

MIP SERIES PRESSURE SENSORS IN INDUSTRIAL APPLICATIONS

Application Note

Heating, ventilation, air conditioning and refrigeration (HVAC/R) systems help maintain an acceptable indoor environment. The three components of an HVAC/R system are:

1. **Heating:** The process of bringing heat to an area. A heating system uses a boiler, furnace, or heat pump to heat water, steam, or air for distribution to a specific area or areas.

2. **Ventilation:** The process of changing air in a specific area to change the temperature and improve the air quality by removing moisture, dust, smoke, and other airborne particles.

3. **Air Conditioning and Refrigeration:** Heat can be removed by absorbing and discharging heat through the use of a refrigeration cycle.

Due to the high cost of energy, the HVAC/R systems shown in Figure 1 need to be efficient. Controlling the compressor suction and discharge pressure to match refrigeration needs helps to increase efficiency and reduce energy costs.

The MIP Series offers a media-isolated pressure transducer in a compact, stainless steel construction for use with a wide range of media including corrosive fluids and water. The hermetically-welded design supports almost any media without the use of an internal seal. The transducers are designed to be used in harsh environments that see aggressive media. See Table 1 for a list of compatible media.

Figure 1. MIP Series Heavy-Duty Medial Isolated Pressure Transducers in HVAC/R Applications

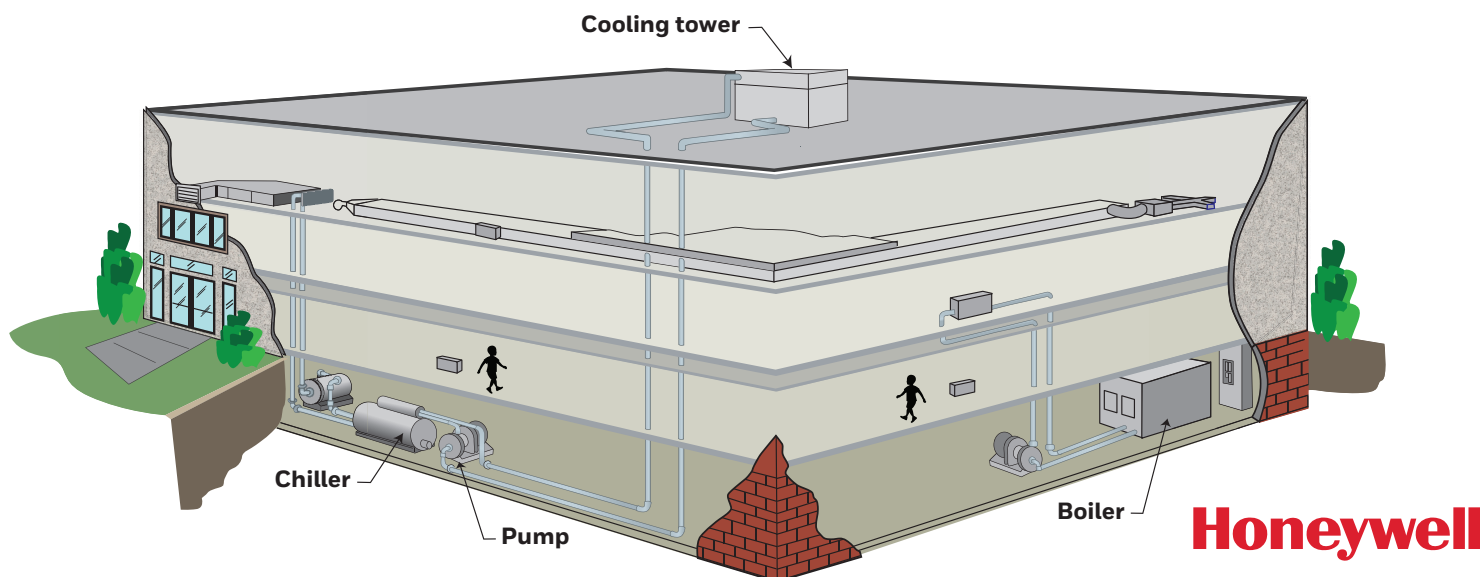


TABLE 1: MIP SERIES SPECIFICATIONS

CHARACTERISTIC	PARAMETER
	
Operating, compensated, and storage temperature range	-40°C to 125°C [-40°F to 257°F]
Total Error Band	-40°C to 125°C [-40°F to 257°F]: • ±1.0 %FSS (≤10 bar) • ±0.75 %FSS (>10 bar)
Pressure range	• 1 bar to 60 bar • 15 psi to 870 psi
Pressure reference	• absolute • sealed gage
Pressure port material	stainless steel 304L
Output transfer function	ratiometric to 5 Vdc supply: 0.5 Vdc to 4.5 Vdc
EMC (radiated immunity)	100 V/m (200 MHz to 2 GHz) per ISO 11452-2
Ingress protection	IP67 (Metri-Pack 150)
External freeze/thaw resistance	>6 cycles from -30°C to 50°C [-22°F to 122°F]
Media compatibility	• Industrial: - pumps: water, hydraulic fluids - compressors: compressed air - process: food, beverage, oil, gas, steam • HVAC/R: refrigerants (butane, propane, ammonia, CO₂, R134A, R407C, R410A, R448A/Solstice® N40, R32 and R1234ze, R1234yf, glycol + water • Transportation: gasoline, diesel fuel, engine oil, brake fluid, coolants, CNG • Medical: O₂, N₂, CO₂, N₂O, air

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