

1 Input: 0-10 mV to 0-100 V, ±50 mV to ±10 V, 0-1 mA to 0-50 mA, 4-20 mA
2 Outputs: 0-1 V to 0-10 V, ±1 V to ±10 V, 0-1 mA to 25 mA, 4-20 mA

- One Input to Two Outputs with Full Isolation
- Zero and Span for Each Output
- Full 1200 V Input/Output /Power Isolation
- Input and Output LoopTracker® LEDs
- Output Test Button for Each Channel
- Built-In Loop Power Supplies for Sink/Source I/O



Sink or Source
mA Output for
Each Channel

Removable Plugs

Output LoopTracker
LED for Each
Channel

Adjustable Output
Test Function for
Each Channel

Zero and Span for
Each Channel

Input LoopTracker
LED

Custom I/O Ranges

Connect Sink or
Source mA Input



Actual Size

Applications

- Split, Convert, Boost, and Rescale Process Signals
- Split Process Signals for Control and Validation
- Interface a Process Signal with Multiple Panel Meters, PLCs, Recorders, Data Acq., DCS, & SCADA Systems

Input Ranges

Factory ranged, please specify

Voltage: 0-10 mVDC to 0-100 VDC
 Bipolar Voltage: ±50 mVDC to ±10 VDC
 Current: 0-1 mADC to 0-50 mADC, 4-20 mADC

Input Impedance and Burden

Voltage: 200 kΩ minimum
 Current: 50 Ω typical
 Voltage Burden: 1.25 VDC max. at 20 mA current input

Input Loop Power Supply

15 VDC ±10%, regulated, 25 mADC
 May be selectively wired for sinking or sourcing mA input

LoopTracker

Variable brightness LEDs indicate I/O loop level and status
 One for input, one for each output

Output Ranges

Factory ranged, please specify for each output channel
 Voltage: 0-1 VDC to 0-10 VDC, 10 mA max
 up to 20 VDC with M19, M29, M39

Bipolar Voltage: ±1 VDC to ±10 VDC
 Current: 0-1 mADC to 0-25 mADC, 4-20 mADC
 20 V compliance, 1000 Ω at 20 mA

Output Linearity

Better than ±0.1% of span

Output Zero and Span

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

Output Loop Power Supplies

One for each output channel
 20 VDC nominal, regulated, 25 mADC
 May be selectively wired for sinking or sourcing mA output

Output Ripple and Noise

Less than 10 mV_{RMS}

Output Functional Test

Front buttons set each output to test level when pressed
 Each test level potentiometer adjustable 0-100% of span

Response Time

70 milliseconds typical
 DF option with input range ≤20 VDC: 10 msec
 DF option with input range >20 VDC: 25 msec

Common Mode Rejection

120 dB minimum

Isolation

Full 4-way isolation: input 1, output 1, output 2, power
 1200 V_{RMS} minimum

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, 6 W maximum
 D versions: 9-30 VDC or 10-32 VAC 50/60 Hz, 6 W maximum

Housing

IP 40, mounts to standard 35 mm DIN rail

Connectors

Eight 4-terminal removable connectors
 14 AWG max wire size

Quick Link
api-usa.com/4393



Dimensions

1.78" W x 4.62" H x 4.81" D
 45 mm W x 117 mm H x 122 mm D
 Height includes connectors

Description

The APD 4393 IsoSplitter accepts a DC voltage or current input and provides two optically isolated DC voltage or current outputs that are linearly related to the input. The input range and each output range are independent and can be specified as required. This provides an economical solution when one signal must be sent to two different devices.

Typical applications include isolation, output splitting, output device separation and redundancy (i.e. to prevent failure of the entire loop if one device fails), or a combination of these.

The input signal is filtered, amplified, split, and then passed through an opto-coupler to the output stages. Full 4-way isolation (input, output 1, output 2, power) make this module useful for ground loop elimination, common mode signal rejection, and noise pickup reduction.

I/O Sink/Source Versatility

Standard on the APD 4393 are a 15 VDC loop excitation supply for the input channel and 20 VDC loop excitation supplies for each output channel. These power supplies can be selectively wired for sinking or sourcing allowing use with any combination of powered or unpowered milliamp I/O devices.

How to Order

Models are factory ranged. See I/O ranges above left. Please specify ranges and options on order

Input range

Channel 1 output range

Channel 2 output range

See options at right

Model	Description	Power
APD 4393	IsoSplitter 1 input to	80-265 VAC or 48-300 VDC
APD 4393 D	2 outputs	9-30 VDC or 10-32 VAC

LoopTracker

API exclusive features include three LoopTracker LEDs (green for input, red for each 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 troubleshooting.

Output Test

An API exclusive feature includes output test buttons for each channel to provide a fixed output (independent of the input) when held depressed. A test button is provide for each output channel. The output test greatly aids in saving time during initial startup and/or troubleshooting.

The test output level for each channel is potentiometer adjustable from 0 to 100% of the output span. Terminals are provided to operate the test functions remotely for each channel. This also allows use as a remote manual override to provide a temporary fixed output if desired.

Options and Accessories

Options—add to end of model number

- R1** Channel 1 I/O reversal (ie. 4-20 mA in to 20-4 mA out)
- R2** Channel 2 I/O reversal (ie. 4-20 mA in to 20-4 mA out)
- R3** Channel 1 and channel 2 I/O reversal
- M19** Channel 1 high voltage output >10 V up to 20 V
- M29** Channel 2 high voltage output >10 V up to 20 V
- M39** Channel 1 and channel 2 high voltage output
- DF** Fast response time
- U** Conformal coating for moisture resistance

Accessories—order as separate line item

- API TK36** DIN rail, 35 mm W x 39" L, aluminum
- API BP4** Spare removable 4 terminal plug, black

Electrical Connections

WARNING! All wiring must be performed by a qualified electrician or instrumentation engineer. See diagrams at right. Consult factory for assistance.

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

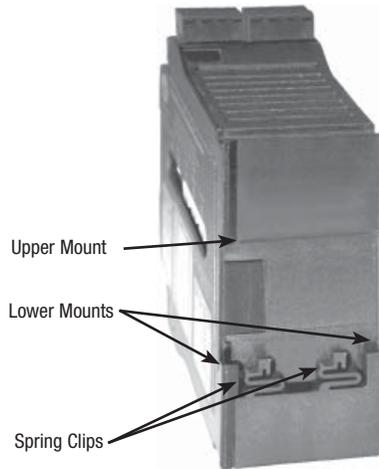
Polarity must be observed for signal wiring connections. If the input and/or output do not function, check wiring and polarity.

Each product is factory configured to your exact input and output ranges as indicated on the white serial number label.

Check label for module operating voltage to make sure it matches available power.

The power supplies are fuse protected and the unit may be returned to API for fuse replacement.

For milliamp ranges determine if your devices provide power to the current loop or if the loop must be powered by the APD module. Typical voltage may be 9-24 VDC at your device's terminals if it provides power to the loop.



Type of Device for Output Channel 1	- Terminal	+ Terminal
Measuring or recording device accepts a voltage input.	3 (-)	4 (+)
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)
Measuring or recording device accepts a mA (current) input and provides power to the current loop.	2 (-)	3 (+)

Type of Device for Output Channel 2	- Terminal	+ Terminal
Measuring or recording device accepts a voltage input.	7 (-)	8 (+)
Measuring/recording device accepts a mA (current) input and the input is unpowered or passive. APD module provides the loop power.	7 (-)	8 (+20 V)
Measuring or recording device accepts a mA (current) input and provides power to the current loop.	6 (-)	7 (+)

Type of Input Device	- Terminal	+ Terminal
Sensor or transmitter with a voltage output.	17 (-)	19 (+)
Transmitter with a mA (current) output that provides power to the current loop. Typically a 3 or 4-wire device.	17 (-)	19 (+)
Transmitter with mA (current) output that is unpowered. Typically a 2-wire device. APD module provides loop power.	19 (-)	18 (+15 V)

Mounting

The housing clips to a standard 35 mm DIN rail. The housing is IP40 rated and should be mounted inside a panel or enclosure. See illustration above right.

1. Tilt front of module downward and position the lower mounts and spring clips against the bottom edge of DIN rail.
2. Push front of module upward until upper mount snaps into place.

Removal

Avoid shock hazards! Turn signal input, output, and power off before removing module.

1. Push up on bottom back of module.
2. Tilt front of module downward to release upper mount from top edge of DIN rail.
3. The module can now be removed from the DIN rail.

Calibration

Front-mounted Zero and Span potentiometers for each channel 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. 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, the Span control will provide adjustment for the 20 mA or high end of the signal.
5. Repeat adjustments for maximum accuracy.
6. Repeat adjustments for second channel.

Output Test Function

When the Test button is depressed it will drive the output 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 is factory set to approximately 50% output. It can be adjusted to set the test output 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.

They may optionally be externally wired for remote test operation or a manual override. See wiring diagram at right.

Operation

The APD 4393 accepts a DC voltage or current input and provides two optically isolated DC voltage or current outputs that are linearly related to the input.

The 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. Note that it may be difficult to see the LEDs under bright lighting conditions.

The two red LoopTracker output LEDs provide a visual indication that the output signals are functioning. They become brighter as the input and each corresponding output change from minimum to maximum.

For a current output 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.

