WESTLOCK K20 SMART POSITIONERS

CERTIFIED TO NEC, CEC, ATEX, IECEX STANDARDS TO MEET INTRINSICALLY SAFE AND NON-INCENDIVE

GENERAL APPLICATION

The K20 is an intuitive and reliable smart positioner with seamless auto-calibration designed to complete in just over a minute.* Its frictionless spool valve manifold and non-contact Hall Effect sensing technology enhances durability, maximizing uptime for control valve operations.

*Calibration time will depend on actuator size

FEATURES AND BENEFITS

- Simple auto calibration is completed in just over a minute and results are displayed on LCD display, facilitating setup and commissioning
- Integrated limit switch options allow for more flexibility in applications
- Includes as standard a 4 – 20mA feedback position transmitter for verification that the valve package is tracking correctly
- Non-contact Hall Effect sensor position sensing eliminates geared mechanical potentiometer for extended product life, reduced maintenance, and improved performance under vibration
- Single unit suitable for single acting and double acting applications
- Available with HART® 7 Protocol
- Globally certified hazardous area approvals

SMART POSITIONER SERIES

K20 ANALOG

The K20 Analog is a versatile control solution with simple auto-calibration, improved levels of reliability and easy to use interface. The smart positioner comes standard with a 4-20mA position transmitter.

K20 HART

The K20 HART incorporates all the features of the analog version, enhanced by the inclusion of HART® 7 protocol compatibility. This smart positioner offers seamless integration into your existing system, providing improved communication.

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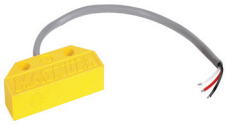
PRODUCT CERTIFICATION

	C SP US 154155 Certificate: 70130633	**ATEX** CE 2809 Ex SIRA 17ATEX2181X	**IECEx** IECEx CSA 17.0012X
Resin/ Stainless Steel Enclosure	Class I, Div. 1, Groups A,B,C & D, T4; Class I, Zone 0, AEx/Exia IIC T4 Ga; Class I, Div. 2, Groups A, B, C & D; T4; Type 4X, IP65	II 1G Ex ia IIC T4 Ga	Ex ia IIC T4 Ga
Aluminum Enclosure	Class I, Div. 1, Groups A,B,C & D, T4; Class II, Div. 1, Groups E,F & G; Class III; Class I, Zone 0, AEx/Ex ia IIC T4 Ga; Class II, Zone 21, AEx/Ex tb IIIC T87 Db; Class I, Div. 2, Groups A, B, C & D, T4; Class II, Div. 2, Groups F & G; Type 4X, IP65	II 1G/II 2D Ex ia IIC T4 Ga Ex tb IIIC T87 Db	Ex ia IIC T4 Ga Ex tb IIIC T87 Db
Ambient Range:	Ta: -40°C to +85°C	Ta: -40°C to +85°C	Ta: -40°C to +85°C

SWITCH OPTIONS



Magnum XT-90 hermetically sealed proximity switch
Hermetically-sealed proximity switches with either pure tungsten or rhodium contacts for use with low power I/O's to provide longer contact life.

SPDT mechanical switch V3
A V3 (single pole double throw) mechanical switch (Form C).

P+F NJ2-V3-N inductive proximity sensor
Intrinsically Safe
A solid state inductive proximity sensor which is available in NAMUR output. It is ideal for use in devices within potentially explosive atmospheres.

Note: The switch options are approved for hazardous locations.
(Mech. switch option not for use in Division 2 North America).

MATERIAL OF CONSTRUCTION

Housing / Cover	Engineered Resin, Aluminum & CF8M (316) Stainless Steel
Manifold	Anodized Aluminum or Stainless Steel
Conduit	M20 / M25 / 3/4" NPT
Shaft	Stainless Steel
Hardware	Stainless Steel

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TECHNICAL SPECIFICATIONS

	K20 Analog	K20 HART
Electrical		
Input/Output Signal	Analog I 4-20mA	Analog I 4-20mA + HART7
Minimum Voltage	9.0 VDC	9.5 VDC
Overcurrent Protection	50mA (Single Use Fuse)	58mA Current Limit
Min Control Current	3.5mA	
Min Current w/o Shutdown	3.0mA	3.2mA
Reverse Polarity Protection	Yes	
Voltage Drop	9.0 VDC	9.5 VDC
Pneumatic		
Supply Media	Air	
Supply Pressure*	40 to 120 psi (high pressure option) 15 to 45 psi (low pressure option)	
Output Pressure Range	15 to 120 psi	
Output Flow Rate Standard flow option	8.0 scfm @ 25 psi 16.2 scfm @ 90 psi	
Output Flow Rate High flow option	40 scfm @ 90 psi	
Air Consumption	0.08 scfm @ 90 psi 0.03 scfm @ 20 psi	
Technical*		
Linearity: Rotary	1%	
Valve Travel Span: Rotary	Min: 85° to Max: 100°	Min: 60° to Max: 100°
Gain	Adjustable	
Hysteresis	0.4% of span	
Repeatability	0.4% of span	
Resolution	0.5% of span	
Environmental		
Operating Temperature (Ambient)	-40 °C to 85 °C	
Thermal Coefficient	3% /100 °C	
Mechanical		
Pneumatic Connections	NPT, BSP	
Electrical Connections	NPT, M20	
Enclosure	Engineered Resin Aluminum CF8M (316) SS	
Cover Gasket	Buna-N	
Pneumatic Manifold	Anodized Aluminum, Stainless Steel	
Pneumatic Seals	NBR	
Features		
Position Transmitter (Standard)	4-20mA Feedback Standard (loop powered)	
Filter Regulator (Optional)	Aluminum or Stainless Steel, modular filter regulator	
(2) Limit Switches (Optional)	Select from range of options including mechanical, proximity or inductive sensing	

*Typical values at nominal 90° rotation in lab environment. Results will vary at lower span applications, and based on field conditions (actuator wear, mounting, etc.)

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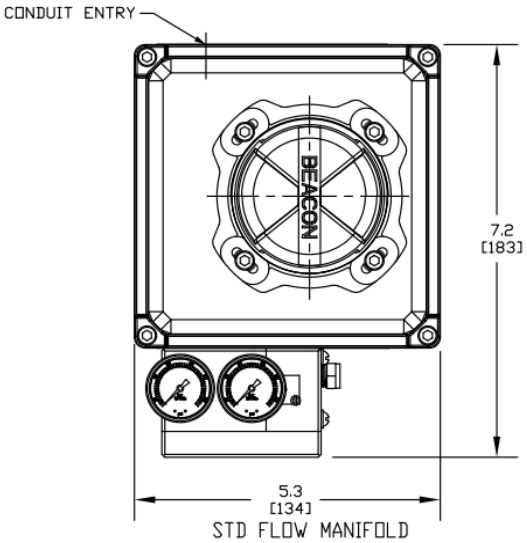
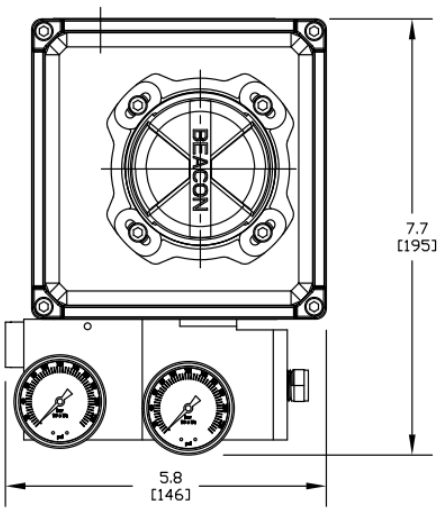
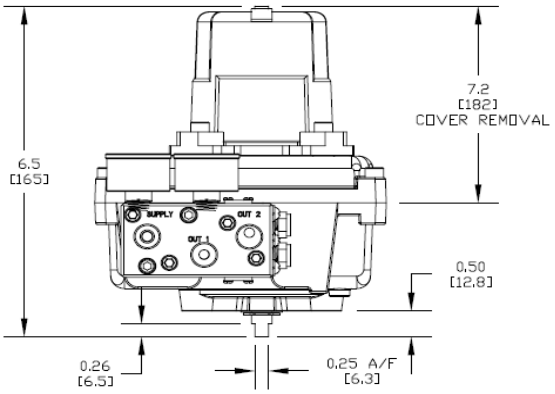


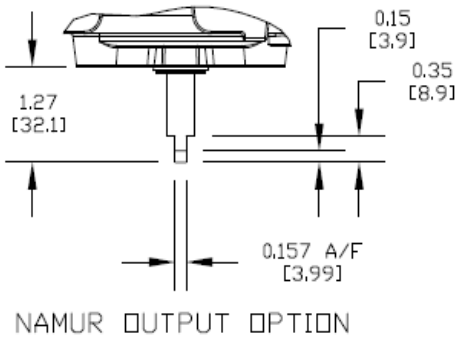
STD FLOW MANIFOLD
(1/4" NPT OR BSP PORTS)



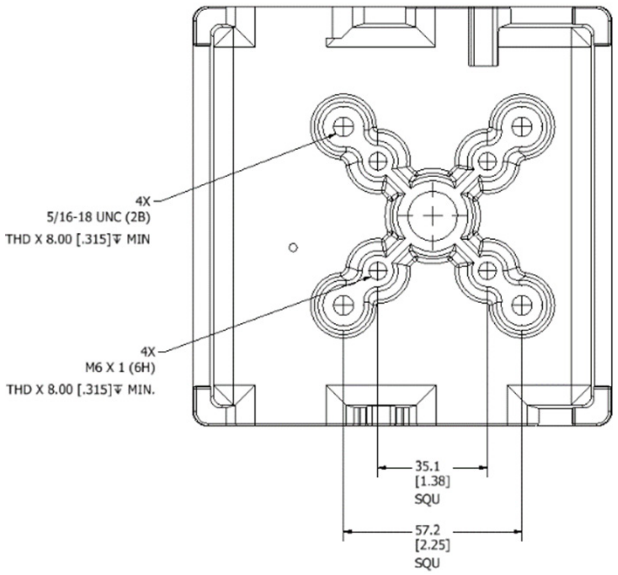
HI FLOW MANIFOLD
(3/8" NPT OR BSP PORTS)



STD OUTPUT OPTION



NAMUR OUTPUT OPTION



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K20 Series Positioner (Intrinsically Safe, Non-Incendive)

Base Model

K20 Smart Positioner (4-20mA Input with Embedded Microprocessor)

Shaft Output

- S Rotary -Standard (Double-D with 1/4" Flats)*
- D Direct mount to Keystone F89 Actuators*
- N Rotary - NAMUR VDI/VDE 3845*

Hazardous Area Certification

- IS Intrinsically Safe and Cl. I Div. 2 - NEC/ATEX/IECEx Approval

Enclosure Material

- E Engineered Resin - Clear Cover w/ Visible LCD
- S 316/CF8M Stainless Steel
- A Aluminum

Supply Pressure & Flow Capability

- H Standard Flow I Supply 40-120psi I recommended min. actuator swept volume of 12.2 cubic inches
- L Standard Flow I Supply 15-45psi I recommended min. actuator swept volume of 12.2 cubic inches
- V High Flow I Supply 40-120psi I recommended min. actuator swept volume of 91.5 cubic inches

Valve Manifold Material

- 0 Anodized Aluminum
- 1 Stainless Steel **(Required for: Enclosure Material "S")**

Conduit Entry

- B (1) M20 x 1.5
- C (1) 3/4NPT **(Recommended with switch options)**

Limit Switch & Sensor Options

- 0 None
- B (2) SPDT Mechanical with Gold Plated Contacts **(Not for Cl. I Div. 2)**
- I (2) Inductive P&F NJ2-V3-N
- T (2) SPDT Magnum Proximity with Tungsten Contacts
- R (2) SPDT Magnum Proximity with Rhodium Contacts

Communication & Position Feedback

- B Analog Only Communication and 4-20mA Transmitter
- H HART7 Communication and 4-20mA Transmitter

Pneumatic Connections

- N 1/4NPT **(3/8NPT for Supply Pressure "V")**
- B 1/4BSP **(3/8BSP for Supply Pressure "V")**
- F 1/4NPT w/ Aluminum Filter-Regulator **(3/8BSP for Supply Pressure "V")**
- S 1/4NPT w/ Stainless Steel Filter-Regulator **(Not available with Supply Pressure "V")**

K20	N	IS	E	H	0	C	R	H

F = Model Number: K20NISEH0CRHF

* Rotary options come standard with Black / Yellow Beacon Indicator
Note: Mounting Pattern: 5/16 - 18 Outer ; M6 x 1 Inner

Magnum Proximity Switch Application Note:
For 24 VDC service below 1 watt, R (Rhodium Magnum switches) is recommended
For 24 VDC service below 1 watt, T (Tungsten Magnum switches) is recommended

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WESTLOCK CONTROLS

Head Office	USA	Europe	Asia
280 N. Midland Avenue, Ste 258	+1 201 794 7650	+44 (0)1892 516277	+65 6266 4535
Saddle Brook, NJ 07663			
United States	westlockcontrols.com		

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