

Bristol® Series 5457

Remote Electronic Set Point 624-II RSP

General

The Bristol® Series 5457 Indicating Pneumatic Controller with a remote electronic set point, is part of the Bristol 624-II family of pneumatic instruments from Emerson Process Management. The set pointer can be adjusted electrically by either discrete or analog inputs. The input signals to the set point are received from remote areas and/or from computers. The 624-II controller can also be set manually by local switching.

Product Description

The set point of the pneumatic controller is driven by a bi-directional electrically operated rotary actuator. The unit contains position feedback, manual override, and all units are explosion-proof. The motor driven set point is housed outside of the controller case.

Two basic models are provided for remote control of the set point. The discrete positioning model will drive the actuator by control pulses. Up to 1000 raise-lower input pulses in the discrete mode, from dry-contact closures or solid state, will cover the full scale. The analog positioning model will drive the motor to a set point as determined from a 4 to 20 mA input that corresponds to the full scale. A 4-20 mA set point feedback is available. The remote set point is driven by either 12 or 24V dc.

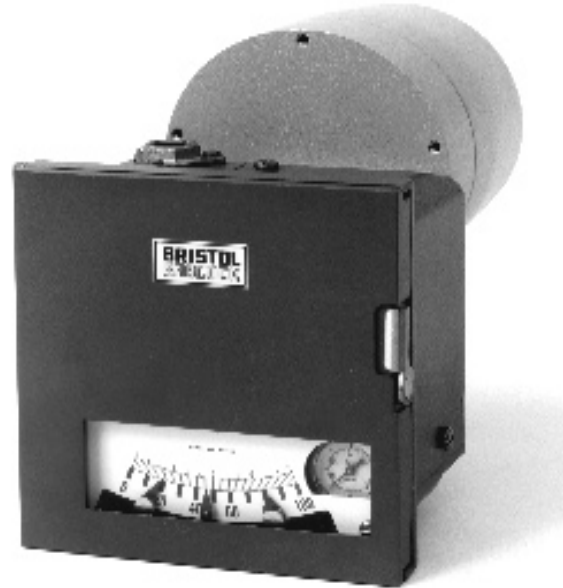
Available with Models:

5457 10F Gauge Pressure Controller
(Specification Summary Sheet A118-2c)*

5457 11F Receiver Controller
(Specification Summary Sheet A118-5)*

5457 31F Flow Controller
(Specification Summary Sheet A118-4b)*

5457 40F Temperature Controller
(Specification Summary Sheet A118-6b)*



*Bracketed specification summary sheets are to be used as a supplement to this specification sheet in accordance with type of input.

***Guard**

In the guard position, the Set Point drive mechanism will be active only if the guard input signal is true.

Features

- Compact size
- Remote set point integrally mounted
- Discrete and analog set point inputs
- Guard feature**
- Analog feedback
- Remote-manual switch
- Adjustable speed control
- Incremental step change
- Explosion-proof actuator case
- CSA certified explosion-proof
- FM approved explosion-proof

Remote Automation Solutions

Website: www.EmersonProcess.com/Remote

29°C to 60°C)

Operating & Performance Specifications

- Accuracy: Set point position: $\pm 0.5\%$ of span
- Set Point feedback: $\pm 0.5\%$ of span
- Repeatability: 0.2% of span
- Long term stability: 0.25% per year
- Response time:
- Analog model: Adjustable from 1 minute to 15 minutes full scale in 1 minute increments, or 20 seconds.
- Discrete model: Step mode: **Range 1** 0.1% to 1% in 0.1 increments **Range 2** 1 to 10% in 1% increments. Continuous mode: Adjustable from 1 minute increments, or 20 seconds.
- Input filter: 7 millisecond hardware filter plus switchable software filter, which accepts input after 5 identical samples of 5 millisecond intervals.
- Surge withstand: Meets IEEE standard 472-1974.
- Process output (Setpoint position feedback only): 4-20 mA, common ground for the position feedback, output an analog, and discrete models. Selectable choice for both models.
- Power:
 - Electrical: 11 to 14 or 22 to 28 V dc (This is by model selection.)
 - Maximum consumption: 10 watts
 - Fusing: 1A
 - Power failure backup: From external uninterruptable power supply
- Ambient temperature effect: $\pm 1\%$ max. full scale for 50°F
- Ambient temperature limits:
 - Operating temperature: -20°F to 140°F (-

- Storage temperature: -40°F to 185°F (-40°C to 85°C)

- Relative humidity limits: 10 to 95% R.H. at -20° to 130°F 10 to 50% R.H. at 130° to 150°F
- Electro-magnetic interference (R.F.I. effect):
- Pressure input controllers: Effect with wiring enclosed in conduit SAMA STD PMC 33.1, class1, 20 mHz to 500 mHz: <0.5% FS error
- Electronic input controllers (R.F.I. effect): User specification sheet A118-8
- Hazardous location rating: FM approval CSA certified as explosion-proof for Class 1, Division 1, Groups C and D, plus nonincendive for Class 1, Division 2, Groups, A,B,C and D
- Failure modes: For any electrical failure, device will provide mechanical memory to retain last given set point.

General Specifications

- Basic model number breakdown: See attached pages for complete makeup of instrument model number.

For Setpoint Actuator Only

- Case: Weatherproof, explosion-proof. Cast aluminum housing with gasketed screw-on cover and light gray epoxy finish.
- Overall dimensions:
- Motor Only 6" (152.4mm) diameter x 7" (1.77.8mm) long
- Panel Cutout: See overall dimensions complete instrument.
- Mounting: Flush or pipe mounting for all models except flow.
- Flow models are pipe mounting only, complete instrument.

- Electrical connections: Two 3/4" conduit entries with integral screw terminals for #14 AWG wire (max.)

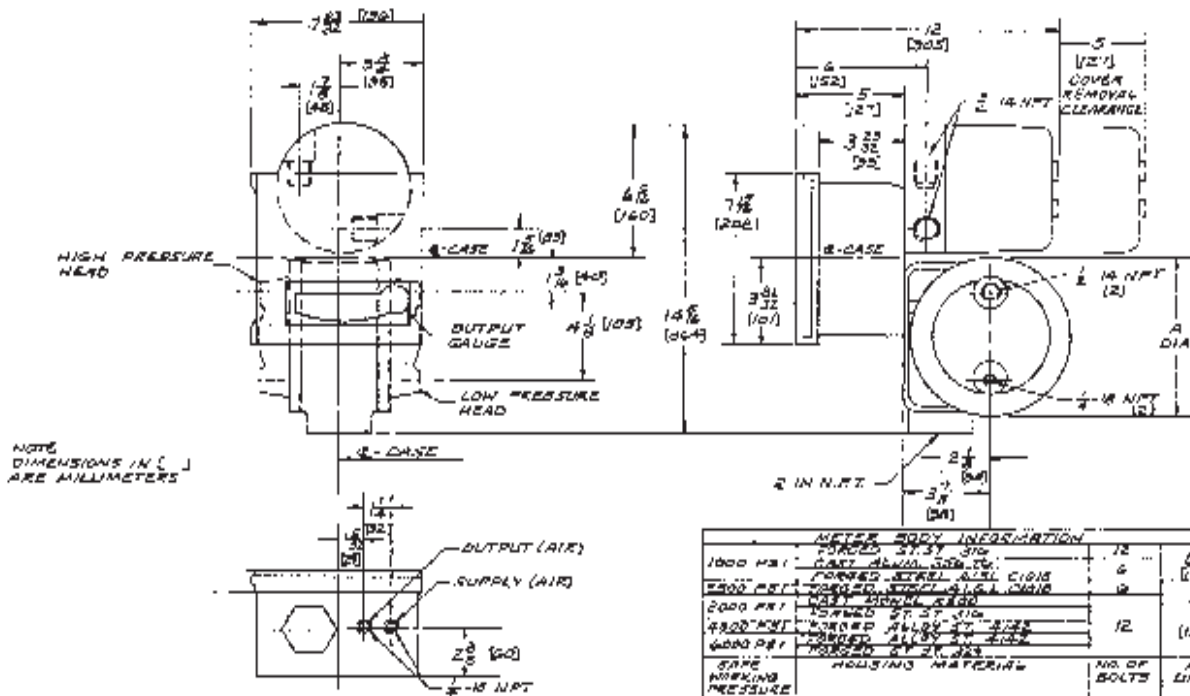
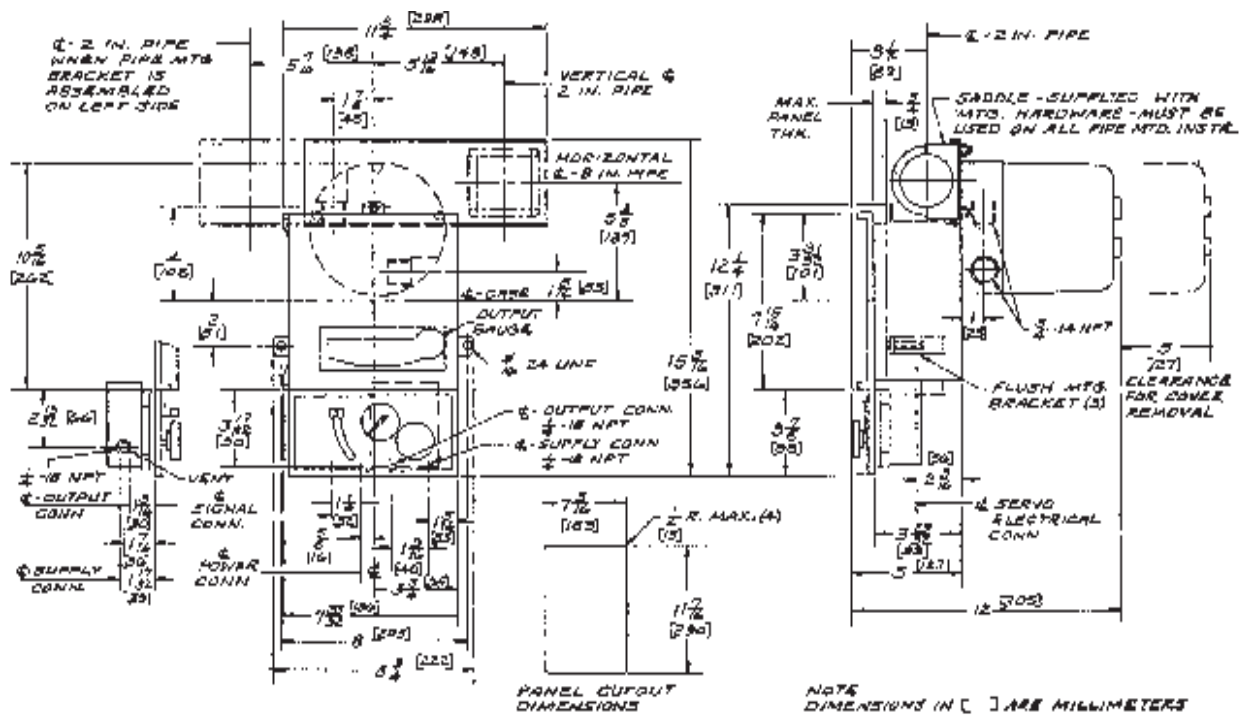
- Weight (approximate): 20 pounds (9kg)

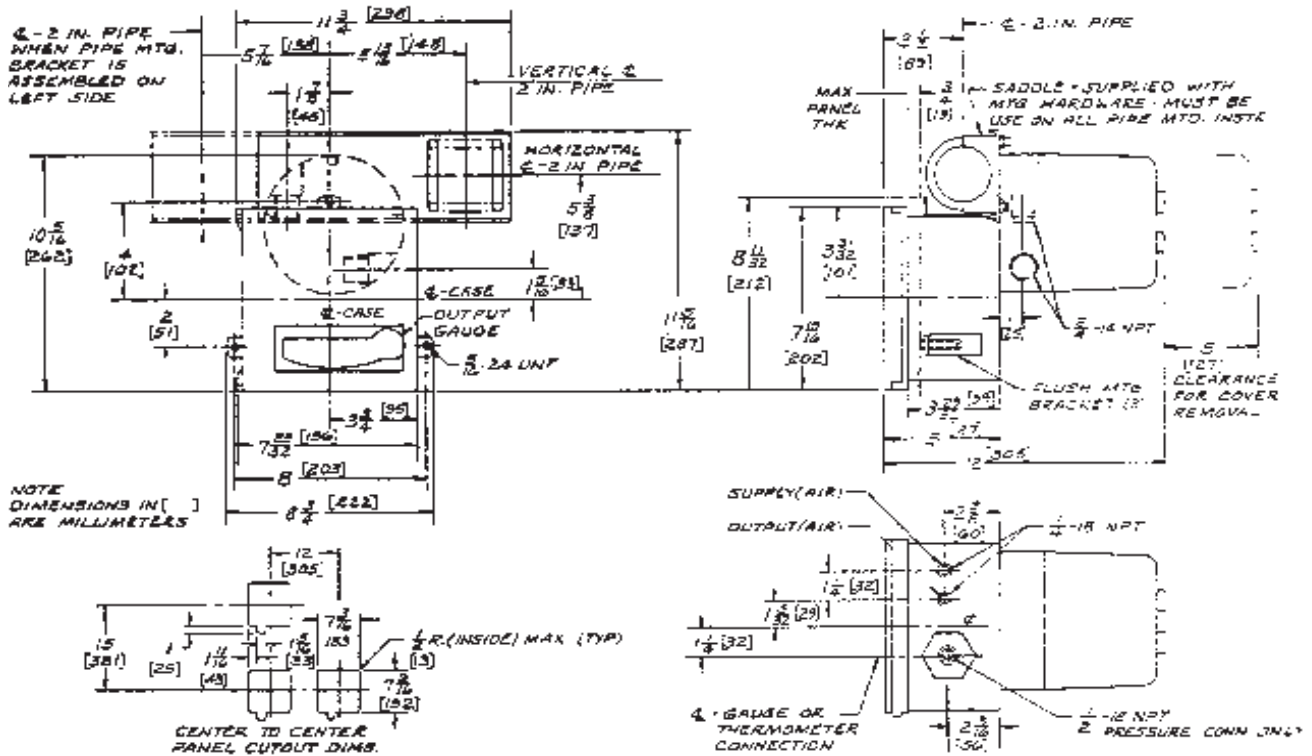
Pneumatic Specification

- Case: Weatherproof, die-cast aluminum case with gasketed aluminum door and gray epoxy finish standard.
- Case dimensions: 7 23/32" wide x 7 15/16" high x 4 15/16" deep.
- Panel cutout dimensions: 7 3/16" wide x 7 9/16" high. 2- inch horizontal and 5-inch vertical clearance required between adjacent panel mounted units.
- Scales: Segmental, 3 1/4" calibrated length. Black numerals on white background.
- Output: 3-15 psig, 3-27 psig, and 6-30 psig
- Air supply: 20 psig or 30 psig and 35 psig,

depending upon output range.

- Connections: Supply and output, 1/4" NPT female at bottom of case. Process connection (pressure) 1/2" NPT standard.
- Calibrated accuracy: Pressure: ±1/2% of span
- Response level: 0.006% of span
- Frequency response: Response curve flat to 400 cycles per minute.
- Pilot capacity: 3 scfm, exhaust or delivery, for 1 psi change in output pressure
- Air consumption: 005 scfm at balance with 20 psig air supply.
- Temperature stability: ±1% of span change in output pressure per 100°F change in ambient temperature.
- Supply pressure error: Less than 0.1% (of span) change in output per 1 psi change in supply pressure. Transmitters for 3-15 psig output range will function without damage with supply pressures to 30 psig. Transmitters for 3-27 psig output range are protected for air supply pressures to 35 psig.





624-II Pressure (Gauge) Controllers Series 5457 Remote Electronic Set Point

Model No. 5457-10G

A B C - D E F - G H J - K L

SELECT	DESCRIPTION	CODE
	BASE	0
A, B, C	ELEMENT TYPE & MATERIAL XELEMENTS	
	No Element	0 0 0
10	Helical: 316 Stainless Steel Capsular: *Ni-Span-C 316 Stainless Steel Note 1	Table A B C 2 * * 3 * * 4 * *
D	RANGE PROTECTION XRANGE	
20	None Overrange and Underrange	0 1
E	CALIBRATION	
30	Direct Standard Reverse Standard Direct Full Scale Reverse Full Scale	1 2 3 4
F	CONTROL X624CONTRL	
40	20 PSI -Gain (10/.25) 3-15 PSI 20 PSI -Gain * Integral 3-15 PSI 20 PSI -3 Mode 3-15 PSI 30 PSI -Gain * Integral 3-27 PSI 35 PSI -Gain 6-30 PSI 35 PSI -Gain & Integral 6-30 PSI	1 2 3 4 5 6
G	REMOTE SET POINT INPUT	
50	Discrete Input Analog Input, 4-20 mA	1 2
H	REMOTE SET POINT FEED BACK	
60	PDM Feedback 4-20 MA Feedback	1 2
J	POWER	
70	12 Volts DC 24 Volts DC	1 2

K	MANUAL-AUTOMATIC STATION	XMAN-AUTO
80	Without	0
	With	1
L	MOUNTING	XMOUNT
90	Flush	2
	Pipe	3
<p>General Information: Pressure range and scale number to be included on sales order</p> <p>Note: 1.- When ordering a receiver/controller the model string must be 5453-10G-479-1**-***-**. Range protection required.</p>		

Attachments For 624-II Series 5450

Model No. 5457-11F

SEGMENT NO. (NOTE 1)	DESCRIPTION
160	Lamicoid Nameplate on Door (+A210) X624NAMEPL
340	S.S.I.D. Tag. Screw to case side. (+A212). XSSTAG (15 characters max).
383258-01-4	Test Stand
600835-01-4-kit	Rebuild kit, 624-II, 2 mode, 20 psi supply
600836-01-0-kit	Maintenance kit, (for 624-II unit)
600838-01-3-kit	Rebuild kit, Differential GAP Control Unit
600837-01-7	Maintenance kit, (for Differential gap)
Note 1:	<p>General Information:</p> <p>Suffix the attachment no(s). to the controller model number.</p> <p>Example: 5453 - 10G - 223 - 0 - 1 - 2 - 0 - 0 - 1 - A212</p>

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