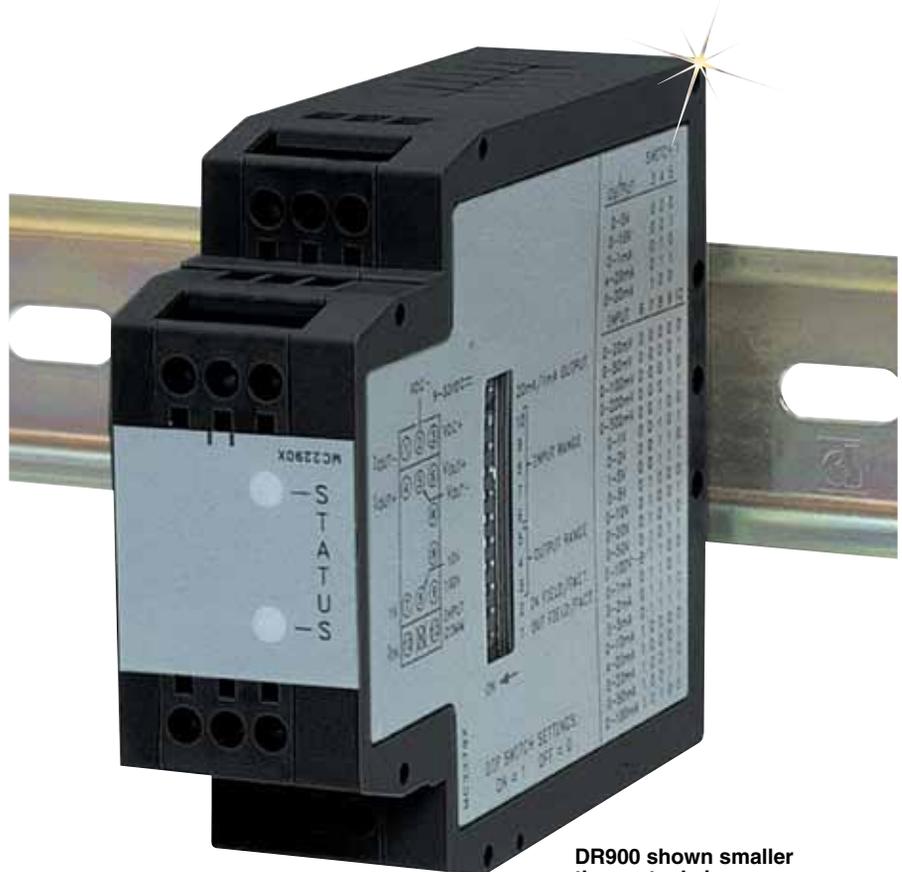


Universal Signal Conditioning Module

DR900



- ✓ 3-Way Isolation a of Analog Signals
- ✓ Universal Conversion Module—Inputs and Outputs Selected Via Dip Switch Settings
- ✓ Over 100 Input and Output Analog Conversion Combinations
- ✓ Choose Linear or Square Root Extraction Model
- ✓ All Ranges Are Factory Precalibrated—Custom Field Calibration is Available for All Ranges While Maintaining the Factory Calibration for Future Use
- ✓ 11 to 36 Vdc/24 Vac Module Power



DR900 shown smaller than actual size.

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.

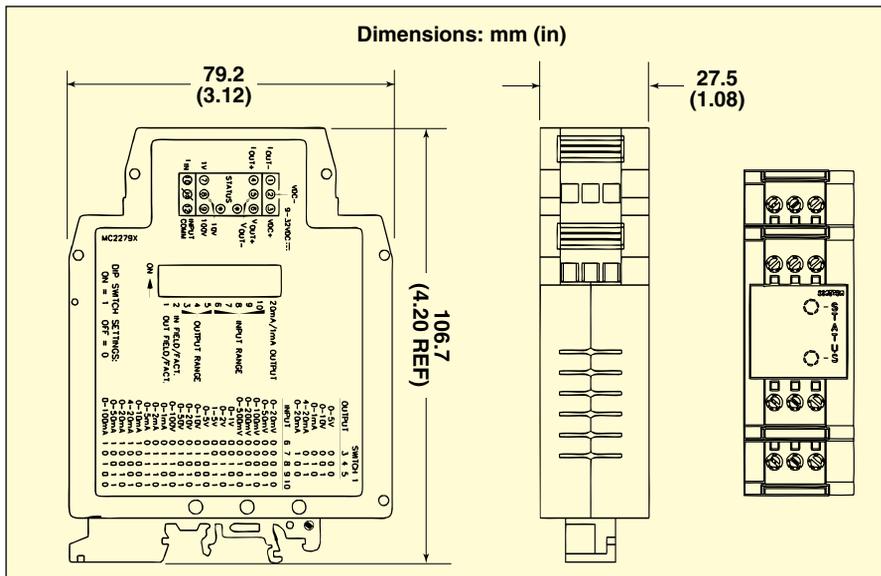
The units are equipped with universal mounting feet for attachment to standard DIN style rails, including top hat profile rail according to EN50022 – 35 x 7.5 and 35 x 15 and G profile rail according to EN50035-G32.

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.



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 $\leq 600 \Omega$ output resistance and the maximum output voltage signal is 11 V with $\geq 1 \text{ k}\Omega$ 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: $\text{span} = (\text{full scale} - \text{minimum scale})$.

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 k Ω

Input Protection: Surge suppressor diodes

MAX OUTPUT CURRENT

Current Output: 22 mA

Voltage Output: 10 mA

LOAD RESISTANCE

Current Output: $\leq 600 \Omega$

Voltage Output: $\geq 1 \text{ k}\Omega$

OUTPUT COMPLIANCE

Current: 4 to 20 mA, 0 to 20 mA:
12V min ($\leq 600 \Omega$)

0 to 1 mA: 10V min ($\leq 10 \text{ k}\Omega$)

Voltage: 10 Vdc across a min

1 k Ω load (10 mA). Factory

calibrated for loads of > 1 M Ω .

GENERAL SPECIFICATIONS

Accuracy (Including Linearity):

Factory: $\pm 0.1\%$ of span max for all ranges except 1 mA, 2 mA, and 20 mV. These ranges are accurate to $\pm 0.2\%$ 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, $\pm 10\%$, 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:

$\pm 0.01\%/^{\circ}\text{C}$ (100 ppm/ $^{\circ}\text{C}$) 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

Model Number	Description
DR900	Linear universal signal conditioning module
DR900-SQRT	Square root universal signal conditioning module
iDRN-PS-1000	Power supply (switching), 95 to 240 Vac input, 24 Vdc output @ 850 mA
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Comes complete with operator's manual.

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