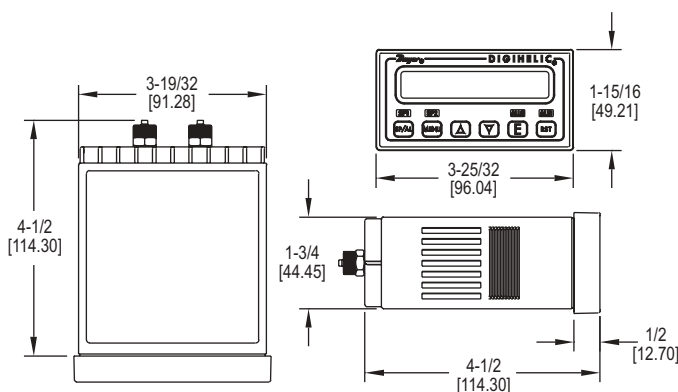


# DIGIHELIC® DIFFERENTIAL PRESSURE CONTROLLER

## 3-in-1 Instrument: Gage, Switch and Transmitter, Square Root Extractor for Air Flow

CALIBRATION SERVICES AVAILABLE



The **Series DH DigiHelic® Differential Pressure Controller** is a 3-in-1 instrument possessing a digital display gage, control relay switches, and a transmitter with current output. The DigiHelic® controller is the ideal instrument for pressure, velocity and flow applications, achieving a 0.5% full-scale accuracy on ranges from 0.25 to 100 in w.c. The DigiHelic® controller allows the selection of pressure, velocity or volumetric flow operation in several commonly used engineering units. Two SPDT control relays with adjustable dead bands are provided along with a scalable 4-20 mA process output. The Series DH provides extreme flexibility in power usage by allowing 120/220 VAC and also 24 VDC power which is often used in control panels. Programming is easy using the menu key to access 5 simplified menus which provide access to: security level; selection of pressure, velocity or flow operation; selection of engineering units; K-factor for use with flow sensors; rectangular or circular duct for inputting area in flow applications; set point control or set point and alarm operation; alarm operation as a high, low or high/low alarm; automatic or manual alarm reset; alarm delay; view peak and valley process readings; digital damping for smoothing erratic process applications; scaling the 4-20 mA process output to fit your application's range; Modbus® communications; and field calibration.

### BENEFITS/FEATURES

- 3-in-1 instrument allows the reduction of several instruments with one product, saving inventory, installation time and money
- Velocity of flow modes, a square root output coincides with the actual flow curve for greater precision
- Power usage of 120/220 VAC or 24 VDC provides flexibility to incorporate device in control panel
- Secure menu program provides access to device operation only for the right skill level
- Modbus® communications supports Process and HVAC system integration and control

### APPLICATIONS

- SCFM duct flow
- Industrial ovens air flow
- Filter status
- Clean room pressurization
- Fume hood air flow
- Surgical and medical room pressurization
- Damper and fan control

### SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Housing Material:** ABS plastic, UL approved 94 V-0.  
**Accuracy:** ±0.5% at 77°F (25°C) including hysteresis and repeatability.  
**Stability:** < ±1% per year.  
**Pressure Limits:** Ranges ≤ 2.5 in w.c. = 2 psi; 5": 5 psi; 10": 5 psi; 25": 5 psi; 50": 5 psi; 100": 9 psi.  
**Temperature Limits:** 32 to 140°F (0 to 60°C).  
**Compensated Temperature Limits:** 32 to 140°F (0 to 60°C).  
**Thermal Effects:** 0.020%/°F (0.036/°C) from 77°F (25°C).  
**Power Requirements:** High voltage power = 100-240 VAC, 50-400 Hz or 132-240 VDC. Low voltage power = 24 VDC ±20%.  
**Power Consumption:** Low voltage power = 24 VDC - 130 mA max; High voltage power = 100-240 VAC, 132-240 VDC - 7VA max.  
**Output Signal:** 4-20 mA DC into 900 Ω max.  
**Zero and Span Adjustments:** Accessible via menus.  
**Response Time:** 250 ms.  
**Display:** 4 digit LCD 0.4" height. LED indicators for set point and alarm status.  
**Electrical Connections:** Screw terminals.  
**Process Connections:** Compression fitting for use with 1/8" ID X 1/4" OD tubing (3.175 mm ID x 6.35 mm OD). Optional barbed fitting for 3/16" ID tubing.  
**Enclosure Rating:** Face designed to meet NEMA 4X (IP66).  
**Mounting Orientation:** Mount unit in horizontal plane.  
**Size:** 1/8 DIN.  
**Panel Cutout:** 1.772 x 3.620 in (45 x 92 mm).  
**Weight:** 14.4 oz (408 g).  
**Serial Communications:** Modbus® RTU, RS485, 9600 baud.  
**Agency Approvals:** CE, UL.

### SWITCH SPECIFICATIONS

**Switch Type:** 2 SPDT relays.  
**Electrical Rating:** 8 amps at 240 VAC resistive.  
**Set Point Adjustment:** Adjustable via keypad on face.

### MODEL CHART - AVAILABLE PRESSURE ENGINEERING UNITS

| Model   | in w.c. | ft w.c. | mm w.c. | cm w.c. | psi   | in Hg | mm Hg | mbar  | Pa    | kPa   | hPa   | oz/in <sup>2</sup> |
|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| DH-002  | .2500   | -       | 6.350   | 0.635   | -     | -     | 0.467 | 0.623 | 62.28 | -     | 0.623 | 0.144              |
| DH-004  | 1.000   | -       | 25.40   | 2.540   | -     | -     | 1.868 | 2.491 | 249.1 | 0.249 | 2.491 | 0.578              |
| DH-006  | 5.000   | .4167   | 127.0   | 12.70   | .1806 | .3678 | 9.342 | 12.45 | 1245  | 1.245 | 12.45 | 2.890              |
| DH-007  | 10.00   | .8333   | 254.0   | 25.40   | .3613 | .7356 | 18.68 | 24.91 | 2491  | 2.491 | 24.91 | 5.780              |
| DH-008  | 25.00   | 2.083   | 635.0   | 63.50   | .9032 | 1.839 | 46.71 | 62.27 | 6227  | 6.227 | 62.27 | 14.45              |
| DH-009* | 50.00   | 4.167   | 1270    | 127.0   | 1.806 | 3.678 | 93.42 | 124.5 | -     | 12.45 | 124.5 | 28.90              |
| DH-010* | 100.0   | 8.333   | 2540    | 254.0   | 3.613 | 7.356 | 186.8 | 249.1 | -     | 24.91 | 249.1 | 57.80              |

\*Velocity and volumetric flow not available on bi-directional range units and models DH-009 and DH-010.

### OPTIONS

| To order add suffix:      | Description                            |
|---------------------------|----------------------------------------|
| -B                        | Barbed fitting for 3/16" ID tubing     |
| -FC                       | Factory calibration certificate        |
| -NIST                     | NIST traceable calibration certificate |
| <b>Example:</b> DH-004-FC |                                        |

### MODEL CHART - BI-DIRECTIONAL\* RANGES

| Model  | Range                     |
|--------|---------------------------|
| DH-012 | 0.25 to 0 to 0.25 in w.c. |
| DH-014 | 1.0 to 0 to 1.0 in w.c.   |
| DH-015 | 2.5 to 0 to 2.5 in w.c.   |
| DH-016 | 5 to 0 to 5 in w.c.       |
| DH-017 | 10 to 0 to 10 in w.c.     |

\*Velocity and volumetric flow not available on bi-directional range units and models DH-009 and DH-010.

### ACCESSORIES

| Model            | Description                                                                                                                                                                              |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-203            | 1/8" ID x 1/4" OD PVC tubing                                                                                                                                                             |
| A-266            | DigiHelic® surface mounting bracket                                                                                                                                                      |
| DigiHelic Links™ | Communications software                                                                                                                                                                  |
| MN-1             | Mini-Node™ USB/RS-485 converter; the Mini-Node™ converters are an easy solution for utilizing the DigiHelic® controller's RS-485 serial communication and connecting to virtually any PC |

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**Process Tubing Options:** See page 453 (Gage Tubing Accessories)