

# MDX+ SERIES

**INTEGRATED SERVO MOTOR**  
**DRIVE + MOTOR + CONTROLLER**



EtherCAT<sup>®</sup> CANopen Modbus EtherNet/IP

Note: EtherCAT<sup>®</sup> is a registered trademark, licensed by Beckhoff Automation GmbH.

# MDX+ Integrated Servo Motor

## Product overview

The MDX+ series is a family of low-voltage servo systems that integrate a servo drive, servo motor and encoder into one package. Solutions with power output of 100W/200W/400W/550W/750W are available. The MDX+ product line supports pulse train based control methods (Pulse&Dir, CW/CCW, encoder following), RS485, EtherCAT, CANopen and EtherNet/IP. It also offers packages with electromagnetic brakes and STO to meet the safety requirement of today's industries. The MDX+ series is an ideal solution for manufacturers in logistics, AGV, medical, semiconductor and solar industries among many others.

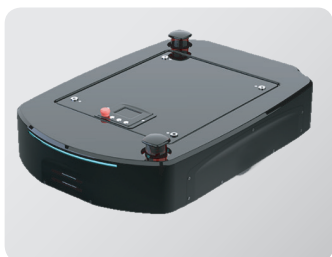
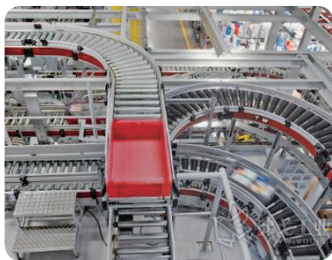
The MDX+ servo drive is debugged by Luna software. It is meant to assist users with configuration, tuning and troubleshooting of the MDX+ family. The software and the drive are connected via USB for fast and reliable communication.

## Features

- Drive and motor integration offers a compact design
- Main power supports 24-60 VDC, Auxiliary power supports 24 VDC
- Standardized frame sizes of 40/60/80mm, covering a power range 100W to 750W
- EtherCAT, CANopen, RS-485 and EtherNet/IP options
- Equipped with high precision magnetic incremental encoder or 17-bit batteryless absolute encoder
- Accurate Positioning and Control
- Support position control, velocity control, torque control
- Built-in brake option is available
- IP20 or IP65 options available
- STO (SIL3 PLe) compatible

## Applications

MDX+ series integrated servo motors have a wide range of applications:



## Features

### ■ Compact Design

MDX+ series is designed to be small and compact, providing a smaller, yet equally capable solution when compared to stand-alone motor and drive systems. The MDX+ series is ideal for applications with limited installation space with its form factor that is at least 20% smaller than that of standalone solutions.

Less components  
and  
easier wiring



Replace this...

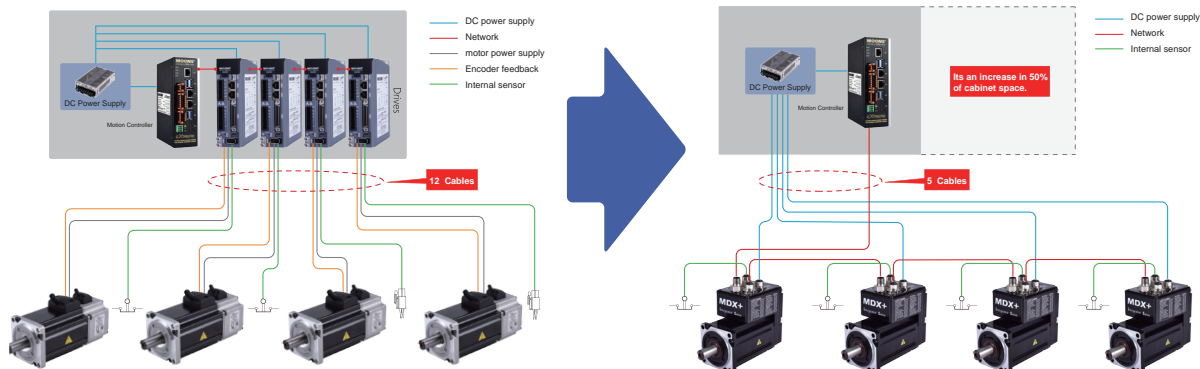
With this...

all in  
**ONE**

Motor  
Encoder  
Drive  
Industrial Fieldbus



**Smaller** control panel, **Simpler** installation, **Easier** configuration

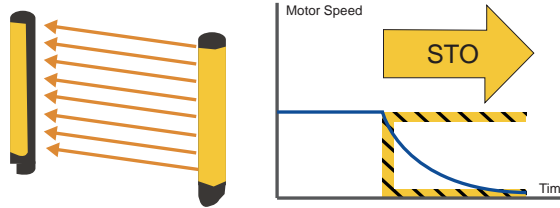


## Safe Operation

### STO

Safe Torque Off (STO) is a hardware level safety protection function. When the STO function is activated, the ability to drive motor current is cut-off. In case of an emergency, this function can increase human and equipment safety while the drive is continuously powered.

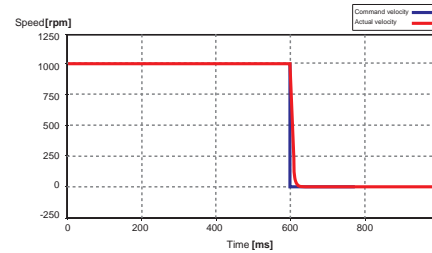
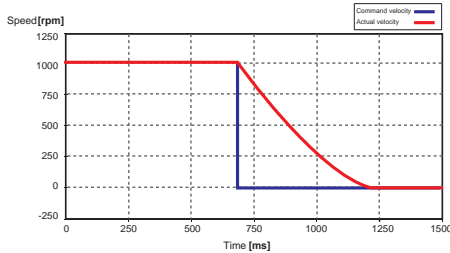
MDX+ series drive meets UL61800-5-2(SIL 3), IEC61508 (SIL 3), ISO 13849-1(PL e).



### Dynamic Brake

Dynamic brake is a mechanism that stops the motor with the fastest speed by shorting the motor three-phase in case of an emergency, the intention is to protect the safety of equipment and surrounding. Dynamic brake is driven by motor's back EMF current, no external power source is needed to engage or disengage the brake function.

The following graphs show what emergency induced stops, when a fault is present, behave like without and with dynamic braking.



#### Without Dynamic brake

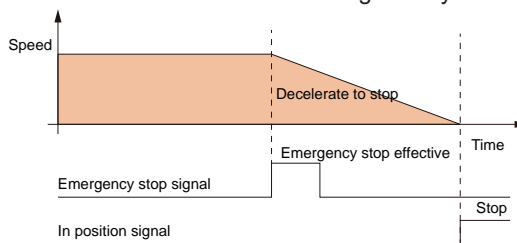
The motor is disabled and decelerates in an uncontrolled manner. The deceleration time and distance are determined by the system inertia and friction.

#### With Dynamic Brake

The velocity command is set to 0 as soon as the drive is disabled. The actual velocity ramps down immediately as the brake is applied.

### Emergency Stop

- ◆ When the communication between the controller and drive fails during motion, the drive will trigger the watchdog function which will decelerate the motor according to the preset rate and mode.
- ◆ I/O functions and field bus control commands can be used to stop a motor in an emergency situation. The motor will stop with the method and deceleration rate configured by the customer.



### Protective Functions



Over voltage protection



Over current protection



Over temperature protection

## Waterproof and Dustproof

MDX+ series integrated servo motors are available with IP65 rating. See Part Numbering System for model selection.

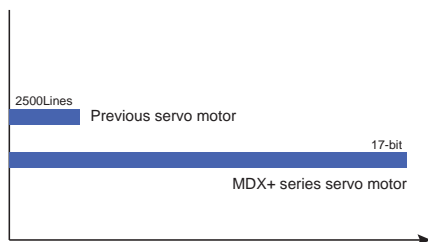


Note: Installing an oil seal will cause additional torque loss. It is recommended to derate the motor with an oil seal by 10%.

## High Positioning Accuracy

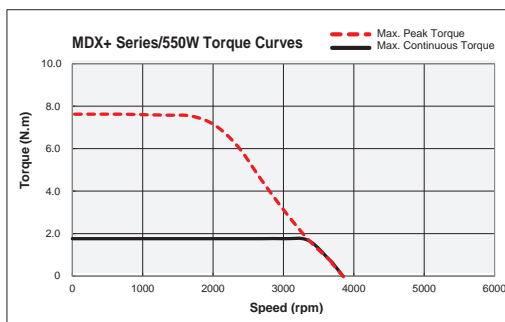
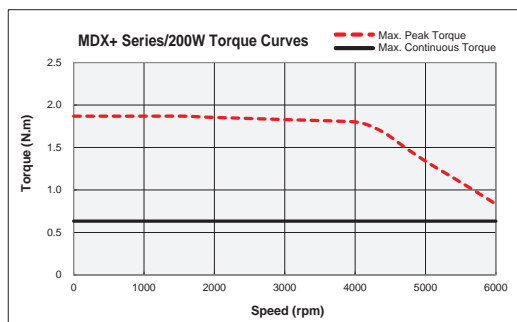
Combining a high resolution encoder design with low cogging characteristics, the MDX+ product line provides the ultimate smooth and accurate positioning experience.

- ◆ 17-bit incremental/absolute magnetic encoder with up to 131,072 feedback pulses per revolution
- ◆ Battery-less absolute encoder option to ensure position storage despite power cycles.



## 300% Peak Torque Capable

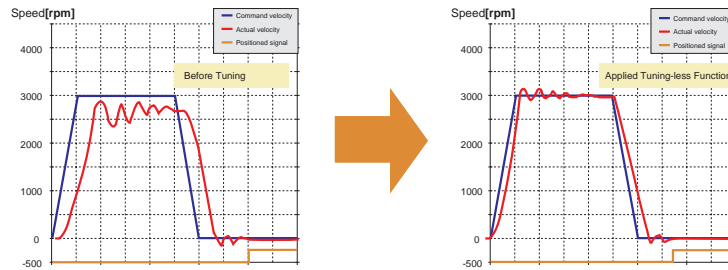
- ◆ Peak torque values of up to 300%, providing higher acceleration and deceleration rates.
- ◆ MDX+ Series 550W models can provide peak torque of up to 400% of rated torque.



## Easy Tuning

### Tuning-less Function

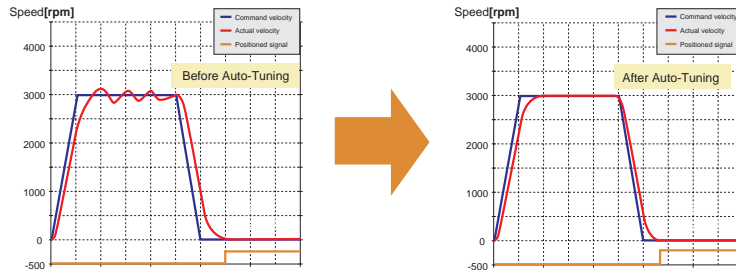
- ◆ No tuning is required for load up 30 times load inertia ratio.
- ◆ No limitation towards any load type and drive control mode.
- ◆ High robustness for maximum control of servo system stability.



### Auto-tuning

The real-time auto-tuning algorithm can automatically identify the load inertia (ratio), gain and vibration suppression parameters in real time.

The auto-tuning function can greatly shorten your system tuning time, improve system responsiveness and equipment production efficiency.



## Unique Q programming function

Q Programmer is MOONS' own single-axis motion control software based on SCL commands. It can be used to create sophisticated and functional programs that can be saved to a drive's nonvolatile memory, and then run stand-alone, or without a permanent connection to the host. Q drives offer a high level of flexibility and functionality to the machine designer and system integrator.

### Capabilities:

- Motion control commands (relative position, absolute position, homing mode, etc.)
- Multi-Tasking (execution of subsequent commands while motion profile is executed)
- Conditional Processing (based on external I/O or internal commands)
- Math Functions (+, -, \*, /, &, or)
- Data register manipulation
- Program order of execution (loops, function calls, jumps)

Line	Label	Cmd	Param1	Param2	Comment
1		MT	1		Turn ON Multi-Tasking
2		DL	3		Turn OFF limits
3		PF	2000		Set Position Fault limit
4		CC	2		Set continuous current to 50%
5		CP	2		Also set peak current to same
6		DI	4000		Make distance positive for CW
7		JM	1		Set Jog mode to positioning
8		JS	1		Set Jog speed to 1 rev/sec
9		JA	10		Set Jog accel to 10 rev/sec/sec
10		CJ			Start jogging
11	Label2	TR	x	100	Test Reg "x" against 100
12		QJ	G	#Label1	Jump if greater than
13		TR	x	-100	Test Reg "x" against -100
14		QJ	G	#Label2	Jump if greater than
15	Label1	SM	M		Stop move with max accel (AM)
16		WM			Wait for stop to complete
17		EP	0		Set encoder position to zero
18		VE	1		Set Velocity to 1 rev/sec
19		DI	-8000		Set home offset distance (CCW)
20		FL			Do a Relative move
21		WM			Wait for move to complete
22		SP	0		Set absolute position to zero
23		AX			Clear any faults just in case
24		WT	0.1		Wait 0.1 seconds

## Field-bus Options

There are many applications based on fieldbus communication in industrial automation. The MDX+ series servo system can support EtherCAT, RS-485 (including Modbus RTU), and CANopen.

### CANopen

Standard CAN bus interface is available in MDX+ series servo drives, which makes it easy to get integrated into an existing CANopen network.

Items	Specification
<b>Physical Layer Standard</b>	CiA 303-1 Cabling and connector pin assignment
<b>Communication Protocol</b>	CiA 301 Application Layer and Communication Profile CiA 402 Device Profile Drives and Motion Control
<b>Bus Connector</b>	Molex
<b>Baud Rate</b>	12.5Kbps, 20Kbps, 50Kbps, 125Kbps, 250Kbps, 500Kbps, 800Kbps, 1Mbps
<b>Communication Objects</b>	SDO, PDO, SYNC, EMCY, NMT, Heartbeat
<b>Control Mode</b>	Interpolated Position, Profile Position, Profile Velocity, Profile Torque, Homing Mode
<b>PDO Data</b>	4 RxPDOs, 4 TxPDOs
<b>Support Axis</b>	Up to 112 axes

### Modbus

MDX+ series servo drives provide the Modbus/RTU communication function with RS-485 interface, which can be used to easily control the motor, set parameters or monitor the status of the drive.

Items	Specifications
<b>Physical Layer Standard</b>	RS-485
<b>Communication Protocol</b>	Modbus/RTU
<b>Bus Connector</b>	Molex
<b>Baud Rate</b>	9600bps, 19200bps, 38400bps, 57600bps, 115200bps
<b>Control Mode</b>	Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program
<b>Support Axis</b>	Up to 32 axes

### EtherCAT

- Full duplex, communication baud rate 100Mbps
- Supports CoE(CiA 402 protocol), VoE(Vendor over EtherCAT)
- Supports PP, PV, TQ, CSP, CSV, CST, HM mode

MOONS' has a variety of EtherCAT capable product lines that can meet all of our user's needs.



### EtherNet/IP

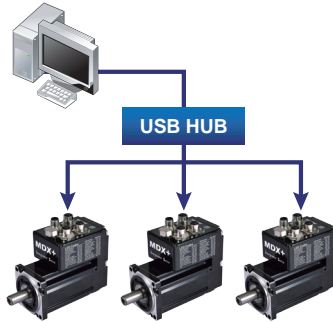
EtherNet/IP protocol is an industrial Ethernet protocol based on Ethernet and TCP/IP. MDX+ series servo drives provide motion control solutions based on EtherNet/IP communication protocol.

Items	Specifications
<b>Physical Layer Standard</b>	Ethernet
<b>Communication Protocol</b>	EtherNet/IP
<b>Baud Rate</b>	Ethernet: 10/100Mbps
<b>Control Mode</b>	Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program
<b>Support Axis</b>	The number of axes supported under Ethernet is determined by the specific network configuration

## Friendly Software

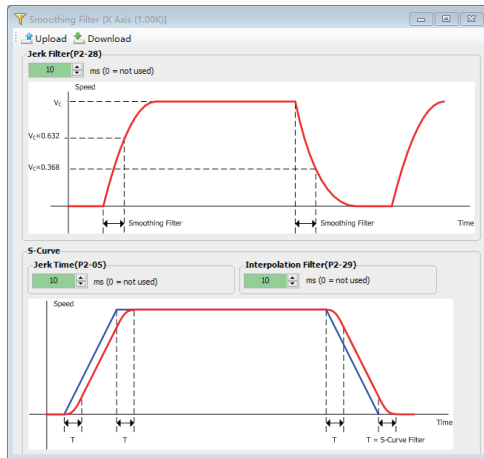
### USB Multi-axis Tuning

Based on USB communication, it can realize multi-axis tuning, simple and convenient.



### Graphical Setting Interface

Descriptive and clear visual aids help configure necessary functions.

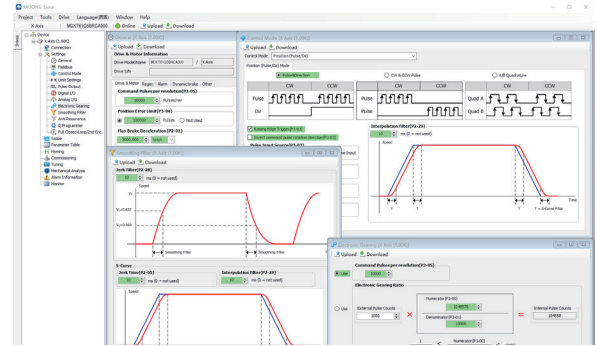


### Powerful Oscilloscope Function

- Real-time data curve display
- Up to 4 channels with 16bit data per channel and 8kHz sampling rate
- Up to 2 channels with 32bit data per channel and 8kHz sampling rate
- In the selected cursor area, display the maximum value, minimum value, root mean square, etc.
- Customizable trigger conditions
- Status monitoring capabilities of the drive and its digital I/O.

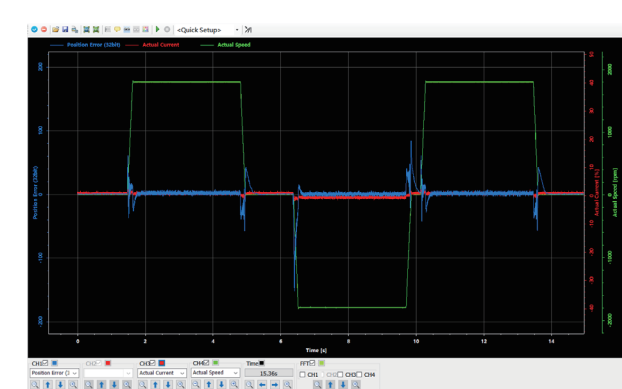
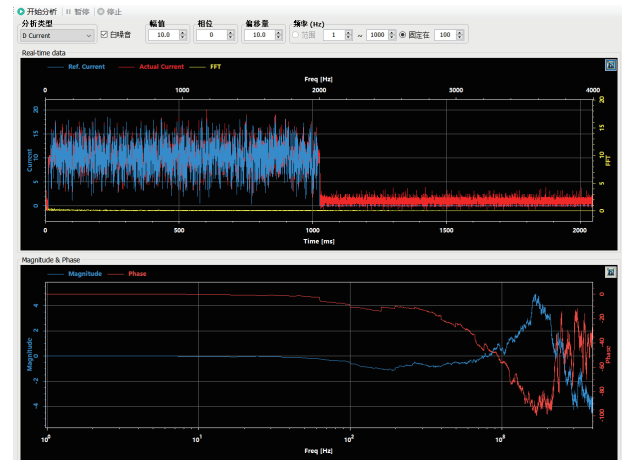
### Device Tree Layout

Luna software leverages the device tree layout, multi-window access functionality and clear function classification for improved user experience.



### Mechanical Analysis

Quickly diagnose the frequency characteristics of mechanical equipment via the Mechanical Analysis tools. Results can be used to set various notch filters to minimize the effects of resonance.





## General Specifications

### Safety Certification

MDX+ series products are designed to meet the following standards.



		Drive	Motor
Europe	EMC	EN 61800-3	EN 60034-1
			EN 61000-6-2
			EN 61000-6-4
Function Safety (STO)		UL61800-5-2(SIL 3)	
		IEC61508(SIL 3)	
		ISO13849-1(PL e)	
UL Standard		UL 61800-5-1	UL 1004-1
			UL 1004-6
CSA Standard		C22.2 No.274-13	CSA C22.2 No.100

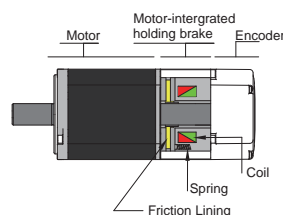
**Note:** UL certification will be completed in December 2024

### Brake Specifications

Electromagnetic brakes, like those available on MDX+, are used to prevent undesired motion when the servo system is shut down. The most common use case for brakes are vertical applications in which they are used to prevent the load from falling in the event of power loss.

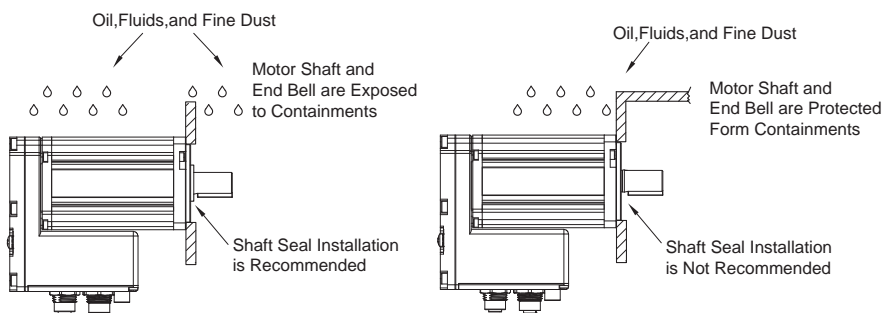
When the brake is powered on, its armature is retracted and the brake pad is released, allowing for rotation of the motor shaft. When the brake is powered off, the armature is released, the brake pad is re-applied and normal operation of the motor is no longer possible.

Frame	40mm	60mm	80mm
Static Friction Torque (Nm)	0.32	1.5	3.2
Rated Voltage (VDC)	24		
Power Waste (W @ 20°C)	6.3	7.2	9.6
Current (A)	0.26	0.3	0.4
Braking Time	< 70ms (Standard air gap, at 20°C)		
Release Time	< 25ms		
Release Voltage	18.5VDC max. (at 20°C)		

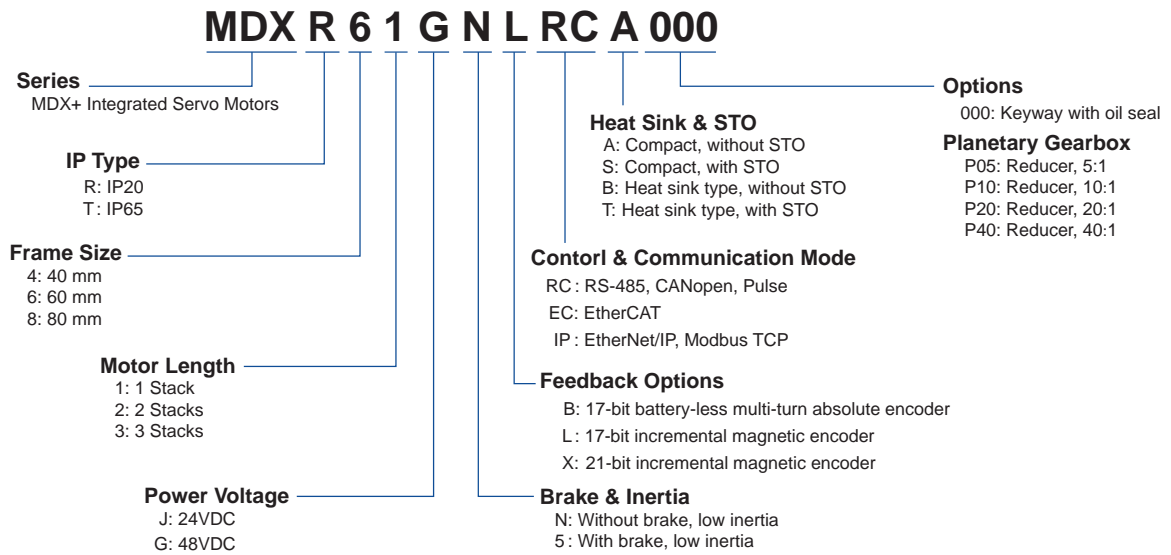


### Shaft Seal





Industrial oil seals can block contaminants (oils, impurities) to extend the life of the motor. The oil seal will produce a certain resistance to the motor shaft, Motor torque output should be de-rated by 10%.



## MDX+ Numbering System



## MDX+ Product System

Rated Power W	Frame Size mm	Rated Speed (Max.Speed) rpm
100	 40	3000 (5000)
200	 60	3000 (6000)
400	 60	3000 (3900)
550	 80	3000 (3600)
750	 80	3000 (3600)

## Basic information

### ■ Frame Size 40mm Specification

Type		MDXR42J□◇○★000	MDXT42J□◇○★000	
IP Rating		IP20	IP65	
Power Rating(3000rpm)		100W	100W	
Main Power Supply	Input Voltage	24V ~ 60VDC		
	Recommend Input Voltage	24VDC		
Auxiliary Power	Input Voltage	24VDC ± 10%		
Withstand Voltage		Primary to earth: withstand 500 VDC, 1 min		
Environment	Temperature	<ul style="list-style-type: none"> <li>◆ Ambient temperature: 0°C ~ 50°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>◆ Storage temperature: -20°C ~ 65°C</li> </ul>		
	Humidity	Both operating and storage : 10 ~ 85%RH or less		
	Altitude	Lower than 1000m		
	Vibration	9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)		
Encoder		<ul style="list-style-type: none"> <li>◆ 17-bit Battery-less absolute encoder</li> <li>◆ 17-bit Incremental magnetic encoder</li> </ul>		
I/O	Digital Signal	Input	<ul style="list-style-type: none"> <li>◆ 4 Configurable optically isolate digital general inputs, 24VDC, 20mA</li> <li>◆ 2 Configurable optically isolate digital general inputs, 24VDC, 20mA</li> </ul>	
		Output	<ul style="list-style-type: none"> <li>◆ 3 Configurable optically isolate digital general outputs, Max.30VDC, 30mA</li> <li>◆ 2 Configurable optically isolate digital general outputs, Max.30VDC, 30mA</li> </ul>	
	Analog Signal	Input	1 Analog input, (-10 ~ +10V, 12-bit)	
	Pulse Signal	Input	5V, minimum pulse width 250ns, max. pulse frequency 2MHz; 24V, minimum pulse width 1μs, max. pulse frequency 500KHz	24V, minimum pulse width 1μs, max. pulse frequency 500KHz
		Output	Line driver: 3 outputs ◆ Encoder A±, B±, Z± feedback output	No
Comm Port	USB Mini	Connection with PC for configuration		
	EtherCAT	No	EtherCAT	
	CANopen	CANopen		
	RS-485	Modbus/RTU		
	EtherNet/IP	No	EtherNet/IP, Modbus TCP	
LED Display		Red and green status indicator		
Control Mode		<ul style="list-style-type: none"> <li>◆ EtherCAT Communication control mode: CoE(compliant with CiA402 standard) supports PP, PV, TQ, CSP, CSV, CST and HM modes</li> <li>◆ CANopen Communication control mode: Comply with CiA402 standard, support PP, PV, PVT, TQ and HM modes</li> <li>◆ Modbus/RTU Communication control mode: Instruction position mode, instruction speed mode, instruction torque mode</li> <li>◆ EtherNet/IP Communication control mode: Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program</li> </ul>		
Control Input Signal		Alarm Reset, CW/CCW Limit, Gain Select, Emergency Stop, Zero Speed Clamp, Torque Limit, Speed Limit, General Purpose Input		
Control Output Signal		Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output		
Protection		Over Current, Over Voltage, Low Voltage, Over Heating, Encoder Fault, Over Load, Over Speed, Position Error, Emergency Stop, CW/CCW Limit, Communication Error		
Dynamic Brake		Built in		
STO* <sup>1</sup>		Built in		
Certification		UL*, CE, RoHS, REACH		

**Note:** \*UL certification is expected to be completed in December 2024.

□: Brake Options , please refer to page 10 MDX+ Numbering System

◇: Encoder Options , please refer to page 10 MDX+ Numbering System

○: Control&Communication Options, please refer to page 10 MDX+ Numbering System

★: Heatsink and STO options, please refer to page 10 MDX+ Numbering System

## ■ Frame Size 60mm Specification

Type		MDXR61G□◇○★000	MDXR62G□◇○★000	MDXT61G□◇○★000	MDXT62G□◇○★000
IP Rating		IP20		IP65	
Power Rating(3000rpm)		200W	400W	200W	400W
Main Power Supply	Input Voltage	24V ~ 60VDC			
	Recommend Input Voltage	48VDC			
Auxiliary Power	Input Voltage	24VDC ± 10%			
Withstand Voltage		Primary to earth: withstand 500 VDC, 1 min			
Environment	Temperature	<ul style="list-style-type: none"> <li>◆ Ambient temperature: 0°C ~ 50°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>◆ Storage temperature: -20°C ~ 65°C</li> </ul>			
	Humidity	Both operating and storage : 10 ~ 85%RH or less			
	Altitude	Lower than 1000m			
	Vibration	9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)			
Encoder		<ul style="list-style-type: none"> <li>◆ 17-bit Battery-less absolute encoder</li> <li>◆ 17-bit Incremental magnetic encoder</li> </ul>			
I/O	Digital Signal	Input	◆ 4 Configurable optically isolate digital general inputs, 24VDC, 20mA	◆ 2 Configurable optically isolate digital general inputs, 24VDC, 20mA	
		Output	◆ 3 Configurable optically isolate digital general outputs, Max.30VDC, 30mA	◆ 2 Configurable optically isolate digital general outputs, Max.30VDC, 30mA	
	Analog Signal	Input	1 Analog input, (-10 ~ +10V, 12-bit)		
	Pulse Signal	Input	5V, minimum pulse width 250ns, max. pulse frequency 2MHz; 24V, minimum pulse width 1μs, max. pulse frequency 500KHz	24V, minimum pulse width 1μs, max. pulse frequency 500KHz	
		Output	Line driver: 3 outputs ◆ Encoder A±, B±, Z± feedback output	No	
Comm Port	USB Mini		Connection with PC for configuration		
	EtherCAT		No	EtherCAT	
	CANopen		CANopen		
	RS-485		Modbus/RTU		
	EtherNet/IP		No	EtherNet/IP, Modbus TCP	
LED Display		Red and green status indicator			
Control Mode		<ul style="list-style-type: none"> <li>◆ EtherCAT Communication control mode: CoE(compliant with CiA402 standard) supports PP, PV, TQ, CSP, CSV, CST and HM modes</li> <li>◆ CANopen Communication control mode: Comply with CiA402 standard, support PP, PV, PVT, TQ and HM modes</li> <li>◆ Modbus/RTU Communication control mode: Instruction position mode, instruction speed mode, instruction torque mode</li> <li>◆ EtherNet/IP Communication control mode: Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program</li> </ul>			
Control Input Signal		Alarm Reset, CW/CCW Limit, Gain Select, Emergency Stop, Zero Speed Clamp, Torque Limit, Speed Limit, General Purpose Input			
Control Output Signal		Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Positon Reached, Servo-on Status, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output			
Protection		Over Current, Over Voltage, Low Voltage, Over Heating, Encoder Fault, Over Load, Over Speed, Position Error, Emergency Stop, CW/CCW Limit, Communication Error			
Dynamic Brake		Built in			
STO* <sup>1</sup>		Built in			
Certification		UL*, CE, RoHS, REACH			

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○: Control&Communication Options, please refer to page 10 MDX+ Numbering System

★: Heatsink and STO options, please refer to page 10 MDX+ Numbering System

## ■ Frame Size 80mm Specification

Type		MDXR82G□◇○★000	MDXR83G□◇○★000	MDXT82G□◇○★000	MDXT83G□◇○★000
IP Rating		IP20		IP65	
Power Rating(3000rpm)		550W	750W	550W	750W
Main Power Supply	Input Voltage	24V ~ 60VDC			
	Recommend Input Voltage	48VDC			
Auxiliary Power	Input Voltage	24VDC±10%			
Withstand Voltage		Primary to earth: withstand 500 VDC, 1 min			
Environment	Temperature	<ul style="list-style-type: none"> <li>◆ Ambient temperature: 0°C ~ 50°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>◆ Storage temperature: -20°C ~ 65°C</li> </ul>			
	Humidity	Both operating and storage : 10 ~ 85%RH or less			
	Altitude	Lower than 1000m			
	Vibration	9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)			
Encoder		<ul style="list-style-type: none"> <li>◆ 17-bit Battery-less absolute encoder</li> <li>◆ 17-bit Incremental magnetic encoder</li> <li>◆ 21-bit Incremental magnetic encoder</li> </ul>			
I/O	Digital Signal	Input	◆ 4 Configurable optically isolate digital general inputs, 24VDC, 20mA	◆ 2 Configurable optically isolate digital general inputs, 24VDC, 20mA	
		Output	◆ 3 Configurable optically isolate digital general outputs, Max.30VDC, 30mA	◆ 2 Configurable optically isolate digital general outputs, Max.30VDC, 30mA	
	Analog Signal	Input	1 Analog input, (-10 ~ +10V, 12-bit)		
	Pulse Signal	Input	5V, minimum pulse width 250ns, max. pulse frequency 2MHz; 24V, minimum pulse width 1μs, max. pulse frequency 500KHz	24V, minimum pulse width 1μs, max. pulse frequency 500KHz	
Output		Line driver: 3 outputs ◆ Encoder A±, B±, Z± feedback output	No		
Comm Port	USB Mini		Connection with PC for configuration		
	EtherCAT		No	EtherCAT	
	CANopen		CANopen		
	RS-485		Modbus/RTU		
	EtherNet/IP		No	EtherNet/IP, Modbus TCP	
LED Display		Red and green status indicator			
Control Mode		<ul style="list-style-type: none"> <li>◆ EtherCAT Communication control mode: CoE(compliant with CiA402 standard) supports PP, PV, TQ, CSP, CSV, CST and HM modes</li> <li>◆ CANopen Communication control mode: Comply with CiA402 standard, support PP, PV, PVT, TQ and HM modes</li> <li>◆ Modbus/RTU Communication control mode: Instruction position mode, instruction speed mode, instruction torque mode</li> <li>◆ EtherNet/IP Communication control mode: Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program</li> </ul>			
Control Input Signal		Alarm Reset, CW/CCW Limit, Gain Select, Emergency Stop, Zero Speed Clamp, Torque Limit, Speed Limit, General Purpose Input			
Control Output Signal		Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Positon Reached, Servo-on Status, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output			
Protection		Over Current, Over Voltage, Low Voltage, Over Heating, Encoder Fault, Over Load, Over Speed, Position Error, Emergency Stop, CW/CCW Limit, Communication Error			
Dynamic Brake		Built in			
STO* <sup>1</sup>		Built in			
Certification		UL*、CE、RoHS、REACH			

**Note:** \*UL certification is expected to be completed in December 2024.

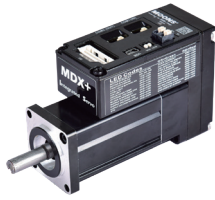
□: Brake Options , please refer to page 10 MDX+ Numbering System

◇: Encoder Options , please refer to page 10 MDX+ Numbering System

○: Control&Communication Options, please refer to page 10 MDX+ Numbering System

★: Heatsink and STO options, please refer to page 10 MDX+ Numbering System

## ■ Frame Size 40mm—Compact IP20 Type -RC--RS-485, CANopen, Pulse



- IP20 Rating
- Frame Size: 40mm
- Power Rating: 100W
- 6 Digital Inputs
- 3 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

Basic Information

System Configuration

Accessories

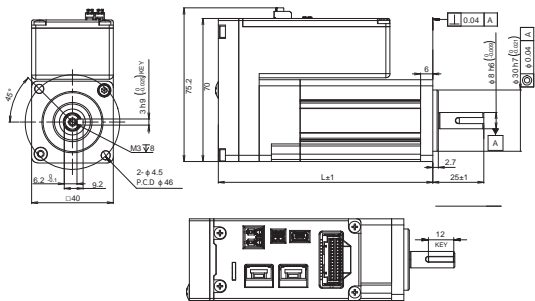
Ordering Information

Type		MDXR42J□◇RC★000
Winding Type	VDC	24
Nominal Supply Voltage	VDC	24
Rated Speed	rpm	3000
Max. Speed	rpm	5000
Power Rating (at 3000rpm)	W	100
Continuous Torque	N·m	0.32
Peak Torque	N·m	0.96
Rated Current	A(rms)	8.1
Peak Current	A(rms)	24.5
Rotor Inertia	kg.m <sup>2</sup>	0.0428 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.0457 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)	50
Shaft Load - Radial (End of Shaft)	N(max.)	60
Weight	kg	MDXR42JNLRCA★000: 0.7
		MDXR42J5LRCA★000: 0.9
		MDXR42JNBRC★000: 0.8
		MDXR42J5BRC★000: 0.9

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

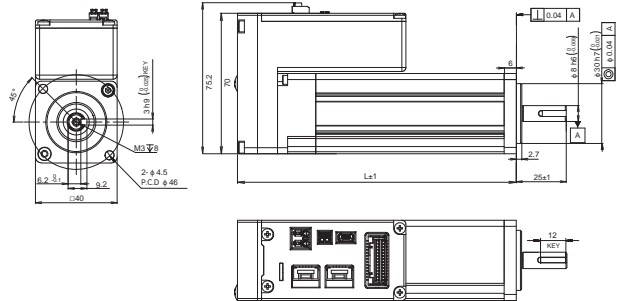
### □ Dimensions (Unit: mm)

1) Without Brake



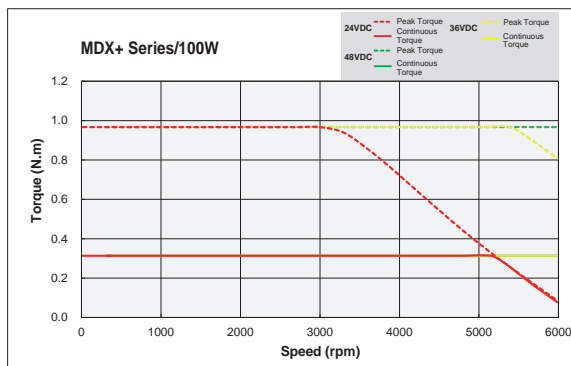
Without Brake		L
MDXR42JNLRCA000	MDXR42JNLRCS000	105
MDXR42JNBRC000	MDXR42JNBRC000	115

2) With Brake



With Brake		L
MDXR42J5LRCA000	MDXR42J5LRCS000	140
MDXR42J5BRC000	MDXR42J5BRC000	150

### □ Torque Curves



## ■ Frame Size 40mm—Compact IP65 Type -RC--RS-485, CANopen, Pulse



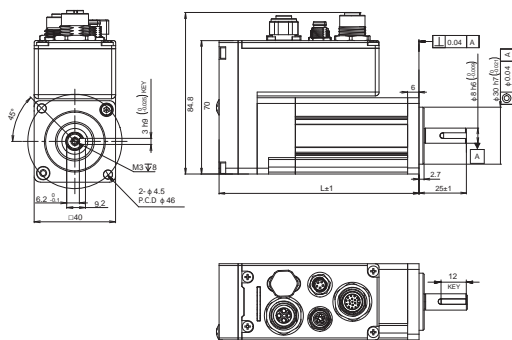
- IP65 Rating
- Frame Size: 40mm
- Power Rating: 100W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT42J□◇RC★000
Winding Type	VDC	24
Nominal Supply Voltage	VDC	24
Rated Speed	rpm	3000
Max. Speed	rpm	5000
Power Rating (at 3000rpm)	W	100
Continuous Torque	N·m	0.32
Peak Torque	N·m	0.96
Rated Current	A(rms)	8.1
Peak Current	A(rms)	24.5
Rotor Inertia	kg.m <sup>2</sup>	0.0428 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.0457 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)	50
Shaft Load - Radial (End of Shaft)	N(max.)	60
Weight	kg	MDXT42JNLRC★000: 0.7
		MDXT42J5LRC★000: 1.0
		MDXT42JNBRC★000: 0.8
		MDXT42J5BRC★000: 1.0

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

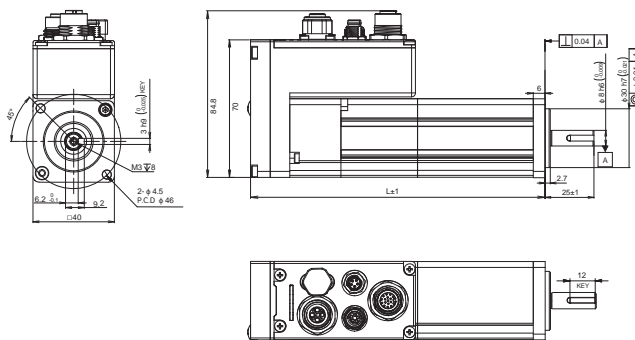
### □ Dimensions (Unit: mm)

1) Without Brake



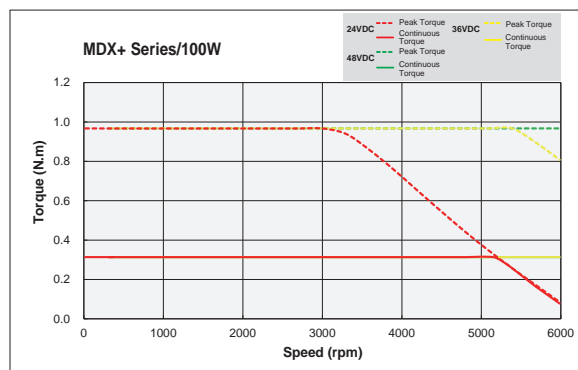
Without Brake		L
MDXT42JNLRC A000	MDXT42JNLRC S000	105
MDXT42JNBRC A000	MDXT42JNBRC S000	115

2) With Brake



With Brake		L
MDXT42J5LRC A000	MDXT42J5LRC S000	140
MDXT42J5BRC A000	MDXT42J5BRC S000	150

### □ Torque Curves



## ■ Frame Size 40mm—Compact IP65 Type -EC--EtherCAT



- IP65 Rating
- Frame Size: 40mm
- Power Rating: 100W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

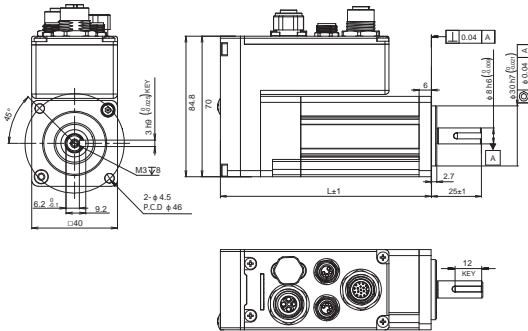
Basic Information

Type		MDXT42J□◇EC★000
Winding Type	VDC	24
Nominal Supply Voltage	VDC	24
Rated Speed	rpm	3000
Power Rating (at 3000rpm)	W	100
Continuous Torque	N·m	0.32
Peak Torque	N·m	0.96
Rated Current	A(rms)	8.1
Peak Current	A(rms)	24.5
Rotor Inertia	kg.m <sup>2</sup>	0.0428 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.0457 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)	50
Shaft Load - Radial (End of Shaft)	N(max.)	60
Weight	kg	MDXT42JNLECA★000: 0.7
		MDXT42J5LECA★000: 1.0
		MDXT42JNBEC★000: 0.8
		MDXT42J5BEC★000: 1.0

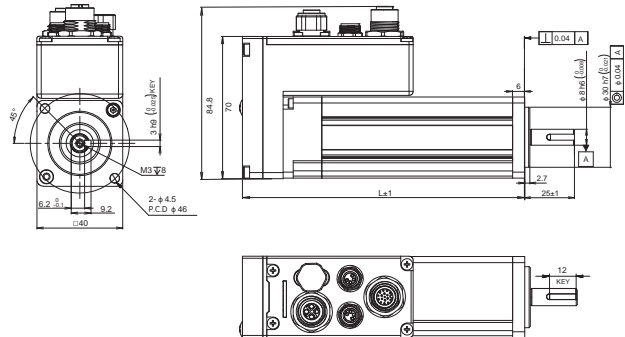
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

#### 1) Without Brake



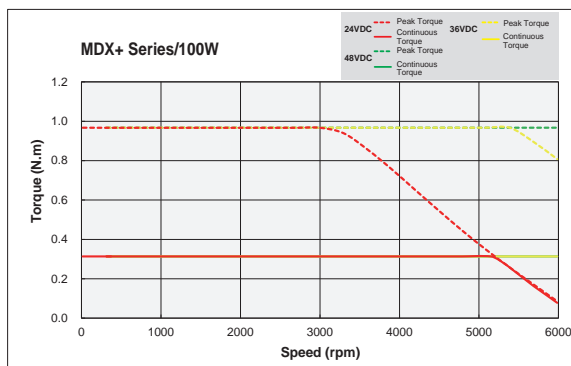
#### 2) With Brake



Without Brake		L
MDXT42JNLECA000	MDXT42JNLECS000	105
MDXT42JNBEC000	MDXT42JNBEC000	115

With Brake		L
MDXT42J5LECA000	MDXT42J5LECS000	140
MDXT42J5BEC000	MDXT42J5BEC000	150

### □ Torque Curves



System Configuration

Accessories

Ordering Information



## ■ Frame Size 40mm—Compact IP65 Type - IP--EtherNet/IP, Modbus TCP



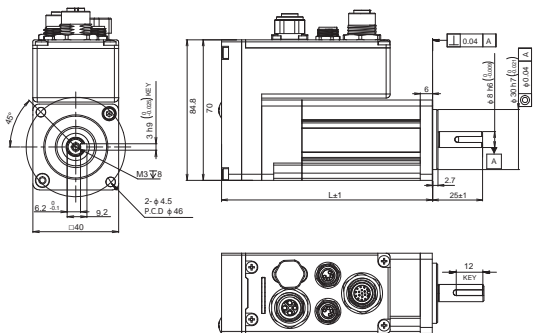
- IP65 Rating
- Frame Size: 40mm
- Power Rating: 100W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT42J□◇IP★000
Winding Type	VDC	24
Nominal Supply Voltage	VDC	24
Rated Speed	rpm	3000
Max. Speed	rpm	5000
Power Rating (at 3000rpm)	W	100
Continuous Torque	N-m	0.32
Peak Torque	N-m	0.96
Rated Current	A(rms)	8.1
Peak Current	A(rms)	24.5
Rotor Inertia	kg.m <sup>2</sup>	0.0428 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.0457 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)	50
Shaft Load - Radial (End of Shaft)	N(max.)	60
Weight	kg	MDXT42JNXIP★000: 0.7
		MDXT42J5XIP★000: 1.0
		MDXT42JNBIP★000: 0.8
		MDXT42J5BIP★000: 1.0

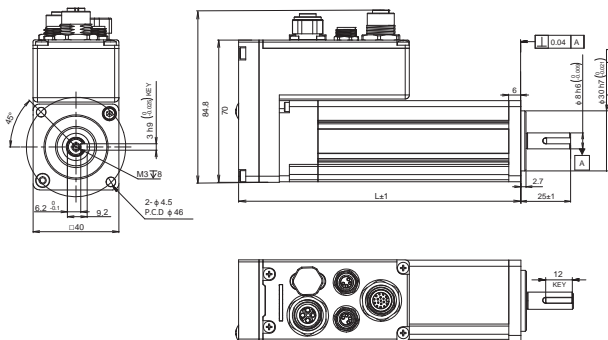
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

1) Without Brake



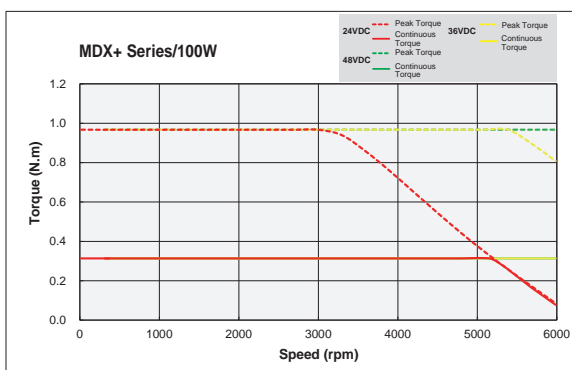
2) With Brake



Without Brake		L
MDXT42JNXIPA000	MDXT42JNXIPS000	105
MDXT42JNBIPA000	MDXT42JNBIPS000	115

With Brake		L
MDXT42J5XIPA000	MDXT42J5XIPS000	140
MDXT42J5BIPA000	MDXT42J5BIPS000	150

### □ Torque Curves



# ■ Frame Size 60mm—Compact IP20 Type -RC--RS-485, CANopen, Pulse



- IP20 Rating
- Frame Size: 60mm
- Power Rating: 200W, 400W
- 6 Digital Inputs
- 3 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

Basic Information

System Configuration

Accessories

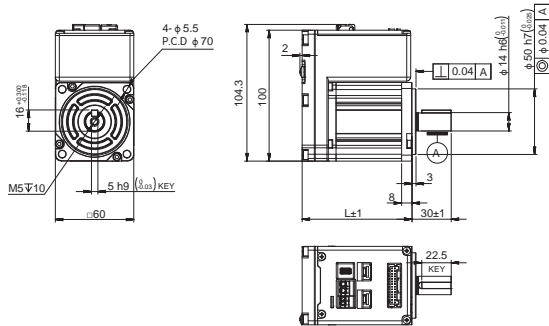
Ordering Information

Type		MDXR61G□◇RC★000		MDXR62G□◇RC★000	
Winding Type	VDC	48		48	
Nominal Supply Voltage	VDC	24	48	24	48
Rated Speed	rpm	3000	3000	1600	3000
Max. Speed	rpm	3500	6000	2000	3900
Power Rating (at 3000rpm)	W	200		400	
Continuous Torque	N·m	0.64		1.27	
Peak Torque	N·m	1.9		3.8	
Rated Current	A(rms)	10		10	
Peak Current	A(rms)	30		30	
Rotor Inertia	kg.m <sup>2</sup>	0.156 x 10 <sup>-4</sup>		0.3 x 10 <sup>-4</sup>	
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.162 x 10 <sup>-4</sup>		0.327 x 10 <sup>-4</sup>	
Shaft Load - Axial	N(max.)	70		70	
Shaft Load - Radial (End of Shaft)	N(max.)	200		240	
Weight	kg	MDXR61GNLRC★000: 1.2		MDXR62GNLRC★000: 1.8	
		MDXR61G5LRC★000: 1.8		MDXR62G5LRC★000: 2.3	
		MDXR61GNBRC★000: 1.4		MDXR62GNBRC★000: 1.9	
		MDXR61G5BRC★000: 1.8		MDXR62G5BRC★000: 2.3	

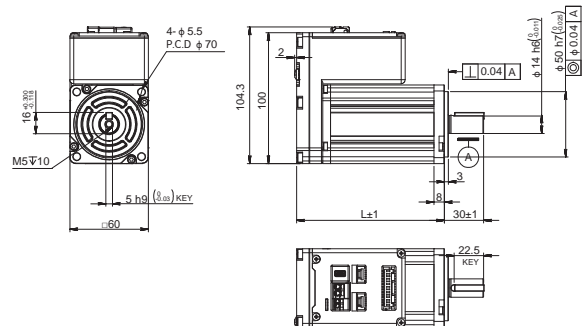
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

## □ Dimensions (Unit: mm)

1) Without Brake



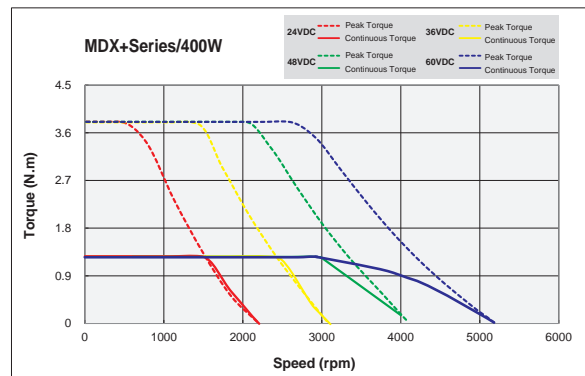
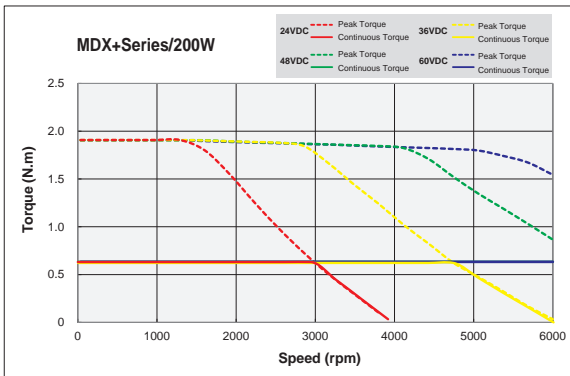
2) With Brake



Without Brake		L
MDXR61GNLRC A000	MDXR61GNLRC S000	84
MDXR61GNBRCA000	MDXR61GNBRCS000	108.5
MDXR62GNLRC A000	MDXR62GNLRC S000	113
MDXR62GNBRCA000	MDXR62GNBRCS000	137.5

With Brake		L
MDXR61G5LRC A000	MDXR61G5LRC S000	148
MDXR61G5BRCA000	MDXR61G5BRCS000	148
MDXR62G5LRC A000	MDXR62G5LRC S000	177
MDXR62G5BRCA000	MDXR62G5BRCS000	177

## □ Torque Curves



## ■ Frame Size 60mm—Compact IP65 Type -RC--RS-485, CANopen, Pulse



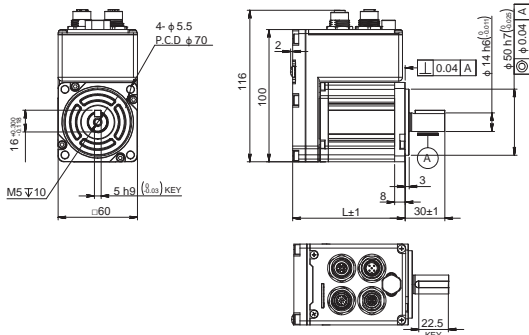
- IP65 Rating
- Frame Size: 60mm
- Power Rating: 200W, 400W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT61G□◇RC★000		MDXT62G□◇RC★000	
Winding Type	VDC	48VDC		48VDC	
Nominal Supply Voltage	VDC	24	48	24	48
Rated Speed	rpm	3000	3000	1600	3000
Max. Speed	rpm	3500	6000	2000	3900
Power Rating (at 3000rpm)	W	200		400	
Continuous Torque	N·m	0.64		1.27	
Peak Torque	N·m	1.9		3.8	
Rated Current	A(rms)	10		10	
Peak Current	A(rms)	30		30	
Rotor Inertia	kg.m <sup>2</sup>	0.156 x 10 <sup>-4</sup>		0.3 x 10 <sup>-4</sup>	
Rotor Inertia-with Brake	kg.m <sup>2</sup>	0.162 x 10 <sup>-4</sup>		0.327 x 10 <sup>-4</sup>	
Shaft Load - Axial	N(max.)	70		70	
Shaft Load - Radial (End of Shaft)	N(max.)	200		240	
Weight	kg	MDXT61GNLRC★000: 1.3		MDXT62GNLRC★000: 1.8	
		MDXT61G5LRC★000: 1.9		MDXT62G5LRC★000: 2.4	
		MDXT61GNBRC★000: 1.4		MDXT62GNBRC★000: 2.0	
		MDXT61G5BRC★000: 1.9		MDXT62G5BRC★000: 2.4	

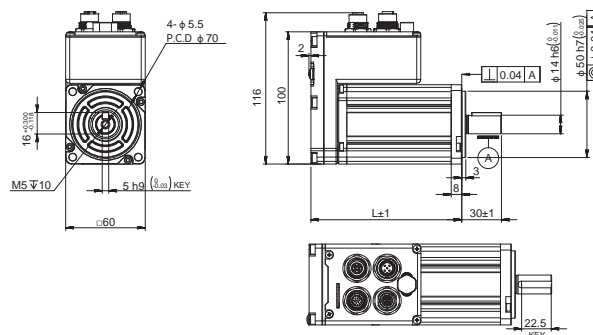
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

#### 1) Without Brake



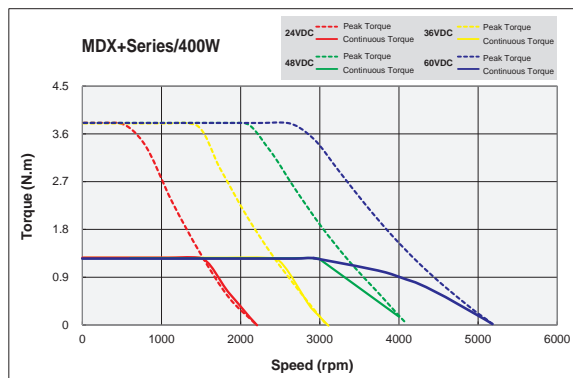
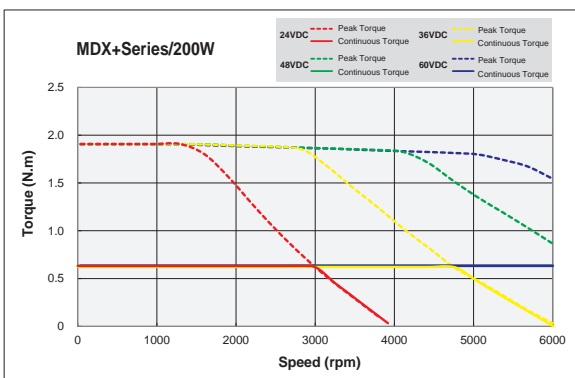
#### 2) With Brake



Without Brake		L
MDXT61GNLRC A000	MDXT61GNLRC S000	85
MDXT61GNBRCA000	MDXT61GNBRCS000	110.5
MDXT62GNLRC A000	MDXT62GNLRC S000	114
MDXT62GNBRCA000	MDXT62GNBRCS000	139.5

With Brake		L
MDXT61G5LRC A000	MDXT61G5LRC S000	150
MDXT61G5BRCA000	MDXT61G5BRCS000	150
MDXT62G5LRC A000	MDXT62G5LRC S000	179
MDXT62G5BRCA000	MDXT62G5BRCS000	179

### □ Torque Curves



## ■ Frame Size 60mm—Compact IP65 Type - EC--EtherCAT



- IP65 Rating
- Frame Size: 60mm
- Power Rating: 200W, 400W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

Basic Information

System Configuration

Accessories

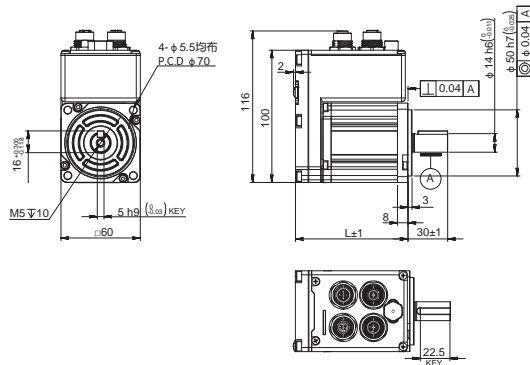
Ordering Information

Type		MDXT61G □ ◇ EC ★ 000		MDXT62G □ ◇ EC ★ 000	
Winding Type	VDC	48VDC		48VDC	
Nominal Supply Voltage	VDC	24	48	24	48
Rated Speed	rpm	3000	3000	1600	3000
Max. Speed	rpm	3500	6000	2000	3900
Power Rating (at 3000rpm)	W	200		400	
Continuous Torque	N·m	0.64		1.27	
Peak Torque	N·m	1.9		3.8	
Rated Current	A(rms)	10		10	
Peak Current	A(rms)	30		30	
Rotor Inertia	kg·m <sup>2</sup>	0.156 x 10 <sup>-4</sup>		0.3 x 10 <sup>-4</sup>	
Rotor Inertia-with Brake	kg·m <sup>2</sup>	0.162 x 10 <sup>-4</sup>		0.327 x 10 <sup>-4</sup>	
Shaft Load - Axial	N(max.)	70		70	
Shaft Load - Radial (End of Shaft)	N(max.)	200		240	
Weight	kg	MDXT61GNLECA000: 1.3		MDXT62GNLECA000: 1.8	
		MDXT61G5LECA000: 1.9		MDXT62G5LECA000: 2.4	
		MDXT61GNBECA000: 1.4		MDXT62GNBECA000: 2.0	
		MDXT61G5BECA000: 1.9		MDXT62G5BECA000: 2.4	

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

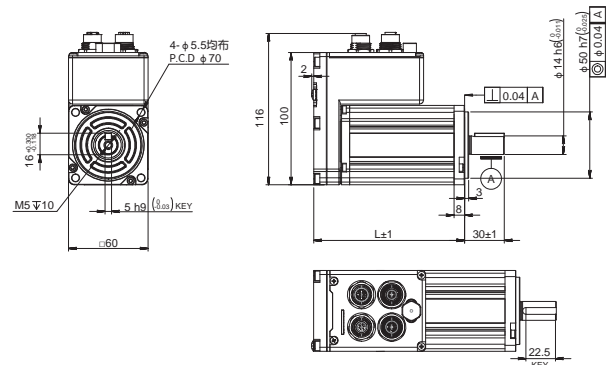
### □ Dimensions (Unit: mm)

#### 1) Without Brake



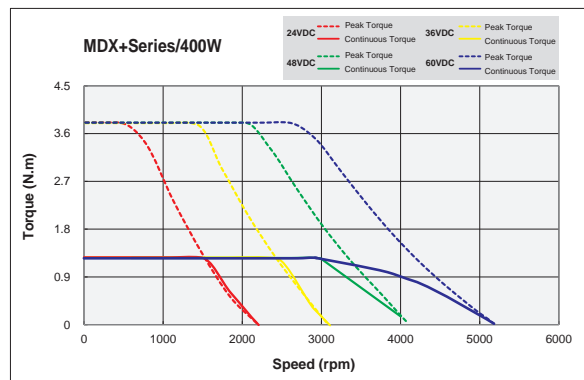
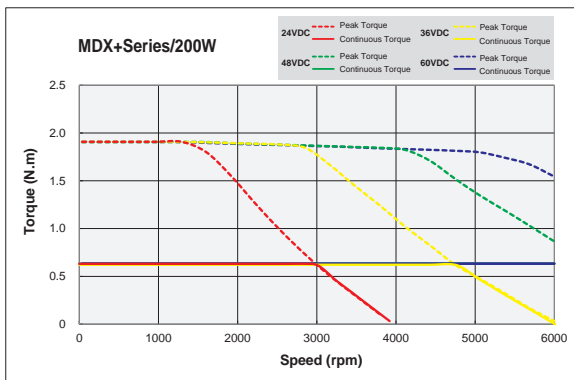
Without Brake		L
MDXT61GNLECA000	MDXT61GNLECS000	85
MDXT61GNBECA000	MDXT61GNBECS000	110.5
MDXT62GNLECA000	MDXT62GNLECS000	114
MDXT62GNBECA000	MDXT62GNBECS000	139.5

#### 2) With Brake



With Brake		L
MDXT61G5LECA000	MDXT61G5LECS000	150
MDXT61G5BECA000	MDXT61G5BECS000	150
MDXT62G5LECA000	MDXT62G5LECS000	179
MDXT62G5BECA000	MDXT62G5BECS000	179

### □ Torque Curves



## ■ Frame Size 60mm—Compact IP65 Type - IP--EtherNet/IP, Modbus TCP



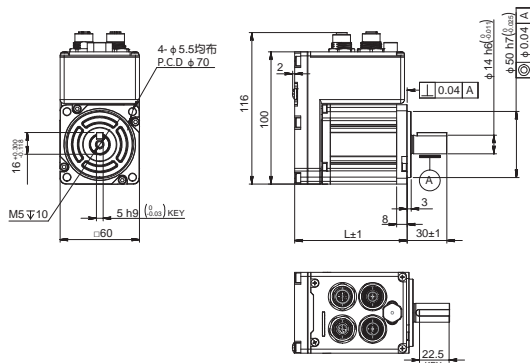
- IP65 Rating
- Frame Size: 60mm
- Power Rating: 200W, 400W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT61G□◇IP★000		MDXT62G□◇IP★000	
Winding Type	VDC	48VDC		48VDC	
Nominal Supply Voltage	VDC	24	48	24	48
Rated Speed	rpm	3000	3000	1600	3000
Max. Speed	rpm	3500	6000	2000	3900
Power Rating (at 3000rpm)	W	200		400	
Continuous Torque	N·m	0.64		1.27	
Peak Torque	N·m	1.9		3.8	
Rated Current	A(rms)	10		10	
Peak Current	A(rms)	30		30	
Rotor Inertia	kg·m <sup>2</sup>	0.156 x 10 <sup>-4</sup>		0.3x 10 <sup>-4</sup>	
Rotor Inertia-with Brake	kg·m <sup>2</sup>	0.162 x 10 <sup>-4</sup>		0.327 x 10 <sup>-4</sup>	
Shaft Load - Axial	N(max.)	70		70	
Shaft Load - Radial (End of Shaft)	N(max.)	200		240	
Weight	kg	MDXT61GNXIP★000: 1.3		MDXT62GNXIP★000: 1.8	
		MDXT61G5XIP★000: 1.9		MDXT62G5XIP★000: 2.4	
		MDXT61GNBIP★000: 1.4		MDXT62GNBIP★000: 2.0	
		MDXT61G5BIP★000: 2.0		MDXT62G5BIP★000: 2.4	

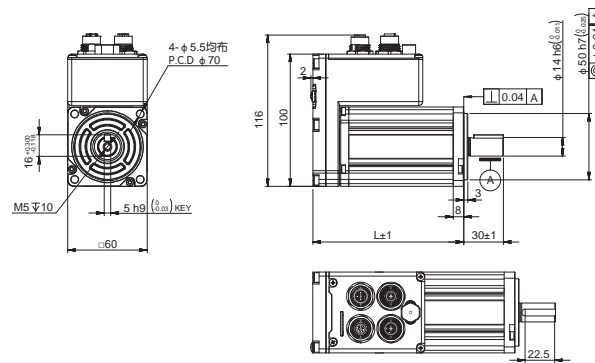
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

#### 1) Without Brake



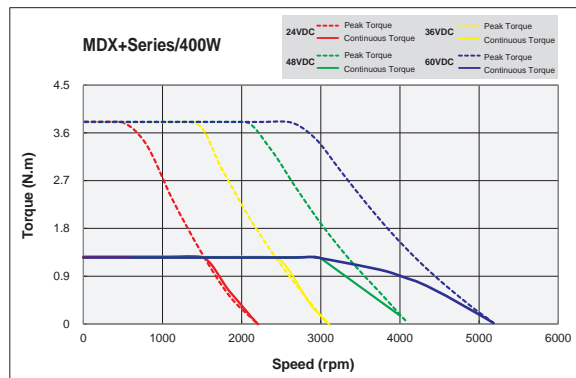
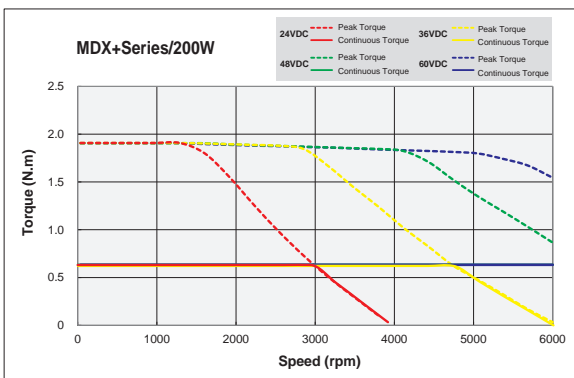
#### 2) With Brake



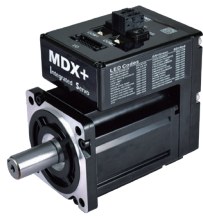
Without Brake		L
MDXT61GNXIPA000	MDXT61GNXIPS000	85
MDXT61GNBIPA000	MDXT61GNBIPS000	110.5
MDXT62GNXIPA000	MDXT62GNXIPS000	114
MDXT62GNBIPA000	MDXT62GNBIPS000	139.5

With Brake		L
MDXT61G5XIPA000	MDXT61G5XIPS000	150
MDXT61G5BIPA000	MDXT61G5BIPS000	150
MDXT62G5XIPA000	MDXT62G5XIPS000	179
MDXT62G5BIPA000	MDXT62G5BIPS000	179

### □ Torque Curves



# ■ Frame Size 80mm—Compact IP20 Type -RC--RS-485, CANopen, Pulse



- IP20 Rating
- Frame Size: 80mm
- Power Rating: 550W
- 6 Digital Inputs
- 3 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

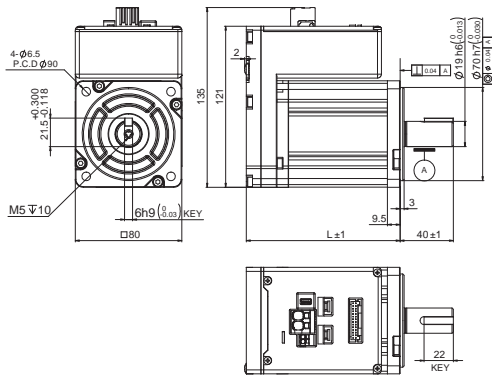
Basic Information

Type		MDXR82G□◇RC★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		550
Continuous Torque	N·m		1.8
Peak Torque	N·m		7.2
Rated Current	A(rms)		13.5
Peak Current	A(rms)		56
Rotor Inertia	kg.m <sup>2</sup>		0.85 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>		0.927 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXR82GNLRC★000: 2.8
			MDXR82G5LRC★000: 3.8
			MDXR82GNBRC★000: 3.0
			MDXR82G5BRC★000: 3.8

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

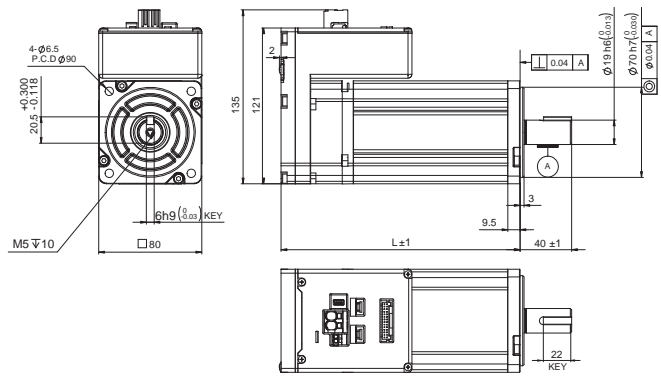
## □ Dimensions (Unit: mm)

1) Without Brake



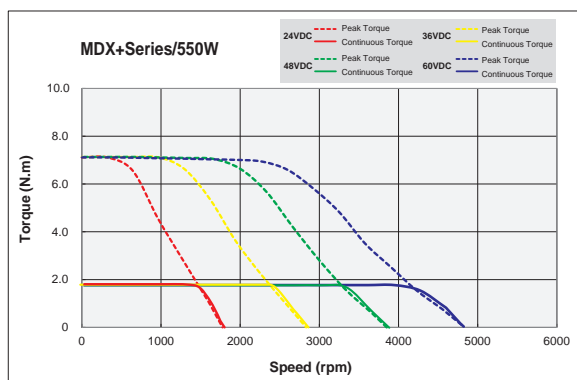
Without Brake		L
MDXR82GNLRCA000	MDXR82GNLRCS000	115.5
MDXR82GNBRCA000	MDXR82GNBRCS000	140

2) With Brake



With Brake		L
MDXR82G5LRCA000	MDXR82G5LRCS000	185.5
MDXR82G5BRCA000	MDXR82G5BRCS000	185.5

## □ Torque Curves



System Configuration

Accessories

Ordering Information

## ■ Frame Size 80mm—Compact IP65 Type -RC--RS-485, CANopen, Pulse



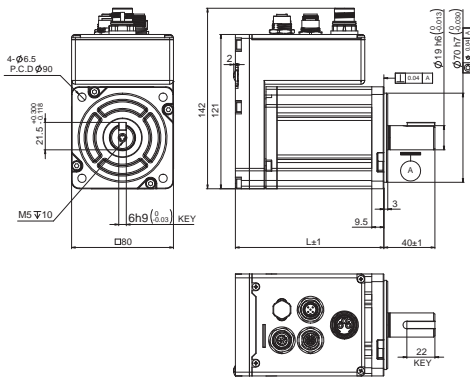
- IP65 Rating
- Frame Size: 80mm
- Power Rating: 550W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT82G□◇RC★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		550
Continuous Torque	N·m		1.8
Peak Torque	N·m		7.2
Rated Current	A(rms)		13.5
Peak Current	A(rms)		56
Rotor Inertia	kg.m <sup>2</sup>		0.85 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>		0.927 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXT82GNLRC★000: 2.8
			MDXT82G5LRC★000: 3.9
			MDXT82GNBRC★000: 3.0
			MDXT82G5BRC★000: 3.9

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

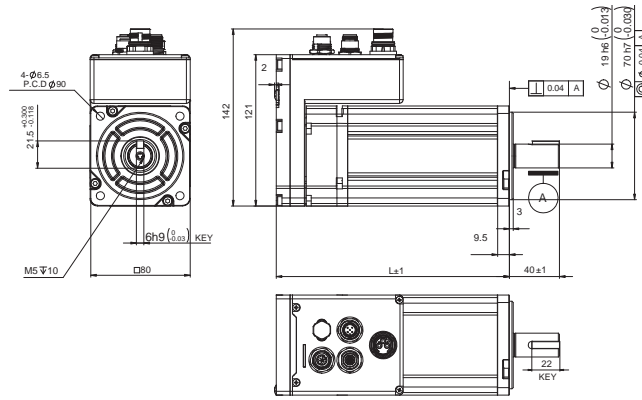
### □ Dimensions (Unit: mm)

#### 1) Without Brake



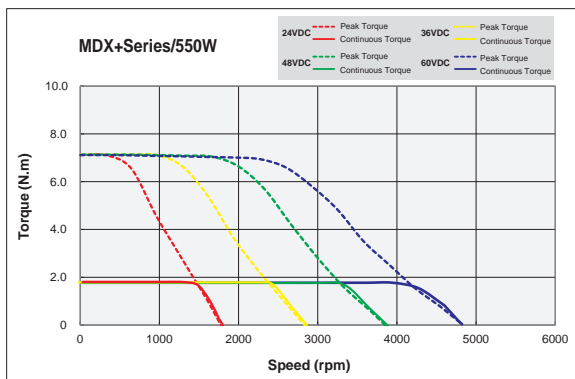
Without Brake		L
MDXT82GNLRCA000	MDXT82GNLRCS000	116.5
MDXT82GNBRCA000	MDXT82GNBRCS000	141

#### 2) With Brake



With Brake		L
MDXT82G5LRCA000	MDXT82G5LRCS000	186.5
MDXT82G5BRCA000	MDXT82G5BRCS000	186.5

### □ Torque Curves



## ■ Frame Size 80mm—Compact IP65 Type -EC--EtherCAT



- IP65 Rating
- Frame Size: 80mm
- Power Rating: 550W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

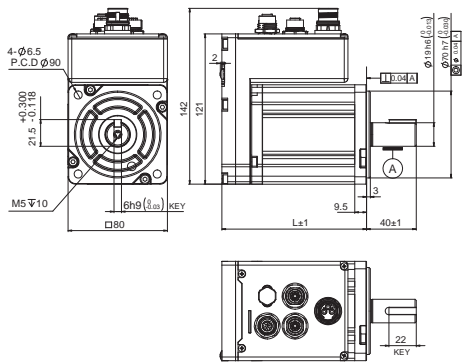
Basic Information

Type		MDXT82G□◇EC★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		550
Continuous Torque	N·m		1.8
Peak Torque	N·m		7.2
Rated Current	A(rms)		13.5
Peak Current	A(rms)		56
Rotor Inertia	kg·m <sup>2</sup>		0.85 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg·m <sup>2</sup>		0.927 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXT82GNLEC★000: 2.9
			MDXT82G5LEC★000: 3.8
			MDXT82GNBEC★000: 3.0
			MDXT82G5BEC★000: 3.8

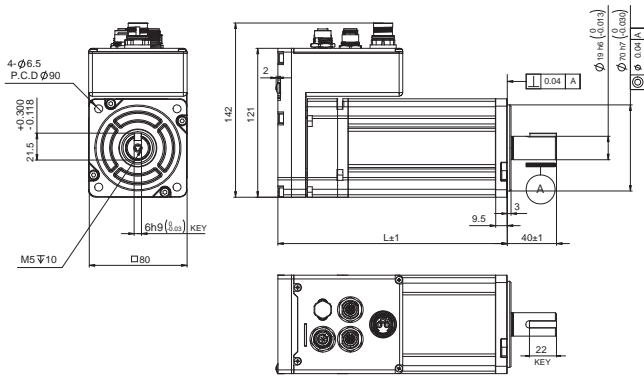
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

1) Without Brake



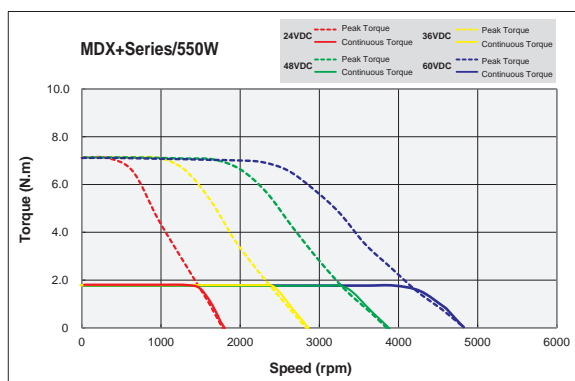
2) With Brake



Without Brake		L
MDXT82GNLECA000	MDXT82GNLECS000	116.5
MDXT82GNBECA000	MDXT82GNBECS000	141

With Brake		L
MDXT82G5LECA000	MDXT82G5LECS000	186.5
MDXT82G5BECA000	MDXT82G5BECS000	186.5

### □ Torque Curves



System Configuration

Accessories

Ordering Information



## ■ Frame Size 80mm—Compact IP65 Type - IP--EtherNet/IP, Modbus TCP



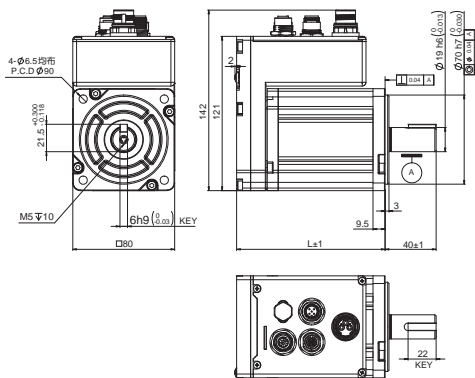
- IP65 Rating
- Frame Size: 80mm
- Power Rating: 550W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT82G□◇IP★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		550
Continuous Torque	N·m		1.8
Peak Torque	N·m		7.2
Rated Current	A(rms)		13.5
Peak Current	A(rms)		56
Rotor Inertia	kg.m <sup>2</sup>		1.06 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg.m <sup>2</sup>		1.14 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXT82GNXIP★000: 2.9
			MDXT82G5XIP★000: 3.8
			MDXT82GNBIP★000: 3.0
			MDXT82G5BIP★000: 3.8

□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

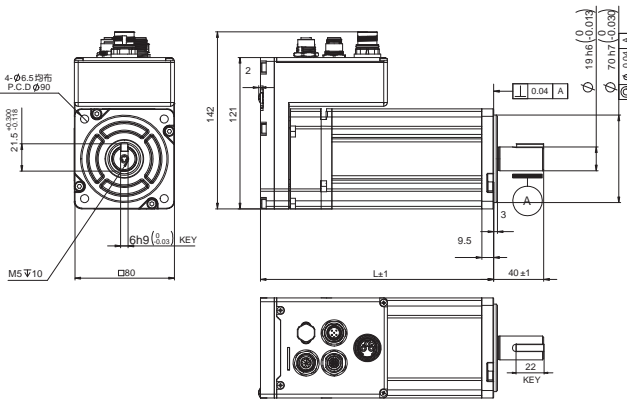
### □ Dimensions (Unit: mm)

#### 1) Without Brake



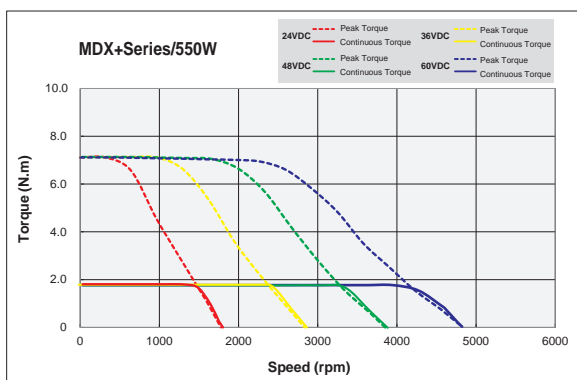
Without Brake		L
MDXT82GNXIPA000	MDXT82GNXIPS000	116.5
MDXT82GNBIPA000	MDXT82GNBIPS000	141

#### 2) With Brake

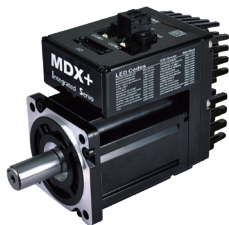


With Brake		L
MDXT82G5XIPA000	MDXT82G5XIPS000	186.5
MDXT82G5BIPA000	MDXT82G5BIPS000	186.5

### □ Torque Curves



## ■ Frame Size 80mm—Compact IP20 Type -RC--RS-485, CANopen, Pulse



- IP20 Rating
- Frame Size: 80mm
- Power Rating: 750W
- 6 Digital Inputs
- 3 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

Basic Information

System Configuration

Accessories

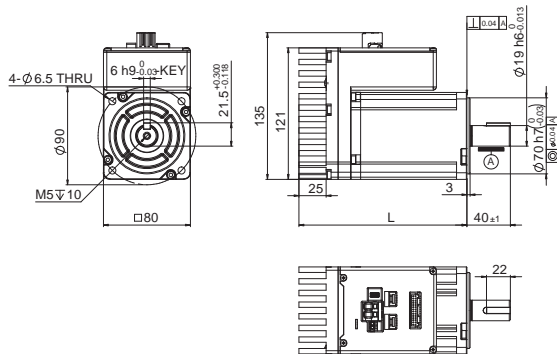
Ordering Information

Type		MDXR83G□◇RC★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		750
Continuous Torque	N·m		2.4
Peak Torque	N·m		7.2
Rated Current	A(rms)		18.3
Peak Current	A(rms)		55
Rotor Inertia	kg·m <sup>2</sup>		1.06 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg·m <sup>2</sup>		1.14 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXR83GNXRC★000: 3.0
			MDXR83G5XRC★000: 4.0
			MDXR83GNBRC★000: 3.2
			MDXR83G5BRC★000: 4.0

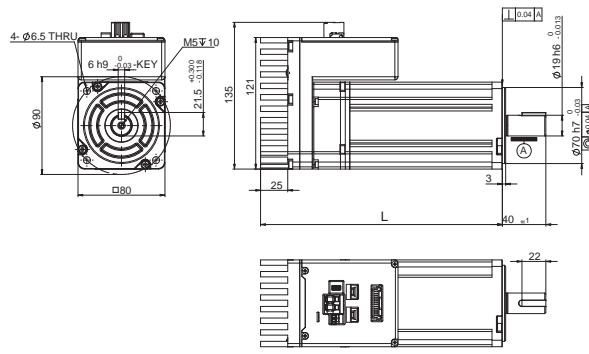
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

1) Without Brake



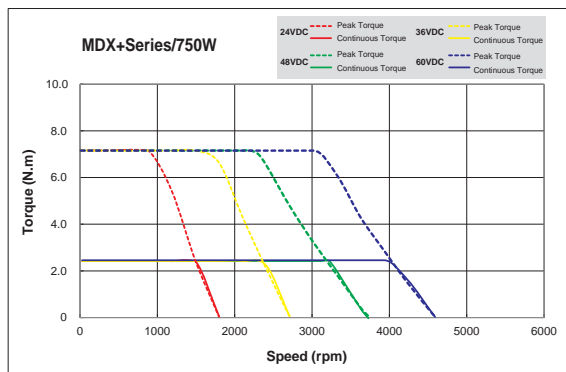
2) With Brake



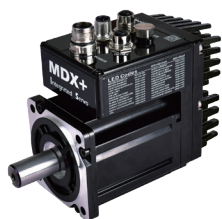
Without Brake		L
MDXR83GNXRCB000	MDXR83GNXRCT000	154.5
MDXR83GNBRCB000	MDXR83GNBRCT000	180

With Brake		L
MDXR83G5XRCB000	MDXR83G5XRCT000	222.5
MDXR83G5BRCB000	MDXR83G5BRCT000	222.5

### □ Torque Curves



## ■ Frame Size 80mm—Compact IP65 Type -RC--RS-485, CANopen, Pulse



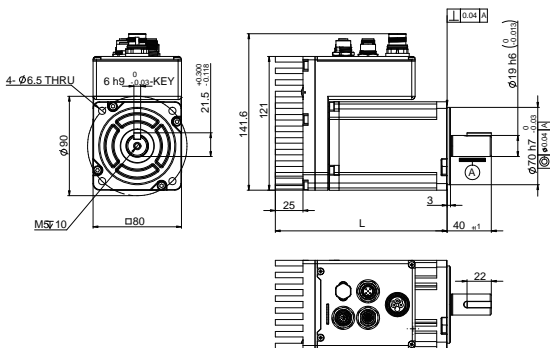
- IP65 Rating
- Frame Size: 80mm
- Power Rating: 750W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT83G□◇RC★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
			3600
Power Rating (at 3000rpm)	W		750
Continuous Torque	N·m		2.4
Peak Torque	N·m		7.2
			18.3
			55
Rotor Inertia	kg·m <sup>2</sup>		1.06 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg·m <sup>2</sup>		1.14 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg		MDXT83GNXRC★000: 3.0
			MDXT83G5XRC★000: 4.0
			MDXT83GNBRC★000: 3.2
			MDXT83G5BRC★000: 4.0

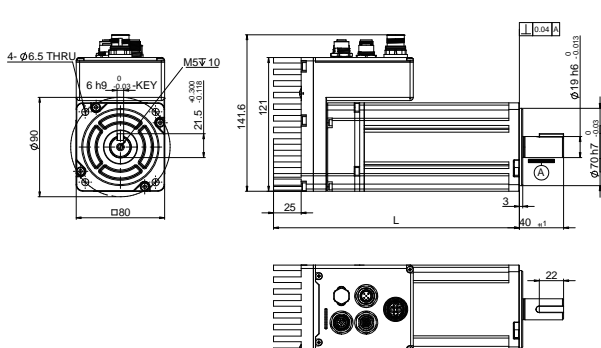
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

#### 1) Without Brake



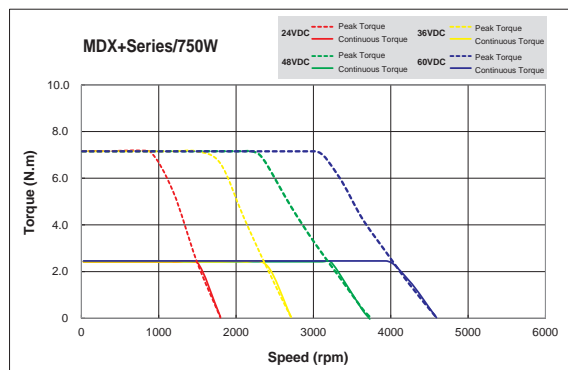
#### 2) With Brake



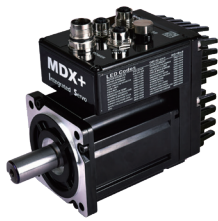
Without Brake		L
MDXT83GNXRCB000	MDXT83GNXRCT000	155.5
MDXT83GNBRCB000	MDXT83GNBRCT000	180

With Brake		L
MDXT83G5XRCB000	MDXT83G5XRCT000	223.5
MDXT83G5BRCB000	MDXT83G5BRCT000	223.5

### □ Torque Curves



## ■ Frame Size 80mm—Compact IP65 Type -EC--EtherCAT



- IP65 Rating
- Frame Size: 80mm
- Power Rating: 750W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Features

Numbering System

Basic Information

System Configuration

Accessories

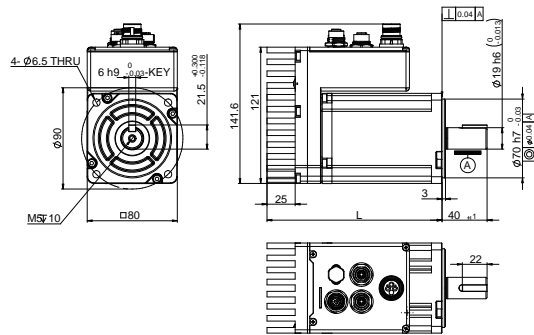
Ordering Information

Type		MDXT82G□◇EC★000
Winding Type	VDC	48
Nominal Supply Voltage	VDC	48
Rated Speed	rpm	3000
Max. Speed	rpm	3600
Power Rating (at 3000rpm)	W	750
Continuous Torque	N·m	2.4
Peak Torque	N·m	7.2
Rated Current	A(rms)	18.3
Peak Current	A(rms)	55
Rotor Inertia	kg·m <sup>2</sup>	1.06 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg·m <sup>2</sup>	1.14 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)	90
Shaft Load - Radial (End of Shaft)	N(max.)	270
Weight	kg	MDXT83GNXEC★000: 3.0
		MDXT83G5XEC★000: 4.0
		MDXT83GNBEC★000: 3.2
		MDXT83G5BEC★000: 4.0

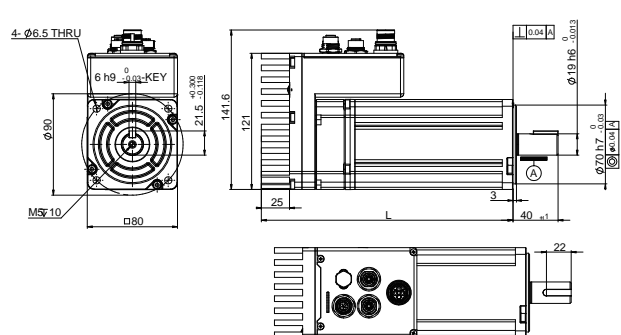
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

1) Without Brake



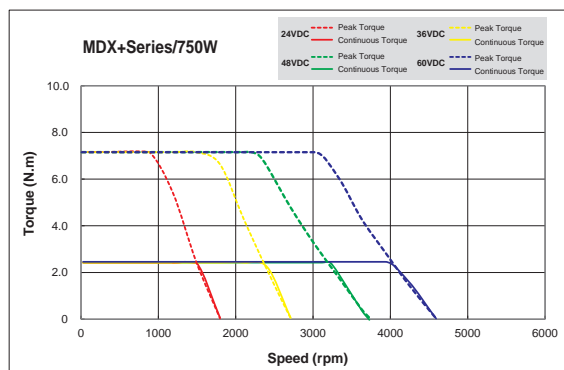
2) With Brake



Without Brake		L
MDXT83GNXECB000	MDXT83GNXECT000	155.5
MDXT83GNBECB000	MDXT83GNBECT000	180

With Brake		L
MDXT83G5XECB000	MDXT83G5XECT000	223.5
MDXT83G5BECB000	MDXT83G5BECT000	223.5

### □ Torque Curves



## ■ Frame Size 80mm—Compact IP65 Type - IP--EtherNet/IP, Modbus TCP



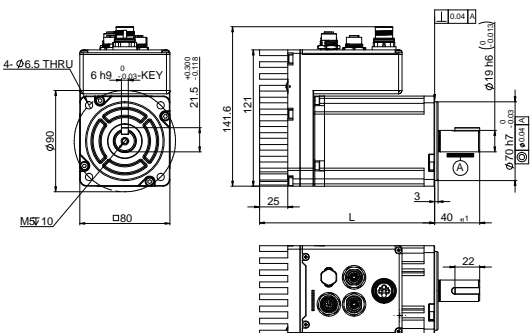
- IP65 Rating
- Frame Size: 80mm
- Power Rating: 750W
- 4 Digital Inputs
- 2 Digital Outputs
- 1 Analog Inputs
- Standard Shaft with Keyway

Type		MDXT83G□◇IP★000	
Winding Type	VDC		48
Nominal Supply Voltage	VDC		48
Rated Speed	rpm		3000
Max. Speed	rpm		3600
Power Rating (at 3000rpm)	W		750
Continuous Torque	N·m		2.4
Peak Torque	N·m		7.2
Rated Current	A(rms)		18.3
Peak Current	A(rms)		55
Rotor Inertia	kg·m <sup>2</sup>		1.06 x 10 <sup>-4</sup>
Rotor Inertia-with Brake	kg·m <sup>2</sup>		1.14 x 10 <sup>-4</sup>
Shaft Load - Axial	N(max.)		90
Shaft Load - Radial (End of Shaft)	N(max.)		270
Weight	kg	MDXT83GNXIP★000:	3.0
		MDXT83G5XIP★000:	4.0
		MDXT83GNBIP★000:	3.2
		MDXT83G5BIP★000:	4.0

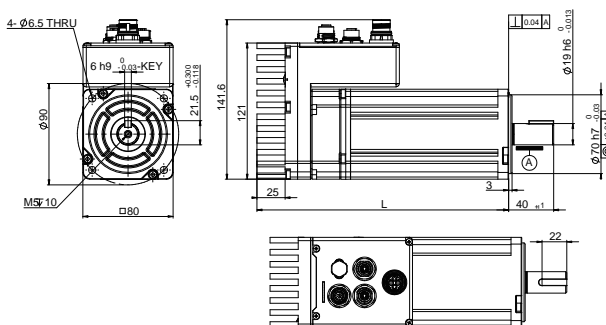
□ : Brake Options; ◇ : Encoder Options ★ : Heatsink and STO Options

### □ Dimensions (Unit: mm)

#### 1) Without Brake



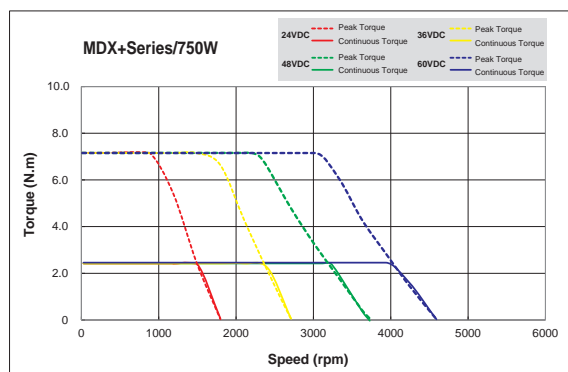
#### 2) With Brake



Without Brake		L
MDXT83GNXIPB000	MDXT83GNXIPT000	155.5
MDXT83GNBIPB000	MDXT83GNBIPT000	180

With Brake		L
MDXT83G5XIPB000	MDXT83G5XIPT000	223.5
MDXT83G5BIPB000	MDXT83G5BIPT000	223.5

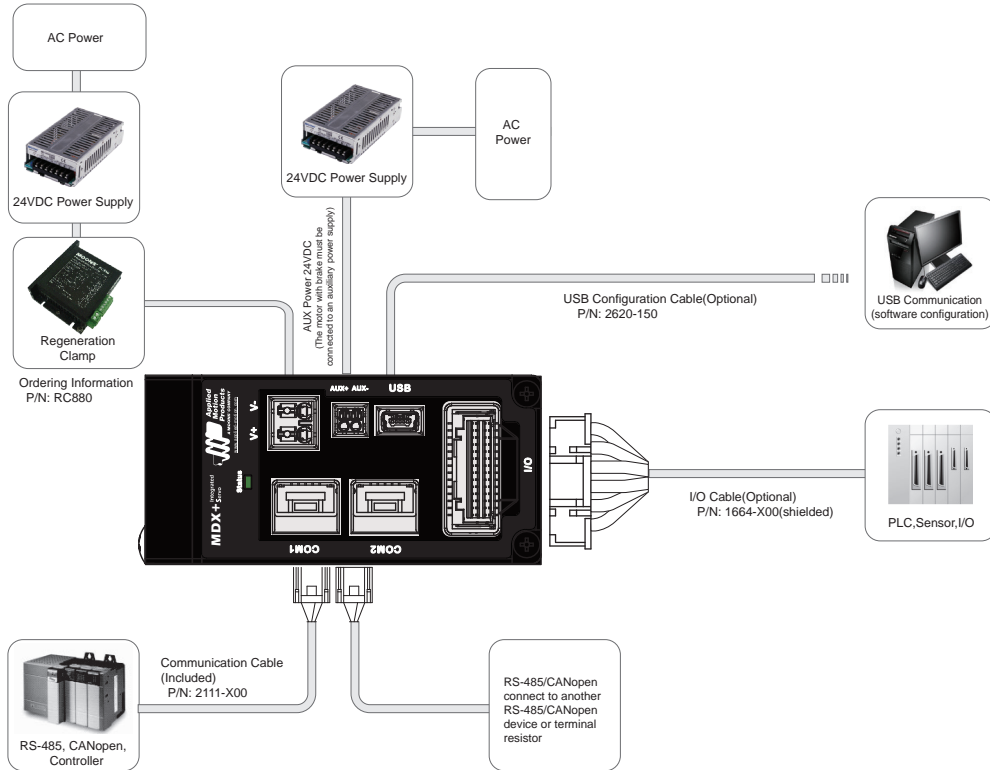
### □ Torque Curves



# IP20 System Configuration

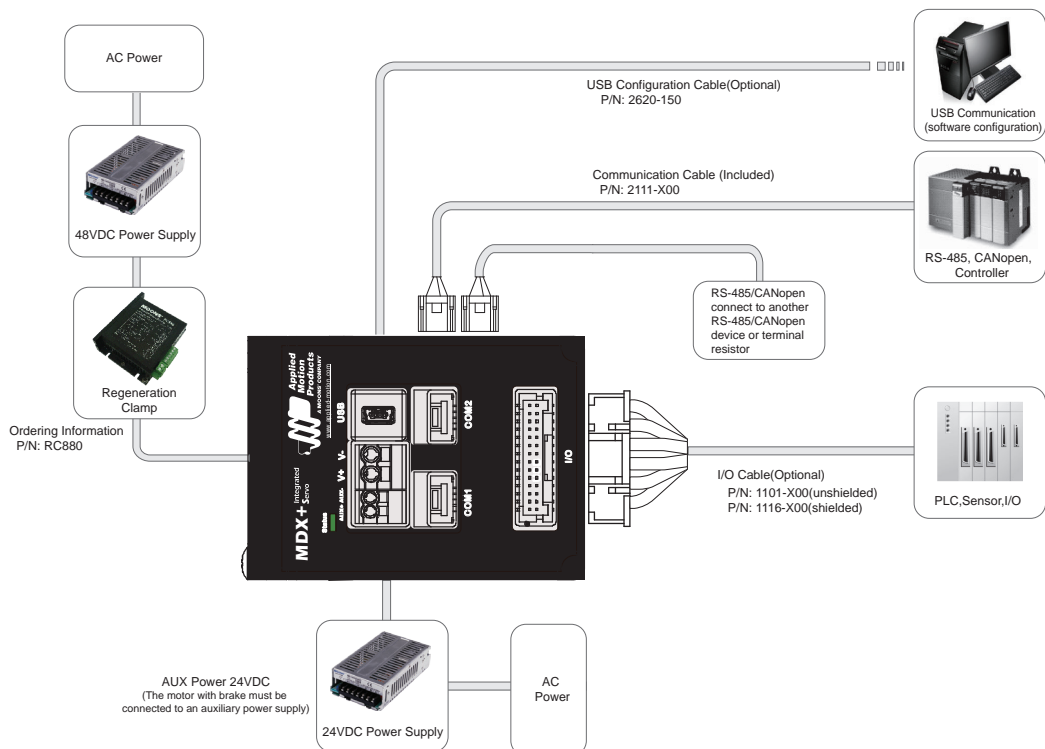
## ■ Frame Size 40mm (100W)

### ● RC--RS-485, CANopen, Pulse



## ■ Frame Size 60mm (200W/400W)

### ● RC--RS-485, CANopen, Pulse



Features

Numbering System

Basic Information

System Configuration

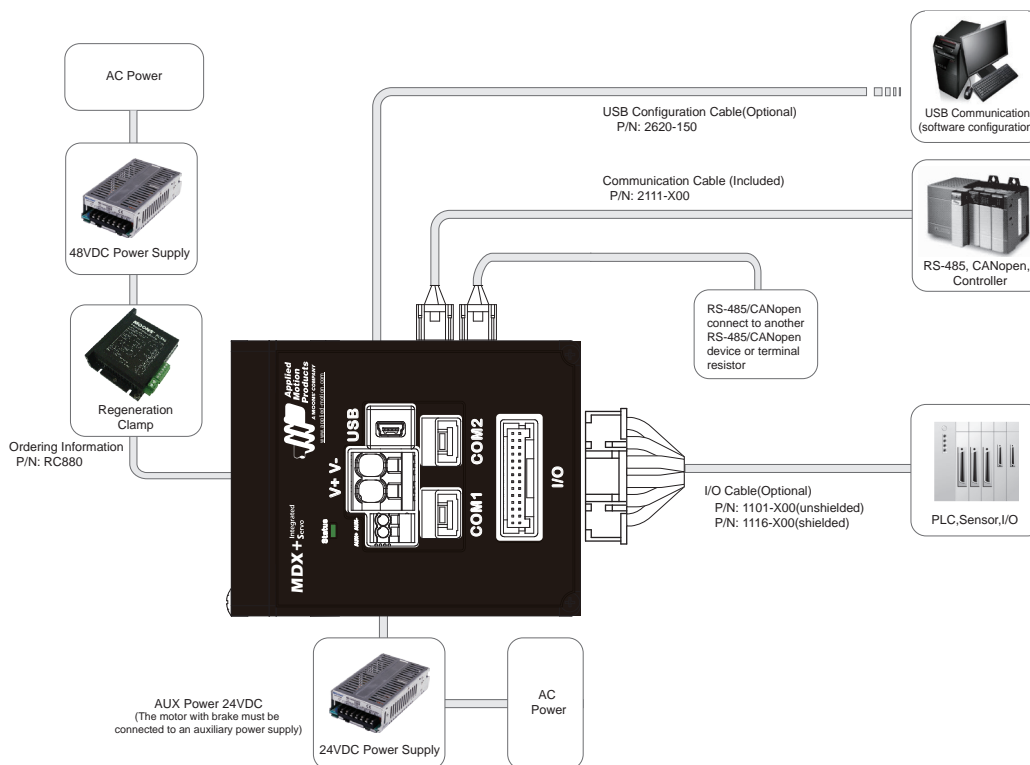
Accessories

Ordering Information

## IP20 System Configuration

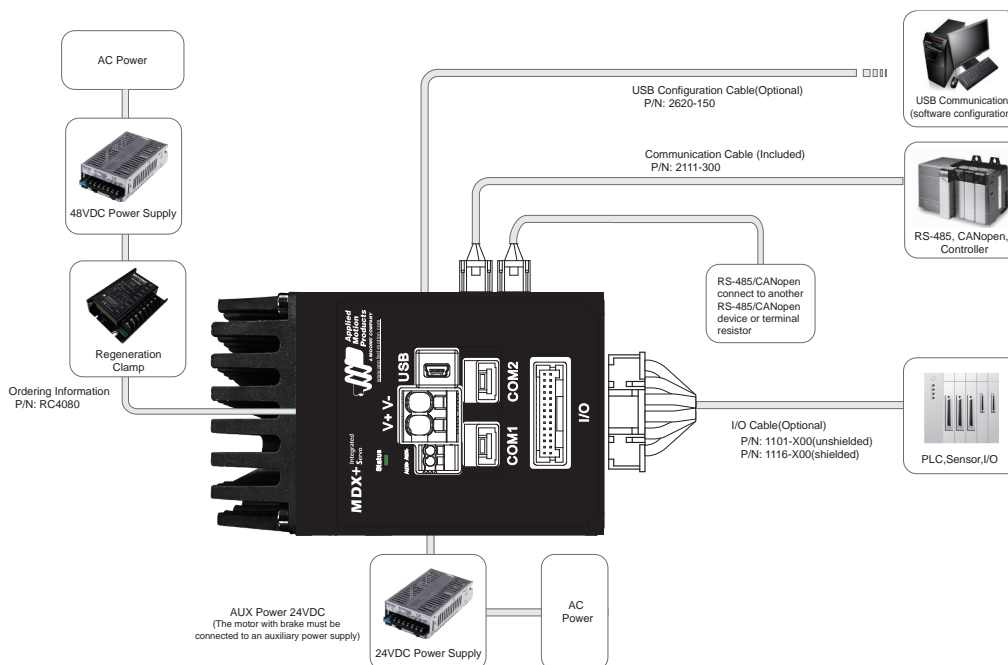
### ■ Frame Size 80mm (550W)

#### ● RC--RS-485, CANopen, Pulse



### ■ Frame Size 80mm (750W)

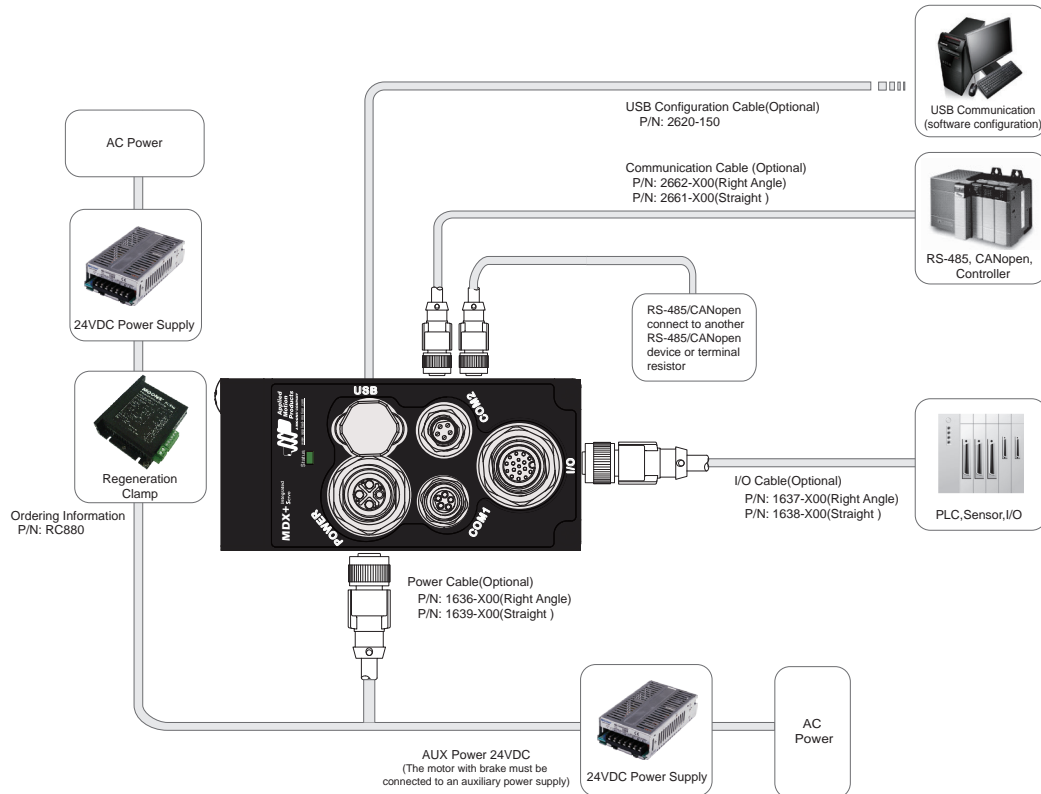
#### ● RC--RS-485, CANopen, Pulse



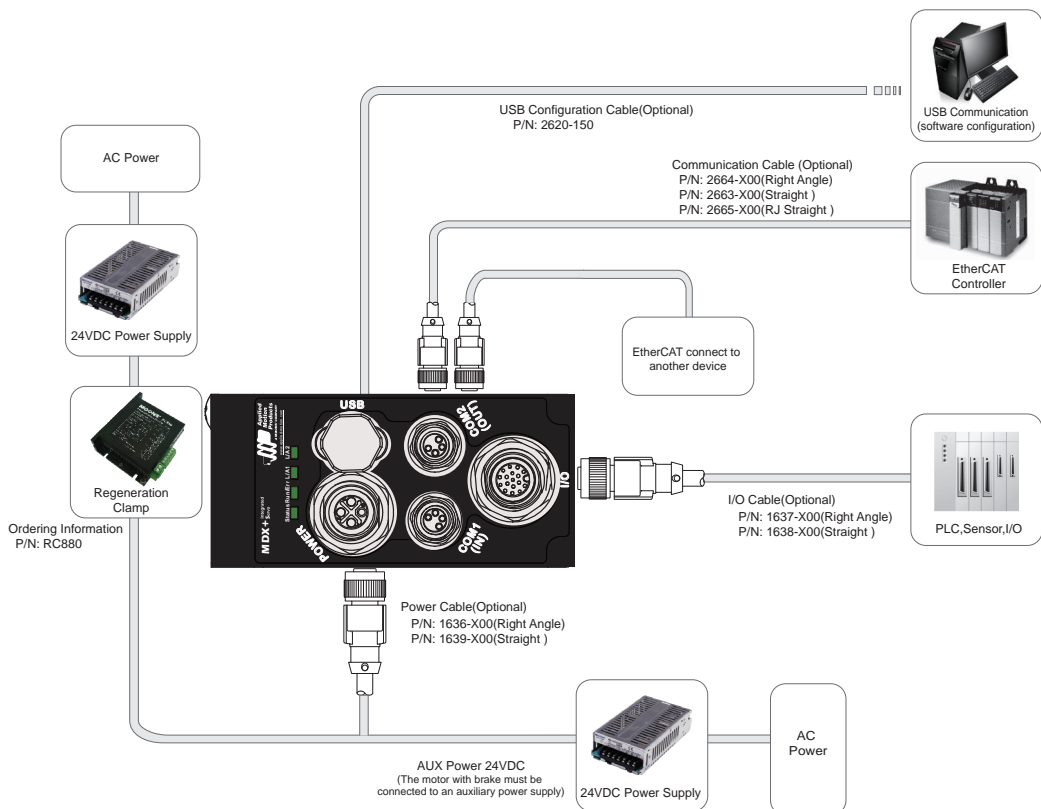
# IP65 System Configuration

## ■ Frame Size 40mm (100W)

### ● RC--RS-485, CANopen, Pulse



### ● EC--EtherCAT



Features

Numbering System

Basic Information

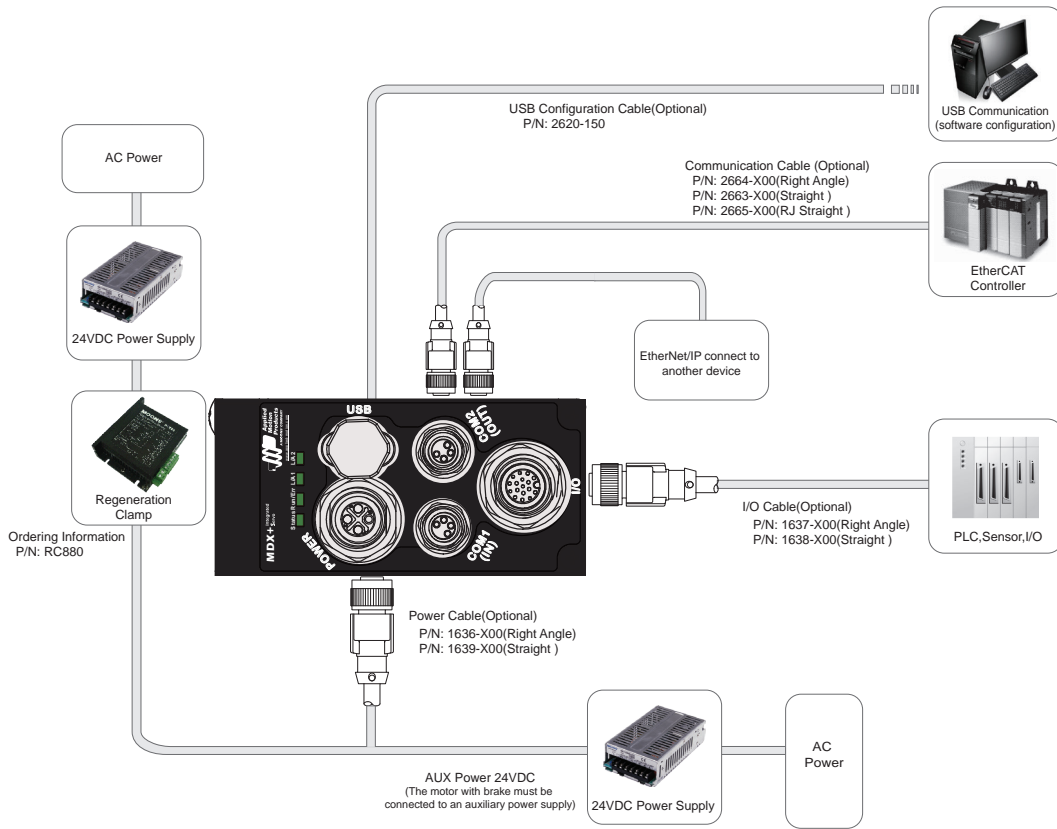
System Configuration

Accessories

Ordering Information



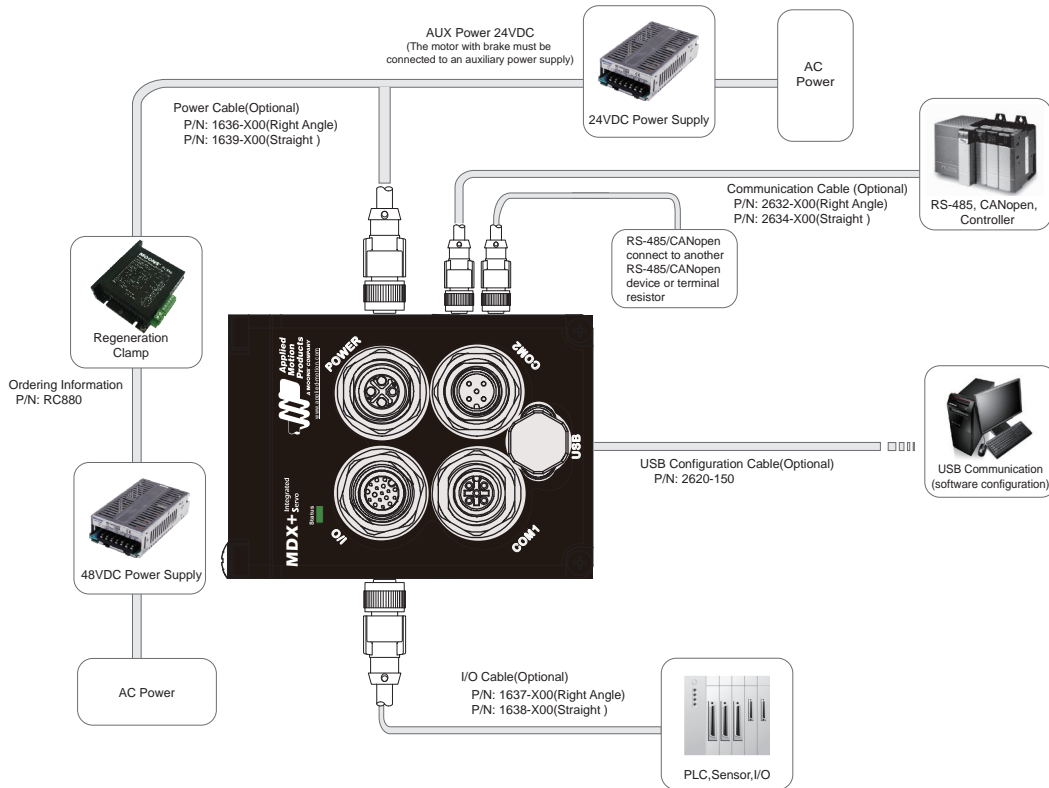
● IP--EtherNet/IP



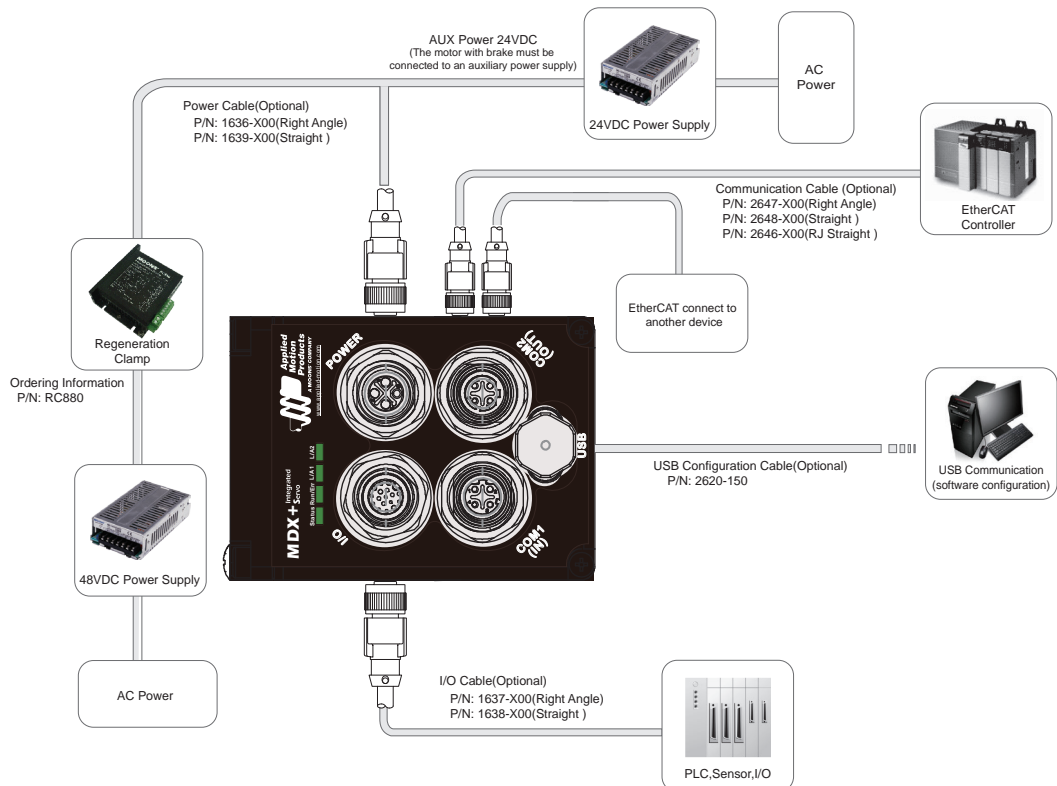
# IP65 System Configuration

## ■ Frame Size 60mm (200W/400W)

### ● RC--RS-485, CANopen, Pulse



### ● EC--EtherCAT



Features

Numbering System

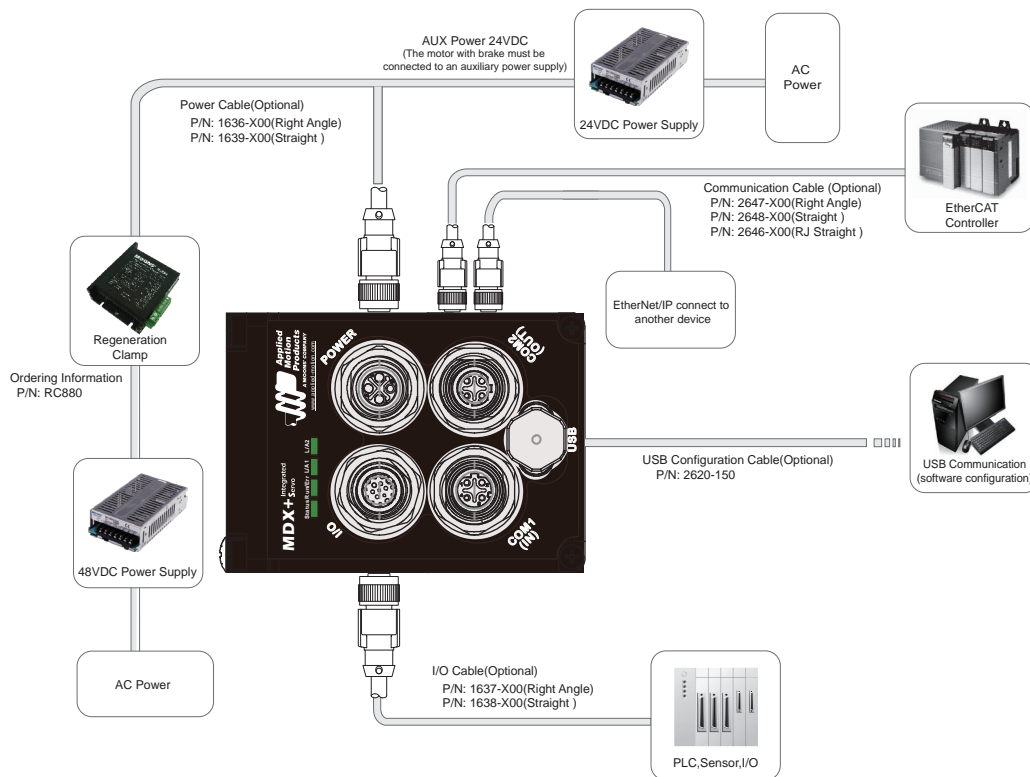
Basic Information

System Configuration

Accessories

Ordering Information

● IP--EtherNet/IP



Features

Numbering System

Basic Information

System Configuration

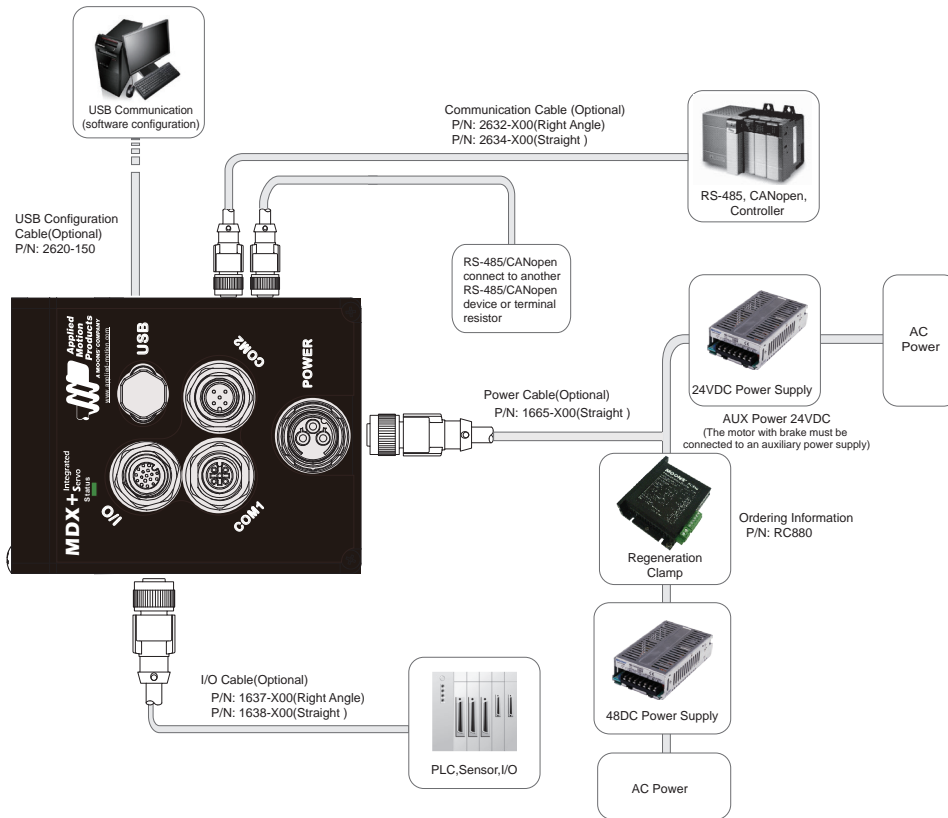
Accessories

Ordering Information

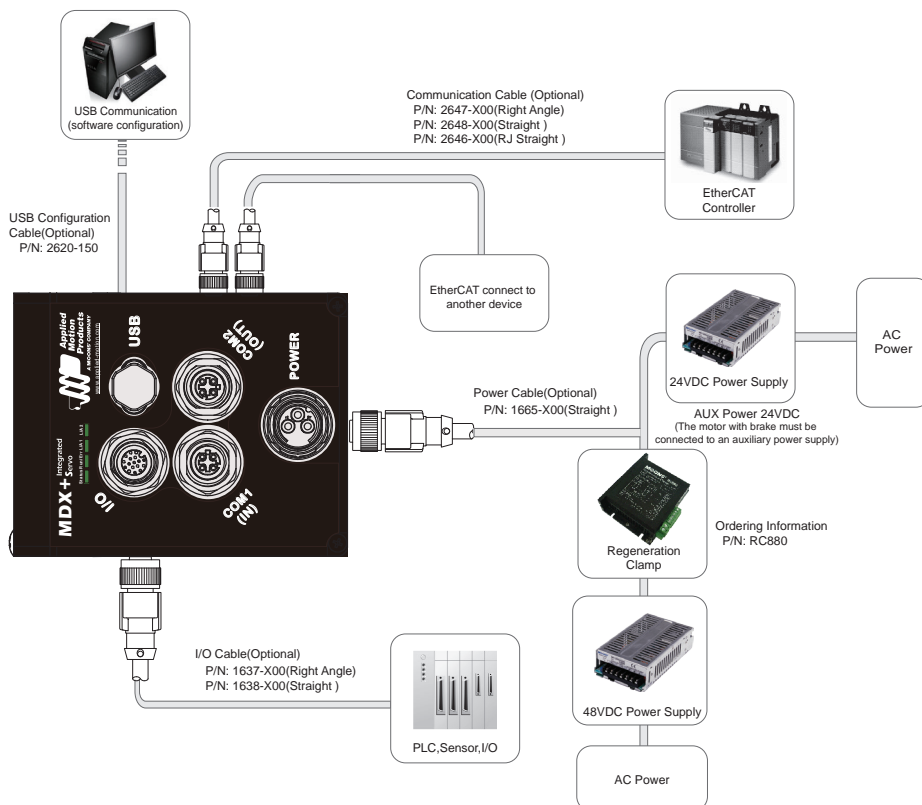
# IP65 System Configuration

## ■ Frame Size 80mm (550W)

### ● RC--RS-485, CANopen, Pulse



### ● EC--EtherCAT



Features

Numbering System

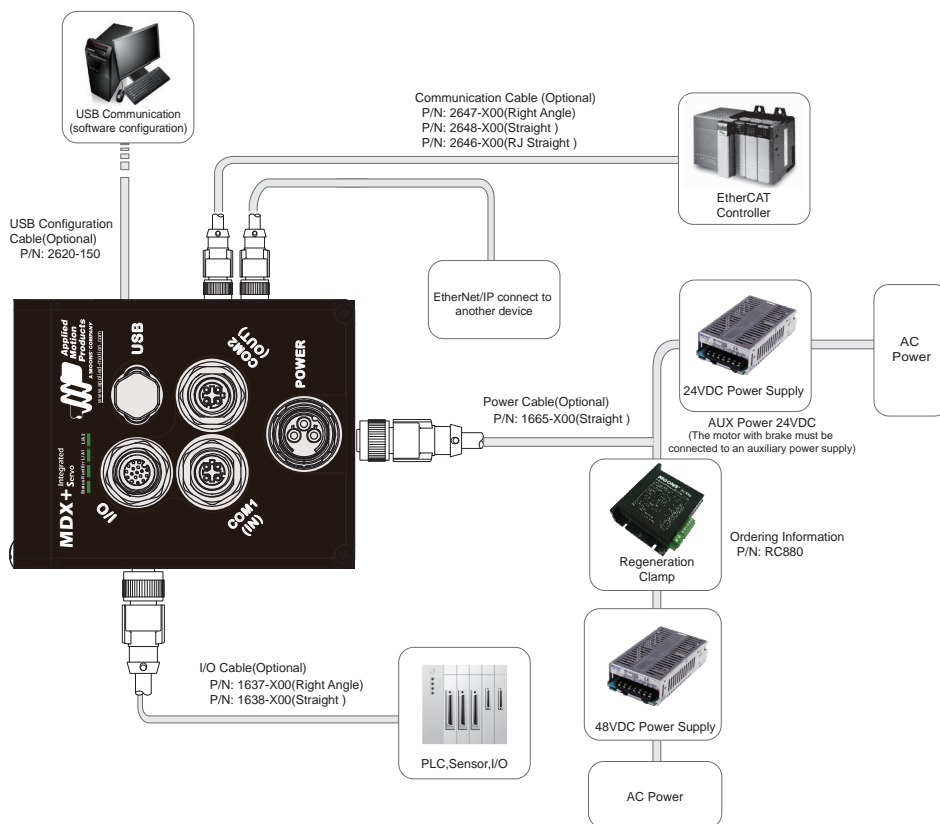
Basic Information

System Configuration

Accessories

Ordering Information

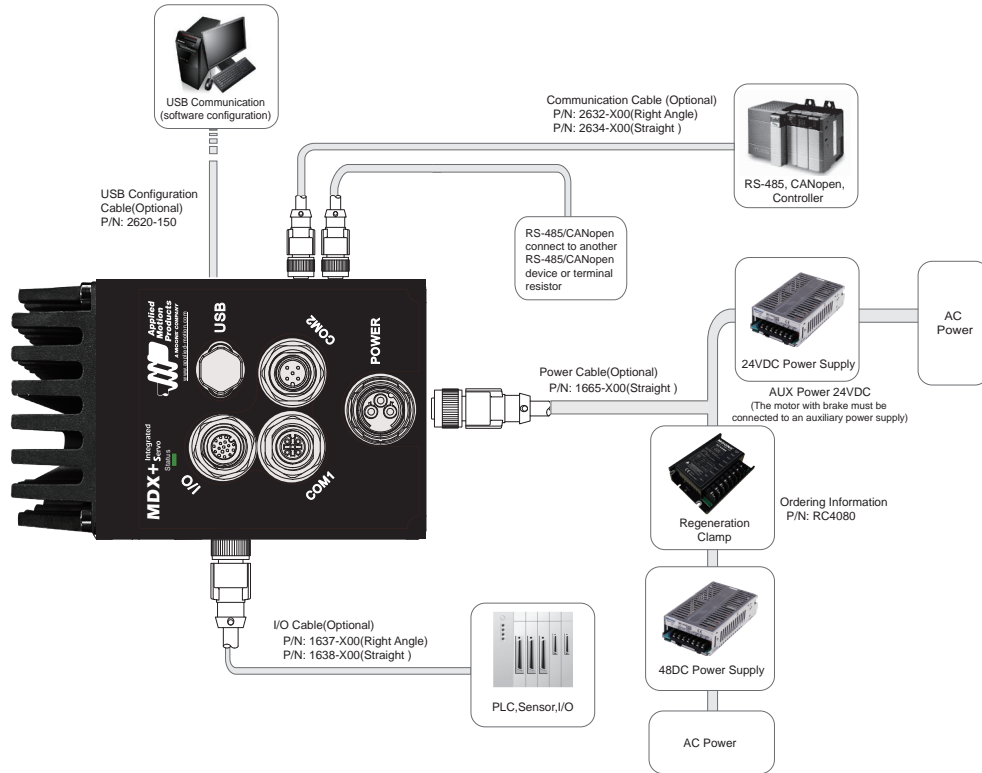
● IP--EtherNet/IP



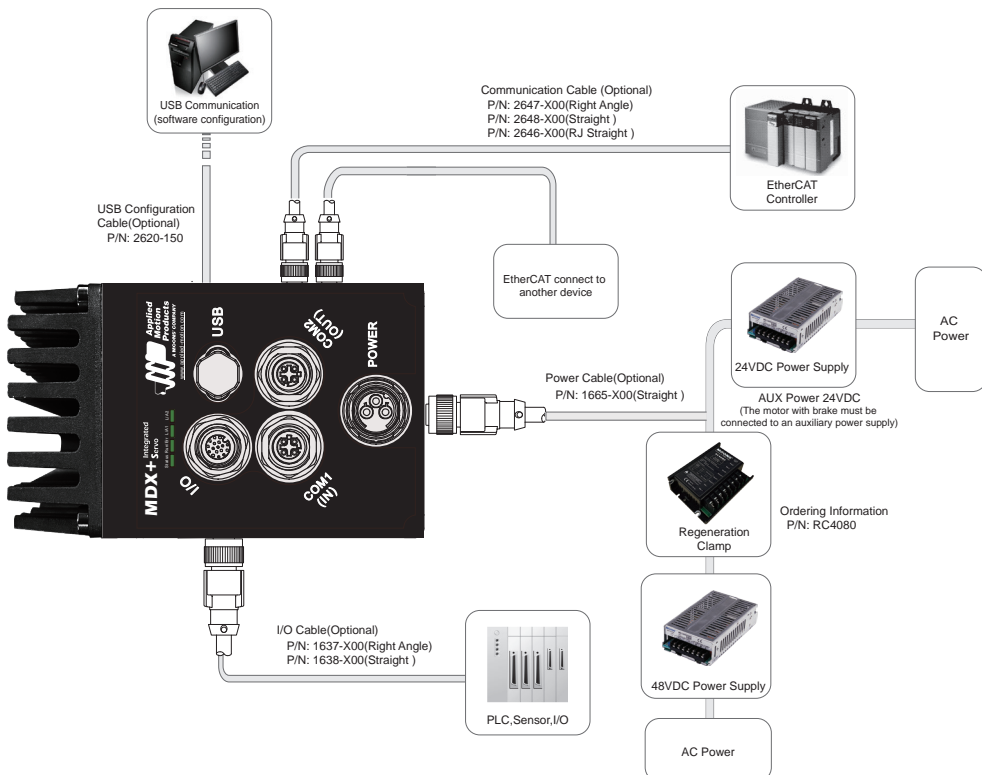
# IP65 System Configuration

## ■ Frame Size 80mm (750W)

### ● RC--RS-485, CANopen, Pulse



### ● EC--EtherCAT



Features

Numbering System

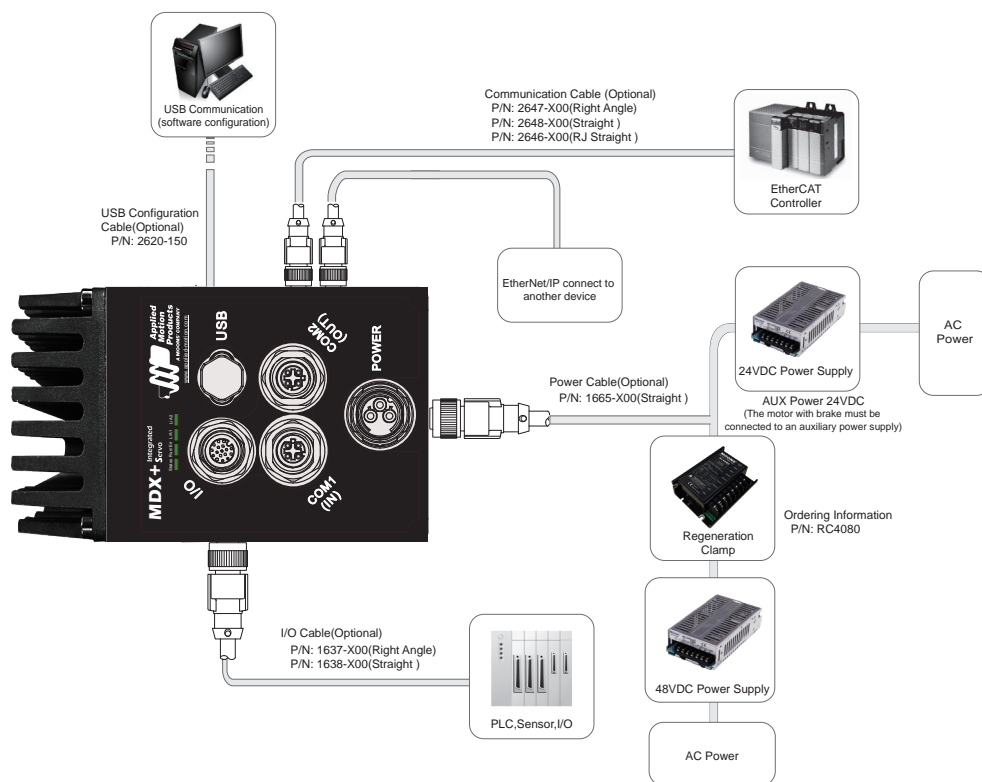
Basic Information

System Configuration

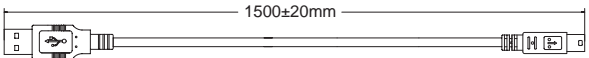
Accessories

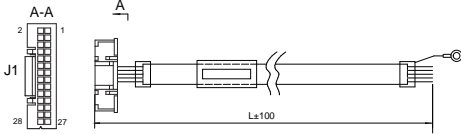
Ordering Information

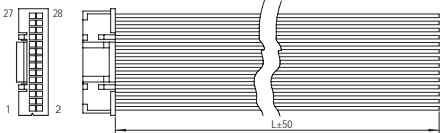
● IP--EtherNet/IP

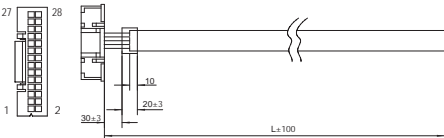


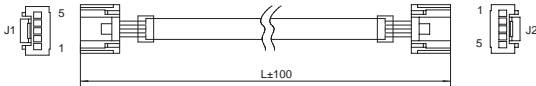
## IP20 Type Accessories for MDXR4/MDXR6/MDXR8 (100W/200W/400W/550/750W)

USB Cable			
P/N	Length (L)	Description	Outline
2620-150	1.5m	USB configuration cable connect with PC and servo drive	

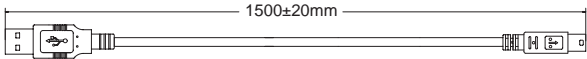
I/O Cable Shielded, Only for MDXR4 (100W)			
P/N	Length (L)	Outline	
1664-100	1m		
1664-200	2m		
1664-300	3m		
1664-500	5m		

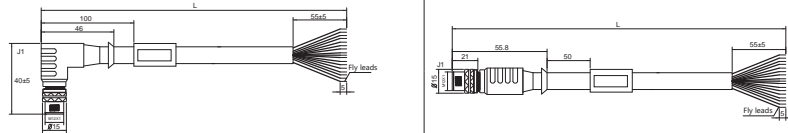
I/O Cable Unshielded, Only for MDXR6/MDXR8 (200W/400W/550W/750W)			
P/N	Length (L)	Outline	
1101-100	1m		
1101-200	2m		
1116-300	3m		
1101-500	5m		

I/O Cable Shielded, Only for MDXR6/MDXR8 (200W/400W/550W/750W)			
P/N	Length (L)	Outline	
1116-100	1m		
1116-200	2m		
1116-300	3m		
1116-500	5m		

CANopen/RS485 Daisy Chain Communication Cable			
P/N	Length (L)	Outline	
2111-025	0.25m		
2111-050	0.5m		
2111-100	1m		
2111-300	3m		
2111-500	5m		

## IP65 100W Type Accessories for MDXT4 (100W)

USB Cable			
P/N	Length (L)	Description	Outline
2620-150	1.5m	USB configuration cable connect with PC and servo drive	

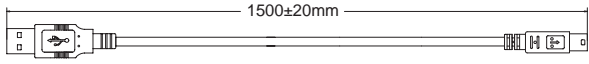
I/O Cable			
Right Angle Type	Straight Type	Length (L)	Outline
1637-100	1638-100	1m	
1637-200	1638-200	2m	



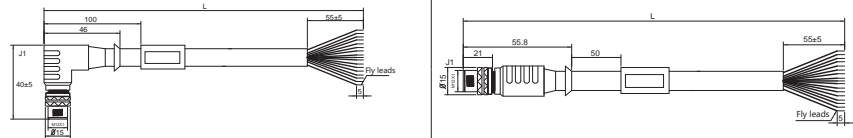
Power Cable			Outline	
Right Angle Type	Straight Type	Length (L)	Outline	
1636-100	1639-100	1m		
1636-200	1639-200	2m		
1636-300	1639-300	3m		
1636-500	1639-500	5m		
CANopen/RS485 Daisy Chain Communication Cable				
Right Angle Type	Straight Type	Length (L)	Outline	
2662-100	2661-100	1m		
2662-200	2661-200	2m		
2662-300	2661-300	3m		
2662-500	2661-500	5m		
CANopen/RS485 Daisy Chain Communication Cable(Communication between frame 40 and frame 60/80 )				
Right Angle Type	Straight Type	Length (L)	Outline	
2670-100	2669-100	1m		
2670-200	2669-200	2m		
2670-300	2669-300	3m		
2670-500	2669-500	5m		
EtherCAT/EtherNet/IP Daisy Chain Communication Cable				
Right Angle Type	Straight Type	Length (L)	Outline	
2664-100	2663-100	1m		
2664-200	2663-200	2m		
2664-300	2663-300	3m		
2664-500	2663-500	5m		
EtherCAT/EtherNet/IP Daisy Chain Communication Cable(frame 40 and frame 60/80 )				
Right Angle Type	Straight Type	Length (L)	Outline	
2668-100	2667-100	1m		
2668-200	2667-200	2m		
2668-300	2667-300	3m		
2668-500	2667-500	5m		
EtherCAT/EtherNet/IP Communication Cable				
RJ45- Right Angle Type	Length (L)	Outline		
2665-200	2m			
2665-300	3m			
2665-500	5m			
Water-proof Cap				
P/N	Description	Outline		
MDX-M12S	External thread (I/O)			
MDX-M08S	External thread (COM1)			
MDX-M08K	Inner thread (COM2)			
Terminal matching resistor				
P/N	Description	Outline		
MDX-FCTR-08	CANopen Female(COM2)			
MDX-MCTR-08	CANopen Male(COM2)			
MDX-FRTR-08	RS485 Female(COM2)			
MDX-MRTR-08	RS485 Male(COM1)			

## IP65 Type Accessories (For MDXT6)

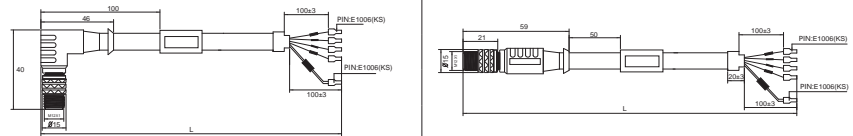
### USB Cable

P/N	Length (L)	Description	Outline
2620-150	1.5m	USB configuration cable connect with PC and servo drive	

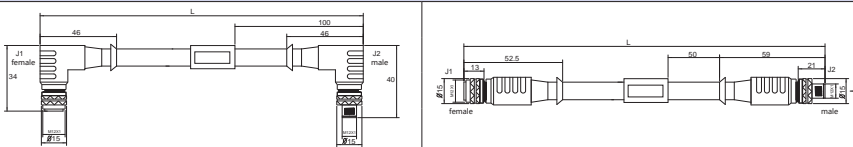
### I/O Cable

Right Angle Type	Straight Type	Length (L)	Outline
1637-100	1638-100	1m	
1637-200	1638-200	2m	

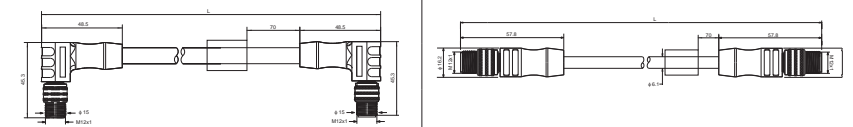
### Power Cable

Right Angle Type	Straight Type	Length (L)	Outline
1636-100	1639-100	1m	
1636-200	1639-200	2m	
1636-300	1639-300	3m	
1636-500	1639-500	5m	

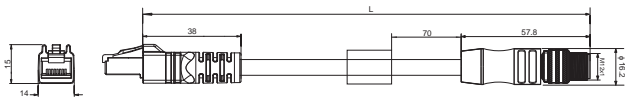
### CANopen/RS485 Daisy Chain Communication Cable

Right Angle Type	Straight Type	Length (L)	Outline
2632-100	2634-100	1m	
2632-200	2634-200	2m	
2632-300	2634-300	3m	
2632-500	2634-500	5m	

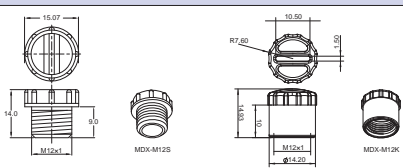
### EtherCAT/EtherNet/IP Daisy Chain Communication Cable

Right Angle Type	Straight Type	Length (L)	Outline
2647-200	2648-200	2m	
2647-300	2648-300	3m	
2647-500	2648-500	5m	

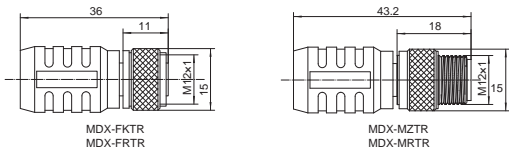
### EtherCAT/EtherNet/IP Communication Cable

RJ45- Right Angle Type	Length (L)	Outline
2646-200	2m	
2646-300	3m	
2646-500	5m	

### Water-proof Cap

P/N	Description	Outline
MDX-M12S	External thread (I/O, COM1)	
MDX-M12K	Inner thread (COM2)	

### Terminal matching resistor

P/N	Description	Outline
MDX-FKTR	CANopen Female (COM2)	
MDX-MZTR	CANopen Male (COM1)	
MDX-FRTR	RS485 Female (COM2)	
MDX-MRTR	RS485 Male (COM1)	



## Ordering Information

Part Number	Frame Size	IP Type	Power	Communications	Encoder Type	Brake	STO		
MDXR42JNLRCA000	40mm	IP20	100W	RS-485 CANopen Pulse	L	N	A		
MDXR42JNLRCS000							S		
MDXR42J5LRCA000						5	A		
MDXR42J5LRCS000							S		
MDXR42JNBRC A000						N	A		
MDXR42JNBRC S000							S		
MDXR42J5BRCA000					5	A			
MDXR42J5BRCS000						S			
MDXT42JNLRCA000					IP65	L	RS-485 CANopen Pulse	N	A
MDXT42JNLRCS000									S
MDXT42J5LRCA000								5	A
MDXT42J5LRCS000									S
MDXT42JNBRC A000		N		A					
MDXT42JNBRC S000				S					
MDXT42J5BRCA000		5		A					
MDXT42J5BRCS000				S					
MDXT42JNLECA000		L		EtherCAT		N	A		
MDXT42JNLECS000							S		
MDXT42J5LECA000							5	A	
MDXT42J5LECS000								S	
MDXT42JNBEC A000					N		A		
MDXT42JNBEC S000							S		
MDXT42J5BEC A000		5		A					
MDXT42J5BEC S000				S					
MDXT42JNXIPA000	X	EtherNet/IP	N	A					
MDXT42JNXIPS000				S					
MDXT42J5XIPA000			5	A					
MDXT42J5XIPS000				S					
MDXT42JNBIPA000			N	A					
MDXT42JNBIPS000				S					
MDXT42J5BIPA000	5	A							
MDXT42J5BIPS000		S							

**Note:** B: 17-bit Battery-less Absolute Multi-turn Encoder ; L: 17-bit Incremental magnetic encoder; X: 21-bit Incremental magnetic encoder;  
 N: No brake, Low inertia; 5: With brake, Low inertia  
 A: Compact, without STO; S: Compact, with STO  
 B: Heatsink, without STO; T: Heatsink, with STO

Features

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## Ordering Information

Part Number	Frame Size	IP Type	Power	Communications	Encoder Type	Brake	STO			
MDXR61GNLRC000	60mm	IP20	200W	RS-485 CANopen Pulse	L	N	A			
MDXR61GNLRCS000						S				
MDXR61G5LRCA000						B	5	A		
MDXR61G5LRCS000							S			
MDXR61GNBRCA000							N	A		
MDXR61GNBRCS000					S					
MDXR61G5BRCA000					5		A			
MDXR61G5BRCS000					S					
MDXT61GNLRC000					IP65	200W	RS-485 CANopen Pulse	L	N	A
MDXT61GNLRCS000									S	
MDXT61G5LRCA000		B	5	A						
MDXT61G5LRCS000			S							
MDXT61GNBRCA000			N	A						
MDXT61GNBRCS000			S							
MDXT61G5BRCA000			5	A						
MDXT61G5BRCS000		S								
MDXT61GNLECA000		EtherCAT	L	N				A		
MDXT61GNLECS000				S						
MDXT61G5LECA000				B				5	A	
MDXT61G5LECS000								S		
MDXT61GNBECA000								N	A	
MDXT61GNBECS000			S							
MDXT61G5BECA000			5					A		
MDXT61G5BECS000			S							
MDXT61GNXIPA000			EtherNet/IP	X		N	A			
MDXT61GNXIPS000						S				
MDXT61G5XIPA000						B	5	A		
MDXT61G5XIPS000							S			
MDXT61GNBIPA000							N	A		
MDXT61GNBIPS000				S						
MDXT61G5BIPA000				5			A			
MDXT61G5BIPS000		S								
MDXR62GNLRC000		60mm		IP20		400W	RS-485 CANopen Pulse	L	N	A
MDXR62GNLRCS000									S	
MDXR62G5LRCA000			B						5	A
MDXR62G5LRCS000									S	
MDXR62GNBRCA000									N	A
MDXR62GNBRCS000								S		
MDXR62G5BRCA000					5			A		
MDXR62G5BRCS000			S							
MDXT62GNLRC000	IP65		400W		RS-485 CANopen Pulse			L	N	A
MDXT62GNLRCS000									S	
MDXT62G5LRCA000				B		5	A			
MDXT62G5LRCS000						S				
MDXT62GNBRCA000						N	A			
MDXT62GNBRCS000						S				
MDXT62G5BRCA000						5	A			
MDXT62G5BRCS000				S						
MDXT62GNLECA000				EtherCAT		L	N	A		
MDXT62GNLECS000							S			
MDXT62G5LECA000							B	5	A	
MDXT62G5LECS000								S		
MDXT62GNBECA000								N	A	
MDXT62GNBECS000						S				
MDXT62G5BECA000						5		A		
MDXT62G5BECS000			S							
MDXT62GNXIPA000			EtherNet/IP		X	N	A			
MDXT62GNXIPS000						S				
MDXT62G5XIPA000						B	5	A		
MDXT62G5XIPS000							S			
MDXT62GNBIPA000							N	A		
MDXT62GNBIPS000					S					
MDXT62G5BIPA000					5		A			
MDXT62G5BIPS000				S						

**Note:** B: 17-bit Battery-less Absolute Multi-turn Encoder ; L: 17-bit Incremental magnetic encoder; X: 21-bit Incremental magnetic encoder;

N: No brake, Low inertia; 5: With brake, Low inertia

A: Compact, without STO; S: Compact, with STO

B: Heatsink, without STO; T: Heatsink, with STO

## Ordering Information

Part Number	Frame Size	IP Type	Power	Communications	Encoder Type	Brake	STO	
MDXR82GNLRCA000	80mm	IP20	550W	RS-485 CANopen Pulse	L	N	A	
MDXR82GNLRCS000						S		
MDXR82G5LRCA000						5	A	
MDXR82G5LRCS000						S		
MDXR82GNBRCA000						N	A	
MDXR82GNBRCS000					S			
MDXR82G5BRCA000					5	A		
MDXR82G5BRCS000					S			
MDXT82GNLRCA000					IP65	L	N	A
MDXT82GNLRCS000							S	
MDXT82G5LRCA000		5		A				
MDXT82G5LRCS000		S						
MDXT82GNBRCA000		N		A				
MDXT82GNBRCS000		S						
MDXT82G5BRCA000		5		A				
MDXT82G5BRCS000		S						
MDXT82GNLECA000		EtherCAT		L		N	A	
MDXT82GNLECS000						S		
MDXT82G5LECA000					5	A		
MDXT82G5LECS000					S			
MDXT82GNBECA000			N		A			
MDXT82GNBECS000			S					
MDXT82G5BECA000			5	A				
MDXT82G5BECS000			S					
MDXT82GNXIPA000			EtherNet/IP	X	N	A		
MDXT82GNXIPS000					S			
MDXT82G5XIPA000		5			A			
MDXT82G5XIPS000		S						
MDXT82GNBIPA000		N			A			
MDXT82GNBIPS000		S						
MDXT82G5BIPA000	5	A						
MDXT82G5BIPS000	S							
MDXR83GNXRCB000	IP20	X		N	B			
MDXR83GNXRCT000				T				
MDXR83G5XRCB000			5	B				
MDXR83G5XRCT000			T					
MDXR83GNBRCB000			N	B				
MDXR83GNBRCT000		T						
MDXR83G5BRCB000		5	B					
MDXR83G5BRCT000		T						
MDXT83GNXRCB000		IP65	X	N	B			
MDXT83GNXRCT000				T				
MDXT83G5XRCB000	5			B				
MDXT83G5XRCT000	T							
MDXT83GNBRCB000	N			B				
MDXT83GNBRCT000	T							
MDXT83G5BRCB000	5		B					
MDXT83G5BRCT000	T							
MDXT83GNXECB000	EtherCAT		X	N	B			
MDXT83GNXECT000				T				
MDXT83G5XECB000		5		B				
MDXT83G5XECT000		T						
MDXT83GNBECB000		N		B				
MDXT83GNBECT000		T						
MDXT83G5BECB000		5	B					
MDXT83G5BECT000		T						
MDXT83GNXIPB000		EtherNet/IP	X	N	B			
MDXT83GNXIPT000				T				
MDXT83G5XIPB000	5			B				
MDXT83G5XIPT000	T							
MDXT83GNBIPB000	N		B					
MDXT83GNBIPT000	T							
MDXT83G5BIPB000	5	B	B					
MDXT83G5BIPT000		T						

**Note:** B: 17-bit Battery-less Absolute Multi-turn Encoder ; L: 17-bit Incremental magnetic encoder; X: 21-bit Incremental magnetic encoder;  
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