

MasoneilanTM

SVITM FF

Masoneilan

a Baker Hughes business

Advanced Performance Digital Valve Positioner with FOUNDATIONTM 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 ValVueTM 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

Function Block Type	Execution Time
Analog Output (AO)	12 ms
(2) Enhanced Process Control (PID)	12 ms
(2) Discrete Output (DO)	12 ms
Output Selector (OS)	20 ms
Analog Input (AI)	12 ms
Arithmetic (AR)	20 ms
Input Selector (ISEL)	15 ms
Multiple Analog Input (MAI)	15 ms
Control Selector (CS)	20 ms
(2) Discrete Input (DI)	12 ms

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

- -40°C to 85°C (-40°F to 185°F)

Storage Temperature Limits

- -50°C to 85°C (-58°F to 185°F)

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

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

Control Valve Mounting System

- Material:
 - 300 series stainless steel standard
- Valve types:
 - Linear or rotary motion control valve
 - Single- or double²-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

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

Air Consumption			
Air supply PSI (bar)	Single acting scfm (l/m)	Double acting scfm (l/m)	SA High Flow scfm (l/m)
30 (2.1)	0.20 (5.8)	0.42 (12)	0.20 (5.8)
60 (4.2)	0.28 (8)	0.57 (16)	0.45 (12.6)
90 (6.3)	0.42 (12)	0.85 (24)	0.65 (18.3)

Certifications

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

Performance³ per ISA S75.13 / IEC61514:

Accuracy	± 0.5% (typical ± 0.10%) full span
Linearity	± 0.5 percent full span
Hysteresis + Deadband	± 0.3 percent full span
Repeatability	± 0.3 percent full span