



**Input:** 0-100 VDC to 0-2000 VDC  
**Output:** 0-1 VDC to ±10 VDC or 0-2 mA to 0-20 mADC

Field Selectable I/O Ranges

- High Voltage Input Ranges from 100 VDC to 2000 VDC
- 7 Standard or 1 User Specified Input Ranges
- High Input Impedance
- 2000 V Full Input/Output/Power Isolation
- 55 mm Wide DIN Style Package
- I/O LoopTracker® LEDs and Functional Test Pushbutton



**Applications**

- Isolate, Convert, Boost, Rescale Process Signals
- One Model to Interface Process Signals with Panel Meters, Recorders, Data Acquisition Cards, PLCs, DCS Systems, SCADA Systems

**Specifications**

**Input Ranges**

Field or factory configurable via internal jumpers  
 Consult factory for special ranges

Please specify input range

Minimum: 0 to 100 VDC

Maximum: 0 to 2000 VDC

**Input Impedance**

2.5 MΩ

**LoopTracker**

Variable brightness LEDs indicate input/output loop level and status

**Output Ranges**

Please specify output range. Field or factory configurable via internal jumpers  
 Consult factory for special ranges.

	Minimum	Maximum	Load Factor
Voltage:	0-1 VDC	0-10 VDC	
Bipolar Voltage:	±1 VDC	±10 VDC	
Current (20 V compliance):	0-2 mADC	0-20 mADC	1000 Ω at 20 mA

**Output Zero and Span**

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

**Output Linearity**

Better than ±0.1% of span

**Output Ripple and Noise**

Less than 10 mV<sub>RMS</sub>

**Functional Test Button**

Sets output to test level when pressed  
 Potentiometer factory set to approximately 50% of span  
 Adjustable 0-100% of span

**Response Time**

100 milliseconds typical

**Isolation**

2000 V<sub>RMS</sub> minimum  
 Full isolation: power to input, power to output, input to output

**Ambient Temperature Range**

-10°C to +60°C operating

**Temperature Stability**

Better than ±0.02% of span per °C

**Case Material**

Polycarbonate, gray UL #94V-1 housing and black UL #94V-2 terminals

**Power**

Standard: 115 VAC ±10%, 50/60 Hz, 2.5 W max.

A230 option: 230 VAC ±10%, 50/60 Hz, 2.5 W max.



Free Factory Input & Output Calibration!

**Description and Features**

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 2000 VDC. Typical applications include signal isolation, signal conversion, signal attenuation or a combination of the three.

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.

The API DPI HV-DC input and output range settings are configured by the factory to customer requirements, but they can be reconfigured in the field via internal 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.

API exclusive features include two LoopTracker LEDs and a Functional Test Pushbutton. The LoopTracker LEDs (Green for input, Red for output) vary in intensity with changes in the process input and output signals. Monitoring the state of these LEDs can provide a quick visual picture of your process loop at all times.

The functional test pushbutton provides a fixed output (independent of the input) when held depressed. The test output level can be field-adjusted via a multi-turn potentiometer. Both the LoopTracker LEDs and functional test pushbutton greatly aid in saving time during initial startup and/or troubleshooting.

The API DPI HV-DC clips to an industry standard 35 mm DIN rail. The housing also allows for surface mounting.

Factory Configured—Please specify input and output ranges

**API DPI HVDC** Field rangeable high voltage input DC to DC transmitter, isolated, 115 VAC

Options—Add to end of model number

**A230** Powered by 230 VAC, 50/60 Hz

**U** Conformal coating for moisture resistance

Accessories—Order as separate line item

**API TK36** DIN rail, 35 mm W x 39" L, aluminum



## ELECTRICAL CONNECTIONS



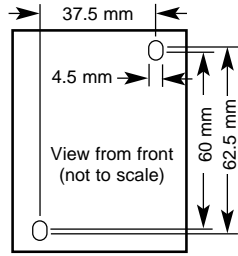
**WARNING!** Avoid shock hazard! Turn all power off and safely disconnect all wiring before opening case to change switch settings!

This unit is configured at the factory per your order specifications. Settings are marked on the DPI-HV-DC label. If a change to the input or output configuration is required, follow all necessary safety precautions. Use a qualified electrician or instrumentation engineer, and/or consult factory for assistance.

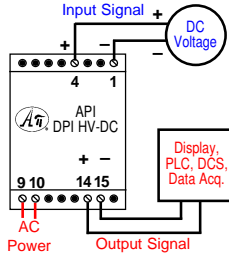
**Power Input Terminals** – The white label on the side of the API module will indicate the power requirements. AC power is connected to terminals **9** and **10**.

**Signal Input Terminals** – Polarity must be observed when connecting the signal input. The positive connection (+) is applied to terminal **4** and the negative (-) is applied to terminal **1**.

**Signal Output Terminals** – Polarity must be observed when connecting the signal output to the load. The positive connection (+) is connected to terminal **14** and the negative (-) is connected to terminal **15**.



Surface mounting dimensions



Wiring example

## CALIBRATION

Input and output ranges are pre-configured at the factory as specified on your order. Front-mounted, Zero and Span potentiometers can be used should fine-tuning be necessary. Custom ranges may require factory modification.

1. Apply power to the module and allow a minimum 20 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 signal, the Zero control will provide adjustment for the 4 mA or low end of the signal.
4. Set the input at maximum, and 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 signal, the Span control will provide adjustment for the 20 mA or high end of the signal.
5. Repeat adjustments for maximum accuracy.

## TEST BUTTON & TEST RANGE

The Test pushbutton may be set to provide the desired output when depressed. This will drive the device on the output side of the loop (a panel meter, chart recorder, etc.) with a known good signal that can be used as a system diagnostic aid during initial start-up or during troubleshooting. It can be adjusted to vary the output signal from 0 to 100% of the calibrated output range. When released, the output will return to normal.

Turn the multi-turn Test Range potentiometer while holding the Test button depressed until the desired output test level is reached.

## OPERATION

**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, check the 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.

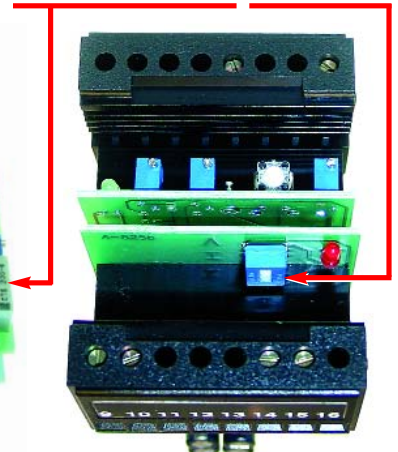
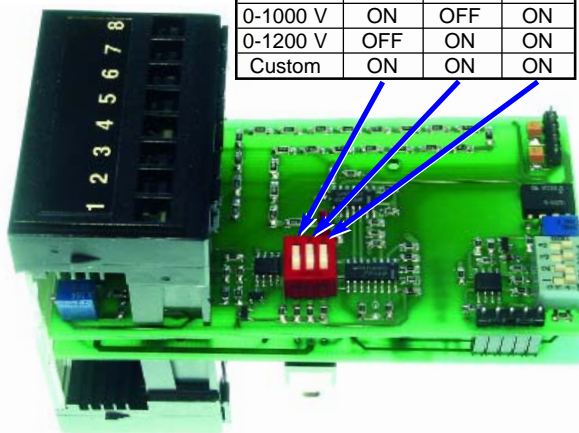
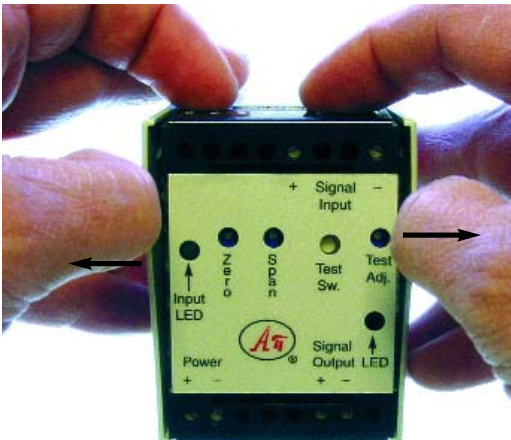
## RANGE SELECTION

Each product is factory configured to your exact input and output requirements. See product label for input and output designations. Remove all power from the unit, follow all proper safety precautions, and consult a qualified electrician or instrumentation engineer before making any changes. Any range changes should be done before the unit is wired and installed.

Internal selector switches determine the input range. Depending on these switch settings, the input is attenuated as required, filtered, then passed through an optical isolation circuit to the output stage.

An Internal voltage/current switch and an output selector switch determine the exact DC voltage or current output range available to the user.

1. Turn all power off and safely disconnect all wiring from unit.
2. Pry sides of case apart as shown below while sliding connector and board assembly towards you.
3. See switch assemblies for individual switch numbers. Change input/output settings according to diagrams below.
4. Remove front panel to access Voltage/Current output switch. It is located under front of unit next to the red LED.
5. Voltage/Current output switch settings "V" (switch to front) for Voltage output. "I" (switch to rear) for Current output.
6. Align circuit boards with grooves in case and slide assembly back into case until it latches.
7. Mark new settings on outside of case.



Input Range Settings			
Input Voltage	SW-1	SW-2	SW-3
0-100 V	OFF	OFF	OFF
0-200 V	ON	OFF	OFF
0-300 V	OFF	ON	OFF
0-400 V	ON	ON	OFF
0-500 V	OFF	OFF	ON
0-1000 V	ON	OFF	ON
0-1200 V	OFF	ON	ON
Custom	ON	ON	ON

Output Range Settings					
SW-1	SW-2	SW-3	SW-4	Voltage	Current
OFF	OFF	OFF	OFF	0-1V	0-2mA
ON	OFF	OFF	OFF	1-5V	2-10mA
OFF	ON	OFF	OFF	2-10V	4-20mA
OFF	OFF	ON	OFF	0-10V	0-20mA
OFF	OFF	OFF	ON	±10V	n/a

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