

Large direct drive actuator AX400WG Series (AX410WGH)

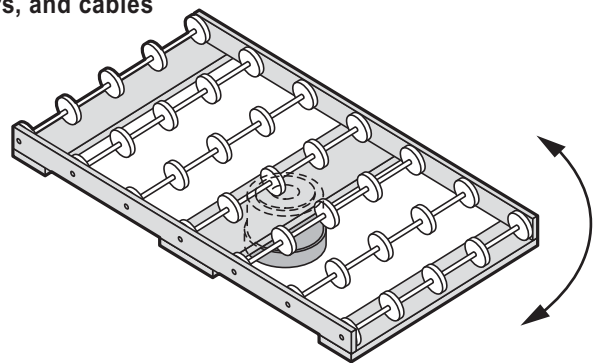
New Product

Introducing the large type (1000N·m) !



Features

- **New large type** Optimum for large panel transfer
 - Maximum output torque 1000N·m
 - Allowable load moment of inertia 600kg·m²
- **Compatible functions** Freely combined drivers, actuators, and cables
 - Easy maintenance and control
 - Easy wiring
- **Precise**
 - Compatible with conventional units while maintaining a precise index ± 30 sec.
- **Large hollow shaft**
 - Useful for cable wiring
 - Useful for air piping



⚠ Refer to the safety precautions on pages 1 and 3, and in "Direct drive actuator General Catalog (No. CB-32A)" before operating.



Large direct drive actuator

AX400WG Series

Interchangeable functions enabling free driver, actuator, and cable combinations, large hollow handy for cable wiring and piping, and a variety of options

- Max. torque: 1000N·m
- Compatible driver: WGH type driver

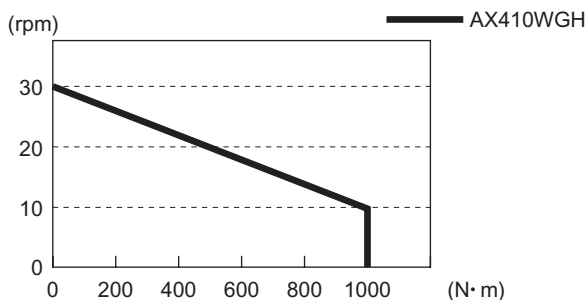
Actuator specifications

| Descriptions | | AX410WG |
|-----------------------------------|-------------------|---------------------------------------|
| Max. output torque | N·m | 1000 |
| Continuous output torque | N·m | 330 |
| Max. rotation speed | rpm | 30 |
| Allowable axial load | N | 20000 |
| Allowable moment load | N·m | 400 |
| Output shaft moment of inertia | kg·m ² | 2.72 |
| Allowable load moment of inertia | kg·m ² | 600.00 |
| Index precision (Note 1) | sec. | ±30 |
| Repeatability | sec. | ±5 |
| Output shaft friction torque | N·m | 20.0 |
| Resolver resolution | P/rev | 540672 |
| Motor insulation grade | | Class F |
| Motor withstanding voltage | | 1500 VAC for one minute |
| Motor insulation resistance | | 10MΩ and over 500 VDC |
| Working ambient temperature range | | 0 to 45°C |
| Working ambient humidity range | | 20 to 85% RH with no dew condensation |
| Storage ambient temperature range | | -20 to 80°C |
| Storage ambient humidity range | | 20 to 90% RH with no dew condensation |
| Weight | kg | 198 |
| Run out of output shaft | mm | 0.03 |
| Surface run out of output shaft | mm | 0.08 |

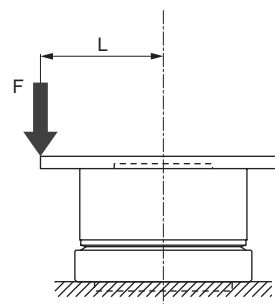
Note 1: Refer to the "Technical explanation, Static index precision" in "CKD index units General Catalog" (CB-019SA) for details on index precision.

Speed/max. torque characteristics

● AX410WGH



(Note) Moment load



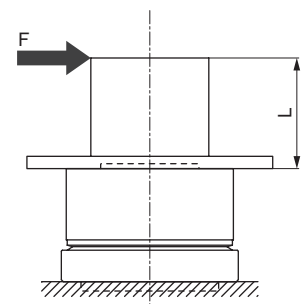
(Fig. a)

$$M \text{ (N·m)} = F \text{ (N)} \times L \text{ (m)}$$

M: Moment load

F: Load

L: Distance from output shaft center



(Fig. b)

$$M \text{ (N·m)} = F \text{ (N)} \times (L + 0.02) \text{ (m)}$$

M: Moment load

F: Load

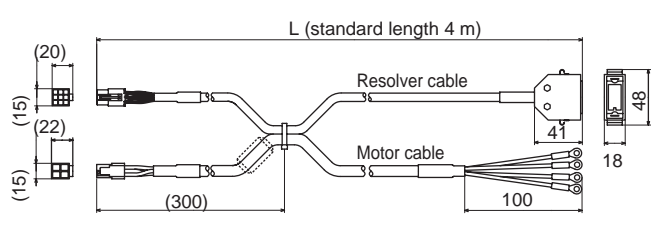
L: Distance from output shaft flange plane

Safety precautions

WARNING

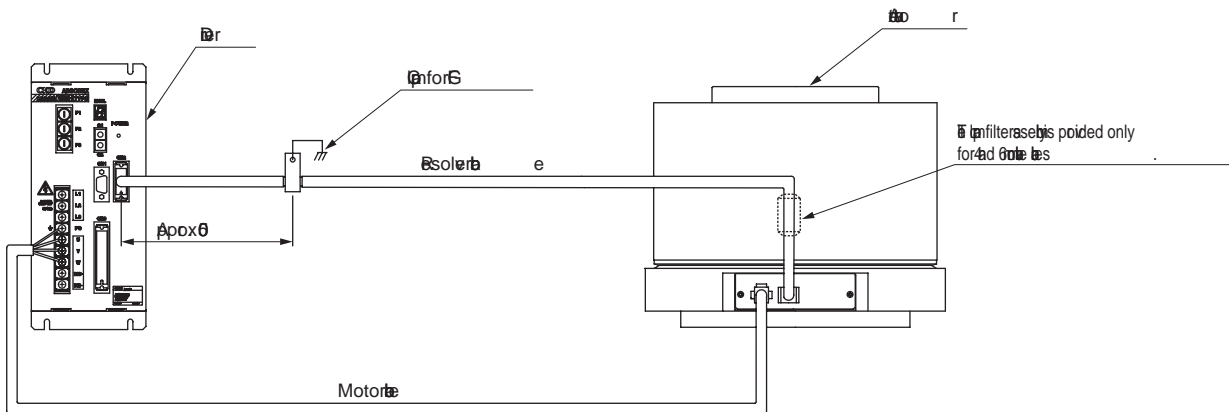
Depending on the rotational speed and load moment of inertia, it may take several seconds to stop in an emergency.

Cable specifications

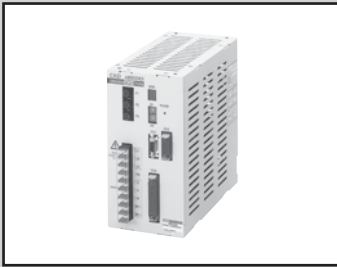
| Cable dimensions | Min. cable bending radius | |
|--|--------------------------------|--------------------------------|
| | Standard cable | Movable cable |
|  <p>Diagram showing cable dimensions: L (standard length 4 m), Resolver cable, Motor cable, 20, 15, 22, 15, 300, 100, 48, 18.</p> | Resolver cable 50 mm | Movable cable 60 mm |
| <p>Note) The clamp filter assembly is provided only for 4 and 6 m movable cables.</p> | Motor cable 100 mm | Movable cable 110 mm |

⚠ Safety precautions

- When connecting the motor cable and driver, check that the cable's mark tubes and the driver's indications are correct.
- Peel the resolver cable sheath near the driver, and ground the shield to the device with the FG clamp.



- When connecting the cable, insert the connector securely to the back. Tighten the connector's set screws and fixing screws.
- Use the optional movable cable in applications where the cable is repeatedly bent. When a movable cable is used, fix the cable sheath near the actuator connector.
- Do not modify cable by cutting or extending it. Failure to observe this could result in faults or malfunctions.
- Use the noise filter for the motor cable if the cable is longer than 6 m.



Direct drive actuator WGH type driver

Common specifications

| Descriptions | Model |
|-----------------------------------|--|
| | WGH type driver AX900WGH |
| Power voltage | 200 VAC -10% to 230 VAC +10% three phase |
| Power frequency | 50/60 Hz |
| Structure | Driver and controller integrated type (open frame) |
| Working ambient temperature range | 0 to 50°C |
| Working ambient humidity range | 20 to 90% RH (with no dew condensation) |
| Storage ambient temperature range | -20 to 80°C |
| Storage ambient humidity range | 20 to 90% RH (with no dew condensation) |
| Atmosphere | With no corrosive gas nor powder dust |
| Noise-resistance | 1000V (P-P), pulse amplitude 1μsec., start up 1nsec. |
| Vibration resistance | 4.9m/s ² |
| Mass | Approx. 3.2 kg |

Power supply wattage and breaker capacity WGH type driver

| Actuator model no. | Driver model no. | Power supply wattage (KVA) | | Breaker capacity |
|--------------------|------------------|----------------------------|-------|-------------------|
| | | Max. | Rated | Rated current (A) |
| AX410WG | AX900WGH | 4.0 | 2.0 | 20 |

CN3 input signal

| Pin No. | Signal name | Logic | Judgment |
|---------|---|----------|---------------|
| 1 to 2 | External power input +24V±10% | | |
| 3 to 4 | External power input GND | | |
| 5 | Program No. selection input (bit 0) | Positive | Level |
| 6 | Program No. selection input (bit 1) | Positive | Level |
| 7 | Program No. selection input (bit 2) | Positive | Level |
| 8 | Program No. selection input (bit 3) | Positive | Level |
| 9 | Program No. selection input (bit 4) /program No. setting input 2nd digit | Positive | Level Edge |
| 10 | Program No. setting input 1st digit | Positive | Edge |
| 11 | Reset input | Positive | Edge |
| 12 | Return to origin command input | Positive | Edge |
| 13 | Start input | Positive | Edge |
| 14 | Program stop input | Positive | Edge |
| 15 | Continuous rotation stop input | Positive | Edge |
| 16 | Answer input | Positive | Edge |
| 17 | Emergency stop input | Negative | Level |
| 18 | Brake release input | Positive | Level |

CN3 pulse string input signal

| Pin No. | Signal name |
|---------|---------------------|
| 19 | PULSE/UP/A phase |
| 20 | -PULSE/-UP/-A phase |
| 21 | DIR/DOWN/B phase |
| 22 | -DIR/-DOWN/-B phase |

Performance specifications

| Descriptions | |
|-------------------------|--|
| Number of control axis | 1 axis, 540672 pulse/rotation (name: A axis) |
| Angle setting unit | ° (degree), pulse, index number |
| Min. angle setting unit | 0.001°, pulse |
| Speed setting unit | Second, rpm |
| Speed setting range | 0.01 to 100 sec. / 0.01 to 100 rpm (Note) Max. rotation speed varies depending on the actuator to be connected. |
| Equal index number | 1 to 255 |
| Maximum command value | 7-digits input ±9999999 |
| Timer | 0.01 sec. to 99.99 sec. |
| Programming language | NC language |
| Programming method | Interactive terminal or personal computer, etc. |
| Operation mode | Data is set via the RS232C port. Automatic, MDI, jog, single block, Servo OFF, pulse string input mode |
| Coordinates | Absolute and incremental <5 types> |
| Acceleration curve | Modified sine (MS), modified constant velocity (MC/MC2), Modified trapezoidal (MT), Trapecloid (TR) |
| Status display | Power supply display with LED |
| Operating indication | Display with 7 segment LED |
| Communication interface | RS-232C conformed |
| I/O signal | <Input> Return to origin command, reset, start, stop, continuous rotation stop, emergency stop, answer, program No. selection, brake release, program No. setting, pulse string input <Output> Alarm 1/2, positioning complete, in-position, start input waiting M code 8 points, during indexing 1 (Z phase output), during indexing 2, timing, M code strobing, index position strobing |
| Program capacity | Approx. 6000 characters (256 programs) |
| Electronic thermal | Actuator overheat protection |

CN3 output signal

| Pin No. | Signal name | Logic |
|---------|---|----------|
| 33 | M code output (bit 0) | Positive |
| 34 | M code output (bit 1) | Positive |
| 35 | M code output (bit 2) | Positive |
| 36 | M code output (bit 3) | Positive |
| 37 | M code output (bit 4) | Positive |
| 38 | M code output (bit 5) | Positive |
| 39 | M code output (bit 6) | Positive |
| 40 | M code output (bit 7) | Positive |
| 41 | In-position output | Positive |
| 42 | Positioning complete output | Positive |
| 43 | Start input waiting output | Positive |
| 44 | Alarm output 1 | Negative |
| 45 | Alarm output 2 | Negative |
| 46 | Output during indexing 1/Z phase output | Positive |
| 47 | Output during indexing 2 | Positive |
| 48 | Output of time (Note 2) | Positive |
| 49 | Index position strobing output | Positive |
| 50 | M code strobing output | Positive |

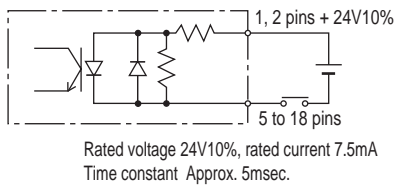
Note 1: Timing output cannot be used when the continuous rotation direction is CCW.

WGH type driver

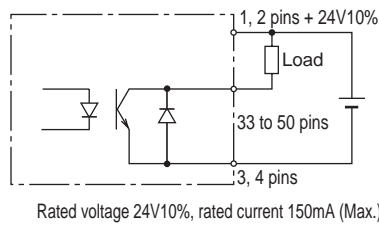
Dimensions, etc.

CN3 I/O circuit specifications

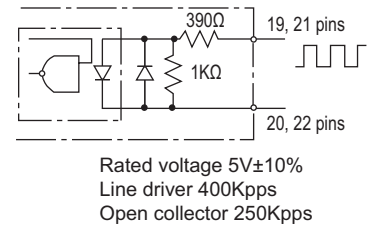
● Input circuit



● Output circuit

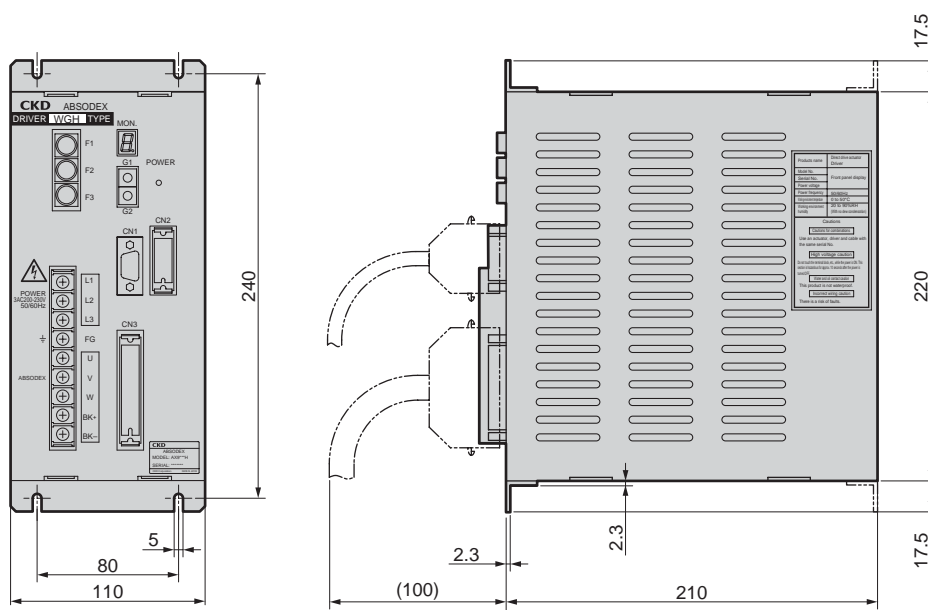


● Pulse string input circuit



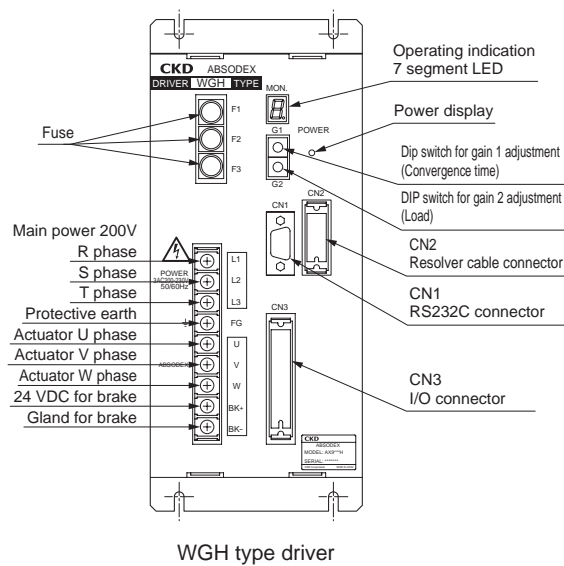
Dimensions

● WGH type driver (with controller)

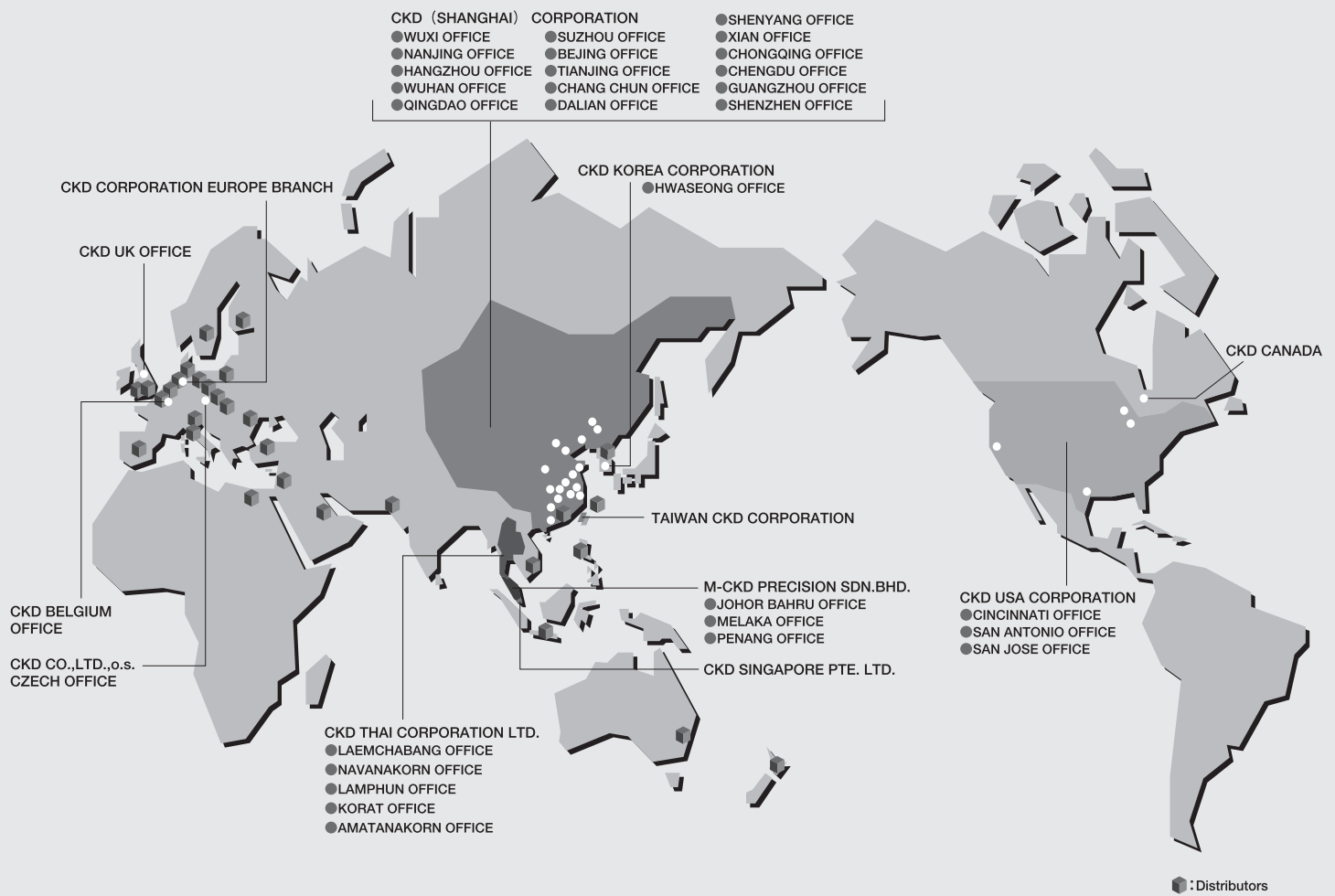


Panel explanation

● WGH type driver (with controller)



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