

# Bristol® Series 5453

## Indicating Pneumatic Pressure Controllers/Transmitters

### General

The Bristol® 5453-10G indicating pneumatic pressure controller with 624-II control unit, from Emerson Process Management, is designed for performance and durability under rigorous operating conditions.

A case with gasketed door is available in rugged precision weatherproof die case aluminum with plastic window. Gray finish is standard.

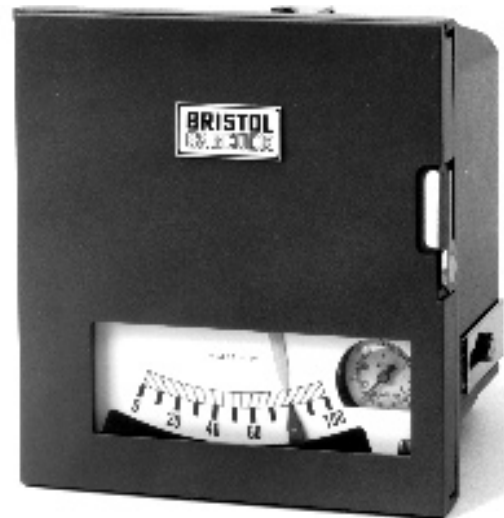
All working parts are of stainless steel. Diaphragms are made of neoprene, feedback bellows is Ni-Span-C.

### Features

- Compact size
- High accuracy sensing element
- Easily adjusted control modes
- Easily changed control action
- High capacity pilot valve
- Low air consumption
- Push button restriction cleaner (optional)
- No plastic tubing (except direct set differential gap controller)

Fast response and highly stable control action are key features of the 624-II controllers.

The 624-II controller has been engineered for compactness, and is constructed of materials that have been carefully selected to give dependable service with a minimum of maintenance. Because of these features, the 624-II controller is especially suitable for field-mounting and other types of installations where a control record is not required.



### General Specifications

- Basic model number: Indicating controller 5453-10G
- Cases: Weatherproof, die-cast aluminum case with gasketed die-cast aluminum door with plastic window. Gray epoxy finish standard.
- Overall case dimension: 7 23/32" W x 7 15/16" H x 4 15/16" D (196 x 202 x 125 mm)
- Panel cutout: 7 3/16" W x 7 9/16" H (183 x 192 mm) for controller without M/A station. 2-inch (51 mm) horizontal and 5-inch (127 mm) vertical clearance required between adjacent panel mounted units.
- Mounting: Case is basically interchangeable for wall or flush-panel mounting. If required, can be furnished with a bracket and U-bolts for mounting on a 2-inch (51 mm) pipe.
- Scale: Segmental with a 3 1/2-inch (83 mm) calibrated length. Black figures on a white background. Setpoint and measured variable pointers are painted in fluorescent colors.

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- Case connections: Pneumatic supply and output through ¼-inch (6.35 mm) NPT female connections at bottom of case. Process variable through a ½-inch (12.70 mm) NPT female fitting also at the bottom of the case.
- Weight (approximate): 8 pounds (3.63 kg)
- Control modes available:
  - a. Standard gain (proportional)
  - b. Standard gain + integral (reset)
  - c. Standard gain + integral + derivative (3-15 psig output only)
  - d. Direct set differential gap, adjustable from 5 - 95% of the instrument range, low bleed

### Operating & Performance Specs

- Calibrated accuracy:  $\pm 0.5\%$  of span at a gain of 1.
- Measuring elements – pressure and vacuum: Capsular elements, in a choice of materials, are available for ranges from a minimum span of 0 - 4 inches of water (0.99 kPa) to a maximum range of 0-200 psig (0.1.38 mPa). Helical elements, in various materials, are used from a minimum range of 0-31 psig (0-213.75 kPa) up to pressures of 10,000 psig (69 mPa).
- Air supply: 18-20 psig (124.1-137.9 kPa) for 3-15 psig (20.69-103.43 kPa) output range 30-35 psig (206.9-241.3 kPa) for 3-27 psig (20.69-186.17 kPa) output range 31-35 psig (213.75-241.3 kPa) for 6-30 psig (41.37-206.9 kPa) output range
- Air output: 3-15 psig (20.69-103.43 kPa) standard 3-27 psig (20.69-186.17 kPa) and 6-30 psig (41.37-206.9 kPa)
- Mode adjustment range:
  - a. Standard gain: 50-.25
  - b. Integral: .01-30 repeats/minute
  - c. Derivative Time: 0-30 minutes
  - d. Direct set differential gap: 0.5-100.0%
- Frequency response: Standard gain unit: Response curve flat to 400 cpm
- Standard gain + integral unit: Response curve flat to 300 cpm
- Pilot valve capacity: 3 SCFM (exhaust or delivery) for a 1 psig change in output pressure
- Air consumption: Less than 0.05 SCFM at balance with a 20 psig air supply
- Temperature stability: Maximum of  $\pm 1\%$  change in output pressure span per 100°F (37.8°C) change in ambient temperature
- Ambient temperature limits: -40°F (-40°C) to +180°F (82°C)

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**Model No. 5453-10G A B C - D E F - G H J - K**

**5453-10G**

| SELECT  | DESCRIPTION   | CODE  |
|---------|---|---|
|         | <b>BASE (Note 3)</b>  |   |
| A, B, C | <b>ELEMENT TYPE &amp; MATERIAL</b> <span style="float:right"><b>XELEMENTS</b></span>  |   |
| 10      | Helical:<br>316 Stainless Steel<br>Capsular:<br>*Ni-Span-C<br>316 Stainless Steel <span style="float:right">Note 2</span>   | <i>Table A B C</i><br>2 * *<br><br>3 * *<br>4 * * |
| D       | <b>RANGE PROTECTION</b> <span style="float:right"><b>XRANGE</b></span>  |   |
| 20      | None<br>Overrange and Underrange  | 0<br>1  |
| E       | <b>CALIBRATION</b>  |   |
| 30      | Direct Standard<br>Reverse Standard<br>Direct Full Scale<br>Reverse Full Scale  | 1<br>2<br>3<br>4                                  |
| F       | <b>CONTROL</b> <span style="float:right"><b>X624CONTRL</b></span>   |   |
| 40      | 20 PSI -Gain (10/.25); 3-15 PSI<br>20 PSI -Gain * Integral; 3-15 PSI<br>20 PSI -3 Mode; 3-15 PSI<br>30 PSI -Gain * Integral; 3-27 PSI<br>35 PSI -Gain; 6-30 PSI<br>35 PSI -Gain & Integral; 6-30 PSI<br>60 PSI -Diff GAP, Dir Set Low Bleed<br>20 PSI Supply, transmitter<br>30 PSI Supply, transmitter | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9         |
| G       | <b>EXTERNAL FEEDBACK</b> <span style="float:right"><b>XEXFEED</b></span>  |   |
| 50      | Without<br><br>With (20 PSI supply)   | 0<br><br>1  |

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| H  | PNEUMATIC SET POINT              | X5453SP   |   |
|----|----------------------------------|-----------|---|
| 60 | Without                          |           | 0 |
|    | With (3-15 PSI Set Point signal) |           | 1 |
| J  | MANUAL - AUTOMATIC STATION       | XMAN-AUTO |   |
| 70 | Without                          |           | 0 |
|    | With                             |           | 1 |
| K  | MOUNTING                         | XMOUNT    |   |
| 80 | Wall                             |           | 1 |
|    | Flush                            |           | 2 |
|    | Pipe                             |           | 3 |

Note:

- 1.- Selection code 5450-E for pressure elements start on page 14.
- 2.- When ordering a receiver/controller the model string must be 5453-10G-479-1\*\*-\*\*\*-\*\*. Range protection required.
- 3.- Pressure range and scale number to be included on sales order

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