Manual Control
Class 11 - 3RV, SMF, MMS

Wiring Diagrams

Class 11 - 3RV

AC 3-PHASE
L1  L2  L3
T1  T2  T3

AC SINGLE PHASE
L1  L2
T1  T2

Typical Wiring Diagrams—Class SMF

T2  L2
T2  L2

Motor

Control

Typical Wiring Diagrams—MMS

T1  T3
Motor

2-Pole – Single Phase

T1  T2  T3
Motor

3-Pole – 3 Phase

AC Reversing Manual Starter and Manual Motor Starting Switches

FWD  REV
L1  L2
T1  T3

Pilot Light
If Used

Reversing Single Phase
2-Lead Repulsion-Induction Motor

Reversing Manual Motor Starting Switch 2-Pole, 1-Phase

Reversing Manual Starter 3-Pole, 3-Phase

AC 2-Speed Manual Motor Starting Switches

FWD  L1  L2
REV  (R.H. UNIT)
T1  T3

Pilot Light
If Used

2-Speed 2-Winding Single Phase Motor

2-Pole, 1-Phase with Pilot Lights

3-Pole, 3-Phase

3-Pole Reversing Switches

T1  T2  T3
Motor

THREE PHASE MOTOR

LINE AND MOTOR LEADS
Line  L1 to  –  L1
Line  L2 to  –  L2
Line  L3 to  –  L3
Motor  L1 to  T1
Motor  L2 to  T2
Motor  L3 to  T3
Pilot Light Leads to  –  T1

SINGLE PHASE CAPACITOR OR SPLIT PHASE MOTOR

LINE AND MOTOR LEADS
Line  L1 to  –  L1
Motor  L1 to  T1
Pilot Light Leads to  –  T1

SINGLE PHASE 4-LEAD REPULSION - INDUCTION MOTOR

LINE AND MOTOR LEADS
Line  L1 to  –  L1
Motor  L1 to  T1
Pilot Light Leads to  –  T1

Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Heavy Duty Motor Starters

3-Phase and Single Phase Magnetic Starters

Three Phase Magnetic Starter, Size 00–4

Single Phase Magnetic Starter, Size 00–1

Three Phase Magnetic Starter with DC Coil, Sizes 00–4

Solid State Overload 3-Phase Sizes 5-8

Ambient Compensated
Single Phase Sizes 00-2 1/2

Ambient Compensated
3-Phase Sizes 00-2 1/2

Ambient Compensated
3-Phase Sizes 3-4

Warning: The ESP200 Starter and Single Phase Motor must be wired as shown above. For L1, L2 do not use the middle terminal or hole.

Full Load Amps (FLA): Adjustment of the ESP200 solid state overload relay accommodates the single phase motor.
Combination Heavy Duty Starters
Class 17, 18

3-Phase

Size 00–4

Size 5–8

POWER WIRING: USE 75°C COPPER WIRE ONLY.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CT RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>300:5</td>
</tr>
<tr>
<td>6</td>
<td>600:5</td>
</tr>
<tr>
<td>7</td>
<td>750:5</td>
</tr>
<tr>
<td>8</td>
<td>1200:5</td>
</tr>
</tbody>
</table>

Remove wire “C” if control transformer is used. For separate control voltage source, remove jumpers “A” and “B” and connect source to control fuse line terminals.

Remove wire “C” if the contactor coil is to operate on a voltage other than line voltage or in a separate control source.
Reversing Heavy Duty Starters

Class 22

Wiring Diagrams

3-Phase Ambient Compensated Overload

Bimetal Overload
Sizes 0-1 3/4

Bimetal Overload
Sizes 2-2 1/2

Bimetal Overload
Sizes 3-4

Single Phase Ambient Compensated Overload

3-Wire, 2-Pole Sizes 0-1 3/4
Reversing Heavy Duty Starters

Class 22

3-Phase Solid State Overload

3-Phase Reversing Magnetic Starter
Sizes 00–1½

3-Phase Reversing Magnetic Starter
Sizes 2–4

Solid State Overload
Sizes 5–6

3-Phase Reversing Magnetic Starter with DC Coil, Sizes 00–1½

3-Phase Reversing Magnetic Starter with DC Coil, Sizes 2–4

TO SUPPLY

CONTROL FUSES (OPTIONAL)

CONTROL TRANSFORMER (OPTIONAL)

SEC FUSE

MAY BE GROUNDED BY CUSTOMER

MOTOR

L1 L2 L3

V W FOR REV

ESP200

96 95 A4- 97 98 A3+

GROUNDED BY CUSTOMER

MAY BE (OPTIONAL)

SEC FUSE

CONTROL FUSES

1 C

XF

H1

H4

H3

H2

X2

SEC

X1

CONTROL TRANSFORMER (OPTIONAL)

B

3 PHASE REVERSING MAGNETIC STARTER WITH DC COIL

TO SUPPLY

CONTROL FUSES (OPTIONAL)

CONTROL TRANSFORMER (OPTIONAL)

SEC FUSE

MAY BE GROUNDED BY CUSTOMER

MOTOR

L1 L2 L3

V W FOR REV

ESP200

96 95 A4- 97 98 A3+

GROUNDED BY CUSTOMER

MAY BE (OPTIONAL)

SEC FUSE

CONTROL FUSES

1 C

XF

H1

H4

H3

H2

X2

SEC

X1

CONTROL TRANSFORMER (OPTIONAL)

B

3 PHASE REVERSING MAGNETIC STARTER W/DC COIL
Combination Reversing Heavy Duty Starters

Class 25, 26

Wiring Diagrams

3-Phase

- 3-Phase Reversing Magnetic Starter
  Sizes 00–1¾

- 3-Phase Reversing Magnetic Starter
  Sizes 2–4

- 3-Phase Reversing Magnetic Starter
  Sizes 5–6

- "FWD" Contactor

- "REV" Contactor

- Current Transformer (See Table)

- O.L. Relay

- "C"

- REMOVE WIRE "C" IF THE CONTACTOR COIL IS TO OPERATE ON A VOLTAGE OTHER THAN LINE VOLTAGE OR ON A SEPARATE CONTROL SOURCE.

- TO SUPPLY

- MOTOR

- CONTROL TRANSFORMER (OPTIONAL)

- SEC FUSE

- CONTROL FUSES (OPTIONAL)

- MAY BE GROUNDED BY CUSTOMER

- MAY BE (OPTIONAL)

- GROUNDED BY CUSTOMER

- Control Fuses

- SEC

- X1

- X2

- H1

- H2

- H3

- H4

- XF

- ESP200

- 96 95 A4- 97 98 A3+

- Size 5–6

- Size Chart

- SIZE  CT RATIO
- 5    300:5
- 6    600:5
Two Speed Heavy Duty Starters
Class 30 & 32 Non-Combination and Combination Starters

1 Winding Constant Horsepower Size 0–1 3/4

1 Winding Constant Horsepower Size 2–4

1 Winding Constant or Variable Torque Size 0–1 3/4

Note: For separate control voltage source, remove jumpers "A" and "B" and connect source to control fuse terminal. Remove jumper "C" if control transformer is used.

Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Two Speed Heavy Duty Starters
Class 30 & 32 Non-Combination and Combination Starters

1 Winding Constant or Variable Torque Size 2–4

2 Winding Constant Horsepower & 2 Winding Constant or Variable Torque Size 0–4

Note: For separate control voltage source, remove jumpers “A” and “B” and connect source to control fuse terminal. Remove jumper “C” if control transformer is used.
Reduced Voltage Starters & Pump Panels
Class 36, 37, 88

Auto Transformer

Note E:
Remove jumper if thermal protection switch is provided.
Reduced Voltage Starters & Pump Panels

Class 36, 37, 88

Wye Delta (Open Transition)

Wiring Diagrams

Connections for Optional Devices

Surge Suppressor

Optional Devices are Furnished Per Contract Documents
Reduced Voltage Starters & Pump Panels

Class 36, 37, 88

Wye Delta (Closed Transition)

1. TO SUPPLY
   L1, L2, L3

2. OPTIONAL CONNECTORS

3. CONTROL

4. MR

5. OL

6. 5LT

7. 4LT

8. CR2

9. 1CT

10. OL

11. 2CT

12. OL

13. 3CT

14. NCTO

15. MR

16. TR

17. X2

18. MR

19. CPT

20. 1FU

21. 2FU

22. CPT

23. 1X1

24. X1

25. H1

26. H3

27. H2

28. (A1)

29. 5LT

30. 1FU

31. 2FU

32. X2

33. 3FU

34. H4

35. 1L1

36. 1L3

37. 1L2

38. S

39. 57

40. 1M

41. MR

42. 51

43. 2M

44. 52

45. 56

46. (A1)

47. 58

48. (A2)

49. 53

50. (A1)

51. 54

52. 55

53. T3

54. RES C2M

55. 1A3L3

56. T3

57. RES A

58. T2

59. RES B

60. T2

61. T1

62. T6

63. T1

64. 1M

65. T1

66. 1A3L2

67. T1

68. T2

69. 2M

70. S

71. T5

72. T6

73. T4

74. T2

75. T4

76. S

77. T1

78. 4FU

79. 5FU

80. 5550

81. 4FU

82. 5FU

83. 5550

84. DISCONNECT OR CIRCUIT BREAKER

85. (A1)

86. 6

87. CR1

88. TR

89. (A2)

90. CR1

91. MR

92. OL

93. MR

94. 1L3

95. 1L2

96. 1L1

97. Optional Devices are Furnished per Contract Documents

98. Connections for Optional Devices

99. Surge Suppressor

100. Optional Devices are Furnished per Contract Documents

NOTE: Sizes 1-4, 1CT-3CT are not used.

Supplied as required per nameplate as specified voltage.

For starter sizes 1-4, 1CT-3CT are not used.

Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Heavy Duty Contactors and Reversing Contactors

Class 40, 43

Wiring Diagrams

3-Phase Magnetic Contactors and Reversing Contactors

3-Phase Contactors—Size 00–4

3-Phase Reversing Contactors—Size 00–4

3-Phase Contactors—Size 5, 6

3-Phase Reversing Contactors—Size 5, 6

Single Phase Magnetic Contactors and Reversing Contactors

Single Phase Contactors—Size 00–4

Single Phase Reversing Contactors—Size 00–1P
Duplex Heavy Duty Controllers

Class 83, 84

Wiring Diagrams

Standard Duplex Pump Panel (92)

Duplex Panel w/o alternator (95)

NOTES:
A. FOR SEPARATE OR CPT CONTROL, VOLTAGE SOURCE.
B. FOR PROTECTION OF INTERNAL CONTROL CIRCUIT CONDUCTORS IN ACCORDANCE WITH THE NEC, USE FUSE KIT 145565.
C. TO USE THIS CONTROLLER W/O SELECTOR SWITCHES, JUMPER BETWEEN THE FOLLOWING PAIRS OF TERMINALS 4-6, 7-9, AND 9-11.
D. FOR TWO POSITION SELECTOR SWITCHES, WIRE AS SHOWN ALSO AND JUMPER BETWEEN TERMINALS 1-2.
E. TO CHANGE SOURCE CONNECTIONS TO TERMINALS 9 AND 11 AND REQUIRED ONLY WHEN THREE POSITION SELECTOR SWITCH IS BUILT IN.

FACTORY OR FIELD MODIFICATIONS

TO LAYOUT

17-156 Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Duplex Heavy Duty Controllers
Class 83, 84

Wiring Diagrams

Duplex Panel with Relay Alternation (93)

Duplex Panel with Lead Pump Transfer Switch (94)

NOTES:

1. For separate or CPT control, voltage source, remove jumpers A, B, C, and D and connect one (1) or two (2) CPT primaries for factory or field modifications. For protection of internal control, circuit conductors in accordance with the NEC. Use fuse kit #9921A2.

2. To use this controller with selector switches, jumper between the following pairs of terminals:
   - P1-2, P3-4
   - P1-5, P6-7

3. @ = Selector switch contact location

Factory or Field Modifications

Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Standard & Irrigation Pump Panels

Class 87

Standard Class 87 Pump Panel

Wiring Diagrams
Lighting and Heating Contactors
Electrically Held, Class LE

Wiring Diagrams

20 AMP

30 – 100 AMP

200 – 400 AMP

Siemens Industry, Inc. SPEEDFAX™ 2011 Product Catalog
Lighting and Heating Contactors
Mechanically Latched 20 Amp, Class CLM

Wiring Diagrams

TYPICAL OFF-ON SELECTOR SWITCH

CONTROL

MODULE

VOLTAGE

ON-OFF (FORM 1) CONTROL ACC. 49

3 WIRE CONTROL ACC. 48

2 WIRE CONTROL ACC. 47

SELECTOR SWITCH

TYPICAL OFF-ON

ON

OFF

CONTROL

VOLTAGE

MODULE

VOLTAGE

ON-OFF

REMOTE CONTROL

2 WIRE CONTROL ACC. 47

CONTACTOR CONTROL VOLTAGE

CONTACTOR CONTROL VOLTAGE

CONTACTOR CONTROL VOLTAGE

CONTACTOR CONTROL VOLTAGE

CONNECTION TO CONTROL MODULES

<table>
<thead>
<tr>
<th>MODULE TERMINAL</th>
<th>CONNECT TO</th>
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<tbody>
<tr>
<td>1</td>
<td>NOT USED</td>
</tr>
<tr>
<td>2</td>
<td>CONTROL STATION FOR ACC. 46-49</td>
</tr>
<tr>
<td>3</td>
<td>CONTROL STATION FOR ACC. 47-48-49</td>
</tr>
<tr>
<td>4</td>
<td>MODULE CONTROL VOLTAGE *</td>
</tr>
<tr>
<td>5</td>
<td>CONTACTOR CONTROL VOLTAGE</td>
</tr>
<tr>
<td>0</td>
<td>TERMINAL 0 ON CONTACTOR</td>
</tr>
<tr>
<td>C</td>
<td>TERMINAL C ON CONTACTOR</td>
</tr>
</tbody>
</table>

* FOR 24 VDC CONTROL MODULES
CONNECT TERMINAL 4 TO NEGATIVE ( )

TERMINAL 0 ON CONTACTOR
TERMINAL C ON CONTACTOR
CONNECT TERMINAL 4 TO NEGATIVE ( )
Connection Diagram for Common/Separate Control with Momentary Pushbutton or ON-OFF Selector Switch CLMOC, CLMOD, CLMOE, and CLMOF

Connection for 2-Wire Control CLMOC, CLMOD, CLMOE, and CLMOF

Connection for Hand/Off/Auto Control CLMOC, CLMOD, CLMOE, and CLMOF

Connection Diagram for Common/Separate Control with Momentary Pushbutton or ON-OFF Selector Switch CLMOG and CLMOH

Connection for 2-Wire Control CLMOG and CLMOH

Connection for Hand/Off/Auto Control CLMOG and CLMOH

Control relay is required for 2-wire and Hand/Off/Auto Control, as shown in diagram.
# Industrial Control Power Transformers

## Class MT, MTG

### Wiring Diagrams

<table>
<thead>
<tr>
<th>Voltage Letter</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(©)</td>
<td><img src="image" alt="Wiring Diagram A" /></td>
</tr>
<tr>
<td>B(©)</td>
<td><img src="image" alt="Wiring Diagram B" /></td>
</tr>
<tr>
<td>C(©)</td>
<td><img src="image" alt="Wiring Diagram C" /></td>
</tr>
<tr>
<td>D(©)</td>
<td><img src="image" alt="Wiring Diagram D" /></td>
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<tr>
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</tr>
<tr>
<td>L(©)</td>
<td><img src="image" alt="Wiring Diagram L" /></td>
</tr>
<tr>
<td>M(©)</td>
<td><img src="image" alt="Wiring Diagram M" /></td>
</tr>
</tbody>
</table>

© Includes secondary fuse clips on sizes 50-750VA

† Includes secondary fuse clips on sizes 50-500VA

‡ Secondary fuse clips are not included on MTG transformers.

When secondary fuse clips are installed, Terminal X1 becomes XF

When secondary fuse clips are installed, Terminal X3 becomes XF

Does not include secondary fuse clips

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