Nidec
All for dreams

AC Servo Motor & Servo Amplifier
S-FLAG Ⅱ Series

GENERAL CATALOG

www.nidec.com/en/nidec-instruments/

NIDEC INSTRUMENTS CORPORATION

Performance Improvements

Additional Functions

-Auto resonance suppression

-Quadrant glitch compensation

-Auto notch-filter

-Auto-tuning

-I/O free mapping mode

new

EtherCAT

EtherCAT Communication model Servo Amplifier

Frequency Response

2.5kHz

Most tried and true connection

to master controllers

AC SERVO SERIES

S-FLAG II

Standard model
Pulse train & Analog command input
Servo Amplifier

23bit / 17bit
Magnetic Absolute Encoder
Servo Motor

Frequency Response
2.5kHz

User I/O
Input **10** points / Output **10** points

Shortened-length motor
MW Series **Released**

AC Servo amplifier

EtherCAT®

New series of amplifiers

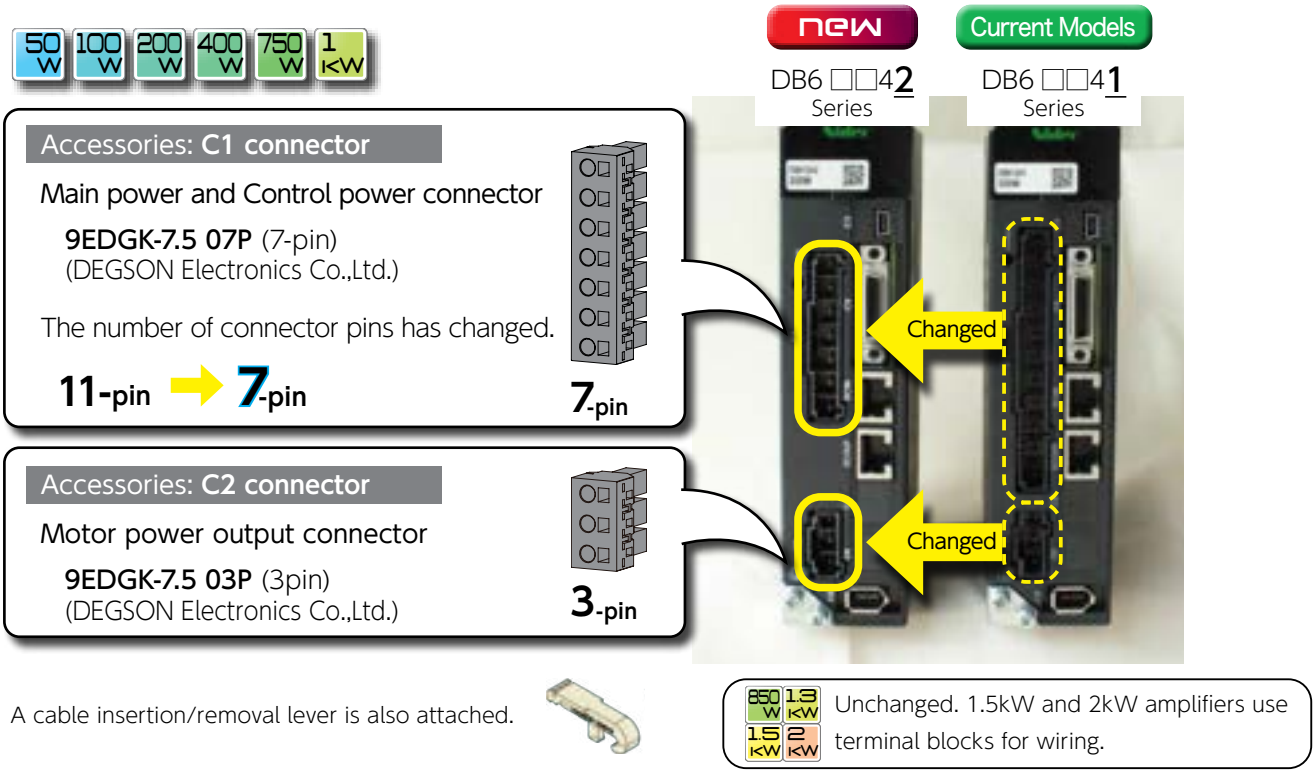
It's Getting Easier to Use!

- Auto resonance suppression function added
- Auto-tuning performance improved
- Auto notch-filter function added

Changes from previous models

The DB6 □ □ 42 series servo amplifiers are a new series of servo amplifiers with changes in the "main circuit power input connector," "motor power output connector," and "attached connector" from the previous product (DB6 □ □ 41 series). No changes are made to the exterior dimensions of the amplifiers or the operational method.

Note: Attached connectors are not interchangeable between the new DB6 □□ 42 series and the conventional DB6 □□ 41 series. Please be sure to use the connectors attached to each product.



Additional features and improvements in performance

Auto resonance suppression function added

The new servo amplifier has a significantly improved resonance frequency estimation function.
Resonance frequencies can now be estimated without causing the device to resonate during tuning.

Auto-tuning performance improved

By adding an automatic resonance suppression function, our auto-tuning has made it "safer" and "quicker" than before.

Auto notch-filter function added

Even while your equipment runs, the servo amplifier instantly detects sudden vibrations and immediately sets the torque command notch filter.
Our automatic notch filter feature helps you run your equipment without any worries.

EtherCAT®

AC SERVO SERIES S-FLAG II

Here comes "DX" era!

Digital Transformation

Connect to your

-Equipment

-Manufacturing Site

-Market

new

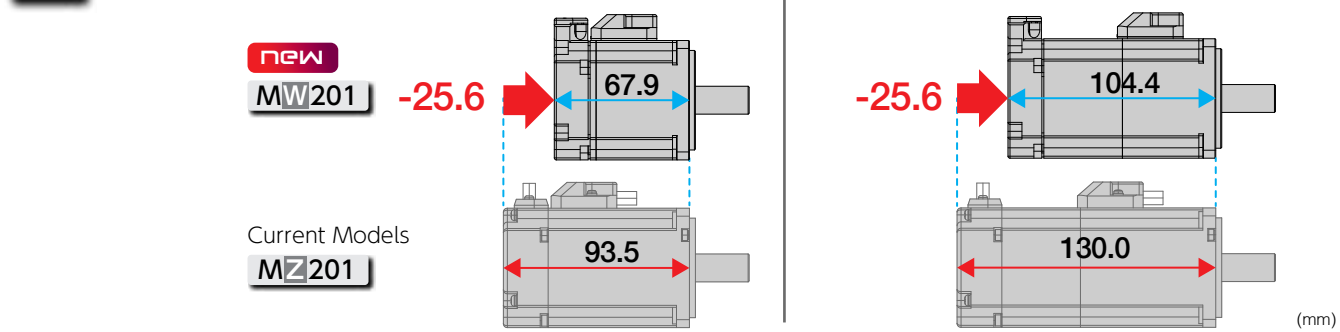
MW Series

It's high inertia & compact

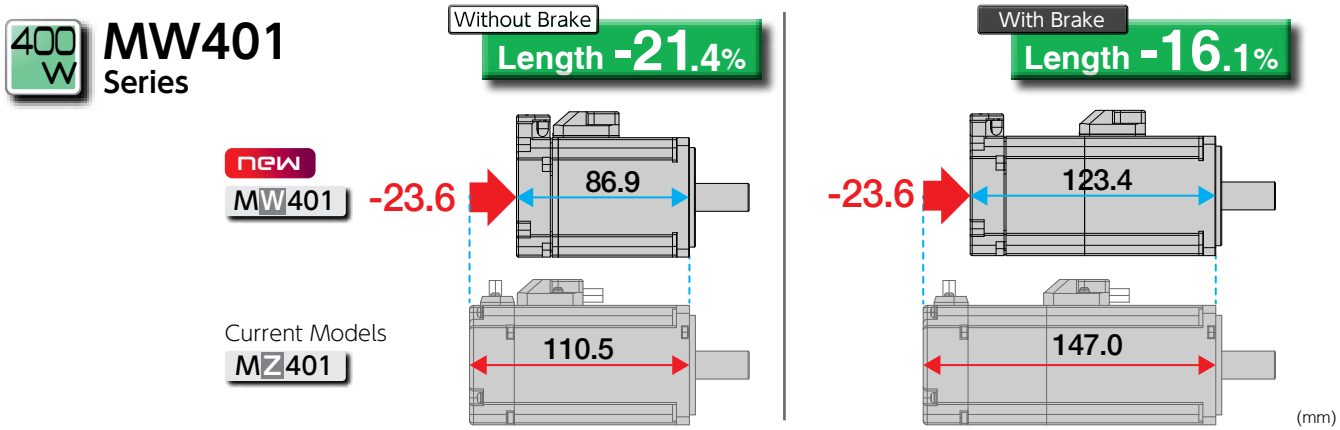
Its length is now shortened keeping the motor characteristics.

MW201 without Brake

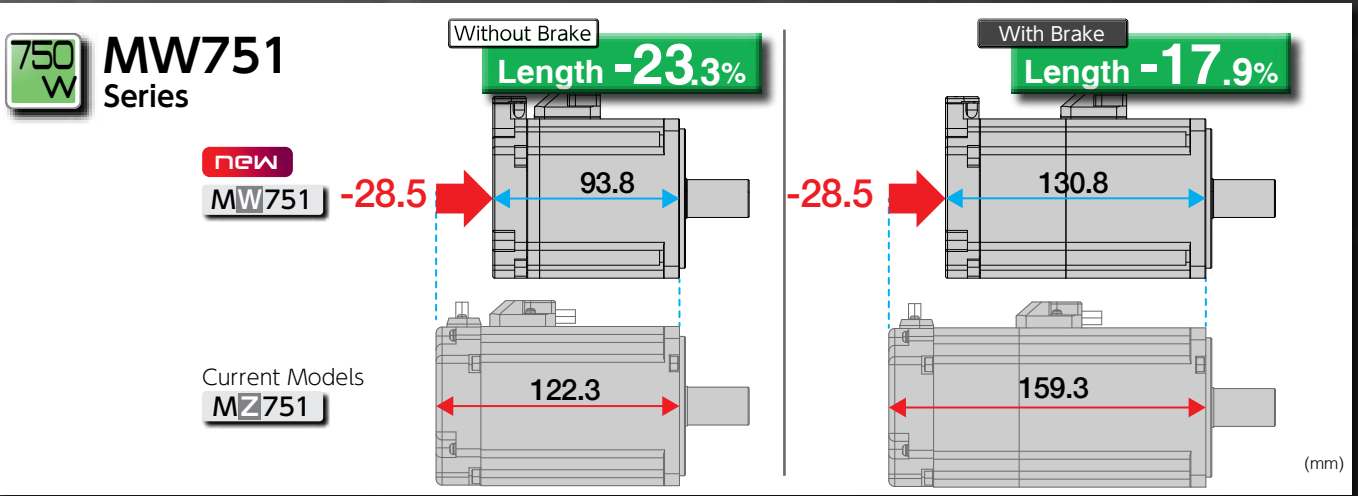
200W MW201 Series



400W MW401 Series



750W MW751 Series



Please contact us for further details.

A variety of motor series covering various applications

Standard Motor
MX, MY Series

These motor series are available in power ratings from 50 W to 750 W and two rotor inertia series: low and medium inertia.
These are the highly applicable motors.

Shortened-length motor
MG, MW Series

The MW series with high inertia is now released in the compact motor series. These motor series with short body lengths are the appropriate motors for your space-saving design.

100mm-Squre Motor
MX Series

This is a new offering of industrial motors that work between conventional 80 mm and 130 mm square motors.
You can install 1kW, 1.5kW, and 2kW high output motors in a small space.

High-torque motor
MJ Series

This family includes special-purpose motors with high-torque output and low-speed rotation - especially useful in metal processing machines.
The rated output is either 850 W or 1.3 kW.

Each motor may be equipped with an encoder resolution of 23bit or 17bit.

Standards Certification

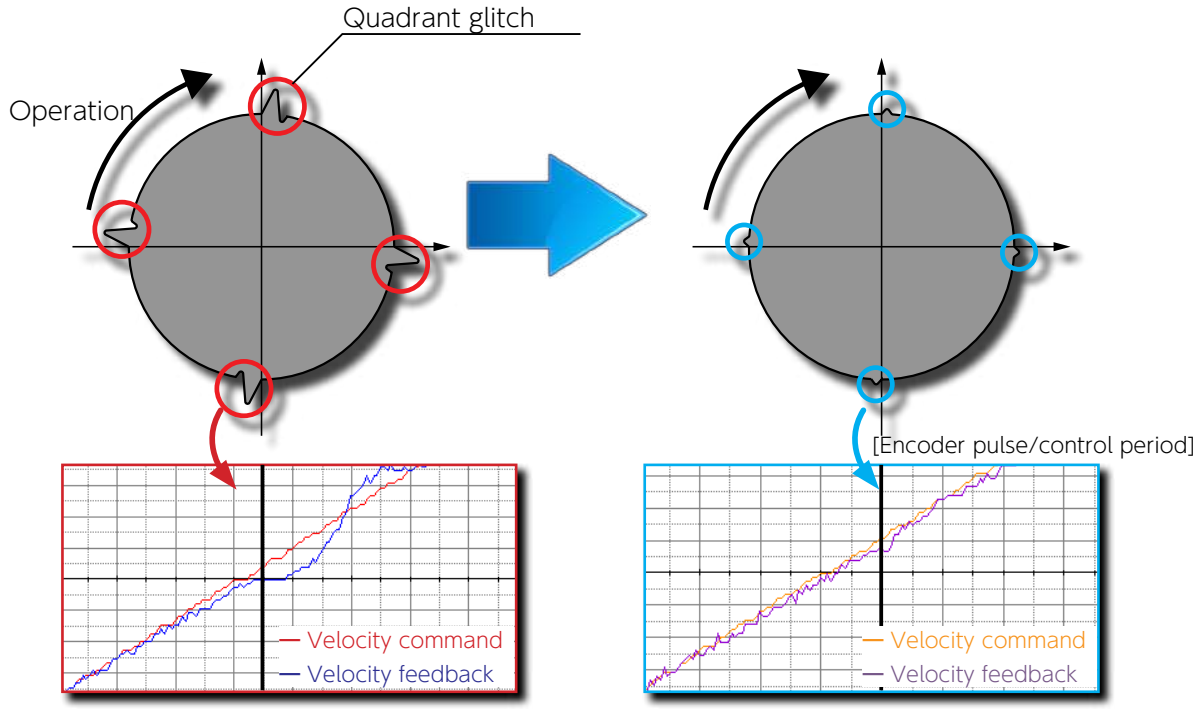
Rating		Motor	Amplifier
EU/EC Directives	Low Voltage Directive (*1)	EN60034-1 EN60034-5	EN61800-5-1
	EMC Directive (*2)	–	EN61000-6-2 EN61000-6-4 EN61800-3 (*3)
	Machinery Directive	(N/A)	
UL Standards		UL1004-1 UL1004-6 (File No.E470950)	UL61800-5-1 (File No.E471456)
CSA Standards		C22.2 No.100	C22.2 No.274
South Korean EMC Standards		–	KS C 9610-6-2 KS C 9610-6-4 KS C 9800-3 (*3)
China Compulsory Product Certification System (CCC)		(N/A)	

*1) Install the product in the environment that meets the following requirements:
• Overvoltage Category III • Class I • Pollution Degree 2 (Circuitry)
*2) The test conditions for the machinery and equipment with this product installed may be different from our test conditions. Such machinery or equipment must meet the safety standards for their final configurations.
*3) It applies to the servo amplifier model DB6***11.

Quadrant glitch compensation

This function minimizes quadrant glitch that occur near zero velocity during arc interpolation operations for two or more axes.

In recent years, manufacturing has become increasingly high-precision and productivity-enhancing, requiring higher precision and speed than ever before from the machines that perform the machining. However, when processing curved surfaces, trajectory errors called "Quadrant glich" can occur, affecting machining accuracy and shape.
It is known that quadrant flitch are mainly caused by (1) changes in frictional force, (2) deformation and elasticity of drive mechanism parts, and (3) backlash in ball screw and rack and pinion mechanisms.
The newly available "quadrant glitch compensation function" greatly improves these problems, which were previously difficult to solve by tuning.



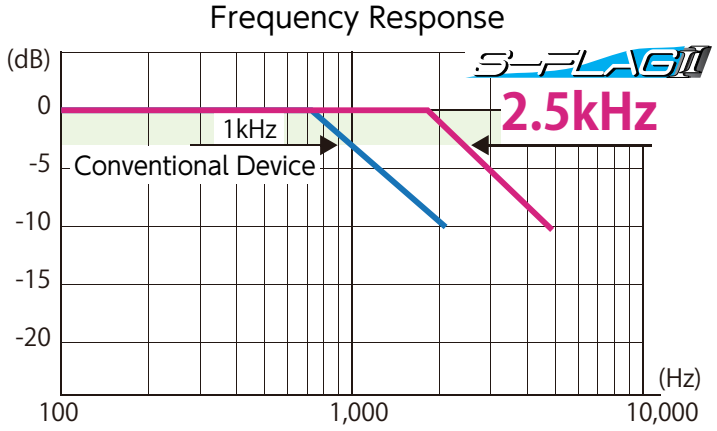
Once quadrant glitch appear, the deviation between the motor velocity command and the actual motor velocity temporarily increases. This affects machining performance.

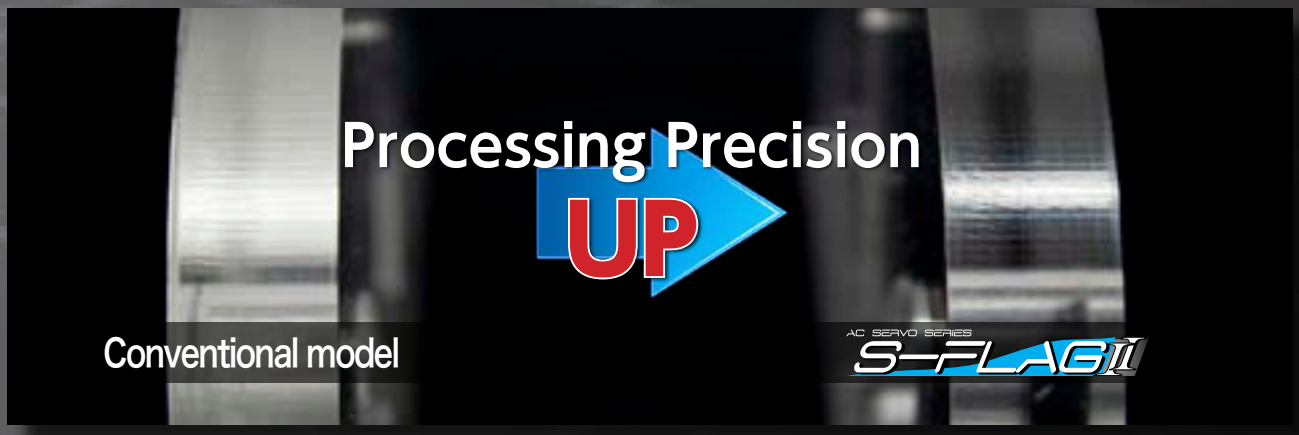
Quadrant glitch are suppressed when this compensation function is enabled.

These data are based on actual measurements in our evaluation systems.
When using this function in your actual equipment or environment, be sure to set the parameters correctly and verify them thoroughly.

Achieving Beauty with High Precision

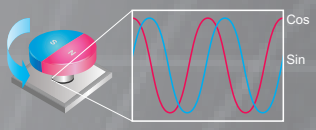
Compared to the previous version, the S-FLAG II servo amplifier has a significantly improved control cycle. In addition, coupled with our unique new "magnetic 23-bit absolute encoder", the frequency response is improved to 2.5 kHz or higher



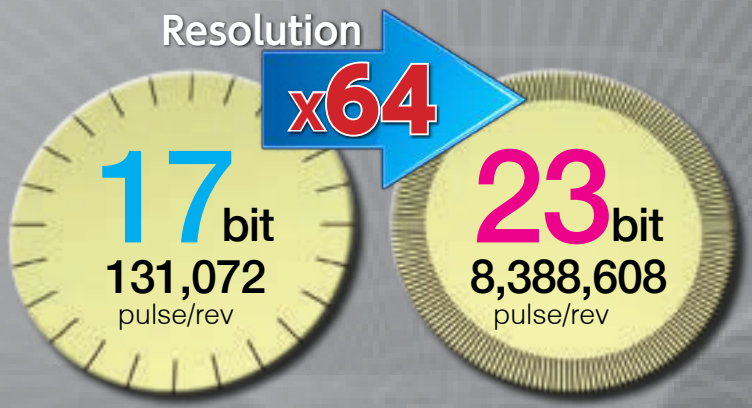


The precision of an acryl processing machine was compared when equipped with a conventional machine versus when equipped with the S-FLAG II device.
The enhanced servo amplifier and the higher resolution of the encoder produces smoother processed surfaces.
Using the prior machine, the processed surface may occasionally appear cloudy due to the slight bumps on the surface. With the enhanced device, a smoother, more beautiful finish is produced.

Magnetic 23-bit Absolute Encoder



The encoder resolution has been significantly improved from 17 bits to 23 bits.
With now approximately 8.38 million pulses per revolution (about 64 times increase), greater positioning precision is attained. The controllability is more stable than ever, which allows smoother operation. While the 23-bit encoder improves resolution, it nevertheless maintains the same strength against environmental stresses as the conventional 17-bit encoder.



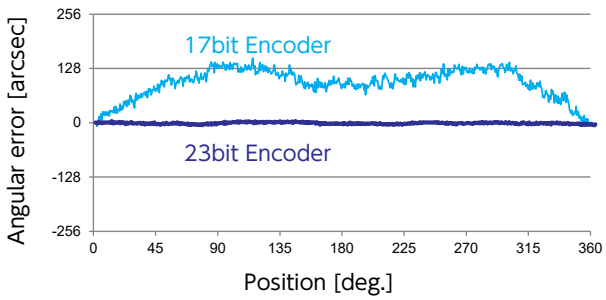
Conventional Device

S-FLAG II

This diagram is for illustrative purposes.
Actual ratios and products may differ from the illustration.

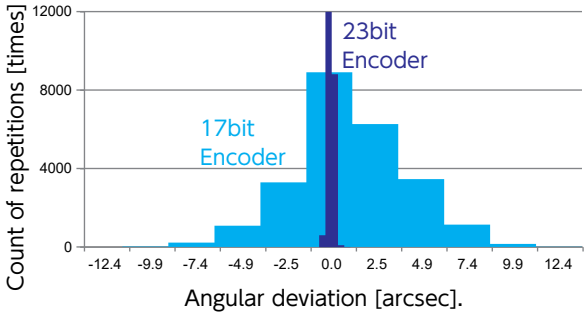
Angular accuracy and repeatability

Angle accuracy



This diagram represents the detection error per angle within 1 turn.

Angle accuracy



This histogram represents angular misalignment.

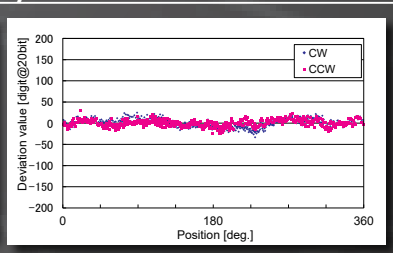
1 [arcsec] represents approximately 0.000278 degrees (1/3,600th of a degree).

Tough Performance

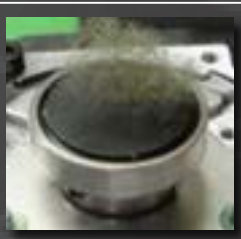
This is an example of a significant grease infiltration inside the encoder room.
(Left photo)

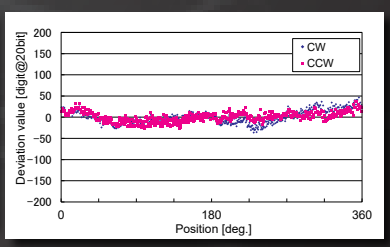
The encoder can be used with the same performance as in a clean environment even under conditions such as contamination by lint, magnetic particles, etc., in addition to grease.The below data represent the CCW/CW encoder accuracy in each environment.
(The photos below are just images for the sake of photography.)

1 turn accuracy (CCW/CW)

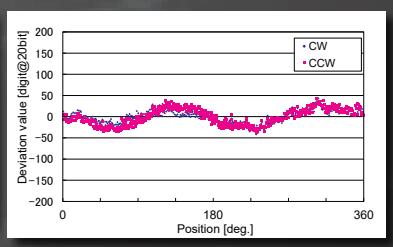


In clean conditions

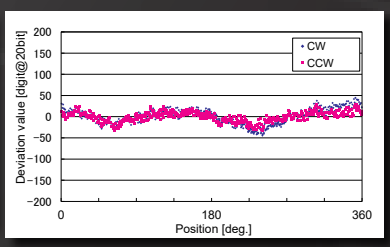




Fiber contaminated



Grease contaminated



Magnetic Matter Contaminated

Enhance your product by upgrading to S-FLAG Ⅱ !

Exclusive software "S-TUNE Ⅱ"

S-TUNE Ⅱ is our dedicated software for setting amplifier parameters, servo tuning, status monitoring, alarm diagnosis, etc. This software can handle both EtherCAT communication amplifiers and the standard general-purpose amplifiers

Operating environment

OS
Windows® 10(64bit) Windows® 8(64bit) Windows® 7(32bit, 64bit)
Language
Japanese, Chinese (Simplified, Traditional), Korean, and English
CPU
1GHz or more (64bit or 32bit)
Main-memory
2GB or more (64bit), 1GB or more (32bit)
HDD
512MB or more
Interface
USB port x1

Install this software on your personal computer. (*)

*) PC and connection cable (USB A to Mini-B) not included.

new

Exclusive software "S-TUNE Ⅱ"

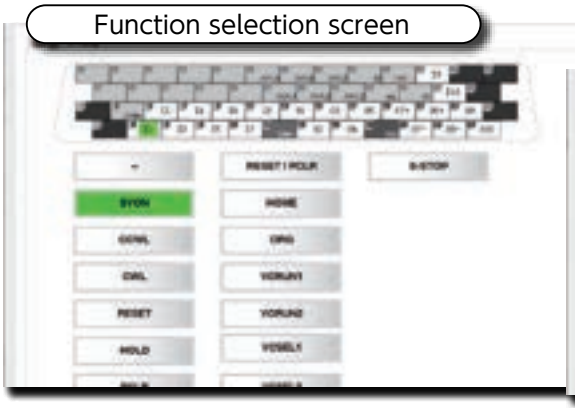
I/O free mapping mode

P. 121

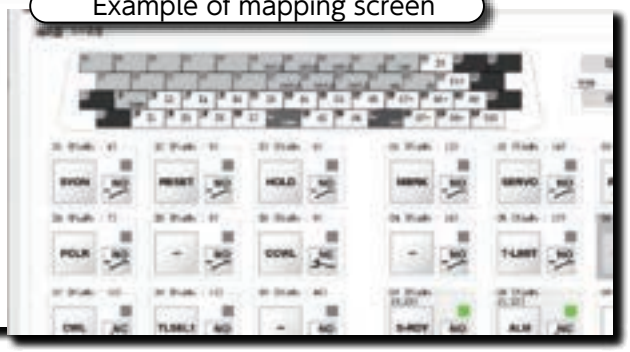
Now supports free reassignment of I/O functions.

You can now freely configure I/O input and output signals in addition to the conventional preset patterns.

Function selection screen



Example of mapping screen



Connector layout and assignable functions differ for each amplifier model.

S-FLAG Website

We provide product CAD data, instruction manuals, catalogs, application software, and ESI files can be downloaded from our website.

Japanese Site (Languages: Japanese, English, and Simplified Chinese)

https://www.nidec.com/jp/nidec-instruments/

Jump to S-FLAG page: Top Page → Product List → Servo Motor Product Overview Page

Chinese Site (Language: Simplified Chinese only)

https://nidecinstruments.cn/

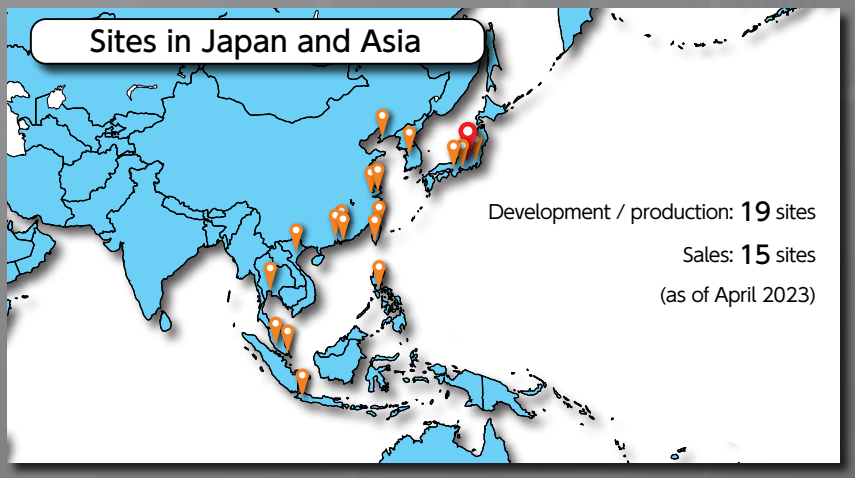
If you have any inquiries about amplifier selection or connectable motor models, please contact our distributors.

Please be informed that Nidec Corporation, our parent company, commemorates its 50thanniversary on April 01st, 2023.

Its Japanese name will be changed from “Nihon Densan Kabushiki-gaisha” to “Nidec Kabushiki-gaisha.” Accordingly, our company, one of Nidec Corporation’s subsidiaries, will have its name changed from “Nihon Densan Sankyo Kabushiki-gaisha” to “Nidec Instruments Kabushiki-gaisha (“Nidec Instruments Corporation” in English)” to bear the Nidec Group’s brand name.

Yes, We are Nidec !

We will continue developing new products and focusing on performance and quality to become our AC servo products "S-FLAG" needed by the market.



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Motors with a 23 bit Absolute Encoder

Models	MX	201	B	2	S	A	* *

Series

Code	Specifications
MX	Low Inertia
MY	Middle Inertia
MG	Middle Inertia
MM	Middle Inertia
MJ	Middle Inertia
new MW	High Inertia
MH	High Inertia

Rated Output

Code	Rated Output
500	50 W
101	100 W
201	200 W
401	400 W
751	750 W
851	850 W
951	1 kW
102	1 kW
132	1.3 kW
152	1.5 kW
202	2 kW

Brake

Code	Holding Brake
P	Without
B	With

The "Brake" code displays the specifications of the encoder resolution.

Voltage

Code	Specifications
2	AC200-240 V

Control Number

Code	Brake	Oil Seal	Shaft
11	Without	Without	Straight
12	With	Without	Straight
13	Without	Without	With Key
14	With	Without	With Key
15	Without	With	Straight
16	With	With	Straight
17	Without	With	With Key
18	With	With	With Key

"1*" of the Code shows Absolute encoder model.

Encoder

Code	Specifications
A	Absolute

The motor equipped with 23 bit encoder is a lineup only for absolute model.

Shaft end specifications/Oil Seal

Code	Shaft	Oil Seal
S (P)	Straight	Without
K (H)	With Key	Without
T (R)	Straight	With
L (J)	With Key	With

The straight shaft products are not tapped end.
( ) Shaft diameter = ø 11
ø 11 shaft exclusively for 200 W.
Please ask about this product to our distributor.

Installing Precautions

Never remove the encoder or dismantle the motor body.
The motor shaft has anti-rust oil applied at the shipment. Please wipe off the oil before installing the motor.
Make sure to perform centering (alignment) carefully and properly.
Operating the motor without sufficient alignments might cause vibrations or a shorter service life of the motor.

Connecting with a Mechanical System

When connecting the motor to a load, use a coupling to absorb misalignments so that the motor shaft load remains.
Within the rated load to the motor shaft.
Improper use may cause a shorter service life of the motor bearing and damage the shaft.
We recommend the use of flexible couplings.

Installation Orientations and Oil Seals

The motor can be installed either vertically or horizontally. Please observe the following precautions.
・Horizontal installation: Face the cable pull unit down in order to protect the motor against oil, water and dust.
・Vertical installation : For a motor combined with a decelerator being on top of the motor shaft, use an oil sealed motor to prevent the decelerator oil from seeping into the motor.

Motors with a 17 bit Absolute Encoder

Models	MX	201	A	2	S	A	* *

Series

Code	Specifications
MX	Low Inertia
MY	Middle Inertia
MG	
MM	
MJ	
new MW	High Inertia
MH	

Rated Output

Code	Rated Output
500	50 W
101	100 W
201	200 W
401	400 W
751	750 W
851	850 W
951	1 kW
102	1 kW
132	1.3 kW
152	1.5 kW
202	2 kW

Brake

Code	Holding Brake
N	Without
A	With

The "Brake" code displays the specifications of the encoder resolution.

Voltage

Code	Specifications
2	AC200-240 V

Control Number

Code	Brake	Oil Seal	Shaft
11	Without	Without	Straight
12	With	Without	Straight
13	Without	Without	With Key
14	With	Without	With Key
15	Without	With	Straight
16	With	With	Straight
17	Without	With	With Key
18	With	With	With Key

"1∗" of the Code shows Absolute encoder model.

Encoder

Code	Specifications
A	Absolute

Shaft end specifications/Oil Seal

Code	Shaft	Oil Seal
S (P)	Straight	Without
K (H)	With Key	Without
T (R)	Straight	With
L (J)	With Key	With

The straight shaft products are not tapped end.
( ) Shaft diameter = ø 11
ø 11 shaft exclusively for 200 W.
Please ask about this product to our distributor.

Motors with a 17 bit Incremental Encoder

Models	MX	201	A	2	S	N	* *

Series

Code	Specifications
MX	Low Inertia
MY	Middle Inertia
MG	
MM	
MJ	
new MW	High Inertia
MH	

Rated Output

Code	Rated Output
500	50 W
101	100 W
201	200 W
401	400 W
751	750 W
851	850 W
951	1 kW
102	1 kW
132	1.3 kW
152	1.5 kW
202	2 kW

Brake

Code	Holding Brake
N	Without
A	With

The "Brake" code displays the specifications of the encoder resolution.

Voltage

Code	Specifications
2	AC200-240 V

Control Number

Code	Brake	Oil Seal	Shaft
01	Without	Without	Straight
02	With	Without	Straight
03	Without	Without	With Key
04	With	Without	With Key
05	Without	With	Straight
06	With	With	Straight
07	Without	With	With Key
08	With	With	With Key

"0*" of the Code shows Incremental encoder model.

Encoder

Code	Specifications
N	Incremental

Shaft end specifications/Oil Seal

Code	Shaft	Oil Seal
S (P)	Straight	Without
K (H)	With Key	Without
T (R)	Straight	With
L (J)	With Key	With

The straight shaft products are not tapped end.
( ) Shaft diameter = ø 11
ø 11 shaft exclusively for 200 W.
Please ask about this product to our distributor.

Inertia

- Low Inertia
- Middle Inertia
- High Inertia

Flange Size

- 40 mm × 40 mm
- 60 mm × 60 mm
- 80 mm × 80 mm
- 100 mm × 100 mm
- 130 mm × 130 mm

Rotational Speed

Rated- / Maximum-Speed

- 1,500 r/min / 3,000 r/min
- 2,000 r/min / 3,000 r/min
- 3,000 r/min / 5,000 r/min
- 3,000 r/min / 6,000 r/min

Encoder Resolution

- 23 bit/rev
- 17 bit/rev

IP Code

- IP65
- IP67

Figure 1 Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

Motor Rated Outout Power	Motor Model Name Rotor Inertia & Series Low Inertia MX	Middle Inertia MY MG MM	High Inertia MW	Mounting Flange Size	Rotational Speed	Amplifier	Listed Pages Encoder 23bit / 17bit
50 W	–	MY500 MG500	–	40 mm × 40 mm	60 / 30	DB6YZ□□	p. 24– /p. 47–
100 W	–	MY101 MG101	–	40 mm × 40 mm	60 / 30	DB6Z1□□	p. 26– /p. 49–
200 W	MX201	MG201	new MW201	60 mm × 60 mm	60 / 30	DB612□□	P. 28– /P. 51–
400 W	MX401	MG401	new MW401	60 mm × 60 mm	60 / 30	DB624□□	p. 31– /p. 54–
750 W	MX751	–	new MW751	80 mm × 80 mm	60 / 30	DB638□□	p. 34– /p. 57–
1 kW	MX951	–	–	80 mm × 80 mm	60 / 30	DB64A□□	p. 37 /p. 60

These motors are squared plastic connectors. IP65

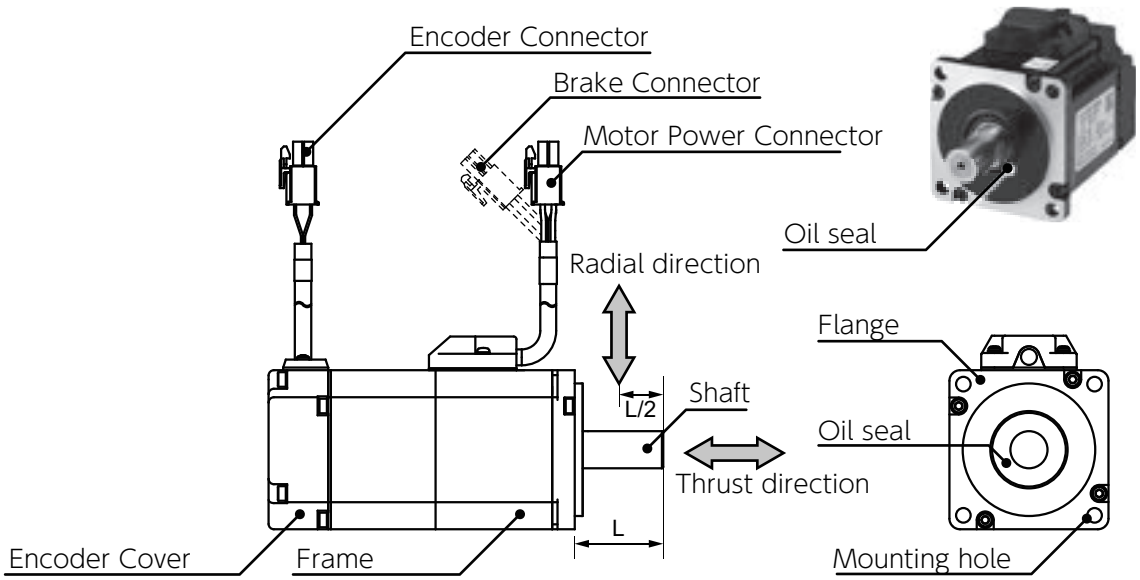
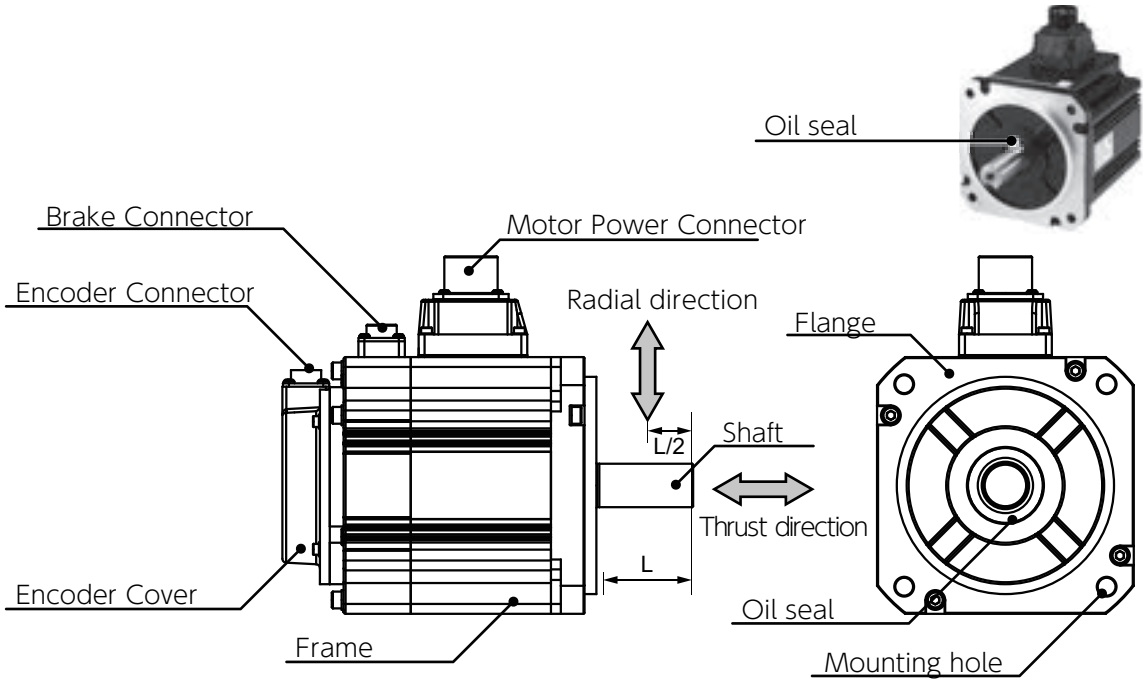


Figure 2 Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

Motor Rated Outout Power	Motor Model Name Rotor Inertia & Series Low Inertia MX	Middle Inertia MJ MM	High Inertia MH	Mounting Flange Size	Rotational Speed	Amplifier	Listed Pages Encoder 23bit / 17bit
850 W	–	**MJ851**	–	130 mm × 130 mm	3000 r/min 1500 r/min	DB6**5B**□□	p. 36 / p. 59
1 kW	**MX102**	–	–	100 mm × 100 mm	5000 r/min 3000 r/min	DB6**4A**□□	p. 38 / p. 61
	–	**MM102**	**MH102**	130 mm × 130 mm	3000 r/min 2000 r/min	DB6**4A**□□	p. 39– / p. 62–
1.3 kW	–	**MJ132**	–	130 mm × 130 mm	3000 r/min 1500 r/min	DB6**7C**□□	p. 41 / p. 64
1.5 kW	**MX152**	–	–	100 mm × 100 mm	5000 r/min 3000 r/min	DB6**6B**□□	p. 42 / p. 65
	–	**MM152**	**MH152**	130 mm × 130 mm	3000 r/min 2000 r/min	DB6**6B**□□	p. 43– / p. 66–
2 kW	**MX202**	–	–	100 mm × 100 mm	5000 r/min 3000 r/min	DB6**8C**□□	p. 45 / p. 68
	–	**MM202**	–	130 mm × 130 mm	3000 r/min 2000 r/min	DB6**8C**□□	p. 46 / p. 69

These motors are round metallic connectors. IP67



Item	Specifications
Ambient temperature for operation	0~40℃
Ambient humidity for operation	20 to 85% RH (no condensation)
Ambient temperature for storage	−20 to 65℃ (no condensation) (not subjected to direct sunlight) 80℃ for 72 hours
Ambient humidity for storage	20 to 85% RH (no condensation)
Atmosphere for operation / storage	Indoors (not subject to direct sunlight), Free from corrosive gases, flammable gases, oil mist, dust, flammables, grinding fluid
Insulation resistance	≧ 5 MΩ at 1,000 VDC
Dielectric strength	AC 1500 V for one minute across the primary and FG
Operating altitude	≦ 1,000 m
Vibration class	V15 (JEC2121)
Vibration resistance	49 m/s^2 (5 G)
Impact resistance	98 m/s^2 (10 G)
Protective structure	IP65: 50 W to 750 W, 1kW (Only MX951) IP67: 1 kW(Except for MX951) to 2 kW
Electric shock protection	Class I (Mandatory grounding)
Installation environment	Pollution degree 2

The brake has polarity.

Lead wire color: Connection
Yellow (BRK+): +24 V
Blue (BRK－): GND

Incorrect wiring may result in motor failure or suboptimal performance of the motor.

Motor Model : MY500P2 □□** (Without brake)
MY500B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.4
	With brake		0.6
Compatible amplifier model		–	DB6YZ□□
Voltage		V	AC200-240 V
Rated output		W	50
Rated torque		N·m	0.16
Instantaneous maximum torque		N·m	0.56
Rated current (stall current)		A	0.68
Instantaneous maximum current		A	2.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.25
Induced voltage constant per phase		mV/(r/min)	8.8
Rated power rate	Without brake	kW/s	7.1
	With brake		5.8
Mechanical time constant	Without brake	ms	1.76
	With brake		2.15
Electrical time constant		ms	0.74
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.036
	With brake		0.043

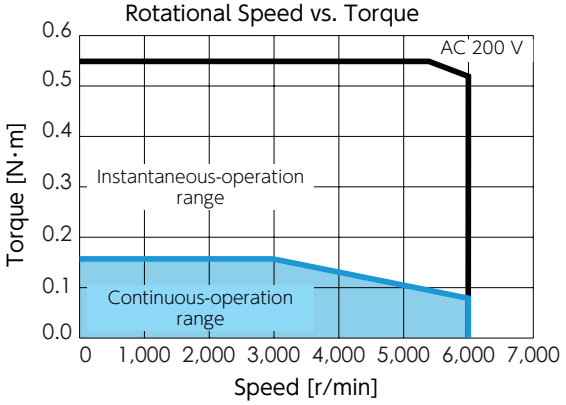
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.28
Static friction torque	N·m	≧0.16
Suction time	ms	≦35
Release time	ms	≦20
Release voltage	V	≧ DC1 V

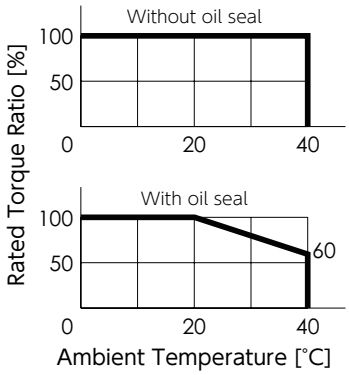
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

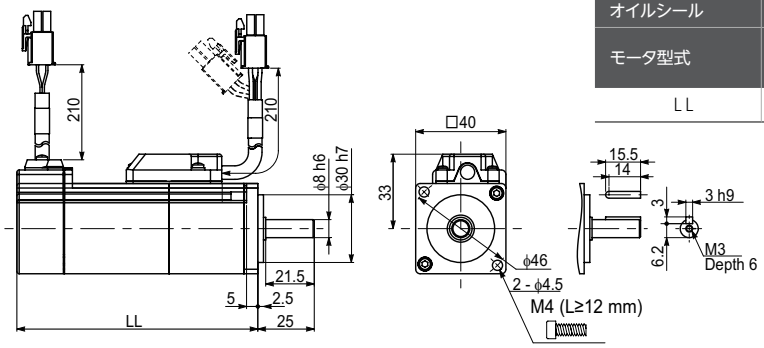


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MY500P2S MY500P2K	MY500P2T MY500P2L	MY500B2S MY500B2K	MY500B2T MY500B2L
LL	66.4	72.0	106.8	112.4



Motor Model : MG500P2□□** (Without brake) / MG500B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.4
	With brake		0.6
Compatible amplifier model		–	DB6YZ□□
Voltage		V	AC200-240 V
Rated output		W	50
Rated torque		N·m	0.16
Instantaneous maximum torque		N·m	0.56
Rated current (stall current)		A	0.71
Instantaneous maximum current		A	2.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.25
Induced voltage constant per phase		mV/(r/min)	8.7
Rated power rate	Without brake	kW/s	6.4
	With brake		5.3
Mechanical time constant	Without brake	ms	2.14
	With brake		2.58
Electrical time constant		ms	0.65
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.040
	With brake		0.048

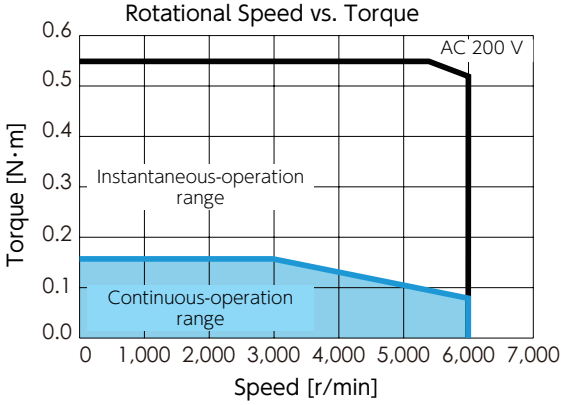
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.26
Static friction torque	N·m	≧ 0.16
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

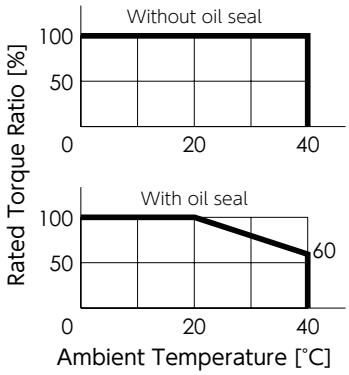
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

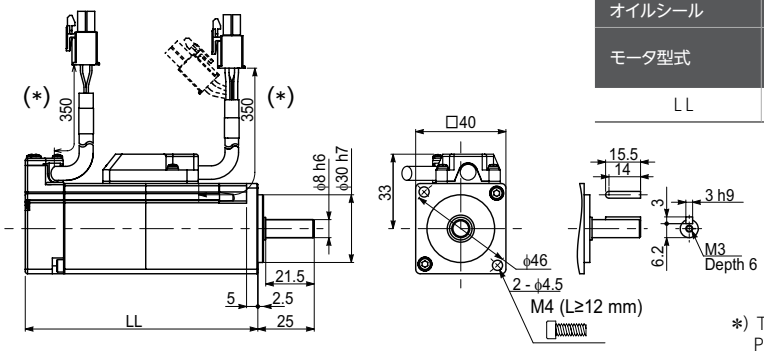


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MG500P2S MG500P2K	MG500P2T MG500P2L	MG500B2S MG500B2K	MG500B2T MG500B2L
LL	57.1	64.7	89.5	97.1



*) The cable included in the MG500 series is 350 mm. Please contact us if you need a 210 mm cable.

Motor Model : MY101P2 □□** (Without brake)
MY101B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.5
	With brake		0.8
Compatible amplifier model		–	DB6Z1□□
Voltage		V	AC200-240 V
Rated output		W	100
Rated torque		N·m	0.32
Instantaneous maximum torque		N·m	1.12
Rated current (stall current)		A	0.97
Instantaneous maximum current		A	3.3
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.35
Induced voltage constant per phase		mV/(r/min)	12.3
Rated power rate	Without brake	kW/s	17.4
	With brake		15.4
Mechanical time constant	Without brake	ms	1.10
	With brake		1.25
Electrical time constant		ms	0.89
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.058
	With brake		0.066

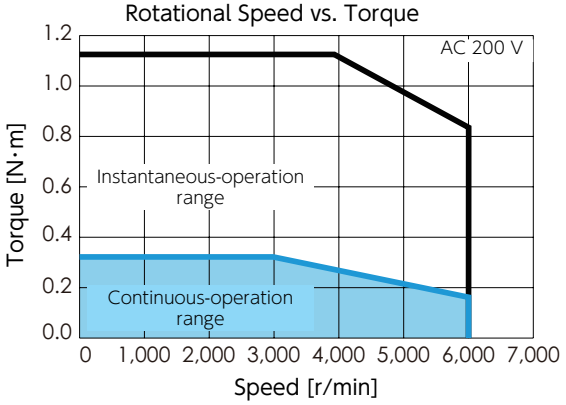
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.28
Static friction torque	N·m	≧ 0.32
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

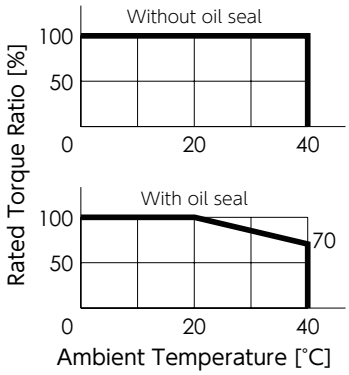
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

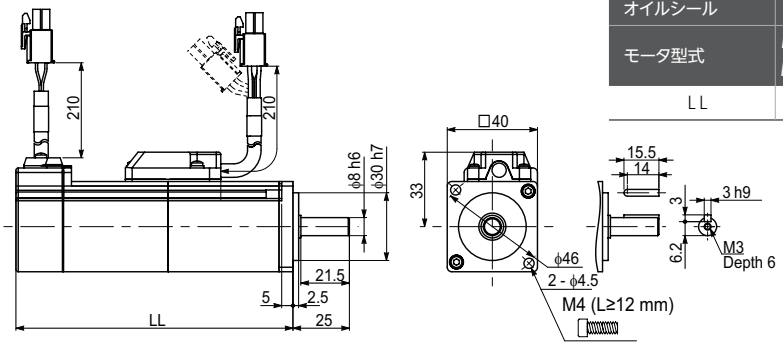


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MY101P2S MY101P2K	MY101P2T MY101P2L	MY101B2S MY101B2K	MY101B2T MY101B2L
LL	82.4	88.0	122.8	128.4



Motor Model : MG101P2□□** (Without brake) MG101B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.5
	With brake		0.7
Compatible amplifier model		–	DB6Z1□□
Voltage		V	AC200-240 V
Rated output		W	100
Rated torque		N·m	0.32
Instantaneous maximum torque		N·m	1.12
Rated current (stall current)		A	0.99
Instantaneous maximum current		A	3.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.36
Induced voltage constant per phase		mV/(r/min)	12.7
Rated power rate	Without brake	kW/s	15.5
	With brake		13.8
Mechanical time constant	Without brake	ms	1.28
	With brake		1.43
Electrical time constant		ms	0.78
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.065
	With brake		0.073

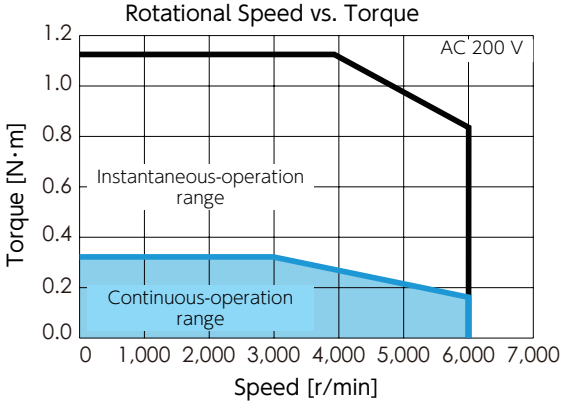
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.26
Static friction torque	N·m	≧ 0.32
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

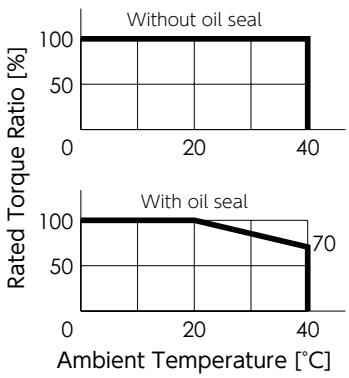
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

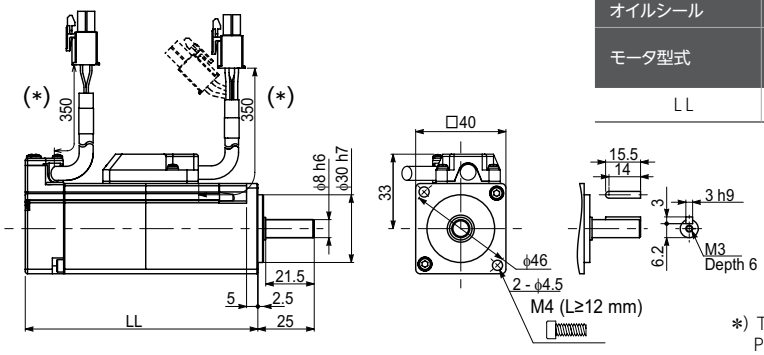


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MG101P2S MG101P2K	MG101P2T MG101P2L	MG101B2S MG101B2K	MG101B2T MG101B2L
LL	70.7	78.3	103.1	110.7



*) The cable included in the MG101 series is 350 mm. Please contact us if you need a 210 mm cable.

Motor Model : MX201P2 □□** (Without brake)
MX201B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	0.8
	With brake		1.3
Compatible amplifier model		–	DB612□□
Voltage		V	AC200–240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.7
Instantaneous maximum current		A	5.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.41
Induced voltage constant per phase		mV/(r/min)	14.3
Rated power rate	Without brake	kW/s	29.9
	With brake		24.7
Mechanical time constant	Without brake	ms	0.68
	With brake		0.83
Electrical time constant		ms	2.53
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.14
	With brake		0.16

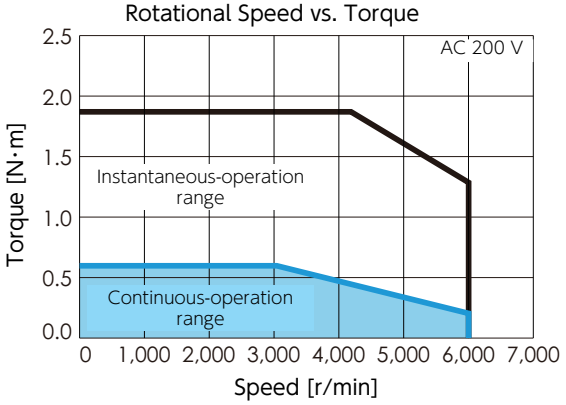
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

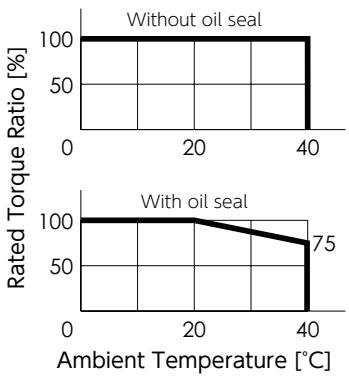
Permissible Load

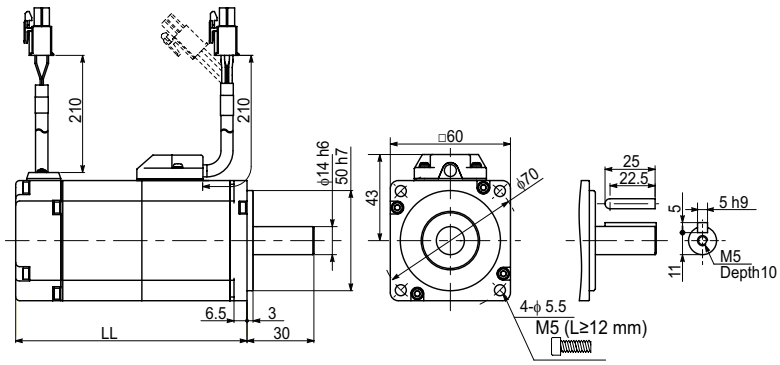
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX201P	MX201B
LL	76.5	113.0

Motor Model : MG201P2 □□** (Without brake)
MG201B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	0.9
	With brake		1.3
Compatible amplifier model		–	DB612□□
Voltage		V	AC200–240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.7
Instantaneous maximum current		A	5.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.41
Induced voltage constant per phase		mV/(r/min)	14.3
Rated power rate	Without brake	kW/s	15.9
	With brake		14.5
Mechanical time constant	Without brake	ms	1.28
	With brake		1.41
Electrical time constant		ms	2.53
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.26
	With brake		0.28

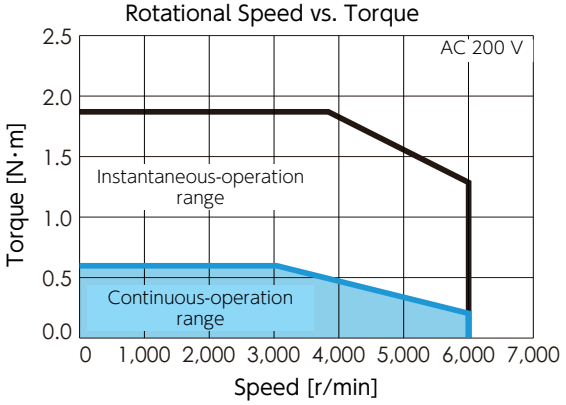
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

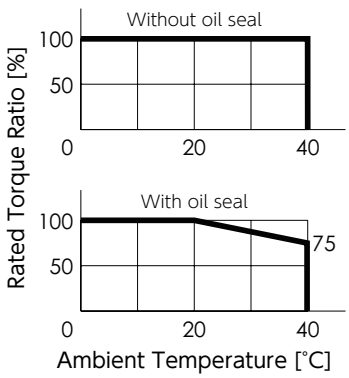
Permissible Load

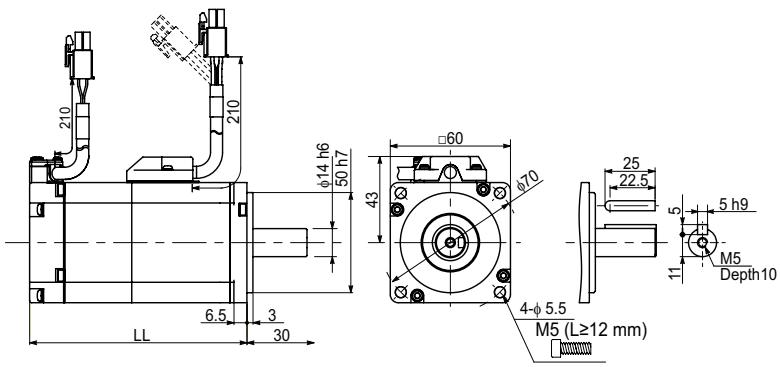
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MG201P	MG201B
LL	78.0	108.5

Motor Model : MW201P2 □□** (Without brake)
MW201B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.0
	With brake		1.5
Compatible amplifier model		–	DB612□□
Voltage		V	AC200-240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.7
Instantaneous maximum current		A	5.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.41
Induced voltage constant per phase		mV/(r/min)	14.3
Rated power rate	Without brake	kW/s	9.3
	With brake		8.7
Mechanical time constant	Without brake	ms	2.19
	With brake		2.34
Electrical time constant		ms	2.53
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.44
	With brake		0.46

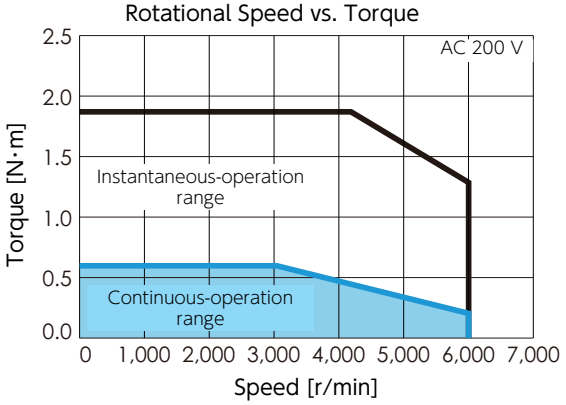
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

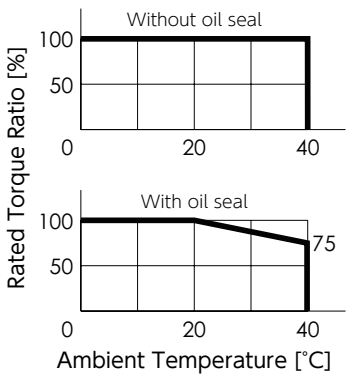
Permissible Load

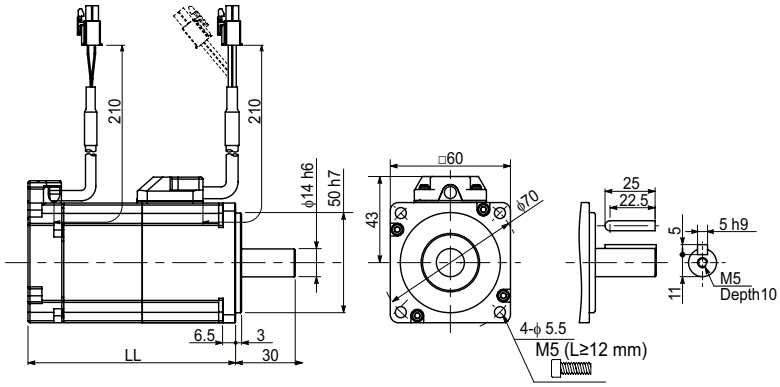
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MW201P	MW201B
LL	67.9	104.4

Motor Model : MX401P2 □□** (Without brake)
MX401B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.1
	With brake		1.6
Compatible amplifier model		–	DB624□□
Voltage		V	AC200–240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.49
Induced voltage constant per phase		mV/(r/min)	17.1
Rated power rate	Without brake	kW/s	71.8
	With brake		63.8
Mechanical time constant	Without brake	ms	0.45
	With brake		0.51
Electrical time constant		ms	2.92
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.23
	With brake		0.25

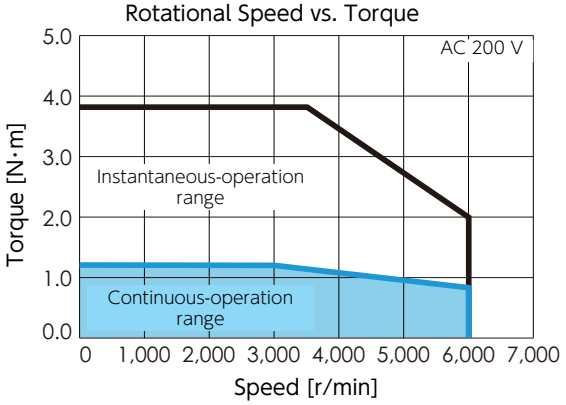
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

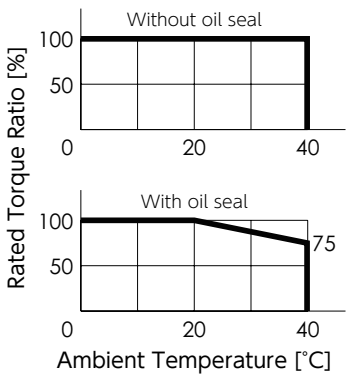
Permissible Load

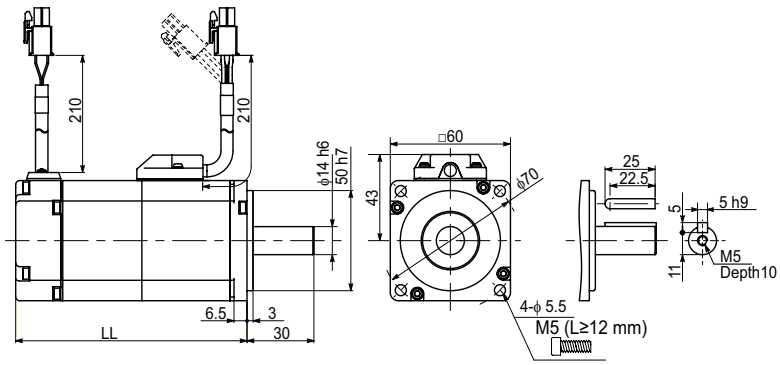
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX401P	MX401B
LL	93.5	130.0

Motor Model : MG401P2□□** (Without brake) MG401B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.2
	With brake		1.6
Compatible amplifier model		–	DB624□□
Voltage		V	AC200–240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.49
Induced voltage constant per phase		mV/(r/min)	17.1
Rated power rate	Without brake	kW/s	33.7
	With brake		32.1
Mechanical time constant	Without brake	ms	0.96
	With brake		1.01
Electrical time constant		ms	2.92
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.48
	With brake		0.51

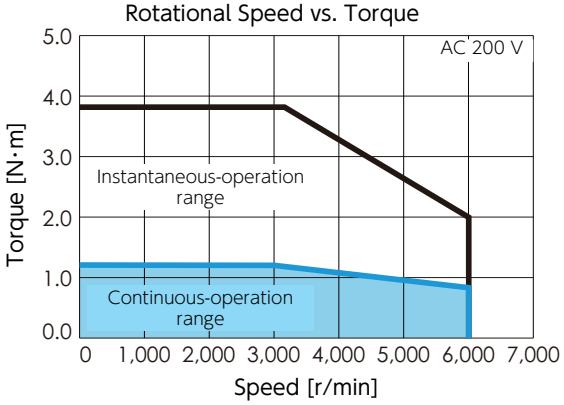
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

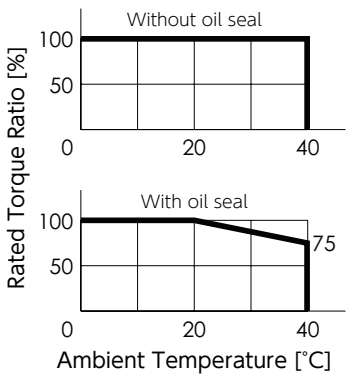
Permissible Load

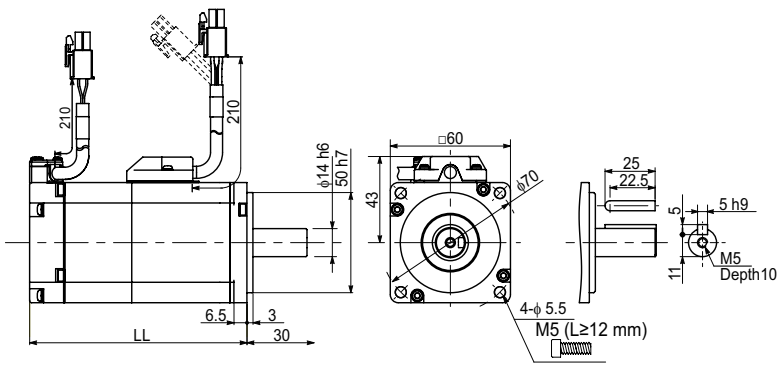
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MG401P	MG401B
LL	98.0	128.5

Motor Model : MW401P2 □□** (Without brake)
MW401B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.3
	With brake		1.8
Compatible amplifier model		–	DB624□□
Voltage		V	AC200–240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.49
Induced voltage constant per phase		mV/(r/min)	17.1
Rated power rate	Without brake	kW/s	23.2
	With brake		22.3
Mechanical time constant	Without brake	ms	1.40
	With brake		1.46
Electrical time constant		ms	2.92
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.70
	With brake		0.73

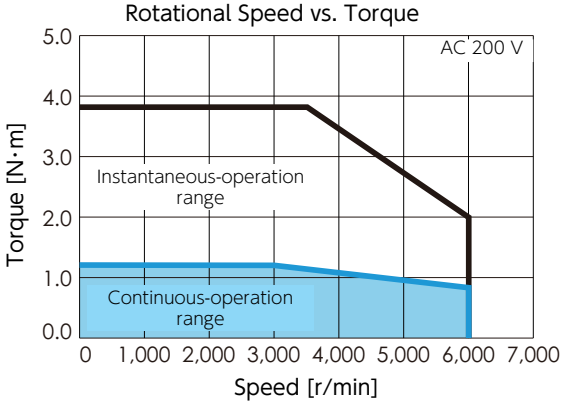
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

Permissible Load

Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



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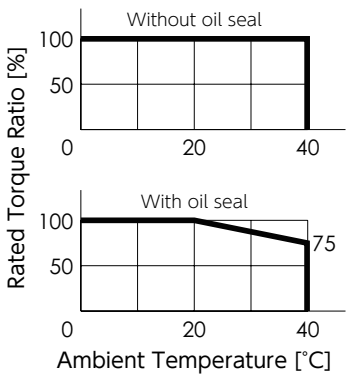
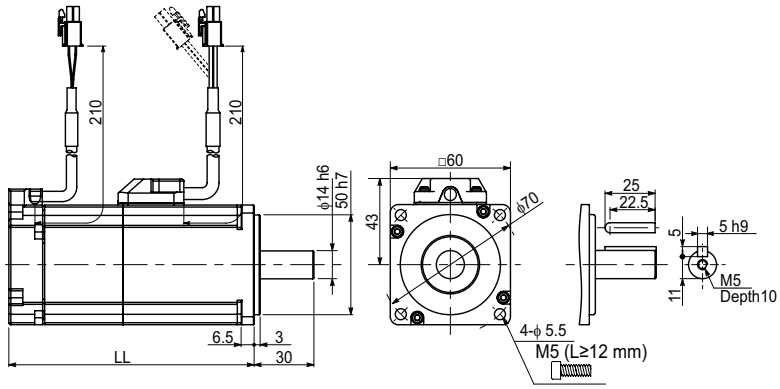




(mm)

Brake	Without	With
Motor Model	MW401P	MW401B
LL	86.9	123.4

Motor Model : MX751P2 □□** (Without brake)
MX751B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.2
	With brake		3.0
Compatible amplifier model		–	DB638□□
Voltage		V	AC200–240 V
Rated output		W	750
Rated torque		N·m	2.39
Instantaneous maximum torque		N·m	7.1
Rated current (stall current)		A	4.2
Instantaneous maximum current		A	12.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.63
Induced voltage constant per phase		mV/(r/min)	21.9
Rated power rate	Without brake	kW/s	77.5
	With brake		61.3
Mechanical time constant	Without brake	ms	0.39
	With brake		0.50
Electrical time constant		ms	4.63
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.74
	With brake		0.93

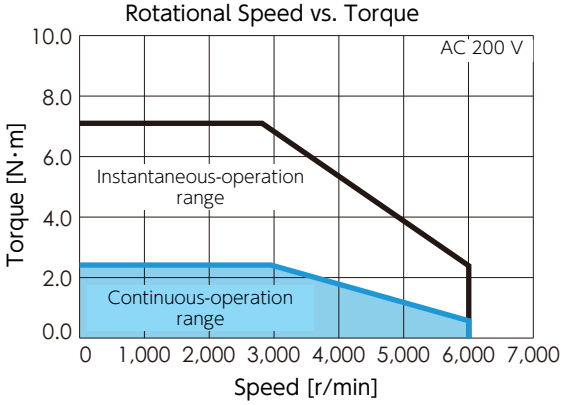
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.4
Static friction torque	N·m	≧ 2.39
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

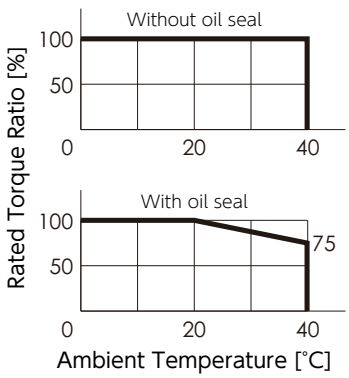
Permissible Load

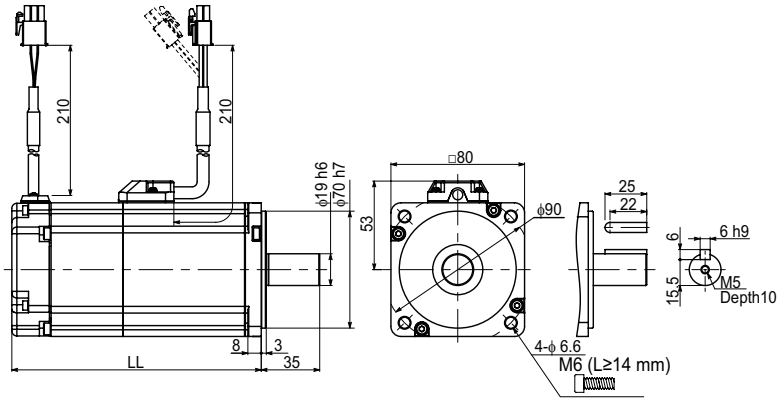
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX751P	MX751B
LL	107.3	144.3

Motor Model : MW751P2 □□** (Without brake)
MW751B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.5
	With brake		3.3
Compatible amplifier model		–	DB638□□
Voltage		V	AC200–240 V
Rated output		W	750
Rated torque		N·m	2.39
Instantaneous maximum torque		N·m	7.1
Rated current (stall current)		A	4.2
Instantaneous maximum current		A	12.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.63
Induced voltage constant per phase		mV/(r/min)	21.9
Rated power rate	Without brake	kW/s	35.5
	With brake		31.7
Mechanical time constant	Without brake	ms	0.85
	With brake		0.96
Electrical time constant		ms	4.60
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.60
	With brake		1.80

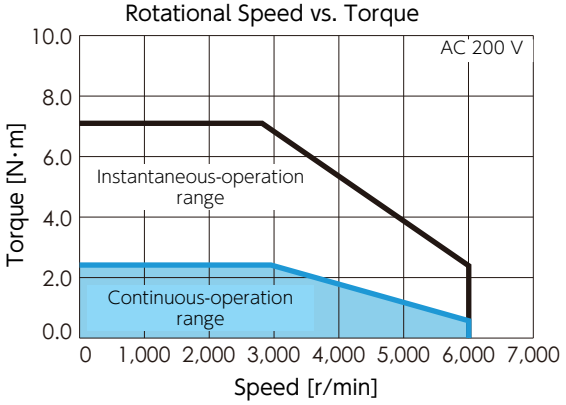
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.4
Static friction torque	N·m	≧ 2.39
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

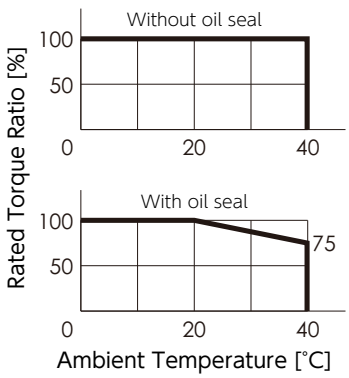
Permissible Load

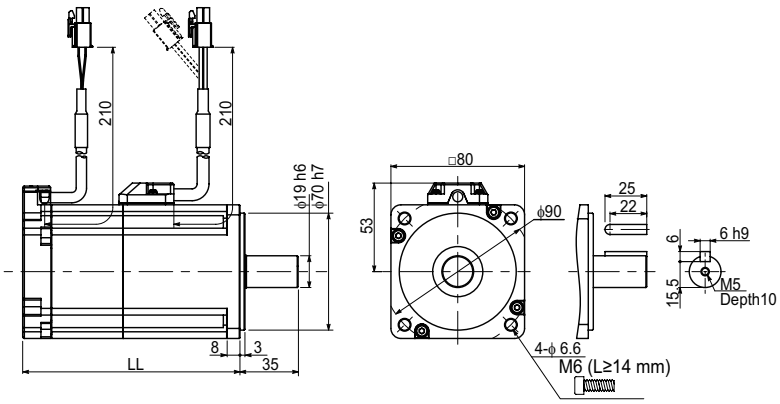
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MW751P	MW751B
LL	93.8	130.8

Motor Model : MJ851P2 □□** (Without brake)
MJ851B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	6.2
	With brake		7.9
Compatible amplifier model		–	DB65B□□
Voltage		V	AC200-240 V
Rated output		W	850
Rated torque		N·m	5.39
Instantaneous maximum torque		N·m	14.2
Rated current (stall current)		A	6.9
Instantaneous maximum current		A	17.0
Rated revolving speed		r/min	1,500
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.83
Induced voltage constant per phase		mV/(r/min)	28.9
Rated power rate	Without brake	kW/s	21.1
	With brake		18.3
Mechanical time constant	Without brake	ms	2.70
	With brake		3.12
Electrical time constant		ms	8.45
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	13.9
	With brake		16.0

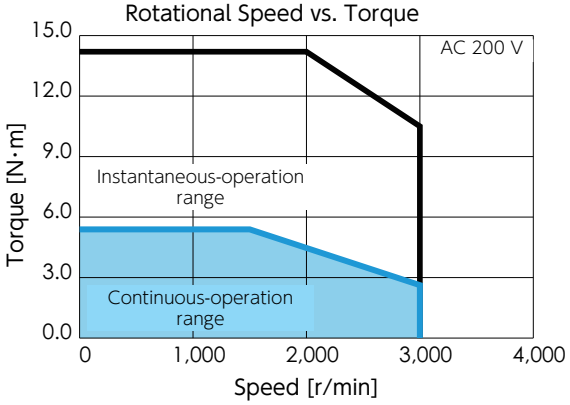
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.41
Static friction torque	N·m	≧ 12.7
Suction time	ms	≦ 100
Release time	ms	≦ 60
Release voltage	V	≧ DC1 V

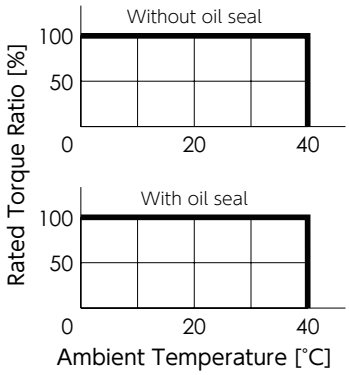
Permissible Load

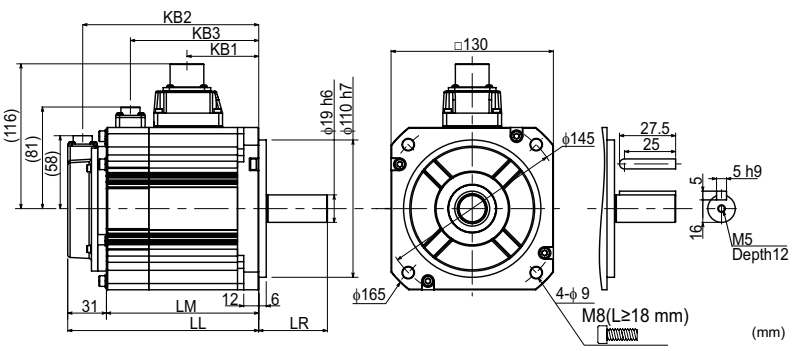
Item	Unit	Specifications
Radial	N	490
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MJ851P	MJ851B
LL	128.0	162.0
LM	97.0	131.0
LR	58.0	
KB1	70.0	
KB2	116.0	150.0
KB3	–	109.0

Motor Model : MX951P2 □□** (Without brake)
MX951B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.8
	With brake		3.6
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200–240 V
Rated output		W	1,000
Rated torque		N·m	3.18
Instantaneous maximum torque		N·m	9.55
Rated current (stall current)		A	5.2
Instantaneous maximum current		A	15.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.66
Induced voltage constant per phase		mV/(r/min)	22.9
Rated power rate	Without brake	kW/s	91.4
	With brake		79.0
Mechanical time constant	Without brake	ms	0.34
	With brake		0.39
Electrical time constant		ms	4.00
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.11
	With brake		1.28

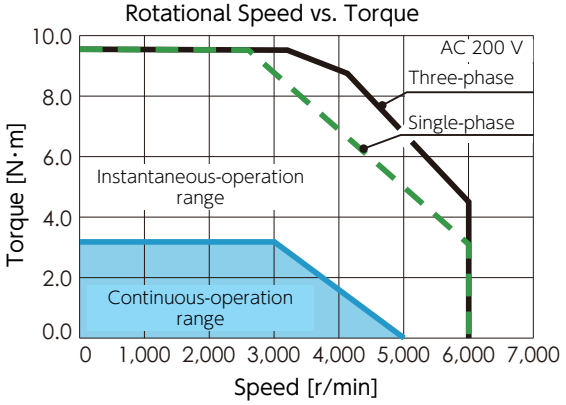
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.47
Static friction torque	N·m	≧ 3.18
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

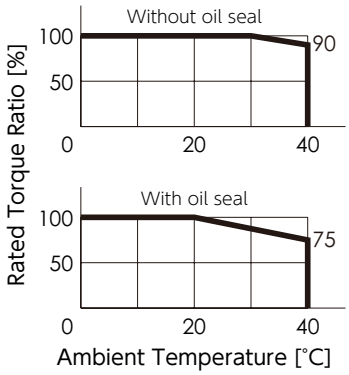
Permissible Load

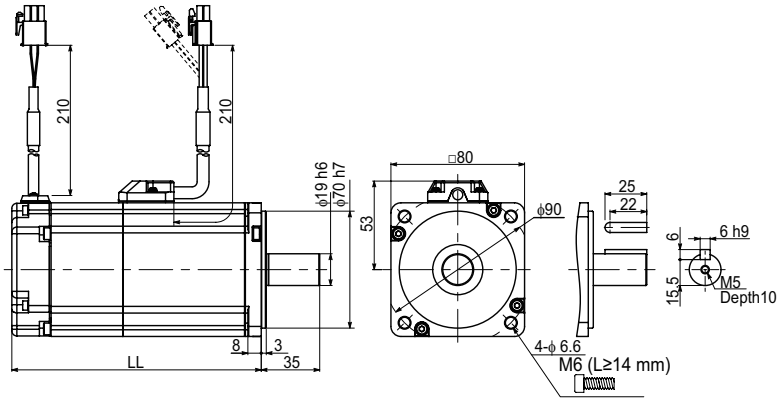
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX951P	MX951B
LL	127.3	164.3

Motor Model : MX102P2 □□** (Without brake)
MX102B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	3.9
	With brake		5.2
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200-240 V
Rated output		W	1,000
Rated torque		N·m	3.18
Instantaneous maximum torque		N·m	9.55
Rated current (stall current)		A	6.1
Instantaneous maximum current		A	19.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.52
Induced voltage constant per phase		mV/(r/min)	18.2
Rated power rate	Without brake	kW/s	52.3
	With brake		43.2
Mechanical time constant	Without brake	ms	0.59
	With brake		0.72
Electrical time constant		ms	5.19
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.94
	With brake		2.35

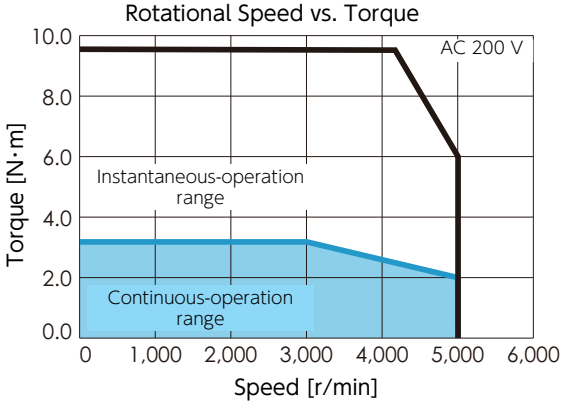
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

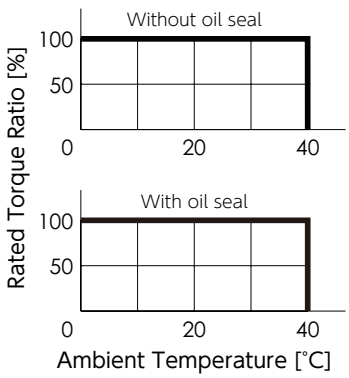
Permissible Load

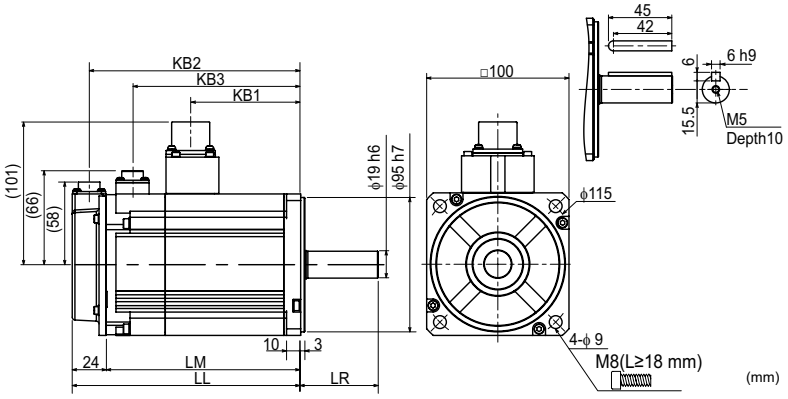
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX102P	MX102B
LL	132.0	162.0
LM	108.0	138.0
LR	55.0	
KB1	78.0	
KB2	120.0	1500
KB3	–	119.3

Motor Model : MM102P2□□** (Without brake)
MM102B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	5.6
	With brake		7.0
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200-240 V
Rated output		W	1,000
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	5.6
Instantaneous maximum current		A	16.8
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.88
Induced voltage constant per phase		mV/(r/min)	30.9
Rated power rate	Without brake	kW/s	50.2
	With brake		36.6
Mechanical time constant	Without brake	ms	0.77
	With brake		1.05
Electrical time constant		ms	10.8
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	4.54
	With brake		6.23

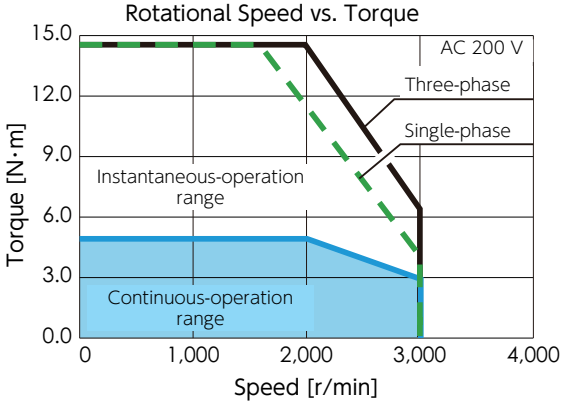
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

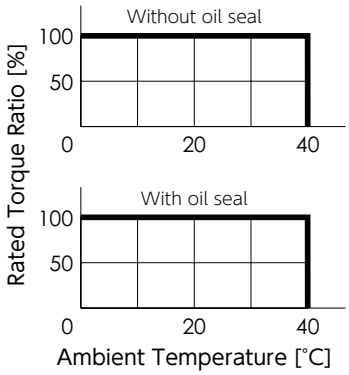
Permissible Load

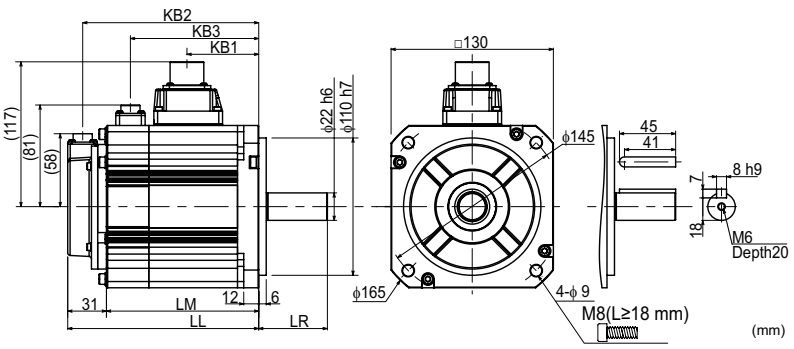
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM102P	MM102B
LL	128.0	153.0
LM	97.0	122.0
LR	55.0	
KB1	57.5	
KB2	116.0	141.0
KB3	–	102.8

Motor Model : MH102P2□□** (Without brake)
MH102B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.6
	With brake		9.0
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200-240 V
Rated output		W	1,000
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	5.6
Instantaneous maximum current		A	16.8
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.88
Induced voltage constant per phase		mV/(r/min)	30.9
Rated power rate	Without brake	kW/s	9.2
	With brake		8.6
Mechanical time constant	Without brake	ms	4.20
	With brake		4.45
Electrical time constant		ms	10.8
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	24.9
	With brake		26.4

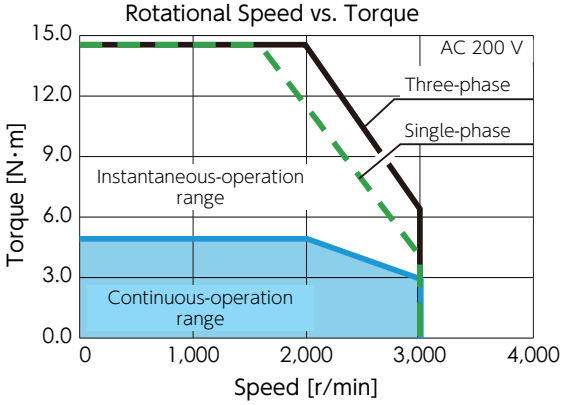
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

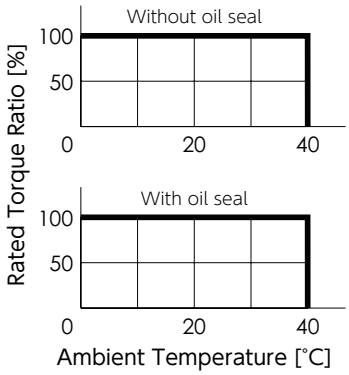
Permissible Load

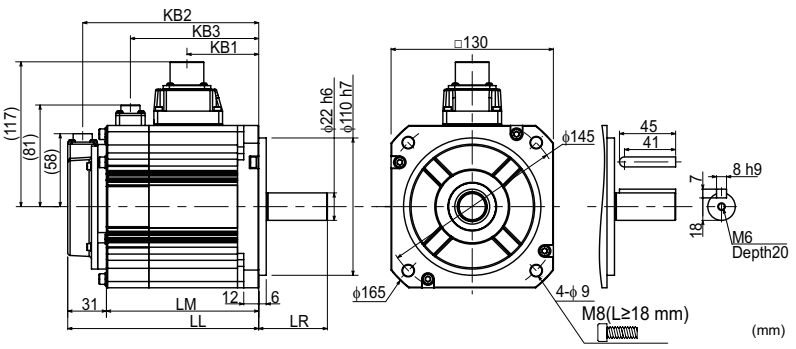
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MH102P	MH102B
LL	163.0	188.0
LM	132.0	157.0
LR	70.0	
KB1	92.5	
KB2	151.0	176.0
KB3	–	137.8

Motor Model : MJ132P2 □□** (Without brake)
MJ132B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.7
	With brake		9.8
Compatible amplifier model		–	DB67C□□
Voltage		V	AC200-240 V
Rated output		W	1,300
Rated torque		N·m	8.34
Instantaneous maximum torque		N·m	23.3
Rated current (stall current)		A	10.7
Instantaneous maximum current		A	28.0
Rated revolving speed		r/min	1,500
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.85
Induced voltage constant per phase		mV/(r/min)	29.8
Rated power rate	Without brake	kW/s	34.7
	With brake		31.3
Mechanical time constant	Without brake	ms	2.12
	With brake		2.34
Electrical time constant		ms	8.42
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	19.8
	With brake		21.9

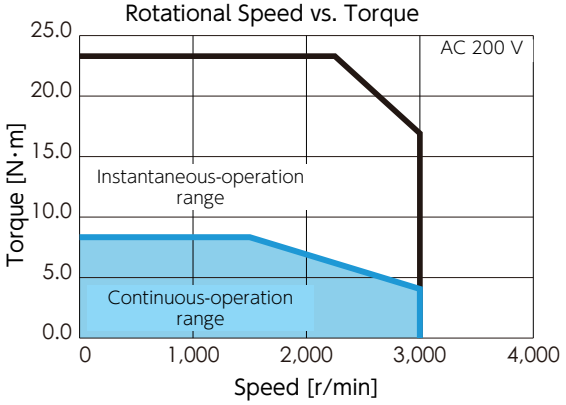
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.41
Static friction torque	N·m	≧ 19.6
Suction time	ms	≦ 100
Release time	ms	≦ 60
Release voltage	V	≧ DC1 V

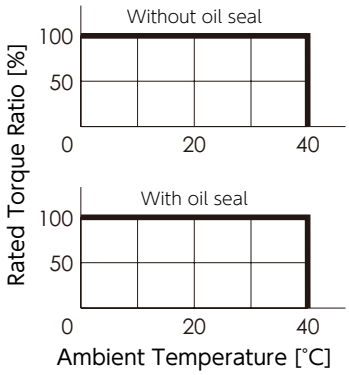
Permissible Load

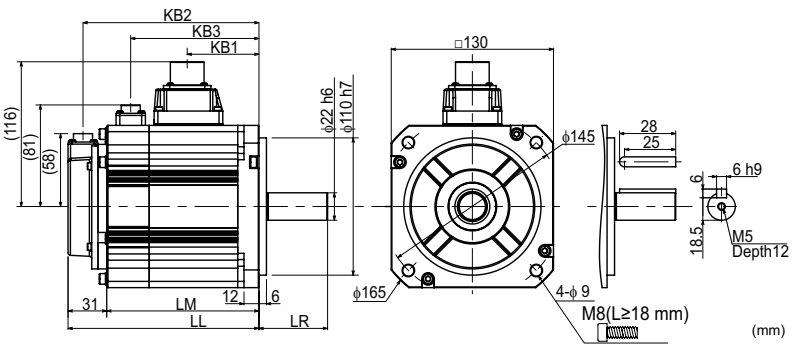
Item	Unit	Specifications
Radial	N	686
Thrust	N	343

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MJ132P	MJ132B
LL	145.5	179.5
LM	114.5	148.5
LR	58.0	
KB1	87.5	
KB2	133.5	167.5
KB3	–	126.0

Motor Model : MX152P2 □□** (Without brake)
MX152B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	4.9
	With brake		6.2
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	8.0
Instantaneous maximum current		A	24.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.64
Induced voltage constant per phase		mV/(r/min)	22.3
Rated power rate	Without brake	kW/s	81.4
	With brake		70.2
Mechanical time constant	Without brake	ms	0.50
	With brake		0.57
Electrical time constant		ms	5.95
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	2.80
	With brake		3.25

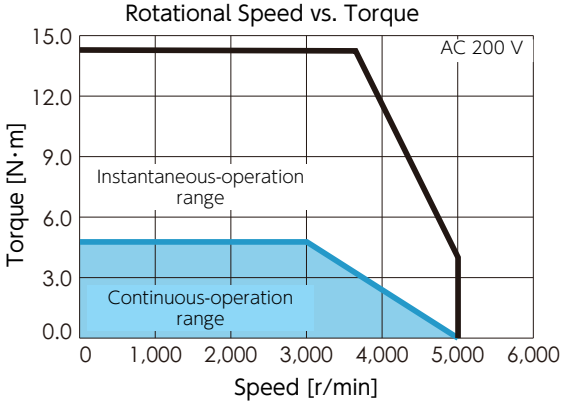
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

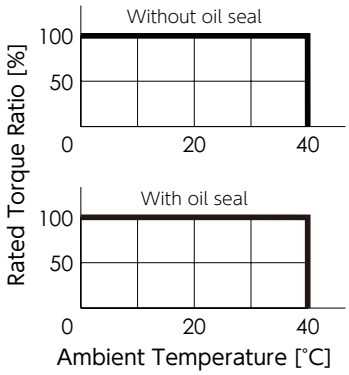
Permissible Load

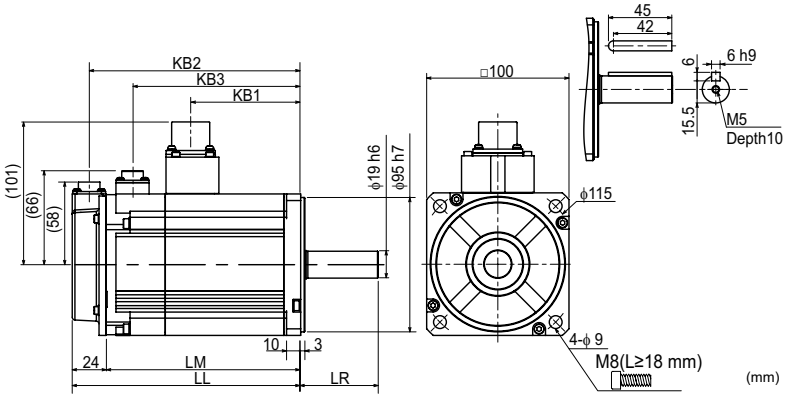
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX152P	MX152B
LL	151.0	181.0
LM	127.0	157.0
LR	55.0	
KB1	97.0	
KB2	139.0	169.0
KB3	-	138.3

Motor Model : MM152P2 □□** (Without brake)
MM152B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.0
	With brake		8.4
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	7.16
Instantaneous maximum torque		N·m	21.5
Rated current (stall current)		A	9.0
Instantaneous maximum current		A	27.0
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.81
Induced voltage constant per phase		mV/(r/min)	28.4
Rated power rate	Without brake	kW/s	77.1
	With brake		61.5
Mechanical time constant	Without brake	ms	0.60
	With brake		0.76
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	6.65
	With brake		8.34

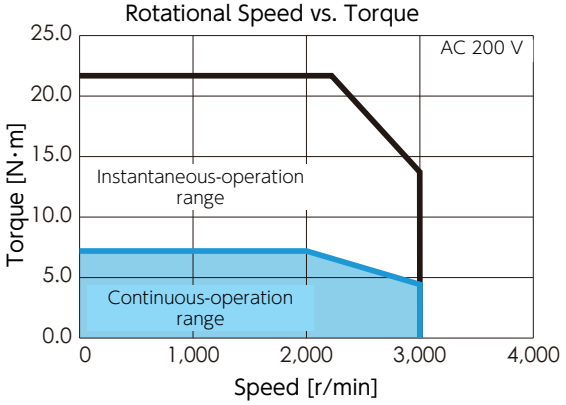
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

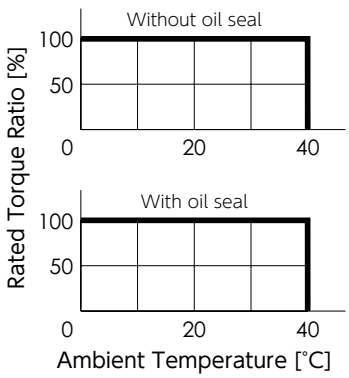
Permissible Load

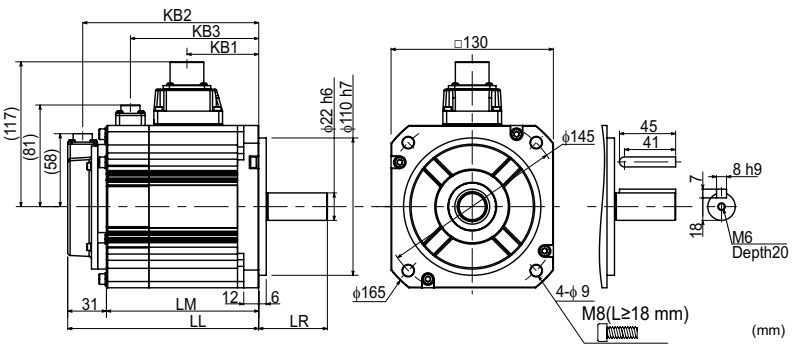
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM152P	MM152B
LL	145.5	170.5
LM	114.5	139.5
LR	55.0	
KB1	75.0	
KB2	133.5	158.5
KB3	–	120.3

Motor Model : MH152P2□□** (Without brake)
MH152B2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	9.0
	With brake		10.4
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	7.16
Instantaneous maximum torque		N·m	21.5
Rated current (stall current)		A	9.0
Instantaneous maximum current		A	27.0
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.81
Induced voltage constant per phase		mV/(r/min)	28.4
Rated power rate	Without brake	kW/s	13.8
	With brake		13.3
Mechanical time constant	Without brake	ms	3.36
	With brake		3.50
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	37.1
	With brake		38.6

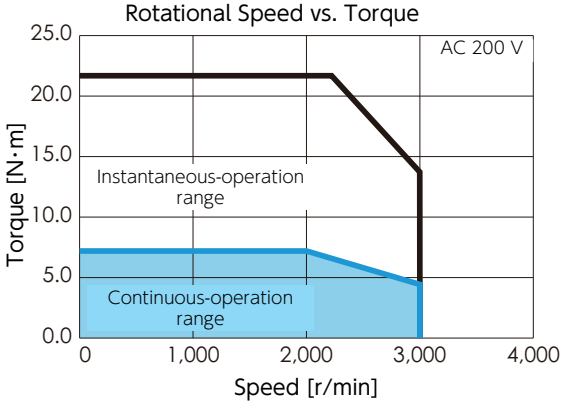
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

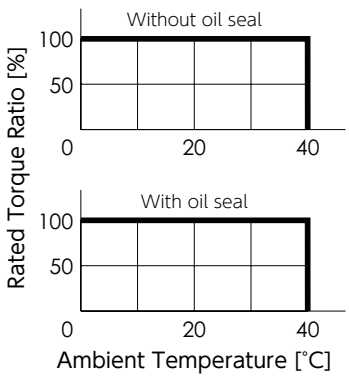
Permissible Load

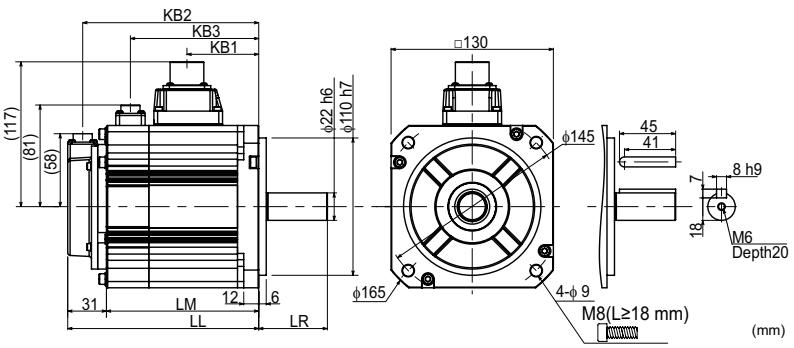
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MH152P	MH152B
LL	180.5	205.5
LM	149.5	174.5
LR	70.0	
KB1	110.0	
KB2	168.5	193.5
KB3	–	155.3

Motor Model : MX202P2 □□** (Without brake)
MX202B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	6.0
	With brake		7.3
Compatible amplifier model		–	DB68C□□
Voltage		V	AC200-240 V
Rated output		W	2,000
Rated torque		N·m	6.37
Instantaneous maximum torque		N·m	19.1
Rated current (stall current)		A	10.6
Instantaneous maximum current		A	33.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.62
Induced voltage constant per phase		mV/(r/min)	21.7
Rated power rate	Without brake	kW/s	110.3
	With brake		99.2
Mechanical time constant	Without brake	ms	0.50
	With brake		0.56
Electrical time constant		ms	5.44
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	3.68
	With brake		4.09

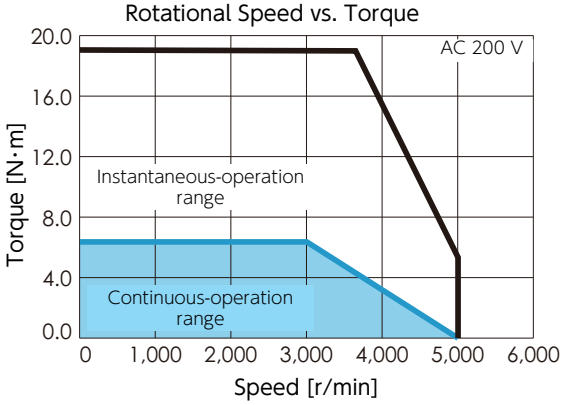
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

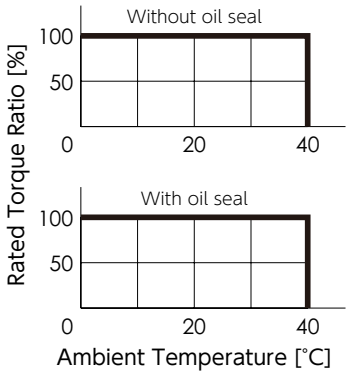
Permissible Load

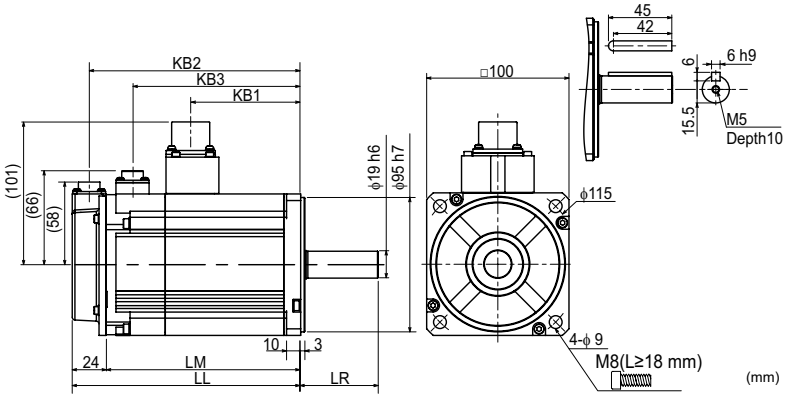
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX202P	MX202B
LL	170.0	200.0
LM	146.0	176.0
LR	55.0	
KB1	116.0	
KB2	158.0	188.0
KB3	-	157.3

Motor Model : MM202P2 □□** (Without brake)
MM202B2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	8.4
	With brake		9.8
Compatible amplifier model		–	DB68C□□
Voltage		V	AC200-240 V
Rated output		W	2,000
Rated torque		N·m	9.55
Instantaneous maximum torque		N·m	28.6
Rated current (stall current)		A	11.9
Instantaneous maximum current		A	35.7
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.85
Induced voltage constant per phase		mV/(r/min)	29.6
Rated power rate	Without brake	kW/s	105.0
	With brake		88.0
Mechanical time constant	Without brake	ms	0.58
	With brake		0.69
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	8.68
	With brake		10.4

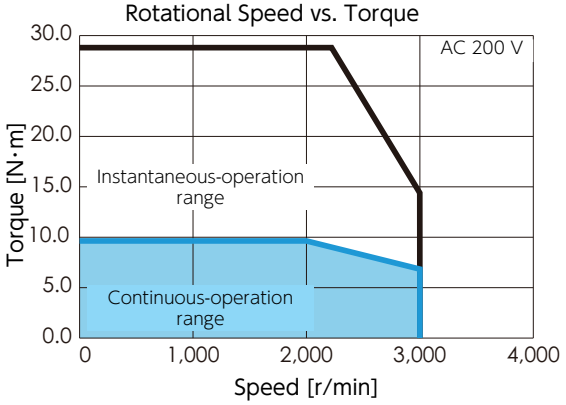
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

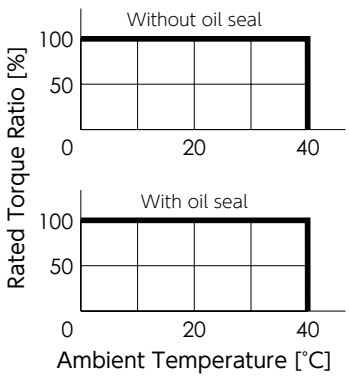
Permissible Load

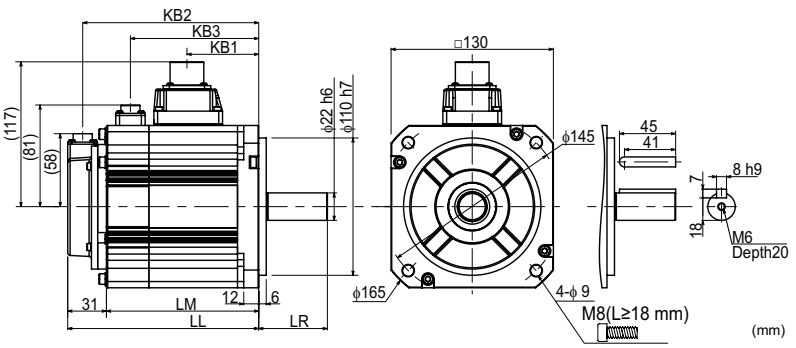
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM202P	MM202B
LL	163.0	188.0
LM	132.0	157.0
LR	55.0	
KB1	92.5	
KB2	151.0	176.0
KB3	–	137.8

Motor Model : MY500N2□□** (Without brake)
MY500A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.4
	With brake		0.6
Compatible amplifier model		–	DB6YZ□□
Voltage		V	AC200-240 V
Rated output		W	50
Rated torque		N·m	0.16
Instantaneous maximum torque		N·m	0.56
Rated current (stall current)		A	0.68
Instantaneous maximum current		A	2.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.25
Induced voltage constant per phase		mV/(r/min)	8.8
Rated power rate	Without brake	kW/s	6.5
	With brake		5.4
Mechanical time constant	Without brake	ms	1.92
	With brake		2.31
Electrical time constant		ms	0.74
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.039
	With brake		0.047

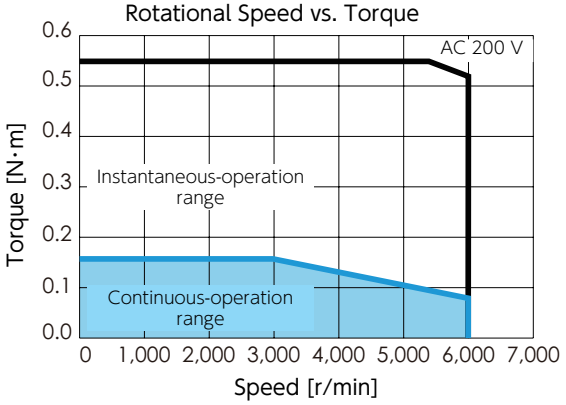
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.28
Static friction torque	N·m	≧ 0.16
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

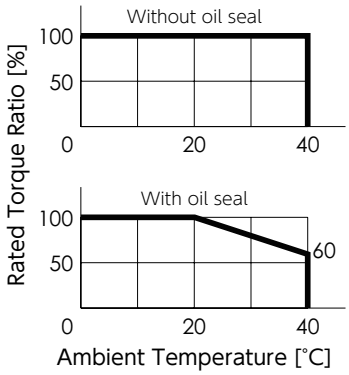
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

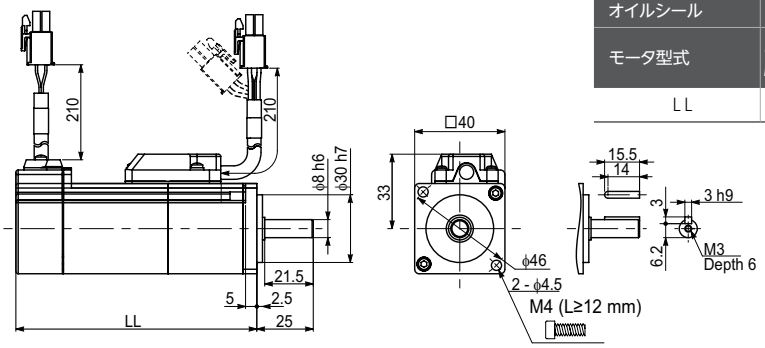


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MY500N2S MY500N2K	MY500N2T MY500N2L	MY500A2S MY500A2K	MY500A2T MY500A2L
LL	66.4	72.0	106.8	112.4



Motor Model : MG500N2 □□** (Without brake)
MG500A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.4
	With brake		0.6
Compatible amplifier model		–	DB6YZ□□
Voltage		V	AC200–240 V
Rated output		W	50
Rated torque		N·m	0.16
Instantaneous maximum torque		N·m	0.56
Rated current (stall current)		A	0.71
Instantaneous maximum current		A	2.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.25
Induced voltage constant per phase		mV/(r/min)	8.7
Rated power rate	Without brake	kW/s	6.6
	With brake		5.4
Mechanical time constant	Without brake	ms	2.08
	With brake		2.51
Electrical time constant		ms	0.65
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.039
	With brake		0.047

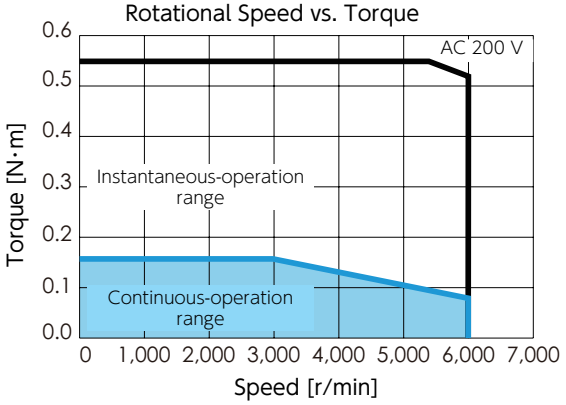
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.26
Static friction torque	N·m	≧ 0.16
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

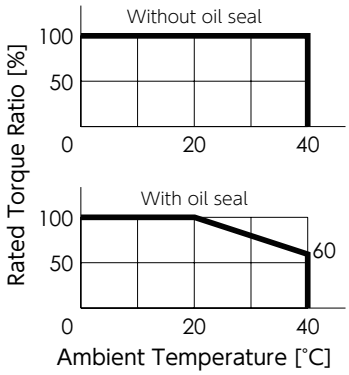
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

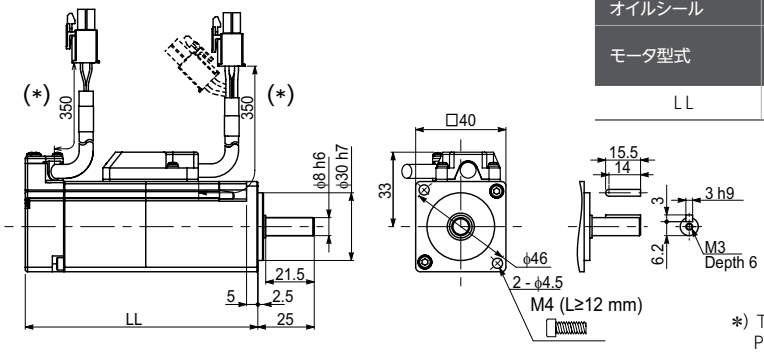


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MG500N2S MG500N2K	MG500N2T MG500N2L	MG500A2S MG500A2K	MG500A2T MG500A2L
LL	57.1	64.7	89.5	97.1



*) The cable included in the MG500 series is 350 mm.
Please contact us if you need a 210 mm cable.

Motor Model : MY101N2□□** (Without brake)
MY101A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.5
	With brake		0.8
Compatible amplifier model		–	DB6Z1□□
Voltage		V	AC200-240 V
Rated output		W	100
Rated torque		N·m	0.32
Instantaneous maximum torque		N·m	1.12
Rated current (stall current)		A	0.97
Instantaneous maximum current		A	3.3
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.35
Induced voltage constant per phase		mV/(r/min)	12.3
Rated power rate	Without brake	kW/s	16.5
	With brake		14.6
Mechanical time constant	Without brake	ms	1.17
	With brake		1.32
Electrical time constant		ms	0.89
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.061
	With brake		0.069

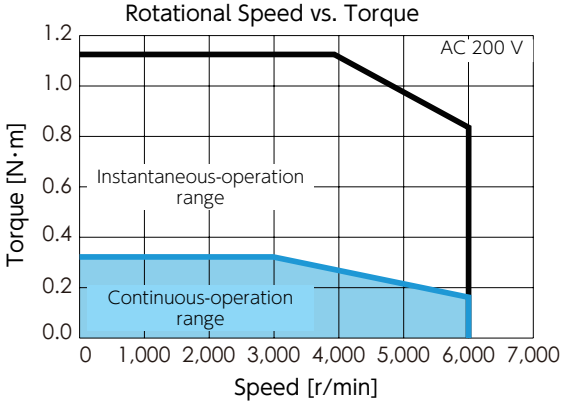
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.28
Static friction torque	N·m	≧ 0.32
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

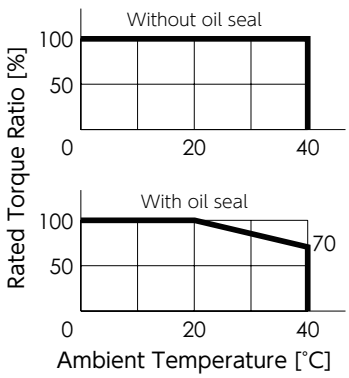
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

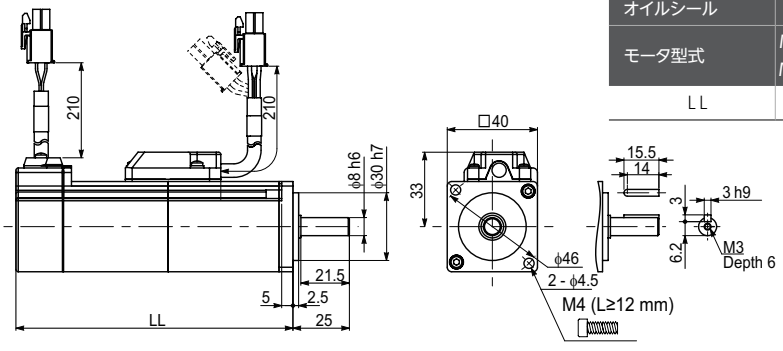


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MY101N2S MY101N2K	MY101N2T MY101N2L	MY101A2S MY101A2K	MY101A2T MY101A2L
LL	82.4	88.0	122.8	128.4



Motor Model : MG101N2□□** (Without brake) MG101A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	40 sq.
Approximate mass	Without brake	kg	0.5
	With brake		0.7
Compatible amplifier model		–	DB6Z1□□
Voltage		V	AC200-240 V
Rated output		W	100
Rated torque		N·m	0.32
Instantaneous maximum torque		N·m	1.12
Rated current (stall current)		A	0.99
Instantaneous maximum current		A	3.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.36
Induced voltage constant per phase		mV/(r/min)	12.7
Rated power rate	Without brake	kW/s	15.8
	With brake		14.1
Mechanical time constant	Without brake	ms	1.23
	With brake		1.38
Electrical time constant		ms	0.78
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.064
	With brake		0.072

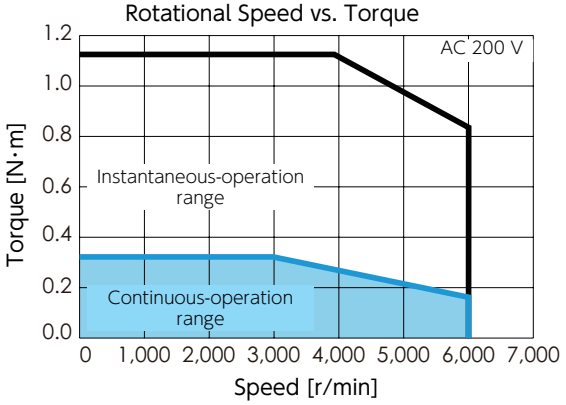
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.26
Static friction torque	N·m	≧ 0.32
Suction time	ms	≦ 35
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

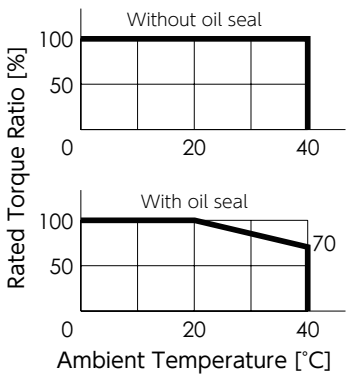
Permissible Load

Item	Unit	Specifications
Radial	N	68
Thrust	N	58

Rotational Speed vs. Torque

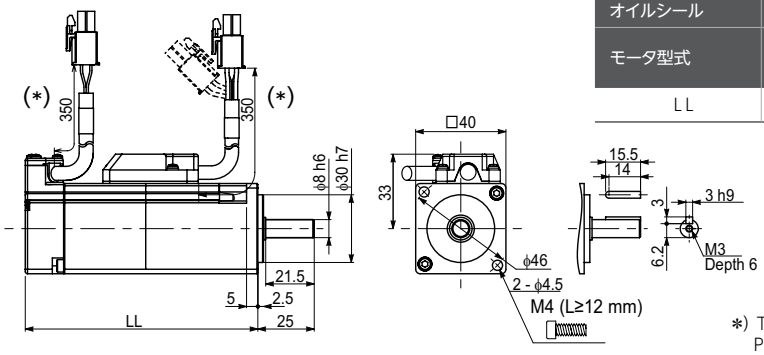


Derating Curve



(mm)

ブレーキ	無		付	
オイルシール	無	有	無	有
モータ型式	MG101N2S MG101N2K	MG101N2T MG101N2L	MG101A2S MG101A2K	MG101A2T MG101A2L
LL	70.7	78.3	103.1	110.7



*) The cable included in the MG101 series is 350 mm. Please contact us if you need a 210 mm cable.

Motor Model : MX201N2□□** (Without brake)
MX201A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	0.8
	With brake		1.3
Compatible amplifier model		–	DB612□□
Voltage		V	AC200–240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.7
Instantaneous maximum current		A	5.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.41
Induced voltage constant per phase		mV/(r/min)	14.3
Rated power rate	Without brake	kW/s	28.2
	With brake		23.5
Mechanical time constant	Without brake	ms	0.72
	With brake		0.87
Electrical time constant		ms	2.53
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.14
	With brake		0.17

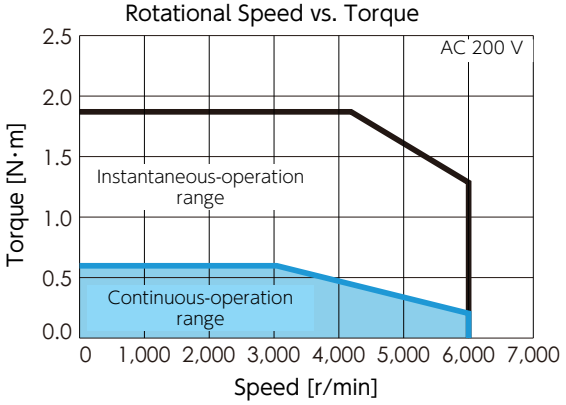
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

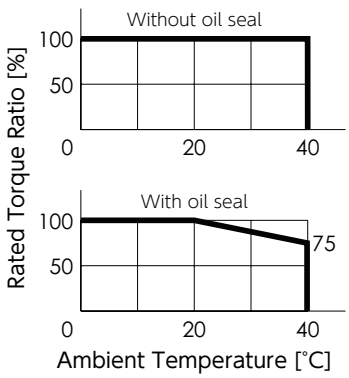
Permissible Load

Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque

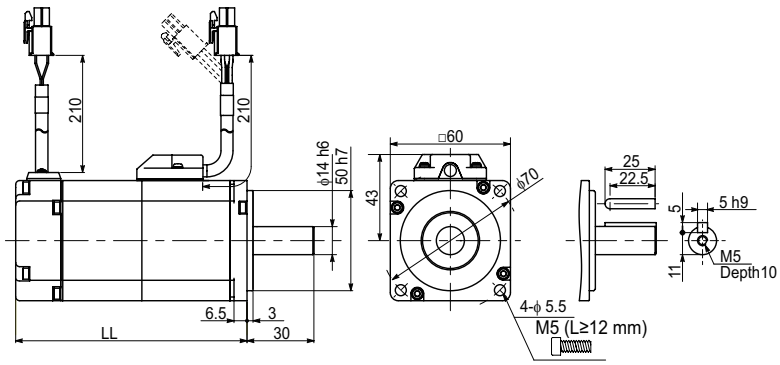


Derating Curve



(mm)

Brake	Without	With
Motor Model	MX201N	MX201A
LL	76.5	113.0



Motor Model : MG201N2 □□** (Without brake)
MG201A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	0.9
	With brake		1.3
Compatible amplifier model		–	DB612□□
Voltage		V	AC200–240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.7
Instantaneous maximum current		A	5.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.41
Induced voltage constant per phase		mV/(r/min)	14.3
Rated power rate	Without brake	kW/s	15.9
	With brake		14.5
Mechanical time constant	Without brake	ms	1.28
	With brake		1.41
Electrical time constant		ms	2.53
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.26
	With brake		0.28

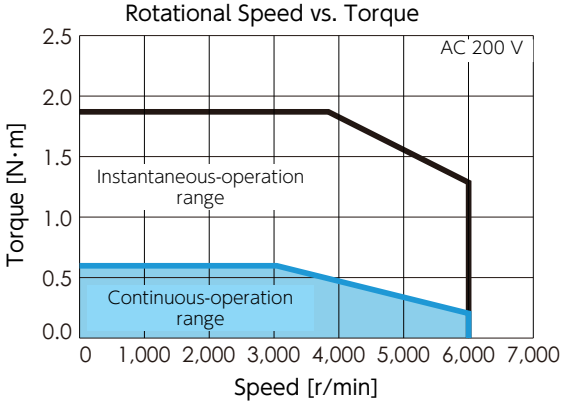
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

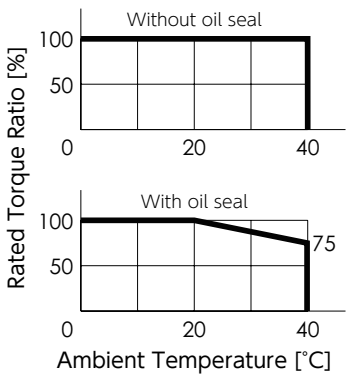
Permissible Load

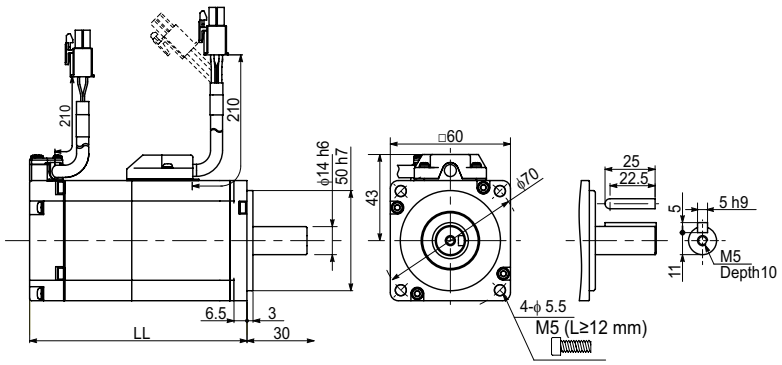
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MG201N	MG201A
LL	78.0	108.5

Motor Model : MW201N2 □□** (Without brake)
MW201A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	0.8
	With brake		1.2
Compatible amplifier model		–	DB612□□
Voltage		V	AC200-240 V
Rated output		W	200
Rated torque		N·m	0.64
Instantaneous maximum torque		N·m	1.91
Rated current (stall current)		A	1.8
Instantaneous maximum current		A	5.4
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.40
Induced voltage constant per phase		mV/(r/min)	14.0
Rated power rate	Without brake	kW/s	11.0
	With brake		10.2
Mechanical time constant	Without brake	ms	2.29
	With brake		2.48
Electrical time constant		ms	1.01
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.37
	With brake		0.40

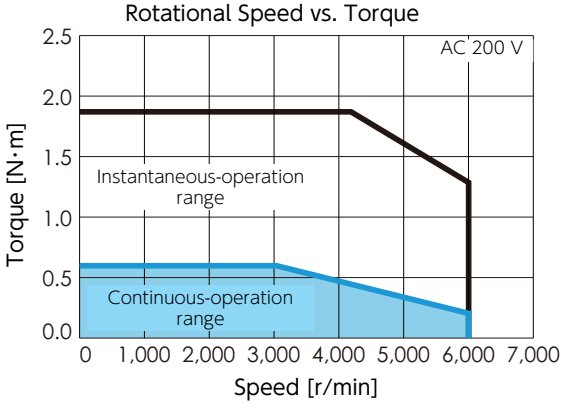
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

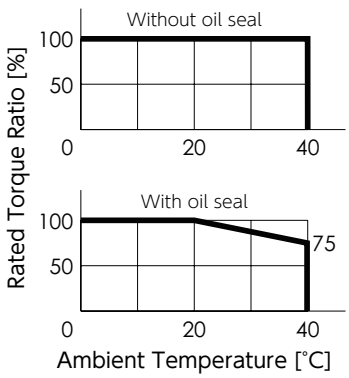
Permissible Load

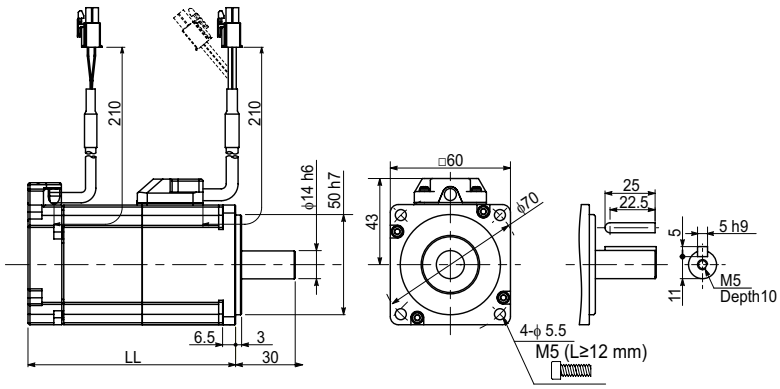
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MW201N	MW201A
LL	67.9	104.4

Motor Model : MX401N2□□** (Without brake)
MX401A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.1
	With brake		1.6
Compatible amplifier model		–	DB624□□
Voltage		V	AC200-240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.49
Induced voltage constant per phase		mV/(r/min)	17.1
Rated power rate	Without brake	kW/s	69.4
	With brake		61.8
Mechanical time constant	Without brake	ms	0.47
	With brake		0.53
Electrical time constant		ms	2.92
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.23
	With brake		0.26

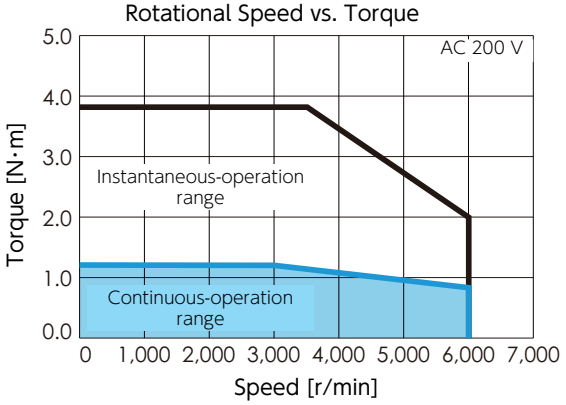
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

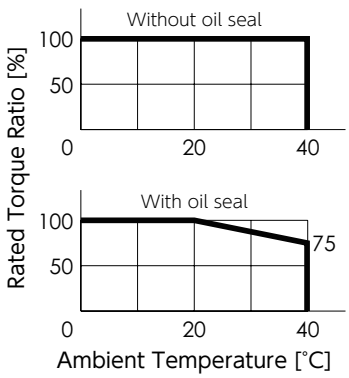
Permissible Load

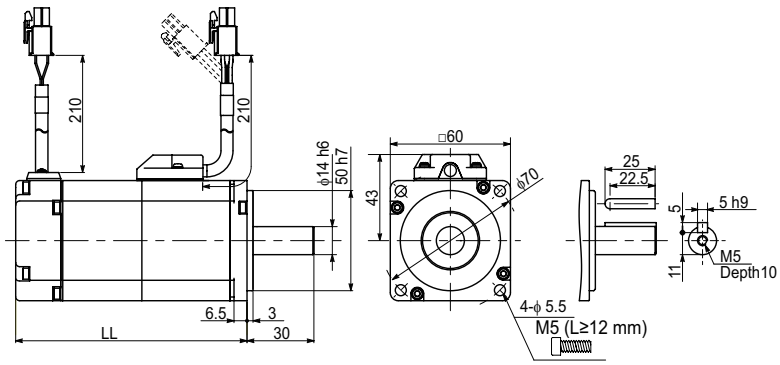
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX401N	MX401A
LL	93.5	130.0

Motor Model : MG401N2 □□** (Without brake)
MG401A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.1
	With brake		1.5
Compatible amplifier model		–	DB624□□
Voltage		V	AC200–240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.49
Induced voltage constant per phase		mV/(r/min)	17.1
Rated power rate	Without brake	kW/s	33.7
	With brake		32.1
Mechanical time constant	Without brake	ms	0.96
	With brake		1.01
Electrical time constant		ms	2.92
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.48
	With brake		0.51

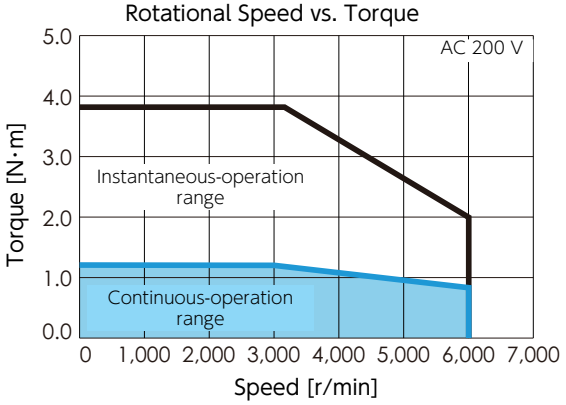
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

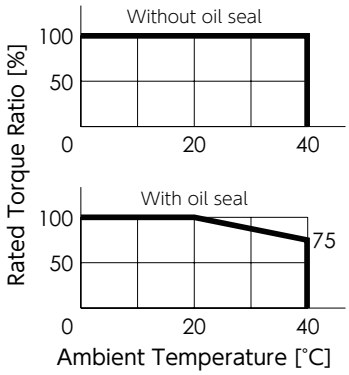
Permissible Load

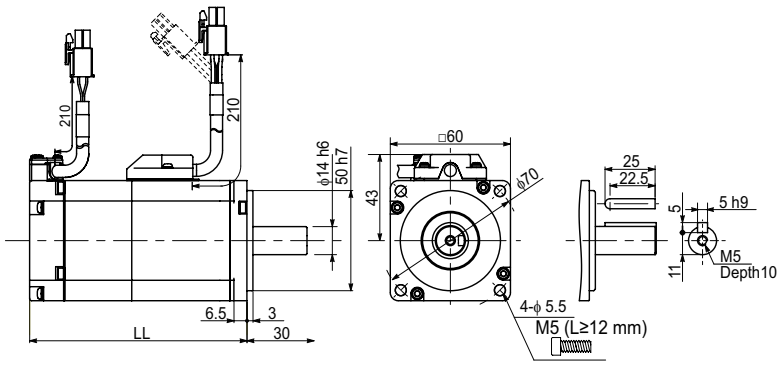
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MG401N	MG401A
LL	98.0	128.5

Motor Model : MW401N2 □□** (Without brake)
MW401A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	60 sq.
Approximate mass	Without brake	kg	1.1
	With brake		1.6
Compatible amplifier model		–	DB624□□
Voltage		V	AC200–240 V
Rated output		W	400
Rated torque		N·m	1.27
Instantaneous maximum torque		N·m	3.82
Rated current (stall current)		A	2.7
Instantaneous maximum current		A	8.5
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.51
Induced voltage constant per phase		mV/(r/min)	17.9
Rated power rate	Without brake	kW/s	23.1
	With brake		22.2
Mechanical time constant	Without brake	ms	1.48
	With brake		1.54
Electrical time constant		ms	0.98
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.70
	With brake		0.73

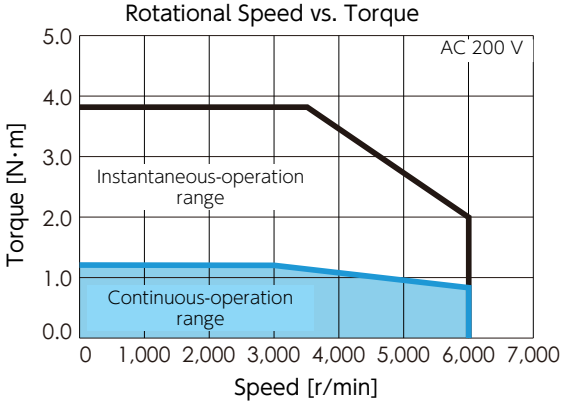
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.3
Static friction torque	N·m	≧ 1.27
Suction time	ms	≦ 50
Release time	ms	≦ 15
Release voltage	V	≧ DC1 V

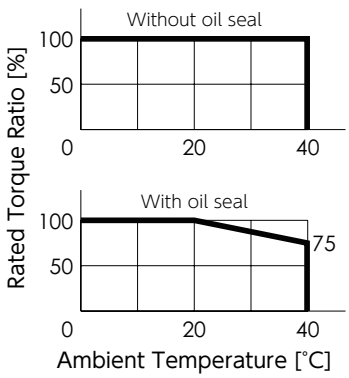
Permissible Load

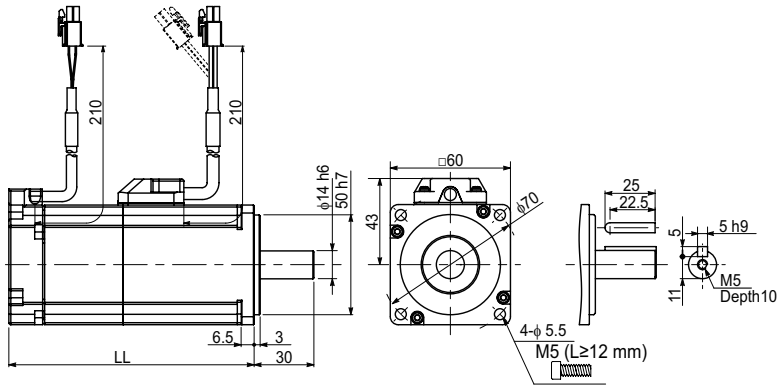
Item	Unit	Specifications
Radial	N	245
Thrust	N	98

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MW401N	MW401A
LL	86.9	123.4

Motor Model : MX751N2□□** (Without brake)
MX751A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.2
	With brake		3.0
Compatible amplifier model		–	DB638□□
Voltage		V	AC200–240 V
Rated output		W	750
Rated torque		N·m	2.39
Instantaneous maximum torque		N·m	7.1
Rated current (stall current)		A	4.2
Instantaneous maximum current		A	12.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.63
Induced voltage constant per phase		mV/(r/min)	21.9
Rated power rate	Without brake	kW/s	76.6
	With brake		60.7
Mechanical time constant	Without brake	ms	0.40
	With brake		0.50
Electrical time constant		ms	4.20
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	0.74
	With brake		0.94

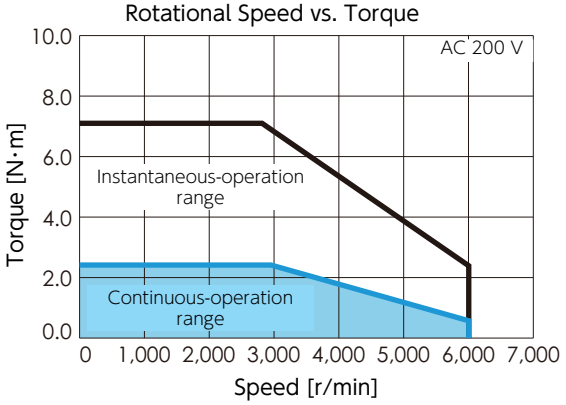
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.4
Static friction torque	N·m	≧ 2.39
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

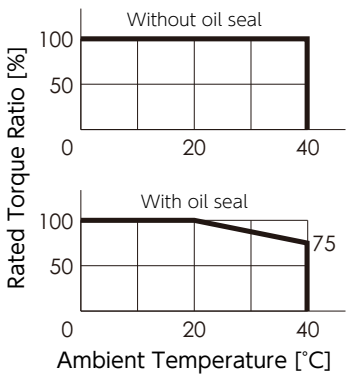
Permissible Load

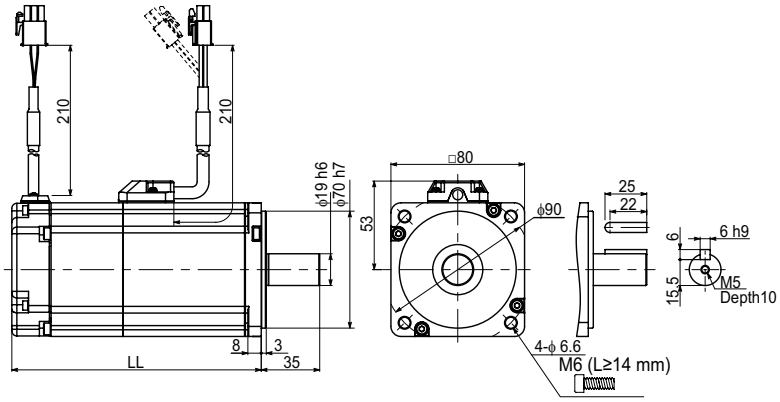
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX751N	MX751A
LL	107.3	144.3

Motor Model : MW751N2 □□** (Without brake)
MW751A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.1
	With brake		2.9
Compatible amplifier model		–	DB638□□
Voltage		V	AC200–240 V
Rated output		W	750
Rated torque		N·m	2.39
Instantaneous maximum torque		N·m	7.1
Rated current (stall current)		A	4.2
Instantaneous maximum current		A	12.6
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.64
Induced voltage constant per phase		mV/(r/min)	22.3
Rated power rate	Without brake	kW/s	35.6
	With brake		34.3
Mechanical time constant	Without brake	ms	0.93
	With brake		0.96
Electrical time constant		ms	4.20
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.60
	With brake		1.66

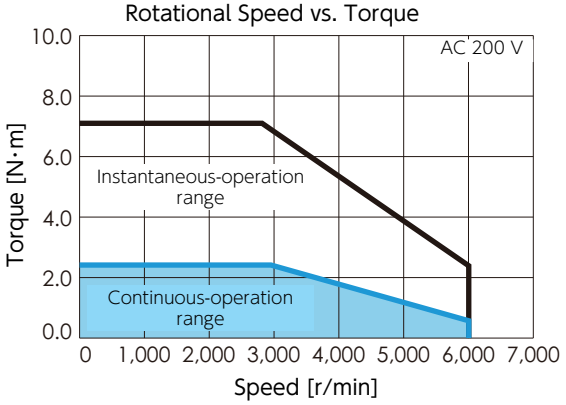
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.4
Static friction torque	N·m	≧ 2.39
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

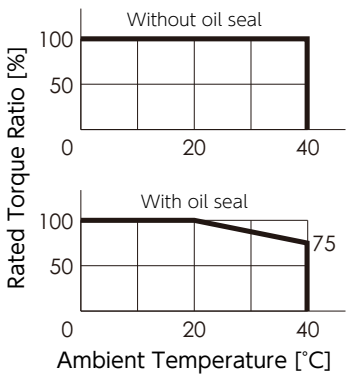
Permissible Load

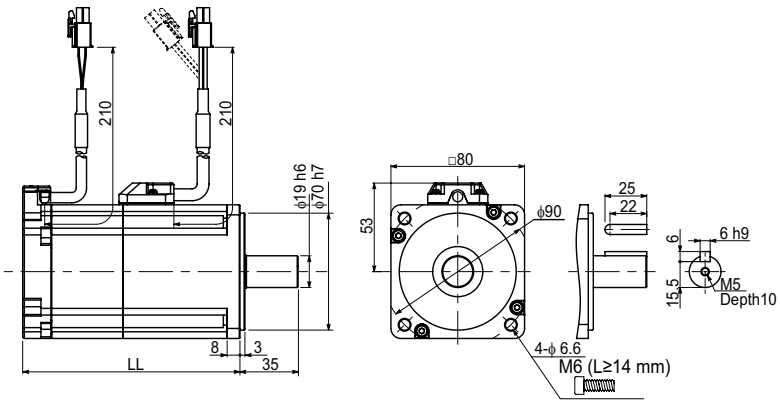
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MW751N	MW751A
LL	93.8	130.8

Motor Model : MJ851N2□□** (Without brake)
MJ851A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	6.2
	With brake		7.9
Compatible amplifier model		–	DB65B□□
Voltage		V	AC200-240 V
Rated output		W	850
Rated torque		N·m	5.39
Instantaneous maximum torque		N·m	14.2
Rated current (stall current)		A	6.9
Instantaneous maximum current		A	17.0
Rated revolving speed		r/min	1,500
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.83
Induced voltage constant per phase		mV/(r/min)	28.9
Rated power rate	Without brake	kW/s	21.1
	With brake		18.3
Mechanical time constant	Without brake	ms	2.71
	With brake		3.12
Electrical time constant		ms	8.45
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	13.9
	With brake		16.0

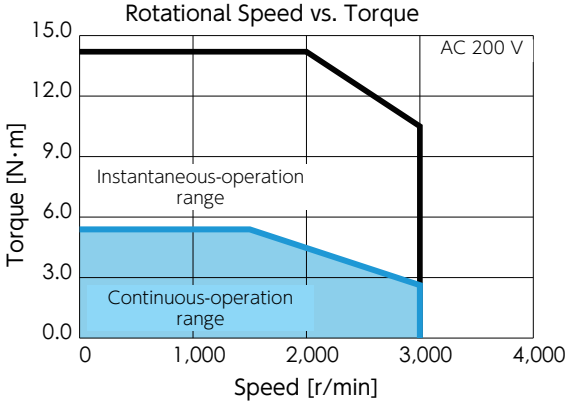
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.41
Static friction torque	N·m	≧ 12.7
Suction time	ms	≦ 100
Release time	ms	≦ 60
Release voltage	V	≧ DC1 V

Permissible Load

Item	Unit	Specifications
Radial	N	490
Thrust	N	98

Rotational Speed vs. Torque



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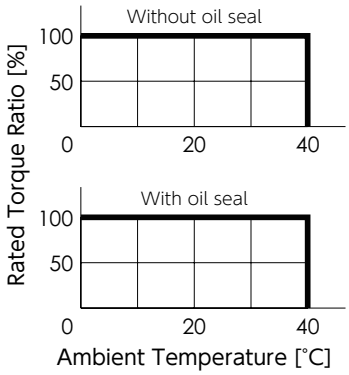
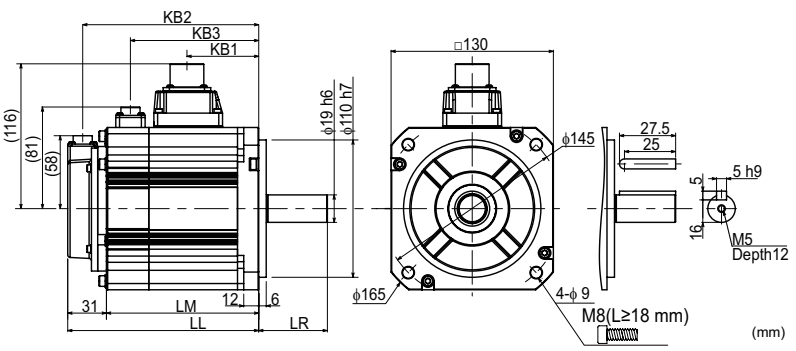




(mm)

Brake	Without	With
Motor Model	MJ851N	MJ851A
LL	128.0	162.0
LM	97.0	131.0
LR	58.0	
KB1	70.0	
KB2	116.0	150.0
KB3	–	109.0

Motor Model : MX951N2□□** (Without brake)
MX951A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	80 sq.
Approximate mass	Without brake	kg	2.8
	With brake		3.6
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200–240 V
Rated output		W	1,000
Rated torque		N·m	3.18
Instantaneous maximum torque		N·m	9.55
Rated current (stall current)		A	5.2
Instantaneous maximum current		A	15.2
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	6,000
Torque constant		N·m/A	0.66
Induced voltage constant per phase		mV/(r/min)	22.9
Rated power rate	Without brake	kW/s	90.8
	With brake		78.6
Mechanical time constant	Without brake	ms	0.34
	With brake		0.40
Electrical time constant		ms	3.95
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.12
	With brake		1.29

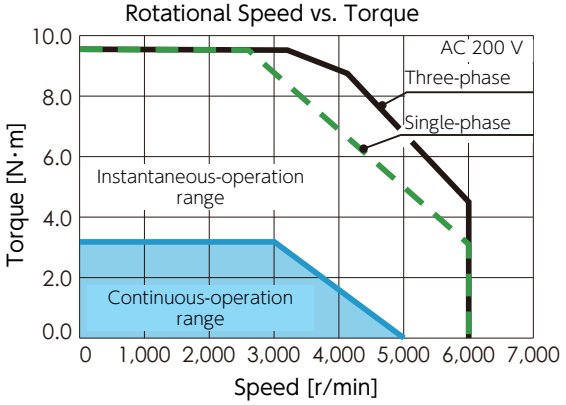
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.47
Static friction torque	N·m	≧ 3.18
Suction time	ms	≦ 70
Release time	ms	≦ 20
Release voltage	V	≧ DC1 V

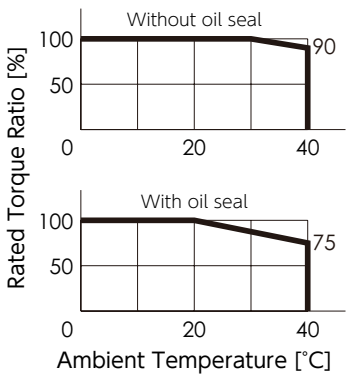
Permissible Load

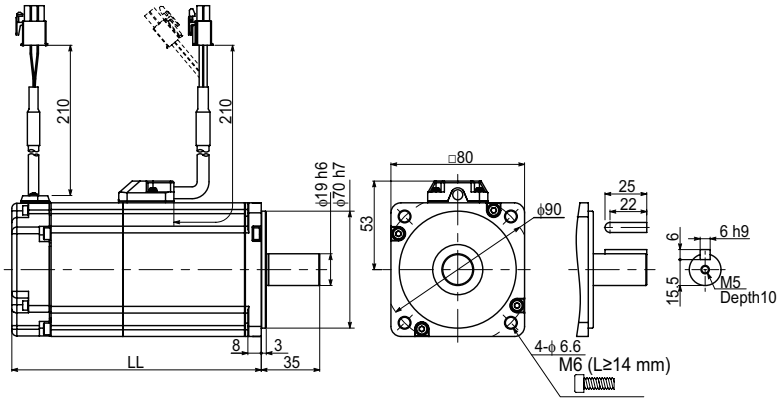
Item	Unit	Specifications
Radial	N	392
Thrust	N	147

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX951N	MX951A
LL	127.3	164.3

Motor Model : MX102N2□□** (Without brake)
MX102A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	3.9
	With brake		5.2
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200-240 V
Rated output		W	1,000
Rated torque		N·m	3.18
Instantaneous maximum torque		N·m	9.55
Rated current (stall current)		A	6.8
Instantaneous maximum current		A	19.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.52
Induced voltage constant per phase		mV/(r/min)	18.2
Rated power rate	Without brake	kW/s	52.1
	With brake		43.0
Mechanical time constant	Without brake	ms	0.59
	With brake		0.72
Electrical time constant		ms	5.19
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	1.94
	With brake		2.35

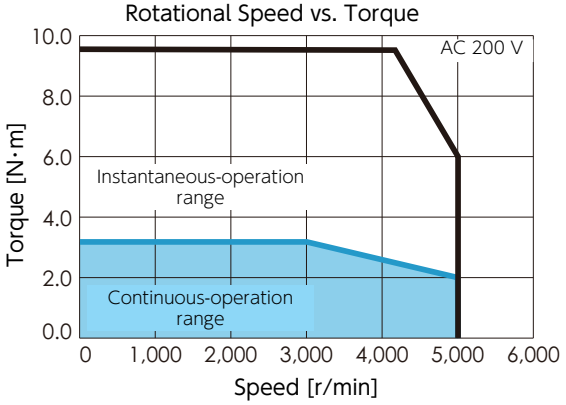
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

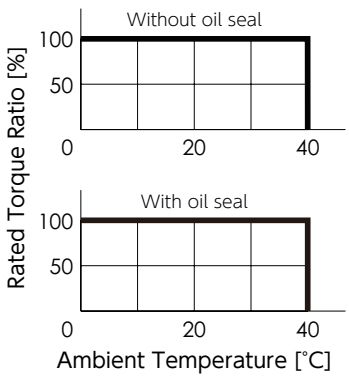
Permissible Load

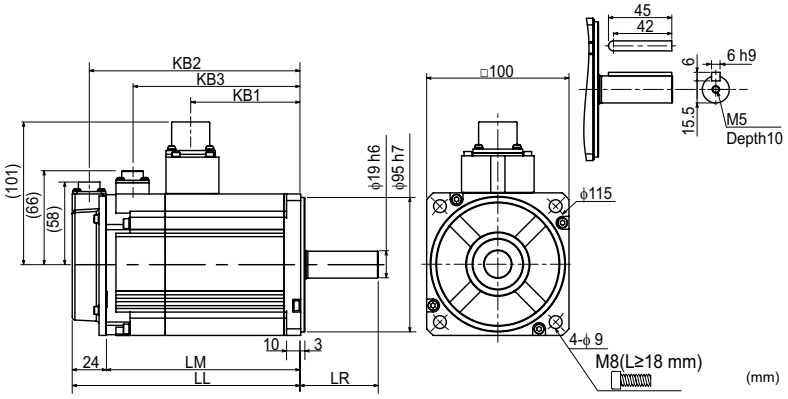
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX102N	MX102A
LL	132.0	162.0
LM	108.0	138.0
LR	55.0	
KB1	78.0	
KB2	120.0	150.0
KB3	–	119.3

Motor Model : MM102N2 □□** (Without brake)
MM102A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	5.6
	With brake		7.0
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200–240 V
Rated output		W	1,000
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	5.6
Instantaneous maximum current		A	16.8
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.88
Induced voltage constant per phase		mV/(r/min)	30.9
Rated power rate	Without brake	kW/s	50.0
	With brake		36.5
Mechanical time constant	Without brake	ms	0.76
	With brake		1.05
Electrical time constant		ms	10.8
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	4.56
	With brake		6.24

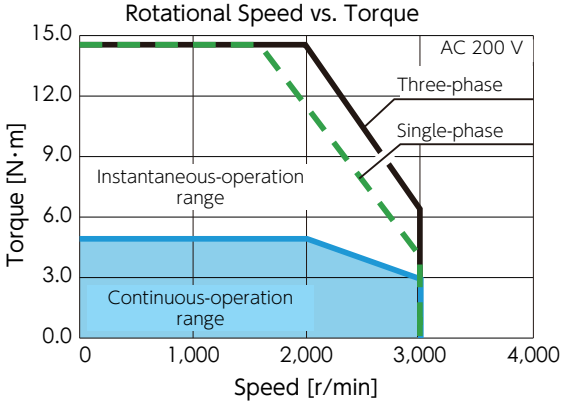
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

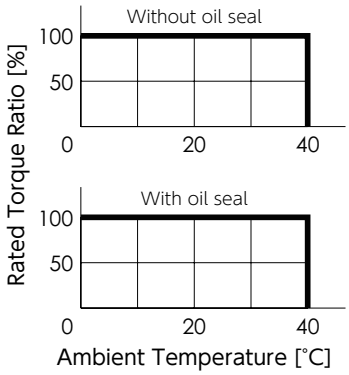
Permissible Load

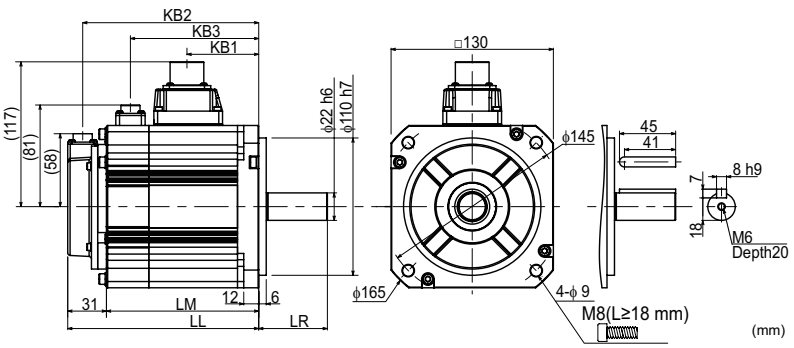
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM102N	MM102A
LL	128.0	153.0
LM	97.0	122.0
LR	55.0	
KB1	57.5	
KB2	116.0	141.0
KB3	–	102.8

Motor Model : MH102N2 □□** (Without brake)
MH102A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.6
	With brake		9.0
Compatible amplifier model		–	DB64A□□
Voltage		V	AC200–240 V
Rated output		W	1,000
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	5.6
Instantaneous maximum current		A	16.8
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.88
Induced voltage constant per phase		mV/(r/min)	30.9
Rated power rate	Without brake	kW/s	9.2
	With brake		8.6
Mechanical time constant	Without brake	ms	4.17
	With brake		4.43
Electrical time constant		ms	10.8
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	24.9
	With brake		26.4

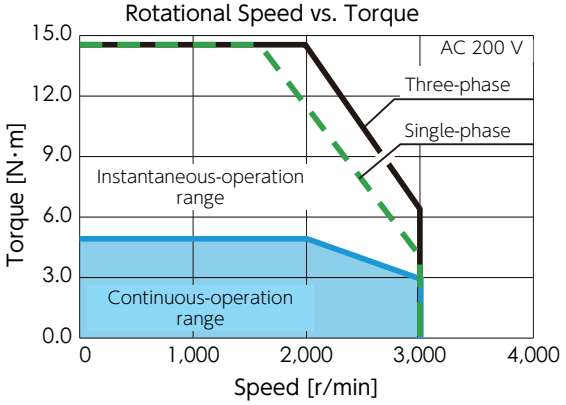
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

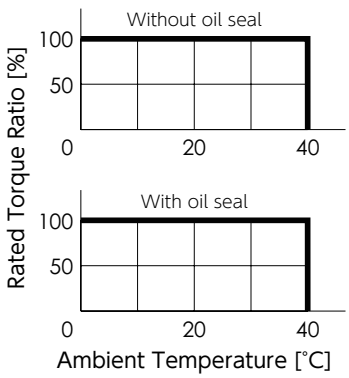
Permissible Load

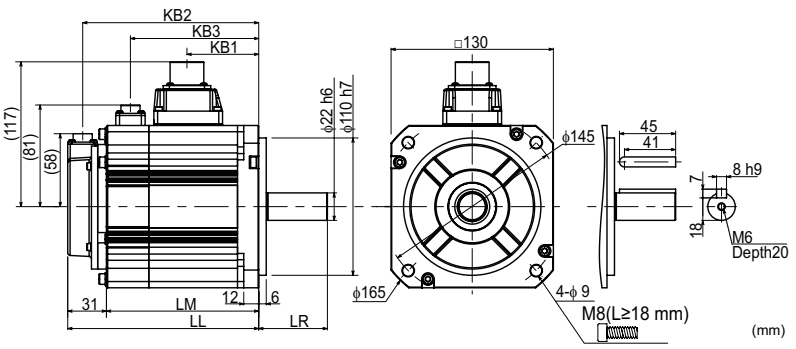
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MH102N	MH102A
LL	163.0	188.0
LM	132.0	157.0
LR	70.0	
KB1	92.5	
KB2	151.0	176.0
KB3	–	137.8

Motor Model : MJ132N2 □□** (Without brake)
MJ132A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.7
	With brake		9.8
Compatible amplifier model		–	DB67C□□
Voltage		V	AC200-240 V
Rated output		W	1,300
Rated torque		N·m	8.34
Instantaneous maximum torque		N·m	23.3
Rated current (stall current)		A	10.7
Instantaneous maximum current		A	28.0
Rated revolving speed		r/min	1,500
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.85
Induced voltage constant per phase		mV/(r/min)	29.8
Rated power rate	Without brake	kW/s	34.6
	With brake		31.3
Mechanical time constant	Without brake	ms	2.12
	With brake		2.34
Electrical time constant		ms	8.42
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	19.8
	With brake		21.9

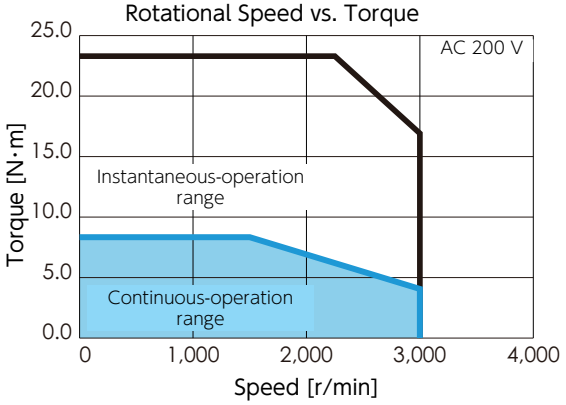
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	0.41
Static friction torque	N·m	≧ 19.6
Suction time	ms	≦ 100
Release time	ms	≦ 60
Release voltage	V	≧ DC1 V

Permissible Load

Item	Unit	Specifications
Radial	N	686
Thrust	N	343

Rotational Speed vs. Torque



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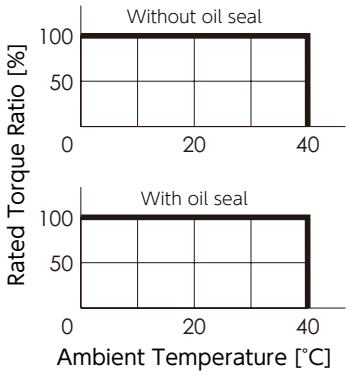
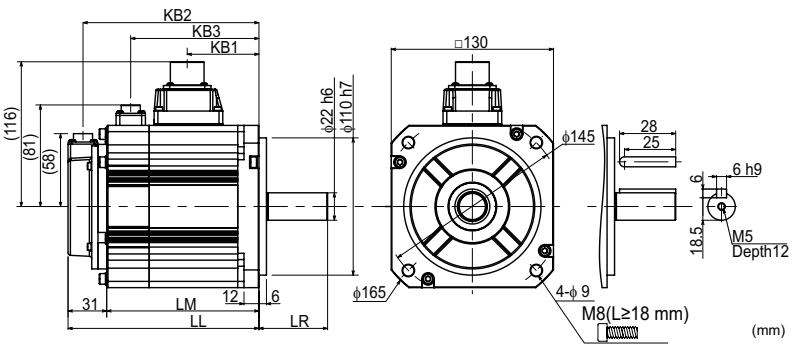




(mm)

Brake	Without	With
Motor Model	MJ132P	MJ132B
LL	145.5	179.5
LM	114.5	148.5
LR	58.0	
KB1	87.5	
KB2	133.5	167.5
KB3	–	126.0

Motor Model : MX152N2□□** (Without brake)
MX152A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	4.9
	With brake		6.2
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	4.77
Instantaneous maximum torque		N·m	14.3
Rated current (stall current)		A	7.6
Instantaneous maximum current		A	24.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.64
Induced voltage constant per phase		mV/(r/min)	22.3
Rated power rate	Without brake	kW/s	81.1
	With brake		70.1
Mechanical time constant	Without brake	ms	0.50
	With brake		0.58
Electrical time constant		ms	5.95
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	2.81
	With brake		3.25

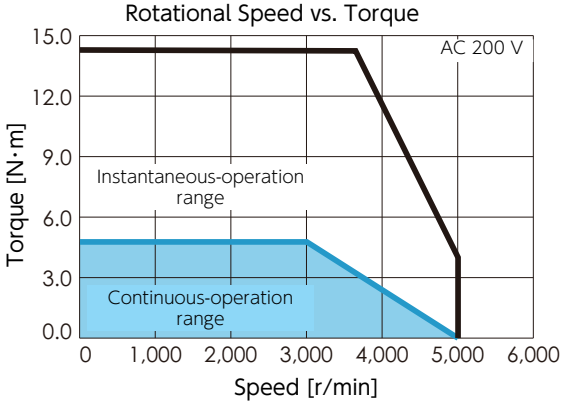
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

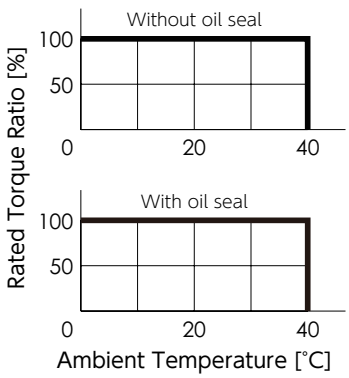
Permissible Load

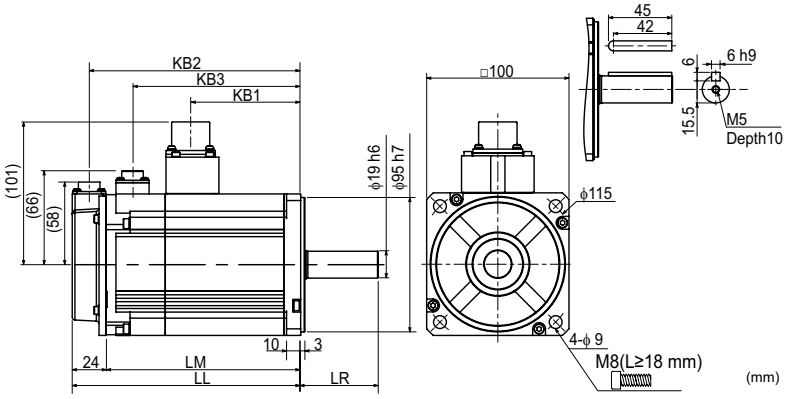
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX152N	MX152A
LL	151.0	181.0
LM	127.0	157.0
LR	55.0	
KB1	97	
KB2	139.0	169.0
KB3	-	138.3

Motor Model : MM152N2 □□** (Without brake)
MM152A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	7.0
	With brake		8.4
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	7.16
Instantaneous maximum torque		N·m	21.5
Rated current (stall current)		A	9.0
Instantaneous maximum current		A	27.0
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.81
Induced voltage constant per phase		mV/(r/min)	28.4
Rated power rate	Without brake	kW/s	76.9
	With brake		61.4
Mechanical time constant	Without brake	ms	0.60
	With brake		0.75
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	6.67
	With brake		8.35

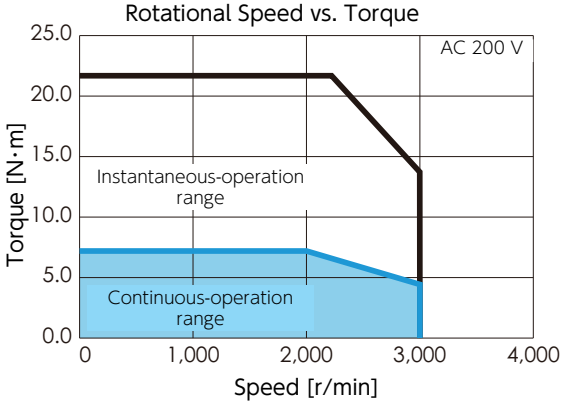
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

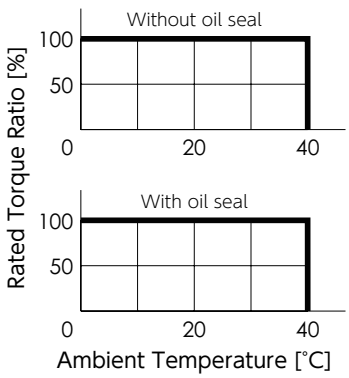
Permissible Load

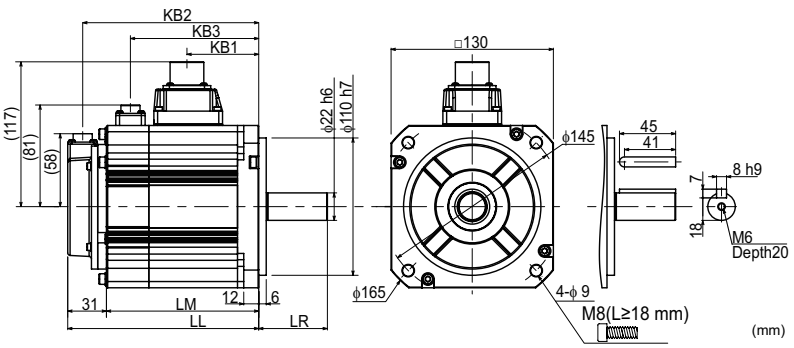
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM152N	MM152A
LL	145.5	170.5
LM	114.5	139.5
LR	55.0	
KB1	75.0	
KB2	133.5	158.5
KB3	–	120.3

Motor Model : MH152N2 □□** (Without brake)
MH152A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	High
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	9.0
	With brake		10.4
Compatible amplifier model		–	DB66B□□
Voltage		V	AC200-240 V
Rated output		W	1,500
Rated torque		N·m	7.16
Instantaneous maximum torque		N·m	21.5
Rated current (stall current)		A	9.0
Instantaneous maximum current		A	27.0
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.81
Induced voltage constant per phase		mV/(r/min)	28.4
Rated power rate	Without brake	kW/s	13.8
	With brake		13.3
Mechanical time constant	Without brake	ms	3.32
	With brake		3.46
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	37.1
	With brake		38.7

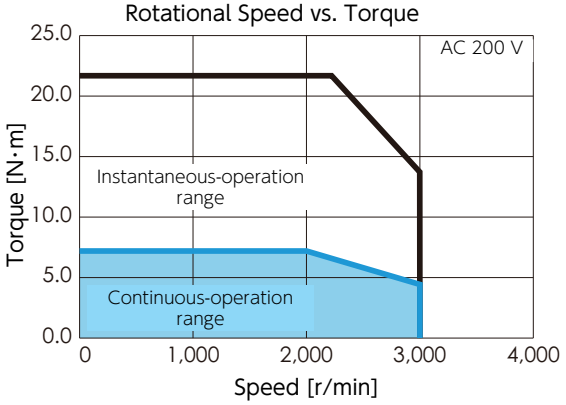
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

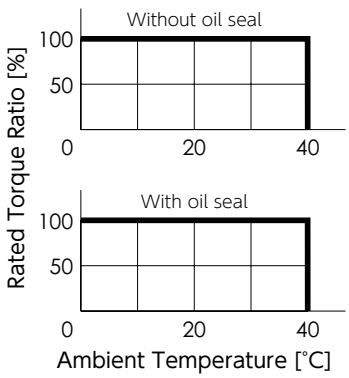
Permissible Load

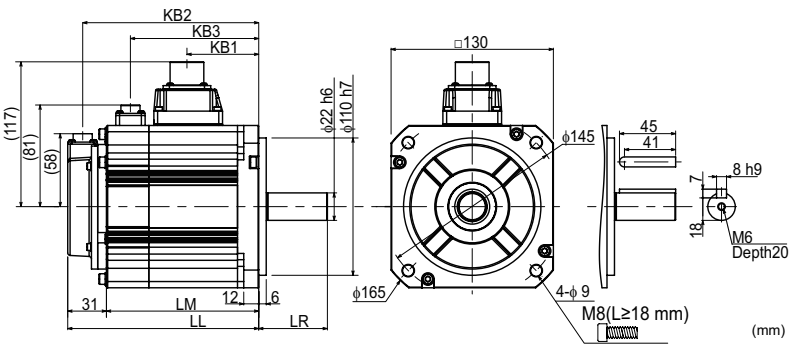
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MH152N	MH152A
LL	180.5	205.5
LM	149.5	174.5
LR	70.0	
KB1	110.0	
KB2	168.5	193.5
KB3	–	155.3

Motor Model : MX202N2□□** (Without brake)
MX202A2□□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Low
Fitting flange size		mm	100 sq.
Approximate mass	Without brake	kg	6.0
	With brake		7.3
Compatible amplifier model		–	DB68C□□
Voltage		V	AC200-240 V
Rated output		W	2,000
Rated torque		N·m	6.37
Instantaneous maximum torque		N·m	19.1
Rated current (stall current)		A	10.6
Instantaneous maximum current		A	33.9
Rated revolving speed		r/min	3,000
Maximum revolving speed		r/min	5,000
Torque constant		N·m/A	0.62
Induced voltage constant per phase		mV/(r/min)	21.7
Rated power rate	Without brake	kW/s	110.0
	With brake		99.0
Mechanical time constant	Without brake	ms	0.50
	With brake		0.56
Electrical time constant		ms	5.44
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	3.68
	With brake		4.09

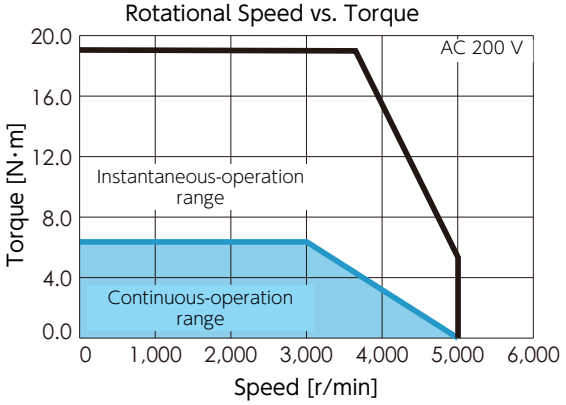
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 8.0
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

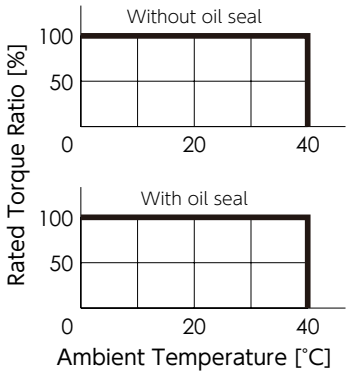
Permissible Load

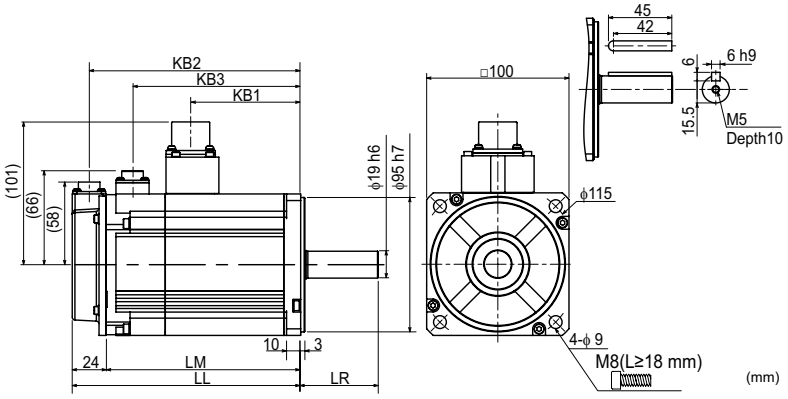
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MX202N	MX202A
LL	170.0	200.0
LM	146.0	176.0
LR	55.0	
KB1	116	
KB2	158.0	188.0
KB3	-	157.3

Motor Model : MM202N2 □□** (Without brake)
MM202A2 □□** (With brake)

Basic Specifications

Item		Unit	Specifications
Rotor inertia		–	Middle
Fitting flange size		mm	130 sq.
Approximate mass	Without brake	kg	8.4
	With brake		9.8
Compatible amplifier model		–	DB68C□□
Voltage		V	AC200-240 V
Rated output		W	2,000
Rated torque		N·m	9.55
Instantaneous maximum torque		N·m	28.6
Rated current (stall current)		A	11.9
Instantaneous maximum current		A	35.7
Rated revolving speed		r/min	2,000
Maximum revolving speed		r/min	3,000
Torque constant		N·m/A	0.85
Induced voltage constant per phase		mV/(r/min)	29.6
Rated power rate	Without brake	kW/s	104.9
	With brake		87.9
Mechanical time constant	Without brake	ms	0.58
	With brake		0.69
Electrical time constant		ms	11.9
Rotor moment of inertia	Without brake	$\times 10^{-4}$ kg·m^2	8.70
	With brake		10.4

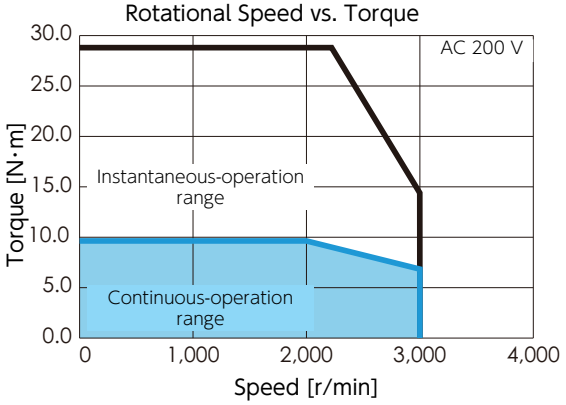
Brake Specifications

Item	Unit	Specifications
Usage	–	Holding
Rated voltage	V	DC24 V±10%
Rated current	A	1.0
Static friction torque	N·m	≧ 9.55
Suction time	ms	≦ 120
Release time	ms	≦ 30
Release voltage	V	≧ DC1 V

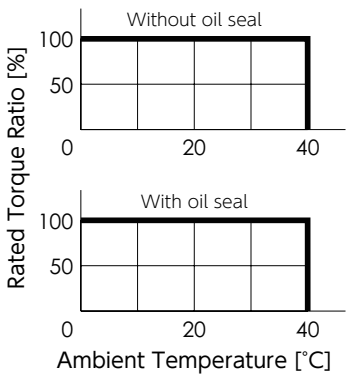
Permissible Load

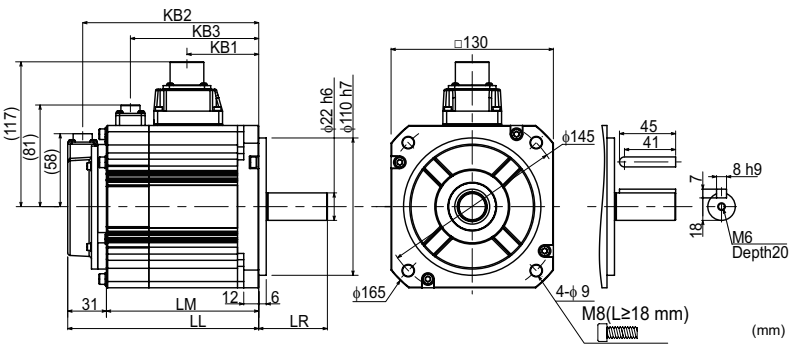
Item	Unit	Specifications
Radial	N	490
Thrust	N	196

Rotational Speed vs. Torque



Derating Curve





(mm)

Brake	Without	With
Motor Model	MM202N	MM202A
LL	163.0	188.0
LM	132.0	157.0
LR	55.0	
KB1	92.5	
KB2	151.0	176.0
KB3	–	137.8

02 Encoder Specifications

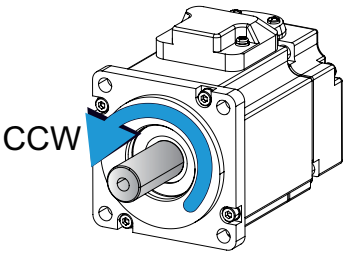
Item			Specifications		
Motor model			M□□□□P2□A** M□□□□B2□A**	M□□□□N2□A** M□□□□A2□A**	M□□□□N2□N** M□□□□A2□N**
Resolution			23 bit ENCODER Absolute **23 bit**	17 bit ENCODER Absolute **17 bit**	17 bit ENCODER Incremental **17 bit**
Environmental requirements	Ambient operating temperature		0–85°C		
	External disturbance magnetic field		±2 mT (20 G) or below		
Electrical specifications	Power supply	Voltage	DC 4.5 to 5.5 V (Power supply ripple ≦ 5%)		
		Current consumption	80 mA typ. (*1)	160 mA typ. (*1)	
	External battery	Voltage	DC 2.7–4.0 V	DC 2.4–4.2 V	–
		Current consumption	15 μA typ. (*2)	10 μA typ. (*2)	–
	Multi-turn count		65,536 counts (*3)		–
	Maximum revolving speed		6,000 r/min		
	Count-up direction		CCW (*4)		
Communication specification	Transmission method		Half-duplex asynchronous serial communication		
	Communication speed		4.0 Mbps	2.5 Mbps	

*1) Inrush-current is not included.

*2) Measurement conditions room temperature, the motor not in motion, battery voltage of 3.0 V.

*3) This is based on the use of the S-FLAG amplifier. The encoder supports up to 16,777,216 counts.

*4) CCW when viewed from the load side shaft end.



Precautions

Using the motor with rotations of 180 degrees or less will reduce the encoder's rotational accuracy. (17 bit encoder)

—For a motor equipped with a brake, follow the brake voltage and polarity specifications.

—If the brake voltage is less than 12 V or the polarity is reversed, the encoder's rotational accuracy will be reduced.

Model Name

Models

DB	6	Y	Z	42

Series

Input Power Supply

Code	Main Circuit Power & Control Power
6	AC200-240 V (*)

(*) Single- or Three-phase option depends on compatible motor.

50-750 W : Single-phase
1 kW : Single-phase / Three-phase
850 W, 1.3-2 kW : Three-phase

Compatible Motor

Code	Motor Rated Power	Motor Models
Y	50 W	M□500
Z	100 W	M□101
1	200 W	M□201
2	400 W	M□401
3	750 W	M□751
4	1 kW	MX951
		M□102
5	850 W	MJ851
6	1.5 kW	M□152
7	1.3 kW	MJ132
8	2 kW	M□202

Amplifier Main circuit power Supply

Code	
Z	50 W
1	100 W
2	200 W
4	400 W
8	750 W
A	1 kW
B	1.5 kW
C	2 kW

Specifications

Code	Specifications
11	Standard (*)
new 42	EtherCAT

(*) In the standard amplifier, drive command is input by pulse train or analog voltage.

new

EtherCAT
DB6 □□ 42

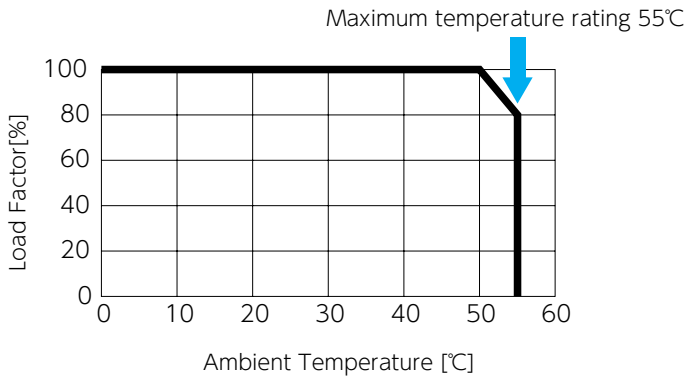
Standard
DB6 □□ 11

Environmental Specification

Items		Specifications
Ambient temperature	For operation	0 to 55°C (*1, *2)
	For storage	−20 to 65°C
Ambient humidity	For operation	20 to 85%RH (No condensation)
	For storage	
Atmosphere for operation and storage		Indoors (not subject to direct sunlight), Free from corrosive gases, flammable gases, oil mist, dust, flammables, grinding fluid
Altitude		≦ 1,000 m
Vibration		≦ 5.8 m/s^2 (0.6 G) 10 to 60 Hz (no continuous operation allowed at frequency of resonance)
Dielectric strength		AC 1,500 V for one minute across the primary and FG
Electric shock protection		Class Ⅰ (mandatory grounding)
Overvoltage category		Ⅲ
Installation environment		Pollution degree 2

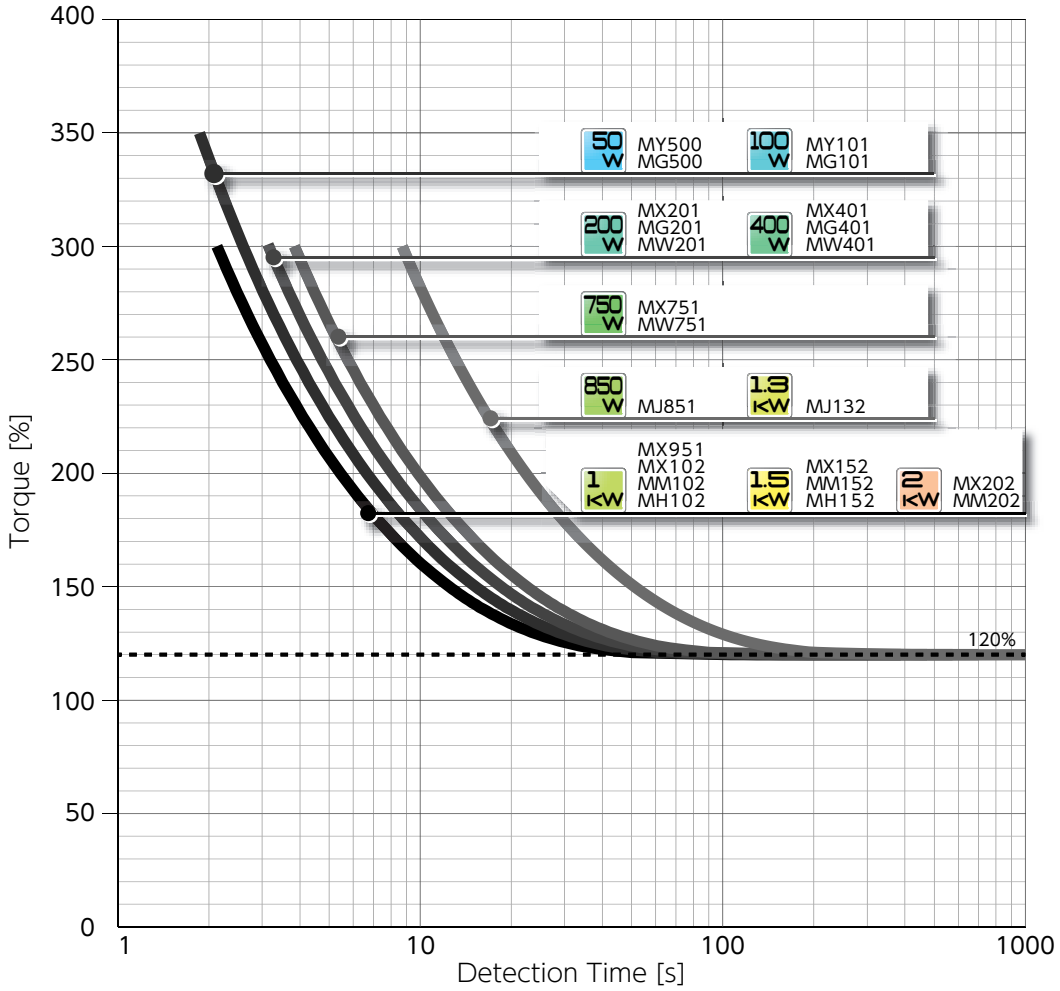
*1) When mounting amplifiers to an enclosure such as a protection case, install a cooling devise, or secure required clearance around it so that ambient temperature will not rise above the specification temperature.

*2) For 1.3 kW (DB67C □□) and 2 kW amplifier (DB68C □□), refer to the following temperature derating curve.



Overload Detection Feature

S-FLAG Ⅱ series amplifiers features overload protection - overload alarm output and emergency stop upon alarm output - in case of motor operation with load level above the overload detection curve shown below.



Overload detection feature is reference data.
Be sure to use the motor within the specification temperature range and in the enough radiation environment.
Detection time may change by the radiation condition of the motor.

Basic Specifications

Item		Specifications				
Model		DB6YZ11	DB6Z111	DB61211	DB62411	DB63811
Compatible Motor		M□500 	M□101 	M□201 	M□401 	M□751 
External dimensions		(See "Dimensions")				
Mass (Kg)		0.8			1.0	1.1
Main circuit power, Control power		Single-phase AC200-240 V ±10% 50 / 60 Hz				
Input current (Arms typ)		0.9	1.5	2.6	4.6	7.6
Control type		Three-phase PWM inverter sine-wave driven				
Output Rating	Rated current (A)	0.7	1.0	1.7	2.7	4.2
	Output frequencies (Hz)	0-500				
Encoder feedback		23 bit/17 bit single-turn absolute (The product can function as a multi-turn absolute type when batteries are added.)				
Control signal (*2)	Input	10-point (24 VDC system, photo-coupler input insulation) inputs whose functions are switched by the control mode				
	Output	10-point (24 VDC system, open-collector output insulation) outputs whose functions are switched by the control mode				
Analog signal	Input	1-point (±10 V) input whose functions can be switched by the control mode				
Pulse signal	Input	RS-422 differential Open-collector				
	Output	Encoder feedback pulse (A-/B-/Z-phase), RS-422 differential output Z-phase pulse through open-collector as well				
Communication function		USB : connection to PC with "S-TUNE Ⅱ" installed RS-485 : host remote control communication (multi-drop compatible)				
Amplifier status display function		Amplifier status display function 6 digits of seven-segment display on Setup Panel Normal/Error display on STATUS LED Green light when Power ON Normal, Red light when Power ON Error, Dim when Power OFF				
Regeneration function		A regenerative resistor may be installed externally (*3)				
Dynamic brake		Included				
Control mode		Position Control, Velocity Control, Torque Control				

Specifications

Item		Specifications					
Model		DB64A11		DB65B11	DB66B11	DB67C11	DB68C11
Compatible Motor		MX951 	M□102 	MJ851 	M□152 	MJ132 	M□202 
External dimensions		(See "Dimensions")					
Mass (Kg)		1.1		2.0			
Main circuit power Control power		: Three-phase AC200-240 V (*1) ±10% 50 / 60 Hz : Single-phase AC200-240 V ±10% 50 / 60 Hz					
Input current (Arms typ)		Single-phase : 9.9 Three-phase : 5.3		4.6	7.5	6.5	9.5
Control type		Three-phase PWM inverter sine-wave driven					
Output Rating	Rated current (A)	6.8		6.9	9.0	10.7	11.9
	Output frequencies (Hz)	0-500					
Encoder feedback		23 bit/17 bit single-turn absolute (The product can function as a multi-turn absolute type when batteries are added.)					
Control signal (*2)	Input	10-point (24 VDC system, photo-coupler input insulation) inputs whose functions are switched by the control mode					
	Output	10-point (24 VDC system, open-collector output insulation) outputs whose functions are switched by the control mode					
Analog signal	Input	1-point (±10 V) input whose functions can be switched by the control mode					
Pulse signal	Input	RS-422 differential Open-collector					
	Output	Encoder feedback pulse (A-/B-/Z-phase), RS-422 differential output Z-phase pulse through open-collector as well					
Communication function		USB : connection to PC with "S-TUNE Ⅱ" installed RS-485 : host remote control communication (multi-drop compatible)					
Amplifier status display function		Amplifier status display function 6 digits of seven-segment display on Setup Panel Normal/Error display on STATUS LED Green light when Power ON Normal, Red light when Power ON Error, Dim when Power OFF					
Regeneration function		A regenerative resistor may be installed externally (*3)					
Dynamic brake		Included					
Control mode		Position Control, Velocity Control, Torque Control					

Functions Specifications

Position Control Mode

Item		Specifications
Pulse Input	Control input	Servo ON, alarm reset, command input not allowed, emergency stop, deviation counter clear, 2-stage torque limit, CCW/CW run not allowed, ABS data demand, homing start
	Control output	Alarm status, servo status, servo ready, under torque limit, brake release, positioning complete, motion complete, alarm, dynamic brake release, ABS data transmitting, homing complete
	Maximum command pulse frequency	RS-422 differential : 4 Mpps Open-collector : 200 kpps
	Input pulse signal form	pulse and direction (PLS + DIR), quadrature phase difference pulse (A-phase + B-phase), positive or negative pulse (CCW + CW)
	Command pulse-paired ratio	ratio A/B : 1/1,000 < A/B < 1,000 Setting range A : 1 to 65,535, Setting range B : 1 to 65,535
Internal Position	Control input	Servo ON, alarm reset, deviation counter clear, motion start point selection 16, home position sensor input, homing start
	Control output	Alarm status, servo status, servo ready, under torque limit, brake release, homing complete, motion complete
	Operation mode	Point table, communication operation
Smoothing filter		FIR Filter
Damping control		Enabled

Velocity Control Mode

Item		Specifications
Analog Velocity	Control input	Servo ON, alarm reset, command input inhibit (zero torque command), 2-stage torque limit, CCW/CW run prohibited
	Control output	Alarm status, servo status, servo ready, under torque limit, brake release
	Speed command input	Input voltage −10 V to +10 V (max speed is reached at ± 10 V)
Internal Velocity	Control input	Servo ON, alarm reset, start 1 (CCW), start 2 (CW), 8-stage speed command 2-stage torque limit
	Control output	Alarm status, servo status, servo ready, under torque limit, brake release
Smoothing filter		IIR Filter, FIR Filter

Torque Control Mode

Item		Specifications
Analog Torque	Control input	Servo ON, alarm reset, command input not allowed (zero clamp command) 2-stage torque limit, CCW/CW run prohibited
	Control output	Alarm status, servo status, servo ready, under torque limit, brake release
	Torque command input	Input voltage : – 10 V to +10 V (max speed is reached at ± 10 V)
Smoothing filter		IIR Filter

Common Features

Item		Specifications
Speed observer		Available
Auto-tuning		Available
Encoder output Division /Multiplication		Available
Tuning & Function Setup		Available through the S-FLAG setup software "S-TUNE Ⅱ " Tuning with the setup panel on the amplifier front side
Protective functions	By Hardware	Overvoltage, low voltage, Overcurrent, Abnormal temperature, Overload
	By Software	Overspeed, Position deviation too high, Parameter errors, Encoder error
Alarm Log		Can be referenced with the setup software S-TUNE Ⅱ

Notice

*1) In the Amplifier DB64A11 (1 kW), single-phase can be used for primary circuit power source.
To use single-phase 200 to 240 VAC, connect it to the primary circuit power connectors L1 and L3.

Item		Specifications	
Amplifier Model		DB64A11	
Compatible Motor		1 kW (MX951 □ 2 □□ ** , M □ 102 □ 2 □□ **)	
Primary Circuit Power Supply	Voltage Range	Three-phase 200 to 240 VAC ± 10% 50/60 Hz	Single-phase 200 to 240 VAC ± 10% 50/60 Hz
	Input Current	Rated at 4.5 A (200 VAC input) Rated at 3.8 A (230 VAC input) Up to approximately 13 A	Rated at 8.6 A (200 VAC input) Rated at 7.3 A (230 VAC input) Up to approximately 23 A

*2) Use SELV (Safety Extra Low Voltage/Non-Hazardous Voltage) power supply to User I/O with reinforced isolation from hazardous voltage.
As a countermeasure against amplifier failure, install overcurrent protection or use power output capacity of no higher than 100 W.

*3) Regenerative resistor values do not guarantee optimal performance. If the generated heat temperature becomes too high, increase the resistance value or select a resistor whose allowable power is larger enough. Whether or not a regenerative resistor installation is necessary can be checked on the Setup Panel or S-TUNE Ⅱ.

Figure 1 Amplifier model 50W DB6YZ11 100W DB6Z111 200W DB61211

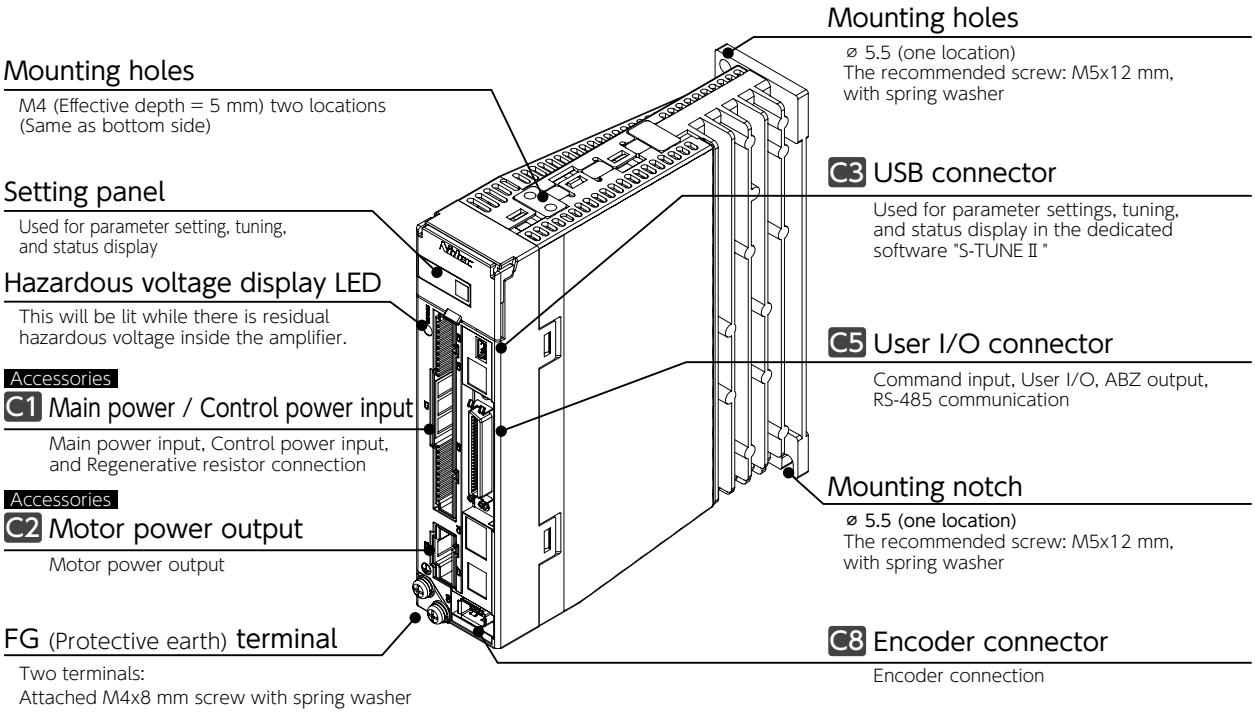


Figure 2 Amplifier model 400W DB62411

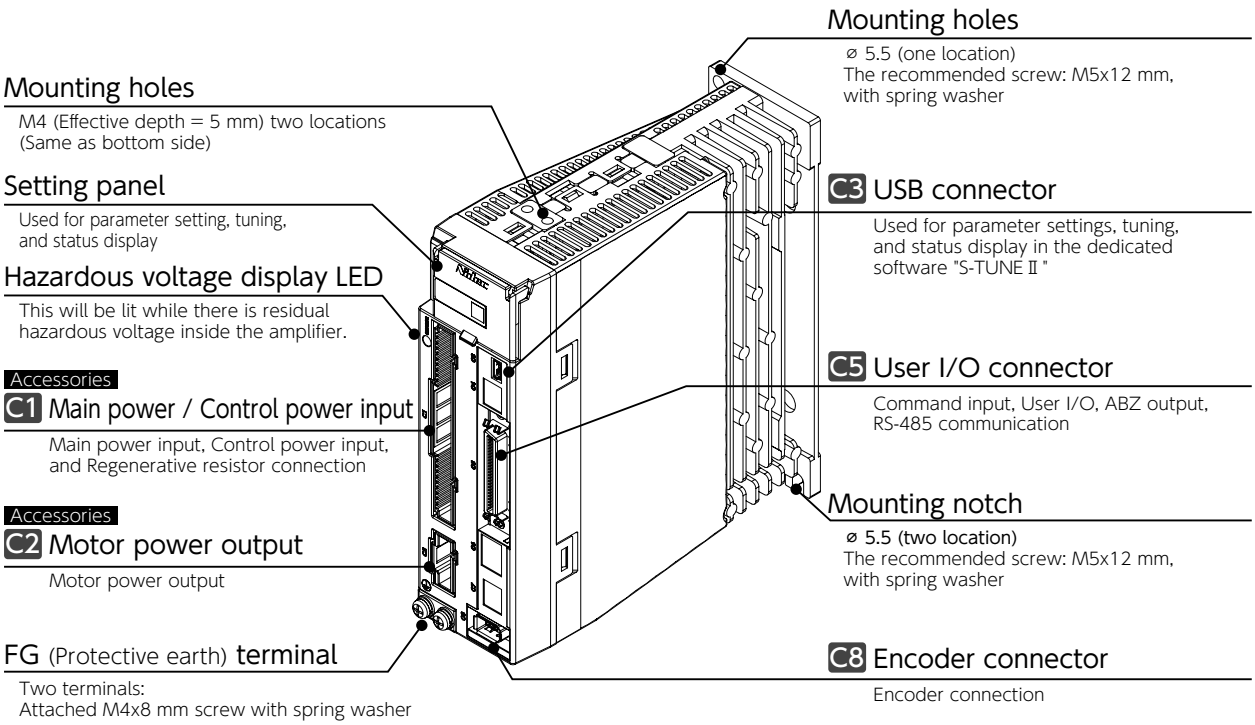


Figure 3 Amplifier model 750 W DB63811 1 kW DB64A11

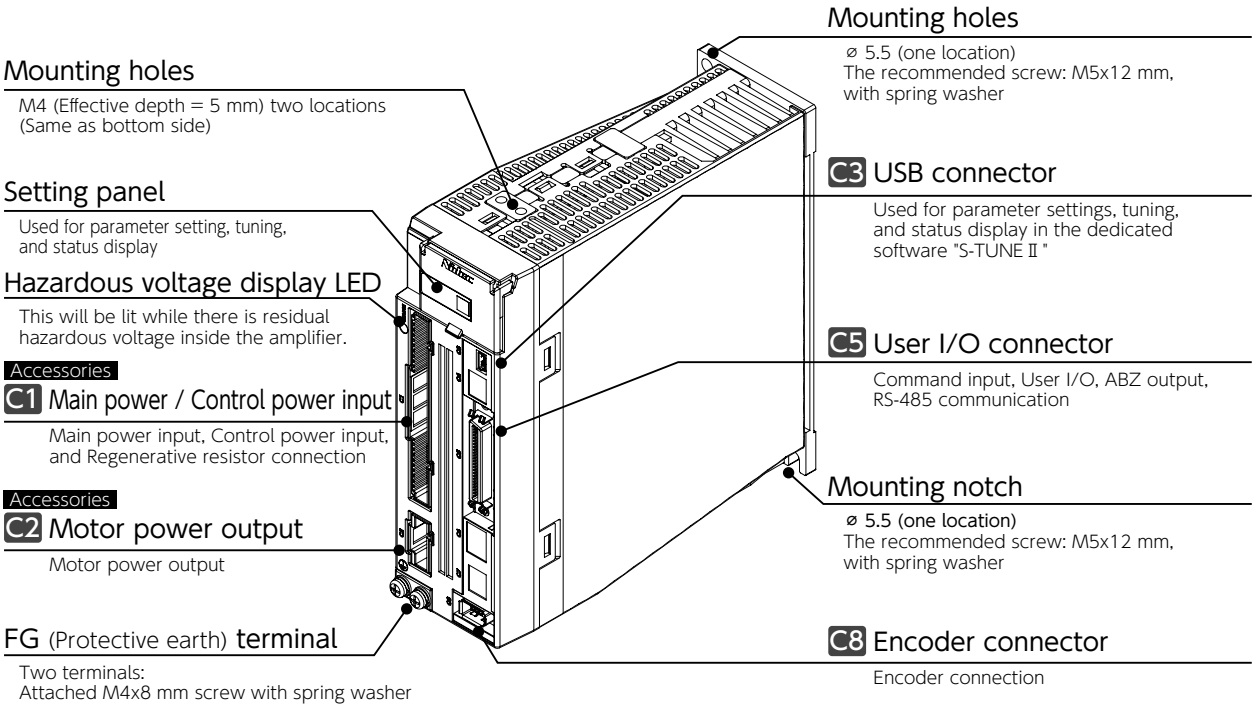


Figure 4 Amplifier model 850 W DB65B11 1.3 kW DB67C11 1.5 kW DB66B11 2 kW DB68C11

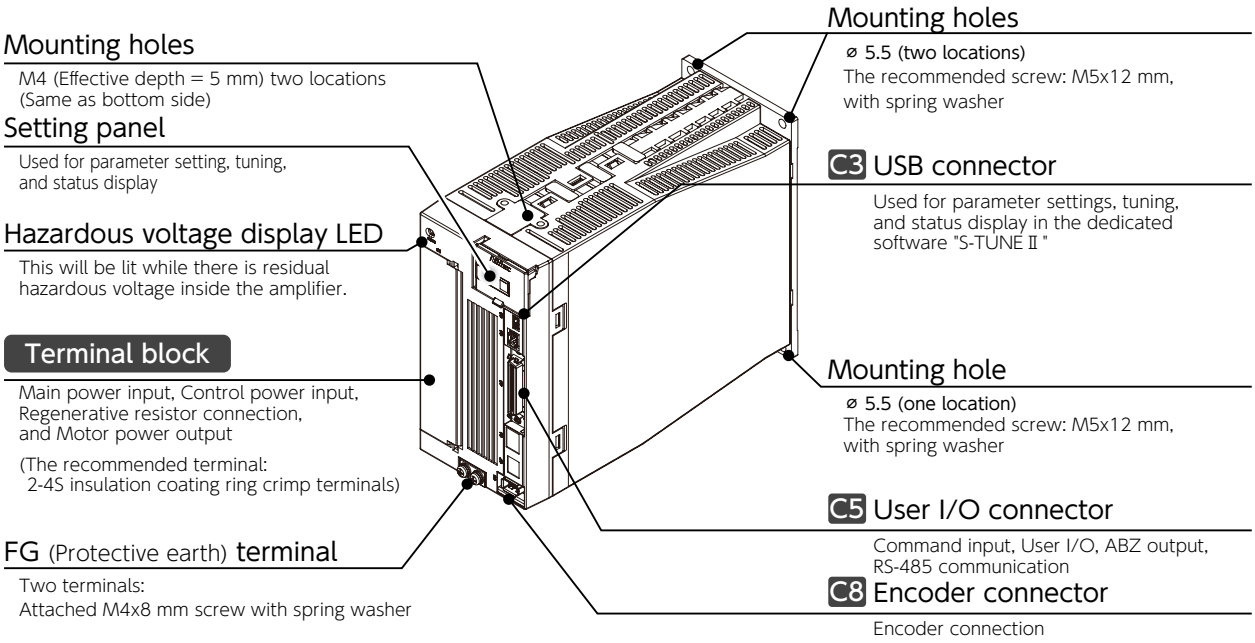


Figure 1 Amplifier model 50W DB6YZ11 100W DB6Z111 200W DB61211

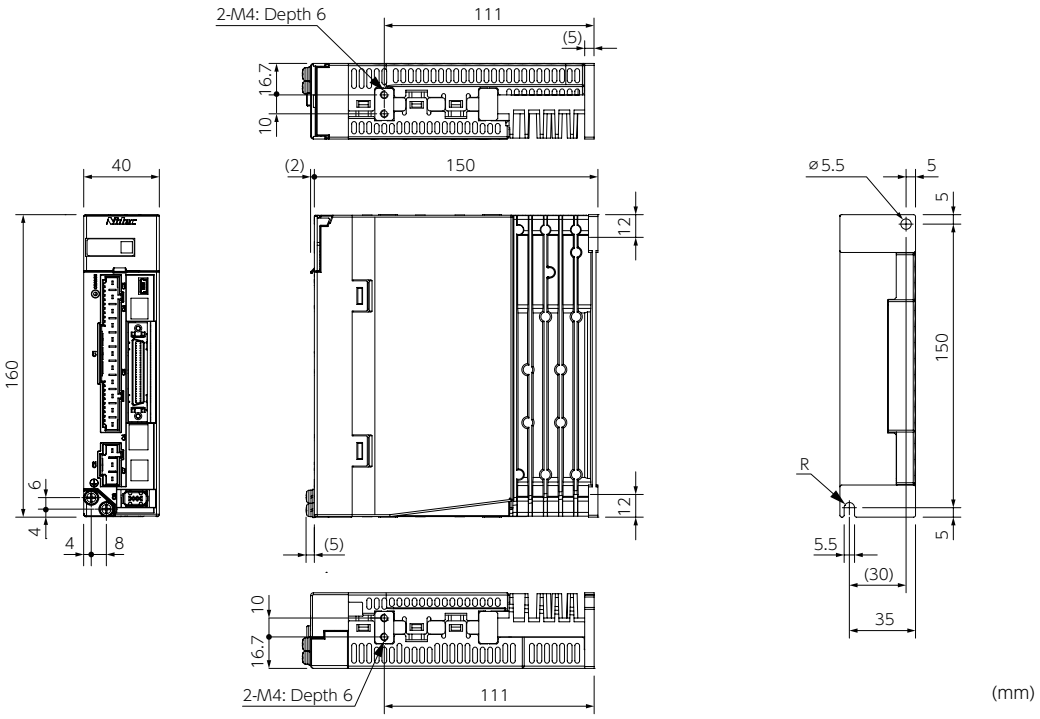


Figure 2 Amplifier model 400W DB62411

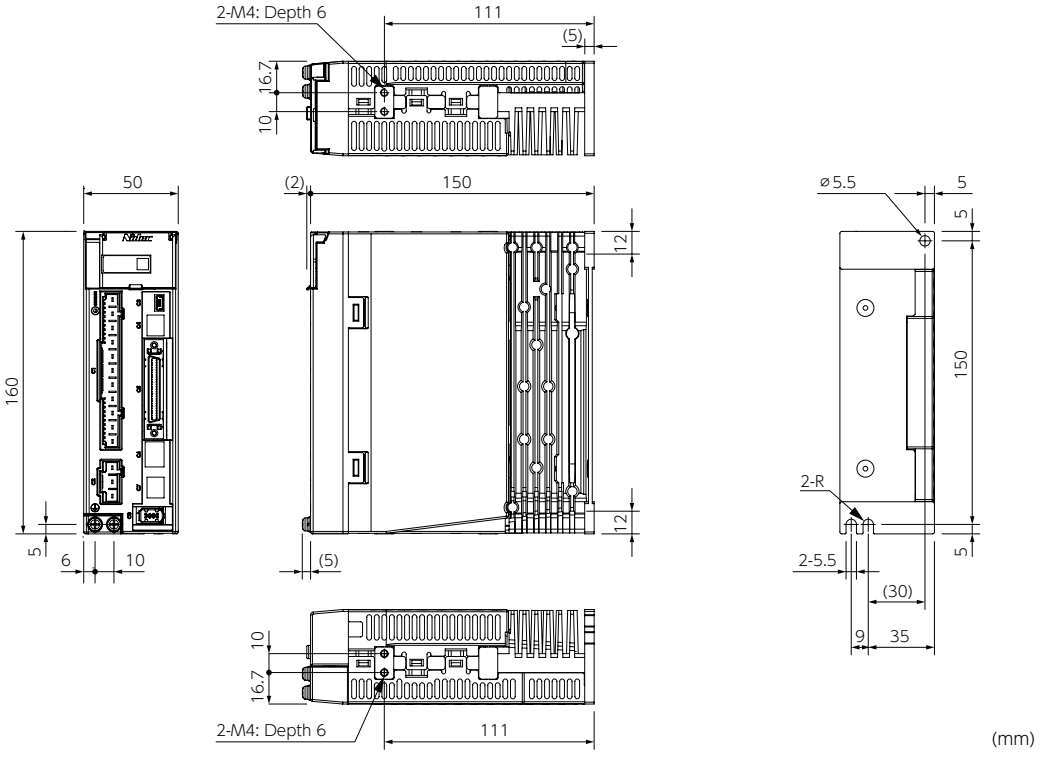


Figure 3 Amplifier model 750 W DB63811 1 kW DB64A11

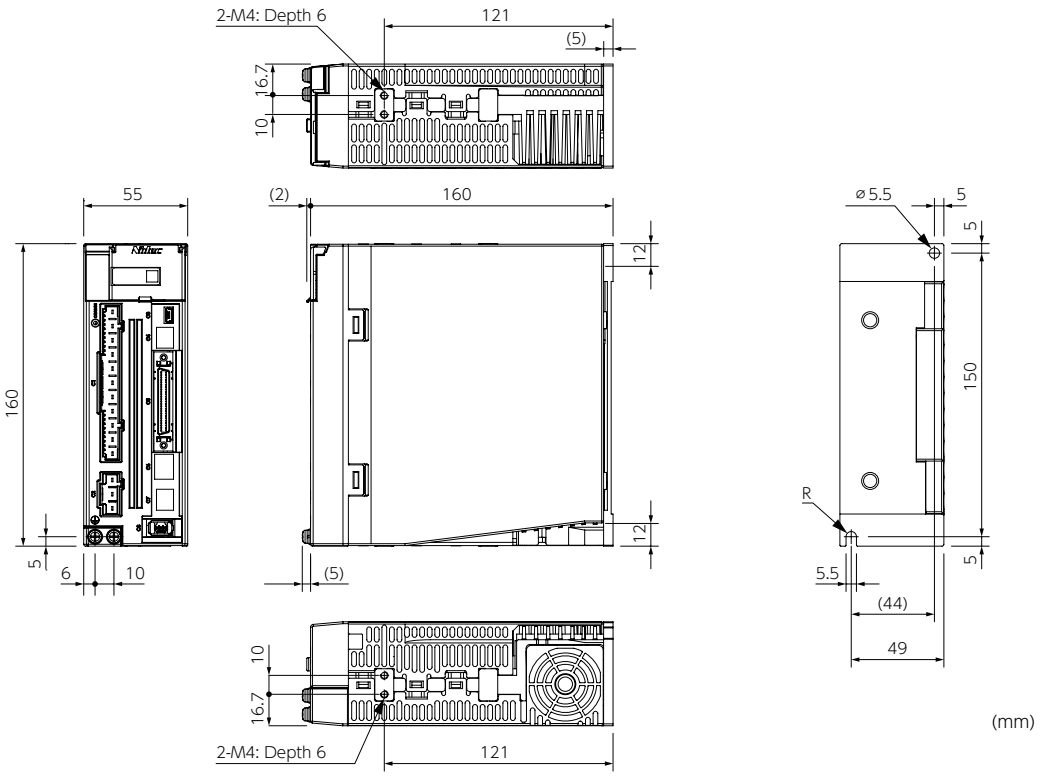
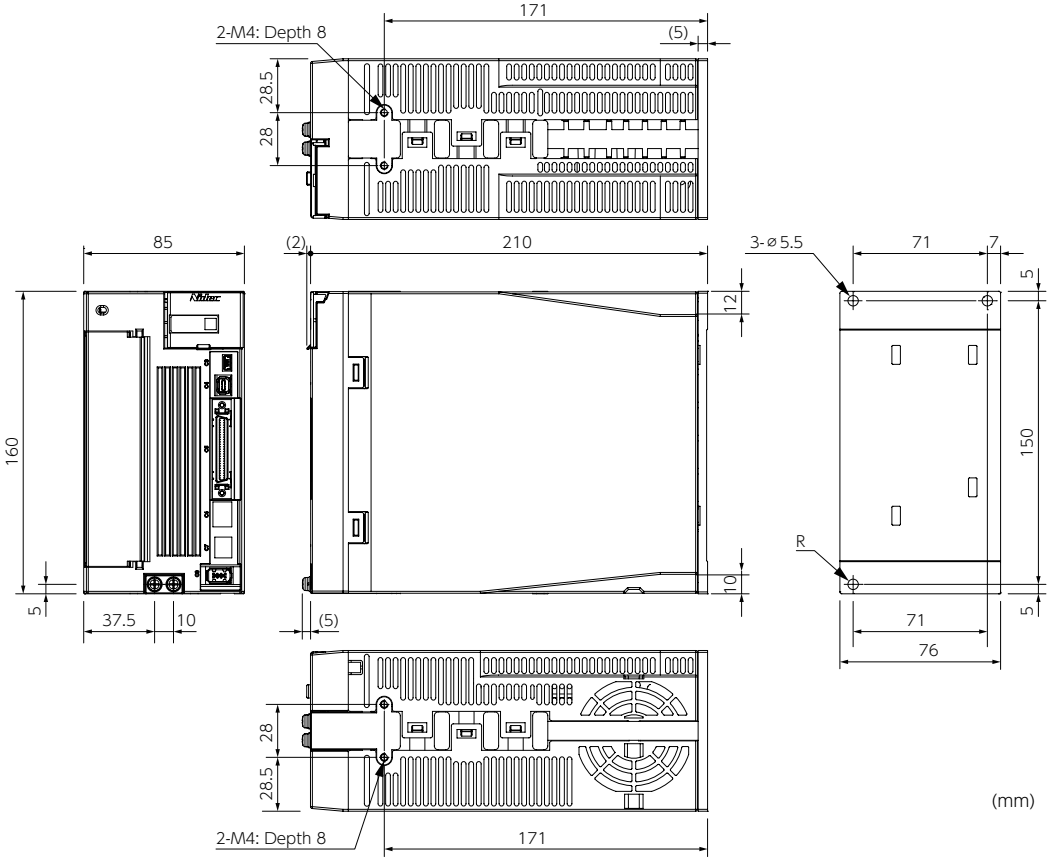


Figure 4 Amplifier model 850 W DB65B11 1.3 kW DB67C11 1.5 kW DB66B11 2 kW DB68C11



Basic Specifications

Items		Specifications				
Amplifier model		DB6YZ42	DB6Z142	DB61242	DB62442	DB63842
Compatible Motor		M□500 50W	M□101 100W	M□201 200W	M□401 400W	M□751 750W
External dimensions		(See "Dimensions")				
Mass (Kg)		0.8			1.0	1.1
Main circuit power & Control power		Single-phase AC200 V–240 V±10% 50 / 60 Hz				
Input current (Arms typ)		0.9	1.5	2.6	4.6	7.6
Control type		Three-phase PWM inverter sine-wave driven				
Output Rating	Rated current (A)	0.8	1.1	1.9	3.0	4.6
	Output frequencies (Hz)	0 - 500				
Encoder feedback		23 bit / 17 bit single-turn absolute (The product can function as a multi-turn absolute type when batteries are added.)				
Control signal (*2)	Input	7-point (24VDC system, photo-coupler input insulation)				
	Output	3-point (24VDC system, photo-coupler output insulation)				
Communication function		EtherCAT (Topology: "Daisy chain", "Star", or "Ring" are available) USB : connection to PC with "S-TUNE Ⅱ" installed				
Amplifier status display function		Amplifier status display function 2 digits of 7-segment display on Setup Panel (Indicate EtherCAT node ID)				
Regeneration function		A regenerative resistor may be installed externally (*3)				
Dynamic brake		Built-in				
Speed observer		Available				
Auto-tuning		Available				
Encoder output Division/Multiplication		Available				
Tuning & Function Setup		Available through the S-FLAG Ⅱ setup software "S-TUNE Ⅱ"				
Protective functions	By Hardware	Overvoltage, low voltage, Overcurrent, Abnormal temperature, Overload				
	By Software	Overspeed, Position deviation too high, Parameter errors, Encoder error				
Alarm Log		Can be referenced with the setup software "S-TUNE Ⅱ"				

Specifications

Items		Specifications					
Amplifier model		DB64A42		DB65B42	DB66B42	DB67C42	DB68C42
Compatible Motor		MX951 	M□102 	MJ851 	M□152 	MJ132 	M□202 
External dimensions		(See "Dimensions")					
Mass (Kg)		1.1		2.0			
Main circuit power & Control power		Three-phaseAC200-240 V (*1) ±10% 50 / 60 Hz					
Input current (Arms typ)		Single-phase : 9.9 Three-phase : 5.3		4.6	7.5	6.5	9.5
Control type		Three-phase PWM inverter sine-wave driven					
Output Rating	Rated current (A)	7.5		7.6	10.0	11.5	12.0
	Output frequencies (Hz)	0-500					
Encoder feedback		17 bit / 23 bit single-turn absolute (The product can function as a multi-turn absolute type when batteries are added.)					
Control signal (*2)	Input	7-point (24VDC system, photo-coupler input insulation)					
	Output	3-point (24VDC system, photo-coupler output insulation)					
Communication function		EtherCAT (Topology: "Daisy chain", "Star", or "Ring" are available) USB : connection to PC with "S-TUNE Ⅱ" installed					
Amplifier status display function		Amplifier status display function 2 digits of 7-segment display on Setup Panel (Indicate EtherCAT node ID)					
Regeneration function		A regenerative resistor may be installed externally (*3)					
Dynamic brake		Built-in					
Speed observer		Available					
Auto-tuning		Available					
Encoder output Division/Multiplication		Available					
Tuning & Function Setup		Available through the S-FLAG Ⅱ setup software "S-TUNE Ⅱ"					
Protective functions	By Hardware	Overvoltage, low voltage, Overcurrent, Abnormal temperature, Overload					
	By Software	Overspeed, Position deviation too high, Parameter errors, Encoder error					
Alarm Log		Can be referenced with the setup software "S-TUNE Ⅱ"					

Notice

*1) In the Amplifier DB64A □□ (1 kW), single-phase can be used for primary circuit power source.
To use single-phase 200 to 240 VAC, connect it to the primary circuit power connectors L1 and L3.

Item		Specifications	
Amplifier Model		DB64A □□	
Compatible Motor		 (MX951 □ 2 □□ ** , M □ 102 □ 2 □□ **)	
Primary Circuit Power Supply	Voltage Range	Three-phase 200 to 240 VAC ± 10% 50/60 Hz	Single-phase 200 to 240 VAC ± 10% 50/60 Hz
	Input Current	Rated at 4.5 A (200 VAC input) Rated at 3.8 A (230 VAC input) Up to approximately 13 A	Rated at 8.6 A (200 VAC input) Rated at 7.3 A (230 VAC input) Up to approximately 23 A

*2) Use SELV (Safety Extra Low Voltage/Non-Hazardous Voltage) power supply to User I/O with reinforced isolation from hazardous voltage.
As a countermeasure against amplifier failure, install overcurrent protection or use power output capacity of no higher than 100 W.

*3) Regenerative resistor values do not guarantee optimal performance. If the generated heat temperature becomes too high, increase the resistance value or select a resistor whose allowable power is larger enough. Whether or not a regenerative resistor installation is necessary can be checked on the Setup Panel or S-TUNE Ⅱ.

Standard I/O

Items	Specifications
Control input	CW limit sensor, CCW limit sensor, Home sensor, External latch(2-point), Alarm reset, Emergency stop
Control output	Brake release, Alarm status, Servo ready

Operation mode

Item	Specifications
Operation mode	-EtherCAT communication -test run operation by dedicated setup software S-TUNE Ⅱ

EtherCAT communication Specifications

Items	Specifications
Device Profile	CoE (CANopen over EtherCAT)
Control mode	csp, csv, cst, hm, pp
hm method (homing mode)	1-6, 17-30, 33-37
Synchronous mode	DC (Synchronized), FreeRun (not-Synchronized)
Cycle Time	250 µs, 500 µs, 1 ms, 2 ms, 4 ms

Name of Parts

Figure 1 Amplifier model 50W DB6YZ42 100W DB6Z142 200W DB61242

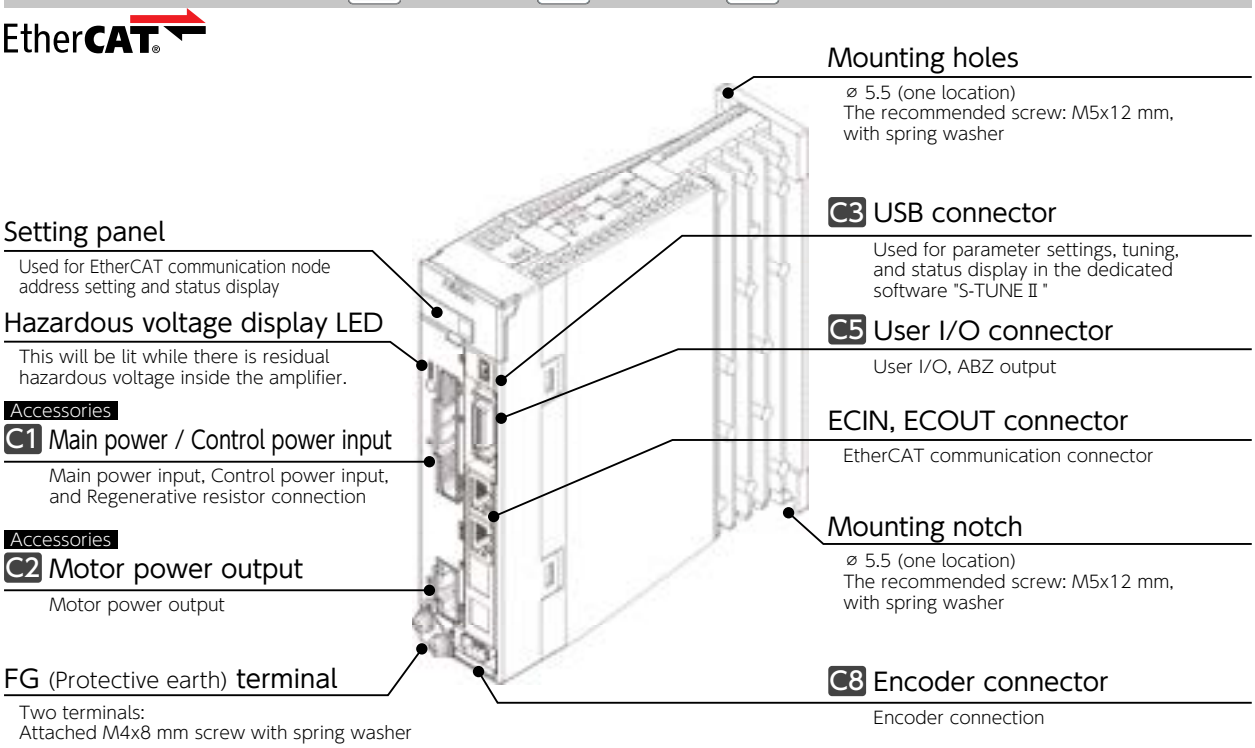


Figure 2 Amplifier model 400W DB62442

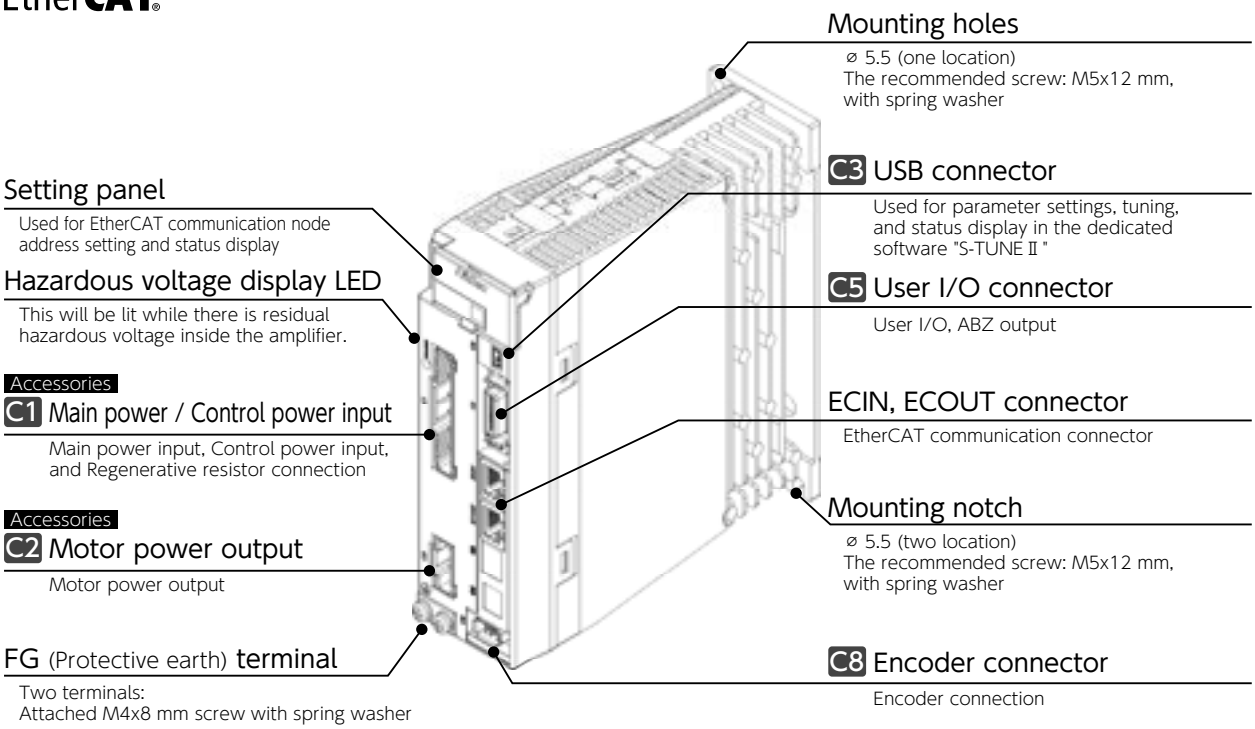


Figure 3 Amplifier model 750 W DB63842 1 kW DB64A42

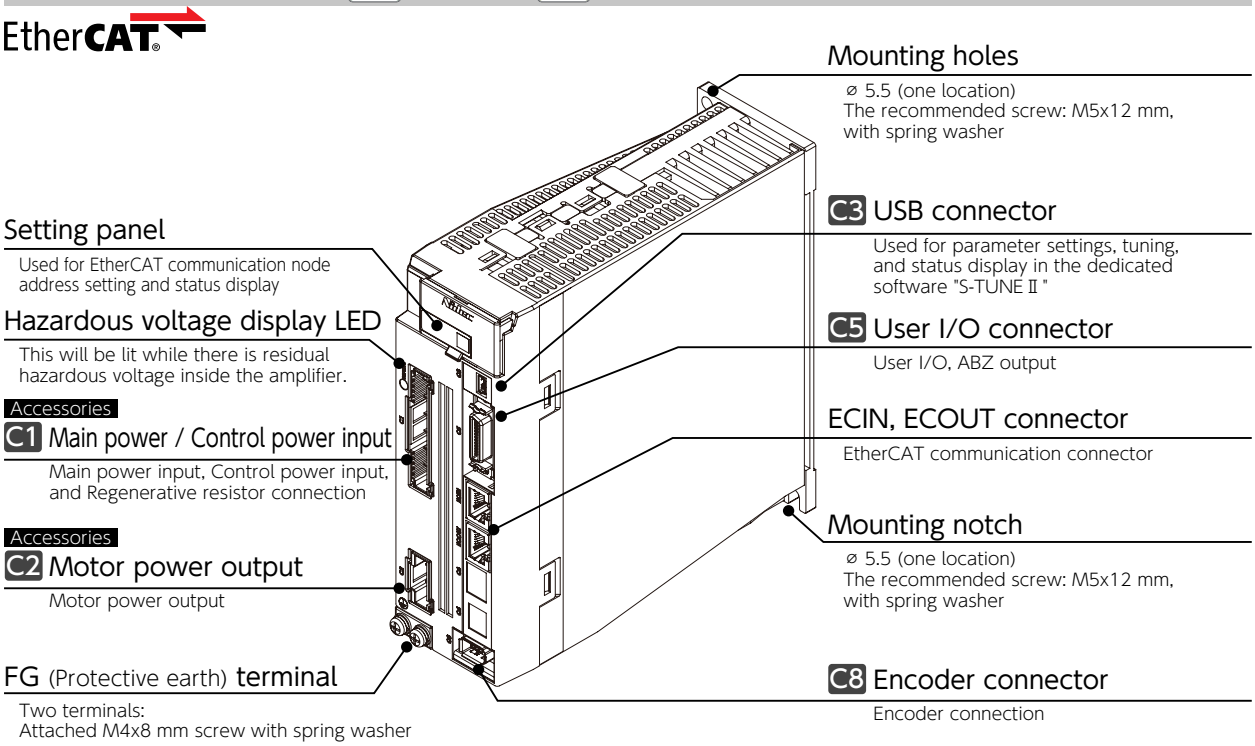


Figure 4 Amplifier model 850 W DB65B42 1.3 kW DB67C42 1.5 kW DB66B42 2 kW DB68C42

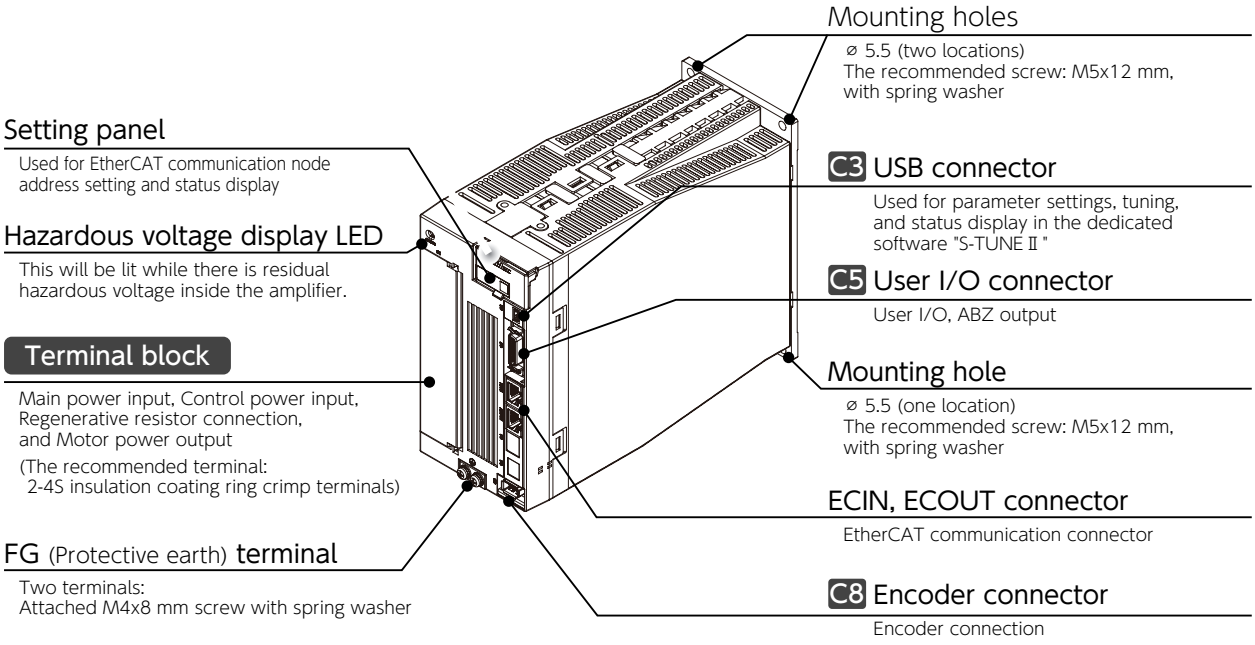
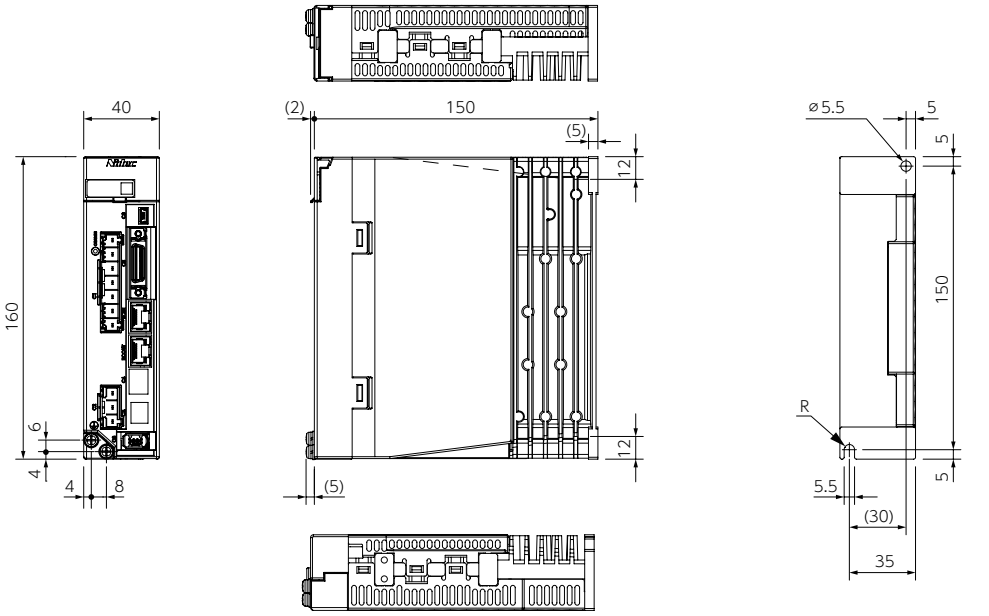
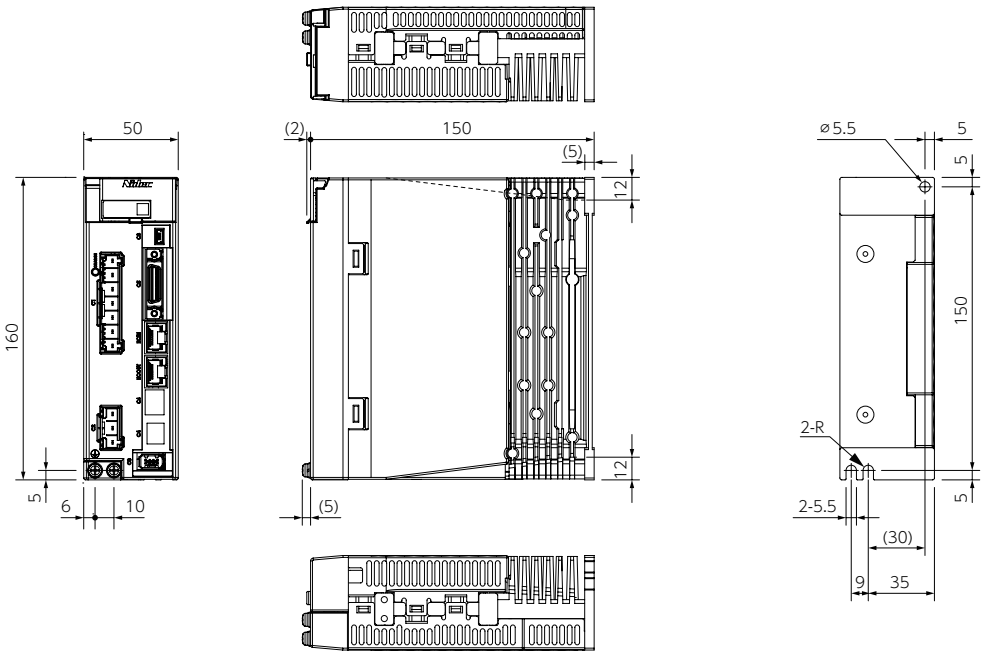


Figure 1 Amplifier model 50W DB6YZ42 100W DB6Z142 200W DB61242



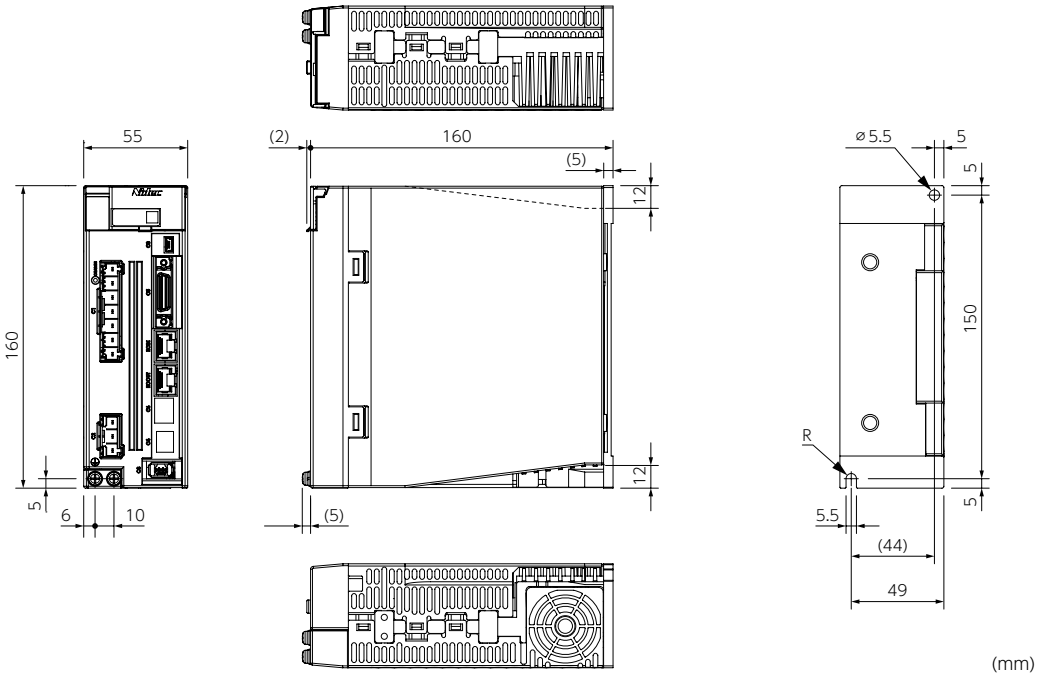
(mm)

Figure 2 Amplifier model 400W DB62442



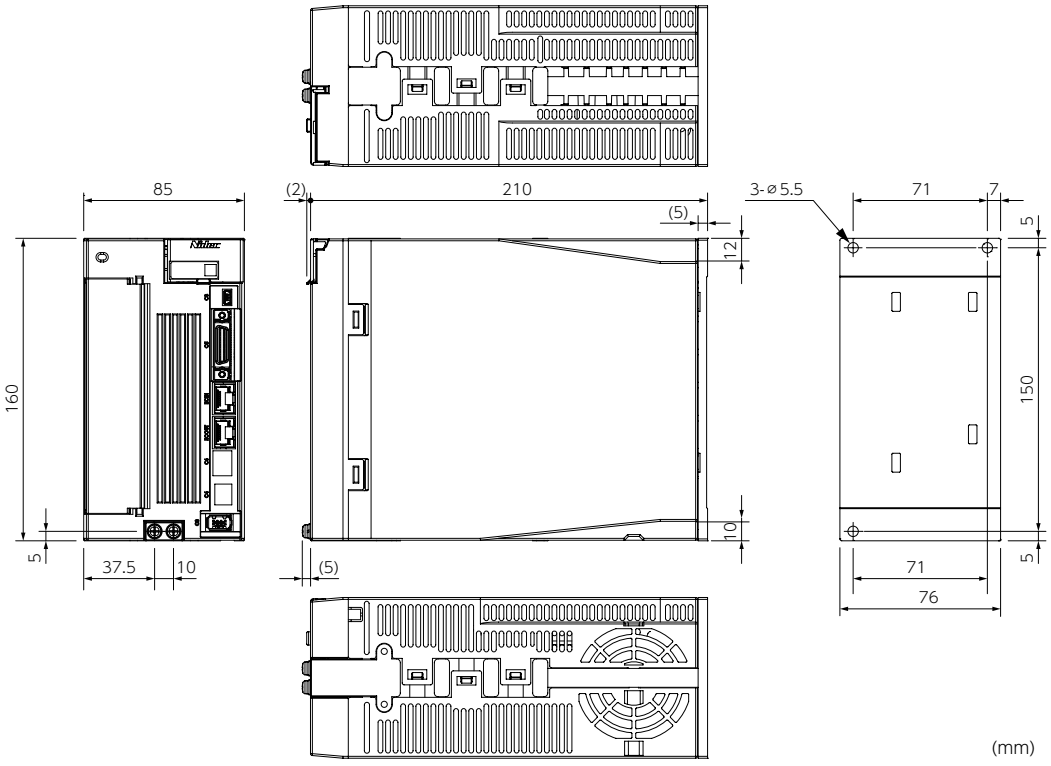
(mm)

Figure 3 Amplifier model 750 W DB63842 1 kW DB64A42



(mm)

Figure 4 Amplifier model 850 W DB65B42 1.3 kW DB67C42 1.5 kW DB66B42 2 kW DB68C42



(mm)

CoE Communication Profile Area (1000h – 1FFFh)

1000h–1602h

Index	Sub-Index	Name
1000h	00h	Device Type
1001h	00h	Error Register
1018h	–	Identity Object
	00h	Number of Entries
	01h	Vendor ID
	02h	Product Code
	03h	Revision Number
	04h	Serial Number
1600h	–	Receive PDO Mapping 1
	00h	Number of Entries
	01h	1st Receive PDO Mapped
	02h	2nd Receive PDO Mapped
	...	
	0Ch	12th Receive PDO Mapped
1601h	–	Receive PDO Mapping 2
	00h	Number of Entries
	01h	1st Receive PDO Mapped
	02h	2nd Receive PDO Mapped
	...	
	0Ch	12th Receive PDO Mapped
1602h	–	Receive PDO Mapping 3
	00h	Number of Entries
	01h	1st Receive PDO Mapped
	02h	2nd Receive PDO Mapped
	...	
	0Ch	12th Receive PDO Mapped

1604h–1A02h

Index	Sub-Index	Name
1604h	–	Receive PDO Mapping 5
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1605h	–	Receive PDO Mapping 6
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1A00h	–	Transmit PDO Mapping 1
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1A01h	–	Transmit PDO Mapping 2
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1A02h	–	Transmit PDO Mapping 3
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object

CoE Communication profile area

1A04h–1C15h

Index	Sub-Index	Name
1A04h	–	Transmit PDO Mapping 5
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1A05h	–	Transmit PDO Mapping 6
	00h	Number of Entries
	01h	1st mapped object
	02h	2nd mapped object
	...	
	0Ch	12th mapped object
1C00h	–	Sync Manager Communication Type
	00h	Number of Used Sync Manager Channels
	01h	Sync Manager Communication Type 0
	02h	Sync Manager Communication Type 1
	03h	Sync Manager Communication Type 2
	04h	Sync Manager Communication Type 3
	05h	Sync Manager Communication Type 4
	06h	Sync Manager Communication Type 5
1C10h	00h	Sync Manager 0 PDO Assignment
1C11h	00h	Sync Manager 1 PDO Assignment
1C12h	–	Sync Manager 2 PDO Assignment
	00h	Number of Assigned PDOs
	01h	PDO Mapping Object Index of Assigned RxPDO
1C13h	–	Sync Manager 3 PDO Assignment
	00h	Number of Assigned PDOs
	01h	PDO Mapping Object Index of Assigned TxPDO
1C14h	00h	Sync Manager 4 PDO Assignment
1C15h	00h	Sync Manager 5 PDO Assignment

1C32h–1C33h

Index	Sub-Index	Name
1C32h	–	Sync Manager 2 synchronization
	00h	Sync Manager 2 synchronization Number of Entries
	01h	Sync Manager 2 synchronization Sync mode
	02h	Sync Manager 2 synchronization Cycle time
	03h	(Not supported)
	04h	Sync Manager 2 synchronization Sync modes supported
	05h	Sync Manager 2 synchronization Minimum cycle time
	06h–09h	(Not supported)
	0Ah	Sync Manager 2 synchronization Sync0 cycle time
	0Bh–0Ch	(Not supported)
1C33h	–	Sync Manager 3 synchronization
	00h	Sync Manager 3 synchronization Number of Entries
	01h	Sync Manager 3 synchronization Sync mode
	02h	Sync Manager 3 synchronization Cycle time
	03h	(Not supported)
	04h	Sync Manager 3 synchronization Sync modes supported
	05h	Sync Manager 3 synchronization Minimum cycle time
	06h–09h	(Not supported)
	0Ah	Sync Manager 3 synchronization Sync0 cycle time
	0Bh–0Ch	(Not supported)

Manufacturer Specific Profile Area (2000h – 4000h)

2000h–2077h

Index	Sub-Index	Name
200Ch	00h	Warning Latch Time
200Dh	00h	Timing for Alarm Output
2020h	00h	Position Control Mode Setting 1
2021h	00h	Position Control Mode Setting 2
203Eh	00h	Velocity Control Mode Setting
2041h	00h	Deviation Error Detection Setting
2042h	00h	Position Control Mode Setting 2
2043h	00h	Drive Restriction Input
204Ah	00h	Position Command Filter 1 Notch Frequency
204Bh	00h	Position Command Filter 1 Notch Width
204Ch	00h	Position Command Filter 1 High Frequency Gain
204Fh	00h	Position Command Filter 1 Notch Depth
2050h	00h	Position Command Smoothing Filter 1 Moving Average Order
2052h	00h	Position Command Filter 2 Type
2053h	00h	Position Command Filter 2 Notch Frequency
2054h	00h	Position Command Filter 2 Notch Width
2055h	00h	Position Command Filter 2 High Frequency Gain
2056h	00h	Position Command Filter 2 Notch Depth
205Ah	00h	Speed Deviation Error Detection Value
205Bh	00h	Speed Deviation Error Detection Delay Time
2066h	00h	Inertia Ratio
2067h	00h	Damping Ratio
206Ah	00h	Tuning Inertia Ratio Upper Limit
206Eh	00h	Tuning Setting 1
2071h	00h	Tuning Setting 2
2072h	00h	Position Control Mode Control level
2073h	00h	Position Control Mode Control Gain 1
2074h	00h	Position Control Mode Control Gain 2
2075h	00h	Position Control Mode Gain FF Compensation 1
2076h	00h	Position Control Mode Gain FF Compensation 2
2077h	00h	Position Control Mode Integral Gain

2078h–20EFh

Index	Sub-Index	Name
2078h	00h	Tuning Control Gain Set Upper limit
2079h	00h	Tuning Tuning Constant
2081h	00h	Velocity Control Mode Control Gain Set
2082h	00h	Velocity Control Mode Control Level
2083h	00h	Velocity Control Mode Control Gain 1
2084h	00h	Velocity Control Mode Gain FF Compensation 1
2085h	00h	Velocity Control Mode Integral Gain
2092h	00h	Torque Command Offset
20A0h	00h	Torque Command Filter Setting
20A2h	00h	Torque Command Filter Low-pass Filter Time Constant
20A8h	00h	Torque Command Filter Notch Filter Frequency
20A9h	00h	Torque Command Filter Notch Filter Width
20AAh	00h	Torque Command Filter Notch Filter Depth
20ABh	00h	Torque Command Filter Notch Filter 2 Frequency
20ACh	00h	Torque Command Filter Notch Filter 2 Width
20ADh	00h	Torque Command Filter Notch Filter 2 Depth
20C1h	00h	Tuning Current Control Gain
20E0h	00h	Deceleration and Stop Setting
20E1h	00h	Emergency Stop Setting
20E2h	00h	Deceleration Stop Working Time
20E3h	00h	Deceleration Stop Rotational Speed to End Deceleration Stop
20E4h	00h	Deceleration Stop Working Time ()
20E5h	00h	Immediate Stop Average Counter for Smoothing Filter
20E8h	00h	Deceleration and Stop Setting 2
20E9h	00h	Deceleration and Stop Setting 3
20EAh	00h	Deceleration Stop Delay Time for Braking
20EBh	00h	Deceleration Stop Rotational Speed on Braking
20ECh	00h	Immediate Stop Time Extension
20EDh	00h	Delay Time for Servo Off
20EEh	00h	Delay Time for Mechanical Brake Release
20EFh	00h	Immediate Stop Decelerating Time

Manufacturer Specific Profile Area

2101h–2FFFh

Index	Sub-Index	Name
2101h	00h	Absolute System
2103h	00h	Encoder Error Detection Output Switch
210Bh	00h	Encoder Temperature to Detect Overheat
210Ch	00h	Encoder Voltage to Detect low Battery Voltage
212Eh	00h	Torque Control Mode Setting
2130h	00h	Basic Setting Main Circuit Power
2131h	00h	Voltage Drop Detection Delay Time
2152h	00h	Logical Input Masking Configuration
2165h	00h	Position Command Filter 3 Notch Frequency
2166h	00h	Position Command Filter 3 Notch Width
2167h	00h	Position Command Filter 3 High Frequency Gain
2168h	00h	Position Command Filter3 Notch Depth
216Bh	00h	Following Error Warning Window (Position deviation waning detection value)
216Dh	00h	Following Error Warning Time Out (Position deviation waning detection delay time)
2178h	00h	Motor Rotating Position at Encoder Error Holding Method
2179h	00h	Motor Rotating Position at Encoder Error Holding Time
21D8h	00h	Multi-turn limit Value
21D9h	00h	Multi-turn limit Notification to Encoder
21DAh	00h	EtherCAT Communication Setting
21DCh	00h	Logical IO Polarity
21DEh	00h	Logical Input Mask with Monitor
2FFFh	00h	Access to Servo Parameters

*1) **Bit0-7**: Control parameter
1: Amp → Object Dictionary
2: Object Dictionary → Amp and Save all parameter

Bit8: Busy bit (Read only)
Bit9-15: RSV.

4000h

Index	Sub-Index	Name
4000h	00h	Special Function
4100h	00h	Mechanical Angle
4101h	00h	Multi-turn Data

*2) **Bit0:** Clear multi turn data, **Bit1-15**: RSV.

*3) 0 to 131,071(17Bit) / 0 to 8,388,607(23Bit)

Drive Profile Area (6000h – 6FFFh)

603Fh–6091h

Index	Sub-Index	Name
603Fh	00h	Error Code
6040h	00h	Controlword
6041h	00h	Statusword
605Ah	00h	Quick Stop Option Code
6060h	00h	Modes of Operation
6061h	00h	Modes of Operation Display
6062h	00h	Position Demand Value
6064h	00h	Position Actual Value
6065h	00h	Following Error Window
6067h	00h	Position Window
606Ch	00h	Velocity Actual Value
6071h	00h	Target Torque
6072h	00h	Max Torque
6074h	00h	Torque Demand
6077h	00h	Torque Actual Value
607Ah	00h	Target Position
607Bh	–	Position Range Limit
	00h	Number of Entries
	01h	Min Position Range Limit
	02h	Max Position Range Limit
607Ch	00h	Home Offset
607Fh	00h	Max Profile Velocity
6080h	00h	Max Motor Speed
6081h	00h	Profile Velicity
6083h	00h	Profile Acceleration
6084h	00h	Profile Deceleration
6085h	00h	Quick Stop Deceleration
6091h	–	Gear Ratio
	00h	Number of Entries
	01h	Motor Revolutions
	02h	Shaft Revolutions

6098h–6502h

Index	Sub-Index	Name
6098	00 h	Homing Method
6099h	–	Homing Speeds
	00h	Number of Entries
	01h	Speed During Search for Switch
	02h	Speed During Search for Zero
609Ah	00h	Homing Acceleration
60B0h	00h	Position Offset
60B1h	00h	Velocity Offset
60B2h	00h	Torque Offset
60B8h	00h	Touch Probe Function
60B9h	00h	Touch Probe Status
60BAh	00h	Touch Probe 1 Positive Edge
60BBh	00h	Touch Probe 1 Negative Edge
60BCh	00h	Touch Probe 2 Positive Edge
60BDh	00h	Touch Probe 2 Negative Edge
60F4h	00h	Following Error Actual Value
60FDh	00h	Digital Inputs
60FFh	00h	Target Velocity
6502h	00h	Supported Drive Modes

*) Supported Drive Mode : PP, CSP, CSV, CST, HM

Main power

Main circuit power / Controll circuit power

1 ⌀ 200V-240V ± 10 %　50/60 Hz　50W 100W 200W 400W 750W 1kW

Please use this product in the power supply environment of Over-Voltage Category Ⅱ defined by IEC60664-1. This is the primary circuit power for amplifiers. Using a overvoltage protection relay is recommended.
To avoid unbalance of the three-phase AC200 V wiring in your factory, we recommend that you consider balance of currencies in your three-phase wirings.

850W 1.3kW 1.5kW 2kW

3 ⌀ 200V-240V ± 10 % 50/60 Hz

For 1.5kW and 2kW, a three-phase power supply is used for the main circuit power supply.

Circuit breaker

To protect the power supply line, circuit breakers shut the circuit down in the event of overcurrent. Be sure to use an IEC standard and UL-certified circuit breaker between the power supply and the noise filter. To ensure compliance with EMC, use an earth leakage circuit breaker that we recommend.

Surge absorber

To ensure compliance with EMC, connect the recommended surge absorber to the primary side of primary circuit power supply.

Noise filter

Noise filters prevent ingress of external noise from the power supply line.
To ensure compliance with EMC, use the recommended noise filter.

I/O power

DC24V ± 10%

For I/O power
Use a SELV (Safety Extra Low Voltage) power supply with reinforced insulation against hazardous voltages.

The main circuit power connector and motor power connector are terminal stands. For wiring, use the specified cable, use round terminals, and connect with the specified torque. See the instruction manual for details.See the instruction manual for details.

850W 1.3kW 1.5kW 2kW

Main & Control power connector

50W 100W 200W 400W 750W 1kW

Signal	Description
L1	Main Power (Main Circuit)
L2	Main Power (Main Circuit)/ ≦750W
L3	Main Power (Main Circuit)/ for 1kW
L1C	Main Power (Control Circuit)
L2C	Main Power (Control Circuit)
B1/+	External Regenerative resistor(＋)
B2	External Regenerative resistor(－)

AWG14 ／ 600 V equivalent (UL)

Electromagnetic contactor

This is an on/off switch for the main power supply. Use a surge absorber on the input side of the primary circuit power supply.

Regenerative resistor

This product is not equipped with regenerative resistor. If the smoothing capacitor inside the servo amplifier cannot absorb regenerative power, an external regenerative resistor is required.
check the regeneration state on the settings panel, and use a regenerative resistor whose resistance is 20 Ohm or more, if the regenerative voltage warning is ON. Build an overheating prevention circuit using a resistor which has built-in thermostat.
If the temperature of generated heat becomes high, you can suppress the heat by installing a cooling device.

Motor power connector

50W 100W 200W 400W 750W 1kW

Signal	Description
U	Motor power U-phase
V	Motor power V-phase
W	Motor power W-phase

Motor power cable

AWG18 ／ 300 V equivalent (UL)

Encoder connector

Incremental 6-pin

Absolute 9-pin

Brake release power

DC24 V ± 10 %

Brake Releasing Power Supply.
Use a different I/O power supply.

Brake connector

2-pin

Brake cable

Brake control circuit (e.g., relays)

PE

Brake release signal

MBRK (CN5 connector)

Varistor

Be sure to connect it close to the motor.

BRK+

BRK−

Motor power connector

4-pin

Motor

Explanatory notes

- High Voltage
- Non-dangerous voltage cable
- Ground resistance : 100 Ω max.
- High temperature caution

Conditions of Installation and Use

Pollution Degree (IEC 60664-1)
Overvoltage Category (IEC 60664)

Ferrite core

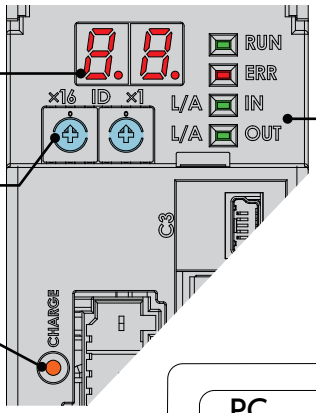
To ensure compliance with EMC, use the recommended signal line noise filter/ferrite core.

Setting panel

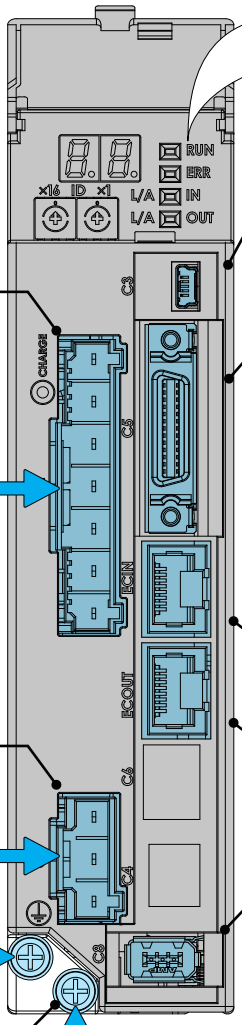
7-segment display
-EtherCAT node address
-Status (Alarm and Warning) etc

Rotary Switches
Setting the EtherCAT node address

Hazardous voltage display
This will be lit while there is residual hazardous voltage inside the amplifier.



Amplifier



PC

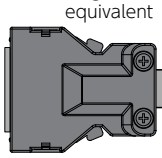
S-TUNE Ⅱ

CN3 USB connector

USB miniB

CN5 User I/O connector

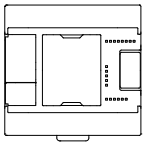
Plug: 10126-3000-PE (3M) ／Cover: 10326 (3M) equivalent



Control signal

User I/O cable
AWG26 ／ 300 V equivalent (UL)
Shielded twisted pair cables of length no exceeding 2 m

Host controller

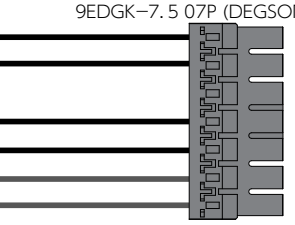


I/O power (DC24 V)

Accessories
Main & Control power connector

9EDGK−7. 5 07P (DEGSON)

CN1



ECIN

ECOUT

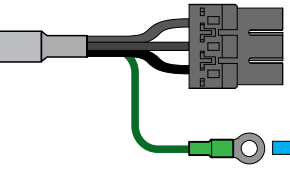
EtherCAT

Master Controller

Accessories
Motor power connector

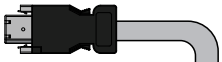
9EDGK−7. 5 03P (DEGSON)

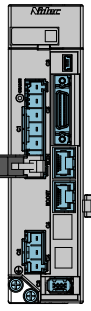
CN2



CN8 Encoder connector

Connector: 3E206-0100KV (3M)
Cover: 3E306-3200-008 (3M)





Slave device(s)

FG terminals

Attached M4x8 mm screw with spring washer

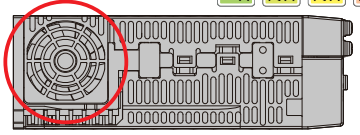
PE

Encoder cable

AWG22(power), AWG24(signal) (UL)
Shielded twisted pair cables of length no exceeding 20 m

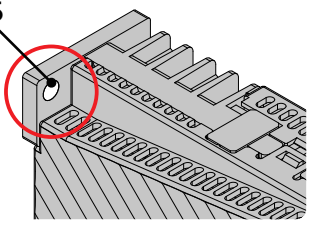
Cooling fan

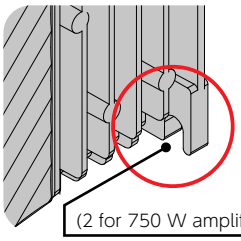
It locates on the bottom of the amplifier.



Mounting amplifer

ø 5.5





(2 for 750 W amplifier)

Recommended: M5 x 12 mm spring washers

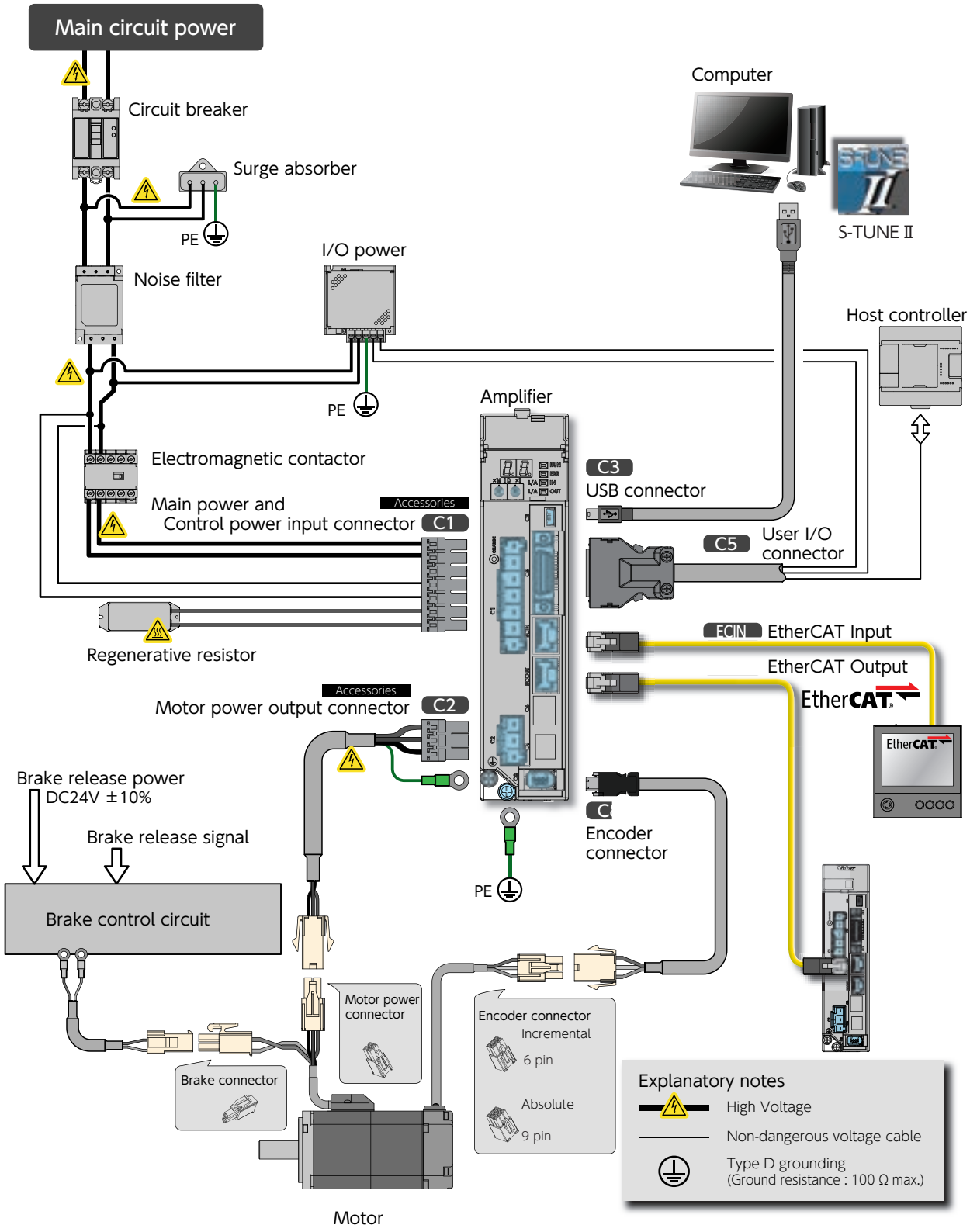
DANGER		
	Be mindful when wiring and handling high voltage materials	

	DO NOT use the electromagnetic contactor (installed on the primary circuit power side) to run or stop the motor.
	DO NOT extend encoder wires by relay connectors or soldering.
	DO NOT connect the EtherCAT communication cable directly to the public communication network such as Internet.
	FG connection is a must.
	Connect the input power of control power to the same power supply that the primary circuit power is connected to.
	For high-voltage cables, use calbe of 600 V withstand voltage or more.
	For stranded wire, use insulation coating, rod or ring crimp terminals.
	The motor power cable and encoder cable length must be 20 meters or less.
	Be sure to use shielded twisted pair cable for cables used for encoder lines.
	Separate the motor power cable and encoder cable as much as possible.
	For a C5 connector cable, use a shielded twisted-pair cable of 2 m or less.
	To comply with the EC Directive, select appropriate devices, each of which is compliant with its applicable standards.

EtherCAT Communication model

Wiring Pattern 1

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW



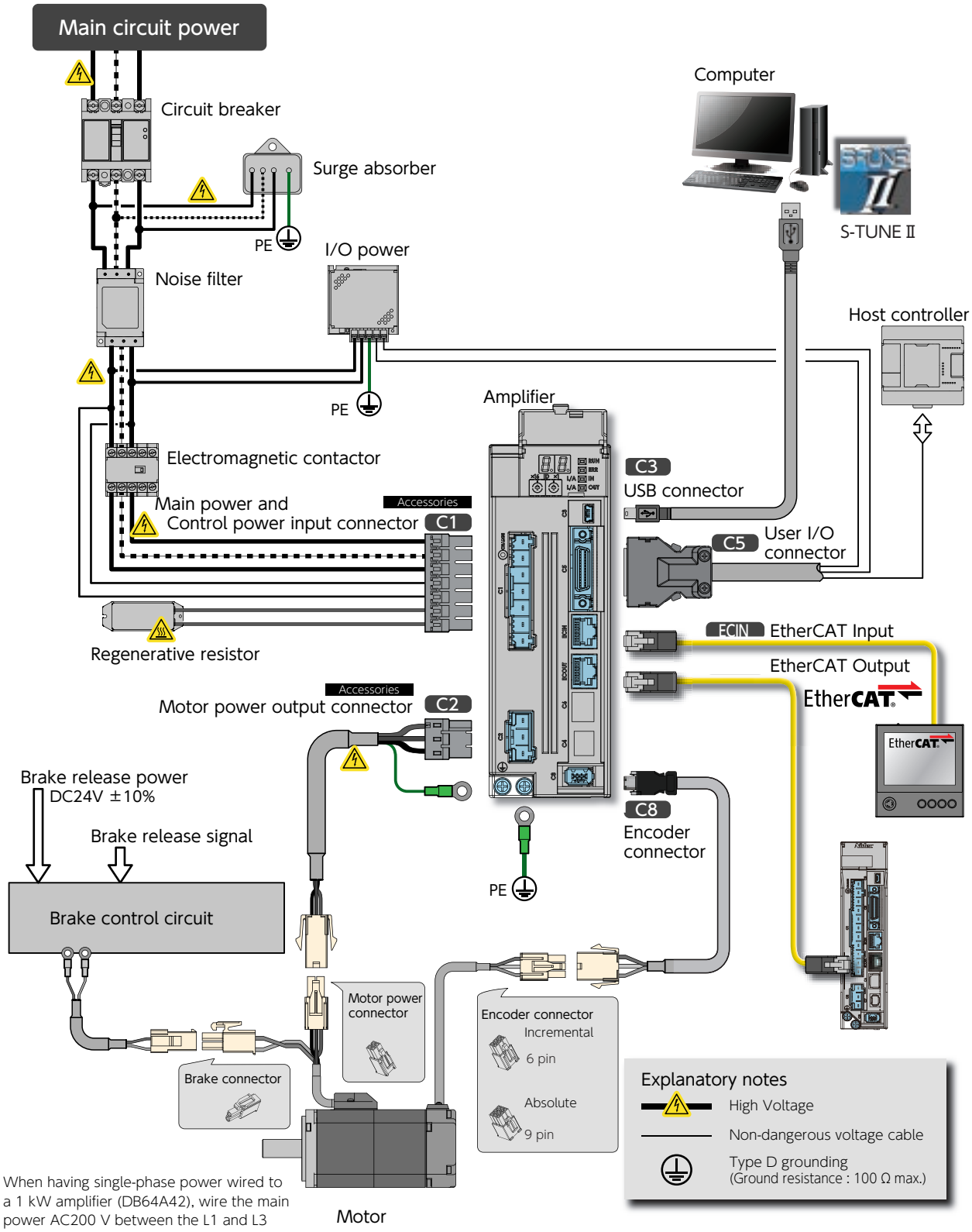
This wiring diagram depicts one example configuration:
a 200 W motor and its compatible amplifier.

EtherCAT Communication model

Wiring Pattern 2

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | **1 kW** | 1.3 kW | 1.5 kW | 2 kW

MX951



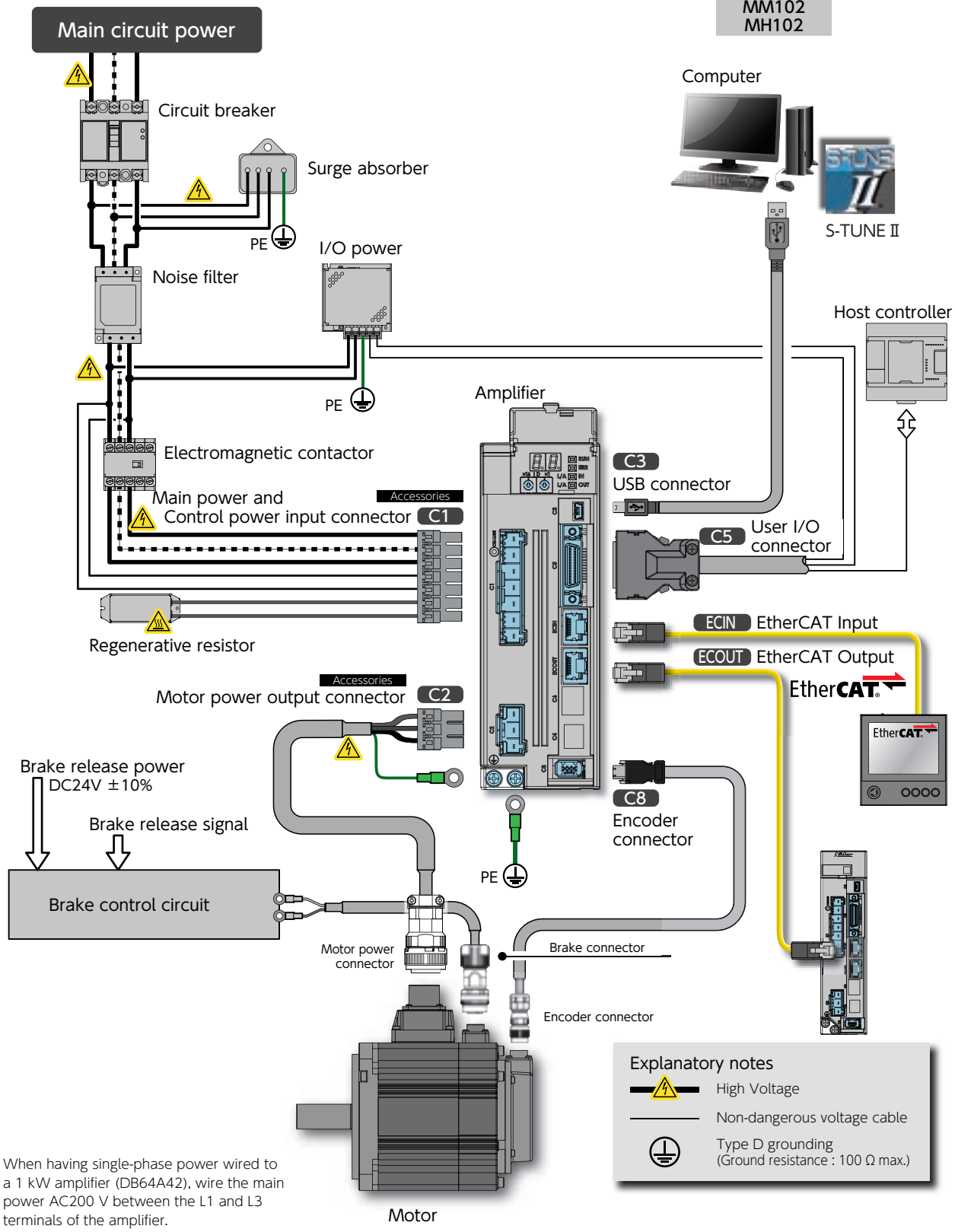
When having single-phase power wired to a 1 kW amplifier (DB64A42), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

EtherCAT Communication model

Wiring Pattern 3

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | **1 kW** | 1.3 kW | 1.5 kW | 2 kW

MX102
MM102
MH102



Explanatory notes

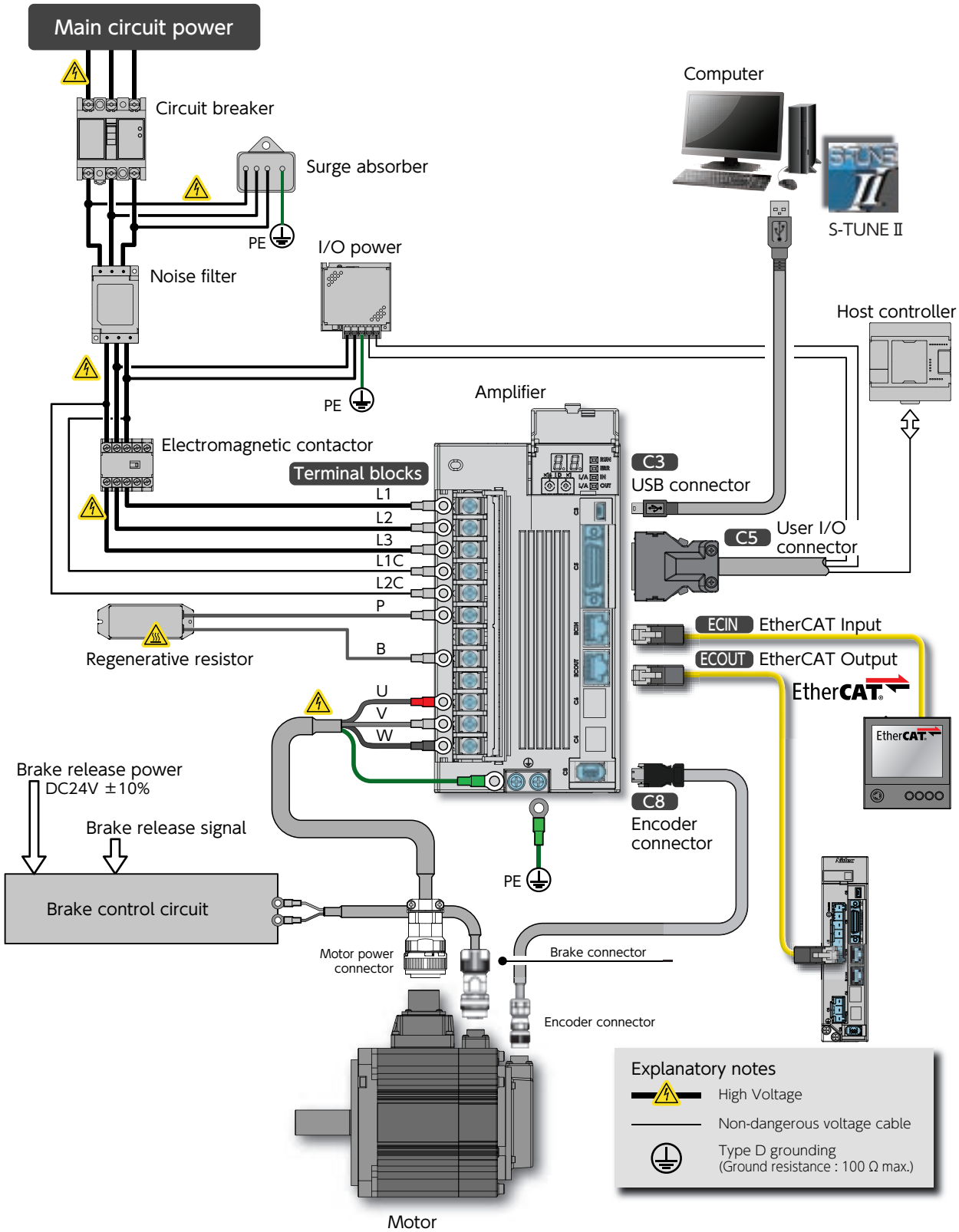
- High Voltage
- Non-dangerous voltage cable
- Type D grounding (Ground resistance : 100 Ω max.)

When having single-phase power wired to a 1 kW amplifier (DB64A42), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

EtherCAT Communication model

Wiring Pattern 4

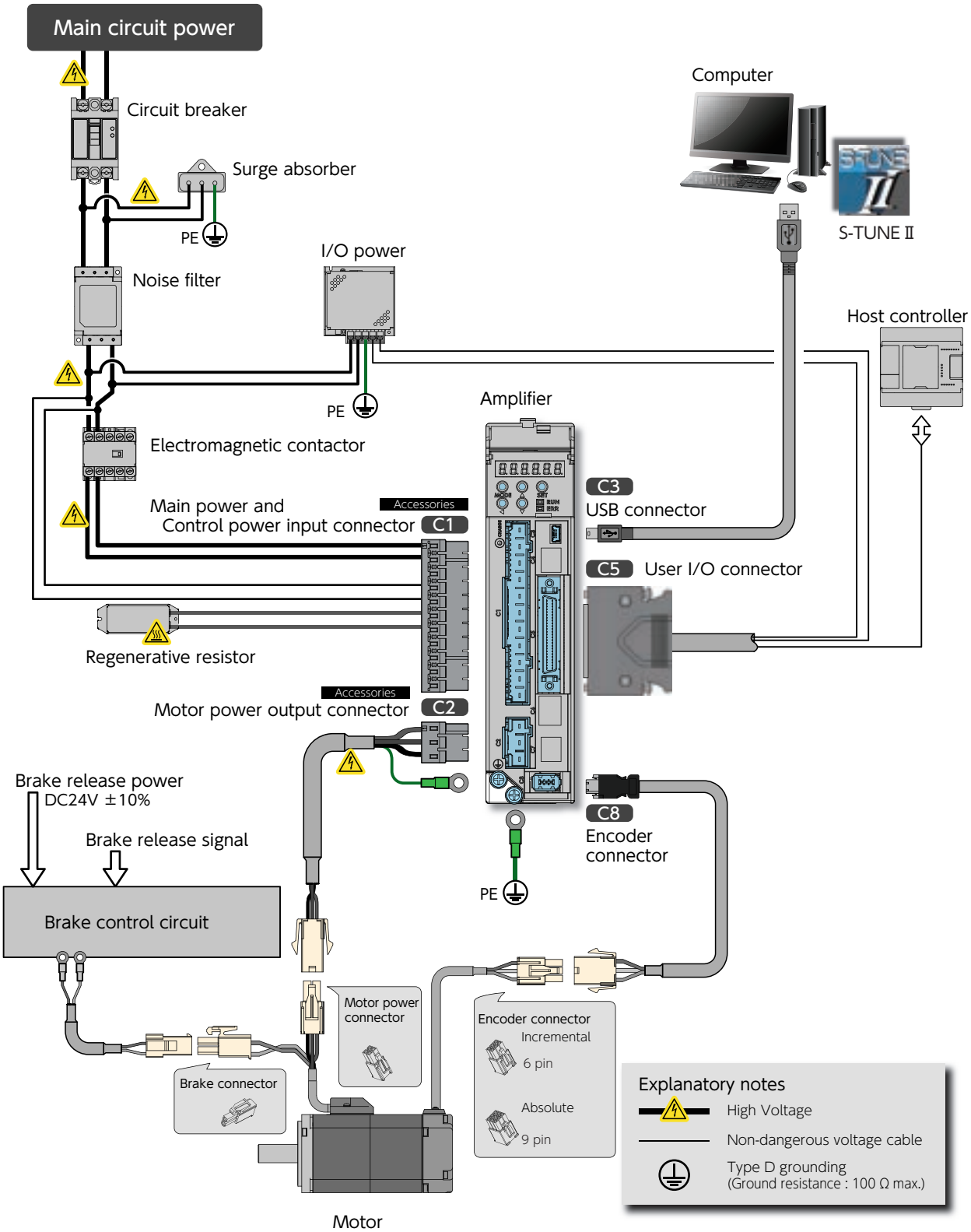
Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | **850 W** | 1 kW | 1.3 kW | 1.5 kW | 2 kW



Standard model

Wiring Pattern 1

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW



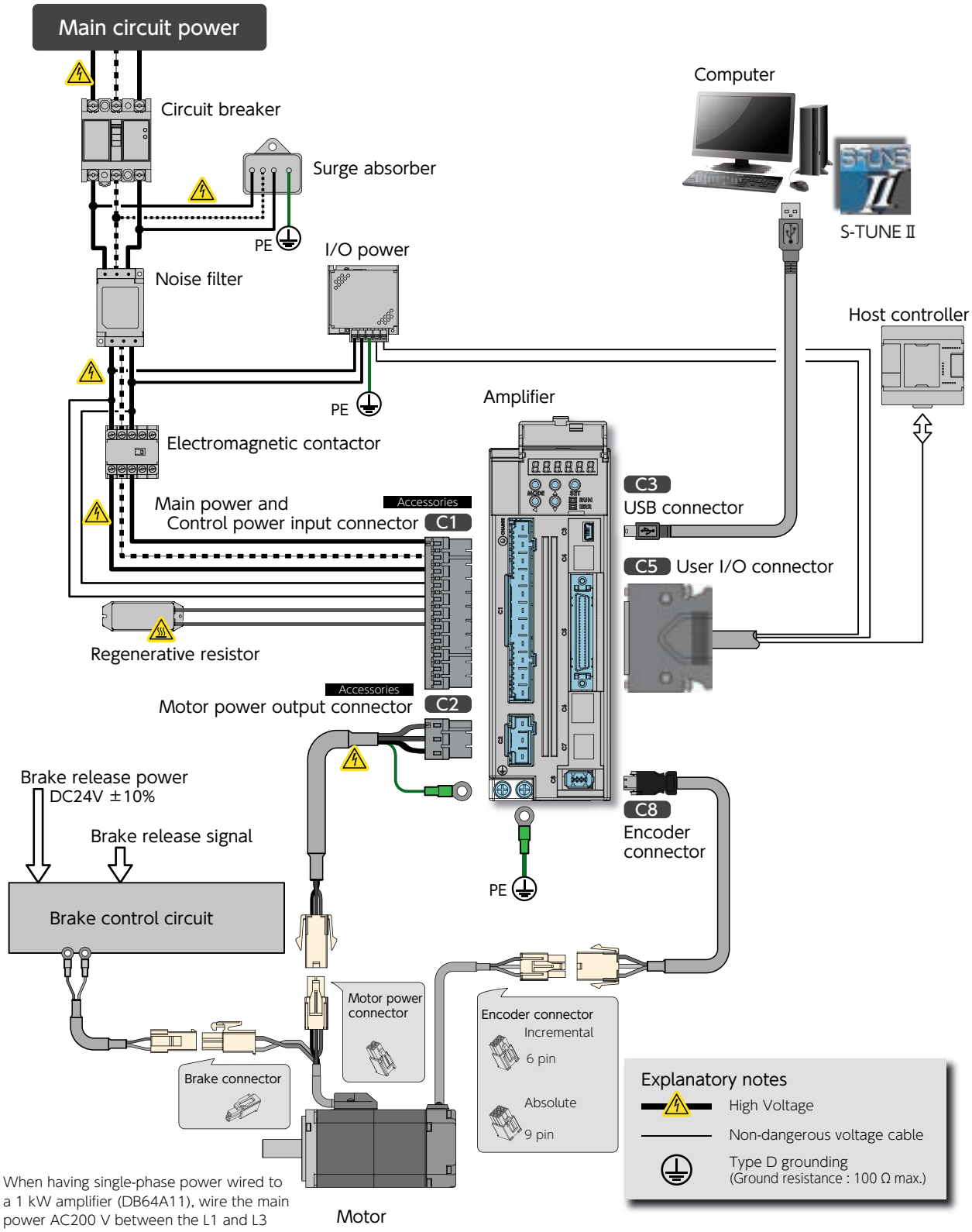
This wiring diagram depicts one example configuration:
a 200 W motor and its compatible amplifier.

Standard model

Wiring Pattern 2

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | **1 kW** | 1.3 kW | 1.5 kW | 2 kW

MX951



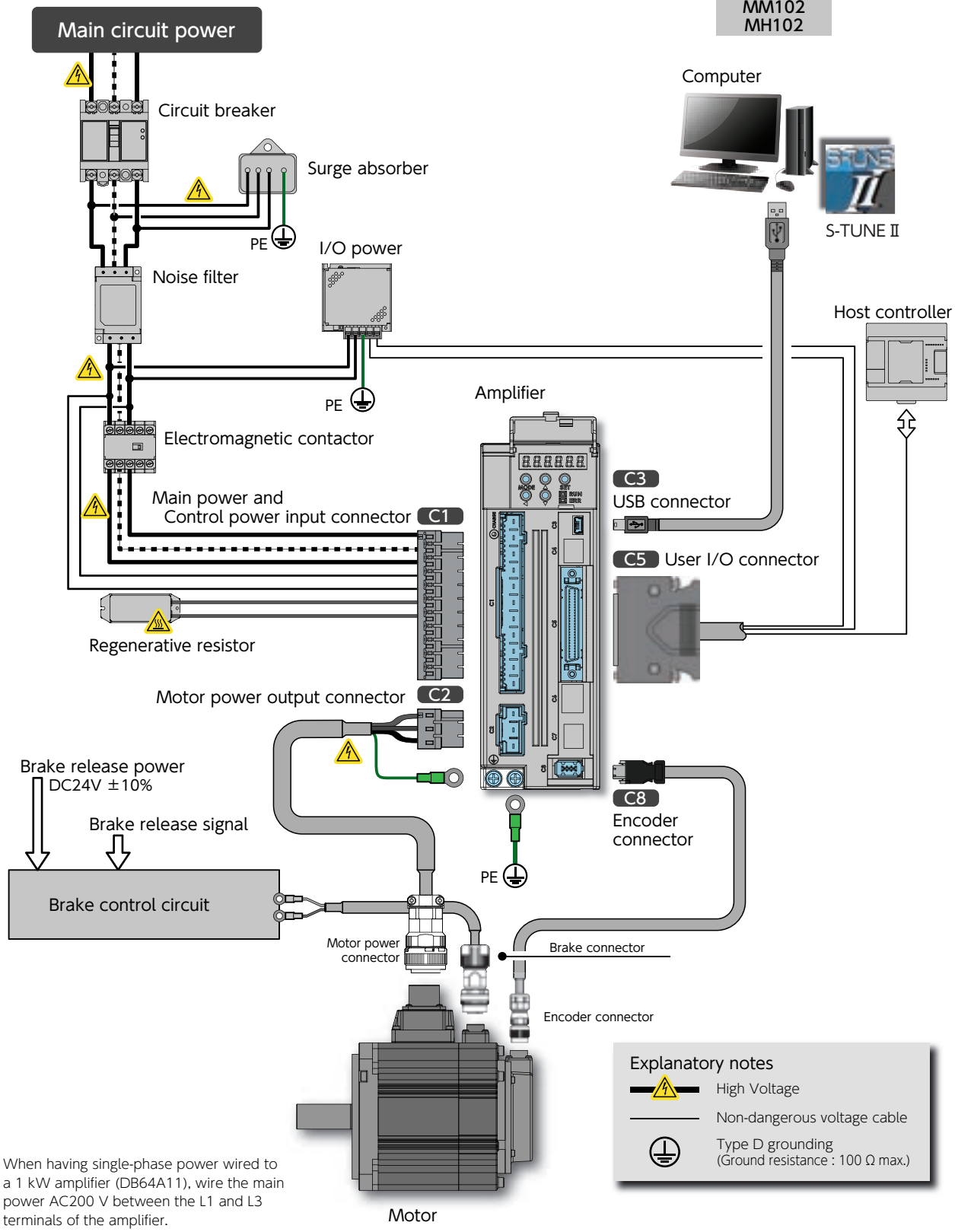
When having single-phase power wired to a 1 kW amplifier (DB64A11), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

Standard model

Wiring Pattern 1

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | **1 kW** | 1.3 kW | 1.5 kW | 2 kW

MX102
MM102
MH102

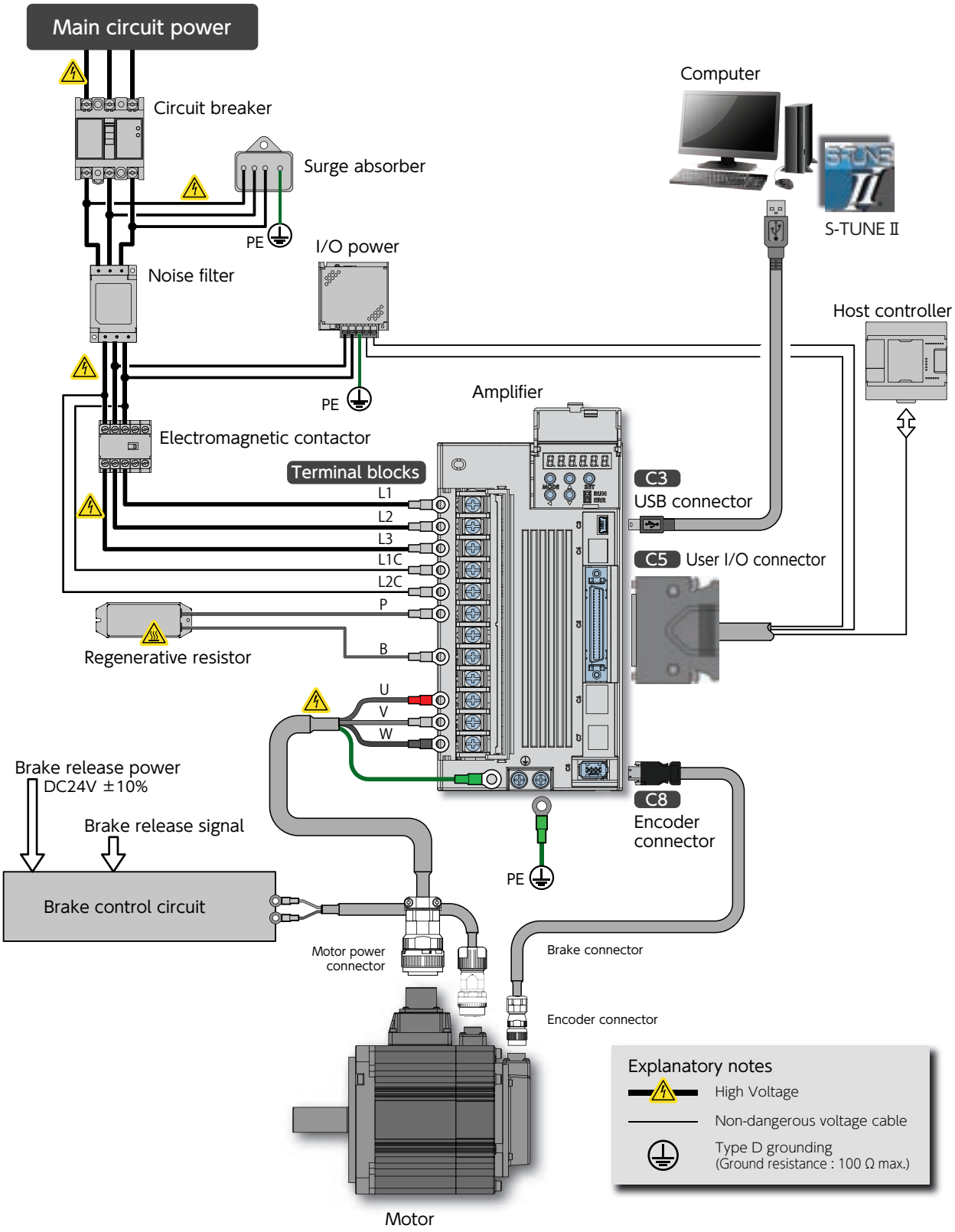


When having single-phase power wired to a 1 kW amplifier (DB64A11), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

Standard model

Wiring Pattern 1

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, **850 W**, 1 kW, 1.3 kW, 1.5 kW, 2 kW



Main circuit power / Controll circuit power

Please use this product in the power supply environment of Over-Voltage Category Ⅱ defined by IEC60664-1.

This is the primary circuit power for amplifiers.

Using a overvoltage protection relay is recommended.

Main circuit power:

50 W to 750 W	: Single-phase	AC200 V to 240 V ± 10%	50/60 Hz
850 W to 2 kW	: Three-phase	AC200 V to 240 V ± 10%	50/60 Hz

- When having single-phase power wired to a 1 kW amplifier, wire the primary circuit AC200 V between the L1 and L3 terminals of the amplifier.
- To avoid unbalance of the three-phase AC200 V wiring in your factory, we recommend that you consider balance of currencies in your three-phase wirings.
- Confirm that your contract with the electric power company is not limited to use of three-phase.

Control circuit power:

All amp, models	: Single-phase	AC200 V to 240 V ± 10%	50/60 Hz

I/O power

This is power supply of DC24 V ± 10% for I/O power and motor brake release power.

Use a SELV (Safety Extra Low Voltage) power supply with reinforced insulation against hazardous voltages.

Be sure to connect a varistor to the motor braking release power supply.

Cables

Use of UL wires and cables suitable for motor rated output are recommended.

Should you use a cable longer than the specification, please contact us in advance.

High-voltage cables (Main circuit power cable, Control power cable), FG cables:
AWG14 / 600 V breakdown voltage or equivalent

Regenerative resistor connecting cable
AWG18 / 600 V breakdown voltage or equivalent

Motor power cables:
50–750 W : AWG18 / 300 V breakdown voltage or equivalent
850 W-2 kW : AWG14 / 300 V breakdown voltage or equivalent
NOTE: 1 kW motors may use AWG16 cables as well.
Length not exceeding 20 m

Encoder cables:
AWG22 and AWG24 compound / 30 V breakdown voltage or equivalent
Shielded cables with twisted pair wires
Length not exceeding 20 m

User I/O cable:
AWG26 / 300 V breakdown voltage or equivalent
Shielded cables with twisted pair wires
Length not exceeding 2 m

Circuit breaker

To protect the power supply line, circuit breakers shut the circuit down in the event of over-current.
Be sure to use an IEC standard and UL-certified circuit breaker between the power supply and the noise filter.
To ensure compliance with EMC, use an earth leakage circuit breaker that we recommend.

Recommended Product	Fuji Electric Co., Ltd.	Single-phase : EW32AAG-2P020B Three-phase : EW32AAG-3P020B

20 A for single-phase (three-phase) 200 V Leakage current of 30 mA.
An equivalent product is acceptable. Select the capacity and other characteristics according to your entire system configuration.

Noise filter

Noise filters prevent ingress of external noise from the power supply line. To ensure compliance with EMC, use the recommended noise filter.

Recommended Product	OKAYA Electric Industries Co., Ltd.	3SUPH-BE □□ -ER-6-E

Included in S-FLAG Ⅱ amplifier's EMC testing.
Select the capacity and other characteristics according to your entire system configuration.

Electromagnetic contactor

This is an on/off switch for the main power supply. Use a surge absorber on the input side of the primary circuit power supply.

Recommended Product	Fuji Electric Co., Ltd.	SK06G-E10

An equivalent product is acceptable.
Select the capacity and other characteristics according to your entire system configuration.

Surge absorber

To ensure compliance with EMC, connect the recommended surge absorber to the primary side of primary circuit power supply.

Recommended Product	OKAYA Electric Industries Co., Ltd.	Single-phase: LV275DI-Q4 Three-phase: LV275DI-U4

Included in S-FLAG Ⅱ amplifier's EMC testing

Signal line noise filter/ferrite core

To ensure compliance with EMC, use the recommended signal line noise filter/ferrite core.
Attach the ferrite core with reference to the figure below.

- The figure below illustrates the attachment position of the ferrite core.
- Note that the figure below is an example of 200W, which is also the case for other than 200W.
- Refer to the wiring diagram for noise filters, surge absorbers, 24 VDC power supply, etc. on the AC power supply side.

Recommended Product	SEIWA ELECTRIC MFG. CO., LTD. (MISUMI)	E04SR482648

Included in S-FLAG Ⅱ amplifier's EMC testing

Regenerative resistor

This product is not equipped with regenerative resistor. If the smoothing capacitor inside the servo amplifier cannot absorb regenerative power, an external regenerative resistor is required.
As a guideline, check the regeneration state on the settings panel, and use a regenerative resistor whose resistance is 20 Ohm or more, if the regenerative voltage warning is ON.
Build an overheating prevention circuit using a resistor which has built-in thermostat.
If the temperature of generated heat becomes high, you can suppress the heat by installing a cooling device, or selecting a resistor whose allowable power is 5 to 10 times larger than regenerative voltage.

Recommended Product	Chiba Techno Co., Ltd.	For 50-750 W : CAN100S 47 Ω J For 1 kW : CAN400S 30 Ω J For 850 W, 1.3-2 kW : CAN750S 20 Ω J

Motor Model	50 W M□500	100 W M□101	200 W M□201	400 W M□401	750 W M□751	1 kW MX951 M□102	850 W MJ851	1.3 kW MJ132	1.5 kW M□152	2 kW M□202
Rated output	50 W	100 W	200 W	400 W	750 W	1 kW	850 W	1.3 kW	1.5 kW	2 kW
Regeneration resistance	40–50 Ω					30 Ω	20 Ω			
Regeneration allowable voltage	20 W					40 W	60 W			
Recommended Wattage	100–200 W					400–800 W	600–1,200 W			

When considering a regenerative resistor other than the recommended above, use the following as a guideline.

The regeneration resistance values do not guarantee the optimal performance. Regeneration allowable voltages above are minimum values as a point of reference.
The regeneration resistor may become very hot. It requires sufficient margin of regeneration allowable power.

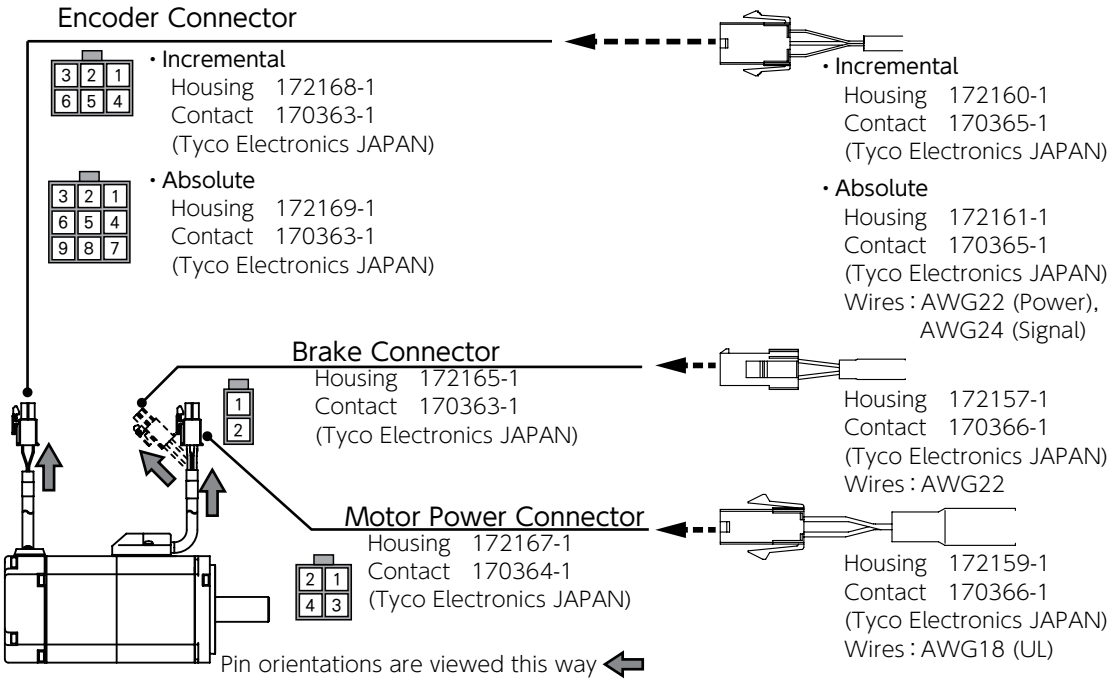
Grounding

Since this product is Class I device, protective grounding is mandatory.
(Type D grounding: grounding resistance of up to 100 Ω)
Properly ground the product using protective grounding terminals through EMC-compatible casing and control panel.

Motor Connector Pinout

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX951



Name	Pin No.	Signal	Description
Motor Power	1	U	Motor power U-phase
	2	V	Motor power V-phase
	3	W	Motor power W-phase
	4	FG	Motor frame ground
Brake (*1)	1	BRK+	Brake power supply DC24V
	2	BRK−	Brake power supply GND
Encoder (Incremental)	1	−	(No Connect)
	2	+D	Serial communication data + Data
	3	−D	Serial communication data − Data
	4	VCC	Encoder power supply +5 V
	5	SG	Signal ground
	6	SHIELD	Shield
Encoder (Absolute)	1	BAT	External battery (*2)
	2	−	(No Connect)
	3	SHIELD	Shield
	4	+D	Serial communication data + Data
	5	−D	Serial communication data − Data
	6	−	(No Connect)
	7	VCC	Encoder power supply +5 V
	8	SG	Signal ground
	9	−	(No Connect)

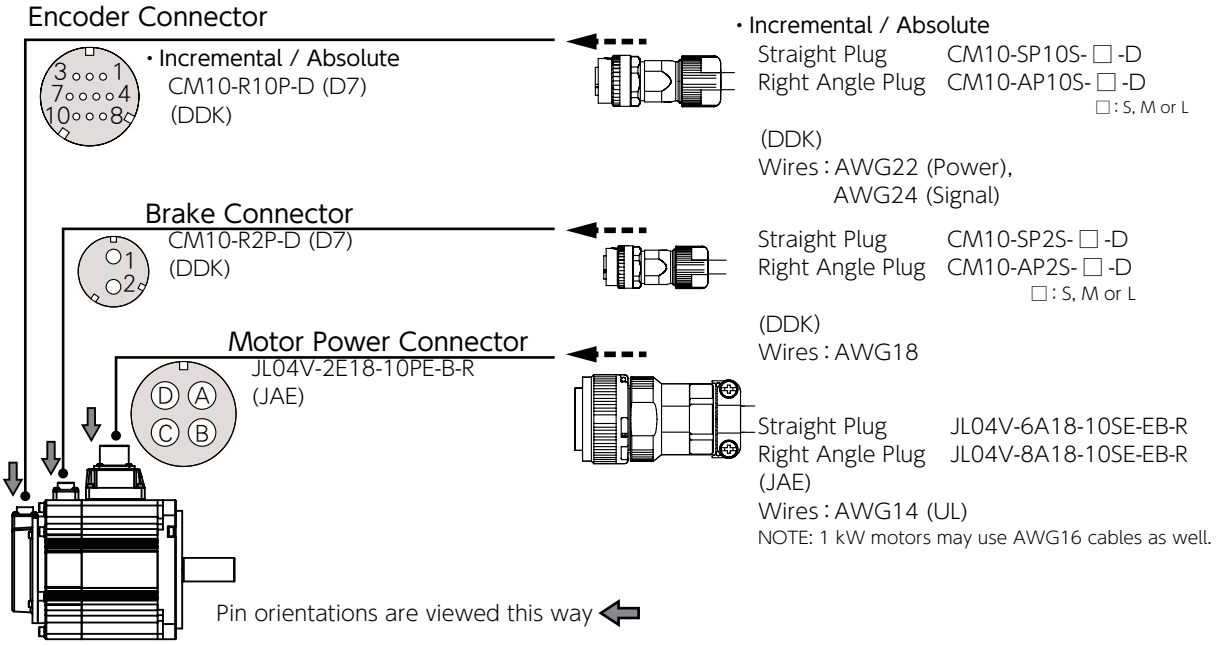
*1) Only for a motor equipped with a brake

*2) Connect the negative pole of the battery to SG (Signal Ground).

Motor Connector Pinout

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | 1 kW | 1.3 kW | 1.5 kW | 2 kW

MX102
MM102
MH102



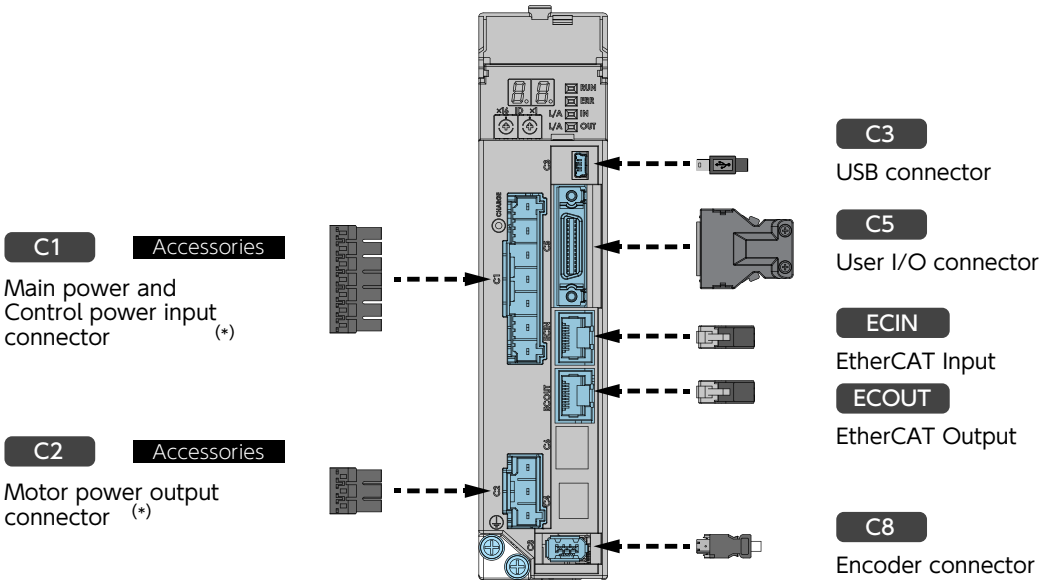
Name	Pin No.	Signal	Description
Motor Power	A	U	Motor power U-phase
	B	V	Motor power V-phase
	C	W	Motor power W-phase
	D	FG	Motor frame ground
Brake (*1)	1	BRK+	Brake power supply DC24V
	2	BRK−	Brake power supply GND
Encoder (Incremental)	1	VCC	Encoder power supply +5 V
	2	SG	Signal ground
	3, 4	−	(No Connect)
	5	+D	Serial communication data + Data
	6	−D	Serial communication data − Data
	7, 8, 9	−	(No Connect)
	10	SHIELD	Shield
Encoder (Absolute)	1	VCC	Encoder power supply +5 V
	2	SG	Signal ground
	3	−	(No Connect)
	4	BAT	External battery (*2)
	5	+D	Serial communication data + Data
	6	−D	Serial communication data − Data
	7, 8	−	(No Connect)
	9	SG	Signal ground
	10	SHIELD	Shield

*1) Only for a motor equipped with a brake

*2) Connect the negative pole of the battery to SG (Signal Ground).

EtherCAT Communication model

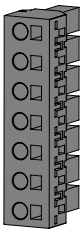
Model	50 W	100 W	200 W	400 W	750 W	1 kW
	DB6YZ42	DB6Z142	DB61242	DB62442	DB63842	DB64A42



The shape of this amplifier is an example of 200 W.
The connector arrangement is the same for other amplifiers.

C1 Accessories

Main power and Control power input connector



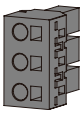
9EDGK-7.5 07P (7pin)
(DEGSON Electronics Co.,Ltd.)

Pin No.	Signal	Description
1	L1	Main Power (Main Circuit)
2	L2	Main Power (Main Circuit)
3	L3	Main Power (Main Circuit)
4	L1C	Main Power (Control Circuit)
5	L2C	Main Power (Control Circuit)
6	B1/+	External Regenerative resistor connection (+)
7	B2	External Regenerative resistor connection (−)

When having single-phase power wired to a 1 kW amplifier (DB64A42), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

C2 Accessories

Motor Power output connector



9EDGK-7.5 03P (3pin)
(DEGSON Electronics Co.,Ltd.)

Pin No.	Signal	Description
1	U	Motor power U-phase
2	V	Motor power V-phase
3	W	Motor power W-phase

Accessories

Spring Opener

DG010
(DEGSON Electronics Co.,Ltd.)

*) A special spring opener commonly used in these connectors is an accessary.
To prevent loss, please store in the designated place after use.

EtherCAT Communication model

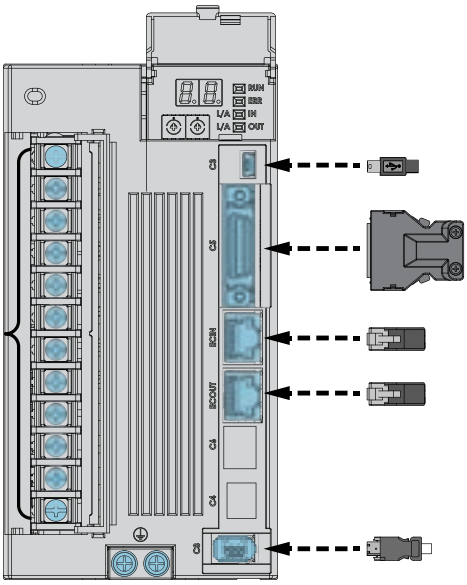
Model	850 W	1.3 kW	1.5 kW	2 kW
	DB65B42	DB67C42	DB66B42	DB68C42

Terminal blocks

- Main power and Control power input connector
- External regenerative resistor
- Motor power output connector

Vinyl Insulated RING TONGUE TERMINAL 2-4S

Tightening torque 1.0–1.2 N·m



C3 USB connector

C5 User I/O connector

ECIN EtherCAT Input

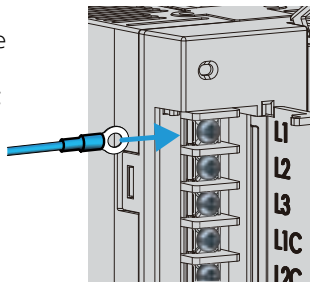
ECOUT EtherCAT Output

C8 Encoder connector

The 850 W and 1.3 -2 kW amplifiers shapes are all the same.

Terminal blocks

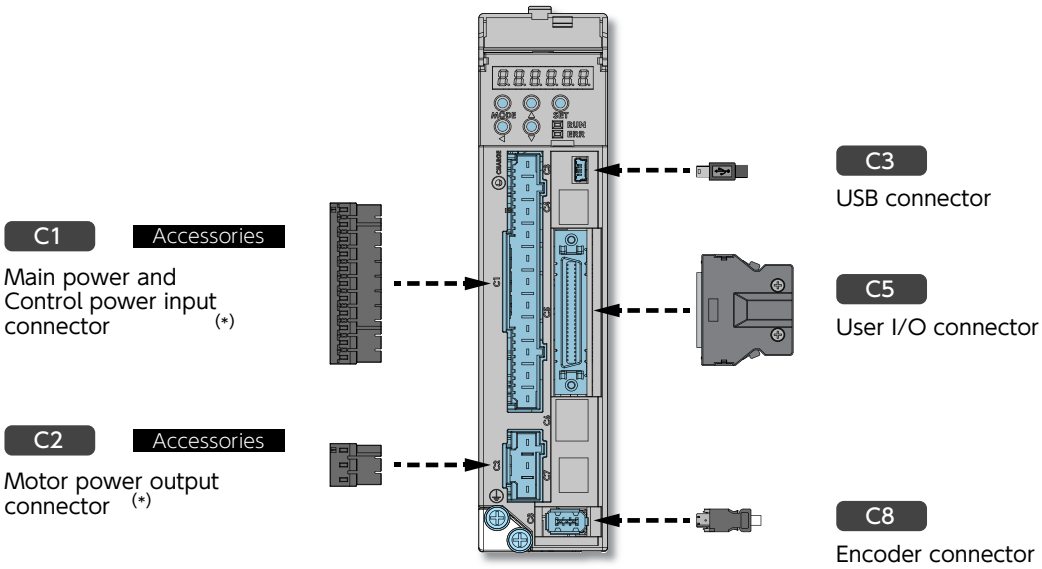
- Main power and Control power input connector
- External regenerative resistor
- Motor power output connector



Signal	Description
L1	Main Power(Main Circuit)
L2	Main Power(Main Circuit)
L3	Main Power(Main Circuit)
L1C	Main Power(Control Circuit)
L2C	Main Power(Control Circuit)
P	External Regenerative resistor connection(+)
RB	(No Connect)
B	External Regenerative resistor connection(–)
N	(No Connect)
U	Motor power U-phase
V	Motor power V-phase
W	Motor power W-phase

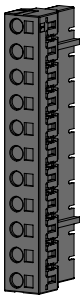
Standard model

Model	50 W	100 W	200 W	400 W	750 W	1 kW
	DB6YZ11	DB6Z111	DB61211	DB62411	DB63811	DB64A11



C1 Accessories

Main power and Control power input connector



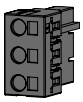
1-2229794-1
(Tyco Electronics JAPAN)

Pin No.	Signal	Description
1	L1	Main Power(Main Circuit)
2	L2	Main Power(Main Circuit)
3	L3	Main Power(Main Circuit)
4	L1C	Main Power(Control Circuit)
5	L2C	Main Power(Control Circuit)
6	B1/+	External Regenerative resistor connection(+)
7	B2	External Regenerative resistor connection(−)
8	B3	Regenerative resistor connection Switch
9	⊖ 1	(Reserved)
10	⊖ 2	(Reserved)
11	⊖	No Connect

When having single-phase power wired to a 1 kW amplifier (DB64A11), wire the main power AC200 V between the L1 and L3 terminals of the amplifier.

C2 Accessories

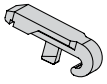
Motor Power output connector



3-2229794-1
(Tyco Electronics JAPAN)

Pin No.	Signal	Description
1	U	Motor power U-phase
2	V	Motor power V-phase
3	W	Motor power W-phase

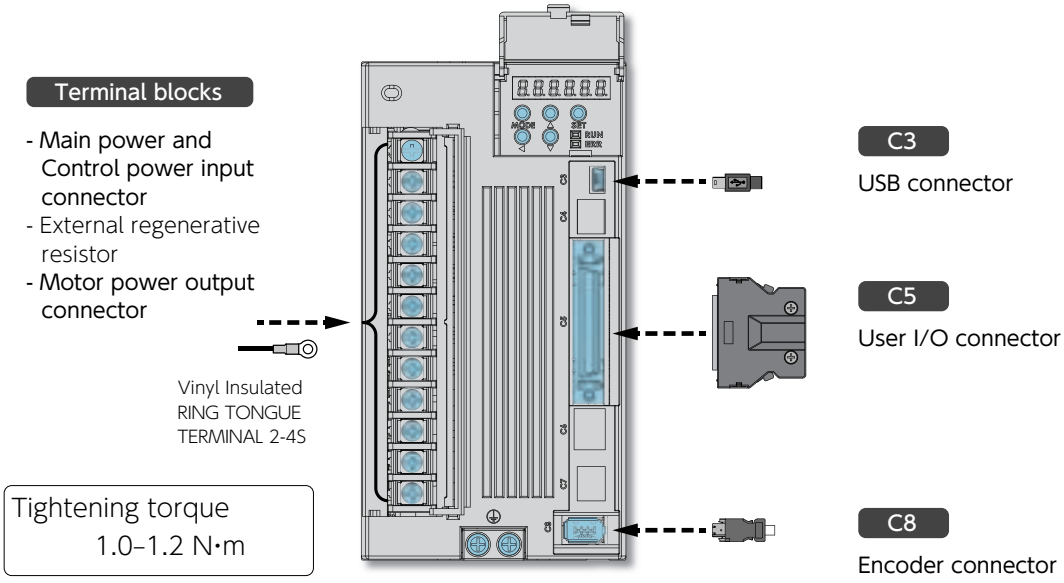
Accessories Spring Opener



1981045-1
(Tyco Electronics JAPAN)

Standard model

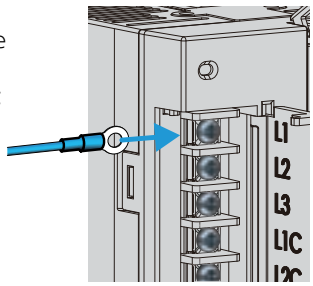
Model 850 W DB65B11 | 1.3 kW DB67C11 | 1.5 kW DB66B11 | 2 kW DB68C11



The 850 W and 1.3 -2 kW amplifiers shapes are all the same.

Terminal blocks

- Main power and Control power input connector
- External regenerative resistor
- Motor power output connector



Signal	Description
L1	Main Power(Main Circuit)
L2	Main Power(Main Circuit)
L3	Main Power(Main Circuit)
L1C	Main Power(Control Circuit)
L2C	Main Power(Control Circuit)
P	External Regenerative resistor connection(+)
RB	(No Connect)
B	External Regenerative resistor connection(–)
N	(No Connect)
U	Motor power U-phase
V	Motor power V-phase
W	Motor power W-phase

Amplifier Connectors

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | 1 kW | 1.3 kW | 1.5 kW | 2 kW

C3

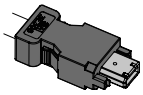
USB connector

USB mini B

Pin No.	Signal	Description
1	VBUS	USB power supply +5 V
2	D−	USB data −
3	D+	USB data +
4	−	(No Connect)
5	SG	USB signal ground

C8

Encoder connector

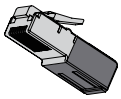


Connector: 3E206-0100KV (3M)
Cover: 3E306-3200-008 (3M)
Wires: AWG22 (Power), AWG24 (Signal)

Pin No.	Signal	Description
1	VCC	Encoder power supply +5 V
2	SG	Signal ground
3, 4	−	(No Connect)
5	+D	Encoder signal data +
6	−D	Encoder signal data −
SHELL	FG	SHIELD wired to the connector casing

ECIN ECOUT

EtherCAT Connector



RJ45

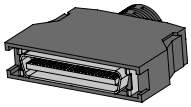
Pin No.	Signal	Description
1	TX+	Transmit / Receive data +
2	TX−	Transmit / Receive data −
3	RX+	Receive / Transmit data +
4, 5	−	(No Connect)
6	RX −	Receive / Transmit data −
7, 8	−	(No Connect)
SHELL	FG	SHIELD wired to the connector casing

Be sure to use TIA/EIA -568 Category 5 e or higher (Shielded) cables.

C5

I/O Connector

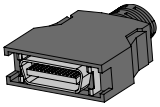
Standard model



(50 pin)

Connector 10126-3000-PE (3M)
Cover 10326 (3M)
or Equivalent alternatives
Wires : AWG26

EtherCAT Communication model



(26 pin)

Connector 10126-3000-PE (3M)
Cover 10326 (3M)
or Equivalent alternatives
Wires : AWG26

Recommended Cables

Recommended cable

Connection cables required for this product are sold separately. Those can be purchased at the Misumi Corporation online store.
Use our recommendations below to select cables based on your actual usage. (Equivalent alternatives are also good)
Should you use a cable longer than the specification, please contact us in advance.

Cable Name	AWG	UL	Temperature Rating	Voltage Rating	Note
Motor power (≦ 750 W)	18	2517	105°C	300 V	
Motor power (≧ 850 W)	14	2517	105°C	300 V	AWG16 wires can be used only for 1 kW motors
Main circuit power (Including FG cable)	14	1015	105°C	600 V	AWG16 wires can be used only for 1 kW motors.
Control circuit power	18	1015	105°C	600 V	
Encoder	Power : 22 Signal : 24	20276	80°C	30 V	Shielded twisted pair cables of length no exceeding 20 m
User I/O	26	1007	80°C	300 V	Shielded twisted pair cables of length no exceeding 2 m
Regenerative resistor	18	1015	105°C	600 V	
Brake	18	2517	105°C	300 V	2-core cable

Cable Name	Specification	Note
EtherCAT communication	CAT5e	Shielded cable is recommended

Recommended Cables

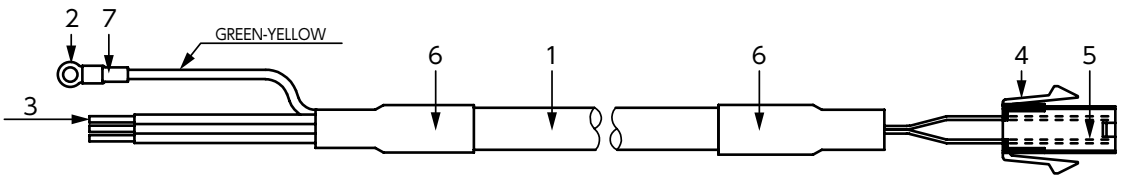
Motor Power Cable

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | 1 kW | 1.3 kW | 1.5 kW | 2 kW

MX951

4 HOUSING

Pin No.	Signal	Color
1	U	RED
2	V	WHITE
3	W	BLUE
4	FG	GREEN - YELLOW



No.	Item	Model	Supplier
1	CABLE	NA3CT-18-4 (for fixed wiring) NA3CTR-18-4 (for movable wiring)	MISUMI Group Ink
2	RING TONGUE TERMINAL	R2-4	J.S.T. Mfg. Co., Ltd.
3	FERRULE	216-143	WAGO JAPAN
4	HOUSING	172159-1	Tyco Electronics JAPAN
5	TERMINAL	170366-1	Tyco Electronics JAPAN
6	SUMITUBE	F(Z) 11x0.25	Sumitomo Electric Industries
7	(MARKER TUBE)	(arbitrary)	(arbitrary)

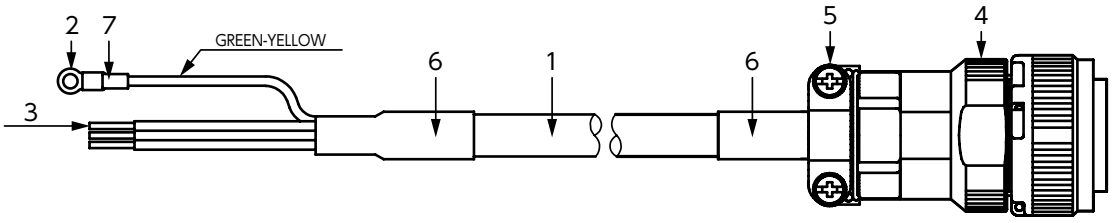
Motor Power Cable

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | 1 kW | 1.3 kW | 1.5 kW | 2 kW

MX102
MM102
MH102

4 PLUG

Pin No.	Signal	Color
1	U	RED
2	V	WHITE
3	W	BLUE
4	FG	GREEN - YELLOW



No.	Item	Model	Supplier
1	CABLE	NA6CT-14-4 (for fixed wiring) NA6CTR-14-4 (for movable wiring)	MISUMI Group Ink
2	RING TONGUE TERMINAL	R2-4	J.S.T. Mfg. Co., Ltd.
3	FERRULE	216-106	WAGO JAPAN
4	PLUG	JL04V-6A18-10SE-EB-R	JAE
5	CABLE CLAMP	JL04V-18CK13-CR-R	JAE
6	SUMITUBE	F(Z) 14x0.3	Sumitomo Electric Industries
7	(MARKER TUBE)	(arbitrary)	(arbitrary)

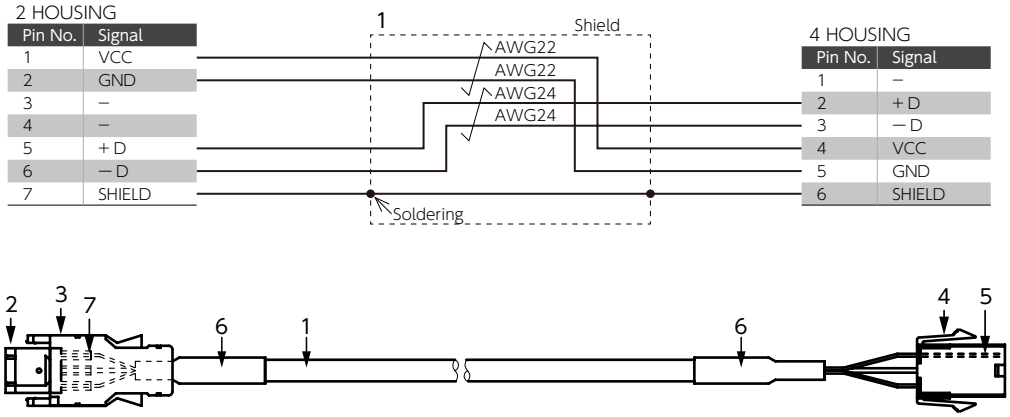
Recommended Cables

Encoder Cable

(Incremental)

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX951



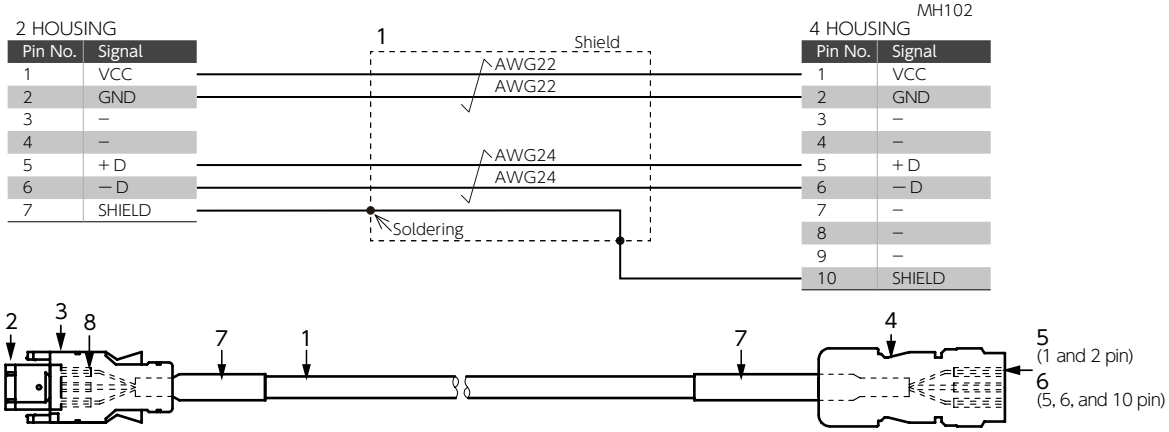
No.	Item	Model	Supplier
1	CABLE	NA20276TSB-C (for fixed wiring) NA20276RRSB-C (for movable wiring)	MISUMI Group Ink
2	HOUSING	3E206-0100KV	3M
3	COVER	3E306-3200-008	3M
4	HOUSING	172160-1	Tyco Electronics JAPAN
5	TERMINAL	170365-1	Tyco Electronics JAPAN
6	SUMITUBE	F(Z) 7x0.25	Sumitomo Electric Industries
7	SUMITUBE	F(Z) 3/64 or 1.5x0.2	Sumitomo Electric Industries

Encoder Cable

(Incremental)

Motor rated output power: 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX102
MM102
MH102



No.	Item	Model	Supplier
1	CABLE	NA20276TSB-C (for fixed wiring) NA20276RRSB-C (for movable wiring)	MISUMI Group Ink
2	HOUSING	3E206-0100KV	3M
3	COVER	3E306-3200-008	3M
4	HOUSING	CM10-SP10S-M	DDK
5	TERMINAL	CM10-#22SC(C1)(D8)	DDK
6	TERMINAL	CM10-#22SC(C2)(D8)	DDK
7	SUMITUBE	F(Z) 7x0.25	Sumitomo Electric Industries
8	SUMITUBE	F(Z) 3/64 or 1.5x0.2	Sumitomo Electric Industries

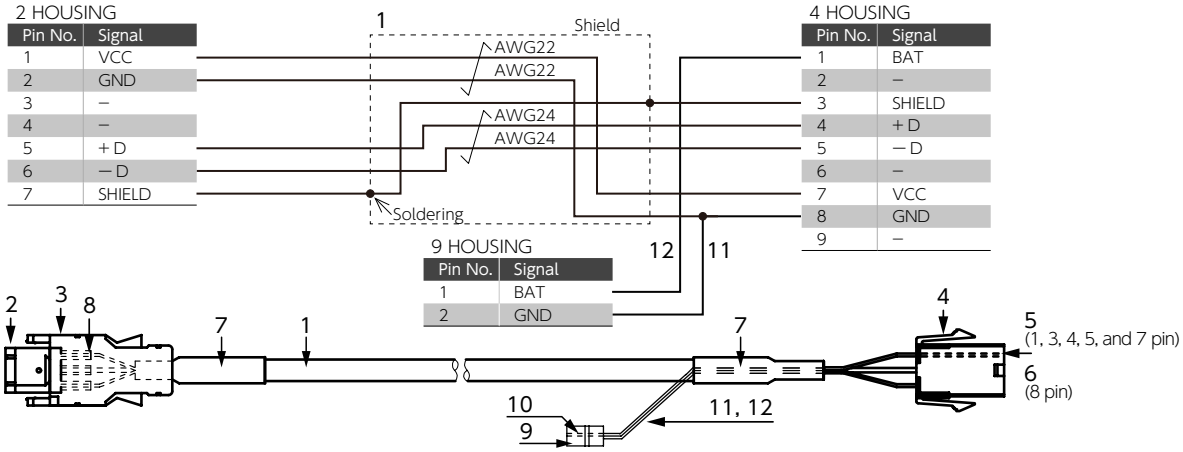
Recommended Cables

Encoder Cable

(Absolute)

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX951



No.	Item	Model	Supplier
1	CABLE	NA20276TSB-C (for fixed wiring) NA20276RRSB-C (for movable wiring)	MISUMI Group Ink
2	HOUSING	3E206-0100KV	3M
3	COVER	3E306-3200-008	3M
4	HOUSING	172161-1	Tyco Electronics JAPAN
5	TERMINAL	170365-1	Tyco Electronics JAPAN
6	TERMINAL	170366-1	Tyco Electronics JAPAN
7	SUMITUBE	F(Z) 7x0.25	Sumitomo Electric Industries
8	SUMITUBE	F(Z) 3/64 or 1.5x0.2	Sumitomo Electric Industries
9	HOUSING	DF3-2EP-2C	Hirose Electric
10	TERMINAL	DF3-EP2428PCFA	Hirose Electric
11	CABLE	NAUL1007-24-BK	MISUMI Group Ink
12	CABLE	NAUL1007-24-R	MISUMI Group Ink

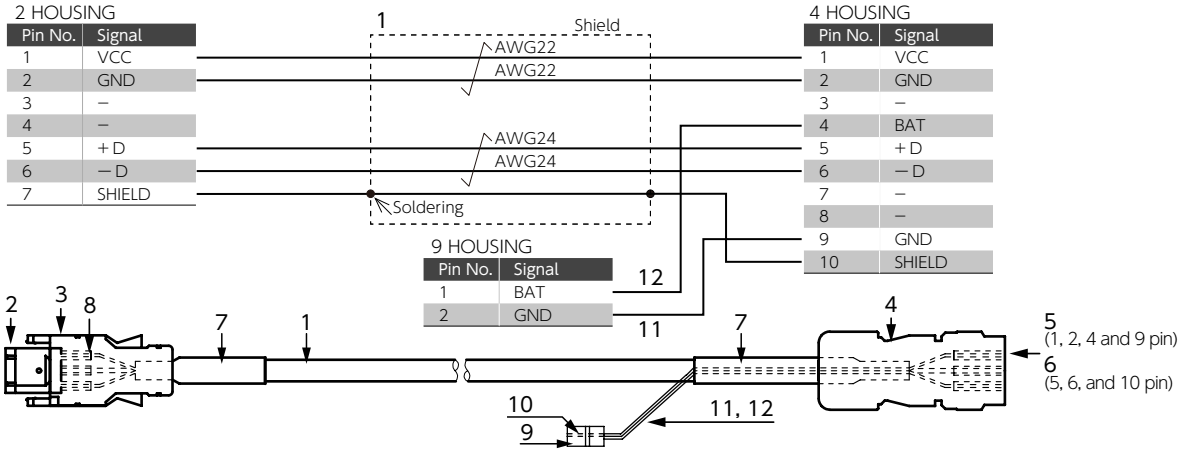
Recommended Cables

Encoder Cable

Motor rated output power: 50 W | 100 W | 200 W | 400 W | 750 W | 850 W | 1 kW | 1.3 kW | 1.5 kW | 2 kW

MX102
MM102
MH102

(Absolute)



No.	Item	Model	Supplier
1	CABLE	NA20276TSB-C (for fixed wiring) NA20276RRSB-C (for movable wiring)	MISUMI Group Ink
2	HOUSING	3E206-0100KV	3M
3	COVER	3E306-3200-008	3M
4	HOUSING	CM10-SP10S-M	DDK
5	TERMINAL	CM10-#22SC(C1)(D8)	DDK
6	TERMINAL	CM10-#22SC(C2)(D8)	DDK
7	SUMITUBE	F(Z) 7x0.25	Sumitomo Electric Industries
8	SUMITUBE	F(Z) 3/64 or 1.5x0.2	Sumitomo Electric Industries
9	HOUSING	DF3-2EP-2C	Hirose Electric
10	TERMINAL	DF3-EP2428PCFA	Hirose Electric
11	CABLE	NAUL1007-24-BK	MISUMI Group Ink
12	CABLE	NAUL1007-24-R	MISUMI Group Ink

Recommended Cables

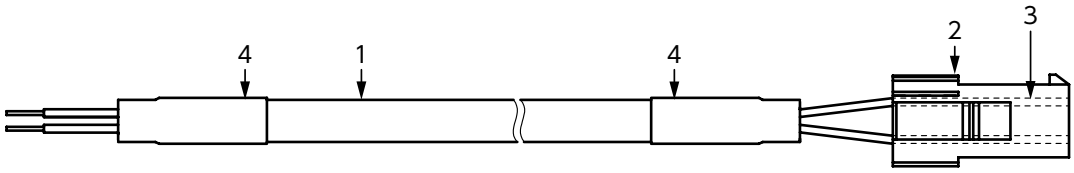
Brake Cable

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX951

2 HOUSING

Pin No.	Signal	Color
1	BRK +	BRACK
2	BRK –	BRACK



No.	Item	Model	Supplier
1	CABLE	MAST-UL2517-19-2 (for fixed wiring) NA3UCR-18-2 (for movable wiring)	MISUMI Group Ink
2	HOUSING	172157-1	Tyco Electronics JAPAN
3	TERMINAL	170366-1 or 170639-1	Tyco Electronics JAPAN
4	SUMITUBE	F(Z) 8x0.25	Sumitomo Electric Industries

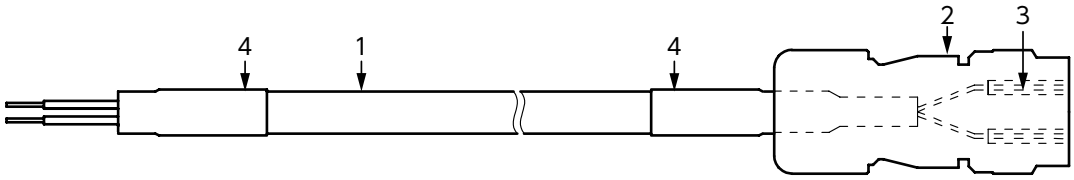
Brake Cable

Motor rated output power: 50 W, 100 W, 200 W, 400 W, 750 W, 850 W, 1 kW, 1.3 kW, 1.5 kW, 2 kW

MX102
MM102
MH102

2 PLUG

Pin No.	Signal	Color
1	BRK +	BRACK
2	BRK –	BRACK



No.	Item	Model	Supplier
1	CABLE	MAST-UL2517-19-2 (for fixed wiring) NA3UCR-18-2 (for movable wiring)	MISUMI Group Ink
2	PLUG	CM10-SP2S-M-D	DDK
3	CONTACT	CM10-#22SC(S2)(D8)-100	DDK
4	SUMITUBE	F(Z) 8x0.25	Sumitomo Electric Industries

new

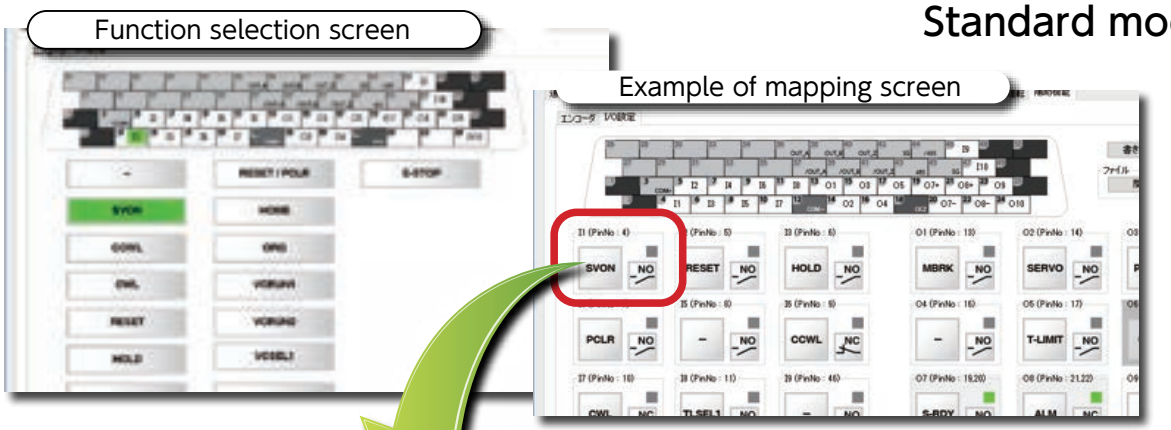
Exclusive software "S-TUNE Ⅱ"

I/O free mapping mode

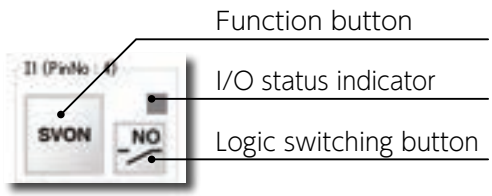
Now supports free reassignment of I/O functions.

You can now freely configure I/O input and output signals in addition to the conventional preset patterns.

Standard model



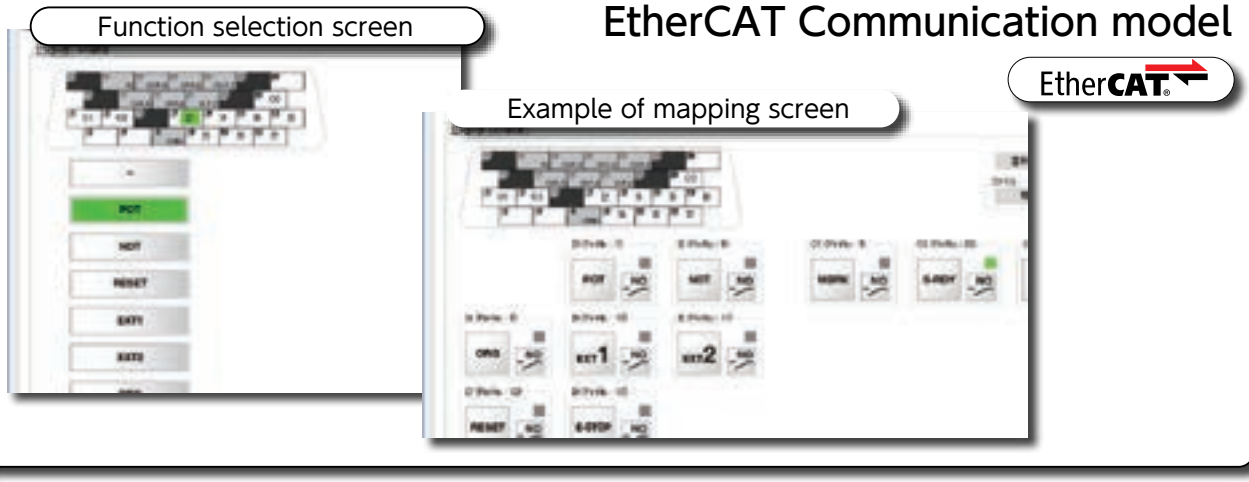
Input/output setting panel



Function allocations, I/O logic (NO: positive logic / NC: negative logic) switching, and a current I/O status indicator are available.

NO: Normally Open, **NC**: Normaly Closed

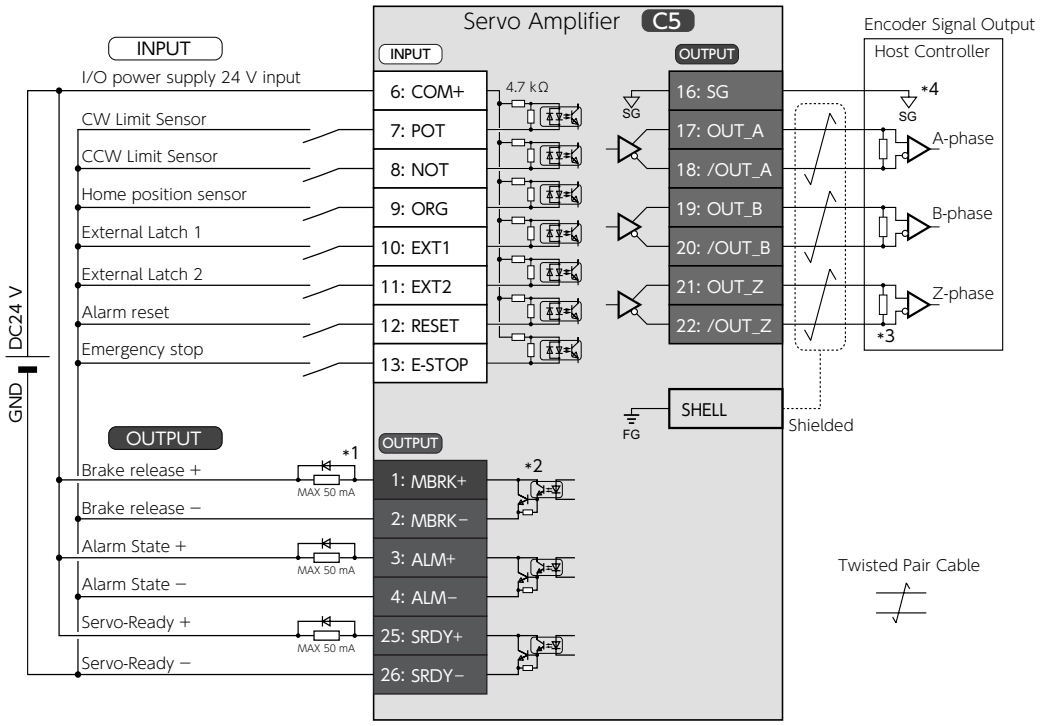
EtherCAT Communication model



Connector layout and assignable functions differ for each amplifier model.

EtherCAT Communication model

Standard Wiring Pattern



*1) When driving a load containing inductance component such as relay, connect a protection circuit (diode).
The motor brake cannot be driven directly. Be sure to use a circuit that interfaces with a diode built-in type relay.

*2) The output circuit configuration is an open collector Darlington transistor output. Connects to relays and optical isolators.
Note that when the transistor is on, connector-emitter voltage V_{CE} (SAT) is approximately 1 V; a standard TTL IC does not satisfy V_{IL} and cannot be connected directly.

*3) Be sure to connect a termination resistor of approximately 220 Ω .

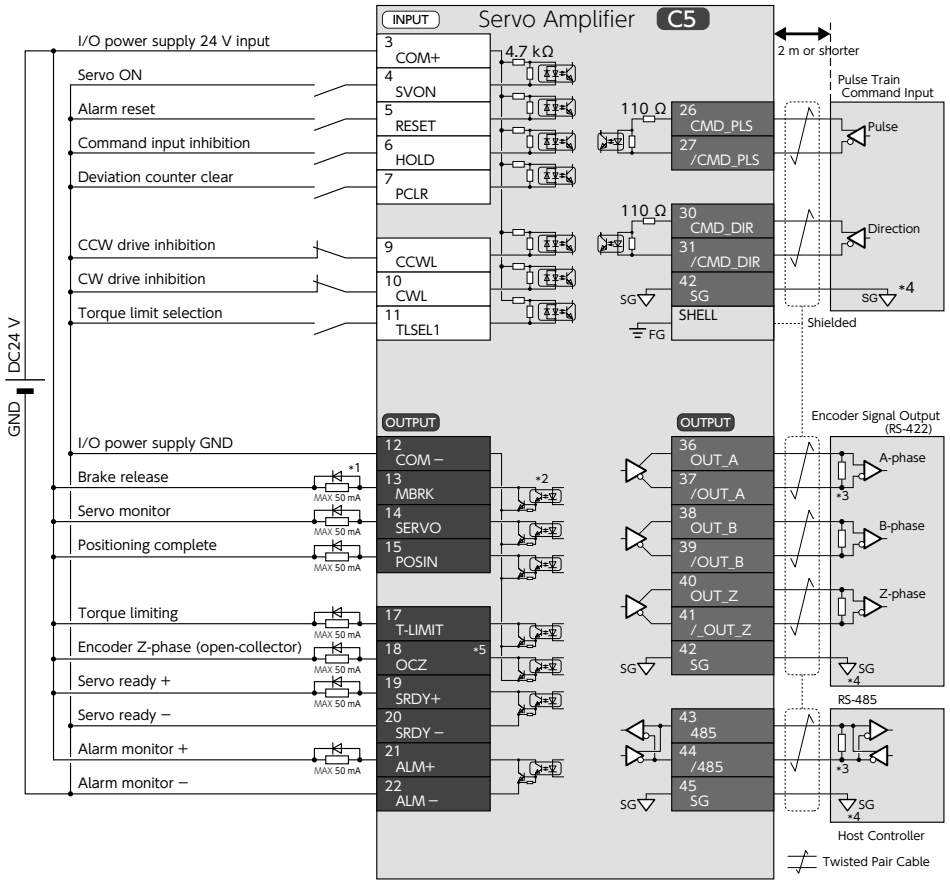
*4) Make the connection to the communication IC signal ground of the host controller that amplifier encoder output signals are connecting to.
Connecting signal ground SG to control power GND may result in malfunction.

*5) If Z-phase pulse width is too small to be measured accurately by the host controller, decrease pulse division rate by using pulse output ratio (parameters No.276.0 and No.278,0) or decrease rotational speed to increase the pulse width.
Pulse width [ms] = 2 / rotational speed [r/min] / (division ratio × 2^{17}) × 60 × 1,000.

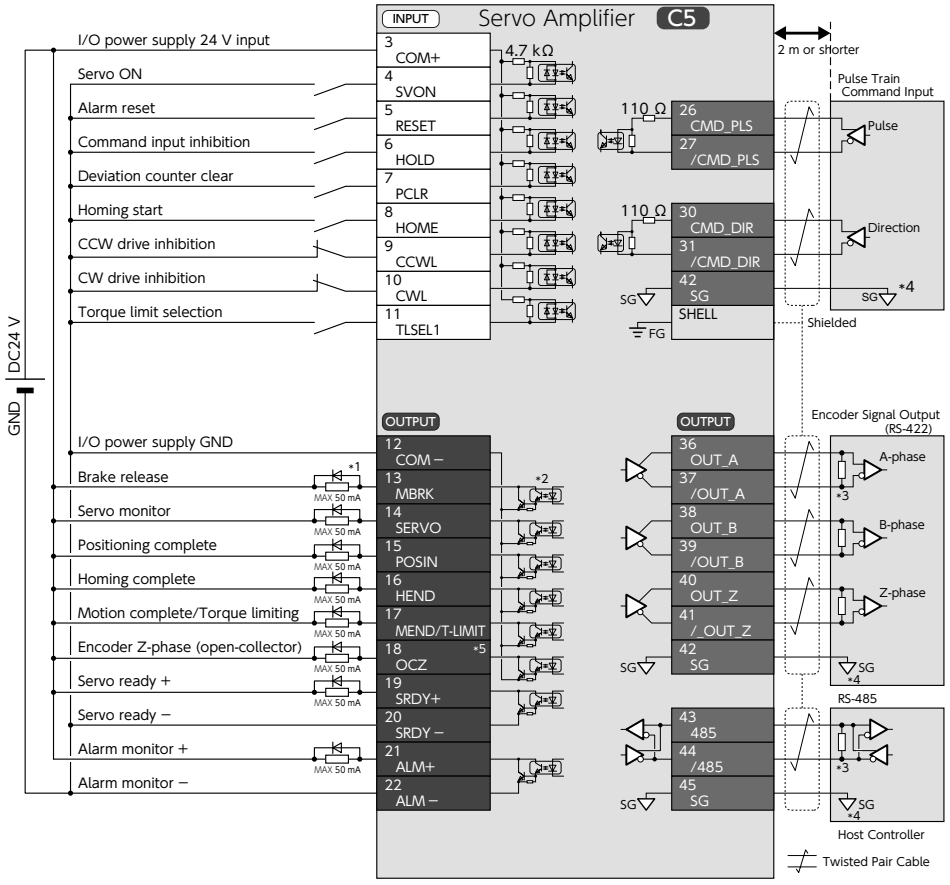
*6) For the command circuit configuration with a variable resistor (VR) and a resistor (R), (VR) must be 2 kΩ (1/4 W or more) and (R) must be 100 Ω to 200 Ω (1/4 W or more) , so that command input voltage range is -10 V to +10 V.

Position Control Mode

Pulse Train Command (Differential, Standard I/O Configuration)

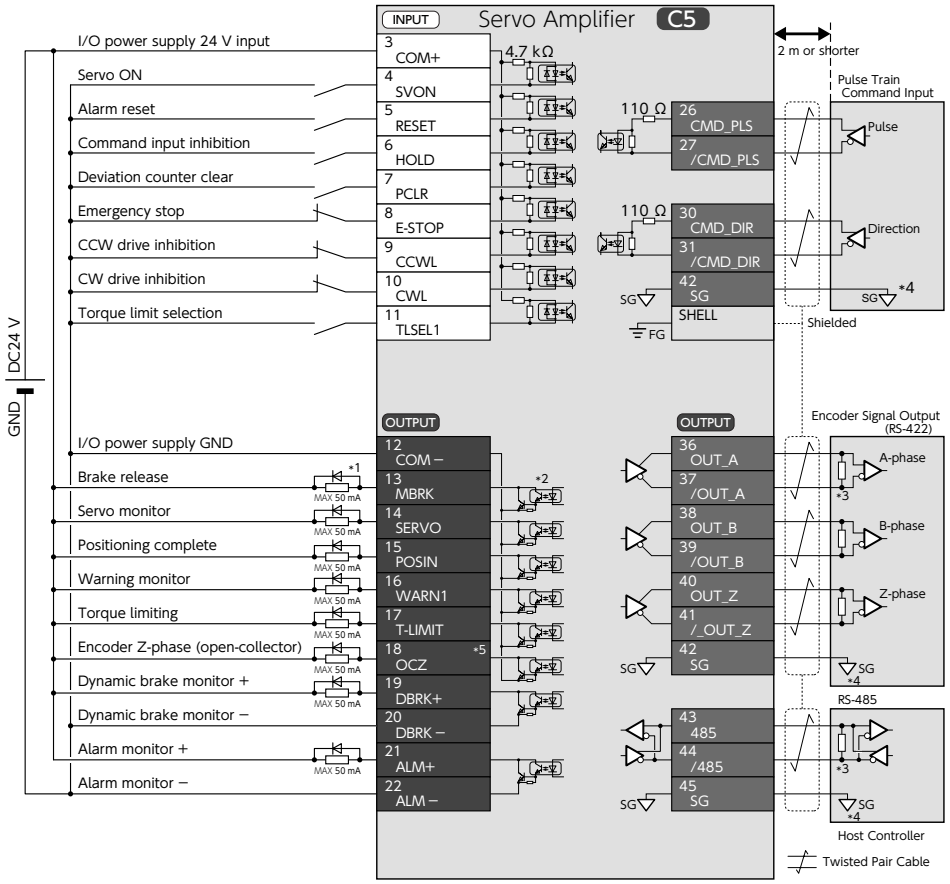


Pulse Train Command (Differential, I/O Configuration Option-1)

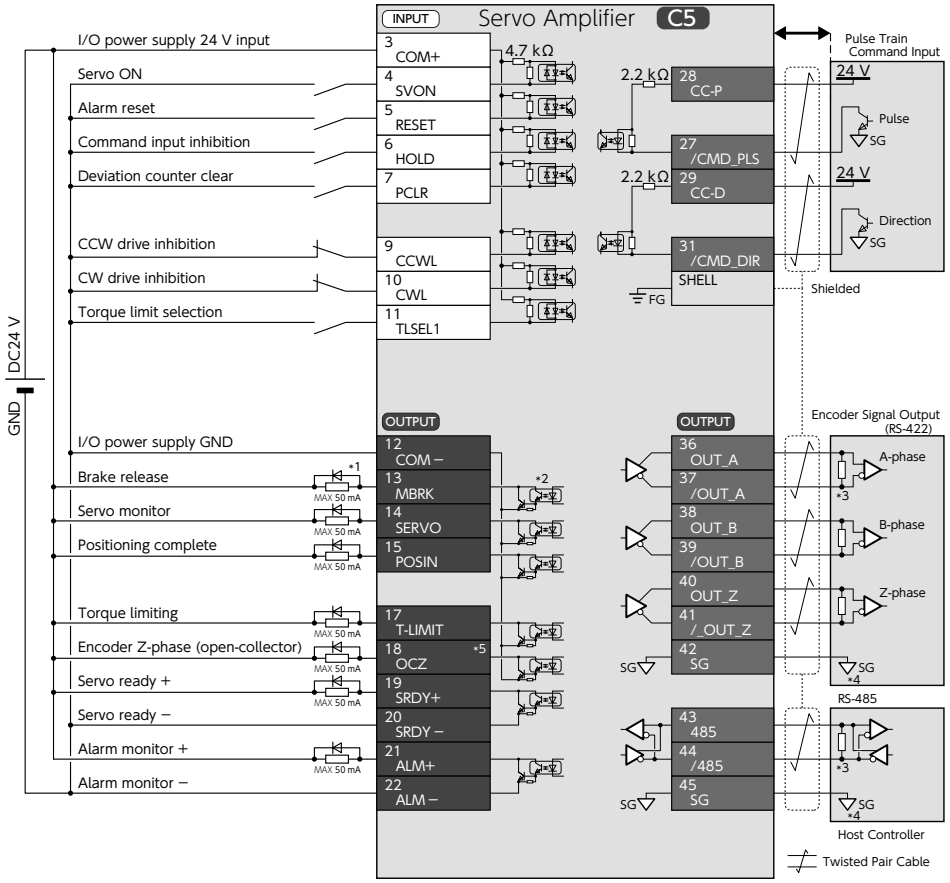


Position Control Mode

Pulse Train Command (Differential, I/O Configuration Option-2)

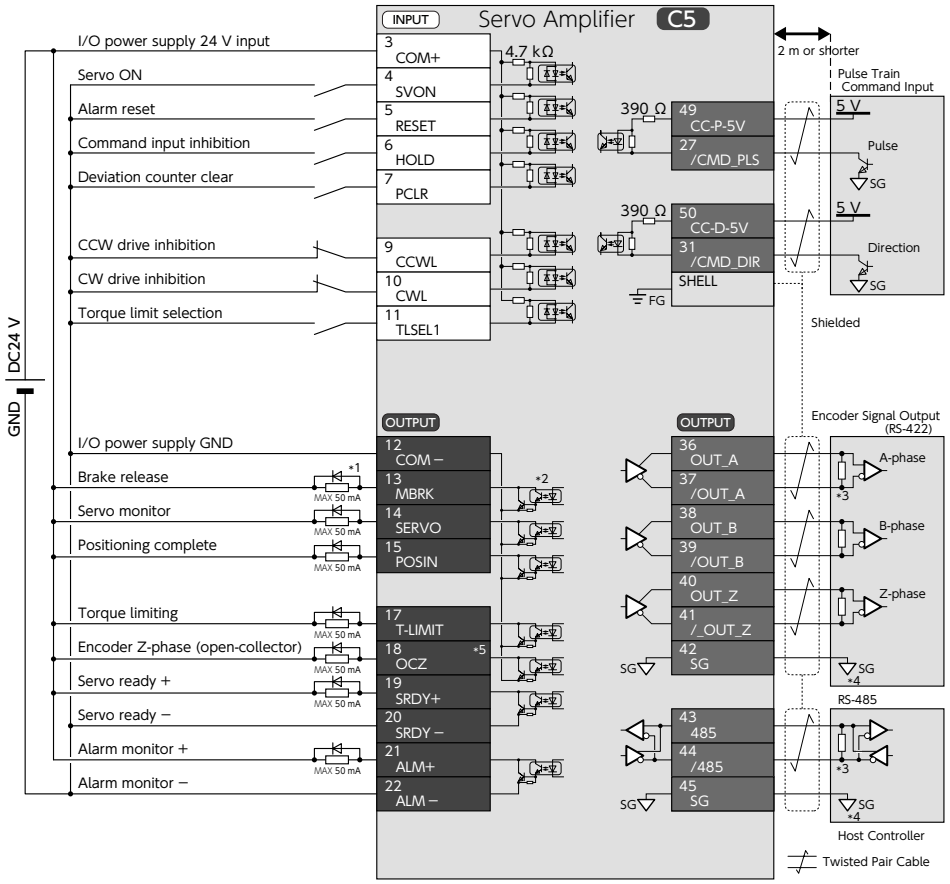


Pulse Train Command (24 V Open Collector, Standard I/O Configuration)

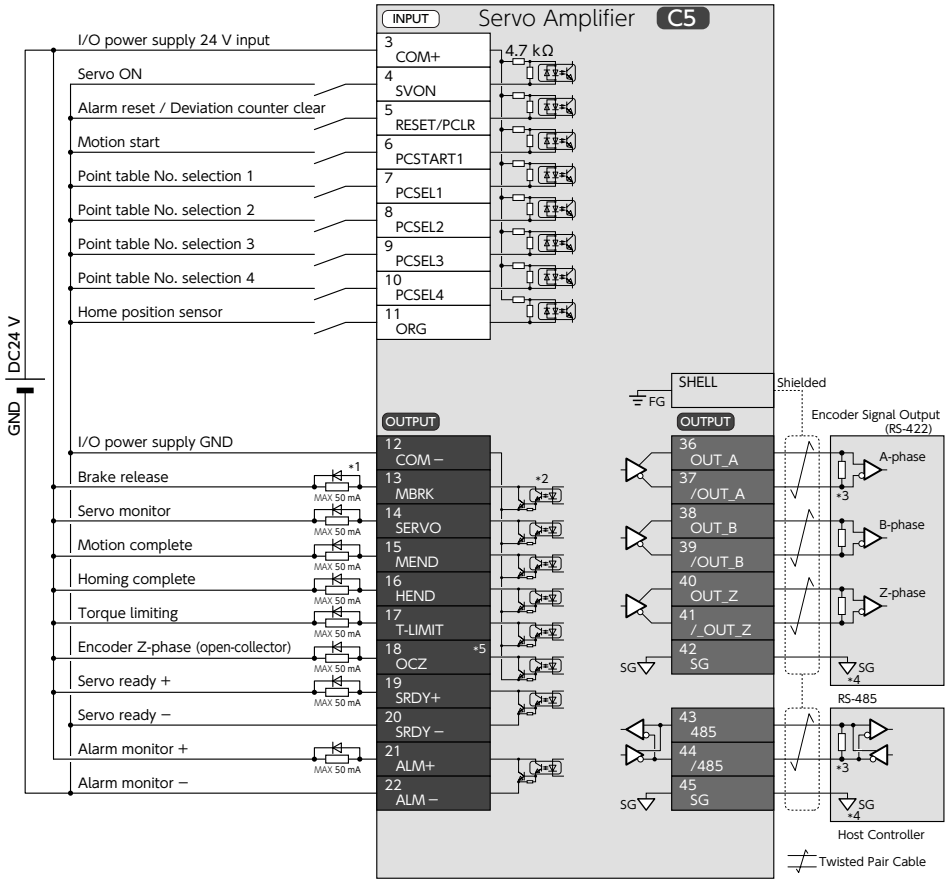


Position Control Mode

Pulse Train Command (5 V Open Collector, Standard I/O Configuration)

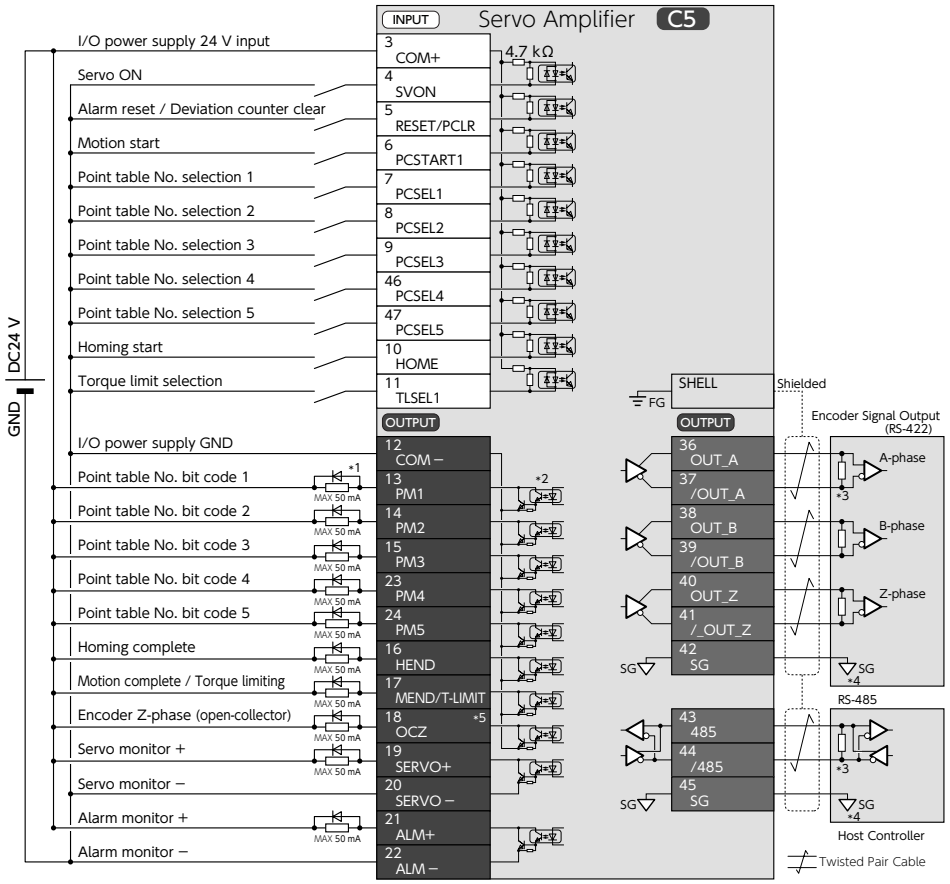


Internal Position Command (Standard I/O Configuration)



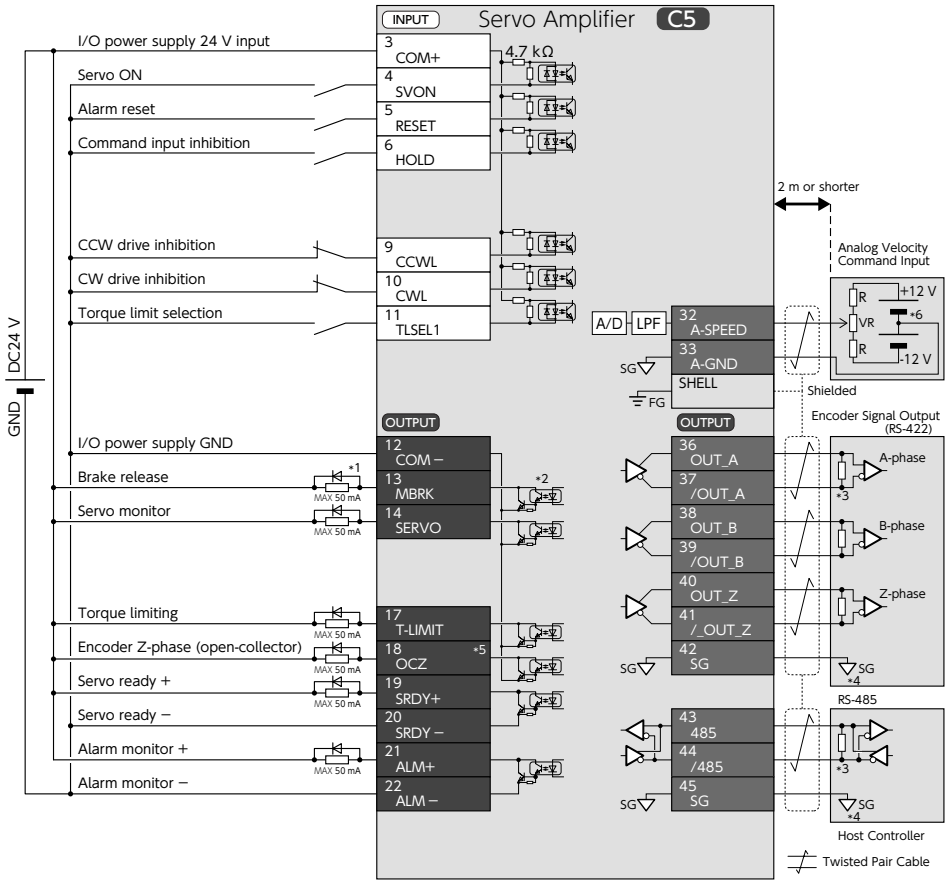
Position Control Mode

Internal Position Command (Optional I/O Configuration)

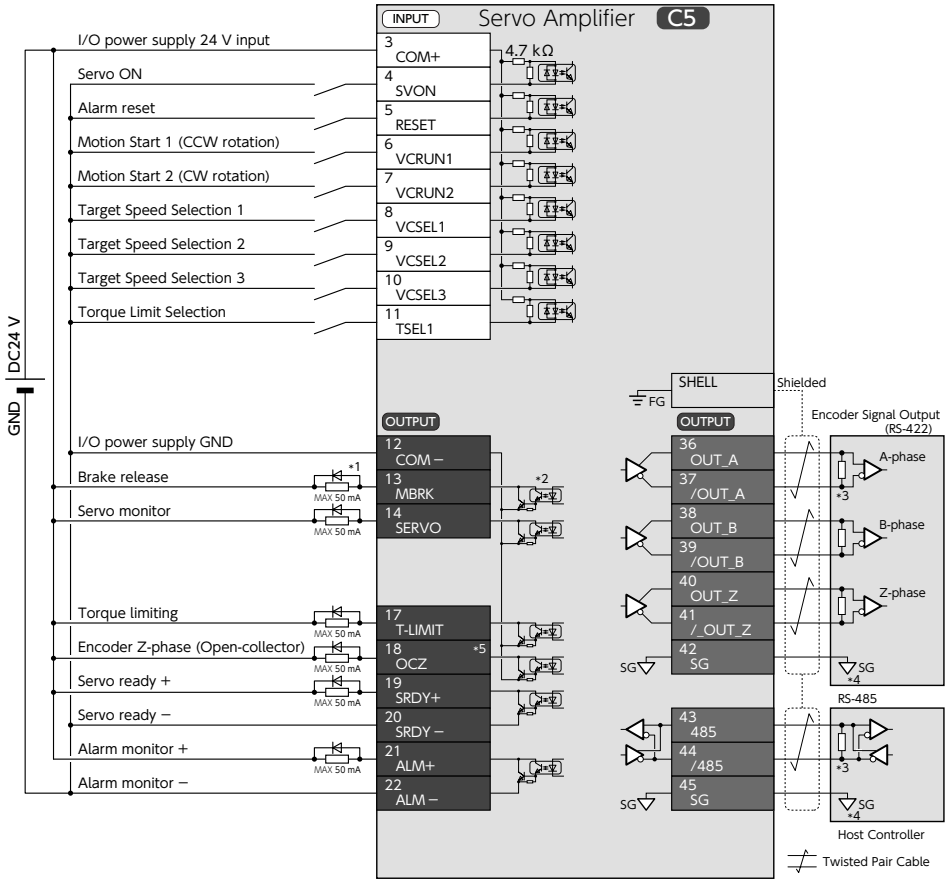


Velocity Control Mode

Analog Velocity Command

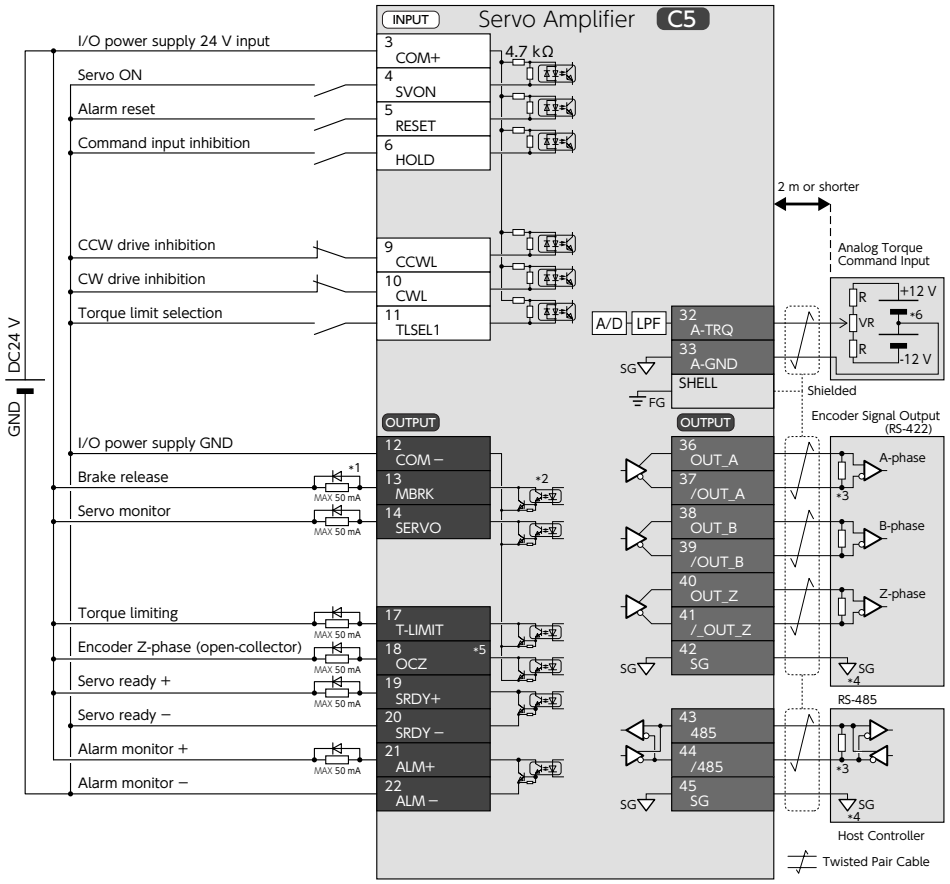


Internal Velocity Command



Torque Control Mode

Analog Torque Command



08 Safety Precautions

Signs below indicate two severity levels of bodily injury/loss, or property damage that could be caused by failure to observe the precautions and proper use of this product.		Symbols below indicate two types of precautions that users must follow.	
⚠ DANGER	Identifies information about imminent hazards that are likely to cause death or serious injury.		Safety Precautions - Don'ts
⚠ CAUTION	Identifies information about hazards that could cause injury or property damage.		Safety Precautions - Dos

The following signs identify information about anticipated hazards.			
	Danger and Caution Causes unexpected motions, unstable motions, or uncontrollable motions Hampers optimal performance of the product, or shortens its service life		Fire hazard
	Electric shock hazard		Injury hazard
	Burns hazard		Failure and damage hazard

⚠ DANGER

Symbol	Precautions (Dos and Don'ts)	Anticipated Hazards
	Installation & Wiring	
	Never connect your S-FLAG Ⅱ motor directly to commercial power supply.	
	No flammables away near your S-FLAG Ⅱ motor and amplifier.	
	Be sure to protect the amplifier with a protective enclosure and allow the required clearance around the amplifier (as specified in the S-FLAG Ⅱ instruction manual) from the enclosure or any devices.	
	Install your S-FLAG Ⅱ in a location with little dust, and free from water or oil splash.	
	Mount the motor or amplifier on nonflammable surface such as metal.	
	Be sure to have any wiring work carried out by an electrician.	
	Always ground the FG terminals of the motors and amplifiers.	
	When working with wires, always turn off the circuit breakers first, carry out the work properly and methodically.	
	Be sure to connect all cables properly and insulate all conductors with insulating material.	
	Handling & Operation	
	Never touch the inside of amplifier.	
	Cables must not be damaged, stressed, loaded, or pinched.	
	Never touch the revolving component of the motor while it is in motion.	
	Do not use this product near flammable materials or where it could be subjected to water sprays, a corrosive atmosphere, or an atmosphere of flammable gases.	
	Do not use the product at a location which is subjected to severe vibrations or impact forces.	
	Do not use the product with any of cables being immersed in oil or water.	
	Do not carry out any wiring work or operations with wet hands.	
	When handling a shaft end key-grooved motor, do not touch the key groove with unprotected hands.	
	Do not touch the motor or the sink of amplifier as they become hot.	
	Do not have the motor driven by external force.	
	Other Precautions	
	Be sure to verify safety after an earthquake.	
	Carry out mounting and installation securely, in order to prevent fire or personal injury during an earthquake.	
	Install an external emergency stop circuit so that operations can be stopped and power supplies shut down immediately upon occurrence of an emergency.	
	Maintenance & Inspection	
	Never dismantle the S-FLAG Ⅱ product.	
	The amplifier has components with dangerously high voltage. Prior to each wiring or inspection work, allow more than 15 minutes (after power shuts off) for complete discharge of internal voltage.	

⚠ CAUTION		
Symbol	Precautions (Dos and Don'ts)	Anticipated Hazards
	Installation & Wiring	
⊘	Do not touch the connector terminals directly with hands.	
⊘	Do not cover the vent holes of the amplifier. Do not allow ingress of foreign matter.	
❗	Observe the specifications of motor/amplifier combinations.	
❗	For test runs, be sure to check motor movement with the motor being fixed in place and not attached to your mechanical system first, and after test runs install the motor in the mechanical system.	
❗	Follow the specified mounting method and orientations.	
❗	Use the right mounting method that is suitable to the main body weight and the rated output of this product.	
	Handling &Operations	
⊘	Do not step on this product or place any heavy object on it.	
⊘	To avoid unstable motions, never make drastic changes in tuning.	
⊘	Do not approach your machine after power restoration following power outage. It may restart unexpectedly. Configure your machine to ensure safety of your personnel against its unexpected restarts.	
⊘	Do not use the product where it could be exposed to direct sunlight.	
⊘	Do not apply impact load to the product.	
⊘	Never operate or stop the motor using the electromagnetic contactor installed on the main power supply side.	
⊘	The brake installed in the motor is only for holding. Do not use it as a decelerating device.	
⊘	Do not use if the motor or amplifier is malfunctioning, broken, or damaged.	
❗	Confirm that your power supply specifications comply with this product's.	
❗	The holding brake is not a stopping device to secure machine safety. To ensure safety, prepare a stopping device for your machinery.	
❗	Upon occurrence of an alarm, eliminate the cause and secure safety before resetting the alarm and restarting your machine.	
❗	Connect the brake control relay and the emergency stop relay in series.	
	Transportation & Storage	
⊘	Do not store the product where it could be subjected to water, moisture, toxic gases, or liquids.	
⊘	Do not hold the cables or the motor shaft when transporting.	
⊘	Do not let the product fall off or fall over during transportation or installation.	
❗	If the product was stored away for an extended period of time, check with our distributor.	
❗	Store the product in a location that meets the requirement of storage environments described in the instruction manual.	
	Disposal	
❗	Prior to disposal of batteries, insulate them with tape or other material. Dispose of them following the local laws and regulations.	
❗	When disposing of the S-FLAG Ⅱ product, treat it as industrial waste.	
	Maintenance & Inspection	
⊘	Overhauls must not be done by anyone but Nidec Instruments Corporation.	
⊘	Do not turn the power supply on and off too frequently.	
⊘	Your motor, heat sink of the amplifier, or regenerative resistor may become dangerously hot. Do not touch any of them with hands when power is on or for a while after power shutdown.	
❗	If your amplifier or motor fails, shut down both of the control power supply and the main circuit power supply.	
❗	When not using the product for an extended period of time, be sure to turn the power off.	

Other Considerations and Precautions

Export of this product or its applications

If the end user or application of the product assumes to be involved in military activities or weapons, its export may be subject to "Foreign Exchange and Foreign Trade Law (Japan)" (or equivalent in your country). Have adequate legal reviews and follow any required export procedures.

Medical applications

Do not attempt to use this product or its application for human life related field. This product has been designed and manufactured for general industrial use and its medical applications are not allowed.

Applications for special environments or purposes such as nuclear power, aerospace and transportation

Please contact us in advance.

Applications that could cause serious accidents or damages due to our product failures

Be sure to have safety device or protection device installed before using your equipment.

Applying voltage over the rated power supply of this product

Could become fire or smoke hazard to the amplifier. Be sure to check and confirm proper wiring before turning the power on. Be particularly careful in a location such as clean room.

Operations with the motor shaft not grounded electrically

Depending on the device or installation environment, bearing noise might get increased by galvanic corrosion of the motor bearings. Carry out careful check and test on grounding.

Operations in environment under significant influences of external noise and static electricity

This product has been designed and manufactured along with extensive noise tests. However, there is a possibility of unexpected behaviors, depending on user's environment. Practice a fail-safe design and also take adequate measures to ensure safety within the range of machine motion.

Use of this product in a manner not specified by the manufacture

Such use shall void the manufacture warranty. Be mindful before you attempt to do so.

Maintenance and Inspection

Perform regular maintenance and inspections for safe use of this product. Ensure the safety before each inspection work.
This product assumes the following operation conditions.

- Ambient temperature : Average annual temperature of 30°C (not exceeding the rated temperature range)
- Maximum load factor : 80%
- Maximum operating hours : 20 hours a day

Daily Inspection : Check the following before each operation.

- Check ambient temperature, humidity and atmosphere.
- No foreign objects or dust, especially nothing is blocking the vent holes.
- No over bent or damages of the wires.
- Power supply voltage is within the specifications.
- No foreign objects in mobile components of the device and the range of motions.
- When the power is on, there is no unusual noise or smell right after the machinery starts.

Periodic Inspection : Check for the following at least once a year.

- No loose clamp screw problems in the amplifier and motor.
- No deformation or no discoloration in the amplifier, motor, cables, and terminal blocks due to overheat
- No looseness in wiring fixings and terminal block screws

Warranty Information

Terms of Warranty

The term of warranty for this product is eighteen (18) months after the date of product manufacture. However, brake equipped motors whose number of axis accelerations and decelerations exceeded the rated maximum shall not be covered by the warranty.

Conditions of Warranty

Should any failure develop during the warranty period under normal operations following the S-FLAGⅡ instruction manual, Nidec (Manufacture) agrees to make repairs at free of charge.
However, even during the warranty period, Manufacture makes only fee-based repair if the failure is due to the following reasons:

- Misuse, improper repair, or alternation of the product
- Dropped after the purchase or damaged during transportation
- Use of this product in a manner not specified by Manufacture
- Fire, earthquake, lightning, storm and flood damage, salt damage, abnormal voltage, or any other acts of God or natural disasters
- Ingress of foreign matter such as water, oil or metal chips.

This warranty does not apply to parts or accessories that have been used longer than each rated service life.
The warranty applies to delivered products only and Manufacture shall not be liable for any indirect, incidental or consequential damage caused by the product failure or damage.

Manufactured and Distributed by

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China and Japan Business Locations

We, "Nidec Sankyo Corporation" changed our company name to "Nidec Instruments Corporation" on April 1st, 2023.

Contact to :

Please study this manual first and use the product properly and safely.
Be aware that new functions might be added in the future without notice in order to improve the product performance.
We strive to keep the instruction manual up to date. As such, the contents are always subject to change.

Not Applicable

MAY. 2023
+A2

Nidec

S-FLAG II

GENERAL CATALOG AC Servo Motor & Amplifier

2023. 05