One Input to Two Outputs with Full Isolation

1 Input: 0-25 Hz to 0-20 kHz
2 Outputs: 0-1 V to 0-10 V, ±1 V to ±10 V, 0-1 mA to 20 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

Frequency Input Range
Factory configured, please specify input range
Frequency: 0.25 Hz to 0.2 kHz
Any waveform with 5 microsecond min. pulse, 100 mV min. amplitude change, 100 mV to 150 Vrms amplitude

Input Impedance
10 kΩ (maximum sensitivity)
100 kΩ (minimum sensitivity)

Input Sensitivity/Hysteresis
Multi-turn potentiometer for sensitivity adjustment
Maximum sensitivity: ±25 mV typical
Minimum sensitivity: ±2.5 mV typical

Input Protection
Normal mode protection: 200% of input rating
Common mode protection: 600 V input to ground

Sensor Power Supply
15 VDC ±10%, regulated, 25 mA DC, Max. ripple, less than 10 mVrms. May be used to power sensor.

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

Channel 1 and Channel 2 DC Output Ranges
Factory configured, please specify for each output channel
Voltage: 0-1 VDC to 0-10 VDC, 10 mA max
Bipolar voltage: ±1 VDC to ±10 VDC
Current: 0-1 mA DC to 0-20 mA DC, 4-20 mA DC
20 V compliance, 100 Ω at 20 mA

Output Loop Power Supplies
20 VDC nominal, regulated, 25 mA DC for each output channel.May be selectively wired for sinking or sourcing mA output

Output Calibration
Multi-turn zero and span potentiometers for each output channel. ±15% of span adjustment range typical

Output Test/Override
Front momentary buttons or external contact closures for each channel to set output test levels.
Each output test level potentiometer adjustable 0-100% of span

Output Ripple and Noise
Less than 10 mV rms

Linearity
Better than ±0.1% of span

Ambient Temperature Range and Stability
−10°C to +60°C operating ambient
Better than ±0.04% of span per °C stability

Response Time
70 milliseconds typical

Isolation
Full 4-way, 1200 Vrms minimum

Installation Environment
IP 40, requires installation in panel or enclosure with adequate ventilation
For use in Pollution Degree 2 Environment
Mount vertically (as shown in picture) to a 35 mm DIN rail allowing minimum 1” (25 mm) above and below housing vents for air circulation.

Power
85-265 VAC, 50/60 Hz or 10-300 VDC

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

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
U Conformal coating for moisture resistance
Accessory—order as separate line item
API BP4 Spare removable 4 terminal plug, black

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

RMS
- Split Process Signals for Control and Validation

Output Test
- An 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 provided for each output channel. The test output greatly aids in saving time during initial startup and 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.

Dimensions and Connectors
1.78” W x 4.62” H x 4.81” D
45 mm W x 117 mm H x 122 mm D
Eight 4-terminal removable connectors, 14 AWG max wire size

LoopTracker
- The APD 7393 IsoSplitter accepts a frequency 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 7393 is a 15 VDC sensor 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>APD 7393</td>
<td>IsoSplitter</td>
<td>85-265 VAC, 50/60 Hz or 60-300 VDC</td>
</tr>
<tr>
<td>APD 7393 D</td>
<td>1 input to 2 outputs</td>
<td>9-30 VDC or 10-32 VAC</td>
</tr>
</tbody>
</table>

API BP4 Spare removable 4 terminal plug, black

APD 7393
Frequency to DC Isolated Signal Splitter/Transmitter

File E145968
85-265 VAC, 60-300 VDC

Sink or Source mA Output for Each Channel

Adjustable Output Test Function for Each Channel

Zero and Span for Each Channel

Connect Sink or Source mA Input

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

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
Precautions
WARNING! All wiring must be performed by a qualified electrician or instrumentation engineer. See diagram for terminal designations and wiring examples. Consult factory for assistance.
WARNING! Avoid shock hazards! Turn signal input, output, and power off before connecting or disconnecting wiring, or removing or installing module.

Precautions
ATTENTION! Tout le câblage doit être effectué par un électricien ou ingénieur en instrumentation qualifié. Voir le diagramme pour désignations des bornes et des exemples de câblage. Consulter l'usine pour assistance.
ATTENTION! Éviter les risques de choc! Fermez le signal d’entrée, le signal de sortie et l’alimentation électrique avant de connecter ou de déconnecter le câblage, ou de retirer ou d’installer le module.

AP maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. See api-usa.com for latest product information. Consult factory for your specific requirements.

Outputs
Each product is configured to your exact ranges as indicated on the serial number label. Polarity must be observed for signal wiring connections. If the input and/or output do not function, check wiring and polarity. For milliamp output 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.

Frequency Sensor
<table>
<thead>
<tr>
<th>Signal Com.</th>
<th>Sensor Power</th>
<th>Signal Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 wire or Narm, externally powered</td>
<td>n/a</td>
<td>18 (+15 V)</td>
</tr>
<tr>
<td>2 wire self-generating (VR)</td>
<td>17 (+)</td>
<td>n/a</td>
</tr>
<tr>
<td>5 wire PNP or NPN</td>
<td>17 (+)</td>
<td>18 (+15 V)</td>
</tr>
</tbody>
</table>

Sensor Load
The frequency signal input is capacitively coupled to prevent any DC in the input. Some sensors, typically those without an internal load resistor, require a resistive load in order to function. The resistor value may be specified by the sensor manufacturer as the “minimum load resistor” or calculated from the sensor manufacturer’s specified “load current range”. The 15 VDC power supply is capable of providing 25 mA. A load current range of 3 mA to 25 mA would typically use a 5 kΩ to 500 kΩ resistor.

Module Power
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. Either polarity is acceptable for DC power, but for consistency, wire positive (+) to terminal 25 and negative (-) to terminal 28.

Mounting to a DIN Rail
Install module vertically on a 35 mm DIN rail in a protective enclosure away from heat sources. Do not block air flow. Allow 1” (25 mm) above and below housing vents for air circulation.
1. Tilt front of module down and position the lower 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.
1. Push up on bottom back of module.
2. Tilt front of module downward to release upper mount from top edge of DIN rail.

Output Calibration
The output range is pre-configured at the factory. Front-mounted Zero and Span potentiometers are used to calibrate the output to compensate for load and lead variations.

1. Apply power to the module and allow a minimum 30 minute warm up time. An accurate frequency calibration source such as a signal generator may be required for calibration.
2. Provide an input to the module equal to the minimum input required for the application, typically 0 Hz.
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. For example: 4 mA for a 4-20 mA output or -10 V for a ±10 V output.
4. Set the frequency to the maximum required for the application. Using an accurate measurement device for the output, 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, set the Span control for a 20 mA output.
5. Repeat adjustments for both output channels for maximum accuracy.

Sensitivity Adjustment
This multi-turn potentiometer provides an adjustable threshold level that the incoming signal must overcome before an output can be produced. This is used to limit noise and minimize false input signals that may cause erroneous readings.

- Fully clockwise (max. sensitivity), input threshold is ±25 mV.
- Fully counterclockwise (min. sensitivity), input threshold is ±2.5 volts.

Output Test Function
When a 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.

Operation
The APD 7393 IsoSplitter® accepts a frequency input and provides two optically isolated DC voltage or current analog outputs that are linearly proportional to the input.

- The frequency input is capacitively coupled to remove any DC component at the input to a comparator whose threshold is determined by the setting of the sensitivity control. The output from the comparator passes through an opto-coupler to the output stage.

- The green LoopTracker™ input LED provides a visual indication that the 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 input signal changes, check the module power or signal input wiring. Two red LoopTracker output LEDs provide a visual indication that the output signals are functioning. They become brighter as the input changes. Process changes, check the module power or signal input wiring.
- For 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 input wiring. Note that it may be difficult to see the LEDs under bright lighting conditions.

Voltage Output
mA output: determine if receiving device has a passive or powered input. The module can be wired for a sinking or sourcing mA output.

- To avoid damage to the module, do not leave any unused mA outputs disconnected. Use a 1000 Ohm 1/2 Watt resistor across unused mA terminals.

To avoid damage to the module, do not make any connections to unused terminals.

Device 1
Voltage input device: 3 (+) 4 (+) 5 (+) 6 (-) 7 (-) 8 (+)
Passive mA device: APD module powers loop. 3 (+) 4 (+) 20 V 2 (-) 3 (+) 6 (-) 7 (+)
Device 2
Voltage input device: 5 (-) 6 (+) 7 (+)
Passive mA device: APD module powers loop. 7 (-) 6 (+) 20 V 2 (-) 6 (+) 7 (-)

Zero and Span potentiometers are used to calibrate the output to an accurate measurement device for the output, adjust the Span pot for ±10 mV output signal. Be produced. This is used to limit noise and minimize false input signals that may cause erroneous readings.

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Each Test Cal. potentiometer 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 corresponding 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.

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