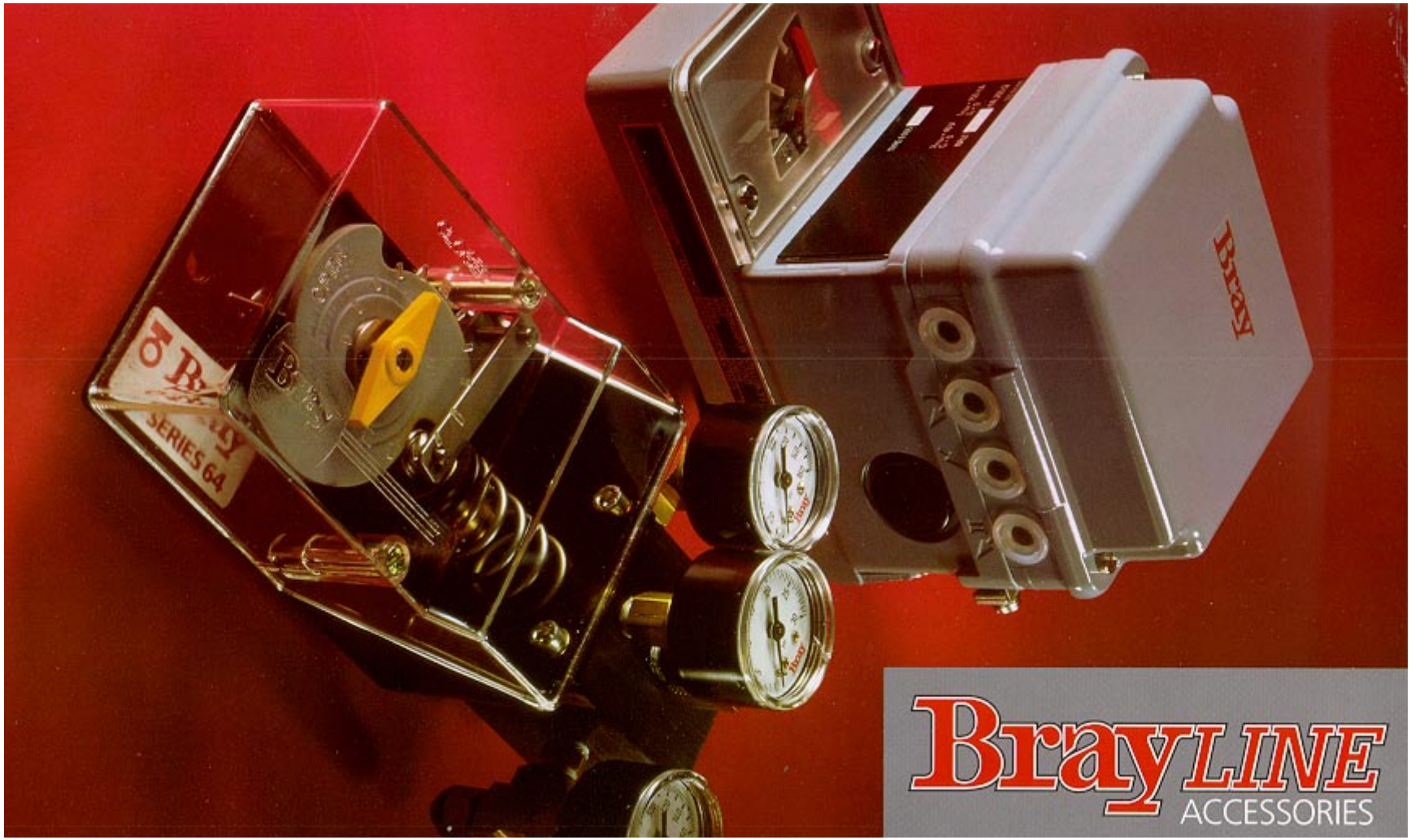


The High Performance Company

POSITIONERS

PNEUMATIC & ELECTRO-PNEUMATIC

SERIES 65

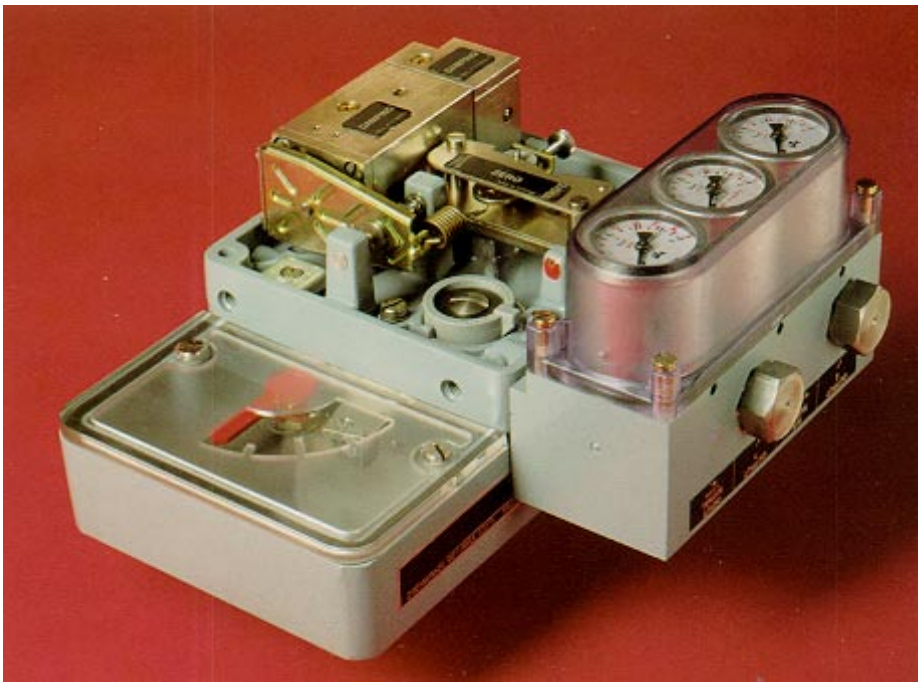
FOR DOUBLE-ACTING &
SINGLE-ACTING ACTUATORS

SERIES 65

FEATURES

The Brayline Series 65Pneumatic and Electro-Pneumatic Positioner feature modular components, simple and reliable operation. A modular design allows the individual units and accessories to be freely combined. Subsequent alterations or conversions can be easily made. designed for use with double and single acting actuators, the Series 65 Positioners are extremely vibration-proof in all directions. the positioners are the foundation of a total positioning system that provides direct or reverse modes of operation with no additional parts required. easily accessible zero and range adjustments can be set separately. A standard linear cam with range springs supplies full or split range operation. Other features include: 1/4" NPT connections and a calibrated, rotary type position indicator. The rugged housing and internal mechanism are constructed to perform in the most demanding applications. Gauge combinations for set point, positioner output and air supply are available, as are volume boosters for reduced positioning times. Adjustable gain and high air delivery capacity allow use on a wide range of actuator sizes. The Series 65's simple, compact design and low air consumption ensure efficient and economical operation.

Single Acting Pneumatic Positioner with internal gauge configuration



Optional gauges are available as gauge block (shown) or nipple mounted configuration

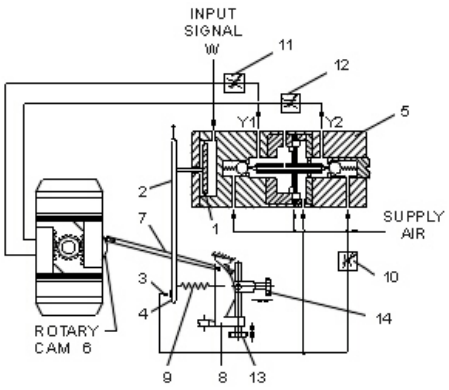
PNEUMATIC

Based on a force balance principle, the Series 65 Pneumatic Positioner is ideal for precise positioning of high torque devices with short positioning times. One unit has been designed for use with either double or single acting actuators, and a second unit is designed for single acting operation only. Series 65 Pneumatic Positioners feature separate, non-interacting adjustment of stroke range and zero adjustments; adjustable amplification and damping; and split range capabilities up to 4-fold.
Gauges for indication of input, output and air supply - either gauge blocks as shown in photo at left or nipple mounted gauges are available.

PNEUMATIC OPERATION

The input signal ***(W)*** acts on the input diaphragm ***(1).*** The stroke of the input diaphragm is transferred to the flapper lever ***(2).*** The resulting variation of the nozzle ***(3).*** and the flapper ***(4)*** varies the dynamic pressure at the nozzle. In the double acting positioner this pressure acts on a dual amplifier ***(5),*** the opposed output pressure Y1 and Y2 cause a rotary movement in the actuator without spring resetting. The movement of the acutator shaft turns the rotary cam ***(6).*** The movement of the cam is transferred to the feedback lever ***(2)*** and the stroke factor lever ***(8).*** The stroke lever is connected to the flapper lever by means of a range spring ***(9).***

A force balance is created on the flapper lever when the torque generated at the input diaphragm coincides with the conutertorque produced on the range spring by the variation in actuator rotary position. This ensures that the actuating position is always proportional to the input signal. Dynamic matching of the actuator is possible by means of the throttling screw ***(10)*** and the damping throttles ***(11)*** and ***(12).*** The stroke range and zero are set by the stroke factor screw ***(13)*** and the zero screw***(14).*** Single acting positioners use a single amplifier and produce a single output pressure to cause the rotary movement. A changeover plate is used to provide either an increasing or decreasing output pressure for an increasing input signal.



SERIES 65

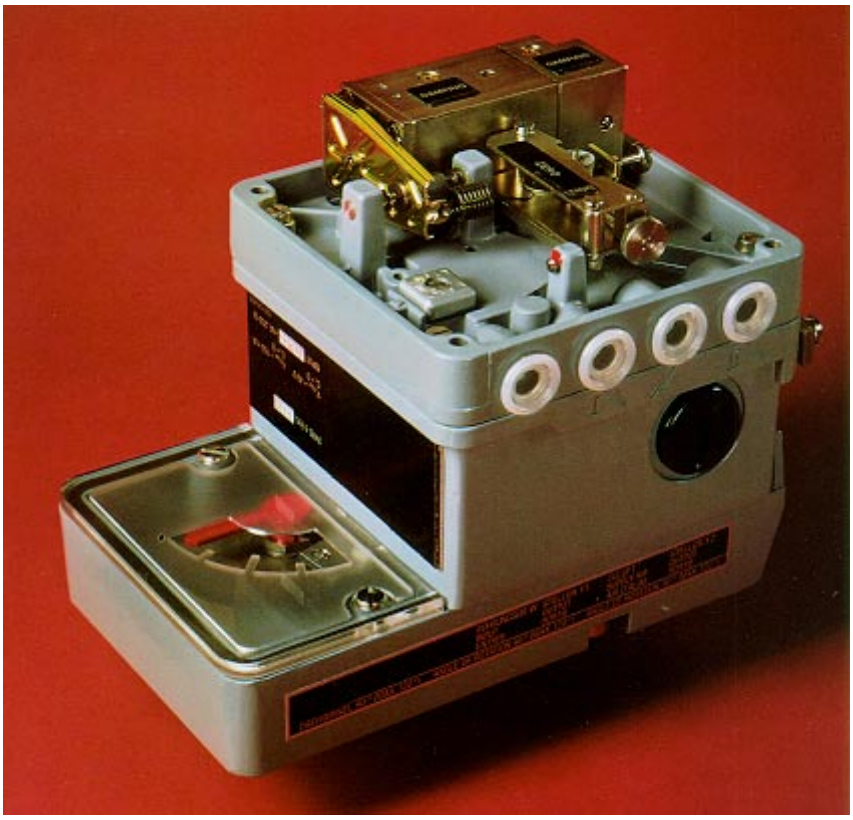
ELECTRO-PNEUMATIC

The Brayline Series 65 Electro-Pneumatic Positioner operates from either a 0-20 mADC or 4-20 mADC input signal. Directly connecting electric analog instruments with pneumatic actuators, this positioner functions as an integrated I/P converter, amplifier and controller. Featuring precise positioning at high torque and short stroking speeds, the Series 65 Electro-Pneumatic Postioner provides excellent performance over a long service life.

Designed for use with double and single acting actuators, this positioner offer non-interacting adjustment of stroke range operation up to 3 or 4-fold is possible without special cams.

Other features include: 1/4" NPT air connection, 1/2"NPT conduit entry, and a calibrated, rotary type position indicator. Rugged housing and internal mechanism are contructed to perform in the most demanding applications with particularly low vibration effect in all directions. The nozzle type flapper valve is constructed to prevent corrosion damage.

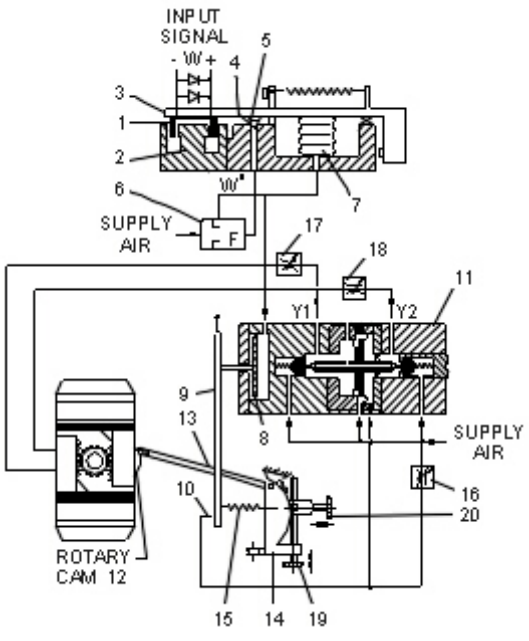
Adjustable gain and damping, along with high air delivery capacity (supply pressure up to 90 psi) also use on a wide range of actuator sizes.



NOTE: For further technical information and dimensions for Pneumatic, Electro-Pneumatic positioners, and accessories, please consult Bray factory or Bray representative.

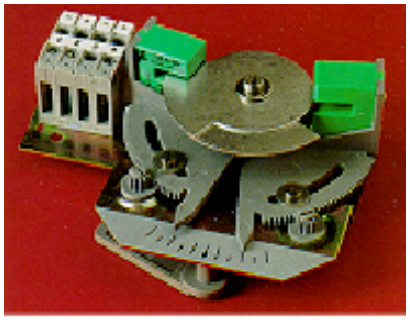
ELECTRO-PNEUMATIC OPERATION

The input signal ***(W)*** flows through the moving coil ***(1)*** which is located in the field of a permanent magnet ***(2).*** The resultant force exerts a torque on the balance arm ***(3).*** This causes a change in the distance between the nozzle ***(4)*** and the cone ***(5)*** which results in a change in the back pressure at the nozzle. The venturi ***(6),*** which is supplied with the air, converts the back pressure into the pressure signal ***(W')*** which is fed to the compensator ***(7).*** An equilibrium of forces is set at the balance arm ***(3)*** if the torque produced by the moving coil is equal to the torque reaction produced by the compensator. At the same time, the pressure signal is passed to the input diaphragm ***(8).*** The stroke of the input diaphragm is transferred to the flapper lever ***(9).*** The resultant change in distance between the nozzle and the flapper lever alters the back pressure at the nozzle ***(10).*** In the double acting positioner this pressure acts on a dual amplifier ***(11),*** the opposed output pressures Y1 and Y2 cause a rotary cam ***(12).*** The movement of the cam is transferred to the feedback lever ***(13)*** and the stroke factor ***(14).*** The stroke factor lever and the flapper lever are connected by a range spring ***(15).*** Dynamic matching with the actuator is possible by means of the throttling screw ***(16)*** and the damping throttles ***(17)*** and ***(18).*** The stroke range and zero are set by the stroke factor screw ***(19)*** and the zero screw ***(20).*** Single acting positioners use a single amplifier and provide a single output pressure to cause the rotary movement. A changeover plate is used to provide either an increasing or decreasing output pressure for an increasing input signal.

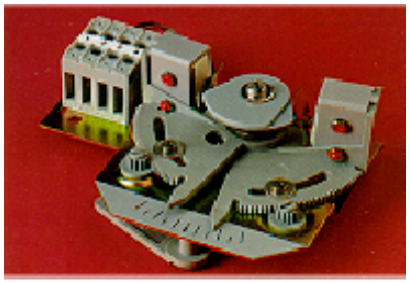


ACCESSORIES

INDUCTIVE LIMIT SWITCH
For remote position indication, direct mounted limit switches are available for the Series 65 Positioners. The stroke or rotation angle of an actuator is transferred via an extension of the positioner shaft to a control vane, which dampens an oscillator resonant circuit when it enters a probe. A downstream transistorized relay is controlled by the change in resistance.
Limit switch base plates are constructed of galvanized steel. The control vane is aluminum, and the setting mechanism is fiber glass reinforced polyamide. Intrinsically safe explosion protected units are available upon request. Consult Bray representatives for the switch options to meet your requirements.

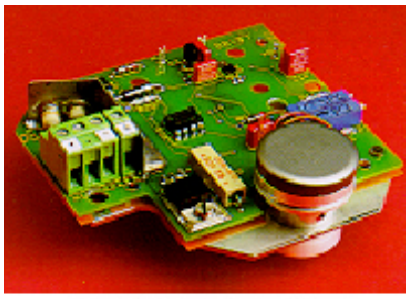


Inductive Limit Switch



Snap-acting SPST Micro Switch

MICRO SWITCHES
Snap-acting micro switches are also available. A SPST micro switch for valve end of travel position indication is shown above. Please consult Bray factory or representatives for information on SPDT micro switches.



Electrical Position Transmitter

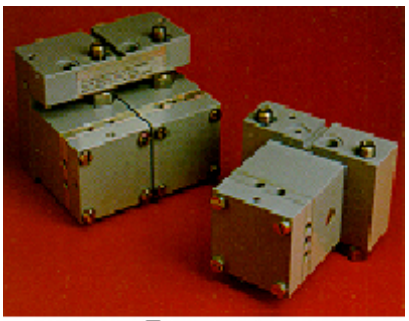
ELECTRICAL POSITION TRANSMITTER
The electrical position transmitter converts the linear and rotary movements of an actuator into an electrical signal of 0/4 to 20 mADC without the use of additional coupling to the actuator. This unit is considered intrinsically safe when operated with suitable barriers. Actuator angles are transferred via a feedback lever to the postioner by the integral transmitter. A capacitive scanning system converts the angular position to a proportional direct current when the power supply is applied. Matching to the actuator stroke takes place internally by means of an scaled adjustment device.

GAUGES
Up to threee gauges to measure the supply air and acutator input and output pressures are offered. Externally attached gauges are available in either a nipple mounted or gauge block configuration.
The signal acting pneumatic positioner is offered with a configuration of 2 internal gauges.

RANGE SPRINGS
For split range requirements. To permit matching of positioners to the stroke and input signal range, 5 different rated springs are available.

STROKE RANGES
By varying the effective length of the feedback lever supplied with the positioner, actuator strokes can be accommodated.

BOOSTERS
Where applications require increased air volume output and decreased response time, booster relay units are available. One unit is for double acting actuators, a second unit is for single acting. Booster housings are constructed of aluminum, finished with DD varnish. Please consult Bray factory for booster capabilities.



Boosters

120º VALVE ROTATION
An adapter for 120º valve rotation is available as an option for Bray Series 65 Pneumatic and Electro-Pneumatic Positioners.

INTRINSIC SAFETY
The Series 65 Electro-Pneumatic Positioner is available in an optional intrinsically safe housing when operated with suitable barriers.

SERIES 65 FEATURES

MODULAR DESIGN
The compact, modular design of the Series 65 Positioners and Accessories provides a versatile positioning system. Identical components, handling and operation have been incorporated throughout the line, thus subsequent alterations or conversions can be easily made.

MOUNTING TO BRAY PNEUMATIC ACTUATORS
The Series 65 and Bray actuators both comply with VDI/VDE 3845 (NAMUR recommendations.)

SPECIFICATIONS

	Pneumatic Positioner	Electro-Pneumatic Positioner
Supply Pressure [Max]	20-90psi (1.4-6 bar)	20-90psi (1.4-6 bar)
Air Consumption (80psi)	.32 scfm Single Acting .48 scfm Double Acting	.32 scfm Single Acting .48 scfm Double Acting
Input Signal		
Single Range	3-15psi (0.2-1 bar)	0/4 to 20 mADC
Split Range	3-9psi (.2-.6 bar)9-15psi (.6-1 bar)	4-12 scfm Double Acting
Connections		
Supply	1/4" NPT	1/4" NPT
Signal	1/4" NPT	1/2" NPT Conduit Entry
Sensitivity	0.05%	0.1%
Hysteresis	1.0%	0.5%
Linearity / Non-Linearity	1.0%	1.0%
Temperature Range	-40F (-40C) to +176F (+80C)	-40F (-40C) to +176F (+80C)
Weight	4 lbs.	5.5 lbs.
Control Element Type	Flapper / Nozzle	Moving Coil & Flapper / Nozzle

MATERIALS

	PNEUMATIC POSITIONER	ELECTRO-PNEUMATIC POSITIONER
Housing	Aluminum,DD Varnish finish	Aluminum, DD Varnish finish
Cover	Impact resistant polyester	Aluminum
Spool / Cam System	Stainless Steel	Stainless Steel
Diaphragm	Buna-N	Buna-N

Bray® CONTROLS

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