



**Magnetic Power Systems, Inc.**

1626 Manufacturers Drive. Fenton, MO 63026

Tel: 636.343.5550 | Fax: 636.326.0608 | magpowr@magpowr.com

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## **INSTRUCTION MANUAL MODEL IP-80 Current-to-Pressure Transducer**

### **Introduction / Description**

The Model IP-80 is a current-to-pressure transducer with bias offset and volume / pressure booster, dual air filters, 20 psi reference regulator all enclosed in a compact single cabinet.

### **Installation**

The wall mounted unit is factory set in the upright position so that 4 to 20 mADC produces 0 to 80 psi output. Other mountings will require zero and span adjustment. The IP-80 should be located as close as possible to the clutch / brake and oversized lines to the clutch / brake must be avoided. Long, large diameter lines limit system response since a large volume must be filled to change the pressure. Avoid undersized fittings that will limit flow and cause pressure drop downstream of the IP-80.

Input air is supplied through a 1/4 npt female bulkhead connector on the bottom of the cabinet, which distributes it to the reference regulator, filters and the volume / pressure booster. Normal shop air is sufficient, but an oil and water absorption filter for supply air is recommended if air quality is unknown. Input pressure must be 5 psi greater than the maximum output pressure and must also be between 35 and 250 psi. Input pressure above 250 psi can damage the unit. The outlet port is also a 1/4 npt female bulkhead connector and also located on the bottom of the cabinet.

Electrical connections (2 wires) are made through a 7/8 in. cutout on the bottom of the cabinet. Connect positive lead to black wire, and connect negative lead to white wire.

**Adjustment** (Not normally required, since unit is adjusted at the factory.)

The zero and span adjustments are born accessible when the cabinet door is open. Both adjustments are located on I/P transducer's front side. Zero adjust is accomplished by adjusting one of the balance springs, and span is adjusted electronically by a simple trim pot adjustment. The transducer is factory tested and set at 0 to 80 psi output in the vertical position. A slight adjustment of zero and span may be required after shipping. Units mounted other than perpendicular (to the base) will require a larger zero adjustment. The transducer may be adjusted as follows:

1. Introduce a supply pressure to the inlet port greater than 85 psi.
2. Attach the current source to the terminals and adjust for 8 mADC.
3. Read the output pressure and set the zero screw at the back of the transducer for a reading of 20 psig.
4. Switch the input signal to 20 mADC and adjust span adjustment for a reading of 80 psig.
5. Switch back to an 8 mADC input signal and reset the zero screw for a 20 psig reading.
6. Work back and forth from low to high signal and adjust to 20 and 80 psig several times until the low reading is 20 psig and the high reading is 80 psig, when the input signal is switched from low to high.

## Specifications

Output:	0 to 80 psi
Maximum supply pressure:	250 psi
Input:	4 to 20 mADC
Minimum supply pressure:	5 psi above maximum required, 35 psi minimum
Flow Capacity:	40 scfm at 100 psi supply and 20 psi set
Exhaust Capacity:	0.5 scfm at downstream pressure 5 psi above set point
Shock and Vibration Effect on Output Pressure:	Negligible at 4 G between 5 to 200 Hz
Brake Pressure Gage:	2 in. dial, 0 to 100 psi
Filters (2):	3 micron with automatic drain 0.01 micron with automatic drain

## Maintenance

The dripwell is drained automatically on both filters depending upon the flow through the filters and pressure drop in the filters.

To change a filter element, unscrew metal bowl, remove element retainer; element can now be removed. Place new element on retainer and place whirl disc on top of the element. Screw retainer back into head making sure whirl disc fits over shoulder on head. Screw bowl into head hand tight. Bowl can be cleaned in kerosene, gasoline or similar solvent.

Recommended replacement of the filter element is once a year under normal supply air condition. More frequent replacement required if the supply air contains a significant amount of oil or water.

## Repair

It is recommended that transducer section failures be returned to the factory for repair. But in the case when internal clogging occurs due to improper filtering of the supply air, the orifice can be cleaned without removing the unit from its mounting or plumbing. Turn off the supply air. Unscrew and remove the orifice assembly. Clean the orifice through the side of the orifice assembly using a wire that has a smaller diameter than 0.015 in. Shake out any loose particles inside of the orifice assembly. Screw orifice assembly back into unit.

## Wiring Diagram



