

# 1/8 DIN Economical Digital Indicators For Process and Electrical Measurements

Panel Punches Available, Visit [omega.com/panelpunches](http://omega.com/panelpunches)



Shown smaller than actual size.

Pressure transmitters sold separately. PX305 Series shown, \$310. Visit [omega.com/px305](http://omega.com/px305) for details.

Thermocouple probes sold separately. TTSS-18G-12 shown, \$19, see page A-78.

Available with thermocouple, RTD, process, AC and DC voltage/current, load cell, and ohmmeter inputs.

DP18 Series Starts at **\$189**



- ✓ **Modular Design**
- ✓ **Options for Alarms, Analog Output or Communications**
- ✓ **3½-Digit LED**
- ✓ **Available in Red or Green Displays**
- ✓ **Removable Screw-Clamp Cable Connector**

The DP18 Series offers a modular design for easy selection and installation of options and inputs. Field-installable signal conditioner cards provide the large user or OEM the ability to stock options and spare signal conditioner cards for

converting input types, meter functions or repair. For customers who need flexibility and wish to add options to the meter as requirements become more demanding, the DP18's field-installable analog outputs, relays and communications offer an economical solution.

The DP18 series is a complete family of panel meters with input cards for voltage, process and temperature measurement and control. The voltage signal conditioners will measure AC or DC voltages or true RMS. Signal conditioners for process inputs accept low-level voltage or current which can be scaled for engineering units. Temperature meters will provide accurate measurement of thermocouples or RTD's. Other inputs include differential process, load cells or potentiometers. Combined with OMEGAs wide selection of transducers, the DP18 Series is the single solution for process measurement.

## General Specifications

- Display:** 3½-digit, 14.2 mm (0.56") red LED
- Signal Input:** Single-ended
- Conversion:** A/D 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
- 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
- Connections:** Push-on connectors with screw terminals
- Case Material:** ABS, DIN 43700, black
- Panel Cutout:** 44.5 H x 92.5 mm W (1.75 x 3.64")
- Weight:** 300 g (10.6 oz)

| <b>To Order (Specify Model Number)</b> |       |                |            |  |  |
|--|-------|----------------|------------|--|--|
| Model No.                              | Price | Range          | Resolution | Accuracy   |  |
| DP18-JC                                | \$189 | -50 to 600°C   | 1°C        | ±0.5% rdg ±1 count   |  |
| DP18-KC                                | 189   | 0 to 1250°C    | 1°C        |  |  |
| DP18-TC                                | 189   | -50 to 400°C   | 1°C        |  |  |
| DP18-EC                                | 189   | 0 to 650°C     | 1°C        | ±0.2% rdg ±1 count   |  |
| DP18-SC                                | 189   | 0 to 1750°C    | 1°C        | ±1.5% rdg ±1 count (0 to 260°C)<br>±0.5% rdg ±1 count (260 to 970°C)<br>±0.1% rdg ±1 count (970 to 1750°C)   |  |
| DP18-RC                                | 189   | 250 to 1750 °C | 1°C        | ±2% rdg ±1 count (250 to 500°C)<br>±0.5% rdg ±1 count (500 to 1000°C)<br>±0.2% rdg ±1 count (1000 to 1750°C) |  |

**RTD (Pt100; Alpha = 0.00385; 2- or 3-wire) Inputs**

| Model No. | Price | Range             | Resolution | Accuracy       |
|-----------|-------|-------------------|------------|----------------|
| DP18-M1C  | \$178 | -200 to 650°C     | 1°C        | 1°C ±1 count   |
| DP18-M1F  | 178   | -200 to 400°F     | 1°F        | 1°F ±1 count   |
| DP18-M2   | 178   | -150.0 to 199.9°C | 0.1°C      | 0.4°C ±1 count |

**Process Signal Inputs**

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

**Potentiometer (Potentiometric Transducers)\***

| Model No. | Price | Input       | Excitation       | Accuracy               | Signal Conditioner |
|-----------|-------|-------------|------------------|------------------------|--------------------|
| DP18-P8   | \$200 | 3-wire pot. | 5 Vdc @50 mA max | ±0.15% rdg<br>±1 count | BD18-90            |

**Differential Process\***

| Model No. | Price | Range      | Accuracy               | Signal Conditioner |
|-----------|-------|------------|------------------------|--------------------|
| DP18-P9   | \$190 | 0 to 20 mA | ±0.15% rdg<br>±1 count | BD18-35            |

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

**Strain Gage/Load Cell**

| Model No. | Price | Load Cell Impedance | Input Impedance | Resolution | Sensitivity | Accuracy              | Excitation                  |
|-----------|-------|---------------------|-----------------|------------|-------------|-----------------------|-----------------------------|
| DP18-L1   | \$220 | 350 Ω               | 20 MΩ           | 5 μV/ct    | 10 mV       | 0.15% rdg<br>±1 count | 10 to 24 Vdc @<br>50 mA max |

**Ohm meter**

| Model No. | Price | Range         | Excitation Current | Resolution | Accuracy           |
|-----------|-------|---------------|--------------------|------------|--------------------|
| DP18-Q1   | \$230 | 0 to 199.9 Ω  | 10 mA              | 0.1 Ω      | 0.05% rdg ±1 count |
| DP18-Q2   | 230   | 0 to 1999 Ω   | 1 mA               | 1 Ω        |                    |
| DP18-Q3   | 230   | 0 to 19.99 kΩ | 0.1 mA             | 10 Ω       |                    |
| DP18-Q4   | 230   | 0 to 199.9 kΩ | 0.01 mA            | 100 Ω      |                    |



DC Voltage Inputs

**MOST POPULAR MODELS HIGHLIGHTED!**

| <b>To Order (Specify Model Number)</b> |       |  |                 |            |                              |
|--|-------|--|-----------------|------------|------------------------------|
| Model Number                           | Price | Range                                    | Input Impedance | Resolution | Accuracy                     |
| DP18-DV1                               | \$178 | 199.9 mVdc                               | 100 MΩ          | 0.1 mV     | 0.05% of reading<br>±1 count |
| DP18-DV2                               | 167   | 1.999 Vdc                                | 1000 MΩ         | 1.0 mV     |                              |
| DP18-DV3                               | 167   | 19.99 Vdc                                | 1 MΩ            | 10 mV      |                              |
| DP18-DV4                               | 167   | 199.9V                                   | 1 MΩ            | 100 mV     |                              |
| DP18-DV5                               | 167   | 600 Vdc                                  | 1 MΩ            | 1V         |                              |
| DP18-DV6                               | 178   | 0 to 2, 0 to 10, 0 to 100, 0 to 600 Vdc* | 1 MΩ            | ±1 counts  |                              |
| DP18-DV7                               | 189   | <2 Vdc*                                  | 10 MΩ           | ±2 counts  | 0.15% ±1 count               |

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

DC Current Inputs

| Model Number | Price | Range    | Input Impedance | Resolution | Accuracy              |
|--------------|-------|----------|-----------------|------------|-----------------------|
| DP18-DC1     | \$178 | 1.999 mA | 150 Ω           | 1 μA       | 0.05% rdg<br>±1 count |
| DP18-DC2     | 178   | 19.99 mA | 15 Ω            | 10 μA      |                       |
| DP18-DC3     | 178   | 199.9 mA | 1.5 Ω           | 100 μA     |                       |
| DP18-DC4     | 178   | 1999 mA  | 0.15 Ω          | 1 mA       |                       |

DC Current Inputs for Use with External Shunt

| Model Number | Price | Range (Amps DC)   | Input Impedance | Resolution | Accuracy             |
|--------------|-------|---|-----------------|------------|----------------------|
| DP18-DS      | \$178 | 10/20/40/60/80<br>100/150/200<br>250/400/600/ 800<br>1000/1500/2000 | 20 MΩ           | 1 count    | 0.2% rdg<br>±1 count |

Note: Requires external shunt of 60, 100 or 150 mV; range is jumper selected. To order DC shunts, see chart on page M-64.

AC Voltage Inputs

| Model Number | Price | Range  | Input Impedance | Resolution | Accuracy             |
|--------------|-------|--------|-----------------|------------|----------------------|
| DP18-AV1     | \$170 | 1.999V | 10 kΩ           | 1 mV       | 0.2% rdg<br>±1 count |
| DP18-AV2     | 170   | 19.99V | 10 kΩ           | 10 mV      |                      |
| DP18-AV3     | 170   | 199.9V | 100 kΩ          | 100 mV     |                      |
| DP18-AV4     | 170   | 500V   | 1 MΩ            | 1V         |                      |

AC Current Inputs

| Model Number | Price | Range    | Input Impedance | Resolution | Accuracy             |
|--------------|-------|----------|-----------------|------------|----------------------|
| DP18-AC1     | \$170 | 1.999 mA | 221 Ω           | 1 μA       | 0.2% rdg<br>±1 count |
| DP18-AC2     | 170   | 19.99 mA | 22.1 Ω          | 10 μA      |                      |
| DP18-AC3     | 170   | 199.9 mA | 2.21 Ω          | 100 μA     |                      |
| DP18-AC4     | 170   | 500 mA   | 0.187 Ω         | 1 mA       |                      |

AC Current Inputs For Use With External Current Transformer

| Model Number | Price | Shunt | Range   | Input Impedance | Resolution | Accuracy             |
|--------------|-------|-------|---|-----------------|------------|----------------------|
| DP18-AT1     | \$175 | X/1   | 5/10/15/25/40/50/<br>60/100/150/250/400/<br>500/600/1000/1500 | 0.05 Ω          | 1 count    | 0.2% rdg<br>±1 count |
| DP18-AT2     | 175   | X/5   |   |                 |            |                      |

Note: Requires external transformer of X/5 or X/1; range is jumper selected. Visit [omega.com](http://omega.com) for current transformers (CT's)

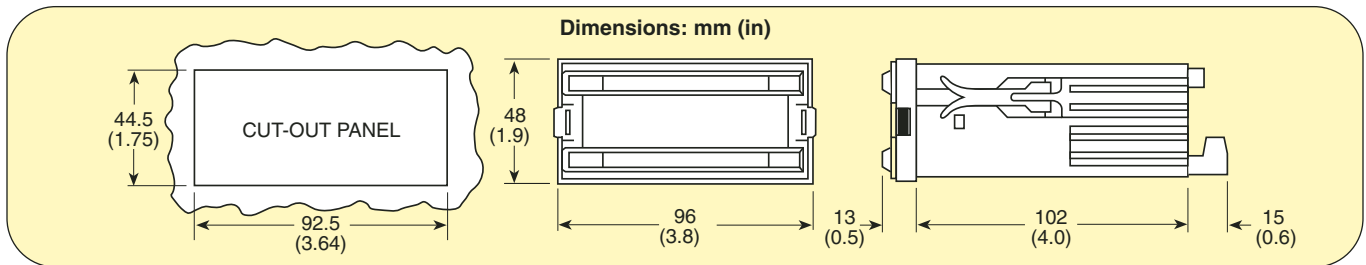
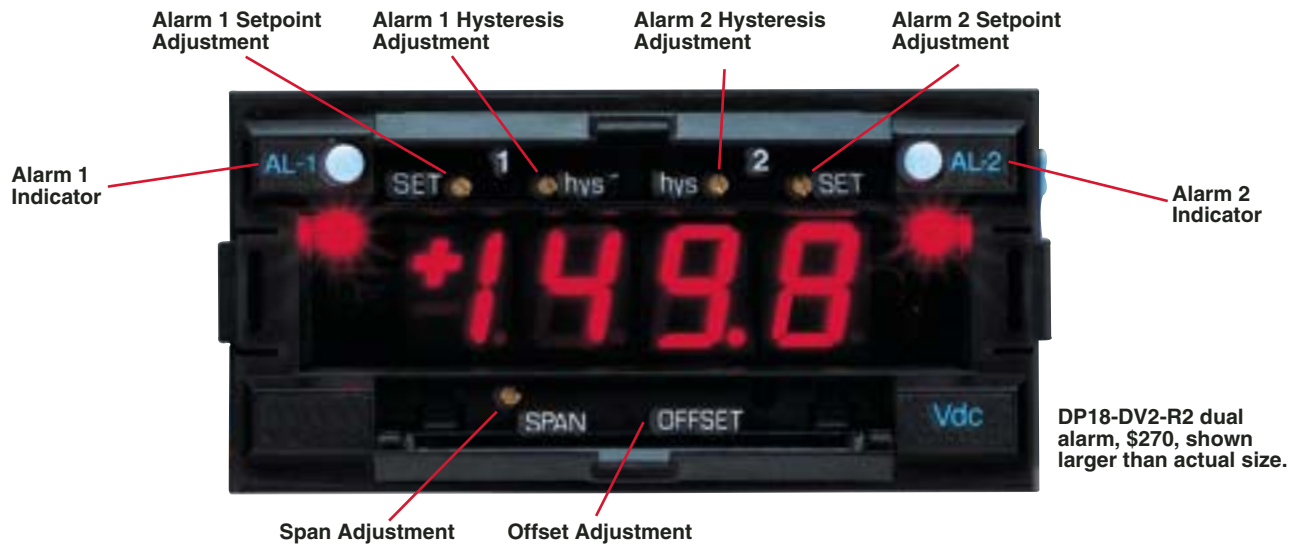
AC RMS Voltage Inputs

| Model Number | Price | Range    | Input Impedance | Resolution | Accuracy             |
|--------------|-------|----------|-----------------|------------|----------------------|
| DP18-RV1     | \$230 | 1.999 mA | 10 GΩ           | 1 mV       | 0.2% rdg<br>±1 count |
| DP18-RV2     | 230   | 19.99 mA | 3.3 MΩ          | 10 mV      |                      |
| DP18-RV3     | 230   | 199.9 mA | 3 MΩ            | 100 mV     |                      |
| DP18-RV4     | 230   | 500 mA   | 3 MΩ            | 1 V        |                      |

AC RMS Current Inputs For Use With External Transformer

| Model Number | Price | Shunt | Range   | Input Impedance | Resolution | Accuracy             |
|--------------|-------|-------|---|-----------------|------------|----------------------|
| DP18-RT1     | \$230 | X/5   | 5/10/15/25/40/50/<br>60/100/150/250/400/<br>500/600/1000/1500 | 0.05 Ω          | 1 count    | 0.2% rdg<br>±1 count |

Note: Requires external transformer of X/5; range is jumper selected. Visit [omega.com](http://omega.com) for current transformers (CT's)



### Options for All Models

#### Power Options

| Order Suffix | Add'l Price | Description           |
|--------------|-------------|-----------------------|
| -220         | N/C         | 220 Vac               |
| -24          | \$11        | 24 Vac                |
| -48          | 11          | 48 Vac                |
| -12VDC       | 67          | 12 Vdc isolated       |
| -15/30VDC    | 67          | 15 to 30 Vdc isolated |
| -24/65VDC    | 78          | 24 to 65 Vdc isolated |

Note: Standard power is 110 Vac.

#### Analog Output Options\*

| Order Suffix | Add'l Price | Description                     |
|--------------|-------------|---------------------------------|
| -AO1         | \$67        | Milliamp sink, 0 to 20 mA max   |
| -AO2         | 67          | Milliamp source, 0 to 20 mA max |
| -AO3         | 67          | Voltage, 0 to 10 Vdc max        |
| -APH2        | 78          | Analog peak hold                |

#### Control Output/Communications Options\*

| Order Suffix | Add'l Price | Description      |
|--------------|-------------|------------------|
| -R1          | \$112       | Single setpoint  |
| -R2          | 134         | Dual setpoint    |
| -APH1        | 98          | Analog peak hold |

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

#### Accessories

| Model No. | Price | Description  |
|-----------|-------|--|
| DPP-5     | \$525 | 1/8 DIN panel punch  |
| EE-0401   | 150   | Reference Book: Standard Handbook for Electrical Engineers |

#### Display Options

| Order Suffix | Add'l Price | Description   |
|--------------|-------------|---------------|
| -GR          | \$12        | Green display |
| -DN          | 25          | Display hold  |

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

| Model Number | Price | Input Range (Amps DC) |
|--------------|-------|-----------------------|
| DCS100-10    | \$45  | 10                    |
| DCS100-20    | 40    | 20                    |
| DCS100-40    | 40    | 40                    |
| DCS100-60    | 40    | 60                    |
| DCS100-80    | 40    | 80                    |
| DCS100-100   | 40    | 100                   |
| DCS100-150   | 40    | 150                   |
| DCS100-200   | 60    | 200                   |
| DCS100-250   | 60    | 250                   |
| DCS100-400   | 60    | 400                   |
| DCS100-600   | 60    | 600                   |
| DCS100-800   | 80    | 800                   |
| DCS100-1000  | 80    | 1000                  |
| DCS100-1500  | 80    | 1500                  |
| DCS100-2000  | 80    | 2000                  |

Ordering Examples: DCS100-200, 0 to 100 mV output shunt with 200 Adc current input rating, \$60.

DCS100-100, 0 to 100 mV output shunt with 100 Adc current input rating, \$40.





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