

MT *Series*

General Purpose Servo Motors

Performance - Experience - Value





The MT Series Servo Solution

General Purpose Servo Motors

Closing the price-performance gap between induction motors and high-end servo motors, MT servo motors are particularly suitable for price sensitive motion applications that require efficient servo performance and functionality. The combined MT motors and CDHD drives deliver an economical servo solution for a variety of general purpose motion applications.



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Input Voltage AC 120/240 VAC, 400/480 VAC

CDHD Servo Drive

 **Current:**
1.5 Arms - 30 Arms

MT Servo Motor

 **Frame Size:**
42 mm - 180 mm

 **Rated Output**
50 W - 4.5 kW, 0.16 Nm - 28 Nm



Drive and Motor Combinations **120/240 VAC**

| | | | | | | | | | |
|----------------|--|--|--|--|---|--------------------|---|----------------------|-------------------------|
| Servo Drive | | | | | | | | | |
| | 1.5A CDHD-1D5 2A | 3A CDHD-003 2A | 4.5A CDHD-4D5 2A | 6A CDHD-006 2A | 8A CDHD-008 2A | 10A CDHD-010 2A | 13A CDHD-013 2A | 20A CDHD-020 2A | 24A CDHD-MV-024 |
| Servo Motor | | | | | | | | | |
| Low Inertia | 50W MT-C04051C 80W/100W MT-C04101C 200W MT-C06201C | 200W MT-D06201C 250W/400W MT-C06401C 400W MT-D06401C | 550W/750W MT-D08751C 500W/750W MT-C08751C | | | | | | 2.7kW/4.5kW MT-C18452H |
| Medium Inertia | | 230W/300W MT-B07301C | 410W/550W MT-B13551A 420W/750W MT-B08751C | 500W/1kW MT-B13102A 550W/1kW MT-B13102B | 750W/1.5kW MT-B13152A 975W/1.5kW MT-B13152B 800W/1.5kW MT-B13152C | 1kW/2kW MT-B13202B | 1.65kW/3kW MT-B13302B 1.8kW/3kW MT-B13302C | | |
| High Inertia | | | | | | | | 1.8kW/3kW MT-A18302H | 2.35kW/4.4kW MT-A18442H |

Drive and Motor Combinations **400/480 VAC**

| | | | |
|----------------|-------------------|--------------------------------------|-------------------|
| Servo Drive | | | |
| | 3A CDHD-003 4D | 6A CDHD-006 4D | 12A CDHD-012 4D |
| Servo Motor | <i>On request</i> | | <i>On request</i> |
| Medium Inertia | | 1.5 kW MT-B13152C 2 kW MT-B13202C | |

* Additional 400/480 VAC motor types are available upon request.

Features and Benefits

CDHD servo drive

Hardware and software design innovations deliver superior servo performance, high power density, simple commissioning, and extensive versatility in a cost-effective package.

Supporting a wide range of application requirements

- Interfaces multiple feedback devices
- I/O programming for any drive functionality
- Safe Torque Off (STO)
- Analog commands, Pulse & Direction, CANopen® and EtherCAT®
- Fast firmware modifications to meet particular application needs



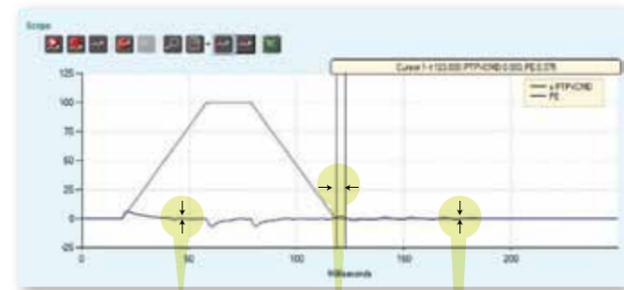
New current loop design achieves an industry-leading frequency response of 3-5 kHz

High sampling rates and flexible filtering options provide a faster response, and ensure maximum machine accuracy and throughput.



Advanced autotuning minimizes position error and settling time to almost zero

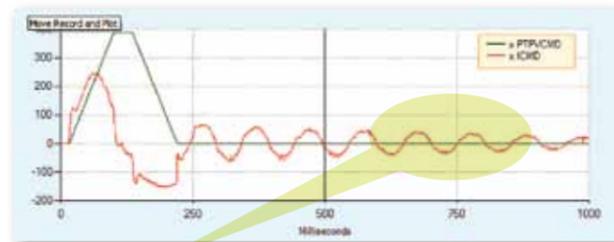
Engineering experience and expertise has been implemented in a sophisticated autotuning function that performs optimal configurations for a difference making performance.



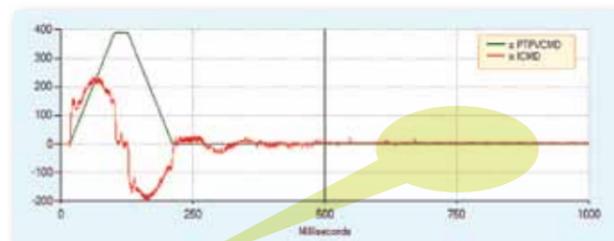
Minimum position error
Settling time of almost zero
No oscillations at stand-still

Innovative anti-vibration control algorithm eliminates mechanical resonance

An active non-linear algorithm eliminates vibration in highly flexible resonant systems. Commissioning is easy, using just a few gain parameters.



Without anti-vibe control



With anti-vibe control

MT rotary brushless servo motor

Closing the price-performance gap between induction motors and high-end servo motors, MT servo motors are particularly suitable for price sensitive motion applications that require efficient servo performance and functionality.



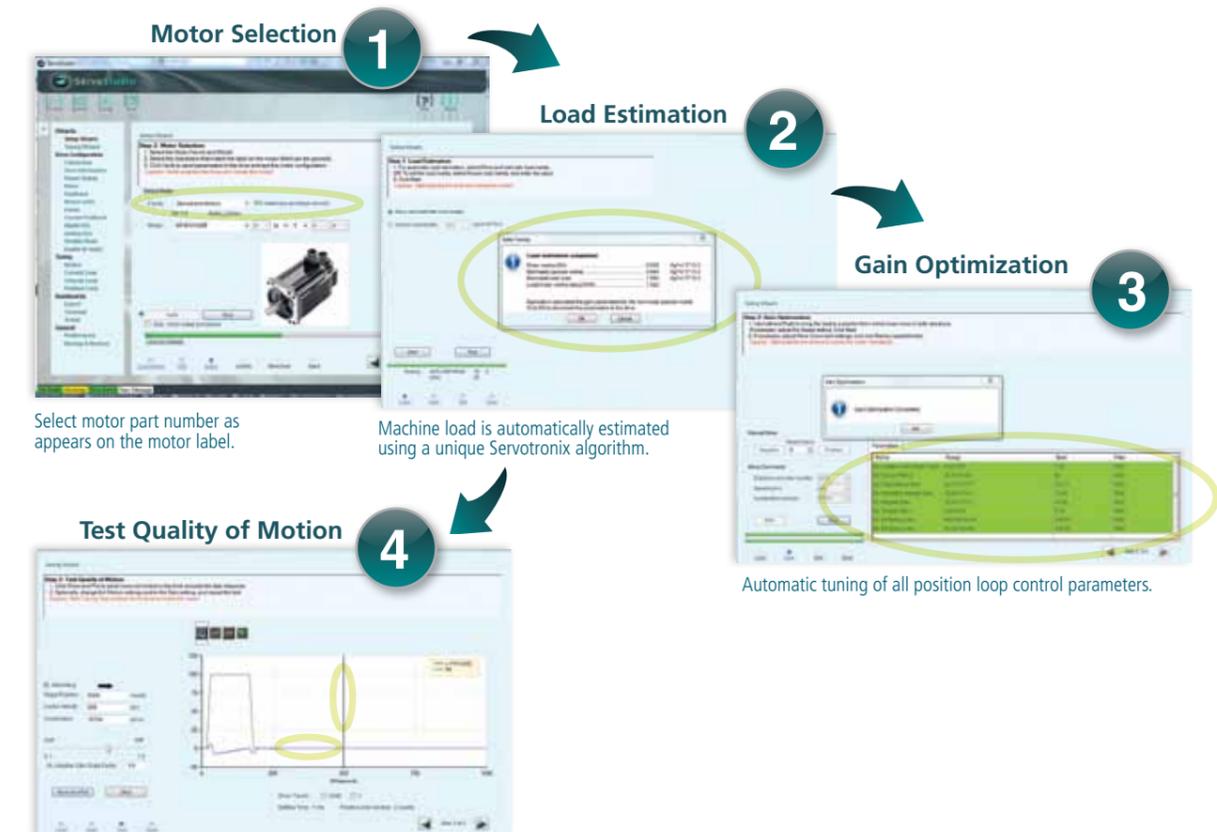
Broad range of motor options

- 7 frame sizes
- Winding options for 160, 320, 560 and 640 VDC
- Standard feedback options include incremental encoders with 2500 C/T or 8192 C/T and absolute encoders with up to 17 bit resolution
- Standard and high inertia options
- Optional holding brake
- Up to protection class IP67
- Insulation class B (130°C) or F (155°C)

ServoStudio™ wizard

User-friendly Servo Studio software provides step-by-step guidance through the setup and tuning process. Setup and testing are simplified thanks to auto-tuning functions and graphic representations of control loops.

- Excellent results within minutes, even for novice users!
- Real-time data recording and plotting
- Easy integration of servo axes
- Plug-and-play motor and feedback wiring



Select motor part number as appears on the motor label.

Machine load is automatically estimated using a unique Servotronics algorithm.

Automatic tuning of all position loop control parameters.

Visualize the quality of motion, with graphic indication of zero settling time and minimal position error.

Navigate the Catalog - 6 steps to ordering a complete system

1 Select Initial Combination

Select power range, voltage input and inertia level.

Drive and Motor Combinations: Pages 2-3

| Drive and Motor Combinations 120/240 VAC | | | | |
|--|---------------------|---------------------|--------------------|----------------------|
| 1.5A CDHD-1DS 2A | 3A CDHD-003 2A | 4.5A CDHD-0D5 2A | 6A CDHD-006 2A | 8A CDHD-008 2A |
| 50W MFC04051C | 200W MFC06201C | 550W/750W MFC08751C | | |
| 80W/100W MFC04101C | 250W/400W MFC06401C | 500W/750W MFC08751C | | |
| 200W MFC06201C | 400W MFC06401C | | | |
| | 230W/300W MFC07301C | 410W/550W MFC13551A | 500W/1KW MFC13102A | 750W/1.5KW MFC13152A |
| | | 420W/750W MFC08751C | 550W/1KW MFC13102B | 975W/1.5KW MFC13152B |
| | | | | 800W/1.5KW MFC13152C |

Drive and Motor Combinations 400/480 VAC

2 Get Base Model Numbers

Select motor and matching drive from the relevant voltage input table.

Recommended Motor/Drive Systems: Pages 11-13

| Recommended Motor/Drive Systems 120 VAC, 160 VDC bus | | | | | | | | | | | | | | |
|--|-------------|-------------------------|---------|------------|------------------|----------------------------|------------------------------|------------------|-----------------|-------------------|-------------------|-------------------------------------|-------|--------|
| Motor Rated Power [W] | Motor Model | Recommended Servo Drive | Inertia | Frame Size | Peak Torque [Nm] | Max Torque at 1000rpm [Nm] | Rated Torque at 1000rpm [Nm] | Motor Parameters | | | | Rotor Inertia [kg-cm ²] | | |
| | | | | | | | | Max Speed [rpm] | Max Current [A] | Rated Current [A] | Rated Speed [rpm] | | | |
| 80 | MT-04101C | CDHD-1DS | Low | 42 | 0.960 | 0.419 | 0.320 | 0.266 | 2400 | 1.200 | 2600 | 0.94 | 2.82 | 0.036 |
| 200 | MT-06201C | CDHD-003 | Low | 60 | 1.911 | 0.899 | 0.637 | 0.465 | 3000 | 2.700 | 3700 | 2.10 | 6.30 | 0.164 |
| 200 | MT-06201C | CDHD-1DS* | Low | 60 | 1.911 | 0.873 | 0.637 | 0.478 | 3000 | 2.300 | 3600 | 1.80 | 5.40 | 0.170 |
| 230 | MT-07301C | CDHD-003 | Medium | 76 | 2.861 | 1.319 | 0.950 | 0.756 | 2300 | 1900 | 2600 | 2.00 | 6.00 | 0.677 |
| 400 | MT-06401C | CDHD-003* | Low | 60 | 3.820 | 1.294 | 1.274 | 0.819 | 3000 | 3300 | 4200 | 3.50 | 11.10 | 0.290 |
| 250 | MT-06401C | CDHD-003 | Low | 60 | 3.820 | 1.354 | 1.274 | 0.934 | 1900 | 1300 | 1300 | 2.50 | 7.50 | 0.280 |
| 410 | MT-13551A | CDHD-4D5 | Medium | 130.4 | 15.756 | 6.327 | 5.252 | 4.431 | 750 | 500 | 800 | 3.43 | 10.30 | 6.260 |
| 550 | MT-08751C | CDHD-4D5 | Low | 80 | 7.161 | 3.762 | 3.387 | 1.750 | 2200 | 3000 | 3700 | 4.80 | 14.40 | 0.907 |
| 500 | MT-08751C | CDHD-4D5 | Low | 80 | 7.161 | 3.156 | 3.387 | 1.790 | 2000 | 1800 | 2400 | 4.30 | 12.90 | 12.140 |
| 420 | MT-08751C | CDHD-4D5 | Medium | 86 | 7.161 | 3.407 | 3.387 | 1.826 | 1700 | 1600 | 2000 | 3.75 | 11.25 | 2.459 |
| 500 | MT-13102A | CDHD-006 | Medium | 130.4 | 28.635 | 10.539 | 9.545 | 6.136 | 500 | 500 | 700 | 5.16 | 15.50 | 0.940 |
| 550 | MT-13102B | CDHD-006 | Medium | 130.4 | 14.346 | 8.015 | 6.782 | 3.382 | 1100 | 1200 | 1400 | 5.16 | 15.48 | 6.260 |
| 750 | MT-13152A | CDHD-008 | Medium | 130.4 | 42.981 | 21.470 | 14.327 | 9.919 | 500 | 500 | 650 | 7.45 | 22.35 | 17.920 |
| 975 | MT-13152B | CDHD-008 | Medium | 130.4 | 21.492 | 11.089 | 7.164 | 5.987 | 1300 | 1300 | 1400 | 7.57 | 22.71 | 8.880 |
| 800 | MT-13152C | CDHD-008 | Medium | 130.4 | 14.346 | 8.229 | 4.782 | 3.443 | 1600 | 1800 | 2000 | 7.06 | 21.80 | 6.260 |
| 1000 | MT-13302B | CDHD-010* | Medium | 130.4 | 28.635 | 14.107 | 9.545 | 6.608 | 1000 | 1150 | 1300 | 9.18 | 27.50 | 12.340 |
| 1650 | MT-13302B | CDHD-013* | Medium | 130.4 | 42.981 | 26.147 | 14.327 | 10.911 | 1100 | 1150 | 1300 | 14.00 | 42.00 | 17.920 |
| 1800 | MT-13302C | CDHD-013* | Medium | 130.4 | 28.635 | 19.230 | 9.545 | 7.731 | 1800 | 1900 | 2000 | 14.00 | 42.00 | 12.140 |

4 Complete Drive Part Number

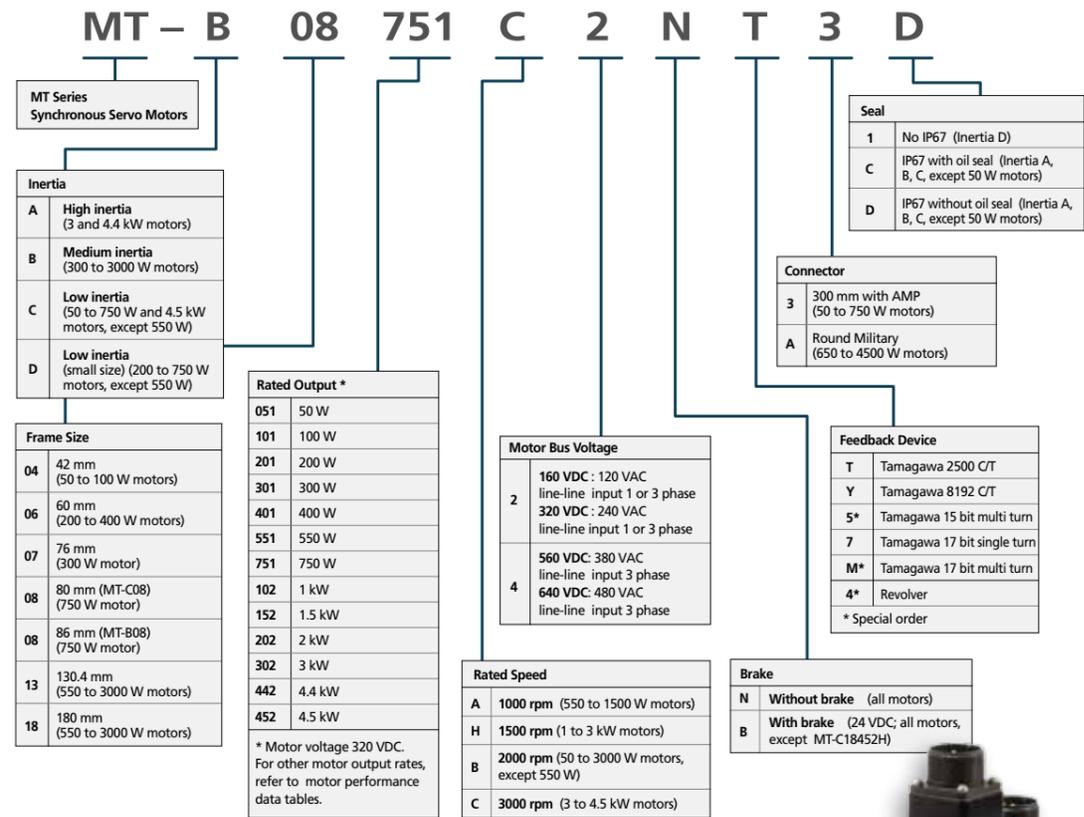
Select interface options and number of analog inputs.

Ordering Information: Page 9

| CDHD VAC | | Interface Options | |
|----------|------|-------------------|--|
| CDHD-1DS | 1.5A | AP | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-003 | 3 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-006 | 4.5 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-008 | 6 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-010 | 8 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-013 | 12 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-015 | 16 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-018 | 20 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-021 | 24 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-024 | 28 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-027 | 32 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-030 | 36 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-033 | 40 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-036 | 44 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-039 | 48 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-042 | 52 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-045 | 56 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-048 | 60 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-051 | 64 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-054 | 68 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-057 | 72 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-060 | 76 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-063 | 80 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-066 | 84 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-069 | 88 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-072 | 92 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-075 | 96 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-078 | 100 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-081 | 104 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-084 | 108 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-087 | 112 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-090 | 116 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-093 | 120 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-096 | 124 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-099 | 128 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-102 | 132 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-105 | 136 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-108 | 140 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-111 | 144 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-114 | 148 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-117 | 152 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-120 | 156 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-123 | 160 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-126 | 164 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-129 | 168 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-132 | 172 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-135 | 176 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-138 | 180 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-141 | 184 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-144 | 188 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-147 | 192 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-150 | 196 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-153 | 200 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-156 | 204 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-159 | 208 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-162 | 212 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-165 | 216 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-168 | 220 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-171 | 224 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-174 | 228 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-177 | 232 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-180 | 236 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-183 | 240 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-186 | 244 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-189 | 248 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-192 | 252 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-195 | 256 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-198 | 260 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-201 | 264 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-204 | 268 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-207 | 272 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-210 | 276 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-213 | 280 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-216 | 284 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-219 | 288 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-222 | 292 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-225 | 296 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-228 | 300 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-231 | 304 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-234 | 308 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-237 | 312 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-240 | 316 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-243 | 320 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-246 | 324 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-249 | 328 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-252 | 332 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-255 | 336 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-258 | 340 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-261 | 344 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-264 | 348 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-267 | 352 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-270 | 356 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-273 | 360 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-276 | 364 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-279 | 368 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-282 | 372 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-285 | 376 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-288 | 380 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-291 | 384 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-294 | 388 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-297 | 392 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-300 | 396 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-303 | 400 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-306 | 404 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-309 | 408 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-312 | 412 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-315 | 416 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-318 | 420 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-321 | 424 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-324 | 428 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-327 | 432 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-330 | 436 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-333 | 440 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-336 | 444 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-339 | 448 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-342 | 452 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-345 | 456 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-348 | 460 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-351 | 464 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-354 | 468 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-357 | 472 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-360 | 476 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-363 | 480 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-366 | 484 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-369 | 488 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-372 | 492 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-375 | 496 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-378 | 500 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-381 | 504 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-384 | 508 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-387 | 512 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-390 | 516 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-393 | 520 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-396 | 524 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-399 | 528 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-402 | 532 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-405 | 536 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-408 | 540 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-411 | 544 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-414 | 548 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-417 | 552 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-420 | 556 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-423 | 560 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-426 | 564 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-429 | 568 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-432 | 572 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-435 | 576 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-438 | 580 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-441 | 584 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-444 | 588 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-447 | 592 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-450 | 596 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-453 | 600 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-456 | 604 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-459 | 608 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-462 | 612 | AP* | Analog Voltage, Pulse Train Ref. RS232 |
| CDHD-465 | 616 | | |

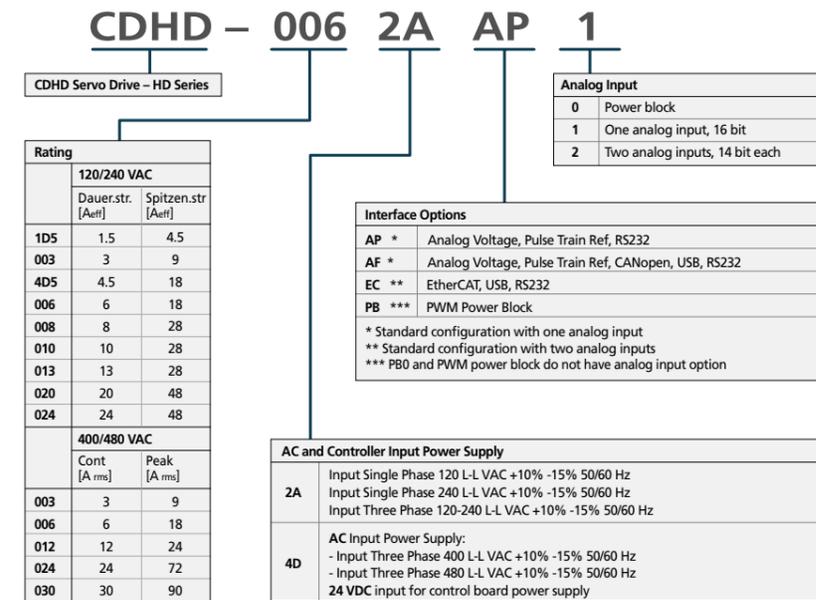
Ordering Information

MT Servo Motor

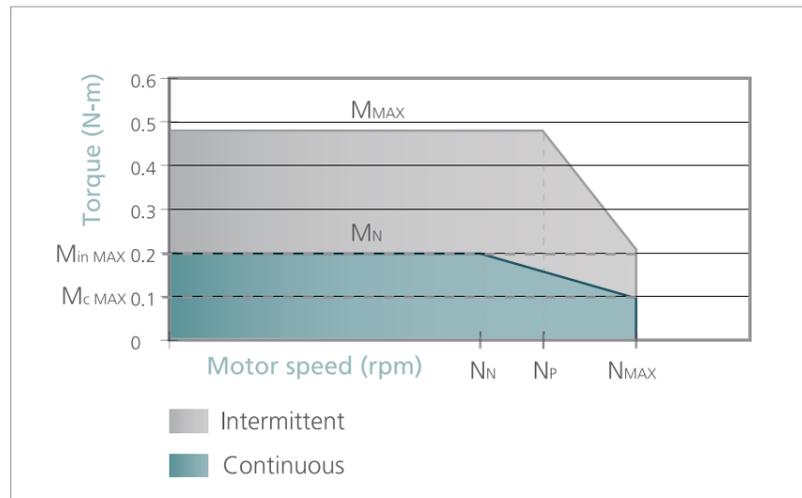


Ordering Information

CDHD Servo Drive



Recommended Motor/Drive Systems



The system torque/speed information on the following pages is designed to help you select the optimum combination of brushless servo motor/drive.

The nominal values in this data illustrate performance for the recommended motor/drive system.

- MMAX** - Maximum torque of the motor
- MinMAX** - Intermittent torque at maximum speed
- MC MAX** - Continuous torque at maximum speed
- MN** - Continuous rated torque
- NN** - Rated speed
- NP** - Speed at knee in maximum envelope (intersection of motor max torque with voltage limit line)
- NMAX** - Maximum speed

The combination of the MT Series motors and the reliable and feature-rich CDHD digital drive amplifier meets virtually any kind of application with torque from 0.16 N-m to 28 N-m, max speed of 6000 RPM, motor power rating from 50W to 4.5kW.

Recommended Motor/Drive Systems 120 VAC, 160 VDC bus

| Motor Rated Power P_N [W] | Motor Model | Recommended Servo Drive | Motor Parameters | | | | | | | | | | | |
|-----------------------------------|-------------|-------------------------|------------------|-----------------|-----------------------------|--------------------------------------|--------------------------|--|-------------------------|----------------------------|---------------------------|----------------------------|------------------------------|---|
| | | | Inertia | Frame Size [mm] | Peak Torque M_{MAX} [N-m] | Max Torque at Knee T_{inmax} [N-m] | Rated Torque M_N [N-m] | Rated Torque at Knee T_{cnmax} [N-m] | Rated Speed M_N [rpm] | Max Knee Speed N_P [rpm] | Max Speed N_{MAX} [rpm] | Rated Current I_N [Arms] | Max Current I_{MAX} [Arms] | Rotor Inertia J [kg-cm ²] |
| 80 | MT-C04101C | CDHD-1D5 | Low | 42 | 0.960 | 0.419 | 0.320 | 0.266 | 2400 | 1200 | 2600 | 0.94 | 2.82 | 0.036 |
| 200 | MT-D06201C | CDHD-003 | Low | 60 | 1.911 | 0.899 | 0.637 | 0.465 | 3000 | 2700 | 3700 | 2.10 | 6.30 | 0.164 |
| 200 | MT-C06201C | CDHD-1D5* | Low | 60 | 1.911 | 0.873 | 0.637 | 0.478 | 3000 | 2300 | 3600 | 1.80 | 5.40 | 0.170 |
| 230 | MT-B07301C | CDHD-003 | Medium | 76 | 2.861 | 1.319 | 0.950 | 0.756 | 2300 | 1900 | 2600 | 2.00 | 6.00 | 0.677 |
| 400 | MT-D06401C | CDHD-003* | Low | 60 | 3.820 | 1.294 | 1.274 | 0.819 | 3000 | 3300 | 4200 | 3.50 | 11.10 | 0.290 |
| 250 | MT-C06401C | CDHD-003 | Low | 60 | 3.820 | 1.354 | 1.274 | 0.934 | 1900 | 1300 | 2300 | 2.50 | 7.50 | 0.280 |
| 410 | MT-B13551A | CDHD-4D5 | Medium | 130.4 | 15.756 | 6.327 | 5.252 | 4.431 | 750 | 500 | 800 | 3.43 | 10.30 | 6.260 |
| 550 | MT-D08751C | CDHD-4D5 | Low | 80 | 7.161 | 3.762 | 2.387 | 1.750 | 2200 | 2000 | 2700 | 4.80 | 14.40 | 0.907 |
| 500 | MT-C08751C | CDHD-4D5 | Low | 80 | 7.161 | 3.156 | 2.387 | 1.790 | 2000 | 1800 | 2400 | 4.30 | 12.90 | 12.140 |
| 420 | MT-B08751C | CDHD-4D5 | Medium | 86 | 7.161 | 3.407 | 2.387 | 1.826 | 1700 | 1600 | 2000 | 3.75 | 11.25 | 2.459 |
| 500 | MT-B13102A | CDHD-006 | Medium | 130.4 | 28.635 | 10.539 | 9.545 | 6.136 | 500 | 500 | 700 | 5.16 | 15.50 | 0.940 |
| 550 | MT-B13102B | CDHD-006 | Medium | 130.4 | 14.346 | 8.015 | 4.782 | 3.382 | 1100 | 1200 | 1400 | 5.16 | 15.48 | 6.260 |
| 750 | MT-B13152A | CDHD-008 | Medium | 130.4 | 42.981 | 21.470 | 14.327 | 9.919 | 500 | 550 | 650 | 7.45 | 22.35 | 17.920 |
| 975 | MT-B13152B | CDHD-008 | Medium | 130.4 | 21.492 | 11.089 | 7.164 | 5.987 | 1300 | 1200 | 1400 | 7.57 | 22.71 | 8.880 |
| 800 | MT-B13152C | CDHD-008 | Medium | 130.4 | 14.346 | 8.229 | 4.782 | 3.443 | 1600 | 1800 | 2000 | 7.06 | 21.80 | 6.260 |
| 1000 | MT-B13202B | CDHD-010* | Medium | 130.4 | 28.635 | 14.107 | 9.545 | 6.608 | 1000 | 1150 | 1300 | 9.18 | 27.50 | 12.140 |
| 1650 | MT-B13302B | CDHD-013* | Medium | 130.4 | 42.981 | 26.147 | 14.327 | 10.911 | 1100 | 1150 | 1300 | 14.00 | 42.00 | 17.920 |
| 1800 | MT-B13302C | CDHD-013* | Medium | 130.4 | 28.635 | 19.230 | 9.545 | 7.731 | 1800 | 1900 | 2000 | 14.00 | 42.00 | 12.140 |
| 1800 | MT-A18302H | CDHD-020 | High | 180 | 49.500 | 32.497 | 19.100 | 13.453 | 900 | 1050 | 1150 | 15.00 | 39.00 | 39.990 |
| 2350 | MT-A18442H | CDHD-024* | High | 180 | 71.500 | 38.981 | 28.000 | 17.530 | 800 | 1000 | 1150 | 22.50 | 58.50 | 51.440 |
| 2700 | MT-C18452H | CDHD-024* | Low | 180 | 64.123 | 47.288 | 28.600 | 18.533 | 900 | 1100 | 1250 | 25.20 | 56.50 | 31.600 |

* Recommended servo drive continuous and/ or peak (intermittent) current values are slightly less than motor capability. The system performance will be below the motor's given values.

Recommended Motor/Drive Systems **240 VAC, 320 VDC bus**

| Motor Rated Power P _N [W] | Motor Model | Recommended Servo Drive | Motor Parameters | | | | | | | | | | | |
|--|-------------|-------------------------|------------------|---------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|---------------------------|--------------------------|----------------------------|----------------------------|---------------|
| | | | Inertia | Frame Size | Peak Torque | Max Torque at Knee | Rated Torque | Rated Torque at Knee | Rated Speed | Max Knee Speed | Max Speed | Rated Current | Max Current | Rotor Inertia |
| | | | [mm] | M _{MAX} [N-m] | T _{INmax} [N-m] | M _N [N-m] | T _{CNmax} [N-m] | N _N [rpm] | N _P [rpm] | N _{MAX} [rpm] | I _N [Arms] | I _{MAX} [Arms] | J [kg-cm ²] | |
| 50 | MT-C04051C | CDHD-1D5 | Low | 42 | 0.480 | 0.215 | 0.160 | 0.096 | 3000 | 2500 | 4500 | 0.65 | 1.95 | 0.029 |
| 100 | MT-C04101C | CDHD-1D5 | Low | 42 | 0.960 | 0.766 | 0.320 | 0.173 | 3000 | 4000 | 5000 | 0.94 | 2.82 | 0.036 |
| 200 | MT-D06201C | CDHD-003 | Low | 60 | 1.911 | 0.873 | 0.637 | 0.287 | 3000 | 5000 | 6000 | 2.10 | 6.30 | 0.164 |
| 200 | MT-C06201C | CDHD-1D5* | Low | 60 | 1.911 | 0.774 | 0.637 | 0.287 | 3000 | 5000 | 6000 | 1.80 | 5.40 | 0.170 |
| 300 | MT-B07301C | CDHD-003 | Medium | 76 | 2.861 | 1.767 | 0.950 | 0.493 | 3000 | 4100 | 5200 | 2.00 | 6.00 | 0.677 |
| 400 | MT-D06401C | CDHD-003* | Low | 60 | 3.820 | 2.094 | 1.274 | 0.573 | 3000 | 5000 | 6000 | 3.50 | 11.10 | 0.290 |
| 400 | MT-C06401C | CDHD-003 | Low | 60 | 3.820 | 2.142 | 1.274 | 0.764 | 3000 | 3700 | 4500 | 2.50 | 7.50 | 0.280 |
| 550 | MT-B13551A | CDHD-4D5 | Medium | 130.4 | 15.756 | 8.734 | 5.252 | 2.954 | 1000 | 1200 | 1600 | 3.43 | 10.30 | 6.260 |
| 750 | MT-D08751C | CDHD-4D5 | Low | 80 | 7.173 | 3.566 | 2.391 | 1.196 | 3000 | 4400 | 5400 | 4.80 | 14.40 | 0.907 |
| 750 | MT-C08751C | CDHD-4D5 | Low | 80 | 7.173 | 3.896 | 2.391 | 1.345 | 3000 | 4200 | 4800 | 4.30 | 12.90 | 12.140 |
| 750 | MT-B08751C | CDHD-4D5 | Medium | 86 | 7.173 | 3.108 | 2.391 | 1.575 | 3000 | 3600 | 4100 | 3.75 | 11.25 | 2.459 |
| 1000 | MT-B13102A | CDHD-006 | Medium | 130.4 | 28.635 | 11.928 | 9.545 | 6.136 | 1000 | 1100 | 1400 | 5.16 | 15.50 | 12.140 |
| 1000 | MT-B13102B | CDHD-006 | Medium | 130.4 | 14.346 | 5.164 | 4.782 | 2.968 | 2000 | 2200 | 2900 | 5.16 | 15.48 | 6.260 |
| 1500 | MT-B13152A | CDHD-008 | Medium | 130.4 | 42.981 | 28.127 | 14.327 | 9.919 | 1000 | 1150 | 1300 | 7.45 | 22.35 | 17.920 |
| 1500 | MT-B13152B | CDHD-008 | Medium | 130.4 | 21.492 | 11.197 | 7.164 | 4.605 | 2000 | 2400 | 2800 | 7.57 | 22.71 | 8.880 |
| 1500 | MT-B13152C | CDHD-008 | Medium | 130.4 | 14.346 | 6.950 | 4.782 | 3.228 | 3000 | 3500 | 4000 | 7.06 | 21.80 | 6.260 |
| 2000 | MT-B13202B | CDHD-010* | Medium | 130.4 | 28.635 | 16.927 | 9.545 | 6.738 | 2000 | 2300 | 2550 | 9.18 | 27.50 | 12.140 |
| 3000 | MT-B13302B | CDHD-013* | Medium | 130.4 | 42.981 | 24.124 | 14.327 | 9.919 | 2000 | 2400 | 2600 | 14.00 | 42.00 | 17.920 |
| 3000 | MT-B13302C | CDHD-013* | Medium | 130.4 | 28.635 | 13.157 | 9.545 | 6.443 | 3000 | 3600 | 4000 | 14.00 | 42.00 | 12.140 |
| 3000 | MT-A18302H | CDHD-020 | High | 180 | 49.500 | 38.352 | 19.100 | 11.615 | 1500 | 1800 | 2220 | 15.00 | 39.00 | 39.990 |
| 4400 | MT-A18442H | CDHD-024* | High | 180 | 71.500 | 53.557 | 28.000 | 17.182 | 1500 | 1800 | 2200 | 22.50 | 58.50 | 51.440 |
| 4500 | MT-C18452H | CDHD-024* | Low | 180 | 64.123 | 55.695 | 28.600 | 15.759 | 1500 | 2000 | 2450 | 25.20 | 56.50 | 31.600 |

* Recommended servo drive continuous and/ or peak (intermittent) current values are slightly less than motor capability. The system performance will be below the motor's given values.

Recommended Motor/Drive Systems **400 VAC, 560 VDC bus**

| Motor Rated Power P _N [W] | Motor Model | Recommended Servo Drive | Motor Parameters | | | | | | | | | | | |
|--|-------------|-------------------------|------------------|---------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|---------------------------|--------------------------|----------------------------|----------------------------|---------------|
| | | | Inertia | Frame Size | Peak Torque | Max Torque at Knee | Rated Torque | Rated Torque at Knee | Rated Speed | Max Knee Speed | Max Speed | Rated Current | Max Current | Rotor Inertia |
| | | | [mm] | M _{MAX} [N-m] | T _{INmax} [N-m] | M _N [N-m] | T _{CNmax} [N-m] | N _N [rpm] | N _P [rpm] | N _{MAX} [rpm] | I _N [Arms] | I _{MAX} [Arms] | J [kg-cm ²] | |
| 1500 | MT-B13152C | CDHD-006 | Medium | 130.4 | 14.327 | 6.350 | 4.782 | 3.587 | 3000 | 3800 | 4000 | 3.95 | 11.85 | 6.260 |
| 2000 | MT-B13202C | CDHD-006 | Medium | 130.4 | 19.080 | 8.440 | 6.360 | 4.540 | 3000 | 4000 | 4200 | 5.54 | 16.62 | 12.140 |

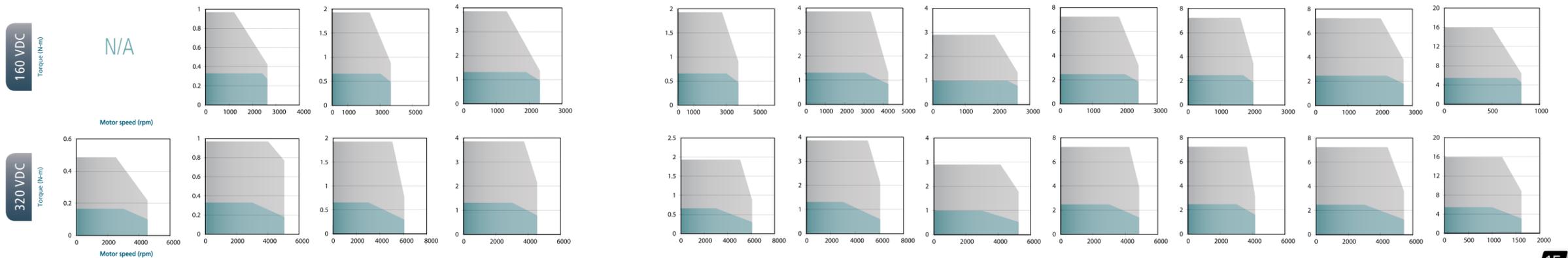
Recommended Motor/Drive Systems **480 VAC, 640 VDC bus**

| Motor Rated Power P _N [W] | Motor Model | Recommended Servo Drive | Motor Parameters | | | | | | | | | | | |
|--|-------------|-------------------------|------------------|---------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|---------------------------|--------------------------|----------------------------|----------------------------|---------------|
| | | | Inertia | Frame Size | Peak Torque | Max Torque at Knee | Rated Torque | Rated Torque at Knee | Rated Speed | Max Knee Speed | Max Speed | Rated Current | Max Current | Rotor Inertia |
| | | | [mm] | M _{MAX} [N-m] | T _{INmax} [N-m] | M _N [N-m] | T _{CNmax} [N-m] | N _N [rpm] | N _P [rpm] | N _{MAX} [rpm] | I _N [Arms] | I _{MAX} [Arms] | J [kg-cm ²] | |
| 1500 | MT-B13152C | CDHD-006 | Medium | 130.4 | 14.327 | 7.740 | 4.782 | 3.000 | 3000 | 4430 | 4750 | 3.95 | 11.85 | 6.260 |
| 2000 | MT-B13202C | CDHD-006 | Medium | 130.4 | 19.080 | 9.500 | 6.360 | 3.816 | 3000 | 4700 | 5000 | 5.54 | 16.62 | 12.140 |

* Recommended servo drive continuous and/ or peak (intermittent) current values are slightly less than motor capability. The system performance will be below the motor's given values.

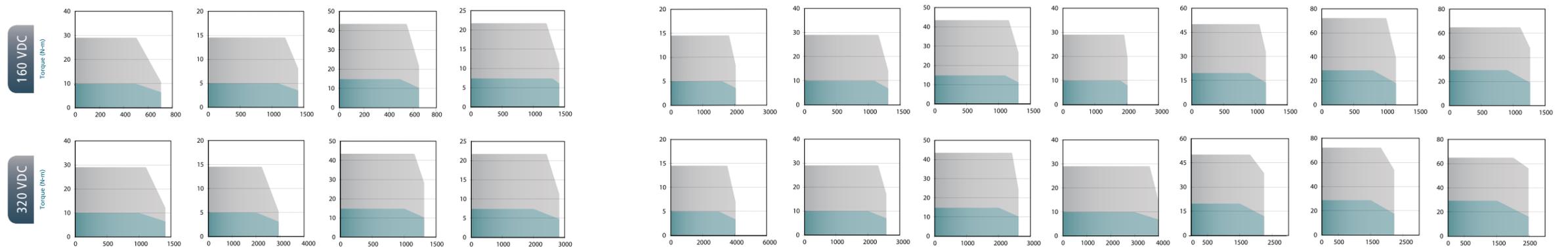
Servo Motor Performance Data 160/320 VDC

| | Symbol | Units | MT-C04051C | MT-C04101C | MT-C06201C | MT-C06401C | MT-D06201C | MT-D06401C | MT-B07301C | MT-C08751C | MT-B08751C | MT-D08751C | MT-B13551A |
|----------------------------------|------------------------|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Max Torque | Tmax | N-m | 0.48 | 0.96 | 1.91 | 3.82 | 1.91 | 3.82 | 2.86 | 7.17 | 7.17 | 7.17 | 15.76 |
| Rated Current | I _r | Arms | 0.65 | 0.94 | 1.80 | 2.50 | 2.10 | 3.50 | 2.00 | 4.30 | 3.75 | 4.80 | 3.43 |
| Max Current | I _{max} | Arms | 1.95 | 2.82 | 5.40 | 7.50 | 6.30 | 11.10 | 6.00 | 12.90 | 11.25 | 14.40 | 10.30 |
| Rated Torque | T _r | N-m | 0.16 | 0.32 | 0.64 | 1.27 | 0.64 | 1.27 | 0.95 | 2.39 | 2.39 | 2.39 | 5.25 |
| Rated Speed | N _r | RPM | N/A | 2400 | 3000 | 1900 | 3000 | 3000 | 2300 | 2000 | 1700 | 2200 | 750 |
| Rated Output | P _r | W | N/A | 80 | 200 | 250 | 200 | 400 | 230 | 500 | 420 | 550 | 410 |
| Max Speed | N _{max} | RPM | N/A | 2600 | 3600 | 2300 | 3600 | 4200 | 2600 | 2400 | 2000 | 2700 | 800 |
| Rated Speed | N _r | RPM | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 1000 |
| Rated Output | P _r | W | 50 | 100 | 200 | 400 | 200 | 400 | 300 | 750 | 750 | 750 | 550 |
| Max Speed | N _{max} | RPM | 4500 | 5000 | 6000 | 4500 | 6000 | 6000 | 5200 | 4800 | 4100 | 5400 | 1600 |
| Constant Torque | K _t | N-m/Arms | 0.39 | 0.38 | 0.30 | 0.53 | 0.34 | 0.37 | 0.50 | 0.53 | 0.70 | 0.54 | 1.68 |
| Back EMF Constant | K _e | V/krpm | 25.00 | 24.44 | 21.33 | 35.28 | 22.20 | 22.20 | 31.67 | 35.28 | 42.50 | 32.80 | 101.56 |
| Rotor Inertia Without Brake | J _m | x10 ⁻⁴ •Kg•m ² | 0.03 | 0.04 | 0.17 | 0.28 | 0.16 | 0.29 | 0.68 | 0.94 | 2.46 | 0.91 | 6.26 |
| Resistance | R _a | Ω | 71.00 | 24.00 | 7.50 | 5.60 | 4.74 | 1.87 | 5.00 | 2.10 | 2.18 | 1.15 | 3.58 |
| Inductance | L _a | mH | 78.00 | 35.00 | 16.20 | 14.50 | 9.60 | 4.22 | 11.60 | 8.63 | 7.70 | 4.74 | 18.33 |
| Mechanical Time Constant | T _m | ms | 1.93 | 0.90 | 0.74 | 0.84 | 0.70 | 0.48 | 2.07 | 0.80 | 1.64 | 0.42 | 1.19 |
| Electrical Time Constant | T _e | ms | 1.10 | 1.46 | 2.16 | 2.59 | 2.16 | 2.25 | 2.32 | 4.11 | 3.53 | 4.11 | 5.12 |
| Insulation Grade | - | - | B | B | F | F | F | F | F | F | F | F | B |
| Brake | Rated Voltage | V | DC 24 |
| | Static Rubbing Torque | N-M | 0.35 | 0.35 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| | Inertia | x10 ⁻⁴ •Kg•m ² | 0.01 | 0.01 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.13 | 0.13 | 0.13 | 0.13 |
| | Current dissipation | A | 0.25 | 0.25 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.43 | 0.82 | 0.82 | 0.82 |
| | Time for brake funtion | ms | 15 | 15 | 17 | 17 | 17 | 17 | 17 | 35 | 27 | 27 | 27 |
| | Time for brake release | ms | 118 | 118 | 32 | 32 | 32 | 32 | 32 | 25 | 76 | 76 | 76 |
| Feedback | Incremental 2500 C/T | | YES |
| | Incremental 8192 C/T | | NO | NO | YES | YES | NO | NO | YES | YES | YES | NO | YES |
| | Absolute 17 bit | | YES |
| | Resolver | | Option |
| Poles | | | 8 | 8 | 8 | 8 | 14 | 14 | 8 | 8 | 8 | 14 | 8 |
| Degree of Protection Degree (IP) | IP | | IP67 | IP67 | IP67 | IP67 | NO | NO | IP67 | IP67 | IP67 | NO | IP67 |
| Oil Seal at Shaft | | | NO | NO | Option | Option | NO | NO | Option | Option | Option | Option | Option |
| Weight | W | kg | 0.48 | 0.65 | 1.03 | 1.37 | 0.90 | 1.20 | 1.82 | 2.05 | 3.41 | 2.20 | 6.47 |
| Radial Force | | N | 75.46 | 75.46 | 257.74 | 257.74 | 257.74 | 257.74 | 298.90 | 156.80 | 436.10 | 436.10 | 813.00 |
| Axial Force | | N | 34.30 | 34.30 | 63.70 | 63.70 | 63.70 | 63.70 | 98.00 | 78.40 | 147.00 | 147.00 | 196.00 |



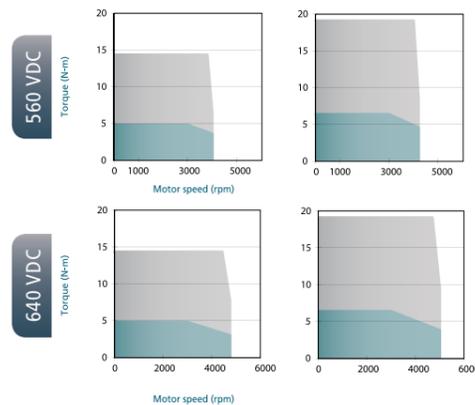
Servo Motor Performance Data **160/320 VDC** Cont.

| | Symbol | Units | MT-B13102A | MT-B13102B | MT-B13152A | MT-B13152B | MT-B13152C | MT-B13202B | MT-B13302B | MT-B13302C | MT-A18302H | MT-A18442H | MT-C18452H |
|----------------------------------|------------------------|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Max Torque | Tmax | N-m | 28.64 | 14.35 | 42.98 | 21.49 | 14.35 | 28.64 | 42.98 | 28.64 | 49.50 | 71.50 | 64.12 |
| Rated Current | Ir | Arms | 5.16 | 5.16 | 7.45 | 7.57 | 7.06 | 9.18 | 14.00 | 14.00 | 15.00 | 22.50 | 25.20 |
| Max Current | Imax | Arms | 15.50 | 15.48 | 22.35 | 22.71 | 21.80 | 27.50 | 42.00 | 42.00 | 39.00 | 58.50 | 56.50 |
| Rated Torque | Tr | N-m | 9.55 | 4.78 | 14.33 | 7.16 | 4.78 | 9.55 | 14.33 | 9.55 | 19.10 | 28.00 | 28.60 |
| Rated Speed | Nr | RPM | 500 | 1100 | 500 | 1300 | 1600 | 1000 | 1100 | 1800 | 900 | 800 | 900 |
| Rated Output | Pr | W | 500 | 550 | 750 | 975 | 800 | 1000 | 1650 | 1800 | 1800 | 2350 | 2700 |
| Max Speed | Nmax | RPM | 700 | 1400 | 650 | 1400 | 2000 | 1300 | 1300 | 2000 | 1150 | 1150 | 1250 |
| Rated Speed | Nr | RPM | 1000 | 2000 | 1000 | 2000 | 3000 | 2000 | 2000 | 3000 | 1500 | 1500 | 1500 |
| Rated Output | Pr | W | 1,000 | 1,000 | 1,500 | 1,500 | 1,500 | 2,000 | 3,000 | 3,000 | 3,000 | 4,400 | 4,500 |
| Max Speed | Nmax | RPM | 1400 | 2900 | 1300 | 2800 | 4000 | 2550 | 2600 | 4000 | 2220 | 2200 | 2450 |
| Constant Torque | Kt | N-m/Arms | 2.04 | 1.02 | 2.11 | 1.06 | 0.74 | 1.14 | 1.13 | 0.75 | 1.27 | 1.24 | 1.20 |
| Back EMF Constant | Ke | V/krpm | 123.33 | 61.67 | 127.78 | 62.78 | 44.74 | 68.89 | 68.30 | 45.32 | 81.32 | 82.23 | 72.00 |
| Rotor Inertia Without Brake | Jm | x10 ⁻⁴ •Kg•m ² | 12.14 | 6.26 | 17.92 | 8.88 | 6.26 | 12.14 | 17.92 | 12.14 | 39.99 | 51.44 | 3.16 |
| Resistance | Ra | Ω | 1.85 | 1.22 | 1.19 | 0.79 | 0.65 | 0.58 | 0.33 | 0.25 | 0.18 | 0.12 | 0.18 |
| Inductance | La | mH | 12.14 | 6.70 | 8.44 | 4.74 | 0.58 | 3.78 | 2.12 | 1.62 | 2.89 | 1.98 | 2.50 |
| Mechanical Time Constant | Tm | ms | 0.81 | 1.10 | 0.72 | 0.94 | 1.12 | 0.81 | 0.70 | 0.80 | 0.69 | 0.59 | 0.53 |
| Electrical Time Constant | Te | ms | 6.55 | 5.49 | 7.09 | 6.00 | 5.48 | 6.52 | 6.38 | 6.56 | 16.12 | 16.79 | 13.89 |
| Insulation Grade | - | - | B | B | B | B | B | B | B | B | F | F | F |
| Brake | Rated Voltage | V | DC 24 | - |
| | Static Rubbing Torque | N-M | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 40 | 40 | - |
| | Inertia | x10 ⁻⁴ •Kg•m ² | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 2.07 | 2.07 | - |
| | Current disipation | A | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 1.22 | 1.22 | - |
| | Time for brake funtion | ms | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 15 | 15 | - |
| | Time for brake release | ms | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 95 | 95 | - |
| Feedback | Incremental 2500 C/T | | YES |
| | Incremental 8192 C/T | | YES | NO |
| | Absolute 17 bit | | YES |
| | Resolver | | Option |
| Poles | | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 14 |
| Degree of Protection Degree (IP) | IP | | IP67 | NO |
| Oil Seal at Shaft | | | Option |
| Weight | W | kg | 10.16 | 6.47 | 13.87 | 8.08 | 6.47 | 10.16 | 13.87 | 10.16 | 19.50 | 26.20 | 15.20 |
| Radial Force | | N | 813.00 | 617.00 | 813.00 | 617.00 | 490.00 | 617.00 | 617.00 | 490.00 | 1107.40 | 1107.40 | 1107.40 |
| Axial Force | | N | 196.00 | 157.00 | 196.00 | 157.00 | 147.00 | 157.00 | 157.00 | 147.00 | 294.00 | 294.00 | 294.00 |



Servo Motor Performance Data 560/640 VDC

| | Symbol | Units | MT-B13152C | MT-B13202C |
|----------------------------------|------------------------|--------------------------------------|------------|------------|
| Max Torque | T _{max} | N-m | 14.35 | 28.65 |
| Rated Current | I _r | Arms | 3.95 | 9.18 |
| Max Current | I _{max} | Arms | 11.85 | 27.50 |
| Rated Torque | T _r | N-m | 4.78 | 6.36 |
| Rated Speed | N _r | RPM | 3,000 | 3,000 |
| Rated Output | P _r | W | 1,500 | 2,000 |
| Max Speed | N _{max} | RPM | 4,000 | 4,300 |
| Rated Speed | N _r | RPM | 3,000 | 3,000 |
| Rated Output | P _r | W | 1,500 | 2,000 |
| Max Speed | N _{max} | RPM | 4,500 | 4,700 |
| Constant Torque | K _t | N-m/Arms | 1.33 | 6.36 |
| Back EMF Constant | K _e | V/krpm | 80.61 | 76.30 |
| Rotor Inertia Without Brake | J _m | x10 ⁻⁴ •Kg•m ² | 6.26 | 12.14 |
| Resistance | R _a | Ω | 2.23 | 0.73 |
| Inductance | L _a | mH | 11.46 | 4.60 |
| Mechanical Time Constant | T _m | ms | 1.10 | 0.86 |
| Electrical Time Constant | T _e | ms | 5.14 | 6.30 |
| Insulation Grade | - | - | B | B |
| Brake | Rated Voltage | V | DC 24 | DC 24 |
| | Static Rubbing Torque | N-M | 20 | 20 |
| | Inertia | x10 ⁻⁴ •Kg•m ² | 0.32 | 0.32 |
| | Current dissipation | A | 0.82 | 0.82 |
| | Time for brake funtion | ms | 27 | 27 |
| | Time for brake release | ms | 76 | 76 |
| Feedback | Incremental 2500 C/T | | YES | YES |
| | Incremental 8192 C/T | | YES | YES |
| | Absolute 17 bit | | YES | YES |
| | Resolver | | Option | Option |
| Poles | | | 8 | 8 |
| Degree of Protection Degree (IP) | IP | | IP67 | IP67 |
| Oil Seal at Shaft | | | Option | Option |
| Weight | W | kg | 6.47 | 10.16 |
| Radial Force | | N | 490.00 | 490.00 |
| Axial Force | | N | 147.00 | 147.00 |



Servo Motor Dimensions

Motor Mating Connector for the following motors: Motor Power (U V W): CAP AMP 172159-1, Crimp AMP 170362-1
Motor Feedback: CAP AMP 172161-1, Crimp AMP 170361-1 **Motor Brake:** 2 separate flying leads

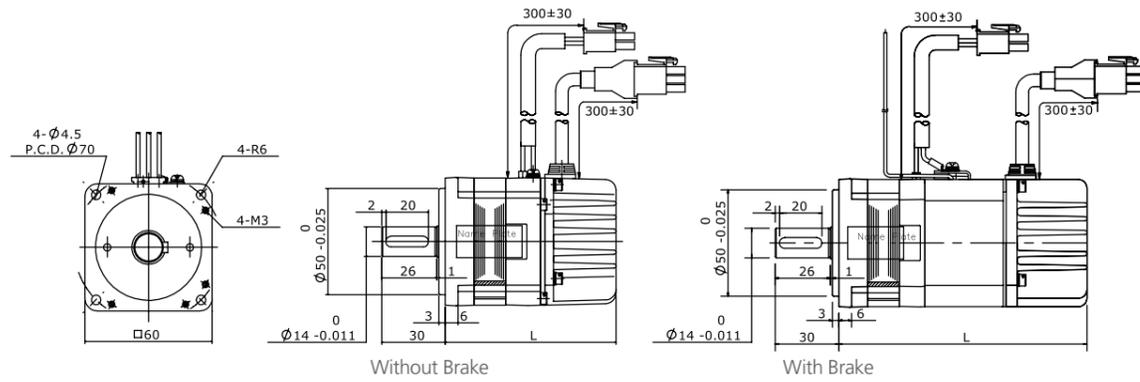
| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-C04051C | MT-C04051C | 85.3 | 122.6 |
| MT-C04101C | MT-C04101C | 106.3 | 143.6 |

| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-C06201C | MT-C06201C | 112.8 | 147.3 |

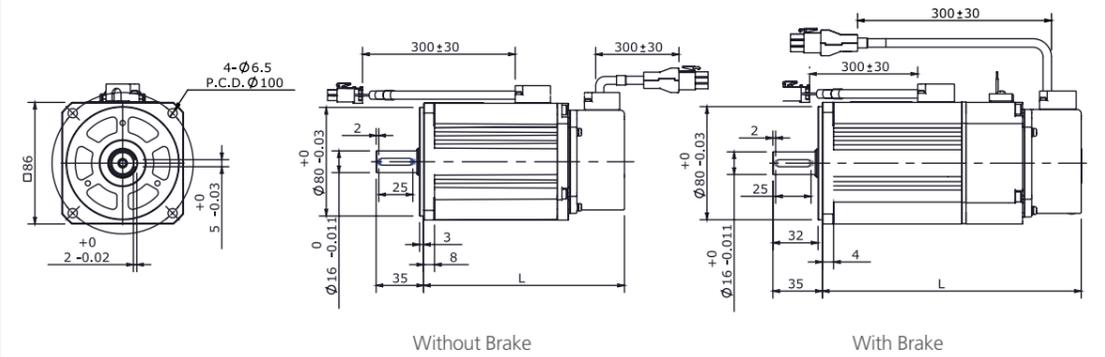
| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-C06401C | MT-C06401C | 132.8 | 167.3 |

Servo Motor Dimensions Cont.

| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-D06201C | MT-D06201C | 80.5 | 117 |
| MT-D06401C | MT-D06401C | 95.5 | 132 |

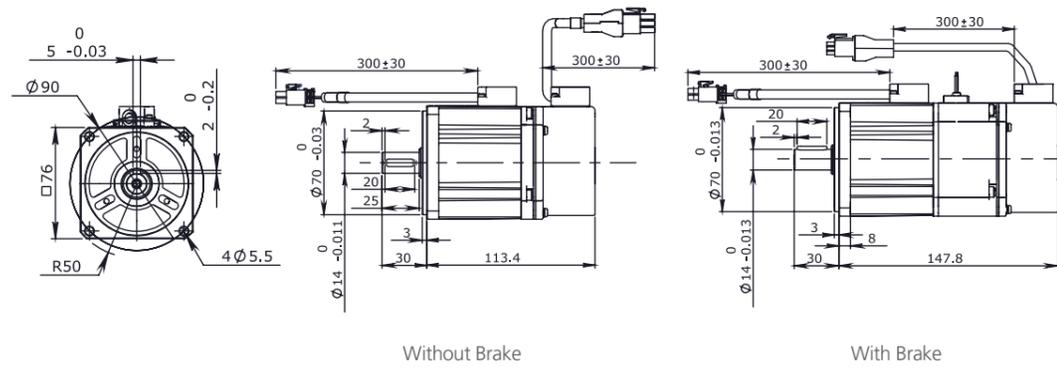


| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-B08751C | MT-B08751C | 148 | 183.2 |

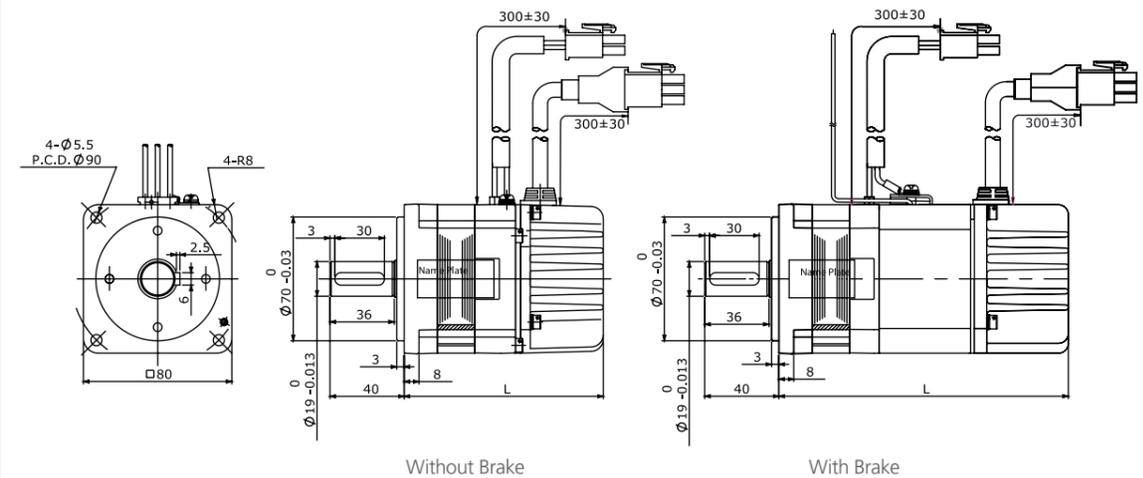


Motor Mating Connector for the following motors: Motor Power (U V W) w/o brake: Mil MS3108A20-4S
 Motor Power (U V W) with brake: Mil MS3108A20-4S Motor Feedback: Mil MS3108A20-18S

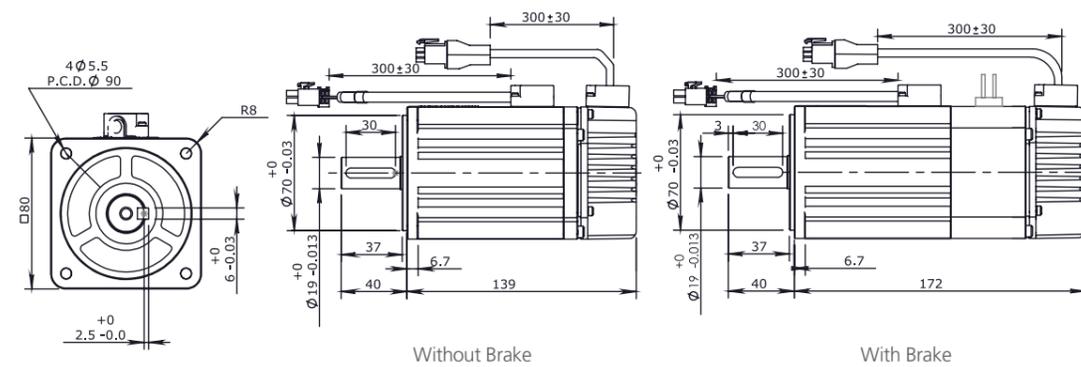
| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-B07301C | MT-B07301C | 113.4 | 147.8 |



| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-D08751C | MT-D08751C | 102 | 137 |



| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-C08751C | MT-C08751C | 139 | 172 |



Servo Motor Dimensions Cont.

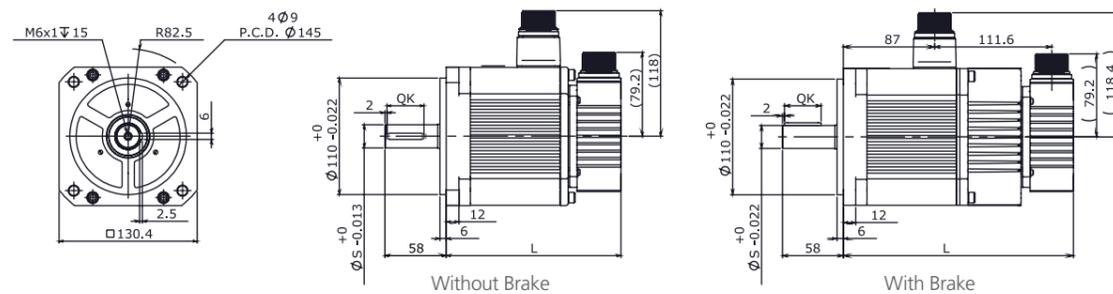
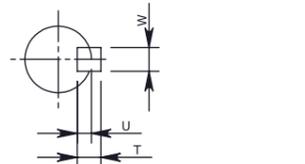
Motor Mating Connector for the following motors: MMotor Power (U V W) w/o brake: Mil MS3108A32-17S

Motor Power (U V W) with brake: Mil MS3108A10SL-3S **Motor Feedback:** Mil MS3108A20-18S

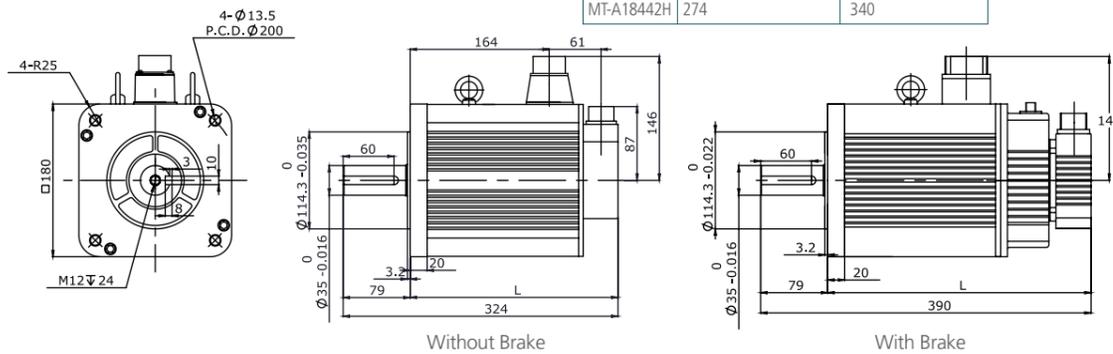
| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|------------|----------------------|-------------------|
| MT-B13551A | MT-B13551A | 164.8 | 219.3 | MT-B13152C | 164.8 | 219.3 |
| MT-B13102A | MT-B13102A | 214.8 | 269.3 | MT-B13202B | 214.8 | 269.3 |
| MT-B13102B | MT-B13102B | 164.8 | 219.3 | MT-B13302B | 264.8 | 319.3 |
| MT-B13152A | MT-B13152A | 264.8 | 319.3 | MT-B13302C | 214.8 | 269.3 |
| MT-B13152B | MT-B13152B | 184.8 | 239.3 | | | |

Dimension of Shaft and Key Size

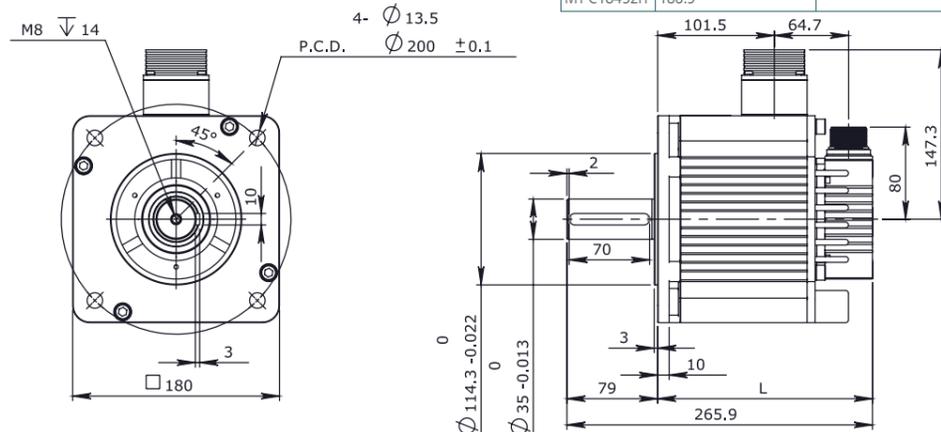
| | S | QK | U | W | T |
|----------|----|----|-----|---|---|
| Option 1 | 22 | 36 | 3.5 | 6 | 6 |
| Option 2 | 24 | 35 | 4 | 8 | 7 |



| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-A18302H | MT-A18302H | 245 | 311 |
| MT-A18442H | MT-A18442H | 274 | 340 |



| MTHD Servo Motor | Model | L (mm) Without Brake | L (mm) With Brake |
|------------------|------------|----------------------|-------------------|
| MT-C18452H | MT-C18452H | 186.9 | - |



Servo Motor Dimensions Cont.

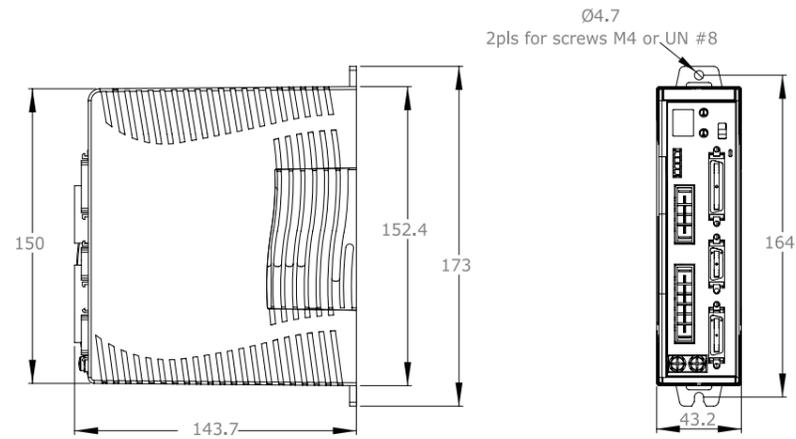
| Ratings | 1D5 | 003 | 4D5 | 006 | 008 | 010 | 012 | 013 | 020 | 024 | 030 |
|--|---------|---------|-----------|-----------|-----------|-----------|---------|---------|---------|----------|---------|
| Ratings Input Power Main Circuit 120/240 VAC | 1 Phase | 1 Phase | 1/3 Phase | 1/3 Phase | 1/3 Phase | 1/3 Phase | - | 3 Phase | 3 Phase | 3 Phase | - |
| Input Power Main Circuit 400/480 VAC | - | 3 Phase | - | 3 Phase | - | - | 3 Phase | - | - | 3 Phase | 3 Phase |
| Continuous Current A rms | 1.5 | 3 | 4.5 | 6 | 8 | 10 | 12 | 13 | 20 | 24 | 30 |
| Peak Current A rms | 4.5 | 9 | 18 | 18 | 28 | 28 | 24 | 28 | 48 | 48 or 72 | 90 |

| Basic Specifications | | |
|---|-----------------------------------|---|
| Motors | DC Brushless, DC Brush | Rotary servomotors, Linear servomotors |
| Current (Torque) Control | Performance | Update rate 31.25 μ s (32 kHz), Output waveform sinusoidal |
| | Step Response Time | Actual current reaches command in two cycles- 62.5 μ s (up to 3kHz) |
| | Control Loop | DQ, PI, Feed-forward |
| Velocity Control | Performance | Update rate 125 μ s (8 kHz) |
| | Selectable Velocity Control Loops | PI, PDFF, Standard pole placement, Advance pole placement, Standard pole placement high frequency, Pole placement with active dumping |
| | Filters | First order low pass filter, Double first order low pass filter, Notch, High pass filter, Band pass filter, User defined polynomial filter |
| Position Control | Performance | Update rate 250 μ s (4 kHz) |
| | Control loop | PID and feed-forward |
| HD Control (Position & Velocity or Velocity) | Performance | Update rate 250 μ s (4 kHz) |
| | Control Loop | Non-linear control algorithm provides very low tracking error, zero or minimum settling time and smooth movement; includes an adaptive feed-forward feature that is applied at end of movement to achieve zero or minimum settling time |
| | Filters | One second order low pass, two notch filters, and other filters to handle flexible and resonant systems |
| Reference Command | Current/Velocity Command | Analog Voltage \pm 10 VDC, Serial RS232 or USB*, CANopen**, EtherCAT**, PWM* |
| | Position Command | Pulse & Direction with electronic gearing, Serial RS232 or USB*, CANopen**, EtherCAT**, PWM* |
| Auto Tuning | Method | Automatic self-configuration optimization of motor phasing, wires, current loop, HD loop, automatic inertia load measurement |
| Brake | Method | Control stops: several dynamic brake and active disable options |
| Display | Method | 7-segment LED (green), display drive status |
| GUI | User Interface | ServoStudio Windows-based application, Setting, Drive, Motor, Feedback, I/O motion information selection/configuration, Fault history/display, Setup wizard, Expert view |
| Protective Functions | | Under and over-voltage, over-current, drive and motor over-temperature, motor foldback, drive foldback, feedback lost, not configured and more |
| Compliance Standard | | UL - UL508c (compliance testing in progress by TUV), STO - Safe Torque Off (compliance testing in progress), RoHS CE - EMC Directive 2004/108/E, standard IEC61800-3, CE Low Voltage Directive 20061951EC IEC61800-5-1 |
| Environment | | Ambient temperature: Operation 0-45°C, Storage 0-70°C, Humidity: 10-90% Altitude: < 1000m. If >1000m, derate 5% per 330m, Vibration: 0.5g |
| Protection / Pollution | | Protection class: IP20, pollution degree: 2 as per IEC 60664-1 |
| Communications | | |
| CANopen®* | | CANopen® -- CiA 301 application layer and the CiA 402 device profile for drives and motion control, Baud rate 0.5M 1M bit/s |
| EtherCAT®* | | CiA 301 application layer and the CiA 402 device profile for drives and motion control |
| PWM* | | Pulse Width Modulation current command |
| RS232 | | ASCII-based, ServoStudio, HyperTerminal, Baud rate 115200 bit/s |
| USB* | | ASCII-based, ServoStudio, HyperTerminal, Baud rate 115200 bit/s |
| Daisy Chain | | Up to 8 axes, Axis address setting from 0-99 using two Rotary switches |
| I/Os | | |
| First Analog Input | Voltage Range | |
| Second Analog Input* | Voltage Range | |
| Pulse & Direction | Signal | |
| Equivalent Encoder Output | Signal | |
| 11x Digital Inputs | Signal | |
| 6x Digital Output | Signal | |
| Analog Output | Signal | |
| Secondary Feedback | Signal | |
| Fault Output Relay | Signal | |
| Motor Feedback | | |
| From Drive | Supply Voltage | |
| Incremental Encoder | Signal | |
| Hall Sensor | Signal | |
| Resolver | Signal | |
| Sine Encoder | Signal | |
| SSI Encoder | Signal | |
| Motor Temperature | Signal | |

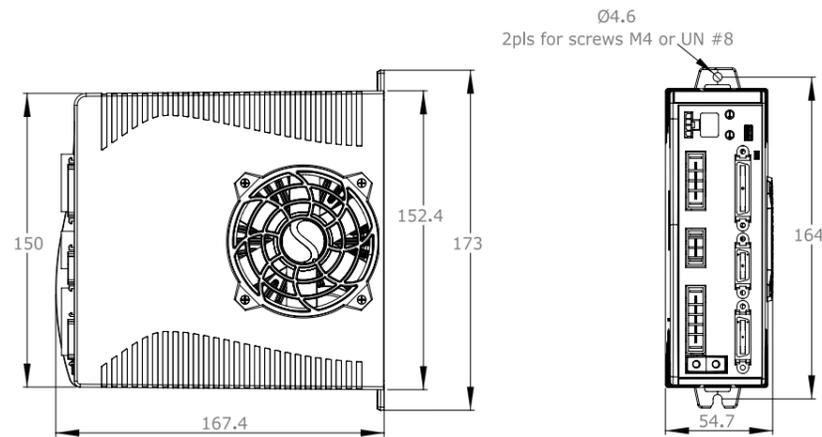
* Some features are not available on all models. Check the ordering information, or contact your distributor.

Servo Drive Dimensions (mm) **120/240 VAC**

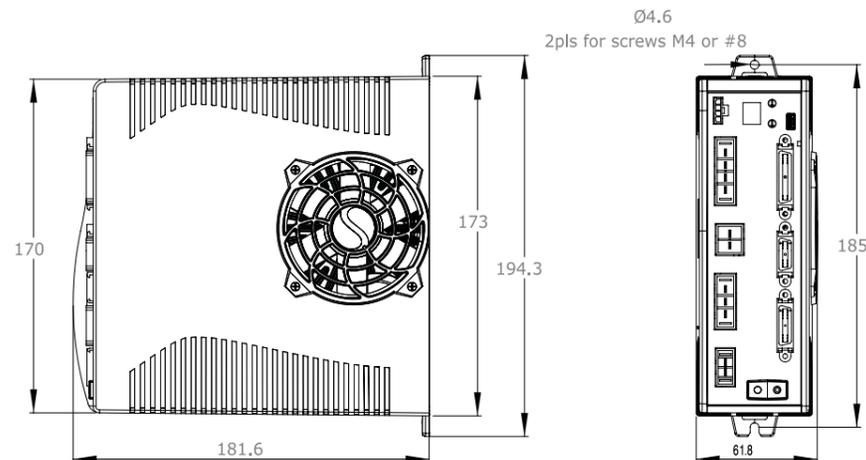
CDHD-1D5 (Without FAN), CDHD-003



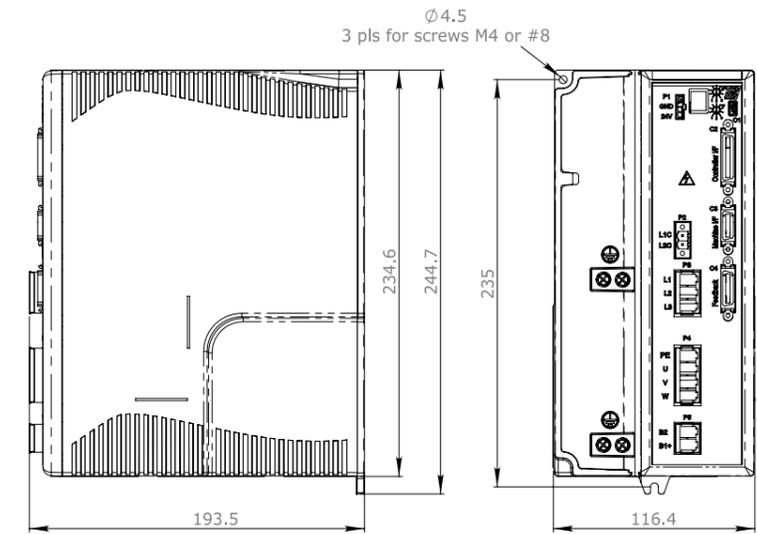
CDHD-4D5, CDHD-006



CDHD-008, CDHD-010, CDHD-013

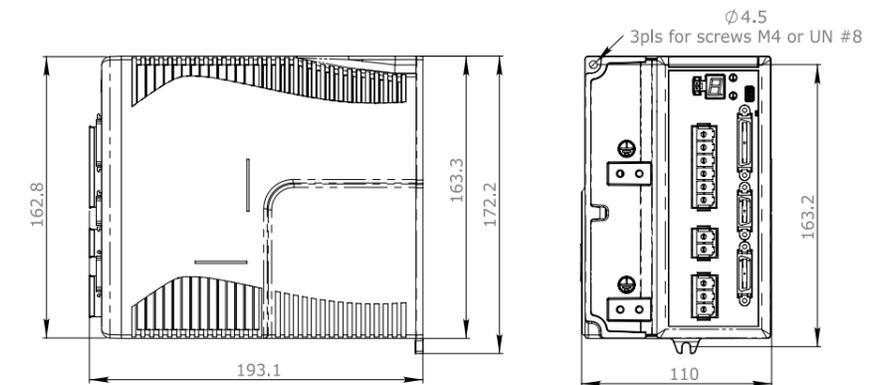


CDHD-020, CDHD-024

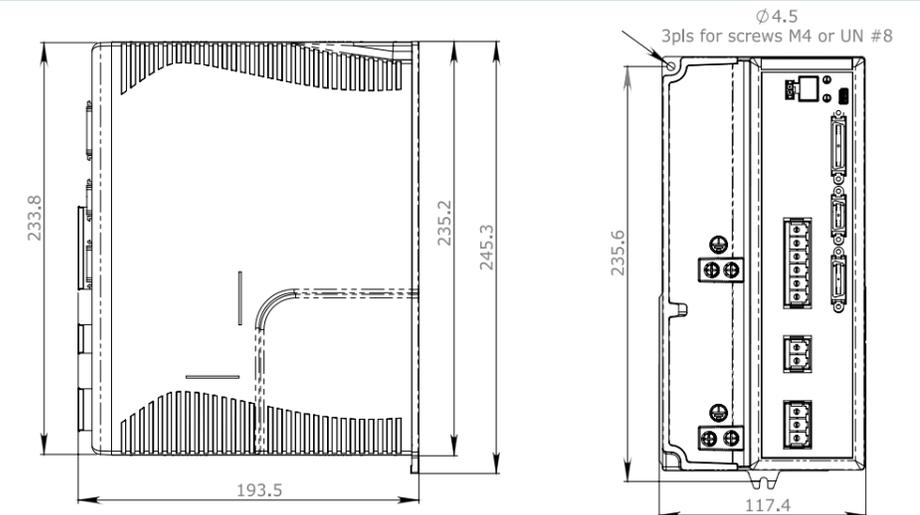


Servo Drive Dimensions (mm) **400/480 VAC**

CDHD-003, CDHD-006

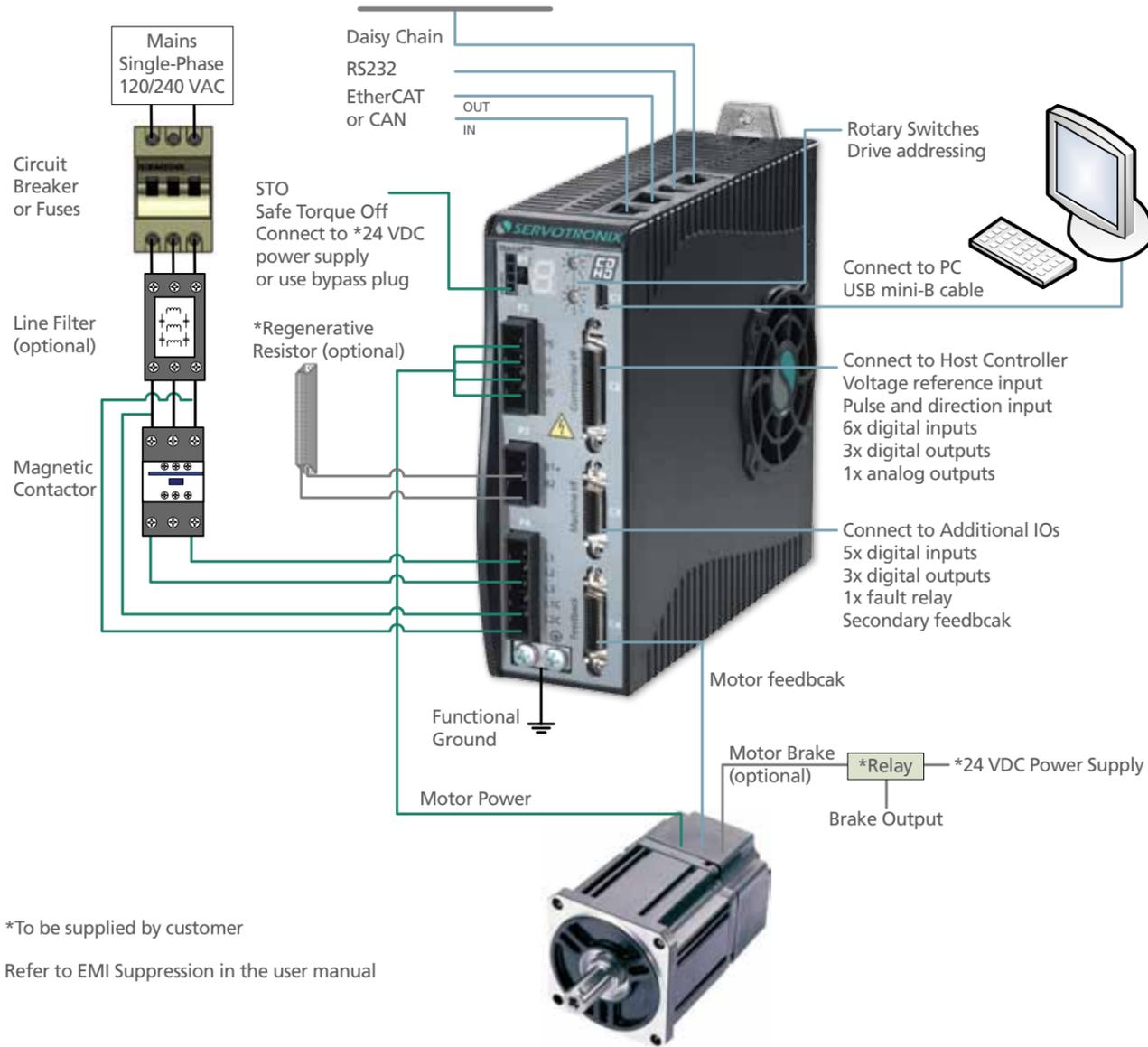


CDHD-012



Typical System Wiring Diagram

CDHD-4D5, CDHD-006

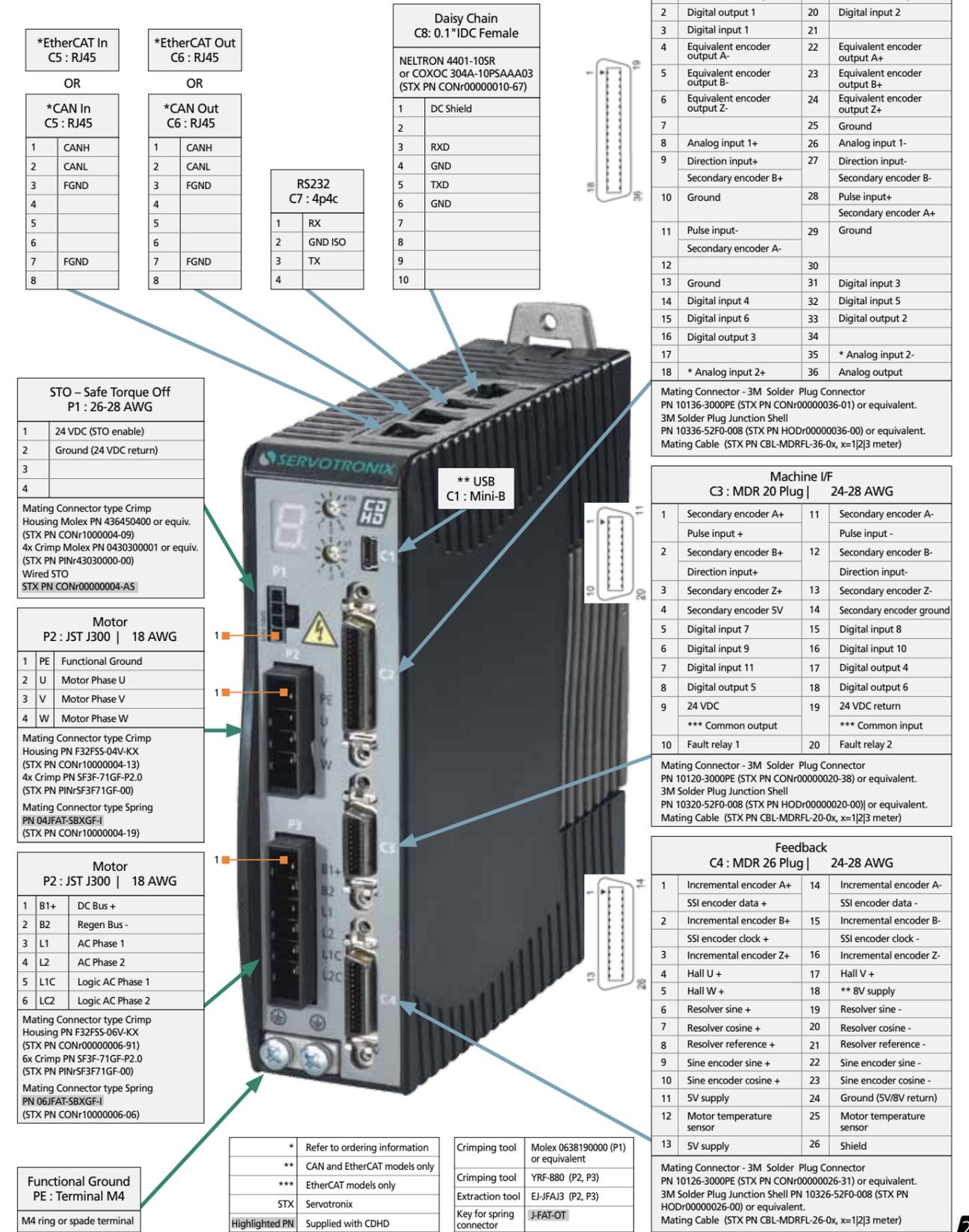


*To be supplied by customer

Refer to EMI Suppression in the user manual

Servo Drive Pin Assignments 120/240 VAC

CDHD-1D5, CDHD-003



Servo Drive Pin Assignments 120/240 VAC

CDHD-4D5, CDHD-006

***EtherCAT In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***EtherCAT Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

Daisy Chain C8: 0.1" IDC Female

NELTRON 4401-10SR or COXOC 304A-10PSAAA03 (STX PN CONr00000010-67)

| | |
|----|-----------|
| 1 | DC Shield |
| 2 | |
| 3 | RXD |
| 4 | GND |
| 5 | TXD |
| 6 | GND |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

STO - Safe Torque Off P1 : 26-28 AWG

| | |
|---|------------------------|
| 1 | 24 VDC (STO enable) |
| 2 | Ground (24 VDC return) |
| 3 | |
| 4 | |

Mating Connector type Crimp Housing Molex PN 436450400 or equiv. (STX PN CONr1000004-09)
4x Crimp Molex PN 0430300001 or equiv. (STX PN PINr43030000-00)
Wired STO
STX PN CONr00000004-AS

Motor P2 : JST J300 | 16 AWG

| | | |
|---|----|-------------------|
| 1 | PE | Functional Ground |
| 2 | U | Motor Phase U |
| 3 | V | Motor Phase V |
| 4 | W | Motor Phase W |

Mating Connector type Crimp Housing PN F32F55-04V-KX (STX PN CONr1000004-13)
4x Crimp PN SF3F-71GF-P2.0 (STX PN PINrSF3F71GF-00)
Mating Connector type Spring PN 04JFAT-SBXGF-I (STX PN CONr1000004-19)

Regeneration P3 : JST J300 | 16 AWG

| | | |
|---|-----|-------------|
| 1 | B1+ | DC Bus + |
| 2 | B2 | Regen Bus - |

Mating Connector type Crimp Housing PN F32F55-02V-KX (STX PN CONr1000002-10)
2x Crimp PN SF3F-71GF-P2.0 (STX PN PINrSF3F71GF-00)
Mating Connector type Spring Not available

AC Input P4 : JST J300 | 16 AWG

| | | |
|---|-----|------------------|
| 1 | L1 | AC Phase 1 |
| 2 | L2 | AC Phase 2 |
| 3 | L3 | AC Phase 3 |
| 4 | L1C | Logic AC Phase 1 |
| 5 | L2C | Logic AC Phase 2 |

Mating Connector type Crimp Housing PN F32F55-05V-KX (STX PN CONr0000005-03)
5x Crimp PN SF3F-71GF-P2.0 (STX PN PINrSF3F71GF-00)
Mating Connector type Spring PN 05JFAT-SBXGF-I (STX PN CONr1000005-04)

Functional Ground PE : Terminal M4

M4 ring or spade terminal

**** USB C1 : Mini-B**

CONNECTION TABLES:

| CONTROLLER I/F | | C2 : MDR 36 Plug 24-28 AWG | |
|----------------|---------------------------------------|------------------------------|---------------------------------------|
| 1 | 24 VDC return | 19 | 24 VDC |
| | *** Common output | | *** Common input |
| 2 | Digital output 1 | 20 | Digital input 2 |
| 3 | Digital input 1 | 21 | |
| 4 | Equivalent encoder output A- | 22 | Equivalent encoder output A+ |
| 5 | Equivalent encoder output B- | 23 | Equivalent encoder output B+ |
| 6 | Equivalent encoder output Z- | 24 | Equivalent encoder output Z+ |
| 7 | | 25 | Ground |
| 8 | Analog input 1+ | 26 | Analog input 1- |
| 9 | Direction input+ Secondary encoder B+ | 27 | Direction input- Secondary encoder B- |
| 10 | Ground | 28 | Pulse input+ Secondary encoder A+ |
| 11 | Pulse input- Secondary encoder A- | 29 | Ground |
| 12 | | 30 | |
| 13 | Ground | 31 | Digital input 3 |
| 14 | Digital input 4 | 32 | Digital input 5 |
| 15 | Digital input 6 | 33 | Digital output 2 |
| 16 | Digital output 3 | 34 | |
| 17 | | 35 | * Analog input 2- |
| 18 | * Analog input 2+ | 36 | Analog output |

| Machine I/F | | C3 : MDR 20 Plug 24-28 AWG | |
|-------------|---------------------------------------|------------------------------|---------------------------------------|
| 1 | Secondary encoder A+ Pulse input + | 11 | Secondary encoder A- Pulse input - |
| 2 | Secondary encoder B+ Direction input+ | 12 | Secondary encoder B- Direction input- |
| 3 | Secondary encoder Z+ | 13 | Secondary encoder Z- |
| 4 | Secondary encoder 5V | 14 | Secondary encoder ground |
| 5 | Digital input 7 | 15 | Digital input 8 |
| 6 | Digital input 9 | 16 | Digital input 10 |
| 7 | Digital input 11 | 17 | Digital output 4 |
| 8 | Digital output 5 | 18 | Digital output 6 |
| 9 | 24 VDC | 19 | 24 VDC return |
| | *** Common output | | *** Common input |
| 10 | Fault relay 1 | 20 | Fault relay 2 |

| Feedback | | C4 : MDR 26 Plug 24-28 AWG | |
|----------|--|------------------------------|--|
| 1 | Incremental encoder A+ SSI encoder data + | 14 | Incremental encoder A- SSI encoder data - |
| 2 | Incremental encoder B+ SSI encoder clock + | 15 | Incremental encoder B- SSI encoder clock - |
| 3 | Incremental encoder Z+ | 16 | Incremental encoder Z- |
| 4 | Hall U + | 17 | Hall V + |
| 5 | Hall W + | 18 | ** 8V supply |
| 6 | Resolver sine + | 19 | Resolver sine - |
| 7 | Resolver cosine + | 20 | Resolver cosine - |
| 8 | Resolver reference + | 21 | Resolver reference - |
| 9 | Sine encoder sine + | 22 | Sine encoder sine - |
| 10 | Sine encoder cosine + | 23 | Sine encoder cosine - |
| 11 | 5V supply | 24 | Ground (5V/8V return) |
| 12 | Motor temperature sensor | 25 | Motor temperature sensor |
| 13 | 5V supply | 26 | Shield |

Servo Drive Pin Assignments 120/240 VAC

CDHD-008, CDHD-010, CDHD-013

***EtherCAT In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***EtherCAT Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

Daisy Chain C8: 0.1" IDC Female

NELTRON 4401-10SR or COXOC 304A-10PSAAA03 (STX PN CONr00000010-67)

| | |
|----|-----------|
| 1 | DC Shield |
| 2 | |
| 3 | RXD |
| 4 | GND |
| 5 | TXD |
| 6 | GND |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

STO - Safe Torque Off P1 : 26-28 AWG

| | |
|---|------------------------|
| 1 | 24 VDC (STO enable) |
| 2 | Ground (24 VDC return) |
| 3 | |
| 4 | |

Mating Connector type Crimp Housing Molex PN 436450400 or equiv. (STX PN CONr1000004-09)
4x Crimp Molex PN 0430300001 or equiv. (STX PN PINr43030000-00)
Wired STO
STX PN CONr00000004-AS

Motor P2 : JST J400 | 14 AWG

| | | |
|---|----|-------------------|
| 1 | PE | Functional Ground |
| 2 | U | Motor Phase U |
| 3 | V | Motor Phase V |
| 4 | W | Motor Phase W |

Mating Connector type Crimp Housing PN J43F55-04V-KX (STX PN CONr1000004-18)
4x Crimp PN SJ4F-71GF-M3.0 (STX PN CRPrSJ4F71GF-00)

Regeneration P3 : JST J400 | 14 AWG

| | | |
|---|-----|-------------|
| 1 | B1+ | DC Bus + |
| 2 | B2 | Regen Bus - |

Mating Connector type Crimp Housing PN J42F55-02V-KX (STX PN CONr1000002-14)
2x Crimp PN SJ4F-71GF-M3.0 (STX PN CRPrSJ4F71GF-00)

Main AC Input P4 : JST J400 | 14 AWG

| | | |
|---|----|------------|
| 1 | L1 | AC Phase 1 |
| 2 | L2 | AC Phase 2 |
| 3 | L3 | AC Phase 3 |

Mating Connector type Crimp Housing PN J43F55-03V-KX (STX PN CONr0000003-19)
3x Crimp PN SJ4F-71GF-P3.0 (STX PN CRPrSJ4F71GF-00)

Logic Power AC Input P5 : JST J300 | 16 AWG

| | | |
|---|-----|------------|
| 1 | L1C | AC Phase 1 |
| 2 | L2C | AC Phase 2 |

Mating Connector type Crimp Housing PN F32F55-02V-KX (STX PN CONr1000002-10)
2x Crimp PN SF3F-71GF-P2.0 (STX PN PINrSF3F71GF-00)

Functional Ground PE : Terminal M4

M4 ring or spade terminal

**** USB C1 : Mini-B**

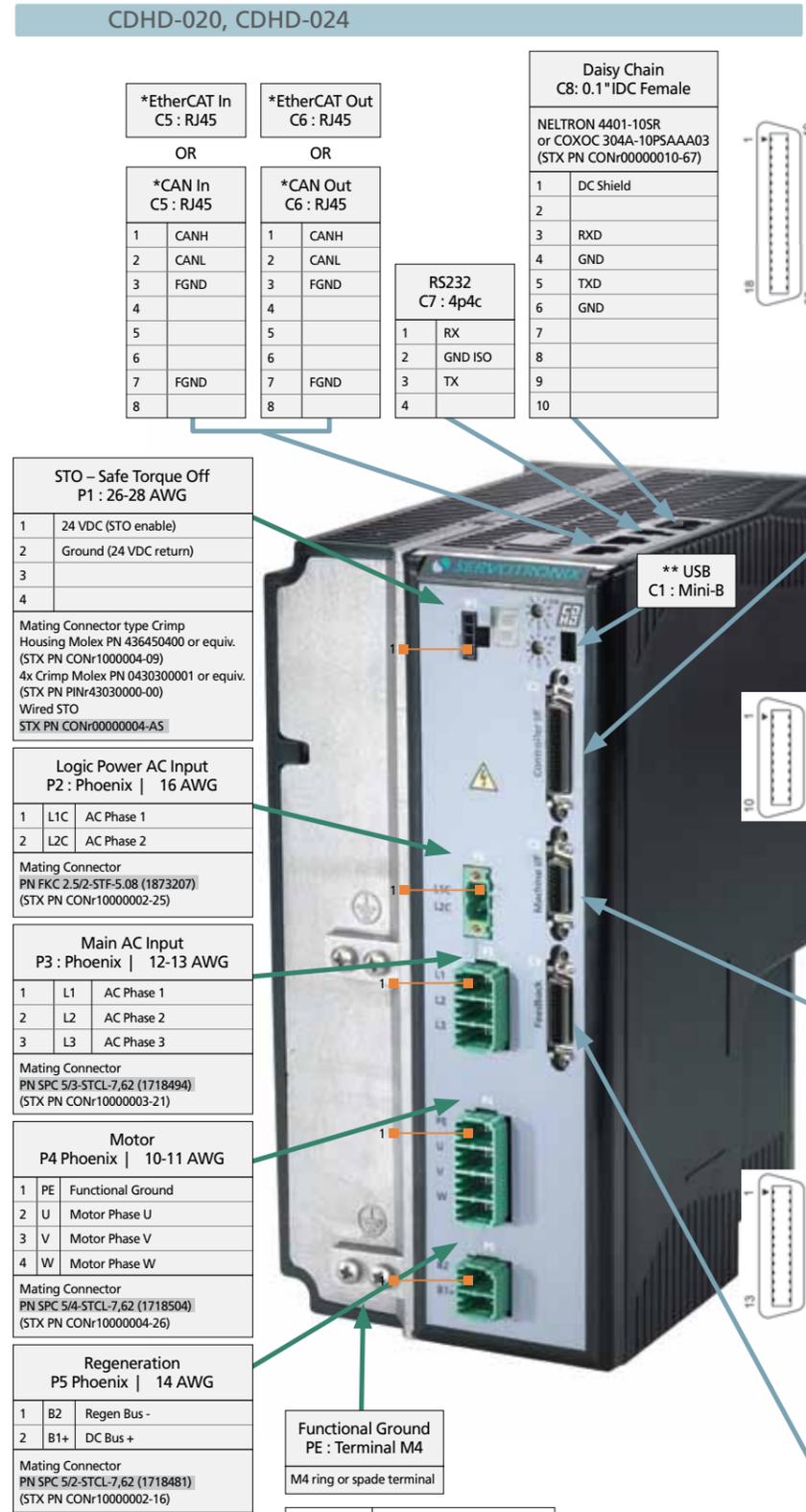
CONNECTION TABLES:

| CONTROLLER I/F | | C2 : MDR 36 Plug 24-28 AWG | |
|----------------|---------------------------------------|------------------------------|---------------------------------------|
| 1 | 24 VDC return | 19 | 24 VDC |
| | *** Common output | | *** Common input |
| 2 | Digital output 1 | 20 | Digital input 2 |
| 3 | Digital input 1 | 21 | |
| 4 | Equivalent encoder output A- | 22 | Equivalent encoder output A+ |
| 5 | Equivalent encoder output B- | 23 | Equivalent encoder output B+ |
| 6 | Equivalent encoder output Z- | 24 | Equivalent encoder output Z+ |
| 7 | | 25 | Ground |
| 8 | Analog input 1+ | 26 | Analog input 1- |
| 9 | Direction input+ Secondary encoder B+ | 27 | Direction input- Secondary encoder B- |
| 10 | Ground | 28 | Pulse input+ Secondary encoder A+ |
| 11 | Pulse input- Secondary encoder A- | 29 | Ground |
| 12 | | 30 | |
| 13 | Ground | 31 | Digital input 3 |
| 14 | Digital input 4 | 32 | Digital input 5 |
| 15 | Digital input 6 | 33 | Digital output 2 |
| 16 | Digital output 3 | 34 | |
| 17 | | 35 | * Analog input 2- |
| 18 | * Analog input 2+ | 36 | Analog output |

| Machine I/F | | C3 : MDR 20 Plug 24-28 AWG | |
|-------------|---------------------------------------|------------------------------|---------------------------------------|
| 1 | Secondary encoder A+ Pulse input + | 11 | Secondary encoder A- Pulse input - |
| 2 | Secondary encoder B+ Direction input+ | 12 | Secondary encoder B- Direction input- |
| 3 | Secondary encoder Z+ | 13 | Secondary encoder Z- |
| 4 | Secondary encoder 5V | 14 | Secondary encoder ground |
| 5 | Digital input 7 | 15 | Digital input 8 |
| 6 | Digital input 9 | 16 | Digital input 10 |
| 7 | Digital input 11 | 17 | Digital output 4 |
| 8 | Digital output 5 | 18 | Digital output 6 |
| 9 | 24 VDC | 19 | 24 VDC return |
| | *** Common output | | *** Common input |
| 10 | Fault relay 1 | 20 | Fault relay 2 |

| Feedback | | C4 : MDR 26 Plug 24-28 AWG | |
|----------|--|------------------------------|--|
| 1 | Incremental encoder A+ SSI encoder data + | 14 | Incremental encoder A- SSI encoder data - |
| 2 | Incremental encoder B+ SSI encoder clock + | 15 | Incremental encoder B- SSI encoder clock - |
| 3 | Incremental encoder Z+ | 16 | Incremental encoder Z- |
| 4 | Hall U + | 17 | Hall V + |
| 5 | Hall W + | 18 | ** 8V supply |
| 6 | Resolver sine + | 19 | Resolver sine - |
| 7 | Resolver cosine + | 20 | Resolver cosine - |
| 8 | Resolver reference + | 21 | Resolver reference - |
| 9 | Sine encoder sine + | 22 | Sine encoder sine - |
| 10 | Sine encoder cosine + | 23 | Sine encoder cosine - |
| 11 | 5V supply | 24 | Ground (5V/8V return) |
| 12 | Motor temperature sensor | 25 | Motor temperature sensor |
| 13 | 5V supply | 26 | Shield |

Servo Drive Pin Assignments 120/240 VAC



| CONTROLLER I/F | | | |
|------------------|---------------------------------------|-----------|---------------------------------------|
| C2 : MDR 36 Plug | | 24-28 AWG | |
| 1 | 24 VDC return | 19 | 24 VDC |
| | *** Common output | | *** Common input |
| 2 | Digital output 1 | 20 | Digital input 2 |
| 3 | Digital input 1 | 21 | |
| 4 | Equivalent encoder output A- | 22 | Equivalent encoder output A+ |
| 5 | Equivalent encoder output B- | 23 | Equivalent encoder output B+ |
| 6 | Equivalent encoder output Z- | 24 | Equivalent encoder output Z+ |
| 7 | | 25 | Ground |
| 8 | Analog input 1+ | 26 | Analog input 1- |
| 9 | Direction input+ Secondary encoder B+ | 27 | Direction input- Secondary encoder B- |
| 10 | Ground | 28 | Pulse input+ Secondary encoder A+ |
| 11 | Pulse input- Secondary encoder A- | 29 | Ground |
| 12 | | 30 | |
| 13 | Ground | 31 | Digital input 3 |
| 14 | Digital input 4 | 32 | Digital input 5 |
| 15 | Digital input 6 | 33 | Digital output 2 |
| 16 | Digital output 3 | 34 | |
| 17 | | 35 | * Analog input 2- |
| 18 | * Analog input 2+ | 36 | Analog output |

Mating Connector - 3M Solder Plug Connector
PN 10136-3000PE (STX PN CONr00000036-01) or equivalent.
3M Solder Plug Junction Shell
PN 10336-52F0-008 (STX PN HODr00000036-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-36-0x, x=1|2|3 meter)

| Machine I/F | | | |
|------------------|---------------------------------------|-----------|---------------------------------------|
| C3 : MDR 20 Plug | | 24-28 AWG | |
| 1 | Secondary encoder A+ Pulse input + | 11 | Secondary encoder A- Pulse input - |
| 2 | Secondary encoder B+ Direction input+ | 12 | Secondary encoder B- Direction input- |
| 3 | Secondary encoder Z+ | 13 | Secondary encoder Z- |
| 4 | Secondary encoder 5V | 14 | Secondary encoder ground |
| 5 | Digital input 7 | 15 | Digital input 8 |
| 6 | Digital input 9 | 16 | Digital input 10 |
| 7 | Digital input 11 | 17 | Digital output 4 |
| 8 | Digital output 5 | 18 | Digital output 6 |
| 9 | 24 VDC | 19 | 24 VDC return |
| | *** Common output | | *** Common input |
| 10 | Fault relay 1 | 20 | Fault relay 2 |

Mating Connector - 3M Solder Plug Connector
PN 10120-3000PE (STX PN CONr00000020-38) or equivalent.
3M Solder Plug Junction Shell
PN 10320-52F0-008 (STX PN HODr00000020-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-20-0x, x=1|2|3 meter)

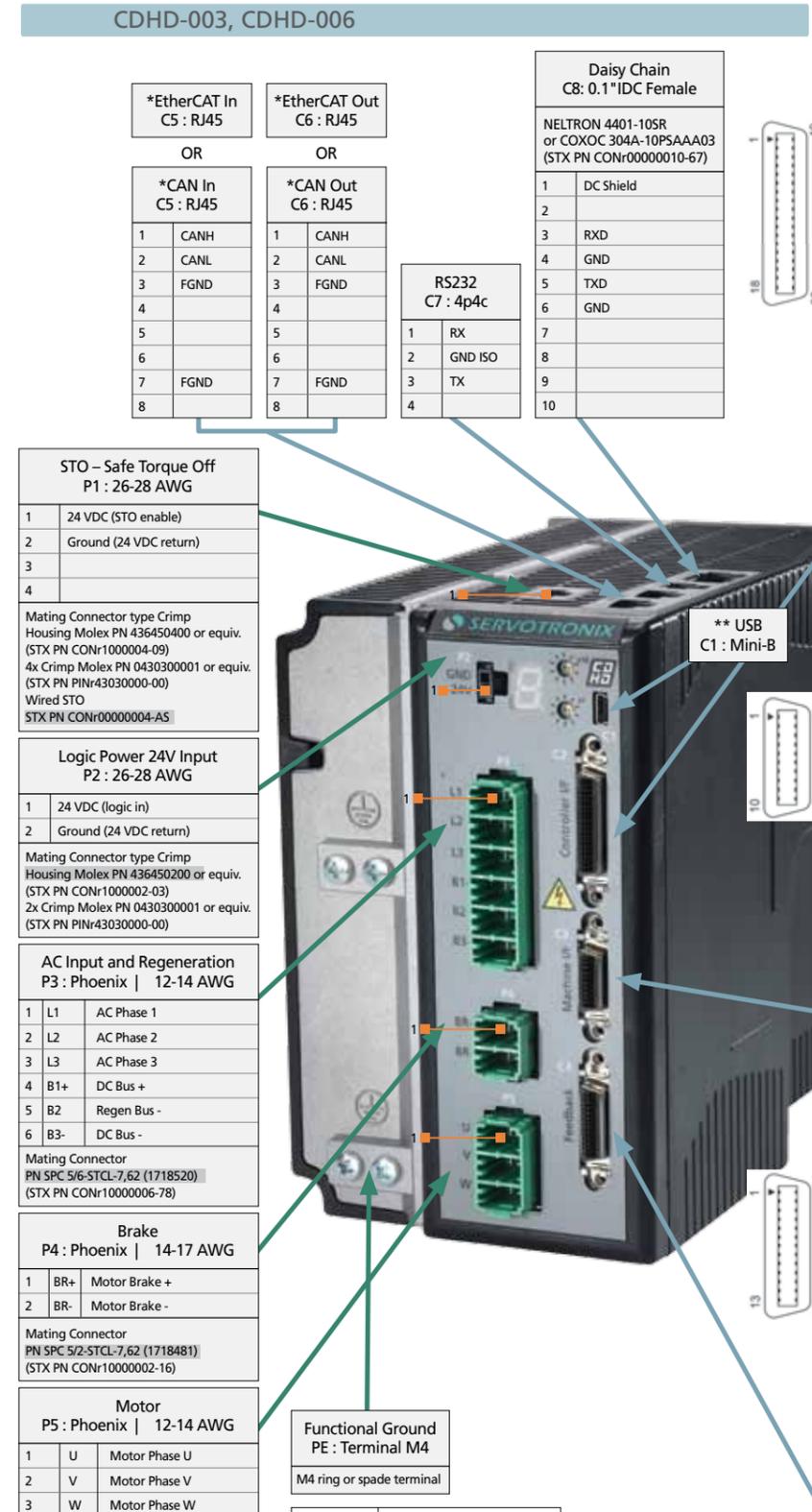
| Feedback | | | |
|------------------|--|-----------|--|
| C4 : MDR 26 Plug | | 24-28 AWG | |
| 1 | Incremental encoder A+ SSI encoder data + | 14 | Incremental encoder A- SSI encoder data - |
| 2 | Incremental encoder B+ SSI encoder clock + | 15 | Incremental encoder B- SSI encoder clock - |
| 3 | Incremental encoder Z+ | 16 | Incremental encoder Z- |
| 4 | Hall U + | 17 | Hall V + |
| 5 | Hall W + | 18 | ** 8V supply |
| 6 | Resolver sine + | 19 | Resolver sine - |
| 7 | Resolver cosine + | 20 | Resolver cosine - |
| 8 | Resolver reference + | 21 | Resolver reference - |
| 9 | Sine encoder sine + | 22 | Sine encoder sine - |
| 10 | Sine encoder cosine + | 23 | Sine encoder cosine - |
| 11 | 5V supply | 24 | Ground (5V/8V return) |
| 12 | Motor temperature sensor | 25 | Motor temperature sensor |
| 13 | 5V supply | 26 | Shield |

Mating Connector - 3M Solder Plug Connector
PN 10126-3000PE (STX PN CONr00000026-31) or equivalent.
3M Solder Plug Junction Shell
PN 10326-52F0-008 (STX PN HODr00000026-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-26-0x, x=1|2|3 meter)

* Refer to ordering information
** CAN and EtherCAT models only
*** EtherCAT models only
STX Servotronics
Highlighted PN Supplied with CDHD

Crimping tool Molex 0638190000 (P1)
4/40 insert threads on C2, C3, C4

Servo Drive Pin Assignments 400/480 VAC



| CONTROLLER I/F | | | |
|------------------|---------------------------------------|-----------|---------------------------------------|
| C2 : MDR 36 Plug | | 24-28 AWG | |
| 1 | 24 VDC return | 19 | 24 VDC |
| | *** Common output | | *** Common input |
| 2 | Digital output 1 | 20 | Digital input 2 |
| 3 | Digital input 1 | 21 | |
| 4 | Equivalent encoder output A- | 22 | Equivalent encoder output A+ |
| 5 | Equivalent encoder output B- | 23 | Equivalent encoder output B+ |
| 6 | Equivalent encoder output Z- | 24 | Equivalent encoder output Z+ |
| 7 | | 25 | Ground |
| 8 | Analog input 1+ | 26 | Analog input 1- |
| 9 | Direction input+ Secondary encoder B+ | 27 | Direction input- Secondary encoder B- |
| 10 | Ground | 28 | Pulse input+ Secondary encoder A+ |
| 11 | Pulse input- Secondary encoder A- | 29 | Ground |
| 12 | | 30 | |
| 13 | Ground | 31 | Digital input 3 |
| 14 | Digital input 4 | 32 | Digital input 5 |
| 15 | Digital input 6 | 33 | Digital output 2 |
| 16 | Digital output 3 | 34 | |
| 17 | | 35 | * Analog input 2- |
| 18 | * Analog input 2+ | 36 | Analog output |

Mating Connector - 3M Solder Plug Connector
PN 10136-3000PE (STX PN CONr00000036-01) or equivalent.
3M Solder Plug Junction Shell
PN 10336-52F0-008 (STX PN HODr00000036-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-36-0x, x=1|2|3 meter)

| Machine I/F | | | |
|------------------|---------------------------------------|-----------|---------------------------------------|
| C3 : MDR 20 Plug | | 24-28 AWG | |
| 1 | Secondary encoder A+ Pulse input + | 11 | Secondary encoder A- Pulse input - |
| 2 | Secondary encoder B+ Direction input+ | 12 | Secondary encoder B- Direction input- |
| 3 | Secondary encoder Z+ | 13 | Secondary encoder Z- |
| 4 | Secondary encoder 5V | 14 | Secondary encoder ground |
| 5 | Digital input 7 | 15 | Digital input 8 |
| 6 | Digital input 9 | 16 | Digital input 10 |
| 7 | Digital input 11 | 17 | Digital output 4 |
| 8 | Digital output 5 | 18 | Digital output 6 |
| 9 | 24 VDC | 19 | 24 VDC return |
| | *** Common output | | *** Common input |
| 10 | Fault relay 1 | 20 | Fault relay 2 |

Mating Connector - 3M Solder Plug Connector
PN 10120-3000PE (STX PN CONr00000020-38) or equivalent.
3M Solder Plug Junction Shell
PN 10320-52F0-008 (STX PN HODr00000020-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-20-0x, x=1|2|3 meter)

| Feedback | | | |
|------------------|--|-----------|--|
| C4 : MDR 26 Plug | | 24-28 AWG | |
| 1 | Incremental encoder A+ SSI encoder data + | 14 | Incremental encoder A- SSI encoder data - |
| 2 | Incremental encoder B+ SSI encoder clock + | 15 | Incremental encoder B- SSI encoder clock - |
| 3 | Incremental encoder Z+ | 16 | Incremental encoder Z- |
| 4 | Hall U + | 17 | Hall V + |
| 5 | Hall W + | 18 | ** 8V supply |
| 6 | Resolver sine + | 19 | Resolver sine - |
| 7 | Resolver cosine + | 20 | Resolver cosine - |
| 8 | Resolver reference + | 21 | Resolver reference - |
| 9 | Sine encoder sine + | 22 | Sine encoder sine - |
| 10 | Sine encoder cosine + | 23 | Sine encoder cosine - |
| 11 | 5V supply | 24 | Ground (5V/8V return) |
| 12 | Motor temperature sensor | 25 | Motor temperature sensor |
| 13 | 5V supply | 26 | Shield |

Mating Connector - 3M Solder Plug Connector
PN 10126-3000PE (STX PN CONr00000026-31) or equivalent.
3M Solder Plug Junction Shell
PN 10326-52F0-008 (STX PN HODr00000026-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-26-0x, x=1|2|3 meter)

* Refer to ordering information
** CAN and EtherCAT models only
*** EtherCAT models only
STX Servotronics
Highlighted PN Supplied with CDHD

Crimping tool Molex 0638190000 (P1, P2)
4/40 insert threads on C2, C3, C4

Servo Drive Pin Assignments 400/480 VAC

CDHD-012

***EtherCAT In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN In C5 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***EtherCAT Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

OR

***CAN Out C6 : RJ45**

| | |
|---|------|
| 1 | CANH |
| 2 | CANL |
| 3 | FGND |
| 4 | |
| 5 | |
| 6 | |
| 7 | FGND |
| 8 | |

Daisy Chain C8 : 0.1" IDC Female

NELTRON 4401-10SR or COXOC 304A-10PSAAA03 (STX PN CONr00000010-67)

| | |
|----|-----------|
| 1 | DC Shield |
| 2 | |
| 3 | RXD |
| 4 | GND |
| 5 | TXD |
| 6 | GND |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

RS232 C7 : 4p4c

| | |
|---|---------|
| 1 | RX |
| 2 | GND ISO |
| 3 | TX |
| 4 | |

STO – Safe Torque Off P1 : 26-28 AWG

| | |
|---|------------------------|
| 1 | 24 VDC (STO enable) |
| 2 | Ground (24 VDC return) |
| 3 | |
| 4 | |

Mating Connector type Crimp Housing Molex PN 436450400 or equiv. (STX PN CONr1000004-09)
4x Crimp Molex PN 0430300001 or equiv. (STX PN PINr43030000-00)
Wired STO
STX PN CONr00000004-AS

Logic Power 24V Input P2 : 26-28 AWG

| | |
|---|------------------------|
| 1 | 24 VDC (logic in) |
| 2 | Ground (24 VDC return) |

Mating Connector type Crimp Housing Molex PN 436450200 or equiv. (STX PN CONr1000002-03)
2x Crimp Molex PN 0430300001 or equiv. (STX PN PINr43030000-00)

AC Input and Regeneration P3 : Phoenix | 12-14 AWG

| | | |
|---|-----|-------------|
| 1 | L1 | AC Phase 1 |
| 2 | L2 | AC Phase 2 |
| 3 | L3 | AC Phase 3 |
| 4 | B1+ | DC Bus + |
| 5 | B2 | Regen Bus - |
| 6 | B3- | DC Bus - |

Mating Connector
PN SPC 5/6-STCL-7,62 (1718520)
(STX PN CONr1000006-78)

Brake P4 : Phoenix | 14-17 AWG

| | | |
|---|-----|---------------|
| 1 | BR+ | Motor Brake + |
| 2 | BR- | Motor Brake - |

Mating Connector
PN SPC 5/2-STCL-7,62 (1718481)
(STX PN CONr1000002-16)

Motor P5 : Phoenix | 12-14 AWG

| | | |
|---|---|---------------|
| 1 | U | Motor Phase U |
| 2 | V | Motor Phase V |
| 3 | W | Motor Phase W |

Mating Connector
PN SPC 5/3-STCL-7,62 (1718494)
(STX PN CONr1000003-21)

Functional Ground PE : Terminal M4

M4 ring or spade terminal

CONTROLLER I/F
C2 : MDR 36 Plug | 24-28 AWG

| | | | |
|----|------------------------------|----|------------------------------|
| 1 | 24 VDC return | 19 | 24 VDC |
| | *** Common output | | *** Common input |
| 2 | Digital output 1 | 20 | Digital input 2 |
| 3 | Digital input 1 | 21 | |
| 4 | Equivalent encoder output A- | 22 | Equivalent encoder output A+ |
| 5 | Equivalent encoder output B- | 23 | Equivalent encoder output B+ |
| 6 | Equivalent encoder output Z- | 24 | Equivalent encoder output Z+ |
| 7 | | 25 | Ground |
| 8 | Analog input 1+ | 26 | Analog input 1- |
| 9 | Direction input+ | 27 | Direction input- |
| 10 | Ground | 28 | Pulse input+ |
| | Secondary encoder B+ | | Secondary encoder A+ |
| 11 | Pulse input- | 29 | Ground |
| | Secondary encoder A- | | |
| 12 | | 30 | |
| 13 | Ground | 31 | Digital input 3 |
| 14 | Digital input 4 | 32 | Digital input 5 |
| 15 | Digital input 6 | 33 | Digital output 2 |
| 16 | Digital output 3 | 34 | |
| 17 | | 35 | * Analog input 2- |
| 18 | * Analog input 2+ | 36 | Analog output |

Mating Connector - 3M Solder Plug Connector
PN 10136-3000PE (STX PN CONr00000036-01) or equivalent.
3M Solder Plug Junction Shell
PN 10336-52F0-008 (STX PN HODr00000036-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-36-0x, x=1|2|3 meter)

Machine I/F
C3 : MDR 20 Plug | 24-28 AWG

| | | | |
|----|----------------------|----|--------------------------|
| 1 | Secondary encoder A+ | 11 | Secondary encoder A- |
| | Pulse input + | | Pulse input - |
| 2 | Secondary encoder B+ | 12 | Secondary encoder B- |
| | Direction input+ | | Direction input- |
| 3 | Secondary encoder Z+ | 13 | Secondary encoder Z- |
| 4 | Secondary encoder 5V | 14 | Secondary encoder ground |
| 5 | Digital input 7 | 15 | Digital input 8 |
| 6 | Digital input 9 | 16 | Digital input 10 |
| 7 | Digital input 11 | 17 | Digital output 4 |
| 8 | Digital output 5 | 18 | Digital output 6 |
| 9 | 24 VDC | 19 | 24 VDC return |
| | *** Common output | | *** Common input |
| 10 | Fault relay 1 | 20 | Fault relay 2 |

Mating Connector - 3M Solder Plug Connector
PN 10120-3000PE (STX PN CONr00000020-38) or equivalent.
3M Solder Plug Junction Shell
PN 10320-52F0-008 (STX PN HODr00000020-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-20-0x, x=1|2|3 meter)

Feedback
C4 : MDR 26 Plug | 24-28 AWG

| | | | |
|----|--------------------------|----|--------------------------|
| 1 | Incremental encoder A+ | 14 | Incremental encoder A- |
| | SSI encoder data + | | SSI encoder data - |
| 2 | Incremental encoder B+ | 15 | Incremental encoder B- |
| | SSI encoder clock + | | SSI encoder clock - |
| 3 | Incremental encoder Z+ | 16 | Incremental encoder Z- |
| 4 | Hall U + | 17 | Hall V + |
| 5 | Hall W + | 18 | ** 8V supply |
| 6 | Resolver sine + | 19 | Resolver sine - |
| 7 | Resolver cosine + | 20 | Resolver cosine - |
| 8 | Resolver reference + | 21 | Resolver reference - |
| 9 | Sine encoder sine + | 22 | Sine encoder sine - |
| 10 | Sine encoder cosine + | 23 | Sine encoder cosine - |
| 11 | 5V supply | 24 | Ground (5V/8V return) |
| 12 | Motor temperature sensor | 25 | Motor temperature sensor |
| 13 | 5V supply | 26 | Shield |

Mating Connector - 3M Solder Plug Connector
PN 10126-3000PE (STX PN CONr00000026-31) or equivalent.
3M Solder Plug Junction Shell PN 10326-52F0-008 (STX PN HODr00000026-00) or equivalent.
Mating Cable (STX PN CBL-MDRFL-26-0x, x=1|2|3 meter)

* Refer to ordering information
** CAN and EtherCAT models only
*** EtherCAT models only
STX Servotronics
Highlighted PN Supplied with CDHD

Crimping tool Molex 0638190000 (P1, P2)
4/40 insert threads on C2, C3, C4

Cables

Controller cables with flying leads

| Model | Specifications | CDHD connector | Length (Unit: m) | Appearance |
|---|---|----------------|------------------|------------|
| CBL-MDRFL-36-01 CBL-MDRFL-36-02 CBL-MDRFL-36-03 | MDR 36 and flying leads cable. Controller I/F | C2 | 1 2 3 | |
| CBL-MDRFL-20-01 CBL-MDRFL-20-02 CBL-MDRFL-20-03 | MDR 20 and flying leads cable. Machine I/F | C3 | 1 2 3 | |
| CBL-MDRFL-26-01 CBL-MDRFL-26-02 CBL-MDRFL-26-03 | MDR 26 and flying leads cable. Motor feedback | C4 | 1 2 3 | |

Motor power (UVW) cables 120/240 VAC

| Model | Specifications | Motor connector | CDHD configuration | Length (Unit: m) | Appearance |
|---|--|-----------------|---|------------------|------------|
| CBL-P2AN3N00-01 CBL-P2AN3N00-02 CBL-P2AN3N00-03 | Motor power (UVW) cable without shield. Conductor size AWG (mm2) 18 (0.8) | AMP | 120/240 VAC CDHD-1D5 CDHD-003 | 1 2 3 | |
| CBL-P2BN3N00-01 CBL-P2BN3N00-02 CBL-P2BN3N00-03 | Motor power (UVW) cable without shield. Conductor size AWG (mm2) 16 (1.3) | AMP | 120/240 VAC CDHD-4D5 CDHD-006 | 1 2 3 | |
| CBL-P2BNAS00-01 CBL-P2BNAS00-02 CBL-P2BNAS00-03 | Motor power (UVW) cable with shield without brake. Conductor size AWG (mm2) 16 (1.3) | MIL | 120/240 VAC CDHD-4D5 CDHD-006 | 1 2 3 | |
| CBL-P2BBAS00-01 CBL-P2BBAS00-02 CBL-P2BBAS00-03 | Motor power (UVW) cable with brake and shield. Conductor size AWG (mm2) 16 (1.3) brake | MIL | 120/240 VAC CDHD-4D5 CDHD-006 | 1 2 3 | |
| CBL-P2CNAS00-01 CBL-P2CNAS00-02 CBL-P2CNAS00-03 | Motor power (UVW) cable with shield without brake. Conductor size AWG (mm2) 14 (2) | MIL | 120/240 VAC CDHD-008 CDHD-010 CDHD-013 | 1 2 3 | |
| CBL-P2CBAS00-01 CBL-P2CBAS00-02 CBL-P2CBAS00-03 | Motor power (UVW) cable with brake and shield. Conductor size AWG (mm2) 14 (2) | MIL | 120/240 VAC CDHD-008 CDHD-010 CDHD-013 | 1 2 3 | |

Motor feedback cables

| Model | Specifications | Motor connector | CDHD configuration | Length (Unit: m) | Appearance |
|---|---|-----------------|--------------------|------------------|------------|
| CBL-F-T-3-00-01 CBL-F-T-3-00-02 CBL-F-T-3-00-03 | Motor feedback cable with shield for Tamagawa incremental encoder 2500 C/T and 8192 C/T | AMP | All | 1 2 3 | |
| CBL-F-7-3-00-01 CBL-F-7-3-00-02 CBL-F-7-3-00-03 | Motor feedback cable with shield for Tamagawa absolute 17 encoder | AMP | All | 1 2 3 | |
| CBL-F-T-A-00-01 CBL-F-T-A-00-02 CBL-F-T-A-00-03 | Motor feedback cable with shield for Tamagawa incremental encoder 2500 C/T and 8192 C/T | MIL | All | 1 2 3 | |
| CBL-F-7-A-00-01 CBL-F-7-A-00-02 CBL-F-7-A-00-03 | Motor feedback cable with shield for Tamagawa absolute 17 encoder | MIL | All | 1 2 3 | |

For other cables configuration please contact us at info@servotronics.com

Optional Accessories

| Model | Specification | CDHD configuration | Connectors | Picture |
|------------------|--------------------------|--|-------------|---------|
| KIT-2A-PWSPR-00* | CDHD Power Mating Spring | 120/240VAC CDHD-1D5 CDHD-003 | P2 P3 | |
| KIT-2A-POWER-00 | CDHD Power Mating Crimp | 120/240VAC CDHD-1D5 CDHD-003 | P2 P3 | |
| KIT-2B-PWSPR-00* | CDHD Power Mating Spring | 120/240VAC CDHD-4D5 CDHD-006 | P2 P3 P4 | |
| KIT-2B-POWER-00 | CDHD Power Mating Crimp | 120/240VAC CDHD-4D5 CDHD-006 | P2 P3 P4 | |
| KIT-2C-POWER-00* | CDHD Power Mating Crimp | 120/240VAC CDHD-008 CDHD-010 CDHD-013 | P2 P3 P4 P5 | |
| KIT-2D-PWSPR-00* | CDHD Power Mating Spring | 120/240VAC CDHD-020 CDHD-024 | P2 P3 P4 P5 | |
| KIT-4A-PWSPR-00 | CDHD Power Mating Spring | 400/480VAC CDHD-003 CDHD-006 CDHD-012 | P2 P3 P4 P5 | |

*Included with the product when ordered.

| Model | Specification | Connectors | Picture |
|-----------------|---|------------|---------|
| KIT-USBRS232-00 | Adapter Cables Kit-PC USB type A to RS232 | C7 | |
| KIT-24VBRAKE-00 | Brake Circuit Kit | - | |
| CBLr0000USBA-00 | USB Cable, PC type A to Mini-B, 1.5m | C1 | |
| CONr00000004-AS | STO Jumper Connector | P1 | |
| CONr10000004-09 | STO Connector | P1 | |
| PINr43030000-00 | STO Connector Crimp (4 crimps required) | P1 | |
| CBLrCDHDSTO0-00 | STO Cable, 2 Wires, 2m | P1 | |
| ADPrCAN_D9-RJ45 | ADAPTER, CAN, D9 TO RJ45 | - | |

Feedback Device

*Letter/ number represents the feedback device for motor ordering information

T* - Tamagawa 2500 C/T (2500 counts per motor mechanical turn)

Y* - Tamagawa 8192 C/T (8192 counts per motor mechanical turn)

Incremental encoders with Hall sensors and index pulse. A, B and Z signals use the same wiring as Hall sensors U, V, and W. On power up, feedback briefly sends Hall readings, and then continuously sends the A, B and Z signals.

| CDHD C4 MDR 26 Pin | Motor Feedback AMP Connector | Pin # | Signal |
|-----------------------|---------------------------------|-------|--------------------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | 3 | Incremental A+ / Hall U+ |
| 14 | | 4 | Incremental A- / Hall U- |
| 2 | Twisted Pair | 5 | Incremental B+ / Hall V+ |
| 15 | | 6 | Incremental B- / Hall V- |
| 3 | Twisted Pair | 7 | Incremental Z+ / Hall W+ |
| 16 | | 8 | Incremental Z- / Hall W- |
| 11 | | 1 | +5 VDC |
| 24 | | 2 | 0 VDC |
| 26 | | 9 | Shield |

| CDHD C4 MDR 26 Pin | Motor Feedback Mil Connector | Pin # | Signal |
|-----------------------|---------------------------------|-------|--------------------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | A | Incremental A+ / Hall U+ |
| 14 | | C | Incremental A- / Hall U- |
| 2 | Twisted Pair | H | Incremental B+ / Hall V+ |
| 15 | | D | Incremental B- / Hall V- |
| 3 | Twisted Pair | G | Incremental Z+ / Hall W+ |
| 16 | | E | Incremental Z- / Hall W- |
| 11 | | B | +5 VDC |
| 24 | | I | 0 VDC |
| 26 | | F | Shield |

M*, 5* - Tamagawa 15 bit multi turn (special order)

A serial digital data encoder. This is a full absolute encoder with 17 or 15-bit per revolution resolution. When the battery is disconnected, it functions as a full absolute encoder that transmits absolute position data at 17 or 15-bit per revolution.

| CDHD C4 MDR 26 Pin | Motor Feedback AMP Connector | Pin # | Signal |
|-----------------------|---------------------------------|-------|-----------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | 5 | Serial Data + |
| 14 | | 6 | Serial Data - |
| 11 | | 1 | +5 VDC |
| 24 | | 2 | 0 VDC |
| 26 | | 9 | Shield |
| | | VB | Battery Voltage |
| | | GND | Battery Ground |

| CDHD C4 MDR 26 Pin | Motor Feedback Mil Connector | Pin # | Signal |
|-----------------------|---------------------------------|-------|-----------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | H | Serial Data + |
| 14 | | D | Serial Data - |
| 11 | | B | +5 VDC |
| 24 | | I | 0 VDC |
| 26 | | G | Shield |
| | | VB | Battery Voltage |
| | | GND | Battery Ground |

Encoder backup battery is external to the CDHD drive. Voltage must be more than 3.6 VDC. The recommended battery is lithium (ER3V: 3.6V, 1000mAh), manufactured by Toshiba Corp.

Feedback Device Cont.

7* - Tamagawa 17 bit - Single Turn

A serial digital data encoder. This single-turn absolute encoder transmits absolute position data at 17-bit per revolution.

| CDHD C4 MDR 26 Pin | | Motor Feedback AMP Connector | |
|-----------------------|--------------|---------------------------------|---------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | 5 | Serial Data + |
| 14 | | 6 | Serial Data - |
| 11 | | 1 | +5 VDC |
| 24 | | 2 | 0 VDC |
| 26 | | 9 | Shield |

| CDHD C4 MDR 26 Pin | | Motor Feedback Mil Connector | |
|-----------------------|--------------|---------------------------------|---------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 1 | Twisted Pair | H | Serial Data + |
| 14 | | D | Serial Data - |
| 11 | | B | +5 VDC |
| 24 | | I | 0 VDC |
| 26 | | G | Shield |

R* - Resolver (special order)

The position feedback signal is provided by the two sinusoidal secondary signals – sine and cosine. These secondary signals are converted into digital signals by the drive's controller.

| CDHD C4 MDR 26 Pin | | Motor Feedback AMP Connector | |
|-----------------------|--------------|---------------------------------|-------------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 6 | Twisted Pair | Coming Soon | Resolver Sine + |
| 19 | | Coming Soon | Resolver Sine - |
| 7 | Twisted Pair | Coming Soon | Resolver Cosine + |
| 20 | | Coming Soon | Resolver Cosine - |
| 8 | Twisted Pair | Coming Soon | Resolver Ref + |
| 21 | | Coming Soon | Resolver Ref - |
| 26 | | 9 | Shield |

| CDHD C4 MDR 26 Pin | | Motor Feedback Mil Connector | |
|-----------------------|--------------|---------------------------------|-------------------|
| Pin # | Twisted Pair | Pin # | Signal |
| 6 | Twisted Pair | Coming Soon | Resolver Sine + |
| 19 | | Coming Soon | Resolver Sine - |
| 7 | Twisted Pair | Coming Soon | Resolver Cosine + |
| 20 | | Coming Soon | Resolver Cosine - |
| 8 | Twisted Pair | Coming Soon | Resolver Ref + |
| 21 | | Coming Soon | Resolver Ref - |
| 26 | | F | Shield |



MT *Series*

General Purpose Servo Motors

About Servotronix

Servotronix Motion Control develops and manufactures standard and customized automation solutions with a focus on motion control. With over 25 years of experience, the company has developed four generations of high performance servo drive families and motion control solutions tailored to customer needs and designed to meet the form, fit, functionality, and cost specifications of a wide range of applications and industries. With a global customer base of leading machine builders and automation system suppliers, Servotronix guiding principles are providing its customers with high-quality products, cost effective solutions, and on-time deliveries.

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