ELECTRICAL MANUAL
CA3C9-A3

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<table>
<thead>
<tr>
<th>DATE</th>
<th>PG</th>
<th>ORIGINAL</th>
<th>MODIFIED</th>
<th>ED</th>
<th>REMARK</th>
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<td>5-1  6-3</td>
<td>Modify KA105 relay contact</td>
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<td>Modify MCC KM01 contact</td>
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<td>9-4  9-7</td>
<td>Add safety relay for emergency</td>
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<td>KA102 contact</td>
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<td>7-13</td>
<td>Modify magazine door open signal to X5.4</td>
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<td>6-6</td>
<td>Delete KA106 relay</td>
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<td>2010.08.18</td>
<td>6-9</td>
<td>Delete Machine Ready Lamp</td>
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<td>A0&gt;A1</td>
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<td>7-16</td>
<td>Add Machine Ready Lamp</td>
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<td>A1&gt;A2</td>
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<tr>
<td>2010.10.08</td>
<td>8-12</td>
<td>Y4.0 Gear High(KA130)</td>
<td>Y4.1 Gear Low(KA130)</td>
<td>A1&gt;A2</td>
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<td>2010.12.25</td>
<td>6-1</td>
<td>Delete KM1</td>
<td></td>
<td>A2&gt;A3</td>
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<tr>
<td>2010.12.25</td>
<td>6-1  6-3 6-4</td>
<td>MOELLER Safety Module</td>
<td>PILZ Safety Module</td>
<td>A2&gt;A3</td>
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<td>2010.12.25</td>
<td>7-16</td>
<td>Axis Over Travel Normal Close</td>
<td>Axis Over Travel Normal Open</td>
<td>A2&gt;A3</td>
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MCV-850/1100
V33/V43/V5

1. POWER SUPPLY AMP. MODULE (N0)
2. SPINDLE AMP. MODULE (N1)
3. X/Y/Z AMP. MODULE (N2)
4. MVR AMP. MODULE (N3)
5. CNC CONTROL UNIT (N4)
6. MAIN BRAKE (Q1)
7. 3φ AC FILTER (A0)
8. DRIVE BRAKE (QF2)
9. DRIVE MAGNETIC CONTACOR (KM0)
10. AC REACTOR (N5)
11. DC 24V SWITCHING POWER SUPPLY (GS1, GS2)
12. AC220V/100V-24V TRANSFORMER (TV2)
13. MOTOR PROTECTORS (QM2 ~ QM22)
14. CIRCUIT BREAKERS (QF3 ~ QF14)
15. MAGNETIC CONTACTORS (KM2~KM25)
16. SPARK KILLERS
17. TERMINAL BLOCK (XT1)
18. SAFETY RELAY MODULE (U1, U2)
19. PLC I/O BOARD (A1)
20. RELAY PUBLIC BOARD (A2)
21. BRIDGE DIODE FOR Z AXIS BRAKE
22. CONNECTOR (PA, PB, PC, PD, PE, PF, PG)
1. POWER SUPPLY AMP. MODULE (N0)
2. SPINDLE AMP. MODULE (N1)
3. X/Y/Z AMP. MODULE (N2)
4. 4th AMP. MODULE (N3)
5. CNC CONTROL UNIT (N4)
6. MAIN BRAKE (QF1)
7. 3# AC FILTER (A0)
8. DRIVE BRAKE (QF2)
9. DRIVE MAGNETIC CONTACTOR (KM0)
10. AC REACTOR (N5)
11. DC 24V SWITCHING POWER SUPPLY (CS1,CS2)
12. AC220V/100V-24V TRANSFORMER (TV2)
13. MOTOR PROTECTORS (QM2 ~ QM22)
14. CIRCUIT BREAKERS (QF3 ~ QF14)
15. MAGNETIC CONTACTORS (KM2~KM25)
16. SPARK KILLERS
17. TERMINAL BLOCK (XT1)
18. SAFETY RELAY MODULE (U1,U2)
19. PLC I/O BOARD (A1)
20. RELAY PUBLIC BOARD (A2)
21. BRIDGE DIODE FOR Z AXIS BRAKE
22. CONNECTOR
SHARP
ELECTRICAL MANUAL
AC110V CIRCUIT

VER: A0
ELECTRICAL MANUAL
PLC INPUT CIRCUIT

MCC CONTACT
STATE
HEAT EXCHANGE
ALARM (OPTION)
OPERATING GUARD CLOSED
OPERATING GUARD LOCKED (CE TYPE)
MAGAZINE DOOR OPEN CLOSED
MAGAZINE GUARD LOCKED (OPTION)
ATC DOOR OPEN CLOSED (OPTION)

VER: A0
ELECTRICAL MANUAL
PLC INPUT CIRCUIT

VER: A0
ELECTRICAL MANUAL
PLC INPUT CIRCUIT

VER: A0
1. Power ON
2. Power OFF
3. Spare
4. Program Protect & Mode Enable
5. Machine Ready ON
6. Single Block
7. Dry Run
8. Optional stop
9. Program Restart
10. Optional Block Skip
11. Machine Lock
12. M.S.T. Code Lock
13. Override Cancel
14. Spare Function F2
15. Tool Magazine Forward/Backward
16. Tool Magazine Turn Clockwise
17. Tool Changer
18. Spare Function F1
19. Chip Conveyor ON/OFF
20. Chip Conveyor Reverse ON/OFF
21. Working Lamp ON/OFF
22. Manual Feed + Z
23. Manual Feed - Y
24. Manual Feed + IV
25. Manual Feed + V
26. Manual Feed + X
27. Rapid
29. OT Release
30. Manual Feed - Z
31. Manual Feed + Y
32. Manual Feed - IV
33. Manual Feed - V
34. Operation Guard Release
35. 4/5th Axis Neglect
36. Air Blast ON/OFF
37. Menu
38. Auto Zero Return
39. Coolant Through Spindle ON/OFF
40. Chip Flush ON/OFF
41. Coolant ON/OFF
42. Spindle Orientation
43. Spindle on Clockwise
44. Spindle Stop
45. Spindle On Counter Clockwise
46. Emergency Stop
47. Feedrate Override
48. Rapid Traverse
49. Spindle Override
50. Mode Select
51. Cycle Start
52. Feed Hold
53. Tool NO. Indicator
54. X Axis Zero Position Lamp
55. Y Axis Zero Position Lamp
56. Z Axis Zero Position Lamp
57. 4th Axis Zero Position Lamp
58. 5th Axis Zero Position Lamp
59. Finish Lamp
60. High Gear Lamp
61. Low Gear Lamp
62. Optional Stop Lamp
63. Lubrication Low Level Lamp
64. Motor Overload Lamp
65. Air Pressure Low Level Lamp
66. NC Alarm Lamp
67. O.T. Detect Lamp
68. ATC Alarm Lamp

VER: A0
### Terminal Block (A2)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>OPG</td>
<td>operation guard door</td>
</tr>
<tr>
<td>MGG</td>
<td>magazine guard door</td>
</tr>
<tr>
<td>SP</td>
<td>spindle</td>
</tr>
<tr>
<td>GCR</td>
<td>gear for spindle</td>
</tr>
<tr>
<td>ATC</td>
<td>ATC box</td>
</tr>
<tr>
<td>TNK</td>
<td>coolant tank</td>
</tr>
<tr>
<td>4TH</td>
<td>4th axis</td>
</tr>
<tr>
<td>5TH</td>
<td>5th axis</td>
</tr>
<tr>
<td>LUB</td>
<td>lubrication</td>
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<tr>
<td>MGP</td>
<td>magazine panel</td>
</tr>
<tr>
<td>LAP</td>
<td>lamp</td>
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<tr>
<td>VAL</td>
<td>magnetic valve</td>
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<tr>
<td>OTX</td>
<td>X axis over travel</td>
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<tr>
<td>OTY</td>
<td>Y axis over travel</td>
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<tr>
<td>OTZ</td>
<td>Z axis over travel</td>
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<tr>
<td>IVT</td>
<td>inverter for ATC</td>
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<td>APO</td>
<td>automatic power off</td>
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<tr>
<td>ZBK</td>
<td>Z axis brake</td>
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<tr>
<td>CHK</td>
<td>workpiece chuck</td>
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<tr>
<td>BZ</td>
<td>buzzer</td>
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<td>OT5</td>
<td>5th axis over travel</td>
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<td>ZF</td>
<td>ZF gear box</td>
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<td>SKIP</td>
<td>skip signal for probe</td>
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<tr>
<td>HYD</td>
<td>hydraulic pump</td>
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<tr>
<td>AIR</td>
<td>Z axis over travel</td>
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<tr>
<td>SPC</td>
<td>spindle philler</td>
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<td>OL</td>
<td>overload</td>
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<td>HPB</td>
<td>MPG permissive button</td>
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<tr>
<td>RDY</td>
<td>machine ready</td>
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<tr>
<td>EZBK</td>
<td>external Z axis brake</td>
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<td>ORN</td>
<td>spindle orientation</td>
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<tr>
<td>ESP</td>
<td>MPG stop safety relay</td>
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<td>DOR</td>
<td>door guard safety relay</td>
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<tr>
<td>MPB</td>
<td>operation guard door</td>
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<td>ATC3</td>
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<td>ATCD</td>
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<td>MCC</td>
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<td>PWRI</td>
<td>power income</td>
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<td>D4TH</td>
<td>4th axis for DC24V</td>
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<tr>
<td>D5TH</td>
<td>5th axis for DC24V</td>
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### Terminal Block (A2)

1. PWR | MGG | EWG | X12 | ATCD | ATO
2. EA | X13 | KA01 | KA00
3. A2 | KA14 | KA13 | KA20 | KA28 | KA01
4. A1 | KA11 | KA25 | KA19 | KA31 | KA39
5. A1 | KA12 | KA26 | KA40 | KA32 | KA18
6. A1 | KA21 | KA29 | KA34 | KA36 | KA17
7. A1 | KA22 | KA30 | KA33 | KA35 | KA04
8. A1 | KA37 | KA23 | KA09 | KA16 | KA10
9. A1 | KA38 | KA24 | KA27 | KA15 | KA08
10. A1 | OPG | SP | GCR | ATC | TNK | 4TH | 5TH | LUB | MGP | LAP | OTX | OTZ | IVT
11. A1 | X12 | X11 | X10 | X1 | X01 | X02 | X0 | X05 | X04 | X03 | X02 | X01 | X00

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**9 - 11**

**CA3C9 (MCV-300~2000/V33/V43/V5/V2000)**

**ELECTRICAL MANUAL**

**NC CONNECTION**

**VER: A0**