

SGDV-□

# 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

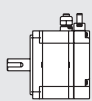
## Ratings

- 230 VAC Single-phase 50 W to 1.5 kW (4.77 Nm)
- 400 VAC Three-phase 500 W to 15 kW (95.4 Nm)

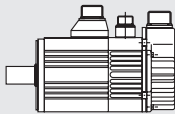


## System configuration

(Refer to chapter Sigma-II rotary motors)



SGMAH, SGM PH Servo Motor

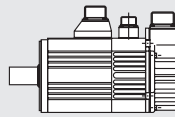


SGMGH, SGMUH, SGM SH, SGM BH Servo Motor

(Refer to chapter Sigma-5 rotary motors)

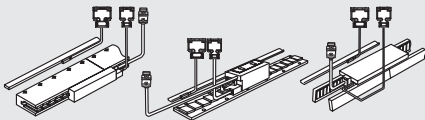


SGMJV, SGM AV, SGM EV Servo Motor



SGMGV, SGM SV Servo Motor

(Refer to chapter Sigma linear motors)

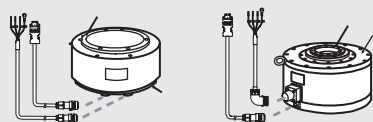


SGLG\_linear Servo Motor

SGLF\_linear Servo Motor

SGLT\_linear Servo Motor

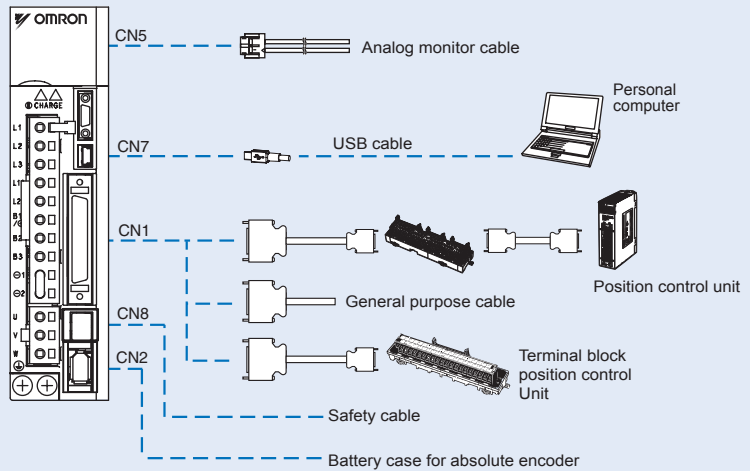
(Refer to chapter Sigma direct drive motors)



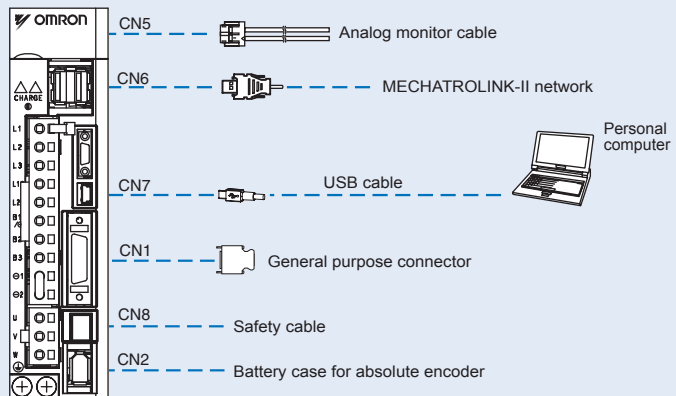
Direct drive servo motor SGMCS-□□B, C, D, E

Direct drive servo motor SGMCS-□□M, N









### Sigma-5 Analog/Pulse Reference Servo Drive







### Sigma-5 MECHATROLINK-II Servo Drive



Servo motor / servo drive combination

| Servo motor  |         |              |                | Sigma-5 Servo drive             |                                    |                                 |                                     |
|--|---------|--------------|----------------|---------------------------------|------------------------------------|---------------------------------|-------------------------------------|
| Family   | Voltage | Rated torque | Capacity       | 230 V (1 phase)<br>Analog/Pulse | 230 V (1 phase)<br>MECHATROLINK-II | 400 V (3 phase)<br>Analog/Pulse | 400 V (3 phases)<br>MECHATROLINK-II |
| <b>Sigma-II series motors (refer to the Sigma-II rotary motors chapter for details)</b>                                |         |              |                |                                 |                                    |                                 |                                     |
| <br>SGMAH (3000 min <sup>-1</sup> )   | 230 V   | 0.0955 Nm    | 30 W           | SGDV-A5A01A-OY                  | SGDV-A5A11A-OY                     | -                               | -                                   |
|  |         | 0.159 Nm     | 50 W           | SGDV-A5A01A-OY                  | SGDV-A5A11A-OY                     | -                               | -                                   |
|  |         | 0.318 Nm     | 100 W          | SGDV-01A01A-OY                  | SGDV-01A11A-OY                     | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 1.27 Nm      | 400 W          | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|  | 2.39 Nm | 750 W        | SGDV-08A01A-OY | SGDV-08A11A-OY                  | -                                  | -                               |                                     |
|  | 400 V   | 0.955 Nm     | 300 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
| 2.07 Nm  |         | 650 W        | -              | -                               | SGDV-10D01A-OY                     | SGDV-10D11A-OY                  |                                     |
| <br>SGMPH (3000 min <sup>-1</sup> )   | 230 V   | 0.318 Nm     | 100 W          | SGDV-01A01A-OY                  | SGDV-01A11A-OY                     | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 1.27 Nm      | 400 W          | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|  |         | 2.39 Nm      | 750 W          | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
|  |         | 4.77 Nm      | 1500 W         | SGDV-15A01A-OY-008000           | SGDV-15A11A-OY-008000              | -                               | -                                   |
|  | 400 V   | 0.637 Nm     | 200 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|  |         | 1.27 Nm      | 400 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
| <br>SGMGH (1500 min <sup>-1</sup> )   | 400 V   | 2.84 Nm      | 0.45 kW        | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|  |         | 5.39 Nm      | 0.85 kW        | -                               | -                                  | SGDV-10D01A-OY                  | SGDV-10D11A-OY                      |
|  |         | 8.34 Nm      | 1.3 kW         | -                               | -                                  | SGDV-15D01A-OY                  | SGDV-15D11A-OY                      |
|  |         | 11.5 Nm      | 1.8 kW         | -                               | -                                  | SGDV-20D01A-OY                  | SGDV-20D11A-OY                      |
|  |         | 18.6 Nm      | 2.9 kW         | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|  |         | 28.4 Nm      | 4.4 kW         | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
|  |         | 35.0 Nm      | 5.5 kW         | -                               | -                                  | SGDV-210D01A                    | SGDV-210D11A                        |
|  |         | 48.0 Nm      | 7.5 kW         | -                               | -                                  | SGDV-260D01A                    | SGDV-260D11A                        |
|  |         | 70.0 Nm      | 11 kW          | -                               | -                                  | SGDV-280D01A                    | SGDV-280D11A                        |
|  |         | 95.4 Nm      | 15 kW          | -                               | -                                  | SGDV-370D01A                    | SGDV-370D11A                        |
| <br>SGMSH (3000 min <sup>-1</sup> ) | 400 V   | 3.18 Nm      | 1.0 kW         | -                               | -                                  | SGDV-10D01A-OY                  | SGDV-10D11A-OY                      |
|  |         | 4.90 Nm      | 1.5 kW         | -                               | -                                  | SGDV-15D01A-OY                  | SGDV-15D11A-OY                      |
|  |         | 6.36 Nm      | 2.0 kW         | -                               | -                                  | SGDV-20D01A-OY                  | SGDV-20D11A-OY                      |
|  |         | 9.80 Nm      | 3.0 kW         | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|  |         | 12.6 Nm      | 4.0 kW         | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
| <br>SGMUH (6000 min <sup>-1</sup> ) | 400 V   | 1.59 Nm      | 1.0 kW         | -                               | -                                  | SGDV-10D01A-OY                  | SGDV-10D11A-OY                      |
|  |         | 2.45 Nm      | 1.5 kW         | -                               | -                                  | SGDV-15D01A-OY                  | SGDV-15D11A-OY                      |
|  |         | 4.9 Nm       | 3.0 kW         | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|  |         | 6.3 Nm       | 4.0 kW         | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
| <b>Sigma-5 series motors (refer to the Sigma-5 rotary motors chapter for details)</b>                                  |         |              |                |                                 |                                    |                                 |                                     |
| <br>SGMJV (3000 min <sup>-1</sup> ) | 230 V   | 0.159 Nm     | 50 W           | SGDV-A5A01A-OY                  | SGDV-A5A11A-OY                     | -                               | -                                   |
|  |         | 0.318 Nm     | 100 W          | SGDV-01A01A-OY                  | SGDV-01A11A-OY                     | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 1.27 Nm      | 400 W          | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|  |         | 2.39 Nm      | 750 W          | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
| <br>SGMAV (3000 min <sup>-1</sup> ) | 230 V   | 0.159 Nm     | 50 W           | SGDV-A5A01A-OY                  | SGDV-A5A11A-OY                     | -                               | -                                   |
|  |         | 0.318 Nm     | 100 W          | SGDV-01A01A-OY                  | SGDV-01A11A-OY                     | -                               | -                                   |
|  |         | 0.477 Nm     | 150 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 1.27 Nm      | 400 W          | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|  |         | 1.75 Nm      | 550 W          | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
|  |         | 2.39 Nm      | 750 W          | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
| <br>SGMEV (3000 min <sup>-1</sup> ) | 230 V   | 3.18 Nm      | 1.0 kW         | SGDV-15A01A-OY-008000           | SGDV-15A11A-OY-008000              | -                               | -                                   |
|  |         | 0.318 Nm     | 100 W          | SGDV-01A01A-OY                  | SGDV-01A11A-OY                     | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|  |         | 1.27 Nm      | 400 W          | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|  |         | 2.39 Nm      | 750 W          | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
|  | 400 V   | 4.77 Nm      | 1.5 kW         | SGDV-15A01A-OY-008000           | SGDV-15A11A-OY-008000              | -                               | -                                   |
|  |         | 0.637 Nm     | 200 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|  |         | 0.955 Nm     | 300 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|  |         | 1.27 Nm      | 400 W          | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|  | 2.07 Nm | 650 W        | -              | -                               | SGDV-10D01A-OY                     | SGDV-10D11A-OY                  |                                     |
|  | 2.39 Nm | 750 W        | -              | -                               | SGDV-10D01A-OY                     | SGDV-10D11A-OY                  |                                     |
|  | 4.77 Nm | 1.5 kW       | -              | -                               | SGDV-15D01A-OY                     | SGDV-15D11A-OY                  |                                     |

| Servo motor   |                     |                       |                       | Sigma-5 Servo drive             |                                    |                                 |                                     |
|---|---------------------|-----------------------|-----------------------|---------------------------------|------------------------------------|---------------------------------|-------------------------------------|
| Family  | Voltage             | Rated torque          | Capacity              | 230 V (1 phase)<br>Analog/Pulse | 230 V (1 phase)<br>MECHATROLINK-II | 400 V (3 phase)<br>Analog/Pulse | 400 V (3 phases)<br>MECHATROLINK-II |
|  SGMGV (1500 min <sup>-1</sup> )               | 400 V               | 1.96 Nm               | 300 W                 | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|   |                     | 2.86 Nm               | 450 W                 | -                               | -                                  | SGDV-05D01A-OY                  | SGDV-05D11A-OY                      |
|   |                     | 5.39 Nm               | 850 W                 | -                               | -                                  | SGDV-10D01A-OY                  | SGDV-10D11A-OY                      |
|   |                     | 8.34 Nm               | 1.3 kW                | -                               | -                                  | SGDV-15D01A-OY                  | SGDV-15D11A-OY                      |
|   |                     | 11.5 Nm               | 1.8 kW                | -                               | -                                  | SGDV-20D01A-OY                  | SGDV-20D11A-OY                      |
|   |                     | 18.6 Nm               | 2.9 kW                | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|   |                     | 28.4 Nm               | 4.4 kW                | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
|   |                     | 35.0 Nm               | 5.5 Kw                | -                               | -                                  | SGDV-210D01A                    | SGDV-210D11A                        |
|   |                     | 48.0 Nm               | 7.5 Kw                | -                               | -                                  | SGDV-260D01A                    | SGDV-260D11A                        |
|   |                     | 70.0 Nm               | 11 Kw                 | -                               | -                                  | SGDV-280D01A                    | SGDV-280D11A                        |
| SGMSV (3000 min <sup>-1</sup> )   | 400 V               | 3.18 Nm               | 1 kW                  | -                               | -                                  | SGDV-10D01A-OY                  | SGDV-10D11A-OY                      |
|   |                     | 4.9 Nm                | 1.5 kW                | -                               | -                                  | SGDV-15D01A-OY                  | SGDV-15D11A-OY                      |
|   |                     | 6.36 Nm               | 2 kW                  | -                               | -                                  | SGDV-20D01A-OY                  | SGDV-20D11A-OY                      |
|   |                     | 7.96 Nm               | 2.5 kW                | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|   |                     | 9.8 Nm                | 3 kW                  | -                               | -                                  | SGDV-30D01A-OY                  | SGDV-30D11A-OY                      |
|   |                     | 12.6 Nm               | 4 kW                  | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
|   |                     | 15.8 Nm               | 5 kW                  | -                               | -                                  | SGDV-50D01A-OY                  | SGDV-50D11A-OY                      |
| <b>Sigma direct drive motors (refer to the Sigma direct drive motors chapter for details)</b>                                   |                     |                       |                       |                                 |                                    |                                 |                                     |
|  SGMCS (200 min <sup>-1</sup> )                | 230 V               | 2.0 Nm                | 42 W                  | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 5.0 Nm                | 105 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 7.0 Nm                | 147 W                 | SGDV-02A01A-OY                  | SGDV-02A11A-OY                     | -                               | -                                   |
|   |                     | 4.0 Nm                | 84 W                  | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 10.0 Nm               | 209 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 14.0 Nm               | 293 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 8.0 Nm                | 168 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 17.0 Nm               | 356 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 25.0 Nm               | 393 W                 | SGDV-04A01A-OY                  | SGDV-04A11A-OY                     | -                               | -                                   |
|   |                     | 16.0 Nm               | 335 W                 | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
|   |                     | 35.0 Nm               | 550 W                 | SGDV-08A01A-OY                  | SGDV-08A11A-OY                     | -                               | -                                   |
|   |                     | 45.0Nm                | 707 W                 | SGDV-15A01A-OY-008000           | SGDV-15A11A-OY-008000              | -                               | -                                   |
|   | 80.0 Nm             | 1260 W                | SGDV-15A01A-OY-008000 | SGDV-15A11A-OY-008000           | -                                  | -                               |                                     |
| <b>Sigma linear motors (refer to the Sigma linear motors chapter for details)</b>   |                     |                       |                       |                                 |                                    |                                 |                                     |
|  SGLGW coreless standard-force magnetic ways | 230 V               | 12.5 N (40 N peak)    | -                     | SGDV-A5A05A-OY                  | SGDV-A5A15A-OY                     | -                               | -                                   |
|   |                     | 25 N (80 N peak)      | -                     | SGDV-01A05A-OY                  | SGDV-01A15A-OY                     | -                               | -                                   |
|   |                     | 47 N (140 N peak)     | -                     | SGDV-01A05A-OY                  | SGDV-01A15A-OY                     | -                               | -                                   |
|   |                     | 70 N (220 N peak)     | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 93 N (280 N peak)     | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 140 N (420 N peak)    | -                     | SGDV-04A05A-OY                  | SGDV-04A15A-OY                     | -                               | -                                   |
|   |                     | 140 N (440 N peak)    | -                     | SGDV-04A05A-OY                  | SGDV-04A15A-OY                     | -                               | -                                   |
|   |                     | 210 N (660 N peak)    | -                     | SGDV-08A05A-OY                  | SGDV-08A15A-OY                     | -                               | -                                   |
| 325 N (1300 N peak)   | -                   | SGDV-15A05A-OY-008000 | SGDV-15A15A-OY-008000 | -                               | -                                  |                                 |                                     |
|  SGLGW coreless high-force magnetic ways     | 230 V               | 57 N (230 N peak)     | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 114 N (460 N peak)    | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 171 N (690 N peak)    | -                     | SGDV-08A05A-OY                  | SGDV-08A15A-OY                     | -                               | -                                   |
|   |                     | 85 N (360 N peak)     | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 170 N (720 N peak)    | -                     | SGDV-08A05A-OY                  | SGDV-08A15A-OY                     | -                               | -                                   |
| 255 N (1080 N peak)   | -                   | SGDV-08A05A-OY        | SGDV-08A15A-OY        | -                               | -                                  |                                 |                                     |
|  SGLFW Linear motors                         | 230 V               | 25 N (86 N peak)      | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 40 N (125 N peak)     | -                     | SGDV-01A05A-OY                  | SGDV-01A15A-OY                     | -                               | -                                   |
|   |                     | 80 N (220 N peak)     | -                     | SGDV-02A05A-OY                  | SGDV-02A15A-OY                     | -                               | -                                   |
|   |                     | 160 N (440 N peak)    | -                     | SGDV-04A05A-OY                  | SGDV-04A15A-OY                     | -                               | -                                   |
|   |                     | 280 N (600 N peak)    | -                     | SGDV-08A05A-OY                  | SGDV-08A15A-OY                     | -                               | -                                   |
|   | 560 N (1200 N peak) | -                     | SGDV-15A05A-OY-008000 | SGDV-15A15A-OY-008000           | -                                  | -                               |                                     |
|   | 400 V               | 80 N (220 N peak)     | -                     | -                               | -                                  | SGDV-05D05A-OY                  | SGDV-05D15A-OY                      |
|   |                     | 160 N (440 N peak)    | -                     | -                               | -                                  | SGDV-05D05A-OY                  | SGDV-05D15A-OY                      |
|   |                     | 280 N (600 N peak)    | -                     | -                               | -                                  | SGDV-10D05A-OY                  | SGDV-10D15A-OY                      |
|   |                     | 560 N (1200 N peak)   | -                     | -                               | -                                  | SGDV-15D05A-OY                  | SGDV-15D15A-OY                      |
| 1120 N (2400 N peak)  |                     | -                     | -                     | -                               | SGDV-30D05A-OY                     | SGDV-30D15A-OY                  |                                     |
| 1500 N (3600 N peak)  | -                   | -                     | -                     | SGDV-20D05A-OY                  | SGDV-20D15A-OY                     |                                 |                                     |
| 2250 N (5400 N peak)  | -                   | -                     | -                     | SGDV-30D05A-OY                  | SGDV-30D15A-OY                     |                                 |                                     |
|  SGLTW Linear motors                         | 400 V               | 300 N (600 N peak)    | -                     | -                               | -                                  | SGDV-10D05A-OY                  | SGDV-10D15A-OY                      |
|   |                     | 600 N (1200 N peak)   | -                     | -                               | -                                  | SGDV-20D05A-OY                  | SGDV-20D15A-OY                      |
|   |                     | 450 N (900 N peak)    | -                     | -                               | -                                  | SGDV-10D05A-OY                  | SGDV-10D15A-OY                      |
|   |                     | 900 N (1800 N peak)   | -                     | -                               | -                                  | SGDV-20D05A-OY                  | SGDV-20D15A-OY                      |
|   |                     | 670 N (2600 N peak)   | -                     | -                               | -                                  | SGDV-30D05A-OY                  | SGDV-30D15A-OY                      |
|   |                     | 1000 N (4000 N peak)  | -                     | -                               | -                                  | SGDV-50D05A-OY                  | SGDV-50D15A-OY                      |
|   |                     | 1300 N (5000 N peak)  | -                     | -                               | -                                  | SGDV-50D05A-OY                  | SGDV-50D15A-OY                      |

Type designation

Servo drive

SGDV - 04 A 01 A - OY - □

Sigma-5 servo drive

Capacity

| Voltage | Code | Output |
|---------|------|--------|
| 230 V   | A5   | 50 W   |
|         | 01   | 100 W  |
|         | 02   | 200 W  |
|         | 04   | 400 W  |
|         | 08   | 750 W  |
|         | 15   | 1.5 kW |
| 400 V   | 05   | 500 W  |
|         | 10   | 1.0 kW |
|         | 15   | 1.5 kW |
|         | 20   | 2.0 kW |
|         | 30   | 3.0 kW |
|         | 50   | 5.0 kW |
|         | 210  | 6.0 kW |
|         | 260  | 7.5 kW |
|         | 280  | 11 kW  |
|         | 370  | 15 kW  |

Source voltage

- A: 230 V
- D: 400 V

| Code   | Specifications                        |
|--------|---------------------------------------|
| Blank  | 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 | Specifications   |
|------|--|
| 01   | Analog voltage/pulse train reference type (for rotary servomotors) |
| 05   | Analog voltage/pulse train reference type (for linear servomotors) |
| 11   | MECHATROLINK-II comms reference type (for rotary servomotors)      |
| 15   | MECHATROLINK-II comms reference type (for linear servomotors)      |

Servo drive specifications

Single-phase, 230 V

| Servo drive type               | SGDV-□                     | A5A□□A-OY  | 01A□□A-OY | 02A□□A-OY | 04A□□A-OY | 08A□□A-OY | 15A□□A-OY-008000 |
|--------------------------------|----------------------------|--|-----------|-----------|-----------|-----------|------------------|
| Applicable servo motor         | SGMAH-□                    | A3A□/A5A□  | 01A□      | 02A□      | 04A□      | 08A□      | -                |
|                                | SGMPH-□                    | -  | 01A□      | 02A□      | 04A□      | 08A□      | 15A□             |
|                                | SGMJV-□                    | A5A□   | 01A□      | 02A□      | 04A□      | 08A□      | -                |
|                                | SGMAV-□                    | A5A□   | 01A□      | C2A□/02A□ | 04A□      | 06A□/08A□ | 10A□             |
|                                | SGMEV-□                    | -  | 01A□      | 02A□      | 04A□      | 08A□      | 15A□             |
| Max. applicable motor capacity | W                          | 50   | 100       | 200       | 400       | 750       | 1500             |
| Continuous output current      | Arms                       | 0.66   | 0.91      | 1.6       | 2.8       | 5.5       | 11.6             |
| Max. output current            | Arms                       | 2.1  | 2.9       | 6.5       | 9.3       | 16.9      | 28               |
| Basic specifications           | Input power                | Main circuit Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz)                  |           |           |           |           |                  |
|                                | Supply                     | Control circuit Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz)               |           |           |           |           |                  |
|                                | Control method             | Single phase full-wave rectification / IGBT / PWM / sine-wave current drive method |           |           |           |           |                  |
|                                | Feedback                   | Serial encoder (incremental/absolute)  |           |           |           |           |                  |
|                                | Usage/storage temperature  | 0 to +55 °C / -20 to 85 °C   |           |           |           |           |                  |
|                                | Usage/storage humidity     | 90%RH or less (non-condensing)   |           |           |           |           |                  |
|                                | Altitude                   | 1000m or less above sea level  |           |           |           |           |                  |
|                                | Vibration/shock resistance | 4.9 m/s <sup>2</sup> / 19.6 m/s <sup>2</sup>                                       |           |           |           |           |                  |
|                                | Configuration              | Base mounted   |           |           |           |           |                  |
|                                | Approx. weight             | Kg   |           | 0.9       |           | 1.0       | 1.5              |

Three-phase, 400 V

| Servo drive type               | SGDV-□                     | 05D□  | 10D□      | 15D□ | 20D□ | 30D□ | 50D□      | 210D□ | 260D□ | 280D□ | 370D□ |
|--------------------------------|----------------------------|---|-----------|------|------|------|-----------|-------|-------|-------|-------|
| Applicable servo motor         | SGMAH-□                    | 03D□  | 07D□      | -    | -    | -    | -         | -     | -     | -     | -     |
|                                | SGMPH-□                    | 02D□/04D□   | 08D□      | 15D□ | -    | -    | -         | -     | -     | -     | -     |
|                                | SGMGH-□                    | 05D□  | 09D□      | 13D□ | 20D□ | 30D□ | 44D□      | 55D□  | 75D□  | 1AD□  | 1ED□  |
|                                | SGMOSH-□                   | -   | 10D□      | 15D□ | 20D□ | 30D□ | 40D□/50D□ | -     | -     | -     | -     |
|                                | SGMUH-□                    | -   | 10D□      | 15D□ | -    | 30D□ | 40D□      | -     | -     | -     | -     |
|                                | SGMEV-□                    | 02/03/04D□  | 07D□/08D□ | 15D□ | -    | -    | -         | -     | -     | -     | -     |
|                                | SGMGV-□                    | 03D□/05D□   | 09D□      | 13D□ | 20D□ | 30D□ | 44D□      | 55D□  | 75D□  | 1AD□  | 1ED□  |
|                                | SGMSV-□                    | -   | 10D□      | 15D□ | 20D□ | 25D□ | 40D□/50D□ | -     | -     | -     | -     |
| Max. applicable motor capacity | kW                         | 0.5   | 1.0       | 1.5  | 2.0  | 3.0  | 5.0       | 6.0   | 7.5   | 11    | 15    |
| Continuous output current      | Arms                       | 1.9   | 3.5       | 5.4  | 8.4  | 11.9 | 16.5      | 20.8  | 25.4  | 28.1  | 37.2  |
| Max. output current            | Arms                       | 5.5   | 8.5       | 14   | 20   | 28   | 42        | 55    | 65    | 70    | 85    |
| Basic specifications           | Input power                | Main circuit Three-phase, 380 to 480 VAC + 10 to -15% (50/60Hz)                   |           |      |      |      |           |       |       |       |       |
|                                | Supply                     | Control circuit 24 VDC +/-15%   |           |      |      |      |           |       |       |       |       |
|                                | Control method             | Three phase full-wave rectification / IGBT / PWM / sine-wave current drive method |           |      |      |      |           |       |       |       |       |
|                                | Feedback                   | Serial encoder (incremental/absolute)   |           |      |      |      |           |       |       |       |       |
|                                | Usage/storage temperature  | 0 to +55 °C / -20 to +85 °C   |           |      |      |      |           |       |       |       |       |
|                                | Usage/storage humidity     | 90%RH or less (non-condensing)  |           |      |      |      |           |       |       |       |       |
|                                | Altitude                   | 1000 m or less above sea level  |           |      |      |      |           |       |       |       |       |
|                                | Vibration/shock resistance | 4.9 m/s <sup>2</sup> / 19.6 m/s <sup>2</sup>                                      |           |      |      |      |           |       |       |       |       |
|                                | Configuration              | Base mounted  |           |      |      |      |           |       |       |       |       |
|                                | Approx. weight             | Kg  |           | 2.7  |      | 3.7  |           | 5.6   |       | 11.3  |       |

Sigma-5 Analog/Pulse Reference Servo Drive

General specifications

|                           |   |   |   |  |
|---------------------------|---|---|---|--|
| Speed/torque control mode | Performance   | Speed control range   | 1:5000  |  |
|                           |   | Speed variance  | Load variance   | During 0 to 100% load $\pm 0.01\%$ max. (at rated speed)   |
|                           |   |   | Voltage variance  | Rated voltage $\pm 10\%:0\%$ (at rated speed)  |
|                           |   |   | Temperature variance  | $25 \pm 25^\circ\text{C}$ : $\pm 0.1\%$ max. (at rated speed)  |
|                           | Frequency characteristics   | 1.6 kHz   |   |  |
|                           | Torque control accuracy (Repeatability)   | $\pm 1\%$   |   |  |
|                           | Soft start time setting   | 0 to 10 s (acceleration, deceleration can each be set.)   |   |  |
|                           | Input signal  | Speed reference input   | Reference voltage   | $\pm 6$ VDC (forward motor rotation if positive reference) at rated speed: Set at delivery<br>Variable setting range: $\pm 2$ to $\pm 10$ VDC at rated speed/ max. input voltage: $\pm 12$ V |
|                           |   |   | Input impedance   | Approx. 14 k $\Omega$  |
|                           |   |   | Circuit time constant   | Approx. 30 $\mu\text{s}$   |
| Torque reference input    |   | Reference voltage   | $\pm 3$ VDC (forward rotation if positive reference) at rated torque: Set at delivery<br>Variable setting range $\pm 1$ to $\pm 10$ VDC at rated torque reference, max. input voltage: $\pm 12$ V |  |
|                           |   | Input impedance   | Approx. 14 k $\Omega$   |  |
|                           |   | Circuit time constant   | Approx. 30 $\mu\text{s}$  |  |
| Position control mode     | Performance   | Feedforward compensation  | 0 to 100% (setting resolution: 1%)  |  |
|                           |   | Position completed width setting  | 0 to 1073741824 command units (setting resolution: 1 command unit)  |  |
|                           | Input signal  | Command pulse   | Input pulse type  | Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase+ B-phase) or CCW/CW pulse train  |
|                           |   |   | Input pulse form  | Non-insulated line driver (+5 V level) , open collector.   |
|                           |   |   | Input pulse frequency   | 0 to 4 Mpps (200 Kpps max. at open collector)  |
| Control signal            | Clears error pulse by external signal   |   |   |  |
| I/O signal                | Position signal output  | A-phase, B.phase, C-phase: line driver output.  |   |  |
|                           | Sequence input signal   | Servo ON, P control (or control mode switching, forward/reverse motor rotation by internal speed setting, zero clamp, command pulse inhibit), forward/reverse run prohibit, forward/reverse current limit (or internal speed switching), alarm reset.   |   |  |
|                           | Sequence output signal  | Servo alarm, alarm codes (3-bit output): CN1 output terminal is fixed<br>It is possible to output three types of signal form incl.: positioning complete, speed coincidence detection, servo-motor rotation detection, servo ready, current limit detection, speed limit detection, brake release, warning, NEAR. |   |  |
| Integrated functions      | USB Communications  | Interface   | Personal computer   |  |
|                           |   | Communications standard   | Compliant with USB1.1 standard (12 Mbps)  |  |
|                           |   | Function  | Status display, parameter settings, adjustment functions, utility functions, alarm traceback display, JOG run/autotuning operations and graphing functions for speed/torque command signal, etc   |  |
|                           | Automatic load inertia detection  | Automatic motor parameter setting. One parameter rigidity setting.  |   |  |
|                           | Dynamic brake (DB)  | Operates during main power OFF, servo alarm, servo OFF or overtravel  |   |  |
|                           | Regenerative processing   | Internal resistor included in models from 500 W to 5 kW. Regenerative resistor externally mounted (option).   |   |  |
|                           | Overtravel (OT) prevention function   | DB stop, deceleration stop or coast to stop during P-OT, N-OT operation   |   |  |
|                           | Encoder divider function  | Optional division pulses possible   |   |  |
|                           | Electronic gearing  | 0,01 < Numerator/Denominator < 100  |   |  |
|                           | Internal speed setting function   | 3 speeds may be set internally  |   |  |
|                           | Protective functions  | Overcurrent, overvoltage, low voltage, overload, regenerative error   |   |  |
|                           | Analog monitor functions for supervision  | Integrates analog monitor connector for supervision of the speed and torque reference signals, etc.<br>Number of channels: 2 (Output voltage: $\pm 10$ V DC)  |   |  |
|                           | Panel operator  | Display functions   | CHARGE, 7-segments LEDx5  |  |
|                           |   | Panel operator keys   | Used to set parameters (4 keys)   |  |
|                           | Safety functions  | Hard wire base block signal and status monitor (fixed output) of safety circuit   |   |  |
| Others                    | Reverse connection, zero search, automatic motor discrimination function, and DC reactor connection terminal for high frequency power suppression function. |   |   |  |

## I/O specifications

### I/O signals (CN1) - input signals

| Pin No.               | Signal name  | Function   |   |   |                                  |                   |                |
|-----------------------|--|--|---|---|----------------------------------|-------------------|----------------|
| 40                    | Common   | /S-ON<br>Servo ON: Turns ON the servo motor.   |   |   |                                  |                   |                |
| 41                    | /P-CON   | Function selected by parameter.  |   |   |                                  |                   |                |
|                       |  | Proportional control reference   | Switches the speed control loop from PI (proportional/integral) to P (proportional) control when ON.  |   |                                  |                   |                |
|                       |  | Direction reference  | With the internal set speed selected: switch the rotation direction.  |   |                                  |                   |                |
|                       |  | Control mode switching   | <table border="0"> <tr> <td>Position ↔ speed</td> <td rowspan="3">} Enables control mode switching</td> </tr> <tr> <td>Position ↔ torque</td> </tr> <tr> <td>Torque ↔ speed</td> </tr> </table> | Position ↔ speed  | } Enables control mode switching | Position ↔ torque | Torque ↔ speed |
|                       |  | Position ↔ speed   | } Enables control mode switching  |   |                                  |                   |                |
|                       |  | Position ↔ torque  |   |   |                                  |                   |                |
| Torque ↔ speed        |  |  |   |   |                                  |                   |                |
| Zero-clamp reference  | Speed control with zero-clamp function: reference speed is zero when ON.         |  |   |   |                                  |                   |                |
| Reference pulse block | Position control with reference pulse stop: stops reference pulse input when ON. |  |   |   |                                  |                   |                |
| 42                    | P-OT   | Forward run prohibited   |   |   |                                  |                   |                |
| 43                    | N-OT   | Reverse run prohibited   |   |   |                                  |                   |                |
|                       |  | Overtravel prohibited: Stops servo motor when movable part travels beyond the allowable range of motion.                                       |   |   |                                  |                   |                |
| 45                    | /P-CL  | Function selected by parameter.  |   |   |                                  |                   |                |
|                       |  | Reverse external torque limit ON   | Current limit function enabled when ON.   |   |                                  |                   |                |
| 46                    | /N-CL  | Internal speed switching   | With the internal set speed selected: switches the internal speed settings.   |   |                                  |                   |                |
| 44                    | /ALM-RST   | Alarm reset: releases the servo alarm state.   |   |   |                                  |                   |                |
| 47                    | +24VIN   | Control power supply input for sequence signals: users must provide the +24 V power supply.<br>Allowable voltage fluctuation range: 11 to 25 V |   |   |                                  |                   |                |
| 4 (2)                 | SEN  | Initial data request signal when using an absolute encoder.  |   |   |                                  |                   |                |
| 21                    | BAT (+)  | Connecting pin for the absolute encoder backup battery.  |   |   |                                  |                   |                |
| 22                    | BAT (-)  | Do not connect when the encoder cable for the battery case is used.  |   |   |                                  |                   |                |
| 5 (6)                 | Speed  | V-REF<br>Speed reference input: $\pm 2$ to $\pm 10$ V/rated motor speed (Input gain can be modified using a parameter).                        |   |   |                                  |                   |                |
| 9 (10)                | Torque   | T-REF<br>Torque reference input: $\pm 1$ to $\pm 10$ V/rated motor torque (Input gain can be modified using a parameter).                      |   |   |                                  |                   |                |
| 7                     | Position   | PULS<br>/PULS<br>SIGN<br>/SIGN   | Reference pulse input for line driver only  | Input mode is set from the following pulses:<br>Sign + pulse string<br>CCW/CW pulse<br>Two-phase pulse (90° phase differential) |                                  |                   |                |
| 8                     |  |  |   |   |                                  |                   |                |
| 11                    |  |  |   |   |                                  |                   |                |
| 12                    |  |  |   |   |                                  |                   |                |
| 15                    | CLR  | /CLR   | Positional error pulse clear input: clears the positional error pulse during position control.  |   |                                  |                   |                |
| 14                    |  |  |   |   |                                  |                   |                |

**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  $\pm 12$  V.

**I/O signals (CN1) - output signals**

| Pin No.   | Signal Name | Function                              |  |  |
|---|-------------|---------------------------------------|--|--|
| 31<br>32  | Common      | ALM+<br>ALM-                          | Servo alarm: Turns OFF when an error is detected.  |  |
| 27<br>28  |             | /TGON+<br>/TGON-                      | Detection during servo motor rotation: detects when the servo motor is rotating at a speed higher than the motor speed setting.  |  |
| 29<br>30  |             | /S-RDY+<br>/S-RDY-                    | Servo ready: ON if there is no servo alarm when the control/main circuit power supply is turned ON.  |  |
| 33<br>34  |             | PAO<br>/PAO                           | Phase-A signal   | Two-phase pulse encoder output pulse signal  |
| 35<br>36  |             | PBO<br>/PBO                           | Phase-B signal   |  |
| 19<br>20  |             | PCO<br>/PCO                           | Phase-C signal   | Zero-point pulse signal  |
| 37 (1)<br>38 (1)<br>39 (1)                              |             | ALO1<br>ALO2<br>ALO3                  | Alarm code output: Outputs 3-bit alarm codes.  |  |
| Shell   |             | FG                                    | Connected to frame ground if the shield wire of the I/O signal cable is connected to the connector shell.  |  |
| 25<br>26  |             | Speed                                 | /V-CMP+<br>/V-CMP-   | Turns ON when whether the motor speed is within the setting range is detected and if it matches the reference speed value. |
| 25<br>26  |             | Position                              | /COIN+<br>/COIN-   | Turns ON when the number of position error pulse reaches the value set.  |
| -   | Reserved    | /CLT<br>/VLT<br>/BK<br>/WARN<br>/NEAR | Reserved terminals<br>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<br>13<br>16<br>17<br>18<br>23<br>24<br>48<br>49<br>50 |             | -                                     | Terminals not used.<br>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. | Signal Name | Function           |   |
|---------|-------------|--------------------|---|
| 4<br>3  | Common      | /HWBB1+<br>/HWBB1- | Hard wire baseblock input 1   |
| 6<br>5  |             | /HWBB2+<br>/HWBB2- | Hard wire baseblock input 2   |
| 8<br>7  |             | EDMI+<br>EDMI-     | Monitored circuit status output 1:<br>ON when the hard wire baseblock function is normally activated. |
| 1<br>2  | Reserved    | -                  | Terminals not used.<br>Do not connect.  |

**Terminal specifications**

| Symbol               | Name   | Function   |
|----------------------|--|--|
| L1, L2 or L1, L2, L3 | Main circuit AC input terminal   | AC power input terminals for the main circuit  |
| U, V, W              | Servo motor connection terminal  | Terminals for outputs to the servo motor.  |
| L1C, L2C             | Control power input terminal   | AC power input terminals for the control circuit.  |
| 24V, 0V              |  | 24V DC power input terminals for the control circuit.  |
| ⊕                    | Frame ground   | Ground terminal. Ground to a maximum of 100 Ω. (class 3).  |
| B1/ ⊕, B2, B3        | Main circuit DC output terminal  | Up to 400 W: If the regenerative capacity is insufficient, connect an external regenerative resistor (option) between B1/ ⊕ and B2.  |
|                      |  | From 500 W to 5 kW: 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. |
| ⊖1, ⊖2               | DC reactor connection terminal for suppressing power supply harmonic waves | Normally, short ⊖1 and ⊖2.<br>If a countermeasure against power supply harmonic waves is needed, connect a DC reactor between ⊖1 and ⊖2.   |

**Encoder connector (CN2)**

| Pin No. | Signal Name | Function                                    |
|---------|-------------|---|
| 1       | E5V         | Encoder power supply + 5 V                  |
| 2       | E0V         | Encoder power supply ground                 |
| 3       | BAT+        | Battery + (used only with absolute encoder) |
| 4       | BAT-        | Battery - (used only with absolute encoder) |
| 5       | S+          | Encoder serial signal input                 |
| 6       | S-          | Encoder serial signal input                 |

**Sigma-5 MECHATROLINK-II Servo Drives**

**General specifications**

|                                    |  |  |   |  |
|------------------------------------|--|--|---|--|
| Position/speed/torque control mode | Speed control range                      |  | 1:5000  |  |
|                                    | Speed variance                           | Load variance  | During 0 to 100% load $\pm 0.01\%$ max. (at rated speed)  |  |
|                                    |  | Voltage variance   | Rated voltage $\pm 10\%:0\%$ (at rated speed)   |  |
|                                    |  | Temperature variance   | 25 $\pm$ 25 °C: $\pm 0.1\%$ max. (at rated speed)   |  |
|                                    | Frequency characteristics                |  | 1.6 kHz   |  |
|                                    | Torque control accuracy (Repeatability)  |  | $\pm 1\%$   |  |
|                                    | Soft start time setting                  |  | 0 to 10 s (acceleration, deceleration can each be set.)   |  |
|                                    | Command input                            |  | MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands)   |  |
|                                    | I/O signal                               | Position signal output   |   | A-phase, B-phase, C-phase: line driver output.   |
|                                    |  | Sequence input signal  |   | Homing deceleration limit switch, forward/reverse run prohibited, external latch signals, forward/reverse current limit. |
| Sequence output signal             |  | It is possible to output three types of signal form incl.: positioning complete, speed coincidence detection, servo-motor rotation detection, servo ready, current limit detection, speed limit detection, brake release, warning, NEAR. |   |  |
| Communications                     | USB Communications                       | Interface  | Personal computer   |  |
|                                    |  | Communications standard  | Compliant with USB1.1 standard (12 Mbps)  |  |
|                                    | Mechatrolink Communications              | Function   | Status display, parameter setting, adjusting functions, utility functions, alarm traceback display, JOG run/autotuning operations and graphing functions for speed/torque command signal, etc |  |
|                                    |  | Communications protocol  | MECHATROLINK-II   |  |
|                                    |  | Station Address  | 41H to 5FH (max. number of slaves: 30)  |  |
|                                    |  | Transmission Speed   | 10 Mbps   |  |
|                                    |  | Transmission Cycle   | 250 $\mu$ s, 0.5 to 4.0 ms (multiple of 0.5 ms)   |  |
| Data length                        | 17-bytes and 32-bytes                    |  |   |  |
| Integrated functions               | Automatic load inertia detection         |  | Automatic motor parameter setting. One parameter rigidity setting.  |  |
|                                    | Dynamic brake (DB)                       |  | Operates during main power OFF, servo alarm, servo OFF or overtravel  |  |
|                                    | Regenerative processing                  |  | Internal resistor included in models from 500 W to 5 kW. Regenerative resistor externally mounted (option).   |  |
|                                    | Overtravel (OT) prevention function      |  | DB stop, deceleration stop or coast to stop during P-OT, N-OT operation   |  |
|                                    | Encoder divider function                 |  | Optional division pulses possible   |  |
|                                    | Electronic gearing                       |  | 0,01< Numerator/Denominator<100   |  |
|                                    | Internal speed setting function          |  | 3 speeds may be set internally  |  |
|                                    | Protective functions                     |  | Overcurrent, overvoltage, low voltage, overload, regeneration error   |  |
|                                    | Analog monitor functions for supervision |  | Integrates analog monitor connectors for supervision of the speed and torque reference signals, etc. Number of channels: 2 (Output volatge: +/-10V DC).                                       |  |
|                                    | Panel operator                           | Display functions  | CHARGE, 7-segments LEDX1  |  |
|                                    |  | Switches   | Rotary switch: MECHATROLINK-II station address setting (16 channels)<br>DIP switch: MECHATROLINK-II communications setting (4 channels)   |  |
|                                    | Safety functions                         |  | Hard wire base block signal and status monitor (fixed output) of safety circuit   |  |
|                                    | Others                                   |  | Reverse connection, zero search, automatic motor discrimination function, and DC reactor connection terminal for high frequency power suppression function.                                   |  |

**I/O specifications**

**I/O signals (CN1) - input signals**

| Pin No. | Signal name |         | Function   |
|---------|-------------|---------|--|
| 9       | Common      | /DEC    | Homing deceleration limit switch<br>Connects the deceleration limit switch for homing.   |
| 7       |             | P-OT    | Forward run prohibited   |
| 8       |             | N-OT    | Reverse run prohibited   |
| 10      |             | /EXT 1  | External latch signal 1  |
| 11      |             | /EXT 2  | External latch signal 2  |
| 12      |             | /EXT 3  | External latch signal 3  |
| 6       |             | +24VIN  | Control power supply input for sequence signals: users must provide the +24 V power supply. Allowable voltage fluctuation range: 11 to 25 V. |
| 14      |             | BAT (+) | Connecting pin for the absolute encoder backup battery.  |
| 15      |             | BAT (-) | Do not connect when a battery is connected to the host controller.   |
| 13      |             | /SIO    | General-purpose input signal:<br>Monitored in the I/O monitor field of MECHATROLINK-II.  |

- Note:**
- The functions allocated to /DEC, P-OT, N-OT, /EXT1, -/EXT2 and /EXT3 input signals can be changed by using the parameters.
  - If the Forward/ Reverse run prohibited function is used, the software can be used to stop the Servo drive. If the application does not satisfy the requirements, add an external circuit for safety reasons as required.



**I/O signals (CN1) - output signals**

| Pin No.              | Signal Name                        | Function   |
|----------------------|------------------------------------|--|
| 3<br>4               | Common                             | ALM+<br>ALM-<br>Servo alarm: Turns OFF when an error is detected.  |
| 1<br>2               | /BK+<br>(/SO1+)<br>/BK-<br>(/SO1-) | Brake interlock signal<br>Controls the brake. The brake is released when the signal turns ON.<br>Allocation can be changed to general-purpose output signals (/SO1+, /SO1-). |
| 23<br>24<br>25<br>26 | /SO2+<br>/SO2-<br>/SO3+<br>/SO3-   | General-purpose output signal.<br>Note: Set the parameter to allocate a function.  |
| 16                   | FG                                 | Signal ground:<br>Connected to frame ground if the shield wire of the I/O signal cable is connected to the connector shell.  |
| 17<br>18             | PAO<br>/PAO                        | Phase-A signal<br>Dividing ratio can be set by parameter<br>(proper line receiver is SN75175 manufactured by Texas instruments or the equivalent corresponding to MC3486)    |
| 19<br>20             | PBO<br>/PBO                        | Phase-B signal   |
| 21<br>22             | PCO<br>/PCO                        | Phase-C signal   |
| 5                    | Reserved                           | -<br>Terminal not used. Do not connect.  |

**I/O signals (CN8) - safety signals**

| Pin No. | Signal Name    | Function  |
|---------|----------------|---|
| 4<br>3  | Common         | /HWBB1+<br>/HWBB1-<br>Hard wire baseblock input 1   |
| 6<br>5  |                | /HWBB2+<br>/HWBB2-<br>Hard wire baseblock input 2   |
| 8<br>7  | EDMI+<br>EDMI- | Monitored circuit status output 1:<br>ON when the hard wire baseblock function is normally activated. |
| 1<br>2  | Reserved       | -<br>Terminals not used.<br>Do not connect.   |

**Terminal specifications**

| Symbol                     | Name   | Function  |
|----------------------------|--|---|
| L1, L2 or L1, L2, L3       | Main circuit AC input terminal   | AC power input terminals for the main circuit   |
| U, V, W                    | Servo motor connection terminal  | Terminals for outputs to the servo motor.   |
| L1C, L2C                   | Control power input terminal   | AC power input terminals for the control circuit.   |
| 24V, 0                     |  | 24V DC power input terminals for the control circuit.   |
| ⊕                          | Frame ground   | Ground terminal. Ground to a maximum of 100 Ω. (class 3).   |
| B1/⊕, B2, B3 or B1, B2, B3 | Main circuit DC output terminal  | Up to 400 W: If the regenerative capacity is insufficient, connect an external regenerative resistor (option) between B1/⊕ and B2.<br>From 500 W to 5 kW: 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. |
| ⊖1, ⊖2                     | DC reactor connection terminal for suppressing power supply harmonic waves | Normally, short ⊖1 and ⊖2.<br>If a countermeasure against power supply harmonic waves is needed, connect a DC reactor between ⊖1 and ⊖2.  |

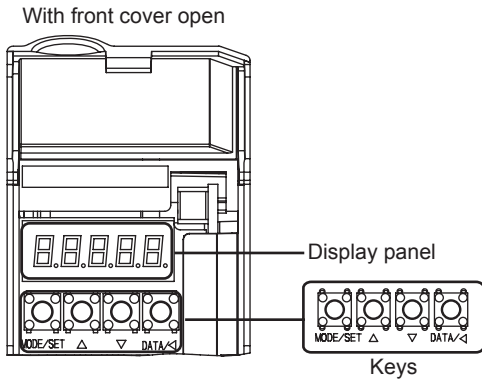
**Encoder connector (CN2)**

| Pin No. | Signal Name | Function                                    |
|---------|-------------|---|
| 1       | E5V         | Encoder power supply + 5 V                  |
| 2       | E0V         | Encoder power supply ground                 |
| 3       | BAT+        | Battery + (used only with absolute encoder) |
| 4       | BAT-        | Battery - (used only with absolute encoder) |
| 5       | S+          | Encoder serial signal input                 |
| 6       | S-          | Encoder serial signal input                 |

Operation

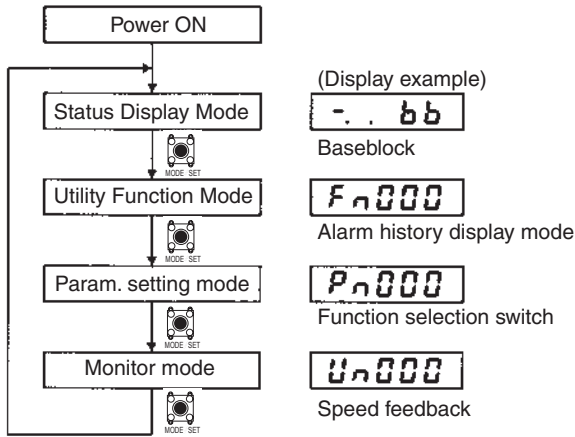
Sigma-5 Analog/Pulse Reference Servo Drive

Panel operator

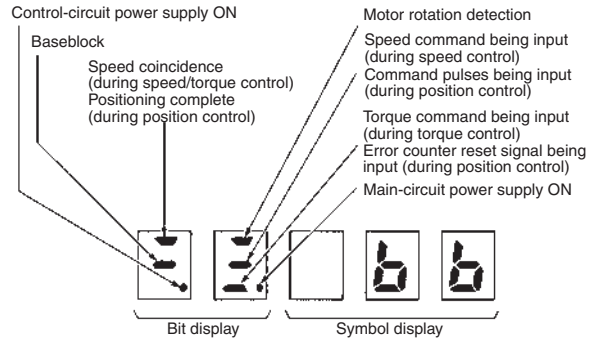


Changing modes

To change modes, press the MODE/SET key.



Status display mode



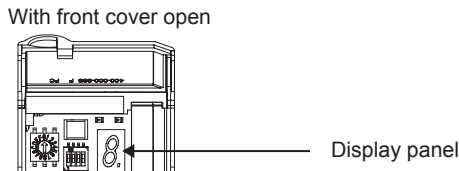
| Symbol      | Status  |
|-------------|---|
| <i>bb</i>   | Baseblock (servo OFF)   |
| <i>run</i>  | Operating (servo on)  |
| <i>For</i>  | Forward rotation prohibited (forward overtravel)                        |
| <i>Rev</i>  | Reverse rotation prohibited (reverse overtravel)                        |
| <i>H.bb</i> | Hard Wire Base Block. Servo drive is baseblocked by the safety function |
| <i>tSt</i>  | Mode test without motor   |
| <i>020</i>  | Alarm. Blinks the alarm number  |

Keys

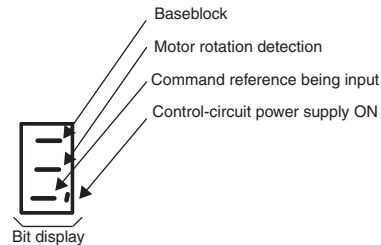
| Key name          | SGDV-□□□□A-OY | Function  |
|-------------------|---------------|---|
| MODE/SET Key      |               | Selects the display mode (status display mode, utility function mode, parameter setting mode and monitor mode). Used as a data setting key while in setting mode. Turns the servo ON or OFF while jog operations are being performed. |
| UP Key            |               | Increments parameter settings. Used as a forward rotation start key during jog operation.   |
| DOWN Key          |               | Decrements parameter settings. Used as a reverse rotation start key during jog operation.   |
| DATA/SHIFT Key    |               | To set and display the set value. Selects the digit whose setting is to be changed. When selected, the digit flashes.   |
| UP Key + DOWN Key |               | Pressing the UP Key and the Down Key simultaneously, resets an alarm.   |

Sigma-5 MECHATROLINK-II Servo Drives

Display panel



Status display mode

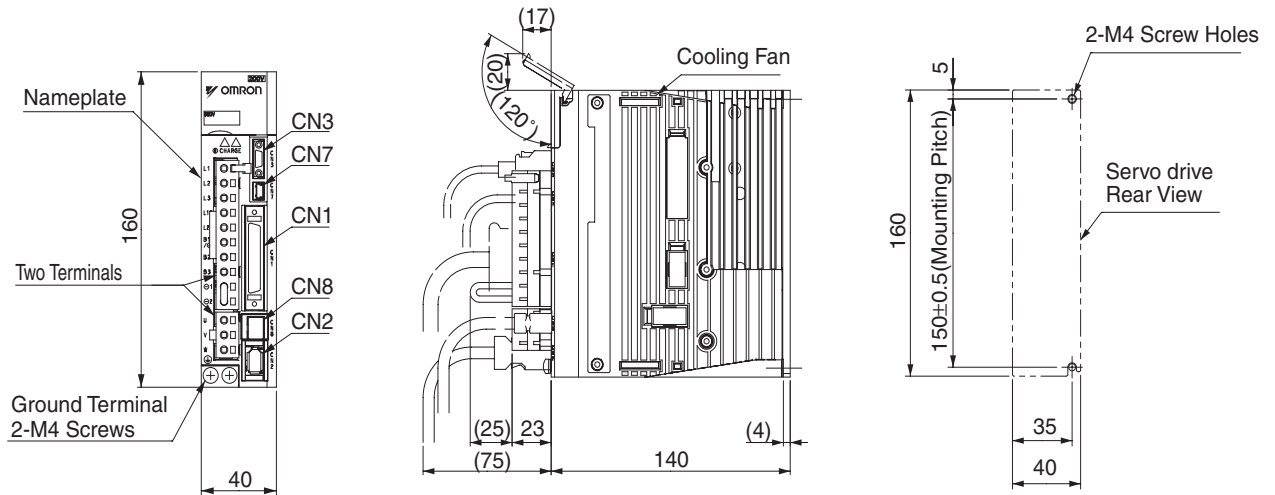


| Symbol          | Status  |
|-----------------|---|
| <i>R. E 6 0</i> | A.E60.Alarm number 60   |
| <i>H. b b</i>   | Hard Wire Base Block. Servo drive is baseblocked by the safety function |
| <i>t S t</i>    | Mode test without motor   |

**Dimensions**

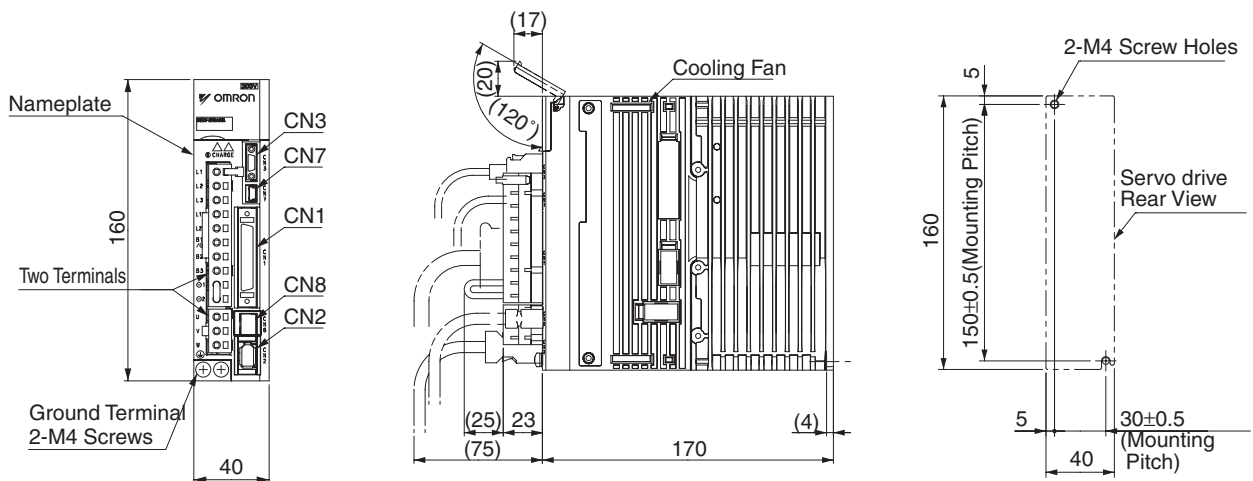
**Sigma-5 Analog/Pulse Reference Servo Drive**

**SGDV-A5A0□A-OY to -02A0□A-OY (230 V, 50 to 200 W)**



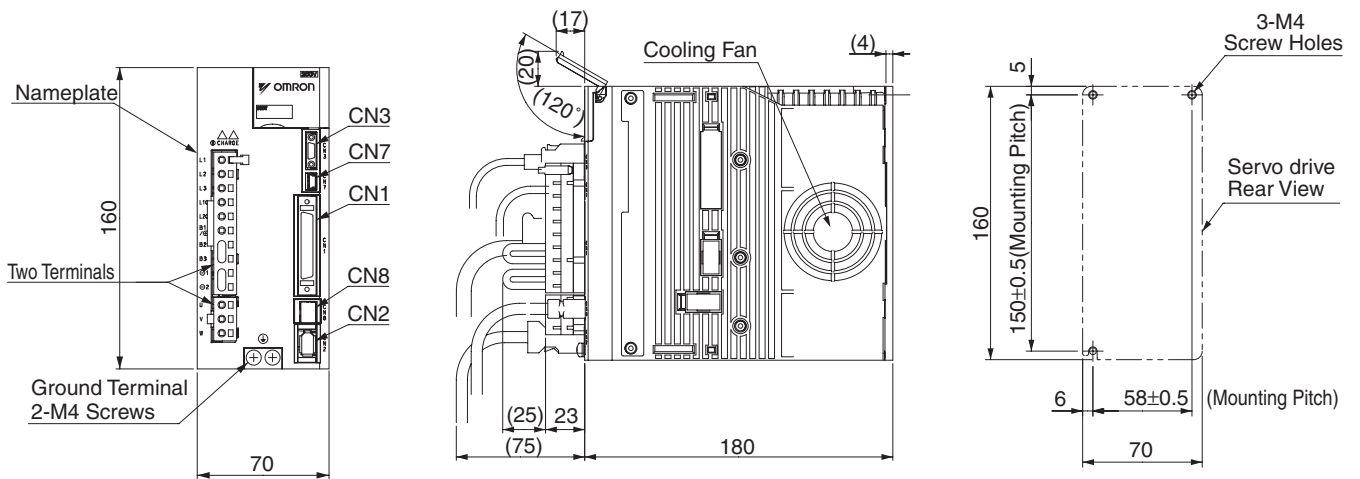
Mounting Hole Diagram

**SGDV-04A0□A-OY (230 V, 400 W)**



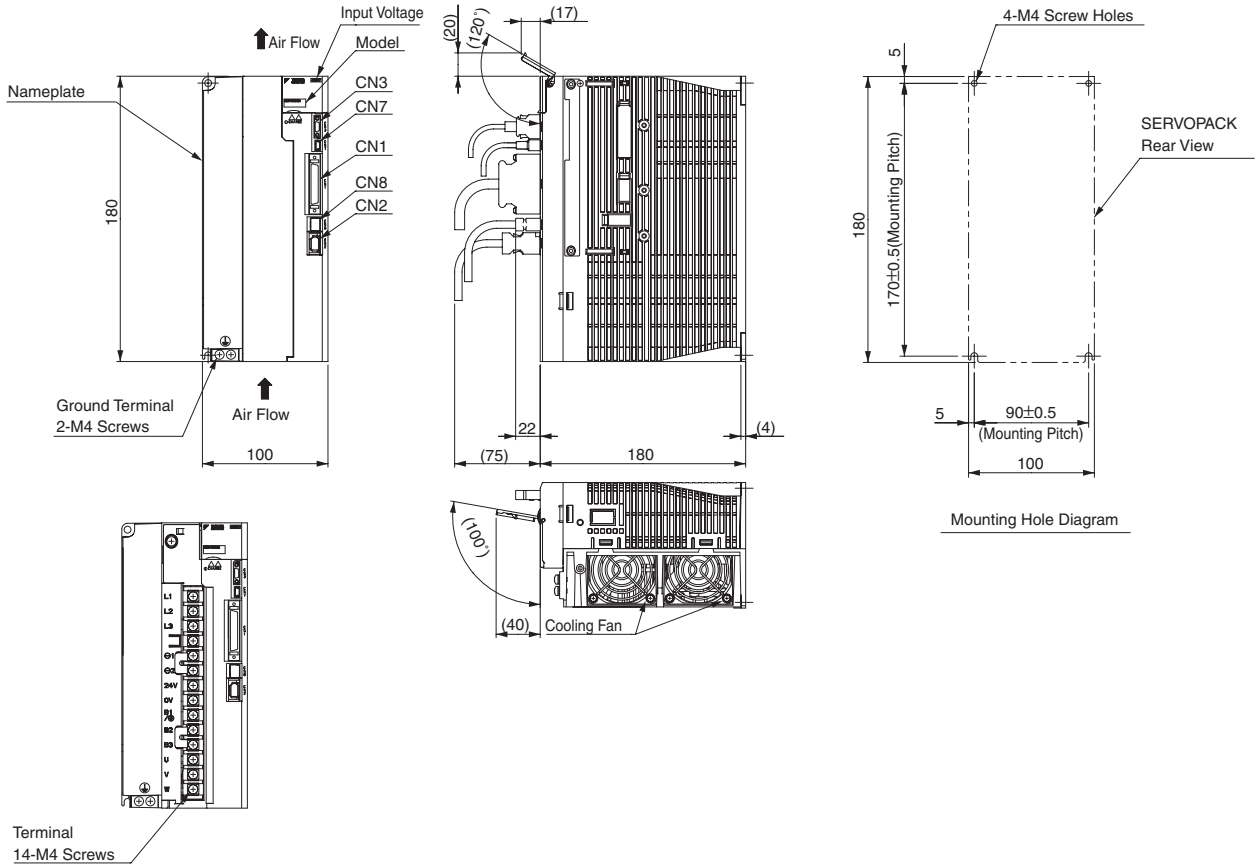
Mounting Hole Diagram

**SGDV-08A0□A-OY (230 V, 750 W)**

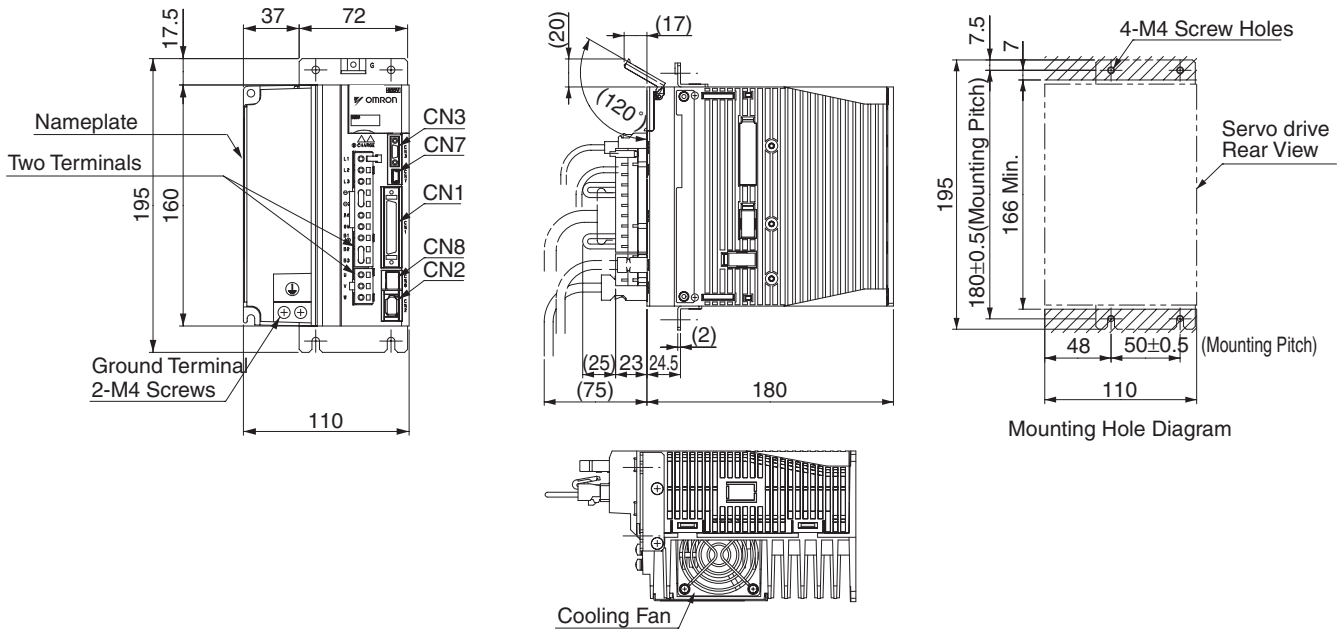


Mounting Hole Diagram

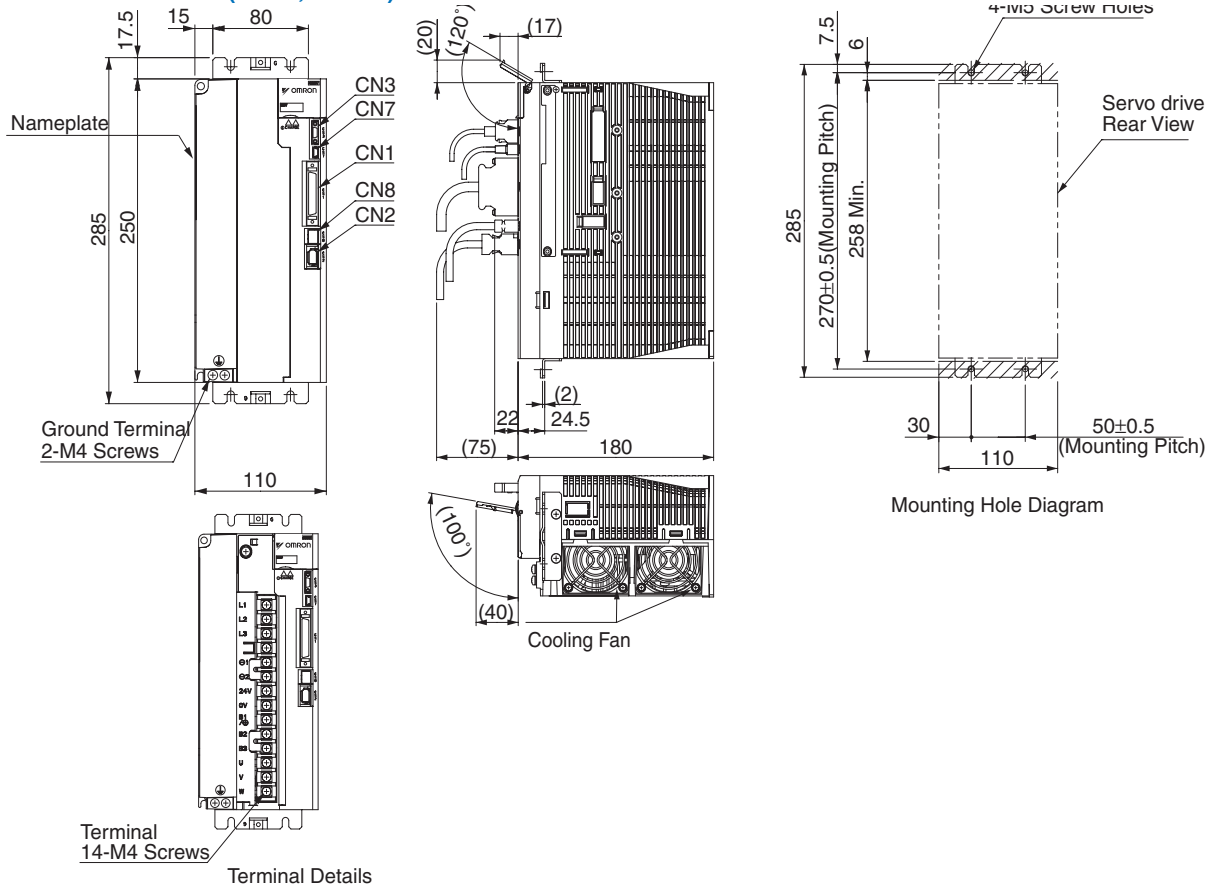
SGDV-15A0□A-OY (230 V, 1.5 kW)



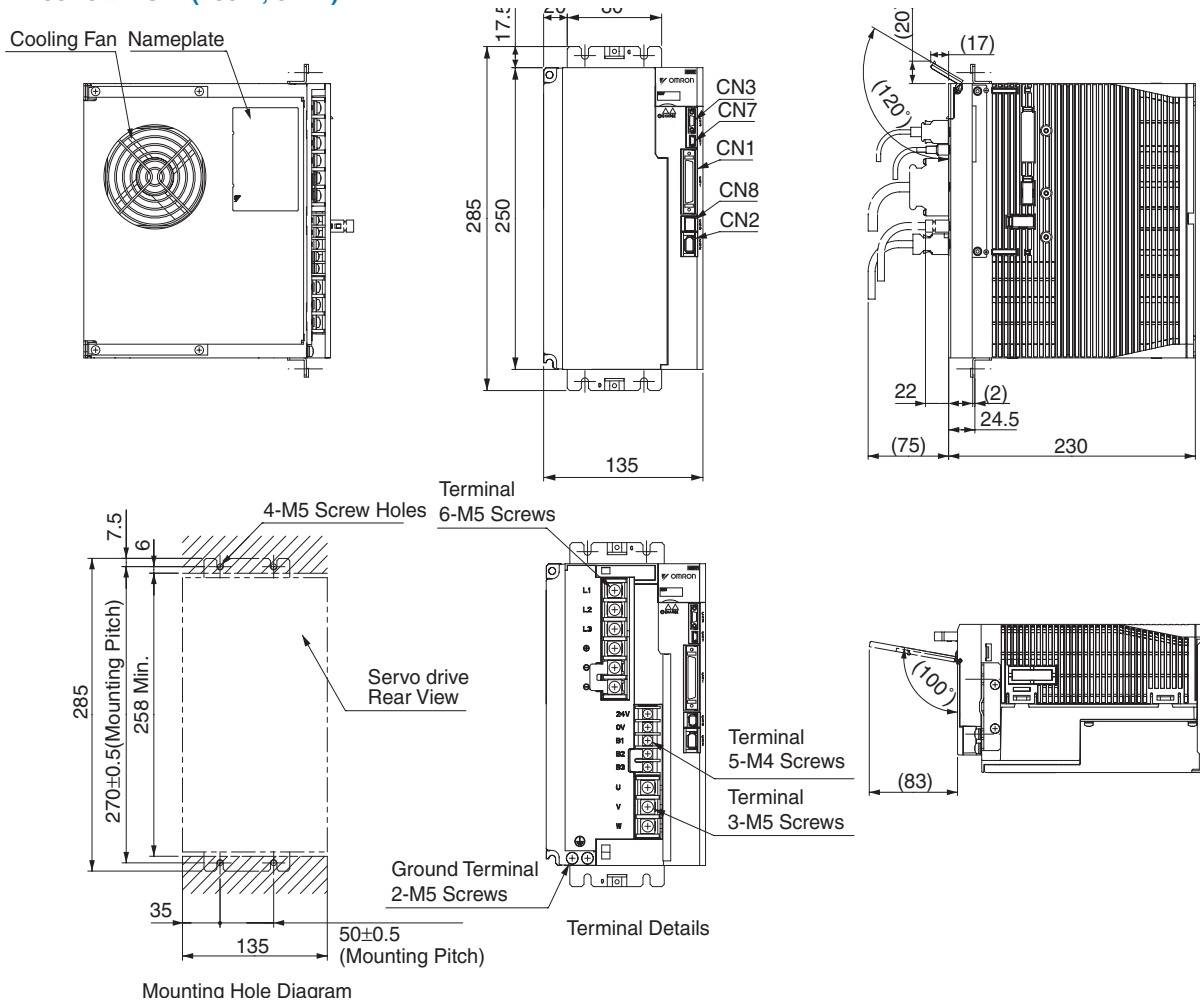
SGDV-05D0□A-OY to -15D0□A-OY (400 V, 0.5 to 1.5 kW)



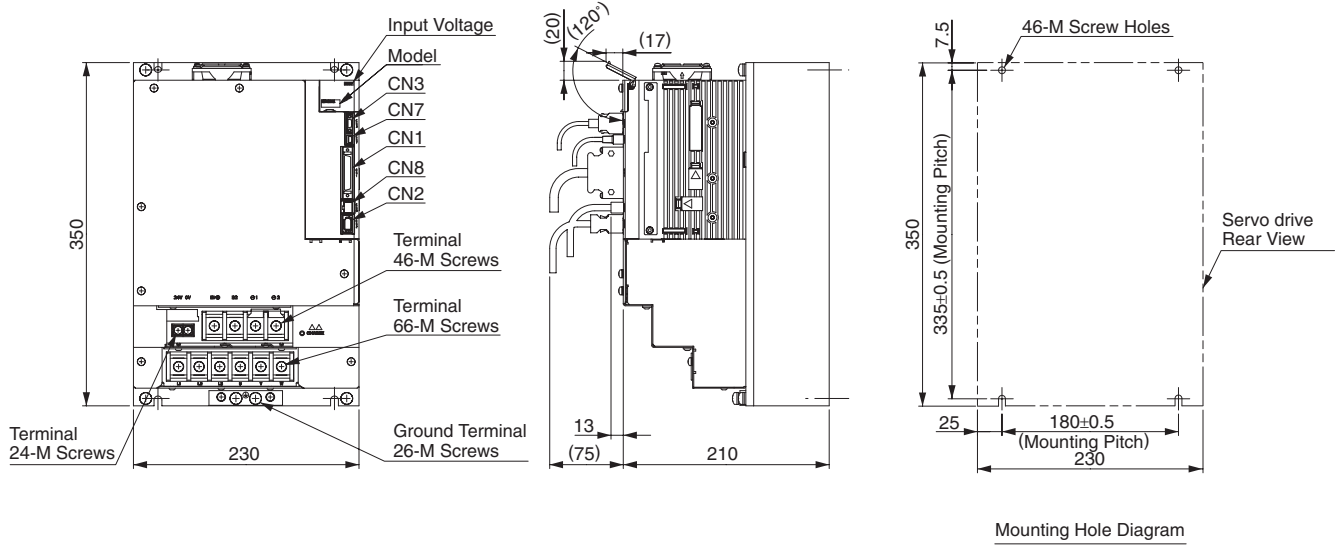
SGDV-20/30D0□A-OY (400 V, 2/3 kW)



SGDV-50D0□A-OY (400 V, 5 kW)

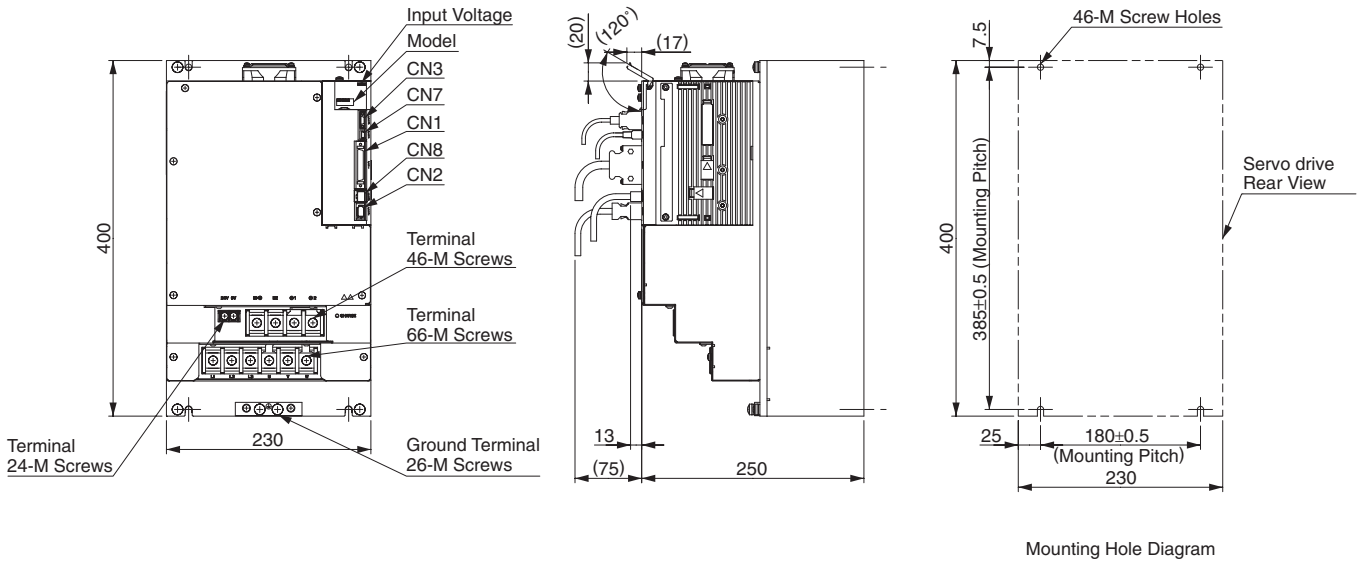


SGDV-210D0□A to 260D0□A (400 V, 6 to 7.5 kW)



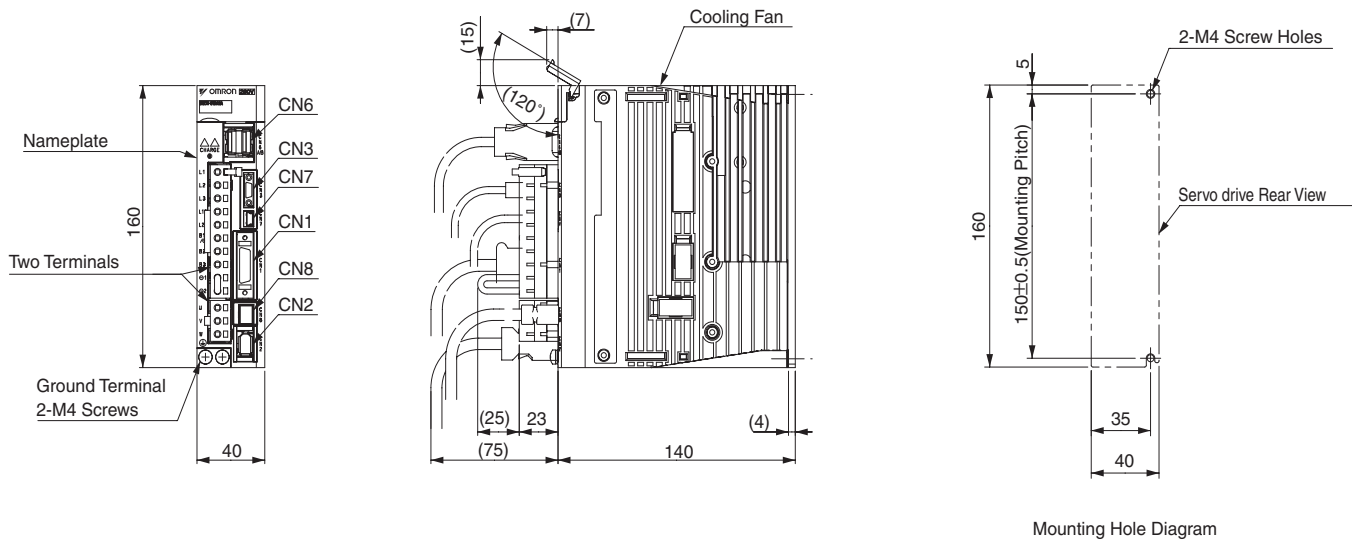
Mounting Hole Diagram

SGDV-280D0□A to 370D0□A (400 V, 11 to 15 kW)

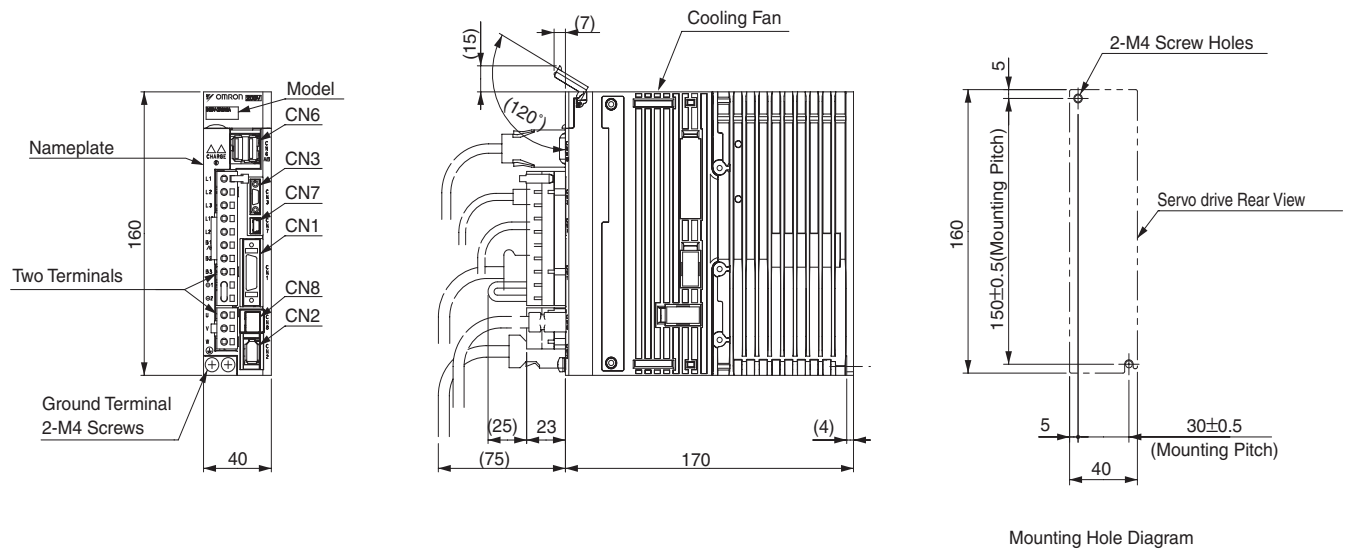


Mounting Hole Diagram

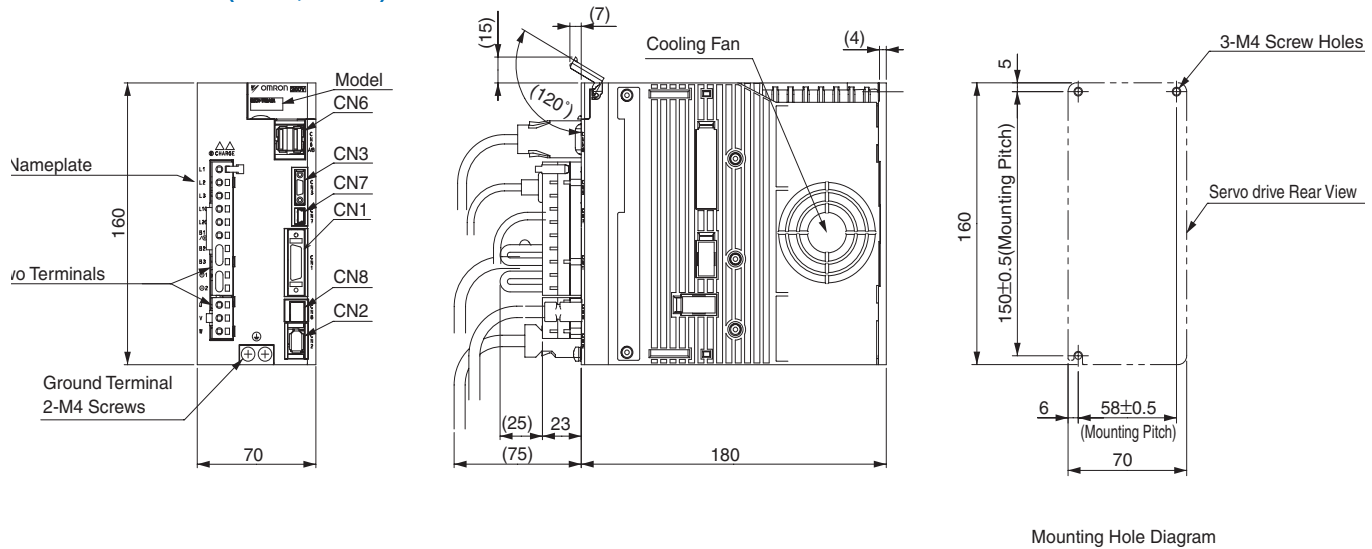
**Sigma-5 MECHATROLINK-II Servo Drives**  
**SGDV-A5A1□A-OY to -02A1□A-OY (230 V, 50 to 200 W)**



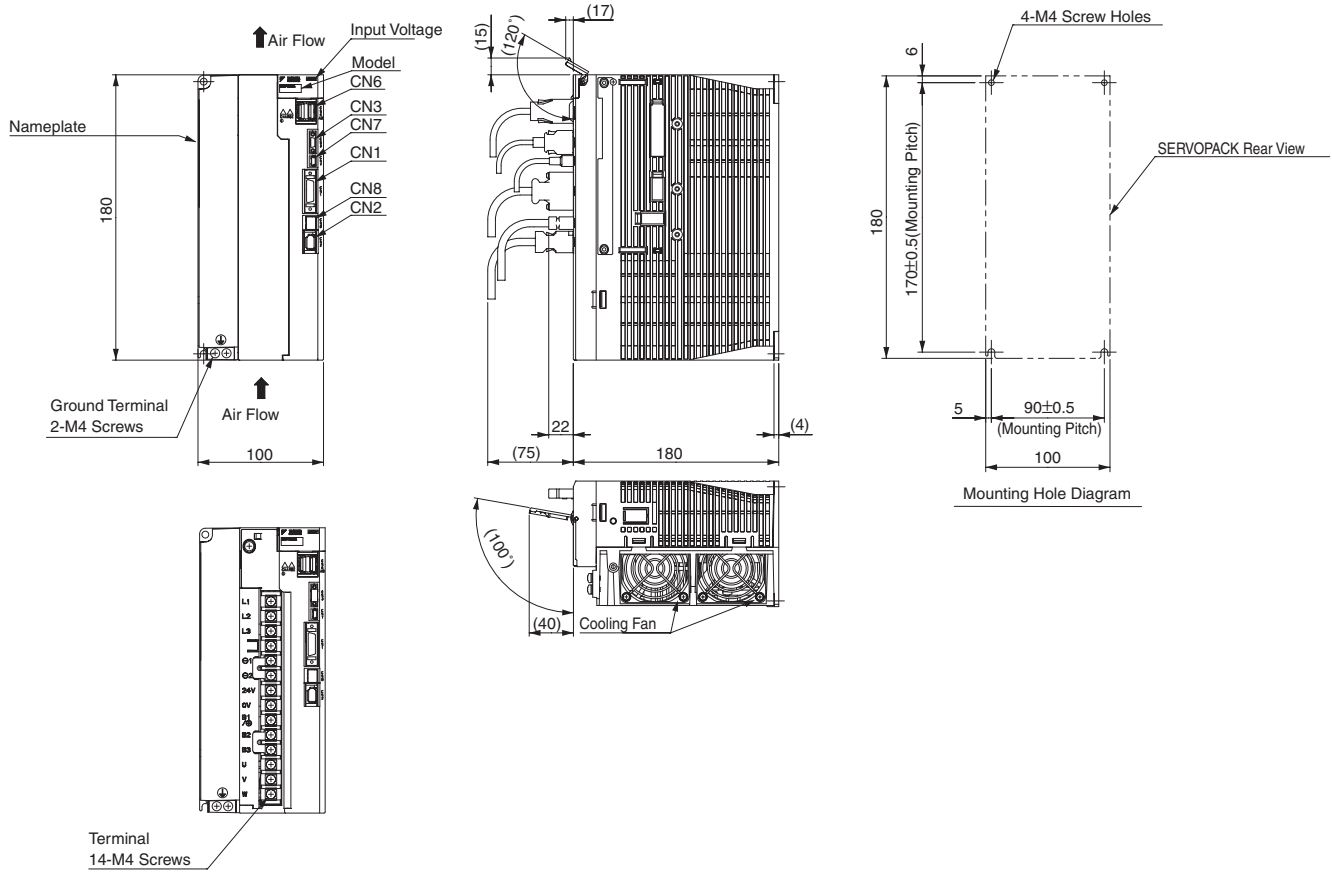
**SGDV-04A1□A-OY (230 V, 400 W)**



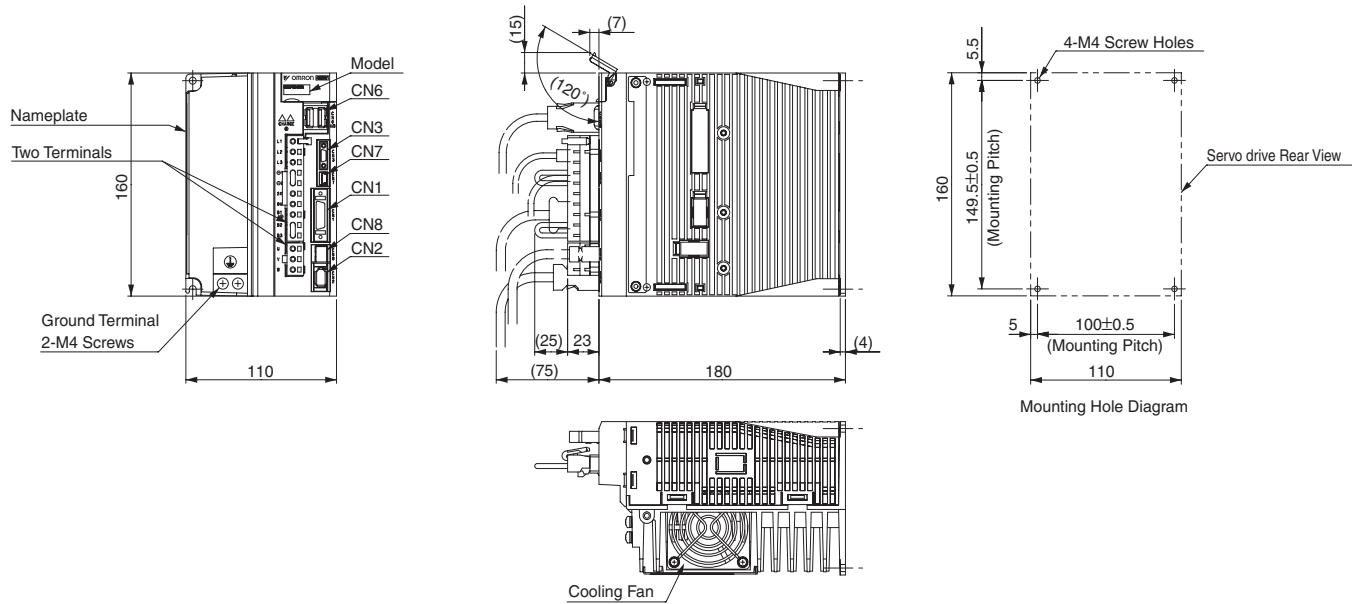
**SGDV-08A1□A-OY (230 V, 750 W)**



SGDV-15A1□A-OY (230 V, 1.5 kW)

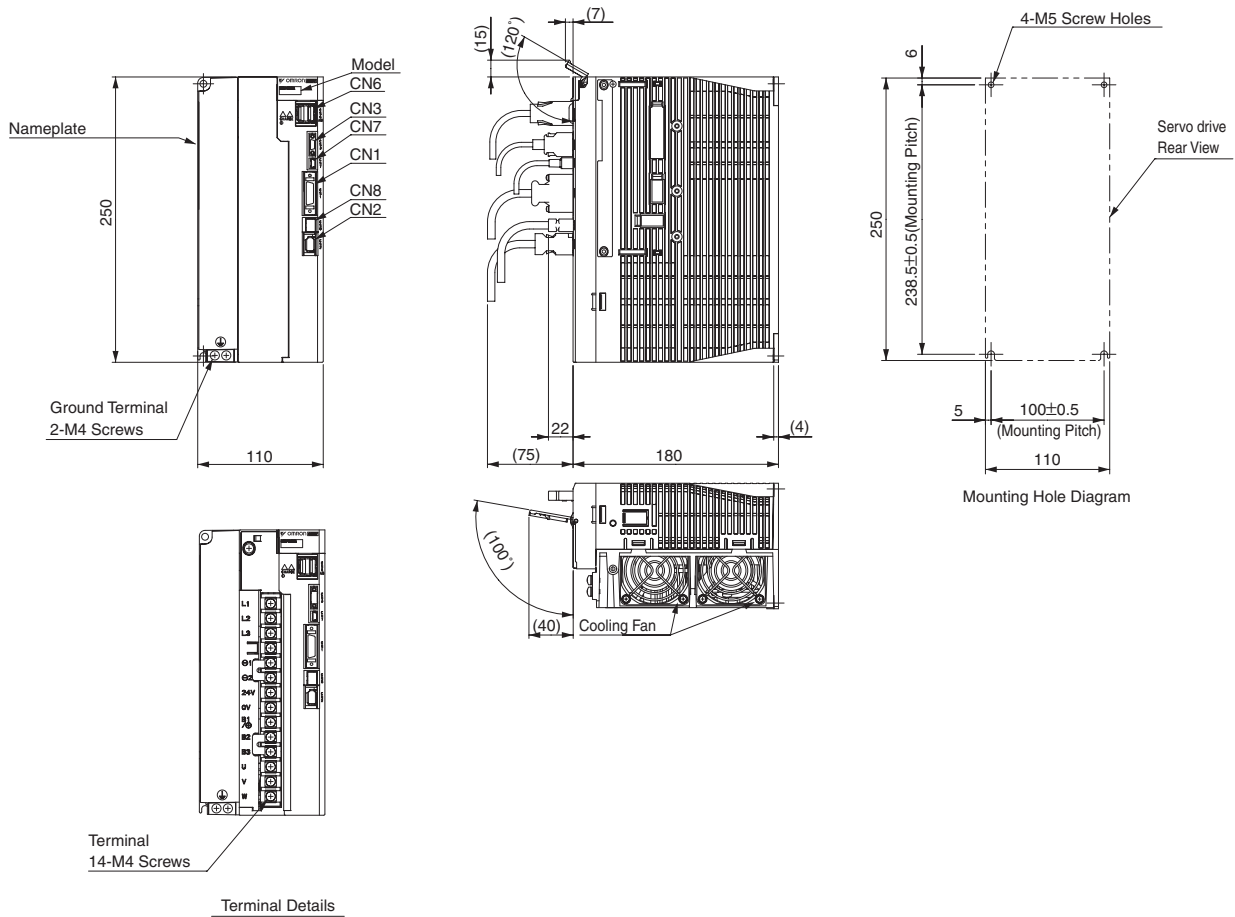


SGDV-05D1□A-OY to -15D1□A-OY (400 V, 0.5 to 1.5 kW)

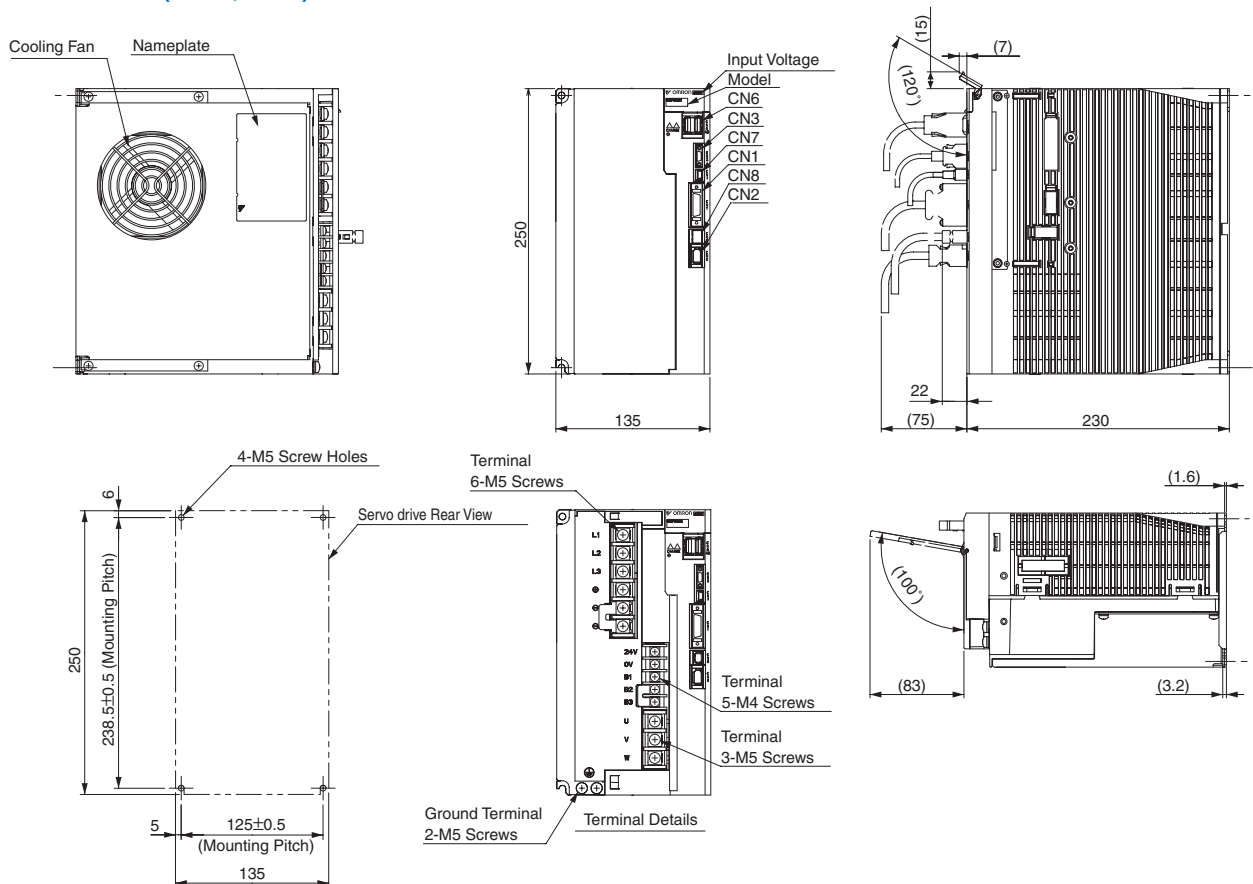




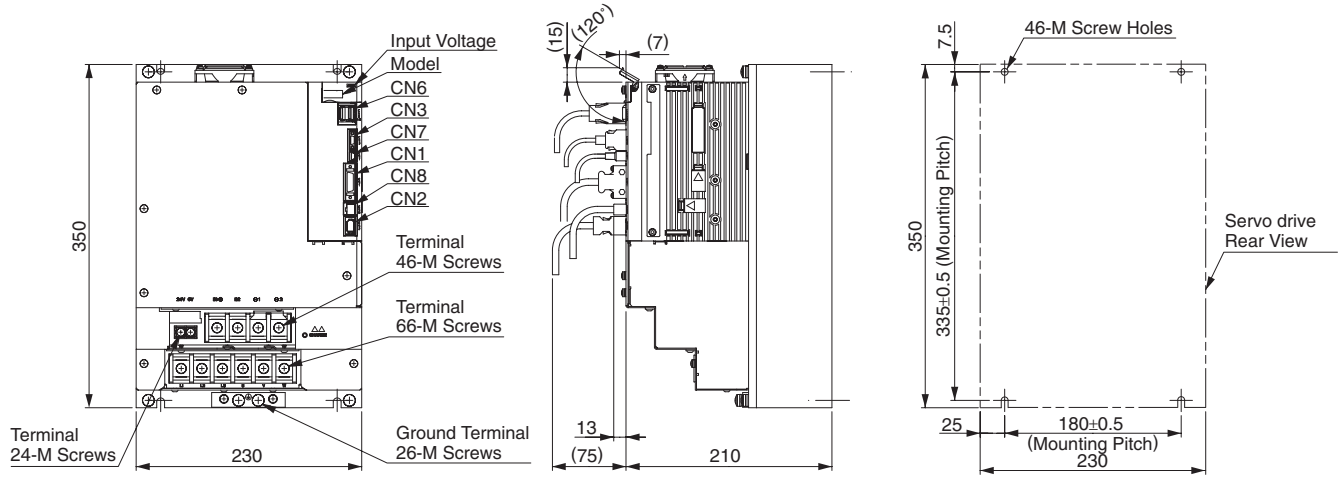
SGDV-20/30D1□A-OY (400 V, 2/3 kW)



SGDV-50D1□A-OY (400 V, 5 kW)

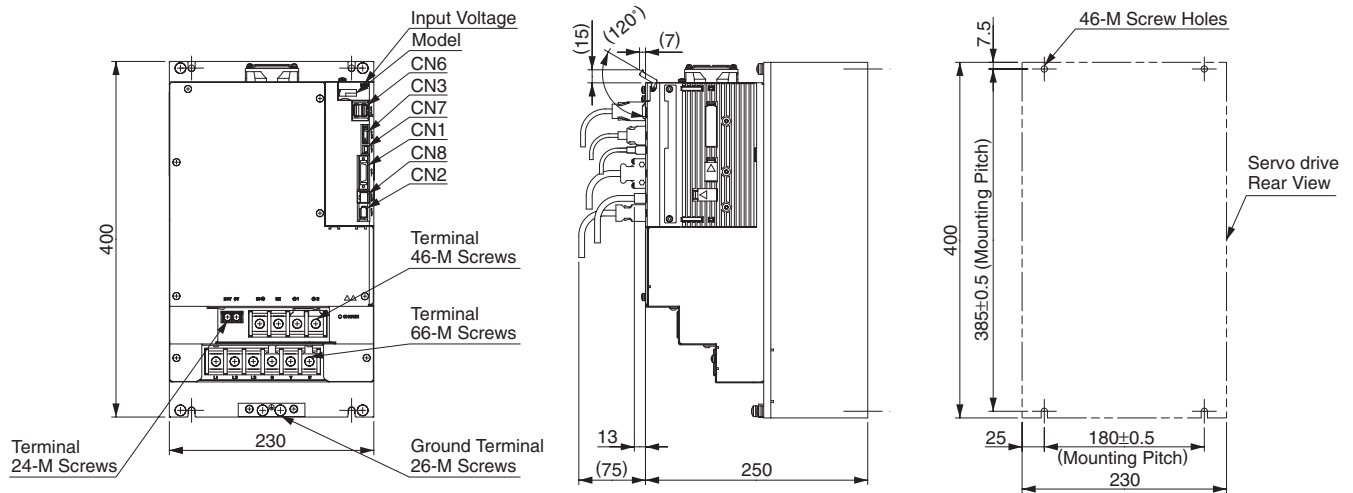


SGDV-210D1□A to 260D1□A (400 V, 6 to 7.5 kW)



Mounting Hole Diagram

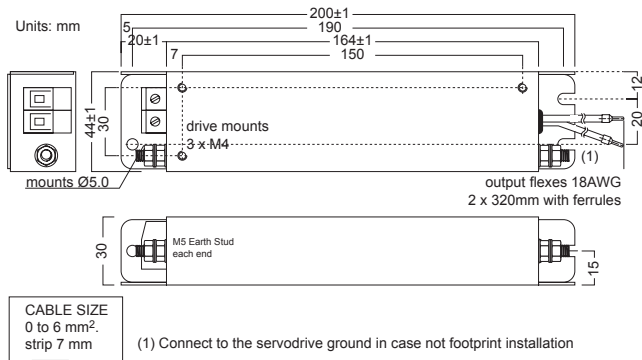
SGDV-280D1□A to 370D1□A (400 V, 11 to 15 kW)



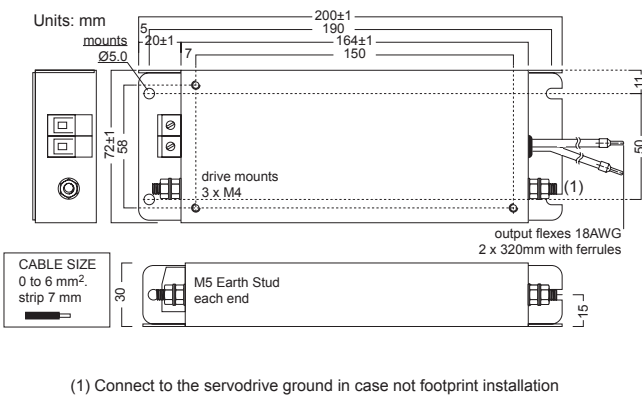
Mounting Hole Diagram

Filters

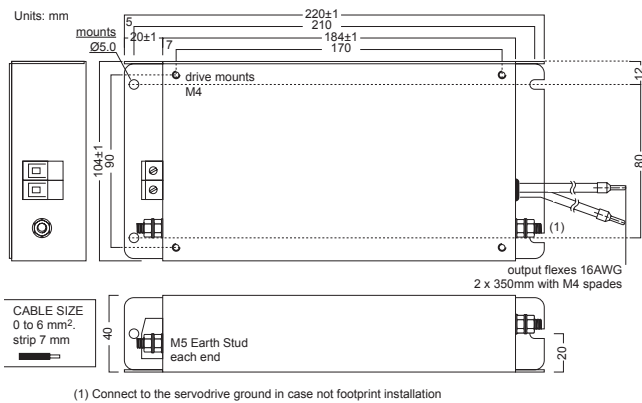
R88A-FI5-1005-RE



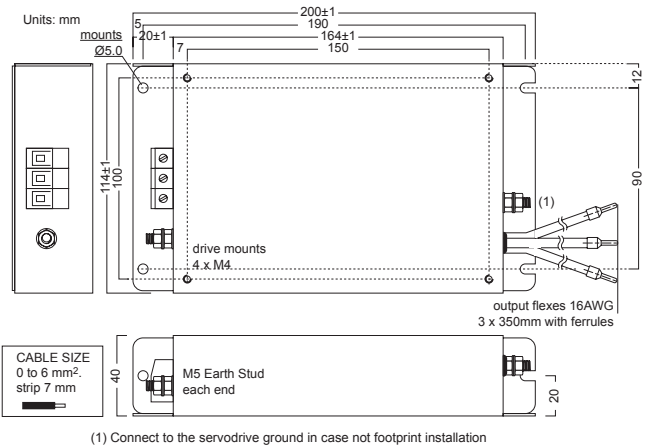
R88A-FI5-1009-RE



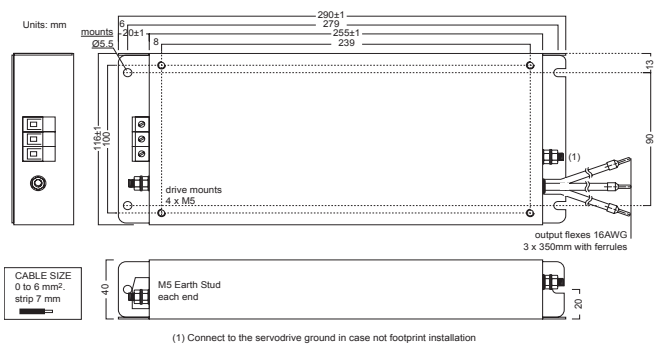
R88A-FI5-1016-RE



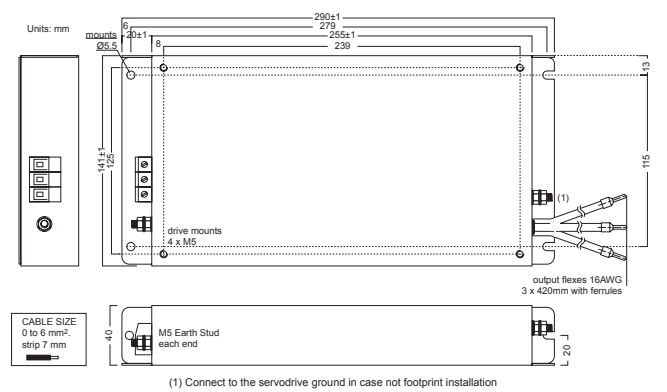
R88A-FI5-3004-RE



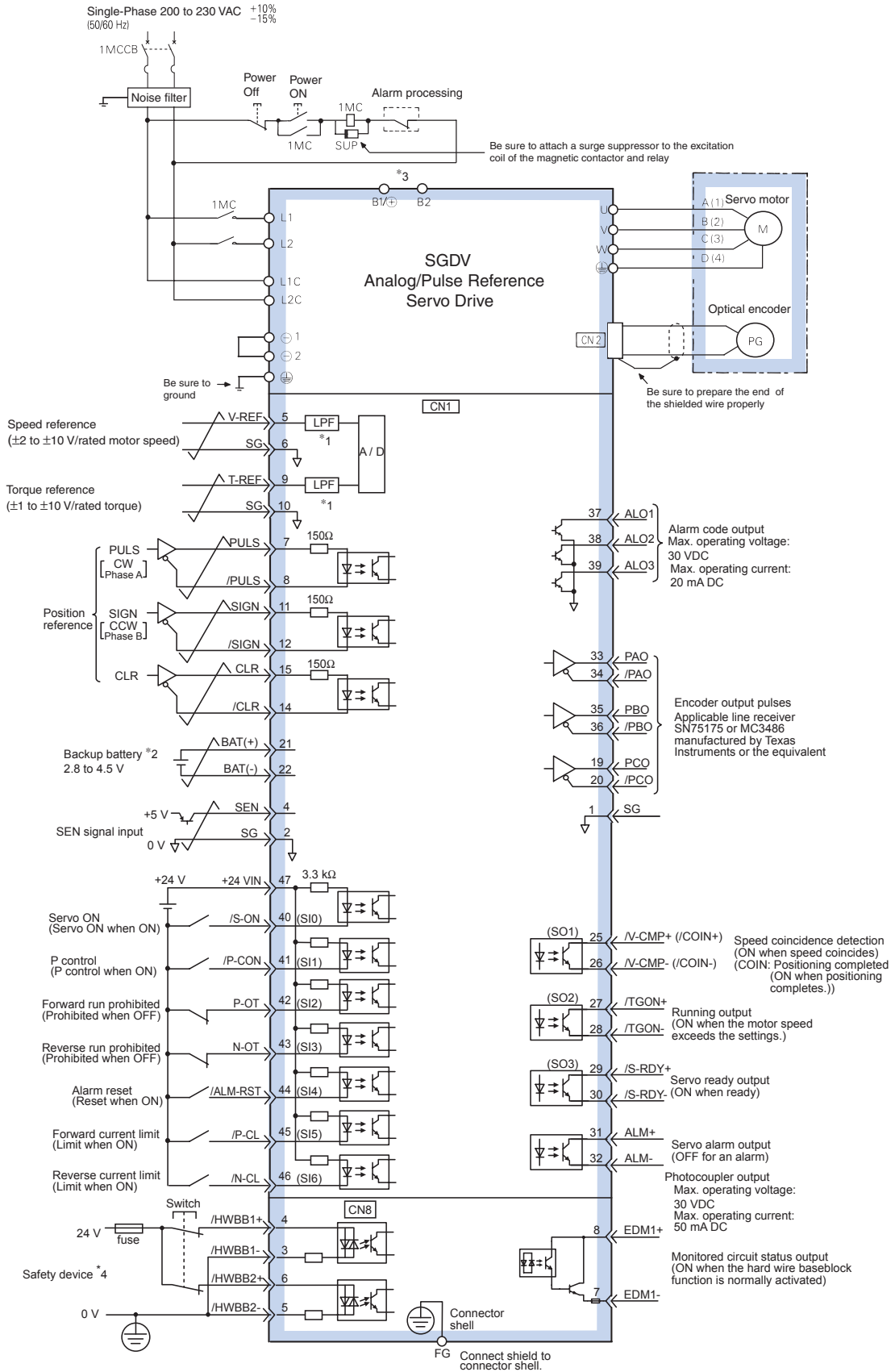
R88A-FI5-3008-RE



R88A-FI5-3012-RE



Single-phase, 230 VAC



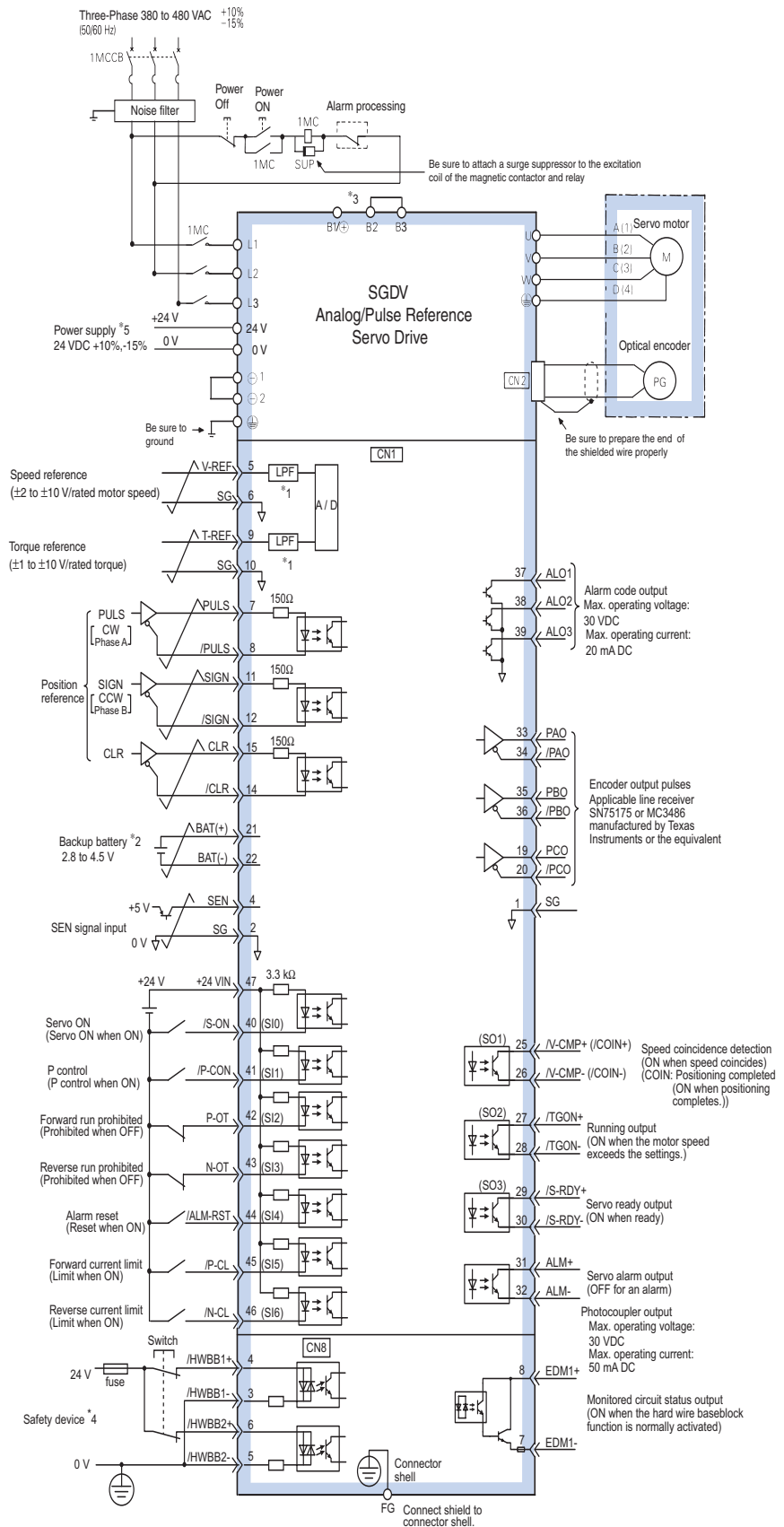
\*1 The time constant for the primary filter is 30 μs.

\*2 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

\*3 Regenerative resistor can be connected between B1 and B2. For 750 W servo drives types normally short B2 and B3.

\*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.

Three-phase, 400 VAC



\*1 The time constant for the primary filter is 30  $\mu$ s.

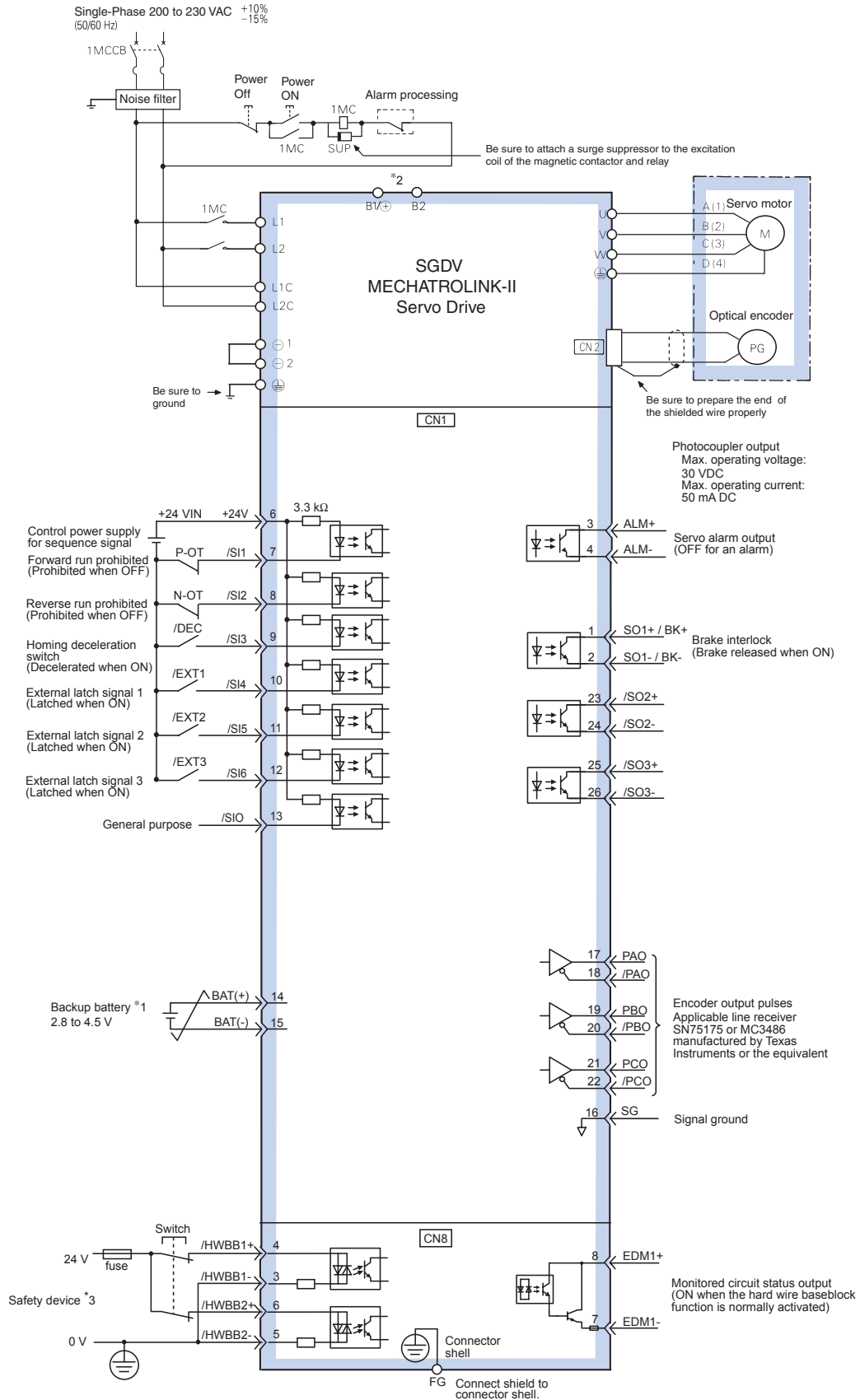
\*2 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

\*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.

Single-phase, 230 VAC

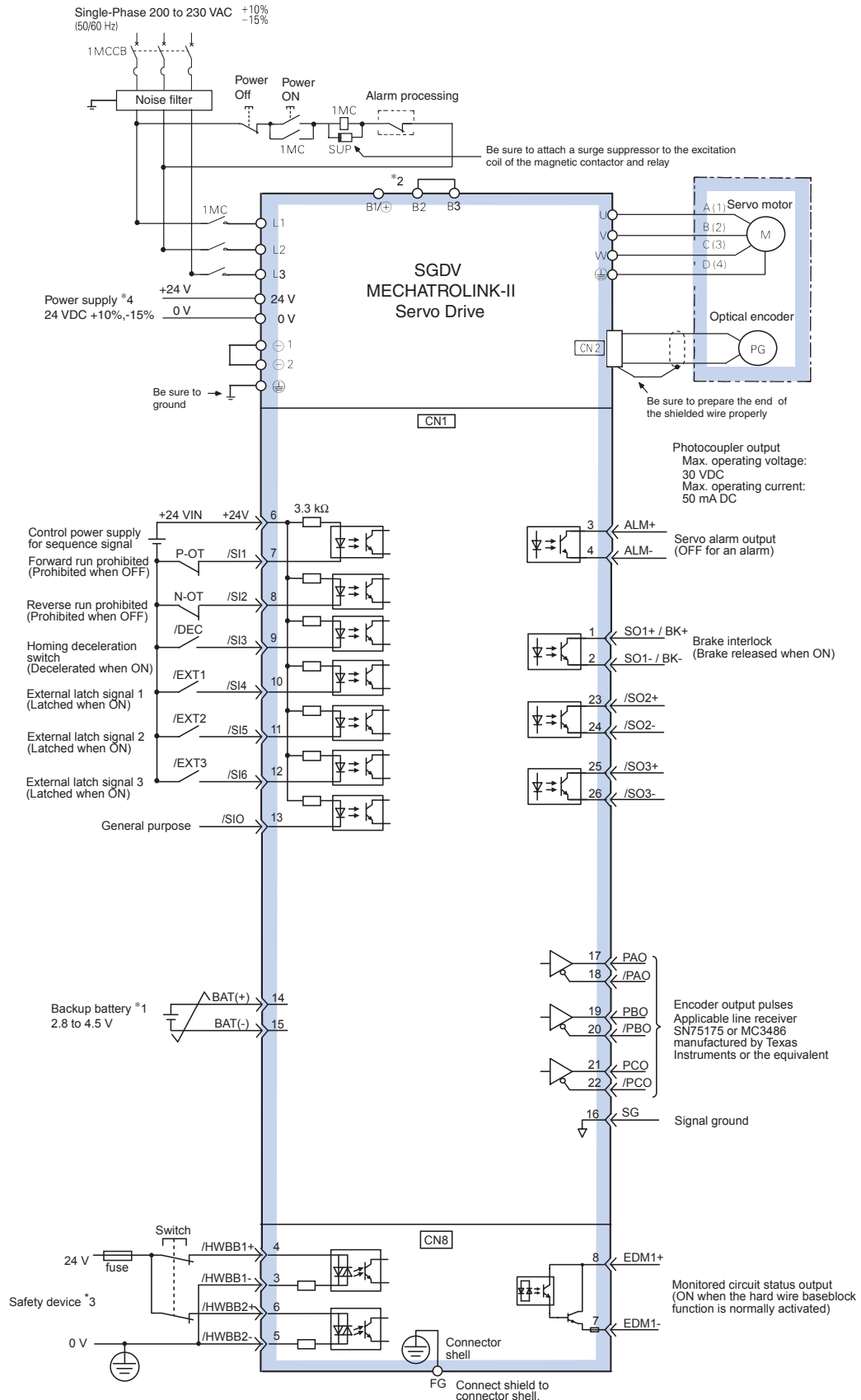


\*1 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

\*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.

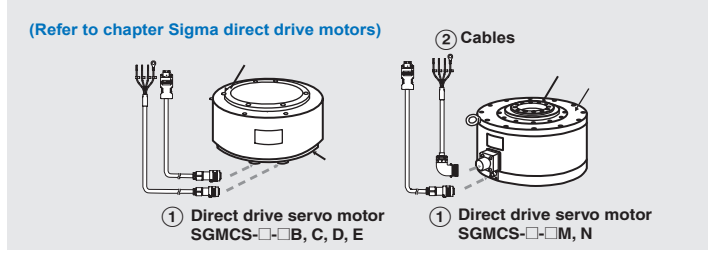
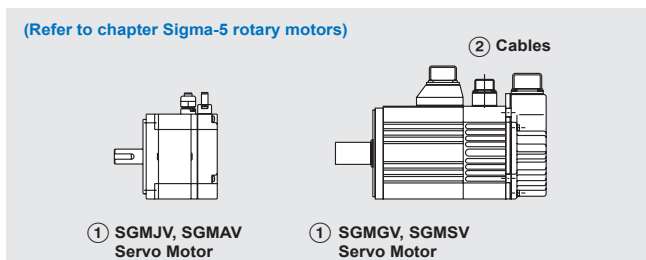
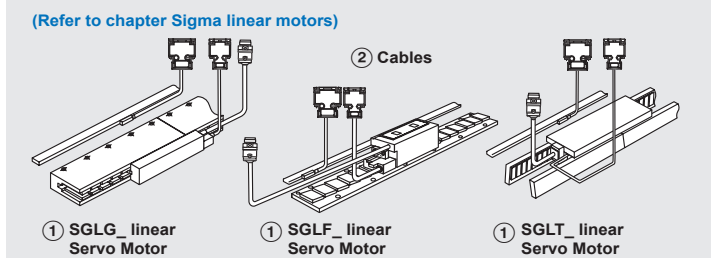
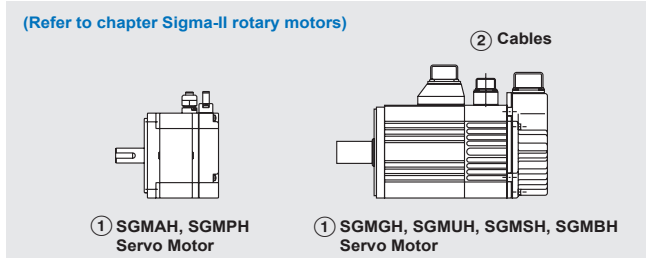
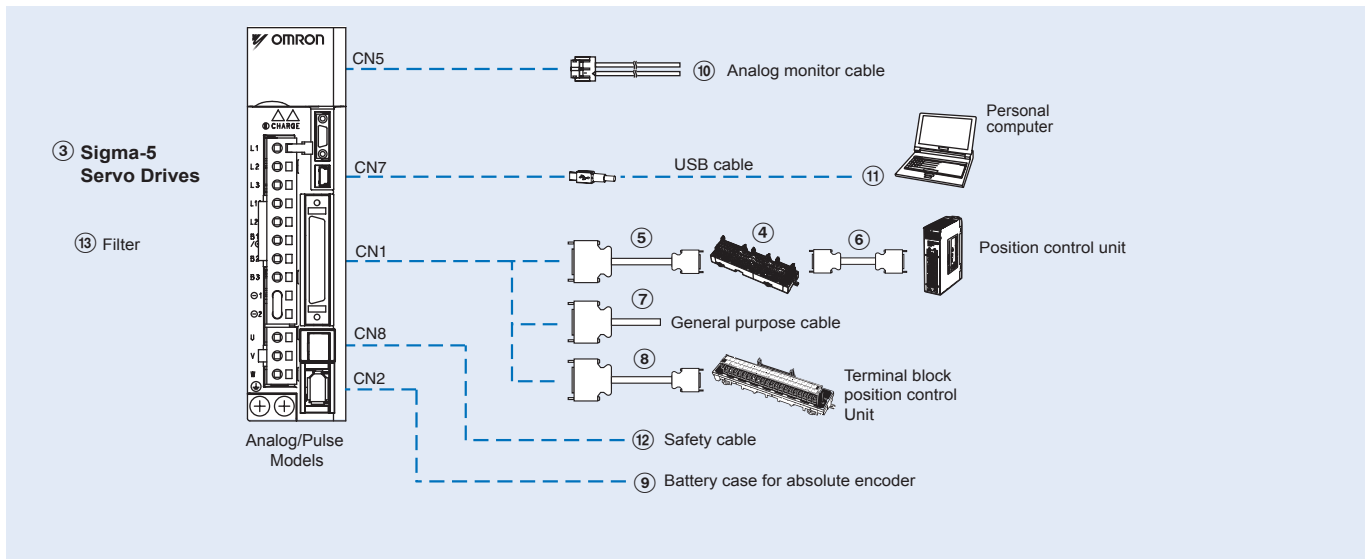
Three-phase, 400 VAC



- \*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.

Ordering information

Sigma-5 Analog/Pulse Reference Configuration



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in a Sigma-5 servo system

Servo motors, power & encoder cables

Note: ①② Refer to the servo motors chapter for detailed motor specifications and selection



Servo drives

| Symbol         | Specifications     | Model              | Compatible rotary servo motors ①                                 | Compatible direct drive motors ①  | Compatible linear motors ①  |  |            |
|----------------|--------------------|--------------------|--|---|---|--|------------|
| ③              | 1 phase<br>230 VAC | 50 W               | SGDV-A5A01A-OY   | SGMAH-A5D□, SGMJV-A5A□,<br>SGMAV-A5A□   | -   | -  |            |
|                |                    |                    | SGDV-A5A05A-OY   | -   | -   | SGLGW-30A050□  |            |
|                |                    | 100 W              | SGDV-01A01A-OY   | SGMAH-01A□, SGMPH-01A□,<br>SGMJV-01A□, SGMAV-01A□,<br>SGMEV-01A□  | -   | -  | -          |
|                |                    |                    | SGDV-01A05A-OY   | -   | -   | SGLGW-30A080□,<br>SGLGW-40A140□                                  |            |
|                |                    | 200 W              | SGDV-02A01A-OY   | SGMAH-02A□, SGMPH-02A□,<br>SGMJV-02A□, SGMAV-02A□,<br>SGMEV-02A□  | SGMCS-07B□  | -  | -          |
|                |                    |                    | SGDV-02A05A-OY   | -   | -   | SGLGW-60A140□,<br>SGLGW-40A253□,<br>SGLFW-20A□,<br>SGLFW-35A120□ |            |
|                |                    | 400 W              | SGDV-04A01A-OY   | SGMAH-04A□, SGMPH-04A□,<br>SGMJV-04A□, SGMAV-04A□,<br>SGMEV-04A□  | SGMCS-02B□, SGMCS-05B□,<br>SGMCS-04C□, SGMCS-10C□,<br>SGMCS-14C□, SGMCS-08D□,<br>SGMCS-17D□, SGMCS-25D□ | -  | -          |
|                |                    |                    | SGDV-04A05A-OY   | -   | -   | SGLGW-40A365□,<br>SGLGW-60A253A□                                 |            |
|                |                    | 750 W              | SGDV-08A01A-OY   | SGMAH-08A□, SGMPH-08A□,<br>SGMJV-08A□, SGMAV-08A□,<br>SGMEV-08A□  | SGMCS-16E□, SGMCS-35E□  | -  | -          |
|                |                    |                    | SGDV-08A05A-OY   | -   | -   | SGLGW-60A365A□,<br>SGLFW-35A230□,<br>SGLFW-50A200□               |            |
|                |                    | 1.5 kW             | SGDV-15A01A-OY   | SGMPH-15A□, SGMAV-10A□,<br>SGMEV-15A□   | SGMCS-45M□, SGMCS-80M□,<br>SGMCS-80N□   | -  | -          |
|                |                    |                    | SGDV-15A05A-OY   | -   | -   | SGLGW-90A200A□,<br>SGLFW-50A380□,<br>SGLFW-1ZA200□               |            |
|                |                    | 3 phase<br>400 VAC | 0.5 kW   | SGDV-05D01A-OY  | SGMAH-03D□, SGMPH-04D□,<br>SGMGH-05D□, SGMEV-04D□,<br>SGMGV-05D□  | -  | -          |
|                |                    |                    |  | SGDV-05D05A-OY  | -   | -  | SGLFW-35D□ |
|                | 1.0 kW             |                    | SGDV-10D01A-OY   | SGMAH-07D□, SGMPH-08D□,<br>SGMGH-09D□, SGMSH-10D□,<br>SGMUH-10D□, SGMEV-08D□,<br>SGMGV-09D□, SGMSV-10D□ | -   | -  | -          |
|                |                    |                    | SGDV-10D05A-OY   | -   | -   | SGLFW-50D200□,<br>SGLTW-35D170□,<br>SGLTW-50D170□                |            |
|                | 1.5 kW             |                    | SGDV-15D01A-OY   | SGMPH-15D□, SGMGH-13D□,<br>SGMSH-15D□, SGMUH-15D□,<br>SGMEV-15D□, SGMGV-13D□,<br>SGMSV-15D□             | -   | -  | -          |
|                |                    |                    | SGDV-15D05A-OY   | -   | -   | SGLFW-50D380□,<br>SGLFW-1ZD200□                                  |            |
|                | 2 kW               |                    | SGDV-20D01A-OY   | SGMGH-20D□, SGMSH-20D□,<br>SGMGV-20D□, SGMSV-20D□   | -   | -  | -          |
|                |                    |                    | SGDV-20D05A-OY   | -   | -   | SGLFW-1ED380□,<br>SGLTW-35D320□,<br>SGLTW-50D320□                |            |
|                | 3 kW               |                    | SGDV-30D01A-OY   | SGMGH-30D□, SGMSH-30D□,<br>SGMUH-30D□, SGMGV-30D□,<br>SGMGV-30D□  | -   | -  | -          |
| SGDV-30D05A-OY |                    |                    | -  | -   | SGLFW-1ZD380□,<br>SGLFW-1ED560□,<br>SGLTW-40D400□   |  |            |
| 5 kW           | SGDV-50D01A-OY     |                    | SGMGH-44D□, SGMSH-50D□,<br>SGMUH-40D□, SGMGV-44D□,<br>SGMSV-50D□ | -   | -   | -  |            |
|                | SGDV-50D05A-OY     |                    | -  | -   | SGLTW-40D60□,<br>SGLTW-80D400□  |  |            |
| 6 kW           | SGDV-210D01A       |                    | SGMGH-55D□, SGMGV-55D□   | -   | -   | -  |            |
| 7.5 kW         | SGDV-260D01A       |                    | SGMGH-75D□, SGMGV-75D□   | -   | -   | -  |            |
| 11 kW          | SGDV-280D01A       |                    | SGMGH-1AD□, SGMGV-1AD□   | -   | -   | -  |            |
| 15 kW          | SGDV-370D01A       |                    | SGMGH-1ED□, SGMGV-1ED□   | -   | -   | -  |            |

## Control cables (for CN1)

| Symbol | Description                            | Connect to                      |       | Model                 |
|--------|--|---------------------------------|-------|-----------------------|
| ④      | Servo relay unit                       | CJ1W-NC1□3                      |       | XW2B-20J6-1B (1 axis) |
|        |  | CJ1W-NC2□3/4□3                  |       | XW2B-40J6-2B (2 axis) |
|        |  | CJ1M-CPU22/23                   |       | XW2B-20J6-8A (1 axis) |
|        |  |                                 |       | XW2B-40J6-9A (2 axis) |
| ⑤      | Cable to servo drive                   | Servo relay units XW2B-□0J6-□B  | 1 m   | XW2Z-100J-B4          |
|        |  |                                 | 2 m   | XW2Z-200J-B4          |
| ⑥      | Position control unit connecting cable | CJ1W-NC113                      | 0.5 m | XW2Z-050J-A14         |
|        |  |                                 | 1 m   | XW2Z-100J-A14         |
|        |  | CJ1W-NC213/413                  | 0.5 m | XW2Z-050J-A15         |
|        |  |                                 | 1 m   | XW2Z-100J-A15         |
|        |  | CJ1W-NC133                      | 0.5 m | XW2Z-050J-A18         |
|        |  |                                 | 1 m   | XW2Z-100J-A18         |
|        |  | CJ1W-NC233/433                  | 0.5 m | XW2Z-050J-A19         |
|        |  |                                 | 1 m   | XW2Z-100J-A19         |
|        |  | CJ1M-CPU22/23                   | 0.5 m | XW2Z-050J-A27         |
|        |  |                                 | 1 m   | XW2Z-100J-A27         |
| ⑦      | Control cable                          | For general purpose controllers | 1 m   | R88A-CPW001S          |
|        |  |                                 | 2 m   | R88A-CPW002S          |
| ⑧      | Relay terminal block cable             | General purpose controller      | 1 m   | R88A-CTW001N          |
|        |  |                                 | 2 m   | R88A-CTW002N          |
|        | Relay terminal block                   |                                 | -     | XW2B-50G5             |

### Battery backup for absolute encoder (for CN2 encoder cable)

| Symbol | Name    | Model     |
|--------|---------|-----------|
| ⑨      | Battery | JZSP-BA01 |

**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.

### Cable (for CN5)

| Symbol | Name                 | Model        |
|--------|----------------------|--------------|
| ⑩      | Analog monitor cable | R88A-CMW001S |
|        |                      | DE9404559    |

### USB personal computer cable (for CN7)

| Symbol | Name                     | Note            |
|--------|--------------------------|-----------------|
| ⑪      | USB Mini Connector cable | JZSP-CVS06-02-E |

**Note:** double shield USB cable recommended

### Cable for Safety Functions (for CN8)

| Symbol | Name  | Model           |
|--------|---|-----------------|
| ⑫      | Safety connector with 3 m cable (with Loose Wires at one End) | JZSP-CVH03-03-E |

**Note:** when using the safety function, connect this cable to the safety devices. Even when not using the safety function, use servo drive with the Safe Jumper Connector (JZSP-CVH05-E) connected.

## Filters

| Symbol | Applicable servo drive  | Filter model     | Rated current | Rated voltage        |
|--------|---|------------------|---------------|----------------------|
| ⑬      | SGDV-A5A□□A-OY,SGDV-01A□□A-OY, SGDV-02A□□A-OY, SGDV-04A□□A-OY | R88A-FI5-1005-RE | 5 A           | 250 VAC single-phase |
|        | SGDV-08A□□A-OY  | R88A-FI5-1009-RE | 9 A           |                      |
|        | SGDV-15A□□A-OY  | R88A-FI5-1016-RE | 16 A          |                      |
|        | SGDV-05D□□A-OY, SGDV-10D□□A-OY, SGDV-15D□□A-OY                | R88A-FI5-3004-RE | 4.3 A         | 400 VAC three-phase  |
|        | SGDV-20D□□A-OY, SGDV-30D□□A-OY                                | R88A-FI5-3008-RE | 8.6 A         |                      |
|        | SGDV-50D□□A-OY  | R88A-FI5-3012-RE | 14.5 A        |                      |

## Connectors

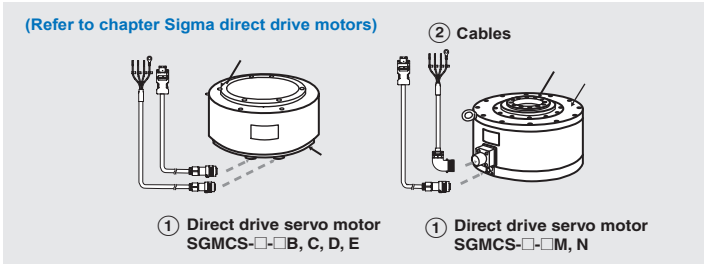
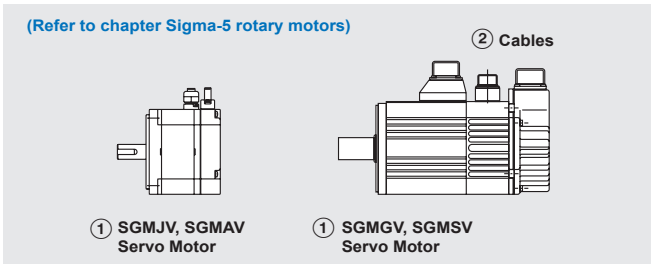
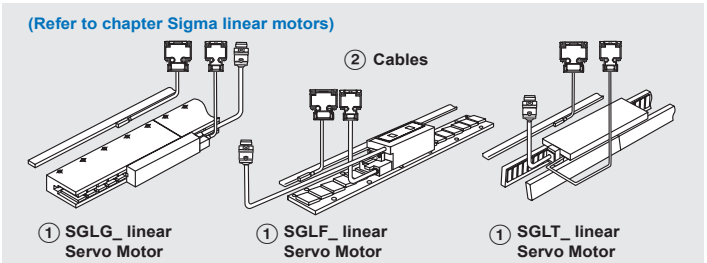
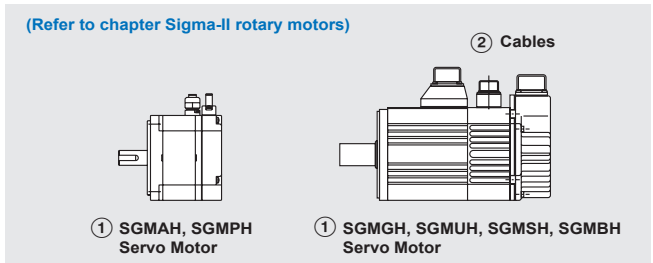
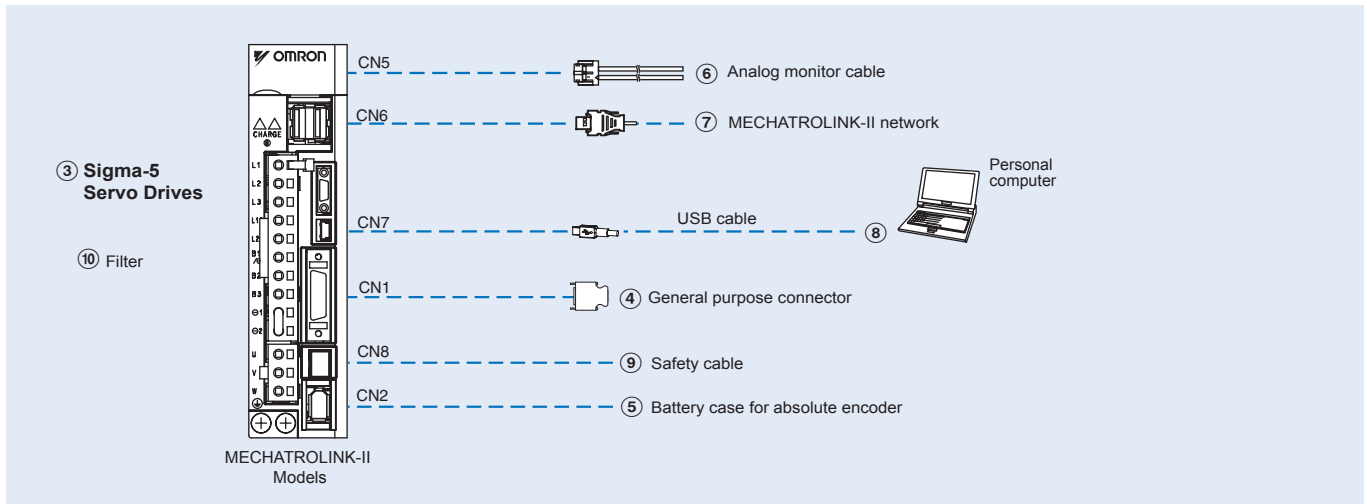
| Specifications                            | Model        |
|---|--------------|
| I/O connector kit (for CN1)               | R88A-CNU11C  |
| Sigma-5 drive encoder connector (for CN2) | JZSP-CMP9-1  |
| Safe Jumper Connector                     | JZSP-CVH05-E |

## Computer software

| Specifications   | Model    |
|--|----------|
| Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.50 or higher) | CX-drive |
| Complete OMRON software package including CX-drive. (CX-One version 3.0.2 or higher)                         | CX-One   |

Ordering information

Sigma-5 MECHATROLINK Servo Drive Configuration



**Note:** The symbols ①②③④⑤... show the recommended sequence to select the components in a Sigma-5 servo system

**Servo motors, power & encoder cables**

**Note:** ①② Refer to the servo motors chapter for detailed motor specifications and selection

Servo drives

| Symbol | Specifications     | Model                  | Compatible rotary servo motors ①                                 | Compatible direct drive motors ①   | Compatible linear motors ①  |  |   |
|--------|--------------------|------------------------|--|--|---|--|---|
| ③      | 1 phase<br>230 VAC | 50 W                   | SGDV-A5A11A-OY   | SGMAH-A5D□, SGMJV-A5A□,<br>SGMAV-A5A□  | -   | -  |   |
|        |                    |                        | SGDV-A5A15A-OY   | -  | -   | SGLGW-30A050□  |   |
|        |                    | 100 W                  | SGDV-01A11A-OY   | SGMAH-01A□, SGMPH-01A□,<br>SGMJV-01A□, SGMAV-01A□,<br>SGMEV-01A□   | -   | -  | - |
|        |                    |                        | SGDV-01A15A-OY   | -  | -   | SGLGW-30A080□,<br>SGLGW-40A140□                                  |   |
|        |                    | 200 W                  | SGDV-02A11A-OY   | SGMAH-02A□, SGMPH-02A□,<br>SGMJV-02A□, SGMAV-02A□,<br>SGMEV-02A□   | SGMCS-07B□  | -  | - |
|        |                    |                        | SGDV-02A15A-OY   | -  | -   | SGLGW-60A140□,<br>SGLGW-40A253□,<br>SGLFW-20A□,<br>SGLFW-35A120□ |   |
|        |                    | 400 W                  | SGDV-04A11A-OY   | SGMAH-04A□, SGMPH-04A□,<br>SGMJV-04A□, SGMAV-04A□,<br>SGMEV-04A□   | SGMCS-02B□, SGMCS-05B□,<br>SGMCS-04C□, SGMCS-10C□,<br>SGMCS-14C□, SGMCS-08D□,<br>SGMCS-17D□, SGMCS-25D□ | -  | - |
|        |                    |                        | SGDV-04A15A-OY   | -  | -   | SGLGW-40A365□,<br>SGLGW-60A253A□                                 |   |
|        |                    | 750 W                  | SGDV-08A11A-OY   | SGMAH-08A□, SGMPH-08A□,<br>SGMJV-08A□, SGMAV-08A□,<br>SGMEV-08A□   | SGMCS-16E□, SGMCS-35E□  | -  | - |
|        |                    |                        | SGDV-08A15A-OY   | -  | -   | SGLGW-60A365A□,<br>SGLFW-35A230□,<br>SGLFW-50A200□               |   |
|        | 1.5 kW             | SGDV-15A11A-OY         | SGMPH-15A□, SGMAV-10A□,<br>SGMEV-15A□                            | SGMCS-45M□, SGMCS-80M□,<br>SGMCS-80N□  | -   | -  |   |
|        |                    | SGDV-15A15A-OY         | -  | -  | SGLGW-90A200A□,<br>SGLFW-50A380□,<br>SGLFW-1ZA200□  |  |   |
|        | 3 phase<br>400 VAC | 0.5 kW                 | SGDV-05D11A-OY   | SGMAH-03D□, SGMPH-04D□,<br>SGMGH-05D□, SGMEV-04D□,<br>SGMGV-05D□   | -   | -  |   |
|        |                    |                        | SGDV-05D15A-OY   | -  | -   | SGLFW-35D□   |   |
|        |                    | 1.0 kW                 | SGDV-10D11A-OY   | SGMAH-07D□, SGMPH-08D□,<br>SGMGH-09D□, SGMSH-10D□,<br>SGMUH-10D□, SGMEV-08D□,<br>SGMGV-09D□, SGMSV-10D□, | -   | -  | - |
|        |                    |                        | SGDV-10D15A-OY   | -  | -   | SGLFW-50D200□,<br>SGLTW-35D170□,<br>SGLTW-50D170□                |   |
|        |                    | 1.5 kW                 | SGDV-15D11A-OY   | SGMPH-15D□, SGMGH-13D□,<br>SGMSH-15D□, SGMUH-15D□,<br>SGMEV-15D□, SGMGV-13D□,<br>SGMSV-15D□              | -   | -  | - |
|        |                    |                        | SGDV-15D15A-OY   | -  | -   | SGLFW-50D380□,<br>SGLFW-1ZD200□                                  |   |
|        |                    | 2 kW                   | SGDV-20D11A-OY   | SGMGH-20D□, SGMSH-20D□,<br>SGMGV-20D□, SGMSV-20D□  | -   | -  | - |
|        |                    |                        | SGDV-20D15A-OY   | -  | -   | SGLFW-1ED380□,<br>SGLTW-35D320□,<br>SGLTW-50D320□                |   |
| 3 kW   |                    | SGDV-30D11A-OY         | SGMGH-30D□, SGMSH-30D□,<br>SGMUH-30D□, SGMGV-30D□,<br>SGMGV-30D□ | -  | -   | -  |   |
|        |                    | SGDV-30D15A-OY         | -  | -  | SGLFW-1ZD380□,<br>SGLFW-1ED560□,<br>SGLTW-40D400□   |  |   |
| 5 kW   |                    | SGDV-50D11A-OY         | SGMGH-44D□, SGMSH-50D□,<br>SGMUH-40D□, SGMGV-44D□,<br>SGMSV-50D□ | -  | -   | -  |   |
|        |                    | SGDV-50D15A-OY         | -  | -  | SGLTW-40D60□,<br>SGLTW-80D400□  |  |   |
| 6 kW   |                    | SGDV-210D11A           | SGMGH-55D□, SGMGV-55D□   | -  | -   | -  |   |
| 7.5 kW |                    | SGDV-260D11A           | SGMGH-75D□, SGMGV-75D□   | -  | -   | -  |   |
| 11 kW  | SGDV-280D11A       | SGMGH-1AD□, SGMGV-1AD□ | -  | -  | -   |  |   |
| 15 kW  | SGDV-370D11A       | SGMGH-1ED□, SGMGV-1ED□ | -  | -  | -   |  |   |

**Battery backup for absolute encoder (for CN2 encoder cable)**

| Symbol | Name    | Model     |
|--------|---------|-----------|
| ⑤      | Battery | JZSP-BA01 |

**Note:** when the encoder cables with a battery case JZSP-BA01 are used, no battery is required for CN1 (between pin 21 and 22). Battery for CN1 is ER6VCN3.

**Cable (for CN5)**

| Symbol | Name                 | Model        |
|--------|----------------------|--------------|
| ⑥      | Analog monitor cable | R88A-CMW001S |
|        |                      | DE9404559    |

**Mechatrolink-II cables (for CN6)**

| Symbol | Specifications                      | Length | Model          |
|--------|-------------------------------------|--------|----------------|
| ⑦      | Mechatrolink-II Terminator resistor |        | JEPMC-W6022    |
|        | Mechatrolink-II Cables              | 0.5 m  | JEPMC-W6003-A5 |
|        |                                     | 1 m    | JEPMC-W6003-01 |
|        |                                     | 3 m    | JEPMC-W6003-03 |
|        |                                     | 5 m    | JEPMC-W6003-05 |
|        |                                     | 10 m   | JEPMC-W6003-10 |
|        |                                     | 20 m   | JEPMC-W6003-20 |
|        |                                     | 30 m   | JEPMC-W6003-30 |

**Filters**

| Symbol | Applicable servo drive  | Filter model     | Rated current | Rated voltage        |
|--------|---|------------------|---------------|----------------------|
| ⑩      | SGDV-A5A□□□A-OY,SGDV-01A□□□A-OY, SGDV-02A□□□A-OY, SGDV-04A□□□A-OY | R88A-FI5-1005-RE | 5 A           | 250 VAC single-phase |
|        | SGDV-08A□□□A-OY   | R88A-FI5-1009-RE | 9 A           |                      |
|        | SGDV-15A□□□A-OY   | R88A-FI5-1016-RE | 16 A          |                      |
|        | SGDV-05D□□□A-OY, SGDV-10D□□□A-OY, SGDV-15D□□□A-OY                 | R88A-FI5-3004-RE | 4.3 A         | 400 VAC three-phase  |
|        | SGDV-20D□□□A-OY, SGDV-30D□□□A-OY                                  | R88A-FI5-3008-RE | 8.6 A         |                      |
|        | SGDV-50D□□□A-OY   | R88A-FI5-3012-RE | 14.5 A        |                      |

**Connectors**

| Specification                             | Model        |
|---|--------------|
| I/O connector kit (for CN1)               | R88A-CNW01C  |
| Sigma-5 drive encoder connector (for CN2) | JZSP-CMP9-1  |
| Safe Jumper Connector                     | JZSP-CVH05-E |

**Computer software**

| Specifications   | Model    |
|--|----------|
| Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.50 or higher) | CX-drive |
| Complete OMRON software package including CX-drive. (CX-One version 3.0.2 or higher)                         | CX-One   |

**USB personal computer cable (for CN7)**

| Symbol | Name                     | Note            |
|--------|--------------------------|-----------------|
| ⑧      | USB Mini Connector cable | JZSP-CVS06-02-E |

**Note:** double shield USB cable recommended

**Cable for Safety Functions (for CN8)**

| Symbol | Name  | Model           |
|--------|---|-----------------|
| ⑨      | Safety connector with 3 m cable (with Loose Wires at one End) | JZSP-CVH03-03-E |

**Note:** when using the safety function, connect this cable to the safety devices. Even when not using the safety function, use servo drive with the Safe Jumper Connector (JZSP-CVH05-E) connected.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.