

Electronic Expansion Valves EXM/L Series

Technical Bulletin

EXM/EXL Unipolar stepper motor driven Electronic Expansion Valves are for precise control of refrigerant mass flow in heat pumps, heating units, air conditioning and close control applications.

Note: Conditional release for use in OEM manufactured self-contained display cabinets/unit mainly with refrigerant R290 (serial production).

Features

- Hermetic design
- Continuous, linear modulation of mass flow
- Bi-flow with same capacity in normal and reverse flow direction
- High MOPD: 40bar in normal flow direction
- Unipolar stepper motor
- Removable coils in two versions: 12VDC/24VDC
- Fine resolution: 500 pulses (half steps) or 250 full steps
- Protection class of molded coil is IP65 (acc. EN 60529) excluding the cable end terminals (JST).
- Reliability: 225 million pulses at 40 bar differential pressure



EXM/EXL with Coil

Selection table

Valve series	Description	Type	Part. No. (10 pcs)	Nominal Capacity (kW)						Connections Size / Style	
				R290	R32	R452B*	R454B*	R410A	R407C		R134a
EXM	Valve less coil	EXM-B0A	800399M	1.6	2.7	2.1	2.1	1.8	1.6	1.2	1/4" ODM
		EXM-B0B	800400M	4.9	8.2	6.3	6.3	5.5	5.0	3.7	
		EXM-B0D	800401M	10.3	17.3	13.3	13.3	11.6	10.5	7.7	
		EXM-B0E	800402M	12.1	20.4	15.7	15.7	13.7	12.4	9.1	
	Coil 12VDC	EXM-125	800403M	-	-	-	-	-	-	-	-
Coil 24VDC	EXM-24U	800415M	-	-	-	-	-	-	-	-	
EXL	Valve less coil	EXL-B1F	800405M	15.0	25.3	19.4	19.4	17.0	15.4	11.3	1/4" ODF 8 mm ODM
		EXL-B1G	800406M	20.3	34.2	26.3	26.4	23.0	20.7	15.2	
	Coil 12VDC	EXL-125	800407M	-	-	-	-	-	-	-	-
	Coil 24VDC	EXL-24U	800416M	-	-	-	-	-	-	-	-

Note1: *) The material compatibility test is pending with R452B and R454B. Before selection or use, please contact EMERSON local sales offices for availability of approval.

Note2: When selecting also observe the information in the operating instructions. Available for download on the EMERSON website.

The nominal capacity (Q_n) is based on the following conditions:

Refrigerant	Evaporating temperature	Condensing temperature	Subcooling
R410A, R134a, R32, R290	+4°C	+38°C	1K
R407C	+4°C dew point	+38°C bubble / +43°C dew point	1K
R452B, R454B	+4°C	+38°C	

Note 1: Unlike Thermo®-Expansion Valves, there is no additional reserve capacity.

Note 2: For selection of other operating condition, please use quick selection tables in the next pages or Controls Navigator selection program.

Electronic Expansion Valves EXM/L Series

Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R290 Capacity (kW)										Valve type
	Evaporating temperature (°C)										
	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	EXM-B0A
	4.7	4.7	4.7	4.7	4.6	4.6	4.5	4.4	4.3	4.2	EXM-B0B
	9.8	9.9	9.9	9.9	9.8	9.6	9.5	9.3	9.0	8.8	EXM-B0D
	11.6	11.7	11.7	11.6	11.5	11.4	11.2	10.9	10.7	10.4	EXM-B0E
	14.4	14.5	14.5	14.4	14.3	14.1	13.9	13.6	13.3	12.9	EXL-B1F
	19.5	19.6	19.6	19.5	19.4	19.1	18.8	18.4	17.9	17.4	EXL-B1G
60	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	EXM-B0A
	4.7	4.8	4.8	4.8	4.8	4.7	4.7	4.6	4.5	4.4	EXM-B0B
	9.9	10.0	10.1	10.1	10.1	10.0	9.9	9.7	9.5	9.3	EXM-B0D
	11.7	11.9	11.9	12.0	11.9	11.8	11.6	11.5	11.2	11.0	EXM-B0E
	14.5	14.7	14.8	14.8	14.8	14.6	14.4	14.2	13.9	13.6	EXL-B1F
	19.7	19.9	20.1	20.1	20.0	19.8	19.5	19.2	18.9	18.4	EXL-B1G
55	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	EXM-B0A
	4.6	4.8	4.8	4.9	4.9	4.8	4.8	4.7	4.7	4.6	EXM-B0B
	9.8	10.0	10.2	10.2	10.2	10.2	10.1	10.0	9.8	9.7	EXM-B0D
	11.6	11.8	12.0	12.1	12.1	12.0	11.9	11.8	11.6	11.4	EXM-B0E
	14.4	14.7	14.9	15.0	15.0	15.0	14.8	14.6	14.4	14.2	EXL-B1F
	19.4	19.9	20.1	20.3	20.3	20.2	20.1	19.8	19.5	19.2	EXL-B1G
50	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	EXM-B0A
	4.5	4.7	4.8	4.8	4.9	4.9	4.9	4.8	4.8	4.7	EXM-B0B
	9.5	9.8	10.1	10.2	10.3	10.3	10.2	10.2	10.0	9.9	EXM-B0D
	11.2	11.6	11.9	12.0	12.1	12.1	12.1	12.0	11.9	11.7	EXM-B0E
	13.9	14.4	14.7	14.9	15.0	15.1	15.0	14.9	14.7	14.5	EXL-B1F
	18.8	19.5	19.9	20.2	20.4	20.4	20.3	20.2	19.9	19.6	EXL-B1G
45	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	EXM-B0A
	4.3	4.5	4.6	4.7	4.8	4.8	4.9	4.8	4.8	4.8	EXM-B0B
	9.0	9.5	9.8	10.0	10.2	10.2	10.2	10.2	10.1	10.0	EXM-B0D
	10.6	11.2	11.6	11.8	12.0	12.1	12.1	12.1	12.0	11.8	EXM-B0E
	13.2	13.9	14.3	14.7	14.9	15.0	15.0	15.0	14.9	14.7	EXL-B1F
	17.9	18.7	19.4	19.8	20.1	20.3	20.3	20.2	20.1	19.9	EXL-B1G
40	1.3	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	EXM-B0A
	3.9	4.2	4.4	4.6	4.7	4.8	4.8	4.8	4.8	4.8	EXM-B0B
	8.3	8.9	9.3	9.7	9.9	10.0	10.1	10.1	10.1	10.0	EXM-B0D
	9.8	10.5	11.0	11.4	11.7	11.9	12.0	12.0	11.9	11.9	EXM-B0E
	12.2	13.0	13.7	14.2	14.5	14.7	14.8	14.9	14.8	14.7	EXL-B1F
	16.4	17.6	18.5	19.2	19.6	19.9	20.1	20.1	20.0	19.9	EXL-B1G
35	1.1	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	EXM-B0A
	3.5	3.8	4.1	4.3	4.5	4.6	4.7	4.7	4.7	4.7	EXM-B0B
	7.3	8.1	8.7	9.2	9.5	9.7	9.9	10.0	10.0	9.9	EXM-B0D
	8.6	9.6	10.3	10.8	11.2	11.5	11.7	11.8	11.8	11.7	EXM-B0E
	10.7	11.9	12.8	13.4	13.9	14.3	14.5	14.6	14.6	14.6	EXL-B1F
	14.5	16.1	17.3	18.2	18.8	19.3	19.6	19.7	19.8	19.7	EXL-B1G
30	0.9	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.5	1.5	EXM-B0A
	2.8	3.3	3.7	4.0	4.2	4.4	4.5	4.6	4.6	4.6	EXM-B0B
	5.9	7.1	7.9	8.5	8.9	9.3	9.5	9.6	9.7	9.7	EXM-B0D
	7.0	8.3	9.3	10.0	10.6	11.0	11.2	11.4	11.5	11.5	EXM-B0E
	8.7	10.4	11.6	12.5	13.1	13.6	13.9	14.1	14.2	14.3	EXL-B1F
	11.7	14.0	15.6	16.9	17.7	18.4	18.8	19.1	19.3	19.3	EXL-B1G

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Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R32										Valve type
	Capacity (kW)										
	Evaporating temperature (°C)										
	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	2.5	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	EXM-B0A
	7.7	8.0	8.1	8.3	8.4	8.4	8.5	8.5	8.5	8.5	EXM-B0B
	16.3	16.8	17.1	17.4	17.6	17.8	17.9	17.9	17.9	17.9	EXM-B0D
	19.3	19.8	20.2	20.6	20.8	21.0	21.1	21.2	21.1	21.1	EXM-B0E
	23.9	24.6	25.1	25.5	25.8	26.1	26.2	26.3	26.2	26.2	EXL-B1F
	32.4	33.3	34.0	34.5	35.0	35.3	35.4	35.5	35.5	35.4	EXL-B1G
60	2.6	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.9	2.9	EXM-B0A
	7.9	8.2	8.4	8.6	8.7	8.8	8.9	8.9	8.9	8.9	EXM-B0B
	16.7	17.3	17.7	18.1	18.3	18.6	18.7	18.8	18.8	18.8	EXM-B0D
	19.7	20.4	20.9	21.3	21.7	21.9	22.1	22.2	22.2	22.2	EXM-B0E
	24.5	25.3	26.0	26.5	26.9	27.2	27.4	27.5	27.6	27.5	EXL-B1F
	33.1	34.2	35.1	35.8	36.4	36.8	37.1	37.2	37.3	37.2	EXL-B1G
55	2.6	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.0	3.0	EXM-B0A
	7.9	8.2	8.5	8.7	8.8	9.0	9.1	9.1	9.2	9.2	EXM-B0B
	16.7	17.3	17.9	18.3	18.7	18.9	19.1	19.2	19.3	19.3	EXM-B0D
	19.7	20.5	21.1	21.6	22.0	22.3	22.6	22.7	22.8	22.8	EXM-B0E
	24.4	25.4	26.2	26.8	27.3	27.7	28.0	28.2	28.3	28.3	EXL-B1F
	33.1	34.4	35.4	36.3	37.0	37.5	37.9	38.1	38.3	38.3	EXL-B1G
50	2.5	2.6	2.7	2.8	2.9	2.9	3.0	3.0	3.0	3.0	EXM-B0A
	7.7	8.1	8.4	8.6	8.8	9.0	9.1	9.2	9.3	9.3	EXM-B0B
	16.3	17.1	17.7	18.2	18.7	19.0	19.2	19.4	19.5	19.6	EXM-B0D
	19.2	20.1	20.9	21.5	22.0	22.4	22.7	22.9	23.1	23.1	EXM-B0E
	23.8	25.0	25.9	26.7	27.3	27.8	28.2	28.4	28.6	28.7	EXL-B1F
	32.3	33.8	35.1	36.2	37.0	37.6	38.1	38.5	38.7	38.8	EXL-B1G
45	2.4	2.6	2.7	2.8	2.9	2.9	3.0	3.0	3.0	3.0	EXM-B0A
	7.4	7.8	8.2	8.5	8.7	8.9	9.1	9.2	9.2	9.3	EXM-B0B
	15.5	16.5	17.3	17.9	18.4	18.8	19.1	19.3	19.5	19.6	EXM-B0D
	18.3	19.5	20.4	21.1	21.7	22.2	22.6	22.8	23.0	23.1	EXM-B0E
	22.8	24.1	25.3	26.2	27.0	27.5	28.0	28.3	28.6	28.7	EXL-B1F
	30.8	32.7	34.2	35.5	36.5	37.3	37.9	38.3	38.7	38.8	EXL-B1G
40	2.2	2.4	2.6	2.7	2.8	2.9	2.9	3.0	3.0	3.0	EXM-B0A
	6.9	7.4	7.8	8.2	8.5	8.7	8.9	9.0	9.1	9.2	EXM-B0B
	14.5	15.6	16.5	17.3	17.9	18.4	18.8	19.1	19.3	19.4	EXM-B0D
	17.1	18.4	19.5	20.4	21.1	21.7	22.2	22.5	22.8	22.9	EXM-B0E
	21.2	22.9	24.2	25.3	26.2	26.9	27.5	27.9	28.2	28.4	EXL-B1F
	28.7	30.9	32.8	34.3	35.5	36.4	37.2	37.8	38.2	38.5	EXL-B1G
35	2.0	2.2	2.4	2.5	2.7	2.8	2.8	2.9	2.9	3.0	EXM-B0A
	6.2	6.8	7.4	7.8	8.1	8.4	8.6	8.8	8.9	9.0	EXM-B0B
	13.0	14.4	15.5	16.4	17.2	17.8	18.2	18.6	18.9	19.0	EXM-B0D
	15.4	17.0	18.3	19.4	20.3	21.0	21.5	21.9	22.3	22.5	EXM-B0E
	19.1	21.1	22.7	24.1	25.2	26.0	26.7	27.2	27.6	27.9	EXL-B1F
	25.8	28.6	30.8	32.6	34.0	35.2	36.1	36.8	37.4	37.8	EXL-B1G
30	1.7	2.0	2.2	2.4	2.5	2.6	2.7	2.8	2.8	2.9	EXM-B0A
	5.2	6.1	6.7	7.3	7.7	8.0	8.3	8.5	8.7	8.8	EXM-B0B
	11.1	12.8	14.2	15.3	16.2	16.9	17.5	17.9	18.3	18.5	EXM-B0D
	13.1	15.2	16.8	18.1	19.1	20.0	20.7	21.2	21.6	21.9	EXM-B0E
	16.2	18.8	20.9	22.5	23.8	24.8	25.6	26.3	26.8	27.1	EXL-B1F
	21.9	25.5	28.2	30.4	32.1	33.6	34.7	35.6	36.2	36.7	EXL-B1G

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Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R452B/ R454B		Capacity (kW)								R452B/ R454B	Valve type
			Evaporating temperature (°C)									
			15	10	5	0	-5	-10	-15	-20		
65	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	EXM-B0A
	5.6	5.7	5.8	5.8	5.8	5.9	5.8	5.8	5.8	5.8	5.7	EXM-B0B
	11.7	12.0	12.1	12.3	12.3	12.3	12.3	12.3	12.3	12.2	12.0	EXM-B0D
	13.9	14.1	14.3	14.5	14.6	14.6	14.5	14.5	14.5	14.4	14.2	EXM-B0E
	17.2	17.5	17.8	18.0	18.1	18.1	18.1	18.1	18.0	17.8	17.6	EXL-B1F
	23.3	23.7	24.1	24.3	24.4	24.5	24.4	24.3	24.3	24.1	23.8	EXL-B1G
60	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	EXM-B0A
	5.8	6.0	6.1	6.2	6.2	6.3	6.3	6.3	6.2	6.2	6.2	EXM-B0B
	12.3	12.6	12.9	13.0	13.2	13.2	13.2	13.2	13.1	13.0	13.0	EXM-B0D
	14.5	14.9	15.2	15.4	15.5	15.6	15.6	15.6	15.6	15.5	15.4	EXM-B0E
	18.0	18.5	18.9	19.1	19.3	19.4	19.4	19.3	19.3	19.2	19.1	EXL-B1F
	24.4	25.0	25.5	25.9	26.1	26.2	26.2	26.2	26.0	26.0	25.8	EXL-B1G
55	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	EXM-B0A
	5.9	6.1	6.3	6.4	6.5	6.5	6.5	6.5	6.5	6.5	6.5	EXM-B0B
	12.5	12.9	13.2	13.4	13.6	13.7	13.8	13.8	13.8	13.8	13.7	EXM-B0D
	14.7	15.2	15.6	15.9	16.1	16.2	16.3	16.3	16.3	16.2	16.2	EXM-B0E
	18.3	18.9	19.3	19.7	20.0	20.1	20.2	20.2	20.2	20.2	20.0	EXL-B1F
	24.7	25.5	26.2	26.7	27.0	27.2	27.3	27.3	27.3	27.3	27.1	EXL-B1G
50	1.9	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	EXM-B0A
	5.8	6.1	6.3	6.4	6.5	6.6	6.7	6.7	6.7	6.7	6.7	EXM-B0B
	12.3	12.8	13.2	13.6	13.8	14.0	14.1	14.1	14.1	14.1	14.1	EXM-B0D
	14.6	15.2	15.6	16.0	16.3	16.5	16.6	16.7	16.7	16.7	16.6	EXM-B0E
	18.1	18.8	19.4	19.9	20.2	20.5	20.6	20.7	20.7	20.7	20.6	EXL-B1F
	24.5	25.5	26.3	26.9	27.4	27.7	27.9	28.0	28.0	28.0	27.9	EXL-B1G
45	1.8	1.9	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	EXM-B0A
	5.7	5.9	6.2	6.4	6.5	6.6	6.7	6.7	6.8	6.8	6.8	EXM-B0B
	11.9	12.5	13.1	13.5	13.8	14.0	14.1	14.2	14.3	14.3	14.3	EXM-B0D
	14.1	14.8	15.4	15.9	16.2	16.5	16.7	16.8	16.9	16.9	16.8	EXM-B0E
	17.5	18.4	19.1	19.7	20.2	20.5	20.7	20.9	20.9	20.9	20.9	EXL-B1F
	23.6	24.9	25.9	26.7	27.3	27.7	28.0	28.2	28.3	28.3	28.3	EXL-B1G
40	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	EXM-B0A
	5.3	5.7	6.0	6.2	6.4	6.6	6.7	6.7	6.8	6.8	6.8	EXM-B0B
	11.2	12.0	12.6	13.1	13.5	13.8	14.0	14.2	14.3	14.3	14.3	EXM-B0D
	13.3	14.2	14.9	15.5	16.0	16.3	16.6	16.7	16.8	16.8	16.9	EXM-B0E
	16.5	17.6	18.5	19.2	19.8	20.2	20.6	20.8	20.9	20.9	20.9	EXL-B1F
	22.3	23.8	25.1	26.0	26.8	27.4	27.8	28.1	28.3	28.3	28.3	EXL-B1G
35	1.6	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	EXM-B0A
	4.9	5.3	5.7	6.0	6.2	6.4	6.5	6.6	6.7	6.7	6.7	EXM-B0B
	10.2	11.2	12.0	12.6	13.1	13.5	13.8	14.0	14.1	14.2	14.2	EXM-B0D
	12.1	13.3	14.2	14.9	15.5	15.9	16.2	16.5	16.6	16.6	16.7	EXM-B0E
	15.0	16.5	17.6	18.5	19.2	19.7	20.2	20.5	20.7	20.8	20.8	EXL-B1F
	20.3	22.3	23.8	25.0	26.0	26.7	27.3	27.7	27.9	28.1	28.1	EXL-B1G
30	1.4	1.6	1.7	1.8	1.9	2.0	2.1	2.1	2.1	2.1	2.2	EXM-B0A
	4.2	4.8	5.3	5.6	5.9	6.1	6.3	6.4	6.5	6.6	6.6	EXM-B0B
	8.9	10.2	11.1	11.9	12.5	13.0	13.3	13.6	13.8	13.9	13.9	EXM-B0D
	10.5	12.0	13.1	14.0	14.8	15.3	15.7	16.1	16.3	16.4	16.4	EXM-B0E
	13.0	14.9	16.3	17.4	18.3	19.0	19.5	19.9	20.2	20.4	20.4	EXL-B1F
	17.6	20.1	22.1	23.6	24.8	25.7	26.4	27.0	27.3	27.6	27.6	EXL-B1G

Electronic Expansion Valves EXM/L Series

Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R410A Capacity (kW)										Valve type
	Evaporating temperature (°C)										
	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	EXM-B0A
	4.0	4.0	4.1	4.1	4.1	4.1	4.1	4.0	4.0	3.9	EXM-B0B
	8.3	8.5	8.6	8.7	8.7	8.6	8.6	8.5	8.4	8.2	EXM-B0D
	9.8	10.0	10.1	10.2	10.2	10.2	10.1	10.0	9.9	9.7	EXM-B0E
	12.2	12.4	12.6	12.7	12.7	12.7	12.6	12.5	12.3	12.1	EXL-B1F
	16.5	16.8	17.0	17.2	17.2	17.1	17.0	16.9	16.6	16.3	EXL-B1G
60	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	EXM-B0A
	4.3	4.4	4.5	4.5	4.5	4.6	4.5	4.5	4.5	4.4	EXM-B0B
	9.0	9.3	9.4	9.5	9.6	9.6	9.6	9.5	9.4	9.3	EXM-B0D
	10.7	10.9	11.1	11.3	11.3	11.3	11.3	11.2	11.1	11.0	EXM-B0E
	13.2	13.6	13.8	14.0	14.1	14.1	14.0	14.0	13.8	13.7	EXL-B1F
	17.9	18.4	18.7	18.9	19.0	19.0	19.0	18.9	18.7	18.5	EXL-B1G
55	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	EXM-B0A
	4.4	4.6	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	EXM-B0B
	9.3	9.6	9.9	10.0	10.1	10.2	10.2	10.2	10.1	10.0	EXM-B0D
	11.0	11.4	11.7	11.8	12.0	12.0	12.1	12.0	12.0	11.8	EXM-B0E
	13.7	14.1	14.5	14.7	14.9	14.9	15.0	14.9	14.8	14.7	EXL-B1F
	18.5	19.1	19.6	19.9	20.1	20.2	20.2	20.2	20.1	19.9	EXL-B1G
50	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	EXM-B0A
	4.4	4.6	4.8	4.9	4.9	5.0	5.0	5.0	5.0	5.0	EXM-B0B
	9.3	9.7	10.0	10.3	10.4	10.5	10.6	10.6	10.6	10.5	EXM-B0D
	11.0	11.5	11.9	12.1	12.3	12.4	12.5	12.5	12.5	12.4	EXM-B0E
	13.7	14.3	14.7	15.1	15.3	15.4	15.5	15.5	15.5	15.4	EXL-B1F
	18.5	19.3	19.9	20.4	20.7	20.9	21.0	21.0	21.0	20.8	EXL-B1G
45	1.4	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	EXM-B0A
	4.3	4.6	4.7	4.9	5.0	5.1	5.1	5.1	5.1	5.1	EXM-B0B
	9.1	9.6	10.0	10.3	10.5	10.7	10.8	10.8	10.8	10.8	EXM-B0D
	10.8	11.3	11.8	12.2	12.4	12.6	12.7	12.8	12.8	12.8	EXM-B0E
	13.4	14.1	14.7	15.1	15.4	15.7	15.8	15.9	15.9	15.8	EXL-B1F
	18.1	19.0	19.8	20.4	20.9	21.2	21.4	21.5	21.5	21.4	EXL-B1G
40	1.3	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	EXM-B0A
	4.1	4.4	4.6	4.8	4.9	5.0	5.1	5.2	5.2	5.2	EXM-B0B
	8.6	9.3	9.8	10.1	10.4	10.7	10.8	10.9	10.9	10.9	EXM-B0D
	10.2	10.9	11.5	12.0	12.3	12.6	12.8	12.9	12.9	12.9	EXM-B0E
	12.6	13.6	14.3	14.9	15.3	15.6	15.8	16.0	16.0	16.0	EXL-B1F
	17.1	18.4	19.3	20.1	20.7	21.1	21.4	21.6	21.7	21.7	EXL-B1G
35	1.2	1.3	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.7	EXM-B0A
	3.7	4.1	4.4	4.6	4.8	5.0	5.1	5.1	5.2	5.2	EXM-B0B
	7.9	8.7	9.3	9.8	10.2	10.5	10.7	10.8	10.9	10.9	EXM-B0D
	9.3	10.2	11.0	11.6	12.0	12.4	12.6	12.8	12.9	12.9	EXM-B0E
	11.5	12.7	13.6	14.4	14.9	15.3	15.6	15.8	16.0	16.0	EXL-B1F
	15.6	17.2	18.4	19.4	20.2	20.7	21.2	21.4	21.6	21.7	EXL-B1G
30	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.7	1.7	EXM-B0A
	3.2	3.7	4.1	4.4	4.6	4.8	4.9	5.0	5.1	5.1	EXM-B0B
	6.8	7.8	8.6	9.3	9.7	10.1	10.4	10.6	10.7	10.8	EXM-B0D
	8.0	9.3	10.2	10.9	11.5	12.0	12.3	12.5	12.7	12.8	EXM-B0E
	10.0	11.5	12.7	13.6	14.3	14.8	15.2	15.5	15.7	15.8	EXL-B1F
	13.5	15.6	17.1	18.4	19.3	20.1	20.6	21.0	21.3	21.4	EXL-B1G

Electronic Expansion Valves EXM/L Series

Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R407C Capacity (kW)										Valve type
	Evaporating temperature (°C)										
	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	EXM-B0A
	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.1	EXM-B0B
	7.1	7.1	7.1	7.1	7.0	7.0	6.9	6.7	6.6	6.4	EXM-B0D
	8.4	8.4	8.4	8.4	8.3	8.2	8.1	7.9	7.8	7.6	EXM-B0E
	10.4	10.5	10.5	10.4	10.3	10.2	10.1	9.9	9.7	9.4	EXL-B1F
	14.0	14.1	14.1	14.0	13.9	13.7	13.5	13.3	13.0	12.7	EXL-B1G
60	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	EXM-B0A
	3.5	3.5	3.6	3.6	3.5	3.5	3.5	3.4	3.4	3.3	EXM-B0B
	7.3	7.4	7.4	7.4	7.4	7.3	7.2	7.1	7.0	6.8	EXM-B0D
	8.6	8.7	8.7	8.7	8.7	8.6	8.5	8.4	8.2	8.1	EXM-B0E
	10.7	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.2	10.0	EXL-B1F
	14.4	14.5	14.6	14.6	14.5	14.4	14.2	14.0	13.8	13.5	EXL-B1G
55	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	EXM-B0A
	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.4	EXM-B0B
	7.3	7.4	7.5	7.6	7.6	7.5	7.5	7.4	7.3	7.1	EXM-B0D
	8.6	8.8	8.9	8.9	8.9	8.9	8.8	8.7	8.6	8.4	EXM-B0E
	10.7	10.9	11.0	11.1	11.1	11.0	11.0	10.8	10.7	10.5	EXL-B1F
	14.4	14.7	14.9	14.9	14.9	14.9	14.7	14.6	14.3	14.1	EXL-B1G
50	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	EXM-B0A
	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.6	3.6	3.5	EXM-B0B
	7.2	7.4	7.5	7.6	7.7	7.6	7.6	7.5	7.5	7.3	EXM-B0D
	8.5	8.8	8.9	9.0	9.0	9.0	9.0	8.9	8.8	8.7	EXM-B0E
	10.6	10.9	11.1	11.2	11.2	11.2	11.2	11.1	10.9	10.8	EXL-B1F
	14.3	14.6	14.9	15.0	15.1	15.1	15.0	14.9	14.7	14.5	EXL-B1G
45	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	EXM-B0A
	3.4	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.6	3.6	EXM-B0B
	7.0	7.3	7.4	7.6	7.6	7.7	7.7	7.6	7.6	7.5	EXM-B0D
	8.3	8.6	8.8	8.9	9.0	9.1	9.1	9.0	8.9	8.8	EXM-B0E
	10.3	10.7	10.9	11.1	11.2	11.3	11.2	11.2	11.1	11.0	EXL-B1F
	13.8	14.3	14.7	14.9	15.1	15.1	15.1	15.0	14.9	14.7	EXL-B1G
40	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	EXM-B0A
	3.2	3.4	3.5	3.6	3.6	3.7	3.7	3.7	3.6	3.6	EXM-B0B
	6.7	7.0	7.2	7.4	7.5	7.6	7.6	7.6	7.6	7.5	EXM-B0D
	7.9	8.3	8.6	8.8	8.9	9.0	9.0	9.0	9.0	8.9	EXM-B0E
	9.8	10.3	10.6	10.9	11.1	11.2	11.2	11.2	11.1	11.0	EXL-B1F
	13.2	13.8	14.3	14.6	14.9	15.0	15.1	15.0	15.0	14.8	EXL-B1G
35	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	EXM-B0A
	3.0	3.2	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.6	EXM-B0B
	6.2	6.6	6.9	7.2	7.3	7.4	7.5	7.5	7.5	7.5	EXM-B0D
	7.3	7.8	8.2	8.5	8.7	8.8	8.9	8.9	8.9	8.8	EXM-B0E
	9.1	9.7	10.2	10.5	10.8	10.9	11.0	11.0	11.0	11.0	EXL-B1F
	12.2	13.0	13.7	14.1	14.5	14.7	14.8	14.9	14.8	14.7	EXL-B1G
30	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	EXM-B0A
	2.6	2.9	3.1	3.3	3.4	3.5	3.5	3.5	3.5	3.5	EXM-B0B
	5.5	6.1	6.5	6.8	7.0	7.2	7.3	7.4	7.4	7.4	EXM-B0D
	6.5	7.2	7.7	8.0	8.3	8.5	8.6	8.7	8.7	8.7	EXM-B0E
	8.1	8.9	9.5	10.0	10.3	10.6	10.7	10.8	10.8	10.8	EXL-B1F
	10.9	12.0	12.8	13.4	13.9	14.2	14.4	14.5	14.5	14.5	EXL-B1G

Electronic Expansion Valves EXM/L Series

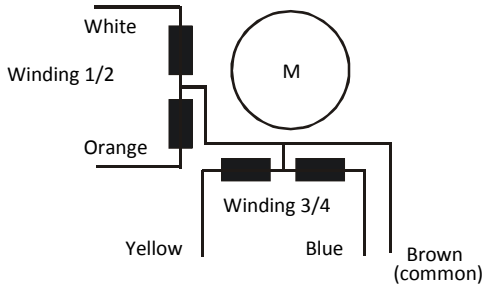
Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R134a Capacity (kW)										Valve type
	Evaporating temperature (°C)										
	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0	EXM-B0A
	3.7	3.7	3.7	3.6	3.6	3.5	3.4	3.4	3.3	3.2	EXM-B0B
	7.7	7.7	7.7	7.6	7.5	7.4	7.3	7.1	6.9	6.7	EXM-B0D
	9.1	9.1	9.1	9.0	8.9	8.8	8.6	8.4	8.1	7.9	EXM-B0E
	11.3	11.3	11.3	11.2	11.1	10.9	10.6	10.4	10.1	9.8	EXL-B1F
	15.3	15.3	15.3	15.2	15.0	14.7	14.4	14.1	13.7	13.3	EXL-B1G
60	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	EXM-B0A
	3.6	3.7	3.7	3.7	3.6	3.6	3.5	3.5	3.4	3.3	EXM-B0B
	7.7	7.8	7.8	7.8	7.7	7.6	7.5	7.3	7.2	7.0	EXM-B0D
	9.1	9.2	9.2	9.2	9.1	9.0	8.8	8.6	8.4	8.2	EXM-B0E
	11.2	11.4	11.4	11.4	11.3	11.1	10.9	10.7	10.5	10.2	EXL-B1F
	15.2	15.4	15.4	15.4	15.2	15.1	14.8	14.5	14.2	13.8	EXL-B1G
55	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	EXM-B0A
	3.6	3.6	3.7	3.7	3.7	3.6	3.6	3.5	3.5	3.4	EXM-B0B
	7.5	7.6	7.7	7.7	7.7	7.7	7.6	7.5	7.3	7.1	EXM-B0D
	8.9	9.0	9.1	9.1	9.1	9.1	8.9	8.8	8.6	8.4	EXM-B0E
	11.0	11.2	11.3	11.3	11.3	11.2	11.1	10.9	10.7	10.5	EXL-B1F
	14.9	15.1	15.3	15.4	15.3	15.2	15.0	14.8	14.5	14.2	EXL-B1G
50	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	EXM-B0A
	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.4	EXM-B0B
	7.2	7.4	7.5	7.6	7.7	7.6	7.6	7.5	7.4	7.2	EXM-B0D
	8.5	8.7	8.9	9.0	9.0	9.0	9.0	8.8	8.7	8.5	EXM-B0E
	10.5	10.9	11.1	11.2	11.2	11.2	11.1	11.0	10.8	10.6	EXL-B1F
	14.2	14.7	15.0	15.1	15.2	15.1	15.0	14.9	14.6	14.4	EXL-B1G
45	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.1	EXM-B0A
	3.2	3.3	3.4	3.5	3.5	3.6	3.6	3.5	3.5	3.4	EXM-B0B
	6.7	7.0	7.3	7.4	7.5	7.5	7.5	7.4	7.4	7.2	EXM-B0D
	7.9	8.3	8.6	8.7	8.8	8.9	8.8	8.8	8.7	8.6	EXM-B0E
	9.9	10.3	10.6	10.9	11.0	11.0	11.0	10.9	10.8	10.6	EXL-B1F
	13.3	14.0	14.4	14.7	14.8	14.9	14.9	14.7	14.6	14.4	EXL-B1G
40	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	EXM-B0A
	2.9	3.1	3.2	3.4	3.4	3.5	3.5	3.5	3.4	3.4	EXM-B0B
	6.1	6.5	6.8	7.1	7.2	7.3	7.3	7.3	7.2	7.2	EXM-B0D
	7.2	7.7	8.1	8.3	8.5	8.6	8.6	8.6	8.6	8.5	EXM-B0E
	8.9	9.6	10.0	10.4	10.6	10.7	10.7	10.7	10.6	10.5	EXL-B1F
	12.1	12.9	13.6	14.0	14.3	14.4	14.5	14.5	14.4	14.2	EXL-B1G
35	0.8	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	EXM-B0A
	2.5	2.8	3.0	3.1	3.2	3.3	3.3	3.4	3.3	3.3	EXM-B0B
	5.2	5.8	6.3	6.6	6.8	7.0	7.0	7.1	7.1	7.0	EXM-B0D
	6.2	6.9	7.4	7.8	8.1	8.2	8.3	8.3	8.3	8.3	EXM-B0E
	7.7	8.6	9.2	9.7	10.0	10.2	10.3	10.4	10.3	10.3	EXL-B1F
	10.4	11.6	12.5	13.1	13.5	13.8	14.0	14.0	14.0	13.9	EXL-B1G
30	0.6	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.0	EXM-B0A
	1.9	2.3	2.6	2.8	3.0	3.1	3.2	3.2	3.2	3.2	EXM-B0B
	4.0	4.9	5.6	6.0	6.3	6.5	6.7	6.7	6.8	6.8	EXM-B0D
	4.7	5.8	6.6	7.1	7.5	7.7	7.9	8.0	8.0	8.0	EXM-B0E
	5.9	7.2	8.1	8.8	9.3	9.6	9.8	9.9	9.9	9.9	EXL-B1F
	8.0	9.8	11.0	11.9	12.5	13.0	13.2	13.4	13.4	13.4	EXL-B1G

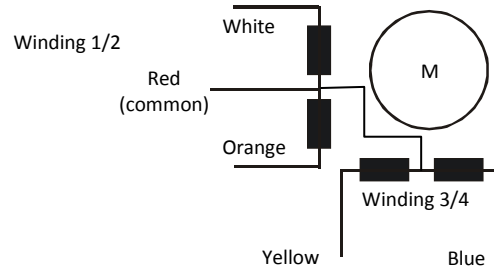
Electronic Expansion Valves EXM/L Series

Wiring

EXM-125/EXL-125 (12 VDC, 5 wires coil)



EXM-24U/EXL-24U (24 VDC, 5 wires coil)



Winding Number	Wire Color	Recommended half step pulsing/switching mode								Remark
		1	2	3	4	5	6	7	8	
1/2	White	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	1) The pulse sequence 1 to 8 will be repeated for further pulses in order to open the valve. 2) The pulse sequence 8 to 1 will be repeated for further pulses in order to close the valve.
	Orange	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	
3/4	Yellow	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	
	Blue	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	
Commons	12V: Brown 24V: Red	ON	ON	ON	ON	ON	ON	ON	ON	

Valve movement mode (pulsing/switching sequence)
 Valve open: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8
 Valve close: 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1

Consideration for operating unipolar stepper motor in half step mode without holding current

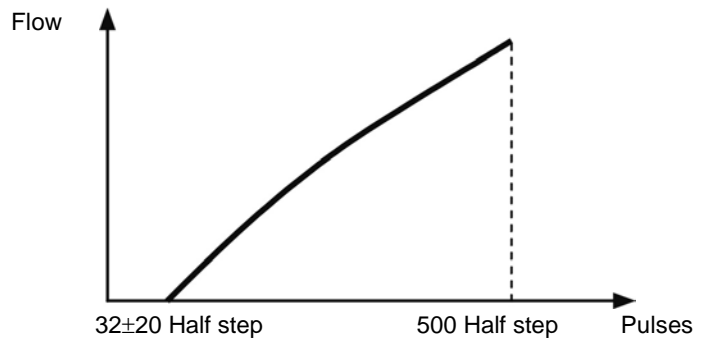
When the pulsing reaches the desired position, the valve gets stabilized by holding the final pulse for at least duration of one pulse up to 0.5 second. Before re-move to a new position, the same previous final pulse must be powered for at least duration of one pulse up to 0.5 seconds.

Note:

Zero pulse (base point) shall be the point of full close position of valve. Do not exceed total of 500 pulses (half steps). In case of more than 500 pulses applied by driver/controller or false movement due to the improper wiring, stop the operation and apply more than 700 pulses in close direction in order to close fully the valve and reset the counter to zero pulse (base point).

EXM/EXL air flow characteristics

Type	Air flow, liter /min. at 10 bar differential pressure, 500 half step
EXM-B0B	17.1
EXM-B0D	35.5
EXM-B0E	42.2
EXL-B1F	52.3
EXL-B1G	70.3



Electronic Expansion Valves EXM/L Series

Technical data

MOPD (maximum operating pressure differential)	40 bar in normal flow 33 bar in reverse flow
Max. working pressure PS	45 bar
External leakage	≤ 3 gram / year
Temperature range TS Refrigerant Ambient	-30...+70°C -30...+60°C
Air seat leakage at 10 bar differential pressure	Typically, 150 cm ³ /min.
Media compatibility	R290, R32, R410A, R407C, R134a
Relative humidity	95%
Connections, A and B	EXM: ¼" ODM EXL: ¼" ODF and 8 mm ODM

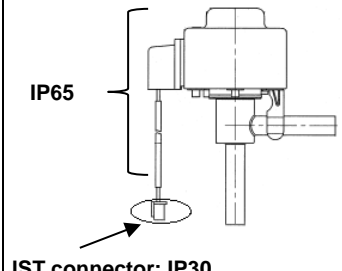
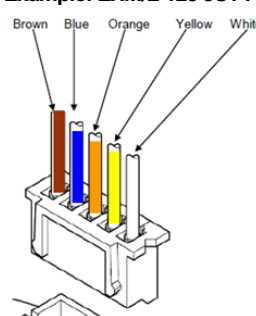
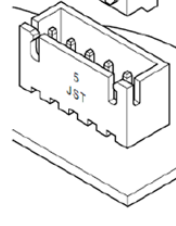

Bi-flow direction Normal: Reverse:	Connection A to B Connection B to A
Valve installation Normal use self-contained display cabinet/unit	Coil upside or to vertical within ±90° Coil upside or to vertical within ±60° (in cold/ wet compartment)
Marking	CE Not required
VDE Test 2017 acc.	EN/IEC-60335-2-89 EN/IEC-60335-2-40
Package and delivery	10 pieces
Weight Valve Coil	EXM: 65 g, EXL: 76 g EXM: 124 g, EXL: 156 g

Endurance

- Continuous 40 bar differential pressure across the valve (In normal flow direction from A to B)
- Cycling between fully close and fully open while 40 bar differential pressure across the valve has been maintained during cycling
- Each cycle consist of:
 - o From 0% to 100% fully open position equal to 500 pulses
 - o From 100% to 0% fully close position equal to 500 pulses
- 225.000 cycles or equal to 225 million pulses

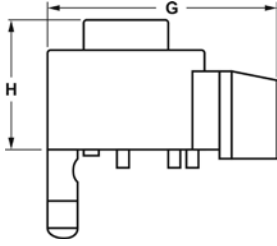
Electrical data

Stepper motor type	Uni-polar, constant voltage
Electrical connection	12 VDC coil : 5 wires 24 VDC coil: 5 wires
Supply voltage	12 VDC coil: 12V ± 10% 24 VDC coil: 24V ± 10%
Phase current, operating	12 VDC coil: 260 mA 24 VDC coil: 130 mA
Winding resistance per phase	12 VDC coil: 46 Ohm 24 VDC coil: 185 Ohm
Insulation resistance	Min. 100 MΩ at 500 VDC
Cable length	1 meter
Step mode	Half step = one pulse
Total number of pulses	500 half step (250 full step)
Pulsing rate	30 to 90 pulses (half step) per sec
Full travel time	16.6 seconds at 30 pulse/sec 5.5 seconds at 90 pulse/sec
Reference position	Mechanical stop at fully close position at 520 pulses
Valve starts to open at:	32 pulses ± 20 pulses
Insulation class	E

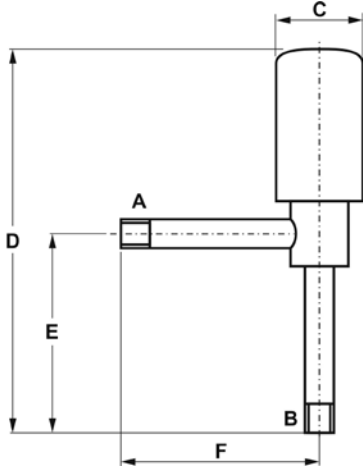
Protection class	 <p>IP65</p> <p>JST connector: IP30</p>
Electrical connection Example: EXM/L-125 JST Plug	 <p>Brown Blue Orange Yellow White</p>  <p>Counter plug on electronic board</p>
	<p>JST XH connector Housing: XHP-5 Pin: SXH-001T-P0.6</p> 

Electronic Expansion Valves EXM/L Series

Dimensions (mm)



Coil	G (mm)	H (mm)
EXM-...	52.5	32
EXL-...	59	34



Valve type	A / B Connections		C (mm)	D (mm)	E (mm)	F (mm)
	Diameter	Length (mm)				
EXM-...	1/4" ODM	8	17.3	78	36	36.3
EXL-...	1/4" ODF / 8 mm ODM	8	21.8	90	42	42