402): 2-wire connection; 12 V regulated sensor excitation, 10 on/off per second frequency range

Analog Input (DPF403): 0-5 V, 1-5 V, or 4-20 mA range; 0-10 V, or 0-1 mA inputs optionally available; 354 vP isolation; programmable low-level shutoff; 0.02% FS non-linearity; 0.05% FS accuracy; accuracy, 50 ppm/°C temperature coefficient, maximum

Display: 6-digit, 14-segment LED, red or green: 13.8 mm H (0.54”); indicator lights for alarms and status modes

Display Update: 0.04 to 3 seconds, programmable. Min. Input Frequency: 0.2 Hz

Power: 115 std., 230 Vac opt. 50/60 Hz; 10 Watts maximum

Accuracy: Frequency: 0.01% of reading; Analog: 0.05% of full scale

FP5300

To Order, Call 1-800-626-342® or Shop Online at www.omega.com
Step Response: Analog: 50 msec for 10 to 90% FS; Frequency: equal to selected gate time

Operating Ambient Range: 0 to 50°C (32 to 122°F), 95% RH, non-condensing

Storage Temperature: -40 to 85°C (-40 to 185°F)

RS-232 Communications (optional): front panel programmable for 300/1200/2400/4800/9600/19.2k baud; RJ11 4-wire connection; complete program setup and message display capability; programmable to transmit all measured values, alarm status, actual measured input value (not scaled) and status on programmable intervals from 1 to 60,000 seconds.

RS-485 Communications (optional): 300/1200/2400/4800/9600/19.2k baud; RJ11 6-wire connection; addressable from 0 to 199

Open Collector Outputs: five 150 mA @ 1 Vdc sink; 30 V open

BCD Output (optional): isolated; 3- or 6-digit addressing; TTL level output; 5 Vdc external power supply required for isolated output

Mechanical Relays (optional): dual, form C; 7A at 230 Vac/30 Vdc

Analog Outputs (optional): 0-5 V/1-5 V/0-10 V/0-20 mA/4-20 mA all field selectable; all internally powered (sourcing); 600 ohms max. loop impedance for 20 mA outputs; min. 500 ohms input impedance for voltage outputs; 354 Vp isolation; 15-bit resolution; 0.1% of reading accuracy; 50 ms step response; fully adjustable zero and span adjustments.

Dimensions: 48 H x 96 W x 149 mm D (1.89" x 3.78" x 5.86")

Panel Cutout: 45 H x 92 mm W (1.772" x 3.622"); 1/8 DIN

Weight: 574 g (1.27 lb)

IN STOCK FOR FAST DELIVERY!

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPF401</td>
<td>$395</td>
<td>TTL/Open Collector/Contact Closure Input Meter. Includes 16 V @ 70 mA Output Power.</td>
</tr>
<tr>
<td>DPF402</td>
<td>470</td>
<td>Low Level Pulse Input Meter. Includes 12 V @ 70 mA output power or 8.2 V with 1 Kohm source impedance.</td>
</tr>
<tr>
<td>DPF403*</td>
<td>590</td>
<td>4-20 mA/0-5 Vdc/1-5 Vdc (field-selectable) Input Meter. Includes nominal 24 V @ 25 mA Output Power.</td>
</tr>
</tbody>
</table>

Ordering Example: DPF401-230V-A, DPF400-S2 and DPF40-9SC options: DPF401 unit for TTL level input, with 230 Vac power, analog output, RS-232 communications and 9-pin serial connector, $395 + 110 + 110 + 30 = $645

Display and Power Options

<table>
<thead>
<tr>
<th>Order Suffix</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-GR</td>
<td>N/C</td>
<td>Green Display</td>
</tr>
<tr>
<td>-230V</td>
<td>N/C</td>
<td>230 Vac Power</td>
</tr>
</tbody>
</table>

Output Boards and Communications Options

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP40-A</td>
<td>$110</td>
<td>Analog Output Board</td>
</tr>
<tr>
<td>DP40-B*</td>
<td>110</td>
<td>Isolated BCD Output Board</td>
</tr>
<tr>
<td>DP40-R*</td>
<td>75</td>
<td>Dual 6A Mechanical Relays</td>
</tr>
<tr>
<td>DPF400-S2†</td>
<td>110</td>
<td>Isolated RS-232 Communications</td>
</tr>
<tr>
<td>DPF400-S4†</td>
<td>110</td>
<td>Isolated RS-485 Communications</td>
</tr>
</tbody>
</table>

Options

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP40-9SC2</td>
<td>$30</td>
<td>9-pin Serial Connector for RS-232</td>
</tr>
<tr>
<td>DP40-9SC4</td>
<td>30</td>
<td>9-pin Serial Connector for RS-485</td>
</tr>
<tr>
<td>DP40-25SC2</td>
<td>30</td>
<td>25-pin Serial Connector for RS-232</td>
</tr>
<tr>
<td>DP40-25SC4</td>
<td>30</td>
<td>25-pin Serial Connector for RS-485</td>
</tr>
</tbody>
</table>

*Note: 0-10 Vdc and 0-1 mA inputs optionally available for DPF403, add suffix "-10VINP" or "-1MA", no additional charge.

Options

Ordering Example: DPF401-230V-A, DPF400-S2 and DPF40-9SC options: DPF401 unit for TTL level input, with 230 Vac power, analog output, RS-232 communications and 9-pin serial connector, $395 + 110 + 110 + 30 = $645

To Order, Call 1-800-324-6652 or Shop Online at www.omega.com
ECONOMICAL HIGH PERFORMANCE FLOW SIGNAL CONDITIONERS

Model FLSC-45
$225

- ±0.1% Accuracy
- 4 to 20 mA or 1 to 5 Vdc Field-Selectable Output
- Low Cost
- Compact Design

The FLSC-45 is a dc powered frequency-to-analog output signal conditioner with a 4 to 20 mA or 1 to 5 Vdc field-selectable output. The high performance electronics will accept a low level magnetic pickup signal from a paddlewheel or turbine meter directly without amplification and convert it to an industry-standard analog output.

SPECIFICATIONS
Accuracy: ±0.1% of full scale
Repeatability: ±0.025%
Input: Sine wave 20 mV pp min
Output: 4 to 20 mA or 1 to 5 Vdc field selectable
Response Time: 2 sec fixed
Frequency Input Range to Achieve FS Output: 65 to 7600
Power: 10 to 32 Vdc for 4 to 20 mA and 15 to 32 for 1 to 5 Vdc output
Operating Temperature: -20 to 60°C (-4 to 140°F)
Storage Temperature: -25 to 70°C (-12 to 158°F)
Dimensions: 61 H x 104 W x 25.4 mm D (2.4 x 4.1 x 1")
Weight: 96 g (3.3 oz)

To Order (Specify Model No.)
<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLSC-45</td>
<td>$225</td>
<td>Flow signal conditioner</td>
</tr>
</tbody>
</table>

Comes with complete operator's manual.
Ordering Example: FLSC-45, flow signal conditioner, $225

To Order, Call 1-800-826-6342® or Shop Online at www.omega.com
The DPF700 is compatible with a wide variety of frequency (pulse) output flowmeters and proximity switches. When purchased with the dual relay board, the DPF700 can be used as a two-stage batch controller.

Specifications

Functions: Rate and totalize selected by menu
Display: 6-digit, 7-segment red LED display
Inputs
Type: Single input. TTL, CMOS, NPN open collector, contact closure and magnetic pickup compatible; selected by dip switch. Non-isolated.
Level: max. 60 V; min. 25 mV rms
Frequency: 30 kHz max.
Excitation: Regulated, 5.0, 8.2, or 12.5 V selected by DIP switch, 100 mA max
Accuracy: ±½ LSD of total; 0.01% of the rate ±½ LSD

IN STOCK FOR FAST DELIVERY!

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPF701</td>
<td>$260</td>
<td>115 Vac/7.5 to 13 Vdc Powered</td>
</tr>
<tr>
<td>DPF702</td>
<td>260</td>
<td>230 Vac/7.5 to 13 Vdc Powered</td>
</tr>
</tbody>
</table>

Option Boards (Field Installable)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPF700-A</td>
<td>$100</td>
<td>Analog Output Board</td>
</tr>
<tr>
<td>DPF700-R</td>
<td>75</td>
<td>Dual 6 A Relay Board</td>
</tr>
<tr>
<td>DPF700-232</td>
<td>60</td>
<td>RS-232 Output Board</td>
</tr>
</tbody>
</table>

Comes with gray BUMPER BAND® protective rubber guard and complete operator’s manual.

Ordering Examples:
1) DPF701, plus DPF700-A analog output board, $260 + 100 = $360.
2) DPF702, plus SPC18 splashproof cover, $260 + 30 = $290.
The OMEGA® LVSC1 dry contact signal conditioner will interface with any level switch or relay contact to convert a contact closure to a current output level change. This converted signal can be used to control pumps, valves, and other automated industrial controls requiring a 4-20 mA signal. The electronics are fully potted.

When a closed switch condition occurs on input terminals 1 and 2, the output signal changes from 4 mA to 20 mA. Reverse signal output is available on the Model LVSC1-R.

**SPECIFICATIONS**

- **Accuracy:** ±1% of full scale
- **Power:** 8-32 Vdc
- **Input:** Dry contact switch closure
- **Response Time:** 200 msec
- **Operating Temp. Range:** -10 to 60°C (14 to 140°F)
- **Storage Temp. Range:** -20 to 70°C (-4 to 158°F)
- **Dimensions:** 38.1 H x 63.5 L x 76.2 mm W (1.5 x 2 x 3”)
- **Mounting Holes:** 0.175” on 2.5” centers
- **Weight:** 57g (2 oz)

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVSC1</td>
<td>$59</td>
<td>Signal conditioner, 4 to 20 mA output</td>
</tr>
<tr>
<td>LVSC1-R</td>
<td>59</td>
<td>Signal conditioner with reverse output</td>
</tr>
</tbody>
</table>

Comes with complete operator’s manual.

**Ordering Example:** LVSC1, dry contact signal conditioner with 4 to 20 mA output, $59.
MAGNETIC PICKUP
LOW LEVEL AMPLIFIER

Model FLSC-AMP-A

$65

Ultra-Low Speed to
20 kHz Operation

500 mV pp to 50 V Input

100 mA Current Sinking Output

8-24 Vdc Power Supply

Small, Compact Design

Low Cost and High
Performance

Surface Mount Technology

OMEGA’s Model FLSC-AMP-A amplifies the low level sine wave signals from a magnetic pickup sensor to a high level square wave output directly proportional in amplitude to the power supply voltage powering the module. This amplified signal will drive any ratemeter, totalizer, counter or batch controller.

SPECIFICATIONS
Power: 8-24 Vdc @ 30 mA
Input Frequency: 0 to 20 kHz
Input Voltage: 0.5 to 50 V
Output: Square wave amplified pulse
Output Sink Current: 100 mA max.
Temperature Range: -10 to 60°C (14 to 140°F)
Dimensions: 44.5 dia. x 31.75 mm H (1.75 x 1.25”); two 0.250” holes on 1.30” centers
Weight: 28 g (1 oz)

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLSC-AMP-A</td>
<td>$65</td>
<td>Magnetic pickup amplifier</td>
</tr>
</tbody>
</table>

Comes with complete operator’s manual.
Ordering Example: FLSC-AMP-A, magnetic pickup amplifier, $65

To order, call 1-800-TC-OMEGA or shop online at www.omega.com
Digital Display of Flowrate, RPM, Total Volume, Fluid Temperature (°F or °C), Flow Duration, or Tube ID

Flow Rate 1.0 to 2280 mL/Min (10 to 600 RPM) Reversible

Easy-to-Read Display

Type K SMP Female Thermocouple Input

Tachometer Feedback, ±0.5% Speed Control

Accepts Two Pumps, One on Each Side or Two Stacked Together

Membrane Keypad for Easy Calibration

Remote Control Options
  Aux. In: Remote Start/Stop
  Aux. Out: Remote Monitor

Built-In Electronic Braking and Reversing for Fast Stops and Directional Changes

Accepts Metric or English Tube Sizes

Displays Information in English, French, Spanish, German, or Italian

The OMEGAFLEX® FPU5-MT pump motor offers microprocessor control and a digital display, and is designed to be fully compatible with OMEGA's FPU500 pump. No mounting plate is needed, just two mounting screws. A ⅛ HP (75 W) motor provides flowrates of up to 2280 mL/minute.

SPECIFICATIONS

Motor: Reversible, ⅛ HP (75 W), 90 Vdc
Display: 16-Character dot matrix LCD, 9 mm (¾") high characters
Power: 90 to 130 Vac, 1.5 A; 190 to 260 Vac, 0.8 A
Line Cord: 1.8 m (6') with U.S. standard plug on 115 Vac units; European plug on 230 Vac units
Housing: Painted sheet metal with rubber feet; units are stackable
Dimensions: 152 H x 254 W x 254 mm D (6 x 10 x 10")
Weight: 8.2 kg (18 lb)

To Order, Call 1-800-666-342® or Shop Online at www.omega.com
The FPU500 Series peristaltic pumps from OMEGA offer exceptional simplicity, ease of use, and variable flow capability.

A motor turns the pump’s rollers, which squeeze fluid through precision-bore tubing in a wave-like motion. The fluid does not come into contact with the pump; only the outside wall of the tubing does. This makes these pumps ideal for use in sterile, corrosive, or general fluid flow operating environments.

The pump is self-priming and non-siphoning. When one section of the tube fatigues, simply move the tube along to an unused section and continue pumping. No tools are required to load the tube. A precision-molded tubing cavity provides the proper occlusion for the recommended tubing. A tube clamp holds the tubing securely in place. Tubing is easily changed without removing the pump.

One pump can be used for many different applications, or you can mount two pumps onto the motor. The pumps work with a wide variety of OMEGA® plastic tubing. Vinyl, Viton®, Tygon, silicone, Santoprene, and Norprene tubing can be purchased in a broad ranges of sizes. The standard rotor assembly is made of stainless steel.

- Stainless Steel Rotor Assembly
- Ideal for Use in Sterile, Corrosive, or General Operating Environments
- Flowrates from 1.0 to 2280 mL/Min (36 GPH)
- Mounts Directly onto OMEGA® Motor or Compatible Pump Motor
- Easily Stackable Mounting for Multichannel Pumping
- Three-Roller Geometry Reduces Pulsation and Improves Priming
- Polysulfone Housing for Durability and Chemical Resistance

### Specifications

- **Maximum Back Pressure**: 20 psi
- **Maximum RPM to Prime**: 100 RPM
- **Tube Wall**: 1.6 mm (1/16”)
- **Fluid Temperature Range**: -50 to 300°F (-46 to 149°C)
- **Dimensions, Pump**: 102 H x 102 W x 57 mm D (4 x 4 x 2 1/4”)
- **Optional Mounting Plate**: 76 H x 64 W x 3.2 mm D (3 x 2 1/2 x 1/8”)
- **Weight, Pump**: 408 g (14.4 oz)
- **Optional Mounting Plate**: 91 g (32 oz)
- **Maximum Tubing Size**: 5/16” (8 mm)
- **Maximum Tube Durometer**: 65 Shore A

### Accessories

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPU500-AP</td>
<td>$30</td>
<td>Adapter plate</td>
</tr>
<tr>
<td>FPU500-LMS</td>
<td>5</td>
<td>Long mounting screws (2)</td>
</tr>
<tr>
<td>FPU500-SMS</td>
<td>5</td>
<td>Short mounting screws (2)</td>
</tr>
<tr>
<td>FPU500-RA</td>
<td>75</td>
<td>Replacement rotor assembly</td>
</tr>
</tbody>
</table>

### Changing Tubing Is a Snap! Just Follow These Four Easy Steps:

1. **Step 1**: Snap Open with Easy Push-Button Release
2. **Step 2**: Loop Tubing Over Rollers. No Need to Thread!
3. **Step 3**: Push to Close
4. **Step 4**: Tighten Screw to Secure Tubing

The FPU500 pump can be purchased with an optional adaptor plate that can be used to mount the pump to a motor other than the FPU5-MT pump motor. The pump comes standard with 2 short mounting screws, used to mount one pump at a time. If you need to stack two pumps, order long mounting screws.

<table>
<thead>
<tr>
<th>Tube Wall (in.)</th>
<th>Tubing Size (in.)</th>
<th>mL/Rev.</th>
<th>Maximum Flowrate @ 600 RPM, mL/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16</td>
<td>1/32</td>
<td>0.05</td>
<td>30</td>
</tr>
<tr>
<td>1/16</td>
<td>1/16</td>
<td>0.22</td>
<td>132</td>
</tr>
<tr>
<td>1/16</td>
<td>1/8</td>
<td>0.9</td>
<td>540</td>
</tr>
<tr>
<td>1/16</td>
<td>3/16</td>
<td>1.9</td>
<td>1140</td>
</tr>
<tr>
<td>1/16</td>
<td>1/4</td>
<td>3.0</td>
<td>1800</td>
</tr>
<tr>
<td>1/16</td>
<td>5/16</td>
<td>3.8</td>
<td>2280</td>
</tr>
</tbody>
</table>

### Maximum Tube Tubing Flowrate

<table>
<thead>
<tr>
<th>Wall Size</th>
<th>mL/Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/32</td>
<td>30</td>
</tr>
<tr>
<td>1/16</td>
<td>132</td>
</tr>
<tr>
<td>1/8</td>
<td>540</td>
</tr>
<tr>
<td>3/16</td>
<td>1140</td>
</tr>
<tr>
<td>1/4</td>
<td>1800</td>
</tr>
<tr>
<td>5/16</td>
<td>2280</td>
</tr>
</tbody>
</table>

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
Microprocessor-Based pH & Temperature Recorders
With Large 200 mm (8") Diameter Charts

- pH Range 0.2 to 12.0
  Temperature 2 to 80°C
- In Line or Submersible pH Sensor with PPS (Ryton) Body and ¾" NPT
- Double-Sided Circular Charts
  1-, 7-, 32-Day Records
- Alarm Contact Standard
- Benchtop or Wall Mounted
- Battery or Wall Socket Powered
- LCD Backlight & Chart Light with AC Power

Specifications
PH input (green pen)
- pH Range: 0.2 to 12.0 pH
- Resolution: 0.1 pH on LCD and 0.2 pH on chart
- Accuracy: ± 0.2 pH
- ATC Range: 0 to 80°C
- Sensor: In line or submersion PPS (Ryton) body with ¾" MNPT, sealed double junction Teflon®, and a preamplified output to insure accurate signal over long distances
- Cable Length: 1.8 m (6')
- Temperature INPUT (red pen)
  - Temperature Range: 0 to 100°C
  - Resolution: 1°C on LCD and 2°C on chart
  - Accuracy: ±2°C
- Sensor: Combination pH & temperature
- Display: User switchable pH and temperature
- Audible Alarm: Integral beeper
- Chart: 200 mm (8") circular linear radial div. 1-, 7-, 32-day, with pH and °C scale

Dimensions: 33.5 H x 27.1 W x 6.7 cm D (13⅛ x 10⅜ x 2⅜")
Weight: Approx. 3.2 kg (7 lb) including batteries

Model CTPH
$970

To Order
CTPH-110V-G-AL $970 Recorder, 110 Vac
CT585-PS 10 Red (temp) and green (pH) pen set
CT585-PS-6 52 Package of six (6) pen sets
CTPH-C(*)C 19 100 double-sided charts
CTPH-PROBE 225 Replacement pH probe

To Order, Call 1-800-626-3426® or Shop Online at www.omega.com

Covered under U.S. and foreign patents

The CTPH is a cost effective recorder for pH and temperature, ideal for facilities required to maintain a record of pH. pH range is 0.2 to 12.0 with Automatic Temperature Compensation, using a unique, electronically amplified probe that provides pH and temperature input to the recorder unit through a 6-pin Mini DIN connector.

Dimensions: 33.5 H x 27.1 W x 6.7 cm D (13⅛ x 10⅜ x 2⅜")
Weight: Approx. 3.2 kg (7 lb) including batteries

To Order (Specify Model No.)

Note: Using the BNC adapter, the ATC is disabled and any low cost pH sensor can be employed, like PHE-4202. Ordering Example: CTPH-110V-G-AL recorder, and CTPH-CDC, pack of 100 double sided 1 day charts, 970 + 19 = $989

Covered under U.S. and foreign patents

40

To Order, Call 1-800-626-3426® or Shop Online at www.omega.com
YOU’LL IMPERSONATE OUR DEAD CUSTOMER AND MAKE LARGE PURCHASES FROM US.

I'VE NEVER DONE ANYTHING LIKE THIS BEFORE.

IT'S CALLED "WORK."

AM I DOING IT RIGHT?

WALLY, NOW THAT YOU HAVE A CRIMINAL RECORD, I CAN'T LET YOU WORK ON ANYTHING IMPORTANT.

I DON'T HAVE A CRIMINAL RECORD. I GAVE THE POLICE A FAKE NAME.

YOU MIGHT NOTICE A CHANGE IN THE QUALITY OF YOUR ASSIGNMENTS.

THERE AREN'T ENOUGH FRIENDLY PEOPLE TO FILL OUR CALL CENTER JOBS.

ALL WE CAN FIND ARE ANGRY PEOPLE WHO REFUSE TO PUT THEIR TELEPHONE HEADSET MICROPHONES NEAR THEIR MOUTHS.

NO, I'M SURE THE PROBLEM IS ON YOUR END.
DO YOU FEEL GUILTY ABOUT TAKING Bribes FROM VENDORS?

NO. DO YOU FEEL GUILTY GETTING PAID TO WALK AROUND WITH A COFFEE CUP?

I NEED A BIGGER CUP SO THIS LOOKS HARDER.

THANKS FOR TAKING ME TO DINNER. YOU'RE A TERRIFIC CONVERSATIONALIST.

WITH YOU IT'S EASY.

I DISCOVERED THAT I CAN WRITE CODE IN MY HEAD WHILE YOU COMPLAIN ABOUT YOUR JOB ALL NIGHT.

I'M DATING AN UNATTRACTIVE MAN. WHAT SHOULD I DO?

EVERY MAN IS UGLY UNTIL A WOMAN FIXES HIM UP. THINK OF IT AS A PROJECT.

NEXT, LOSE THE COMB-OVER, OR AT LEAST STAY OUT OF THE WIND.

HOWD YOU KNOW ABOUT THE COMB-OVER?
LITMUSTIK® Pocket pH Testers with Replaceable Electrodes

- Measures pH and Temperature with 0.1 pH and 1° Accuracy
- Automatic Temperature Compensation Standard
- Replaceable Electrode Design
- Measures 0 to 14 pH, 0 to 70°C (32 to 158°F)
- 2½-Digit LCD, 12.7 mm (0.5”) High

Combining the pH electrode and readout in a single, compact meter, the PHH-3X is ideal for quick checks of pH in the field. This pocket-sized meter also measures temperature, and the replaceable electrode module contains a signal amplifier and temperature sensor for temperature-compensated pH measurements. To extend the life of this economical unit, the electrode and battery are easily removed and replaced.

The display is a large 2½ digit 12.7 mm (0.5”) high LCD, with 0.1 resolution for pH and 1° resolution for temperature.

Automatic Temperature Compensation (ATC) is standard over the range of 0 to 70°C (32 to 158°F) using the integral temperature sensor. Using the selector switch, the user can easily toggle between pH and temperature readings.

SPECIFICATIONS:
- pH Range: 0.0 to 14.0 pH
- Resolution: ±0.1 pH
- Accuracy: ±0.1 ATC
- Temperature Range: 0 to 70°C (32 to 158°F)
- Resolution: ±1°C or °F
- Accuracy: ±1°C or °F
- Display: 2½-digit 12.7 mm (0.5”) high LCD
- Battery: Three 1.55 V silver oxide (included)
- Battery Life: 200 hr. continuous
- Dimensions: 162 x 43 x 23 mm (6 x 1.7 x 0.9”)
- Weight: 113 g (4 oz)
- Electrode: Single junction

Wetted Parts
Case: Polycarbonate
O-Rings: Neoprene
Sensor: Epoxy
Wick: Polyethylene

To Order, Call 1-800-82-6.6.342® or Shop Online at www.omega.com

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHH-3X</td>
<td>$59.50</td>
<td>Pocket pH tester</td>
</tr>
<tr>
<td>PHH-3X-KIT</td>
<td>69.50</td>
<td>pH tester kit, includes tester and pH 4, 7 and 10 buffer capsules</td>
</tr>
<tr>
<td>PHH-3X-R</td>
<td>27.50</td>
<td>Replacement electrode for PHH-3X (single junction)</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH-BATT-3</td>
<td>$1</td>
<td>1.55 V silver oxide replacement battery (3 required)</td>
</tr>
<tr>
<td>PHA-4</td>
<td>5</td>
<td>Buffer solution, pH 4.01</td>
</tr>
<tr>
<td>PHA-7</td>
<td>5</td>
<td>Buffer solution, pH 7.01</td>
</tr>
<tr>
<td>PHA-10</td>
<td>5</td>
<td>Buffer solution, pH 10.01</td>
</tr>
</tbody>
</table>

Ordering Example: PHH-3X-KIT, pocket tester kit, including pH 4, 7, and 10 buffer capsules, $69.50. PHH-3X-R, replacement electrode, $27.50.
Portable pH, pH/Conductivity and pH/ORP Meters

- Measures pH, pH/Conductivity, or pH/ORP
- Two Buttons Control All Operations
- Electrodes Fold Away into Handle When Not in Use
- Detachable Electrodes
- Integral Benchtop Stand

The POCKET PAL® Series of handheld instruments are rapidly becoming an industry favorite for field and laboratory applications. The electrodes are designed for easy field replacement and can be quickly calibrated with easy access two-point calibration potentiometers. Digital display, chemical resistant ABS plastic housings and probes that fold-away for protection make the POCKET PAL® series ideal for portability and reliability.

The low cost PHH-81A is ideally suited for general pH measurements in field, plant, production line or laboratory environments. The PHH-81A features manual temperature compensation and a standard BNC connector allowing for use with a wide variety of laboratory and industrial pH electrodes.

For versatility in the field or the laboratory, the PHH-60BMS/TDS and PHH-80BMS/TDS feature the ability to make pH, conductivity and total dissolved solids measurements in one handheld instrument. The PHH-60B measures pH from 0 to 14 and conductivity from 0 to 19,990 µmhos or ppm, and the PHH-80B extends the conductivity measuring range to 199,900 µmhos or ppm. Recessed switches control all functions, and an easy access panel contains adjustments for pH calibration and slope, zero and span for conductivity. Features include automatic temperature compensation (ATC), detachable electrodes and integral benchtop stand.

The PHH-82B is a dual-function instrument that measures pH and ORP (oxidation-reduction potential). It is ideal for measurements of ORPs that are pH dependent. Applications include swimming pool maintenance, drinking water disinfection, chrome reduction and cyanide destruction of electroplating. Features include detachable electrodes and integral benchtop stand.

PHH-60/80B Series
$199
Basic Unit

Portable pH, pH/Conductivity and pH/ORP Meters

To Order, Call 1-800-385-6342® or Shop Online at www.omega.com
Dual pH/Conductivity
The Most Popular POCKET PAL® Meters

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHH-60BMS</td>
<td>$360</td>
<td>pH/Conductivity meter, 0-14 pH, 0-19,990 µmhos</td>
</tr>
<tr>
<td>PHH-60BTDS</td>
<td>360</td>
<td>pH/Conductivity meter, 0-14 pH, 0-19,990 ppm</td>
</tr>
<tr>
<td>PHH-80BMS</td>
<td>410</td>
<td>pH/Conductivity meter, 0-14 pH, 0-199,900 µmhos</td>
</tr>
<tr>
<td>PHH-80BTDS</td>
<td>410</td>
<td>pH/Conductivity meter, 0-14 pH, 0-199,900 ppm</td>
</tr>
<tr>
<td>PHH-82B</td>
<td>465</td>
<td>pH and ORP, 0-14 pH, ±1000 mV</td>
</tr>
<tr>
<td>PHH-81A</td>
<td>199</td>
<td>General purpose pH meter, 0-14 pH</td>
</tr>
</tbody>
</table>

New Detachable Electrodes on 3-Foot Extension Cables

Each unit supplied with sensor(s), screwdriver, vinyl carrying case, battery and user’s manual.

Ordering Example: PHH-80BMS, pH/Conductivity meter, 0-14 pH and 0-199,900 µmhos ranges, $410

Replacement Sensors and Accessories

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHE-8200B</td>
<td>$77</td>
<td>PHH-60BMS/TDS replacement stick pH electrode w/ATC</td>
</tr>
<tr>
<td>PHE-8200D</td>
<td>85</td>
<td>PHH-60BMS/TDS replacement stick pH Double Junction electrode w/ATC</td>
</tr>
<tr>
<td>PHE-8236B</td>
<td>78</td>
<td>PHH-60BMS/TDS replacement pH electrode with 1m (3') extension cable with ATC</td>
</tr>
<tr>
<td>CDE-8200A</td>
<td>67</td>
<td>PHH-60BMS/TDS replacement stick conductivity cell</td>
</tr>
<tr>
<td>CDE-8236A</td>
<td>68</td>
<td>PHH-60BMS/TDS replacement conductivity cell with 1m (3') extension cable</td>
</tr>
<tr>
<td>ORE-8200</td>
<td>100</td>
<td>PHH-82B ORP replacement stick electrode</td>
</tr>
<tr>
<td>ORE-8236</td>
<td>101</td>
<td>PHH-82B ORP replacement electrode with 1m (3') extension cable</td>
</tr>
<tr>
<td>PHEC-60B</td>
<td>38</td>
<td>PHH-60BMS/TDS 1m (3') pH extension Triax cable</td>
</tr>
<tr>
<td>PHEC-81</td>
<td>15</td>
<td>PHH-81A/82B 1m (3') BNC male-to-female extension cable</td>
</tr>
<tr>
<td>CDEC-60</td>
<td>19</td>
<td>PHH-60BMS/TDS 1m (3') conductivity extension cable</td>
</tr>
<tr>
<td>PHE-8200-BNC</td>
<td>49</td>
<td>Triaxial-to-BNC adaptor for PHH-60BMS/TDS</td>
</tr>
<tr>
<td>PHE-8100</td>
<td>60</td>
<td>PHH-81A replacement stick pH electrode</td>
</tr>
<tr>
<td>PHE-8136</td>
<td>61</td>
<td>PHH-81A replacement pH electrode with 1m (3') extension</td>
</tr>
</tbody>
</table>

SPECIFICATIONS

PHH-60BMS/TDS and PHH-80BMS/TDS

- pH Range: 0-14
- Resolution: 0.01 pH
- Accuracy: ±0.02 pH
- Temperature Compensation: Automatic 0 to 70°C (32 to 158°F)

Conductivity

- Range: PHH-60BMS, 0 to 19,990 µmhos; PHH-60BTDS, 0 to 19,990 ppm; PHH-80MS 0 to 199,900 µmhos; PHH-80BTDS 0 to 199,900 ppm
- Resolution:
  - PHH-60BMS/TDS 10 µmhos/ppm;
  - PHH-80BMS/TDS range 0-2000 1 µmhos/ppm; 0-20,000 10 µmhos/0-200,000, 100 µmhos
- Accuracy: ±2% of span
- Temperature Compensation: Automatic 0 to 50°C (32 to 122°F)

Power: 9 V battery

Dimensions:

PHH-60BMS/TDS (Electronics Only)

- 158.8 L x 31.8 D x 57.2 H mm (6.25 x 1.25 x 2.25”)
- Weight: 241 g (8.5 oz)

PHH-81A

- Range: 0 to 14 pH
- Resolution: 0.01 pH
- Accuracy: ±0.2 pH
- Connector: BNC
- Temperature Compensation: Manual 0 to 100°C (32 to 212°F)

Dimensions:

- 158.8 x 31.8 x 57.2 mm (6.25 x 1.25 x 2.25”)
- Weight: 241 g (8.5 oz)

PHH-82B

- Range: 0 to 14 pH, ±1000 mV ORP
- Accuracy: ±0.02 pH; ±15 mV ORP
- Resolution: 0.01 pH; 1 mV
- Automatic Temperature Compensation: Automatic 0 to 70°C (32 to 158°F)
- Power: 9 V battery

Dimensions:

- 158.8 L x 31.8 D x 57.2 mm H (6.25 x 1.25 x 2.25”)
- Weight: 241 g (8.5 oz)

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
Industrial Wall Mount Controllers/Recorders for pH or ORP

- Measure, Control and Record pH or ORP
- NEMA Box Enclosure Single or Dual Input with Paper Recorder
- Display 4-Digit LED 13.7 mm (0.54")
- Microprocessor Based Versatility
- Compact Panel Design

The PHCN-370/380 Series of pH or ORP recorders and controllers provides a reliable method of monitoring, controlling and recording pH and conductivity for various industrial and chemical processes. The PHCN-370 has an impressive list of standard features which include NEMA 4X enclosure, digital display, paper or paperless data logging, relay output and manual or automatic temperature compensation.

The PHCN-370 series features an inkless pressure sensitive paper recorder. The PHCN-370 series pressure sensitive recorder and controller will record up to 30 days of process data. Choose between either a single or dual parameter monitoring system of pH or ORP.

The pH and ORP controller is a new microprocessor based design featuring manual or automatic temperature compensation, two mechanical relays for on-off control, digital display of either pH, ORP or temperature, calibration and parameter setpoints are programmable through the front keypad.

Specifications

Common Specifications:
- Control Outputs: 2 SPDT 6 amp relays, programmable for active above or below setpoint latch or non-latching
- Power: 115 Vac 50/60 Hz; 230 Vac optional

pH CONTROLLER:
- Range: pH 0-14;
- Temperature 0 to 100°C
- Resolution: pH 0.01;
- Temperature 0.1°C
- Accuracy: pH 0.01;
  Temperature: ±0.1°C

Display: 4 Digit red LED 13.7 mm (0.54")

PAPER RECORDER:
- Range: 2-12 pH
- Resolution: ±0.2 pH/lateral chart deviation
- Accuracy: ±0.2 pH
- Temperature Compensation: Manual supplied with fixed resistor. Automatic 1000 Ω platinum RTD

ORP CONTROLLER:
- Range: ±2 Vdc (±2000 mV)

To Order, Call 1-800-325-342 or Shop Online at www.omega.com
**pH Controllers/Recorders**

**PHCN-370 Series**

$995

Basic Model

**Input Type**

<table>
<thead>
<tr>
<th>Input Code</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH</td>
<td>0-14 pH; 0-100°C</td>
<td>pH controller with temperature compensation</td>
</tr>
<tr>
<td>ORP</td>
<td>±2 Vdc</td>
<td>ORP controller</td>
</tr>
</tbody>
</table>

**To Order (Specify Model No.)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHCN-370(*)</td>
<td>$995</td>
<td>Single input monitor and paper recorder</td>
</tr>
<tr>
<td>PHCN-371(*)</td>
<td>1450</td>
<td>Single input controller and paper recorder</td>
</tr>
<tr>
<td>PHCN-372(<em>)(</em>)</td>
<td>1950</td>
<td>Two controllers and two channel paper recorder</td>
</tr>
<tr>
<td>PHCN-55</td>
<td>995</td>
<td>Battery-powered pH recorder <em>(see page 47)</em></td>
</tr>
</tbody>
</table>

* Specify input code: “PH” (pH controller), “ORP” (ORP controller). Note: for 230 Vac power add “-230” suffix to model number, no additional charge.

Ordering Example: PHCN-371-PH, Single input pH controller/recorder, $1450

Electrodes sold separately

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
Industrial pH Controller/Recorders

PHCN-50 Series

$995
Basic Unit

- 6 Models to Choose
- Measure, Control and Record pH
- Range of 2 to 12 pH
- NEMA 4X Wall Mount Enclosure Standard
- Includes Two Wire 4 to 20 mA Transmitter
- Optional ORP Controller

The PHCN-50 Series of pH recorders and controllers provides a reliable method of monitoring, controlling and recording pH levels of various industrial and chemical processes. Featuring an extensive list of standard features, the PHCN-50 series includes a digital display, digital switches for alarms setpoints, remote mount pH 4 to 20 mA transmitter, 6 amp solid state relays, front panel adjustable dead band pots and NEMA 4X enclosure.

The controllers standard features include a digital display capable of displaying pH readings between 2 and 12 pH, adjustable dual alarm setpoints, dead band adjustments from 1 to 50% of setpoint, programmable time safety delay which activates when pH correction time is excessive and a stand by switch that disables the controller functions during calibration.

The recorder utilizes inkless pressure sensitive recording paper for 30 days of recording and front panel mounted calibration adjustments.

PHCN-50 pH recorder includes a digital display, enclosed in a NEMA 4X enclosure and accepts pH electrodes directly. Supplied with one 30-day roll of recorder paper.

PHCN-51 is a basic pH controller, it includes a NEMA 4X enclosure, digital display, two setpoints for high and low alarm, adjustable dead band, two 6 amp SSR. Accepts one pH electrode input through supplied pH transmitter.

PHCN-52 pH recorder and pH controller combines the features of the PHCN-50 and PHCN-51 into one compact unit. It accepts one electrode through the transmitter that drives the recorder, controller and digital display. Supplied with the PHCN-52 is one 30-day roll of recorder paper.

PHCN-53 pH recorder/controller uses two independent pH probes in a wall mounted NEMA 4X enclosure. Each pH electrode performs a separate function. The electrode input from the supplied pH transmitter drives the digital display and controller the second pH electrode drives the recorder directly. The recorder electrode may be placed downstream from the control point to record the adjusted values. Supplied with the PHCN-53 is one 30-day roll of recorder paper.

PHCN-54 is a versatile dual pH controller. The PHCN-54 accepts two separate electrode inputs and can adjust pH at two separate locations. The dual pH model is supplied with two 4 to 20 mA pH transmitters. When one of the two controllers is configured with the optional ORP controller, it may be used for cyanide destruction or chrome reduction. Supplied with the PHCN-54 is one 30-day roll of recorder paper.

PHCN-55 is a battery powered pH recorder (not shown) is perfect for use in hostile environments and remote locations, the battery powered recorder is enclosed in a NEMA 4X enclosure. It uses a 6V rechargeable battery that may be left unattended for approximately 2 weeks. The PHCN-55 accepts any pH electrode directly. Supplied with the PHCN-55 is one 30-day roll of recorder paper.
SPECIFICATIONS

**pH Recorder**
- **Display:** None
- **Range:** 2 to 12
- **Resolution:** 0.2 pH/lateral chart deviation
- **Accuracy:** ±0.2 pH
- **Repeatability:** ±0.2 pH
- **Temperature Compensation:** Manual supplied with 1093 Ω resistor; Automatic 1000 Ω platinum RTD
- **Power Requirements:** 120 Vac 50/60 Hz

**pH Controller**
- **Display:** 12.7 mm (0.5 in), 3½ digit LCD
- **Range:** 2 to 12 pH
- **Resolution:** 0.01 pH
- **Accuracy:** ±0.02 pH
- **Repeatability:** ±0.02 pH
- **Temperature Compensation:** Manual supplied with 1093 Ω resistor; Automatic 1000 Ω platinum RTD
- **Power Requirements:** 120 Vac 50/60 Hz (230 Vac Optional)
- **Contact:** Two, 6 amp SSR, requires 200 mA minimum load
- **Dead Band Adjustment:** 0 to 50 % of setpoint

**Ordering Example:** PHCN-53 dual input pH controller/recorder, $1850. Each unit is supplied with NEMA 4X enclosure, appropriate number of pH transmitter(s), K-79 pocket thermometer, models that include a pH recorder also supplied with one roll of 30-day chart paper, and complete operator’s manual. To order 230 Vac power input, suffix part number “-230VAC” to part number and add $50, to the price.

### To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHCN-50</td>
<td>$995</td>
<td>pH recorder and monitor, accepts pH electrodes directly</td>
</tr>
<tr>
<td>PHCN-51</td>
<td>1125</td>
<td>Single input pH controller</td>
</tr>
<tr>
<td>PHCN-52</td>
<td>1765</td>
<td>Single Input pH controller/recorder</td>
</tr>
<tr>
<td>PHCN-53</td>
<td>1850</td>
<td>Dual input pH controller/recorder</td>
</tr>
<tr>
<td>PHCN-54</td>
<td>1955</td>
<td>Dual input pH controller</td>
</tr>
<tr>
<td>PHCN-55</td>
<td>995</td>
<td>Battery powered pH recorder</td>
</tr>
</tbody>
</table>

### Optional Ranges

**To Order (Specify Model No.)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ORP</td>
<td>$50</td>
<td>ORP controller, 0 to 1000 mV range</td>
</tr>
<tr>
<td>-14</td>
<td>42</td>
<td>0 to 14 pH display range</td>
</tr>
</tbody>
</table>

### Replacement Accessories:

**To Order (Specify Model No.)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHCN-45-CHART</td>
<td>$10.50</td>
<td>One 30-day chart</td>
</tr>
<tr>
<td>PHCN-55-BATT</td>
<td>35.00</td>
<td>PHCN-55 replacement 6 V battery</td>
</tr>
<tr>
<td>PHTX-212</td>
<td>189.00</td>
<td>Replacement 4-20 mA pH transmitter, (2-12 Range)</td>
</tr>
<tr>
<td>PHTX-014</td>
<td>189.00</td>
<td>Replacement pH transmitter (0-14 Range)</td>
</tr>
</tbody>
</table>
pH Meter

✓ Front Panel Min or Max
✓ External Display Hold
✓ Compact 1/8 DIN Size
✓ 4-Digit Display
✓ 4-20 mA Output

Model DP24-PH
$245

The DP24-PH is an economical, user-friendly panel meter for pH measurement. Its small size allows for easy installation and will accommodate any pH electrode with BNC connector. Temperature compensation is either manual or automatic with use of any 1000Ω platinum RTD.

The DP24-PH features a compact depth of only 104 mm (4.10”), allowing for mounting in areas with limited panel depth.

SPECIFICATIONS
Accuracy: ±0.02 pH
Input: Impedance > 10¹² ohms
Operating Temp:
0 to 60°C (32 to 122°F)
Storage Temp:
-40 to 85°C (-40 to 185°F)
Relative Humidity:
95% @ 40 °C, non-condensing
Temp. Compensation: Manual fixed resistors; Automatic 1000 Ω RTD
Display: 4 digit, red LED, 14.2 mm (0.56") high
Display Range: 0-14 pH
Connections: BNC
Power Requirements
Voltage: 115 Vac ±15% standard (230 Vac or 10-32 Vdc optional)

Frequency: 50 or 60 Hz
Power Consumption: 6 watts max.

Mechanical Specifications
Dimensions: 96 W x 48 H x 104 mm D (3.78" x 1.89" x 4.10")
Panel Cutout: 92 W X 45 mm H (½ DIN, 3.62" x 1.77")
Depth Behind Panel: 100 mm (3.94")
Weight: 312 g (11 oz)

Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC4</td>
<td>$30</td>
<td>NEMA 4 “heavy duty” splash proof lens cover</td>
</tr>
<tr>
<td>SPC18</td>
<td>30</td>
<td>NEMA 4 splash proof lens cover</td>
</tr>
</tbody>
</table>

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP24-PH(*)</td>
<td>$245</td>
<td>pH monitor</td>
</tr>
</tbody>
</table>

*Specify display color and power code from chart below.
Comes with complete operator’s manual.
Ordering Example:
DP24-PH-GN pH monitor with green LED display and 115 Vac power, $245.

Display/Power Options

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Add’l Price</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>-230</td>
<td>N/C</td>
<td>230 Vac</td>
</tr>
<tr>
<td>-DC10/32</td>
<td>$95</td>
<td>10-32 Vdc</td>
</tr>
<tr>
<td>-GN</td>
<td>N/C</td>
<td>Green LED Display</td>
</tr>
</tbody>
</table>
Microprocessor-Based pH Controller with Automatic Temperature Compensation

Model PHCN/ORCN-37
$395

Microprocessor-Based Versatility
High and Low Alarm Setpoints
Scalable 4 to 20 mA, 0 to 20 mA or 0 to 10 V Output
Compact Panel Design

This new microprocessor-based family of pH, ORP and pH/ORP panel mounted controller is designed for a wide variety of environmental monitoring applications. The units feature automatic or manual temperature compensation of pH, two 6 amp mechanical relays and a choice of a scalable 4 to 20 mA, or 0 to 20 mA control or recording output or a 0 to 10 V output. For ease of operation all calibration and parameter setpoints are selectable through the front keypad. The PHCN/ORCN/OPCN-37 can be interfaced with a variety of pH and ORP electrodes.

SPECIFICATIONS

ORP
Range: ORCN-37 ±2 Vdc; OPCN-37 ±620 mV
Resolution: 0.1, 1 mV
Accuracy: 0.1 mV @ 25°C
Decimal Point: 2 position auto ranging
pH
Range: 0 to 14.00 pH; 0 to 100°C.
Resolution: 0.01 pH, 0.1°C
Calibration pH: 2 or 3 point
Accuracy: ±0.01 pH; ±0.5 C
Display: 4-digit, LED, 13.7 mm (0.54")
Relays: dual SPDT (form C) 6 A at 240 Vac, mechanical relay. Programmable deadband hysteresis around setpoints.Output: 4 to 20 mA, 0 to 20 mA or 0 to 10 V (Scalable) Software selectable.
Input Impedance: >10¹² ohms
Temperature Compensation: Manual or Automatic, 0 to 100°C using Pt 100 ohm RTD
Connectors: pH/ORP-BNC; Temp. -miniature phone plug (MPP) or terminal strip
Power: 115 Vac, 230 Vac, 50/60 Hz; 10-32 Vdc, 26-56 Vdc
Panel Cutout: ⅛ DIN, 45 H x 92 mm W (1.772" x 3.622")
Dimensions: 48 H x 96 W x 177 mm D (1.89" x 3.78" x 7.00")
Weight: 580 g (1.27 lb)

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHCN-37</td>
<td>$395</td>
<td>Microprocessor-based pH controller</td>
</tr>
<tr>
<td>ORCN-37</td>
<td>395</td>
<td>Microprocessor-based ORP controller</td>
</tr>
<tr>
<td>OPCN-37</td>
<td>495</td>
<td>Microprocessor-based combination pH/ORP controller</td>
</tr>
</tbody>
</table>

Comes complete with operator’s manual.
Ordering Example: PHCN-37 Microprocessor-Based pH Controller, $395.
OmegA’s PHTX-20 series Preamps are unity gain preamplifiers which convert the high impedance mV signal of a pH or ORP electrode to a low impedance signal. This signal can travel up to 1,000 feet using ordinary wire and connectors to high impedance input pH meters and controllers (such as OMEGA’s PHCN-37 vol. 29 pH and Conductivity Handbook, page 84), and to standard Process Meters and Controllers such as the DP24-E and DP41-E which could not otherwise interface with the high impedance signal. In many applications the PHTX-20 series Preamps will be able to extend the useful life of expensive pH electrodes. By lowering the output impedance of ageing electrodes, the PHTX20 allows them to continue to function and provide a measurable signal.

The PHTX-21 is powered by lithium batteries with an estimated life of 5 years when used with high input impedance instruments. The electronics are entirely encapsulated in an epoxy filled stainless steel enclosure. The input and output connections are industry standard BNC. The output can be split from coaxial to separated leads with the 3073 adapter.

The PHTX-22 is a 10-40 volt dc powered preamp. Power can be provided by the excitation of a process meter (such as the DP24-E) or the optional PSU-12V power supply. The electrodes are entirely encapsulated in a compact epoxy filled enclosure designed for easy mounting in a manufacturing process. The PHTX-22 offers redundant outputs from either a BNC connection, terminal strip or both at the same time.

The PHTX-23-ATC is the same as the PHTX-22 (above) with the added feature of Automatic Temperature Compensation. With the output of a PHTX-23-ATC automatically compensated for temperature variations, it is possible to use an inexpensive but sophisticated process meter or controller such as the DP24, DP25, DP41 series to monitor and control pH in place of more expensive dedicated pH units. The Automatic Temperature Compensating element required is a 1,000 Ohm RTD. (ATC is not used on ORP measurements.)

**SPECIFICATIONS**

**Common Specifications**

- **Output Offset:** 1 mV typical; 2 mV max. which corresponds to .033 pH
- **Input Impedance:** $10^{13}$ Ohms
- **Output Impedance:** 20K Ohms
- **Output Voltage:** -2000 mV to +2000 mV
- **Operating Temperature:** 0 to 60°C

**PHTX-21 Internal Battery Powered Model**

- **Dimensions:** 95.25 L x 17.8 cm D (3.75” x 0.7”)
- **Weight:** 5.7 g (2 oz.)
- **Battery Life:** Approximately 5 Years

**PHTX-22, PHTX-23-ATC External Powered Dual Output Model**

- **Power:** 10 to 40 Vdc
- **Dimensions:** 38.1 H x 76.2 W x 38.1 mm D (1.5 x 3 x 1.5”)

---

**To Order**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHTX-21</td>
<td>$59</td>
<td>pH Preamp, single output, battery powered</td>
</tr>
<tr>
<td>PHTX-22</td>
<td>79</td>
<td>pH Preamp, 10 to 40 Vdc powered</td>
</tr>
<tr>
<td>PHTX-23-ATC</td>
<td>129</td>
<td>pH Preamp, 10 to 40 Vdc, Auto Temp Comp</td>
</tr>
</tbody>
</table>

**To Order, Call** 1-800-326-6342° or Shop Online at www.omega.com
WE SHOULD READ THE SET-UP INSTRUCTIONS.

ALICE, A TRUE ENGINEER NEVER READS THE SET-UP INSTRUCTIONS.

IT SAYS TO KEEP IT AWAY FROM ANY SLURPING SOUNDS.

GAAAG!!!

---

WHAT'S THE LOWEST RATIO OF WORK-TO-GABBLING THAT IS STILL CONSIDERED "WORK"?

I'D HAVE TO SAY ONE-IN-EIGHT, MAYBE ONE-IN-NINE.

SOUNDS RIGHT.

DOES TALKING ABOUT WORK COUNT AS WORK?

WELL... I'M NOT ENJOYING IT.

---

OUR CONTRACT CLEARLY STATES THAT I CAN GIVE YOU NICKNAMES, MOTTOS AND POLITICAL PREFERENCES.

I DEMAND A NEW CONTRACT BASED ON THE FACT THAT I DIDN'T READ THIS ONE BEFORE I SIGNED IT.

TOO BAD, SKIPPY. YOU'RE A COMMUNIST NOW.
Industrial pH Two Wire 4-20 mA Transmitters

- Isolated or Non-Isolated Models Available
- 4 to 20 mA Output
- Manual or Automatic Temperature Compensation

The model PHTX-014 pH two wire transmitter is designed to provide a standard 4 to 20 mA current output which is proportional to the pH being measured. Its small size and encapsulated construction allow for easy installation and will accommodate any pH electrode with a BNC connector. Temperature compensation is either manual or automatic with use of any 1000Ω Platinum RTD. The PHTX-212 is the same as the PHTX-014 but with a range of 2 to 12 pH.

The PHTX-11 features include a NEMA 4X housing, an integral LCD display for continuous pH reading or for a direct corresponding readout in milliamps, using a convenient push-button switch. The 4-20 mA output signal may be scaled in the field to meet specific pH ranges in any 1 to 14 pH unit increment. Temperature compensation is manual using a fixed resistor or automatic using any of OMEGA’s 700 Series thermistors.

**SPECIFICATIONS**
- **Range:** 0 to 14 pH
- **Span:** PHTX-014, 0 to 14 pH; PHTX-11 Any 1 to 14 pH unit, selectable with internal jumper pads
- **Accuracy:** ±0.02 pH
- **Operating Temperature:** PHTX-014, -25 to 70°C; PHTX-11 -10 to 60°C
- **Display Resolution:** PHTX-11 0.01 pH
- **Input Impedance:** > 10¹⁴ Ohms
- **Temperature Compensation:** Manual: fixed resistors; Automatic: PHTX-014, 1000 Ω RTD; PHTX-11 OMEGA’s 700 series thermistor
- **Connector:** BNC

**Power:** 12 to 80 Vdc
(24 Vdc recommended)

**Output:** PHTX-014, Non-isolated 4 to 20 mA; PHTX-11 isolated 4 to 20 mA

**Input to Output Isolation:** PHTX-11, 600 V maximum

**Dimensions:** PHTX-014: 50.8 H x 38.1 W x 24.1 mm D (2 x 1.5 x 0.95”);
PHTX-11: 125 H x 74.2 W x 99.6 mm D
(4.92 x 2.92 x 3.92”)

**Display:** PHTX-11: 3½ digit LCD

To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHTX-212</td>
<td>$189</td>
<td>Non-isolated 2 wire pH transmitter 2-12 pH</td>
</tr>
<tr>
<td>PHTX-014</td>
<td>189</td>
<td>Non-isolated 2-wire pH transmitter 0-14 pH</td>
</tr>
<tr>
<td>PHTX-11</td>
<td>430</td>
<td>Isolated 4-20 mA pH transmitter with integral display NEMA 4X enclosure</td>
</tr>
<tr>
<td>U24Y101</td>
<td>128</td>
<td>Power Supply 24 Vdc</td>
</tr>
</tbody>
</table>

**Ordering Example:**
PHTX-11 Isolated 4-20 mA transmitter, U24Y101 power supply, $430 + 128 = $558.

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
Economical Pocket Conductivity Testers

Model CDH-7X
$119

- Measures MicroSiemens, MilliSiemens, PPT and PPM
- Economical, Compact and Portable
- Automatic Temperature Compensation

Pocket-sized, digital conductivity meter offers a variety of measuring ranges in one model. Ideal for quick field checks of water-based solutions, the CDH-7X combines the measuring sensor and meter in one compact, pocket-size package. It measures ranges of 1 to 199 µS/cm, 0.01 to 1.99 mS/cm, 0.1 to 19.9 mS/cm, 1 to 199 ppm, 0.01 to 1.99 ppt and 0.1 to 19.9 ppt, with ATC 0 to 70°C (32 to 158°F).

SPECIFICATIONS
Range:
Conductivity: 0 to 199 µS/cm, 0.0 to 1.99 mS/cm, 0.0 to 19.9 mS/cm
TDS: 0 to 199 ppm, 0.0 to 1.99 ppt, 0.0 to 19.9 ppt
Resolution: 1 µS/cm or ppm, 0.01 mS/cm or ppt, 0.1 mS/cm or ppt
Accuracy: ±2% of full scale
(±4 µS/cm or ppm, ±0.04 mS/cm or ppt, ±0.4 mS/cm or ppt)
Electrodes: 550 Stainless Steel
Operating Temperature: 0 to 70°C (32 to 158°F), Automatic Temperature Compensation uses a precision temperature sensor with 2% per °C temperature coefficient; readings are referenced to 25°C (77°F)
Display: 2½-digit LCD, 12.7 mm (0.5") high
Battery: three 1.55 V (included)
Battery Life: 50 hours continuous
Dimensions: 162 H x 43 W x 23 D mm (6 x 1.7 x 0.9")
Weight: 113 g (4 oz)

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDH-7X</td>
<td>$119</td>
<td>Pocket tester, 1 to 199 µS/cm, 0.01 to 1.99 mS/cm, 0.1 to 19.9 mS/cm, 1 to 199 ppm, 0.01 to 1.99 ppt and 0.1 to 19.9 ppt ranges</td>
</tr>
<tr>
<td>CDS-45</td>
<td>10/qt</td>
<td>Conductivity standard solution, 45 µS/cm</td>
</tr>
<tr>
<td>CDS-450</td>
<td>10/qt</td>
<td>Conductivity standard solution, 450 µS/cm</td>
</tr>
<tr>
<td>CDS-1500</td>
<td>10/qt</td>
<td>Conductivity standard solution, 1500 µS/cm</td>
</tr>
<tr>
<td>CDS-4500</td>
<td>10/qt</td>
<td>Conductivity standard solution, 4500 µS/cm</td>
</tr>
<tr>
<td>PH-BATT-3</td>
<td>1 ea</td>
<td>1.55 V silver oxide replacement battery (3 required)</td>
</tr>
</tbody>
</table>

Includes batteries and operator’s manual.
Ordering Example: CDH-7X, pocket conductivity tester, 1 to 199 µS/cm, 0.01 to 1.99 mS/cm, 0.1 to 19.9 mS/cm, 1 to 199 ppm, 0.01 to 1.99 ppt and 0.1 to 19.9 ppt ranges, and CDS-45 standard solution 45 µS/cm, $119 + 10 = $129
Four-Range Portable Digital Conductivity Meters

Model CDH-80MS

$340

- Four Ranges, from 200 to 200,000 µS
- Automatic Temperature Compensation
- Detachable Electrode

The CDH-80MS is a handheld four-range conductivity meter that can be used to test samples ranging from pure water to seawater. The digital display shows the conductivity of samples; using pushbuttons located on the instrument’s handle, switching between the four ranges is easily accomplished. For accuracy of measurement, automatic temperature compensation is provided from 0 to 70°C (32 to 158°F) using a 1000 Ω RTD.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 200</td>
<td>0.1 µS</td>
<td>±1% FS</td>
</tr>
<tr>
<td>0 to 2,000</td>
<td>1 µS</td>
<td>±1% FS</td>
</tr>
<tr>
<td>0 to 20,000</td>
<td>10 µS</td>
<td>±1% FS</td>
</tr>
<tr>
<td>0 to 200,000</td>
<td>100 µS</td>
<td>±1.5% FS</td>
</tr>
</tbody>
</table>

Temperature Compensation:
Automatic 0 to 70°C (32 to 158°F)

Power: 9 V battery (included)

Dimensions: 158.8 x 31.8 x 57.2 mm (6.25 x 1.25 x 2.25 in)

Weight: 241 g (8.5 oz)

Each CDH-80MS is supplied with sensor, screwdriver, vinyl carrying case, wire brush, detergent powder, battery and operator’s manual.

Dual pH/Conductivity
The Most Popular Pocket Pal® Meter
New Detachable Electrodes on 3-Foot Extension Cables (sold separately)

Accessories and Replacement Electrodes

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDE-8002A</td>
<td>$69</td>
<td>CDH-80MS replacement stick conductivity sensor</td>
</tr>
<tr>
<td>CDE-8036A</td>
<td>71</td>
<td>CDH-80MS conductivity sensor with 1 m (3') extension cable</td>
</tr>
<tr>
<td>CDE-60</td>
<td>19</td>
<td>1 m (3') cable extension for CDE-8002A sensor</td>
</tr>
</tbody>
</table>

Ordering Example: CDH-80MS, four-range conductivity meter, $340

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
Portable Digital Dissolved Oxygen/Temperature Meters

PHDG-80A
$485
Basic Model

- Polarographic Dissolved Oxygen and RTD Sensors
- Cathode Design Minimizes Oxygen Consumption for Stable Response
- Integral Benchtop Stand

The PHDG-80A combines a polarographic dissolved oxygen sensor with an integral RTD for dissolved oxygen and temperature measurement in the laboratory, plant or field. The unit contains a small cathode which consumes only a minimal amount of oxygen, thus reducing the need for sample stirring and providing a more stable response. A standby switch stabilizes the probe prior to use while economizing the battery power normally required for the display.

SPECIFICATIONS
Range: 0.00 to 19.99 ppm O₂, 0 to 199.9°C (32 to 392°F)
Resolution: 0.01 ppm; 0.1°C
Accuracy: ±1.5% F.S. O₂, ±2°C
Temperature Compensation: Automatic 0 to 40°C (32 to 104°F)
Power: 9 V battery
Dimensions: 158.8 x 57.2 x 31.8 mm (6.25 x 2.25 x 1.25")
Weight: 241 g (8.5 oz)

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHDG-80A</td>
<td>$485</td>
<td>Dissolved oxygen meter, 0.00-19.99 ppm O₂, 0-199.9°C</td>
</tr>
<tr>
<td>CDE-60</td>
<td>19</td>
<td>1 m (3') extension cable</td>
</tr>
<tr>
<td>PHDG-8200</td>
<td>40</td>
<td>PHDG-80 replacement membrane kit</td>
</tr>
<tr>
<td>PHDG-8002</td>
<td>260</td>
<td>Replacement probe for PHDG-80A</td>
</tr>
</tbody>
</table>

Each unit is supplied with sensor, screwdriver, vinyl carrying case, battery and operator’s manual. Ordering Example: PHDG-80A, dissolved oxygen meter 0.00-19.99 ppm O₂, 0-199.9°C, $485.

For companion Conductivity Meter; Salt Analyzer and Resistivity Meter; and for companion pH Meter, see the pH & Flow Section of the Made in the USA Edition Handbook.
Handheld Resistivity and Salt Meters

To Order (Specify Model No.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDH-90</td>
<td>$395</td>
<td>Salt meter</td>
</tr>
<tr>
<td>CDH-95</td>
<td>$395</td>
<td>Resistivity meter</td>
</tr>
</tbody>
</table>

For companion conductivity meter; dissolved oxygen meter; and pH meters; see the pH Section in The Made in USA Handbook.

CDH-90 Salt Meter (% NaCl) $395

The CDH-90 is a handheld salt analyzer designed for the food and beverage industry, which measures the percentage of salt over two ranges of concentration. Factory calibrated for % NaCl, the CDH-90 describes the nonlinear relationship between conductivity and % NaCl. An alternate, switch-selectable, “adjustable” mode allows the CDH-90 to be calibrated to salts with similar characteristics of conductivity to percent concentration.

The unique package permits one-hand operation and is ideal for “dip-and-read” analysis. The field conductivity sensor features an automatic temperature compensated electrode, encapsulated in an impact-resistant epoxy body.

CDH-95 Resistivity Meter $395

The newest addition to the POCKET PAL® family of meters, the CDH-95 measures resistivity across three ranges, from 0 to 200K, to 20K, and to 2K Ohms/Cubic inch which makes it an excellent choice for spot checking the resistivity of samples ranging from pure water to tap water. It is especially useful for quality control in electronics assembly.

The CDH-95 features automatic temperature compensation, which the user can switch on or off (it is fixed at 25°C/77°F) as needed. The detachable epoxy body probe features stainless steel electrodes and incorporates a 1,000 Ohm platinum RTD. It’s designed for one hand operation, or can be used as a table-top meter.

SPECIFICATIONS

- **Range:**
  - CDH-90: 0.000 to 1.999% NaCl;
  - 0.00 to 19.99% NaCl
  - CDH-95: 0 to 200K, 0 to 20K, 0 to 2K Ohms/Cubic inch

- **Accuracy:**
  - CDH-90: 0.000 to 1.999% NaCl, ± 0.03%; 0.00 to 19.99% NaCl, ±0.3%
  - CDH-95: ± 2% of full scale

- **Electrode:**
  - 316 Stainless Steel in epoxy body

- **Temperature Compensation:**
  - 0 to 82°C (32 to 180°F)

- **Accuracy:**
  - 0 to 50°C (32 to 122°F), ±0.01%; 50 to 82°C (122 to 180°F), ±0.03%

- **Power:**
  - 9 V Battery (Included)

- **Battery Life:**
  - 100 Hours

- **Enclosure:**
  - ABS Plastic

Contact OMEGA for additional information on Calibration Solutions and Replacement Sensors.
instruNet Series Direct Sensor to Data Acquisition

$1480 Basic System With Software

- High Accuracy Data Acquisition for Windows 95/NT & Macintosh Computers
- 16 Single-Ended/8 Differential 14 Bit Analog Inputs, 8 Analog Outputs and 8 Digital I/O
- Controller Card Includes 10 Counter/Timer Channels
- Direct Connect to RTD, Thermocouple, Voltage, Thermistor, Bridge and Strain Gage Sensors
- 166 Ks/sec Throughput to RAM or Disk
- Each Channel has Independently Programmable Analog Filters, Integration Time, Voltage Range and Sample Rate
- Programmable Digital Filters on All Channels

Includes Strip/Chart Software and Drivers for C, Visual Basic, HPVEE, and TestPoint. Optional LabVIEW Drivers are available.

At the heart of the real-time system is a PCI or PC-card controller board that plugs into a Windows 95/NTx86 or Macintosh computer. Each controller contains a 32 bit microprocessor with 256KB of RAM that manages the external “network” of devices. All real-time tasks are off-loaded to this processor, therefore the host computer is not burdened with real-time issues. Each instruNet iNET-100 box provides, 16 single-ended/8 differential analog inputs, 8 analog outputs and 8 digital I/O lines. The iNET-100 includes 44 screw terminals. The iNET-100B version adds 16 BNCs for analog inputs. The controller’s themselves provide 10 counter/timer channels each of which can function as a digital input bit, a digital output bit, a clock output channel or a period measurement input channel.

For more information, visit www.omega.com or call 1-800-TC-OMEGA.
Distributed and Expandable

The instruNet system is ideally suited for distributed measurement and control systems. The network cable can extend up to 1000 feet. Each controller card in the PC can connect to up to 16 instruNet boxes for a total number of 256 analog inputs, 128 analog outputs and 128 digital I/O. For additional inputs, multiple controller cards can be placed in one computer with the maximum number of controller cards limited only by the number of available slots in the computer. Since each controller card has its own microprocessor, multiple cards do not place any additional burden on the computer. It should be noted that multiple instruNet boxes on a single network may degrade the maximum system throughput of 166Ks/sec.

Performance

The instruNet system supports the digitizing of multiple channels at a maximum aggregate sample rate of 166Ks/sec, where each channel can be digitized at its own rate. This maximum rate decreases when: the total cable length increases, optical isolation is used, digital filtering or plotting is enabled, more boxes are added, more channels are digitized, amplifier gain is increased, or spooling to disk is added. Each channel can be independently digitally filtered with low-pass, high-pass, band-stop and band-pass filters, where the filter specification for each channel is independently set in software. Each channel provides a programmable analog low pass filter with programmable A/D measurement integration time. The network can be hundreds of feet long and can support multiple hardware devices connected together in a daisy-chain configuration. The start of digitizing can be triggered from any channel. There are no jumpers or ports; the system automatically self-calibrates on power-up. Since instruNet is modular, it can easily be expanded as needs evolve. One can easily move the system hardware from one computer family to another, since the various controllers are functionally identical.

High Current Version (HC)

The INET-100HC is similar to the INET-100, yet the voltage output channels have a higher drive capability, providing up to 15mA of current to capacitive loads as high as 0.01uF. The INET-100 and INET-100B devices support only 4mA/0.001uF voltage output drive. The INET-100HC is recommended for use with sensors that require excitation, such as strain gages, RTDs and thermistors since these sensors may exceed the current or capacitive drive limits of the INET-100 or INET-100B. The INET-100HC provides greater compatibility with sensors that have capacitive loading on the excitation lines, therefore, the HC version is recommended for all sensors requiring excitation including RTDs and thermistors. Since the HC version has a greater power demand, an external power supply must be used. The INET-311-2, should be used for one INET-100HC and INET-311-5 can be used to power up to three INET-100HC boxes.

Software

"instruNet World", is a FREE application program. It manages, monitors and operates the instruNet system. It digitizes long continuous waveforms, spools them to disk, views incoming waveforms in real-time and then allows post acquisition viewing much like an oscilloscope or strip chart recorder.

instruNet World provides a spreadsheet-like environment where one can set and view channel parameters such as sensor type, integration time, analog filter, and digital filter. Each channel has its own row in the spreadsheet, with the various options in the columns.

instruNet is also compatible with a variety of off-the-shelf software products including TEST Point, HPVEE, SuperScope II Macintosh; Microsoft Excel 8 for Windows, DasyLab and Labtech Notebook (consult the factory for the availability of DasyLab drivers).

For users writing their own programs, instruNet includes drivers callable from any 32 bit C compiler, and Visual Basic (v4.0 or greater). The driver includes a main routine, called "iNet()”, that reads or writes any of the options or channels on the system. Optional drivers are also available for LabVIEW software.

instruNet BASIC

The iNet-350 accessory adds optional software support for instruNet BASIC. This software enables users to automate the setting up of channels, digitizing, viewing results, and saving to disk. It is predicated on the BASIC programming language and features many additional commands that facilitate working with instruNet hardware. instruNet BASIC builds on the instruNet World strip chart recorder by automating common tasks done at experiment time.

Power Requirements

Since instruNet is powered directly from the INET-200/2200 controller card, it is possible to exceed the power capacity of the controller card if multiple instruNet iNET-100 boxes are attached to a network. For systems with more than 3 (1 in the case of the PC-card controller) instruNet boxes on a network, external power is required. Two power adapters are available, the INET-300 power adapter and the INET-330 adapter/isolator. Both devices connect in line with the instruNet communications cable, the iNET-300 provides power only, the INET-330 provides power and electrical isolation between the iNET-100 boxes and the computer. Isolation is useful in eliminating ground loop problems. Both the INET-300 and INET-330 require either the iNET-311-2 or iNET-311-5 power supply. The INET-311-2 can power three INET-100/100B or one INET-100HC. The INET-311-5 can power 5 INET-100/100B or three INET-100HC. The iNET-230 controller card does not provide power, the iNET-311 or iNET-312 power supply must be used with this card.
### Thermocouple Ranges/Accuracy

<table>
<thead>
<tr>
<th>Thermocouple</th>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>-210 to -100°C, -100 to 1200°C</td>
<td>±0.8°C, ±0.5°C</td>
</tr>
<tr>
<td>K</td>
<td>-200 to -50°C, -50 to 1360°C</td>
<td>±0.8°C, ±0.6°C</td>
</tr>
<tr>
<td>T</td>
<td>-200 to -100°C, -100 to 400°C</td>
<td>±0.8°C, ±0.5°C</td>
</tr>
<tr>
<td>E</td>
<td>-200 to -60°C, -60 to 1000°C</td>
<td>±0.7°C, ±0.5°C</td>
</tr>
<tr>
<td>R</td>
<td>-50 to 70°C, 70 to 1768°C</td>
<td>±3.5°C, ±2.0°C</td>
</tr>
<tr>
<td>S</td>
<td>-50 to 150°C, 150 to 1768°C</td>
<td>±2.8°C, ±1.8°C</td>
</tr>
<tr>
<td>B</td>
<td>250 to 600°C, 600 to 1300°C</td>
<td>±3.8°C, ±2.0°C</td>
</tr>
<tr>
<td>N</td>
<td>-200 to -110°C, -110 to 1260°C</td>
<td>±1.3°C, ±0.8°C</td>
</tr>
</tbody>
</table>

Accuracy includes cold junction compensation, voltage measurement and linearization errors.

### RTD Accuracy Ranges

RTDs with $\alpha = 0.00385$ and 0.00392 supported. One user supplied shunt resistor per RTD channel is required.

<table>
<thead>
<tr>
<th>RTD</th>
<th>Range</th>
<th>Shunt</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>100Ω</td>
<td>0 to 200°C</td>
<td>1KΩ</td>
<td>±0.37°C</td>
</tr>
<tr>
<td>100Ω</td>
<td>0 to 850°C</td>
<td>2KΩ</td>
<td>±1.0°C</td>
</tr>
<tr>
<td>500Ω</td>
<td>0 to 200°C</td>
<td>4.7KΩ</td>
<td>±0.38°C</td>
</tr>
<tr>
<td>500Ω</td>
<td>0 to 850°C</td>
<td>10KΩ</td>
<td>±0.9°C</td>
</tr>
<tr>
<td>1000Ω</td>
<td>0 to 200°C</td>
<td>10KΩ</td>
<td>±0.36°C</td>
</tr>
<tr>
<td>1000Ω</td>
<td>0 to 850°C</td>
<td>20KΩ</td>
<td>±0.85°C</td>
</tr>
</tbody>
</table>

*±80 mV and ±10 mV are nominal ranges, the actual ranges may be as low as ±78 mV and ±8 mV respectively.

### Voltage Range/Accuracy

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Integration (Seconds)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5 V</td>
<td>1 ms</td>
<td>±700µV</td>
</tr>
<tr>
<td>±0.6 V</td>
<td>1 ms</td>
<td>±75µV</td>
</tr>
<tr>
<td>±80 mV*</td>
<td>1 ms</td>
<td>±15µV</td>
</tr>
<tr>
<td>±10 mV*</td>
<td>1 ms</td>
<td>±10µV</td>
</tr>
</tbody>
</table>

*Accuracy includes cold junction compensation, voltage measurement and linearization errors.

**instruNet World Data Acquisition Software included with the instruNet System**

**To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com**
**Speciﬁcations**

- **Analog Inputs Number**: 16 single-ended/8 differential
- **Resolution**: 14 bit
- **System Throughput**: 166K samples/sec
- **Signal To Noise Ratio**: 78 dB
- **Linearity**: Differential ±1.5 LSB; Integral ±2 LSB
- **Input Overvoltage Protection**: ±15 V
- **Input Impedance**: >22 MΩ, 3pF
- **Common Mode Voltage**: ±5 V min (CMR ±80 dB)
- **Gain and Offset Drift**: ±5 ppm/°C of 5 V FSR; offset self-calaed to 0

**Thermistor**

**Accuracy/Ranges**

All OMEGA 44xxx series thermistors supported. (Contact factory for other thermistors.) One user supplied shunt resistor per thermistor channel is required.

**Accessories**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>iNET-300</td>
<td>$60</td>
<td>Power adapter, required if using more than 3 iNET-100 boxes with the PCI or NuBus controller card or if using more than 1 iNET-100 box with the PC card controller. (no signal isolation, requires iNET-311 or iNET-312 power supply)</td>
</tr>
<tr>
<td>iNET-330</td>
<td>290</td>
<td>Optical isolator, isolates signal and power lines (replaces iNET-300, requires iNET-311 power supply)</td>
</tr>
<tr>
<td>iNET-311-2</td>
<td>60</td>
<td>Power supply, 110V to 5V/0.8A &amp; ±12V/0.24A, with iNET-300/330/230 (Powers 5 iNET-100/100B or 1 iNET-100HC)</td>
</tr>
<tr>
<td>iNET-311-5</td>
<td>130</td>
<td>Power supply, 110V to 5V/2A &amp; ±12V/0.5A, used with iNET-300/330/230 (Powers 5 iNET-100/100B or 2 iNET-100HC boxes)</td>
</tr>
<tr>
<td>iNET-322-5</td>
<td>130</td>
<td>Power supply, 220V to 5V/2A &amp; ±12V/0.5A, used with iNET-300/330/230 (Powers 5 iNET-100/100B or 2 iNET-100HC boxes)</td>
</tr>
<tr>
<td>iNET-340</td>
<td>50</td>
<td>DIN rail mounting brackets for one iNET-100</td>
</tr>
<tr>
<td>iNet-34S</td>
<td>75</td>
<td>34 pin screw terminal panel, breaks out digital I/O on iNET-2xx controller (requires iNET-34W3F cable)</td>
</tr>
<tr>
<td>iNET-34W3F</td>
<td>25</td>
<td>3 ft 34 wire ribbon cable to connect iNET-34S to iNET-2xx controller card</td>
</tr>
<tr>
<td>iNET-350</td>
<td>390</td>
<td>instruNet BASIC software option, includes disk, manual and software license</td>
</tr>
<tr>
<td>iNET-380</td>
<td>195</td>
<td>LabVIEW drivers for Mac and Windows 95</td>
</tr>
<tr>
<td>OMX-R(*)</td>
<td>10</td>
<td>Precision shunt resistor, insert resistance code.</td>
</tr>
</tbody>
</table>

**Analog Outputs Number**: 8

- **Resolution**: 8 bit
- **Output Range**: ±5 V @ 5 mA for iNET-100/100B, 15 mA for iNET100HC
- **Output Protection**: Short-to-ground continuous
- **Output Settling Time**: 4µs (to ±1⁄2 LSB, ±5 V step)
- **Analog Output Accuracy**: ±0.4%
- **Digital Coupling**: ±20 mV
- **Gain and Offset Drift**: ±10 ppm⁄°C of 5 V FSR; and ±5µV⁄°C offset drift
- **Digital I/O Number**: 8 non-latching inputs and 8 latching outputs at 8 bi-directional screw terminals

**Input Levels**

- VIH = 3.2 Vmin to 12 Vmax;
- VIL = 1.0 Vmin to -12 Vmin
- IIH = -200 µA, VI = 3.2 V;
- IIL = -0.5 mA max.

**Output Levels**

- VOH = 2 V min to 5 V max;
- IOH = -5 mA max.
- IOL = 500 mA max, VO = 1.7 V;
- IOL = 50 mA max, VO = 0.7 V

**To Order**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>iNET-100</td>
<td>$890</td>
<td>instruNet external A/D box with screw terminal connections</td>
</tr>
<tr>
<td>iNET-100B</td>
<td>990</td>
<td>instruNet external A/D box with screw terminal and BNC connections</td>
</tr>
<tr>
<td>iNET-100HC</td>
<td>990</td>
<td>Same as iNET-100 with 15 mA excitation current.</td>
</tr>
<tr>
<td>iNET-200</td>
<td>590</td>
<td>PCI-Bus controller card for Windows 95/NT or Macintosh computers (controls up to 16 iNET-100’s)</td>
</tr>
<tr>
<td>iNET-220</td>
<td>590</td>
<td>Nubus controller card for Macintosh computers (controls up to 16 iNET-100’s)</td>
</tr>
<tr>
<td>iNET-230†</td>
<td>590</td>
<td>PC-Card controller, type II (requires iNET-311 or iNET-312)</td>
</tr>
<tr>
<td>iNET-300</td>
<td>$60</td>
<td>Power adapter, required if using more than 3 iNET-100 boxes with the PCI or NuBus controller card or if using more than 1 iNET-100 box with the PC card controller (no signal isolation, requires iNET-311 or iNET-312 power supply)</td>
</tr>
<tr>
<td>iNET-330</td>
<td>290</td>
<td>Optical isolator, isolates signal and power lines (replaces iNET-300, requires iNET-311 power supply)</td>
</tr>
<tr>
<td>iNET-311-2</td>
<td>60</td>
<td>Power supply, 110V to 5V/0.8A &amp; ±12V/0.24A, with iNET-300/330/230 (Powers 5 iNET-100/100B or 1 iNET-100HC)</td>
</tr>
<tr>
<td>iNET-311-5</td>
<td>130</td>
<td>Power supply, 110V to 5V/2A &amp; ±12V/0.5A, used with iNET-300/330/230 (Powers 5 iNET-100/100B or 2 iNET-100HC boxes)</td>
</tr>
<tr>
<td>iNET-322-5</td>
<td>130</td>
<td>Power supply, 220V to 5V/2A &amp; ±12V/0.5A, used with iNET-300/330/230 (Powers 5 iNET-100/100B or 2 iNET-100HC boxes)</td>
</tr>
<tr>
<td>iNET-340</td>
<td>50</td>
<td>DIN rail mounting brackets for one iNET-100</td>
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<tr>
<td>iNet-34S</td>
<td>75</td>
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</tr>
<tr>
<td>OMX-R(*)</td>
<td>10</td>
<td>Precision shunt resistor, insert resistance code.</td>
</tr>
</tbody>
</table>

*Note: Insert resistance code in Ohms.
Available resistance codes are 200, 1K, 2K, 4.7K, 10K, 20K and 47K.

**Ordering Example:** iNET-100 external A/D box and iNET-200 controller card, $890 + 590 = $1480.

†Consult Engineering for availability of WIN/NT support for iNET-230.
The LVCN-300 series is designed from an operator’s point of view, making any process and alarm points visible on the multi-colored display graph. They get everything they need at a glance! The LVCN-300 series provides reliability with very flexible design options and a friendly face to tell you exactly what is going on inside your tank no matter where it is located. Everyone can easily see it from a distance or while walking the plant floor. It’s this simple to understand— if the green vertical bar (level) is between the orange and yellow line everything’s just fine. If it’s above or below the red marks, something is wrong. That is all there is to it.

The LVCN-300 series accepts all types of 4-20 mA sensors, such as pressure, ultrasonic, float type liquid level transmitters and capacitive transmitters. The sensor input is isolated and loop powered up to 24 Vdc, allowing data gathering devices to easily interface.

Two models are available, the LVCN-301 or LVCN-302. The LVCN-301 is for Make Up applications and the LVCN-302 is for sump applications.

A typical Make Up application is when the liquid in a tank is “lost” because it is being used in a manufacturing process or lost by evaporation and has to periodically be refilled or “made up.” To accomplish this Make Up operation the LVCN-301 controller uses a differential relay that is activated by a FALLING level in the tank. The LVCN-302 controller has internally “latched” the relay closed and will continue holding it closed until the Make Up OFF level that was programmed is reached and the tank stops draining.

### SPECIFICATIONS

**Sensor Input:** Isolated input accepts any type of 4-20 mA process signal. Loop power available up to 24 Vdc @ 500μA for 2 wire device

**Input Power:** 120 Vac/500mA; 24 Vdc or 24 Vac unregulated (optional) 750 mA

**Security Levels:** 3 levels of access protect data changes with DIP switch on back

**Control Circuits:** Four Form C relays, 10.0 amp

**Switching Mode:** Selectable, NO or NC states.

**To Order (Specify Model Number)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVCN-301</td>
<td>$2190</td>
<td>Make-Up Model</td>
</tr>
<tr>
<td>LVCN-301-NEMA4</td>
<td>3034</td>
<td>LVCN-301 in NEMA-4 Fiberglass Enclosure 16 x 20 x 8”</td>
</tr>
<tr>
<td>LVCN-302</td>
<td>2190</td>
<td>Sump Model</td>
</tr>
<tr>
<td>LVCN-302-NEMA4</td>
<td>3034</td>
<td>LVCN-302 in NEMA-4 Fiberglass Enclosure 16 x 20 x 8”</td>
</tr>
<tr>
<td>LVU91</td>
<td>495</td>
<td>Ultrasonic Level Transmitter, 0.9-1.8 m (3-6’)</td>
</tr>
<tr>
<td>LVR31</td>
<td>597</td>
<td>Float Transmitter, 0.3 m (1’) Length</td>
</tr>
<tr>
<td>PX439-005GI</td>
<td>579</td>
<td>Submersible Pressure Transmitter</td>
</tr>
</tbody>
</table>

Comes with complete operator’s manual. For 24 Vdc power, add -24VDC to model number. For 24 Vdc power, add -24VAC to model number. No additional charge.

Ordering Example: LVCN-301, Make Up model, PX439-005GI, Submersible Pressure Sensor, $2190 + 579 = $2769
DILBERT® by Scott Adams

14
Collection Series
#14-001039

D13

6/08/01
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One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

6/12/01
DILBERT © United Feature Syndicate, Inc.

www.omega.com • e-mail: info@omega.com
DILBERT® by Scott Adams

6/14/01
DILBERT © United Feature Syndicate, Inc.

One Omega Drive, P.O. 4047
Stamford, CT 06907-0047
I TOLD THEM YOU WOULD BE AT THE MEETING ON MONDAY MORNING.

WHAT?? THAT MEANS I HAVE TO TRAVEL ALL DAY SUNDAY.
YOU'RE STEALING MY LIFE!

THEN HE SAID HE'D RESCHEDULE IF I HAD SOCIAL PLANS.

OUCH

WE OVERBOOKED. BUT I CAN GIVE YOU THE CO-PILOT'S SEAT IF YOU KNOW HOW TO FLY A 747.

UM...YEAH, OKAY. I CAN FLY A 747.

SHOULD I DO SOMETHING?

BEATS ME. I'M A CHIROPRACTOR.

GIVE ME $35 WORTH OF FOOD, INCLUDING YOUR 15% TIP.

IF I BRING YOU A PENNE PASTA, WILL YOU PROMISE TO NOT BUILD A LOG CABIN ON YOUR PLATE?

I CAN'T PROMISE THAT.

WELL THEN, WE HAVE A SITUATION HERE.
The compact OMB-DAQ-55/56 is ideal for portable data acquisition applications (laptop computer not included).

The OMB-DAQ-55 and OMB-DAQ-56 Personal Dqs are full-featured data acquisition products that utilize the Universal Serial Bus (USB), which is built into almost every new PC. Designed for high accuracy and resolution, the 22-bit OMB-DAQ-55/56 data acquisition systems directly measure multiple channels of voltage, thermocouple, pulse, frequency, and digital I/O. A single cable to the PC provides high-speed communication and power to the OMB-DAQ-55/56. No additional batteries or power supplies are required, except when using bus-powered hubs.

The OMB-DAQ-55/56 modules are the first products in a new family of low-cost, USB-based products from OMEGA. Because of the strict power limitations of the USB, the modules incorporate special power-management circuitry to ensure adherence to USB specifications.

The OMB-DAQ-55/56 avoid many of the limitations of PC-Card (PCMCIA) data acquisition devices and offer advantages over many PC plug-in data acquisition boards as well. The OMB-DAQ-55 data acquisition system offers 10 single-ended or 5 differential analog (up to ±20 V full scale) or thermocouple input channels, 16 programmable ranges, 500 V optical isolation, 8 digital I/O lines, and 2 frequency/pulse/duty-cycle channels.
The OMB-DAQ-56 offers twice the I/O capacity as the OMB-DAQ-55 in the same size package.

To simplify attachment of signals and transducers, the OMB-DAQ-55/56 modules feature convenient, removable screw-terminal input connections.

SOFTWARE
The OMB-DAQ-55/56 are supplied with Personal DaqView, Windows98/2000/XP, based data logging application that allows you to set up your acquisition applications and save acquired data directly to disk. For additional functionality, enhanced versions of Personal DaqView are available. The OMB-DAQ-55/56 are also shipped with PostView, a post-acquisition application that permits you to display acquired data previously saved to a file. Drivers for Visual Basic, Delphi and C++ for Windows98/2000/XP, are also included. In addition, drivers are available for icon-based software packages such as DASYLab and LabVIEW.

ABOUT USB — THE NEW PC CONNECTION
The Universal Serial Bus (USB) is a new standard for connecting PCs to peripheral devices such as printers, monitors and modems. USB offers several advantages over conventional serial and parallel connections, including higher bandwidth (up to 12 Mbits/s) and the ability to provide power to the peripheral device.

USB is ideal for data acquisition applications. Since USB connections supply power, only one cable is required to link the data acquisition device to the PC, which most likely

OMB-CA-179 Series Cable
has at least one USB port. In addition, the USB’s high-speed data transfer (from the data acquisition device to the PC) allows for a real-time display of acquired data, while eliminating the need for expensive memory in the acquisition device.

With the backing of Intel, Microsoft, and hundreds of other computer-related companies, USB is quickly becoming a new universal standard.
PERSONAL DAQ EXPANSION
The OMB-Daq-55 and OMB-Daq-56 can be easily expanded with one of two available snap-on expansion modules, bringing the total capacity up to 60 analog or thermocouple channels, 32 digital I/O lines, and 4 frequency input channels. Furthermore, USB hubs can be used to create multi-unit systems containing up to 100 OMB-DAQ-55/56 modules attached to a single PC. Using this strategy, a multi-unit OMB-DAQ-55/56 system can provide up to 8,000 analog and digital I/O lines. See chart below for available channel capacity.

EXAMPLE SYSTEMS
As a USB product, the OMB-Daq-55/56 data acquisition system can be located up to 5 meters (16.4 feet) from the PC, allowing it to reside close to the point of measurement for improved accuracy and reduced noise. If USB hubs are used as repeaters between USB cable segments, the OMB-DAQ-55/56 can be located up to 30 meters (98.4 feet) from the PC.

<table>
<thead>
<tr>
<th>OMB-DAQ and Expansion System Channel Capacities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product or System</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>OMB-Daq-55</td>
</tr>
<tr>
<td>OMB-Daq-56</td>
</tr>
<tr>
<td>OMB-PDQ1 Expansion Module</td>
</tr>
<tr>
<td>OMB-PDQ2 Expansion Module</td>
</tr>
<tr>
<td>OMB-Daq-55 + OMB-PDQ1</td>
</tr>
<tr>
<td>OMB-Daq-55 + OMB-PDQ2</td>
</tr>
<tr>
<td>OMB-Daq-56 + OMB-PDQ1</td>
</tr>
<tr>
<td>OMB-Daq-56 + OMB-PDQ2</td>
</tr>
</tbody>
</table>

An OMB-DAQ and a OMB-PDQ module simply plug together for additional channel capacity.

Direct Connection to Computer USB Port(s)
Two OMB-DAQS (with optional OMB-PDQ modules) are connected by cable to each of the computer’s USB ports, requiring no external power source.

Connection to USB Powered Hub
Four OMB-DAQS (with optional OMB-PDQ modules) are connected to ports of a USB powered hub; requiring an external power source.

Specifications
General
Isolation: 500 V from PC
Power Requirements: Powered from USB, or from external +6 to +16 VDC when used with a bus-powered hub
Environmental: 0 to 70°C, 0 to 95% RH (non-condensing)
Dimensions: 92 W x 182 L x 45 mm H (3.6 x 7.1 x 1.6")

Analog Specifications
Each channel is configurable for single-ended or differential, Volts, or thermocouple inputs
OMB-Daq-55: 10 single-ended, 5 differential; Volts or TC channels
OMB-Daq-56: 20 single-ended, 10 differential; Volts or TC channels

To Order, Call 1-800-TC-Omega or Shop Online at www.omega.com
Thermocouple Type and Temperature Ranges:
- J (-100 to 700°C), K (-100 to 600°C), T (-50 to 200°C), E (-100 to 500°C), R (-400 to 1400°C), S (400 to 1400°C), B (700 to 1400°C), N (-100 to 700°C)

Thermocouple Accuracy:
- In very slow mode, 22 bit resolution, does not include cold junction compensation error:
  - J (0.4°C), K (0.5°C), T (0.4°C), E (0.3°C), R (1.5°C), S (1.6°C), B (2.2°C), N (0.7°C)

Cold Junction Compensation Accuracy: (+/- 0.5°C),
Over-Voltage Protection: ±45 V relative to analog Lo
AC Common Mode Rejection: >120 dB @ 50/60 Hz
Channel-to-Channel Crosstalk: <-110 dB (DC to 100 Hz); up to 10 K ohm source resistance
Accuracy: 0.01% of reading; + 0.002% of range (exclusive of noise)
Input Resistance:
- >10 M Ohm (SE), >20 M Ohm (DE)
Bias Current: <1 nA (0-35°C)

Frequency Measurements:
OMB-Daq-55: 2 frequency/pulse input channels
OMB-Daq-56: 4 frequency/pulse input channels

Operating Modes: Pulse count (totalize), duty-cycle, and frequency

Input Voltage Range:
Differential Single-ended
- -20 V to +20 V
- -10 V to +10 V
- -5 V to +5 V
- -4 V to +4 V
- -2.5 V to +2.5 V
- -2 V to +2 V
- -1.25 V to +1.25 V
- -1 V to +1 V
- -625 mV to +625 mV
- -500 mV to +500 mV
- -312 mV to +312 mV
- -250 mV to +250 mV
- -156 mV to +156 mV
- -125 mV to +125 mV
- -62 mV to +62 mV
- -31 mV to +31 mV

Thermocouple and Temperature Ranges:
- J (-100 to 700°C), K (-100 to 600°C), T (-50 to 200°C), E (-100 to 500°C), R (-400 to 1400°C), S (400 to 1400°C), B (700 to 1400°C), N (-100 to 700°C)

Thermocouple Accuracy:
Ilm very slow mode, 22 bit resolution, does not include cold junction compensation error:
- J (0.4°C), K (0.5°C), T (0.4°C), E (0.3°C), R (1.5°C), S (1.6°C), B (2.2°C), N (0.7°C)

Totalize: Up to 2^32 counts/scan
Frequency & Duty-Cycle
Resolution: 7 digits. Actual resolution depends on scan rate. At 10 scans/s, resolution is 5 digits (10 ppm); at 1 scan/s, 6 digits (1 ppm)

Digital I/O
Each I/O line is individually programmable as input or output.
OMB-Daq-55: 8 digital I/O lines
OMB-Daq-56: 16 digital I/O lines

Voltage Range: ±15 V Thresholds:
- <1.3 V (low), >3.8 V (high)

Pull-Up Resistor:
27 K Ohm to +5 V for switch or relay sensing

Debouncing:
None, 0.8, 3.2, or 13 mSec. (software selectable)

Bias Current:
<1 nA (0-35°C)

Frequency Measurements:
OMB-Daq-55: 2 frequency/pulse input channels
OMB-Daq-56: 4 frequency/pulse input channels

Operating Modes: Pulse count (totalize), duty-cycle, and frequency

Input Voltage Range:
Differential Single-ended
- -20 V to +20 V
- -10 V to +10 V
- -5 V to +5 V
- -4 V to +4 V
- -2.5 V to +2.5 V
- -2 V to +2 V
- -1.25 V to +1.25 V
- -1 V to +1 V
- -625 mV to +625 mV
- -500 mV to +500 mV
- -312 mV to +312 mV
- -250 mV to +250 mV
- -156 mV to +156 mV
- -125 mV to +125 mV
- -62 mV to +62 mV
- -31 mV to +31 mV

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMB-DAQ-55</td>
<td>$795</td>
<td>10 Channel, 22-bit data acquisition system</td>
</tr>
<tr>
<td>OMB-DAQ-56</td>
<td>$1095</td>
<td>20 Channel, 22-bit data acquisition system</td>
</tr>
<tr>
<td>OMB-PDQ1</td>
<td>$595</td>
<td>20 Channel, expansion module, digital I/O &amp; Frequency/Pulse Inputs</td>
</tr>
<tr>
<td>OMB-PDQ2</td>
<td>$695</td>
<td>40 Channel expansion module</td>
</tr>
<tr>
<td>OMB-CA-179-1</td>
<td>$25</td>
<td>USB Cable, 1 meter</td>
</tr>
<tr>
<td>OMB-CA-179-3</td>
<td>$40</td>
<td>USB Cable, 3 meters</td>
</tr>
<tr>
<td>OMB-CA-179-5</td>
<td>$55</td>
<td>USB Cable, 5 meters</td>
</tr>
<tr>
<td>OMB-CN-153-12</td>
<td>$14</td>
<td>Terminal block (spare)</td>
</tr>
<tr>
<td>OMB-DAQ-SW-PLUS</td>
<td>245</td>
<td>Enhanced Personal DaqView, including overlapping charts, multiple display groups &amp; support for multiple Personal Daqs</td>
</tr>
<tr>
<td>OMB-DAQ-SW-XL</td>
<td>245</td>
<td>Microsoft Excel add-in providing Personal DaqView with complete functionality within Excel's tool palette</td>
</tr>
<tr>
<td>OMB-DAQ-SW-XLPLUS</td>
<td>345</td>
<td>Combination of Personal DaqView Plus &amp; Personal DaqView XL and XL Plus</td>
</tr>
</tbody>
</table>

Each unit is supplied with Personal DaqVIEW Software drivers for Visual Basic, C++ and Delphi for Windows, terminal block, 120 VAC power adapter (consult engineering for 220/AC models) and a complete operator’s manual on CD

Ordering Example: OMB-DAQ-55 data acquisition system with OMB-PDQ1 expansion module and OMB-CA-179-1 USB cable, $795 + $595 + 25 = $1415
PowerDAQ II PCI A/D Boards
Processor Based Data Acquisition Boards for the PCI Bus

Basic Unit
$895

- 1.25 MS/s 12-bit Resolution
- 400 kS/s 14-bit Resolution
- 333 kS/s, 50 kS/s 16-bit Resolution
- Programmable Gain 1, 10, 100, 1000 or 1, 2, 4, 8
- 2, 12-bit, 200 kHz D/A’s WaveForm Quality
- 16 Digital Input (8 Can Generate Interrupts) 16 Digital Output
- 3, 16-bit User-Dedicated Counter/Timers
- Simultaneous A/D, D/A, DIO, Counter/Timer Subsystems Operation
- Bus Mastering DMA Extensive Clocking and Triggering for A/D and D/A
- No Jumpers or Switches
- Auto Calibration

PowerDAQ II is the next generation multifunction analog and digital I/O board for the PCI bus. The PowerDAQ II boards have been developed with new “clean” 32-bit drivers for Windows95 and Windows NT, hence no legacy code.

The PowerDAQ II series is designed around a “processor based” 24-bit 66 MHz Motorola 56301 PCI DSP interface. This design allows the user to offload the host CPU data acquisition functions to the onboard DSP thus giving the user the power of two CPUs in one PC.

Each PowerDAQ II multifunction board is comprised of four subsystems, Analog Input, Analog Output, Digital I/O and Counter/Timers. PowerDAQ technology allows all the subsystems to run simultaneously and/or independently with one or multiple boards in the same PC. You can start and stop multiple subsystems as required. The PowerDAQ II based boards all feature extensive hardware and software triggering. Data transfer methods include slave mode and bus mastering operation.

Several different models of the PowerDAQ II boards are available. The models differ in resolution, speed, input range and number of channels.

Software
The PowerDAQ II includes a comprehensive software suite provided at no additional charge. The suite consists of a menu driven quick start application for quick and easy operation without programming, a software development kit (SDK) for custom user program creation under Windows 9x/NT/2000 and software drivers for a large variety of off-the-shelf applications. The quick start application provides data collection, graphical display of the data, and datalogging in a format compatible with most spreadsheets and other post acquisition software packages.

The PowerDAQ SDK supports Visual C++, Visual Basic, Delphi and Borland C++ Builder

PowerDAQ II boards are also compatible with a variety of off-the-shelf data acquisition application programs. The drivers for the following packages are provided at no charge.

Third Party Drivers for:
LabVIEW for Windows
HP VEE
TestPoint
DASYlab
DIAdem

To Order, Call 1-800-TC-Omega or Shop Online at www.omega.com
Accessory Racks
The PowerDAQ II boards can connect to a variety of stand-alone or 19" rack-mount accessory panels. A complete range of cables and options are available.

Isolated Thermocouple Input Rack
The PD-TCR-16-x is a 16 channel isolated thermocouple rack which can be connected to any PowerDAQ II board. The thermocouple rack supports measurement from J or K thermocouples.

For 16 channels of measurement, the PowerDAQ II boards may be connected directly to the PD-TCR-16-x via a PD-CBL-96 (96-way pinless 1 m cable). For more than 16 channels, the PD-5BCONN interface panel should be used (see diagram).

Features of the PD-TCR-16
• Support Type J (Iron-Constantan) or Type K (CHROMEGA®-ALOMEGA®) direct input connection
• CJC on each channel
• Laser wafer trimmed to 1°C calibration accuracy
• Individual channel isolation to 1000 V
• Type J input: 0 to 600°C
• Type K input: 0 to 1000°C
• Up to 64 Non multiplexed inputs per system

Signal Conditioning Connection Panels
The PD-5BCONN and PD-7BCONN signal conditioning interface panels provide easy connection to up to four signal conditioning racks. The PD-5BCONN connects to OMEGA’s OMS signal conditioning racks and the PD-TCR-16-x isolated thermocouple input rack. The PD-7BCONN connects to OMEGA’s OM7 signal conditioning racks.

Screw Terminal Panels
Two screw terminal boards are available, the PD-SP-9616 connects to 16 channel PowerDAQ II boards and the PD-SP-96 connects to boards with 64 channels. Use the PD-CBL-96 one meter cable to connect from the PowerDAQ II J1 analog connector to the PD-SP J1 connector. Use the PD-CBL-37 ribbon cable set to PD-SP J2 connector.

BNC Analog Connection Panel
The PD-BNC-16 offers all analog input connections using BNC type connectors for the 16 channel boards. The PD-BNC-16 supports single ended or differential input (via jumper selection). Silk screened component open locations for building RC filters and voltage dividers are also supplied. The PD-BNC-16 panel connects to the 16 channel PowerDAQ II boards using the PD-CBL-96 cable. The PD-BNC can be rack mounted using the PD-19RACK option.

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Speed</th>
<th>Channels (SE/Diff)</th>
<th>Gains</th>
<th>A/D Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD2-MF-16-150/16L</td>
<td>$895</td>
<td>150 kS/s</td>
<td>16/8</td>
<td>1,10,100,1000</td>
<td>16 bits</td>
</tr>
<tr>
<td>PD2-MF-16-150/16H</td>
<td>895</td>
<td>150 kS/s</td>
<td>16/8</td>
<td>1,2,4,8</td>
<td>16 bits</td>
</tr>
<tr>
<td>PD2-MF-16-400/14L</td>
<td>895</td>
<td>400 kS/s</td>
<td>16/8</td>
<td>1,10,100,1000</td>
<td>14 bits</td>
</tr>
<tr>
<td>PD2-MF-16-400/14H</td>
<td>895</td>
<td>400 kS/s</td>
<td>16/8</td>
<td>1,2,4,8</td>
<td>14 bits</td>
</tr>
<tr>
<td>PD2-MF-64-400/14L</td>
<td>1395</td>
<td>400 kS/s</td>
<td>64/32</td>
<td>1,10,100,1000</td>
<td>14 bits</td>
</tr>
<tr>
<td>PD2-MF-64-400/14H</td>
<td>1395</td>
<td>400 kS/s</td>
<td>64/32</td>
<td>1,2,4,8</td>
<td>14 bits</td>
</tr>
<tr>
<td>PD2-MF-16-1M/12L</td>
<td>1650</td>
<td>1.25 MS/s</td>
<td>16/8</td>
<td>1,10,100,1000</td>
<td>12 bits</td>
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<tr>
<td>PD2-MF-16-1M/12H</td>
<td>1650</td>
<td>1.25 MS/s</td>
<td>16/8</td>
<td>1,2,4,8</td>
<td>12 bits</td>
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<tr>
<td>PD2-MF-64-1M/12L</td>
<td>2495</td>
<td>1.25 MS/s</td>
<td>64/32</td>
<td>1,10,100,1000</td>
<td>12 bits</td>
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<tr>
<td>PD2-MF-64-1M/12H</td>
<td>2495</td>
<td>1.25 MS/s</td>
<td>64/32</td>
<td>1,2,4,8</td>
<td>12 bits</td>
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<tr>
<td>PD2-MF-16-333/16L</td>
<td>1650</td>
<td>333 kS/s</td>
<td>16/8</td>
<td>1,10,100,1000</td>
<td>16 bits</td>
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<tr>
<td>PD2-MF-16-333/16H</td>
<td>1650</td>
<td>333 kS/s</td>
<td>16/8</td>
<td>1,2,4,8</td>
<td>16 bits</td>
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<tr>
<td>PD2-MF-64-333/16L</td>
<td>2395</td>
<td>333 kS/s</td>
<td>64/32</td>
<td>1,10,100,1000</td>
<td>16 bits</td>
</tr>
<tr>
<td>PD2-MF-64-333/16H</td>
<td>2395</td>
<td>333 kS/s</td>
<td>64/32</td>
<td>1,2,4,8</td>
<td>16 bits</td>
</tr>
</tbody>
</table>

All PowerDAQ II boards include a complete user’s manual, Quick Start application and driver software.

Ordering Example: PD2-MF-16-50/16L PowerDAQ II board, PD-9616-KIT accessory kit and OMEGACARE™ 1 year extended warranty for PowerDAQ II board (adds 1 year to standard 1 year warranty), $895 + 275 + 79 = $1249

To Order, Call or Shop Online at www.omega.com

®
Specifications

ANALOG INPUT
Number of Channels: 16 or 64 single-ended, 8 or 32 differential

Resolution:
- PD2-MF-xx-400/14x: 14 bits
- PD2-MF-xx-1M/12x: 12 bits
- PD2-MF-xx-150/16x: 16 bits
- PD2-MF-xx-333/16x: 16 bits

Max Sample Rate:
- PD2-MF-xx-400/14x: 400 kS/s
- PD2-MF-xx-1M/12x: 1.25 MS/s
- PD2-MF-xx-150/16x: 150 kS/s
- PD2-MF-xx-333/16x: 333 kS/s

Onboard FIFO: 1K FIFO, upgradeable to 16K or 32K

Input Ranges: 0-10 V, ±10 V, 0-5 V, ±5 V (software selectable)

Programmable Gains:
- L Versions = 1, 10, 100, 1000;
- H Versions = 1, 2, 4, 8

Max Working Voltage (signal plus common mode):
- All Models: -10 V to 10 V

Input Overvoltage: -35 V to +55 V continuous, powered or unpowered

Nonlinearity:
- PD2-MF-xx-400/14x: ±0.5 LSB
- PD2-MF-xx-1M/12x: ±0.5 LSB
- PD2-MF-xx-150/16x: ±1 LSB
- PD2-MF-xx-333/16x: ±1 LSB

System Noise:
- PD2-MF-xx-400/14x: ±0.2 LSB
- PD2-MF-xx-1M/12x: ±0.8 LSB
- PD2-MF-xx-150/16x: ±1.2 LSB
- PD2-MF-xx-333/16x: ±1.3 LSB

Input Impedance: 10 MΩ in parallel with 22 pF

Input Bias Current: ±20 nA typical

Input Offset Current: ±100 pA typical

Triggering Modes: Normal, Post, Pre and About Trigger

ANALOG OUTPUT
Number of Channels: 2
Resolution: 12 bit
Max Update Rate: 200 kS/s
Range: ±10V fixed
Data Transfer: DMA

DIGITAL I/O
Input/Output Bits: 16
Input High: V_{IH} = 2.0 V

Output Low: V_{OL} = 0.5 V
COUNTER/TIMER
Number of Counters: 3 available to user
Resolution: 16 bits
Input Low: $V_{IL} = 0.8V$ max; $I_{IL} = -20\mu A$ max
Input High: $V_{IH} = 2.0V$ max; $I_{IH} = 20\mu A$ max

**GENERAL**
Connector 1: 96-way high-density “pinless” connector

**Connector 2:** 36-pin header connector (male)
**Connector 4:** 36-pin header connector (male)
**Connector 6:** 8-pin header connector (male)

**Operating Environment:** 0 to 70°C

**Power Requirements:** 5W typical

**Dimensions:** 10.5 x 3.8" (262 x 98 mm)

### Accessories

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD-TCR16-J</td>
<td>$995</td>
<td>16 Channel Isolated Thermocouple Input Rack Type J</td>
</tr>
<tr>
<td>PD-TCR16-K</td>
<td>995</td>
<td>16 Channel Isolated Thermocouple Input Rack Type K</td>
</tr>
<tr>
<td>PD-STOP-96</td>
<td>225</td>
<td>Screw terminal panel with 96-pin and 37 pin connector for 64 channel boards</td>
</tr>
<tr>
<td>PD-STOP-96-KIT</td>
<td>349</td>
<td>Complete Kit: Includes PD-STOP-96, PD-CBL-96 and PD-CBL-37 for 64 channel boards</td>
</tr>
<tr>
<td>PD-STOP-9616</td>
<td>155</td>
<td>Screw Terminal Panel with 96-pin and 37-pin connector for 16 channel boards</td>
</tr>
<tr>
<td>PD-STOP-9616-KIT</td>
<td>275</td>
<td>Complete Kit: Includes PD-STOP-9616, PD-CBL-96 and PD-CBL-37 for 16 channel boards</td>
</tr>
<tr>
<td>PD-BNC-16</td>
<td>350</td>
<td>16 Channel BNC panel</td>
</tr>
<tr>
<td>PD-BNC-64</td>
<td>550</td>
<td>64 Channel BNC panel</td>
</tr>
<tr>
<td>PD-BNC-64-KIT</td>
<td>619</td>
<td>Complete Kit: Includes PD-BNC-64, PD-CBL-96,PD-CBL-37</td>
</tr>
<tr>
<td>PD-5BCONN</td>
<td>95</td>
<td>Connects 16 or 64 channel PowerDAQ II board to 1 to 4, 5B-xx racks (Cables required: PD-CBL-96 and one to four PD-CBL-5B)</td>
</tr>
<tr>
<td>PD-7BCONN</td>
<td>95</td>
<td>Connects 16 or 64 channel PowerDAQ II board to 1 to 4, 7B-xx racks (Cables required: PD-CBL-96 and one to four PD-CBL-7B)</td>
</tr>
<tr>
<td>PD-100HDR</td>
<td>95</td>
<td>Connects 16 or 64 channel PowerDAQ II board to two 50way IDC headers</td>
</tr>
<tr>
<td>PD-CBL-96</td>
<td>99</td>
<td>96-way pinless; 1 m length, round, shielded cable with metal cover plates</td>
</tr>
<tr>
<td>PD-CBL-96-6FT</td>
<td>210</td>
<td>96-way pinless; 6 ft, round, shielded cable with metal cover plates</td>
</tr>
<tr>
<td>PD-CBL-96-9FT</td>
<td>250</td>
<td>96-way pinless; 9 ft, round, shielded cable with metal cover plates</td>
</tr>
<tr>
<td>PD-CBL-37</td>
<td>55</td>
<td>DIO Cable set: 37-way D-sub cable, Internal cable w/mounting bracket; 1 m length</td>
</tr>
<tr>
<td>PD-CBL-37-BRKT</td>
<td>40</td>
<td>DIO Cable: Internal cable w/mounting bracket; 1 m length</td>
</tr>
<tr>
<td>PD-CBL-37-TP</td>
<td>85</td>
<td>DIO Twisted Pair Cable set: 37-way D-sub cable, Internal cable w/mounting bracket; 1 m length</td>
</tr>
<tr>
<td>PD-CBL-5B</td>
<td>25</td>
<td>18&quot; ribbon cables that connect from the PD-5BCONN to 5B-xx racks</td>
</tr>
<tr>
<td>PD-CBL-7B</td>
<td>35</td>
<td>18&quot; ribbon cables that connect from the PD-7BCONN to 7B-xx racks</td>
</tr>
<tr>
<td>PD-CBL-9626</td>
<td>149</td>
<td>18&quot; round shielded cable that connects from the PD-5BCONN to PD-STOP-16 or PD-BNC-16</td>
</tr>
<tr>
<td>PD-CBL-SYNC4</td>
<td>75</td>
<td>Internal cable to synchronize up to 4 PowerDAQ II series boards</td>
</tr>
<tr>
<td>PD-CONN</td>
<td>40</td>
<td>PowerDAQ mating connector with metal cover (Includes Fujitsu connector: FCN-230C096-C/E and metal cover: FCN-247J096-G/E)</td>
</tr>
<tr>
<td>PD-CONN-CBL</td>
<td>75</td>
<td>96-way pinless; 0.5 m length, round, shielded cable with metal cover plate</td>
</tr>
<tr>
<td>PD-CONN-PCB</td>
<td>75</td>
<td>PowerDAQ mating connector with PCB attached</td>
</tr>
<tr>
<td>PD-19RACK</td>
<td>55</td>
<td>19&quot; rack</td>
</tr>
<tr>
<td>PD-19RACKW</td>
<td>150</td>
<td>19&quot; rack (wide version for PD-TCR-16X or PD-BNC-64)</td>
</tr>
<tr>
<td>PD-16KFILO</td>
<td>300</td>
<td>Upgrade 1K FIFO to 16K FIFO</td>
</tr>
<tr>
<td>PD-32KFILO</td>
<td>500</td>
<td>Upgrade 1K FIFO to 32K FIFO</td>
</tr>
</tbody>
</table>

To Order, Call 1-800-TLC-OMEGA or Shop Online at www.omega.com
DOGBERT! I'M HO-O-OME!
I'LL BE RIGHT THERE. I HAVE TO SIGN THE TEMPS' TIME SHEET.
IF YOU'RE EVER INTERESTED IN A PERMANENT POSITION, GIVE ME A CALL.

WE NEED TO DO MORE WITH LESS.
I PROPOSE THAT WE WORK SMARTER WHILE BROADENING OUR FOCUS.
WALLY, THAT DOESN'T MEAN ANYTHING.

CAROL, I NEED YOU TO FILL IN FOR OUR RECEPTIONIST TODAY.
REMEMBER, YOU WILL BE THE FACE OF OUR COMPANY, THE FIRST IMPRESSION FOR VISITORS.
IF ANYONE OFFERS YOU FOOD, DON'T EAT IT.
DILBERT® by Scott Adams

Collection Series #14-001046

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One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

www.omega.com • e-mail: info@omega.com

DILBERT® by Scott Adams

Collection Series #14-001047

7/04/01 DILBERT © United Feature Syndicate, Inc.

One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

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One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

www.omega.com • e-mail: info@omega.com
OM-CP-QUADTEMP 4 Channel Temperature Datalogger Part of the NOMAD® Family

OM-CP-QUADTEMP $599

- 4 Thermocouple Channels and 1 Ambient Channel
- Real Time Operation
- Programmable Start Time
- Automatic Cold Junction Compensation and Linearization

The OM-CP-QUADTEMP is a 4 channel, battery powered, standalone, thermocouple based temperature datalogger. This all-in-one compact, portable, easy to use device will measure and record up to 122,000 temperature measurements (24,575 readings per channel). The OM-CP-QUADTEMP is a major leap forward in both size and performance. Its real time clock ensures that all data is time and date stamped. The storage medium is nonvolatile solid state memory, providing maximum data security even if the battery becomes discharged. Its small size allows it to fit almost anywhere. Data retrieval is simple. Plug it into an empty COM port and the easy to use Windows software does the rest. The software converts your PC into a real time strip chart recorder. Data can be printed in graphical or tabular format and can also be exported to a text or Microsoft Excel file.

Specifications

**INTERNAL CHANNEL TEMPERATURE SENSOR**
- Calibrated Accuracy: ±0.5°C (0°C to +50°C)
- Temperature Resolution: 0.1°C
- Temperature Range: -40 to 80°C (-40 to 176°F)

**EXTERNAL THERMOCOUPLE CHANNEL (4 CHANNELS)**
- Calibrated Accuracy: ±0.5°C

<table>
<thead>
<tr>
<th>To Order (Specify Model Number)</th>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM-CP-QUADTEMP</td>
<td>$599</td>
<td></td>
<td>4 channel temperature datalogger</td>
</tr>
<tr>
<td>OM-CP-IFC101</td>
<td>99</td>
<td></td>
<td>Windows software and 4ft RS-232 cable with DB9F termination</td>
</tr>
<tr>
<td>OMP-CP-BAT103</td>
<td>20</td>
<td></td>
<td>Replacement 9 V lithium battery</td>
</tr>
</tbody>
</table>

Operator's manual is included with the OM-CP-IFC101 Windows software and RS-232 cable (software ordered separately). To order datalogger with NIST calibration certificate, add suffix “-cert” to model number and add $60 to price.

OM-CP-TC4000 Ambient Temperature and Thermocouple Datalogger Part of the NOMAD® Family

OM-CP-TC4000
$199
Basic Unit

- Memory: 16,383 Ambient and 16,383 Remote Readings
- User Calibration through Software
- Dual Channel Ambient and Remote
- Automatic Thermocouple Linearization
- Miniature Size
- Real Time Operation

The OM-CP-TC4000 is a miniature, battery powered, stand-alone, thermocouple based temperature recorder. This all-in-one compact, portable, easy to use device will measure and record up to 32,767 temperature measurements. The OM-CP-TC4000 is a major leap forward in both size and performance. Its real time clock ensures that all data is time and date stamped. The storage medium is nonvolatile solid state memory, providing maximum data security even if the battery becomes discharged. Its small size allows it to fit almost anywhere. Data retrieval is simple. Plug it into an empty COM port and our easy to use software does the rest. The software converts your PC into a real time strip chart recorder. Data can be printed in graphical or tabular format and can be exported to a text or Microsoft file.

Specifications

<table>
<thead>
<tr>
<th>Internal Channel</th>
<th>Temperature Accuracy: ±0.5°C (0 to 50°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Resolution: 0.1°C</td>
<td></td>
</tr>
<tr>
<td>Temperature Range: -40 to 80°C (-40 to 176°F)</td>
<td></td>
</tr>
<tr>
<td>Remote Channel</td>
<td></td>
</tr>
<tr>
<td>Thermocouple Connection: screw terminal</td>
<td></td>
</tr>
<tr>
<td>Cold Junction Compensation: automatic</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Channel</th>
<th>Thermocouple Connection: screw terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Junction Compensation: automatic</td>
<td></td>
</tr>
</tbody>
</table>

Temperature Calibration: digital calibration is available through software
Calibration Date: automatically recorded within device to alert user when calibration is required
Recording Interval: 2 seconds to 12 hours selectable in software
Start Time: start time and date are programmable through software
Real Time Recording: device may be used with PC to monitor and record data in real time
Green Visual Indicator: LED flashes at selected reading rate
Power: 3.6 V lithium battery
Battery Life: 1 year typical
Time Accuracy: ± 1 minute/month when RS-232 port is not in use
Data Format: date and time stamped, °C, °F, °K, °R

Weight: 30g (1 oz.)

Computer Interface: PC serial or RS-232C COM.
Software: Windows 95/98/NT/2000/XP
Operating Environment:
-40 to 80°C (-40 to 176°F)
5 to 95 % RH non-condensing
Dimensions:
36mmH x 56mmW x 16mmD (1.4x 2.2 x 0.6”)
External Thermocouple Channel Accuracy: ±0.5°C
all thermocouple types (does not include thermocouple error)
Resolution:
0.1°C for types J, K, T, E, N;
0.5°C for types R, S, B, N;
Range Type J: -210 to 760°C;
K: -270 to 1370°C;
T: -270 to 400°C;
E: -270 to 980°C;
R: -50 to 1760°C;
S: -50 to 1760°C;
B: +50 to 1820°C;
N: -270 to 1300°C

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM-CP-TC4000</td>
<td>$199</td>
<td>Ambient temperature and thermocouple datalogger</td>
</tr>
<tr>
<td>OM-CP-IFC101</td>
<td>99</td>
<td>Windows software and 4ft RS-232 cable with DB9F termination</td>
</tr>
<tr>
<td>OM-CP-BAT105</td>
<td>12</td>
<td>Replacement 3.6 V lithium battery</td>
</tr>
</tbody>
</table>

Operator’s manual and RS-232 cable are included with the OM-CP-IFC101 Windows software (software sold separately). To order datalogger with NIST calibration certificate, add suffix “-cert” to model number and add $60 to price.

OM-40 Series Portable Low Cost Dataloggers Part of the NOMAD® Family

OM-40 Series
$59
Basic Unit

- Measure and Record Temperature, Relative Humidity, DC Voltage or DC Current Input
- Stores up to 7943 Readings
- Compact Size
- Easy-to-Use Windows Software

OM-40 Series dataloggers can record temperature, relative humidity, 4 to 20 mA and 0 to 2.5 Vdc signals. Model OM-41 measures temperature only (internal temperature sensor). Model OM-42 is a two channel datalogger that measures temperature (internal sensor) and also one external signal which can be an external temperature probe, 4 to 20 mA signal or 0 to 2.5 Vdc signal. Model OM-43 measures temperature and relative humidity (internal sensors) and also up to two external signals which can be external temperature probes, 4 to 20 mA signals or 0 to 2.5 Vdc signals. The internal temperature sensor is on a 4 inch wire which is mounted on the circuit board inside the snap lid of the datalogger case. Typically this sensor is left inside the case and measures ambient air temperature over the operating temperature range of the logger -20 to 70°C (-4 to 158°F). The internal temperature sensor can also be placed outside of the case for faster response time. When the sensor is placed outside of the case it is capable of measuring temperatures from -20 to 120°C (-4 to 158°F).

Measurement Specifications
Temperature (internal sensor) - All Models
Measurement Range: sensor inside case, -20 to 70°C (-4 to 158°F); sensor outside case, -40 to 120°C (-40 to 248°F)
Sensor Type: thermistor
Accuracy: ±0.7°C @ 21°C (+1.27°F @ 70°F) (see plot)

OM-41 Temperature Datalogger

Specifications
GENERAL
Measurement Capacity: 7943 readings
Measurement Interval: user selectable from 0.5 sec to 9 hrs
Memory Modes: stop when full, wrap-around when full (user selectable)
Memory: non-volatile EEPROM memory retains data even if battery fails
Operation: blinking LED light confirms operation
Time Accuracy: ±1 minute per week at 20°C (68°F)
Operating Temperature: -20 to 70°C (-4 to 158°F)
Operating Humidity: 0 to 95% non-condensing
Storage Temperature: -20 to 70°C (-4 to 158°F)
Power: 3.0V lithium battery
Battery Life: 1 year
Dimensions: 68mm H x 48mm W x 19mm D (2.4 x 1.9 x 0.8”)
Weight: 29 g (1 oz)

Resolution:
0.4°C (0.7°F) at 70°F
Response Time (Still Air):
15 min typical with sensor inside case; 1 min typical with sensor outside case

Relative Humidity (user-replaceable internal sensor)
Models OM-43 and OM-44
Measurement Range: 25% to 95% RH at 80 oF for intervals of 10 seconds or greater, non-condensing and non-fogging (see plot)
**Input Connection:**
2.5 mm stereo phone jack

**Accuracy:** ±0.1 mA ±1% rdg

**Resolution:** 0.4% of fs

**External 0 to 2.5 Vdc Input**
(for use with Models OM-42 and OM-44)

**Measurement Range:**
0 to 2.5 Vdc

**Input Connection:** 2.5 mm stereo phone jack; external input ground, input, switched 2.5 V output; external input ground connection is not the same as PC interface connection ground and should not be connected to any external ground

**Input Impedance:** 10 kOhm

**Accuracy:** ±10 mV ±1% rdg

**Resolution:** 10 mV (8-bit)

**Output Power:** 2.5 Vdc at 2 mA, active only during measurements

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**External Temperature Sensors (for use with Models OM-42 and OM-44)**

**Measurement Range:**
OM-40-C-LT, 0 to 43°C (32 to 110°F); OM-40-C-HT, -40 to 100°C (-40 to 212°F)

**Sensor Type:** thermistor

**Input Connection:**
2.5 mm stereo phone jack

**External 4 to 20 mA Input**
(for use with Models OM-42 and OM-44)

**Measurement Range:**
0 to 0 to 20.1 mA

---

**To Order**
(Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM-41</td>
<td>$59</td>
<td>Temperature datalogger</td>
</tr>
<tr>
<td>OM-42</td>
<td>65</td>
<td>Temperature/external input datalogger (takes one external input)</td>
</tr>
<tr>
<td>OM-43</td>
<td>85</td>
<td>Temperature/relative humidity datalogger</td>
</tr>
<tr>
<td>OM-44</td>
<td>95</td>
<td>Temperature/relative humidity/external input datalogger (takes up to two external inputs)</td>
</tr>
<tr>
<td>OM-40-C-LT</td>
<td>40</td>
<td>External temperature sensor for use with Models OM-42 and OM-44 (32 to 110°F temperature range, high accuracy)</td>
</tr>
<tr>
<td>OM-40-C-HT</td>
<td>25</td>
<td>External temperature sensor for use with Models OM-42 and OM-44 (-40 to 212°F temperature range)</td>
</tr>
<tr>
<td>OM-40-C-V</td>
<td>6</td>
<td>External 0 to 2.5 Vdc voltage input cable for use with Models OM-42 and OM-44</td>
</tr>
<tr>
<td>OM-40-C-I</td>
<td>13</td>
<td>External 4 to 20 mA input cable for use with Models OM-42 and OM-44</td>
</tr>
<tr>
<td>OM-40-HUM</td>
<td>16</td>
<td>Replacement humidity sensor for Models OM-43 and OM-44</td>
</tr>
<tr>
<td>OM-40-BATT</td>
<td>15</td>
<td>Replacement 3.0V lithium battery for OM-40 Series dataloggers (package of 10)</td>
</tr>
</tbody>
</table>

Dataloggers are supplied with complete operator’s manual and mounting kit (hook/loop, magnet and tape).


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OM-44 Temperature Datalogger
Shown larger than actual size

OM-43 Temperature Datalogger
Shown actual size

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To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com
**DRN/DRX Series Programmable Signal Conditioners/Transmitters**

**$250**

**DRX-TC**

Models Available for:
- Thermocouple, RTD
- Process Voltage & Current, Strain, Frequency, Pulse, AC Voltage and Current
- Up to 1800 Vdc Isolation

DRN Series Provide
- 0-10 Vdc, 4-20 mA or 0-20 mA Output

DRX Series Provide
- RS-485 Output (OMEGA® Serial Protocol and MODBUS Serial Protocol)

Free Setup and Configuration Software

Factory Setup and Configuration Available at No Charge (for DRN Analog Output Models)

The DRN/DRX Series DIN rail mount signal conditioners represent state-of-the-art signal conditioning technology, ideal for all process and power monitoring applications. The intelligent microprocessor based modules provide a wealth of features including high accuracy inputs, field programmable ranges and 3-way electrical isolation. Models are available for most process signals including thermocouples, RTDs process voltage, strain, frequency, pulse, ac voltage and ac current measurement. Two base styles are available, the DRN series which provides an output in an analog voltage or current format, as well as RS-232, and the DRX series which provides a digital RS-485 output.

**DRN Series Analog Output**

The DRN Series is the perfect front-end for a PLC or data acquisition system. It features an analog output signal which is directly proportional to the input signal. The output, which is scalable, may be set for 0 to 10 V, 4 to 20 mA or 0 to 20 mA. The module is easily configured for different operating parameters by connecting to a standard PC serial port and using the free DRN-RS232-SW Windows-based software package. Once the module is configured, the parameters are saved in non-volatile memory. The unit may be disconnected from the PC and only needs to be connected to a PC again if an operating parameter is to be changed.

**Factory Setup and Configuration at No Extra Charge**

To make your installation even easier, your DRN (Analog Output and RS-232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the “-FS” option.

**DRX Series RS485 Serial Output**

The DRX Series provide a complete sensor-to-computer solution. The modules accept a variety of input signals and produce an RS-485 signal that may be sent to a computer or virtually any other instrument containing an RS-485 serial port. The user can select between OMEGA® Serial Protocol and Modbus Protocol. The DRX series may be used to create a comprehensive distributed process monitoring network. Up to 32 modules may be interconnected over a distance of 1200 m (4000 ft) on a single pair of wires. Through the use of optional RS-485 repeaters, additional modules and distances are easily accommodated. With repeaters, up to 254 modules may be connected to a single RS-485 port. The modules feature a powerful, easy-to-use ASCII-based command set. Because communication is accomplished by simply reading and writing to and from the computer’s serial port, a program may be developed using any language that provides serial port support. No special software drivers or libraries are required.

**Free Active X Controls**

Free Active X Controls are provided for the DRN/DRX Series, making it easy to integrate the DRN/DRX Series with information systems using “Active X Containers” such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA®, Wonderware, Intellution, Rockwell Automation, and Object Automation among others.

**Common Specifications:**
- **Input Power Supply:** 10 to 32 Vdc
- **DRX Output:** 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and Modbus Serial Protocol)
- **DRN Output:** 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10 V compliance
- **Isolation:** 1800 V peak
- **Typical Step Response to 99%:** 1 sec
- **Operating Ambient:** -5 to 55°C (23 to 131°F)
- **Storage Temperature Range:** -40 to 85°C (-40 to 185°F)
- **Mounting:** 35 mm DIN rail
- **Dimensions:** 75 x 22.5 x 151 mm (2.95 x 0.89 x 4.77")

To Order, Call 1-800-TC-OMEGA® or Shop Online at www.omega.com
### Power Supplies

- 24 Vdc Supply for DRN Modules
- DRN-PS-750 Linear Supply Powers up to 7 units
- DRN-PS-1000 Switching Supply Powers up to 10 Units

To Order (Specify Model Number)

| Model No.   | Price | Description
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DRN-PS-750</td>
<td>$130</td>
<td>Power Supply (linear), 115 Vac input, 24 Vdc output @ 750 mA (powers 7 units)</td>
</tr>
<tr>
<td>DRN-PS-1000</td>
<td>150</td>
<td>Power Supply (switching), 95 to 240 Vac input, 24 Vdc output @ 1 A (powers 10 units)</td>
</tr>
</tbody>
</table>

Ordering Example: DRN-PS-750 is a 24 Vdc output linear power supply, $130

### Accessories

| Model No.       | Price | Description
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DCP-485</td>
<td>229</td>
<td>Bi-directional RS-232-R3-485 converter for DRX series</td>
</tr>
<tr>
<td>DB9-RJ12</td>
<td>30</td>
<td>DB9 to RJ12 Connector Adapter, includes 7ft. RJ12 cord</td>
</tr>
<tr>
<td>DB25-RJ12</td>
<td>30</td>
<td>DB25 to RJ12 Connector Adapter, includes 7ft. RJ12 cord</td>
</tr>
<tr>
<td>RJ12T</td>
<td>15</td>
<td>RJ12&quot; T&quot; Split Connector for RS-485 instruments, includes 7 ft. RJ12 cord</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

### Input Specifications

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Thermocouple</th>
<th>RTD</th>
<th>ac Voltage</th>
<th>ac Current</th>
<th>Process</th>
<th>Strain/Bridge</th>
<th>Frequency Pulse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>DRN/DRX-TC</td>
<td>DRN/DRX-RTD</td>
<td>DRN/DRX-ACV</td>
<td>DRN/DRX-ACC</td>
<td>DRN/DRX-PB</td>
<td>DRN/DRX-ST</td>
<td>DRN/DRX-FP</td>
</tr>
<tr>
<td>Page</td>
<td>H-7</td>
<td>H-8</td>
<td>H-12</td>
<td>H-12</td>
<td>H-9</td>
<td>H-10</td>
<td>H-11</td>
</tr>
</tbody>
</table>

### Input Range

- J, K, T, E, R, S, B, N, J DIN thermocouple full range
- Full range of RTD
- 0 to 20 mA
- ±400 mV to ±10 V
- 0 to 20 mV
- 0 to 100 mV
- 0 to 5 A
- 0 to 30 mV
- 0 to 100 mV
- 0 to 50 kHz
- 20 to 200 M pulses

### Accuracy

- ±1°C
- ±0.5°C
- ±0.2°C
- ±0.1°C
- ±0.2% FS
- ±0.1% FS
- ±0.01% FS
- ±0.02% FS

### Resolution

- 10 to 14 Bit
- 12 to 15 Bit
- 15 to 19 Bit

### Output

- DRX Series: 2-wire (half duplex) RS-485/DRN Series: 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA
- Excitation: 14 Vdc @ 25 mA
- 10 V ac @ 20 mA
- 5, 8.2 and 12.5 Vdc @ 25 mA

To Order, Call 1-800-226-6642 or Shop Online at www.omega.com
The DRN-TC and DRX-TC signal conditioners provide high accuracy isolated measurement of thermocouple sensors. For maximum flexibility, the units feature user configurable thermocouple types which are fully field scalable. Two models are available, the DRN-TC which provides an analog output that is proportional to the input signal and the DRX-TC which uses a digital RS-485 communication link. Both models can accept 9 different thermocouple types. Thermocouples supported include J, K, T, E, R, S, B, N, and J DIN.

The output of DRN-TC can be user set for 0 to 10 V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the free DRN-RS232-SW, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge
To make your installation even easier, your DRN (Analog Output and RS-232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the -"FS" option.

Specifications

- Accuracy at 25°C: ±1°C
- Resolution: 0.1°C
- Power Consumption: 2 W (84 mA @ 24 Vdc)
- Input Types: J, K, T, E, R, S, B, N, J DIN
- Input Ranges: See range chart
- DRX Output: 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and MODBUS SERIAL Protocol)
- DRN Output: 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10 V compliance

Thermocouple
Default settings DRN: Input Type K, Range 0-1000°F; Output 4-20 mA (Custom Settings available at no charge.)

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRX-TC</td>
<td>$250</td>
<td>Digital signal conditioner with RS-485 output for thermocouple inputs</td>
</tr>
<tr>
<td>DRN-TC</td>
<td>325</td>
<td>Signal conditioner with analog output for thermocouple inputs</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

Each unit supplied with complete operator’s manual.

Ordering Example: DRX-TC signal conditioner ($250), DB9-RJ12 connector adapter ($30) and DRN-RS232-SW software (N/C), $325 + $30 = $355.

For DRN/DRX accessories and power supplies, please see start of this section.
RTD Signal Conditioner
DIN Rail Mount DRN/DRX Series

- 100Ω Pt, 500Ω Pt, 1000Ω Pt
- 0.1°C Resolution
- ±0.5°C Accuracy
- 1800 V Isolation
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for DRN Analog Output models)

The DRN-RTD and DRX-RTD signal conditioners provide high accuracy isolated measurement of RTD temperature sensors. For maximum flexibility, the units feature user configurable RTD types which are fully field scalable.

Two models are available, the DRN-RTD which provides an analog output that is proportional to the input signal and the DRX-RTD which uses a digital RS-485 Communication link. Both models can accept 2, 3, or 4 wire 100Ω Pt, 500Ω Pt, 1000Ω Pt, and 10Ω CU RTDs.

The output of DRN-RTD can be user set for 0 to 10 V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the DRN-RS232-SW, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge

To make your installation even easier, your DRN (Analog Output and RS-232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the “-FS” option.

Free Active X Controls
Free Active X Controls are provided for the DRN/DRX Series, making it easy to integrate the DRN/DRX Series with information systems using "Active X Containers" such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA®, Wonderware, Intellution, Rockwell Automation, and Object Automation among others.

Specifications
Accuracy at 25°C: ±0.5°C
Input Types: Platinum RTD, 100Ω, 500Ω or 1000Ω element (2, 3 or 4 wire, 385 or 392 curve)
Resolution: 0.1°C
Power Consumption: 2.4 W (100 mA @ 24Vdc)
Input Range: -200 to 850°C (-328 to 1562°F)
DRX Output: 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and MODBUS Serial Protocol)
DRN Output: 0-to-10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10 V compliance
RTD Default settings DRN: Input PT100, 0.00385, 3-wire, Range 0-1000°F; Output 4-20 mA (Custom Settings available at no charge.)

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRX-RTD</td>
<td>$250</td>
<td>Digital signal conditioner with RS-485 output for RTD inputs</td>
</tr>
<tr>
<td>DRN-RTD</td>
<td>355</td>
<td>Signal conditioner with analog output for RTD inputs</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

Each unit supplied with complete operator’s manual.
Ordering Example: DRN-RTD digital signal conditioner ($355), DB9-RJ12 connector adapter (30) and DRN-RS232-SW (N/C), $355 + 30 = $385.

Patented

To Order, Call 1-800-326-6342® or Shop Online at www.omega.com
Process Inputs Signal Conditioner

DIN Rail Mount
DRN/DRX Series

- Unipolar/Bipolar 400 mV to 10 Vdc, 0 to 20 mA dc
- 11 to 14-Bit Resolution
- ±0.1% FS Accuracy
- 14 Vdc Excitation
- 1800 V Isolation
- 250 Vac/1 Min. Input Overvoltage Protection (Voltage Input Only)
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for DRN Analog Output models)

The DRN-PR and DRX-PR signal conditioners provide high accuracy isolated measurement of process signals. For maximum flexibility, the units feature user configurable input types which are fully field scalable. Two models are available, the DRN-PR which provides an analog output that is proportional to the input signal and the DRX-PR which uses a digital RS-485 communication link. Both models can accept unipolar and bipolar signals from 400 mV to 10 Vdc full scale. A 0 to 20 mA current range is also available. The DRN/DRX-PR also contains a 14 Vdc reference voltage which may be used for transducer excitation. The output of DRN-PR can be user set for 0 to 10 V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the DRN-CONFIG, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

To Order
To Order, Call or Shop Online at www.omega.com

Specifications
Accuracy at 25°C: ±0.1% FS
Excitation: 14 Vdc @ 25 mA
Resolution: 11 to 14-bit
Power Consumption: 2 W (84 mA @ 24 Vdc) without excitation, 3 W (125 mA @ 24 Vdc) with excitation
Input Ranges: Uni/bipolar, 400 mV to 10 Vdc; 0 to 20 mA
DRX Output: 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and MODBUS Serial Protocol)
DRN Output: 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10 V compliance
PROCESS DEFAULT SETTINGS DRN:
Input Range 0-20mA; Output 4-20mA. Excitation 14 V, Non-Ratiometric.

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRX-PR</td>
<td>$275</td>
<td>Digital signal conditioner with RS-485 output for process signals</td>
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<tr>
<td>DRN-PR</td>
<td>$325</td>
<td>Signal conditioner with analog output for process signals</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

Each unit supplied with complete operator’s manual.

Ordering Example: DRX-PR digital signal conditioner with RS-485 output for process signals ($275), plus DRN-PS-750 power supply, 115 Vac input, 24 Vdc output @ 750 mA ($130), $275 + $130 = $405

For DRN/DRX accessories and power supplies, please see start of this section.

Free Active X Controls
Free Active X Controls are provided for the DRN/DRX Series, making it easy to integrate the DRN/DRX Series with information systems using “Active X Containers” such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA®, Wonderware, Intellution, Rockwell Automation, and Object Automation among others.
Strain Gage/Bridge Transducer Signal Conditioner
DIN Rail Mount DRN/DRX Series

To Order, Call or Shop Online at www.omega.com

$300
DRX-ST

Unipolar/Bipolar 30 mV to 100mV
13-Bit Resolution 10 Vdc Excitation
0.2% FS Accuracy 1800 Volts Isolation
250 Vac/1 Min. Input Overvoltage Protection
Free Setup and Configuration Software
Factory Setup and Configuration Available at No Charge (for DRN Analog Output models)

The DRN-ST and DRX-ST signal conditioners provide high accuracy isolated measurement of strain gages, load cells and other bridge based transducers. For maximum flexibility, the units feature user configurable input types which are fully field scalable.

Two models are available, the DRN-ST which provides an analog output that is proportional to the input signal and the DRX-ST which uses a digital RS-485 Communication link. Both models can accept signals from 30 to 100 mV full scale and provide 10 Vdc reference voltage which may be used for transducer excitation. The output of DRN-ST can be user set for 0 to 10 V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the DRN-CONFIG, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge

To make your installation even easier, your DRN (Analog Output and RS-232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the “-FS” option.

Please Specify:
Input Value High & Low
Output Value High & Low
Excitation: 10 or 14 Volts dc
Ratiometric or Non-Ratiometric

Example: 0 V = 4 mA, 100 mV = 20 mA, Excitation 10 V, Ratiometric

The DRX-ST is a digital signal conditioner which communicates over RS-485 communication link using either OMEGA® Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 4,000 feet. Through the use of RS-485 repeaters, additional modules may be used and further transmission distances are achievable.

Free Active X Controls
Free Active X Controls are provided for the DRN/DRX Series, making it easy to integrate the DRN/DRX Series with information systems using “Active X Containers” such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA®, Wonderware, Intellution, Rockwell Automation, and Object Automation among others.

Specifications
Accuracy at 25°C: ±0.2% FS
Resolution: 13 to 15 bit
Excitation: 10 V @ 30 mA
Power Consumption: 2 W without excitation (84 mA @ 24 Vdc), 3 W with excitation (125 mA @ 24 Vdc)
Input Ranges: 0 to 30 to 0 to 100 mV full scale
DRX Output: 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and MODBUS Serial Protocol)
DRN Output: 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10 V compliance
Strain Default settings DRN: Input Range 0-30mV; Output 4-20mA. Excitation 10V Ratiometric (Custom Settings available at no charge.)

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRX-ST</td>
<td>$300</td>
<td>Digital signal conditioner for strain gages and bridge transducers with RS-485 output</td>
</tr>
<tr>
<td>DRN-ST</td>
<td>345</td>
<td>Signal conditioner for strain gages and bridge transducers with analog output</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

Each unit supplied with complete operator’s manual.

Ordering Example: DRX-ST digital signal conditioner for strain gages and bridge transducers with RS-485 output ($300), plus DCP-485 bi-directional RS-232-RS-485 converter for DRX series ($229), $300 + 229 = $529

For DRN/DRX accessories and power supplies, please see start of this section.
Frequency/Pulse Digital Signal Conditioner
DIN Rail Mount DRX/DRN Series

- Software Selectable Input Type
- 0 to 50 kHz Frequency Input
- 2 Million Pulse Capacity
- Proximity, Switch, Magnetic, Pickup, NAMUR, Contact Closure and Open Collector Input Types
- RS-485 Output
- 1800 V Isolation
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for DRN Analog Output models)

The DRN-FP and DRX-FP signal conditioners provide high accuracy isolated measurement of frequency and pulse signals. For maximum flexibility, the units feature user configurable input types which are fully field scalable.

Two models are available, the DRN-FP which provides an analog output that is proportional to the input signal and the DRX-FP which uses a digital RS-485 communication link. Both models measure frequency signals up to 50 kHz and can count up to two million pulses. The DRX-FP and DRN-FP are compatible with a wide variety of transducers including proximity, switch, magnetic pickup, NAMUR, contact closure and open collector transducers.

The output of DRN-FP can be user set for 0 to 10 V, 4 to 210 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the DRN-RS232-SW, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge
To make your installation even easier, your DRN (Analog Output and RS-232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the "-FS" option.

Please Specify:
- Input Signal or Sensor Type
- Input Frequency High & Low
- Output Value High & Low
- Excitation: 10 or 14 Volts dc
- Magnetic Pickup (2-wire)

Example:
0 Hz = 4 mA, 1000 Hz = 10 mA, Excitation N/A

The DRX-FP is a digital signal conditioner which communicates over an RS-485 communication link using either OMEGA® Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 4,000 ft. Through the use of RS-485 repeaters, additional modules may be used and further transmission distances are achievable.

Specifications
- Accuracy at 25°C: ±0.02% FS for frequency, ±0.01% FS for pulse input
- Resolution: 15 to 19-bit
- Power Consumption: 2.4 W (100 mA @ 24 Vdc) without excitation, 3 W (125 mA @ 24 Vdc) with excitation
- Input Ranges: Frequency from 200 Hz to 50 kHz pulse from 20,000 to 200,000,000 (200M) pulses full scale
- DRX Output: 2-wire (half duplex)
- DRN Output: 0 to 10 V @ 10 mA max; 0 to 20 mA or 4 to 20 mA
- Default Settings DRN: Input 0-20 KHz; Output 4-20 mA (Custom Settings available at no charge.)

To Order, Call 1-800-TC-OMEGA or Shop Online at www.omega.com

Free Active X Controls
Free Active X Controls are provided for the DRN/DRX Series, making it easy to integrate the DRN/DRX Series with information systems using "Active X Containers" such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA®, Wonderware, Intellution, Rockwell Automation, and Object Automation among others.

To Order
Model No. | Price | Description
---|---|---
DRX-FP | $250 | Digital signal conditioner with RS-485 output for frequency/pulse inputs
DRN-FP | 295 | Signal conditioner with analog output for frequency/pulse inputs
- FS | Free | Factory setup and scaling

Each unit supplied with complete operator’s manual.

Ordering Example: DRN-FP signal conditioner ($250), DB9-RJ12 connector adapter ($30) and DRN-RS232-SW (N/C), $295 + $30 = $325.

For DRN/DRX accessories and power supplies, please see start of this section.
AC Voltage/Current Signal Conditioners
DIN Rail Mount DRX/DRN Series

- Software Selectable
- Input Ranges DRX-ACV: 0 to 400 mV to 0 to 400 Vac
  DRX-ACC: 0 to 10 mA to 0 to 5 A ac
- 14-Bit Resolution (max)
- 0.2% FS Accuracy
- 1800 V Isolation
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for DRN Analog Output models)

The DRN/DRX Series signal conditioners provide high accuracy isolated measurement of ac voltage and current signals. For maximum flexibility, the units feature user configurable input types which are fully field scalable. Four models are available, the DRN-ACV and DRN-ACC accept ac voltage and ac current respectively and provide an analog output which is proportional to the input. The DRX-ACV and DRX-ACC accept ac voltage and ac current respectively and provide a digital RS-485 communication link. The DRN-ACC and DRX-ACC can accept ac currents from 0.5 to 10 mA to 0 to 5 A ac. The DRX-ACV and DRX-ACC can accept ac voltages from 0 to 400 mV to 0 to 400 Vac. The output of DRN-ACC and DRN-ACV can be user set for 0 to 10 V or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the DRN-RS232-SW, Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge
To make your installation even easier, your DRN (Analog Output and RS 232) signal conditioners can be ordered preconfigured by the factory at no extra charge. You select the input types, ranges and output scale and we will program the instruments to your specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the DRN model, please specify the "FS" option.

Specifications
- Accuracy at 25°C: ±0.2% FS
- Resolution: 10 to 14-bit
- Power Consumption: 2.4 W; (100 mA @ 24 Vdc)

MODEL DRX-ACV/DRN-ACV
- Input Ranges: 0 to 400 mV to 0 to 400 Vac full scale
- Interface: RS-485; RJ-12 or screw terminal connector

MODEL DRX-ACC/ACC
- Input Ranges: 0 to 10 mA to 0 to 5 A ac full scale
- DRX Output: 2-wire (half duplex) RS-485 (OMEGA® Serial Protocol and MODBUS Serial Protocol)
- DRN Output: 0 to 10 V@10 mA max; 0 to 20 mA or 4 to 20 mA

ACV Default settings DRN:
- Input 0-400 VAC; Output 4-20 mA
  (Custom Settings available at no charge.)

ACC Default settings DRN:
- Input 0-5 Amp; Output 4-20 mA
  (Custom Settings available at no charge.)

To Order (Specify Model Number)

<table>
<thead>
<tr>
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<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRX-ACV</td>
<td>$270</td>
<td>Digital signal conditioner with RS-485 output for ac current inputs</td>
</tr>
<tr>
<td>DRX-ACC</td>
<td>270</td>
<td>Digital signal conditioner with RS-485 output for ac voltage inputs</td>
</tr>
<tr>
<td>DRN-ACV</td>
<td>345</td>
<td>Signal conditioner with analog output for ac current inputs</td>
</tr>
<tr>
<td>DRN-ACC</td>
<td>345</td>
<td>Signal conditioner with analog output for ac voltage inputs</td>
</tr>
<tr>
<td>-FS</td>
<td>Free</td>
<td>Factory setup and scaling</td>
</tr>
</tbody>
</table>

Each unit supplied with complete operator’s manual.

Ordering Example: DRN-ACV signal conditioner ($345), DB9-RJ12 connector adapter ($30) and DRN-RS232-SW (N/C), $325 + 30 = $355.

For DRN/DRX accessories and power supplies, please see start of this section.
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