

# Economical Digital Indicators

## For Process and Electrical Measurement

DP18 Series



**Panel Punches Available**



DP18-P5,  
4 to 20 mA  
input.

DP18-EC, thermocouple input visit  
[omega.com/thermocouple](http://omega.com/thermocouple) for thermocouples.

DP18-L1 strain input  
and PX302-200GV pressure  
transducer, sold separately.

- ✓ **Modular Design**
- ✓ **Options for Alarms, Analog Output, and Communications**
- ✓ **3½ Digit LED**
- ✓ **Choice of Red or Green Display**
- ✓ **Removable Screw-Clamp Cable Connector**

All models shown smaller than actual size.

The DP18 Series comprises digital panel meters with field-installable signal conditioner input cards for voltage, process, and temperature measurement and control. The modular design of these meters allows for easy installation of options, such as analog outputs, relays, and communications.

Signal conditioners for voltage will measure AC or DC voltage or true RMS, while those for process inputs will accept low-level voltage or current and scale it to engineering units. Temperature models accurately measure thermocouple or RTD inputs. Other compatible inputs include those from load cells or potentiometers. Combined with OMEGA's wide selection of transducers, the DP18 Series constitutes the single solution for process measurement.

### Specifications

**Display:** 3½ digits, 14.2 mm (0.56") red LED

**Signal Input:** Single-ended

**A/D Conversion:** Dual slope

**Integration Period:** 80 ms

**NMRR:** 50 dB

**Read Rate:** 3/s

**Warm-Up:** 5 minutes

**Operating Temperature:**

0 to 50°C (32 to 122°F)

**Storage Temperature:**

-40 to 80°C (-40 to 176°F)

**Span Temperature Coefficient:**

100 ppm/°C

**Zero Temperature Coefficient:**

2.5 µV/°C

**Power Consumption:**

5.5 VA for AC-powered models

3.5 W for DC-powered models

**Setpoints:** Optional single or dual setpoints for use in on/off control or as alarms; 1 SPDT relay rated 2 A @ 250 Vac provided per setpoint with adjustable deadband

**Weight:** 0.3 kg (0.66 lb)

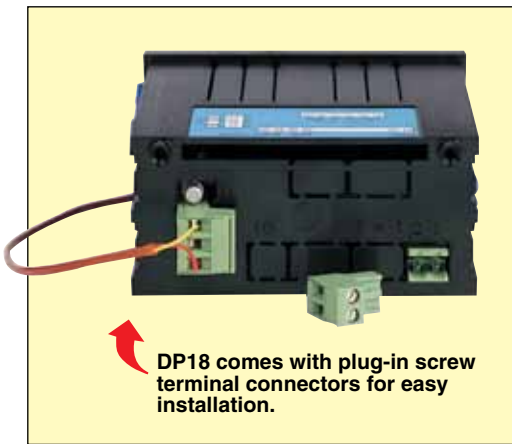
**Connections:** Push-on connectors with screw terminals

**Case Material:** Black ABS plastic, DIN 43700

**Panel Cutout:** 44.5 H x 92.5 mm W (1.75 x 3.64")

**Models Available for Load Cell, Process Signal, AC and DC Voltage/Current, Thermocouple, RTD, and Ohmmeter Inputs**

Base Model	Input
DP18-P	Process signal
DP18-DV	DC voltage
DP18-DC	DC current
DP18-DS	DC current (external shunt)
DP18-AV	AC voltage
DP18-AC	AC current
DP18-AT	AC current (external CT)
DP18-RV	AC RMS voltage
DP18-L	Load cell (strain gage)
DP18-Q	Ohmmeter
DP18-RV	AC RMS current
DP18-RT	AC RMS current (external CT)
DP18-J	Type J thermocouple
DP18-K	Type K thermocouple
DP18-T	Type T thermocouple
DP18-E	Type E thermocouple
DP18-R	Type R thermocouple
DP18-S	Type S thermocouple
DP18-M	RTD



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.



**Thermocouple Inputs**

To Order				
Model No.	Range*	Resolution	Accuracy	Signal Cond.
DP18-JC	-50 to 600°C	1°C	±0.5% rdg ±1 count	BD18-22
DP18-KC	0 to 1250°C	1°C		BD18-23
DP18-TC	-50 to 400°C	1°C		BD18-24
DP18-EC	0 to 650°C	1°C	±0.2% rdg ±1 count	BD18-25
DP18-SC	0 to 1750°C	1°C	±1.5% rdg ±1 count (0 to 260°C) ±0.5% rdg ±1 count (260 to 970°C) ±0.1% rdg ±1 count (970 to 1750°C)	BD18-26
DP18-RC	250 to 1750 °C	1°C		±2% rdg ±1 count (250 to 500°C) ±0.5% rdg ±1 count (500 to 1000°C) ±0.2% rdg ±1 count (1000 to 1750°C)

\* Please consult sales about fahrenheit display units.  
**Ordering Example:** DP18-TC, digital indicator, Type T thermocouple input, °C.  
 OCW-3 OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.

**RTD (Pt100; ALPHA = 0.00385; 2- OR 3- WIRE INPUTS)**

Model No.	Range	Resolution	Accuracy	Signal Cond.
DP18-M1C	-200 to 650°C	1°C	1°C ±1 count	BD18-20C
DP18-M1F	-200 to 400°F	1°F	1°F ±1 count	BD18-20F
DP18-M2	-150.0 to 199.9°C	0.1°C	0.4°C ±1 count	BD18-21

Model No.	Description	Model No.	Description
DP18-KC-AO1	Type K thermocouple with 4 to 20 mA analog output	DP18-M1C-AO1	RTD input, 1° resolution with 4 to 20 mA analog output
DP18-JC-R2	Type J thermocouple with dual setpoints		

**PROCESS SIGNAL INPUTS**

Model No.	Price	Range	Input Impedance	Excitation	Accuracy	Signal Cond.
DP18-P1	\$189	0 to 1V	1.1 MΩ	10 to 24 Vdc, 50 mA max	±0.15% rdg ±1 count	BD18-32
DP18-P2	189	0 to 5V/1 to 5V	1.1 MΩ	10 to 24 Vdc, 50 mA max		
DP18-P3	189	0 to 1 mA	100 Ω	10 to 24 Vdc, 50 mA max		
DP18-P4	189	0 to 5 mA/1 to 5 mA	100 Ω	10 to 24 Vdc, 50 mA max		
DP18-P5	189	0 to 20 mA/4 to 20 mA	24.9 Ω	10 to 24 Vdc, 50 mA max		
DP18-P6	189	0 to 50 mA/10 to 50 mA	10 Ω	10 to 24 Vdc, 50 mA max		
DP18-P7	189	0 to 20/0 to 200 Vdc	1 MΩ	10 to 24 Vdc, 50 mA max		BD18-36/A

Each unit comes complete with plug-in screw terminal connectors and operator's manual.



**Potentiometer (Potentiometric Transducers)\***

Model No.	Input	Excitation	Accuracy	Signal Cond.
DP18-P8	3-wire pot.	5 Vdc @ 50 mA max	±0.15% rdg	BD18-90 ±1 count

**Differential Process\***

Model No.	Range	Accuracy	Signal Cond.
DP18-P9	0 to 20 mA	±0.15% rdg	BD18-35 ±1 count

\* All process input meters are fully scalable from -1999 to 1999 with selectable decimal point and zero and span adjustments.

Model No.	Description
DP18-P5-AO1	Process input range 4 to 20 mA with 4 to 20 mA analog output
DP18-P5-R2	Process input range 4 to 20 mA with dual setpoints

**Strain Gage/Load Cell**

<b>To Order</b>							
Model No.	Load Cell Impedance	Input Impedance	Resolution	Sensitivity	Accuracy	Excitation	Signal Cond.
DP18-L1	350 Ω	20 MΩ	5 μV/ct	10 mV	0.15% rdg ±1 count	10 to 24 Vdc @ 50 mA max	BD18-80

**Ohmmeter**

Model No.	Range	Excitation Current	Resolution	Accuracy	Signal Cond.
DP18-Q1	0 to 199.9 Ω	10 mA	0.1 Ω	0.05% rdg ±1 count	BD18-95
DP18-Q2	0 to 1999 Ω	1 mA	1 Ω		
DP18-Q3	0 to 19.99 kΩ	0.1 mA	10 Ω		
DP18-Q4	0 to 199.9 kΩ	0.01 mA	100 Ω		

**Ordering Example:** DP18-P5-R2, digital indicator, 4 to 20 mA process input, dual setpoint alarms.  
OCW-3 OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.



DP18-DV3 shown smaller than actual size.

#### DC Voltage Inputs

To Order					
Model No.	Range	Input Impedance	Resolution	Accuracy	Signal Cond.
DP18-DV1	199.9 mV	100 MΩ	0.1 mV	0.05% of reading ±1 count	BD18-02
DP18-DV2	1.999V	1000 MΩ	1.0 mV		
DP18-DV3	19.99V	1 MΩ	10 mV		BD18-01
DP18-DV4	199.9V	1 MΩ	100 mV		
DP18-DV5	600V	1 MΩ	1V		
DP18-DV6	0 to 2/0 to 10/ 0 to 100/0 to 600V*	1 MΩ	±1 counts		BD18-11
DP18-DV7	<2V*	10 MΩ	±2 counts	0.15% ±1 count	BD18-12

\* Fully scalable from -1999 to 1999, with selectable decimal point and zero and span adjustments.

Ordering Example: DP18-DV2, digital indicator, 1.999V input.

OCW-3 OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.

#### DC Current Inputs

Model No.	Range	Input Impedance	Resolution	Accuracy	Signal Cond.
DP18-DC1	1.999 mA	150 Ω	1 μA	0.05% rdg ±1 count	BD18-10
DP18-DC2	19.99 mA	15 Ω	10 μA		
DP18-DC3	199.9 mA	1.5 Ω	100 μA		
DP18-DC4	1999 mA	0.15 Ω	1 mA		

#### DC Current Inputs For Use With External Shunt

Model No.	Range	Input Impedance	Resolution	Accuracy	Signal Cond.
DP18-DS	10/20/40/60/80 100/150/200 250/400/600/ 800 1000/1500/2000	20 MΩ	1 count	0.2% rdg ±1 count	BD18-03

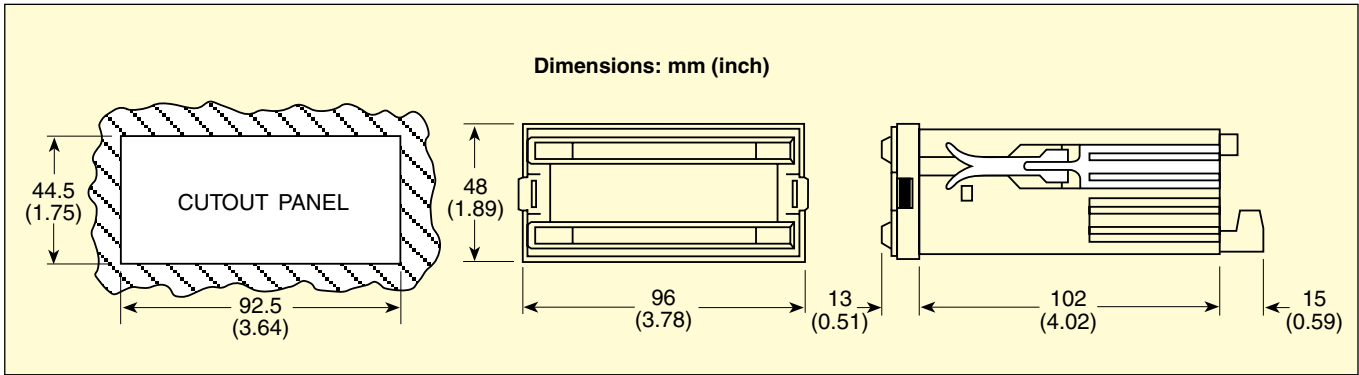
Note: Requires external shunt of 60, 100 or 150 mV; range is jumper selected. To order DC shunts, see "Accessories" table on next page.

#### MOST POPULAR DC VOLTAGE INPUT MODELS!

Model No.	Description
DP18-DV1-AO1	DC voltage range 199.9 mV with 4 to 20 mA analog output
DP18-DV4-R2	DC voltage range 199.9V with dual setpoints

#### MOST POPULAR DC CURRENT INPUT MODELS!

Model No.	Description
DP18-DC1-AO1	DC current range 1.999 mA with 4 to 20 mA analog output
DP18-DC1-R2	DC current range 1.999 mA with dual setpoints



**Options for All Models**

**Power**

Order Suffix	Description
—	110 Vac
-220	220 Vac
-24	24 Vac
-48	48 Vac
-15/30VDC	15 to 30 Vdc isolated
-24/65VDC	24 to 65 Vdc isolated

**Analog Output Options\***

Order Suffix	Description
-AO1	Milliamp sink 0 to 20 mA max
-AO2	Milliamp source 0 to 20 mA max
-AO3	Voltage 0 to 10 Vdc max
-APH2	Analog peak hold

**Control Output/Communications Options\***

Order Suffix	Description
-R1	Single setpoint
-R2	Dual setpoint
-BCD	Parallel BCD data output
-APH1	Analog peak hold

\* A maximum of 1 analog output option and 1 control output/communications option can be specified per meter.

**Display Options**

Order Suffix	Description
-GR	Green display
-DN	Display hold

**Accessories**

**0 to 100 mV Output Shunts for DC Current Input Meters**

To Order	
Model No.	Input Range (Adc)
DCS100-10	10
DCS100-20	20
DCS100-40	40
DCS100-60	60
DCS100-80	80
DCS100-100	100
DCS100-150	150
DCS100-200	200
DCS100-250	250
DCS100-400	400
DCS100-600	600
DCS100-800	800
DCS100-1000	1000
DCS100-1500	1500
DCS100-2000	2000

Ordering Example: DCS100-200, 0 to 100 mV output shunt with 200 Adc current input rating.