

Analog to Potentiometer v1 6 ATP168

DESCRIPTION

The ÓATP168 is an isolating signal converter that can convert most process signals into a potentiometer output. The potentiometer consists of a series of true resistors that can be switched with 1 in 255 (8 bit) resolution. Typical applications:

Replace mechanical pot used for control of existing machinery;

- Automatic control of gain or offset in instrumentation;
- Provide programmable adjustment for Delays, Filters or Time Constants.

The ÓTP168 provides true 3-way galvanic isolation up to 2000V rms between various input signal types to potentiometer output to power supply. Connection can be made as a 3-wire pot or 2-wire variable resistor.

The output signal level is indicated by a green LED on the front of the

module, giving a clear indication of module function, signal presence and loop condition for current outputs. Various power supply choices are available ranging from 240Vac down to 8dc. All provide power isolation and surge protection.

General Specifications

| General Specifications | | Block Diagram |
|---------------------------|--|---------------|
| Size: | 52 W x 70 H x 110 D (mm). | supply |
| Housing material: | ABS. | |
| Mounting: | DIN-Rail, gear plate. | |
| Termination: | Screw terminals with covers. | |
| Protection class: | IP40. | |
| Weight: | 0.370 kg. | KAT I H |
| Accuracy: | 0.3% of span. | st↓ [] |
| Front 'OFFS' adjust: | ±20% typical | |
| Front 'SPAN' adjust: | ±20% typical | |
| Integral non-linearity: | ±1 LSB | 9 gen L |
| Repeatability: | 0.1% of span. | |
| Response time: | 0.5 sec for T90 standard | - |
| | 0.05 seconds selectable | |
| | 5 milliseconds selectable. | |
| Standard Input Impedance: | 51Ω (20mA/10mA range). | |
| F F | 1kΩ (1mA range). | |
| | 2M7Ω (10V/5V range). | |
| | 560kΩ (2V/1V range). | |
| Temperature effect: | 0.025% per °C. | |
| Operating temp. range: | -1060°C. | |
| Storage temp. range: | -20+70°C. | |
| Input/output isolation: | >2kV rms. | |
| Power requirements: | 3W. | |
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| Resolution: | 1 in 255 (8 bit) – 0.4% | |
| Maximum applied voltage: | 24Vdc or ac peak to 100kHz. | |
| Maximum load: | not exceeding 100mA | |
| Typical min impedance of | | |
| wiper to end: | 50Ω. | |
| | 0012. | |
| | | |

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.



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| 01 = Process link table 1. *) 02 = Millivolt link table 2. *) 03 = RTD. *) 04 = Thermocouple. *) 05 = Frequency. Calibration range 0 - 10Hz0 - 5kHz (Sine, Triangle) Sensitivity: 200mVpp. (70mVrms) min. 22Vpp. max (Square, Pulse). *) 06 = Pulse input from NAMUR proximity sensor or passive device (contact Auxiliary supply of 8Vdc at terminal 8, other data as option 05. *) 07 = Bipolar / millivolt. (±0.5mV to ±2kV bipolar) (1mV to 2kV unipolar). It may be more cost effective to use an alternate range. *) 08 = Resistance (constant current excitation). *) 09 = Potentiometer 3W voltage excited. *) 99 = Other specify. Potentiometer: 1 = 1k 4 = 10k 2 = 2k 5 = 20k 3 = 5k 6 = 50k Connection: *) 3 = 3 wire | |
|---|----------------------------------|
| 1 = 90-280 Vac 50/60 Hz (65-280 Vdc). *) 6 = 8 - 60 Vdc. *) $3 = 16-48 Vac 50/60 Hz (10-60 Vdc) *) 9 = Other specify.$ Input: 01 = Process link table 1. *) 02 = Millivolt link table 2. *) 03 = RTD. *) 04 = Thermocouple. *) 05 = Frequency. Calibration range 0 - 10 Hz0 - 5kHz (Sine, Triangle) Sensitivity: 200mVpp. (70mVrms) min. 22 Vpp. max (Square, Pulse). *) 06 = Pulse input from NAMUR proximity sensor or passive device (contact Auxiliary supply of 8Vdc at terminal 8, other data as option 05. *) 07 = Bipolar / millivolt. (±0.5mV to ±2kV bipolar) (1mV to 2kV unipolar). It may be more cost effective to use an alternate range. *) 08 = Resistance (constant current excitation). *) 09 = Potentiometer 3W voltage excited. *) 99 = Other specify. Potentiometer: 1 = 1k | |
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| *) 02 = Millivolt link table 2. *) 03 = RTD. *) 04 = Thermocouple. *) 05 = Frequency. Calibration range 0 - 10Hz0 - 5kHz (Sine, Triangle) Sensitivity: 200mVpp. (70mVrms) min. 22Vpp. max (Square, Pulse). *) 06 = Pulse input from NAMUR proximity sensor or passive device (contact Auxiliary supply of 8Vdc at terminal 8, other data as option 05. *) 07 = Bipolar / millivolt. (±0.5mV to ±2kV bipolar) (1mV to 2kV unipolar). It may be more cost effective to use an alternate range. *) 08 = Resistance (constant current excitation). *) 09 = Potentiometer 3W voltage excited. *) 99 = Other specify. Potentiometer: 1 = 1k 2 = 2k 3 = 5k 6 = 50k Connection: 2 = 2 wire *) 3 = 3 wire Options: | |
| 2 = 2k 3 = 5k Connection: 2 = 2 wire 2 = 2 wire *) 3 = 3 wire Options: | |
| 2 = 2k 3 = 5k Connection: 2 = 2 wire *) 3 = 3 wire Options: * | |
| 3 = 5k 6 = 50k Connection: | 7 = 100k |
| Connection: *) 3 = 3 wire 2 = 2 wire *) 3 = 3 wire Options: •••••••••••••••••••••••••••••••••••• | 8 = 200k *) 9 = Other specify |
| 2 = 2 wire *) 3 = 3 wire Options: |) o outer speeny |
| Options: | |
| • | |
| *) 08 = Customised response time. *) 99 = Other specify. | |
| *) = Price Extra. | |
| Process link table 1 SW1 Response Time | |

| Input | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------|---|---|---|---|---|---|---|---|
| 4-20mA | | Х | Х | Х | | | | Х |
| 0-1mA | Х | | Х | Х | | | Х | |
| 0-10mA | | Х | Х | Х | Х | | Х | |
| 0-20mA | | Х | Х | Х | | | Х | |
| 0-1V | | | Х | Х | | | Х | |
| 0-2V | | | Х | | | | Х | |
| 0-5V | | | | Х | | | Х | |
| 1-5V | | | | Х | | | | Х |
| 0-10V | | | | | | | Х | |

Millivolt link table 2 SW1

| Input | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------|---|---|---|---|---|---|---|---|
| 0-20mV | | | Х | Х | Х | Х | Х | |
| 0-40mV | | | Х | Х | Х | | | |
| 0-50mV | | | Х | Х | Х | | Х | |
| 0-60mV | | | Х | Х | | Х | | |
| 0-75mV | | | Х | Х | | Х | Х | |
| 0-100mV | | | Х | Х | | | Х | |
| 0-150mV | | | Х | | Х | | Х | |
| 0-200mV | | | Х | | | | Х | |
| 0-250mV | | | | Х | Х | | Х | |
| 0-500mV | | | | Х | | | Х | |
| 0-750mV | | | | | Х | | Х | |
| 0-1000mV | | | | | | | Х | |

| Response time | 9 | 10 |
|---------------|---|----|
| 5msec | | |
| 50msec | Х | |
| 500msec | | Х |

To change ranges:

- 1) Disconnect power to unit.
- 2) Unclip housing lid and withdraw unit from housing.
- 3) Set the coding plugs as required.
- 4) Reassemble unit and connect power.
- 5) Adjust "span" and "offs" pots to recalibrate.
- 6) Change the label information to the new input/output values.

SWI INPUTS

1-10

Factory default range: 4-20mA input 0.5 sec Response.

In the interest of development and improvement, BASI reserve the right to amend, without notice, details contained in this publication. BASI will accept no legal liability for any errors, omissions or amendments.

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|--------------------|------------------------------------|-----------|---------------------|---------------|---------|
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