WatsonSmith

MANOSTAT PRECISION PRESSURE REGULATOR SERIES MANUALLY OPERATED

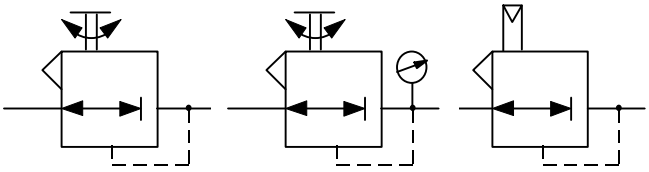


FEATURES

- **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).



Functional Symbols

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 300Nl/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 Accuracy	% 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 then ±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

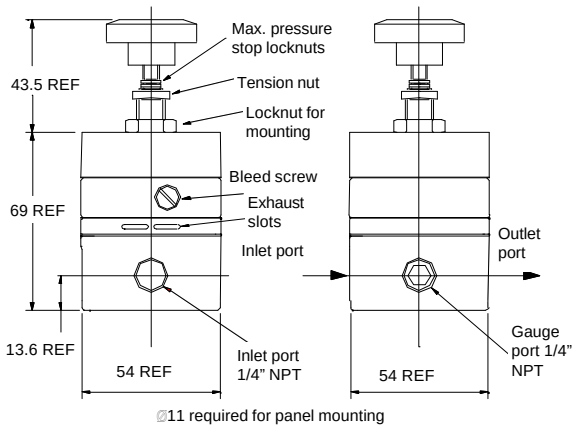
•Operating Temperature -20°C to +70°C

•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

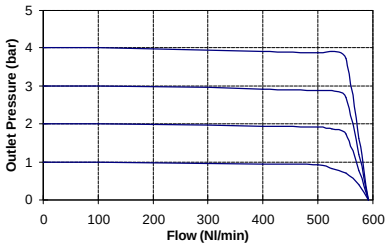
Handwheel Manostat



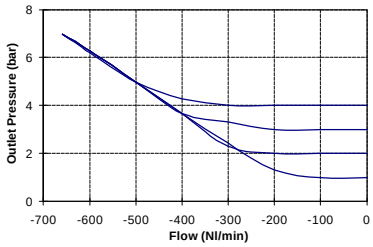
⌀11 required for panel mounting

CHARACTERISTIC GRAPHS

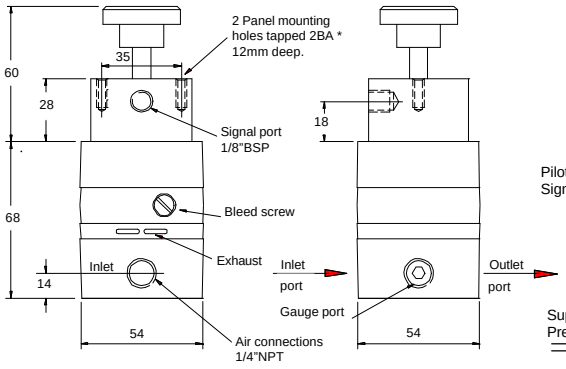
Forward Flow Characteristics
(Supply Pressure 7bar)

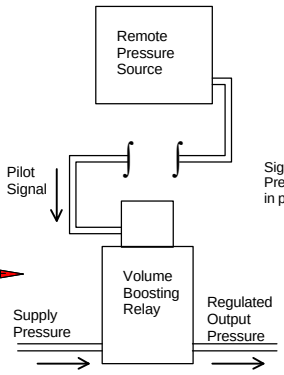


Relief Flow Characteristics
(Supply Pressure 7bar)

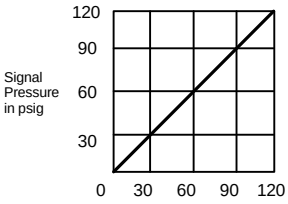


Manual Bias Relay

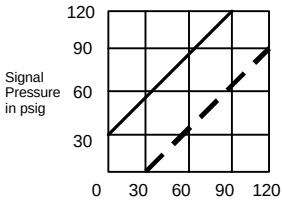




Manual Bias Relay



Normal Operation



Bias Operation

ORDERING INFORMATION

Handwheel manostats		
Output pressure		Order code
0.14-1.7bar, 2-25psig	Standard	53100200R
	High Relief	53120200R
0.14-4bar, 2-60psig	Standard	53100300R
	High Relief	53120300R
0.14-8bar, 2-120psig	Standard	53100400R
	High Relief	53120400R

Manual bias relay		
Output pressure		Order code
0.2-1bar, 3-15psig	Standard	53220100R
	High Relief	53230100R
0.14-8bar, 2-120psig	High Relief	53220400R
	Standard	53230400R

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.

WatsonSmith

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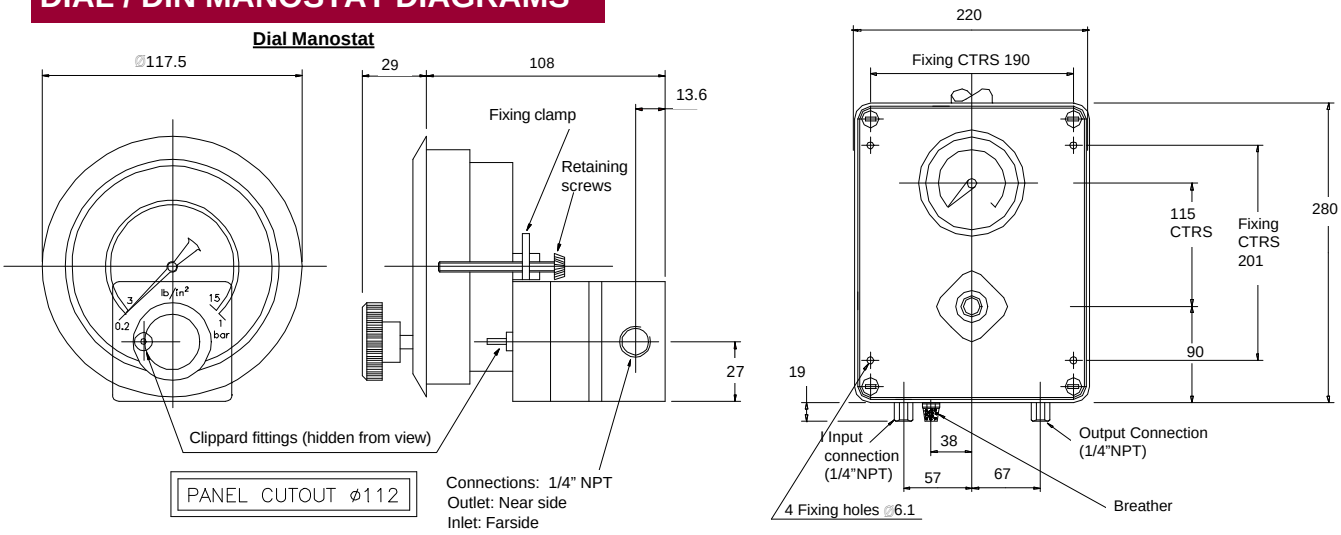
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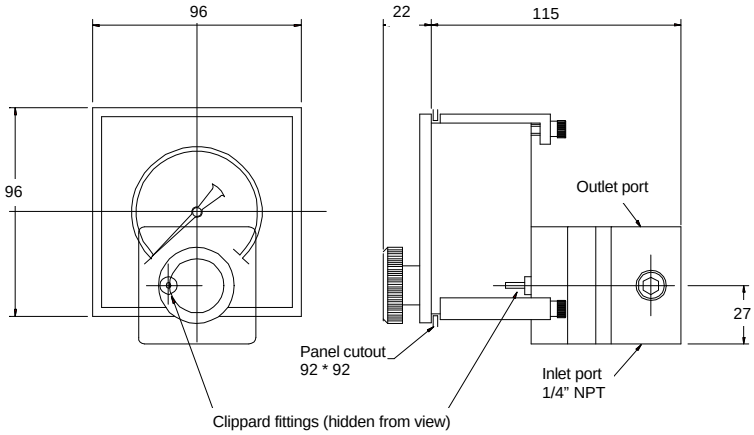
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Customers are responsible for ensuring that the product is used only for the purpose for which it is intended. In case of doubt Watson Smith will be pleased to advise.
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DIAL / DIN MANOSTAT DIAGRAMS

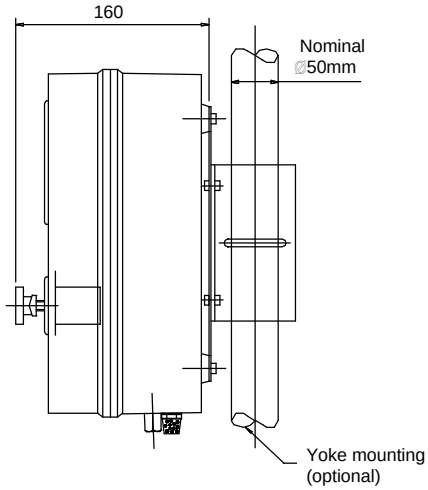
Dial Manostat



DIN Manostat



Weatherproof Dial Manostat



ORDERING INFORMATION

DIN / Dial manostats				
Pressure range	Scale	Dial	DIN	Weatherproof (DMW)
0.2-1bar, 3-15psig	Dual	53300100R	53310100R	53320100R
0-2bar, 0-30psig	Dual	53301200R	53311200R	T.B.A
0-4bar, 0-60psig	Dual	53301300R	53311300R	T.B.A
0-8bar, 0-120psig	Dual	53301400R	53311400R	53321400R
0.2-1bar	0-100%	53309000R	53319000R	53329000R
3-15psig	0-100%	53309100R	53319100R	53329100R
20-100kPa	0-100%	53309200R	53319200R	53329200R

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