

Westlock Valve Monitoring System

Rotary Valve Monitors

Since 1984, Westlock has been committed to developing innovative solutions for monitoring process control valves.

Westlock's introduction of Dual-Display Monitors, TouchSet™ cams, and integrated components propelled the company to the industry forefront. Today, Westlock has more than 450,000 valve monitors in operation throughout the world. Applications span the chemical, food and beverage, pulp and paper, petroleum, and pharmaceutical industries.



BEACON™



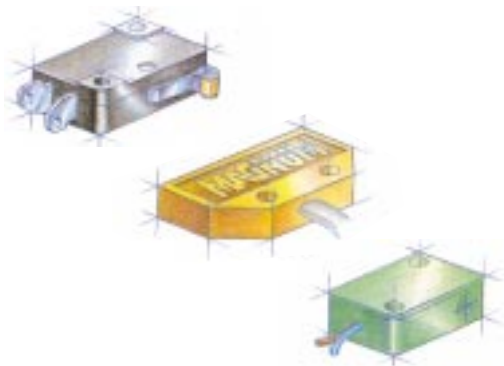
Beacon™ II Ektar

A non-metallic high visibility valve performance monitor for instant determination of valve position. Displays valve performance clearly up to 150 feet.

3-Way Beacon

A high visibility Flow Path Monitor for multiport valves.

SENSORS



Standard Switch Options

Mechanical SPDT & DPDT

SPDT & DPDT
Form C & ZZ

Magnum® XT-90

High Current Proximity Sensor
SPDT Form C (Hermetically Sealed)
Simple Apparatus

Pepperl & Fuchs

Intrinsically Safe, Proximity Type

ACCUTRAK™



AccuTrak™ 2000 Dual Display Monitor

Features:

- Beacon Visual Monitor
- Touchset Cams
- Prewired Terminal Strips
- Full Range Monitoring

Nema 4, 4X, 7, 9,

Class I, Groups C & D,
Class II, Groups E, F & G,
Divisions 1 & 2

Westlock Valve Monitoring System

ACCUTRAK/ELIMINATOR 360™



The Westlock 360 is specifically engineered to meet all hazardous area classifications and groups. Certified to UL and CSA, the unit has the flexibility to satisfy a wide range of diverse requirements.

Employing standard Westlock design features, (Beacon® performance monitors, Touch-Set® cams and pre-wired components), the 360 is available with a wide range of position sensors and integrally mounted solenoid valves. Optional stainless steel housing is also available.

ELIMINATOR™ 3000



Eliminator® 3000

The Eliminator 3000 is a highly reliable position monitor, junction housing and prewired, integrally mounted ASCO solenoid valve. Compatible with all PCs, the 3000 series is available with mechanical or proximity switches and a broad selection of solenoid valves.

Nema 4, 4X, 7, 9,

**Class I, Groups C & D, Class II, Groups E, F & G,
Divisions 1 & 2**

SERIES 9000



Series 9000, available in both aluminum and engineered resin enclosures and supported by UL, FM and CSA certification applies the economic advantages offered by the National Electrical Code. Through the utilization of hermetically sealed high-current carrying sensors, cost saving benefits are realized by the consolidation of components and elimination of Division 2 hazardous location seal fittings, wiring, conduit and their associated labor costs.

TRANSMITTERS



Available in three separate configurations (analog resistive, analog current, or digital sensing with analog current output), Westlock transmitters offer complete travel range display for continuous remote monitoring. The RS, CS, and DT options monitor control valves throughout a 0-100% range. At full open or closed, sensors will additionally confirm end position limits.

Note: All Westlock models are available. Contact factory for further information.

Stonel Limit Switch Assemblies

Features

Quick Access Cover: A lockable, part turn cover ensures fast access for rapid set-up.

High Visibility Indicator: The Red/Green indicator offers clear indication of the current valve position from up to 20 meters (65 feet).

Quick Set Cams: Touch & Tune Switch Cams are set without the need for additional tools further reducing installation time.

Compact Design: The SolaR Series is a compact construction, minimizing valve package envelope size.

Easy Wiring: Despite its compact design, the SolaR Series is surprisingly easy to wire up with plenty of room to bring wires into the enclosure.

Engineered Resin Enclosure: A rugged engineered resin enclosure offers excellent impact and chemical resistance.

IP67 & NEMA 4, 4X Protection: The SolaR Series is suitable for most intrinsically safe and general purpose applications.

Back-Wire Facility: With 2 conduit entries standard and two additional termination points, solenoid valves may be terminated within the enclosure, reducing installation costs.



Materials of Construction

Housing Material	Calibre ¹ Polycarbonate
Cover Material	Calibre ¹ Polycarbonate
Shaft	303 Stainless Steel
Namur Bracket	Stainless Steel

Ratings

Enclosure Protection	NEMA 4, 4X & IP67
Intrinsically Safe	EEx ia IIC T6 (sensors only)

Other Specifications	
Temperature Range	-40° to 82°C (-40° to 180°F)
Warranty, Mechanical Parts	Two Years
Warranty, Maxx-Guard Sensors	Two Years
Warranty, Sensor & Communication Modules	Five Years

Electrical Switch Ratings

V3 Mechanical (SPDT)	10 AMPS @ 120 VAC
V3 Gold Mechanical (SPDT)	0.5 Amps @ 30 VDC
Maxx-Guard (SPST)	0.15 Amps @ 120 VAC/30 VDC
Max. Volt Drop (no LED)	0.5 V @ 100 mA
Max. Volt Drop (LED)	3.5 V @ 10 mA; 6.5 V @ 100 mA
Min. LED Current	2.0 mA

¹ Calibre is a Registered Trade Mark of the Dow Chemical Company

Note: All Stonel Switches are available. Contact Factory for further information.

Sensor/Communication Module Ratings

AS-i Communication Module

Protocol	Actuator Sensor Interface (AS-i)	
Configuration	Open/Closed Inputs & (2) Power Outputs	
Voltage Output	24 to 30 VDC	
Max. Current Output	160 mA, (1) or (2) outputs combined	
Max. Power Output	4 watts, (1) or (2) outputs combined	
Temperature Range	-25° to 82°C (-13° to 180°F)	
Operating Life	Unlimited	

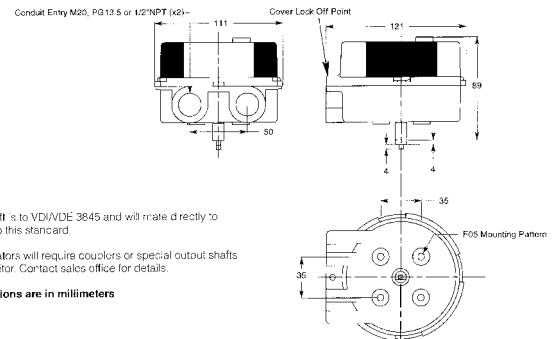
NAMUR Sensor Module

Configuration	(2) NAMUR Sensors; DIN 19234 Standard	
Current with Target Present	Current < 1.0 mA	
Current with Target not Present	Current > 3.0 mA	
Voltage Range	6 to 29 VDC	
Temperature Range	-40° to 82°C (-40° to 180°F)	
Operating Life	Unlimited	

SST Sensor Module

Configuration	(2) Solid State Sensors	
Max. Inrush Current	2.0 Amps	
Max. Continuous Current	0.3 Amps	
Min. on Current	2.0 mA	
Max. Leakage Current	0.25 mA	
Voltage Range	8 to 125 VDC; 24 to 125 VAC	
Max. Volt Drop	6.5 V @ 10 mA; 7.0 V @ 100 mA	
Temperature Range	-40° to 82°C (-40° to 180°F)	
Operating Life	Unlimited	

Dimensional Data



Stonel Limit Switch Assemblies

Approvals

ISQ:

Factory Mutual approved for:
 Class I, Groups A, B, C & D, Divisions 1 and 2
 Class II, Groups E, F & G, Divisions 1 and 2
 Class III, Divisions 1 and 2

Entity Parameters:

(Values apply to all ISQ sensors, transmitters and potentiometers.)
 Voltage Maximum (Vmax) = 40 VDC
 Current Maximum (max) = 100 milliamps
 Input Capacitance (Ci) = 0
 Input Inductance (Li) = 0

PQ:

Factory Mutual and Canadian Standards approved for:
 Class I*, Groups A & B, Division 2
 Class I, Groups C & D, Divisions 1 and 2
 Class II, Groups E, F & G, Divisions 1 and 2
 NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
 No Seal-offs required in Division 1 and 2
 *Consult factory for Group B, Division 1 approval

Clear Cover:

Factory Mutual and Canadian Standards approved for:
 Class I, Groups A, B, C & D, Division 2
 Class II, Groups E, F & G, Division 2
 NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
 No Seal-offs required in Division 2

MQ:

Aluminum Enclosure

Factory Mutual and Canadian Standards approved for:
 Class I*, Groups C & D, Divisions 1 and 2
 Class II, Groups E, F & G, Divisions 1 and 2
 NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
 No Seal-offs required in Division 1 and 2
 *Consult factory for Group B, Division 1 and 2 approval

Clear Cover

NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13

Potentiometer Specifications

Power Rating 1 Watt @ 40°C
 Resistance* 10 K ohms over 340°
 Max. Linearity Error ±0.85°
 Operating Life 2,000,000 rotations

*Consult factory for other resistance ranges.

Other Specifications

Temperature:

-40° to 82°C (-40° to 180°F) for mechanical switches, position transmitters and potentiometers (See Maxx-Guard Specifications for Temp. Range)

Operating Life:

Mechanical Switches — 1,000,000 cycles
 Maxx-Guard Sensors — 10,000,000 cycles
 (See Potentiometer and Position Transmitter for Operating Life)

Warranty

2 Years
 5 Years

All Mechanical
 Maxx-Guard Sensors



Maxx-Guard Specifications

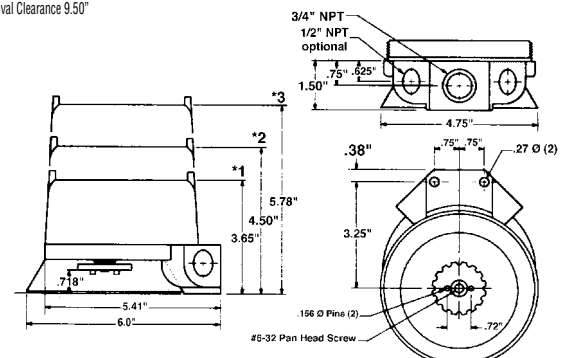
Sensors:	SPST	SPDT
Typical Operate Time	1.0 millisecond	3.0 millisecond
Contact Composition	Ruthenium	Tungsten
Temperature Range	-40° to 82°C (-40° to 180°F)	-30° to 82°C (-23° to 180°F)
Seal	Hermetically Sealed	Hermetically Sealed
Leakage Current	None	None
Operating Life	10,000,000 Cycles	10,000,000 Cycles
Maximum Voltage Drop	0.1 volts @ 10 milliamps	3.5 volts @ 10 milliamps
	0.5 volts @ 100 milliamps	6.5 volts @ 100 milliamps
Max. Current for LED Illumination	No LED	2.0 milliamps
LED Operating Life	No LED	minimum of 11 years

Position Transmitter Specification

Output Signal	Two wire 4 to 20mA
Recommended Supply	24 VDC, 50mA minimum
Voltage Range	10 to 40 VDC at terminals
Span Range	Adjustable from 50° to 270° (50° to 270° for HP-7)
Maximum Loading	700 ohms @ 24VDC
Maximum Linearity Error	±0.85° (±0.35 for HP-7)
Maximum Potentiometer Life	2 million rotations (50 million rotations for HP-7)
Rotation	Selectable clockwise or counter-clockwise

Dimensional Data

*1 -(1) & (2) Switch Unit: Cover Removal Clearance 5.65"
 *2 -(4) Switch Unit (MQ), Transmitter or Potentiometer without switches:
 Cover Removal Clearance 7.25"
 *3 -(4) Switch Unit (PQ), Transmitter or Potentiometer with switches:
 Cover Removal Clearance 9.50"



VRC Positioners

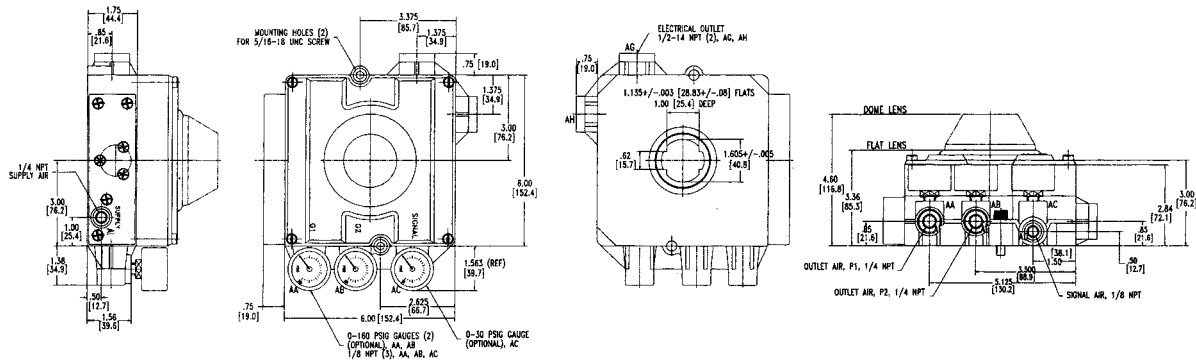
Performance

Parameter	Specification
Resolution	1.25% Maximum 0.10% Typical
Repeatability	99.75% Minimum 99.90% Typical
Hysteresis	0.50% Maximum 0.25% Typical
Linearity	1.0% Maximum
Gain @80 psig	250 Single Acting 500 Double Acting
Air Consumption @80 psig	0.25 SCFM. Standard Flow Spool Valve 0.45 SCFM Maximum Flow Spool Valve
Temp. Range	-40 to 150°F/-40 to 65°C

Construction

Part	Materials
Enclosure	PPA Composite, 300 Stainless Steel Port Rings, Cover and Mounting Bolts
Indicator Lens Internals	LEXAN™ PPA, PPS and PEEK Composites
Nickel Plated Brass Spool Valve	300 Series Stainless Steel Carpenter 70 Grade Stainless Steel
I/P Converter (VK02) VE Model	PPA Composite, TEFLON™ Coated Carbon Steel, Nickel Plated Carbon Steel, High Density Polyethylene DELRIN™ BUNA N
Signal Diaphragm/ O-Rings	

Dimensional Diagrams



Model Number Specifications

Required Selections	Optional Selections											
Model Type	Position Indicator	Characterizing Cam	Spool Valve		Port Gauges	Position Transmitter		Limit Switch				
VP Pneumatic	Flat 90°	7	Linear	0	Standard	0	Brass	G	4-20 MA	T1	Mechanical	S1
3-15 psig	Flat 180°	8	Square Root	1	Maximum	1	Stainless	Z	1 Kohm	T2	(2) SPDT	S2
VE	Dome 90°	9	Square	2	Extreme Service Standard Flow	2					Proximity	
Electro-Pneumatic 4-20 MA			0-60°	3	Extreme Service Max. Flow	3					(2) SPST	
VI			Equal Percent	4								
Electro-Pneumatic General Purpose & Hazardous Locations			Custom	5								
			Tangent	6								
			0-45°	7								

Model Number Example:

A Model VE900-G-T1-S2 is a (Model VE) electro-pneumatic positioner with a (9) DOME style, 2-quadrant position indicator; (0) linear Cam; and (0) Standard Flow Spool Valve. Optional fields specify (G) Brass Gauges; (T1) 4-20 MA position transmitter; and (S2) (2) SPST Proximity Limit Switches.

Note: See Price List for Cii Part Numbers

PMV Positioners



Features & Benefits

Simple design makes this product easy to understand, calibrate and repair. Rugged construction provides operation in a variety of tough applications. Compact size minimizes space requirements. A complete package means the user can select the right positioner for his application.

A bright indicator makes it easy for operators to visually check valve position. Spool valve design requires very little maintenance. Electro-pneumatic unit eliminates the need for an extra product and additional connections. Recognized product name means a proven product with many years of service.

Product Specifications

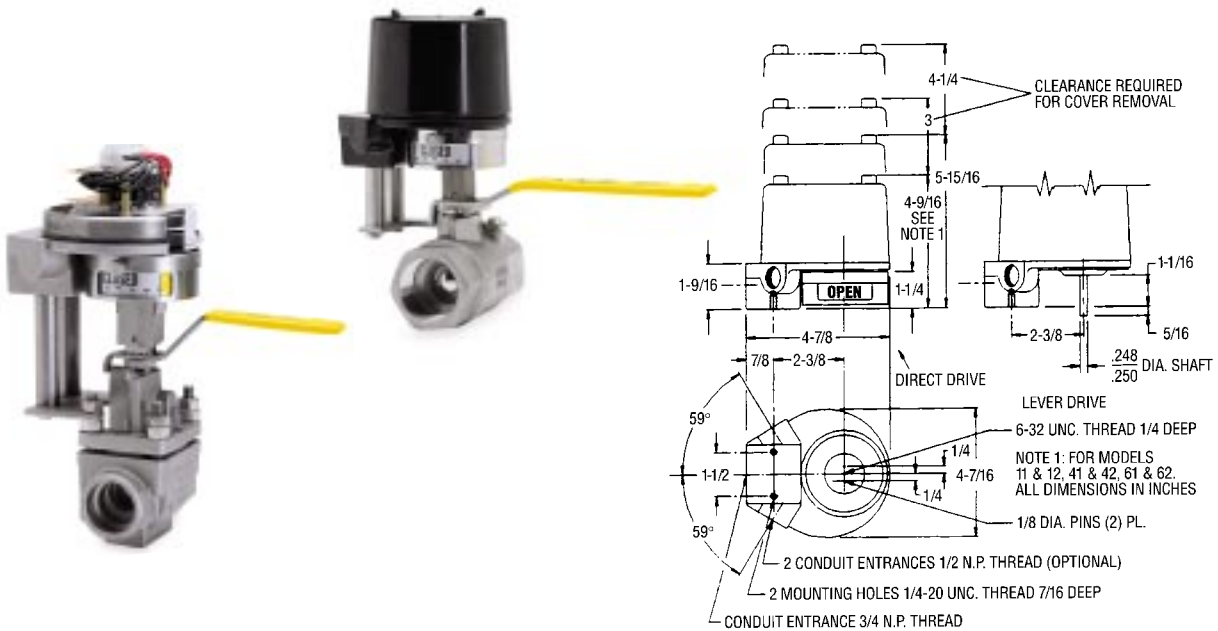
	P1200/20	P1500/20	P2000/20	P5/EP5*
Connections:	1/4"	1/8"	1/4"	1/4"
Supply Pressure:	150 psig	150 psig	120 psig	145 psig
Hysteresis:	.7%	.7%	.5%	.5%
Linearity:	1.0%	.5%	2.0%	.5%
Repeatability:	.5%	.5%	.5%	.5%
Sensitivity:	.4%	.3%	.5%	.25%
Input Signal:	3-15/6-30	3-15/6-30	4-20 mA	3-15, 4-20mA
Temperature - Standard	+5 - 175°F	-40 - 195°F	+5 - 175°F	+5 - 185°F
Temperature - Optional	+5 - 320°F	-85 - 266°F	+5 - 230°F	+5 - 230°F
Weight	3.3 lbs.	4.2 lbs.	5.9 lbs.	2.9/4.1 lbs.
Air Consumption	35/.71 scfm	-----		.75 scfm
@ 85 psig				
Air delivery	14/16.8 scfm	8.4/16 scfm	12/15.7 scfm	12.6 scfm
@ 57 psig				
Gain factor	120/135	250/310	50/400	10,000

*PMV New Modular Unit P5-Pneumatic; EP5 Electropneumatic

Valve positioners are an excellent tool for increasing the gain of your valve package, often reducing your actuator size due to your increased ability to accurately control higher air deliveries, and the flexibility to add options and accessories to complete your control package's performance.

Our standard positioners include both pneumatic and electropneumatic positioners. Electropneumatic Positioners may be used on either double acting or spring return actuators. The anodized aluminum housing provides excellent product integrity and good corrosion resistance. Options including special coatings, stainless steel housings, and a variety of accessory items which provide the flexibility to meet your most demanding control applications.

Proximity Valve Position Monitoring Systems



Valve Position Monitoring Systems

Proximity Controls' flexible Valve Position Monitoring Systems give users the ability to reliably monitor both manual and actuated valves. The durable position monitoring system features mounting hardware available in zinc plated steel, stainless steel, and Namur standards for all Proximity indicator models.

Proximity Model #	NEMA	Model Description	Switch/Transmitter Specifications
42ADM	4,4X	2 SPDT MECH, Clear Plastic Cover	15 amps ac, 5 amps dc
42AD0	4,4X,7,9	2 SPDT MECH, Anodized Aluminum Housing	15 amps ac, 5 amps dc
42DD0	4,4X,7,9	2 DPDT MECH, Anodized Aluminum Housing	10 amps ac, 10 amps dc
42RDM	4,4X	2 SPDT PROX, Herm Sealed Reed, Plastic Cover	3 amps ac, 2 amps dc
42RD0	4,4X,7,9	2 SPDT PROX, Herm Sealed Reed, Anodized Al.	3 amps ac, 2 amps dc
42VD0J1	4,4X,7,9	2 SPDT MECH, 3/4" & 1/2" NPT Entry, Anodized Al.	10 amps ac, 10 amps dc
42RD0J1	4,4X,7,9	2 SPDT PROX, 3/4" & 1/2" NPT Entry, Anodized Al.	3 amps ac, 2 amps dc
44AD0	4,4X,7,9	4 SPDT MECH, Anodized Aluminum Housing	15 amps ac, 5 amps dc
45VD0	4,4X,7,9	2 SPDT MECH, & Transmitter, Anodized Aluminum	10 amps / 4-20 mA out
45RD0	4,4X,7,9	2 SPDT PROX, & Transmitter, Anodized Aluminum	3 amps / 4-20 mA out
62LDM	4,4X	2 SPST PROX, 2 LED'S, Clear Plastic Cover	Herm Sealed Reed (mA)
62PD0	4,4X,7,9	2 SPST PROX, Anodized Aluminum Housing	Herm Sealed Reed (mA)
62QD0	4,4X,7,9	2 SPDT PROX, Anodized Aluminum Housing	Herm Sealed Reed (mA)
35OD0*	Mag Coupling	MULTI-TURN Transmitter, Anodized Aluminum	No Switch / 4-20 mA
12AD0**	Mag Coupling	2 SPDT MECH, Anodized Aluminum Housing	15 amps ac, 5 amps dc
15VD0	Mag Coupling	2 SPDT MECH, & Transmitter, Anodized Aluminum	10 amps / 4-20 mA out
12VD0J1	Mag Coupling	2 SPDT MECH, 3/4" & 1/2" NPT Entry, Anodized Al.	10 amps ac, 10 amps dc
12AD6	Mag Coupling - ST STL	2 SPDT MECH, 304 Stainless Steel Housing	15 amps ac, 5 amps dc
15VD6	Mag Coupling - ST STL	2 SPDT MECH, & Transmitter, 304 Stainless Steel	10 amps / 4-20 mA out

*No Visual Indicator Mag (Magnetic) Coupling - Maximum hazard protection and submersible. Prox (Proximity) sensors are all Herm (Hermetically) Sealed Reeds. Anodized aluminum housing is standard. 316 Stainless Steel is optional.

When ordering, please specify requirements for explosion proof certifications (US, CSA OR CENELEC), or Intrinsic Safety. Standard temperature (180°F) switches are available. White epoxy is optional. When you need a junction package, specify your solenoid valve requirement(s). For factory sealed lead orders, please specify number of leads and desired length (36" standard). Let us know if you need special cables or connectors, and specify your mounting hardware requirements.

** Conbraco maintains the 12ADO in stock, Conbraco part number with indicator M-1161-00 and without indicator M-1059-00.