⅛ DIN VERSATILE PROCESS MONITORS CONFIGURABLE

Panel Punches Available Visit omega.com/panelpunches

MONOGRAM® SERIES

DP2000 Series

OMEGA® DP2000 digital indicator/controllers introduce a new world of versatility. A universal ⅛ DIN case houses each meter. Choose any combination of display type (LED or LCD), operating power, input type and range, analog output, and digital or control outputs. OMEGA will supply a fully burned-in and tested DP2000.

DP2000-S, ⅛ DIN meter, $345, shown smaller than actual size.

Starts at $250 Complete with Input Board

MADE IN USA · 5 YEAR WARRANTY · CE

DP2000-J1, $290, with TJ36-ICSS-116G-12, transition joint probe, $28, shown smaller than actual size, visit omega.com/tj36-icin

DP2000 ORDERING GUIDE

To Order *(Specify Model Number)*

MODEL NO.						
					DESCRIPTION	
DP2	0	0	0	X	A. Motherboards	PRICE
	0				LED; 120 Vac (50/60 Hz)	$210
	1				LCD; 120 Vac (50/60 Hz)	260
	2				LED; 240 Vac (50/60 Hz)	210
	3				LCD; 240 Vac (50/60 Hz)	260
	4				LED; 9 to 32 Vdc, isolated	355
	5				LCD; 9 to 32 Vdc, isolated	405
	6				LED; 5 Vdc	340
	7				LCD; 5 Vdc	390
	8				LED; 24 Vac	240
	9				LCD; 24 Vac	290
	A				LED; 26 to 56 Vdc, isolated	350
	B				LCD; 26 to 56 Vdc, isolated	400
					B. Analog Outputs	
		0			1 mV/count (supplied on all units)	N/C
		1			0 to 5 Vdc	$70
		2			0 to 10 Vdc	70
		3			0 to 1 mA (internally driven)	70
		4			4 to 20 mA (internally driven)	70
		5			4 to 20 mA (externally driven)	115
		6			4 to 20 mA (isolated)	135
					C. Control Outputs	
			0		None	N/C
			1		Dual setpoint, 10 A relay (SPDT)	$165
			2		Proportional 4 to 20 mA	225
			3		Proportional/time proportioning, 2 A relay	295
			4		Parallel BCD, isolated	155
			5		Single setpoint, 10 A relay (SPDT)	125
					D. Signal Conditioner Inputs	
				A(*)	DC voltage	$40
				B(*)	DC current	40
				C(*)	AC AVG voltage	65
				D(*)	AC AVG current	65
				E(*)	Process signal with 15 Vdc excitation	80
				F(*)	AC RMS voltage	100
				G(*)	AC RMS current	100
				H(*)	Frequency/rate	85
				J(*)	Type J thermocouple	80
				K(*)	Type K thermocouple	80
				T(*)	Type T thermocouple	100
				P(*)	Process signal	60
				M(*)	RTD, 1° resolution	90
				R(*)	RTD, 0.1° resolution	100
				S(*)	Strain gage	135

** Refer to the specification pages D-82 and D-83 for information about signal conditioners.*

Accessory

Model No.	Price	Description
DPP-5	$525	⅛ DIN panel punch

Comes complete with operator's manual.

Ordering Example: DP2000-A2,** LED 120 Vac, 1 mV/count, DC voltage between -1.999 and 1.999 V, $210 + 40 = **$250.

VERSATILE PROCESS MONITORS

DP2401-P, $580, shown smaller than actual size, with PX209, $195, pressure transducer, sold separately, see page B-90.

SPECIFICATIONS

Conversion

Technique: Auto-zero, dual slope, average value

Signal Integration Period: 100 ms, nominal

Reading Rate: 2.5/s, nominal

Display

LED: Red, 14.2 mm (0.56"), 7-segment

LCD: 12.7 mm (0.50"), 7-segment

Range: 0 to ±1999

Overload Indication: 3 least-significant digits blanked, "1" or "-1" displayed

Power

AC Models: 120/240 Vac (10 to 15%), 49 to 440 Hz or 24 Vac (10 to 15%)

DC Models: 5 Vdc ±5%, 9 to 32 Vdc or 26 to 56 Vdc

Common Mode

Voltage: 1500 Vp test (354 Vp per IEC spacing).

Rejection (DC to 60 Hz): 120 dB

Environmental

Operating Temperature: 0 to 60°C (32 to 140°F)

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

Humidity: To 95% RH, non-condensing @ 0 to 40°C (32 to 104°F)

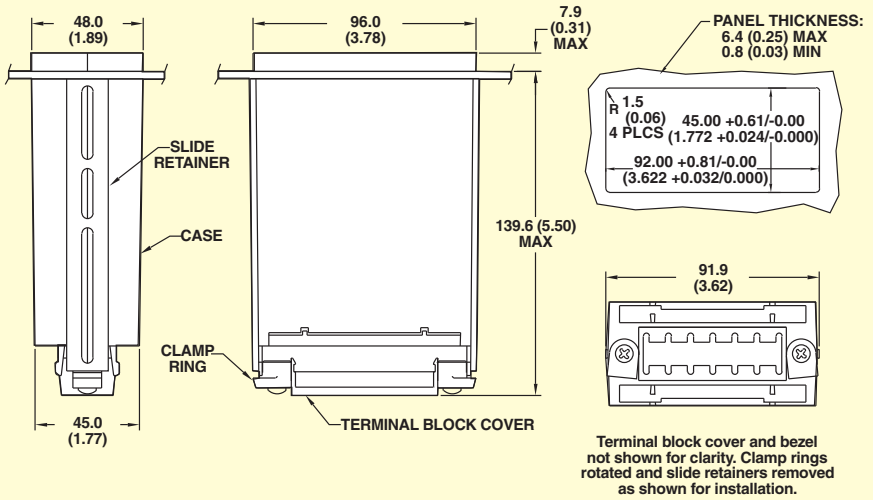
Mechanical

Case Material: 94 V-0 UL-rated, polycarbonate

Weight: 0.57 kg (1.26 lb) with controller

MADE IN USA

Dimensions: mm (in) **Visit omega.com/panelpunches for panel punches.**



Terminal block cover and bezel not shown for clarity. Clamp rings rotated and slide retainers removed as shown for installation.

A. Motherboards *DP2000-x,* base price from $210

(Power and display preferences refer to the DP2000 ordering guide.)

Choose the appropriate OMEGA® motherboard. The motherboard constitutes the complete DPM electronics and power supply for any combination of inputs and outputs.

All power supplies provide cool operation, resulting in extended component life. The AC-powered versions use a high-efficiency power transformer, and the isolated 9 to 32 Vdc versions maintain display brightness over the entire voltage range. A non-isolated 5 Vdc version is also available.

Signal input and power connections are made via a rear barrier terminal strip. The motherboard rear edge connector provides access to hold and display test, polarity, clock, and the standard 1 mV/count analog output and optional analog outputs. Decimal point position can be selected by jumpers on the edge connector or by placement of gas-tight jumpers behind the front lens.

Ordering Example: DP2100-J1, *LCD, 120 Vac motherboard with J thermocouple signal conditioner input, $260 + 80 =* ***$340.***

MADE IN USA 5 YEAR WARRANTY

B. Analog Outputs *DP2000-x*

In addition to the standard OMEGA® analog output of 1 mV/count, 6 optional outputs are available:

	Add to Base Price:
1. 0 to 5 Vdc	$70
2. 0 to 10 Vdc	70
3. 0 to 1 mA (Internally Driven)	70
4. 4 to 20 mA (Internally Driven)	70
5. 4 to 20 mA (Externally Driven)	115
6. 4 to 20 mA (Isolated)	135

Both DC voltage outputs drive up to 2 mA. The internally driven 4 to 20 mA output drives up to 600 Ω (12V compliance), while the externally sourced 4 to 20 mA output can be driven by 5 to 40 Vdc. The user has access to the analog output at the motherboard edge connector.

Ordering Example: DP2010-A1, *LED, 120 Vac motherboard, 0 to 5 Vdc analog output with ±0.1999 Vdc input, $210 + 70 + 40 =* ***$320.***

C. Control Outputs *DP2000-x*

For capabilities beyond simple indicating, choose from 5 OMEGA® control outputs: a dual-setpoint on/off controller, a proportional 4 to 20 mA controller, a proportional plus time-proportioning controller, a parallel BCD output, or a single-setpoint on/off controller. Controllers feature convenient quick-connect terminals with mating connectors supplied. The parallel BCD outputs to a 50-pin edge connector.

1. Dual-Setpoint Controller, add $165 to base price

The OMEGA® dual-setpoint controller features 2 internal relays controlled by high/low setpoint adjustments accessible through the front lens. These screwdriver-adjustable setpoints can be used for limit alarm functions, on/off control, 2-position differential control, 3-position control, and limit-cycle control.

The low setpoint is adjustable over the entire -1999 to 1999 display range. The high setpoint is adjustable in the range between the selected low setpoint and 1999. Either setpoint can be displayed by pressing the low or high setpoint pushbutton on the front panel.

Both relays are de-energized when the input value (measured variable) is between the low and high setpoints. When the input value falls below the low setpoint, the low relay energizes. When the input rises above the high setpoint, the high relay energizes.

Red “LO” and “HI” lamps on the front panel light when their respective relays are energized. All relays are rated 10 A @ 120 Vac and 240 Vac.

Ordering Example: DP2001-A2, *LED motherboard, dual-setpoint controller with ±1.999 Vdc input, $210 + 165 + 40 =* ***$415.***

2. Proportional 4 to 20 mA Controller, add $225 to base price

The OMEGA® proportional controller provides a 4 to 20 mA output in proportion to the difference between the input and the selected setpoint value. The screwdriver-adjustable setpoint, accessible through the front lens, can be set for any value within the -1999 to 1999 display range. The setpoint or the deviation of input from setpoint may be displayed by pressing front-panel pushbuttons.

The controller features adjustable proportional band (1 to 10%) and a front-panel LED that lights when the input (process) is within this band.

The 4 to 20 mA output provides 12V compliance, or it can be connected to use an external source for up to 35V compliance.

Ordering Example: DP2002-P9, *LED motherboard, proportional 4 to 20 mA controller with 4 to 20 mA input, $210 + 225 + 60 =* ***$495.***

3. Proportional Plus Time-Proportioning Controller, add $295 to base price

This controller provides all the features of a proportional controller, plus a time-proportioning solid state relay output for on/off cycling control.

Two red LEDs on the front panel indicate when the relay is energized and when the process is within the proportional band. A screwdriver adjustment, accessible through the front lens, lets the user adjust the manual reset over 100% of the proportioning band. A front-panel pushbutton switch allows display of the input parameter or the amount of deviation from setpoint. Logic inputs allows reversing of the sense of the relay or the relay LED. All relays are rated 2 A @ 240 Vac.

Ordering Example: DP2003-P9, *LED motherboard, proportional/time proportioning control with 4 to 20 mA input, $210 + 295 + 60 =* ***$565.***

4. Parallel BCD Output*, add $155 to base price

For users with digital data acquisition needs, this option provides buffered, isolated (350V), gated, and stored BCD outputs on 14 parallel lines plus 2 lines for polarity and data-ready. All buffers have 3 stateoutputs for easy parallel bussing in data acquisition systems. Inputs and outputs are 5 Vdc TTL logic, positive true logic only. A BCD HOLD input holds the BCD data stored in the latches, but allows the instrument to continue making updated conversions.

Along with broadside parallel outputs, this option allows the transmission of 8 bits of data at a time for devices with 8-bit data paths such as computers. A 5V @ 100 mA power supply is necessary to use the BCD output.

POWER SUPPLY FOR BCD PARALLEL OUTPUT*

To Order *(Specify Model Number)*		
MODEL NO.	**PRICE**	**DESCRIPTION**
PSP-5	**$125**	5V @ 250 mA output (pin terminal style)
PST-5	**165**	5V @ 500 mA output (screw terminal style)

**** Note:** A power supply is required when ordering a parallel BCD output card.*

Ordering Example: DP2004-K2,** LED motherboard, BCD output with Type K thermocouple input, **PST-5,** power supply, $210 + 155 + 80 + 165 = **$610.

5. Single-Setpoint Controller, add $125 to base price

The single-setpoint controller board features one internal form “C” relay, rated to 10 A @ 30 Vdc or 240 Vac, resistive load. The setpoint is front-panel adjustable over the entire display range. The setpoint provides adjustable deadband to limit relay cycling or chatter. Pushbuttons are conveniently mounted on the front panel, and the LED lamp provides on/off status of the relay.

Fail-Safe Control Mode:

In this mode, the relay is energized when the meter input is below the setpoint. When the input rises above the setpoint, the relay is de-energized. In the event of a power failure, the relay is de-energized, signaling an alarm condition.

Latched or Non-Latched Operation:

The controller can be configured so that the relay is latching. In latched operation, the relay remains energized until the alarm condition is acknowledged either by pressing both front-panel pushbuttons simultaneously or by momentarily closing an external switch tied to a RESET input.

Add the OMEGA® signal conditioner that matches the sensor and process variables. OMEGA® will configure the range the user selects, which can be changed later via a “pin-forest” of gas-tight, movable internal jumpers. Fine calibration is effected with zero and full scale adjustments on the left side of the display behind the lens. All signal input connections are made via barrier screw-terminal strips.

Ordering Example: DP2005-P9,** LED motherboard, single-setpoint controller with 4 to 20 mA input, $210 + 125 + 60 = **$395.

D. Signal Conditioners *DP2000-x*

A Series DC Voltage Inputs, add $40 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE	RESOLUTION	NMR@ 50/60 HZ	ACCURACY
A1	±0.1999V	1 GΩ	0.1 mV	50 dB	±0.05% of reading ±1 count
A2	±1.999V	1 MΩ	1 mV		
A3	±19.99V	1 MΩ	10 mV		
A4	±199.9V	1 MΩ	100 mV		

B Series DC Current Inputs, add $40 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE (200 mV SHUNT)	RESOLUTION	NMR@ 50/60 Hz	ACCURACY
B1	±19.99 µA	10 kΩ	0.01 µA	50 dB	±0.05% of reading ±1 count
B2	±199.9 µA	1 kΩ	0.1 µA		
B3	±1.999 mA	100 Ω	1 µA		
B4	±19.99 mA	10 Ω	10 µA		
B5	±199.9 mA	1 Ω	100 µA		
B6	±1.999 A	0.1 Ω	1 mA		

Ordering Example: DP2000-B3,** LED 120 Vac, 1 µA/count, DC current between -1.999 mA and 1.999 mA, $210 + 40 = **$250.

VERSATILE PROCESS MONITORS

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C Series AC AVG Voltage Inputs, add $65 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE	RESOLUTION	FREQUENCY RANGE	ACCURACY
C2	0.1999V	1.1 MΩ	0.1 mV	47 to 1000 Hz	±0.1% of reading ±1 count
C3	1.999V		1 mV		
C4	19.99V		10 mV		
C5	199.9V	10 MΩ	100 mV		
C6	650V		1V		

Full-wave rectified average AC signal, calibrated for sinusoidal input.
Ordering Example: DP2000-C5,** LED 120 Vac, 100 mV/count, 199.9V range for AC AVG voltage input, $210 + 65 = **$275.

D Series AC AVG Current Inputs, add $65 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE (200 mV SHUNT)	RESOLUTION	FREQUENCY RANGE	ACCURACY
D1	19.99 µA	10 kΩ	0.01 µA	47 to 1000 Hz	±0.1% of reading ±1 count
D2	199.9 µA	1 kΩ	0.1 µA		
D3	1.999 mA	100 Ω	1 µA		
D4	19.99 mA	10 Ω	10 µA		
D5	199.9 mA	1 Ω	100 µA		
D6	1.999 A	0.1 Ω	1 mA		
D7	5.00 A*	0.01 Ω	2.5 mA		

** 50 mV shunt for 5 A current transformer input. Full-wave rectified average AC signal, calibrated for sinusoidal input.*
Ordering Example: DP2000-D4,** LED 120 Vac, 10 µA/count, 19.99 mA range for AC AVG current input, $210 + 65 = **$275.

E Series Strain Gage, Pressure Transducer, and Load Cell Signal Input with 15 Vdc Power Supply, add $80 to base price

ORDERING CODE	MAXIMUM INPUT SPAN	MINIMUM GAIN	MAXIMUM GAIN
E1	0.5V	0.08 counts/mV	2.85 counts/mV
E2	0.5V	2.84 counts/mV	5.55 counts/mV
E3	0.5V	5.49 counts/mV	8.17 counts/mV
E4	5.0V	8.0 counts/mV	231.0 counts/mV
E5	5.0V	230.0 counts/mV	449.0 counts/mV
E6	10.0V	4.0 counts/mV	114.5 counts/mV
E7	10.0V	114.0 counts/mV	223.0 counts/mV
E8	4 to 20 mA	2.5 counts/mA	70.4 counts/mA
E9	4 to 20 mA	70.5 counts/mA	137.0 counts/mA
E10	10 to 50 mA	1.0 counts/mA	28.2 counts/mA
E11	10 to 50 mA	28.1 counts/mA	55.0 counts/mA

***Note:** The "E" Series can be factory-set to any one of 11 ranges. Field range change is not recommended.*

**Gain = $\frac{\text{full span display (counts)}}{\text{input span (mV, V or mA)}}$ (see Part A of example)*

***Accuracy:** ±0.05% of reading, ±1 count*

***Notes:** 1. Built-in zero offset ±2.25 mV @ 10V excitation (225 µV per V of excitation), see example B. Greater zero offsets, such as may be required by load cells, may be achieved with an external resistor. The value of the resistor (in kΩ) is calculated as follows:*

$$\text{dead load resistor} = \frac{(250)(LCR)(LCC)}{(LCV)(DL)}$$

LCR = load cell resistance (Ω)
LCC = cell capacity (lb)
LCV = load cell voltage (mV/V)
DL = dead load (lb)

2. Zero and span adjustments made by user, via accessible potentiometers.
3. Decimal point location by jumper behind front lens.
4. Maximum display is ±1999 counts.

To Determine Ordering Code:

1: Determine full scale span required (max reading – min reading).
2: Determine gain = $\frac{\text{full scale span}}{\text{signal span}}$
3: Find ordering code for which desired gain lies between minimum and maximum values listed.
4: Use ordering code to complete part number.

Ordering Example:

Signal range 0.5 to 5.5V (5 Volt span)
Full scale display: 100.0 psi (1000 counts)
Gain = $\frac{1000 \text{ counts}}{5V}$ = 200 counts/V
Choose E4 because 8 < 200 < 231
*To order, specify **DP2000-E4, $270.***

Model E is designed for use with OMEGA® pressure transducers, load cells and strain gage devices.

F Series AC RMS Voltage Inputs, add $100 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE	RESOLUTION	FREQUENCY RANGE	ACCURACY
F2	0.1999V	1.1 MΩ	0.1 mV	47 Hz to 5 kHz	±0.1% of reading ±1 count
F3	1.999V		1 mV		
F4	19.99V		10 mV		
F5	199.9V	1 MΩ	100 mV		
F6	650V		1V		

Provides true RMS accuracy for non-sinusoidal inputs with a crest factor of 3:1 or less.
Ordering Example: DP2000-F3,** LED 120 Vac, 1 mV/count, 1.999V for AC RMS voltage input, $210 + 100 = **$310.

G Series AC RMS Current Inputs, add $100 to base price

ORDERING CODE	RANGE	INPUT IMPEDANCE (200 mV SHUNT)	RESOLUTION	FREQUENCY RANGE	ACCURACY
G1	19.99 µA	10 kΩ	0.01 µA	47 Hz to 5 kHz	±0.1% of reading ±1 count
G2	199.9 µA	1 kΩ	0.1 µA		
G3	1.999 mA	100 Ω	1 µA		
G4	19.99 mA	10 Ω	10 µA		
G5	199.9 mA	1 Ω	100 µA		
G6	1.999 A	0.1 Ω	1 mA		
G7	5.00 A*	0.01 Ω	2.5 mA		

** 50 mV shunt for 5 A current transformer input. Provides true RMS accuracy for non-sinusoidal inputs with a crest factor of 3:1 or less.*

Ordering Example: DP2000-G2,** LED 120 Vac, 0.1 µA/count, 19.99 mA for AC AVG current input, $210 + 100 = **$310.

H Series Frequency/Rate Inputs, add $85 to base price

ORDERING CODE	MINIMUM FREQUENCY FOR 1999 COUNT (MAX DISPLAY)	MINIMUM SIGNAL PEAK TO PEAK WITH		DISPLAY GAIN	
		HIGH SENSITIVITY*	LOW SENSITIVITY*	MINIMUM GAIN	MAXIMUM GAIN
H1	100 to 200 Hz	15 mV p-p	125 mV p-p	10 counts/Hz	20 counts/Hz
H2	200 to 400 Hz			5 counts/Hz	10 counts/Hz
H3	400 to 800 Hz			2.5 counts/Hz	5 counts/Hz
H4	500 to 1000 Hz			2 counts/Hz	4 counts/Hz
H5	1000 to 2000 Hz	30 mV p-p		1 counts/Hz	2 counts/Hz
H6	2000 to 4000 Hz			0.5 counts/Hz	1 counts/Hz
H7	2500 to 5000 Hz			0.4 counts/Hz	0.8 counts/Hz
H8	5000 to 10,000 Hz	90 mV p-p	175 mV p-p	0.2 counts/Hz	0.4 counts/Hz
H9	10,000 to 20,000 Hz			0.1 counts/Hz	0.2 counts/Hz

***Note:** The "H" Series can be factory-set to any one of 9 ranges. Field range change is not recommended.*
** Sensitivity is rear-connector selectable; units are shipped with low sensitivity.*
***Accuracy:** ±0.1% of reading, ±1 count*
***Maximum Input:** 130 Vrms*
***Input Impedance:** 150 kΩ*

Notes:
1. *Zero offset adjustable from +100 to -1000 counts.*
2. *Zero and span adjustments made by user, via accessible potentiometers.*
3. *Decimal point location by jumper behind front lens.*
4. *Inputs may be sinusoidal or square wave, symmetric or asymmetric.*
5. *Minimum frequency is 5% of selected full span.*
6. *Maximum display is ±1999 counts.*

To Determine Ordering Code:
1: Determine max input frequency (Hz).
2: Determine full scale span required (max reading – min reading)
3: Determine gain = $\frac{\text{display}}{\text{maximum frequency}}$
4: Find ordering code for which desired gain lies between minimum and maximum values listed.
5: Use ordering code to complete part number.
Input frequency: 400 Hz; signal level: 200 mV; full scale display: 500 psi; gain = 500/400 = 1.25.
Choose H5 because 1 < 1.25 < 2.
Ordering Example: DP2000-H5,** LED 120 Vac and 1000 to 2000 Hz frequency, $210 + 85 = **$295.
Model H is designed for use with OMEGA® frequency output transducers, including flowmeters and pressure transducers.

TEMPERATURE INPUT MODELS

DP2000 Series

MADE IN USA 5 YEAR WARRANTY

DP2000-K1, $290, shown smaller than actual size.

J, K, T Series Thermocouple Inputs, add $80 to base price

ORDERING CODE	CALIBRATION TYPE	TEMPERATURE RANGE	ACCURACY (±½ COUNT)	LEAD RESISTANCE (MAXIMUM)	BURNOUT SENSE CURRENT
J1	J* Iron-constantan	0 to 760°C	0 to 277°C: ±1.2°C 277 to 760°C: ±0.5% rdg	500 Ω	0.5 µA
J2		32 to 1400°F	32 to 530°F: ±2.4°F 530 to 1400°F: ±0.5% rdg		
K1	K* CHROMEGA®-ALOMEGA®	0 to 1260°C	0 to 277°C: ±1.8°C 277 to 1260°C: ±0.6% rdg	395 Ω	
K2		32 to 1999°F	32 to 530°F: ±3.0°F 530 to 1999°F: ±0.6% rdg		
T1	T* copper-constantan	-184 to 371°C	-184 to -59°C: ±1.5% rdg -59 to 93°C: ±1°C 93 to 371°C: ±0.6% rdg	200 Ω	
T2		-300 to 700°F	-300 to -75°F: ±1.5% rdg -75 to 200°F: ±1.5°F 200 to 700°F: ±0.5% rdg		

** ANSI code. All types: 1° resolution with polylog III linearization calibrated to NBS tables (IPTS-68).*

Ordering Example: DP2101-K1,** LCD, 120 Vac, 1°C/count, dual setpoint (10 A relay), Type K 0 to 1260°C (32 to 1999°F) range, $260 + 165 + 80 = **$505.

M, R Series RTD Inputs (Pt 100 Ω), M Series add $90, R Series add $100, to base price

ORDERING CODE	ALPHA	RESOLUTION	RANGE	ACCURACY (±½ COUNT)	ZERO TEMPCO
M1	0.00385	1°	-200 to 830°C -328 to 1526°F	±0.3°C ±0.2% rdg ±0.5°F ±0.2% rdg	0.05 °/°
M2					
R1	0.00385	0.1°	-199.9 to 199.9°C -199.9 to 199.9°F	±0.1°C ±0.05% rdg ±0.2°F ±0.05% rdg	0.005 °/°
R2					

Temperature Coefficient, Span: ±0.006% rdg/°C

Excitation Current: 0.42 mA for M, 4.2 mA for R models

Lead Resistance: 20 Ω max for 3- or 4-wire input, within specified error; for 2-wire input, add 2.6°C or 4.7°F per Ω change to specified error

Curve: Alpha = 0.00385, DIN 43760

Ordering Example: DP2101-M1,** LCD, 120 Vac, 1°C/count, dual setpoint (10 A relay), RTD Input, 1.0°C resolution, -200 to 830°C (-328 to 1526°F), $260 + 165 + 90 = **$515.

P Series Process Signal Inputs, add $60 to base price

Field-Scalable Display!

ORDERING CODE	MAXIMUM INPUT SPAN	MINIMUM GAIN	MAXIMUM GAIN
P1	0.5V	0.08 counts/mV	2.85 counts/mV
P2	0.5V	2.84 counts/mV	5.55 counts/mV
P3	0.5V	5.49 counts/mV	8.17 counts/mV
P4	5.0V	8.0 counts/V	231.0 counts/V
P5	5.0V	230.0 counts/V	449.0 counts/V
P6	10.0V	4.0 counts/V	114.5 counts/V
P7	10.0V	114.0 counts/V	223.0 counts/V
P8	4 to 20 mA	2.5 counts/mA	70.4 counts/mA
P9	4 to 20 mA	70.5 counts/mA	137.0 counts/mA
P10	10 to 50 mA	1.0 counts/mA	28.2 counts/mA
P11	10 to 50 mA	28.1 counts/mA	55.0 counts/mA

Note: *The "P" Series can be factory-set to any one of 11 ranges. Field range change is not recommended.*

**Gain = full span display (counts) / input span (mV, V or mA)*

Accuracy: *±0.05% of reading, ±1 count*

Input Impedance:

Voltage ranges: greater than 100 kΩ

Current ranges: greater than 250 Ω

Notes:

1. *Zero offset adjustable from -605 to 870 counts.*
2. *Zero and span adjustments made by user, via accessible potentiometers.*
3. *Decimal point location by jumper behind front lens.*
4. *Maximum display is ±1999 counts.*

To Determine Ordering Code:

1: Determine full scale span required (max display – min display)

2: Determine gain = full scale span / input span

3: Find ordering code for which desired gain lies between minimum and maximum values listed.

4: Use ordering code to complete part number.

Ordering Example:

Signal Range: 0.5 to 5.5V (5V span)

Full scale display: 100.0 psi (1000 counts)

Gain = 1000 counts / 5V = 200 counts/V

Choose P4 because 8 < 200 < 231

To Order, specify ***DP2000-P4, $270.***

Model P is designed for use with OMEGA® pressure transducers, load cells and strain gage devices.

S Series Strain Gage, Pressure Transducer, and Load Cell Signal Input, add $135 to base price

ORDERING CODE	MAXIMUM INPUT SPAN	MINIMUM GAIN	MAXIMUM GAIN
S1	499 mV	4.01 counts/mV	9.9 counts/mV
S2	249 mV	8.02 counts/mV	19.8 counts/mV
S3	124 mV	16.10 counts/mV	39.7 counts/mV
S4	62.5 mV	32.00 counts/mV	79.0 counts/mV
S5	31.2 mV	64.20 counts/mV	158.0 counts/mV
S6	15.6 mV	128.00 counts/mV	315.0 counts/mV
S7	7.8 mV	258.00 counts/mV	637.0 counts/mV

Note: *The "S" Series can be factory-set to any one of 7 ranges.*

Field range change is not recommended.

**Gain = full span display (counts) / input span (mV, V or mA) (see Part A of example)*

Accuracy: *±0.05% of reading, ±1 count*

Note:

1. *Built-in zero offset ±2.25 mV @ 10V excitation (225 µV per V of excitation): see example B. Greater zero offsets, such as may be required by load cells, can be achieved with an external resistor. The value of the resistor (in kΩ) is calculated as follows:*

$$\text{dead load resistor} = \frac{(250)(LCR)(LCC)}{(LCV)(DL)}$$

LCR = load cell resistance (Ω)
LCC = cell capacity (lb)
LCV = load cell voltage (mV/V)
DL = dead load (lb)

2. *Zero and span adjustments made by user, via accessible potentiometers.*
3. *Decimal point location by jumper behind front lens.*
4. *Maximum display is ±1999 counts.*
5. *Excitation factory adjustable from 1 to 10V.*

To Determine Ordering Code:

1: Determine full scale span required (max reading – min reading)

2: Determine gain = full scale span / signal span

3: Find ordering code for which desired gain lies between minimum and maximum values listed.

4: Use ordering code to complete part number.

Ordering Example:

(Part A—Gain Determination)

Input signal range: 0 to 100 mV

Full scale display: 500 psi (500 counts)

Gain = 500 counts / 100 mV = 5 counts/mV

Choose S1 because 4.01 < 5 < 9.9

Ordering Example: DP2000-S4, $345

(Part B—Zero Offset Determination with 10 V Excitation, for Pressure Transducer)

Zero offset = [±2.25 mV (from note 1)] x [gain (from part A)] = [(±2.25 mV) (5 counts/mV)]

Zero offset = ±11.25 counts

Model S is designed for use with OMEGA® pressure transducers, load cells and strain gage devices.

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