The DR900 universal signal conditioning module can isolate and convert over 100 combinations of analog signal ranges. The DR900 converts and transmits signals linearly proportional to the input, while the DR900-SQRT transmits the scaled square root of the input signal. This allows the DR900-SQRT to provide a signal that is linear to flow rate in applications utilizing a differential pressure transducer.

DIP switch range selection eliminates the need to order and stock different modules for each input and output signal range, and allows quick and convenient setup for over 100 standard signal conversions. By utilizing the field mode of calibration, the user can customize the input and output scaling for odd applications, including reversal of the output relative to the input.

In addition to the conversion capabilities, the DR900 modules feature optically isolated input/output signal circuits and transformer isolated power to input and power to output circuits.

The modules' overall full scale accuracy typically exceeds 0.05% depending upon range selection and scaling. The microprocessor based design provides ease of field scaling and the onboard EEPROM stores scaling values for future recall. Both models come factory precalibrated for all input and output ranges. Factory or custom field scaling can be selected by a simple mode switch change.

The DR900 can be factory recalibrated in the field if desired. The modules environmental operating temperature range is -20 to 65°C (-4 to 149°F). DIN rail mounting saves time and panel space.

The units are equipped with universal mounting feet for attachment to standard DIN style rails, including top hat profile rail according to EN50022 – 35 x 7.5 and 35 x 15 and G profile rail according to EN50035-G32.

Module Isolation
DR900 modules feature “3-way” signal isolation. The 3-way isolation is a combination of optical and transformer isolation. The optical isolation provides common mode voltage (CMV) isolation up to 1.5 kV between the sensor input and the process signal output. The DR900s power is isolated from the sensor signal input and the process signal output by a DC/DC transformer isolation circuit.

Inputs
The DR900s accept a full range of process signal inputs and isolate and convert these signals to common industrial control signals. The input signal combinations are configured by making specific DIP switch selections on the 10-position DIP switch.
Specifications

Input Ranges:
- 0 to 20 mV, 0 to 50 mV,
- 0 to 100 mV, 0 to 200 mV,
- 0 to 500 mV, 0 to 1V, 0 to 2V,
- 1 to 5V, 0 to 5V, 0 to 10V,
- 0 to 20V, 0 to 50V, 0 to 100V,
- 0 to 1 mA, 0 to 2 mA, 0 to 5 mA,
- 0 to 10 mA, 4 to 20 mA, 0 to 20 mA,
- 0 to 50 mA, 0 to 100 mA

Output Ranges:
- 0 to 5V, 0 to 10V, 0 to 1 mA,
- 4 to 20 mA, 0 to 20 mA

Zero/Span Adjustments:
Digital (DIP Switch Transition)

MAx InPUt SIgnAL
Current Input:
- 110 mA dc, 1.1 Vdc
Voltage Inputs:
- Terminal 7- 1 Vdc +10%;
- Terminal 8- 10 Vdc +10%;
- Terminal 9- 100 Vdc +10%

InPUt RESIStAnCE
Current:
- 10 Ω
Voltage:
- > 100 kΩ

Input Protection:
Surge suppressor diodes

MAX OUTPUT CURRENT
Current Output: 22 mA
Voltage Output: 10 mA

Outputs
As with the input choices, the process signal output of the modules is DIP switch selectable. A one position DIP switch is used to select between the 1 mA/20 mA output ranges. The maximum output current signal is 22 mA with ≤600 Ω output resistance and the maximum output voltage signal is 11 V with ≥1 kΩ output resistance.

Zero and Span
The input zero and span are set by first applying the minimum value then transitioning DIP switch S1-2 to store that value. Next, the full scale value is applied and the DIP switch transition stores the value.

The output scaling is performed in a similar manner but the output is driven to the desired minimum and full scale values by the calibration source applied to the input. DIP switch S1-1 is used to store the minimum and full scale output values. The span is defined by: span = (full scale - minimum scale).

Loads RESISTANCE
Current Output: ≤600 Ω
Voltage Output: ≥1 kΩ

OUTPUT COMPLIANCE
Current: 4 to 20 mA, 0 to 20 mA:
12 V min (≤600 Ω)
0 to 1 mA: 10 V min (≤10 kΩ)
Voltage: 10 Vdc across a min 1 kΩ load (10 mA). Factory calibrated for loads of > 1 MΩ.

GENERAL SPECIFICATIONS
Accuracy (Including Linearity):
Factory: ±0.1% of span max for all ranges except 1 mA, 2 mA, and 20 mV. These ranges are accurate to ±0.2% of span max. All ranges can be field calibrated to 0.1% of span max.

Resolution:
0.01% full scale input, 0.01% full scale output

Step Response:
300 msec (to within 99% of full scale)

Power:
11 to 36 Vdc, 3 W max
or 24 Vac, ±10%, 50/60 Hz, 4.8 VA max

Isolation Level Input to Output:
1.5 kV @ 50/60 Hz, 1 min

ENVIRONMENTAL CONDITIONS
Operating Temperature Range:
-20 to +65°C (-4 to 149°F)

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

Operating and Storage Humidity:
85% RH max (non-condensing) from -20 to 65°C (-4 to 149°F)

Temperature Coefficient:
±0.01%/°C (100 ppm/°C) max

Construction:
Case body is black high impact plastic

Connections:
14 AWG max

Mounting:
Standard DIN top hat (T) profile rail according to EN50022
- 35 x 7.5 and 35 x 15 and G profile rail according to EN50035-G32.

Weight:
128 g (4.5 oz)

To Order

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR900</td>
<td>Linear universal signal conditioning module</td>
</tr>
<tr>
<td>DR900-SQRT</td>
<td>Square root universal signal conditioning module</td>
</tr>
<tr>
<td>IDR-PS-1000</td>
<td>Power supply (switching), 95 to 240 Vac input, 24 Vdc output @ 850 mA</td>
</tr>
<tr>
<td>RAIL-35-1</td>
<td>35 mm (1.4&quot;) DIN rail, 1 m (3.3') length</td>
</tr>
<tr>
<td>RAIL-35-2</td>
<td>35 mm (1.4&quot;) DIN rail, 2 m (6.6') length</td>
</tr>
</tbody>
</table>

Comes complete with operator’s manual.

Ordering Example: DR900, linear universal module OCW-1, OMEGACARE™ extends standard 1-year warranty to a total of 2 years.