

StoneL's Onyx with Cyclone integral pneumatic valve saves you valuable set up and installation time. The Cyclone is a high flow, low power pneumatic valve with the pilot solenoid or piezo protected within the Onyx Lexan® enclosure. The Onyx with Cyclone eliminates your need for junction boxes, connectors and extra wiring. Optional pre-wired quick connect cabling offers extra protection from moisture and corrosives and further reduces wiring cost.



Components Sealed Inside Enclosure



- Vapor tight seal is achieved by hand tightening the screw-on cover.
- NEMA 4, 4x, 6 & IP 67 rated to withstand severe washdown and temporary submersion environments.
- Shaft is lubricated and o-ring sealed top and bottom.
- Onyx design is streamlined to shed water and corrosive liquids.

Durable and Corrosion Resistant

- Onyx Lexan® polycarbonate is the same material used in bullet proof windows and F-16 jet canopies.
- Onyx enclosure and pneumatic valving have been tested to severe shock and vibration with no adverse consequences.
- Lexan® enclosure material is tolerant of temperature extremes of -40° C to 100° C without significantly affecting its physical properties.
- Lexan® is resistant to most acids, bases and salt solutions. A fusion coating is available to withstand organic solvents.
- External pneumatic body/manifold is available in stainless steel and 360 brass for a variety of corrosive applications.

Nonincendive and Intrinsically Safe

FM and CSA have approved the proximity sensor models for Class I & II, Division 2 areas.

The Onyx is available with or without integral pneumatic valving. Select from a variety of switch/sensor options or the dual module with sensors and/or communication capabilities.



Onyx Specifications

Visit www.stonel.com/valvepoint/approvals for more information.

Materials

Enclosure	Lexan® Polycarbonate Fusion Coating Available
Seals	Viton
Shaft	Stainless Steel

Other

Temperature Range with solenoid	-40° to 80°C (-40° to 176°F) Max. Ambient 50°C (120°F)
Warranty	Two years on all mechanical parts
Enclosure Protection	NEMA 4, 4X, & 6 IP67

Approvals

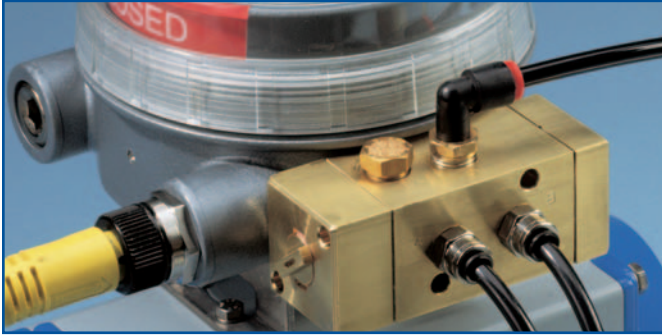
Nonincendive (Proximity models only)	Class I, Div. 2 Groups A,B,C,D Class II, Div. 2 Groups F,G
Intrinsically Safe (ON44 model only)	Class I & II, All Groups, Div. 1 & 2



Some models may not be CSA and FM approved. Please consult factory for details.

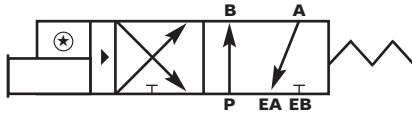
Pneumatic Options and Specifications

Cyclone Valve



- High tolerance to dirty air.
- Available with low power and intrinsically safe solenoids.
- External manual override standard on all models.
- Features long life with special o-ring and seat design.
- Valve body available in stainless steel or brass.

Valve Schematic
(Other Options Available)



Pilot Operator



Solenoid $\odot = \square$

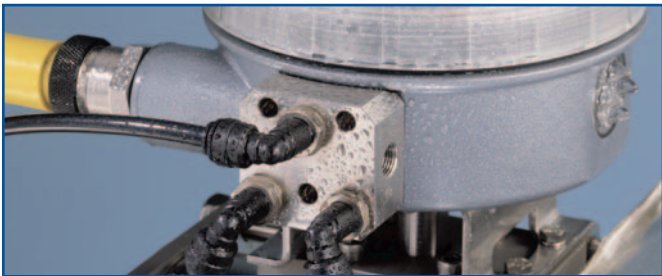
The Cyclone high flow valve may be pilot operated with a low power contamination tolerant solenoid poppet valve. Choose from either AC or DC 1.8 watt versions or an intrinsically safe 0.6 watt DC model.



Piezo $\odot = \square$

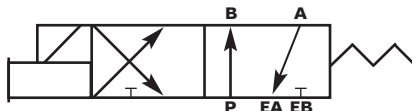
For ultra low power FOUNDATION Fieldbus (FF) networking applications a Piezo pilot may be selected. The Piezo crystal operates at less than 2.0 mA at 6.5 VDC enabling it to be operated from the FF dual module without auxiliary power. Total FF dual module current consumption with the Piezo pilot is less than 16 mA allowing at least 5 units on one intrinsically safe string dramatically reducing barrier and wiring costs.

Direct Acting Valve



- High tolerance to dirty air.
- Internal momentary manual override.
- External manifold available in stainless steel or brass.

Valve Schematic



Cyclone Valve Specifications

Valve Body

Configurations (All Pilot Operated)	Single coil, 5-way, 2 position, spring return Dual coil, 5-way, 2 position, shuttle piston Dual coil, 5-way, 3 position, spring centered (blocked)
Flow Rating	Cv - 0.75 (Kv - 10.7)
Porting	1/4" NPT
Operating Pressure	25 to 120 psi (1.7 to 7.5 bar)
Filtration Requirements	40 micron
Manual Override	External
Operating Life	1 million cycles
Operating Temperature	-18° to 50° C (0° to 120° F)
Valve Body Material	360 Brass or 303 Stainless Steel

Solenoid Pilot Specifications

DC Coil Power	1.8 watts @ 24 VDC
AC Coil Inrush Current	0.09 Amps @ 120 VAC
AC Holding Current	0.06 Amps @ 120 VAC
AC Coil	Burn-out proof
Intrinsically Safe Coil	0.6 watts @ 12 VDC FM approved & CENELEC Certified

Piezo Pilot Specifications

Operating Pressure	36 to 120 psi (2.5 to 7.5 bar)
Media	Dried / filtered air (30 micron)
Operating Life	1 million cycles
Operating Temperature	-10° to 60° C (14° to 140° F)
DC Coil Power	2mA@7.5VDC
Electrical Protection	EEx ia IIC T6

Direct Acting Valve Specifications

Valve Body

Configuration	Direct Acting 5-way, 2 position, spring return
Flow Rating	Cv - 0.2 (Kv - 2.86)
Manifold Porting	1/4" NPT
Exhaust Porting	1/8" NPT
Operating Pressure	0 to 120 psi (0 to 7.5 bar)
Filtration Requirements	40 micron
Manual Override	Internal momentary
Operating Life	1 million cycles
Operating Temperature	-18° to 50° C (0° to 120° F)

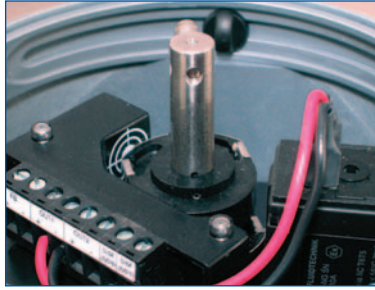
Solenoid Coil Specifications

DC Coil Power	7.3 watts @ 24 VDC
AC Coil Inrush Current	0.09 Amps @ 120 VAC
AC Holding Current	0.06 Amps @ 120 VAC
AC Coil	Burn-out proof
Manifold Material	Stainless Steel or 360 Brass

Sensors and Communications

Dual Module System

The Onyx dual module and integral pneumatic valve is an environmentally protected valve control platform. With the Cyclone solenoid low power pilot, power may be directly delivered over the AS-Interface or DeviceNet buses. Auxiliary power may be provided for the Modbus network to power the solenoid. Choose the FOUNDATION Fieldbus bus powered module to operate the piezo piloted Cyclone or choose the FOUNDATION Fieldbus externally powered module for the solenoid powered Cyclone. *(For more detailed information please see pages 2 through 8.)*



Fieldbus DeviceNet.



MODBUS

SST Switching Sensors (33)

Configuration (2) SST Switching Sensors
Terminations for Solenoid
Electrical Ratings 0.3 Amps @ 125 VAC/DC

Namur Sensors (44)

Configuration (2) Namur Sensors
Terminations for Solenoid
Intrinsically safe (DIN 19234)
Voltage Range 6 to 29 VDC
Current Ratings Target On $I < 1$ mA
Target Off $I > 3$ mA

AS-Interface VCT (96)

Configuration (2) Sensor Inputs
(2) Auxiliary Inputs
(2) Power Outputs (Solenoids)
Max. Current 160mA, Both Outputs Combined
(Current Limited to 200mA)
Outputs, Max. Power 4 Watts, Both Outputs Combined
Outputs, Voltage 25 to 30 VDC

AS-Interface VCT (97) with Extended Addressing

Configuration (2) Sensor Inputs
(2) Auxiliary Discrete Inputs
(1) Power Output (Solenoid)
Max. Current 100mA
Outputs, Max. Power 2.4 Watts
Outputs, Voltage 25 to 30 VDC

DeviceNet VCT (92)

Configuration (2) Discrete Inputs (Open & Closed)
(2) Power Outputs (Solenoids)
(1) 4-20 mA Auxiliary Input
Outputs, Max. Power 4 Watts, Both Outputs Combined
Outputs, Voltage 24 VDC

Bus Powered FOUNDATION Fieldbus VCT (93)

Configuration (2) Discrete Inputs, DI (Open & Closed)
(2) Discrete Outputs, DO
(Piezo Valves)
Outputs 2mA @ 6.5 VDC each; Current
Limited to 2mA (Bus Powered)

Externally Powered FOUNDATION Fieldbus VCT (94)

Configuration (2) Discrete Inputs, DI (Open & Closed)
(2) Power Outputs, DO
(Solenoids)
Outputs 4 watts @ 24VDC Both Outputs
Combined; Current Limited to
200mA (Externally Powered)

Modbus VCT (95)

Configuration (2) Discrete Inputs (Open & Closed)
(2) Power Outputs (Solenoids)
Outputs 4 Watts @ 24 VDC Both
Outputs Combined (Current
Limited to 200mA)

Switch/Sensor Options



SST Solid State Sensors

SST sensors have an unlimited application life and are ideal for AC and DC control circuits. Onyx is available in 2 switch or

2 switch and position transmitter models.

(See page 8 for details.)

Operation Cam Selectable NO or NC
Operating Life More than 10 million cycles
Electrical Ratings 0.3 Amps @ 125V AC/DC
Leakage Current Less than 0.25 mA
Maximum Voltage Drop 6.5 Volts @ 10 mA
Warranty Five Years



Mechanical Switches (SPDT)

Mechanical silver contact switches are ideal for high power applications. Gold contacts are suitable for low power applications, typically computer input

circuits. *(See page 9 for details.)*

Electrical Ratings (Silver) 10 Amp @ 125/250 VAC
0.5 Amp @ 125 VDC
Operating Life (Silver) 400,000 cycles
Electrical Ratings 1.0 Amp @ 125 VAC
0.5 Amp @ 30 VDC
Operating Life 100,000 cycles



Maxx-Guard Switches

Maxx-Guard hermetically sealed reed switches with SPDT tungsten contacts are recommended for 120VAC computer

inputs. SPST contacts are ideal for either 120VAC or 24VDC computer inputs. Two switches are available in Onyx models. *(See page 8 for details.)*

Electrical Ratings
SPST 0.15 A @ 125/250 VAC, 30 VDC
SPDT Varies, see page 8
Seal Hermetically Sealed
Operating Life 5 million cycles
Warranty 2 Years

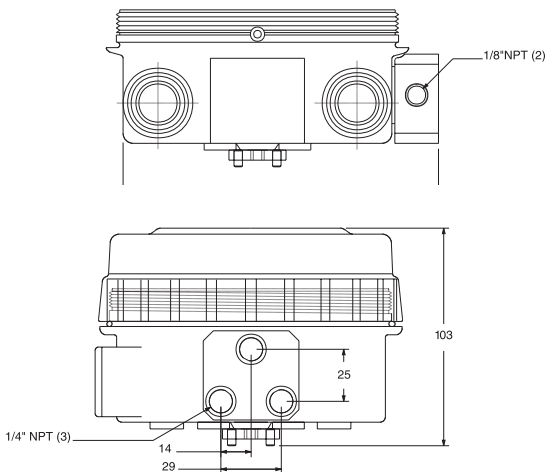
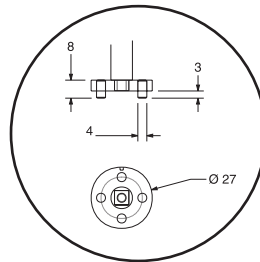
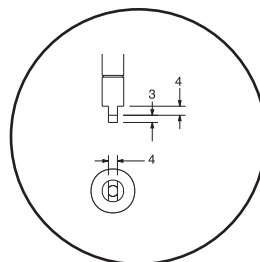
Model Selector

Model Example: ON332B5S2LR

ON	Functions	Pneumatic Valve				Enclosure/ Conduit	Shaft	Indicator			
		Description	Voltage	Brass	Stainless						
Proximity Models 33 (2) SST Sensor Dual Module 2X (2) SST Sensors 2P (2) SPST Maxx-Guard 2L (2) SPST Maxx-Guard LED 2H (2) SPDT Maxx-Guard 2S (2) SPDT Maxx-Guard LED Intrinsically Safe Models 44 (2) Namur Sensor Dual Module (DIN 19234) 2J (2) SPST Maxx-Guard (Passive) Mechanical Models 2V (2) SPDT Mechanical 2W (2) SPDT Gold Contact Mechanical Valve Communication Terminals (VCT) 92 DeviceNet Dual Module ¹ 93 FOUNDATION Fieldbus Dual Module ² (Bus Powered) 94 FOUNDATION Fieldbus Dual Module ¹ (Externally Powered) 95 Modbus Dual Module ¹ 96 AS-Interface Dual Module ¹ 97 AS-Interface Dual Module ³ (with extended addressing) 1. Use only Cyclone 24VDC Pneumatic Valve 2. Use only Cyclone Piezo Pneumatic Valve 3. Pneumatic Valve options 4H, 4B or 11 recommended Position Transmitter Models 7X Position Transmitter with (2) SST Sensors 70 High Performance Position Transmitter	Single Direct Acting 0.2 Cv	24 VDC	1H	12	S2 (2) 1/2" NPT S5 (2) M20 S8 (2) PG13.5	L 15mm1 NAMUR S 2 Pin Coupler	R Red Closed Green Open 1 or 2 Three Way Flow Path X Special See Visual Indications Designations chart on page 15				
	Cyclone Single Pilot Spring Return 0.75 Cv	24 VDC	2H	2B*							
		120 VAC	2J	2C*							
		I.S.	2G	2A*							
		Piezo	3G	3A*							
		0.5W 24 VDC	4H	4B*							
	Cyclone Dual Pilot Shuttle Piston 0.75 Cv	24 VDC	2L	2E*							
		120 VAC	2M	2F*							
		I.S.	2K	2D*							
		Piezo	3K	3D*							
	Cyclone Dual Pilot Blocked Center 0.75 Cv	24 VDC	2Q	2N*							
		120 VAC	2R	2P*							
		I.S.	2T	2U*							
		Piezo	3T	3U*							
	No Pneumatic Valve							11			

*Consult Factory for availability

Dimensions (mm)

Direct Acting Valve with "S" Shaft

"S" Shaft

"L" Shaft

Cyclone Valve with "L" Shaft
