



*The Indicating Pneumatic Pressure Controller is designed for performance and durability under rigorous operating conditions.*

### 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 this controller.

The 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 controller is especially suitable for field-mounting and other types of installations where a control record is not required.

# LESLIE PNEUMATICS III INDICATING PNEUMATIC CONTROLLERS

## Pressure & Temperature

### GENERAL SPECIFICATIONS

- Dimensions: 7<sup>23</sup>/<sub>32</sub>" W x 7<sup>15</sup>/<sub>16</sub>" H x 4<sup>15</sup>/<sub>16</sub>" D (196 x 202 x 125mm)
- Case: Weatherproof, diecast aluminum case and gasketed door with plastic window, gray epoxy finish standard
- Materials: All working parts - Stainless Steel, Diaphragms - neoprene, Feedback - Ni-Span-C
- Panel cutout: 7<sup>3</sup>/<sub>16</sub>"W x 7<sup>7</sup>/<sub>16</sub>"H (183x192mm) for controller without M/A station. 2" (51mm) horizontal and 5" (127mm) 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 bracket and U-bolts for mounting on 2" (51mm) pipe.
- Scale: Segmental with a 3<sup>1</sup>/<sub>2</sub>" (83mm) calibrated length. Black figures on white background. Setpoint and measured variable pointers are painted in fluorescent colors.
- Case connections: Pneumatic supply and output through 1/4" (6.35mm) NPT female connections at bottom of case. Process variable through a 1/2" (12.7mm) NPT female fitting also at the bottom of the case.
- Weight: approximately 8 pounds (3.63kg)

### OPTIONS (consult Factory for further information)

- **Remote Setpoint** - Pneumatically operated setpoint consists of a 3-15 psi capsular and a linkage that mechanically shifts the setpoint. Also included are adjustable high and low scale stops.
- **External 2-Position Manual-Automatic Station** - Used for transferring the pneumatic control of a process from either manual operation to automatic or automatic to manual.
- **2330 Pneumatic Controller** - Provides adjustable differential gap pneumatic control of pressure, liquid level, flow or differential pressure.
- **Differential-Pressure Element for level, flow and Pressure Drop** - Accurate, reliable sensor for Controllers and Transmitters under severe operating conditions and environments, easy installation and minimal maintenance

# LESLIE PNEUMATICS III

## INDICATING PNEUMATIC CONTROLLERS

### 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 (0.99kPa) 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 (69mPa).
- **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)  
 6-30 psig (41.37-206.9 kPa).
- **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
- **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:**  
 Standard gain unit: Response curve flat to 300cpm
- **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)

### Pneumatics III Controllers, One, Two, or Three Mode

| BASIC MODEL (NOTE 4)                    |  | U  |   |   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
|---|--|--|---|---|---|---|---|---|---|---|---|---|---|--|
|   |  | 2  | 3 | 1 |   |   |   |   |   |   |   |   |   |  |
| Process Input Type                      | Pressure   |  |   |   | 1 |   |   |   |   |   |   |   |   |  |
|   | Differential Pressure/Flow/Level-Merriam 1050                        |  |   |   | 4 |   |   |   |   |   |   |   |   |  |
|   | Temperature  |  |   |   | 6 |   |   |   |   |   |   |   |   |  |
|   | Differential Pressure/Flow/Level-Barton 199                          |  |   |   | 8 |   |   |   |   |   |   |   |   |  |
| Input Range                             | Listed Range - Scale same as Range (Note 1)                          |  |   |   |   |   |   | - | - |   |   |   |   |  |
|   | Unlisted Range - Any Listed Scale (Note 2)                           |  |   |   |   |   |   | 9 | 8 |   |   |   |   |  |
|   | Unlisted Range - New Scale (Note 3)                                  |  |   |   |   |   |   | 9 | 9 |   |   |   |   |  |
| Output and Modes                        | 3-15 psig  | Proportional (Gain)  |   |   |   |   |   |   |   |   | 1 |   |   |  |
|   |  | Proportional (Gain), + Integral (Reset)                              |   |   |   |   |   |   |   |   |   | 2 |   |  |
|   |  | Proportional (Gain), + Integral (Reset), + Derivative (3-5 psi only) |   |   |   |   |   |   |   |   |   | 3 |   |  |
|   | 3-27 psig  | Proportional (Gain)  |   |   |   |   |   |   |   |   |   | 5 |   |  |
| Proportional (Gain), + Integral (Reset) |  |  |   |   |   |   |   |   |   | 6 |   |   |   |  |
| Accessories                             | No Auto/Manual Station + No Remote Setpoint                          |  |   |   |   |   |   |   |   |   |   | 0 |   |  |
|   | With Auto/Manual Station + No Remote Setpoint                        |  |   |   |   |   |   |   |   |   |   | 1 |   |  |
|   | No Auto/Manual Station + With Remote Setpoint                        |  |   |   |   |   |   |   |   |   |   | 2 |   |  |
|   | With Auto/Manual Station + With Remote Setpoint                      |  |   |   |   |   |   |   |   |   |   | 3 |   |  |
| Mounting                                | Surface or Flush (N/A for units with Barton 199 Body)                |  |   |   |   |   |   |   |   |   |   | 1 |   |  |
|   | Yoke Mounted to Leslie Actuator (N/A for units with Barton 199 Body) |  |   |   |   |   |   |   |   |   |   | 2 |   |  |
|   | Pipe Mounted (For 2" Diameter Pipe)                                  |  |   |   |   |   |   |   |   |   |   | 3 |   |  |

- Notes: 1. Select from Table 1 in Leslie Price Book  
 2. Determine Range and Scale from data in Leslie Price Book  
 3. Determine Range using data from Leslie Price Book and specify New Scale Calibration  
 4. Unit is easily field reversible



Pneumatics III Transmitter

*Measurement and transmission of temperature, pressure, vacuum, absolute pressure, differential pressure, flow, liquid level and humidity.*

### FEATURES

- Outstanding frequency response characteristics enable the transmitter to pick up process changes which would pass through slower-acting units.
- Non-bleed pilot valve design provides low air consumption (0.1 scfm at balance) plus high exhaust and delivery capacity (over 2.5 scfm).
- Transmitter output pressure varies less than 1% of span per 100°F change in ambient temperature, and less than 0.1% per 1 psi change in supply pressure.

### CONTINUOUS INDICATION

Since Pneumatics III indicating pointers are directly linked to their measuring elements, local indication is not affected by air supply failure.

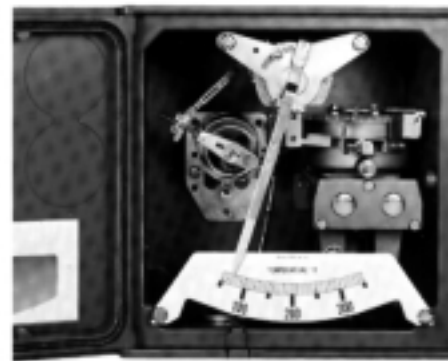
### OPTIONS (consult Factory for further information)

- **Remote Setpoint** - Pneumatically operated setpoint consists of a 3-15 psi capsular and a linkage that mechanically shifts the setpoint. Also included are adjustable high and low scale stops.
- **External 2-Position Manual-Automatic Station** - Used for transferring the pneumatic control of a process from either manual operation to automatic or automatic to manual.
- **2330 Pneumatic Controller** - Provides adjustable differential gap pneumatic control of pressure, liquid level, flow or differential pressure.
- **Differential-Pressure Element for level, flow and Pressure Drop** - Accurate, reliable sensor for Controllers and Transmitters under severe operating conditions and environments, easy installation and minimal maintenance

# INDICATING PNEUMATICS III TRANSMITTERS

## GENERAL SPECIFICATIONS

- Case Dimensions: 7<sup>23</sup>/<sub>32</sub>" W x 7<sup>15</sup>/<sub>16</sub>" H x 4<sup>15</sup>/<sub>16</sub>" D (196 x 202 x 125mm)
- Case: Weatherproof, die-cast aluminum case with gasketed aluminum door, blue epoxy finish standard.
- Materials: All working parts - Stainless Steel, Diaphragms - neoprene, Feedback - Ni-Span-C
- Panel cutout: 7<sup>3</sup>/<sub>16</sub>" W x 7<sup>7</sup>/<sub>16</sub>" H (183x192mm). 2" (51mm) horizontal and 5" (127mm) vertical clearance required between adjacent panel mounted units.
- Mounting: Brackets and U-clamps furnished for 2" pipe mounting. Brackets for flush or surface mounting are optional.
- Scales: Segmental, 3/4" calibrated length. Black numerals on white background. Fluorescent pointers.
- Connections: Supply & output, 1/4" NPT female at bottom of case.
- Weight: Approximately 8 pounds with pressure measuring element.



Internal view showing Pneumatics III control unit and indicating pointer linked directly to helical element

*Transmitters are indicating instruments that transmit the universal 3-15 psig pneumatic signal.*



Transmitter pipe-mounted

# INDICATING PNEUMATICS III TRANSMITTERS

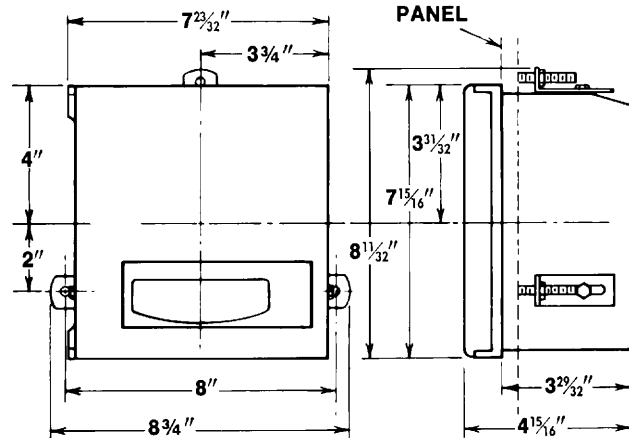
## OPERATING & PERFORMANCE SPECS

- **Calibrated Accuracy:**  
 Temperature:  $\pm\frac{1}{2}\%$  of span.  
 Pressure and Vacuum:  $\pm\frac{1}{2}\%$  of span.  
 Flow:  $\pm\frac{1}{2}\%$  of span (from 20% to 100% of range).  
 Absolute and Differential Pressure:  $\pm\frac{1}{2}\%$  of span
- **Air Supply:** 20 psig or 35 psig, depending upon output range.
- **Output:** 3-15 psig or 3-27 standard. Partial spans available. Convertible in field for direct or reverse action.
- **Frequency Response:** Response curve flat to 400 cycles per minute.
- **Response Level:** 0.006% of span.
- **Pilot Capacity:** 3 scfm, exhaust or delivery, for 1 psi change in out-put pressure.
- **Air Consumption:** 0.1 scfm at balance with 20 psig air supply.
- **Temperature Stability:**  $\pm 1\%$  of span change in output pressure per 100°F change in ambient temperature.

## MEASURING ELEMENTS

- **Temperature:** Class 1A, 3B and 5A thermal systems available for ranges between -350° and +1200°F.
- **Pressure & Vacuum:** Capsular elements available for ranges from 0-3 inches of water to 0-200 psig. Helical elements used for pressures up to 15,000 psig.
- **Absolute Pressure:** Ranges: 0-100 inches of water to 0-400 psig
- **Flow & Liquid Level:** Pneumatics III and Barton meter body (Model 224) available for differential pressure ranges from 0-10 inches of water to 0-400 psi.
- **Relative Humidity:** Hygroscopic measuring elements. Range 0-100% R.H

OVERALL DIMENSIONS



INSTRUMENTATION

## Pneumatics III Controllers, One, Two, or Three Mode

|   |  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
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|   | Temperature  |  |   |   | 6 |   |   |   |   |   |
|   | Differential Pressure/Flow/Level-Barton 199                          |  |   |   | 8 |   |   |   |   |   |
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|   | Unlisted Range - Any Listed Scale (Note 2)                           |  |   |   |   | 9 | 8 |   |   |   |
|   | Unlisted Range - New Scale (Note 3)                                  |  |   |   |   | 9 | 9 |   |   |   |
| Output and Modes                        | 3-15 psig  | Proportional (Gain)  |   |   |   |   |   | 1 |   |   |
|   |  | Proportional (Gain), + Integral (Reset)                              |   |   |   |   |   | 2 |   |   |
|   |  | Proportional (Gain), + Integral (Reset), + Derivative (3-5 psi only) |   |   |   |   |   | 3 |   |   |
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| Accessories                             | No Auto/Manual Station + No Remote Setpoint                          |  |   |   |   |   |   |   | 0 |   |
|   | With Auto/Manual Station + No Remote Setpoint                        |  |   |   |   |   |   |   | 1 |   |
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| Mounting                                | Surface or Flush (N/A for units with Barton 199 Body)                |  |   |   |   |   |   |   |   | 1 |
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|   | Pipe Mounted (For 2" Diameter Pipe)                                  |  |   |   |   |   |   |   |   | 3 |

- Notes: 1. Select from Table 1 in Leslie Price Book  
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