

Emerson Superheat Control











The smart solution for your application



EMERSON[™]
Climate Technologies

Trust in Emerson Climate Technologies for reliable, precise and efficient superheat control.

When it comes to superheat control, Emerson Climate Technologies continues to be the leading manufacturer and provider of a wide range of precision electronic and electromechanical solutions. The controllers enable stable superheat in the system, while the digital superheat controllers additionally synchronize with the PWM capacity control valve integrated in digital Copeland Scroll™ compressors. The precise and durable valves are released for HFC refrigerants as well as for CO₂ in refrigeration, air conditioning and chiller applications.

Refrigeration		Commercial comfort			Residential comfort
Valve					
EX2/CX2 19 kW R407F 28 kW R744 	EX4-8 980 kW R407F 1440 kW R744 	EX4-8 1000 kW R410A 680 kW R134a 	FX5-9 1000 kW R410A 1700 kW R134a 	EX4-6 140 kW R410A 	EXML/EXL 23 kW R410A 
Superheat Controller					
3rd Party controller	EC3-X 	EXD-SH1/2 	3rd Party controller	EC3-D Close control with digital scroll 	EXD-HP1/2 

Refrigeration

The **EX2 / CX2 series** are pulse width modulated electronic expansion valves with exchangeable orifices for display cases and cold rooms.

Features:

- Maximum working pressure: EX2 40 bar , CX2 90 bar (For CO₂ applications)
- Maximum operating pressure differential: EX2 30 bar , CX2 65 bar
- Capacity range: 1.5-28.2 kW, R744; 1.0-19.2 kW, R407F
- Gate type port made from ceramic → High reliability and long life time
- Shut off function eliminates the necessity of a separate solenoid valve



The **EX /CX Series** are stepper motor driven valves for precise control of refrigerant mass flow in refrigeration systems.

Features:

- Ceramic slide and port for highly accurate flow and minimal wear
- Capacity range: 33.5 - 1789 kW (R744), 18 - 984 kW (R407F)
- Maximum working pressure: EX Series 60 bar, CX Series 120 bar
- Linear and precise flow control over a wide range, 10 to 100%
- Fast opening/closing time
- Positive shut-off function to eliminate the need for additional solenoid valve



Refrigeration

The **EXD-SH1/2** are designed for precise control of the superheat and drive the EX valve series.

Features:

- Self adapting superheat/economizer control
- EXD-SH1 for one valve
 - Superheat control or capacity control
 - EXD-SH2 for two valves in independent refrigerant circuits
 - Superheat control for two valves **or** one valve superheat control, second valve capacity control
- Modbus communication
- Integrated keyboard with two line display



EC3-X32/X33 is a superheat controller which ensures a stable and energy efficient superheat while protecting the compressor of liquid slugging.

Features:

- Self adapting algorithm
- Limitation of evaporating pressure (MOP)
- Stepper motor driver for EX4 ... EX8 included
- Integral rechargeable battery to close electronic expansion valve in case of power loss
- Stand-alone, with or without TCP-IP interface



Commercial Comfort

The **EX4 / EX5 / EX6** are stepper motor driven valves for precise control of refrigerant mass flow in systems with Copeland Scroll Digital™

Features:

- Ceramic slide and port for highly accurate flow and minimal wear
 - Life expectancy more than 10.000.000.000 pulses
- Fast opening/closing time suitable for digital control compressors
 - Full travel time of 1.5 seconds ensures fast reaction time during 10% partial load performance of digital scroll (2 seconds)
- Offering as package solution with driver and sensor
- Application: Compact system with single evaporator in conjunction with Scroll Digital
- Positive shut-off function to eliminate the need for additional solenoid valve



Emerson FX are stepper motor driven electronic expansion valves for precise control of refrigerant mass flow in air conditioning, heat pumps, close control, and industrial process cooling applications.

Features:

- Ideal solution for commercial air conditioning and heating
 - Offering: As package with controller and sensors **or** valve only for OEM's with own/third party electronic system solution
- Flexible in mounting, variable configurations
- High reliability: Direct coupling of motor and valve, no gear mechanism
- Capacity range: 60-1100 kW, R410A; 39-1700 kW, R134a
- Maximum working pressure 45bar (FX5-8); 35 bar FX9



Commercial Comfort

The **EXD-SH1/2** are designed for precise control of the superheat and drive the FX valves series.

Features:

- Self adapting superheat/economizer control
- EXD-SH1 for one valve
- EXD-SH2 for two valves in independent refrigerant circuits
- Modbus communication
- Integrated keyboard with two line display



EC3-D72/D73 is a superheat controller with patented gated logic superheat control in conjunction with Copeland Scroll Digital™ for compact, single evaporator systems.

Features:

- Patented self-adapting gated logic algorithm
- Only for EX4-6 expansion valves series
- Integral rechargeable battery to close electrical control valve in case of power loss
- Communication with or without TCP-IP



Residential Comfort

EXM/EXL Unipolar stepper motor driven electronic expansion valves are for precise control of refrigerant mass flow in heat pumps.

Features:

- Hermetic design
- Capacity range: 1.8-23 kW, R410A
- Bi-flow, same capacity in normal and reverse flow direction
- High MOPD: 40 bar in normal flow direction
- Removable coils in two versions: 12V DC / 24V DC
- Reliability: 225 million pulses at 40 bar differential pressure
- Meets the Copeland Heating Scroll EVI performance requirements (-10°C/+68°C, R410A)



The **EXD-HP1/2** are designed for precise control of superheat of the main evaporator and/or economizer control for heat pumps.

Features:

- Self-adapting superheat/economizer control including compressor hot gas temperature control by wet vapor injection
- Only for EXM/EXL series electronic expansion valves
- EXD-HP1: For one valve
 - Superheat control or economizer control
- EXD-HP2: For two valves in independent refrigerant circuits
 - Superheat control for two valves **or** one valve superheat control, second valve economizer control
- Modbus communication
- Offering as a package with pressure transmitter (PT5) and temperature sensor (ECN-P)



Emerson Climate Technologies Controls Navigator

Discover our new Controls Navigator tool. Easily and quickly find the right solution for your requirements, including all related accessories and part code numbers.

Medium Temperature Refrigeration

Low Temperature Refrigeration

Controls Navigator

Residential Comfort

Commercial Comfort

DEC---EN-1508

For more details, see www.emersonclimate.eu

Emerson Climate Technologies - European Headquarters - Pascalstrasse 65 - 52076 Aachen, Germany
Tel. +49 (0) 2408 929 0 - Fax: +49 (0) 2408 929 570 - Internet: www.emersonclimate.eu

The Emerson Climate Technologies logo is a trademark and service mark of Emerson Electric Co. Emerson Climate Technologies Inc. is a subsidiary of Emerson Electric Co. Copeland is a registered trademark and Copeland Scroll is a trademark of Emerson Climate Technologies Inc.. All other trademarks are property of their respective owners. Emerson Climate Technologies GmbH shall not be liable for errors in the stated capacities, dimensions, etc., as well as typographic errors. Products, specifications, designs and technical data contained in this document are subject to modification by us without prior notice. Illustrations are not binding.
© 2015 Emerson Climate Technologies, Inc.

EMERSON
Climate Technologies

EMERSON. CONSIDER IT SOLVED.™