

YASNAC J300 CONNECTING MANUAL (TYPE B)

```

RUNNING      RUN      000600 N00000
      ;
G40 G49 G80 ;
G91 G30 Y0 Z0 M05 ;
N1 T09 M06 ;

UNIVERSAL      INCREMENT      G/M CODE
X      49.042 X      0.000      G00 G80
Y      111.296 Y      0.000      G17 G98
Z      6.638 Z      0.000      G90 G52
                                           G67
                                           G94
T NO :T0000      ACT S:S      0      G21
FEED RATE :F      0      ORDER S      0      G40

```



CONTENTS

| | |
|---|--------|
| NOTES FOR SAFE OPERATION | ii |
| 1. DESIGN OF CONTROL PANEL | |
| 1.1 Configuration | 1 - 3 |
| 1.1.1 System Configuration of YASNAC | 1 - 3 |
| 1.2 Connection between Devices | 1 - 4 |
| 1.3 Environmental Conditions | 1 - 6 |
| 1.3.1 Specifications | 1 - 6 |
| 1.4 Packaging | 1 - 7 |
| 1.4.1 General Notes | 1 - 7 |
| 1.4.2 Installation of CNC Unit | 1 - 8 |
| 1.4.3 Installation of Feed and Spindle Servopacks | 1 - 9 |
| 1.5 Thermal Design of Box | 1 - 10 |
| 1.5.1 Enclosure Internal Temperature Increase (Average Temperature Increase) | 1 - 10 |
| 1.5.2 Cooling Capacity of Heat Exchanger | 1 - 11 |
| 1.5.3 Mounting of Heat Exchanger | 1 - 12 |
| 1.5.4 Heat Generating of Respective Units | 1 - 13 |
| 1.6 Dustproof Design | 1 - 16 |
| 1.6.1 Dustproof Countermeasures | 1 - 16 |
| 1.7 Countermeasures against Magnetic Fields | 1 - 18 |
| 1.7.1 CRT Display | 1 - 18 |
| 2. CABLE LEAD-IN DIAGRAM | |
| 2.1 Connector Layout | 2 - 2 |
| 2.1.1 JZNC-JRK34 | 2 - 2 |
| 2.1.2 JZNC-JRK35 | 2 - 3 |
| 2.2 Cable Clamp and Shielding | 2 - 4 |
| 2.2.1 Shielding Method | 2 - 4 |

3. POWER SUPPLY CONNECTION

| | | |
|-------|--------------------------------------|-------|
| 3.1 | Connection between Devices | 3 - 2 |
| 3.1.1 | Power Supply to CNC Unit | 3 - 2 |
| 3.1.2 | Power Supply to Converter Unit | 3 - 2 |
| 3.2 | Detailed Connection | 3 - 4 |
| 3.2.1 | Power Supply to CNC Unit | 3 - 4 |
| 3.2.2 | Power Supply to Converter Unit | 3 - 4 |
| 3.2.3 | Example of Circuit Diagram | 3 - 5 |

4. CONNECTION OF CNC OPERATION PANEL

| | | |
|-------|--|-------|
| 4.1 | Connection between Devices | 4 - 2 |
| 4.1.1 | Connection with CNC Operation Panel | 4 - 2 |
| 4.1.2 | Connection to ACGC Operation Panel | 4 - 3 |
| 4.2 | Detailed Connection of CNC Operation Panel | 4 - 4 |
| 4.2.1 | Connection with CNC Operation Panel | 4 - 4 |
| 4.2.2 | Connection of ACGC Operation Panel | 4 - 5 |
| 4.2.3 | General Notes on the Connection of CNC Operation Panel | 4 - 8 |

5. CONNECTION OF MANUAL PULSE GENERATOR

| | | |
|-------|---|-------|
| 5.1 | Connection between Devices | 5 - 2 |
| 5.1.1 | Connection with CNC Operation Panel | 5 - 2 |
| 5.2 | Detailed Connection of Manual Pulse Generator | 5 - 3 |
| 5.2.1 | Non-parallel I/F | 5 - 3 |
| 5.2.2 | Parallel I/F | 5 - 5 |

6. CONNECTION OF POWER ON/OFF EXCLUSIVE SIGNAL

| | | |
|-------|--|-------|
| 6.1 | Connection between Devices | 6 - 2 |
| 6.1.1 | Connection to CNC Unit | 6 - 2 |
| 6.2 | Detailed Connection of Power ON/OFF Exclusive Signal | 6 - 3 |
| 6.2.1 | Connection to CNC Unit | 6 - 3 |

| | | |
|-------|---|-------|
| 6.3 | Details of Signal | 6 - 4 |
| 6.3.1 | Servo Power ON (SVMX), Brake Release (BKX) Output | 6 - 4 |
| 6.3.2 | Emergency Stop (*ESP) Input | 6 - 5 |
| 6.3.3 | External Power ON/OFF (EON, EOF, ECOM) Input | 6 - 5 |

7. CONNECTION WITH SERVOPACK

| | | |
|-------|---|--------|
| 7.1 | Connection between Devices | 7 - 2 |
| 7.1.1 | Connection between CNC Unit, Servopack, and Motor | 7 - 2 |
| 7.2 | Detailed Connection | 7 - 3 |
| 7.2.1 | Connection between CNC Unit and Servopack | 7 - 3 |
| 7.2.2 | Connection of the Servomotor | 7 - 6 |
| 7.2.3 | Connection of the Spindle Motor | 7 - 8 |
| 7.2.4 | Connection of the Cubic Type Inverter Unit | 7 - 10 |
| 7.2.5 | Selection of the Converter | 7 - 12 |

8. CONNECTION OF RS-232C

| | | |
|-------|---|-------|
| 8.1 | Connection between Devices | 8 - 2 |
| 8.1.1 | Connection with CNC Operation Panel | 8 - 2 |
| 8.2 | Detailed Connection of RS-232C | 8 - 3 |
| 8.2.1 | Connection with CNC Operation Panel | 8 - 3 |
| 8.2.2 | Connection of Tape Reader | 8 - 4 |
| 8.3 | RS-232C Interface | 8 - 5 |
| 8.3.1 | Transmission Method | 8 - 5 |
| 8.3.2 | Codes to be Used | 8 - 5 |
| 8.3.3 | Communication Baud Rate | 8 - 6 |
| 8.3.4 | Cable Length | 8 - 6 |
| 8.3.5 | Connection between Devices | 8 - 6 |
| 8.3.6 | Signal Communication Timing | 8 - 8 |

9. CONNECTION OF DIRECT-IN

| | | |
|-------|--|-------|
| 9.1 | Connection between Devices | 9 - 2 |
| 9.1.1 | Connection to CNC Unit | 9 - 2 |
| 9.2 | Detailed Connection of Direct-in | 9 - 3 |
| 9.2.1 | Connection to CNC Unit | 9 - 3 |

| | |
|---------------------------------------|-------|
| 9.3 Description of Signal | 9 - 4 |
| 9.3.1 Input Circuit on CNC Side | 9 - 4 |

10. CONNECTION OF I/O MODULE

| | |
|--|--------|
| 10.1 Connection between Devices | 10 - 2 |
| 10.1.1 Connection between Units | 10 - 2 |
| 10.2 Detailed Connection of I/O Module | 10 - 3 |
| 10.2.1 Connection between Units | 10 - 3 |
| 10.3 Connection between Devices of Additional I/O Module | 10 - 4 |
| 10.3.1 Connection between Units | 10 - 4 |
| 10.4 Detailed Connection of Additional I/O Module | 10 - 5 |
| 10.4.1 Connection between Units | 10 - 5 |

11. CONNECTION OF GENERAL-PURPOSE I/O

| | |
|--|---------|
| 11.1 Connection between Devices | 11 - 2 |
| 11.1.1 Connection of Signal Line with I/O Module | 11 - 2 |
| 11.2 Detailed Connection of General-purpose I/O | 11 - 4 |
| 11.2.1 FC810/FC815/FC860 Module | 11 - 4 |
| 11.2.2 FC861 Module | 11 - 27 |
| 11.2.3 JSP02/JSP04 Module | 11 - 36 |
| 11.3 Description of General-purpose I/O Signal | 11 - 46 |
| 11.3.1 I/O Port | 11 - 46 |
| 11.3.2 I/O Circuit of I/O Port | 11 - 49 |
| 11.3.3 I/O Circuits of I/O Ports | 11 - 58 |

APPENDIX 1 DIMENSIONS

| | |
|--|--------|
| APPENDIX 1.1 CNC Module | A1 - 2 |
| APPENDIX 1.2 Control Panel | A1 - 3 |
| APPENDIX 1.3 I/O Module | A1 - 7 |
| APPENDIX 1.4 AC Servopack (Including Converter and Spindle Drive) | A1 - 8 |

| | | |
|---------------|--|---------|
| APPENDIX 1.5 | AC Servomotor Σ Series (Model SGMG, for 200 VAC) | A1 - 9 |
| APPENDIX 1.6 | Spindle Motor M5 Series (Model UAASKA, for 200 VAC) | A1 - 10 |
| APPENDIX 1.7 | Power Supply Unit for Brake (OPR109F, OPR109A) | A1 - 13 |
| APPENDIX 1.8 | Noise Filter | A1 - 14 |
| APPENDIX 1.9 | Manual Pulse Generator (OSM-01-2GA-15) ... | A1 - 15 |
| APPENDIX 1.10 | Spindle Pulse Generator | A1 - 16 |
| APPENDIX 1.11 | Tape Reader (Model 2801) | A1 - 18 |
| APPENDIX 1.12 | Heat Exchanger | A1 - 19 |

APPENDIX 2 SPECIFICATIONS OF CABLE

| | | |
|--------------|---|---------|
| APPENDIX 2.1 | Cable Manufacturing Drawings | A2 - 2 |
| 2.1.1 | Connection with the Operation Panel | A2 - 2 |
| 2.1.2 | RS-232C Cable Connection | A2 - 3 |
| 2.1.3 | Connection with the Pulse Generator | A2 - 3 |
| 2.1.4 | Connection with the Power Supply Unit | A2 - 4 |
| 2.1.5 | Connection of the Direct IN Signals | A2 - 4 |
| 2.1.6 | Connection with the I/O Board | A2 - 5 |
| 2.1.7 | Connection with the Servo Unit | A2 - 6 |
| APPENDIX 2.2 | Specifications of Cable | A2 - 7 |
| APPENDIX 2.3 | Special Cable for Servopack | A2 - 11 |