### Masoneilan a Baker Hughes business

# **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 field-proven noncontact position sensing technology, the SVI delivers accurate, responsive, and reliable positioning performance.

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### 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 NE 107 alerts
- Universal design for linear and rotary valve applications
- Robust, non-contact, shielded magnetic-type travel sensor
- Industrial metal housing
- 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
- Explosionproof AND Intrinsically Safe Universal label with ETL (US/CA), ATEX, IEC approval (regional approvals pending)
- HART<sup>®</sup> 7 communication compliant

# Specifications

#### Housing:

- Case/Cover: Chromated Copper Free<sup>(1)</sup> aluminum, ASTM A360
- · Paint: Grey polyurethane with epoxy primer
- Protection: IP66 and NEMA 4X

#### Note: <sup>(1)</sup> Per API RP 14F

#### Weight:

• 3.3kg (6lb)

#### 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 Analog Remote Position Sensor Input : 1k Ohm

#### 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
- GE MarkVle ControlST
- 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
- 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 <sup>(2)</sup>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: <sup>(2)</sup> 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)

#### 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

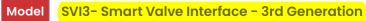
#### Hazardous Area Certifications:

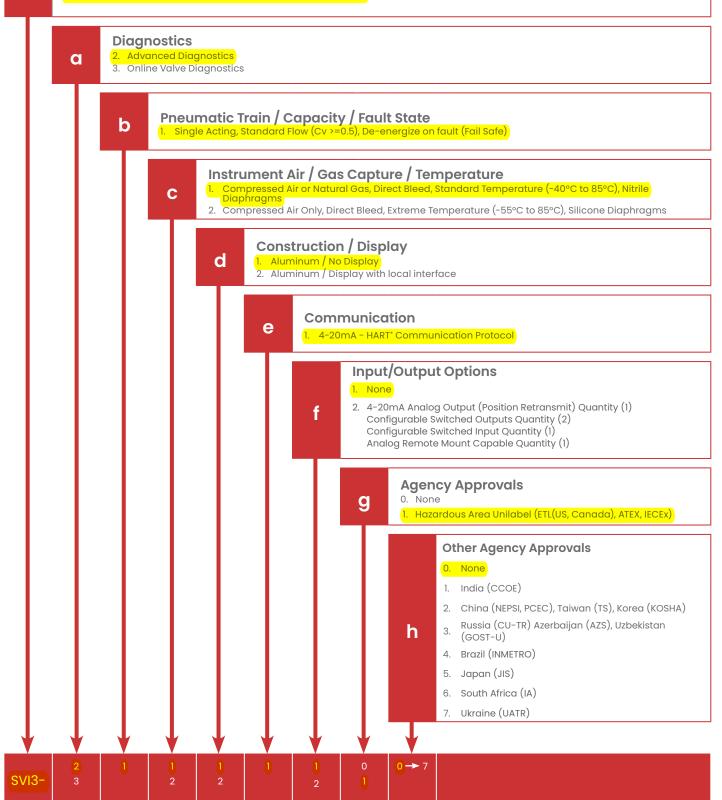
ATEX, IECEx, ETL (US, CA) approvals for:

- 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

### SVI3





Example: SVI3-31111210



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