

SVI[™] Digital Valve Positioner Accurate, Responsive and Reliable

The third generation Baker Hughes

Masoneilan™ SVI is a user friendly digital
valve positioner for pneumatic control
valves. Utilizing advanced control and
diagnostic algorithms, along with fieldproven non-contact position sensing
technology, the SVI delivers accurate,
responsive, and reliable positioning
performance.



Optimize Service

Data driven valve maintenance via new Online Valve Diagnostics with up to 1 year of data storage.



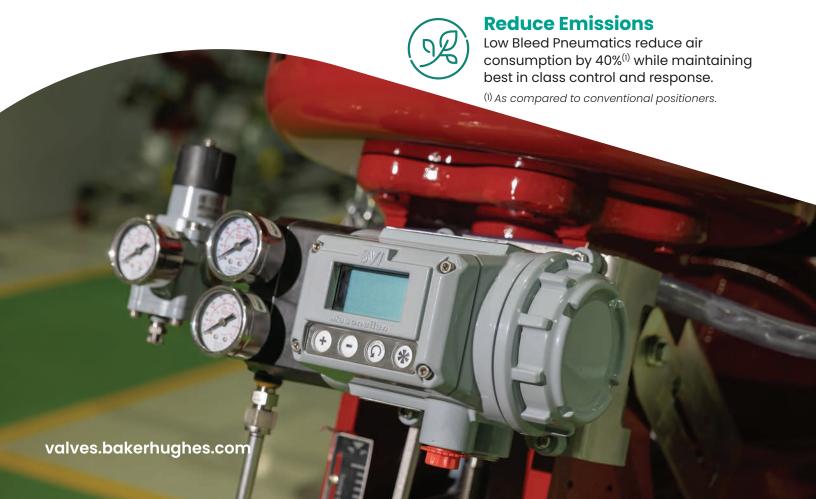
Improve Reliability

Built on 20+ years of proven technologies like non-contact magnetic position sensing.



Increase Efficiency

Simple, easy to use, modular platform featuring 1-button SMARTCAL setup and universal mounting.





Benefits

Reliable and Accurate:

 Built on 20+ years of field proven valve position sensing technology, control algorithms, and advanced performance pneumatic design

Increase Plant Efficiency:

- Intelligent troubleshooting using embedded Key Performance Indicators (KPIs)
- · Cloning capability for on-demand hot swapping
- One device for all environments and applications enabling reduction of spares inventory
- · Low bleed pneumatics

Simple and Easy to use:

- · Automated, single button commissioning
- Local user interface providing full configuration capabilities - no additional tools/handheld required
- Integrates with all leading control systems and asset management software systems
- Easy field upgrades enabled by new modular architecture and digital upgrades
- Integrated Input/Output no additional bolt on accessories required

Features

- · Smart Cal One button setup & calibration
- User Interface with high contrast graphical display and pushbuttons, rated for operation in Hazardous Areas
- NAMUR NF 107 alerts
- Universal design for linear and rotary valve applications
- Robust, non-contact, shielded magnetic-type travel sensor
- Industrial metal housing with corrosion resistant Stainless Steel or Aluminum options
- Encapsulated and coated electronics
- Integrated diagnostics: Cycle counts, Step Tests, Ramp Tests, Signatures, as well as system health indicators
- On board valve position feedback and limit switches
- Stainless steel mounting brackets for any valve actuator combination, fully backwards compatible to SVI II AP / SVi1000 brackets
- Explosion-proof AND Intrinsically Safe universal labeled, with US, Canada, ATEX, and IEC approvals (various regional country approvals available)
- HART® 7 communication compliant
- Fully collectable actuator exhaust and positioner vent

Specifications

Housing:

- Case/Cover: Chromated Copper Free⁽¹⁾ aluminum, ASTM A360; Optional 316L Stainless Steel
- · Paint: Grey polyurethane with epoxy primer
- · Protection: IP66 and NEMA 4X

Note: (1) Per API RP 14F

Weight:

- Aluminum 3.3kg (7.4lbs)
- Stainless Steel 6.26kg (13.8lbs)

Materials:

- I/P Motor and Relay composite polymers and stainless steel (300 & 400 series)
- Mounting Kit stainless steel (300 series)

Input Power and Signal:

- Min/Max current: 3.2mA / 22mA
- · Required Compliance voltage: 9Vdc at 20mA, 11Vdc at 4mA
- · Termination: Screw-type terminals
- Electrical Entries: Two 1/2NPT female

Optional Input/Output Signals:

- Two Configurable solid state switches:
 - 1A 30Vdc, self protected
 - Normally Open or Normally Closed (when powered)
- · One 4 to 20 mA Output Position Retransmit
- · One Configurable Digital Input
- · One Masoneilan Remote Position Sensor Input: 1k Ohm
- · One 1-5V Remote Position Sensor Input

Communication, Setup and Calibration:

- HART® Protocol, Rev 7
- Integrates with leading DCSs with full DTM and EDD support, including, but not limited to:
 - Emerson DeltaV / AMS
 - Honeywell / FDM
 - Yokogawa / PRM
- Optional local user interface with graphical LCD and keypad, approved for use in hazardous areas
- Smart Cal one button calibration including Stops, Airaction, Autotuning and Pre-determined Tuning sets

Ambient Temperature and Humidity Limits:

- Standard Temperature, -40°C to 85°C (-40°F to 185°F), Nitrile Diaphragms
- Optional Extreme Temperature, -55°C to 85°C (-67°F to 185°F), Flourosilicone Diaphragms
- Sensors (pressure, temp, hall, current) factory calibrated across full temperature range
- · 100% RH non-condensing

Tropical environmental compatibility

- · Fungus resistance per ASTM-G21
- · Exposed circuits covered with anti-fungal coating
- Positively pressured housing with insect-resistant vents

EMC Conformity Standards:

- Meets IEC/EN61326-1 Edition 2
- · Emission: CISPR11 Class A
- Immunity: IEC/EN61000-4-2, 3, 4, 5, 6, 8
- EMC 2014/30/EU Directive

Performance (2) per ISA S75.13:

- Accuracy +/- 0.5 percent Full span
- Hysteresis + DeadBand +/- 0.3 percent Full span
- Repeatability +/- 0.3 percent Full span
- · Power-Up with position control <150ms
- Power Interruption without reset <100ms

Note: (2) For linear characteristic

Actuator capabilities:

Non-contact shielded magnetic travel sensor capable of:

- Linear Motion: 0.25" to 8" (6.4 to 200 mm)
- Rotary Motion: 18° to 140°
- Travel Sensor Resolution: 0.0125% (Typical Rotary)

Pneumatics (Single-acting only)

- Dry, oil-free air or sweet natural gas regulated and filtered
- Air supply pressure: 1.4 to 8.3 bar max (20 to 120 psi max)
- Optional Exhaust routing manifold for 100% collection

Air delivery:

· 410 SLPM (14.5 SCFM) @ 30psi

Air capacity:

- Loading Cv = 0.66
- Venting Cv 0.51

Steady State Air Consumption:

- 2.8 SLPM (5.9 SCFH) @ 30psi
- 3.4 SLPM (7.2 SCFH) @ 45psi

Advanced Diagnostics:

Online:

 Travel odometer, Cycles, Time Closed/Open, Time Near Closed, Alarms

Offline

- Ramp Test: Hysteresis, Deadband, Accuracy, Linearity
- · Step Test: Overshoot, Response resolution, Deadtime
- · Valve Signature: Spring Range, Friction, Seat Profile

Online Valve Diagnostics:

Online:

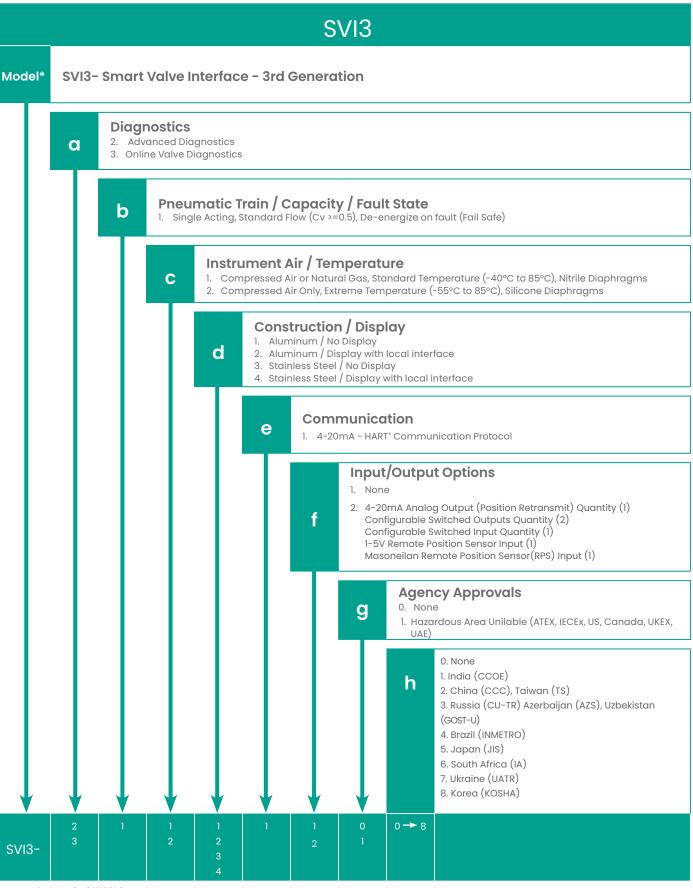
 Friction, Stick Slip, Spring Range, Error Offset, RMS Error, Obstruction Detection, Calibration Error, and Setpoint cycling tests

Hazardous Area Certifications:

ATEX, IECEx, US, and Canada approvals for:

- Flameproof / Explosion-proof
- · Intrinsic Safety
- · Dust Ignition Proof
- Increased Safety (e)

Note: See manual for a complete listing of all available certifications and marking codes



Example: SVI3-31111210

valves.bakerhughes.com



^{*} Some models & options are mutually exclusive. Consult your local Masoneilan Authorized representative for a complete list of available models.