Masoneilan SVI™ FF

Advanced Performance Digital Valve Positioner with FOUNDATION™ fieldbus communication protocol

Masoneilan SVI FF is an Advanced Performance positioner with FOUNDATION fieldbus protocol, for single and double-acting pneumatic control valves. Its universal and modular design with a proven non-contact position sensor fits many applications, offering high performance valve control with real-time diagnostics.

Key Features

• Field-proven, user configurable, non-contact position sensor or remote-mount position feedback
• Control valve and on/off valve position control
• Field upgradable firmware with minimal process upset
• View Process Variables from other devices on explosion-proof LCD interface
• Extensive function block selection with fast execution times
• Universal design for linear and rotary valve applications
• Explosion-proof external LCD and pushbuttons
• Standard and high flow capacities limiting the need for additional accessories (boosters, quick exhausts)
• Offline and online diagnostic procedures
• Built-in isolated solid-state switch
• Universal label with ATEX, FM, FMc, IEC approvals
• DTM (Standard and Advanced) and EDDL support
• Industrial aluminum or stainless steel housing

Benefits

• Faster commissioning and startup of control valves using Methods and automatic commission procedures
• Can keep device updated with latest firmware functionality with online firmware updates following FF-883 specification
• Extensive control customization options
• Accurate and reliable valve positioning
• Increased uptime utilizing continuous performance monitoring and NAMUR 107 based abnormal condition reporting
• Enriched field control applications using Arithmetic, Control Selector and Enhanced PID function blocks

Specifications

Online Diagnostics

• Positioner performance monitoring
• Valve wear monitoring
• Fault condition monitoring
• Total travel and number of cycles
• Valve operations (time open/time close/time near closed)

Offline Diagnostics

• High resolution valve signature
• Dynamic performance tests
• Offline control valves signatures with Advanced DTM and ValVue™ 3 Frame Application
• Field upgradable diagnostic levels

Materials

• Case/cover: Aluminum ASTM 360 (standard), 316L (optional)
• Paint: Grey polyurethane (category C4 per ISO 12944-2)
• I/P transducer and relay: Composite polymers, 300 and 400 series stainless steel

Input Power

• 9 to 32 Volts polarity independent
• Maximum Current 18.3 max
Standard Analog I/O:
- Configurable Digital Contact – 1A, 30 VDC
- Discrete Input
- Remote Position Sensor Input: 1 kOhms

FOUNDATION fieldbus Protocol Block Types

<table>
<thead>
<tr>
<th>Function Block Type</th>
<th>Execution Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Output (AO)</td>
<td>12 ms</td>
</tr>
<tr>
<td>(2) Enhanced Process Control (PID)</td>
<td>12 ms</td>
</tr>
<tr>
<td>(2) Discrete Output (DO)</td>
<td>12 ms</td>
</tr>
<tr>
<td>Output Selector (OS)</td>
<td>20 ms</td>
</tr>
<tr>
<td>Analog Input (AI)</td>
<td>12 ms</td>
</tr>
<tr>
<td>Arithmetic (AR)</td>
<td>20 ms</td>
</tr>
<tr>
<td>Input Selector (ISEL)</td>
<td>15 ms</td>
</tr>
<tr>
<td>Multiple Analog Input (MAI)</td>
<td>15 ms</td>
</tr>
<tr>
<td>Control Selector (CS)</td>
<td>20 ms</td>
</tr>
<tr>
<td>(2) Discrete Input (DI)</td>
<td>12 ms</td>
</tr>
</tbody>
</table>

LAS (Link Active Scheduler)

Communication
- FOUNDATION fieldbus Protocol
- Type 121 and 511 MAU profiles – completely powered from H1 segment, power change can occur on transmit, Entity model IS (for MAU 121), FISCO IS (for MAU 511).
- ITK Certification 6.1.1

Operating Temperature Limits
- -40ºC to 85ºC (~-40ºF to 185ºF)

Storage Temperature Limits
- -50ºC to 85ºC (~-58ºF to 185ºF)

Ambient Humidity Limits
- 10 to 95 percent RH non-condensing

EMC Conformity Standards
- IEC 61514–2, EN 61326 and EN 61000–4–2, 3, 4, 5, 6, 8
- IEC 61326–1 and CISPR 22

Actuator Travel Range
- Linear motion:
  - 0.25’ to 4’ (6.4 to 100 mm) – standard mounting
  - >4’ (100mm) – extended mounting
- Rotary motion: 18 to 140 deg
- Travel sensor resolution: 0.0015 percent

Control Valve Mounting System
- Material:
  - 300 series stainless steel standard
- Valve types:
  - Linear or rotary motion control valve
  - Single- or double-acting actuator
  - Optional remote-mount position sensor kit (RPS)

Pneumatics
- Air or sweet natural gas – Regulated and filtered
- Standard Flow Connections (supply and actuator): 1/4” NPT
- High Flow Connections (supply and actuator): 1/2” NPT

Air Supply Pressure
- Single-acting: 20 to 150 psi (1.4 to 10.3 bar)
- Double-acting: 20 to 150 psi (1.4 to 10.3 bar)

Air Delivery and Air Consumption

<table>
<thead>
<tr>
<th>Output Delivery</th>
<th>Air supply</th>
<th>Single acting</th>
<th>Double acting</th>
<th>SA High Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI (bar)</td>
<td>scfm (l/m)</td>
<td>scfm (l/m)</td>
<td>scfm (l/m)</td>
<td>scfm (l/m)</td>
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<tr>
<td>30 (2.1)</td>
<td>10 (280)</td>
<td>7.2 (204)</td>
<td>39 (1104)</td>
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<tr>
<td>60 (4.2)</td>
<td>16.6 (470)</td>
<td>12.8 (362)</td>
<td>70.6 (2000)</td>
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<tr>
<td>90 (6.3)</td>
<td>23.3 (660)</td>
<td>18.3 (518)</td>
<td>102 (2888)</td>
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</tr>
</tbody>
</table>

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<tr>
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</tr>
<tr>
<td>30 (2.1)</td>
<td>0.20 (5.8)</td>
<td>0.42 (12)</td>
<td>0.20 (5.8)</td>
<td></td>
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<tr>
<td>60 (4.2)</td>
<td>0.28 (8)</td>
<td>0.57 (16)</td>
<td>0.45 (12.6)</td>
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</tr>
<tr>
<td>90 (6.3)</td>
<td>0.42 (12)</td>
<td>0.85 (24)</td>
<td>0.65 (18.3)</td>
<td></td>
</tr>
</tbody>
</table>

Certifications
- FM, FMc, IEC and ATEX certifications for explosion proof, intrinsically safe, flame proof (other local approvals pending)
- Enclosure protection: NEMA 4X / IP66

Performance’ per ISA S75.13 / IEC61514:

Accuracy = ± 0.5% (typical ± 0.1%) full span
Linearity = ± 0.5 percent full span
Hysteresis + Deadband = ± 0.3 percent full span
Repeatability = ± 0.3 percent full span

1. The stainless steel housing is not painted
2. Requires double-acting relay model
3. For linear characteristics

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