




Product material compatible with R290 only for Non explosive environment

Content	Page
Products	
Superheat Controllers EC3-P32* / EC3-P33* and ECD-002*	
Technical Bulletin	46
Oil Management/ Special Version of OM3*	
Technical Bulletin	49
Compressor Soft Starter CSS*	
Technical Bulletin	51

 *) These devices have potential ignition source and do not comply with ATEX requirements. Installation only in "non explosive location".

EC3-P32 / -P33 are stand-alone universal superheat controllers.

EC3-P32 offers remote access with built-in TCP/IP Ethernet communications and WebServer functionality. Any standard WebBrowser (e.g. Internet Explorer® or Mozilla Firefox) can be used for monitoring or parameter setting. EC3-P33 has no network communication.

Features EC3-P33 / EC3-P32

- Superheat control in conjunction with Emerson stepper motor driven Electrical Control Valves EX4-7...-FLR
- Selectable refrigerants: R290, R1234Ze, R1234yf, R32, R1270 (The valves compatibility release for R290 and R32 for time being)
- Low superheat alarm and MOP function
- Feed through of 4...20 mA signal from evaporator pressure sensor to analogue output. This may also be connected to pressure input of any other controller to avoid need for multiple pressure sensors
- Monitoring of sensors and sensor wiring and detection of sensor and wiring failures
- Intelligent alarm management in order to protect the compressor i.e. fail safe operation
- Integral rechargeable battery to close electrical control valve in case of power loss
- Electrical connection via plug-in type screw terminals
- Aluminum housing for DIN rail mounting



EC3-P32



EC3-P33 with ECD-002

Additional Features EC3-P32 only

- High superheat alarm
- Low pressure switch function/alarm
- Freeze protection function/alarm
- Pump down function

Selection Table

Description	Type	Part No.
Superheat Controller	EC3-P33	807858
Terminal kit EC3-P33	K03-X33	807645
Display / keypad unit (opt.)	ECD-002	807657
Superheat Controller	EC3-P32	807857
Terminal kit EC3-P32	K03-X32	807644

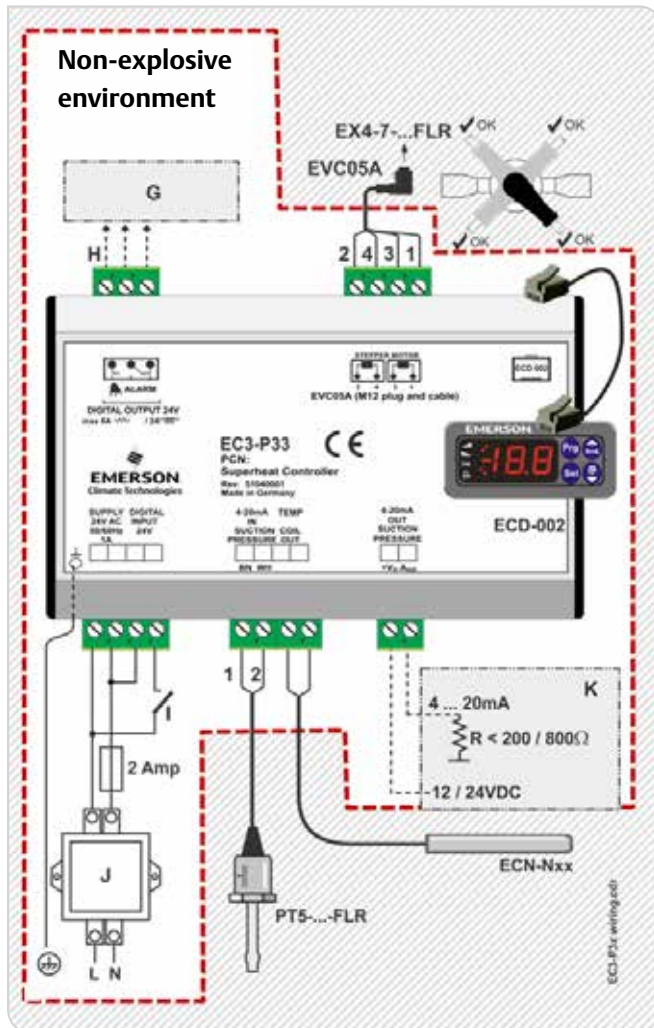
⚠ These devices have potential ignition source and do not comply with ATEX requirements. Installation only in "non explosive location".

Selection Table Accessories

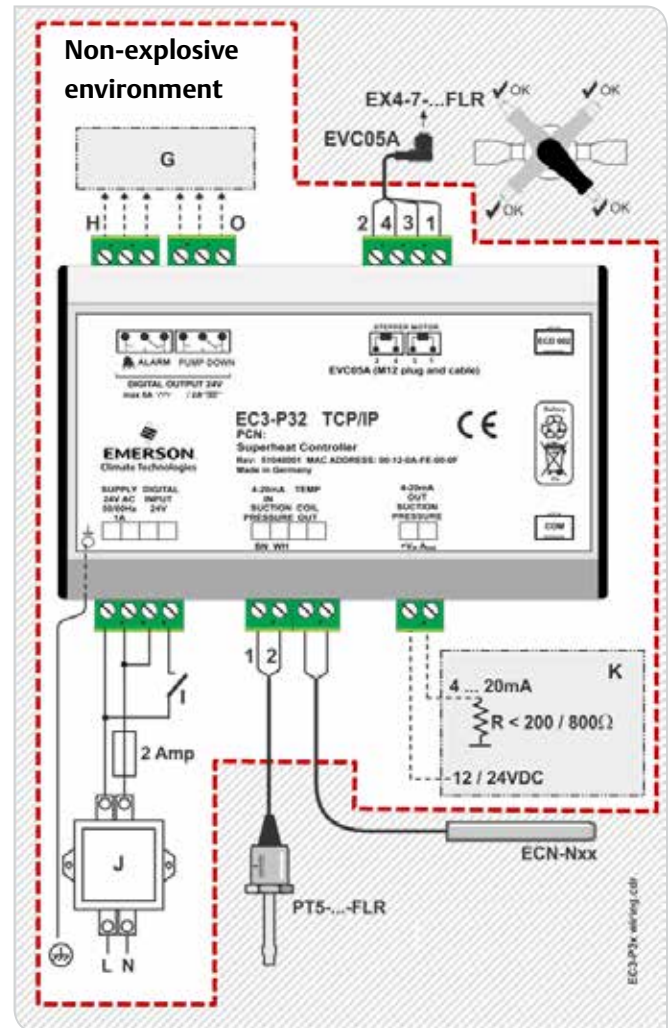
Description	Type	Part no.
Temperature sensor	Cable length 3.0 m	ECN-N30 804496
	Cable length 6.0 m	ECN-N60 804497
	Cable length 12.0 m	ECN-N99 804499
Pressure transmitter	0...30 bar	PT5-30L FLR 802389M

Wiring Diagram

EC3-P33



EC3-P32



- 2: White 4: Black 3: Blue 1: Brown wire
- G: Remote control panel, system controller
- H: Alarm relay, dry contact; Relay coil is not energized at alarm condition or power off
- ⚠ The use of the relay is essential to protect the system in case of power failure if the communications interface or the ECD-002 are not utilized.
- I: Digital input (0V/open = Stop; 24V/closed = Start)
- J: Transformer Class II, 24VAC secondary / 25VA
- K: Third party controller (can use analog output signal of EC3)
- O: Pump down relay, dry contact; Relay is energized during normal operation.

Note: The internal resistor of a third party controller must fulfill the following conditions:

- Supply voltage 12VDC: $R \leq 200\Omega$
- Supply voltage 24VDC: $R \leq 800\Omega$

Network Connection EC3-P32 only



Technical Data

EC3-P32 / -P33

Supply voltage	24VAC ±10%, 50/60Hz
Digital input	24 V AC ±10%, 50-60HZ 24 V DC ±10%
Power consumption	25VA max. including connected ECV and display / keyboard
Internal battery charging time	Approximately 2 hours if battery is fully empty
Plug-in connector size	Removable screw version wire size 0.14...1.5 mm ²
Ground connection	6.3 mm spade earth connector
Marking	CE
Protection class	IP 20 (DIN EN60529)
Vibration	4 g, 10-1000 Hz
Temperature storage	-20...+65°C
Temperature operating	0...+60°C 1...+25°C for optimum battery life
Applied detective	
EMC	EN 61326, EN 50081, EN 61000-6-2,
LVD	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,
ROHS	EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
Humidity	0...80% r.h. non condensing
Weight	~ 800 g
Mounting	DIN rail mounted



ECD-002

ECD-002 Display Unit

Supply	From EC3 Series Controller via connecting cable
LED indicators	Valve opening, valve closing, alarm, demand
Display LED	Numeric segmental display. 2½-digits, red, with automatic decimal point between ±19.9, switchable between °C and °F
Connecting cable	ECC-Nxx or standard CAT5 patch cord with RJ45 connectors
Temperature storage operating	-20...+65°C 0...+60°C
Humidity	0...80% r.h. non condensing
Protection class (DIN EN 60529)	IP65 (mounting in front panel with gasket)
Weight	~ 52 g
Mounting	Panel mount (71 x 29 mm cutout)

⚠ These devices have potential ignition source and do not comply with ATEX requirements. Installation only in "non explosive location".

The OM3-020P TraxOil oil management is a self-contained system which provides both functions of oil level monitoring and active oil level balancing including alarm relay activation for compressor protection

Features

- Supply 24VAC or 230VAC
- 3 Zone Level Control by using precise Hall-Sensor measurement, not prone to errors by foaming or light like optical sensors
- SPDT output contact for compressor shut down or alarming, rating 230VAC / 3A
- Easy installation by sight-glass replacement and front side mounting without nuts
- Self-contained unit with oil level sensor and integral solenoid to manage oil level supply
- Alarm, status and level indication by LED's
- Braze adapter suitable for Copeland Compressors
- Recommended by leading compressor manufacturers
- Adapter with brazing connection for Copeland Compressors



OM3-020P TraxOil with ASC3 Coil

Selection Table

1. Type main body	Description	Part no.	2. Type braze adapter	Description	Part no.
OM3-020P		805270	OM0-CCP	22.5 mm	805260

Other Required Parts

Supply voltage 24V			Supply voltage 230V		
3. Solenoid Coil			3. Solenoid Coil		
Type	Part no.		Type	Part no.	
ASC3-24VAC	801079	50 HZ, 15 VA	ASC3-230VAC	801077	50 Hz, 15 VA
4. Cable Assembly Power Supply and Solenoid			4. Cable Assembly with 230V module		
OM3-P30	805151	24V, 3 m	OM-230V-3	805161	230V, 3 m
OM3-P60	805152	24V, 6 m	OM-230V-6	805162	230V, 6 m
OM3-P100	805153	24V, 10 m			

⚠️ These devices have potential ignition source and do not comply with ATEX requirements. Installation only in "non explosive location". OM3-020P has special O-rings released for propane, installation in combination with OM0-CCP brazing adapter only.

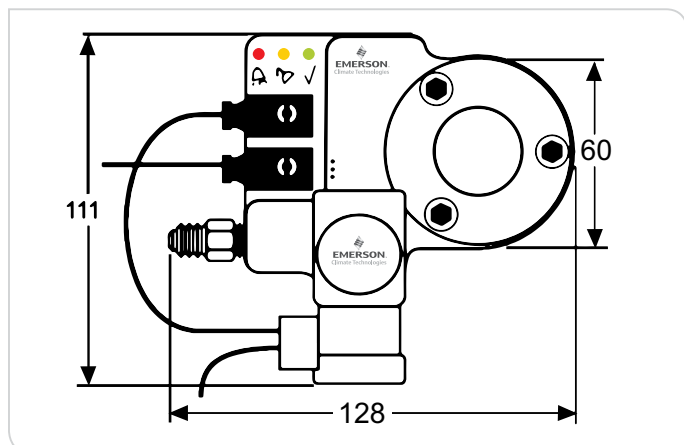
Technical Data

Markings:	CE under: Low Voltage Directive 2006/95/EC. EMC Directive 89/336/EC EAC
Applied Standards:	EN 12284, EN 378, EN 61010, EN 50081-1, EN 50082-1
Max. working pressure PS:	35 bar
Max. test pressure PT:	39 bar
Burst Pressure:	175 bar
Supply voltage / total power:	
OM3/4 with 24VAC ASC3 coil	24VAC, 50 Hz, +10/-15%, 17VA
OM3/4 with OM-230V-x module	230VAC, 50 Hz, 17VA
Solenoid valve MOPD	21 bar
Vibration resistance (EN60068-2-6)	max. 4 g, 10...250 Hz
Medium temperature	-20...+80°C
Ambient/Storage temperature	-20...+50°C
Medium compatibility	R290

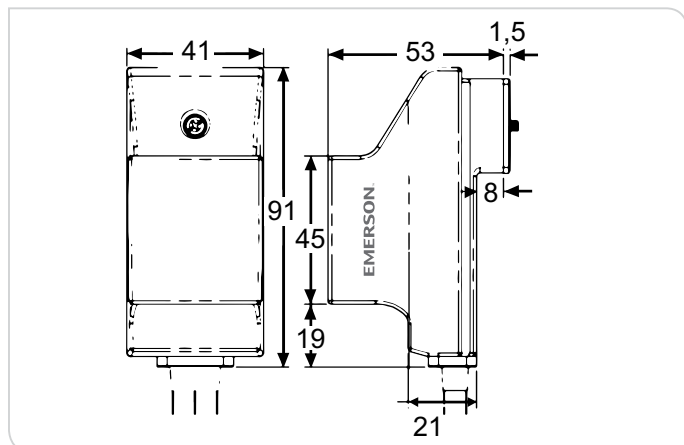
Materials:	
Body and Adapter	Aluminum (EN AW 6060)
Screws	Stainless Steel (ISO 4762)
Sight Glass	Nickel-plated Steel (ISO 2081)
Flow rate at $\Delta P = 3.5$ bar	0.9 ltr/min. water at 20°C ambient
Orientation of base unit:	Horizontal, +/- 1°
Level control:	40%...60% of sight glass height
Alarm contact:	max. 3A, 230VAC SPDT dry contact
Time Delay Alarm:	20 sec.
Time Delay Filling:	10 sec.
Protection class	IP65 (IEC529/EN 60529)
Weight:	
24V System	750...920 g incl. adapter
230V System	1100...1270 g incl. adapter
Oil connection	7/16"-20 UNF male. with strainer and O-ring (replaceable. see acc.)

Dimensions [mm]

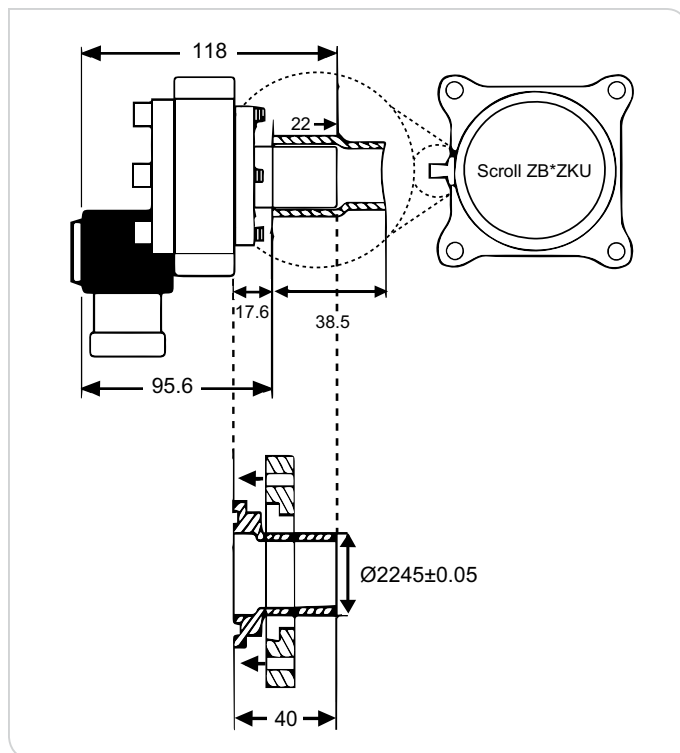
Base Unit with Adapter and Coil ASC3



OM-230V-x Module



Adapter OM0-CCP



The first VDE certified **Compressor Soft Starter** for safety of household. It is used for switching, protection and starting current limitation of single phase compressors in residential heat pumps, refrigeration and air-conditioning applications.

Features

- For motors with maximum operating current up to 25A / 32A
- Limitation of starting current to less than 45A; PCN 805209 less than 30A
- Self adjusting for use in 50 Hz or 60 Hz supply
- Self adjusting to motor current - no manual adjustment or calibration necessary
- Alarm relay output
- Start capacitor for improved motor acceleration is switched off after start
- Low voltage shutdown
- Locked rotor recognition and shutdown
- Delay function to limit number of motor starts per hour
- Thyristor protected contactor for long life
- No extra motor contactor needed
- Self diagnostics
- Mounting clip for easy installation allows DIN rail mounting in two directions
- Easy wiring by cage type screw terminals
 CSS-...U: 4mm² cross section terminals
 CSS-...W: 6mm² cross section terminals



CSS-32U Soft Starter



CSS-32W Soft Starter

Selection Table

Type	Part no.	Description	Screw terminals	Nom. compr. current	Max. start current
CSS-32U	805204	Compressor Soft Starter incl. mounting clip and operating manual	4 mm ²	32A max	45 A
CSS-32U	805204M	Box with 20 pieces. mounting clips and one operating manual	4 mm ²	32A max	45 A
CSS-32W	805211	Compressor Soft Starter incl. mounting clip and operating manual	6 mm ²	32A max	45 A
CSS-32W	805211M	Box with 20 pieces. mounting clips and one operating manual	6 mm ²	32A max	45 A
CSS-25U	805205	Compressor Soft Starter incl. mounting clip and operating manual	4 mm ²	25A max	45 A
CSS-25U	805205M	Box with 20 pieces. mounting clips and one operating manual	4 mm ²	25A max	45 A
CSS-25U	805209	Compressor Soft Starter Im30 incl. mounting clip and operating manual	4 mm ²	25A max	30 A
CSS-25U	805209M	Box with 20 pieces. mounting clips and one operating manual	4 mm ²	25A max	30 A

⚠️ These devices have potential ignition source and do not comply with ATEX requirements. Installation only in "non explosive location".

Accessory

Type	Part no.	Description
K00-003	807663	3-pol screw connector to alarm output for wires up to 2.5 mm ² ; bag with 50 pieces

Technical Data

Operating voltage	230V 50 / 60 Hz nominal	Alarm relay. AgNi (SPDT)	250V~ / 3A
Nominal compressor current	CSS-32U / -32W : 32A max. CSS-25U : 25A max.	Resistive (AC1) max.	30V= / 3A
Maximum start current	CSS-32U / -32W : 45A CSS-25U (805 205) : 45A CSS-25U (805 209) : 30A	Flexible cable cross section CSS-32U/-25U all terminals	0.25...4 mm ²
Operating temperature	-20...+55°C non condensing	CSS-32W (R, RC, L terminals)	0.25...6 mm ²
Storage temperature	-20...+65°C non condensing	Flexible cable cross section alarm output connector K00-003	0.25...2.5 mm ²
Start capacitor	200...240 uF	Max. vibration (at 10 to 1000 Hz)	4 g
Time delay after stop	0.5...5 Min	Weight	430 g
		Protection acc. IEC 529	IP20

Standards

EN 60947-1	Low voltage switch gear and control gear	EN 60335-1	Safety of household and similar electrical appliances -
EN 60947-4-2	Contactors and motor-starters - AC semiconductor motor controllers and starters	EN 60335-2-40	Part 2-40 Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
EMC 2004/108/EC	Electromagnetic Compatibility (EMC) Directive	ROHS 2002/95/EC	Restriction of Hazardous Substances Directive
LVD 2006/95/EC	Low Voltage Directive	Marking	CE, VDE Reg.-Nr. D967 / D663

Dimensions [mm]

