SIEMENS

Installation Guide
for ESP200

June 2015

E87010-A0354-T002-A1-14CL

IMPORTANT

THESE INSTRUCTIONS DO NOT PURPORT TO COVER ALL DETAILS OR VARIATIONS IN EQUIPMENT, NOR TO PROVIDE FOR EVERY POSSIBLE CONTINGENCY TO BE MET IN CONNECTION WITH INSTALLATION, OPERATION OR MAINTENANCE. SHOULD FURTHER INFORMATION BE DESIRED OR SHOULD PARTICULAR PROBLEMS ARISE WHICH ARE NOT COVERED SUFFICIENTLY FOR THE PURCHASER'S PURPOSES, THE MATTER SHOULD BE REFERRED TO THE LOCAL SIEMENS SALES OFFICE. THE CONTENTS OF THIS INSTRUCTION MANUAL SHALL NOT BECOME PART OF OR MODIFY ANY PRIOR OREXISTING AGREEMENT, COMMITMENT OR RELATIONSHIP. THE SALES CONTRACT CONTAINS THE ENTIRE OBLIGATION OF SIEMENS. THE WARRANTY CONTAINED IN THE CONTRACT BETWEEN THE PARTIES IS THE SOLE WARRANTY OF SIEMENS. ANY STATEMENTS CONTAINED HEREIN DO NOT CREATE NEW WARRANTIES OR MODIFY THE EXISTING WARRANTY.

THIS EQUIPMENT CONTAINS HAZARDOUS VOLTAGES. DEATH, SERIOUS PERSONAL INJURY, OR PROPERTY DAMAGE CAN RESULT IF SAFETY INSTRUCTIONS ARE NOT FOLLOWED. ONLY QUALIFIED PERSONNEL SHOULD WORK ON OR AROUND THIS EQUIPMENT AFTER BECOMING THOROUGHLY FAMILIAR WITH ALL WARNINGS, SAFETY NOTICES, AND MAINTENANCE PROCEDURES CONTAINED HEREIN. THE SUCCESSFUL AND SAFE OPERATION OF THIS EQUIPMENT IS DEPENDENT UPON PROPER HANDLING, INSTALLATION, OPERATION AND MAINTENANCE.

QUALIFIED PERSON

FOR THE PURPOSE OF THIS MANUAL AND PRODUCT LABELS, A QUALIFIED PERSON IS ONE WHO IS FAMILIAR WITH THE INSTALLATION, CONSTRUCTION AND OPERATION OF THE EQUIPMENT, AND THE HAZARD INVOLVED. IN ADDITION, HE OR SHE HAS THE FOLLOWING QUALIFICATIONS:

a) Is trained and authorized to energize, deenergize, clear, ground and tag circuits and equipment in accordance with established safety practices.

b) Is trained in the proper care and use of protective equipment such as rubber gloves, hardhat, safety glasses or faceshields, flash clothing, etc., in accordance with established safety practices.

c) Is trained in rendering first aid.

1 DIP Switch Settings

Trip Current: 125% of Full Load Current.
Phase Loss: Trip time in < 3 seconds.
Ground Fault trip: Ground fault current > 60% of present motor current.
Reset Mode: Automatic or Manual.

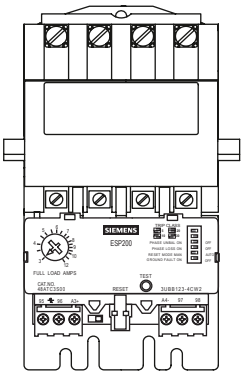


Fig. 1

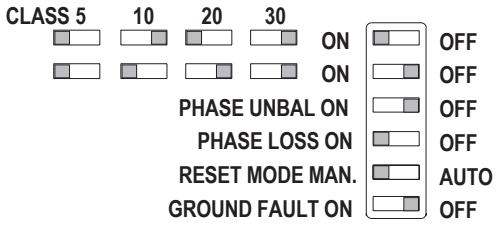
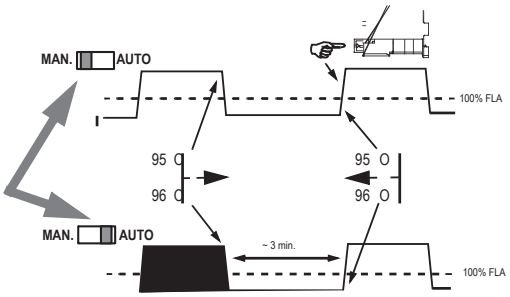


Fig. 2



2 Wiring

Wire contactor per enclosed diagram.

(If ESP200 has **windows**) Push one motor lead through each pass-through window in the overload relay, and connect to the contactor terminals (T1,T2,T3). (Use only with 3-phase motors at 50/60Hz).

(If ESP200 has **terminals**) Connect each motor lead to the overload relay terminals (T1, T2, T3).
(Use only with motors at 50/60 Hz).

⚠ DANGER

Hazardous voltage.
Will cause death or serious injury.

To avoid electrical shock or burn, turn off main and control voltages before performing installation or maintenance.

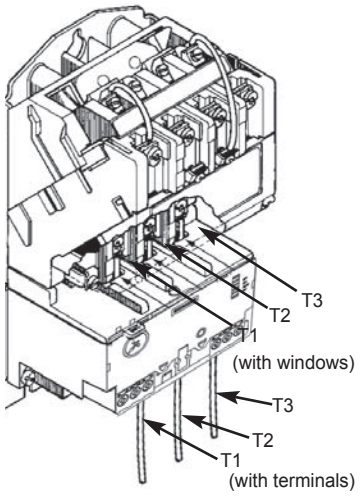


Fig. 3

2 Wiring *continued*

3-Phase Magnetic Starter, Size 00-4

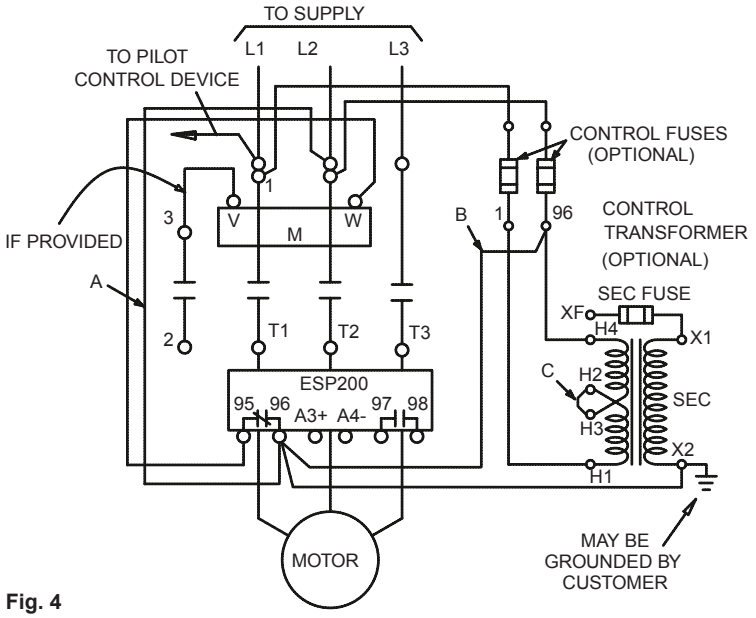


Fig. 4

Changing Power Supply to Coil

Dual Voltage coil: Several alternating current coils have dual voltage ratings. When the voltage applied to the coil is changed from the low to high value, or vice versa, adapt the coil by arranging the jumpers as shown in Figure 5. The coil does not have to be removed from the controller.

Fig. 5 - Dual Voltage Connections

3 FLA Adjustment

Set the adjustment dial on the overload to the Full Load Amps on the motor nameplate.*

In addition to the markings on the dial there are clicks which allow for extremely fine tuning. Note that while thermal overload relays require a heater selection based on a relatively wide ampere range, the ESP200 overload relay has many clicks covering the same ampere range. See Fig 6.

After the correct Full Load Amps have been selected with the dial, the dial can be covered or modified to resist unwanted tampering with the setting.

Snap cover (49ASTC1) over the top: you may also add an optional wire seal (not included).

* For service factor of 1.0, multiply FLA by 0.9

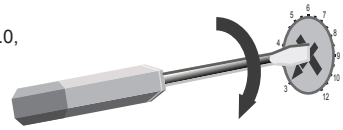


Fig. 6

4 Terminal Connections

Remote Reset:
Connect 24 VDC to terminal A3(+) and A4(-).
Auxiliary Contacts:
95/96 NC, 97/98 NO are isolated up to 300 V.
When 1 contact is used 600 V.
When 2 contacts are used, use the same polarity voltage source.

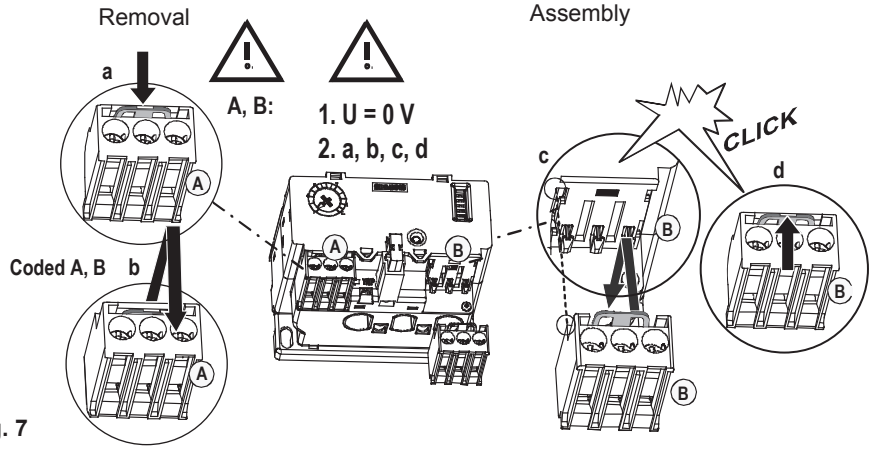


Fig. 7

5 Reset and Test Buttons

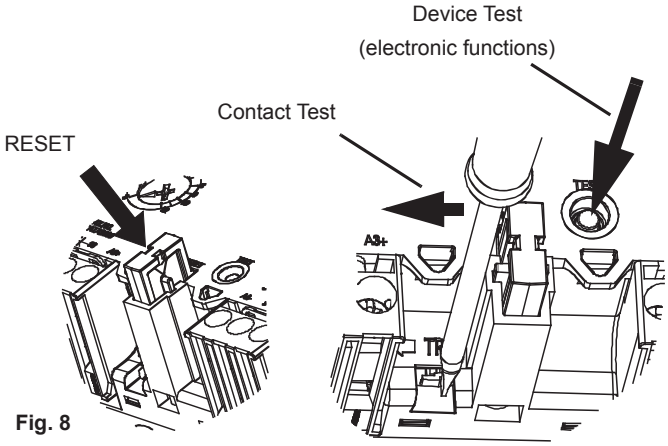
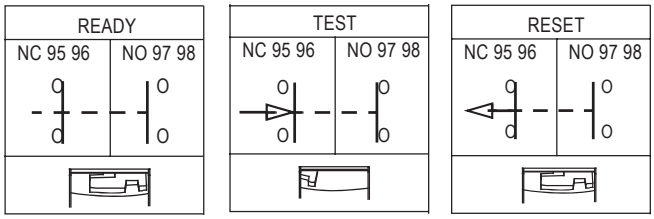


Fig. 8

Trip Class	5	10	20	30
*	3 min.	5 min.	10 min.	15 min.
**	0.5 min.	1 min.	2 min.	3 min.

Note: Must have at least 80% of Motor amps for this test to work.

* The device must be energized with a running motor for at least the minimum time, shown in the table.
** Then the test button can be pushed and held until the device trips. The trip time depends on the selected Trip Class as shown in the table.



6 Troubleshooting

Hot Terminals

Possible cause: Loose wire connections
Action: Clean connections and tighten to recommended torque.

Failure To Trip Out

Possible cause: Incorrect dial setting
Action: Readjust dial setting to the FLA on the motor nameplate.

Overload Trips

Possible cause: Motor is overloaded
Action: Remove cause of overload and reset overload relay.

Possible cause: Loss of phase
Action: Replace burnt-out fuse, or reconnect wire in missing phase.

Possible cause: Dial setting is too low
Action: Readjust dial setting to the FLA on the motor nameplate.

Possible cause: Unbalance Phase
Action: Correct the power system.

Possible cause: Ground Fault
Action: Fix the fault and restart.

Possible cause: Set at the wrong trip class
Action: Reset the dip switches to the correct trip class.

7 Looping Option

for ESP200 with windows

In applications involving the use of 12 or 14 AWG wire, usually motors of 5HP or less, the wires maybe looped and passed through the windows repeatedly before connecting to the contactor. By looping the motor leads through the windows in the overload a second time, the overload will read twice the current actually going to the motor. Hence the overload can protect a motor needing half the FLA capability of the overload. An overload with a current of 10 to 40 amperes can be used for a motor FLA between 5 to 20 amperes.

Similarly, motors that require only one-third, one-fourth, or one-fifth the overload's FLA capability can use the same size ESP200 starter by looping three, four, or five times.

The following table demonstrates how the looping process reduces the current setting of the overload by the number of times the wires pass through the windows of the overload.

All current values are expressed in amperes.

	Overload Current Range	Number of Loops	Number of Times Wire Passes Thru Window
Shown on label	10 - 40	0	1
Option A	5.0 - 20	1	2
Option B	3.0 - 12	2	3
Option C	2.5 - 10	3	4
Option D	2.0 - 8	4	5
Option E	1.5 - 6	5	6

8 ESP200 wiring with External CTs

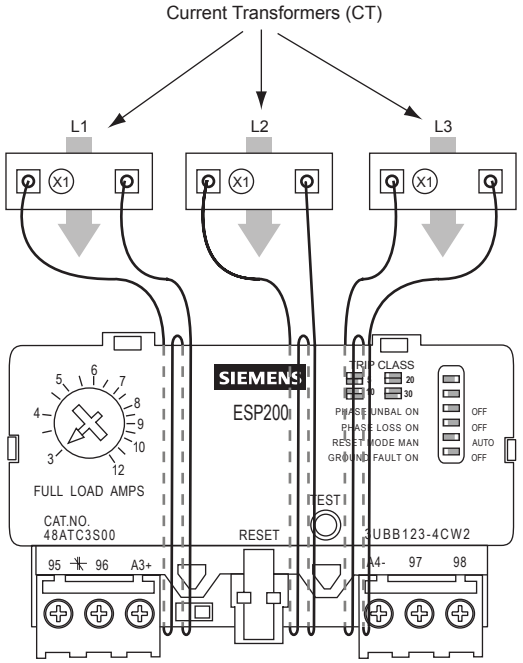


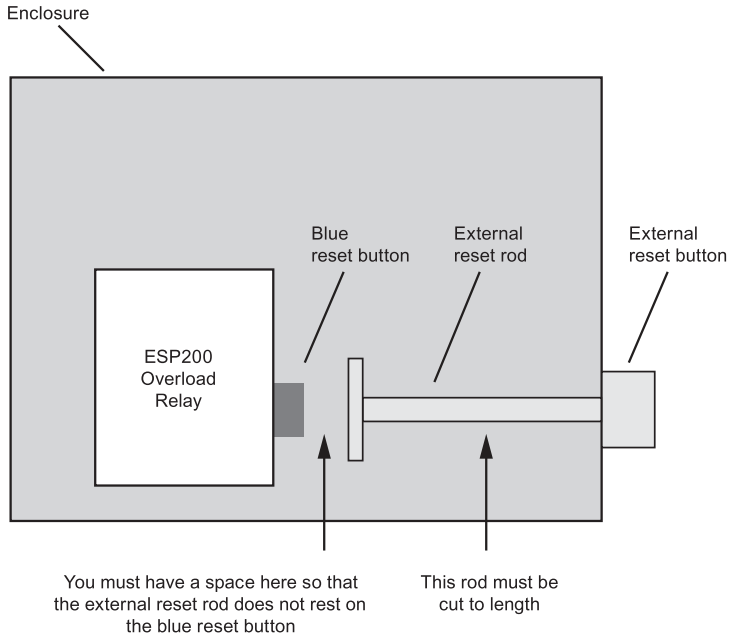
Fig. 9

Cat #	Current Range	CT Ratio	# of times wire passes through window
3UB81234JW2	100-300	300.5	2
3UB81234KW2	133-400	400.5	2
3UB81234LW2	200-600	600.5	2
3UB81234MW2	250-750	750.5	2
3UB81234NW2	400-1220	1200.5	2

9 External Reset Button mounting instructions with the ESP200

The Blue reset button of the ESP200 is activated by pressing the Exterior reset button mounted on the outside of the equipment enclosure.

When mounting the ESP200 inside an enclosure, the External reset rod must first be cut to length. Allow enough space between the External reset rod and the Blue reset button, so that the Blue reset button is only activated when the External reset button is depressed.



Accessories

Tamper Resistant Cover
Custom transparent cover may be sealed with wire seal to prevent unauthorized tampering with FLA adjustment dial, or DIP switch settings.

49ASTC1

49ASTC1

Reset Button Extender
Permits use with Siemens MCC's and extra deep enclosures

49ARES

40ARES

Mounting Plate for ESP200

Starter size	Mounting Plate
00-13/4	49ASMP1
2 - 21/2	49ASMP2
3 - 4	49ASMP3

49ASMP*

Mounting Kit
The kit is used for remote mounting the ESP200 with fork terminal for wiring to contactors.

49ASMS1

49ASMS1

How to wire for Single Phase Motor

These ESP200 units below are specifically designed for single phase applications.

3UB88134AB2	0.25 -1 Amps
3UB88134BB2	0.75 - 3.4 Amps
3UB88234CW2	3 -12 Amps
3UB88234DW2	5.5 -22 Amps
3UB88334GW2	25 -100 Amps

DANGER

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To avoid electrical shock or burn, turn off main and control voltages before performing installation or maintenance.

Single Phase Magnetic Starter, Size 00–1 ①②③

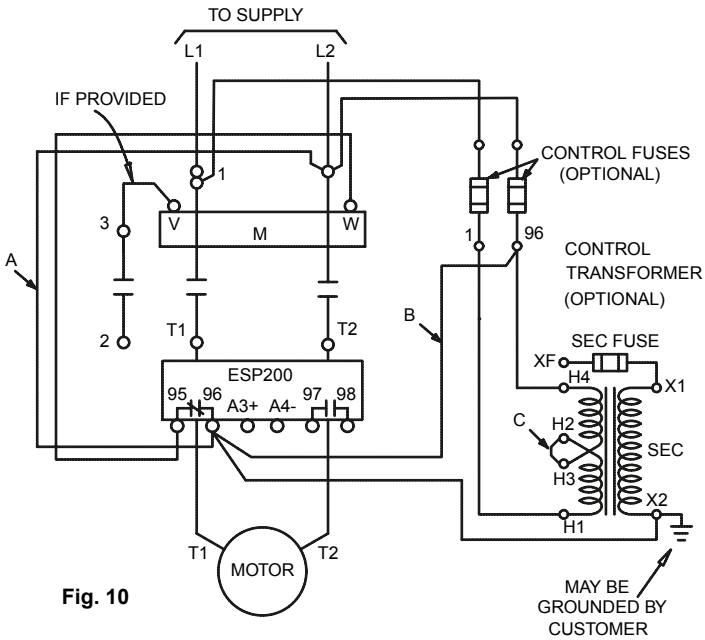

Fig. 10