SENSE Sensors & Instruments is now part of TE connectivity

VALVE AUTOMATION

VALVE MONITORING SOLUTIONS

PRODUCT OVERVIEW

FOR ROTARY VALVES

M31 SERIES MONITORS
- General use versions or increased security
- Point-to-point or industrial networks
- Cable or connector connection
- Direct mounting on standard NAMUR actuators
- Use with or without solenoid valve

M32 SERIES MONITORS
- General use versions or increased security
- Plastic enclosure
- Point-to-point or industrial networks
- Built-in connection box
- Direct mounting on standard NAMUR actuators
- Diagnostic network versions
- Use with or without solenoid valve

MA32 / MX32 SERIES MONITORS
- Explosion-proof versions
- Copper-free aluminum or stainless steel enclosure
- Point-to-point or industrial networks
- Direct mounting on standard NAMUR actuators
- Built-in connection box
- Use with or without solenoid valve
- Instl. in corrosive or weathered environments

SVA / SVX SERIES MONITORS
- Explosion-proof versions
- Copper-free aluminum or stainless steel enclosure
- Point-to-point or industrial networks
- Direct mounting on standard NAMUR actuators
- Internal solenoid coil mounting
- Up to four cable inputs
- Instl. in corrosive or weathered environments

SV SERIES MONITORS
- General use versions or increased security
- Aluminum enclosure
- Point-to-point or industrial networks
- Direct mounting on standard NAMUR actuators
- Internal solenoid coil mounting
- Up to four cable inputs
- Use with or without solenoid valve

MON SERIES MONITORS
- General use versions or increased security
- Plastic or aluminum enclosure
- Point-to-point or industrial networks
- Actuator mounting via bracket
- Internal or external solenoid coil mounting
- Up to three cable inputs
- Use with or without solenoid valve

M4 SERIES MONITORS
- Screwless modular mounting
- No special tools required
- Configurable by three magnetic switches or by bluetooth app
- Point-to-point or industrial networks
- Fits most actuator shafts
- Intelligent diagnostics

FOR ROTARY AND LINEAR VALVES

THP POSITION TRANSMITTER
- Rotary or linear motion application
- Aluminum enclosure
- Rotary or linear magnet for different valve strokes
- Easy-to-view digital display
- Vibration resistant

I/P EDGE CONVERTER
- General use and explosion-proof versions
- Aluminum or brass enclosure
- Built-in pressure regulator
- Can be mounted with or without booster
- Direct mounting on pneumatic positioner

Products		M31	M32	MX32 / MA32	SVA / SVX	SV	MON	M4	PSH	XNNN
Classification	General Use	●	●	●	●	●	●	●	●	○
	Ex Version	●	●	●	●	●	●	●	●	●
Electrical Connection	Cable	●	○	○	○	○	○	●	●	●
	Borne	○	●	●	●	●	●	●	○	●
	Conector	●	○	○	○	●	○	●	●	○
CE	Conventional	●	●	●	●	●	●	●	●	●
	Industrial Net.	●	●	●	●	●	●	●	○	○
Sensing	Inductive	●	●	○	○	○	○	○	○	○
	Magnetic	●	●	●	●	●	●	●	●	●
Enclosure	Stainless steel	○	●	●	●	○	○	○	●	●
	Aluminum	○	●	●	●	●	○	○	○	○
	Brass	○	○	○	○	○	○	○	●	○
	Plastic	●	●	○	○	○	●	●	●	○
Mounting	Direct to actuator	●	●	●	●	●	○	●	○	○
	Bracket	○	○	○	○	○	●	○	●	●
Indication Position	Local	●	●	●	●	●	●	●	○	○
	Remote	●	●	●	●	●	●	●	●	●
Solenoid	Intcon. Option	●	●	●	●	●	●	●	○	○
	Integrated Option	○	○	○	○	○	○	●	○	○
Pages		04 - 07	08 - 11		12 - 16	17 - 20	21 -24	25 -27	28	29

● AVAILABLE ○ UNAVAILABLE

PNEUMATIC BOOSTER
- I/P converter, wall or 2” tube mounting
- Aluminum enclosure
- Up to 1:6 pressure ratio

POSITION MONITOR
- Direct mounting on rotary actuators or valve positioners
- Easy adjustment via independent cams
- Engineering plastic enclosure

PFLEX ANALOG POSITIONER
- General use and explosion-proof versions
- Aluminum enclosure
- 4-20 mA conventional communication
- For rotary or linear actuators
- Contactless feedback system

PD HART DIGITAL POSITIONER
- General use and explosion-proof versions
- Aluminum enclosure
- 4-20 mA communication with HART protocol
- Easy-to-view digital display
- Local or software configuration
- For rotary or linear actuators

PD100 DIGITAL POSITIONER
- Ex versions for zone 2 (EX n)
- Engineering plastic enclosure
- 4-20 mA communication
- 4-digit digital display
- Local configuration via mechanical switches
- For rotary or linear actuators

PD200 DIGITAL POSITIONER
- Ex versions for zone 0 (EX i)
- Engineering plastic enclosure
- 4-20 mA communication with HART protocol
- 4.5 digits and 6 alphanumeric digital display
- Configuration via local mechanical or magnetic switches or remote configuration via HART
- For rotary or linear actuators

FOR LINEAR VALVES

PSH MAGNETIC SENSORS SERIES
- General use or encapsulated versions Ex m
- Hall-effect magnetic sensors

M12, M18 or M30 diameters
- Plastic, brass or stainless steel enclosure
- Three sizes of magnetic actuators

XNNN SERIES MONITORS
- Explosion-proof version
- Hermetically sealed reed switch sensors
- Cable or screw terminal models
- Fully stainless steel enclosure
- Ex d cable gland included

I-VUE SERIES MONITORS
- Point-to-point or industrial networks
- Built-in internal coil solenoid
- Configurable by three magnetic switches
- Electrical connection via M12 or 7/8” connector

M-VUE SERIES MONITORS
- Point-to-point or industrial networks
- Built-in internal coil solenoid
- Configurable by two magnetic switches
- Electrical connection via M12 or 7/8” connector

MONITORES SÉRIE S-VUE
- Point-to-point or industrial networks
- Built-in internal coil solenoid
- Configurable by three magnetic switches or by bluetooth app
- Electrical connection via M12 or 7/8” connector
- Intelligent diagnostics

SOLENOID VALVES

SOLENOID VALVES
- Standard or NAMUR models
- Stainless steel, brass or aluminum enclosure
- Pneumatic connections with NPT or BSP thread
- 0.9 or 3.5 HP models
- Connection via cable, connector or terminal
- Manual actuator on the pneumatic body

I-VUE	M-VUE	S-VUE	PFLEX	PD-HART	PD100	PD200	THP	EDGE	BOOSTER	POSITION MONITOR	SOLENOID
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	○	○	●	●	○	○	●
○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	●	●	●	●	●	●	○	●	●
●	●	●	○	○	○	○	○	○	○	○	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	●	○
●	●	●	○	○	●	●	●	○	○	●	○
○	○	●	○	○	○	○	○	○	○	○	●
○	○	○	●	●	○	○	●	●	●	○	●
○	○	○	○	○	○	○	○	●	●	○	●
●	●	○	○	○	●	●	○	○	○	●	○
●	●	●	○	○	○	○	○	○	○	○	●
●	●	●	●	●	●	●	○	○	○	○	●
●	●	●	●	●	●	●	●	○	○	●	○
●	●	●	●	●	●	●	●	○	○	●	○
●	●	●	○	○	○	○	○	○	○	○	○
●	●	●	○	○	○	○	○	○	○	○	○
30 - 31	32	33-35	36 - 38	39 - 41	42 - 43	44 - 45	46	47	48	48	49

M31 Series Monitor

Plastic: General Use, Ex e m, Exi

Non-contact Sensing

- Increased service life
- No moving parts
- Detection accuracy
- Fully resin encapsulated

Connection System

- Cable or M12 connector connection
- Quick and easy maintenance

Local Signaling

- Simple color indicator: blue/green
- Yellow and black open/closed signaling
- Incorporates electronic sensor actuators

Versions

- General Use
- Explosive Atm.
- INMETRO Cerificate Ex i / Ex em options

Manual Drive

- Pneumatic body with or without local activation

Solenoid Valve

- Mounting directly on the NAMUR actuator
- 24Vdc/0,6W model and 0,25W ultra low power
- Automatic AC/DC model (stock reduction)
- 1/4" BSP or 1/4" NPT pneumatic connection

Electrical Configurations

Conventional

- PNP
- NAMUR
- CA 2 wires
- CC 2 wires
- Reed Switch (SPDT)

Industrial Networks

- AS-Interface
- DeviceNet

Direct-acting Valve

- Great value for money
- PNP model only

Solenoid Connections

V1 - M12 Connector

PG - Cable

VT - Terminal

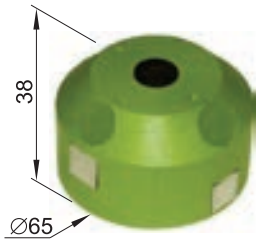
VT - Ex d Terminal

M31 Series Monitor

Local Signaling

The monitor can be supplied with two types of local signal, one with color position indication and the other with open/ closed indication. Both have two magnetic triggers (or metallic depending on the type of sensing) which sensitize the monitor's internal sensors to indicate the valve's position remotely.

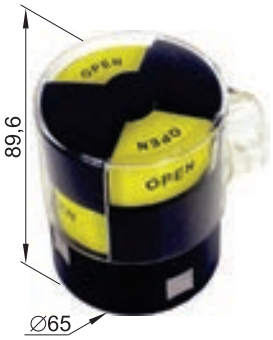
Color Signaling



Dimensions in mm

The monitor can be supplied with a local color visual indicator, where blue indicates valve open and green valve closed.

Sinalizador Aberto/ Fechado



Dimensions in mm

In addition to indicating the position of the valve by the colors yellow for an open valve and black for a closed valve, it has written indications, making it easy to read.

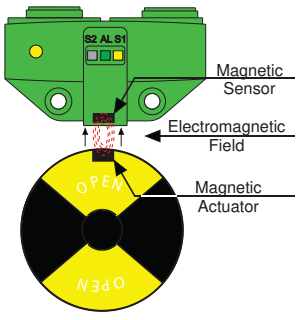
Non-contact Sensing

Two metal or magnetic actuators are installed on the local beacon. This beacon is attached to the shaft of the rotary actuator, which rotates 90° and is controlled by a solenoid valve.

The actuators have the function of sensitizing the monitor's internal sensors, which indicate the valve's position remotely without contacting the local signaling.

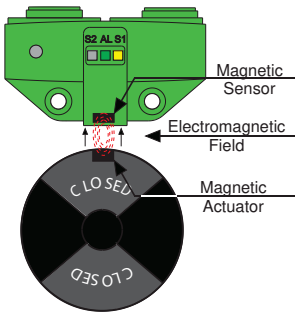
Inductive Monitors

The inductive monitor generates a magnetic field which is partially absorbed by the metal actuator installed in the local signaling device. This absorption of the magnetic field sensitizes the internal sensors in the monitor which send a signal to the control system with the position of the valve.



Magnetic Monitors

In this type of monitor, the actuator generates a magnetic field which is detected by the monitor's internal sensors, generating the valve position signal for the control system. It is important to remember that the internal sensors in this case are polarized, preventing the upper actuator from activating the lower sensor and vice versa.



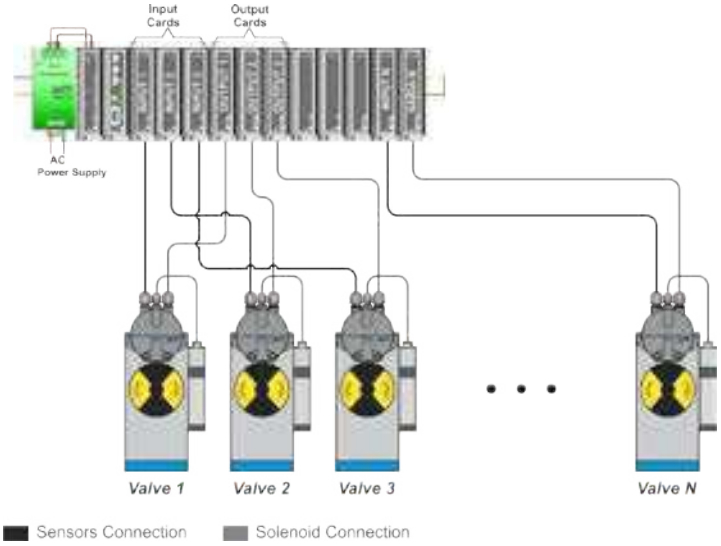
Encapsulated Sensor Module

The sensor module is fully encapsulated, making the monitor weather-resistant and very immune to liquid penetration due to the high IP66 degree of protection.

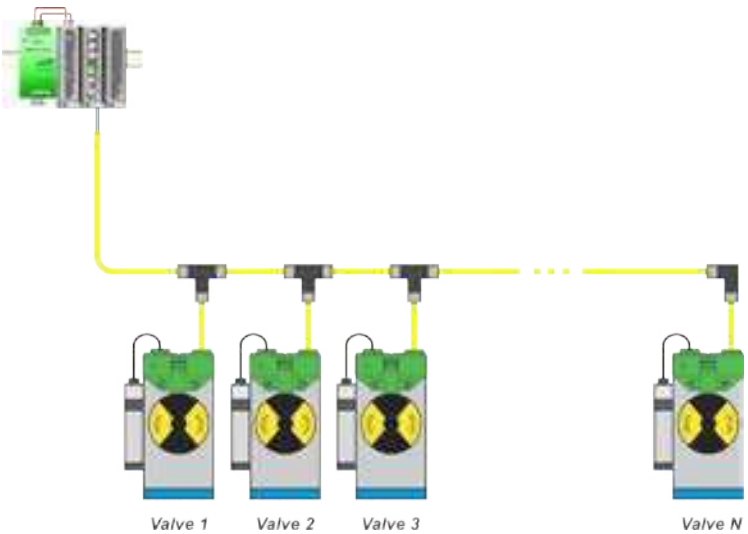
Electrical Configurations

The M31 series monitors are available in point-to-point versions in direct current, alternating current or AC/DC and for industrial networks in the AS-Interface or DeviceNet standards.

Point-to-point Topology



Network Topology



M31 Series Monitor

Connection System - Point-to-Point Monitors

Cable Connection (No solenoid output) - In this version, the monitor only has the sensor connection cable, which indicates the open or closed position of the valve and transmits the signal from the monitors to an input card in the control system, thus enabling remote indication of an open or closed valve.

Cable Connection (With solenoid output) - In this version, the monitor has a cable for connection to the control system, where it indicates the position of the valve and receives the command to actuate the solenoid. The monitor's second cable transmits the drive command from the logic controller to the solenoid.

M12 Connector (No solenoid output) - In this version, the monitor has only one connector for the sensors, which are responsible for indicating the open or closed position of the valve and transmit the signal to an input card in the control system, thus enabling remote indication of an open or closed valve.

M12 Connector (with solenoid output) - In this version, the monitor has an M12 connector for connection to the control system, where it indicates the position of the valve and receives the command to actuate the solenoid. The second connector on the monitor transmits the drive command from the control system to the solenoid.

Connection System - Networked Monitors

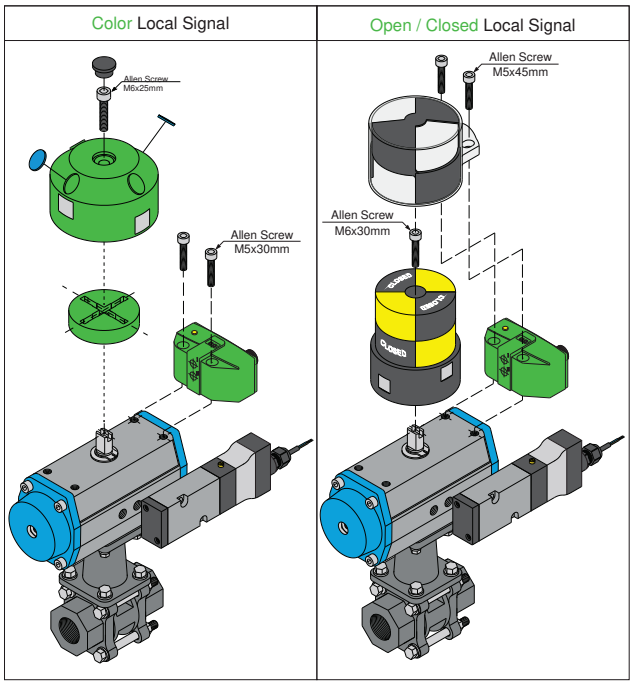
Cable Connection - In this version, the monitor has a network connection cable that transmits the valve's open or closed position and receives the command to actuate the solenoid, and a second cable, responsible for connecting the solenoid valve that will command the actuator to open or close the valve. Available for AS-Interface or DeviceNet.

Cable Gland and Cable Connection - In this version, the monitor is supplied with a thin DeviceNet cable that transmits the valve's open or closed position and receives the command to actuate the solenoid, while a second cable is responsible for connecting the solenoid valve. Only available for DeviceNet.

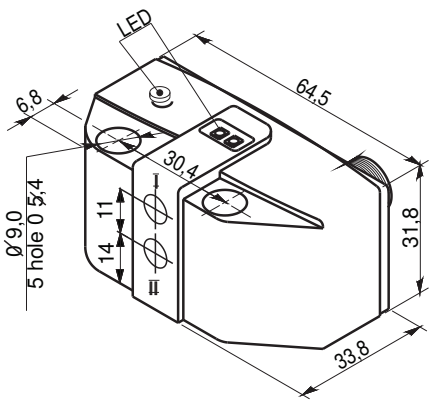
Cable Connection and VY Connector - In this version, the monitor has a VY connector for connection to the AS-Interface network, which transmits the valve's open or closed position and receives the command to actuate the solenoid, and also a cable, responsible for connecting the solenoid valve that will command the actuator to open or close the valve. Only available for AS-Interface.

Cable Connection and M12 Connector - In this version, the monitor has an M12 connector for connection to the AS-Interface network, which transmits the valve's open or closed position and receives the command to actuate the solenoid, and also a cable, responsible for connecting the solenoid valve that will command the actuator to open or close the valve. Only available for AS-Interface.

Mounting on the Actuator



Mechanical Dimensions (mm)



M31 Series Monitor

PS 3 - M31 - ASI3.2 - 2 - 0,5 - BS S - VT - VSN A - ARN-L-M31-PS

Principle
PS - inductive

Sensing Distance
3 - 3 mm

Serie
M31 - thermoplastic monitor PBT

Sensor Type
2N - sensor NAMUR
2E2 - sensor PNP
2N4 - sensor DC - 2 wires
2WA - sensor AC- 2 wires
RD - sensor AC/DC
ASI3.2 - sensor with communication ASi
DN-B - sensor with communication DeviceNet

Main Connection
2 - wire of 2 meters
6 - wire of meters (only for DeviceNet version)
V1 - Connector M12
VY - Conbector AS-Interface

Connection From Monitor to Solenoid Coil
__ - no connection for solenoid
0,5 - wire of 0,5 meters

Solenoid Coil
__ - no solenoid valve
BS - standard 24Vdc / 0,6W
BSC * - standard 24Vdc / 4,8W
BSCS * - standard 220Vac / 2VA
BSM - encapsulated and increased safety
BSI - encapsulated and intrinsic safety
* Available only for servo piloted valves

***Solenoid Electrical Configuration**
__ - general use 24 Vdc
S - smart coil 24 to 250 Vdc / 24 to 250 Vac
UL - low power coil - 24 Vdc/ 0,25W
* Option not available for BSC and BSCS models

Solenoid Coil Electrical Connection
VT * - screwed terminal
V1 - M12 connector
* BSC and BSCS models available only with screwed terminal

Valve Type
VS - standard body 1/4" NPT
VSS - standard body 1/4" BSP
VN - NAMUR body 1/4" NPT
VSN - NAMUR body1/4" BSP

Servo Piloted
VNC - NAMUR aluminum body 1/4" NPT
VSNC - NAMUR aluminum body 1/4" BSP

Body Material (Not used for VNC and VSNC models)
A - aluminum body
X - stainless steel body
L - brass body

Local Signaling
__ - without actuator
ARN-M31-PS - actuator **WITHOUT** local signaling (for monitor type: 2E2; 2N; 2N4; 2WA; ASI e DN-B)
ARN-M31-RDR - actuator **WITHOUT** local signaling (for monitor type: RDR)
ARN-L-M31-PS - actuator **WITH** local signaling (for monitor type: 2E2; 2N; 2N4; 2WA; ASI e DN-B)
ARN-L-M31-RDR - actuator **WITH** local signaling (for monitor type: RDR)
ARN-A-M312-PS - actuator **WITH** pointer indication (for monitor type: 2E2; 2N; 2N4; 2WA; ASI e DN-B)

Important: Not all combinations presented above are possible, we recommend contacting our engineering applications or access www.sense.com.br to form a workable combination for the selected product.

Optional Items

M32 Series Monitor

Local Signaling

- Simple color indicator: blue/green
- Optional open / closed signaling (with colors: yellow and black)
- Incorporates electronic sensor actuator

M32 - Plastic

- General use, intrinsic safety and increased safety
- Ex e mb IIC T6 IP66 / TA: -5°C to +55°C
- Ex ia IIC T6 Ga IP66 / TA: -20°C to +60°C
- IP66 Protection Degree

Connection System

- Connection box with screw terminals
- Incorporates cable glands
- Ideal for industrial networks with cable and internal network derivator

Contactless Sensing

- Increased service life
- No moving parts
- Detection accuracy
- Fully resin encapsulated

Certification

Manual Drive

- Pneumatic body with or without local activation

Solenoid electrical connection

PG - Cable

VT - Terminal

V1 - M12 Connector

VT - Ex d Terminal

MA32 / MX32 Series Monitor

M32 - Stainless Steel

- Explosion-proof and encapsulated
- Can be installed in corrosive environments
- Ex d mb IIC T6 Gb IP66
- TA: -25C°C to +55°C
- IP66 Protection Dregree

Conventional Electrical Configurations

- PNP
- NAMUR
- CA 2 wires
- CC 2 wires
- Reed Switch (SPDT)

Industrial Networks

- AS-Interface
- DeviceNet
- Profibus DP

Versions

- General use
- Explosive Atm.
- INMETRO Certification
  Ex i / Ex em / Ex d options

Certification

Solenoid Valve

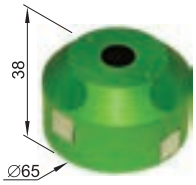
- Mounting directly on the NAMUR actuator
- 24 Vdc/0,6W model and 0,25W ultra low power
- Automatic AC/DC model (stock reduction)
- 1/4” BSP or 1/4” NPT pneumatic connection

MA32 - Aluminum

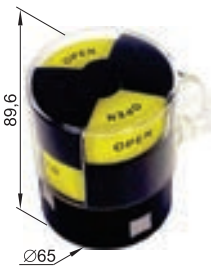
- Anodized aluminum enclosure
- Can be installed in corrosive environments
- Explosion-proof and encapsulated
- Ex d mb IIB+H2 T6 Gb IP66
- TA: -25°C to +70°C
- IP66 Protection Degree

Local Signaling

By Colors:



Open / Closed:



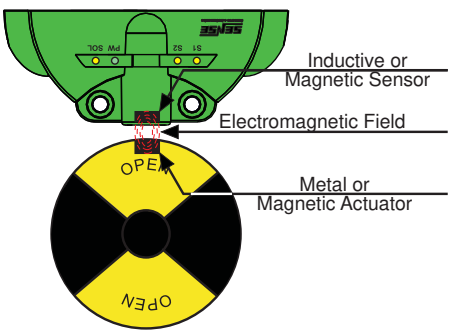
Non-Contact Sensing

Inductive Sensors:

- PNP
- NAMUR
- CC 2 Wires

Magnetic Sensors:

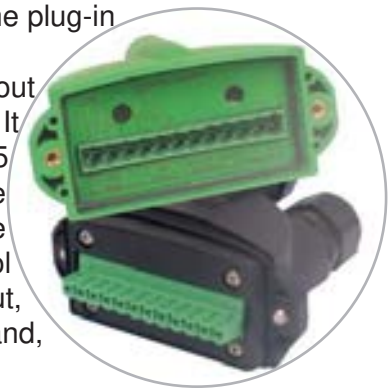
- Reed Switch
- AS-Interface
- DeviceNet
- Profibus DP



M...32 Series Monitor

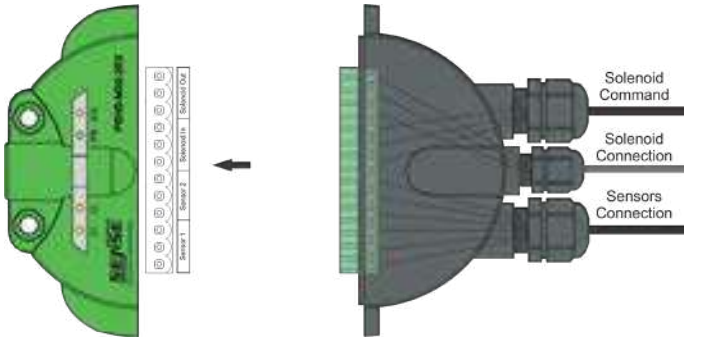
Connection System - Conventional Monitors

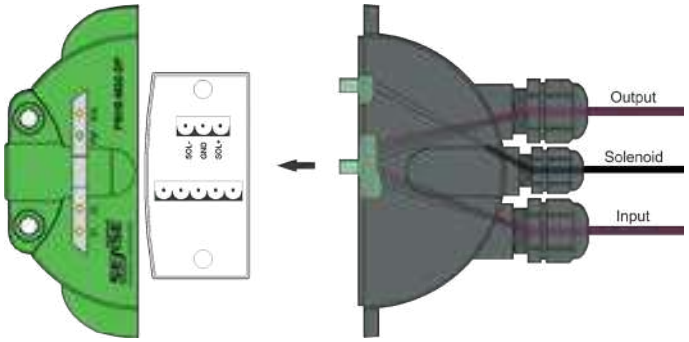
The electrical connection box is highly sealed against liquid penetration and, thanks to the plug-in terminal block, the monitor can even be changed without disconnecting the wiring. It incorporates two PG13.5 cable glands, one for the sensor cable entry and the other for the solenoid control cable entry. The third input, also with a PG9 cable gland, must be used to connect the local solenoid valve cable, as the command received from the PLC is interconnected with the solenoid cable when the connector is attached to the monitor.



Connection System - Networked Monitors

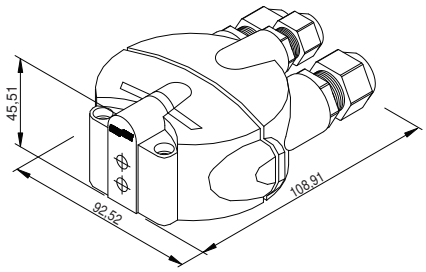
The connection system makes it easy to replace the monitors as it has plug-in terminals. allowing the monitor to be replaced quickly without interrupting the operation of the rest of the network. It has a rubber sealing ring and incorporates two PG 13.5 cable glands for the input and output of the mains cables and a PG 9 cable gland for the solenoid valve cable, thus providing an excellent seal against liquid penetration inside the monitor connection box, which eliminates the need for mains plugs and an external connection box.



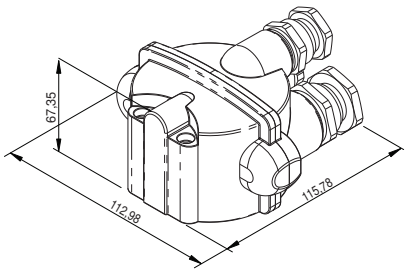


Mechanical Dimensions (mm)

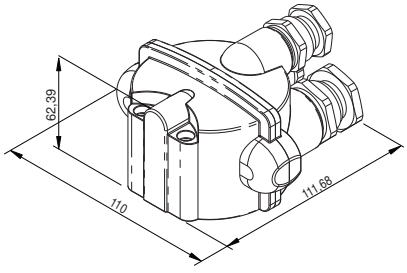
M32 - Ex e m Plastic



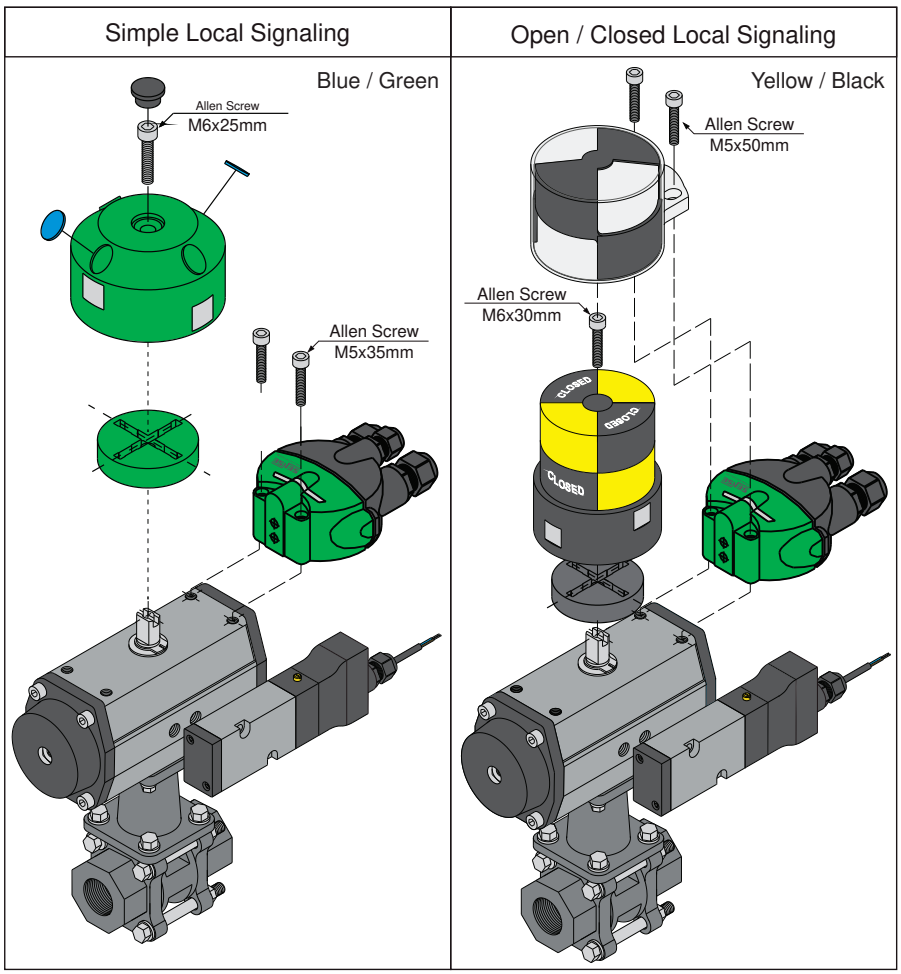
MA32 - Ex d m Aluminum



MX32 - Ex d m Stainless Steel



Mounting on the Actuator



M...32 Series Monitor

How to Order

PSH5 - MA32 - DP - PE - BSDA - S - VT/0,5 - VSN A - ARN-L-M32-PSH - Ex /Z

Principle
PS3* - Inductive for sensor type:
2E2; 2N; 2N4; 2WA (plastic)
PSH3* - Magnetic for the type of sensor:
RDR
PSH5* - Magnetic hall effect for sensor types: ASI3.2; DN-B; DP
*Sensing Distance
3 - 3 millimeters
5 - 5 millimeters

Enclosure Material
M32 - Plastic
MA32 - "Copper-Free" Aluminum - Ex d
MX32 - 316 Stainless Steel - Ex d

Sensor Type
2N - NAMUR INDUCTIVE sensor type
2E2 - PNP inductive sensor type - 3 wires
2N4 - DC inductive sensor type - 2 wires
2WA - AC inductive sensor type - 2 wires
RDR - REED SWITCH (SPDT) sensor type
ASI3.2 - magnetic sensor type with HALL effect for AS-Interface network
ASI3.2S - smart sensor (AS-i Smart) magnetic type with HALL effect for AS-Interface network
DN-B - magnetic sensor type with HALL effect for DeviceNet network
DP - magnetic sensor type with HALL effect for Profibus DP network

Input Connection
__ - cable gland (2 connections 3/4" NPT + 1 connection 1/2" NPT). Note: It is mandatory to use a cable gland or plug certified as Ex d
PE - cable gland Ex d (2 x 3/4" NPT + 1 x 1/2" NPT)
PEA - 1/2" NPT Ex d cable gland (Comes with 2 3/4" NPT to 1/2" NPT thread adapters certified as Ex d)
A - without cable gland (Comes with 2 3/4" NPT to 1/2" NPT thread adapters certified as Ex d)
PI - Ex d certified cable gland incorporated into the sensor (2 M24 connections + 1 M20 connection)

Note: for plastic monitors, leave this option blank.

Solenoid Coil
__ - no solenoid valve
BSI - encapsulated and intrinsically safe (24Vdc/0.6W) Ex ib (only used with ASI3.2S sensor)
BSDA - encapsulated and explosion-proof with aluminum enclosure
BSDX - encapsulated and explosion-proof with stainless steel enclosure

For plastic models:
__ - no solenoid valve
BS - standard 24Vdc / 0,6W
BSM - encapsulated and increased security - Ex e
BSI -encapsulated and increased security (24Vdc / 0,6W) - Ex ib (only for model ASI3.2S)

Coil Electrical Configuration
__ - standard 24Vdc / 0.6W
S - smart coil - 28 to 250Vdc / 28 to 250Vac (only for BSD versions and RDR sensor type)
UL - ultra low power - 24Vdc/ 0,2W (only for BSD versions and RDR sensor type)

Solenoid Electrical Connection
VT/0,5 - connection box with pressure terminal and 0.5 meter cable

For plastic models:
PG/0,5 - 0.5 meter injected cable (please inform if other lengths are required)
VT/0,5 - screw terminal with 0.5 meter cable
V1 - M12 connector (general use only)

Valve Type
VS - Standard pneumatic body with 1/4" NPT connections
VSS - Standard pneumatic body with 1/4" BSP connections
VN - Namur-type pneumatic body with 1/4" NPT connections
VSN - Namur type pneumatic body with 1/4" BSP connections

Valve Body Material
A - anodized aluminum body (recommended for MA32 version)
X - 316 stainless steel body (recommended for MX32 version)
L - brass body (recommended for M32 version)

Actuator
__ - no actuator
ARN-L-M32-PS - inductive actuator with local open/closed indication (for sensor types: 2E2, 2N, 2N4, 2WA)
ARN-L-M32-PSH - magnetic actuator with local open/closed indication (for sensor types: ASI3.2, DN-B and DP)
ARN-L-M32-RDR- magnetic actuator with local open/closed indication (for sensor types: RDR)
ARN-M32-PS - inductive actuator with local color indication (for sensor types: 2E2, 2N, 2N4, 2WA)
ARN-M32-PSH - magnetic actuator without local color indication (for sensor types: ASI3.2, DN-B and DP)
ARN-M32-RDR- magnetic actuator without local color indication (for sensor types: RDR)

suitable for M32 version

ARN-L-MAX32-PSH - magnetic actuator with local open/closed indication (for sensor types: ASI3.2, DN-B and DP)
ARN-L-MAX32-RDR- magnetic actuator with local open/closed indication (for sensor types: RDR)
ARN-MAX32-PSH - magnetic actuator with local color indication (for sensor types: ASI3.2, DN-B and DP)
ARN-MAX32-RDR- magnetic actuator with local color indication (for sensor types: RDR)

suitable for MA32 and MX32 versions

Customization
/Z - only use if it is a customized item (Specify special requirement for engineering)

Classification
Ex - classified area

Important Note: Not all of the combinations presented above are possible, we recommend contacting our applications engineering or accessing www.sense.com.br, to form the feasible combination for the selected product.

Optional items

SVA Series Monitor

Solenoid Valve

- Mounting the internal coil to the enclosure
- 24Vcc/0,6W model and 0,25W ultra low power
- Automatic AC/DC model (reduction of product in stock)
- 1/4" NPT pneumatic connection

SVA Enclosure

- Ex d protection
- Available in copper free aluminum

Certification

Cable Input

- Up to 4 holes with or without cable glands
- PG, NPT standard or M20

Non-contact Sensing

- Increased service life
- No moving parts
- Detection precision
- Fully resin encapsulated
- Ex em, Ex i internal module

Enclosure Options

Explosion-proof stainless steel Ex d
- Explosion-proof
- Ex d IIB + H2 T6 Gb
- TA: -20°C to +55°C
- IP66 protection degree

Explosion-proof aluminum Ex d
- Explosion-proof
- Ex d IIB + H2 T6 Gb IP66
- TA: -20°C to +55°C
- IP66 protection degree

Intern Coil

SVX Series Monitor

SVX Enclosure

- Ex d protection
- Available in 316 stainless steel

Local Signaling

- High-visibility signaling
- Incorporates electronic sensor drive
- No axle inside the monitor enclosure
- Allows adjustment of the detection angle
- Plastic or stainless steel base

Drive

- Plastic
- Metalic

Internal Shunt System

- Allows maintenance without interrupting the operation of the rest of the network
- Turns the monitor off by removing its cover
- No need for external derivators

Aggressive Environments

- Enclosure with a high degree of protection against liquid penetration.

IP66W

- Saline environment approved

Electrical Configurations

Conventional

- Reed Switch (SPDT)

Redes Industriais

- AS-Interface
- DeviceNet
- Profibus DP

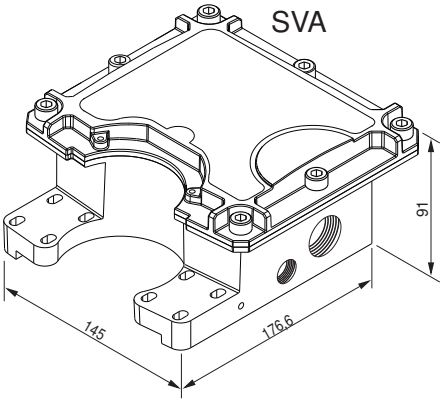
Certification

Encapsulated Sensor Module

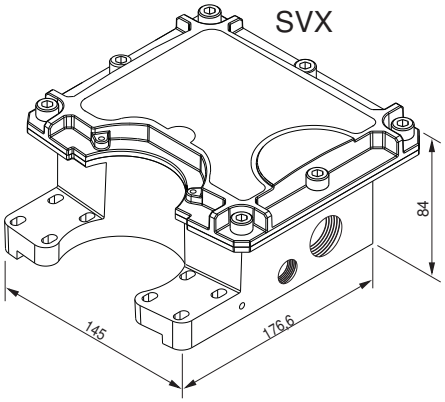
The sensor module has pressure terminals that make it easy to connect the wires and, as it is mounted internally in the monitor enclosure, it has a high degree of protection against liquid penetration (IP66).

Mechanical Dimensions (mm)

SVA



SVX



SVA / SVX Series Monitor

Local Signaling

The monitor can be supplied without a local indicator or with an open/closed indicator. It has two magnetic triggers that sensitize the monitor's internal sensors, which indicate the valve's position remotely.

Open / Closed Signaling

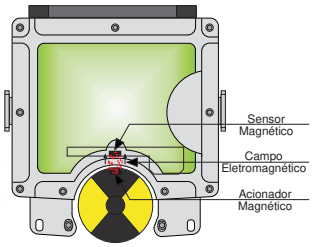
In addition to indicating the valve's position in yellow for an open valve and black for a closed valve, it has written indications, making it easy to read. It has triggers which sensitize the sensors that indicate the remote position of the valve.

The base of the actuator is made of plastic and can be made of stainless steel on request.

Non-contact Sensing

Two magnetic actuators are installed on the local beacon. This beacon is attached to the shaft of the rotary actuator, which rotates 90° and is controlled by a solenoid valve.

The actuators generate a magnetic field which is detected by the monitor's internal sensors, generating the valve position signal for the logic controller. It is important to remember that the internal sensors in this case are polarized, preventing the upper actuator from triggering the lower sensor and vice versa.



Internal Shunt System

Fully integrated into the monitor, the internal shunt system allows the electronic module or solenoid valve to be replaced without interrupting the operation of the rest of the network.

Hot-swapping the Module

The monitor allows the electronic network module to be changed without interrupting the operation of the rest of the network, even in potentially explosive ZONE 1 atmospheres.

Solenoid Replacement

Similarly, the solenoid coil can be replaced without de-energizing the mains, also in ZONE 1.

Operating Principle of the Bypass System

The valve monitor's internal derivator has terminals to receive the network cables that enter and leave the monitor and has a derivator for connecting the electronic module.

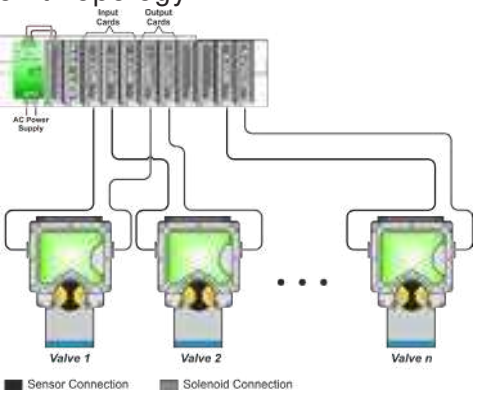
When the valve monitor cover is removed, the electronic module lead is automatically de-energized, allowing it to be replaced without the risk of sparking and without interrupting the operation of other equipment connected to the same network.

The switching element of the derivator is activated by the magnet fixed to the cover, and the switching takes place within resin-encapsulated reed switches inside the derivator.

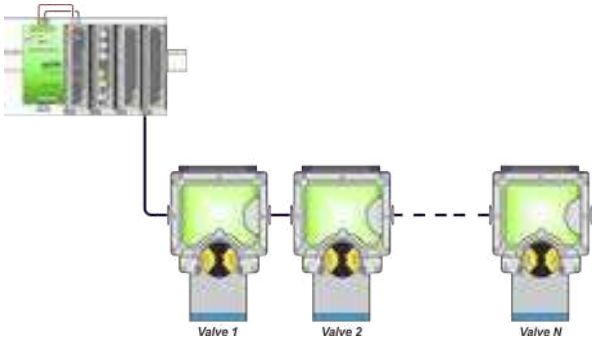
Electrical Configurations

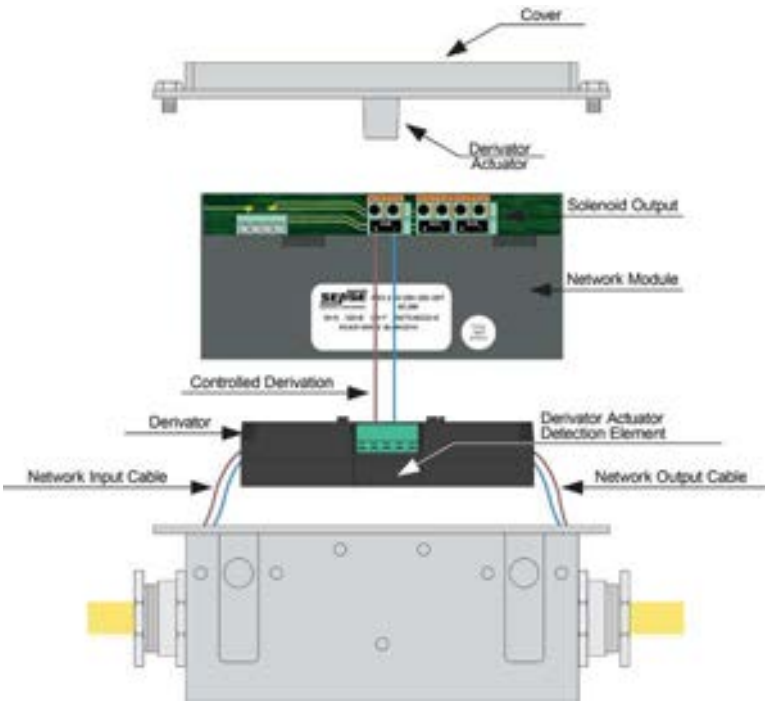
The SVA / SVX series monitors are available in point-to-point versions and for industrial networks in the AS-Interface, DeviceNet or Profibus DP standards.

Point-to-point Topology



Network Topology





SVA / SVX Series Monitor

Solenoid Valves
Coil:
BSDI - Intrinsically safe, encapsulated and explosion-proof coil
BSD - Encapsulated, explosion-proof coil in the following options:

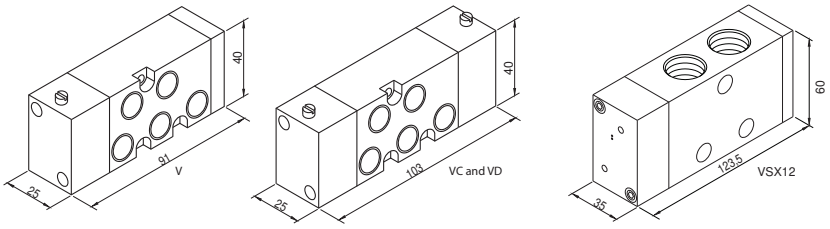
Smart Coil:
BSD - 24Vdc general use explosion-proof coil
BSDS - allows the solenoid to be coupled to both direct current 24 to 250Vdc and alternating current 24 to 250Vac.
BSDUL - ultra low power, with a modulator circuit that reduces the average current and increases the useful life of the coil, as it reduces the voltage after energization, also reducing its temperature.

					
	BSDI	BSD			BSDX
	Instrinsic Safety, encapsulated and explosion-proof	Increased Security, encapsulated and explosion-proof - Multi-voltage	Increased Security, encapsulated and explosion-proof - Ultra Low Power	Explosion-proof and general use	Explosion-proof external mounting
IIB Model	BSDI IIB	BSDS IIB	BSDUL IIB	BSD IIB	BSDX IIB
IIB + H2 Model	BSDI	BSDS	BSDUL	BSD	-
Supply voltage	24 Vdc ±10%	24-250 Vac / Vdc ±10%	24 Vdc ±10%	24 Vdc ±10%	24 Vdc ±10%
Capacity: 24 Vdc	0,6 W	1 W	0,2 W	0,6 W	0,6 W
Capacity: 110 Vac	-	2,1 W	-	-	-
Capacity: 250 Vac	-	2,1 W	-	-	-
Encapsulation	epoxy resin	epoxy resin	epoxy resin	epoxy resin	epoxy resin

Pneumatic Body

Made from aluminum, brass or stainless steel in three construction options to provide the best condition under failure:

- 5/2 with a spring return coil
- 5/2 with double coil last position
- 5/3 with double closed center coil



				
Type	single coil spring return	double coil last position	double coil closed center	single coil external mounting
Aluminum - 1/4" NPT thread	VA	VDA	VCA	-
Aluminum - 1/2" NPT thread	-	-	-	VSX12
Stainless steel - 1/4" NPT thread	VX	VDX	VCX	-
Brass - 1/4" NPT thread	VL	VDL	VCL	-
Actuation	pilot	pilot	pilot	pilot
Return	spring	solenoid	solenoid	spring
Operating principle	reel	reel	reel	reel
Number of lanes/positions	5/2	5/2	5/3	5/2
Manual valve actuator[1]	two-position actuator	two-position actuator	two-position actuator	doesn't have
Pressure range	2 to 7 bar	2 to 7 bar	2 to 7 bar	2 to 7 bar
Fluid	air			
Fluid temperature	max. 50°C	max. 50°C	max. 50°C	max. 50°C
Lubrication	not required	not required	not required	not required
Cv	0,9	0,9	0,9	3,5
Operating temperature	0°C to + 50°C	0°C to + 50°C	0°C to + 50°C	0°C to + 50°C

Note1: Pneumatic body with or without manual actuation.

SVA / SVX Series Monitor

SVA - X - 212 - PE - D - C - DNB - BSDS - VX - Ex

Select the Enclosure
SVA - aluminum
SVX - 316 stainless steel

Select the Actuator Material
_ - plastic actuator
X - stainless steel actuator
Select the local signaling type
_ - open/closed yellow and black
N - no local signaling
G - open/closed green and white
R - open/closed red and white
B - open/closed blue and white
O - 3 way flow indication
T - 3 way flow indication
F - 3 way flow indication
S - 4 way flow indication
U - user defined indication

Select the Number and Type of Holes in the Box
1°, 2°, 3° digits of the primary connection and
4°, 5°, 6° digits of the secondary connection
NPT drilling pattern
Only compatible for options "PE" or "P" in the next field
212 - 2 ½" NPT threaded holes
312 - 3 ½" NPT threaded holes
234 - 2 3/4" NPT threaded holes
234112 - 2 holes 3/4" + 1 hole ½" NPT
234212 - 2 holes 3/4" + 2 holes ½" NPT
21 - 2 x 1" NPT threaded holes
21112 - 2 x 1" holes + 1 x ½" NPT hole
M20 and M24 drilling pattern
Only compatible with the "PI" option in the next field.
220 - 2 M20 threaded holes
224 - 2 M24 threaded holes
224120 - 2 M24 threaded holes + 1 M20 threaded hole

Select the Cable Gland Type
Compatible option for General Use specification only
_ - without mounted cable gland (Product only with the holes defined in the previous field)
P - plastic cable gland installed in the product

Compatible option for General Use or Explosion Proof specification
_ - without mounted cable gland (Product only with the holes defined in the previous field)
PE - external metal cable gland (same material as the enclosure, installed on the product)
PI - built-in stainless steel cable gland (installed in the product)

Internal Derivator Module
_ - no derivator
A - As-interface derivator
D - Devicenet derivator
P - Profibus DP derivator
DG - general use derivator

Derivator Actuator
_ - smagnetic actuator in the internal derivator module
C - with magnetic actuator in the internal derivator module

Remote Signaling Module

Industrial Network Modules

ASI3.2	ASI3.2-SV-2EH-2EC-2ST (AS-I version 2.1 with 2 hall inputs, 2 contact inputs and 2 transistor outputs)
DNB	DN-B-SV-2EH-2EC-2ST (DeviceNet with 2 hall inputs, 2 contact inputs and 2 transistor outputs)
DP	DP-SV-2EH-2EC-2ST (Profibus DP with 2 hall inputs, 2 contact inputs and 2 transistor outputs)

Conventional Modules

2N	SV-2N-2DS (2 namur inputs and 2 solenoid derivations)
2E	SV-2E-2DS (2 NPN inputs and 2 solenoid derivations)
2E2	SV-2E2-2DS (2 PNP inputs and 2 solenoid derivations)
RD	SV-2RD-2DS (2 Reed Switch inputs with NO contact and 2 solenoid derivations - 3A / 250Vac/dc)
RDR	SV-2RDR-DS (2 Reed Switch inputs with NO/NF contact and 1 solenoid derivation - 3A / 250Vac /dc)
RDR-LP	SV-2RDR-DS-LP (2 Reed Switch inputs with NO/NF contact and 1 solenoid derivation - 0.5A / 127Vac / 175Vdc)

Select Solenoid Coil
_ - no solenoid coil
Standard: Explosion-proof specification for gas group IIB (Only available for Aluminum "SVA" version)

*BSD IIB	(24 Vdc Model)
*BSDI IIB	(Intrinsic Safety 24 Vdc Model)
*BSDS IIB	(Multi-voltage AC/DC 24 ~ 250 Vdc/ac Model)
*BSDUL IIB	(Ultra Low Power 24 Vdc Model)

Special: General use or explosion-proof specification for gas group IIB+H2

*BSD	(24 Vdc Model)
*BSDI	(Intrinsic Safety 24 Vdc Model)
*BSDS	(Multi-voltage AC/DC 24 ~ 250 Vdc/ac Model)
*BSDUL	(Ultra Low Power 24 Vdc Model)

(*) Use the digit "2" in front of the description if TWO solenoid coils are required. Mandatory for use with VCA / X / L or VDA / X / L valves
External mounting: Explosion-proof specification for gas group IIB

BSDX	(24 Vdc Model). Only compatible with VSX12 valve body

Select the Valve Body
_ - no pneumatic valve
V - valve for one coil with 1/4" NPT connection
VD - two-coil last position valve with 1/4" NPT connection
VC - valve for two closed center coils with 1/4" NPT connection
VSX12 - valve for one coil and external mounting with 1/2" NPT connection. Only available in stainless steel

Pneumatic Body Material
A - aluminum
X - stainless steel
L - brass

Note: Pneumatic body available with or without local actuator

Area Classification
- general use
Ex - classified area

Important Note: Not all of the combinations presented above are possible, we recommend contacting our applications engineering or accessing www.sense.com.br, to form the feasible combination for the selected product.

Optional items

SV Series Monitor

Aluminum: General Use, Ex e m

Solenoid Valve

- Mounting the internal coil to the enclosure
- 24Vcc/0,6W model and 0,25W ultra low power
- Automatic AC/DC model (stock reduction)
- 1/4" BSP or 1/4" NPT pneumatic connection

Local Signaling

- High-visibility signaling
- Incorporates electronic sensor actuators
- No axle inside the monitor housing
- The detection angle can be adjusted

Cable Input

- Up to 4 holes with or without cable glands
- PG, NPT or M20 standard

Housing

- General use or Ex e

Certification

Non-contact Sensing

- Increased service life
- No moving parts
- Detection accuracy
- Fully resin-encapsulated

Electrical Configurations

Conventiona

- PNP
- NAMUR
- CA 2 wires
- CC 2 wires
- Reed Switch (SPDT)

Industrial Networks

- AS-Interface
- DeviceNet
- Profibus DP

Solenoid Valve Mounting

Mounting Supports

Internal Coil

Mounted Valve

SV Series Monitor

Local Signaling

The monitor can be supplied without a local indicator or with an open/closed indicator. They have two magnetic triggers that sensitize the monitor's internal sensors, which indicate the valve's position remotely.

No Local Signaling

For locations that are difficult for operators to access or where there is no need for local indication. It has triggers that sensitize the sensors that indicate the remote position of the valve.

Open / Closed Signaling

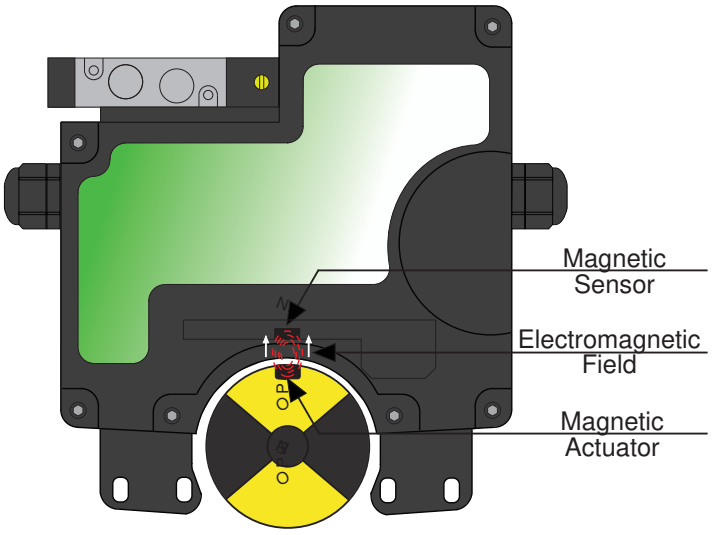
In addition to indicating the valve's position in yellow for an open valve and black for a closed valve, it has written indications, making it easy to read. It has triggers which sensitize the sensors that indicate the remote position of the valve.

Non-contact Sensing

Two magnetic actuators are installed on the local beacon. This signaling device is attached to the shaft of the rotary actuator, which rotates 90° and is controlled by a solenoid valve.
The actuators have the function of sensitizing the monitor's internal sensors, which indicate the position of the valve with the local signaling device.

Magnetic Monitors

In this type of monitor, the actuator generates a magnetic field which is detected by the monitor's internal sensors, generating the valve position signal for the control system. It is important to remember that the internal sensors in this case are polarized, preventing the upper actuator from activating the lower sensor and vice versa.



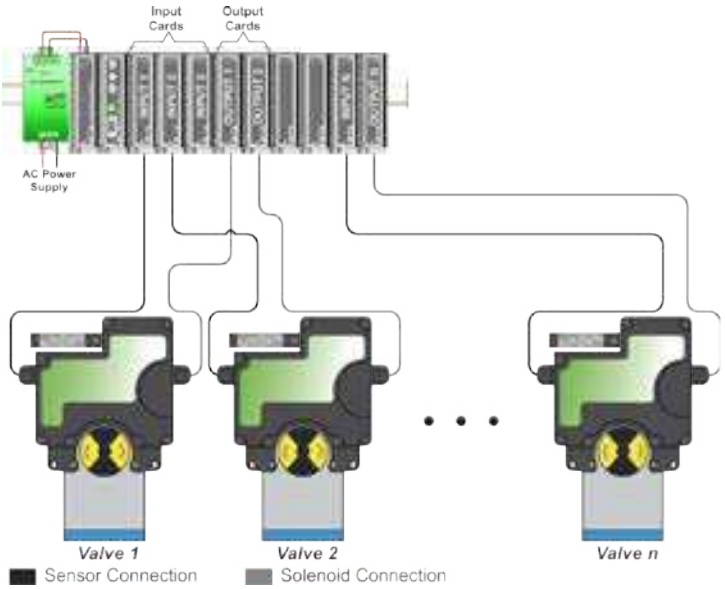
Encapsulated Sensor Module

The monitor can be supplied without a local indicator or with an open/closed indicator. They have two magnetic triggers that sensitize the monitor's internal sensors, which indicate the valve's position remotely.

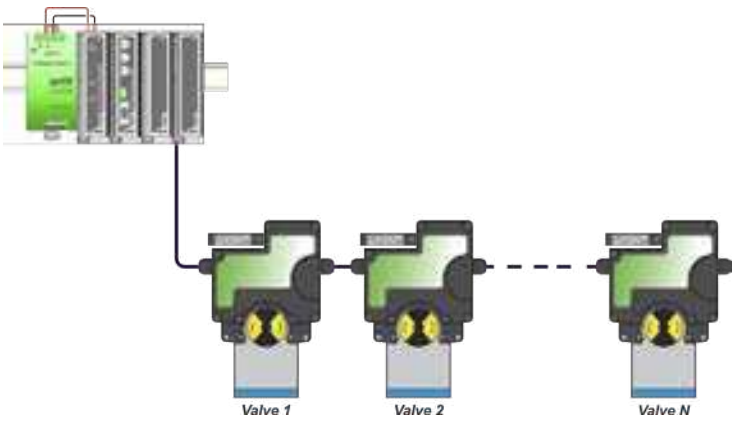
Electrical Configurations

The SV series monitors are available in point-to-point versions in direct current, alternating current or AC/DC and for industrial networks in the AS-Interface, DeviceNet or Profibus DP standards.

Point-to-point topology



Network Topology



Internal Shunt System

Fully integrated into the monitor, the internal shunt system allows the electronic module or solenoid valve to be replaced without interrupting the operation of the rest of the network.

Hot-swapping the Module

The monitor allows the electronic network module to be changed without interrupting the operation of the rest of the network, even in potentially explosive ZONE 1 atmospheres.

Solenoid Replacement

Similarly, the solenoid coil can be replaced without de-energizing the mains, also in ZONE 1.

Operating Principle of the Bypass System

The valve monitor's internal derivartor has increased safety terminals to receive the network cables that enter and leave the monitor and has a derivation for connecting the electronic module.
When the valve monitor cover is removed, the electronic module branch is automatically de-energized, allowing it to be replaced without the risk of sparking and without interrupting the operation of other equipment connected to the same network.
The switching element of the derivartor is activated by the magnet fixed to the cover, and the switching takes place within resin-encapsulated reeds switches inside the derivator.

Cable In and Out

The monitors are designed to receive conduit, flexible conduit or cable glands directly through their threaded entries. They are equipped with female threaded entries in 1/2“ NPT, 3/4” NPT, PG13.5, PG16 or M20.

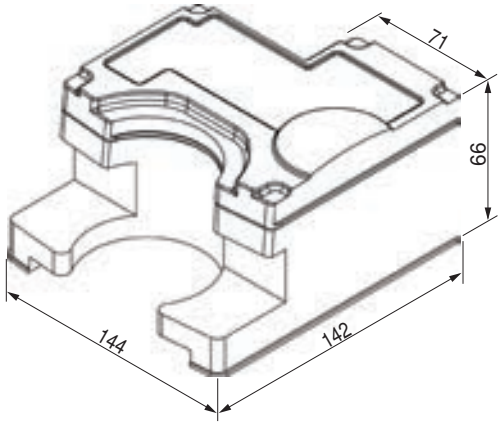
Common Flexible

Flexible Conduit

Metallic Conduit

Cable Gland

Mechanical Dimensions (mm)



SV Series Monitor

How to Order

SV N - 1 1 P - A C - ASI3.2 - BS - VSSA - Ex /Z

Function
SV - Valve monitor aluminum enclosure

Local Signaling
_ - With local indication Open/Closed Yellow and Black
N - No local signaling

Main Cable Input
1 - 2 ½" NPT threaded holes
2 - 2 M20 threaded holes
3 - 2 threaded holes 3/4" NPT
5 - 2 PG13.5 threaded holes
6 - 2 PG16 threaded holes
V1 - 5 pin male M12 connector
VY - AS-Interface connector

Optional Cable Input
_ - No extra input
1 - 1 PG9 threaded hole
2 - 2 PG9 threaded holes
3 - 3 PG9 threaded holes

Cable Glands
_ - No cable glands
P - With plastic cable glands installed

Internal Derivator
_ - No module
A - AS-interface Derivator
D - Devicenet Derivator
P - Profibus DP Derivator

Derivator Actuator
_ - Without magnetic derivator actuator
C - With magnetic derivator actuator

Remote Signaling Module

Industrial Network Modules

ASI3.2	ASI3.2-SV-2EH-2EC-2ST (AS-I version 2.1 with 2 hall inputs, 2 contact inputs and 2 transistor outputs)
DNB	DN-B-SV-2EH-2EC-2ST (DeviceNet module with 2 hall inputs, 2 contact inputs and 2 transistor outputs)
DP	DP-SV-2EH-2EC-2ST (Profibus DP with 2 hall inputs, 2 contact inputs and 2 transistor outputs)

Conventional Modules

2N	SV-2N-2DS (2 namur inputs and 2 solenoid derivations)
2E	SV-2E-2DS (2 NPN inputs and 2 solenoid derivations)
2E2	SV-2E2-2DS (2 PNP inputs and 2 solenoid derivations)
RD	SV-2RD-2DS (2 Reed Switch inputs with NO contact and 2 solenoid derivations - 3A / 250Vac/dc)
RDR	SV-2RDR-DS (2 Reed Switch inputs with NO/NF contact and 1 solenoid derivation - 3A / 250Vac/dc)
RDR-LP	SV-2RDR-DS-LP (2 Reed Switch inputs with NO/NF contact and 1 solenoid derivation - 0.5A / 127Vac/ 175Vdc)

Coil Types
BS - Internal Coil General Use
BSI - Internal Coil Intrinsic Safety
BSM - Internal Coil Increased Safety

Valve Body
VSSA - Standard valve 1/4" BSP aluminum
VSSX - Standard valve 1/4" BSP aluminum

Area Classification
_ - General Use
Ex - Classified Area

Customization
/Zx - This field will be used by application engineering. 'x' is a numeric digit (code) defined by EA

Important Note: Not all of the combinations presented above are possible, we recommend contacting our applications engineering or accessing www.sense.com.br, to form the feasible combination for the selected product.

Optional Items

MON Series Monitor

Internal Components
- Activation cam
- Remote signaling module
- Internal drift (industrial networks)

Input Cable
- Up to 3 input cable
- ½" NPT

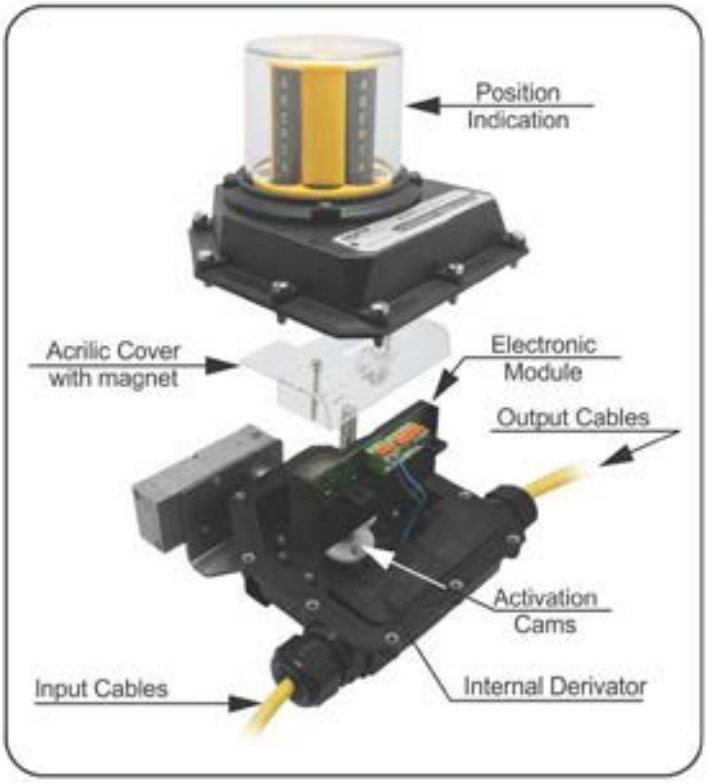
Housing
- Plastic housing
- General purpose or Ex e

Certification

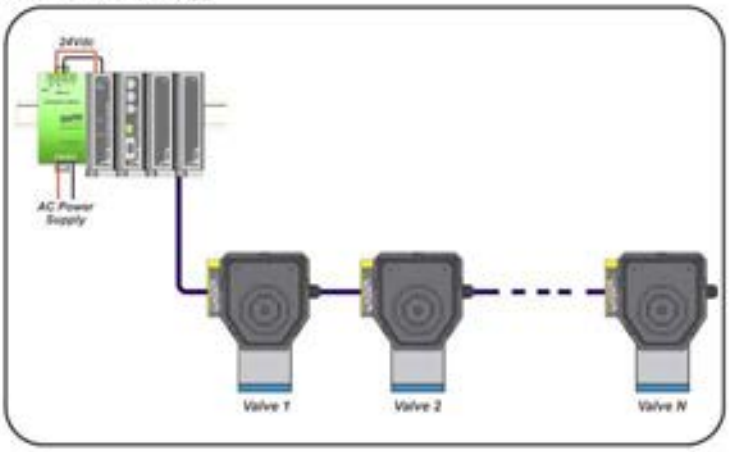
Valve Position Signaling
- High visibility signaler
- Available in various colors

- Optinal flow indication

Solenoide Valve
- Internal mounting of the coi
- Electrical configurations:
  - 24 Vdc
    - General purpose
    - Increased safe
    - Intrinsically safe



Network Topology



MON Series Monitor

Valve monitors have been developed to automate rotary valves of various types.

They can be mounted on various pneumatic actuators, providing local visual indication and remote electrical signaling of the valve position (open or closed).

The valve monitor can be equipped with various types of local and remote signaling, industrial network cards, solenoid valves, mounting accessories such as brackets, cable glands, etc.

Operation:

The monitors have a set of internal switches that make it possible to remotely indicate the opening and closing of the valve, which through an exclusive rotating cam shaft make it possible to adjust the switching point without the need for tools. The shaft is coupled to the pneumatic actuator or directly to the valve and its function is to actuate the local and the cams of the remote sensors. The cams are adjusted by pressing them down (top cam) or up (bottom cam), releasing them from the spring that keeps them pressed against the notched wheel attached to the shaft. Once released, they can be rotated to any angle, allowing precise positioning of the switching point.

Enclosure Types:

In order to offer flexibility for your industrial application, we can offer monitors in metal or plastic cases.

Plastic Box:

Completely overhauled, now using a new plastic material (Zytel) that is highly resistant to weathering, chemical agents, salinity and high temperatures. Available for general use and increased security.

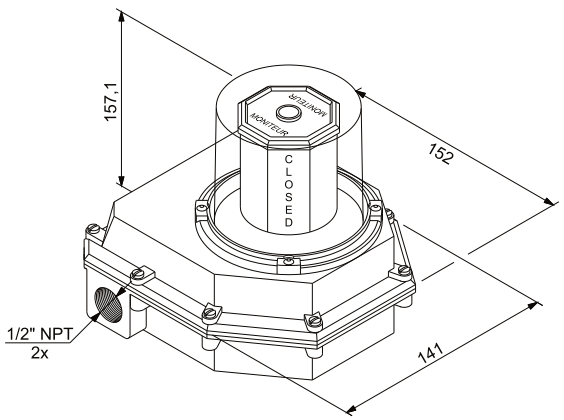
Aluminum Box:

The aluminum enclosure is available for explosion-proof applications.

Plastic Box

Aluminum Box

Plastic Box Mechanical Dimensions (mm)



MON Series Monitor

Electrical Connection

The monitors have a screw terminal bar (for cables up to 2.5 mm²) installed inside the casing, which is protected against liquid penetration, allowing the sensors, solenoid valve and control system cable to be interconnected.

When the monitor uses network cards there is no longer a terminal bar, as the wires are connected directly to the electronic board or to an internal derivartor that allows the monitor to be disconnected for maintenance without interrupting the operation of the rest of the network.

Solenoid Valves

To complement the automation of the valve, the monitors can be supplied with solenoid valves. The set is delivered completely assembled, where the valve is mechanically attached to the monitor, which also integrates its electrical connection. Available in several versions, including for potentially explosive atmospheres, making the system practical and versatile.

Integra Valves

These valves are coupled to the monitor via a special bracket and allow the solenoid coil to be mounted internally. These valve models require pneumatic connections and tubes to connect the valve and the pneumatic actuator.

MON Series Monitor

How to Order

P M Y B - 5 H 2 0 - D5C - DNB - BS - VAIX - MS - Ex /Zx

Enclosure Material
P - SURVIVOR
General use plastic and increased safety
A - SENTINEL
Explosion-proof aluminum

Local Visual Indication
M - with local indication F - no local indication

Valve Position Signaling
N - no local indication
Y - with indication 'Open/Closed'
P - cwith angle indication (0 to 100%)
L, G, R, B, O, T, F, S - optional with flow indication and special colors (consult our applications engineering)

Shaft Bushing Material
B - bronze (standard)

Shaft End Type
5 - low profile Namur tip - stainless steel 303

Remote Signaling Type
1 - mechanical contact
2 - reed switch sensor
7 - NPN inductive proximity sensor
8 - NAMUR inductive proximity sensor
9 - PNP inductive proximity sensor
H - board with internal sensor (Hall)

Key Numbers
1 - one key 2 - two keys

Electrical Connection Input

P - Survivor	A - Sentinel
0 - 2 ½" NPT holes	1 - 2 ½" NPT holes
6 - 3 ½" NPT holes	**7** - 3 ½" NPT holes

Note: Plastic enclosure supplied with plastic cable gland on available connections
Aluminum enclosure supplied without cable gland.

Internal Derivator
D2 - AS-Interface general use derivator
D2C - AS-Interface Ex derivator (with magnetic disconnector)
D5 - DeviceNet and Profibus DP general use derivator
D5C - DeviceNet and Profibus DP Ex derivator (with magnetic disconnector)

Internal Module
__ - no internal module
AS-Interface Network Option
ASI3.2 - module with two HALL inputs and 2 transistor outputs
DeviceNet Network Option
DNB - module with two HALL inputs, 2 dry contact inputs and 2 transistor outputs
Profibus DP Network Option
DP - module with two HALL inputs, 2 dry contact inputs and 2 transistor outputs
No Protocol Option
POT1K-MON-2SRD-TA - 1 potentiometer input, 2 Reed SPDT outputs (NO and NC) and 1 4-20mA output
Sensor Options
RD - reed switch module with 2 NO contacts, 2 solenoid derivations
2E - module with 2 NPN inputs and 2 solenoid derivations
2E2 - module with 2 PNP inputs and 2 solenoid derivations

Coil Type
__ - no coil (Do not specify valve body)
BS - general use
BSM - increased security
BSI - intrinsic safety
ATTENTION! For option 0 (input for electrical connection) the valve is mounted on the left connection of the monitor
For option 6 (input for electrical connection) the valve is mounted on the front connection of the monitor

Solenoid Valve Body
VAIX - aluminum integral model body with internal coil and stainless steel support
VLIX - integral model body in nickel-plated brass with internal coil and stainless steel support
VXIX - 316 stainless steel integral model body with internal coil and stainless steel support

Note: Consult our applications engineering if model A (Sentinel) is specified

Fixing Bracket
MS - support and accessory for coupling the monitor to the actuator - Material Carbon Steel
MSX - support and accessory for coupling the monitor to the actuator - Material Stainless steel
Note: Information on support should be taken up with our Applications Engineering for the correct specification

Area Classification
__ - General use Ex - Classified area

Customization
/Zx - this field will be used for application engineering. 'x' is a numeric digit (code) defined by EA

Important Note: Not all of the combinations presented above are possible, we recommend contacting our applications engineering or accessing www.sense.com.br, to form the feasible combination for the selected product.

M4 Series Monitor

The M4.Smart is a smart valve monitor designed specifically for applications with rotary valves that turn 1/4 turn (90°). It can be fully configured using magnetic switches, without external mechanical switches that are prone to breakage or internal adjustments that require dismantling the enclosure. Configuration can be done via the magnetic switches, assisted by the multifunction display or via a smartphone app via Bluetooth.
Some settings can also be made from the control room via communication protocols.
Continuous detection technology improves the accuracy of position detection in rotary valves and detects any angle of the axis. The automatic calibration feature, without opening the enclosure, reduces the time it takes to set up the monitor, while maintaining the high degree of protection against P67 liquid penetration.

Pneumatic Options

- Integrated pilots for small actuators
- Integrated valve with higher Cv
- External solenoid option

Digital Display

- All information at the top
- Continuous detection technology
- Detection accuracy
- Mechanical or LED position indication
- Encapsulated electronics

Smart Mounting (Patented)

- Fits any shaft size
- Modular mounting
- No extra support required

Alerts

- Internal temperature sensor
- Fault prevention alerts:
  - Pressure drop at the input
  - Actuator or solenoid leaks and much more

Smart Configuration

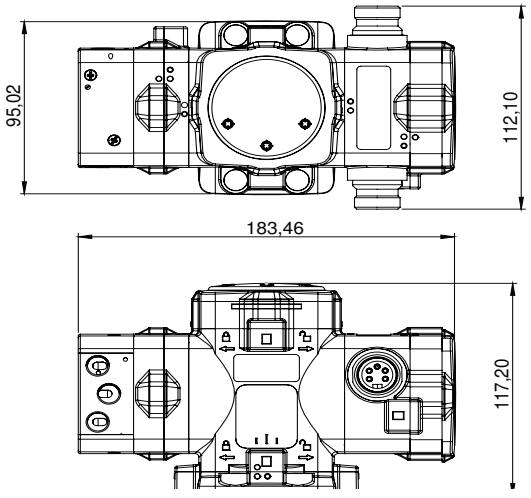
- Remote self-calibration over the network
- Password-protected APP (bluethooth)
- User-friendly local configuration with large display and magnetic key

Local Signaling LEDs

Orange for Closed

Green for Open

Mechanical Dimensions



M4 Series Monitor

Magnetic Switch

The monitor is equipped with three magnetic switches, which provide a greater degree of protection, making the monitor more immune to liquid penetration than those with traditional mechanical switches.

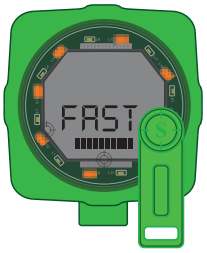
The entire configuration of the monitor is done via these three magnetic switches and a magnetic keychain, which eliminates the need to open the casing and makes the configuration process much easier and faster.

Magnetic Keychain

The monitor is supplied with a magnetic keychain which has two poles “N” North and “S” South. To activate the magnetic switches, move the magnetic keychain with the correct polarity closer to the button and observe the activation indication on the LED.

South Pole “S”

North Pole “N”

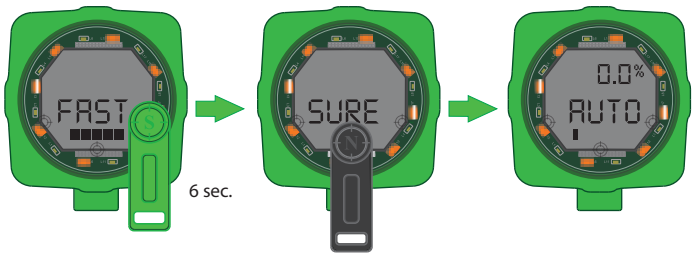


Auto Setup

All the smart monitor needs is a 24Vdc power supply and a magnetic keychain. The monitor will activate and deactivate the solenoid, causing the valve to open and close until it learns the valve's opening and closing time.

Activated by bringing the magnetic keychain close to the North “N” pole on target B3 for three seconds, the monitor will carry out the self-calibration process independently of any connection to the control system, making the configuration process much faster and more efficient.

The solenoid valve will be triggered to control the actuator in 3, 5 or 10 consecutive cycles to learn the open and closed position of the valve according to the displacement of the shaft.



This procedure eliminates the removal of covers, setting up limit switches, tools and monitoring equipment that can only be set up in the control room.

Smart Diagnostics

This unique feature shows all alert codes via the display, leading to a timely and immediate correction or indicating the trend of some future problem. The display is also essential for configuring the monitor.

Diagnostics and Alerts

The M4 series monitors are capable of generating an alert for preventive maintenance or if any mechanical or electrical abnormalities are detected.

The following alerts are generated by the monitor:

- Auto calibration failure - Range
- Auto calibration failure - Time Out
- Auto calibration failure - Range variation
- Out of range
- Auto calibration failure - No movement
- Command failure
- Unexpected change
- Partial counter alert
- Total counter alert
- Day alert
- Date alert
- Opening time alert
- Closing time alert
- High and low pressure alert
- Short solenoid alert
- Solenoid open alert
- High and low power alert
- High and low temperature alert
- PNP output alert

M4 Series Monitor

How to Order

M4SP - A32 - EV1 - V4ANT - Ex

Model
M4 - Standard version for model with mechanical contacts
M4S - Smart version (diagnostics and self-calibration)[1]
M4SP - Smart Pro version with bluethooth APP, advanced diagnostics and event log[1]
Note 1: Available for all versions except model with mechanical contact

Remote Signaling
R - RDR two reversible contacts, one to signal valve open and one to signal valve closed
IO - PNP outputs with IO-Link communication with valve status, actuation, alerts and configuration
A32 - ASi Network communication (version 2) with valve status, actuation, alerts and configuration
A5 - ASi Network communication (version 5) with valve status, activation, alerts, configuration and cloud
DN - DeviceNet network communication with valve status, actuation, alerts and configuration

E - Electrical Input
EN - 2 1/2" NPT threaded cable inputs with connection terminal (no cable gland, only plastic plug)
EB - 2 1/2" BSP threaded cable inputs with connection terminal (no cable gland, only plastic plug)
EVM - 1 male connector 7/8" - 5 pin, extra cable input with PG13.5 thread (supplied with plastic plug)
EV1 - 1 male connector M12 - 5 pin, extra cable input with PG13.5 thread (supplied with plastic plug)

V4 - Integrated Valve
V4AN - Integrated 5 way aluminum 2 position valve with NPT thread and 24 Vdc 0.6 W coil
V4ANT - Integrated aluminum 5 -way 2 position valve with NPT thread and 24 Vdc 0.6 W coil with pressure sensor [2]
V4AB - Integrated aluminum 5 way 2 position valve with BSP thread and 24 Vdc coil 0.6 W
V4ABT - Integrated aluminum 5 way 2 position valve with BSP thread and 24 Vdc 0.6 W coil with pressure sensor [2]
V4XN - Integrated stainless steel 5 way 2 position valve with NPT thread and 24 Vdc 0.6 W coil
V4XNT - Integrated stainless steel 5 way 2 position valve with NPT thread and 24 Vdc 0.6 W coil with pressure sensor [2]
V4XB - Integrated stainless steel 5 way 2 position valve with BSP thread and 24 Vdc 0.6 W coil
V4XBT - Integrated stainless steel 5 way 2 position valve with BSP thread and 24 Vdc 0.6 W coil with pressure sensor [2]
Note 2: Only available in the Pro version
VE - External Valve
VEN - 1 output 24Vdc 100mA. 1/2" NPT threaded hole and connection terminal for external solenoid (without cable gland and extra buffered output)
VEB - 1 output 24Vdc 100mA. 1/2" BSP threaded hole and connection terminal for external solenoid (without cable gland and extra buffered output)

Area Classification
_ - General Use
Ex - Ex version with increased safety / plugged in for Zone 1 / 21 and not ascendable to Div 2

Notes:
The solenoid with pressure sensor is only available in the Pro version
The Pro version can NOT be sold without a solenoid
The Pro version can only be supplied with a pressure sensing solenoid

PSH Series Sensors

Plastic: General Use, Ex mb
Brass: General Use, Ex mb
Stainless Steel: General Use, Ex mb

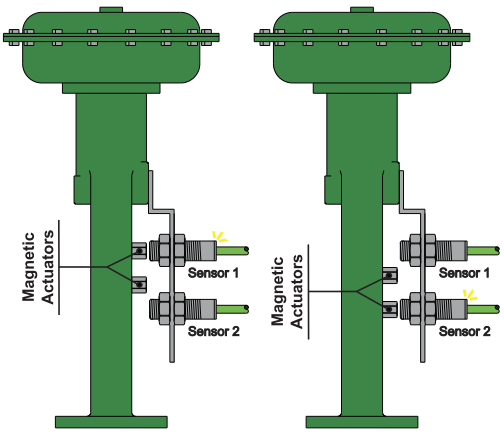
Magnetic sensors are designed to detect the magnetic field generated by a permanent magnet (or even an electromagnet).

Certification

The front of the sensor has an electronic component sensitive to the magnetic field, which, if excited by a magnet, changes its characteristic and generates a signal for the sensor's output stage.

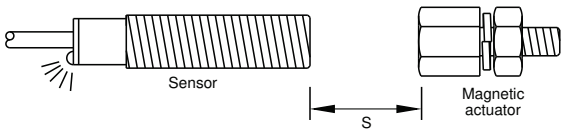
Linear Valve Applications

For linear valve applications, two sensors are required, one for the open position and one for the closed position of the valve. In this case, the actuating magnets must be installed on a fixed bracket on the valve shaft.



Actuation Distance

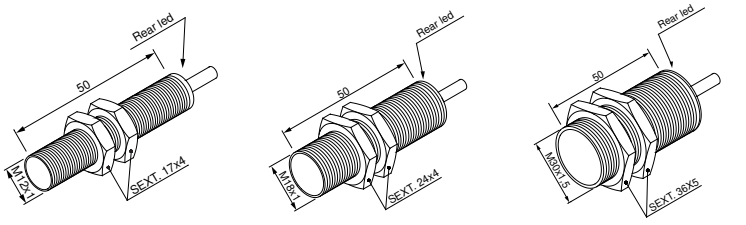
The sensing distance depends on the magnetic field strength, which in the case of Sense magnetic actuators depends on their size.



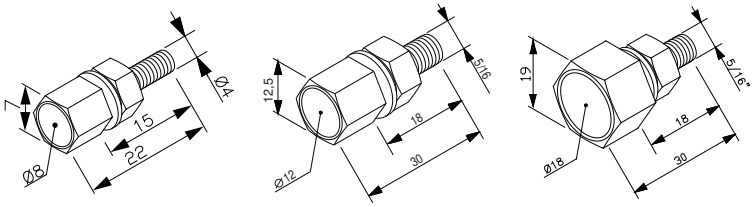
The table below shows the distances to be considered using Sense actuators.

	PSH-12	PSH-18	PSH-30
MS-PSH-P	9 mm	9 mm	9 mm
MS-XNNN	20 mm	20 mm	20 mm
MS-PSH-G	36 mm	36 mm	36 mm

Mechanical Dimensions (mm)



PSH-12 PSH-18 PSH-30



MS-PSH-P MS-XNNN MS-PSH-G

Specifying the Sensor

PSH X - 12 GX 50 - E2 - X - Ex

Sensor Type
PSH - magnetic proximity sensor

Sensing Face Type
_ - magnetic with plastic sensor face
* X - mangetic with metal sensor face
Note: * configuration only compatible with GX tubes.

Tube Diameter
12 - 12 mm diameter threaded tube 18 - 18 mm diameter threaded tube 30 - 30 mm diameter threaded tube

Tube Type
GP - plastic threaded tube GI - threaded metallic tube GX - threaded stainless steel tube

Tube Length
50 - 50 mm length 70 - 70 mm length (RD model only)

Electrical Configuration
E - direct current NPN NO - 3 wires E2 - direct current PNP NO - 3 wires
N4 - direct current NO - 2 wires N - NAMUR
* RD - SPDT reed switch contact (NO+NF) - 4 wires (only for M18 tube)
Note: * unclassified area version

Electrical Connection
* V1 - M12 connector - 4 pins
X - 'x' indicates other available cable lengths. Options: 6, 10, 15, 20 or 25 m
Note: * available for versions: E, E2, N4 and N - Marking: Ex tb IIIC T100°C Db IP65
N - Marking: Ex ia IIC T6 Ga

Area Classification
* Ex - classified area
Nota: * E2 version - Marking: Ex mb IIC T6 Gb and Ex tb IIIC T100°C Db IP 65
E, N e N4 version - Marking: Ex tb IIIC T100°C Db Ip65
N version - Marking: Ex ia IIC T6 Ga

Note: Not all the combinations shown above are possible, we recommend contacting or accessing www.sense.com.br, to form the feasible combination for the selected product.

Note: Magnetic actuators are not supplied with the sensors.

XNNN Series Monitor

Stainless Steel: Ex d

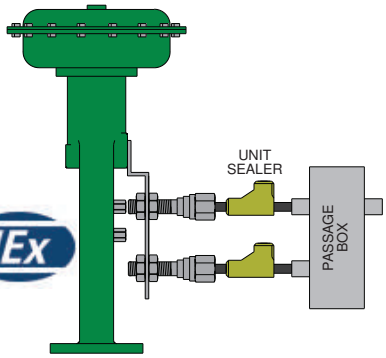
The magnetic monitor is an element capable of detecting the approach of a magnetic actuator, without there being any physical contact between the sensor and the actuator.

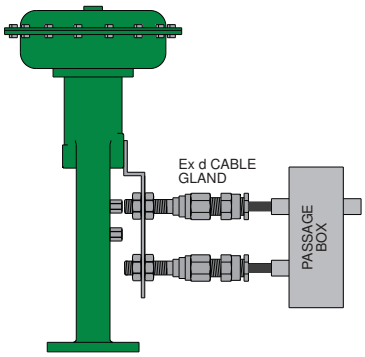
Certification

Made entirely of stainless steel, it is ideal for use in aggressive environments in the presence of liquids, powders, chemicals, etc.

Mounting Comparison

See the drawings below for a comparison of mounting with a sealing unit and with an Ex cable gland.

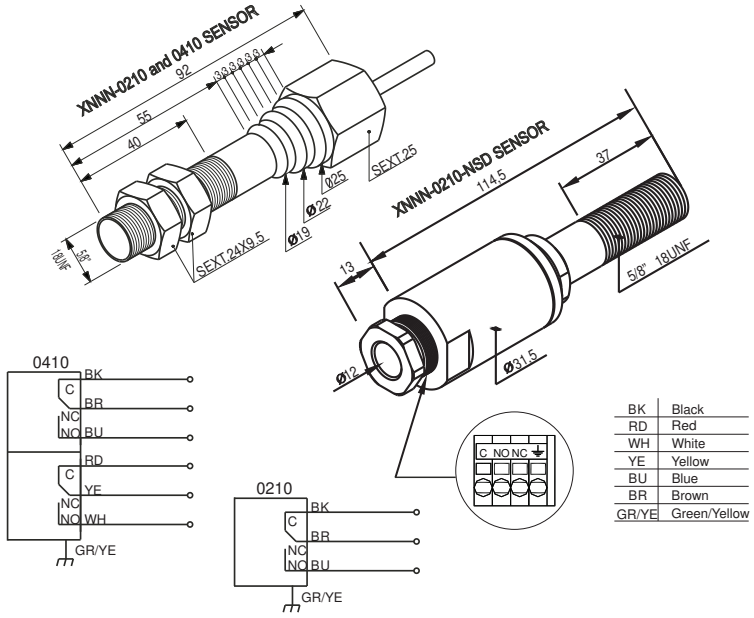




Features

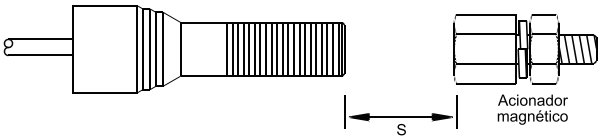
- Cable or connector connection
- Optional installation bracket developed according to the valve model
- Certified explosion-proof
- Actuator not supplied with monitor
- NO + NC models capable of switching loads up to 3A/ 110 Vac or 2A/ 24Vdc.
- Service life of up to 800,000 operations
- No need for conduits or sealing units

Mechanical Dimensions (mm)



Actuation Distance

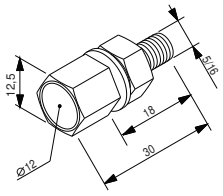
The sensing distance depends on the magnetic field strength, which in the case of Sense magnetic actuators depends on their size.



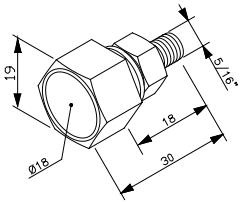
The table below shows the distances to be considered using Sense actuators.

	0210	0210-NSD	0410
MS-XNNN	8 mm	8 mm	8 mm
MS-XNNN-G	15 mm	15 mm	15 mm

MS-XNNN



MS-PSH-G



How to Order

XNNN - 0210 - NSD

Sensor Type
XNNN - reed switch magnetic sensor for use with valves or linear actuators

Contacts
0210 - 1 NA + NF contact
0410 - 2 NA + NF contacts

Electrical Connection
___ - 90 cm sealed cable
NSD - screw terminals

Important Note: Not all of the combinations presented above are possible, we recommend contacting our Applications Engineering or accessing www.sense.com.br, to form the feasible combination for the selected product.

I-VUE Monitor Series

Plastic: General Purpose, Ex nA

Valve Monitoring Innovation

The I-VUE series monitors are equipped with a precise non-contact detection system and advanced electronics. The monitor is operated and calibrated via three magnetic switches.
With additional features such as bright LEDs, local visual indicator, low power solenoid and two-year warranty, the most compact and complete intelligent system for monitoring diaphragm valves can be specified.

Local Position Signaling

Digital Display

- Main communication portal for both the user and the technicians who will be installing the product for the first time or servicing it.

Magnetic Switches

- Just 3 magnetic switches to configure all the sensor's functions

Electrical Connection

- The M12 or 7/8" connector facilitates electrical connection and disconnection

High Resolution

- Detects movements of up to 0.2mm with 16-bit resolution

Configuration Protection

- Password protection prevents unauthorized people from making changes to the monitor's configuration

Explosive Atmosphere

- Not Ignitable
  Marking: Ex nA IIC T6 Gc
- Housing Protection
  Marking: Ex tc IIIB T85°C Dc

Local Signaling LEDs

Solenoid Valve

- Aluminum or stainless steel body
- 1/8" NPT pneumatic connection
- Internal coil in monitor enclosure

Enclosure

- Fits valves up to 4"
- Separate module and connection box for easy connection and maintenance

Local and Remote Diagnostics

- Valve opening and closing time
- Tendency to mechanical problems
- Short circuit in the solenoid and much more

Electrical Configuration

Conventional

- 24 Vdc - PNP
- Analog 4 - 20mA

Industrial Networks

- AS-Interface
- DeviceNet

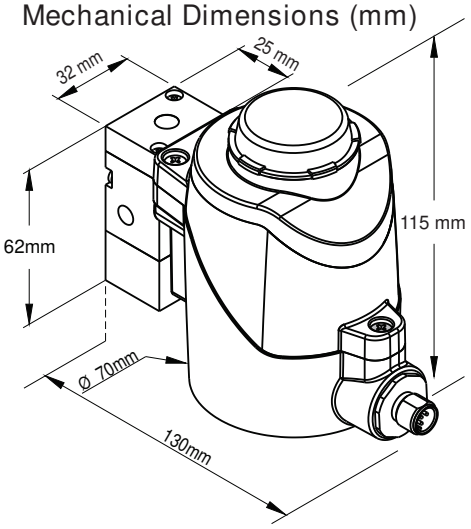
Local Signaling LEDs

The open and closed position of the valve can be seen from up to 8 meters and from almost any angle.
The LEDs show the position of the valve, lighting up green when the valve is open and red when it is closed.

Local Position Signaling

Even in the event of a power failure, the position of the valve can be seen via the local visual indicator.
A spring-operated position indicator moves inside the transparent cover regardless of the valve's stroke and size.

Mechanical Dimensions (mm)

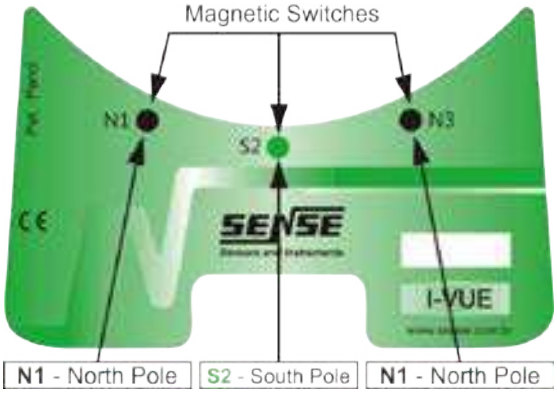


I-VUE Monitor Series

Magnetic Switches

The monitor is equipped with three magnetic switches, which provide a greater degree of protection, making the monitor more immune to liquid penetration than those with traditional mechanical switch.

The entire configuration of the monitor is done via these three magnetic buttons and a magnetic keyring, which eliminates the need to open the casing and makes the configuration process much easier and faster.



Magnetic Keyring

The monitor is supplied with a magnetic keyring that has two poles, “N” North and “S” South. To actuate the magnetic switch, move the magnetic keyring with the correct polarity closer to the button and observe the indication of activation by the respective signal LED, which will light up red.

South pole “S”

North Pole “N”

Auto Setup

All the smart monitor needs is a 24Vdc power supply and a magnetic switch. The monitor will activate and deactivate the solenoid, causing the valve to open and close until it learns the valve's opening and closing time.

Activated by bringing the magnetic switch close to the North “N” pole on the N3 target for three seconds, the monitor will carry out the self-calibration process independently of any connection to the control system, making the configuration process much faster and more efficient.

The solenoid valve will be activated to control the actuator in 3, 5 or 10 consecutive cycles to learn the open and closed position of the valve according to the displacement of the shaft.

This procedure eliminates the removal of covers, setting up limit switches, tools and monitoring equipment that can only be set up in the monitoring equipment that can only be configured in the control room.

Smart Diagnostics

Another new feature is smart diagnostics. This unique feature shows all alarm codes via the display, leading to a timely and immediate correction or indicating the trend of some future problem. The display is also essential for configuring the monitor.

Diagnostics and Alarms

The I-VUE monitor is capable of generating an alarm for preventive maintenance or if any mechanical or electrical abnormality is detected. The following alarms are generated by the monitor:

- Partial counter alarm
- Days worked alarm
- Date alarm
- Valve opening and closing time alarm
- Solenoid control
- Axle off course
- Unexpected position change
- Solenoid short circuit
- Solenoid cable breakage
- Internal temperature alarm
- Shorted PNP outputs
- Duplicate address
- Unaddressed monitor
- Power supply outside the specified range for industrial network models.

How to Order

MVL - ASI3.2 - V1 - BS - VMA

Enclosure Type
MVL - linear valve monitor

Remote Signaling
420 - analog 4 - 20 mA
2E2 - 24 Vdc PNP
ASI3.2 - AS-Interface
DNB - DeviceNet

Electrical Connection
V1 - M12 connector - 4 pins
V15 - M12 connector - 5 pins
V16 - M12 connector - 6 pins
VM - 7/8" connector - 5 pins

Internal Solenoid Coil
BS - 24 Vdc standard coil

Valve Body
VMA - aluminum body
VMX - stainless steel body

Note: Not all the combinations shown above are possible, we recommend contacting or accessing www.sense.com.br, to form the feasible combination for the selected product.

Optional Items

M-VUE Monitor Series

Valve Monitoring Innovation

The M-VUE series monitors are equipped with a precise non-contact detection system and advanced electronics.
The monitor is activated and calibrated via two magnetic buttons.

Local Position Signaling

- Even in the absence of electricity, the position of the valve can be seen via a local visual indicator

Local Signaling LEDs

- Green LEDs indicate open valve
- Red LEDs indicate closed valve

Solenoid Valve

- Pneumatic body attached to the monitor
- 1/8” NPT or BSP pneumatic connection
- Coil inside the pneumatic body

Magnetic Switches

- Only 2 magnetic switches to configure all the monitor's functions

Electrical Connection

- The M12 or 7/8” connector facilitates electrical connection and disconnection

Enclosure

- Fits valves up to 2”

High Resolution

- Detects movements of up to 0.3mm with 16-bit resolution

Local and Remote Diagnostics

- Unexpected position change
- Axle off course
- Tendency to mechanical problems

Local Signaling LEDs

The open and closed position of the valve can be seen from several meters away and from almost any angle.
The LEDs show the position of the valve, lighting up green when the valve is open and red when it is closed.

Electrical Configurations

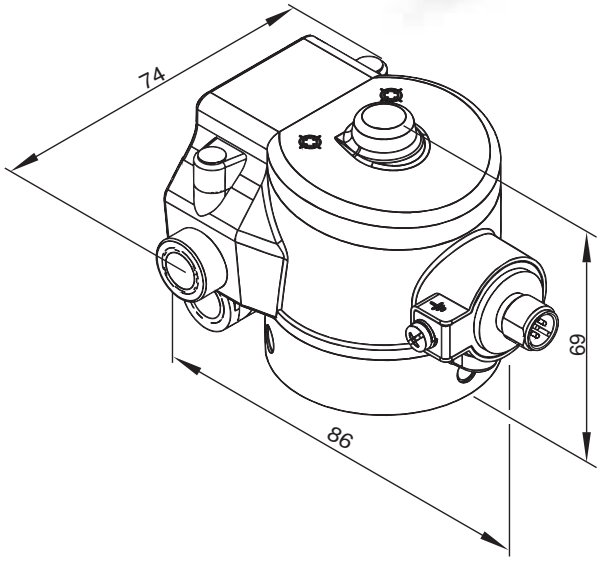
Conventional

- PNP

Industrial Networks

- AS-Interface
- DeviceNet

Dimensões Mecânicas (mm)



How to order?

1 - Choose one of the electronic module types

PNP module M12 connection - 5 pins	M-VUE-2E2-V15
AS-Interface module ver. 2.0 Profile 70 M12 connection - 4 pins	M-VUE-ASI3.1-V1
AS-Interface module ver. 2.0 Profile 7F connection M12 - 4 pins	M-VUE-ASI3.1A-V1
AS-Interface module ver. 2.1 M12 connection - 4 pins	M-VUE-ASI3.2-V1
AS-Interface module ver. 3.0 M12 connection - 4 pins	M-VUE-ASI3.3-V1
DeviceNet module M12 connection - 5 pins	M-VUE-DNC-V15
DeviceNet module 7/8” connection - 5 pins	M-VUE-DNC-VM

2 - Specify the soneloid valve

Solenoid cover (without solenoid):	M-VUE...+SC
Solenoid valve with 1/8” NPT thread:	M-VUE...+BM-V
Solenoid valve with 1/8” BSP thread:	M-VUE...+BM-VS

3 - Include the optional when required

Exhaust pipe block with 1/8” NPT thread:	M-VUE...+E
Exhaust pipe block with 1/8” BSP thread:	M-VUE...+ES

Example 1: PNP monitor without solenoid:
Item 1: M-VUE-2E2-V15
Item 2: M-VUE...+SC

Example 2: ASI3.2 monitor with 1/8” BSP solenoid:
Item 1: M-VUE-ASI3.2-V1
Item 2: M-VUE...+BM-VS

Example 3: DN monitor with 1/8” BSP solenoid and exhaust pipe block:
Item 1: M-VUE-DNC-VM
Item 2: M-VUE...+BM-VS
Item 3: M-VUE...+ES

S-VUE Monitor Series

The S-VUE PRO is an intelligent valve monitor and is designed specifically for diaphragm valve applications.
Fully configured using magnetic buttons, without external mechanical keys subject to breakage or adjustments that require dismantling the enclodure.
Configuration can be done via the magnetic switches, assisted by the multifunction display or via a smartphone app via Bluetooth.
Some settings can also be made from the control room via communication protocols. Continuous detection technology improves the accuracy of position detection in rotary valves and detects any angle of the axis.
The automatic calibration feature, without opening the enclosure, reduces the time it takes to set up the monitor, while maintaining the high degree of protection against P67 liquid penetration.

Pneumatic Options
- Integrated valve
  - Holes for connecting quick couplers
- External valve
  - The monitor is supplied without a solenoid valve

Diaphragm Valve
- Can be installed on valves up to 4”
- Allowable travel from 3 to 50mm

Electrical Input
- PG13.5 cable gland
- M12 connector - 5 pins
- 7/8” connector - 5 pins

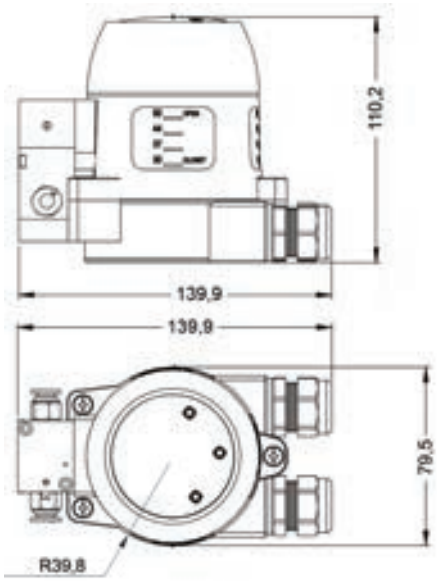
Mechanical Assembly
- Direct mounting on actuators with 35mm mounting holes
- Optional adapter disk

Digital Display
- All information at the top
- Continuous detection technology
- Detection accuracy
- Mechanical or LED position indication
- Encapsulated electronics

Alerts
- Internal temperature sensor
- Fault prevention alerts:
  - Pressure drop at the input
  - Actuator or solenoid leaks and much more

Smart Configuration
- Remote self-calibration over the network
- Password-protected APP (bluethooth)
- User-friendly local configuration with large display and magnetic key

Mechanical Dimensions



Position Signaling LEDs

Orange for Closed

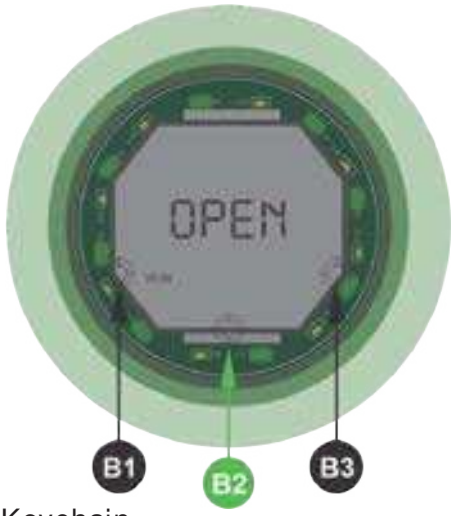
Green for Open

S-VUE Monitor Series

Magnetic Switch

The monitor is equipped with three magnetic switches, which provide a greater degree of protection, making the monitor more immune to liquid penetration than those with traditional mechanical switches.

The entire configuration of the monitor is done via these three magnetic switches and a magnetic keychain, which eliminates the need to open the casing and makes the configuration process much easier and faster.



Magnetic Keychain

The monitor is supplied with a magnetic keychain which has two poles “N” North and “S” South. To activate the magnetic switches, move the magnetic keychain with the correct polarity closer to the button and observe the activation indication on the LED.

South Pole “S”

North Pole “N”

Auto Setup

All the smart monitor needs is a 24Vdc power supply and a magnetic keychain. The monitor will activate and deactivate the solenoid, causing the valve to open and close until it learns the valve's opening and closing time.

Activated by bringing the magnetic keychain close to the North “N” pole on target B3 for three seconds, the monitor will carry out the self-calibration process independently of any connection to the control system, making the configuration process much faster and more efficient.

The solenoid valve will be triggered to control the actuator in 3, 5 or 10 consecutive cycles to learn the open and closed position of the valve according to the displacement of the shaft.

This procedure eliminates the removal of covers, setting up limit switches, tools and monitoring equipment that can only be set up in the control room.

Smart Diagnostics

This unique feature shows all alert codes via the display, leading to a timely and immediate correction or indicating the trend of some future problem. The display is also essential for configuring the monitor.

Diagnostics and Alerts

The S-VUE series monitors are capable of generating an alert for preventive maintenance or if any mechanical or electrical abnormalities are detected.

The following alerts are generated by the monitor:

Functional Alerts

- Minimum displacement
- Time out
- Auto calibration fail
- Out of angle
- Motionless
- Command fail
- Unexpected change
- Safe mode
- Over pressure

Operational Alerts

- Partial counter
- Total counter
- Days alert
- Date alert
- Opening time
- Closing time
- High pressure
- Low pressure
- High power supply
- Low power supply
- High temperature
- Low temperature
- Short circuited sol
- Open sol
- Short circuited output

S-VUE Monitor Series

How to Order

S-VUEP - A5 - EPC2 - VIANP - Ex

Model
S-VUEP - Smart Pro version with bluethooth APP, advanced diagnostics and log of events

Remote Signaling
IO - PNP outputs with IO-Link Communication with valve status, activation, alerts and setup
A32 - ASi Network Communication (version 2) with valve status, activation, alerts and setup
A5 - ASi Network Communication (version 5) with valve status, activation, alerts, setup and cloud
DN - DeviceNet Network Communication with valve status, activation, alerts and setup
PN - ProfiNet Network Communication with valve status, activation, alerts and setup

Electrical Entry
EPC2 - 2 threaded cable entries, terminal strip (supplied with two cable glands)
EVM - 7/8" male connector - 5 pins - extra PG13,5 cable entry with plastic plug
EV1 - M12 male connector - 5 pins - extra PG13,5 cable entry with plastic plug

Integrated Valve
0 - Without integrated valve
VIANP - Integrated 3-way 2-position aluminum valve with 1/8" NPT thread and 24 Vdc 0.6 W coil with pressure sensor
VIABP - Integrated 3-way 2-position aluminum valve with 1/8" BSP thread and 24 Vdc 0.6 W coil with pressure sensor
VIXNP - Integrated stainless steel 3-way 2-position valve with 1/8" NPT thread and 24 Vdc 0.6 W coil with pressure sensor
VIXBP - Integrated stainless steel 3-way 2-position valve with 1/8" BSP thread and 24 Vdc 0.6 W coil with pressure senso

Classified Area
Ex - Ex version with increased safety / plugged in for Zone 1 / 21 and not ascendable to Div 2

PFLEX Analog Positioner

Local Indicator
- Position indicator arrow 0 - 100%

Pneumatic Input
- Supply pressure 30 - 150 psi
- 1/4" NPT connection

Enclosure
- Electrostatically painted aluminum
- Nickel-treated brass
- Plastic cover

I/P Converter
- Signal input 4 - 20mA
- General use model (plastic cover)
- Explosion-proof model

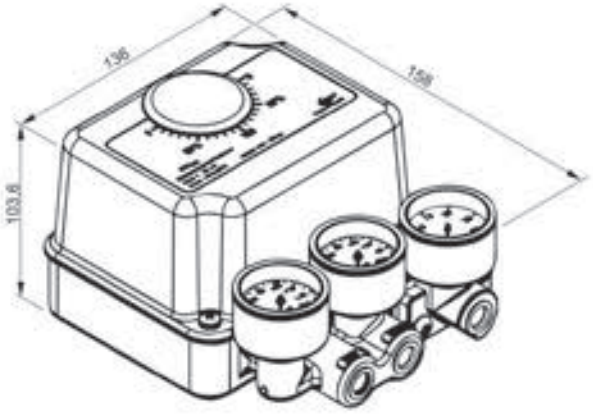
Electrical Connection
- 1/2" NPT
- M20 x 1,5
- PG13,5

Fixing Bracket
- Optional support
- Developed according to actuator model
- Made of carbon steel or stainless steel

Pressure Gauge
- Stainless steel case
- Pressure range 0 - 30 psi

Pneumatic Output
- 1/4" NPT connection
- Pressure gauges 0 to 60 psi

Mechanical Dimensions (mm)
Pneumatic Model



Housing Options

General Use
- for general use
- TA: -40°C to 85°C
- IP66 protection degree

Classified Area
- Explosion-proof
- Exd IIB + H2 T6 Gb
- TA: -20°C to 40°C
- IP68 protection degree

Note: For further details and dimensions of other models, please consult our website or contact our applications engineers.

PFLEX Analog Positioner

The PFLEX positioner receives an input signal from the controller and modulates the supply pressure to the control valve actuator, providing precise positioning of the valve stem proportional to the input signal.

The versatile design combined with the quality of construction allows PFLEX to be used in various types of pneumatic actuators. It is designed to be mounted in harsh industrial environments without any loss of precision.

Features

Pneumatic to electro-pneumatic conversion

Pneumatic positioners can be transformed into electro-pneumatic positioners simply by replacing the signal adapter with the EDGE I/P converter.

Corrosion-resistant components

Electrostatic epoxy paint and stainless steel components guarantee protection against aggressive environments.

No pressure regulator is needed, the positioner supports air supply up to 150 psi.

Tolerance to contaminated pneumatic supply

Large air passage holes protect the pneumatic supply from being clogged by dirt.

Vibration resistant

The parts that make up the system have been built to guarantee stable performance in vibration.

Stable and precise operation

The electronic feedback control monitors the output pneumatic signal, detects any deviations and corrects them. This reduces sensitivity to variations in supply pressure and leaks in the output tube.

Single and double-acting actuators

Mounting on rotary or linear actuators, single or double acting.

Characterization by cam

Options for rotary and linear movements, and split range operation.

Easy zero and span adjustment

Quick access to settings via common tools.

Versions

The positioner is available in general-purpose or explosion-proof pneumatic or electro-pneumatic versions for rotary or linear valves.

Rotary or linear valve mounting

Linear Valve

Rotary Valve

Fixing Brackets

For mounting PFLEX, we offer brackets for different valve manufacturers.

Samson Valves

Samson Valves

PFLEX Analog Positioner

How to Order

P EX 1 1 1 1 1 0

Product
P PFLEX

Area Classification
P pneumatic
EP - electro-pneumatic
EX - Ex electro-pneumatic

Position Feedback
0 linear without feedback arm
1 rotary NAMUR standard
2 linear arm stroke from 0.5 to 1.5”
3 linear arm stroke from 0.5 to 2.0”
4 linear arm stroke from 0.5 to 4.0”
5 R5 bracket - arm size 50
6 R5 bracket - arm size 25
7 linear arm stroke from 0.5 to 2.5”
8 linear arm stroke from 4.0 to 8.0”

Cover
1 rotary - 90° indicator - 90° (Plastic)
2 linear - no indicator (Plastic)
3 rotary - 90° indicator- 90° (Aluminum)
4 linear - no indicator (Aluminum)
5 rotary - no indicator (Aluminum)*
*Note: Suitable for use with options “S,S1,S3,T and T1” in field “8”.

Came
1 rotary 90° - linear curve
2 linear 45° - linear curve
3 linear 45° - curve = %
4 rotary 30° - linear curve
5 rotary 90° - curve = % and ²Ö

Material
1 aluminum with black electrostatic paint

Pressure Gauge
0 no pressure gauge
1 stainless steel enclosure with brass connection

Option
0 no option
A linear positioner - cam mounting side A (air to close actuator)
B rotary positioner - side cam mounting B (clockwise rotation direction for the actuator)
C 3/4 BSP connection
E no label
F high-temperature construction, Viton o-ring for pneumatic positioner temperature -10 to +120°C
G remote mount I/P converter with booster
H high flow construction
I sina pneumatic positioner 6 to 30 psi
J pressure regulating filter
K general use converter with explosion-proof enclosure
L1 carbon steel linear bracket - Valtek 25 globe valve
L2 carbon steel linear support - IEC534-6 - side
L3 carbon steel linear bracket - Fisher globe valve
L4 carbon steel linear support - IEC534-6 - front
L5 carbon steel linear bracket - Hiter globe valve (mounting with rotary positioner only)
L6 carbon steel cylinder support - stroke 97 to 162 mm
L7 carbon steel cylinder support - stroke 157 to 262 mm
L8 carbon steel cylinder support - stroke 255 to 425 mm
L9 carbon steel cylinder support - stroke 427 to 712 mm
L10 carbon steel cylinder support - stroke 712 to 1187 mm
L11 carbon steel linear support - Gemu valve
L12 carbon steel linear bracket - Valtek 50 globe valve
L13 carbon steel linear bracket - Lupateck LH2/LH3 globe valve
L14 carbon steel linear bracket - Lupateck Lh4 globe valve
M stainless steel nameplate
P position monitor with 2 proximity switches
R1 carbon steel rotating bracket - VDI/VDE 3845 A80 B20
R2 carbon steel rotating bracket - VDI/VDE 3845 A80 B30
R3 carbon steel rotating bracket - VDI/VDE 3845 A130 B30
R4 carbon steel rotating bracket - VDI/VDE 3845 A130 B50
R5 carbon steel rotating bracket - Valtek rotary valve
R6 carbon steel rotating bracket - Minitork Masoneilan valve
R7 carbon steel rotating bracket - Camflex II and Sigma Force - Masoneilan valve
R8 carbon steel rotating bracket - BC11 Metso
R9 carbon steel rotating bracket - 79U003 Keystone valve
R10 carbon steel rotating bracket - 79U006/12 Keystone valve
R11 carbon steel rotating bracket - 79U024/36 Keystone valve
R12 carbon steel rotating bracket - 79U065/181 Keystone valve
R13 stainless steel rotating support - 79U003 Keystone valve
R14 stainless steel rotating support - 79U006/12 Keystone valve
R15 stainless steel rotating support - 79U024/36 Keystone valve
R16 stainless steel rotating support - 79U065/181 Keystone valve
R17 carbon steel rotating support - 790-710 Keystone valve
R18 stainless steel rotating support - 790-710 Keystone valve
R19 carbon steel rotating support - BJ25 Metso valve
R20 carbon steel rotating support - BC6 Metso valve
R21 carbon steel rotating support - BC9 Metso valve
R22 carbon steel rotating support - Combustherm butterfly valve
S cover with position monitor and two mechanical switches
S1 cover with Ex monitor and two mechanical switches
S3 cover with Ex monitor and two inductive switches
T cover with position transmitter 4 to 20 mA
T1 cover with Ex position transmitter 4 to 20 mA
V no signal adapter

Important Note: Not all the combinations shown above are possible, we recommend contacting our Applications Engineering for any questions.

Hart PD Digital Positioner

Pneumatic Input
- Supply pressure 40 - 150 psi
- 1/4 "NPT connection

HART I/P Converter
- 4 - 20 mA HART signal input
- General use model (plastic cover)
- Explosion proof model

Enclosure
- Aluminum with electrostatic painting

Display
- LCD Display
- 4½- numerical digits
- 5 alphanumeric characters

Electrical Connection
- 1/2" NPT
- M20 x 1,5
- PG13.5

Mounting Bracket
- Optional mounting bracket
- Developed according to model of the actuator
- Made of carbon steel or stainless steel

Pressure gauge
- Stainless steel enclosure
- Pressure range 0 to 30 psi

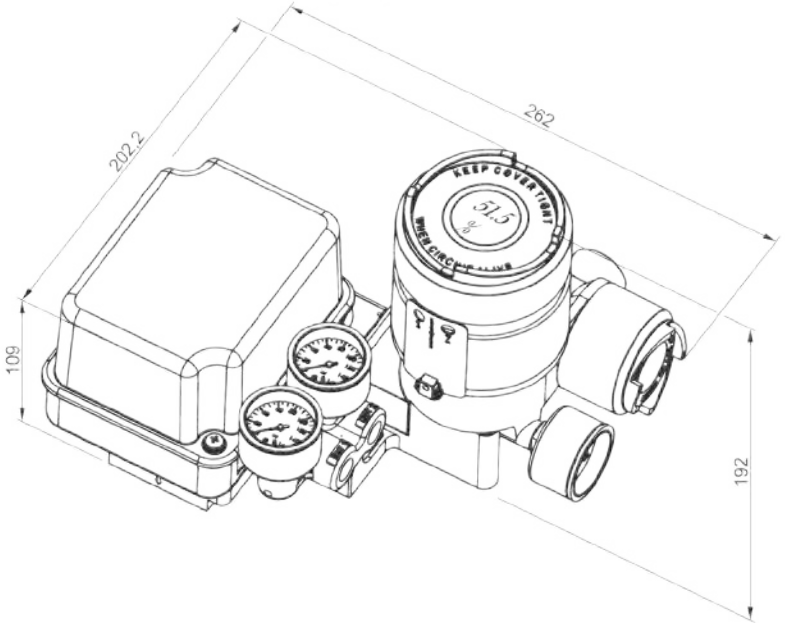
Pneumatic Outputs
- 1/4" NPT connection
- Pressure gauge 0 to 160 psi

HART COMMUNICATION PROTOCOL

Housing Options

- **General Purpose**
  - For general use
  - Tamb: -20°C to +70°C
  - Protection degree IPW66
- **Classified area**
  - Explosion-proof
  - Ex d ia IIC T6 Gb
  - Ex tb IIIC T85°C Db IP66W
  - Tamb: -20°C to +70°C
  - Protection degree IPW66

Mechanical Dimensions (mm)



Hart PD Digital Positioner

The PD - PFLEX digital positioner, through digital communication using the HART protocol, receives an input signal and controls the supply pressure to the control valve actuator, providing precise positioning of the valve stem proportional to the input signal.
The PD digital positioner provides easy access to important information regarding the valve set.
The diagnostics function helps verify valve performance by comparing the valve signature (bench setting, seat load, friction, etc.) against stored signatures to help uncover performance changes before they have an impact on process operation and loss of precision.

Features

Easy Configuration

- Excellent process control performance
- Auto calibration
- Configuration via local setting or software
- Usual or user-defined characterization curves

Easy installation

- Same product for mounting on single and double acting actuators, rotary or linear valve
- By selecting the magnet, it can be mounted on rotary or linear actuators
- Mounting support for various valve manufacturers

Local interface

- Rotating display makes it easy to read from any position
- Local adjustment without having to open the equipment

Valve diagnostics

- Diagnosis for control valve maintenance

Corrosion-resistant components

- Electrostatic epoxy paint and engineering plastic components guarantee protection against aggressive environments.
- The electronic module is completely encapsulated in resin to prevent contamination of the components and electronic circuitry.

Position measurement without mechanical contact

- Reading the valve position using a magnetic Hall-effect sensor guarantees better performance in applications with high vibration.

Remote Mounting

- For critical applications such as high temperatures, small valves, tight mounting spaces or difficult access, it is possible to mount the position sensor on the valve and the positioner base in a pipe or on the wall.

Electrical Classification

- Certification for hazardous areas - explosion-proof and IP66 enclosure.

Positioner Mounting

The digital positioner can be installed on both rotary and linear valves. Unlike the analog positioner, the feedback system has no mechanical connection between the valve stem and the positioner.
The valve position is read by a magnet (rotary or linear) which sensitizes the magnetic sensor via the HALL effect, ensuring better performance in applications with high vibration.

Linear Actuator Mounting

Magnet for linear actuator

Rotary Actuator Mounting

Magnet for rotary actuator

Hart PD Digital Positioner

How to Order

PD	EX	1	N	1	0	1	1	1	0

1. Product
PD digital positioner

2. Certificate
0 no certificate
EX explosion proof

3. Communication
1 4 - 20 mA, HART communication.
Voltage 30 V DC. Mesh load: up to
11 V DC / 20 mA corresponding to
550 ¶ (maximum voltage drop)

4. Electrical Connection
N ½ - 14 NPT

5. Magnet - Actuator Type
0 no magnet
1 rotary
2 linear - stroke up to 30 mm
3 linear - stroke up to 50 mm
4 linear - stroke up to 100 mm

6. HALL Sensor Mounting
0 integral mounting
1 remote sensor with 5 meter cable
2 remote sensor with 10 meter cable
3 remote sensor with 15 meter cable
4 remote sensor with 20 meter cable

7. Material
1 aluminum with black electrostatic paint

8. Pressure Gauge
0 no pressure gauge
1 stainless steel enclosure - brass connection

9. Mounting Bracket
0 no mounting bracket
1 universal carbon steel support
2 universal stainless steel bracket

* Consult Sense for a selection list of adapter brackets for special valve actuator models.
** The remote sensor version will include an additional “L” shaped bracket for mounting on a 2” tube.

10. Option
0 no option
E no label
F high-temperature construction, Viton o-ring for pneumatic positioner temperature -10 to +120°C
J pressure regulating filter
M stainless steel nameplate

Important Note: Not all of the above combinations are possible, so we recommend contacting our Applications Engineer for any questions.

PD100 Digital Positioner

The PD100 smart valve positioner is IP66-rated and designed to operate in the harshest environmental conditions in the industry.

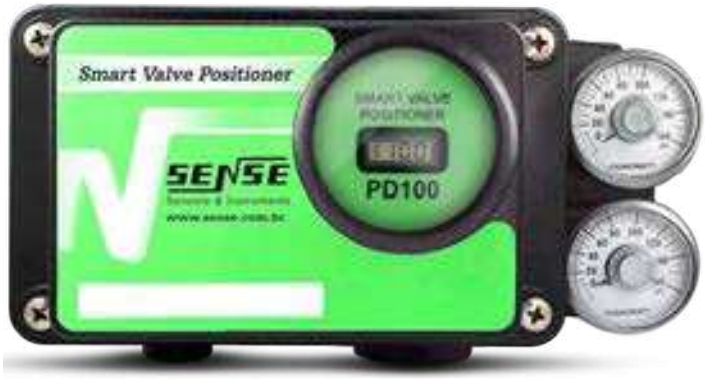
Low air consumption and fast response contribute to efficient operation that withstands vibrations in most plant environments.

The PD100 is compact and can be installed in rotary or linear actuators and is used in applications with single or double-acting actuators. It is powered directly by the 4 to 20mA control current circuit.

The positioner detects the position of the valve without moving parts and without mechanical contact by means of a sensor with Hall effect technology.

With its Ex version certified as Ex tb (housing protection) it is suitable for installations in potentially explosive atmospheres containing combustible dust in zones 21 and 22.

The enclosure is made of engineering plastic with conductive characteristics, allowing the enclosure to be grounded to prevent the build-up of electrostatic charges which in hazardous areas can ignite the explosive atmosphere.



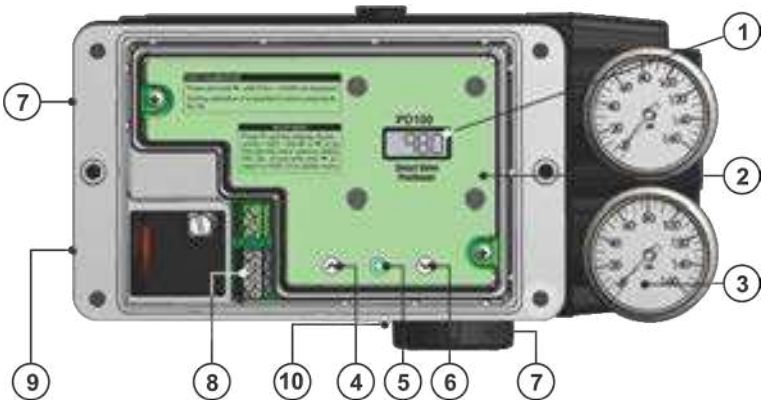
Features

- Same product for rotary or linear valves
- Compact and lightweight with plastic parts (enclosure and cover) and aluminum pneumatic parts
- For rotary valves it comes with an adapter
- NAMUR for direct coupling to the actuator shaft
- For linear valves it can be supplied with articulated arms with strokes of 30, 60, 120 or 200 mm
- Enclosure made of conductive plastic that prevents the build-up of electrical charges
- Position detection without moving parts and with high precision due to HALL effect sensor
- Can be used with single or double-acting actuators
- For rotary valves, no adjustment is required and they can be mounted at any starting angle.
- Electrical connection via 2.5mm² screw terminals
- Basic model supplied WITHOUT feedback signal
- Models for installation in explosive atmospheres

Optional

- Aluminum manifold with NPT or BSP pneumatic connection
- Can be supplied with two pressure gauges
- Support for rotary actuator with shaft height adjustment
- Support for linear valves
- Feedback with current transmitter 4 - 20 mA

Overview



1 - 4 digit LCD display
2- Plate cover
3 - Manifold with optional pressure gauges
4 - Mechanical UP switch
5 - Mechanical ENTER switch
6 - Mechanical DOWN switch
7 - Exhaust
8 - Control and feedback electrical terminals
9 - Cable input
10 - MV adjustment protection screw

Linear Valve Installation

Rotary Valve Installation

PD100 Digital Positioner

How to Order

PD100 - C - F - N - G - 00 - EX

Housing
PD100 - Smart Positioner
*Plastic - Pneumatic parts in Aluminum / ZAMAK

Input & Communication
C - 4 - 20 mA

Feedback Output
0 - Without feedback
F - 4 - 20 mA

Electrical and Pneumatic Connection
N - One conduit entry 1/2" NPT / Manifold with 1/4" NPT (standard)
B - One conduit entry 1/2" BSP / Manifold with 1/4" BSP
M - One conduit entry M20 / Manifold with 1/4" NPT
Note: The cable gland must be ordered separately.

Manifold
M - Long manifold (the pressure gauges can be added but not are not included)
G - Long manifold with two gauges (PSI)

Options
00 - Standard

Hazardous Area Certification
Ex - Use in explosive atmosphere with combustible dust, zones 21 and 22

PD200 Digital Positioner

The PD200 Smart Positioner has an IP66 degree of protection and is designed to operate in the harshest environmental conditions in industry. Its low air consumption and fast response contribute to efficient operation and it can withstand the vibrations of most plant environments.
The PD200 is compact and can be installed in rotary or linear actuators, being used in applications with single and double-acting actuators. It is powered directly from the 4 to 20mA control current loop.
The positioner detects the position of the valve without moving parts and without contact through a sensor with state-of-the-art Hall effect technology.
Developed with Intrinsic Safety technology, the PD200 Ex can be safely installed in hazardous area environments with flammable gases and vapors.
The positioner can optionally be supplied with HART technology.
The enclosure is made from engineering plastic with conductive characteristics, allowing the enclosure to be grounded to prevent the build-up of electrostatic charges which in hazardous areas can ignite an explosive atmosphere.

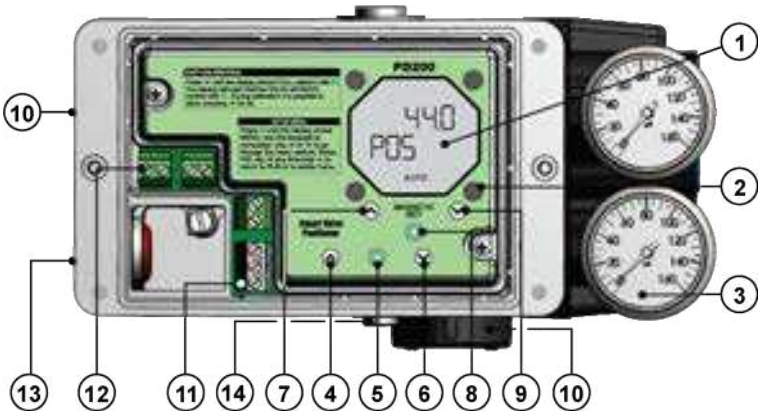
Features

- Same product for rotary or linear valves
- Compact and lightweight with plastic parts (enclosure and cover) and aluminum pneumatic parts
- Enclosure made of conductive plastic to prevent the build-up of electrical charges
- Position detection without moving parts and with high precision due to HALL effect sensor
- For rotary valves, it is supplied with a NAMUR adapter that attaches directly to the actuator shaft
- For rotary valves, no adjustment is required, the positioner can be mounted at any starting angle
- Can be used with single or double-acting actuators
- Basic model is supplied WITHOUT valve position feedback signal and WITHOUT position alert
- Electrical connection via 2.5 mm² screw terminals
- Models for installation in explosive atmospheres with Ex i intrinsic safety protection

Optional

- Aluminum manifold with NPT or BSP pneumatic connection
- Can be supplied with two pressure gauges
- Two electronic alert outputs configured via the positioner's menu
- Two mechanical keys for alerts, adjusted by means of rotary cams
- Feedback signal 4 to 20 mA to signal valve position remotely
- Version compatible with HART protocol
- Mounting bracket for rotary actuators with shaft height adjustment
- Mounting bracket for linear valves

Overview



1 - LCD display with 4 numeric digits and 6 alphanumeric characters
2- Plate cover
3 - Manifold with optional pressure gauges
4 - Mechanical UP switch
5 - Mechanical ENTER switch
6 - Mechanical DOWN switch
7 - Magnetic UP switch
8 - Magnetic ENTER switch
9 - Magnetic DOWN switch
10 - Escape
11 - Electrical control and feedback terminals
12 - Electrical warning terminals (optional)
13 - Cable input
14 - MV adjustment protection screw

Linear Valve Installation

Rotary Valve Installation

PD200 Digital Positioner

How to Order

PD200 - H - SF - N - G - 00 - EX

Enclosure
PD100 - Smart positioner
*Plastic - aluminum pneumatic parts / ZAMAK

Input and Communication
C - 4 - 20 mA
H - 4-20 mA HART

Adjustable Position Alerts/ Feedback Switches
0 - No alerts
P - Discrete transistor output (two PNP outputs). Set via alarm menu
S - Mechanical switches (two NO or NC switches). Cam adjustment
F - 4-20 mA position transmitter
PF - Discrete transistor output + 4-20 mA position transmitter
SF - Mechanical switches + 4-20 mA position transmitter

Electrical / Pneumatic Connections
N - One input 1/2" NPT / Manifold 1/4" NPT (standard)
B - One input 1/2" BSP / Manifold 1/4" BSP
Note: The cable gland must be ordered separately

Manifold
M - Long manifold (pressure gauges can be added, but are not included)
G - Long manifold with two pressure gauges in PSI

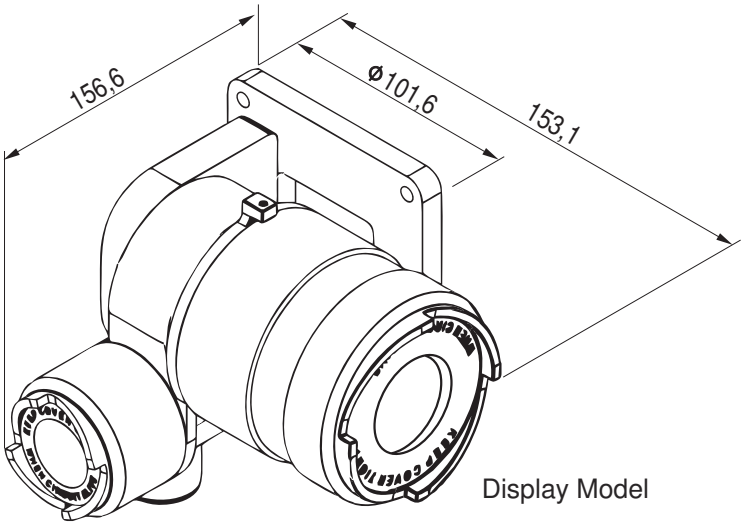
Options
00 - Standard

Classified Area Certification
Ex - Use in explosive atmospheres of flammable gases and vapors or combustible dusts

THP Position Transmitter

The THP position transmitter uses a non-contact Hall-effect position sensor, which makes it immune to mechanical vibrations. This magnetic sensor can be used in applications with linear or rotary movements.
The THP can be used to monitor the stem position of control valves. This information can be used to optimize the control loop. Another application is the monitoring of roller displacement, for example in the system for measuring the displacement of upper mill rollers in sugar and ethanol plants.
The transmitter is available with and without a display.

Mechanical Dimensions (mm)



Display Model

Specifying the Transmitter

T	1	1	N	1	0

1. Product
T - HALL effect position transmitter (THP)

2. Application Type
1 - Rotary: up to 180° stroke
2 - Linear: stroke up to 50 mm
3 - Linear: stroke up to 30 mm
4 - Linear: stroke up to 100 mm

3. Output Signal
1 - Current: 4 to 20 mA

4. Electrical Connection
N - 1/2" NPT
M - M20 x 1,5 mm
P - PG 13,5 DIN

5. Material
1 - Aluminum with black electrostatic paint

6. Option
0 - No option
1 - No magnet
D - With digital display
E - No label
TR - Universal Stainless Steel Rotating Bracket
TL - Stainless Steel Universal Linear Bracket
T6 - Support for linear cylinder according to DA-2025-116

Note: Not all the combinations presented above are possible, we recommend contacting our Applications Engineering for any questions.

Features

Feedback without physical contact

There is no feedback arm. The position is indicated by the variation in the magnetic field and monitored by the Hall effect sensor.

Corrosion-resistant components

Electrostatic epoxy paint and engineering plastic components guarantee protection against aggressive environments.
The electronic module is completely encapsulated in resin to prevent contamination of the components and electronic circuitry.

Vibration resistant

Few moving parts ensure better performance in high-vibration applications.

Operation in rotary and linear movements

By selecting between the rotary or linear magnet, it is possible to mount rotary or linear actuators.

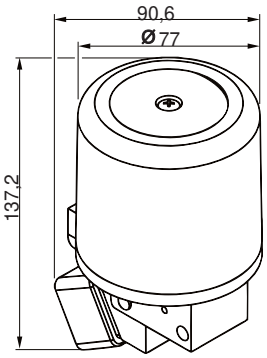
Local interface

The rotating display makes it easy to read in any position. Local adjustment without having to open the equipment.

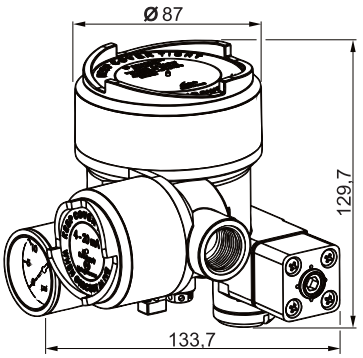
I/P Converter - EDGE

The EDGE I/P converter receives a DC current signal and provides a pneumatic output signal proportional to the input signal. The electronic module has a pressure sensor for output pressure feedback.
The construction uses the coil principle in conjunction with the well-established nozzle / vane system, combining high vibration resistance and low consumption.

Mechanical Dimensions (mm)



General Use



Ex d

How to Order

E	2	1	1	N	1	1	1	1	0

1. Product
E - EDGE

2. Area Classification
1 - General use
2 - Explosion-proof

3. Input Signal
1 - 4 a 20 mA

4.Output Signal [1] [2]
1 3 to 15 psi (0.2 to 1 bar)
2 2 to 45 psi (0.14 to 3 bar)
3 2 to 90 psi (0.14 to 6 bar)
4 6 to 30 psi (0.4 to 2 bar)
5 2 to 18 psi (0.14 to 1.2 bar)
6 2 to 36 psi (0.14 to 2.5 bar)
7 3 to 27 psi (0.2 to 1.8 bar)
8 2 to 60 psi (0.14 to 4.1 bar)
9 15 to 35 psi (1 to 2.4 bar)

5. Electrical Connection
N - ½ NPT
M - M20 x 1.5
P - PG 13.5 DIN

6. Pneumatic Connection
1 - Direct mounting on positioner
2 - Mounting without booster (2 1/4 NPT threads)
3 - Booster mounting (2 1/4 NPT threads)

7. Feature
1 - Direct action

8. Material
1 - Aluminum with black electrostatic paint
2 - Nickel treated brass

9. Pressure Gauge
0 - No pressure gauge
1 - Stainless steel enclosure with brass connection (Ex version only)

10. Option
0 - No option
E - No label
C - Carbon steel bracket for wall or 2" tube
S - Stainless steel bracket for wall or 2" tube

[1] The product must be supplied with a booster (volume amplifier) for output signal options 2 to 9.

[2] The booster can also be used for option 1, in order to increase the flow rate.
Note: Consult our Applications Engineering team to find out whether or not the booster is needed in your application and for any other questions on the composition of the code switch.

Features

Internal pressure regulator
Reduces air supply pressure, eliminating the need for an external pressure regulator.

Corrosion-resistant components
Electrostatic epoxy paint and stainless steel components guarantee protection against aggressive environments.
The electronic module is completely encapsulated in resin to prevent contamination of the components and electronic circuitry.

Tolerance to contaminated pneumatic supply
Large holes and air passages guarantee protection against dirt clogging the pneumatic supply. The replaceable filter allows easy removal for maintenance.

Vibration resistant
The parts that make up the vane nozzle system have been built to guarantee stable performance in vibration.

Stable and precise operation
The electronic feedback control monitors the output pneumatic signal, detects any deviations and corrects them. This reduces sensitivity to variations in supply pressure and leaks in the output tube.

Mounting options
The converter is designed for direct mounting on pneumatic positioners, and can also be mounted on a wall or 2" tube using an adapter block or booster (volume amplifier).

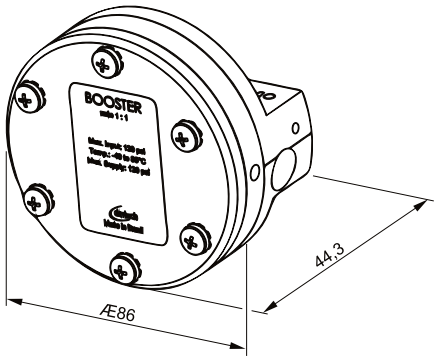
With general use positioner

In tube with booster

Pneumatic Booster

The volume booster has the function of reproducing pneumatic signals with increased flow capacity.
It is used when the pipe between the instrument and the pneumatic actuator is extensive or when it is necessary to increase the response speed of the valve.

Mechanical Dimensions (mm)



How to Order

B 1 1 0 0

1. Product
B - Volume amplifier (booster)

2. Input Pressure to Output Pressure Ratio
1 - 1:1
2 - 1:2
3 - 1:3
4 - 1:6

3. Material
1 - Aluminum enclosure - black polyester paint
2 - Brass enclosure - nickel chemical treatment

4. Pressure Gauge
0 - No pressure gauge
1 - Range 0 - 30 psi - stainless steel enclosure with brass connection
2 - Range 0 - 160 psi - stainless steel enclosure with brass connection

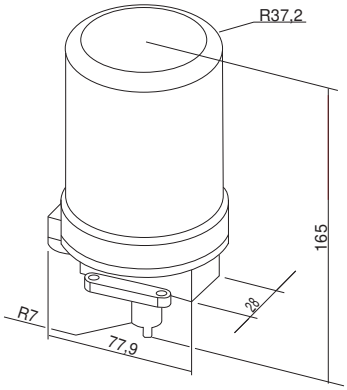
7. Option
0 - No option
A - Direct mounting on I/P converter (without signal adapter)
E - No label
C - Carbon steel bracket for wall or 2" tube
S - Stainless steel bracket for wall or 2" tube

Note: Not all the combinations shown above are possible, we recommend contacting our Applications Engineering for any questions.

Position Monitor

The position monitor provides visual indication and remote electrical signaling of the valve position.
It can be mounted on rotary pneumatic actuators in accordance with NAMUR VDI/VDE 3845 or can also be mounted on the cover of PFLEX valve positioners using a few adapting parts.
The enclosure has corrosion resistance and IP66 sealing. The electrical indication options can be supplied with NAMUR sensors, mechanical or proximity switches, a 4 to 20 mA transmitter or a combination of these.

Mechanical Dimensions (mm)



How to Order

M 1 1 2 N 1 0

1. Product
M - Position monitor

2. Area Classification
1 - General use

3. Position feedback
1 - Namur standard rotary

4. Sensor
1 - 2 SPDT mechanical sensors
2 - 2 PNP-NA inductive sensors
3 - position transmitter 4 to 20 mA
4 - 2 SPDT mechanical sensors with position transmitter 4 to 20 mA
5 - 2 PNP-NA inductive sensors with 4 to 20 mA position transmitter
6 - 2 NPN-NA inductive sensors with position transmitter 4 to 20 mA
7 - 2 NPN-NA inductive sensors

5. Electrical Connection
N - ½ NPT

6. Material
1 - Engineering plastic

7. Option
0 - No option
E - No label
F - Cover with indicator (not valid for 4 to 20 mA position transmitter)
M - Supplied mounted on Aluminum Cover (Compatible with Pflex Positioner)
R1 - Namur carbon steel rotating bracket - VDI/VDE 3845 A80B20
R2 - Namur carbon steel rotating bracket - VDI/VDE 3845 A80B30
R3 - Namur carbon steel rotating bracket - VDI/VDE 3845 A130B30
R4 - Namur carbon steel rotating bracket - VDI/VDE 3845 A130B50

Note: Not all the combinations presented above are possible, we recommend contacting our Applications Engineering team with any questions.

Solenoid Valves

- General use
- Explosion-proof (Ex d)
- Intrinsic safety (Ex ia)
- Increased safety (Ex em)
- High flow capacity
- Manual actuator with lock available on all models
- DC, AS-Interface or AC/DC coils
- Ultra low power 0.2W models
- Standard or NAMUR mounting
- NPT or BSP pneumatic connections
- Option without manual activation

Coil

Model	Version	Power Supply	Power	Tolerance	Encapsulation	Protection	IP	Connection
BS	Standard	24 Vdc	0,6 W	±10%	Epoxy Resin	N/A	IP66	V1, PG, VT
	AS-Interface	26,5 < U< 31,19 Vdc	0,3 W	--				
	Ultra Low Power	24 Vdc	0,1 W	±10%				
	Universal AC / DC	24 - 250 Vdc	24 Vdc: 1 W 48 Vdc: 1,2 W 110 Vdc: 1,5 W 250 Vdc: 2,0 W	±10%				
		24 - 250 Vac	24 Vac: 1 W 48 Vac: 1,2 W 110 Vac: 1,5 W 250 Vac: 2,0 W	±10%				
BSC	Standard	24 Vdc	3 W	-15% ~ +10%		Ex d		PG
BSCS		220 Vac	2 VA	-15% ~ +10%				VT
BSD			0,6 W					
	AS-Interface		0,3 W					
	Ultra Low Power		0,2 W					
	Universal AC / DC	24 - 250 Vdc	24 Vdc: 1 W 48 Vdc: 1,2 W 110 Vdc: 1,5 W 250 Vdc: 2,0 W	±10%				
		24 - 250 Vac	24 Vac: 1 W 48 Vac: 1,2 W 110 Vac: 1,5 W 250 Vac: 2,0 W	±10%				
BSI	Standard	24 Vdc	0,6 W	±10%		Ex i		V1, PG, VT
BSM	Standard	24 Vdc	0,6 W	±10%		Ex em		V1, PG, VT
	Universal AC / DC	24 - 250 Vdc	24 Vdc: 1 W 48 Vdc: 1,2 W 110 Vdc: 1,5 W 250 Vdc: 2,0 W	±10%				
		24 - 250 Vac	24 Vac: 1 W 48 Vac: 1,2 W 110 Vac: 1,5 W 250 Vac: 2,0 W	±10%				
	Ultra Low Power	24 Vdc	0,2 W	±10%				

Note: Maximum force applied when tightening the VT model cable gland = 5 Newton.

Pneumatic Body

Model	Material	Type	Fluid	Pneumatic Connections	Lane N°	CV	Pressure
VS	A - Aluminum X - Stainless steel L - Brass	Standard	Compressed Air	1/4" NPT	5/2	0,9	2 - 7 bar
VSS				1/4" BSP			
VSX12				1/2" NPT		3,5	4 - 7 bar
VN		NAMUR Standard		1/4" NPT	5/2	0,9	2 - 7 bar
VSN				1/4" BSP			
VNC				1/4" NPT	5/2	1,39	2 - 8 bar
VSNC				1/4" BSP			

Notes

Notes

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