Two Independent Channels with Full Isolation
Zero and Span for Each Output
Input and Output LoopTracker™ LEDs
Output Test/Manual Override for Each Channel
Built-In I/O Power Supplies

Applications
- Simultaneous Voltage and Current Monitoring
- Convert/Isolate Dual Output Transmitters

Channel 1 AC Input Range
Factory configured, please specify input type and range
Voltage: 0-50 mVAC to 0-300 VAC
Current: 0-1 mAAC to 0-1000 mAAC
Measurement type: True RMS
Frequency: 40 Hz to 1000 Hz sinuosoidal
Voltage input impedance: 220 kΩ minimum
Current input voltage burden: 1.0 VAC maximum

Channel 2 AC Input Range
Factory configured, please specify input type and range
Voltage: 0-50 mVAC to 0-300 VAC
Current: 0-1 mAAC to 0-1000 mAAC
Measurement type: True RMS
Frequency: 40 Hz to 1000 Hz sinuosoidal
Voltage input impedance: 220 kΩ minimum
Current input voltage burden: 1.0 VAC maximum

LoopTracker
Variable brightness LEDs indicate I/O levels for each channel

Channel 1 and Channel 2 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 mAAC to 0-25 mAAC, 4-20 mAAC
20 V compliance, 1000 Ω at 20 mA

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

Output Characteristics
Linearity: ±0.1% of span
Temperature stability: Better than 0.04% span/°C
Output ripple and noise: Less than 10 mVrms

Isolation
Full 5-way, 1200 VAC minimum

Response Time
70 milliseconds typical

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

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

Installation Environment
Mount vertically to a 35 mm DIN rail
For use in Pollution Degree 2 Environment

Connectors
Eight 4-terminal removable connectors, 14 AWG max wire size
Power
85-265 VAC, 50/60 Hz or 60-300 VDC, 6 W maximum
D versions: 9-30 VDC or 10-32 VAC 50/60 Hz, 6 W maximum

Description
The APD 2066 DuoPak accepts two AC voltage or current inputs and provides two optically isolated DC voltage or current outputs that are linearly related to the inputs. The input ranges and the output ranges for each channel are independent and can be specified as required. This provides an economical two channel solution in one device. Typical applications include signal conversion, isolation, and redundancy (i.e., to prevent failure of the entire loop if one device fails), or a combination of these.

Output Sink/Source Versatility
Standard on the APD 2066 are 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. Ranges and options for each channel must be specified on order

<table>
<thead>
<tr>
<th>Channel 1 input range</th>
<th>Channel 2 input range</th>
<th>Channel 1 output range</th>
<th>Channel 2 output range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Description</td>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>APD 2066</td>
<td>DuoPak 2 channel AC-DC converter/isolator/transmitter</td>
<td>85-265 VAC, 50/60 Hz or 60-300 VDC</td>
<td></td>
</tr>
<tr>
<td>APD 2066 D</td>
<td></td>
<td>9-30 VDC or 10-32 VAC</td>
<td></td>
</tr>
</tbody>
</table>

Options and Accessories
Options—add to end of model number
- R1 Channel 1 I/O reversal (i.e. 20-4 mA out)
- R2 Channel 2 I/O reversal (i.e. 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

Accessories—order as separate line item
- API BP4 Spare removable 4 terminal plug, black
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.
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. For example: 4 mA for a 4-20 mA output or –10 V for a ±10 V output.
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 both output channels for maximum accuracy.

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.

Each Test Cal. potentiometer is factory set to approximately 50% output. Each can be adjusted to set the test output from 0 to 100% of the output span. Press and hold the Test button for Test Cal. adjustment. The Test button can be used to zero the test output to a known good signal that can be used as a diagnostic aid during initial start-up or troubleshooting.

Zero and Span Controls

Each Test Cal. potentiometer is factory set to approximately 50% output. Each can be adjusted to set the test output from 0 to 100% of the output span. Press and hold the Test button for Test Cal. adjustment. The Test button can be used to zero the test output to a known good signal that can be used as a diagnostic aid during initial start-up or troubleshooting.

Device for Output Channel 1

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring/recording device accepts a voltage input.</td>
<td>3 (+) 4 (+)</td>
</tr>
<tr>
<td>Measuring/recording device has an unpowered or passive mA input.</td>
<td>3 (+) 4 (+20 V)</td>
</tr>
<tr>
<td>Measuring/recording device has a mA input and powers the current loop.</td>
<td>2 (+) 3 (+)</td>
</tr>
</tbody>
</table>

Device for Output Channel 2

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring/recording device accepts a voltage input.</td>
<td>7 (+) 8 (+)</td>
</tr>
<tr>
<td>Measuring/recording device has an unpowered or passive mA input.</td>
<td>7 (+) 8 (+20 V)</td>
</tr>
<tr>
<td>Measuring/recording device has a mA input and powers the current loop.</td>
<td>6 (+) 7 (+)</td>
</tr>
</tbody>
</table>

Input 1, AC

Any polarity may be used for an AC input. A transmitter DC power supply is available for each channel as shown below, but is not commonly used with AC inputs.

<table>
<thead>
<tr>
<th>AC Input Channel 1</th>
<th>Terminal</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device with an AC voltage or AC milliamp output.</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Transmitter power supply.</td>
<td>18 (+15 VDC)</td>
<td>19</td>
</tr>
</tbody>
</table>

Input 2, AC

Any polarity may be used for an AC input. A transmitter DC power supply is available for each channel as shown below, but is not commonly used with AC inputs.

<table>
<thead>
<tr>
<th>AC Input Channel 2</th>
<th>Terminal</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device with an AC voltage or AC milliamp output.</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>Transmitter power supply.</td>
<td>22 (+15 VDC)</td>
<td>23</td>
</tr>
</tbody>
</table>

Module Power Terminals

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. When using DC power, either polarity is acceptable, but for consistency, wire positive (+) to terminal 25 and negative (-) to terminal 28.

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.

Electrical Connections

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 serial number label.

Outputs

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.

Specifications are subject to change without notice. See api-usa.com for the latest product information. Consult factory for your specific requirements.