The Manostat precision pressure regulator series are designed for critical pressure control applications and have demonstrated outstanding reliability and durability in many thousands of applications worldwide. It is suitable for dead-end (closed load) conditions and can be supplied on its own or with a visual display dial.

Other versions include; plunger, lever operated and volume boosting air relay (see separate datasheet).

• Reliable, durable
• Precise regulation
• Excellent setting sensitivity
• High relief
• Versatile design for varied applications

TYPICAL APPLICATIONS

Solution:
The Manostat controls the vertical pressure between the pantograph and the cable. This requires rapid operation (high flow) as well as stability across a wide temperature range.

Industry:
Railway Pantograph system and Trams

Type 10C
TECHNICAL DATA

Pneumatic

• Output Signal: See ordering information - Pressure range can be limited by resetting the locknuts provided.
• Air Supply: Oil free, dry air or other dry gases, filtered to better than 25 microns; at least 0.2 bar (3psig) above output pressure to a maximum of 10 bar (150 psig, 1000 kPa).
• Flow Capacity: Up to 300 Nl/min (10 scfm).
• Air Consumption: 0.2 l/min (0.006 scfm) at 1 bar (15 psig); 0.3 l/min (0.01 scfm) at 1.7 bar (25 psig); 0.6 l/min (0.02 scfm) at 4 bar (60 psig); 1.2 l/min (0.04 scfm) at 8 bar (120 psig) (typical values at maximum supply pressure).
• Response Time: Less than 0.2 seconds for 50% load change.
• Regulation: % output change for 1 bar/15 psi supply accuracy pressure change at mid-range output: 0.1% (0.14 bar/2 to 25 psi), 0.05% (0.14-4 bar/2 to 60 psi), 0.02% (0.14-8 bar/2 to 120 psi).
• Sensitivity: Better than 0.3 mbar (0.005 psi).
• Hysteresis and Repeatability: Typically less than 0.05% setting at mid-range.
• Temperature Effect: Typically better than ±1% change of full span between -20°C and +70°C.
• Connections: 1/4” NPT female standard (plus two integral 1/4” NPT gauge ports); others on request.

Physical

• Operating Temperature: -20°C to +70°C.
• I.P. Rating: IP65.
• Vibration: The unit is unaffected by moderate vibration.
• Material of Construction: Zinc diecasting passivated and epoxy painted, Beryllium copper capsule; Nitrile diaphragms.

Model Types

• Handwheel: Basic manostat unit with pressure adjusting handwheel; mounting in any attitude, integral mounting nut supplied.
• Dial manostat: Manual pressure loading unit combining a manostat regulator with a 4” diameter gauge.
• DIN manostat: As above but with a DIN standard pressure gauge.
• DMW: Weatherproof version of dial manostat with 100 mm diameter gauge; pneumatic connections taken to lower face of casing; surface or post mounting (yoke supplied suitable for a 50 mm/2” diameter post); casing is polycarbonate, grey finish to IP55.

Volume Boosting Air Relay (manual bias):
Remote control of regulated pressures is possible with minimal air usage; positive or negative bias between pilot signal and regulated pressure can be set up of up to 2 bar/30 psig.

Note: A small pressure (<2 psig, 0.14 bar) will show at the lower end of dial manostats gauge scale (due to regulator servo operation).
Handwheel Manostat Diagrams

**Handwheel Manostat**

Max. pressure stop locknuts

Tension nut

Locknut for mounting

Bleed screw

Exhaust slots

Inlet port

Outlet port

Gauge port 1/4" NPT

Inlet port 1/4" NPT

- ø11 required for panel mounting

**Characteristic Graphs**

**Forward Flow Characteristics**

(Supply Pressure 7bar)

**Relief Flow Characteristics**

(Supply Pressure 7bar)

**Ordering Information**

**Handwheel manostats**

<table>
<thead>
<tr>
<th>Output pressure</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.14-1.7bar, 2-25psig</td>
<td>100200R</td>
</tr>
<tr>
<td>0.14-4bar, 2-60psig</td>
<td>100300R</td>
</tr>
<tr>
<td>0.14-8bar, 2-120psig</td>
<td>100400R</td>
</tr>
</tbody>
</table>

**Manual Bias Relay**

**Characteristics Graphs**

**Ordering Information**

**Manual bias relay**

<table>
<thead>
<tr>
<th>Output pressure</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-1bar, 3-15psig</td>
<td>220100R</td>
</tr>
<tr>
<td>0.14-8bar, 2-120psig</td>
<td>220400R</td>
</tr>
</tbody>
</table>

**Characteristics Graphs**

**Normal Operation**

Regulated Pressure vs. Signal Pressure in psig

**Bias Operation**

Regulated Pressure vs. Signal Pressure in psig
Dial / Din Manostat Diagrams

Dial Manostat

DIN Manostat

Weatherproof Dial Manostat

Ordering Information

<table>
<thead>
<tr>
<th>DIN / Dial manostats</th>
<th>Pressure range</th>
<th>Scale</th>
<th>Dial</th>
<th>DIN</th>
<th>Weatherproof (DMW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-1bar, 3-15psig</td>
<td>Dual</td>
<td>300100R</td>
<td>320100R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2bar, 0-30psig</td>
<td>Dual</td>
<td>301200R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4bar, 0-60psig</td>
<td>Dual</td>
<td>301300R</td>
<td>311300R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-8bar, 0-120psig</td>
<td>Dual</td>
<td>301400R</td>
<td>311400R</td>
<td>321400R</td>
<td></td>
</tr>
<tr>
<td>3-15psig</td>
<td>0-100%</td>
<td>309100R</td>
<td>319100R</td>
<td>329100R</td>
<td></td>
</tr>
<tr>
<td>20-100kPa</td>
<td>0-100%</td>
<td>315200R</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Options to special order: Captured bleed version of handwheel manostat suitable for natural gas applications available. Factory fitting of a reduction gearbox to handwheel manostat (change "00R" to "96R"). Yoke mounting for Weatherproof Manostat (change "00R" to "10R"). Special scale calibrations for Dial Manostats. Alternative pneumatic connections. Low pressure versions of standard models.

Your distributor:
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Tel: +44 1202 480 303
E-mail: sales@coulton.com
Web: www.coulton.com

Our Ref: dsmanN 10/06
Controlled Doc. 2006-111a

All instruments are tested on the Watson Smith Automatic Testing System and an individual test certificate is provided at no extra charge. Each unit is tested for linearity, hysteresis, total error, air consumption, response time and supply sensitivity.

Our policy is one of continuous research and development. We therefore reserve the right to amend without notice the specifications given in this document. Customers are responsible for ensuring that the product is used only for the purpose for which it is intended. In case of doubt Norgren will be pleased to advise.