



EX5-U21 800618

EX4-EX8 Series Electrical Control Valves

The EX4-EX8 Series are bi-polar stepper motor driven valves optimized for the control of liquid or gaseous mass flow in refrigeration systems. Multifunction capability as expansion valve, hot gas bypass, suction gas throttling, head pressure, liquid line actuator and other applications systems.

Features

- Fully hermetic stainless steel design
- Fast full stroke time
- Ceramic slide and port for accurate flow and minimal wear
- High resolution and excellent repeatability
- Bi-directional versions for heat pump applications
- Positive shut-off function to eliminate the use of an additional solenoid valve
- Linear flow capacity
- Wide capacity range (10 - 100%)
- Continuous modulation of mass flow, no stress (liquid hammering) in the refrigeration circuit
- Direct coupling of motor and valve for high reliability (no gear mechanism)
- Applicable to all common A1, A2L, A3 refrigerants, including subcritical CO₂, R-290
- EX4 to EX7 uniflow models comply with the A2L Safety Shut-off Valve standards of UL 60335-2-40 and 60335-2-89 when equipped with battery back-up

Specifications

CE marking.....	EX4/EX5 not required, EX6-EX8 required Cat I, Module A
Maximum operating pressure differential.....	EX4-EX6: 580 psid (40 bar)
.....	EX7: 507 psid (35 bar)
.....	EX8: 435 psid (30 bar)
Maximum working pressure	EX4-EX7: 870 psig (60 bar)
.....	EX8: 650 psig (45 bar)
Ambient Temperature.....	-40°F/C to 131°F (55°C)
Storage Temperature.....	-40°F/C to 158°F (70°C)
Medium Inlet Temperature.....	Uni-flow: -58°F/50°C to 212°F (100°C)
.....	Bi-flow: -58°F/50°C to 176°F (80°C)
Operating humidity.....	5 to 95% R.H.
External leakage.....	0.1 oz./yr. (R-22)
Connectors	4 pin terminal via plug
Driver supply voltage.....	24 VDC Nominal, Range: 18-36 VDC
Full travel time.....	EX4-EX6: 1.5 seconds
.....	EX7: 3.2 seconds
.....	EX8: 5.2 seconds
Total number of full steps.....	EX4-EX6: 750
.....	EX7: 1600
.....	EX8: 2600
Phase current (operating)	EX4-EX6: 500 mA max
.....	EX7 750 mA
.....	EX8 800 mA
Holding current.....	EX4-EX6: 100 mA
.....	EX7: 250 mA
.....	EX8: 500 mA
Nominal input power per phase	EX4-EX6: 3.5W
.....	EX7-EX8: 5W
Phase inductance.....	EX4-EX6: 100 mA
.....	EX7: 250 mA

EX4-EX8 series stepper motor driven valves

Description	Inlet connection (in)	Outlet connection (in)	Model number	Item number
EX4 Electrical Control Valve	3/8	5/8	EX4-I21 800615	097719
EX5 Electrical Control Valve	5/8	7/8	EX5-U21 800618	097720
EX6 Electrical Control Valve	7/8	1-1/8	EX6-I21 800620	097721
EX7 Electrical Control Valve	1-1/8	1-3/8	EX7-I21 800624	097722
EX8 Electrical Control Valve	1-5/8	1-5/8	EX8-I21 800631	097723
EX4 Bi-Flow Electrical Control Valve	5/8	5/8	EX4-U31 800617	097756
EX5 Bi-Flow Electrical Control Valve	7/8	7/8	EX5-U31 800619	097729
EX6 Bi-Flow Electrical Control Valve	1-1/8	1-1/8	EX6-I31 800622	097757
EX7 Bi-Flow Electrical Control Valve	1-3/8	1-3/8	EX7-U31 800626	097758

EX4-EX8 series parts & accessories

Description	Model number	Item number
Superheat and/or Temperature Controller for 1 Valve	EXD-SH1 807855	097175
Superheat and/or Temperature Controller for 2 Valves	EXD-SH2 807856	097176
Superheat and/or Temperature Controller kit for 1 Valve (Kit includes 1 each EXD-SH1, EXV-M60, PT5B-18M, PT4-M60 FLR, TP1-NP6, EXD-M03, 90-T40F3). Valve not included.	EXD-SH1K	EXD-SH1K
Superheat and/or Temperature Controller kit for 2 Valves (Kit includes 1 each EXD-SH2, EXD-M03, 90-T50F3 and two of each EXV-M60, PT5B-18M, PT4-M60 FLR, TP1-NP6,). Valve not included.	EXD-SH2K	EXD-SH2K
Universal driver	EXD-U02 808053	808053
Cable for supply voltage, 3 meters	EXD-M03 807865	097177
Electronic Expansion Valve Cable and Connector, 1.5 meters	EXV-M15	804870
Electronic Expansion Valve Cable and Connector, 3 meters	EXV-M30	804871
Electronic Expansion Valve Cable and Connector, 6 meters	EXV-M60	804872
Pressure Transmitter able to operate in a vacuum	PT5B-10M	808360
Pressure Transmitter including R-410A	PT5B-18M	808361
Pressure Transmitter including R-744, 435 psig	PT5B-30M	808362
Pressure Transmitter including R-744, 725 psig	PT5B-50M	808365
Pressure Transmitter including R-744, 2,175 psig	PT5-150D	802379
Plug & Cable Assy for Pressure Transmitter, 1 meter	PT4-M10 FLR	804886
Plug & Cable Assy for Pressure Transmitter, 3 meters	PT4-M15 FLR	804887
Plug & Cable Assy for Pressure Transmitter, 6 meters	PT4-M60 FLR	804883
Plug & Cable Assy for Pressure Transmitter, 6 meters (cable for PT5-150D)	PT4-M60	804882
Temperature Sensor, 6 meters cable	TP1-NP6 804490	804490
Transformer for 1 circuit	90-T40F3	90-T40F3
Transformer 2 circuits	90-T50F3	90-T50F3
Backup battery with two outputs for two controllers	ECP-024	804558
Terminal Kit for ECP-024	K09-P00	804560

EX4-EX8 series nominal capacities in tons 10% - 100% (based on capacities table conditions below)

Valve type	R-407C	R-22	R-134a	R-404A	R-410A	R-23	R-124	R-744
EX4	.6 – 5	.6 – 4.7	.3 – 3.6	.3 – 3.3	.6 – 5.5	.6 – 5.1	.3 – 2.6	.9 – 9.5
EX5	1.4 – 15.1	1.4 – 14.2	1.1 – 11.1	1.1 – 10	1.7 – 16.5	1.4 – 15.4	.9 – 8	2.8 – 29
EX6	4.3 – 35.8	4.3 – 34.1	2.8 – 26.4	2.8 – 23.9	4.3 – 39.8	3.7 – 37	2 – 19.1	6.8 – 69.4
EX7	10 – 98.7	10 – 93.8	7.1 – 72.5	7.1 – 65.4	11.4 – 109.5	—	—	19.9 – 190.5
EX8	28.4 – 263	25.6 – 250.2	19.9 – 193.4	17.1 – 174.3	28.4 – 292	—	—	51.2 – 508.7

Capacities table conditions

Refrigerant	Evaporating temperature	Condensing temperature	Subcooling
R-22, R-134A, R-404A, R-410A	+40 °F	+100°F	2°F
R-407C	+40°F dew point	+100°F bubble	2°F
R-124	+68°F	+176°F	2°F
R-23	-76°F	-13°F	2°F
R-744	-40°F	14°F	2°F



Instruction Sheet
with detailed
product drawings

Capacity
Tables (Tons)

