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You can read the recommendations in the user guide, the technical guide or the installation guide for OMRON SIGMA-5 SERVO DRIVE. You'll find the answers to all your questions on the OMRON SIGMA-5 SERVO DRIVE in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual OMRON SIGMA-5 SERVO DRIVE
User guide OMRON SIGMA-5 SERVO DRIVE
Operating instructions OMRON SIGMA-5 SERVO DRIVE
Instructions for use OMRON SIGMA-5 SERVO DRIVE
Instruction manual OMRON SIGMA-5 SERVO DRIVE

OMRON

Sigma-5 servo drive

The High performance servo family for motion control. Compact size, reduced space and integrated MECHATROLINK-II.

- Advance autotuning function
- Enhanced vibration suppression function
- Standard support for analog voltage/pulse train reference series or MECHATROLINK-II communications reference series.
- Support for direct drive servomotors, linear servomotors and linear sliders.
- Integrated safety stop function
- Oscilloscope available via software tool
- Windows-based configuration and commissioning software

Ratings

- 230 VAC Single-phase 50 W to 1.5 kW (4.77 Nm)
- 400 VAC Three-phase 500 W to 15 kW (85.4 Nm)

System configuration

(Refer to chapter Sigma-5 rotary motors)

(Refer to chapter Sigma-5 rotary motors)

(Refer to chapter Sigma-5 linear motors)

(Refer to chapter Sigma-5 direct drive motors)

Sigma-5 servo drive



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Manual abstract:

Compact size, reduced space and integrated MECHATROLINK-II. · Advance autotuning function · Enhanced vibration suppression function · Standard support for analog voltage/pulse train reference series or MECHATROLINK-II communications reference series. · Support for direct drive servomotors, linear servomotors and linear sliders · Integrated safety stop function · Oscilloscope available via software tool · Windows based configuration and commissioning software Ratings · 230 VAC Single-phase 50 W to 1.5 kW (4.77 Nm) · 400 VAC Three-phase 500 W to 15 kW (95.4 Nm) System configuration (Refer to chapter Sigma-II rotary motors) Sigma-5 Analog/Pulse Reference Servo Drive CN5 Analog monitor cable Personal computer SGMAH, SGMPH Servo Motor SGMGH, SGMUH, SGMSH, SGMBH Servo Motor CN7 USB cable (Refer to chapter Sigma-5 rotary motors) CN1 Position control unit CN8 CN2 SGMJV, SGMAV, SGMEV Servo Motor SGMGV, SGMSV Servo Motor General purpose cable Terminal block position control Unit Safety cable Battery case for absolute encoder (Refer to chapter Sigma linear motors) Sigma-5 MECHATROLINK-II Servo Drive CN5 Analog monitor cable MECHATROLINK-II network Personal computer (Refer to chapter Sigma direct drive motors) CN7 USB cable SGLG_linear Servo Motor SGLF_linear Servo Motor SGLT_linear Servo Motor CN6 CN1 General purpose connector CN8 CN2 Safety cable Battery case for absolute encoder Direct drive servo motor SGMCS-@-@B, C, D, E Direct drive servo motor SGMCS-@-@M, N Sigma-5 servo drive 1 Servo motor / servo drive combination Sigma-5 Servo drive 230 V (1 phase) 230 V (1 phase) 400 V (3 phase) 400 V (3 phases) Analog/Pulse MECHATROLINK-II Analog/Pulse MECHATROLINK-II Sigma-II series motors (refer to the Sigma-II rotary motors chapter for details) 0.0955 Nm 30 W SGDV-A5A01A-OY SGMGH (3000 min-1) 230 V 0.159 Nm 50 W SGMV-A5A01A-OY SGMV-A5A11A-OY 0.318 Nm 100 W SGMV-01A01A-OY SGMV-01A11A-OY 0.637 Nm 200 W SGMV-02A01A-OY SGMV-02A11A-OY 1. 27 Nm 400 W SGMV-04A01A-OY SGMV-04A11A-OY 2.39 Nm 750 W SGMV-08A01A-OY SGMV-08A11A-OY 400 V 0.955 Nm 300 W SGMV-05D01A-OY SGMV-05D11A-OY 2.07 Nm 650 W SGMV-10D01A-OY SGMV-10D11A-OY 0.318 Nm 100 W SGMV-01A01A-OY SGMV-01A11A-OY SGMV (3000 min-1) 230 V 0. 637 Nm 200 W SGMV-02A01A-OY SGMV-02A11A-OY 1.27 Nm 400 W SGMV-04A01A-OY SGMV-04A11A-OY 2.39 Nm 750 W SGMV-08A01A-OY SGMV-08A11A-OY 4.77 Nm 1500 W SGMV-15A01A-OY-008000 SGMV-15A11A-OY-008000 400 V 0.637 Nm 200 W SGMV-05D01A-OY SGMV-05D11A-OY 1. 27 Nm 400 W SGMV-05D01A-OY SGMV-05D11A-OY 2.39 Nm 750 W SGMV-10D01A-OY SGMV-10D11A-OY 4.77 Nm 1500 W SGMV-15D01A-OY SGMV-15D11A-OY 2.84 Nm 0.45 kW SGMV-05D01A-OY SGMV-05D11A-OY SGMV (1500 min-1) 400 V 5.39 Nm 0.85 kW SGMV-10D01A-OY SGMV-10D11A-OY 8.34 Nm 1.3 kW SGMV-15D01A-OY SGMV-15D11A-OY 11.5 Nm 1. 8 kW SGMV-20D01A-OY SGMV-20D11A-OY 18.6 Nm 2.9 kW SGMV-30D01A-OY SGMV-30D11A-OY 28.4 Nm 4.4 kW SGMV-50D01A-OY SGMV-50D11A-OY 35.0 Nm 5.5 kW SGMV-210D01A SGMV-210D11A 48.0 Nm 7.5 kW SGMV-260D01A SGMV-260D11A 70.0 Nm 11 kW SGMV-280D01A SGMV-280D11A 95. 4 Nm 15 kW SGMV-370D01A SGMV-370D11A 3.18 Nm 1.0 kW SGMV-10D01A-OY SGMV-10D11A-OY SGMSH (3000 min-1) 400 V 4.90 Nm 1.5 kW SGMV-15D01A-OY SGMV-15D11A-OY 6. 36 Nm 2.0 kW SGMV-20D01A-OY SGMV-20D11A-OY 9.80 Nm 3.0 kW SGMV-30D01A-OY SGMV-30D11A-OY 12.6 Nm 4. 0 kW SGMV-50D01A-OY SGMV-50D11A-OY 15.8 Nm 5.0 kW SGMV-50D01A-OY SGMV-50D11A-OY 1.59 Nm 1.0 kW SGMV-10D01A-OY SGMV-10D11A-OY SGMUH (6000 min-1) 400 V 2.45 Nm 1.5 kW SGMV-15D01A-OY SGMV-15D11A-OY 4.9 Nm 3.0 kW SGMV-30D01A-OY SGMV-30D11A-OY 6.3 Nm 4. 0 kW SGMV-50D01A-OY SGMV-50D11A-OY Sigma-5 series motors (refer to the Sigma-5 rotary motors chapter for details) 230 V 0.159 Nm 50 W SGMV-A5A01A-OY SGMV-A5A11A-OY SGMJV (3000 min-1) 0.318 Nm 100 W SGMV-01A01A-OY SGMV-01A11A-OY 0.637 Nm 200 W SGMV-02A01A-OY SGMV-02A11A-OY 1.27 Nm 400 W SGMV-04A01A-OY SGMV-04A11A-OY 2.39 Nm 750 W SGMV-08A01A-OY SGMV-08A11A-OY 0.159 Nm 50 W SGMV-A5A01A-OY SGMV-A5A11A-OY SGMAV (3000 min-1) 230 V 0.318 Nm 100 W SGMV-01A01A-OY SGMV-01A11A-OY 0.477 Nm 150 W SGMV-02A01A-OY SGMV-02A11A-OY 0.637 Nm 200 W SGMV-02A01A-OY SGMV-02A11A-OY 1. 27 Nm 400 W SGMV-04A01A-OY SGMV-04A11A-OY 1.75 Nm 550 W SGMV-08A01A-OY SGMV-08A11A-OY 2.39 Nm 750 W SGMV-08A01A-OY SGMV-08A11A-OY 3.18 Nm 1.0 kW SGMV-15A01A-OY-008000 SGMV-15A11A-OY-008000 0. 318 Nm 100 W SGMV-01A01A-OY SGMV-01A11A-OY SGMEV (3000 min-1) 230 V 0.637 Nm 200 W SGMV-02A01A-OY SGMV-02A11A-OY 1.27 Nm 400 W SGMV-04A01A-OY SGMV-04A11A-OY 2.39 Nm 750 W SGMV-08A01A-OY SGMV-08A11A-OY 4.77 Nm 1. 5 kW SGMV-15A01A-OY-008000 SGMV-15A11A-OY-008000 400 V 0.637 Nm 200 W SGMV-05D01A-OY SGMV-05D11A-OY 0.955 Nm 300 W SGMV-05D01A-OY SGMV-05D11A-OY 1.27 Nm 400 W SGMV-05D01A-OY SGMV-05D11A-OY 2.07 Nm 650 W SGMV-10D01A-OY SGMV-10D11A-OY 2.39 Nm 750 W SGMV-10D01A-OY SGMV-10D11A-OY 4.77 Nm 1.5 kW SGMV-15D01A-OY SGMV-15D11A-OY Family Capacity Servo motor Voltage Rated torque 2 AC servo systems 230 V (1 phase) Analog/Pulse -1 SGMGV (1500 min) 400 V 1.96 Nm 300 W 2.86 Nm 450 W 5. 39 Nm 850 W 8.34 Nm 1.3 kW 11.5 Nm 1.8 kW 18.6 Nm 2.9 kW 28.4 Nm 4.4 kW 35.0 Nm 5. 5 Kw 48.0 Nm 7.5 Kw 70.0 Nm 11 Kw 95.4 Nm 15 Kw 3. 18 Nm 1 kW SGMSV (3000 min-1) 400 V 4.9 Nm 1.5 kW 6.36 Nm 2 kW 7.96 Nm 2. 5 kW 9.8 Nm 3 kW 12.6 Nm 4 kW 15.8 Nm 5 kW Sigma direct drive motors (refer to the Sigma direct drive motors chapter for details) 230 V 2.0 Nm 42 W SGMV-04A01A-OY SGMCS (200 min-1) 5.0 Nm 105 W SGMV-04A01A-OY 7.0 Nm 147 W SGMV-02A01A-OY 4.0 Nm 84 W SGMV-04A01A-OY 10.0 Nm 209 W SGMV-04A01A-OY 14.0 Nm 293 W SGMV-04A01A-OY 8. 0 Nm 168 W SGMV-04A01A-OY 17.0 Nm 356 W SGMV-04A01A-OY 25.0 Nm 393 W SGMV-04A01A-OY 16.0 Nm 335 W SGMV-08A01A-OY 35.0 Nm 550 W SGMV-08A01A-OY 45.0Nm 707 W SGMV-15A01A-OY-008000 80.0 Nm 1260 W SGMV-15A01A-OY-008000 Sigma linear motors (refer to the Sigma linear motors chapter for details) SGLGW coreless 230 V 12.5 N (40 N peak) SGMV-A5A05A-OY standard-force 25 N (80 N peak) SGMV-01A05A-OY magnetic ways 47 N (140 N peak) SGMV-01A05A-OY 70 N (220 N peak) SGMV-02A05A-OY 93 N (280 N peak) SGMV-02A05A-OY 140 N (420 N peak) SGMV-04A05A-OY 140 N (440 N peak) SGMV-04A05A-OY 210 N (660 N peak) SGMV-08A05A-OY 325 N (1300 N peak) SGMV-15A05A-OY-008000 SGLGW coreless 230 V 57 N (230 N peak) SGMV-02A05A-OY high-force 114 N (460 N peak) SGMV-02A05A-OY magnetic ways 171 N (690 N peak) SGMV-08A05A-OY 85 N (360 N peak) SGMV-02A05A-OY 170 N (720 N peak) SGMV-08A05A-OY 255 N (1080 N peak) SGMV-08A05A-OY SGLFW 230 V 25 N (86 N peak) SGMV-02A05A-OY Linear motors 40 N (125 N peak) SGMV-01A05A-OY 80 N (220 N peak) SGMV-02A05A-OY 160 N (440 N peak) SGMV-04A05A-OY 280 N (600 N peak) SGMV-08A05A-OY 560 N (1200 N peak) SGMV-15A05A-OY-008000 400 V 80 N (220 N peak) 160 N (440 N peak) 280 N (600 N peak) 560 N (1200 N peak) 1120 N (2400 N peak) 1500 N (3600 N peak) 2250 N (5400 N peak) SGLTW 400 V 300 N (600 N peak) Linear motors 600 N (1200 N peak) 450 N (900 N peak) 900 N (1800 N peak) 670 N (2600 N peak) 1000 N (4000 N peak) 1300 N (5000 N peak) - Family Servo motor Voltage Rated torque Capacity Sigma-5

Servo drive 230 V (1 phase) 400 V (3 phase) MECHATROLINK-II Analog/Pulse SGD-05D01A-OY SGD-05D01A-OY SGD-10D01A-OY SGD-15D01A-OY SGD-20D01A-OY SGD-30D01A-OY SGD-50D01A-OY SGD-210D01A SGD-260D01A SGD-280D01A SGD-370D01A SGD-10D01A-OY SGD-15D01A-OY SGD-20D01A-OY SGD-30D01A-OY SGD-30D01A-OY SGD-50D01A-OY SGD-50D01A-OY SGD-04A11A-OY SGD-04A11A-OY SGD-02A11A-OY SGD-04A11A-OY SGD-04A11A-OY SGD-04A11A-OY SGD-04A11A-OY SGD-04A11A-OY SGD-08A11A-OY SGD-08A11A-OY SGD-15A11A-OY-008000 SGD-15A11A-OY-008000 SGD-A5A15A-OY SGD-01A15A-OY SGD-01A15A-OY SGD-02A15A-OY SGD-02A15A-OY SGD-04A15A-OY SGD-04A15A-OY SGD-08A15A-OY SGD-15A15A-OY-008000 SGD-02A15A-OY SGD-02A15A-OY SGD-08A15A-OY SGD-02A15A-OY SGD-08A15A-OY SGD-08A15A-OY SGD-08A15A-OY SGD-02A15A-OY SGD-01A15A-OY SGD-02A15A-OY SGD-04A15A-OY SGD-08A15A-OY SGD-15A15A-OY-008000 SGD-05D05A-OY SGD-05D05A-OY SGD-10D05A-OY SGD-15D05A-OY SGD-30D05A-OY SGD-20D05A-OY SGD-30D05A-OY SGD-10D05A-OY SGD-20D05A-OY SGD-10D05A-OY SGD-20D05A-OY SGD-30D05A-OY SGD-50D05A-OY SGD-50D05A-OY 400 V (3 phases) MECHATROLINK-II SGD-05D11A-OY SGD-05D11A-OY SGD-10D11A-OY SGD-15D11A-OY SGD-20D11A-OY SGD-30D11A-OY SGD-50D11A-OY SGD-210D11A SGD-260D11A SGD-280D11A SGD-370D11A SGD-10D11A-OY SGD-15D11A-OY SGD-20D11A-OY SGD-30D11A-OY SGD-30D11A-OY SGD-50D11A-OY SGD-50D11A-OY SGD-05D15A-OY SGD-05D15A-OY SGD-10D15A-OY SGD-15D15A-OY SGD-30D15A-OY SGD-20D15A-OY SGD-30D15A-OY SGD-10D15A-OY SGD-20D15A-OY SGD-10D15A-OY SGD-20D15A-OY SGD-30D15A-OY SGD-50D15A-OY SGD-50D15A-OY Sigma-5 servo drive 3 Type designation Servo drive Sigma-5 servo drive Capacity Voltage Code A5 01 02 230 V 04 08 15 05 10 15 20 30 400 V 50 210 260 280 370 Output 50 W 100 W 200 W 400 W 750 W 1.



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5 kW 500 W 1.0 kW 1.

5 kW 2.0 kW 3.0 kW 5.0 kW 6.0 kW 7.

5 kW 11 kW 15 kW Code Blank Specifications Standard 008000 Servo drive 1.5 kW single-phase 230 V Omron-Yaskawa Motion Control B.V. (Note: all models except 6 to 15 kW) Design Revision Order: A, B.

. Interface Code 01 05 Specifications Analog voltage/pulse train reference type (for rotary servomotors) Analog voltage/pulse train reference type (for linear servomotors) MECHATROLINK-II comms reference type (for rotary servomotors) MECHATROLINK-II comms reference type (for linear servomotors) Source voltage A: 230 V D: 400 V 11 15 Servo drive specifications Single-phase, 230 V Servo drive type Applicable servo motor SGD V- @ SGMAH-@ SGM P H-@ SGM J V-@ SGMAV-@ SGMEV-@ Max. applicable motor capacity W Continuous output current Arms Max. output current Arms Input power Main circuit Supply Control circuit Control method Feedback Usage/storage temperature Usage/storage humidity Altitude Vibration/shock resistance Configuration Approx. weight Kg Conditions A5A@@A-OY 01A@@A-OY 02A@@A-OY 04A@@A-OY 08A@@A-OY A3A@/A5A@ 01A@ 02A@ 04A@ 08A@ 01A@ 02A@ 04A@ 08A@ A5A@ 01A@ 02A@ 04A@ 08A@ A5A@ 01A@ C2A@/02A@ 04A@ 06A@/08A@ 01A@ 02A@ 04A@ 08A@ 50 100 200 400 750 0.66 0.91 1.6 2.8 5.5 2.

1 2.9 6.5 9.3 16.9 Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz) Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz) Single phase full-wave rectification / IGBT / PWM / sine-wave current drive method Serial encoder (incremental/absolute) 0 to +55 °C / -20 to 85 °C 90%RH or less (non-condensing) 1000m or less above sea level 4.9 m/s² / 19.6 m/s² Base mounted 0.9 1.0 1.5 15A@@A-OY-008000 15A@ 10A@ 15A@ 1500 11.

6 28 Basic specifications 2.8 Three-phase, 400 V Servo drive type Applicable servo motor SGDV-@ SGMAH-@ SGM P H-@ SGM G H-@ SGM S H-@ SGM U H-@ SGMEV-@ SGM G V-@ SGMSV-@ Max. applicable motor capacity kW Continuous output current Arms Max. output current Arms Input power Main circuit Supply Control circuit Control method Feedback Usage/storage temperature Usage/storage humidity Altitude Vibration/shock resistance Configuration Approx. weight Kg Conditions 05D@ 10D@ 15D@ 20D@ 30D@ 50D@ 210D@ 260D@ 03D@ 07D@ 02D@/04D@ 08D@ 15D@ 05D@ 09D@ 13D@ 20D@ 30D@ 44D@ 55D@ 75D@ 10D@ 15D@ 20D@ 30D@ 40D@/50D@ 10D@ 15D@ 30D@ 40D@ 02/03/04D@ 07D@/08D@ 15D@ 03D@/05D@ 09D@ 13D@ 20D@ 30D@ 44D@ 55D@ 75D@ 10D@ 15D@ 20D@ 25D@ 40D@/50D@ 0.

5 1.0 1.5 2.0 3.0 5.

0 6.0 7.5 1.9 3.5 5.4 8.4 11.9 16.5 20.8 25.

4 5.5 8.5 14 20 28 42 55 65 Three-phase, 380 to 480 VAC + 10 to -15% (50/60Hz) 24 VDC +/-15% Three phase full-wave rectification / IGBT / PWM / sine-wave current drive method Serial encoder (incremental/absolute) 0 to +55 °C / -20 to +85 °C 90%RH or less (non-condensing) 1000 m or less above sea level 4.9 m/s² / 19.6 m/s² Base mounted 2.7 3.7 5.6 11.3 280D@ 1AD@ 1AD@ 11 28.1 70 370D@ 1ED@ 1ED@ 15 37.

2 85 Basic specifications 16.2 4 AC servo systems Sigma-5 Analog/Pulse Reference Servo Drive General specifications Speed control range Speed Load variance variance Voltage variance Temperature variance Frequency characteristics Torque control accuracy (Repeatability) Soft start time setting Speed Reference voltage reference input Input impedance Circuit time constant Torque Reference voltage reference input Input impedance Circuit time constant Feedforward compensation Position completed width setting 1:5000 During 0 to 100% load ±0.01% max. (at rated speed) Rated voltage ±10%:0% (at rated speed) 25 ±25 °C: ±0.1 % max.

@@input voltage: ±12 V Approx. 14 k Approx. 30 μs ±3 VDC (forward rotation if positive reference) at ratle part travels beyond the Reverse run prohibited allowable range of motion. Function selected by parameter. @@@@Alarm reset: releases the servo alarm state.

@@Allowable voltage fluctuation range: 11 to 25 V Initial data request signal when using an absolute encoder. Connecting pin for the absolute encoder backup battery. Do not connect when the encoder cable for the battery case is used. Speed reference input: ±2 to ±10 V/rated motor speed (Input gain can be modified using a parameter). Torque reference input: ±1 to ±10 V/rated motor torque (Input gain can be modified using a parameter). Reference pulse input Input mode is set from the following pulses: for line driver only Sign + pulse string CCW/CW pulse Two-phase pulse (90° phase differential) Positional error pulse clear input: clears the positional error pulse during position control. Note: 1. Pin numbers in parentheses () indicate signal grounds. 2. The functions allocated to /S-ON, /P-CON.

/P-OT, /N-OT, /ALM-RST, /P-CL, and /N-CL input signals can be changed by using the parameters. 3. The voltage input range for speed and torque references is a maximum of ±12 V. 6 AC servo systems I/O signals (CN1) - output signals Pin No. 31 32 27 28 29 30 33 34 35 36 19 20 37 (1) 38 (1) 39 (1) Shell 25 26 25 26 Signal Name Common ALM+ ALM/TGON+ /TGON/S-RDY+ /S-RDYP/AO /PAO PBO /PBO PCO /PCO ALO1 ALO2 ALO3 FG Speed /V-CMP+ /V-CMPPosition /COIN+ /COINReserved /CLT /VLT /BK /WARN /NEAR Function Servo alarm: Turns OFF when an error is detected. Detection during servo motor rotation: detects when the servo motor is rotating at a speed higher than the motor speed setting. Servo ready: ON if there is no servo alarm when the control/main circuit power supply is turned ON. Phase-A signal Phase-B signal Phase-C signal Zero-point pulse signal Two-phase pulse encoder output pulse signal Alarm code output: Outputs 3-bit alarm codes. Connected to frame ground if the shield wire of the I/O signal cable is connected to the connector shell.

Turns ON when whether the motor speed is within the setting range is detected and if it matches the reference speed value.

Turns ON when the number of position error pulse reaches the value set. Reserved terminals The functions allocated to /TGON, /S-RDY, and /V-CMP (/COIN) can be changed by using the parameters. /CLT, /VLT, /BK, /WARN and /NEAR signals can also be changed. 3 13 16 17 18 23 24 48 49 50 Terminals not used. Do not connect.

Note: 1. Pin numbers in parentheses () indicate signal grounds. 2. The functions allocated to /TGON, /S-RDY, and /V-CMP (/COIN) output signals can be changed by using the parameters. /CLT, /VLT, /BK, /WARN and /NEAR signals can also be changed.

I/O signals (CN8) - safety signals Pin No. @@Terminals not used. Do not connect. Terminal specifications Symbol L1, L2 or L1, L2, L3 U, V, W L1C, L2C 24V, 0V B1, B2, B3 Name Main circuit AC input terminal Servo motor connection terminal Control power input terminal Frame ground Main circuit DC output terminal Function AC power input terminals for the main circuit Terminals for outputs to the servo motor. AC power input terminals for the control circuit. 24V DC power input terminals for the control circuit. Ground terminal. Ground to a maximum of 100 . (class 3). @@From 500 W to 5 kW: Normally short B2 and B3.

@@Normally, short 1 and 2. @@1 2 3 4 5 6 Signal Name E5V E0V BAT+ BAT S+ S Function Encoder power supply + 5 V Encoder power supply ground Battery + (used only with absolute encoder) Battery (used only with absolute encoder) Encoder serial signal input Encoder serial signal input Sigma-5 servo drive 7 Sigma-5 MECHATROLINK-II Servo Drives General specifications Position/speed/torque control mode Speed control range Speed Load variance variance Voltage variance Temperature variance Frequency characteristics Torque control accuracy (Repeatability) Soft start time setting MECHATROLINK Communication 1:5000 During 0 to 100% load ±0.



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01% max. (at rated speed) Rated voltage $\pm 10\%$:0% (at rated speed) 25 ± 25 °C: ± 0.1 % max. (at rated speed) 1.6 kHz $\pm 1\%$ 0 to 10 s (acceleration, deceleration can each be set.) MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands) Performance Command input I/O signal Position signal output Sequence input signal Sequence output signal Communications USB Interface Communications standard tions Function Mechatrolink Communications protocol Communicat- Station Address tions Transmission Speed Transmission Cycle Data length A-phase, B-phase, C-phase: line driver output. Homing deceleration limit switch, forward/reverse run prohibited, external latch signals, forward/reverse current limit.

It is possible to output three types of signal form incl.: positioning complete, speed coincidence detection, servomotor rotation detection, servo ready, current limit detection, speed limit detection, brake release, warning, NEAR. Personal computer Compliant with USB1.1 standard (12 Mbps) Status display, parameter setting, adjusting functions, utility functions, alarm traceback display, JOG run/autotuning operations and graphing functions for speed/torque command signal, etc MECHATROLINK-II 41H to 5FH (max. number of slaves: 30) 10 Mbps 250 μ s, 0.

5 to 4.0 ms (multiple of 0.5 ms) 17-bytes and 32-bytes Automatic motor parameter setting. One parameter rigidity setting. Operates during main power OFF, servo alarm, servo OFF or overtravel Internal resistor included in models from 500 W to 5 kW.

Regenerative resistor externally mounted (option). DB stop, deceleration stop or coast to stop during P-OT, N-OT operation Optional division pulses possible 0,01< Numerator/Denominator<100 3 speeds may be set internally Overcurrent, overvoltage, low voltage, overload, regeneration error Integrates analog monitor connectors for supervision of the speed and torque reference signals, etc. Number of channels: 2 (Output volatge: +/-10V DC). CHARGE, 7-segments LEDX1 Rotary switch: MECHATROLINK-II station address setting (16 channels) DIP switch: MECHATROLINK-II communications setting (4 channels)

Hard wire base block signal and status monitor (fixed output) of safety circuit Reverse connection, zero search, automatic motor discrimination function, and DC reactor connection terminal for high frequency power suppression function. Automatic load inertia detection Dynamic brake (DB) Regenerative processing Overtravel (OT) prevention function Encoder divider function Electronic gearing Internal speed setting function Protective functions Analog monitor functions for supervision Panel operator Display functions Switches Integrated functions Safety functions Others I/O specifications I/O signals (CN1) - input signals Pin No. 9 7 8 10 11 12 6 14 15 13 Signal name Common /DEC P-OT N-OT /EXT 1 /EXT 2 /EXT 3 +24VIN BAT (+) BAT (-) /SIO Function Homing deceleration limit switch Connects the deceleration limit switch for homing. Forward run prohibited Overtravel prohibited: Stops servo motor when movable part travels beyond the Reverse run prohibited allowable range of motion. @@External latch signal 2 External latch signal 3 @@Allowable voltage fluctuation range: 11 to 25 V. Connecting pin for the absolute encoder backup battery. Do not connect when a battery is connected to the host controller.

@@@2. @@@@Brake interlock signal Controls the brake. The brake is released when the signal turns ON. @@@@Terminals not used. @AC power input terminals for the control circuit. 24V DC power input terminals for the control circuit. Ground terminal. Ground to a maximum of 100 . (class 3). @From 500 W to 5 kW: Normally short B2 and B3.

@@Normally, short 1 and 2. @@@@Blinks the alarm number Keys Key name SGDV-@@@Used as a data setting key while in setting mode. Turns the servo ON or OFF while jog operations are being performed. Increments parameter settings. Used as a forward rotation start key during jog operation.

Decrements parameter settings. @@@@Selects the digit whose setting is to be changed. When selected, the digit flashes. @e 6 0 h. b b tst Status A. E60.Alarm number 60 Hard Wire Base Block. Servo drive is baseblocked by the safety function Mode test without motor 10 AC servo systems Dimensions Sigma-5 Analog/Pulse Reference Servo Drive SGDV-A5A0@A-OY to -02A0@A-OY (230 V, 50 to 200 W) (17) (20) 5 2-M4 Screw Holes Cooling Fan CN3 CN7 160 150 \pm 0.5(Mounting Pitch) Nameplate (1 20 °) Servo drive Rear View Two Terminals CN8 CN2 Ground Terminal 2-M4 Screws 40 160 CN1 (25) 23 (75) (4) 140 35 40 Mounting Hole Diagram SGDV-04A0@A-OY (230 V, 400 W) (17) 2-M4 Screw Holes (20) Nameplate 5 150 \pm 0.5(Mounting Pitch) Cooling Fan CN3 CN7 (1 20 °) 160 Two Terminals CN8 CN2 Ground Terminal 2-M4 Screws 40 160 CN1 Servo drive Rear View (25) 23 (75) (4) 170 5 40 30 \pm 0.5 (Mounting Pitch) Mounting Hole Diagram SGDV-08A0@A-OY (230 V, 750 W) (17) (20) Cooling Fan (4) 150 \pm 0.5(Mounting Pitch) 5 3-M4 Screw Holes Nameplate CN3 CN7 160 CN1 (12 0°) Servo drive Rear View Two Terminals CN8 CN2 Ground Terminal 2-M4 Screws 70 160 (25) 23 (75) 6 180 58 \pm 0.5 (Mounting Pitch) 70 Mounting Hole Diagram Sigma-5 servo drive 11 SGDV-15A0@A-OY (230 V, 1.5 kW) (20) (120 °) Input Voltage Air Flow Nameplate Model CN3 CN7 CN1 CN8 CN2 170 \pm 0.5(Mounting Pitch) SERVOPACK Rear View (17) 5 4-M4 Screw Holes 180 Ground Terminal 2-M4 Screws 180 Air Flow 100 (75) 22 180 (4) 5 90 \pm 0.

5 (Mounting Pitch) 100 Mounting Hole Diagram (10 0°) (40) Cooling Fan Terminal 14-M4 Screws SGDV-05D0@A-OY to -15D0@A-OY (400 V, 0.5 to 1.5 kW) 17.5 (20) 7.5 37 72 (17) 4-M4 Screw Holes Nameplate Two Terminals 195 160 CN1 CN8 CN2 (2) 166 Min. CN3 CN7 (1 20 °) 195 180 \pm 0.5(Mounting Pitch) 7 Servo drive Rear View Ground Terminal 2-M4 Screws 110 (25) 23 24.5 (75) 48 180 50 \pm 0.5 (Mounting Pitch) 110 Mounting Hole Diagram Cooling Fan 12 AC servo systems SGDV-20/30D0@A-OY (400 V, 2/3 kW) 17.5 (17) Nameplate CN1 285 250 285 CN8 CN2 Ground Terminal 2-M4 Screws 110 22 (75) 0 (10 (2) 24.

5 180 270 \pm 0.5(Mounting Pitch) 258 Min. CN3 CN7 7.5 6 15 80 (20) (120 °) 4-M5 Screw Holes Servo drive Rear View 30 110 50 \pm 0.5 (Mounting Pitch) Mounting Hole Diagram °) (40) Cooling Fan Terminal 14-M4 Screws Terminal Details 17.

5 (20) SGDV-50D0@A-OY (400 V, 5 kW) Cooling Fan Nameplate 20 80 (17) CN3 CN7 CN1 285 250 (1 20 °) CN8 CN2 22 (75) 135 7.5 6 (2) 24.5 230 Terminal 4-M5 Screw Holes 6-M5 Screws 270 \pm 0.5(Mounting Pitch) 258 Min. 285 Servo drive Rear View Terminal 5-M4 Screws Terminal 3-M5 Screws Ground Terminal 2-M5 Screws 135 50 \pm 0.



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5 (Mounting Pitch) Terminal Details (1 00 °) (83) 35 Mounting Hole Diagram Sigma-5 servo drive 13 SGD V-210D0@A to 260D0@A (400 V, 6 to 7.5 kW) (20) (17) Model CN3 CN7 CN8 CN2 Terminal 46-M Screws Terminal 66-M Screws 335±0.5 (Mounting Pitch) CN1 7.5 Input Voltage (12 °) 0° 46-M Screw Holes 350 350 Servo drive Rear View Terminal 24-M Screws 230 Ground Terminal 26-M Screws 13 (75) 25 210 180±0.5 (Mounting Pitch) 230 Mounting Hole Diagram SGD V-280D0@A to 370D0@A (400 V, 11 to 15 kW) Input Voltage Model CN3 CN7 CN1 CN8 CN2 (20) (12 (17) 385±0.5 (Mounting Pitch) 7.5) 0° 46-M Screw Holes Servo drive Rear View 400 Terminal 46-M Screws Terminal 66-M Screws Terminal 24-M Screws 230 Ground Terminal 26-M Screws 13 (75) 400 25 250 180±0.5 (Mounting Pitch) 230 Mounting Hole Diagram 14 AC servo systems Sigma-5 MECHATROLINK-II Servo Drives SGD V-A5A1@A-OY to -02A1@A-OY (230 V, 50 to 200 W) (15) (7) Cooling Fan 2-M4 Screw Holes 5 CN6 Nameplate CN3 CN7 160 (12 0°) 150±0.5(Mounting Pitch) Servo drive Rear View CN1 CN8 CN2 Two Terminals Ground Terminal 2-M4 Screws 40 (25) 23 (75) 140 160 (4) 35 40 Mounting Hole Diagram SGD V-04A1@A-OY (230 V, 400 W) (15) (7) Cooling Fan 2-M4 Screw Holes 5 Model CN6 Nameplate CN3 CN7 160 150±0.5(Mounting Pitch) (12 0°) Servo drive Rear View Two Terminals CN8 CN2 Ground Terminal 2-M4 Screws 40 160 CN1 (25) (75) 23 170 (4) 5 40 30±0.

5 (Mounting Pitch) Mounting Hole Diagram SGD V-08A1@A-OY (230 V, 750 W) (15) (7) Cooling Fan (12 0°) 150±0.5(Mounting Pitch) (4) 5 3-M4 Screw Holes Model CN6 Nameplate 160 CN3 CN7 CN1 Servo drive Rear View wo Terminals CN8 CN2 Ground Terminal 2-M4 Screws 70 160 (25) 23 (75) 180 6 58±0.5 (Mounting Pitch) 70 Mounting Hole Diagram Sigma-5 servo drive 15 SGD V-15A1@A-OY (230 V, 1.5 kW) Air Flow (120 Input Voltage Model CN6 (15) °) (17) 6 4-M4 Screw Holes 170±0.5(Mounting Pitch) Nameplate CN3 CN7 CN1 180 CN8 CN2 SERVOPACK Rear View Ground Terminal 2-M4 Screws 180 Air Flow 100 (75) 5 22 180 (4) 90±0.5 (Mounting Pitch) 100 Mounting Hole Diagram (10 0°) (40) Cooling Fan Terminal 14-M4 Screws SGD V-05D1@A-OY to -15D1@A-OY (400 V, 0.5 to 1.5 kW) (15) (7) 5.5 4-M4 Screw Holes Model CN6 Nameplate Two Terminals 160 (12 0°) 149.5±0.

5 (Mounting Pitch) CN3 CN7 CN1 CN8 CN2 160 Servo drive Rear View Ground Terminal 2-M4 Screws 110 5 (25) 23 (75) 180 (4) 100±0.5 (Mounting Pitch) 110 Mounting Hole Diagram Cooling Fan 16 AC servo systems SGD V-20/30D1@A-OY (400 V, 2/3 kW) (15) (120 °) (7) 6 4-M5 Screw Holes Model CN6 Nameplate CN3 CN7 CN1 250 CN8 CN2 238.5±0.5(Mounting Pitch) Servo drive Rear View Ground Terminal 2-M4 Screws 110 (75) 250 5 22 180 (4) 100±0.5 (Mounting Pitch) 110 Mounting Hole Diagram (10 0°) (40) Cooling Fan Terminal 14-M4 Screws Terminal Details SGD V-50D1@A-OY (400 V, 5 kW) Cooling Fan Nameplate (15) Input Voltage Model CN6 CN3 CN7 CN1 CN8 CN2 250 (7) (120 °) 22 (75) 135 4-M5 Screw Holes 6 Terminal 6-M5 Screws 230 (1).

6) Servo drive Rear View 238.5±0.5 (Mounting Pitch) (1 ° 00) 250 Terminal 5-M4 Screws Terminal 3-M5 Screws (83) (3.2) 5 125±0.5 (Mounting Pitch) 135 Ground Terminal 2-M5 Screws Terminal Details Sigma-5 servo drive 17 SGD V-210D1@A to 260D1@A (400 V, 6 to 7.

5 kW) (15) Input Voltage Model CN6 CN3 CN7 CN1 CN8 CN2 (7) 335±0.5 (Mounting Pitch) 7.5 0 (12 °) 46-M Screw Holes 350 Terminal 46-M Screws Terminal 66-M Screws 350 Servo drive Rear View Terminal 24-M Screws 230 Ground Terminal 26-M Screws 13 (75) 25 210 180±0.5 (Mounting Pitch) 230 Mounting Hole Diagram SGD V-280D1@A to 370D1@A (400 V, 11 to 15 kW) Input Voltage Model CN6 CN3 CN7 CN1 CN8 CN2 (15) (12 (7) 385±0.5 (Mounting Pitch) 7.5) 0° 46-M Screw Holes Servo drive Rear View 400 Terminal 46-M Screws Terminal 66-M Screws Terminal 24-M Screws 230 Ground Terminal 26-M Screws 13 (75) 400 25 250 180±0.5 (Mounting Pitch) 230 Mounting Hole Diagram 18 AC servo systems Filters R88A-FI5-1005-RE Units: mm 5 20±1 7 200±1 190 164±1 150 12 R88A-FI5-3004-RE Units: mm 5 mounts 20±1 7 Ø5.0 200±1 190 164±1 150 12 114±1 100 44±1 30 drive mounts 3 x M4 (1) output flexes 18AWG 2 x 320mm with ferrules 90 mounts Ø5.0 20 (1) 30 M5 Earth Stud each end 15 drive mounts 4 x M4 output flexes 16AWG 3 x 350mm with ferrules CABLE SIZE 0 to 6 mm2. strip 7 mm CABLE SIZE 0 to 6 mm2.

strip 7 mm (1) Connect to the servodrive ground in case not footprint installation (1) Connect to the servodrive ground in case not footprint installation Units: mm 5 mounts 20±1 7 Ø5.0 200±1 190 164±1 150 11 R88A-FI5-3008-RE 50 Units: mm mounts Ø5.5 6 20±1 8 290±1 279 255±1 239 72±1 58 drive mounts 3 x M4 (1) output flexes 18AWG 2 x 320mm with ferrules 20 R88A-FI5-1009-RE M5 Earth Stud each end 40 116±1 100 15 CABLE SIZE 0 to 6 mm2. strip 7 mm M5 Earth Stud each end (1) drive mounts 4 x M5 30 output flexes 16AWG 3 x 350mm with ferrules (1) Connect to the servodrive ground in case not footprint installation R88A-FI5-1016-RE Units: mm (1) Connect to the servodrive ground in case not footprint installation 5 mounts 20±1 7 Ø5.0 drive mounts M4 220±1 210 184±1 170 12 R88A-FI5-3012-RE 104±1 90 Units: mm 80 6 mounts 20±1 8 Ø5.5 290±1 279 255±1 239 13 (1) output flexes 16AWG 2 x 350mm with M4 spades CABLE SIZE 0 to 6 mm2. strip 7 mm 141±1 125 20 CABLE SIZE 0 to 6 mm2. strip 7 mm M5 Earth Stud each end 40 (1) 40 M5 Earth Stud each end drive mounts 4 x M5 (1) Connect to the servodrive ground in case not footprint installation 20 output flexes 16AWG 3 x 420mm with ferrules CABLE SIZE 0 to 6 mm2. strip 7 mm (1) Connect to the servodrive ground in case not footprint installation Sigma-5 servo drive 20 M5 Earth Stud each end 40 19 115 90 13 Single-phase, 230 VAC Single-Phase 200 to 230 VAC Noise filter Power Off Power ON Alarm processing Be sure to attach a surge suppressor to the excitation coil of the magnetic contactor and relay 3 Servo motor SGD V Analog/Pulse Reference Servo Drive Optical encoder Be sure to ground Speed reference (±2 to ±10 V/rated motor speed) V-REF SG T-REF SG PULS /PULS SIGN /SIGN CLR /CLR 5 6 9 10 7 8 11 12 15 14 21 22 4 2 CN1 LPF 1 Be sure to prepare the end of the shielded wire properly A/D Torque reference (±1 to ±10 V/rated torque) LPF 1 150 37 38 39 ALO1 ALO2 ALO3 Alarm code output Max.



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operating voltage: 30 VDC Max.

operating current: 20 mA DC Phase A PULS CW 150 Position reference Phase B SIGN CCW CLR 150 33 34 35 36 PAO /PAO PBO /PBO PCO /PCO SG Encoder output pulses Applicable line receiver SN75175 or MC3486 manufactured by Texas Instruments or the equivalent Backup battery 2.2.8 to 4.5 V BAT(+) BAT(-) SEN SG 19 20 1 +5 V SEN signal input 0V +24 V Servo ON (Servo ON when ON) P control (P control when ON) Forward run prohibited (Prohibited when OFF) Reverse run prohibited (Prohibited when OFF) Alarm reset (Reset when ON) Forward current limit (Limit when ON) Reverse current limit (Limit when ON) Switch +24 VIN /S-ON /P-CON 47 3.3 k 40 (SI0) (SO1) 25 41 (SI1) 42 (SI2) 43 (SI3) (SO3) 29 26 (SO2) 27 28 /V-CMP+ (/COIN+) Speed coincidence detection (ON when speed coincides) /V-CMP- (/COIN-) (COIN: Positioning completed (ON when positioning completes.)) /TGON+ Running output /TGON- (ON when the motor speed exceeds the settings.) /S-RDY+ Servo ready output /S-RDY- (ON when ready) ALM+ ALM- P-OT N-OT /ALM-RST 44 (SI4) 45 (SI5) 46 (SI6) 4 3 6 30 31 32 /P-CL Servo alarm output (OFF for an alarm) /N-CL /HWBB1+ CN8 8 24 V Safety device *4 0V fuse Photocoupler output Max. operating voltage: 30 VDC Max. operating current: EDM1+ 50 mA DC Monitored circuit status output (ON when the hard wire baseblock function is normally activated) EDM1- /HWBB1- /HWBB2+ /HWBB2- 7 5 Connector shell FG Connect shield to connector shell. *1 *2 *3 *4 The time constant for the primary filter is 30 μ s. Connect when using an absolute encoder.

When the encoder cable for the battery case is connected, do not connect a backup battery. Regenerative resistor can be connected between B1 and B2. For 750 W servo drives types normally short B2 and B3. For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8. 20 AC servo systems Three-phase, 400 VAC Three-Phase 380 to 480 VAC Noise filter Power Power Off ON Alarm processing Be sure to attach a surge suppressor to the excitation coil of the magnetic contactor and relay 3 3 Servo motor 3 Power supply 5 24 VDC +10%, -15% +24 V 0V 24 V 0V SGD V Analog/Pulse Reference Servo Drive Optical encoder Be sure to ground Speed reference (± 2 to ± 10 V/rated motor speed) V-REF SG T-REF 5 6 9 CN1 LPF 1 Be sure to prepare the end of the shielded wire properly A/D Torque reference (± 1 to ± 10 V/rated torque) SG 10 PULS /PULS SIGN /SIGN CLR /CLR 7 8 11 12 15 14 21 22 4 2 LPF 1 150 37 38 39 ALO1 Alarm code output ALO2 Max. operating voltage: 30 VDC ALO3 Max. operating current: 20 mA DC PULS CW Phase A 150 Position reference SIGN CCW Phase B 150 33 34 35 36 PAO /PAO PBO /PBO PCO /PCO SG Encoder output pulses Applicable line receiver SN75175 or MC3486 manufactured by Texas Instruments or the equivalent CLR Backup battery 2.2.8 to 4.5 V BAT(+) BAT(-) SEN SG 19 20 1 +5 V SEN signal input 0V +24 V Servo ON (Servo ON when ON) P control (P control when ON) Forward run prohibited (Prohibited when OFF) Reverse run prohibited (Prohibited when OFF) Alarm reset (Reset when ON) Forward current limit (Limit when ON) Reverse current limit (Limit when ON) Switch +24 VIN /S-ON 47 3.

3 k 40 (SI0) (SO1) 25 /V-CMP+ (/COIN+) Speed coincidence detection (ON when speed coincides) /V-CMP- (/COIN-) (COIN: Positioning completed (ON when positioning completes.)) /TGON+ Running output /TGON- (ON when the motor speed exceeds the settings.) /S-RDY+ Servo ready output /S-RDY- (ON when ready) ALM+ ALM- Servo alarm output (OFF for an alarm) /P-CON 41 (SI1) 42 (SI2) 26 (SO2) 27 28 P-OT N-OT 43 (SI3) (SO3) 29 /ALM-RST 44 (SI4) 30 31 32 /P-CL 45 (SI5) /N-CL 46 (SI6) /HWBB1+ 24 V Safety device *4 0V fuse /HWBB1- 4 3 6 CN8 8 Photocoupler output Max. operating voltage: 30 VDC Max. operating current: EDM1+ 50 mA DC Monitored circuit status output (ON when the hard wire baseblock function is normally activated) /HWBB2+ /HWBB2- 7 5 Connector shell FG Connect shield to connector shell. EDM1- *1 The time constant for the primary filter is 30 μ s. *2 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery. *3 Normally short B2 and B3. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2. *4 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8. *5 It is the user's responsibility to obtain 24 VDC power supply. Sigma-5 servo drive 21 Single-phase, 230 VAC Single-Phase 200 to 230 VAC Noise filter Power Off Power ON Alarm processing Be sure to attach a surge suppressor to the excitation coil of the magnetic contactor and relay 2 Servo motor SGD V MECHATROLINK-II Servo Drive Optical encoder Be sure to ground CN1 Be sure to prepare the end of the shielded wire properly +24 VIN Control power supply for sequence signal Forward run prohibited (Prohibited when OFF) Reverse run prohibited (Prohibited when OFF) Homing deceleration switch (Decelerated when ON) External latch signal 1 (Latched when ON) /EXT2 External latch signal 2 (Latched when ON) /EXT3 External latch signal 3 (Latched when ON) General purpose P-OT N-OT /DEC +24V /SI1 /SI2 6 7 3.3 k 3 4 ALM+ ALM- Photocoupler output Max.

operating voltage: 30 VDC Max. operating current: 50 mA DC Servo alarm output (OFF for an alarm) 8 9 1 2 SO1+ /BK+ /SI3 Brake interlock SO1- /BK- (Brake released when ON) /SO2+ /SO2/SO3+ /SO3- /EXT1 /SI4 10 23 /SI5 11 12 24 25 26 /SI6 /SIO 13 17 18 Backup battery 1 2.8 to 4.5 V BAT(+) BAT(-) 14 15 19 20 21 22 16 PAO /PAO PBO /PBO PCO /PCO SG Encoder output pulses Applicable line receiver SN75175 or MC3486 manufactured by Texas Instruments or the equivalent Signal ground Switch /HWBB1+ 24 V Safety device *3 0V fuse /HWBB1- 4 3 6 CN8 8 EDM1+ Monitored circuit status output (ON when the hard wire baseblock function is normally activated) EDM1- /HWBB2+ /HWBB2- 7 5 Connector shell FG Connect shield to connector shell. *1 Connect when using an absolute encoder.

When the encoder cable for the battery case is connected, do not connect a backup battery. *2 Regenerative resistor can be connected between B1 and B2. For 750 W servo drives types normally short B2 and B3. *3 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8.



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22 AC servo systems Three-phase, 400 VAC Single-Phase 200 to 230 VAC Noise filter Power Off Power ON Alarm processing Be sure to attach a surge suppressor to the excitation coil of the magnetic contactor and relay 2 3 Servo motor 3 Power supply 4 24 VDC +10%,-15% +24 V 0V 24 V 0V SVDV MECHATROLINK-II Servo Drive Optical encoder Be sure to ground CN1 Be sure to prepare the end of the shielded wire properly +24 VIN Control power supply for sequence signal Forward run prohibited (Prohibited when ON) Reverse run prohibited (Prohibited when OFF) Homing deceleration switch (Decelerated when ON) External latch signal 1 (Latched when ON) /EXT2 External latch signal 2 (Latched when ON) /EXT3 External latch signal 3 (Latched when ON) General purpose P-OT N-OT /DEC +24V /S11 /S12 6 7 3.3 k 3 4 ALM+ ALM- Photocoupler output Max. operating voltage: 30 VDC Max. operating current: 50 mA DC Servo alarm output (OFF for an alarm) 8 9 1 2 SO1+ /BK+ /S13 Brake interlock SO1- /BK- (Brake released when ON) /SO2+ /SO2/SO3+ /SO3- /EXT1 /S14 10 23 /S15 11 12 24 25 26 /S16 /S10 13 17 18 Backup battery 1 2.8 to 4.

5 V BAT(+) BAT(-) 14 15 19 20 21 22 16 PAO /PAO PBO /PBO PCO /PCO SG Encoder output pulses Applicable line receiver SN75175 or MC3486 manufactured by Texas Instruments or the equivalent Signal ground Switch /HWBB1+ 24 V Safety device *3 0V fuse /HWBB1- 4 3 6 CN8 8 EDM1+ Monitored circuit status output (ON when the hard wire baseblock function is normally activated) EDM1- /HWBB2+ /HWBB2- 7 5 Connector shell FG Connect shield to connector shell. *1 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery. *2 Normally short B2 and B3. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2. *3 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8. *4 It is the user's responsibility to obtain 24 VDC power supply. Sigma-5 servo drive 23 Ordering information Sigma-5 Analog/Pulse Reference Configuration CN5 J Analog monitor cable Personal computer C Sigma-5 Servo Drives CN7 USB cable K F Position control unit M Filter CN1 E G D CN8 CN2 General purpose cable H L I Terminal block position control Unit Safety cable Battery case for absolute encoder Analog/Pulse Models (Refer to chapter Sigma-II rotary motors) B Cables (Refer to chapter Sigma linear motors) B Cables A SGMMAH, SGMMPH Servo Motor A SGMGH, SGMUH, SGMSSH, SGMGBH Servo Motor A SGLG_linear Servo Motor A SGLF_linear Servo Motor A SGLT_linear Servo Motor (Refer to chapter Sigma-5 rotary motors) B Cables (Refer to chapter Sigma direct drive motors) B Cables A SGMJV, SGMMAV Servo Motor A SGMGV, SGMMSV Servo Motor A Direct drive servo motor SGMCS-@-@B, C, D, E A Direct drive servo motor SGMCS-@-@M, N Note: The symbols ABCDE..

. show the recommended sequence to select the components in a Sigma-5 servo system Servo motors, power & encoder cables Note: AB Refer to the servo motors chapter for detailed motor specifications and selection 24 AC servo systems Servo drives Symbol Specifications Model Compatible rotary servo motors A Compatible direct drive motors A Compatible linear motors A SGLGW-30A050@ - C 1 phase 230 VAC 50 W SVDV-A5A01A-OY SGMMAH-A5D@, SGMJV-A5A@, SGMMAV-A5A@ SVDV-A5A05A-OY 100 W SVDV-01A01A-OY SGMMAH-01A@, SGMMPH-01A@, SGMJV-01A@, SGMMAV-01A@, SGMMEV-01A@ SVDV-01A05A-OY 200 W SVDV-02A01A-OY SGMMAH-02A@, SGMMPH-02A@, SGMJV-02A@, SGMMAV-02A@, SGMMEV-02A@ - SGMCS-07B@ SGLGW-30A080@, SGLGW-40A140@ - SVDV-02A05A-OY - 400 W SVDV-04A01A-OY SGMMAH-04A@, SGMMPH-04A@, SGMJV-04A@, SGMMAV-04A@, SGMMEV-04A@ SGMMAH-08A@, SGMMPH-08A@, SGMJV-08A@, SGMMAV-08A@, SGMMEV-08A@ - SVDV-04A05A-OY 750 W SVDV-08A01A-OY SGMCS-02B@, SGMCS-05B@, SGMCS-04C@, SGMCS-10C@, SGMCS-14C@, SGMCS-08D@, SGMCS-17D@, SGMCS-25D@ SGMCS-16E@, SGMCS-35E@ SGLGW-60A140@, SGLGW-40A253@, SGLFW-20A@, SGLFW-35A120@ - SGLGW-40A365@, SGLGW-60A253A@ - SVDV-08A05A-OY - 1.5 kW SVDV-15A01A-OY SVDV-15A05A-OY SGMMPH-15A@, SGMMAV-10A@, SGMMEV-15A@ - SGMCS-45M@, SGMCS-80M@, SGMCS-80N@ - SGLGW-60A365A@, SGLFW-35A230@, SGLFW-50A200@ SGLGW-90A200A@, SGLFW-50A380@, SGLFW-1ZA200@ - 3 phase 400 VAC 0.5 kW SVDV-05D01A-OY SVDV-05D05A-OY 1.0 kW SVDV-10D01A-OY SVDV-10D05A-OY SGMMAH-03D@, SGMMPH-04D@, SGMGH-05D@, SGMMEV-04D@, SGMGV-05D@ SGMMAH-07D@, SGMMPH-08D@, SGMGH-09D@, SGMMSH-10D@, SGMUH-10D@, SGMMEV-08D@, SGMGV-09D@, SGMMSV-10D@, - - - SGLFW-35D@ - - 1.

5 kW SVDV-15D01A-OY SVDV-15D05A-OY 2 kW SVDV-20D01A-OY SVDV-20D05A-OY SGMMPH-15D@, SGMGH-13D@, SGMMSH-15D@, SGMUH-15D@, SGMMEV-15D@, SGMGV-13D@, SGMMSV-15D@ SGMGH-20D@, SGMMSH-20D@, SGMGV-20D@, SGMMSV-20D@ - - SGLFW-50D200@, SGLTW-35D170@, SGLTW-50D170@ - - SGLFW-50D380@, SGLFW-1ZD200@ SGLFW-1ED380@, SGLTW-35D320@, SGLTW-50D320@ - 3 kW SVDV-30D01A-OY SVDV-30D05A-OY SGMGH-30D@, SGMMSH-30D@, SGMUH-30D@, SGMGV-30D@, SGMMSV-30D@ - - - 5 kW SVDV-50D01A-OY SVDV-50D05A-OY 6 kW 7.5 kW 11 kW 15 kW SVDV-210D01A SVDV-260D01A SVDV-280D01A SVDV-370D01A SGMGH-44D@, SGMMSH-50D@, SGMUH-40D@, SGMGV-44D@, SGMMSV-50D@ SGMGH-55D@, SGMGV-55D@ SGMGH-75D@, SGMGV-75D@ SGMGH-1AD@, SGMGV-1AD@ SGMGH-1ED@, SGMGV-1ED@ - SGLFW-1ZD380@, SGLFW-1ED560@, SGLTW-40D400@ - - SGLTW-40D60@, SGLTW-80D400@ - Sigma-5 servo drive 25 Control cables (for CN1) Symbol Description Servo relay unit D Connect to CJ1W-NC1@3 CJ1W-NC2@3/4@3 CJ1M-CPU22/23 Servo relay units XW2B-@0J6-@B CJ1W-NC113 CJ1W-NC213/413 CJ1W-NC133 CJ1W-NC233/433 CJ1M-CPU22/23 1m 2m 0.5 m 1m 0.5 m 1m 0.5 m 1m 0.5 m 1m 1m 2m 1m 2m Model XW2B-20J6-1B (1 axis) XW2B-40J6-2B (2 axis) XW2B-20J6-8A (1 axis) XW2B-40J6-9A (2 axis) XW2Z-100J-B4 XW2Z-200J-B4 XW2Z-050J-A14 XW2Z-100J-A14 XW2Z-050J-A15 XW2Z-100J-A15 XW2Z-050J-A18 XW2Z-100J-A18 XW2Z-050J-A19 XW2Z-100J-A19 XW2Z-050J-A27 XW2Z-100J-A27 R88A-CPW001S R88A-CPW002S R88A-CTW001N R88A-CTW002N XW2B-50G5 E F Cable to servo drive Position control unit connecting cable G H Control cable Relay terminal block cable Relay terminal block For general purpose controllers General purpose controller Battery backup for absolute encoder (for CN2 encoder cable) Symbol USB personal computer cable (for CN7) Symbol I Name Battery Model JZSP-BA01 K Name USB Mini Connector cable Note JZSP-CVS06-02-E Note: when the encoder cables with a battery case are used, no battery is required for CN1 (between pin 21 and 22). Battery for CN1 is ER6VCN3. Note: double shield USB cable recommended Cable (for CN5) Symbol Cable for Safety Functions (for CN8) Model R88A-CMW001S DE9404559 Symbol J Name Analog monitor cable L Name Safety connector with 3 m cable (with Loose Wires at one End) Model JZSP-CVH03-03-E Note: when using the safety function, connect this cable to the safety devices.



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Even when not using the safety function, use servo drive with the Safe Jumper Connector (JZSP-CVH05-E) connected. Filters Symbol Applicable servo drive M SGDVA5A@@A-OY,SGDV-01A@@A-OY, SGDVA02A@@A-OY, SGDVA04A@@A-OY SGDVA08A@@A-OY SGDVA15A@@A-OY SGDVA05D@@A-OY, SGDVA10D@@A-OY, SGDVA15D@@A-OY SGDVA20D@@A-OY, SGDVA30D@@A-OY SGDVA50D@@A-OY Filter model R88A-FI5-1005-RE R88A-FI5-1009-RE R88A-FI5-1016-RE R88A-FI5-3004-RE R88A-FI5-3008-RE R88A-FI5-3012-RE Rated current 5A 9A 16 A 4.3 A 8.6 A 14.5 A Rated voltage 250 VAC single-phase 400 VAC three-phase Connectors Specifications I/O connector kit (for CN1) Sigma-5 drive encoder connector (for CN2) Safe Jumper Connector Model R88A-CNU11C JZSP-CMP9-1 JZSP-CVH05-E Computer software Specifications Configuration and monitoring software tool for servo drives and inverters. @@@@Even when not using the safety function, use servo drive with the Safe Jumper Connector (JZSP-CVH05-E) connected.

Mechatrolink-II cables (for CN6) Symbol Specifications Length G Mechatrolink-II Terminator resistor Mechatrolink-II Cables 0.5 m 1m 3m 5m 10 m 20 m 30 m Model JEPMC-W6022 JEPMC-W6003-A5 JEPMC-W6003-01 JEPMC-W6003-03 JEPMC-W6003-05 JEPMC-W6003-10 JEPMC-W6003-20 JEPMC-W6003-30 Filters Symbol Applicable servo drive J SGDVA5A@@A-OY,SGDV-01A@@A-OY, SGDVA02A@@A-OY, SGDVA04A@@A-OY SGDVA08A@@A-OY SGDVA15A@@A-OY SGDVA05D@@A-OY, SGDVA10D@@A-OY, SGDVA15D@@A-OY SGDVA20D@@A-OY, SGDVA30D@@A-OY SGDVA50D@@A-OY Filter model R88A-FI5-1005-RE R88A-FI5-1009-RE R88A-FI5-1016-RE R88A-FI5-3004-RE R88A-FI5-3008-RE R88A-FI5-3012-RE Rated current 5A 9A 16 A 4.3 A 8.6 A 14.5 A Rated voltage 250 VAC single-phase 400 VAC three-phase Connectors Specification I/O connector kit (for CN1) Sigma-5 drive encoder connector (for CN2) Safe Jumper Connector Model R88A-CNW01C JZSP-CMP9-1 JZSP-CVH05-E Computer software Specifications Configuration and monitoring software tool for servo drives and inverters. @@(CX-One version 3.0.2 or higher) Model CX-drive CX-One Sigma-5 servo drive 29 ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, multiply by 0.03937.

To convert grams into ounces, multiply by 0.03527. Cat. No. I48E-EN-01 In the interest of product improvement, specifications are subject to change without notice.

30 AC servo systems .



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