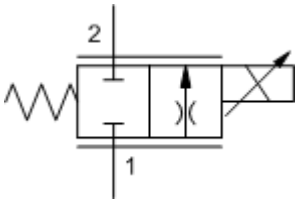
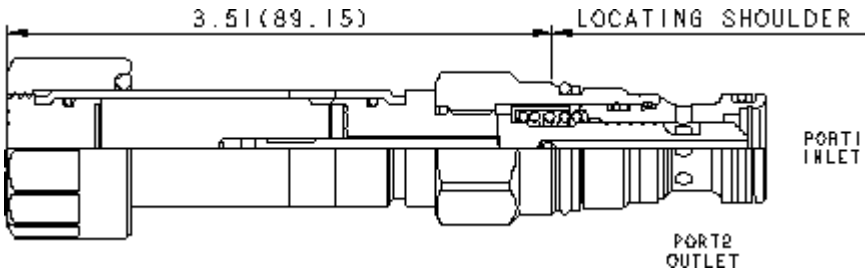
Electro-proportional flow control valve - normally closed

CAPACITY: 10 gpm / CAVITY: T-13A

sunhydraulics.com/model/FPCC





This valve is a normally closed, electro-proportional throttle that is spring-biased closed. Energizing the coil generates an opening force on the spool proportional to the command current, and this force is countered by the spring and flow forces. This force balance creates a metering orifice whose effective size is proportional to the current. The valve exhibits a large degree of self-compensation in the 1-to-2 direction and will provide proportional flow control in the 2-to-1 direction with the addition of an external compensator. Full reverse flow (2-to-1) with 100% command in the 2-to-1 direction is possible without a compensator under all conditions.

PROPORTIONAL PERFORMANCE DATA

Hysteresis (with dither)	<4%
Hysteresis with DC input	<8%
Linearity (with dither)	<2%
Repeatability (with dither)	<2%
Recommended dither frequency	140 Hz
Deadband, nominal (as a percentage of input)	25%

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-13A
Series	1
Capacity	10 gpm
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in^3/min.@3000 psi
Solenoid Tube Diameter	.75 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Model Weight (with coil)	1.10 lb
Seal and nut kit - Coil	Viton: 990-770-006
Seal kit - Cartridge	Buna: 990-413-007
Seal kit - Cartridge	EPDM: 990-010-014
Seal kit - Cartridge	Polyurethane: 990-413-002
Seal kit - Cartridge	Viton: 990-413-006

NOTES: • Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

OPTION SELECTION EXAMPLE: FPCCXCN

CONTROL	(X)
X	No Manual Override
D	Twist/Lock (Dual) Manual Override
E	Twist (Extended) Manual Override
L	Twist/Lock (Detent) Manual Override
M	Manual Override
T	Twist (Momentary) Manual Override

FLOW RATE	(C)
C	.25 - 7 gpm (1 - 28 L/min.)
A	.1 - 1.5 gpm (0,4 - 6 L/min.)
B	.15 - 3.5 gpm (0,6 - 14 L/min.)
D	.25 - 10 gpm (1 - 40 L/min.)

SEAL MATERIAL	(N)
N	Buna-N
E	EPDM
V	Viton

COIL	
	No coil
212	DIN 43650-Form A, 12 VDC
224	DIN 43650-Form A, 24 VDC
224NX01	DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
224NX02	DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
912	Deutsch DT04-2P, 12 VDC
912NX01	Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
912NX02	Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
924	Deutsch DT04-2P, 24 VDC
924NX01	Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
924NX02	Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver

TECHNICAL FEATURES

- Available in either a normally open or normally closed configuration with three different capacity ranges.
- Capable of operating with pressures up to 5000 psi (350 bar).
- Low leakage levels in the closed position.
- Coils are interchangeable with Sun's other full flow, solenoid-operated valves and can be mounted on the tube in either direction.
- This cartridge has several manual override choices, including no manual override. See Option Configuration.
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.
- On models equipped with the D or L control, the detent mechanism in the manual override is meant for temporary actuation. The D, E, L and T manual control assemblies have a mechanical life expectancy of approximately 7,000 cycles.
- The momentary/twist override option "E" allows the operator to shift the valve by twisting the manual override clockwise 90 degrees.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES