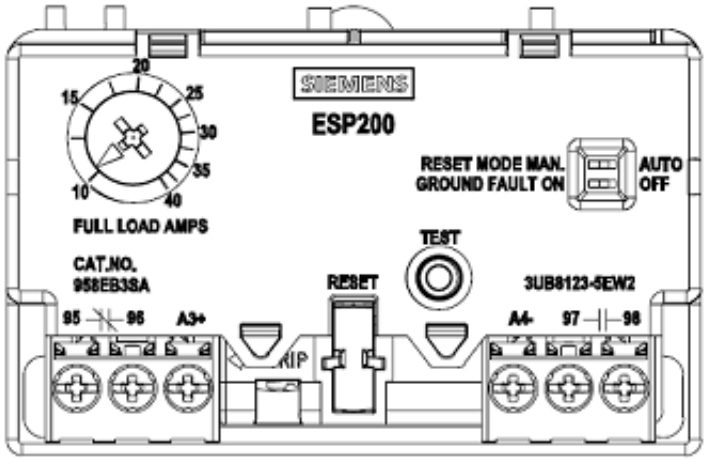
Engineering Bulletin

Siemens ESP200 Overload



⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

June 2012

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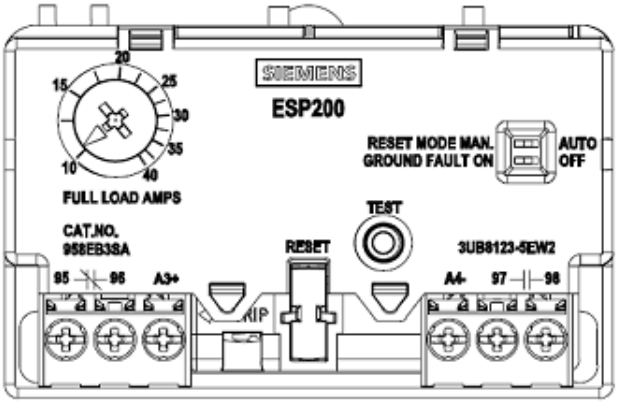
Introduction

Important: *Distribution/use of this literature is limited to OEM customers and is not intended for use by the Trane sales and service organization.*

The current Trane overload Siemens series ESP100 is being replaced by a new Siemens Series ESP200 overload. This bulletin provides information for the changeover. This overload information applies only to Trane CSHA compressors sold as OEM compressors. It does not apply to compressors applied in Trane equipment.

Figure 1. Siemens ESP200 Overload



Affected Part Numbers

Figure 1, p. 3 provides the current part number and its new replacement part number. Because the new overload has a 4:1 adjustment range, two overloads now replace the four overloads presently being used.

Table 1. Present and new overload part numbers

Present Trane Part Number Series ESP100	Amp Adjustment Range	New Trane Part Number Series ESP200	Amp Adjustment Range
X13280089010	15–30	RLY03245	10–40
X13280089020	22–44	RLY03245	10–40
X13280090010	33–66	RLY03246	25–100
X13280090020	50–100	RLY03246	25–100

Table 2. Overload part number cross reference

Present ESP100 Overload		New ESP200 Overload	
Trane Part Number	Siemens Part Number	Trane Part Number	Siemens Part Number
X13280089010	958L109440U	RLY03245	958EB3SAX683
X13280089020	958L109441U		
X13280090010	3UB85335GW2		3UB85335GW2
X13280090020	3UB85335GW2	RLY03246	

Table 3. Feature comparison

Siemens Series	ESP100	ESP200
Trane Part Number	P/N X1328*******	RLY03245 and RLY03246
UL File Number	E22655	E44653
Self Powered	Yes	Yes
Overload trip curve	A[(a)]	A(a)
Trip Point	112% above set point	112% above set point
Phase Loss	Yes	Yes
Adjustable	Yes	Yes
Tamper proof cover	Yes	No
Visual trip indicator	Yes	Yes
Push to test	Yes	Yes
50- and 60-cycle operation	Yes	Yes
Auxiliary contact connections	1/4-inch male quick connect	Screw
Auxiliary contacts	1 NC	1 NC and 1 NO
Auxiliary contact rating	A600 120 volt 6 amps 240 volt 3 amps <120 volts 10 amps max	B600 120 volt 3 amps 240 volt 1.6 amps <120 volts 5 amps max
Requires auxiliary relay	Yes—if load exceeds Auxiliary contact rating	Yes—if load exceeds Auxiliary contact rating
Selectable Manual—Auto reset	No	Yes—Must be set to Manual
Ground Fault	No	Yes Set to “On”
DIN Rail Mounting	No	Yes
Remote Reset	No	Yes—24 Vdc control required

Table 3. Feature comparison (continued)

Siemens Series	ESP100	ESP200
Temperature operation range	-30°C to 70°C (-22°F to 159°F)	-25°C to 60°C (-13°F to 140°F)
Instructions ship with each overload	Yes	Yes

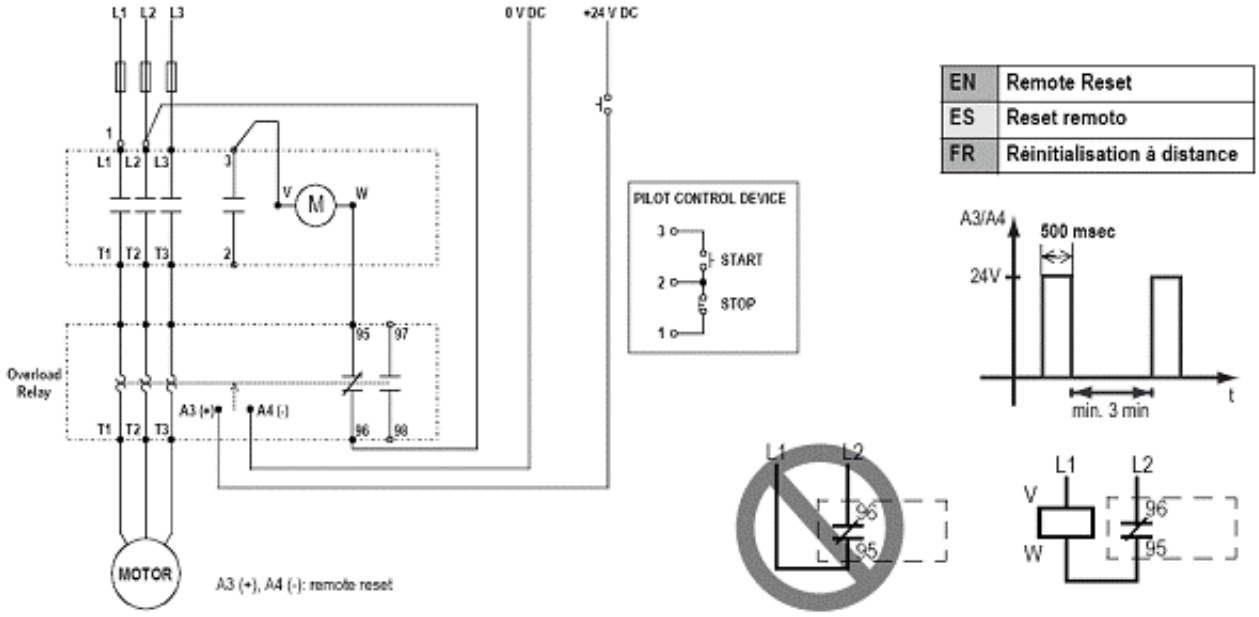
(a) The trip curve for the new overload remains the same. It is the "A" Trip curve, which is a trip curve specifically for refrigerant cooled hermetic compressor motors. It is quicker than most overloads, which reduces the chance of severe motor burns in the event of an overload condition.

Ground Fault Protection

Although the ESP has a ground fault protection feature, it is not intended to replace the fusing or circuit breakers for protection of the compressor. The ground fault is for equipment protection and not intended for personnel protection. It is meant to protect against high resistance short circuits or ground faults due to moisture condensation, insulation damage or other reasons.

Wiring

Figure 2. Typical wiring



Wiring is shown is typical.

Wiring diagrams shows contacts wired to line voltage, but control voltage is acceptable as well. Refer to contact ratings in Table 2, p. 3. If the contact rating is exceeded, a separate control relay may be required.

Remote reset is available using 24 Vdc as shown.

Table 4. Dimensions

Part Number	X13280089	X13280090	RLY03245	RLY03246
Height (in.)	2.76	2.83	2.32	2.31
Width (in.)	3.53	4.5	3.53	4.49
Depth (in.)	2.96	3.38	3.15	3.95
Max Gauge Wire Size	4 AWG	4/0	4 AWG	250 MCM

Demo Link

This link provides a demonstration of the features of the ESP200 series overload:

http://cmsapps.sea.siemens.com/controls/nema/esp200_demo.html

Not all of the features in the demo are available on the Trane-specific overload. Differences between the demonstration overload and the Trane overload:

1. Since it has a Trip Curve A, Trip Class Selection is not available.
2. Phase Unbalance is not applicable to the Trane-specific overload.
3. Phase Loss is part of the Trane-specific overload

Compressor Overload Cross Reference

The Table 5, p. 5 lists the selection for each compressor using the new Siemens series ESP200 overload.

Table 5. Overloads by compressor model

			Trane Part Number	
Compressor Model	**Voltage**	**Overload Setting**	**ESP100 Model**	**ESP200 Model**
CSHA093/100A	200-60-3	53	X13280090010	RLY03246
CSHA093/100R	208-230/60/3	52	X13280090010	RLY03246
CSHA093/100K	460-60-3	23	X13280089010	RLY03245
CSHA093/100K	400-50-3	22	X13280089010	RLY03245
CSHA093/100D	575-60-3	18	X13280089010	RLY03245
CSHA093/100X	380-60-3	28	X13280089010	RLY03245
CSHA093/100F	220-50-3	40	X13280089020	RLY03246
CSHA093/100V	346-50-3	25	X13280089010	RLY03245
CSHA093/100Y	200-50-3	45	X13280089020	RLY03246
CSHA125 A	200-60-3	60	X13280090020	RLY03246
CSHA125 R	208-230/60/3	58	X13280090020	RLY03246
CSHA125 K	460-60-3	26	X13280089020	RLY03245
CSHA125 K	400-50-3	25	X13280089020	RLY03245
CSHA125 D	575-60-3	21	X13280089010	RLY03245
CSHA125 X	380-60-3	32	X13280089020	RLY03245
CSHA125 F	220-50-3	46	X13280090010	RLY03246
CSHA125 V	346-50-3	29	X13280089020	RLY03245
CSHA140/150A	200-60-3	79	X13280090020	RLY03246
CSHA140/150R	208-230/60/3	77	X13280090020	RLY03246
CSHA140/150K	460-60-3	34	X13280089020	RLY03245
CSHA140/150K	400-50-3	33	X13280089020	RLY03245
CSHA140/150D	575-60-3	27	X13280089010	RLY03245
CSHA140/150X	380-60-3	41	X13280089020	RLY03246
CSHA140/150F	220-50-3	61	X13280090010	RLY03246
CSHA140/150V	346-50-3	38	X13280089020	RLY03246

Phase In/Phase Out

We will continue to ship the existing ESP100 until they are no longer available, at which time we will switch over to the new series ESP200. If the number of overloads required exceeds the number of ESP100 overloads available for a specific order, we will only ship ESP200 so that there is not a mix of ESP100 and ESP200 on the same order.

If you have any questions, please contact the Trane OEM Compressor Group at 800-755-5678.

Dimensions

Table 6. Dimensions by frame size (See Figure 3, p. 6 and Figure 4, p. 7)

Frame Size		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T
A1	in.	3.15	0.5	1.10	1.77	1.37	0.77	1.93	0.42	0.09	3.15	2.12	2.20	3.53	0.40	0.42	0.34	0.51	—	0.21
	mm	80	12.6	28	44.85	34.9	19.6	48.95	10.7	2.3	80	53.9	55.9	89.7	10.18	10.77	8.62	12.9	—	5.2
B	in.	3.95	0.34	1.28	1.77	0.93	1.32	1.82	0.43	0.09	4.12	2.31	1.97	4.49	0.19	0.93	0.83	1.07	0.1	0.21
	mm	100.4	8.6	32.6	44.85	23.5	33.5	46.23	10.9	2.4	104.6	58.6	50	114	4.7	23.6	21.1	27.1	2.45	5.2

Figure 3. RLY03245—Frame size A1 (See Table 6, p. 6)

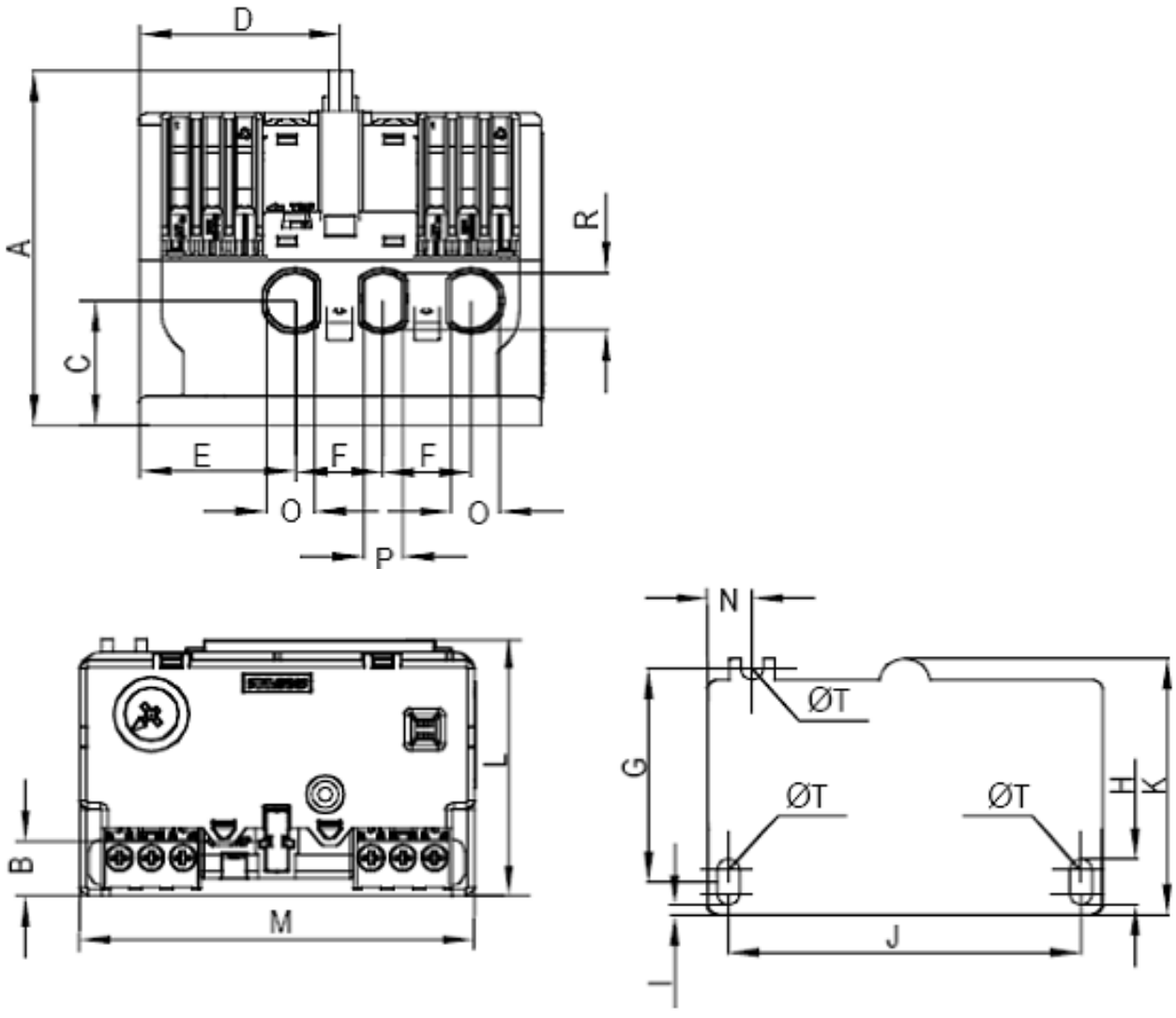
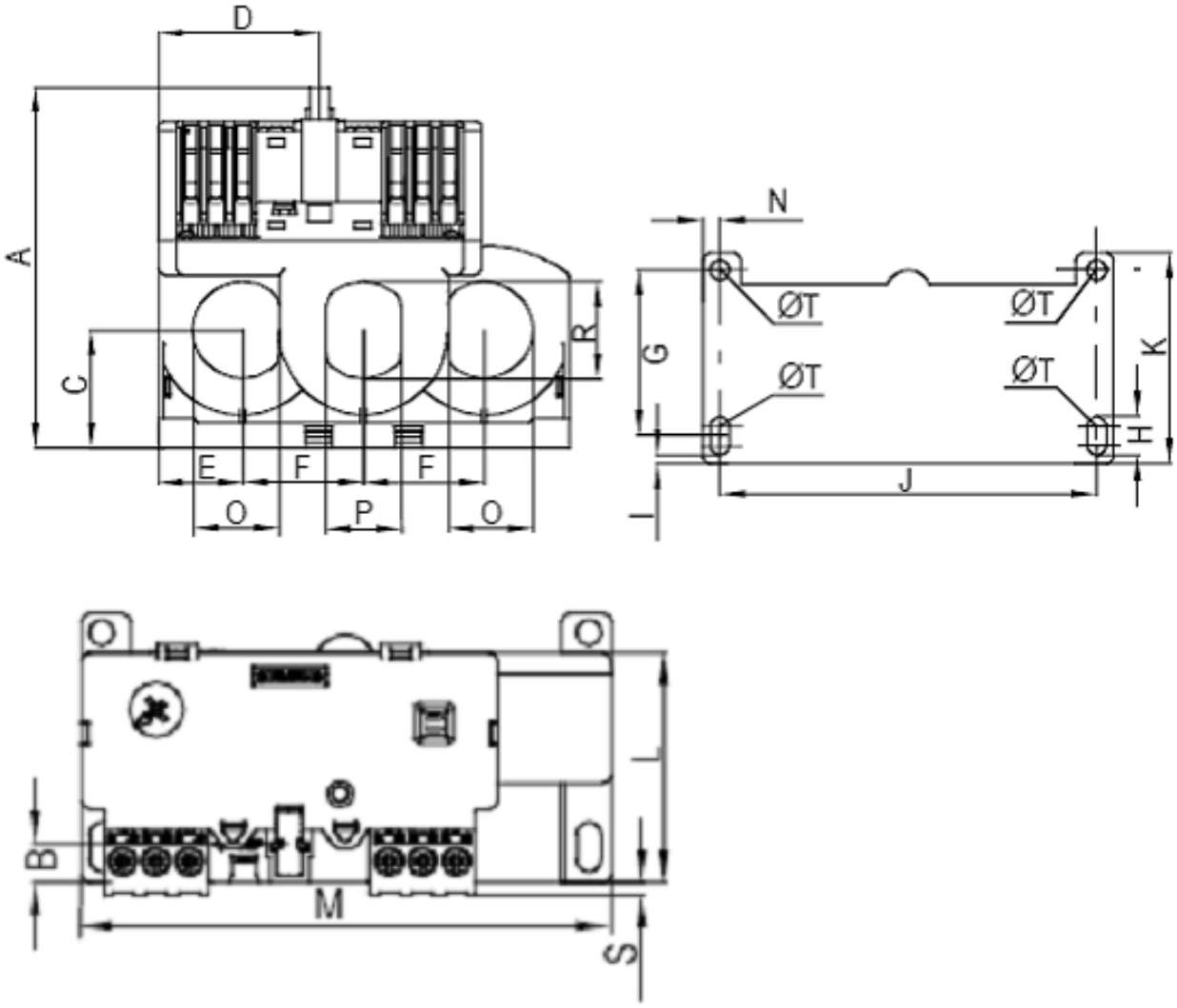


Figure 4. RLY03246—Frame size B (See Table 6, p. 6)



Note: *The dimensions for the mounting locations between the old ESP 100 and the new ESP 200 are the same.*

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