

# ESP200™ Solid State Overload Relay

Protects and serves, available with both automatic and remote reset features



Building and improving on past successes, self-powered ESP200 overload relays are a revolution for both industrial and construction applications. These overload relays provide accuracy unmatched in the market. With repeat accuracy of greater than 99%, trips can be set to the most specific conditions, resulting in both longer motor life and cost savings. The ESP200 overload relay is so simple to configure. Just set the FLA dial to match the FLA of the motor nameplate and set the DIP switches per the

faceplate engraving. No software or manuals are required. If replacing your existing installed ESP100 with the new ESP200, no modifications to the contactor, enclosure or MCC compartment are required. The 958 ESP200 solid state overload relay is specifically designed to provide protection for sealed compressors and artificially cooled motors. The 958L ESP200 is specifically designed for the oil market and pumping applications with a precise trip curve to provide accurate trip when needed.

## Electronic Overload Relays

Answers for industry.

**SIEMENS**

# ESP200™ Electronic Overload Relays



ESP200 Solid-State Overload Relay  
Class 48



ESP200 Solid State Overload Relay  
Class 958 and 958L

## Technical Data

<b>General Data:</b>	
Trips in the event of:	Overload, phase failure, phase unbalance, ground fault
Trip class	Class 5/10/20/30 (selectable), Class 958 or Class 958L
Phase failure sensitivity	Trip time after phase-loss: < 3 sec
Reset options	Manual, automatic and remote RESET
Manual RESET	Immediately
Automatic RESET	Approximately 3 min
Remote RESET	Immediately
Test function	Test of electronics by pressing the Test button. Test the auxiliary contacts and control circuit by manually actuating the trip indicator.
<b>Ambient Temperatures</b>	
Storage / Transportation	-40°C ... +85°C
Operation	-25°C ... +60°C
Temperature compensation	+60°C
<b>Main Circuit</b>	
Rated operational voltage $U_o$	600V
Rated impulse withstand voltage $U_{imp}$	4kV
Number of NO contacts	1
Number of NC contacts	1
Switching capacity	B600, R300
Contact isolation	Single contact usage: 600V Dual contact usage: 300V with differing polarities; 600V with common polarity
<b>Screw Terminals</b>	
Torque	
Auxiliary contact	7 lb. in ... 10.3 lb. in (0.8 ... 1.2 Nm)
Mounting on mounting plate	11 lb. in.(1.2 Nm)
Power terminals	20 lb. in. ... 24 lb. in. (2.3 ... 2.7 Nm)
Altitude	6600 ft.
Touch-safe	Auxiliary contacts Power terminals (applicable to A frame size only)
Humidity	0 ... 95% non-condensing
Printed Circuit Board	Conformal coated
Power consumption (Loss)	< 1.5 W
<b>Short Circuit ratings:</b>	
0.25 ... 1.0A	
Standard	600V / 1kA using 6A RK5 fuses
High Fault	600V / 100kA using 60A RK5 fuses
0.75 ... 3.4A	
Standard	600V / 1kA using 15A RK5 fuses
High Fault	600V / 100kA using 60A RK5 fuses
>3.4A NA	SCCRs are applicable to A frame only
Repeat Accuracy	< 1%
Approvals	UL, CSA

Catalog Number	1 phase/ 3 phase	Trip Class	Phase Loss	Phase Unbalance	Reset Function	Ground Fault	Current Range	Frame Size	External ct Required	Directly Couples to Contactor Size	Main Circuit Connections	Min. Diameter of the Openings	Max. Wire Gauge Through Openings
48ATA3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	0.25 - 1.0A	A	no	00, 0, 1	terminals	—	—
48ATB3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	0.75 - 3.4A	A	no	00, 0, 1	terminals	—	—
48ATC3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	3.0 - 12.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
48ATD3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	5.5 - 22.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
48ATE3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	10.0 - 40.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	250 MCM
48ATF3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	13.0 - 52.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
48ATG3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	25.0 - 100.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
48ATH3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	50.0 - 200.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
48ATJ3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	100.0 - 300.0A	A1	yes 300:5 use 2 loops	—	feed-through openings	8.6mm 0.34 in.	2 x 8 AWG
48ATK3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	133.0 - 400.0A	A1	yes 400:5 use 2 loops	—	feed-through openings	8.6mm 0.34 in.	2 x 8 AWG
48ATL3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	200.0 - 600.0A	A1	yes 500:5 use 2 loops	—	feed-through openings	8.6mm 0.34 in.	2 x 8 AWG
48ATM3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	250.0 - 750.0A	A1	yes 750:5 use 2 loops	—	feed-through openings	8.6mm 0.34 in.	2 x 8 AWG
48ATN3S00	3 phase	5 / 10 / 20 / 30 selectable	selectable	selectable	auto/manual/remote	selectable	400.0 - 1220.0A	A1	yes 1200:5 use 2 loops	—	feed-through openings	8.6mm 0.34 in.	2 x 8 AWG
48ATA1S00	1 phase	5 / 10 / 20 / 30 selectable	—	—	auto/manual/remote	selectable	0.25 - 1.0A	A	no	00, 0, 1	terminals	—	—
48ATB1S00	1 phase	5 / 10 / 20 / 30 selectable	—	—	auto/manual/remote	selectable	0.75 - 3.4A	A	no	00, 0, 1	terminals	—	—
48ATC1S00	1 phase	5 / 10 / 20 / 30 selectable	—	—	auto/manual/remote	selectable	3.0 - 12.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
48ATD1S00	1 phase	5 / 10 / 20 / 30 selectable	—	—	auto/manual/remote	selectable	5.5 - 22.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
958EB3SA	3 phase	Class 958	yes	—	auto/manual/remote	selectable	10.0 - 40.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	250 MCM
958GB3SA	3 phase	Class 958	yes	—	auto/manual/remote	selectable	25.0 - 100.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
958HB3SA	3 phase	Class 958	yes	—	auto/manual/remote	selectable	50.0 - 200.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
958LDB3SA	3 phase	Class 958L	yes	—	auto/manual/remote	selectable	5.5 - 22.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
958LEB3SA	3 phase	Class 958L	yes	—	auto/manual/remote	selectable	10.0 - 40.0A	A1	no	00, 0, 1, 1½	feed-through openings	8.6mm 0.34 in.	4 AWG
958LFB3SA	3 phase	Class 958L	yes	—	auto/manual/remote	selectable	13.0 - 52.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
958LGB3SA	3 phase	Class 958L	yes	—	auto/manual/remote	selectable	25.0 - 100.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM
958LHB3SA	3 phase	Class 958L	yes	—	auto/manual/remote	selectable	50.0 - 200.0A	B	no	2, 2½, 3, 3½, 4	feed-through openings	21.1mm 0.83 in.	250 MCM

## **Versatility**

Designed to be easily installed and readily modified to meet the unique requirements of diverse industries, the ESP200 provides users with the specific level and type of protection they desire. For example, the field selectable Trip Class 5, 10, 20 or 30 can easily be set by two DIP-switches and the FLA dial allows for a wide range of adjustment (4:1). These features eliminate the guess factor for application requirements. Together these can result in a reduction in inventory needs by as much as 40% and still address multiple applications.

By offering these and other tailored options, the ESP200 can be easily adapted to the user requirements. Having both remote and automatic resets available further increases its versatility.

In short, the ESP200 offers a single, convenient, reliable answer to the needs of multiple industries.

## **Durability**

Self-powered, the ESP200 is ruggedly constructed to ensure reliability under the harshest industrial conditions. The protective coated circuit board gives the ESP200 added resistance to environmental challenges and helps to prevent nuisance tripping.

These attributes, along with other aspects, allow the ESP200 to withstand severe conditions.

## **Easy to Use**

Removable terminals allowing the ESP200 to be changed without removing control wiring, DIN rail mounting for easy installation and visible trip indicator for faster identification of overload trips are just a few of the ways that these features make installation and regular operation

easier for all involved. One NO and one NC contacts are standard and make it simple for the user to wire local contacts.

For critical applications such as refrigeration, select auto reset mode. In auto mode, the ESP200 overload relay will automatically reset in three minutes after tripping, allowing the motor to cool down before restart.

There is also a test button that triggers a complete electronic functions test, including the trip mechanisms. These easy-to-use features all contribute to increased motor uptime and a better return on your investment.

## **Protection**

The ESP200 has touch-safe terminals to prevent accidental touching of live circuits. The ESP200 is UL listed and CSA certified according to the strictest standards. With ground fault detection that trips at 60% of motor current, the ESP200 protects against high-resistance short circuits or ground faults due to moisture, condensation, insulation damage or other reasons. To protect motors against overheating and related temperature damage, the ESP200 also has phase loss protection that trips in less than 3 seconds, phase unbalance protection and thermal memory to prevent the motor from restarting while too hot. While protecting the motors, the ESP200 has been designed to operate at a wide range of temperatures and be insensitive to ambient temperatures that do not affect motor operation. These features prevent nuisance tripping and increase motor uptime. The ESP200 even protects itself in the event of a short circuit, unlike bimetal or melting alloy overload relays. This eliminates the need to replace the overload after a short circuit.

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