

Input: 0-100 VDC to 0-1200 VDC
Output: 0-1 V to ±10 VDC or 0-1 mA to 4-20 mA

- Field Selectable I/O Ranges
- Removable Plugs for Faster Installation
- Full 1200 V Input/Output/Power Isolation
- Input and Output LoopTracker® LEDs
- Functional Test Button
- Selectable Sink/Source for Current Output

Applications

- DC Motor and Variable Speed Drives
- Electric Railway Voltages
- Power Supply and Voltage Converters
- High Voltage Battery Systems

Input Ranges

8 field selectable ranges
 0-100 VDC, 0-200 VDC, 0-300 VDC, 0-400 VDC, 0-500 VDC,
 0-1000 VDC, 0-1200 VDC, custom
 Consult factory for custom or special ranges

Input Impedance (Voltage)

2.5 MΩ

Output Zero and Span

Multi-turn potentiometers to compensate for load and lead variations
 ±15% of span adjustment range typical

LoopTracker

Variable brightness LEDs indicate I/O loop level and status

Output Ranges

18 field selectable ranges
 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
 Bipolar voltage: ±5 V, ±10 V
 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

Consult factory for special ranges

Output Linearity

Better than ±0.1% of span

Output Loop Power Supply

20 VDC nominal, regulated, 20 mADC
 Max. ripple, less than 10 mV_{RMS}
 May be selectively wired for sinking or sourcing mA output

Output Ripple and Noise

Less than 10 mV_{RMS}

Output Test

Front button sets output to test level when pressed
 Potentiometer adjustable 0-100% of span

Response Time

70 milliseconds typical

Common Mode Rejection

120 dB minimum

Isolation

1200 V_{RMS} minimum
 Full isolation: power to input, power to output, input to output

Ambient Temperature Range and Stability

-10°C to +60°C operating ambient
 Better than ±0.04% of span per °C stability

Power

80-265 VAC or 48-300 VDC, 2 W maximum
 D versions: 9-30 VDC or 10-32 VAC 50/60 Hz, 2 W maximum

Housing

Mounts to standard 35 mm DIN rail
 IP 40

Connectors

Four 4-terminal removable connectors
 14 AWG max wire size



Removable Plugs

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

Function

The API DPI HV-DC accepts a DC voltage input and provides an optically isolated DC voltage or current output that is linearly related to the input. This module is unique because it is field rangeable for voltage inputs from 100 VDC to 1200 VDC. Typical applications include signal isolation and signal conversion.

Isolation

The optical isolation between input and output makes this module useful for ground loop elimination, common mode signal rejection or noise pickup reduction. The module power supply is isolated, resulting in full 3-way (input, output, power) isolation.

Fast Field Setup

The API DPI HV-DC input and output range settings can be reconfigured in the field via external switches. Common range settings are on the module label. A user specified range is available that can be factory configured to meet your specific requirements. Consult the factory for assistance.

Sink/Source Output

For maximum versatility the output can be selectively wired for sinking or sourcing. The built-in 20 VDC loop excitation supply may be used to power passive mA devices. This allows the APD HV-DC to work with powered or unpowered mA devices.

LoopTracker

API exclusive features include two LoopTracker LEDs (green for input, red for output) that vary in intensity with changes in the process input and output signals. These provide a quick visual picture of your process loop at all times and can greatly aid in saving time during initial startup and/or troubleshooting.

Output Test

An API exclusive feature includes a test button to provide a fixed output (independent of the input) when held depressed. The test output level is potentiometer adjustable from 0 to 100% of output span.

The output test button greatly aids in saving time during initial startup and/or troubleshooting.

How to Order

All models are field rangeable

The APD HV-DC has a custom input range than can be factory set to your specifications.

Milliamp output can be field wired for sink or source.

Please specify

- Model
- Input range (if you would like us to set the switches)
- Output range (if you would like us to set the switches)
- Custom range, if required
- Options as required

Model	Input	Output	Power
APD HV-DC	8 field selectable ranges 0-100 VDC, 0-200 VDC, 0-300 VDC, 0-400 VDC, 0-500 VDC,	18 field selectable ranges 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 V, ±10 V, 0-2 mA, 0-4 mA, 0-8 mA, 0-10 mA, 2-10 mA, 0-16 mA, 0-20 mA, 4-20 mA	80-265 VAC or 48-300 VDC
APD HV-DC D	0-1000 VDC, 0-1200 VDC, custom	20 V compliance, 1000 Ω at 20 mA	9-30 VDC or 10-32 VAC

Options—add to end of model number

- DF** Fast response time, consult factory
- U** Conformal coating for moisture resistance

Accessories—order as separate line item

- API TK36** DIN rail, 35 mm W x 39" L, aluminum
- API PB4** Spare removable plug, black 4 terminal

Range Selection

See table below to select I/O ranges for your application. It is generally easier to select ranges before installation. See model/serial number label for custom range settings if specified.

Electrical Connections

WARNING! All wiring must be performed by a qualified electrician or instrumentation engineer. See wiring examples below or consult factory for assistance.

Avoid shock hazards! Turn signal input, output, and power off before connecting or disconnecting wiring.

Polarity must be observed for input and output wiring connections. If the input and/or output do not function, check switch settings and wiring polarity.

Module Power Terminals

Check white model/serial number label for module operating voltage to make sure it matches available power.

When using DC power, either polarity is acceptable, but for consistency with similar API products, positive (+) can be wired to terminal 13 and negative (-) can be wired to terminal 16.

Signal Input Terminals

All APD HV-DC models accept a DC voltage input. Polarity must be observed when connecting the signal input.

DC Voltage Input	Terminal
DC voltage negative	5 (-)
DC voltage positive	11 (+)

Signal Output Terminals

Polarity must be observed when connecting the signal output. If your device requires a current input, determine if it provides power to the current loop or if it must be powered by the APD module. Use a multi-meter to check for voltage at the input terminals. Typical voltage may be in the range of 9 to 24 VDC.

Type of Device for Output	- Terminal	+ Terminal
Measuring/recording device accepts a voltage input.	3 (-)	4 (+) switch E set to "V"
Measuring/recording device accepts a mA (current) input and the input is unpowered or passive. APD module provides the loop power.	3 (-)	4 (+20 V) switch E set to "I"
Measuring/recording device accepts a mA (current) input and provides power to the current loop.	2 (-)	3 (+) switch E set to "I"

Calibration

Front-mounted Zero and Span potentiometers can be used to compensate for load and lead variations.

1. Apply power to the module and allow a minimum 30 minute warm-up time.
2. Using an accurate calibration source, provide an input to the module equal to the minimum input required for the application.
3. Using an accurate measurement device for the output, adjust the Zero potentiometer for the exact minimum output desired. The Zero control should only be adjusted when the input signal is at its minimum. This will produce the corresponding minimum output signal. Example: for 4-20 mA output, the Zero control will provide adjustment for the 4 mA or low end of the signal.
4. Next, set the input at maximum, then adjust the Span pot for the exact maximum output desired. The Span control should only be adjusted when the input signal is at its maximum. This will produce the corresponding maximum

output signal. Example: for 4-20 mA output, the Span control will provide adjustment for the 20 mA or high end of the signal.

5. Repeat adjustments for maximum accuracy.

Output Test Function

The output test potentiometer is factory set to provide approximately 50% output. When the test button is depressed it will drive the output side of the loop with a known good signal that can be used as a diagnostic aid during initial start-up or troubleshooting. When released, the output will return to normal.

The Test Cal. potentiometer can be used to set the test output to the desired level. It is adjustable from 0 to 100% of the output span. Press and hold the Test button and adjust the Test Cal. potentiometer for the desired output level.

Operation

The API DPI HV-DC accepts a high-voltage DC voltage input and provides an optically isolated DC voltage or current output that is linearly related to the input. The input is filtered and attenuated as required, then passed through to the output stage.

Green LoopTracker® input LED

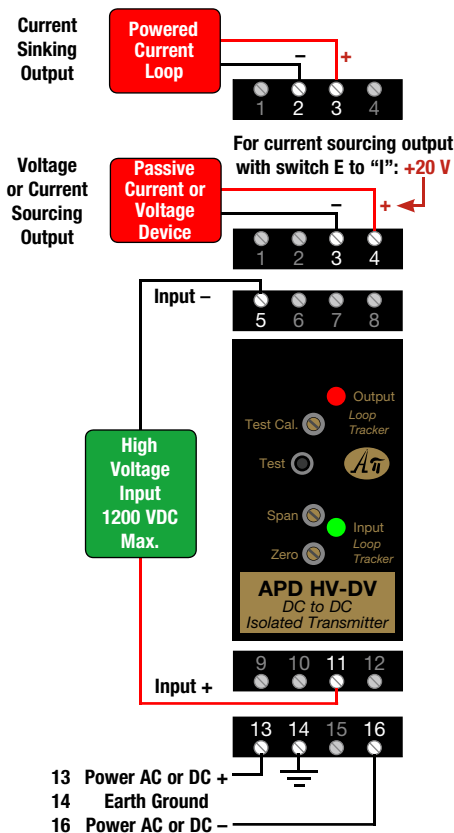
Provides a visual indication that a signal is being sensed by the input circuitry of the module. It also indicates the input signal strength by changing in intensity as the process changes from minimum to maximum.


If the LED fails to illuminate, or fails to change in intensity as the process changes, this may indicate a problem with module power or signal input wiring.

Red LoopTracker output LED

Provides a visual indication that the output signal is functioning. It becomes brighter as the input and the corresponding output change from minimum to maximum.

For current outputs, the red LED will only light if the output loop current path is complete. For either current or voltage outputs, failure to illuminate or a failure to change in intensity as the process changes may indicate a problem with the module power or signal output wiring.






Hi-Voltage DC to DC Isolated Transmitter

APD HV-DC
www.api-usa.com
800-942-0315


Input

A




Output

B



Output

C



For more Details and Instructions see Data Sheet

1. Set Switches A/B for desired Input / Output ranges.
2. Set Switch C for Voltage or Current as required.
3. Set Zero / Span / Test Cal. Controls

Connections		Input Switch 'A'		Output Switch 'B'		Output Switch 'B'		Example: 0-100VDC IN, 4-20mA OUT Set Switches "A" to 0; "B" to 7; "C" to I
Term. #	Signal	Input	Position	Voltage	Position	Current	Position	
3	Sig. Out -	0 - 100V	0	0 to 1V	0	0 to 2mA	0	
4	Sig. Out +	0 - 200V	1	0 to 2V	8	0 to 4mA	8	
		0 - 300V	2	0 to 4V	1	0 to 8mA	1	
		0 - 400V	3	0 to 5V	9	0 to 10mA	9	
		0 - 500V	4	0 to 8V	2	0 to 16mA	6	
		0 - 1000V	5	0 to 10V	3	0 to 20mA	3	
		0 - 1200V	6	2 to 10V	7	0 to 20mA	7	
		Custom	7	+/- 5V	4	4 to 20mA	7	
				+/- 10V	5			

Output	0-1 V	0-2 V	0-4 V	1-5 V	0-5 V	0-8 V	2-10 V	0-10 V	±5 V	±10 V	0-2 mA	0-4 mA	0-8 mA	2-10 mA	0-10 mA	0-16 mA	4-20 mA	0-20 mA
Input	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
0-100 V	0 0 V	0 8 V	0 1 V	0 6 V	0 9 V	0 2 V	0 7 V	0 3 V	0 4 V	0 5 V	0 0 I	0 8 I	0 1 I	0 6 I	0 9 I	0 2 I	0 7 I	0 3 I
0-200 V	1 0 V	1 8 V	1 1 V	1 6 V	1 9 V	1 2 V	1 7 V	1 3 V	1 4 V	1 5 V	1 0 I	1 8 I	1 1 I	1 6 I	1 9 I	1 2 I	1 7 I	1 3 I
0-300 V	2 0 V	2 8 V	2 1 V	2 6 V	2 9 V	2 2 V	2 7 V	2 3 V	2 4 V	2 5 V	2 0 I	2 8 I	2 1 I	2 6 I	2 9 I	2 2 I	2 7 I	2 3 I
0-400 V	3 0 V	3 8 V	3 1 V	3 6 V	3 9 V	3 2 V	3 7 V	3 3 V	3 4 V	3 5 V	3 0 I	3 8 I	3 1 I	3 6 I	3 9 I	3 2 I	3 7 I	3 3 I
0-500 V	4 0 V	4 8 V	4 1 V	4 6 V	4 9 V	4 2 V	4 7 V	4 3 V	4 4 V	4 5 V	4 0 I	4 8 I	4 1 I	4 6 I	4 9 I	4 2 I	4 7 I	4 3 I
0-1000 V	5 0 V	5 8 V	5 1 V	5 6 V	5 9 V	5 2 V	5 7 V	5 3 V	5 4 V	5 5 V	5 0 I	5 8 I	5 1 I	5 6 I	5 9 I	5 2 I	5 7 I	5 3 I
0-1200 V	6 0 V	6 8 V	6 1 V	6 6 V	6 9 V	6 2 V	6 7 V	6 3 V	6 4 V	6 5 V	6 0 I	6 8 I	6 1 I	6 6 I	6 9 I	6 2 I	6 7 I	6 3 I
Custom	7 0 V	7 8 V	7 1 V	7 6 V	7 9 V	7 2 V	7 7 V	7 3 V	7 4 V	7 5 V	7 0 I	7 8 I	7 1 I	7 6 I	7 9 I	7 2 I	7 7 I	7 3 I

API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.