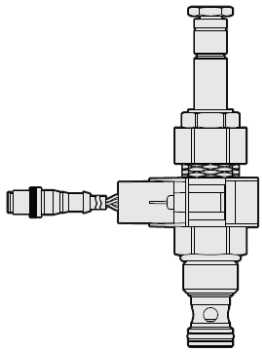




## Overview



### Description

A solenoid-operated, 2 port, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

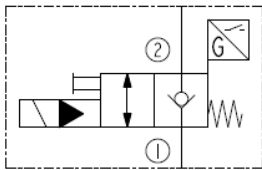
### Operation

When de-energized, the SV12-P22AX acts as a check valve, allowing flow to pass from port 1 to port 2, while blocking flow in the reverse direction. When energized, the poppet lifts to open the port 2 to port 1 flow path. In this mode, flow is also allowed from 1 to 2.

### Features

- Integral position sensor indicates when valve is shifted.
- Continuous-duty rated coil.
- Hardened seat for long life and low leakage.
- Optional coil voltages and terminations.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Waterproof E-Coils rated up to IP69K.
- Unitized, molded coil design.
- 960 hour salt-spray rated solenoid tubes and coils.

### Symbol



## Ratings

### Pressure Ratings

|                 |                     |
|-----------------|---------------------|
| Pressure rating | 207 bar (3000 psi)  |
| Proof pressure  | 345 bar (5000 psi)  |
| Burst pressure  | 827 bar (12000 psi) |

### Flow Ratings

|                          |   |
|--------------------------|---|
| Flow rating              | 113.6 lpm (30 gpm)  |
| Maximum internal leakage | 5 drops/min - <b>Note:</b> At 207 bar (3000 psi)<br>0.4 lpm (0.1 gpm) - <b>Note:</b> Typical flow (leakage) in transition at 207 bar (3000 psi). (see "Flow vs % Valve Shift" graph for flow in transition from valve close to valve open). |

### Other Ratings

|                         |  |
|-------------------------|--|
| Response                | 85 ms - <b>Note:</b> Pull-in. Response times measured per NFPA/T3.5.30-2008 *Inlet pressure at port 2 is 207 bar (3000 psi) *Valve oriented vertically and purged of air<br>94 sec - <b>Note:</b> Drop-out. Response times measured per NFPA/T3.5.30-2008 *Inlet pressure at port 2 is 207 bar (3000 psi) *Valve oriented vertically and purged of air |
| Minimum pull-in voltage | 10.2 Vdc - <b>Note:</b> 12Vdc coil   |

### Temperature Ratings

|                                       |                               |   |
|---------------------------------------|-------------------------------|---|
| Operating fluid temperature           | -40 to 100 °C (-40 to 212 °F) | - <b>Note:</b> With buna N seals  |
|                                       | -26 to 204 °C (-15 to 400 °F) | - <b>Note:</b> With fluorocarbon seals *See Position sensor operating temperature*                          |
|                                       | -54 to 107 °C (-65 to 225 °F) | - <b>Note:</b> With urethane seals *See Position sensor operating temperature*                              |
| Storage temperature                   | -40 to 70 °C (-40 to 160 °F)  |   |
| Ambient temperature                   | -40 to 70 °C (-40 to 160 °F)  |   |
| Position sensor operating temperature | -40 to 110 °C (-40 to 230 °F) | - <b>Note:</b> Sensor element operating temperature limits the operating temperature of the entire assembly |

## Operating Parameters

|                                       |  |
|---------------------------------------|--|
| Fluids                                | Mineral based or synthetic hydraulic fluid with lubricating properties |
| Fluid viscosity range                 | 7.4 to 420 cSt   |
| Maximum operating contamination level | 20/18/14 per ISO 4406  |



## Position Sensor Specifications

### Electrical Parameters

|                                    |             |                                     |
|------------------------------------|-------------|-------------------------------------|
| Supply voltage                     | 9 to 32 Vdc | - <b>Note:</b> Vcc                  |
| Output voltage with target present | Vcc         |                                     |
| Output clamp current               | 40 to 65 mA | - <b>Note:</b> For Vcc up to 32 Vdc |

### Ratings

|                  |        |  |
|------------------|--------|--|
| ESD              | ±8 kV  | - <b>Note:</b> Air discharge               |
| EMI              | 30 V/m | - <b>Note:</b> From 400 MHz to 2 GHz       |
| IP rating        | IP67   |  |
| Vibration        | 10 G   | - <b>Note:</b> 10 to 2000 Hz sinusoidal    |
| Mechanical shock | 50 G   | - <b>Note:</b> 11 ms, half-wave sinusoidal |

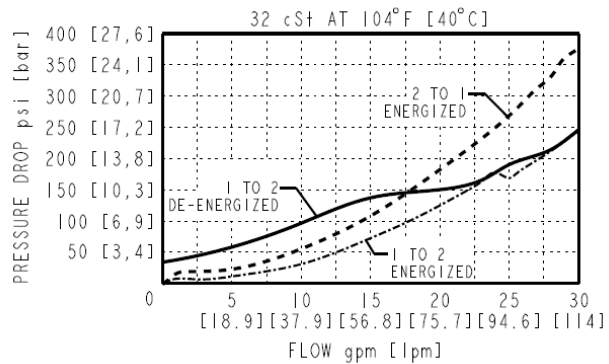
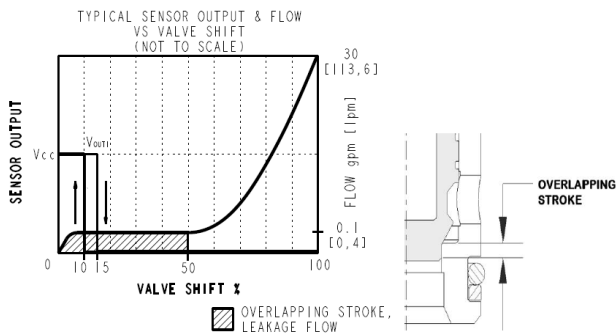
### Properties

|           |                 |  |
|-----------|-----------------|--|
| Connector | Deutsch DT04-4P | - <b>Note:</b> Option N3 (dual output) |
|           | M12             | - <b>Note:</b> Option M3 (dual output) |

## Properties

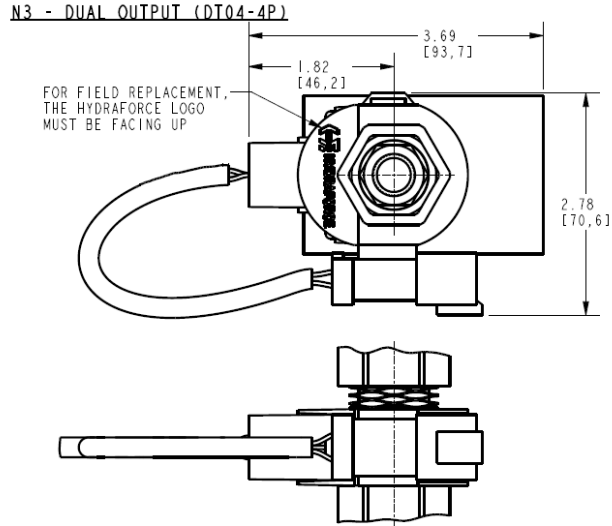
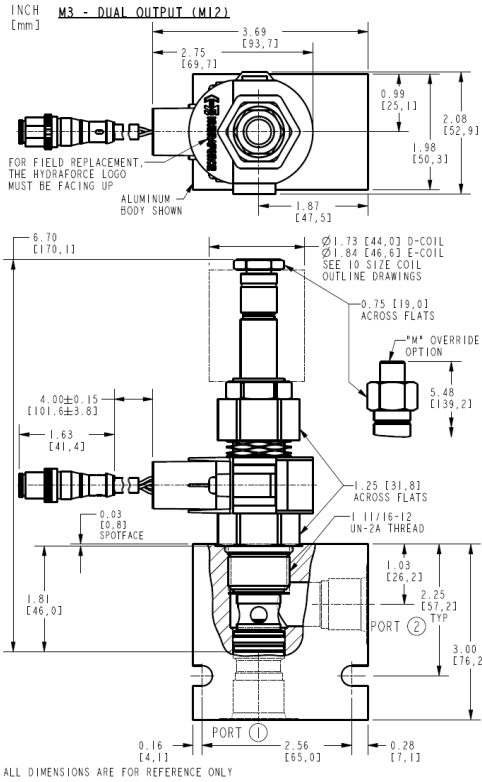
|                              |   |   |
|------------------------------|---|---|
| Unit weight                  | 0.58 kg (1.28 lb)                           | - <b>Note:</b> SV12-P22A WITH M12 CONNECTOR |
| Internal wetted surface area | 270 cm <sup>2</sup> (41.9 in <sup>2</sup> ) |   |

## Performance



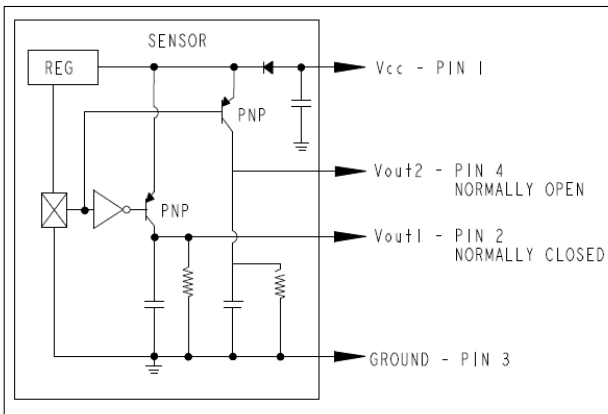


## Dimensions

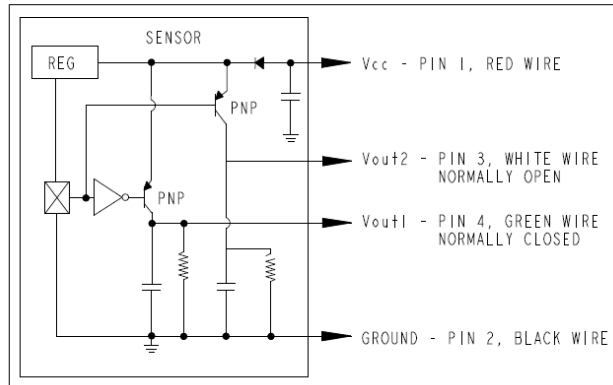


## Wiring Diagrams

M3 SENSOR WIRING DIAGRAM



N3 SENSOR WIRING DIAGRAM



## Installation Specifications

|                               |                                   |
|-------------------------------|-----------------------------------|
| Cavity                        | VC12-2                            |
| Cartridge installation torque | 44.7 to 50.2 N-m (33 to 37 ft-lb) |
| Coil nut torque               | 6.8 to 9.5 N-m (5 to 7 ft-lb)     |
| Orientation restriction       | None                              |

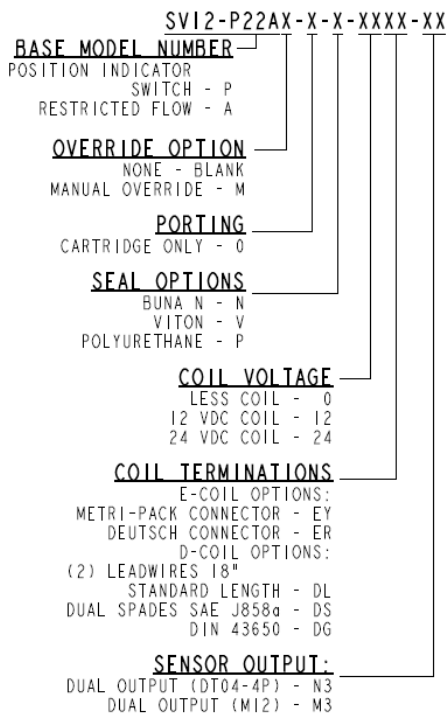
## Accessories

|          |           |                         |
|----------|-----------|-------------------------|
| Seal kit | SK12-2X-T | - Note: X = Seal option |
|----------|-----------|-------------------------|

## Order Code



## ORDERING INFORMATION



## Model Options

### SV12-P22AE-H-J-L-M

#### E Manual Override

| CODE  | DESCRIPTION                             |
|-------|---|
| BLANK | NONE                                    |
| M     | Two Position Override, Red Knurled Knob |

#### H Line Body

| CODE | DESCRIPTION              |
|------|--------------------------|
| 0    | No Body                  |
| 10T  | Aluminum SAE 10          |
| 12T  | Aluminum SAE 12          |
| 16T  | Aluminum SAE 16          |
| 12TD | Ductile Iron SAE 12      |
| 16TD | Ductile Iron SAE 16      |
| 8B   | Aluminum BSPP 1" (8)     |
| 8BD  | Ductile Iron BSPP 1" (8) |

#### J Seal

| CODE | DESCRIPTION   |
|------|---------------|
| N    | Buna-N        |
| V    | Fluorocarbon  |
| P    | Polyurethane  |
| U    | PPDI Urethane |

#### L Coil

| CODE | DESCRIPTION |
|------|-------------|
| 0    | No Coil     |



| CODE     | DESCRIPTION   |
|----------|---|
| 10DG     | 10 VDC, D-Coil, DIN 43650                                       |
| 10DL     | 10 VDC, D-Coil, Dual Lead Wires                                 |
| 10DR/D   | 10 VDC, D-Coil, Deutsch with Diode                              |
| 10DS     | 10 VDC, D-Coil, Dual Spade                                      |
| 10EL     | 10 VDC, E-Coil, Dual Lead Wires                                 |
| 10ER     | 10 VDC, E-Coil, Deutsch   |
| 10ER/Z   | 10 VDC, E-Coil, Deutsch with Zener Diode                        |
| 12DG     | 12 VDC, D-Coil, DIN 43650                                       |
| 12DL     | 12 VDC, D-Coil, Dual Lead Wires, 18 inches long                 |
| 12DL/36  | 12 VDC, D-Coil, Dual Lead Wires, 36 inches long                 |
| 12DL/W   | 12 VDC, D-Coil, Dual Lead Wires with Weatherpak                 |
| 12DL/W/D | 12 VDC, D-Coil, Dual Lead Wires with Weatherpak with Diode      |
| 12DR     | 12 VDC, D-Coil, Deutsch   |
| 12DR/D   | 12 VDC, D-Coil, Deutsch with Diode                              |
| 12DR/Z   | 12 VDC, D-Coil, Deutsch with Zener Diode                        |
| 12DS     | 12 VDC, D-Coil, Dual Spade                                      |
| 12EG     | 12 VDC, E-Coil, DIN 43650                                       |
| 12EJ     | 12 VDC, E-Coil, AMP Jr.   |
| 12EL     | 12 VDC, E-Coil, Dual Lead Wires, 18 inches long                 |
| 12EL/36  | 12 VDC, E-Coil, Dual Lead Wires, 36 inches long                 |
| 12EL/W/Z | 12 VDC, E-Coil, Dual Lead Wires with WeatherPak and Zener Diode |
| 12EL/Z   | 12 VDC, E-Coil, Dual Lead Wires with Zener Diode                |
| 12ER     | 12 VDC, E-Coil, Deutsch   |
| 12ER/Z   | 12 VDC, E-Coil, Deutsch with Zener Diode                        |
| 12EY     | 12 VDC, E-Coil, Metri-Pack 150                                  |
| 12EY/Z   | 12 VDC, E-Coil, Metri-Pack 150 with Zener Diode                 |
| 20DR/D   | 20 VDC, D-Coil, Deutsch with Diode                              |
| 20DS     | 20 VDC, D-Coil, Dual Spade                                      |
| 20ER     | 20 VDC, E-Coil, Deutsch   |
| 24AG     | 24 VDC, D-Coil, DIN 43650                                       |
| 24AP     | 24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires                |
| 24DG     | 24 VDC, D-Coil, DIN 43650                                       |
| 24DL     | 24 VDC, D-Coil, Dual Lead Wires                                 |
| 24DL/W   | 24 VDC, D-Coil, Dual Lead Wires with Weatherpak                 |
| 24DL/W/D | 24 VDC, D-Coil, Dual Lead Wires with Weatherpak with Diode      |
| 24DP     | 24 VDC, D-Coil, 1/2" Conduit and Dual Lead Wires                |
| 24DR     | 24 VDC, D-Coil, Deutsch   |
| 24DR/D   | 24 VDC, D-Coil, Deutsch with Diode                              |
| 24DS     | 24 VDC, D-Coil, Dual Spade                                      |
| 24EG     | 24 VDC, E-Coil, DIN 43650                                       |
| 24EJ     | 24 VDC, E-Coil, AMP Jr.   |
| 24EL     | 24 VDC, E-Coil, Dual Lead Wires, 18 inches long                 |
| 24EL/36  | 24 VDC, E-Coil, Dual Lead Wires, 36 inches long                 |



| CODE     | DESCRIPTION   |
|----------|---|
| 24EL/W/Z | 24 VDC, E-Coil, Dual Lead Wires with WeatherPak and Zener Diode |
| 24ER     | 24 VDC, E-Coil, Deutsch   |
| 24ER/Z   | 24 VDC, E-Coil, Deutsch with Zener Diode                        |
| 24EY     | 24 VDC, E-Coil, Metri-Pack 150                                  |
| 24EY/Z   | 24 VDC, E-Coil, Metri-Pack 150 with Zener Diode                 |
| 36DS     | 36 VDC, D-Coil, Dual Spade                                      |
| 115AG    | 115 VAC, D-Coil, DIN 43650                                      |
| 115AP    | 115 VAC, D-Coil, 1/2" Conduit and Dual Lead Wires               |
| 230AG    | 230 VAC, D-Coil, DIN 43650                                      |
| 230AP    | 230 VAC, D-Coil, 1/2" Conduit and Dual Lead Wires               |

### M Position Sensor Termination

| CODE  | DESCRIPTION                               |
|-------|---|
| BLANK | No Position Sensor                        |
| M3    | Neutral Sense, M12-4P, Dual Output NC/NO  |
| N3    | Neutral Sense, DT04-4P, Dual Output NC/NO |