

# PI and PI-600

# Open Loop Hall Effect

# Current Sensors

## Description

The PI and PI-600 Hall effect current sensors accurately measure DC and AC currents and provide electrical isolation between the output of the sensor and the current carrying conductor.



## Features

- High accuracy
- Wide frequency range
- Excellent linearity
- Safety isolation
- P.C. board mount

## Applications

- Industrial • Automotive • Appliances
- Ideal Replacement for Shunt or CT
- Battery Monitoring
- Load Monitoring at the point of Distribution process control on PCB, the back plane or fuse
- U.P.S. (Uninterruptable Power Supply)

## Measuring Circuit

	Units	PI	PI-600
Full Scale (FS) DC or AC peak.....	± A	350	600
Full Scale output (1) .....	± mV	175 to 385	150 to 330
AC Bandwidth (±3 dB of reading) (2) .....	kHz	DC to 1	
Response time .....	□s	< 50	

## Excitation Circuit

Maximum excitation current (Ic) .....	mA	40	
Input resistance .....	ohms	30 to 120	

## Output

Sensitivity .....	mV/A	0.5 to 1.1	0.25 to 0.55
Linearity .....	0-100 A	±1.5 A	
	100-350 A	±5.25 A	
	0-600 A		±12 A
Typical zero current offset .....	± mV	3	
Maximum zero current offset .....	± mV	16	
Maximum hysteresis of offset (3) .....	± mV	2	1.4
Minimum load resistance .....	k ohms	>10	
Output resistance .....	ohms	70 to 300	

## Influences On Accuracy

Typical offset drift with temperature .....	±□V/°C	20	
Maximum offset drift with temperature .....	±□V/°C	50	
Excitation change of ±1% - Max. sensitivity change .....	± %	1	
Typical sensitivity drift with temperature .....	% /°C	-0.05	
Maximum sensitivity drift with temperature .....	% /°C	-0.07	

## Withstand Capabilities

Dielectric test (4) .....	kV	6	
Output short or open .....		No Damage	

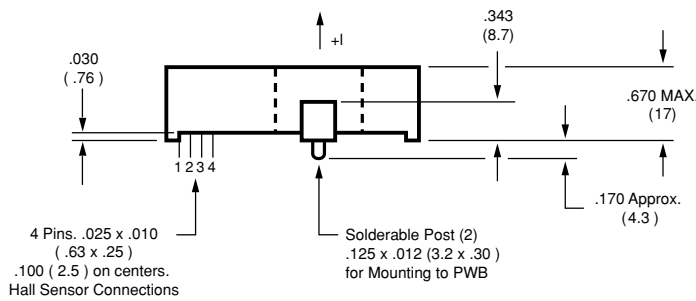
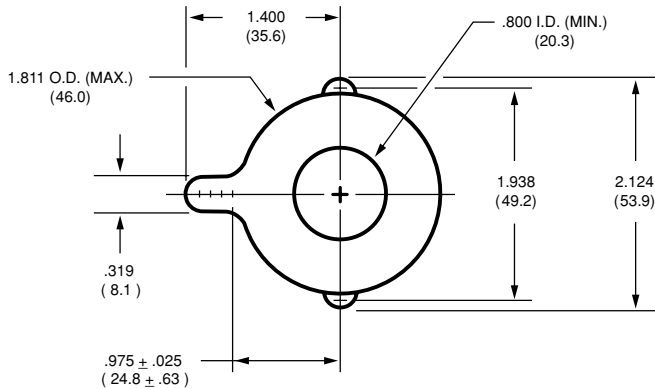
## General Information

Operating temperature range.....	°C	-40 to +100	
Storage temperature range.....	°C	-40 to +110	
Package .....		Potted, flame retardant plastic case	
Aperture opening.....	inches (mm)	0.8 (20.3)	
Weight .....	grams	17	
Mounting .....		Hold down tabs secure sensor to PCB	
Output reference .....		To obtain a differentially positive output on pin marked +V <sub>H</sub> , positive conventional current must flow as per the direction of arrow marked on sensor.	

# Mechanical Dimensions

All dimensions are in inches (millimeters)

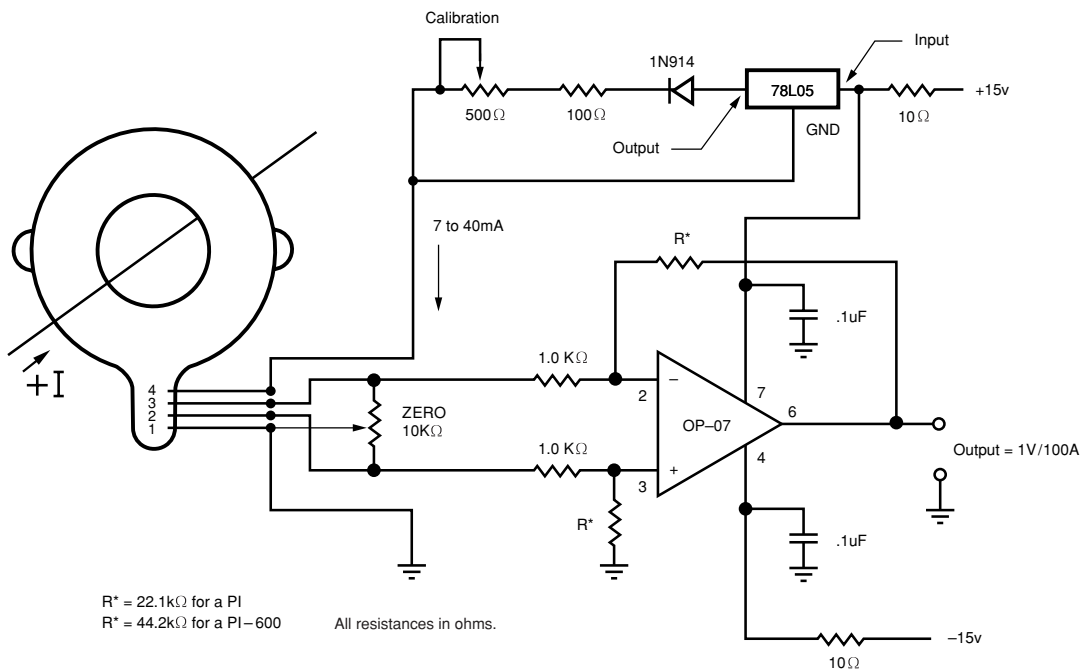
## Models PI and PI-600



### Pin Identification

- 1 -I<sub>C</sub> Negative Control Current
- 2 +V<sub>H</sub> Positive Output Voltage
- 3 -V<sub>H</sub> Negative Output Voltage
- 4 +I<sub>C</sub> Positive Control Current

### Typical Amplifier Circuit for Current Measurements



R\* = 22.1kΩ for a PI  
R\* = 44.2kΩ for a PI-600

All resistances in ohms.

### Notes

1. All specifications are given with a control current (I<sub>c</sub>) of 40 mA.
2. Consult F.W. Bell if the product of the aperture current and frequency exceeds 400 ampere-kilohertz.
3. Hysteresis specifications given for Full Scale aperture current remnant.
4. The dielectric test consist of 6 kV<sub>ac</sub> at 60 Hz for one minute between a bare 0.750 inch diameter conductor. (located concentrically through the aperture) and the output of the sensor.

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