

Features

■ Solid State ESP100, 958 & 958L Overloads

- Phase Loss Protection—Trips Within 3 Seconds
- Ambient Insensitive
- Heaterless Design
- Self-Powered
- ± 2% Repeat Trip Accuracy
- NEMA Class 10, 20 & 30 Trip Curves Available
- FLA Adjustment Dial with Wide Adjustment Range (Fig. 1)
- Short Circuit Self Protected
- Thermal Memory Circuit
- Conformally Coated Circuit Board
- 22°F to 159°F (-30°C to 70°C)
- NC Contact Rated NEMA A600, P600 (10 Amps 600VAC Max., 5 Amps 600VDC Max.)
- “Must Hold Amps” Adjustment Dial (958 only)

■ Ambient Compensated Bimetal Overloads

- Automatic or manual reset adjustment.
- A manual test button is provided to test the operation of the 3 pole overload relay control contacts.
- ±15% nominal trip current adjustment.
- Accept either standard Class 20 or Quick Trip (NEMA Class 10) heater elements without any other changes or adjustments.
- Available with a normally open contact for an alarm circuit (SPDT) up to 60A.
- Compensated bimetal overload relays provide a constant trip time in ambient temperatures from -20°F to +170°F for a given heater rating.

■ UL Listed File #E22655 or Component Recognized

■ CSA Certified File #LR6535

■ 3RB10 Solid State Overload Relay

- Marking Strip.
- Manual/automatic RESET selector switch.
- STOP button.
- 1 NO and 1 NC contacts.
- Trip class 10 or 20.
- Test function and switch position indicator.
- 4:1 current adjustment dial e.g. 200-540A.
- Phase loss protection.
- Self-powered.

Application

ESP100 Solid State Overloads

ESP100 solid state overload relays are self powered, requiring no separate 120V source to power the circuit board. They provide phase loss protection, fewer connection points and high repeat trip accuracy which results in longer motor life and cost savings. NEMA Class 10, 20 and 30 trip curves are available for a variety of applications.

The ESP100 solid state overload provides phase loss protection for the motor by tripping within three seconds upon complete loss of one phase of a three phase motor branch circuit.

Each overload has at least a 2:1 current adjustment range with the adjustment dial reading out in full load amps. In addition to the markings on the dial there are audible clicks which allow for extremely fine tuning.

The heaterless construction of these overloads minimizes energy costs and the costs of cabinet ventilation or cooling. Solid state overloads can be used at temperatures from -30°C to +70°C and are rated for 50Hz and 60Hz applications.

ESP100 panel mounted overloads can be used to upgrade existing starter applications where panel mounted thermal overloads are used. In addition, ESP100 overloads can be panel mounted when used with other types of controllers, such as DP, IEC contactors, and soft starts.

ESP100 overloads can be used on high voltage applications, making them ideal for use with vacuum contactors and other high voltage control.

ESP100 overloads can be retrofitted on existing contactors using the retrofit plate suffixes or on other brands using the plates listed in the competitive retrofit plates table on page 6/46.

958 ESP100 Special Use Solid State Overloads

958 ESP100 special use solid state overloads provide excellent protection of hermetically sealed compressors and artificially cooled motors which require ambient

insensitivity and quick trip response times. Combined with a series lockout relay, they can provide unsurpassed protection for hermetically sealed compressor motors in air conditioning applications. The combination of high trip speed, current adjustment, and ease of installation makes it suitable for these applications. The trip curves have been custom tailored to provide proper overload protection on such loads without causing nuisance tripping.

958 overload dials denote must hold amps. Must trip amps are 112% of the must hold setting.

958L ESP100 Oil Field Solid State Overload Relays

958L ESP100 solid state overloads are designed specifically for the oil market and the cyclical loads experienced with these types of pumping applications. These overloads provide protection on all standard motors, oil well pump motors, multi-torque connections, and ultra-high slip motors.

Rotors can be damaged in 8 to 15 seconds during motor stall conditions if electrical power is not removed. To prevent damage during motor stall, the 958L solid-state overload removes power in 7 seconds at 250% locked rotor current. Therefore, die cast or fabricated rotors will be protected from damage saving the user both time and money.

Ambient Compensated Bimetal Overloads

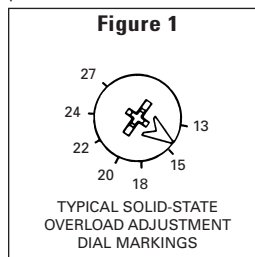
These thermal type overload relays are used to protect motors from excessive heat resulting from sustained motor overloads, rapid motor cycling and stalled rotor conditions. Although these devices function based on thermal principles they are designed to compensate for the ambient air temperature surrounding the overload. This helps prevent the occurrences of nuisance tripping when there are high surrounding ambient temperatures. The percentage of overload determines the length of time required to open the circuit.



ESP100 Solid State Overload



958 or 958L Solid State Overload






Ambient Compensated Bimetal—Single-Phase and Three-Phase

Overload Relays

Solid State and Thermal, Class 48, ESP100 and 3RB10

Selection

 <p>ESP100 Solid State Overload Relay</p>	 <p>Ambient Compensated Bimetal 3 Phase Overload Relay</p>	 <p>3RB10 Solid State Overload Relay</p>	<h3>Ordering Information</h3> <ul style="list-style-type: none"> ▶ For Thermal Overloads, order heater elements by code number at \$11.60 each. See page 15-137. ▶ Technical Data see www.sea.siemens.com/controls. ▶ Field Modification Kits see page 6/71. ▶ Dimensions see page 6/97. ▶ To retrofit existing Thermal Furnas Brand Starters with the ESP100 Solid State Overload Relay add the appropriate suffix to the end of the catalog number from the Retrofit Plates table shown below and also add \$12.80 to the list price. Example: 4BASE3M201P.
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Solid State—Class 48 ESP100, 3 Phase, Single Phase

Full Load Amp Current Range	Phase	Frame ^① Size	Manual Reset Class 10 Catalog No	Price \$	Manual Reset Class 20 Catalog No	Price \$	Manual Reset Class 30 Catalog No	Price \$
0.25-1	3	A	48ASA3M10		48ASA3M20		48ASA3M30	
0.75-3	3	A	48ASB3M10		48ASB3M20		48ASB3M30	
2.5-10	3	A	48ASD3M10		48ASD3M20		48ASD3M30	
9-18	3	A1	48ASE3M10		48ASE3M20		48ASE3M30	
13-27	3	A1	48ASF3M10		48ASF3M20		48ASF3M30	
20-40	3	A1	48AG3M10		48AG3M20		48AG3M30	
13-27	3	B	48BSF3M10		48BSF3M20		48BSF3M30	
22-45	3	B	48BSH3M10		48BSH3M20		48BSH3M30	
30-60	3	B	48BSJ3M10		48BSJ3M20		48BSJ3M30	
45-90	3	B	48BSK3M10		48BSK3M20		48BSK3M30	
57-115	3	B	48BSL3M10		48BSL3M20		48BSL3M30	
67-135	3	B	48BSM3M10		48BSM3M20		48BSM3M30	
81-162 ^②	3	B	48BSN3M10		48BSN3M20		48BSN3M30	
100-210 ^③	3	A	48ASS3M10		48ASS3M20		48ASS3M30	
100-270 ^③	3	A	48ASU3M10		48ASU3M20		48ASU3M30	
200-540 ^④	3	A	48ASX3M10		48ASX3M20		48ASX3M30	
420-1220 ^⑤	3	A	48CSZ3M10		48CSZ3M20		48CSZ3M30	
0.25-1	1	A	48ASA1M10		48ASA1M20		48ASA1M30	
0.75-3	1	A	48ASB1M10		48ASB1M20		48ASB1M30	
2.5-10	1	A	48ASD1M10		48ASD1M20		48ASD1M30	
5-16	1	A	48ASE1M10		48ASE1M20		48ASE1M30	

Solid State—3RB106, 3 Phase^⑥

For Contactor Size	Setting Range Amps	Manual/Automatic Reset			Manual Reset Only				
		Class 10 Catalog No.	Price \$	Class 20 Catalog No.	Price \$	Class 10 Catalog No.	Price \$	Class 20 Catalog No.	Price \$
5	55-250	3RB1066-1GG0 ^⑦		3RB1066-2GG0 ^⑦		3RB1065-1GG0 ^⑦		3RB1065-2GG0 ^⑦	
6	200-540	3RB1066-1KG0 ^⑦		3RB1066-2KG0 ^⑦		3RB1065-1KG0 ^⑦		3RB1065-2KG0 ^⑦	
	300-630	3RB1066-1LGO ^⑦		3RB1066-2LGO ^⑦		3RB1065-1LGO ^⑦		3RB1065-2LGO ^⑦	

Ambient Compensated Bimetal—Open Type Class 48 Single Phase, 3 Phase

Poles	Amp Rating	Auxiliary Contacts	Contact Rating	Catalog No	Price \$
1	25	1 NC	5A (B600)	48DA18AA4	
	60	1 NC	&	48GA18AA4	
	100	1 NC	5A (P300)	48HA18AA4	
	180	1 NC		48JA18AA4	
3	30	1 NC	10A (A600)	48DC38AA4	
	30	1 NO/NC	&	48DC39AA4	
	60	1 NC	5A (P300)	48GC38AA4	
	60	1 NO/NC		48GC39AA4	
	100	3 NC	5A (B600)	48HA38AA4	
	180	3 NC	&	48JA38AA4	

Retrofit Plates for Contactors, Class 48

Replacement for Starter Sizes	ESP100 Overload Frame Size	Retrofit Plate Suffix	Price Adder \$
Size 00-1¼	A or A1	1P	
Size 2, 2½	B	2P	
Size 3, 3½	B	3P	
Size 4	B	4P	

① To determine frame size of replacement solid state overload, refer to retrofit plates table above.

② Temperature rating -20° to 60°C.

③ Requires use of 300:5 Current Transformers-3 of 97CT005 \$110 each.

④ Requires use of 600:5 Current Transformers-3 of 97CT008 \$110 each.

⑤ Requires use of 1200:5 Current Transformers-3 of 97CT012 \$110 each.

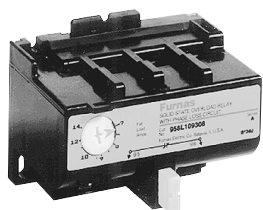
⑥ Overload has busbar connections.

⑦ Discount Code: SIRIUS 3R Contactors, OL's, MSP's.

Overload Relays

Special Use Solid State Overloads, Class 958 and 958L

Selection



Ordering Information

- ▶ Technical Data see www.sea.siemens.com
- ▶ Dimensions see page 6/97.

Current Transformers

Rating	Catalog No.	List Price \$
150:5	97CT002	
200:5	97CT003	
250:5	97CT004	
300:5	97CT005	
400:5	97CT006	

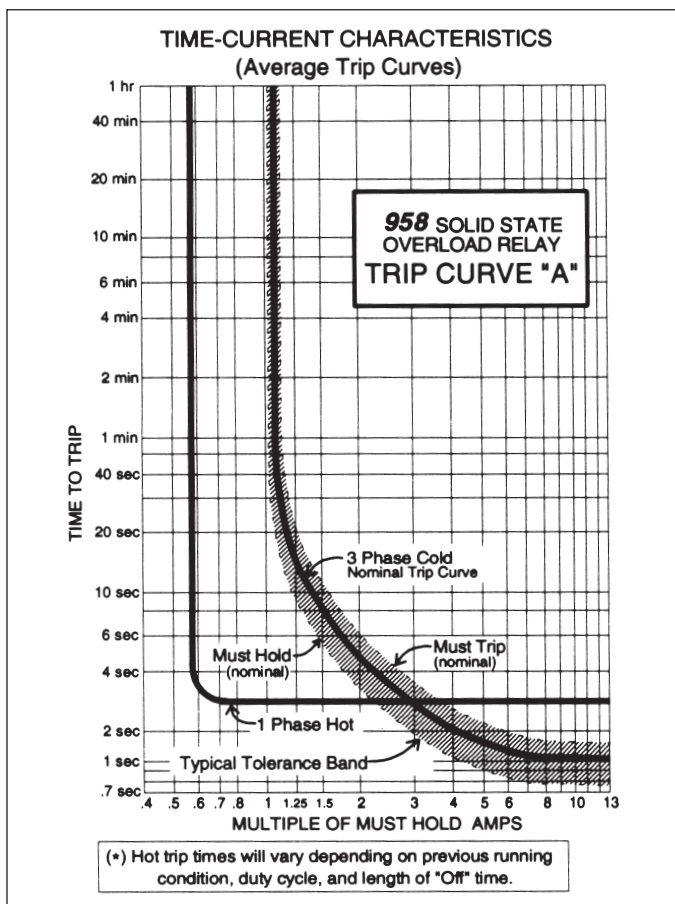
Standard Class 958—Manual Reset, Trip Curve A

Full Load Amp Current Range	Phase	For Use On Controller Sizes	Catalog No	List Price \$
15–30	3	1–1¼	958AA32A	
22–44	3	1¼	958BA32A	
33–66	3	2–3	958CA32A	
50–100	3	3–3½	958DA32A	
75–150	3	4	958EA32A	
90–180	3	4	958FA32A ^①	

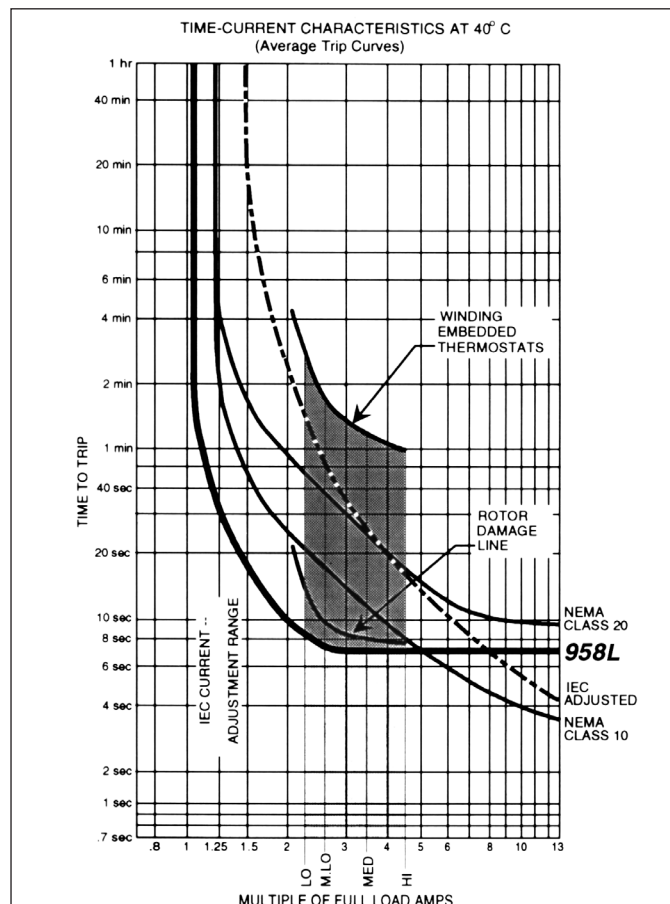
Oil Field Class 958L—Manual Reset

Full Load Amp Current Range	Phase	For Use On Controller Sizes	Catalog No	List Price \$
5.6–11.6	3	0–1¼	958L109307U	
7–14	3	0–1¼	958L109308U	
11–22	3	1, 1¼	958L109309U	
14–28	3	1, 1¼	958L109330U	
18–36	3	1¼	958L109331U	
20–40	3	1¼	958L109332U	
18–36	3	2–4	958L109313U	
28–56	3	2½–4	958L109314U	
35–70	3	3–4	958L109329U	
43–86	3	3–4	958L109315U	
50–90	3	3–4	958L109311U	
60–126	3	4	958L109316U	
75–150	3	—	958L109312U	
84–174	3	—	958L109327U	
105–210	3	—	958L109328U	
132–264	3	—	958L109522U	
264–528	3	—	958L109523U	

Trip Curve A



958L Trip Curve



①Temperature rating –20° to +60°C.