

# Economical High Accuracy Temperature Indicators

## Single and Six-Channel Models

### DP460 Series



DP460 base meter.

KTSS-14G-12 probe, sold separately.

#### Temperature Input Models

- ✓ Accurate to 0.5°C (0.9°F)
- ✓ Selectable Thermocouple Input: J, K, T, E, R, S, and B
- ✓ RTD Input: 0.00385 or 0.00392 alpha
- ✓ 0.1°/1° Auto-Resolution
- ✓ °F/°C Switchable

#### Current and Voltage Input Models

- ✓ Current and Voltage Selectable
- ✓ 0.02% Accuracy, 1-Digit Repeatability
- ✓ Pushbutton Digital Scaling and Offset
- ✓ -999 to 9999 Display Range
- ✓ DP460-E Has a Transmitter/Transducer Excitation Power Supply

#### Strain Gage and Load Cell Input Models

- ✓ 0 to 5 mV/V and 0 to 50 mV Selectable
- ✓ Pushbutton Digital Display Range
- ✓ -999 to 9999 Display Range
- ✓ Built-in 10 Vdc Excitation Power Supply
- ✓ Auto Re-Zero (Tare) Button

#### Optional

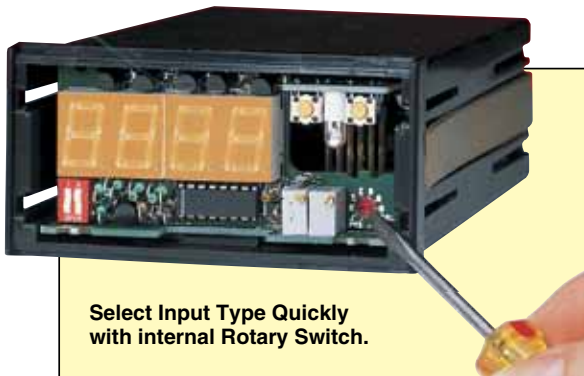
- ✓ Multi-Channel Inputs (for Units Without Excitation Power Supply)
- ✓ Single or Dual 5A Alarm Relays



DP461 meter with integral alarm.



DP462 meter with multi-input.



Select Input Type Quickly with internal Rotary Switch.



DP460  
Base Meter.



DP461  
Meter with integral alarm.



DP462  
Meter with multi-input.

KTSS-14G-12 Probe, sold separately.  
Visit us online.

Meters shown smaller than actual size.

The DP460 Series is designed for a variety of temperature, current, voltage, strain gage and load cell measuring applications. Excellent accuracy and small size combine to make it the ideal choice for most industrial indications.

The DP460-T and DP460-RTD temperature models feature a unique 0.1° or 1° automatic resolution (unless the instrument is programmed to display 1° only). Select among nine temperature sensors or thermocouple types, J, K, T, E, R, S, and B or 100 ohm; 3-wire, Platinum RTD's for either 0.00385 or 0.00392 alpha. Behind the snap-off lens, each of these nine thermocouples can be selected via a miniature rotary switch. No calibration is required to switch between thermocouple types. Another miniature DIP switch selects between °F or °C display.

The DP460-V voltage models allow selection between mA or voltage input with a switch easily accessible behind the snap-off front lens. Full scales are 0 to 20 mA or 0 to 10 V. These or any subset (e.g., 4 to 20 mA, 1 to 5 V) can be scaled. Two simple pushbuttons conveniently located behind the snap-off lens are used to set zero (Lo), full scale (Hi) and a decimal point. The indicator can be scaled within its wide -999 to 9999 display count.

The DP460-S strain gage models are compatible with both bonded-foil type (2 mV/V, 3 mV/V, 4 mV/V) transducers and higher output, semiconductor (10 mV/V, 20 mV/V, 30 mV/V) type strain gages. Its microprocessor design and ratiometric measuring circuit assure high accuracy with superior repeatability. Scaling and calibrating the DP460-S to display engineering units from the strain gage input is similar to the DP460-V models. There are no pots to drift nor complicated formulas to compute to set DIP switch gain ranges. It can achieve sensitivities as low as 1 µV per count and can be scaled anywhere within its wide -999 to 9999 display count.

The alarm option provides single (ALM) or dual (ALM2) limit setpoints that can be set to any point within the DP460 series' measuring range. The user digitally adjusts the setpoint by pressing two buttons located on the front panel. Selection of Hi or Lo (single) alarm or Hi and Lo (dual) alarms is set by moving a jumper located on the option card. You can view the setpoint by pressing the View button on the front panel. A light on the front panel illuminates red for the single alarm or red/yellow (dual alarm) when the alarm trips.

The DP462 series has the ability to switch between up to six sensor inputs of the same type with its multi-input option. A miniature rotary switch, accessible from the front panel, allows convenient switching between inputs. Sensor hook-up is a snap-on/off terminal block located at the rear of the instrument. It is easy to modify a basic DP460 model and add the multi-input board (DP460-206) in the field.

The Rack Adaptor Plate permits easy mounting of DP460 Series indicators in standard 483 mm (19") instrument racks. Four versions are available for mounting 1, 2, 3 or 4 indicators.

## Common Specifications

**Display:** Four 7-segment red/orange LED's, 14.2 mm (0.56") H

**Repeatability:** ±1 count

**Stability with Temperature**

**Zero:** 1 µV/°C

**Span:** 0.01% reading/°C

**Power:** 115/230 Vac selectable (±10%), 50 to 60 Hz, 400 Hz

**Noise Rejection**

**NMRR:** 60 dB @ 50/60 Hz (±0.1 Hz)

**CMRR:** 120 dB @ 50/60 Hz (±0.1 Hz with 250 unbalance)

**Overload Protection (Power Lead to Ground):** Across inputs, for 1 minute T/C up to 250 Vac/dc, V+ to V- RTD up to 62 Vac/dc, V+ or I-

**Environmental Ranges**

**Operating:** 5 to 45°C (41 to 113°F)

**Storage:** -40 to 65°C (-40 to 149°F)

**Humidity:** < 80% RH non-condensing

**Alarm Relay Contact Rating**

5 A @ 120 Vac (noninductive load), Form C (SPDT)

## Input Types and Ranges

Input Type	1° Resolution		0.1° Resolution	
	Range	Accuracy*	Range	Accuracy*
Iron-Constantan <b>J</b>	-337 to 1403°F -205 to 762°C	0.03% 0.03%	-99.9 to 999.9°F -99.9 to 761.8°C	0.9°F 0.5°C
CHROME <sup>®</sup> ALOMEGA <sup>®</sup> <b>K</b>	-331 to 2510°F -202 to 1377°C	0.03% 0.03%	-99.9 to 999.9°F -99.9 to 999.9°C	0.9°F 0.5°C
Copper-Constantan <b>T</b>	-346 to 775°F -210 to 401°C	0.03% 0.03%	-99.9 to 754.6°F -99.9 to 401.4°C	0.9°F 0.5°C
CHROME <sup>®</sup> Constantan <b>E</b>	-338 to 1835°F -205 to 1002°C	0.03% 0.03%	-99.9 to 999.9°F -99.9 to 999.9°C	0.9°F 0.5°C
Pt-Pt13% Rh Pt-Pt10% Rh <b>R/S</b>	32 to 3216°F 0 to 1769°C	0.05% 0.05%	Not Available	-
Pt30% Rh- Pt6% Rh- <b>B</b>	316 to 1829°C 601 to 3325°F	0.05% 0.05%	Not Available	-
Pt100 385 or 392 <b>RTD</b>	-329 to 1563°F -200 to 851°C	0.03% 0.03%	-99.9 to 999.9°F -99.9 to 850.8°C	0.9°F 0.5°C
Process	0 to 20 mA or 0 to 10 Vdc, Scalable -999 to 9999			0.02%†
Strain	0 to 50 mV or 0 to 500 mV, Scalable -999 to 9999			0.02%†

\* Accuracy is % reading + 1 digit. † For strain, refer to accuracy specifications for DP460-S

DP460-E face shown smaller than actual size.



Convenient pushbutton scaling allows the DP460-E to display from -999 to 9999



DP460-E shown actual size.

**Case:** One-piece, black plastic, screw terminal terminations

**Case:** 40 H x 90 W x 13 mm D (1.57 x 3.54 x 0.51")

**Bezel:** 48 x 96 mm (1.89 x 3.78")

**Panel Cutout:** 1/2 DIN, 45 x 92 mm (1.77 x 3.62")

**Weight:** 454 g (1 lb)

### DP460-T and DP460-R

#### Input Impedance:

Thermocouple, 20 MΩ  
RTD, 16.9 kΩ

**RTD:** 16.9 kΩ + V + input - I input

**RTD Lead Wire Error:** At 150 μA excitation current 40 mΩ/Ω of equal resistance in V+ and V- leads, 1 Ω/Ω of imbalance in V+ or V- leads

#### Thermocouple Reference

**Junction:** Internal, automatic, 0.03%/°C/°C, 5 to 45°C (41 to 113°F)

#### Break Detection:

Upscale = 50 nA

#### Point Update Rate:

2 per second nominal (1° readings);  
1 per second nominal (0.01° readings)

#### Multi-Input Option

**Accuracy:** Add ±0.5°C/±1°F to instrument accuracy

### DP460-E and DP460-V

**Read Rate:** 2 per second nominal

#### Input Impedance:

**Voltage:** 1 MΩ, **Current:** 5 Ω

#### Excitation:

**DP460-E:** Built-in 24 Vdc (±5%), 30 mA

**DP460-V:** No excitation

### DP460-S

#### Display Scaling Range:

-999 to 9999

#### Accuracy:

**0 to 5 mV/V:** Sensitivity ±0.02% rdg, ±1 count for sensitivities ≤2 μV/ct; ±0.02% rdg, ±4 cts for sensitivities ≥ 2 μV/count

**0 to 50 mV/V:** Sensitivity ±0.02% rdg, ±1 ct for sensitivities ≥ 20 V/ct; ±0.02% rdg, ±4 cts for sensitivities ≥ 20 μV/count.

#### Sensitivity

(minimum 1 display count):

**0 to 5 mV/V:** maximum 1 μV/count, minimum 1 display count

**0 to 50 mV/V:** maximum 10 μV/count

#### Stability with Temperature Zero:

1 μV/°C

**Span:** 0.01%rdg/°C

**Read Rate:** 2 per second nominal

**Input Impedance:** Inputs ≥1 MΩ

**Excitation Sense:** 1 MΩ

#### Measuring Technique:

Dual slope, ratiometric, differential input max

**Excitation:** Built-in 10 Vdc (±5%), 30 mA

### Input and Output Options

Model No.	Description
DP460-ALM	5A Alarm board
DP460-ALM2	Product Discontinued
DP460-206*	Product Discontinued

\*DP460-206 cannot be used with models with "-E" or "-S" inputs.

### To Order

Model No.	Description
DP460-(* )	Product Discontinued
DP461-(* )	Meter with single alarm relay output
DP461A-(* )	Meter with dual alarm relay output
DP462-(* )	Meter with six-channel inputs

Comes complete with user's manual and self-adhesive engineering unit front panel labels.

\*Insert "T" for thermocouple input, "RTD" for RTD input, "V" for Voltage, "E" for Voltage with 10 Vdc excitation, "S" for Strain input with 10 Vdc excitation

**Note:** E and S inputs are not available for the DP462 models.

Rack adaptor plates are available for mounting 1 to 4 indicators in a standard 483 mm (19") rack. 4 models: DP460-RKS1, DP460-RKS2, DP460-RKS3, DP460-RKS4.

OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page.

OMEGACARE<sup>SM</sup> covers parts, labor, and equivalent loaners. Ask your sales representative for full details when placing an order.

**Ordering Example:** DP462-T, base meter with multi-channel thermocouple input.

OCW-3 OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5 years.