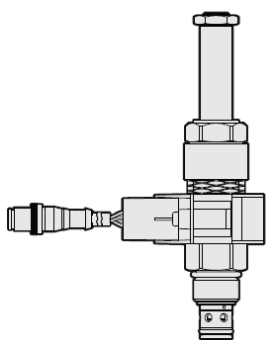
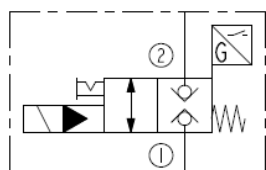




## Overview



### Symbol



### Description

The HSV10-P28AX is a high pressure 2-way, piloted, poppet-type, normally closed, bi-directional, screw-in hydraulic cartridge valve designed to function as a load holding or blocking valve in applications requiring low internal leakage bi-directionally.

### Operation

When energized, the HSV10-P28AX allows flow in both directions. When de-energized, the valve blocks flow in both directions.

### Manual Override Operation

For normal operation (de-energized) the manual override pin must be seated in the lower detent groove. To shift the valve manually, the operator pushes down on the knob and rotates 180 degrees in either direction. When the manual override is actuated, increased flow can be achieved by pulling on the knob.

**NOTE:** The manual override feature is intended for emergency use, not for continuous-duty operation.

### 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.
- All HyPerformance products are tested to NFPA specification T2.6.1 and are tested at a verification level of 90% and an assurance of 99%.



## Ratings

### Pressure Ratings

Pressure rating	350 bar (5075 psi)
Proof pressure	690 bar (10000 psi)
Burst pressure	1380 bar (20000 psi)

### Flow Ratings

Flow rating	75.5 lpm (20 gpm)
Maximum internal leakage	5 drops/min - <b>Note:</b> With 350 bar (5075 psi) 6.4 lpm (1.7 gpm) - <b>Note:</b> Typical flow (leakage) in transition at 345 bar (5000 psi). (see "Flow vs % Valve Shift" graph for flow in transition from valve close to valve open).

### Other Ratings

Cycle life	One million cycles
Response	0.051 sec - <b>Note:</b> Pull-in. Response times measured per NFPA/T3.5.30-2008 *Inlet pressure 345 bar (5000 psi) *Valve oriented vertically (2-1) and purged of air *Valve oriented horizontally (1-2) and purged of air 0.070 sec - <b>Note:</b> Drop-out. Response times measured per NFPA/T3.5.30-2008 *Inlet pressure 345 bar (5000 psi) *Valve oriented vertically (2-1) and purged of air *Valve oriented horizontally (1-2) and purged of air

### 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) sensor operating temperature* - <b>Note:</b> With fluorocarbon seals *See Position -54 to 107 °C (-65 to 225 °F) sensor operating temperature* - <b>Note:</b> With urethane seals *See Position
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	18/16/13 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

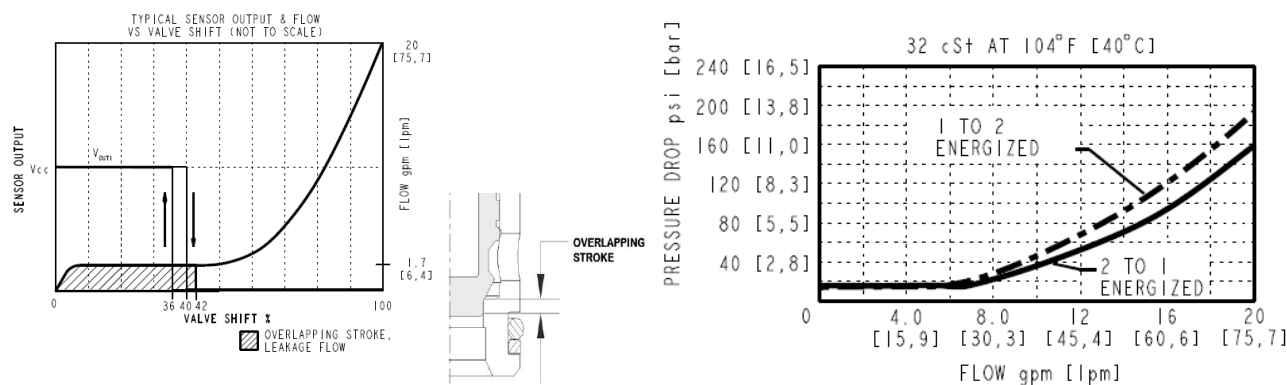
### Properties

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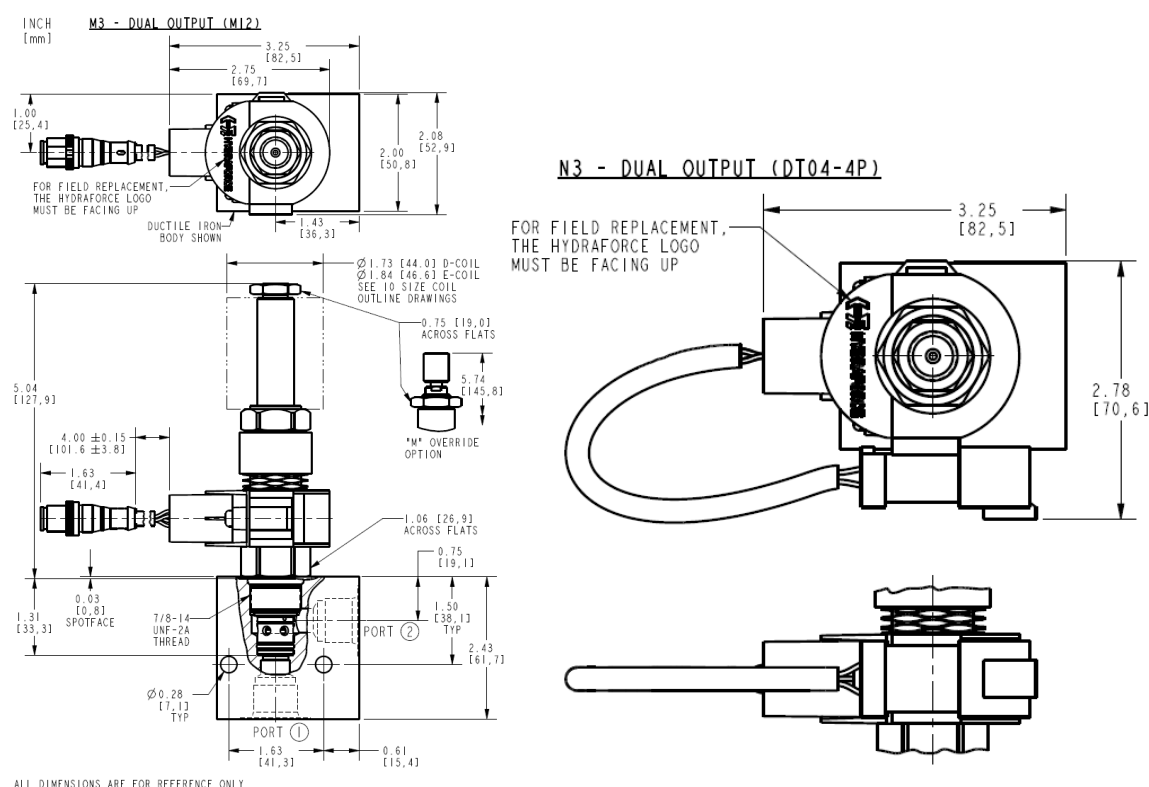
## Properties

Unit weight	0.51 kg (1.12 lb)	- <b>Note:</b> Cartridge
Internal wetted surface area	308 cm <sup>2</sup> (47.8 in <sup>2</sup> )	

## Performance

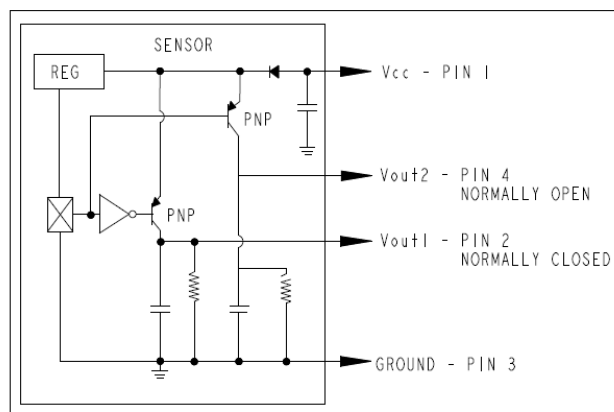


## Dimensions

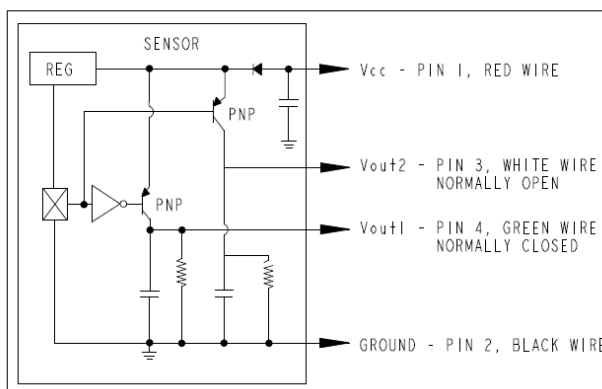


## Wiring Diagrams

### M3 SENSOR WIRING DIAGRAM



### N3 SENSOR WIRING DIAGRAM





## Installation Specifications

Cavity	HVC10-2	
Cartridge installation torque	102 to 115 N-m (75 to 85 ft-lb) 81 to 88 N-m (60 to 65 ft-lb)	<b>- Note:</b> Steel/ductile iron cavity <b>- Note:</b> Aluminum iron cavity
Orientation restriction	None	

## Accessories

Seal kit	SK10-2N-M SK10-2V-M SK10-2U-O	<b>- Note:</b> Buna N <b>- Note:</b> Fluorocarbon <b>- Note:</b> Urethane
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## Order Code

### ORDERING INFORMATION

HSV10-P28AX-X-X-XXXX-XX	
<b>BASE MODEL NUMBER</b>	
POSITION INDICATOR	
SWITCH - P	
RESTRICTED FLOW - A	
<b>OVERRIDE OPTION</b>	
NONE - BLANK	
MANUAL OVERRIDE - M	
<b>PORTING</b>	
CARTRIDGE ONLY - 0	
<b>SEAL OPTIONS</b>	
BUNA N - N	
FLUOROCARBON - V	
URETHANE - U	
<b>COIL VOLTAGE</b>	
LESS COIL - 00	
12 VDC COIL - 12	
24 VDC COIL - 24	
<b>COIL TERMINATIONS</b>	
E-COIL OPTIONS:	
METRI-PACK CONNECTOR - EY	
DEUTSCH CONNECTOR - ER	
D-COIL OPTIONS:	
(2) LEADWIRES 18"	
STANDARD LENGTH - DL	
DUAL SPADES SAE J858a - DS	
DIN 43650 - DG	
<b>SENSOR OUTPUT:</b>	
DUAL OUTPUT (DT04-4P) - N3	
DUAL OUTPUT (M12) - M3	

### Model Options

HSV10-P28AE-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

#### J Seal

CODE	DESCRIPTION
N	Buna-N
V	Fluorocarbon
HV	High Durometer Fluorocarbon
U	PPDI Urethane

#### L Coil



CODE	DESCRIPTION
0	No Coil
10EL	10 VDC, E-Coil, Dual Lead Wires
10ER	10 VDC, E-Coil, Deutsch
10ER/Z	10 VDC, E-Coil, Deutsch with Zener Diode
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
20ER	20 VDC, E-Coil, Deutsch
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
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

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