Universal Process Measurement
...SOLVED!

Compatible with virtually all input types!

Thermistor, RTD, Thermocouple, DC, Potentiometer

- High Accuracy
- Requires No Computer Or Software
- Simple On-Board Diagnostics
- Universal Power

- 6 Year Warranty
- American Made

APD 8000

Tech Specs

► **18-bit Isolated Universal Analog Output**

► **High Precision 0.1% Accuracy**

► **Custom Range Tables**

► **Sink/Source Output**

► **3-way Isolation**

► **Input capabilities:**

Thermistor, RTD, DC,
Potentiometer, Thermocouple

800-942-0315
sales@api-usa.com

www.api-usa.com

Input: 0-50 mV to ±10 VDC, 0-500 µA to 4-20 mADC, Potentiometer, T/C, RTD, Thermistor, or Custom
Output: 0-1 V to 0-10 V, ±5 V, ±10 V, 0-2 mA to 4-20 mA

Quick Link: api-usa.com/8000

- One Model Covers All Common Sensors
- Easy Setup—No Computer or Software Needed
- Zero and Span Output Calibration Buttons
- Full 1200 V Isolation
- Input LoopTracker® LED, Output Test Function
- Built-In Loop Power Supply for Sink/Source Output

Applications

- Convert/Isolate DC Sensors for PLC Input, Control and/or Validation
- Interface DC Sensors with Panel Meters, PLCs, Recorders, Data Acq., DCS, & SCADA Systems

Input Types, Field Selectable

DC volts: 35 ranges from ±25 mVDC to ±10 VDC
DC mA: 20 ranges from ±0.5 mADC to ±20 mADC
Potentiometer: 100 Ω min. to 1 Mega Ω max.
1, 2, or 4 volt excitation
T/Cs: J, K, T, E, R, S, N, B, C, D, G, M, P
Full ANSI temperature ranges
Linearization: 41-55 segment or up to 14th order polynomial
T/C CJC: Automatic
T/C current: Less than 10 µA, including burnout sense
T/C burnout: Upscale (standard), downscale, or none
RTDs: 2, 3, or 4 wire, 10 Ω to 8000 Ω RTDs
4 wire with or without current rotation
Cu-10, Cu-100, Ni-100, Ni-120,
Ni-Fe-500, Ni-Fe-1000, Ni-Fe-2000,
Pt-10, Pt-25, Pt-50, Pt-100, Pt-200,
Pt-470, Pt-500, Pt-1000
Thermistors: 44004/44033 2.252 kΩ at 25°C
44005/44030 3.000 kΩ at 25°C
44007/44034 5.000 kΩ at 25°C
44006/44031 10.00 kΩ at 25°C
44008/44032 30.00 kΩ at 25°C
YSI 400 2.252 kΩ at 25°C
Spectrum 1003k 1 kΩ
Custom: Provide sensor specifications, temperature curve data, and temperature range

Input Impedance
Voltage: 25 kΩ minimum
Current: 50 Ω nominal

LoopTracker
Variable brightness green LED indicates input level and status

Status LED
Yellow LED for setup and operational status

DC Output Ranges, Field Selectable
Voltage: 0-1 V, 0-2 V, 0-4 V, 0-5 V, 1-5 V, 0-8 V, 0-10 V, 2-10 V, ±5 VDC, ±10 VDC
Current: 0-2 mA, 0-4 mA, 0-8 mA, 0-10 mA, 2-10 mA, 0-16 mA, 0-20 mA, 4-20 mA
20 V compliance, 1000 Ω at 20 mA

Reverse Acting Output, Factory Set
R option: Reverse acting output
Reverse acting models cannot be converted to direct acting

Output Calibration
Zero and span set by using up/down buttons, ±10% range

Output Loop Power Supply
20 VDC nom., regulated, 25 mADC, <10 mVRMS max. ripple
May be selectively wired for sinking or sourcing mA output

Output Test
Front push button switch enables/disables test level output
Adjustable 0-100% of span via up/down buttons

Output Resolution
18 bit

Output Ripple and Noise
Less than ±0.2% of span

Accuracy
±0.1°C accuracy and 0.001°C resolution

Ambient Temperature Range and Stability
−10°C to +60°C operating ambient
Better than ±0.02% of span per °C stability

Response Time
300 milliseconds nominal

Isolation
Full 3-way isolation: input, output, power, 1200 VRMS min.
600 VACp or 600 VDC common mode protection
75 dB minimum common mode rejection
Simultaneous 50 Hz and 60 Hz rejection

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c**UL**us
File E145968
85-265 VAC, 60-300 VDC
model only

MADE IN USA

LIFETIME WARRANTY

Applications Link
api-usa.com/apps

Free Factory I/O Setup!

1 Minute Setup!

CE RoHS Pb Lead Free

Housing and Connectors
IP 40, requires vertical installation on a 35 mm DIN rail inside a panel or enclosure
For use in Pollution Degree 2 Environment
Four 4-terminal removable connectors, 14 AWG max. wire size

Power
85-265 VAC, 50/60 Hz or 60-300 VDC, 3 W maximum
D versions: 9-30 VDC or 10-32 VAC 50/60 Hz, 3 W maximum

Dimensions
Height includes connectors
0.89" W x 4.62" H x 4.81" D (22.5 x 117 x 122 mm)

Description
The APD 8000 accepts a DC, potentiometer, thermocouple, RTD or thermistor input and provides an optically isolated and linearized DC voltage or current output. The input is sampled, digitally converted (and linearized for temperature sensors), and then passed through an optocoupler to the output stage.

Full 3 way isolation (input, output, power) make this module useful for ground loop elimination, common mode signal rejection, and noise pickup reduction.

The input type and range, and output type and range are field configurable. This provides a versatile solution that works with all commonly available sensors.

Microprocessor-based linearization uses 41 to 55 segments or up to a 14th order polynomial depending on the sensor type.

The input type is set with switches and its range is configured using front buttons, a multimeter and an input simulator.

The low noise 18 bit analog output is isolated and can be set up for common voltage and milliamp output types.

How to Order
Default settings are type J T/C, 0-500°C, 4-20 mA output.
See configuration worksheet on page 8 or specify the following.

DC: Range and mV, volts, or mA
Temperature: Range in °F or °C (for temperature input)
T/C: Thermocouple type, burnout setting
RTD: Model/type, resistance, curve, number of wires
If 4 wire: with or without current rotation
Thermistor: Sensor model/type, resistance
Custom: Complete sensor data over temperature range
Output: Range and type (mV, V, mA)

Model	Description	Power
APD 8000	Universal input to DC output isolated transmitter	85-265 VAC, 50/60 Hz or 60-300 VDC
APD 8000 D		9-30 VDC or 10-32 VAC

Sink or Source mA Output

1 2 3 4 Removable Plugs

5 6 7 8

Setup and Status LED

Adjustable Output Test Function

Zero and Span for Output

Input LoopTracker LED

Universal Input

9 10 11 12

13 14 15 16 Universal Power

See Wiring Diagrams on Next Page

Output Sink/Source Versatility
Standard on the APD 8000 is a 20 VDC loop excitation supply for the milliamp output. The output can be selectively wired for sinking or sourcing allowing use with a powered or unpowered milliamp device.

LoopTracker
An API exclusive feature includes a green LoopTracker LED that varies in intensity with changes in the process input signal.

It provides a quick visual picture of your process input at all times and can greatly aid in saving time during initial startup and troubleshooting.

Output Test
An API exclusive feature includes an output test switch to provide a fixed output (independent of the input) when pressed. The output test greatly aids in saving time during initial startup and/or troubleshooting.

The test output level is adjustable from 0 to 100% of the output span.

Options and Accessory

Options—add to end of model number

NC5   5 point NIST traceable calibration certificate*
NC11   11 point NIST traceable calibration certificate*

*Certificate applies to your specified I/O settings. Field changes will void NIST certificate.

U   Conformal coating for moisture resistance
R   Reverse acting output

Accessory—order as separate line item

API BP4   Spare removable 4 terminal plug, black