Prism PI
Intelligent features offer advanced performance

The Prism PI integrates an advanced position sensing system and integral pneumatic control for sanitary diaphragm and other linear applications.

Compact and durable, the PI is suited for corrosive, heavy washdown and hazardous areas.

Advanced position sensing

With the continuous solid state mag res sensor system, the PI offers the ultimate in ease of set-up, reliability and consistent performance. Push button or remote setting is simple and quick with bold mechanical, as well as LED visual position status.

Integral pneumatic control in compact, vapor tight enclosure

Position sensing system and control valve are enclosed in a vaportight submersible enclosure with convenient screw on cover access. Pneumatic solenoid valve is available in standard high flow. Settings and wiring may be conveniently accessed for quick set-up and maintenance.

Compact design for convenient adaptability to linear valves

The PI offers precision feedback for valve stroke lengths varying from 4 mm (0.13") up to 66 mm (2.6"). Options include three cover heights, the low profile version with no visual indicator and a medium or tall cover version both with a visual indicator. With the low profile version, the unit is less than 76 mm (3") above actuator mounting pads and may accommodate stroke lengths up to 28 mm (1.1").

Compact design

| Standard stroke with no visual indicator | Standard stroke with visual indicator | Long stroke with visual indicator |

Features

1. **Suitable for high pressure washdown** and temporary submersion, the PI is rated for NEMA 4, 4X and 6 (IP66 & 67).

2. **Screw-on cover** enables convenient access without tools.

3. **Enclosure is made of high impact strength,** corrosion-resistant polycarbonate.

4. **Prominent visual indicator** boldly displays mechanical position status.

5. **Low profile design** minimizes height clearance required above actuator.

6. **All electronics are sealed** inside the linear C-module to protect against contamination, shock and vibration.

7. **Intelligent high accuracy position sensor** is solid state with no moving parts for long life. Sensor automatically adjusts dead band based on stroke length.

8. **Integral solenoid valve available** with Cv of 0.20.

9. **NPT pneumatic connections** are stainless steel reinforced for long life sealing under high torque stress conditions.

10. **Push button open and closed** settings are made conveniently and quickly. (AS-Interface unit may have settings made remotely.)

11. **LED light bar** brightly displays open, closed and solenoid status.

12. **Conduit entries available** in NPT, metric threads or quick connectors.
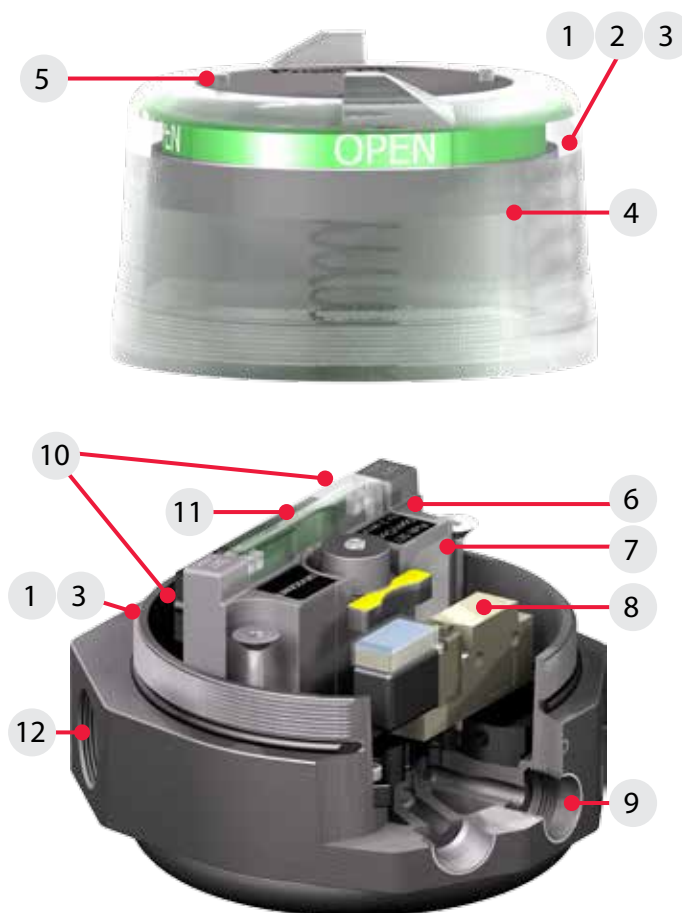
Prism mounting system

Prism adapting systems are designed for each actuator using a standardized system that minimizes the required space envelope. Mounting components include:

- **Standardized rugged mounting plate** allowing for rotational flexibility and compact secure attachment.

- **Actuator fasteners made of stainless steel** and tailored for each specific mounting application.

- **Shaft coupler made of stainless steel** and designed to conveniently attach the magnetic trigger to actuator shaft.

Complete mounting adaption is performed in minutes! With no moving wear-parts long-life is assured. And, the trigger system is impervious to thermal shock and vibration.

Position sensor module

The PI features an intelligent linear magnetic resistive sensor system to precisely measure stroke position at all times. Features include:
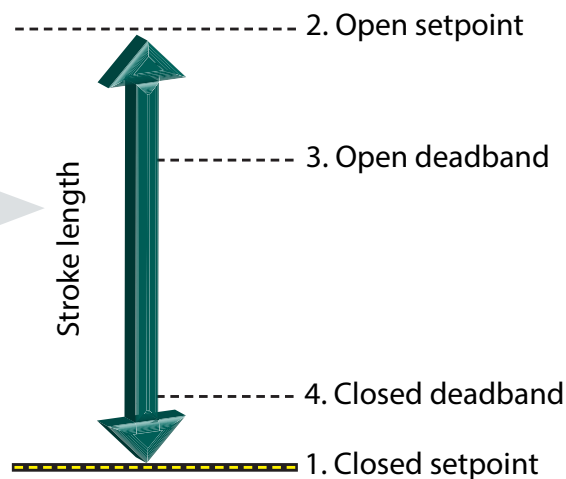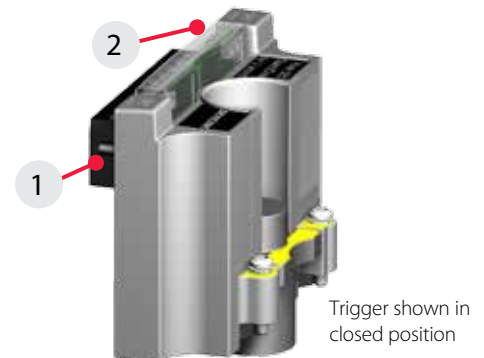
- **High accuracy** over wide operating temperature range.
- **Automatic tuning** of open and closed deadband depending on stroke length (See below).
- **High intensity LEDs** in module light bar which reflect on enclosure cover for visibility of switch status even in brightly lit areas.
- **Fully potted and sealed** making it resistant to high G vibration forces and moisture.
- **Convenient, simple push button settings** accurately locking in open and closed positions, which remain in place when power is removed and reapplied.
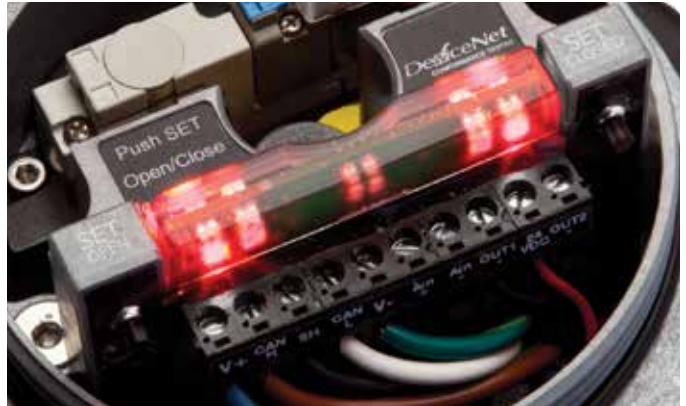
Convenient push button settings and high intensity LEDs

Automatic tuning

The intelligent sensing system offers precise feedback. Set-up is performed in seconds with high precision in the closed position and no false switching in varying open positions.

Trigger shown in closed position

Trigger shown in open position

Stroke length

2. Open setpoint

3. Open deadband

4. Closed deadband

1. Closed setpoint

Easy set-up

1. Push button to set closed (2 seconds).

2. Push button to set open (2 seconds).

3. Open deadband is automatically set to 30% of full stroke length, eliminating false switch feedback from "floating" due to pressure variations.

4. Closed deadband is automatically set to 3.8 mm (0.150"), or 30% of stroke, whichever is less, providing precise closed indication.

Sensing and communication module

The Prism features StoneL's linear module system with field proven reliability in all on/off applications. Outputs are available as SST (switching) and VCTs (valve communication terminals).

Modules have a **five year warranty.**

Switching and sensor specifications

SST switching sensors (33)

Configuration	Linear solid state sensors (2) Wire terminations for one solenoid
Operation	Select NO (33) model
Maximum current inrush	1.0 amp @ 125 VAC/VDC
Maximum current continuous	0.10 amp @ 125 VAC/VDC
Minimum on current	2.0 mA
Maximum leakage current	0.5 mA
Voltage range	20 - 125 VAC/VDC
Maximum voltage drop	6.5 volts @ 10 mA 7.5 volts @ 100 mA

Wiring diagram

(33)

Valve Communication Terminal (VCT) specifications

DeviceNet™ (92S & 92W)

Configuration		(2) Discrete inputs (open and closed)
	92W	(2) Remote sensor settings
	92W	(1) Wink feature
		(2) Power outputs (solenoids)
		(1) 4-20 mA auxiliary analog input, 10-bit resolution; no additional power source required
Transmission rate		Software selectable 125K, 250K or 500K baud
Messaging		Polling, cyclic and change of state
Outputs		4 watts @ 24 VDC both outputs combined
Output voltage		24 VDC (with input voltage ranging from 10 - 24 VDC)
Other features		Predetermined output fail state

Wiring diagram

(92S & 92W)

* 4-20 mA transmitter not included

Sensor specifications

NAMUR sensor (45)

Configuration	(2) NAMUR sensors (EN 60947-5-6; I.S.) Wire terminations for one solenoid
Operation	Normally closed NAMUR sensors (solid state)
Voltage range	7 - 24 VDC
Current ratings	Target on I<1 mA Target off I>3 mA

Wiring diagram

(45)

Valve Communication Terminal (VCT) specifications

AS-Interface (96S) and AS-Interface with extended addressing (97S & 97W)

Configuration	96S, 97S	(2) Discrete sensor inputs (2) Auxiliary discrete inputs (1) Power output (solenoid)
Maximum current	96S 97S 97W	160 mA 100 mA 160 mA
Auxiliary inputs		24 VDC @ 2.5 mA (self-powered)
Output	96S 97S 97W	4 watts @ 24 VDC 2 watts @ 24 VDC 4 watts @ 24 VDC
Outputs, voltage		21 - 26 VDC
Profile	96S 97S 97W	ID=F, IO=7; (4DI/4DO) ID=A, IO=7; (4DI/3DO) ID=A, IO=7; (4DI/3DO)
AS-i version		3.0
Devices per network	96 97	31 62
Features	96 97	Wink and remote setting Wink

Wiring diagram

(96S) and (97S & 97W)

Prism PI with Wireless Link

Easily access hard-to-reach automated valves

Discover convenient remote access of your automated valves when you install the Prism PI with DeviceNet™ or AS-Interface featuring *Bluetooth*® technology.

Devices may be remotely accessed from up to 50 meters depending on obstructions. Setting changes and solenoid control are enabled through the DeviceNet™ network.

With the new patent pending *StoneL Wireless Link* app you can remotely:

- Monitor and set open and closed switch positions
- Monitor and set the network address
- Monitor and set the baud rate
- Operate solenoid valve(s) (if network- or power supply-enabled)
- Identify model and serial number (preset from factory)
- Identify valve automation components (entered by valve supplier)
- Log maintenance information
- Monitor diagnostics (valve cycle count, electronics temperature, and more).

Set up and operation

The Prism PI with Wireless Link is commissioned and set up identically to the standard DeviceNet™ or AS-Interface unit. In addition, when powered up with a conventional power source or by the network, it may be accessed by standard iOS devices. The Prism PI is accessed with the *Bluetooth*® protocol using the StoneL Wireless Link application. Sequence of operation is:

1. Download the StoneL application from the App Store onto your device (free of charge)
2. Start the application in your Apple® device
3. All energized wireless modules in range will come up
4. Push wink to positively confirm the device you have linked (Prism LEDs will flash)
5. Touch the specific Prism ID/tag to link with your handheld.

You can then monitor all status and diagnostic information and make necessary information changes to the free form fields at any time. Switch settings, addressing, baud rate changes and solenoid operation may be performed only if network- or power supply-enabled. Other information may also be added to the free form fields.

Benefits of Wireless Link

1. **Fast, convenient set-up** for valve automation suppliers without special equipment.

2. **Electronically enter and store** key automated valve system information including:
   - End user tag number/information
   - Valve and actuator identification as well as Prism PI model and serial number (Prism information preset from factory)
   - Maintenance log.

3. **Improve safety by easily accessing hard-to-reach automated valves** without putting plant personnel at risk.

4. **Reduce network commissioning time** by accessing the VCT address and baud rate for making changes if necessary.

5. **Reduce maintenance time** by monitoring valve cycle count, storing maintenance logs, and accessing multiple valves from one location.

6. **Conveniently retrieve installation manuals** and StoneL website when connected to internet.
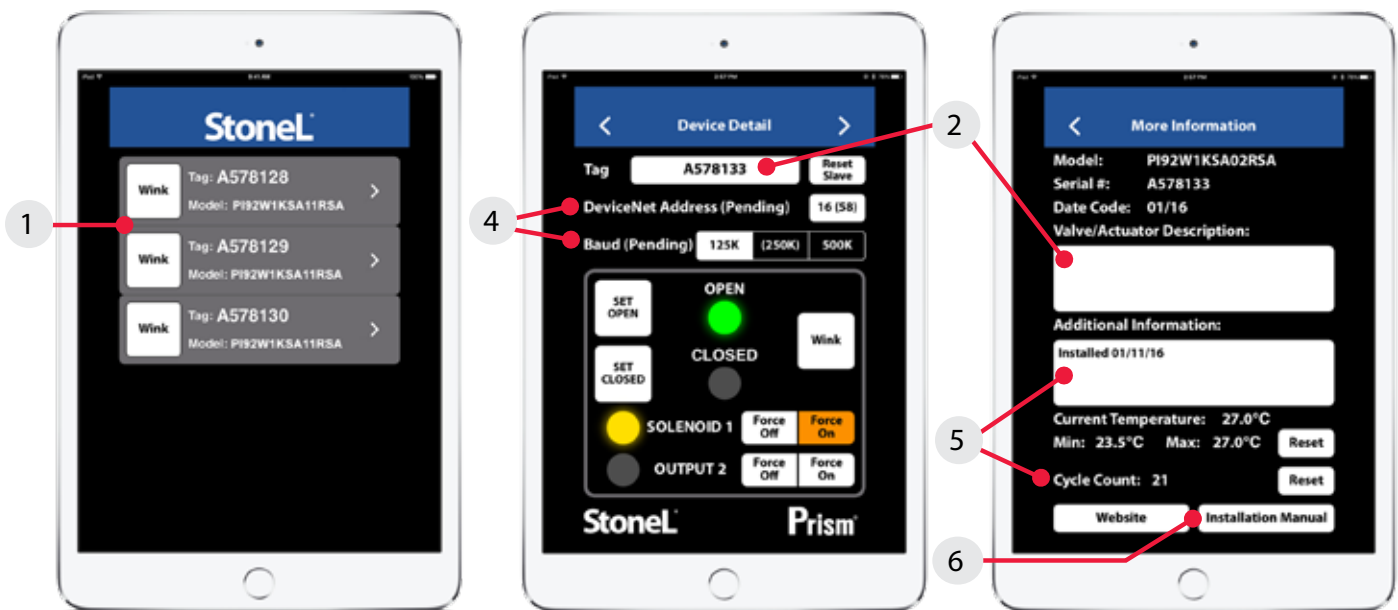
Specifications

Standard specifications apply to Prism PI92W & PI97W. Additional specifications for Wireless Link are as follows:

Protocol	*Bluetooth*® technology; Single mode (not compatible with *Bluetooth*® Classic)
Transmit power	4 dBm or ~2.5 milliwatts
Data rate	1Mbit/second; effective information transmit rate ~10 Kbits/second
Range	Up to 100 meters (330 feet) in free space. Range is reduced by obstructions between handheld device and Wireless Link VCT. Line of sight is not necessary.
Registrations	FCC, IC, CE
CE compliance	Exceeds industrial compliance standards
VCT identification	VCTs in range will be displayed
VCT link	One device accessed at a time between client (handheld device) and server (VCT). Each server accessed by one client at a time.
Application	"StoneL Wireless Link" available from the App store
Handhelds	Compatible with iPhone® and iPad® with iOS 8 or later

Interfacing devices

Conventional Apple® devices may be used including:

iPhone®	Version 4S and above
iPad®	Version 3.0 and above
iPad mini™	All

Contact StoneL regarding additional devices and special enclosures to make these devices suitable for use in hazardous locations.

Pneumatic control and other specifications

Three-way, two-position spring return pneumatic valve features a standard Cv of 0.1 or 0.2, operating most actuators in less than two seconds. The valve is completely isolated from the environment enabling pneumatic control to be located in the field with no threat of contamination.

Solenoid valve

This high flow solenoid valve operates at low power and is well-suited for most applications. It features a convenient manual override for stroking during set-up and commissioning.
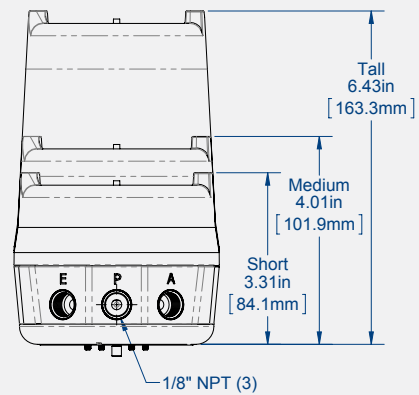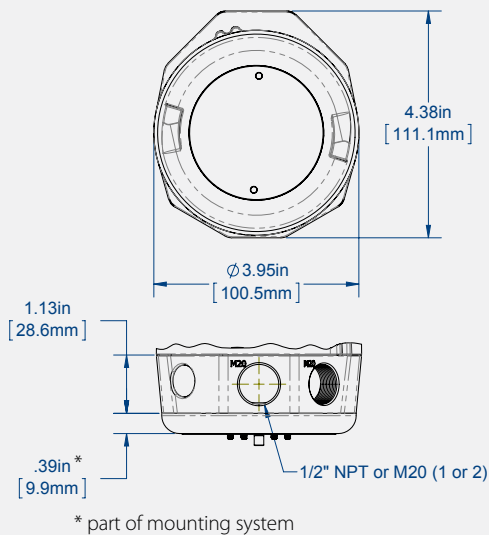
Valve schematic
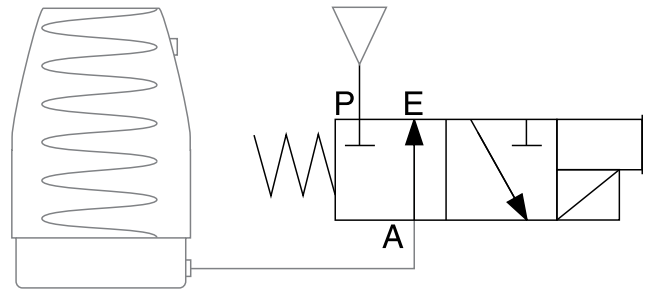
Specifications	
Solenoid valve	
Configuration	3-way, 2-position, spring return
Porting	⅛" NPT (stainless steel reinforced)
Flow rating 1NS	Cv 0.1
1KS	Cv 0.2
1MS	Cv 0.2
Operating pressure	25 psi to 140 psi
Filtration requirements	40 micron
Electrical ratings 1NS	12 mA @ 120 VAC; 20 mA @ 24 VDC (voltage power depends on function)
1KS	1.0 watts @ 24 VDC
1MS	1.0 watts @ 120 VAC
Inrush	Negligible

Dimensions Inches [mm]

4.38in [111.1mm]

∅ 3.95in [100.5mm]

1.13in [28.6mm]

.39in * [9.9mm]

1/2" NPT or M20 (1 or 2)

* part of mounting system

Tall 6.43in [163.3mm]

Medium 4.01in [101.9mm]

Short 3.31in [84.1mm]

1/8" NPT (3)

Model selector

SERIES

PI	Intelligent nonincendive

FUNCTIONS

Sensor modules

33S	(2) SST NO switching sensors *[select pneumatic valve option 1KS, 1MS, 1NS or 11S]*
45S	(2) NAMUR sensors (EN 60947-5-6; I.S.) *[select pneumatic valve option 1NS or 11S]*

Valve Communication Terminals (VCTs)

92S	DeviceNet™ *[select pneumatic valve option 1KS, 1NS or 11S]*
92W	DeviceNet™ with Wireless Link *[select pneumatic valve option 1KS, 1NS or 11S]*
96S	AS-Interface *[select pneumatic valve option 1KS, 1NS or 11S]*
97S	AS-Interface with extended addressing *[select pneumatic valve option 1KS or 11S]*
97W	AS-Interface with extended addressing and Wireless Link *[select pneumatic valve option 1KS, 1NS or 11S]*

PNEUMATIC VALVE / TEMPERATURE

-20° C to 60° C / 0.1 Cv

11S	No pneumatic valve
1NS	Three-way voltage / power depends on function

-10° C to 50° C / 0.2 Cv

1KS	Three-way 24 VDC 1.0 watt
1MS	Three-way 120 VAC 1.0 watt

ENCLOSURE

A	North American (NEC/CEC)
V	International (IEC)
L	Other

CONDUIT ENTRIES

01	(1) ½" NPT
02	(2) ½" NPT
04	(1) M20
05	(2) M20
10	(1) 4-pin mini-connector
11	(1) 5-pin mini-connector
13	(1) 4-pin micro-connector
15	(1) 5-pin micro-connector
17	(1) 6-pin micro-connector
19	(1) 6-pin mini-connector

VISUAL INDICATOR

R	Green open
O	No indication

VALVE SIZE

SA	¼" to 2" (3.2 mm to 28.5 mm; ⅛" to 1 ⅛" stroke)
LA	¼" to 6" (3.2 mm to 66.8 mm; ⅛" to 2 ⅝" stroke)

Model number example

PI	33S	1KS	A	01	R	SA	–	___	OPTIONAL	___ ___

MODEL NUMBER	PARTNERSHIP ID
Mounting hardware required and sold separately.	Some models may include 5-digit identification suffix.

Specifications

Materials of construction

Cover	Clear polycarbonate
Housing and mounting manifold	Fiber reinforced polycarbonate
Fasteners	Stainless steel
Valve manifold	Integral with stainless steel reinforced NPT
Trigger system (magnetic)	Polysulfone with black chromated zinc reinforcement

Position sensor system

Accuracy	1.0 mm (.040")	
Repeatability	0.5 mm (.020")	
Setting buffer	Open:	25% of stroke length
	Closed:	25% of stroke length up to 3.2 mm (.125")
Deadband	Open:	30% of stroke length (variable; based on stroke length)
	Closed:	30% of stroke length or 3.8 mm (.150") (whichever is less)

Temperature ratings (pneumatic valve dependent)

Operating temperature	*11S, 1NS*	-20° C to 60° C (-4° F to 140° F)
	1KS, 1MS	-10° C to 50° C (14° F to 122° F)
Operating life		Over 1 million cycles
Warranty		
Electronic module		Five years
Mechanical components		Two years

Ratings

Nonincendive *(Ex n, Zone 2 or Class I and II, Div. 2)*	PI models*
Intrinsically safe *(Ex ia, Zone 0 or Class I and II, Div. 1)*	Function 45*

Enclosure protection

NEMA 4, 4X and 6	All models
Ingress Protection 66 and 67	All models
Approvals*	See StoneL.com/approvals

* Only models listed on StoneL's official website are approved per specific rating.