MANOSTAT PRECISION PRESSURE REGULATOR SERIES
MANUALLY OPERATED

FEATURES

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

GENERAL DESCRIPTION

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).

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 0.2bar (3psig) above output pressure to a maximum of 10bar (150psig, 1000kPa)
• Flow Capacity: Up to 300NI/min (10scfm). High relief version available (applications requiring rapid exhaust)
• Air Consumption: 0.2 l/min (0.006scfm) at 1bar (15psig); 0.3 l/min (0.01scfm) at 1.7bar (25psig); 0.6 l/min (0.02scfm) at 4bar (60psig); 1.2 l/min (0.04scfm) at 8bar (120psig) (typical values at maximum supply pressure)
• Response Time: less than 0.2 seconds for 50% load change
• Regulation: % output change for 1bar/15psi supply pressure change at mid-range output; 0.1% (0.14bar/2-25psi), 0.05% (0.14-4bar/2-60psi), 0.02% (0.14-8bar/2-120psi)
• Sensitivity: Better than 0.3mbar (0.005psi)
• 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

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 100mm diameter gauge; pneumatic connections taken to lower face of casing; surface or post mounting (yoke supplied suitable for a 50mm/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 2bar/30psig

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

Note: a small pressure (<2psig, 0.14bar) 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
Locknut for mounting
Bleed screw
Exhaust slots
Inlet port
Outlet port
Gauge port 1/4" NPT

**Manual Bias Relay**

2 Panel mounting holes tapped 2BA *
12mm deep.

**Relief Flow Characteristics** (Supply Pressure 7bar)

**Forward Flow Characteristics** (Supply Pressure 7bar)

**Manual Bias Relay**

Remote Pressure Source
Pilot Signal
Volume Boosting Relay
Regulated Output Pressure

**Forward Flow Characteristics**

Flow (Nl/min) vs Outlet Pressure (bar)

**Relief Flow Characteristics**

Flow (Nl/min) vs Outlet Pressure (bar)

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Handwheel manostats</th>
<th>Order code</th>
<th>Manual bias relay</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Output pressure</td>
<td></td>
</tr>
<tr>
<td>0.14-1.7bar, 2-25psig</td>
<td>Standard 5310200R</td>
<td>0.2-1bar, 3-15psig</td>
<td>Standard 53220100R</td>
</tr>
<tr>
<td>0.14-4bar, 2-60psig</td>
<td>Standard 5310300R</td>
<td>0.14-8bar, 2-120psig</td>
<td>High Relief 53230400R</td>
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<tr>
<td>0.14-8bar, 2-120psig</td>
<td>Standard 5310400R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Relief 53120300R</td>
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</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"). Alternative pneumatic connections. Low pressure versions of standard models.

**Watson Smith**

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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 Watson Smith will be pleased to advise. WatsonSmith is a registered trade mark of IMI Watson Smith Ltd.
**DIAL / DIN MANOSTAT DIAGRAMS**

**Dial Manostat**

- Connections: 1/4" NPT
- Outlet: Near side
- Inlet: Farside
- Panel cutout: 92 * 92
- Clippard fittings (hidden from view)

**DIN Manostat**

- Connections: 1/4" NPT
- Outlet port
- Inlet port 1/4" NPT
- Panel cutout 92 * 92
- Clippard fittings (hidden from view)

**Weatherproof Dial Manostat**

- Nominal 50mm
- Yoke mounting (optional)
- Fixing holes: 6.1

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>Scale</th>
<th>Dial 1</th>
<th>DIN</th>
<th>Weatherproof (DMW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-1bar, 3-15psig</td>
<td>Dual</td>
<td>53300100R</td>
<td>53310100R</td>
<td>53320100R</td>
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<tr>
<td>0-2bar, 0-30psig</td>
<td>Dual</td>
<td>53301200R</td>
<td>53311200R</td>
<td>T.B.A</td>
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<tr>
<td>0-4bar, 0-60psig</td>
<td>Dual</td>
<td>53301300R</td>
<td>53311300R</td>
<td>T.B.A</td>
</tr>
<tr>
<td>0-8bar, 0-120psig</td>
<td>Dual</td>
<td>53301400R</td>
<td>53311400R</td>
<td>53321400R</td>
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<tr>
<td>0.2-1bar</td>
<td>0-100%</td>
<td>53309000R</td>
<td>53319000R</td>
<td>53329000R</td>
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<tr>
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<td>0-100%</td>
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<td>53319100R</td>
<td>53329100R</td>
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<tr>
<td>20-100kPa</td>
<td>0-100%</td>
<td>53309200R</td>
<td>53319200R</td>
<td>53329200R</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.

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