EXD-TEVI Economizer Controller for Tandem Compressors

EXD-TEVI is a stand-alone controller for enhanced wet vapor injection for Copeland Scroll™ tandem compressors in heating applications.

Features EXD-TEVI

- Emerson solution for specified operating map of tandem scroll
- Two EXL valves can be driven in parallel for required wide injection capacity
- Input signals: Injection (intermediate) pressure and temperature sensor as well as two compressor discharge temperature sensors
- Two independent digital inputs for recognition of tandem compressors operation
- High discharge temperature alarm
- Monitoring of sensors and sensor wiring and detection of sensor wiring failures
- Controllers as slave with Modbus (RTU) communication capability
- Upload/download key (accessory) allows to copy parameter settings from one controller to others
- Integrated $3^1/2$ digit 7-segment display with 6 indicator LEDs
- Electrical connection via plug-in type screw terminals (included with controller)

EXD-TEVI

Selection Table

Type	Description	Part No.	
		Multipack	Single pack
Controller			
EXD-TEVI	Controller with connectors	807838M	807838
Temperature Sensors: ECN			
ECN-N30	Temperature sensor with 3 m cable	-	804496
ECN-N60	Temperature sensor with 6 m cable	-	804497
Pressure transmitters: PT5			
PT5-30M	Sensing pressure range 0...30 bar (7/16-20UNF connection)	802352M	802352
PT5-30T	Sensing pressure range 0...30 bar (Brazing connection)	802382M	802382
Plug and cable assembly for pressure transmitters			
PT4-M15	1.5 m cable	804803M	804803
PT4-M30	3 m cable	804804M	804804
Electronic expansion valve with coils			
EXL-B1F	Valve body	800405M	-
EXL-B1G		800406M	-
EXL-125	coil for EXL 12VDC	800407M	-

Technical Data

Supply Voltage	24VAC/DC ±10%
Power Consumption	EXD-TEVI: Max. 20 VA
Digital Inputs	2 (Potential Free)
Relay Output (Alarm)	SPDT, with AgSnO Contacts Inductive (AC15) 24V AC: 1 A Resistive: 24 V AC/DC: 4 A
Plug-In Connector Size	Removable Screw Version Wire Size 0.14 ... 1.5mm^2

Protection Class	IP 20
Mounting	DIN Rail Mounted
Marking	CE

Technical Data: Sensors

Description	Specification
Temperature Sensors	1 x 10k NTC for Injection Line Temperature (ECN-N30 / ECN-N60) 2 x 86k NTC for Discharge Gas Temperature (Part of Compressor Delivery)
Pressure Transmitter EVI	PT5-30M/T: 4...20 mA (Range: 0...30 Bar)

Universal Driver Modules Series EXD-U02

Stepper motor valve driver specifically designed for the Emerson EX and CX Series of electrical control valves in applications such as:

- Capacity control by means of hot gas bypass
- Evaporating pressure regulator or crankcase pressure regulator
- Hot gas flow such as heat reclaim
- Condensing pressure regulation and liquid duty
- Refrigerant mass flow control in CO_2 transcritical systems

EXD-U01

Features

- Plug and play, no parameter setting
- Valve opening proportional to 4...20mA or 0...10V analogue input signal
- Digital input can be used to force valve closing
- Easy configurable by Dip-switches
- Easy wiring
- Fully tested and ready for operation

Options

- Uninterruptible Power Supply ECP-024 to automatically close valve after power down

Selection Table

Type	Part No.	Description
EXD-U02	804750	Universal Driver Module
EXD-U01 Contr. Kit	808052	Universal Driver Module with Terminal Kit
K09-U00	804559	Terminal Kit for EXD-U01

* Controller Kit contains terminal kit

K09-U00

ECP-024

ECP-024

Accessories

Type	Part No.	Description
ECP-024	804558	Uninterruptible power supply for up to 2 drive modules
K09-P00	804560	Electrical terminal kit for ECP-024
ECT-323	804424	Transformer 25VA
ECT-623	804421	Transformer 60 VA 24V/230V AC – DIN-rail mounting

ECT-323

ECT-323

Function

The driver module EXD-U02 requires an analog input signal of 4...20 mA or 0...10 V. The output is the closing/opening of EX/CX valve series and consequently the control of liquid or vapor refrigerant mass flow in accordance with the analog input. The universal driver module can be connected to any controller which can provide a 4...20 mA or 0...10 V analog signal. This gives extreme flexibility to system manufacturers to use any desired controller and achieve different functionalities. The universal driver module keeps the valve at fully close position when the input signal is 4 mA or 0 V. The valve will be fully open at 20 mA or 10 V.

Optional uninterruptible power supply ECP-024

The optional uninterruptible power supply ECP-024 contains a rechargeable lead-acid battery, which provides enough energy to close the valve in case of power loss. ECP-024 can be connected to two EXD-U01 Driver Modules for closure of up to two valves.

Technical Data

Supply Voltage	24 VAC ±10%, 50-60 Hz **Note**: 24 VDC supply voltage can be used but it results to lower MOPD and it needs to be verified by system manufacture.
Supply current	to be protected by a 1.0 A external fuse
Power consumption	10 VA in conjunction with EXV
Protection Class	IP20
Weight	~ 800 g
Marking	CE

Analog input signal Burden	4-20 mA 364 Ω
Analog input signal Impedance	0-10 V 27 kΩ
Digital input	24 VAC ±10%, 50-60 Hz 24 VDC ±10%
Connector	Screw terminals for wire size 0.5-2.5 mm²
Mounting	DIN rail mounted
Housing	Aluminum

Optional Uninterruptible Power Supply ECP-024

Backup battery type	Lead acid gel rechargeable battery
Number of backup batteries	2, each 12 VDC, 0.8 Ah
Supply voltage	24 VAC ±10%, 50-60Hz
Output voltage, UB	18 VDC
Number of outputs to drivers	2
Marking	CE

Connection	Screw terminals for wire size 0.5-2.5 mm²
Mounting	DIN rail mounted
Protection class	IP20
Housing	Aluminum