

# TURNING IDEAS INTO MACHINES THAT WORK...

This section will enable you to select the ideal motion controller, servo drive and inverter solution for your application. Especially created towards customer needs, our products are developed to help you build machines faster, with more flexibility and with total reliability. Because when we say it works, IT WORKS!

For more information on Omron automation solutions, please visit the Scalable Machine Automation mini-site at



[www.scalablemachine.info](http://www.scalablemachine.info)

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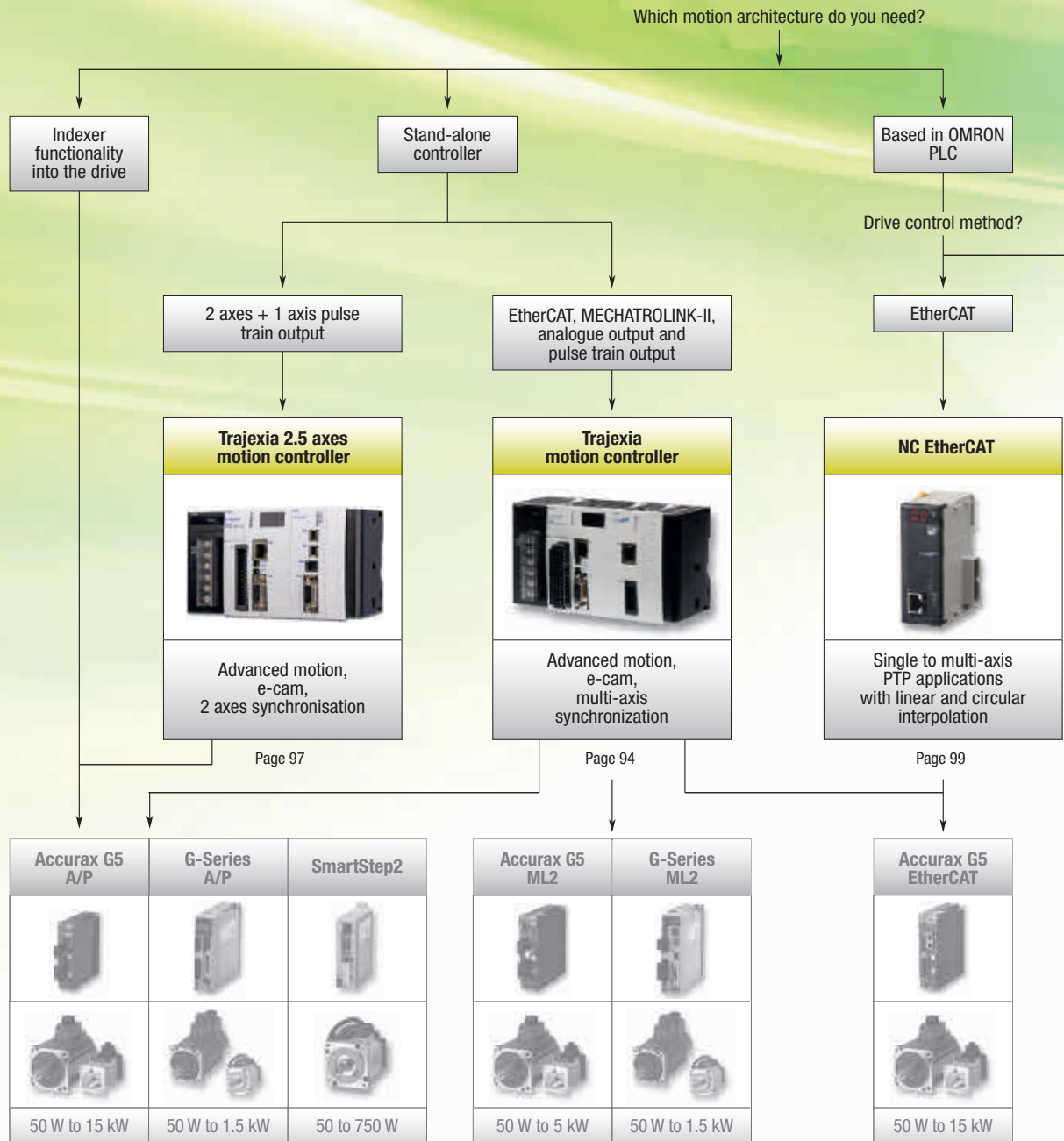
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# Motion controllers



## MOTION CONTROLLERS

EtherCAT®



### CJ-Series PLC with EtherCAT

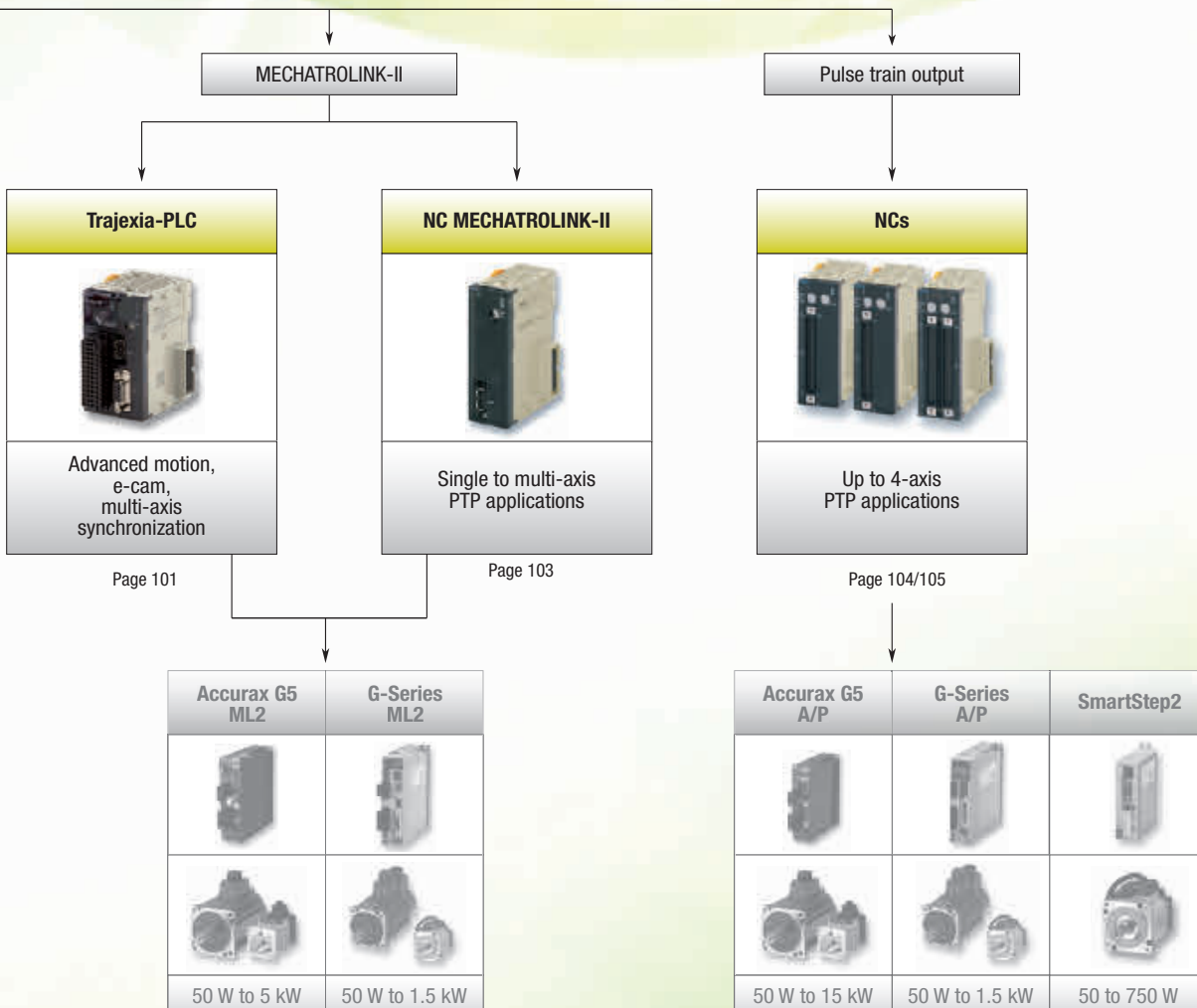
- Position control unit CJ1W-NC with EtherCAT
- Support for up to 16 axes and 64 inverters, vision systems and distributed I/O modules

### Trajexia with EtherCAT





- Perfect control of 64 axes
- Scalability with EtherCAT masters for 4, 16 and 64 axes
- Supports servos, inverters, vision systems and distributed I/O modules






EtherCAT®





Motion controllers				
				
<b>Model</b>	<b>Trajexia stand-alone</b>		<b>NC EtherCAT</b>	<b>Trajexia-PLC</b>
	The advanced stand-alone motion controller	Trajexia 2.5 axes motion controller	16-axis point-to-point positioning controller	Advanced multi-axes motion controller in a PLC
<b>Axes control method</b>	EtherCAT, MECHATROLINK-II, analogue output and pulse-train output	2 axes for position, speed and torque control and 1 axis for pulse train output in open loop	EtherCAT	MECHATROLINK-II
<b>Number of axes</b>	4, 16, 64	2	2, 4, 8, 16	4, 30
<b>Applicable servo drive</b>	Accurax G5 and G-Series	Accurax-G5	Accurax G5	Accurax G5 and G-Series
<b>Application</b>	Advanced motion, e-cam, ELS, Phase shift, Registration	Advanced motion, e-cam, ELS, Phase shift, Registration	From simple PTP to multi axis PTP with linear and circular interpolation	Advanced motion, e-cam, ELS, Phase shift, Registration
<b>Servo control mode</b>	Position, speed and torque	Position, speed and torque	Position, speed and torque	Position, speed and torque
<b>PLC series</b>	Stand-alone motion controller: Serial and Ethernet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	Stand-alone motion controller: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	CJ	CJ
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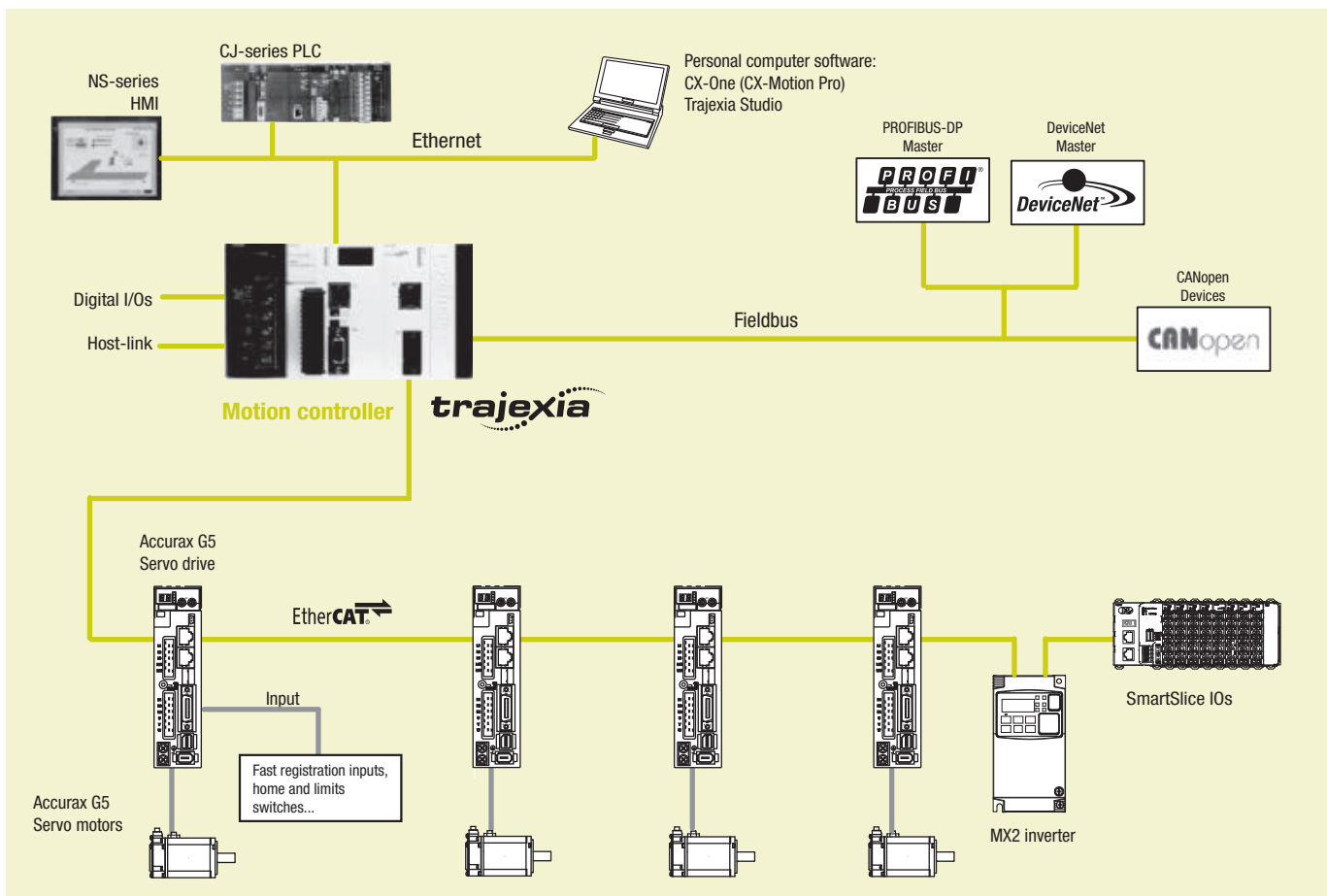
Motion controllers			
			
<b>Model</b>	<b>NC MECHATROLINK-II</b>	<b>CJ1W-NC_3</b>	<b>CJ1W-NC_4</b>
	16-axis point-to-point positioning controller	4-axis point-to-point positioning controller	4-axis point-to-point positioning controller with synchronization
<b>Axes control method</b>	MECHATROLINK-II	Pulse train output	Pulse train output
<b>Number of axes</b>	2, 4, 16	1, 2, 4	2, 4
<b>Applicable servo drive</b>	Accurax G5 and G-Series	SmartStep 2 and Accurax G5	SmartStep 2 and Accurax G5
<b>Application</b>	From simple PTP to multi axis PTP coordinated systems	Point to point applications	Point-to-point with complex interpolations
<b>Servo control mode</b>	Position, speed and torque	Open loop position with linear interpolation	Open loop position with linear and circular interpolation
<b>PLC series</b>	CJ and CS1	CJ an CS1	CJ
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## Stand-alone advanced motion controller over EtherCAT

- Perfect motion control of up to 64 axes. Scalability with EtherCAT masters for 4, 16 and 64 axes.
- Supports position, speed and torque control
- Multi-tasking controller capable of running up to 22 tasks simultaneously
- Advanced motion control such as linear, circular, helical or spherical interpolation, electronic cams and gearboxes via simple motion commands.
- Control of servos, inverters, vision systems and distributed I/Os over a single EtherCAT network
- Support for EtherNet/IP communications
- Advanced debugging tools including data trace and oscilloscope functions
- Open communication: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen

### Ordering information



### Trajexia motion controller

Name	Order code
Trajexia motion controller Unit, up to 64 axes. (Trajexia end cover unit TJ1-TER is included)	TJ2-MC64
Trajexia motion controller unit, up to 16 axes. (Trajexia end cover unit TJ1-TER is included)	TJ1-MC16
Trajexia motion controller unit, up to 4 axes. (Trajexia end cover unit TJ1-TER is included)	TJ1-MC04
Power supply for Trajexia system, 100-240 VAC	CJ1W-PA202
Power supply for Trajexia system, 24 VDC	CJ1W-PD022

### Trajexia - axes control modules

Name	Order code
Trajexia EtherCAT master unit (up to 64 servo drives) <sup>*1</sup>	TJ2-ECT64
Trajexia EtherCAT master unit (up to 16 servo drives)	TJ2-ECT16
Trajexia EtherCAT master unit (up to 4 servo drives)	TJ2-ECT04
Trajexia MECHATROLINK-II master unit (up to 16 stations) <sup>*2</sup>	TJ1-ML16
Trajexia MECHATROLINK-II master unit (up to 4 stations) <sup>*2</sup>	TJ1-ML04
Trajexia flexible axis unit (for 2 stations)	TJ1-FL02

<sup>\*1</sup> The number of servo drives is currently limited to 32 when using TJ2-MC64 motion controller with firmware 2.0132.

<sup>\*2</sup> The TJ1-ML04 and TJ1-ML16 supported by the TJ2-MC64 motion controller are V2 (Version 2) and lot number equal or above Lot. No.091019 (YYMMDD).

## Trajexia - communication modules

Name	Order code
Trajexia DeviceNet slave unit	TJ1-DRT
Trajexia PROFIBUS-DP slave unit	TJ1-PRT
Trajexia CANopen unit	TJ1-CORT

## EtherCAT - related devices

### Servo system & frequency inverters

Name	Order code	
Accurax G5 servo drive EtherCAT built-in	R88D-KN___-ECT	
MX2 inverter with EtherCAT option board	Frequency inverter	3G3MX2-A_
	EtherCAT option board	3G3AX-MX2-ECT

Note: Refer to servo systems and frequency inverter sections for detailed specs and ordering information

### SmartSlice IOs system

Function	Specification	Order code
SmartSlice interface unit	SmartSlice EtherCAT interface unit	GRT1-ECT
End plate, one unit required per bus interface		GRT1-END
4 NPN inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4
4 PNP inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4-1
8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4xG	GRT1-ID8
8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4xV	GRT1-ID8-1
4 AC inputs	110 VAC, 2-wire connection	GRT1-IA4-1
4 AC inputs	230 VAC, 2-wire connection	GRT1-IA4-2
4 NPN outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4
4 PNP outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4-1
4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	GRT1-OD4G-1
4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	GRT1-OD4G-3
8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4xV	GRT1-OD8
8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8-1
8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8G-1
2 relay outputs	240 VAC, 2 A, normally-open contacts	GRT1-ROS2
2 analogue inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 0-20 mA, 4-20 mA	GRT1-AD2
2 analogue outputs, voltage	±10 V, 0-10 V, 0-5 V, 1-5 V	GRT1-DA2V
2 analogue outputs, current	0-20 mA, 4-20 mA	GRT1-DA2C
2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	GRT1-TS2P
2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	GRT1-TS2K
2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	GRT1-TS2T

Note: Refer to Automation systems catalogue for detailed specs and accessories information

### GX-Series I/O Blocks

Name	Specification	Order code
16 NPN inputs	24 VDC, 6 mA, 1-wire connection, expandable	GX-ID1611
16 PNP inputs	24 VDC, 6 mA, 1-wire connection, expandable	GX-ID1621
16 NPN outputs	24 VDC, 500 mA, 1-wire connection, expandable	GX-OD1611
16 PNP outputs	24 VDC, 500 mA, 1-wire connection, expandable	GX-OD1621
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 1-wire connection	GX-MD1611
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 1-wire connection	GX-MD1621
16 NPN inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1612
16 PNP inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1622
16 NPN outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1612
16 PNP outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1622
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1612
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1622
16 relay outputs	250 VAC, 2 A, 1-wire connection, expandable	GX-OC1601
4 analogue inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 4-20 mA	GX-AD0471
2 analogue outputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 4-20 mA	GX-DA0271
2 encoder open collector inputs	500 kHz Open collector input	GX-EC0211
2 encoder line-driver inputs	4 MHz Line driver input	GX-EC0241

Note: The GX-Series I/O blocks are only supported by the T2-MC64 motion controller and with official firmware release above 2.0132.

### Vision system

Name	Specification	Order code
Vision system with EtherCAT interface	NPN	FZM1-350-ECT
	PNP	FZM1-355-ECT
Smart camera with EtherCAT interface	NPN/Color camera	FQ-MS120-ECT
	NPN/Monochrome camera	FQ-MS120-M-ECT
	PNP/Color camera	FQ-MS125-ECT
	PNP/Monochrome camera	FQ-MS125-M-ECT

Note: The vision systems are only supported by the T2-MC64 motion controller and with official firmware release above 2.0132.



## MECHATROLINK-II - related devices

### Servo system & frequency inverters

Name		Order code
Accurax G5 servo drive ML-II built-in		R88D-KN___-ML2
G-Series servo drive ML-II built-in		R88D-GN___H-ML2
MX2 inverter with MECHATROLINK-II option board	Frequency inverter	3G3MX2-A_
	ML2 option board	3G3AX-MX2-MRT

Note: Refer to servo systems and frequency inverter sections for detailed specs and ordering information

### SmartSlice IOs system

Function	Specification	Order code
SmartSlice Interface unit	SmartSlice MECHATROLINK-II interface unit	GRT1-ML2* <sup>1</sup>
End plate, one unit required per bus interface		GRT1-END
4 NPN inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4
4 PNP inputs	24 VDC, 6 mA, 3-wire connection	GRT1-ID4-1
8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4xG	GRT1-ID8
8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4xV	GRT1-ID8-1
4 AC inputs	110 VAC, 2-wire connection	GRT1-IA4-1
4 AC inputs	230 VAC, 2-wire connection	GRT1-IA4-2
4 NPN outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4
4 PNP outputs	24 VDC, 500 mA, 2-wire connection	GRT1-OD4-1
4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	GRT1-OD4G-1
4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	GRT1-OD4G-3
8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4xV	GRT1-OD8
8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8-1
8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4xG	GRT1-OD8G-1
2 relay outputs	240 VAC, 2 A, normally-open contacts	GRT1-ROS2
2 analogue inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 0-20 mA, 4-20 mA	GRT1-AD2
2 analogue outputs, voltage	±10 V, 0-10 V, 0-5 V, 1-5 V	GRT1-DA2V
2 analogue outputs, current	0-20 mA, 4-20 mA	GRT1-DA2C
2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	GRT1-TS2P
2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	GRT1-TS2K
2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	GRT1-TS2T

\*<sup>1</sup> The GRT1-ML2 supports the GRT1-IA4-1, GRT1-IA4-2, GRT1-OD4G-3, GRT1-TS2P, GRT1-TS2K and GRT1-TS2T slice units only in combination with TJ2-MC64 motion controller. They are not supported in combination with TJ1-MC16/04.

Note: Refer to Automation systems catalogue for detailed specs and accessories information

### MECHATROLINK-II cables

Name	Remarks	Order code
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II repeater	Network repeater	JEPMC-REP2000

### Computer software

Specifications	Order code
CX-Motion Pro V1.3.3 or higher	CX-One
Trajexia Studio* <sup>1</sup> V1.3.3 or higher	TJ1-Studio

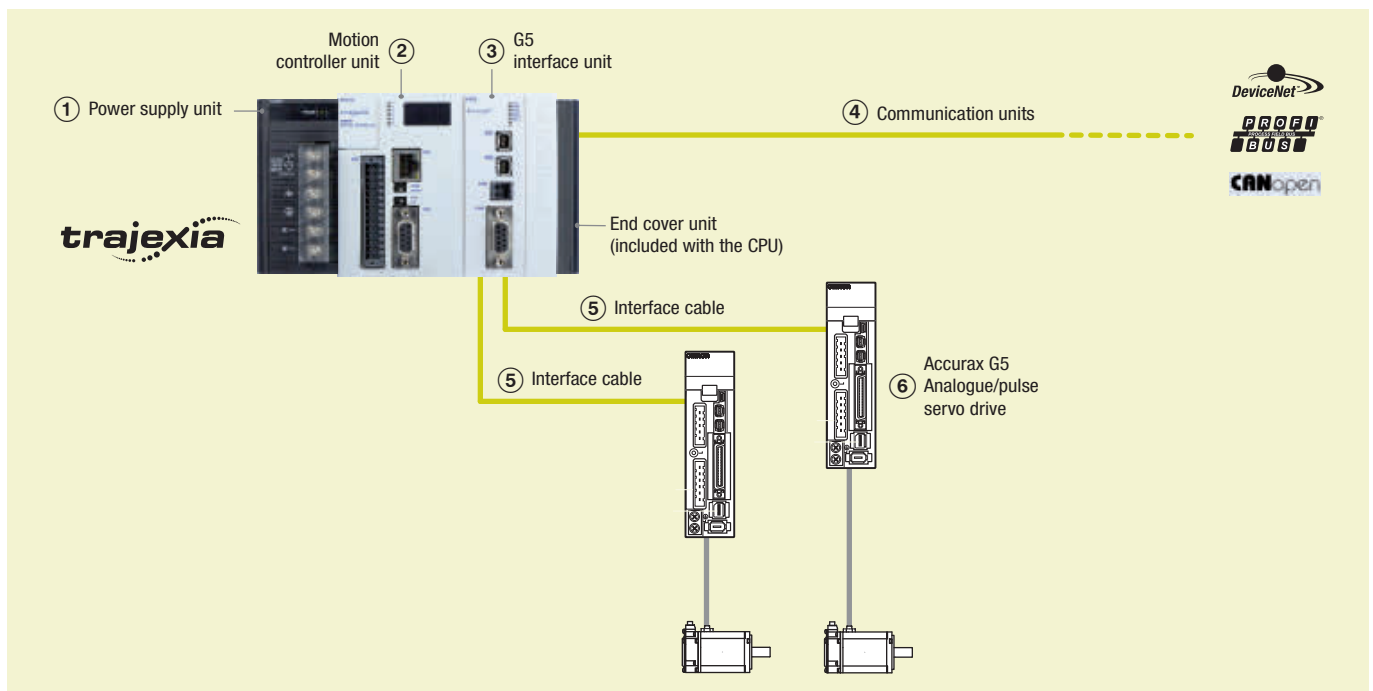
\*<sup>1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.



## Stand-alone motion controller for compact and simple machines

- Perfect motion control of 2 axes
- Supports position, speed and torque control
- Serial port for master encoder axis
- Multi-tasking controller capable of running up to 22 tasks simultaneously
- 2 fast-registration inputs
- Single axis moves and axes interpolation
- Electronic cams and gearboxes
- Motion basic programming and dedicated motion commands
- Open communication: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen options

### Ordering information



## Trajexia system

### Power supply unit

Symbol	Specifications	Order code
①	Power supply unit for Trajexia system (100 to 240 VAC)	CJ1W-PA202
	Power supply unit for Trajexia system (24 VDC)	CJ1W-PD025

### Motion controller unit

Symbol	Specifications	Order code
②	Trajexia motion controller unit, up to 64 axes (Trajexia end cover unit TJ1-TER is included)	TJ2-MC64
	Trajexia motion controller unit, up to 2 axes (Trajexia end cover unit TJ1-TER is included)	TJ2-MC02

### G5 interface unit

Symbol	Specifications	Order code
③	G5 interface unit	TJ2-KS02

### Communication unit

Symbol	Specifications	Order code
④	Trajexia DeviceNet slave unit	TJ1-DRT
	Trajexia PROFIBUS-DP slave unit	TJ1-PRT
	Trajexia CANopen unit	TJ1-CORT

**Note:** The TJ2-MC02 supports a maximum of one TJ1-CORT unit.  
The TJ2-MC02 supports a maximum of one TJ1-PRT or TJ1-DRT unit. No both at the same time.

### Accessories

Symbol	Specifications	Order code	
⑤	Interface cable	1 m	TJ2-KC01M
		3 m	TJ2-KC03M

### Servo drive related device

Symbol	Specifications	Order code
⑥	Accurax G5 Analogue/pulse servo drive (100 W to 15 kW)	R88D-KT_

### Computer software

Specifications	Order code
CX-Motion Pro (version 1.4.2 or higher)	CX-One
Trajexia Studio <sup>*1</sup> (version 1.4.2 or higher)	TJ1-Studio

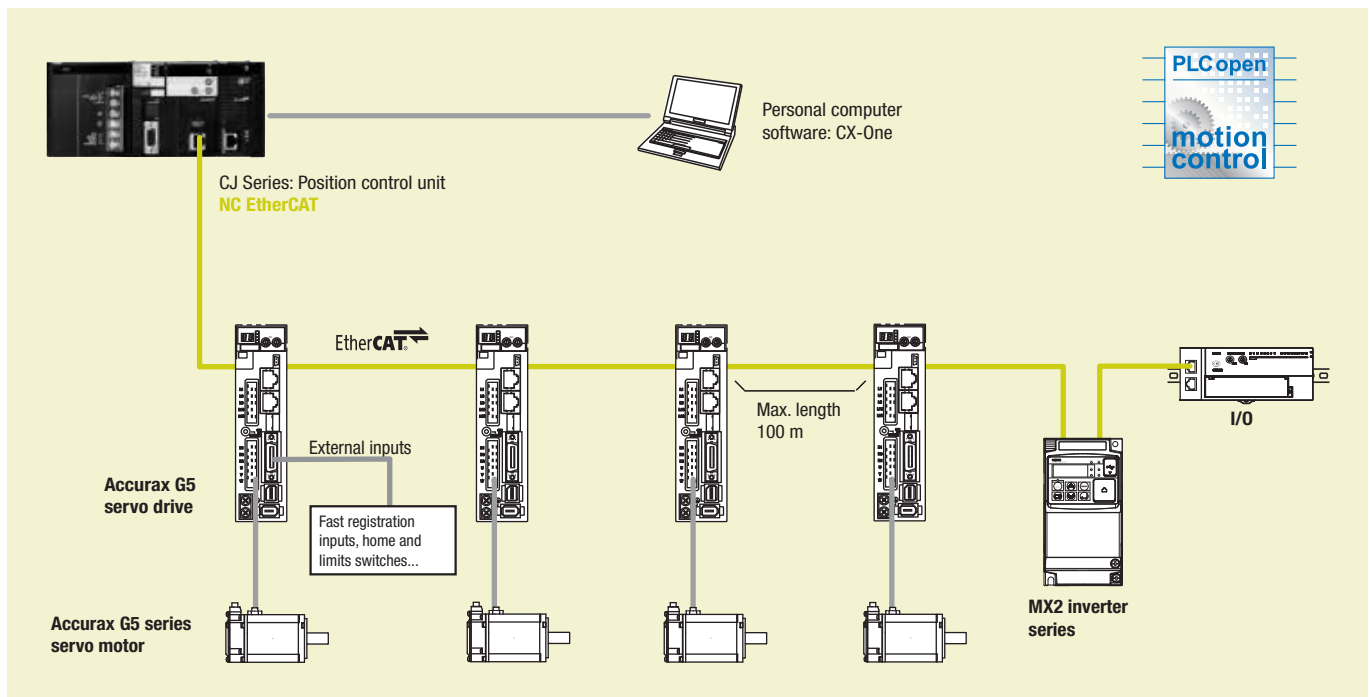
<sup>\*1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.



## Multi-axis point-to-point positioning controller over EtherCAT

- Position control units with 2, 4, 8 or 16 axes.
- NC\_82 models support up to 64 additional nodes: inverters, vision systems and distributed I/Os.
- Linear and circular interpolation.
- Linear and infinite axes management.
- Programming languages: ladder and function blocks. Certified PLCopen motion control function blocks.
- The unit can perform various operation sequences in the memory operation data.
- CX-Programmer software for unit setup, EtherCAT network configuration and PLC programming.

### Ordering information



### Position controller unit

Name	Order code
Position controller unit - EtherCAT - 16 axes + 64 nodes for remote I/O	CJ1W-NCF82
Position controller unit - EtherCAT - 8 axes + 64 nodes for remote I/O	CJ1W-NC882
Position controller unit - EtherCAT - 4 axes + 64 nodes for remote I/O	CJ1W-NC482
Position controller unit - EtherCAT - 16 axes	CJ1W-NCF81
Position controller unit - EtherCAT - 8 axes	CJ1W-NC881
Position controller unit - EtherCAT - 4 axes	CJ1W-NC481
Position controller unit - EtherCAT - 2 axes	CJ1W-NC281

### EtherCAT related devices

#### Servo system & frequency inverter

Name	Order code	
Accurax G5 servo drive EtherCAT built-in	R88D-KN___-ECT	
MX2 inverter with EtherCAT option board	Frequency inverter	3G3MX2-A_
	EtherCAT option board	3G3AX-MX2-ECT

Note: Refer to servo system and frequency inverter sections for detailed specs and ordering information.

#### GX-Series I/O Blocks

Name	Order code	
16 NPN inputs	24 VDC, 6 mA, 1-wire connection, expandable	GX-ID1611
16 PNP inputs	24 VDC, 6 mA, 1-wire connection, expandable	GX-ID1621
16 NPN outputs	24 VDC, 500 mA, 1-wire connection, expandable	GX-OD1611
16 PNP outputs	24 VDC, 500 mA, 1-wire connection, expandable	GX-OD1621
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 1-wire connection	GX-MD1611
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 1-wire connection	GX-MD1621

Name		Order code
16 NPN inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1612
16 PNP inputs	24 VDC, 6 mA, 3-wire connection	GX-ID1622
16 NPN outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1612
16 PNP outputs	24 VDC, 500 mA, 3-wire connection	GX-OD1622
8 inputs and 8 outputs, NPN	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1612
8 inputs and 8 outputs, PNP	24 VDC, 6 mA input, 500 mA output, 3-wire connection	GX-MD1622
16 relay outputs	250 VAC, 2 A, 1-wire connection, expandable	GX-OC1601
4 analogue inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 4-20 mA	GX-AD0471
2 analogue outputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 4-20 mA	GX-DA0271
2 encoder open collector inputs	500 kHz Open collector input	GX-EC0211
2 encoder line-driver inputs	4 MHz Line driver input	GX-EC0241

Note: Refer to Automation systems catalogue for detailed specs and ordering information.

#### Vision system

Name	Specification	Order code
Vision system with EtherCAT interface	NPN	FZM1-350-ECT
	PNP	FZM1-355-ECT

Note: Refer to vision system documentation for detailed specs and ordering information.

#### Computer software

Specifications	Order code
CX-One version 4 or higher	CX-One
CX-Programmer version 9.12 or higher	CX-Programmer

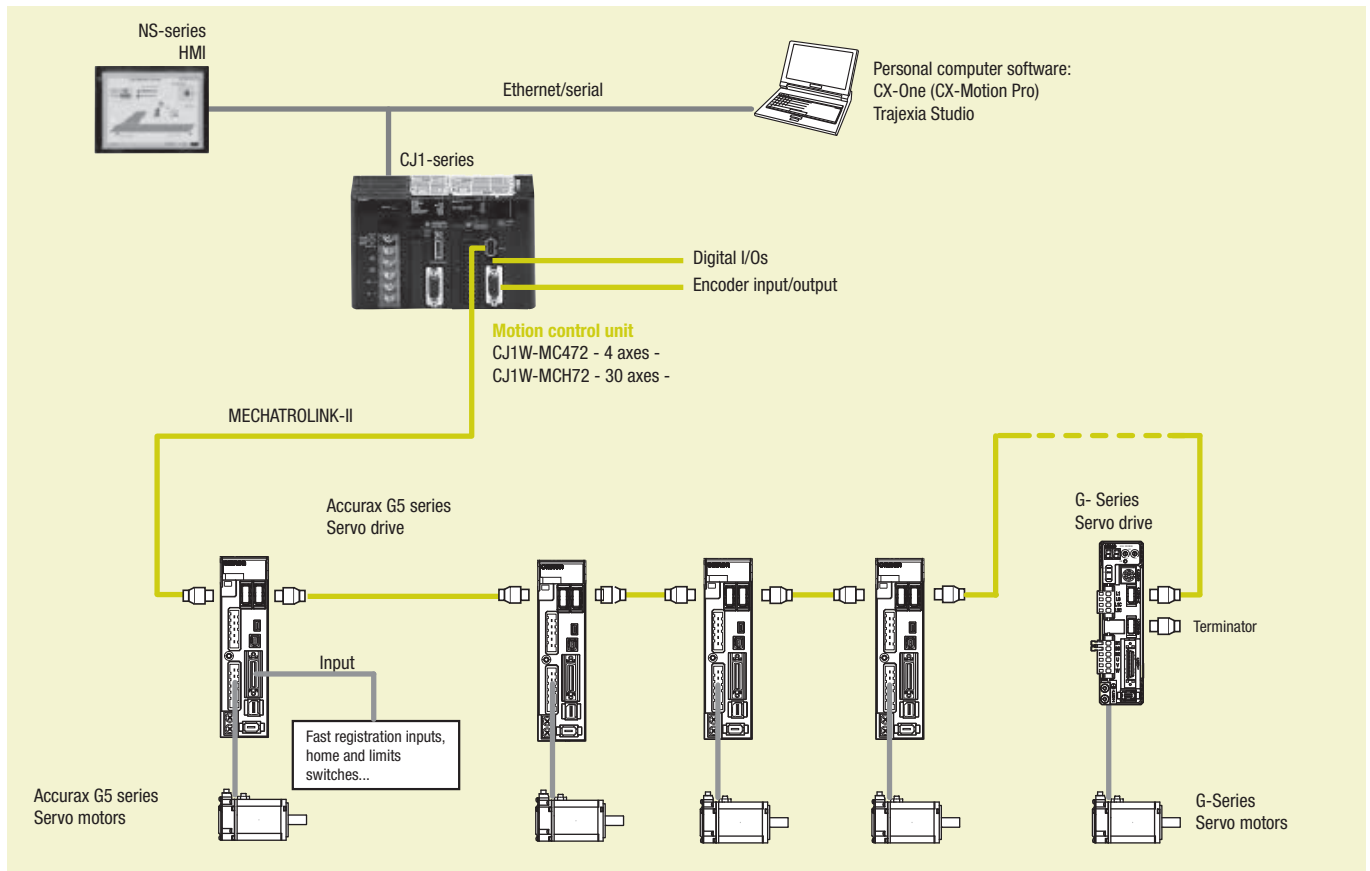


## Trajexia motion controller integrated with your PLC

Trajexia, the family of advanced motion controllers that put you in control, now has a compact and integrated version. Meet Trajexia-PLC, the motion controller that has all the flexibility and modularity of Omron PLCs, plus the outstanding motion-control features of the Trajexia platform.

- Control of up to 30 physical axes
- Control of servos and inverters over a single motion network
- Advanced motion control such as CAM control, registration control, interpolation and axes synchronization via simple motion commands
- Serial port for external encoder
- Embedded digital I/Os
- I/O data exchange with the PLC CPU

### Ordering information



### Motion controller

Name	Model
Trajexia motion control unit, up to 30 MECHATROLINK-II axes	CJ1W-MCH72
Trajexia motion control unit, up to 4 MECHATROLINK-II axes	CJ1W-MC472

### MECHATROLINK-II - related devices

#### Servo system

Name	Model
Accurax G5 servo drive ML-II built-in	R88D-KN___-ML2
G-Series servo drive ML-II built-in	R88D-GN__H-ML2
MX2 inverter with MECHATROLINK-II option board	Frequency inverter 3G3MX2-A_
	MECHATROLINK-II option board 3G3AX-MX2-MRT

Note: Refer to servo systems and frequency inverter sections for detailed specs and ordering information

## MECHATROLINK-II cables

Name	Remarks	Model
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II repeater	Network repeater	JEPMC-REP2000

## Computer software

Specifications	Model
CX-Motion Pro V1.3.3 or higher	CX-One
Trajexia Studio <sup>*1</sup> V1.3.3 or higher	TJ1-Studio

<sup>\*1</sup> When the Trajexia Studio software is included in CX-One, then it is called CX-Motion Pro.

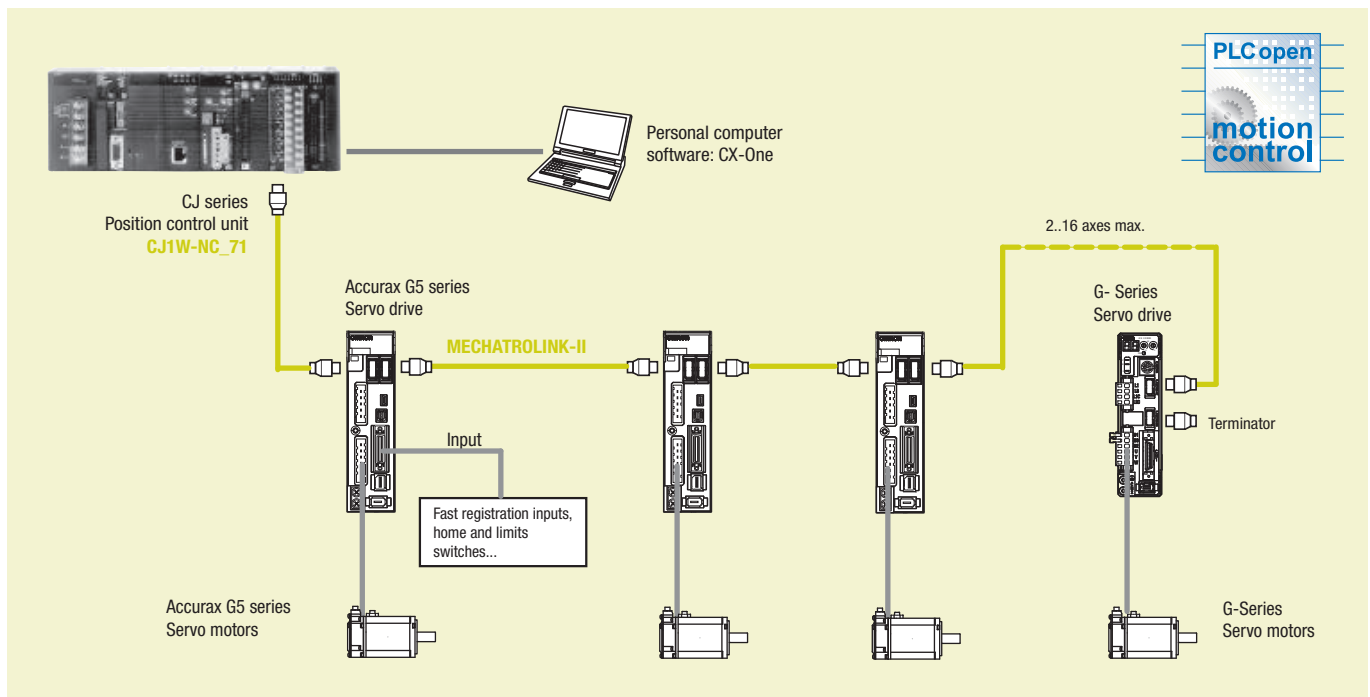


## 2, 4 and 16-axis point-to-point positioning controller over MECHATROLINK-II

NC\_71 is a powerful controller for point-to-point applications. It is based on MECHATROLINK-II motion bus, which reduces programming and development and maintenance costs. Supports PLC open function blocks.

- Supports position, speed and torque control.
- Programming languages: ladder, function blocks. Supports PLC Open Function Blocks.
- Smart active parts for Omron HMI terminals reduce engineering time.
- Access to the complete system from one point. Network setup, servo drives configuring and monitoring, and PLC programming.

### Ordering information



#### Position controller unit

Name	Order code
MECHATROLINK-II position controller unit - 16 axes	CJ1W-NCF71
MECHATROLINK-II position controller unit - 4 axes	CJ1W-NC471
MECHATROLINK-II position controller unit - 2 axes	CJ1W-NC271

#### Computer software

Specifications	Order code
CX-One version 2.0 (CX-Motion NCF 1.70 or higher)	CX-One
CX-One version 3.0 (CX-Motion NCF 1.90 or higher)	
CX-One version 4.0 or higher	

#### MECHATROLINK-II related devices

##### Servo system

Name	Order code
Accurax G5 servo drive ML-II built-in	R88D-KN__-ML2
G-Series servo drive ML-II built-in	R88D-GN__H-ML2

Note: Refer to servo systems section for detailed specs and ordering information

##### MECHATROLINK-II cables

Name	Remarks	Order code
MECHATROLINK-II terminator	Terminating resistor	JEPMC-W6022
MECHATROLINK-II cables	0.5 meter	JEPMC-W6003-A5
	1 meter	JEPMC-W6003-01
	3 meters	JEPMC-W6003-03
	5 meters	JEPMC-W6003-05
	10 meters	JEPMC-W6003-10
	20 meters	JEPMC-W6003-20
	30 meters	JEPMC-W6003-30



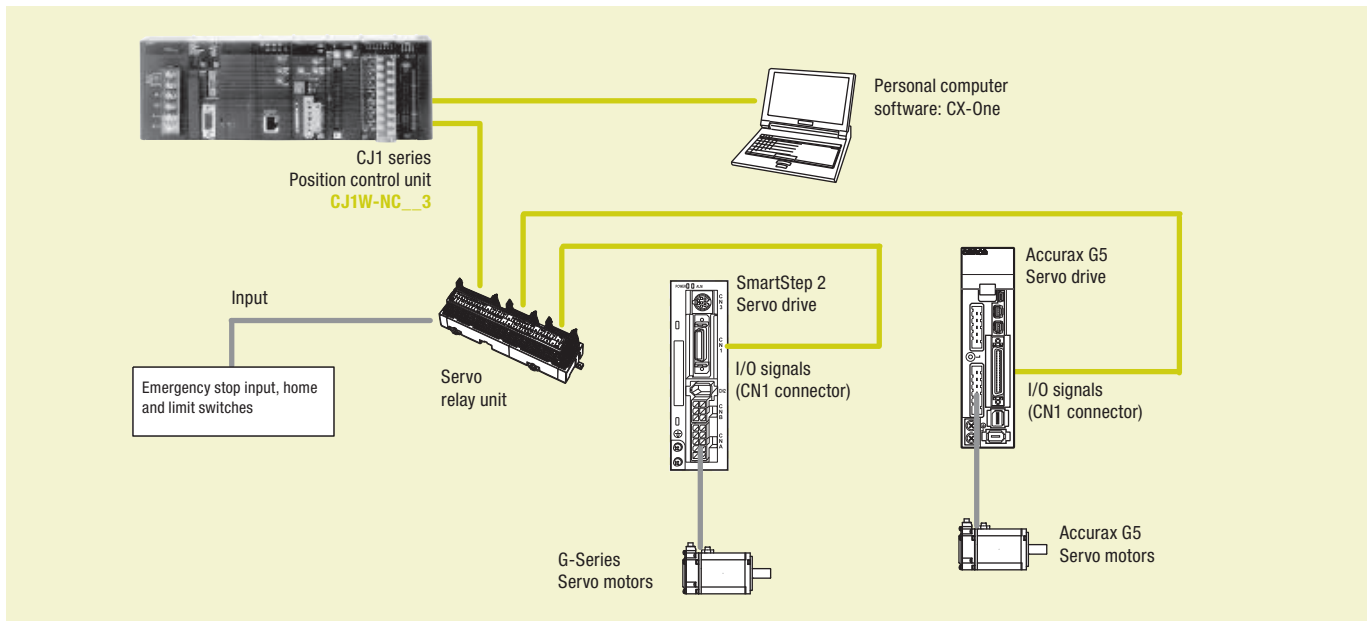


### 1, 2 or 4-axis point-to-point positioning controller with pulse train output

The NC motion controllers support positioning control via pulse-train outputs. Positioning is performed using trapezoidal or S-curve acceleration and deceleration. Ideal for controlling simple positioning in stepper motors and servos with pulse-train input.

- Positioning can be done by direct ladder commands
- Position and speed control
- Linear interpolation
- Interrupt feeding function
- Positioning of 100 points done from memory
- Positioning data is saved in internal flash memory, eliminating the need to maintain a backup battery.

#### Ordering information



#### Position control unit

Name	Model
1 axis position control unit. Open-collector output.	CJ1W-NC113
2 axes position control unit. Open-collector output.	CJ1W-NC213
4 axes position control unit. Open-collector output.	CJ1W-NC413
1 axis position control unit. Line-driver output.	CJ1W-NC133
2 axes position control unit. Line-driver output.	CJ1W-NC233
4 axes position control unit. Line-driver output.	CJ1W-NC433

#### Servo drive cables

Note: Refer the selected servo systems section for cable and servo relay units information.

#### Computer software

Specifications	Model
CX-One	CX-One

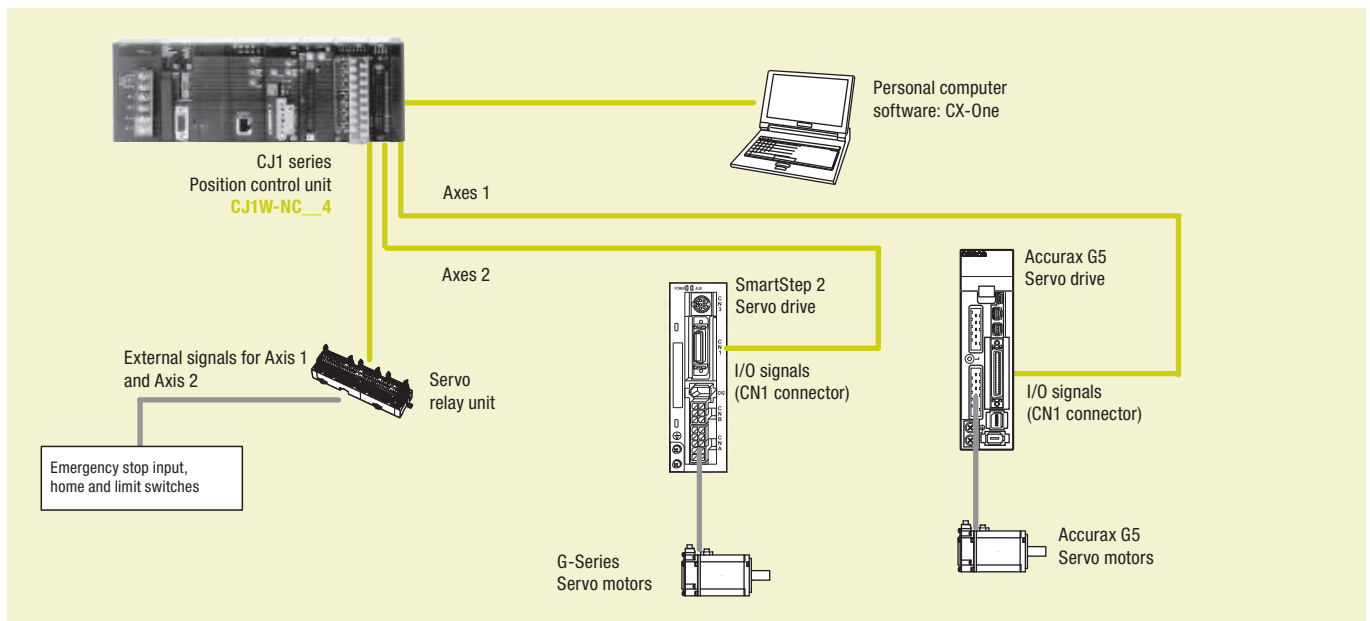


## 2 or 4-axis point-to-point positioning controller with pulse train output and motion control unit functionality

The NC motion controllers support positioning control via pulse-train outputs. Positioning is performed using trapezoidal or S-curve acceleration and deceleration. Ideal for controlling simple positioning in stepper motors and servos with pulse-train input. When the CJ1W-NC\_4 unit is used in a CJ2 CPU, it can perform also synchronous operation by use of electronic CAMs and other function blocks.

- Position and speed control
- Linear interpolation and feeder control function
- Electronic CAM profiles and axes synchronization
- Positioning of 500 points done from memory
- Programming languages: ladder, function blocks.

### Ordering information



#### Position control unit

Name	Model
2 axes position control unit. Open-collector output.	CJ1W-NC214
4 axes position control unit. Open-collector output.	CJ1W-NC414
2 axes position control unit. Line-driver output.	CJ1W-NC234
4 axes position control unit. Line-driver output.	CJ1W-NC434

#### Servo drive cables

Note: Refer to selected servo systems section for cable and servo relay units information.

#### Computer software

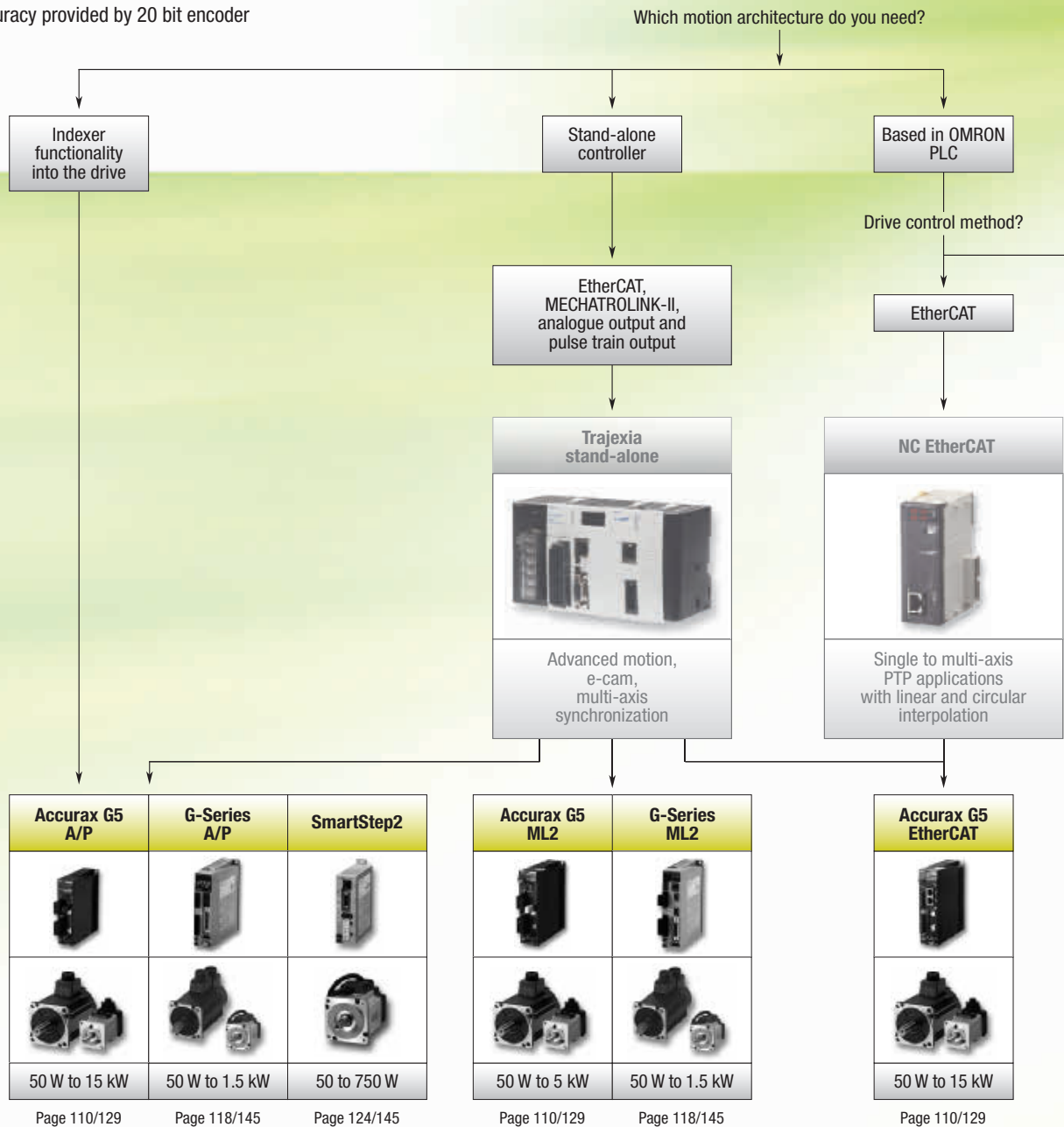
Specifications	Model
CX-One	CX-One

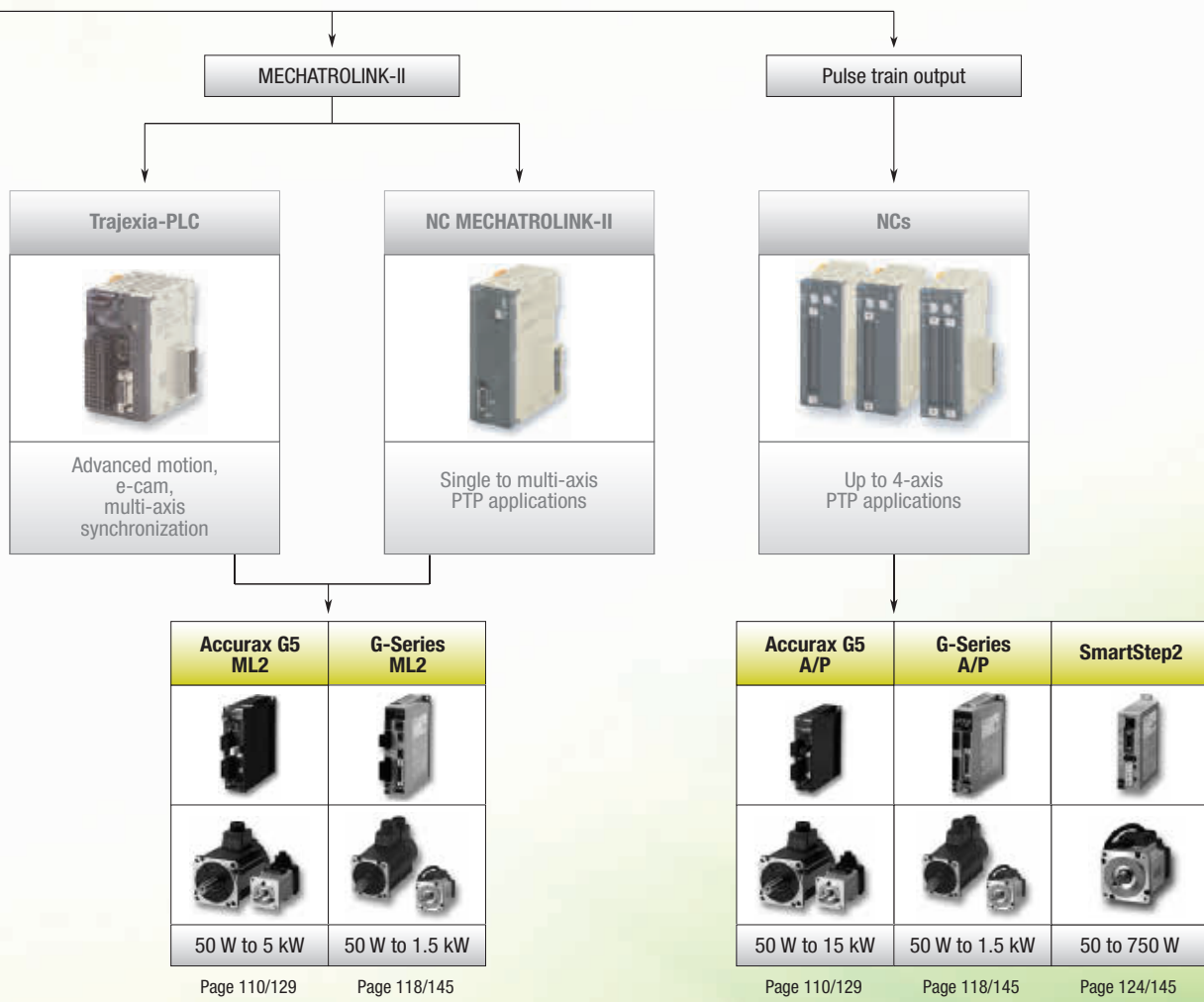
# EXTREME MECHATRONICS MEETS X-STREAM AUTOMATION

## At the heart of every great machine


Great machines are born from a perfect match between control and mechanics. Accurax G5 gives you the extra edge to build more accurate, faster, smaller and safer machines. You will benefit from an almost 25% reduction in motor weight, and gain 50% cabinet space. You will achieve sub micron precision and ms settling time. Some might call it perfection, we just call it tireless innovation to help you build great machines.





- EtherCAT, ML-II and analogue/pulse models
- High response frequency of 2 kHz
- Safety built-in conforming ISO13849-1 PL-d
- High accuracy provided by 20 bit encoder










# Selection table

	Servo drives		
			
	<b>Accurax G5</b>	<b>G-Series</b>	<b>SmartStep 2</b>
	EtherCAT network and safety built-in	Compact size and ML2 motion bus	Pulse train input with ultra-compact size
<b>Ratings 230 V single-phase</b>	100 W to 1.5 kW	100 W to 1.5 kW	100 W to 750 W
<b>Ratings 400 V three-phase</b>	600 W to 15 kW	N/A	N/A
<b>Applicable servomotor</b>	Accurax G5 and G-Series rotary motors	G-Series	G-Series
<b>Position control</b>	EtherCAT, MECHATROLINK-II or Pulse train input	MECHATROLINK-II or Pulse train input	Pulse train input
<b>Speed control</b>	EtherCAT, MECHATROLINK-II or Analogue input $\pm 10$ V	MECHATROLINK-II or Analogue input $\pm 10$ V	N/A
<b>Torque control</b>	EtherCAT, MECHATROLINK-II or Analogue input $\pm 10$ V	MECHATROLINK-II or Analogue input $\pm 10$ V	Torque limits only
	Embedded indexer functionality	N/A	N/A
<b>Safety approvals</b>	ISO13849-1:2008 (PL d), EN 954-1:1996 (Cat-3)	N/A	N/A
<b>Full closed loop</b>	Built-in	N/A	N/A
<b>Page</b>	110	118	124

	Accurax G5 servo motors			
				
	<b>Standard models</b>			
	<b>3,000 r/min motor</b>	<b>2,000 r/min motor</b>	<b>1,500 r/min motor</b>	<b>1,000 r/min motor</b>
<b>Rated speed</b>	3,000 rpm	2,000 rpm	1,500 rpm	1,000 rpm
<b>Maximum speed</b>	4,500 to 6,000 rpm	3,000 rpm	2,000 to 3,000 rpm	2,000 rpm
<b>Rated torque</b>	0.16 Nm to 15.9 Nm	1.91 Nm to 23.9 Nm	47.8 Nm to 95.5 Nm	8.59 Nm to 28.7 Nm
<b>Sizes</b>	50 W to 5 kW	400 W to 5 kW	7.5 kW to 15 kW	900 W to 6 kW
<b>Applicable servo drive</b>	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive
<b>Encoder resolution</b>	20-bit incremental/ 17-bit absolute	20-bit incremental/ 17-bit absolute	17-bit absolute	20-bit incremental/ 17-bit absolute
<b>IP rating</b>	IP67	IP67	IP67	IP67
<b>Page</b>	129			

	G-Series servo motors – Cylindrical type –			G-Series servo motors – Flat type –
				
	<b>3,000 r/min motor</b>	<b>2,000 r/min motor</b>	<b>1,000 r/min motor</b>	<b>3,000 r/min motor</b>
<b>Rated speed</b>	3,000 rpm	2,000 rpm	1,000 rpm	3,000 rpm
<b>Maximum speed</b>	4,500 to 5,000 rpm	3,000 rpm	2,000 rpm	5,000 rpm
<b>Rated torque</b>	0.16 Nm to 4.77 Nm	4.8 Nm to 7.15 Nm	8.62 Nm	0.32 Nm to 1.3 Nm
<b>Sizes</b>	50 to 1,500 W	1 to 1.5 kW	900 W	100 to 400 W
<b>Applicable servo drive</b>	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives
<b>Encoder resolution</b>	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental
<b>IP rating</b>	IP65	IP65	IP65	IP65
<b>Page</b>	145			

Accurax G5 servo motors			
			
	High inertia models		
	3,000 r/min motor	2,000 r/min motor	1,500 r/min motor
<b>Rated speed</b>	3,000 rpm	2,000 rpm	1,500 rpm
<b>Maximum speed</b>	5,000 rpm	3,000 rpm	2,000 to 3,000 rpm
<b>Rated torque</b>	0.64 Nm to 2.4 Nm	4.77 Nm to 23.9 Nm	47.8 Nm
<b>Sizes</b>	200 W to 750 W	1 kW to 5 kW	7.5 kW
<b>Applicable servo drive</b>	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive
<b>Encoder resolution</b>	20-bit incremental/ 17-bit absolute	20-bit incremental/ 17-bit absolute	17-bit absolute
<b>IP rating</b>	IP65	IP67	IP67
<b>Page</b>	129		

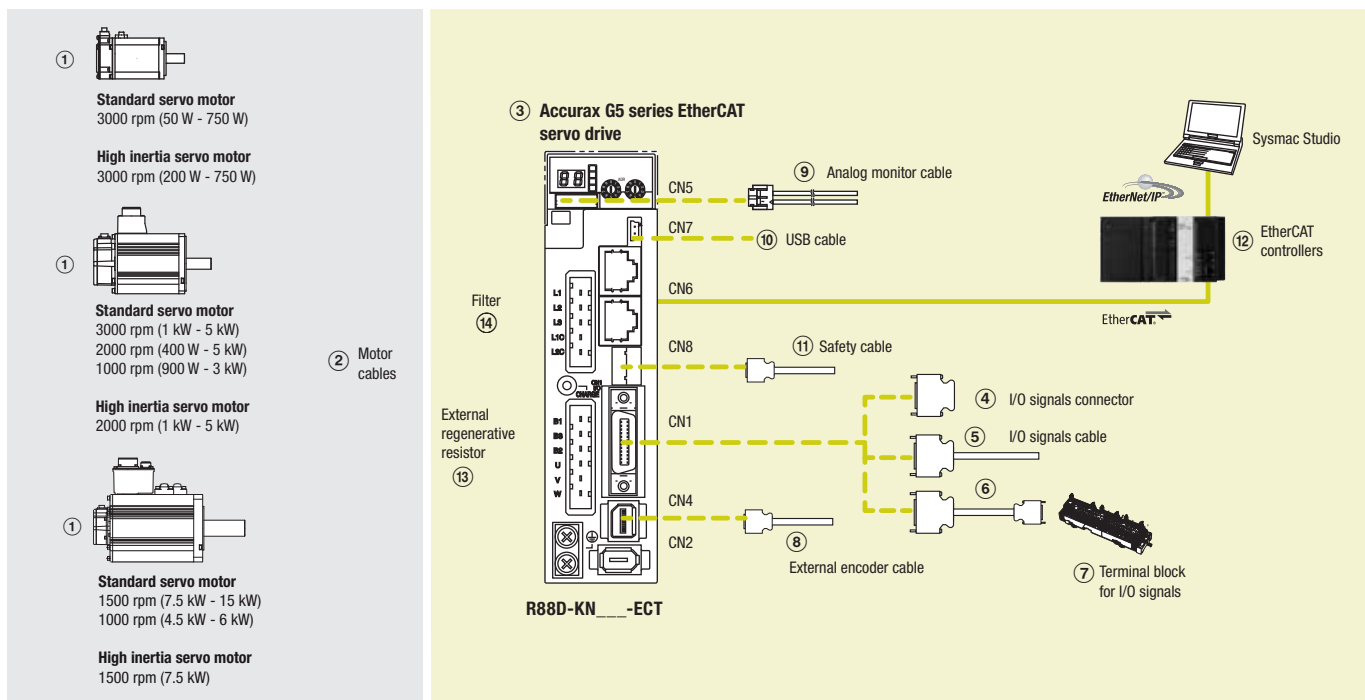


## Accurate motion control in a compact size servo drive family. EtherCAT and safety built-in

- EtherCAT, ML-II and analogue/pulse servo drive models
- Safety conforming ISO13849-1 PL-d
- High-response frequency of 2 kHz
- High resolution provided by 20 bits encoder
- Drive Programming: embedded indexer functionality in the analogue/pulse models
- External encoder input for full closed loop
- Real time auto-tuning
- Advanced tuning algorithms (anti-vibration function, torque feedforward, disturbance observer)

### Ordering information

#### Accurax G5 series EtherCAT reference configuration



**Note:** The symbols ①②③④⑤... show the recommended sequence to select the components in Accurax G5 servo system

#### Servo motors, power and encoder cables

**Note:** ①② Refer to the Accurax G5 servo motor chapter for servomotor, motor cables or connectors selection

#### Servo drives

Symbol	Specifications	① Compatible G5 series rotary servo motors		Servo drive models	
		Standard models	High Inertia models	Order code	
③	1 phase 230 VAC	100 W	R88M-K05030(H/T)-_	-	R88D-KN01H-ECT
		200 W	R88M-K10030(H/T)-_	-	-
		400 W	R88M-K20030(H/T)-_	R88M-KH20030(H/T)-_	R88D-KN02H-ECT
		750 W	R88M-K40030(H/T)-_	R88M-KH40030(H/T)-_	R88D-KN04H-ECT
		1.0 kW	R88M-K75030(H/T)-_	R88M-KH75030(H/T)-_	R88D-KN08H-ECT
		1.5 kW	R88M-K1K020(H/T)-_	-	R88D-KN10H-ECT
			R88M-K1K030(H/T)-_	-	R88D-KN15H-ECT
			R88M-K1K530(H/T)-_	-	-
	R88M-K1K520(H/T)-_	-	-		
	R88M-K90010(H/T)-_	-	-		

Symbol	Specifications		① Compatible G5 series rotary servo motors		Servo drive models
			Standard models	High Inertia models	Order code
③	3 phase 400 VAC	600 W	R88M-K40020(F/C)-_	-	R88D-KN06F-ECT
		1.0 kW	R88M-K60020(F/C)-_	-	R88D-KN10F-ECT
		1.5 kW	R88M-K75030(F/C)-_	R88M-KH1K020(F/C)-_	R88D-KN15F-ECT
			R88M-K1K030(F/C)-_	-	-
			R88M-K1K530(F/C)-_	-	-
			R88M-K1K520(F/C)-_	R88M-KH1K520(F/C)-_	-
		2.0 kW	R88M-K90010(F/C)-_	-	-
			R88M-K2K030(F/C)-_	-	R88D-KN20F-ECT
		3.0 kW	R88M-K2K020(F/C)-_	R88M-KH2K020(F/C)-_	-
			R88M-K3K030(F/C)-_	-	R88D-KN30F-ECT
			R88M-K3K020(F/C)-_	R88M-KH3K020(F/C)-_	-
		5.0 kW	R88M-K2K010(F/C)-_	-	-
			R88M-K4K030(F/C)-_	-	R88D-KN50F-ECT
			R88M-K5K030(F/C)-_	-	-
			R88M-K4K020(F/C)-_	R88M-KH4K020(F/C)-_	-
			R88M-K5K020(F/C)-_	R88M-KH5K020(F/C)-_	-
			R88M-K4K510C-_	-	-
		7.5 kW	R88M-K3K010(F/C)-_	-	-
			R88M-K6K010C-_	-	R88D-KN75F-ECT
			R88M-K7K515C-_	R88M-KH7K515C-_	-
15 kW	R88M-K11K015C-_	-	R88D-KN150F-ECT		
	R88M-K15K015C-_	-	-		

### Signals cables for I/O general purpose (CN1)

Symbol	Description	Connect to	Length	Order code
④	I/O connector kit (26 pins)	For I/O general purpose	-	R88A-CNW01C
⑤	I/O signals cable	For I/O general purpose	1 m	R88A-CPKB001S-E
			2 m	R88A-CPKB002S-E
⑥	Terminal block cable	For I/O general purpose	1 m	XW2Z-100J-B34
			2 m	XW2Z-200J-B34
⑦	Terminal block (M3 screw and for pin terminals)	-	-	XW2B-20G4
	Terminal block (M3.5 screw and for fork/round terminals)	-	-	XW2B-20G5
	Terminal block (M3 screw and for fork/round terminals)	-	-	XW2D-20G6

### External encoder cable (CN4)

Symbol	Name	Length	Order code
⑧	External encoder cable	5 m	R88A-CRKM005SR-E
		10 m	R88A-CRKM010SR-E
		20 m	R88A-CRKM020SR-E

### Analogue monitor (CN5)

Symbol	Name	Length	Order code
⑨	Analogue monitor cable	1 m	R88A-CMK001S

### USB personal computer cable (CN7)

Symbol	Name	Length	Order code
⑩	USB mini-connector cable	2 m	AX-CUSBM002-E

### Cable for safety (CN8)

Symbol	Name	Length	Order code
⑪	Safety cable	3 m	R88A-CSK003S-E

### EtherCAT controllers

Symbol	Name	Order code	
⑫	NJ-series	CPU unit	NJ501-1500 (64 axes)
		NJ501-1400 (32 axes)	
		NJ501-1300 (16 axes)	
		NJ301-1200 (8 axes)	
		NJ301-1100 (4 axes)	
		Power supply unit	NJ-PA3001 (220 VAC)
	NJ-PD3001 (24 VDC)		
	Trajexia stand-alone	Motion control unit	TJ2-MC64 (64 axes)
		EtherCAT master unit	TJ2-ECT64 (64 axes)
		TJ2-ECT16 (16 axes)	
	Position controller unit for CJ1 PLC series	TJ2-ECT04 (4 axes)	
		CJ1W-NCF8_ (16 axes)	
CJ1W-NC88_ (8 axes)			
CJ1W-NC48_ (4 axes)			
		CJ1W-NC281 (2 axes)	

### External regenerative resistor

Symbol	Specifications	Order code
⑬	50 Ω, 80 W	R88A-RR08050S
	100 Ω, 80 W	R88A-RR080100S
	47 Ω, 220 W	R88A-RR22047S
	20 Ω, 500 W	R88A-RR50020S

### Filters

Symbol	Applicable servodrive	Rated current	Leakage current	Rated voltage	Order code
⑭	R88D-KN01H-ECT, R88D-KN02H-ECT	2.4 A	3.5 mA	250 VAC single-phase	R88A-FIK102-RE
	R88D-KN04H-ECT	4.1 A	3.5 mA		R88A-FIK104-RE
	R88D-KN08H-ECT	6.6 A	3.5 mA		R88A-FIK107-RE
	R88D-KN10H-ECT, R88D-KN15H-ECT	14.2 A	3.5 mA	400 VAC three-phase	R88A-FIK114-RE
	R88D-KN06F-ECT, R88D-KN10F-ECT, R88D-KN15F-ECT	4 A	0.3 mA/32 mA <sup>*1</sup>		R88A-FIK304-RE
	R88D-KN20F-ECT	6 A	0.3 mA/32 mA <sup>*1</sup>		R88A-FIK306-RE
	R88D-KN30F-ECT, R88D-KN50F-ECT	12.1 A	0.3 mA/32 mA <sup>*1</sup>		R88A-FIK312-RE
	R88D-KN75F-ECT	-	-		R88A-FIK330-RE
	R88D-KN150F-ECT	-	-		R88A-FIK350-RE

\*1 Momentary peak leakage current for the filter at switch-on/off.



## Connectors

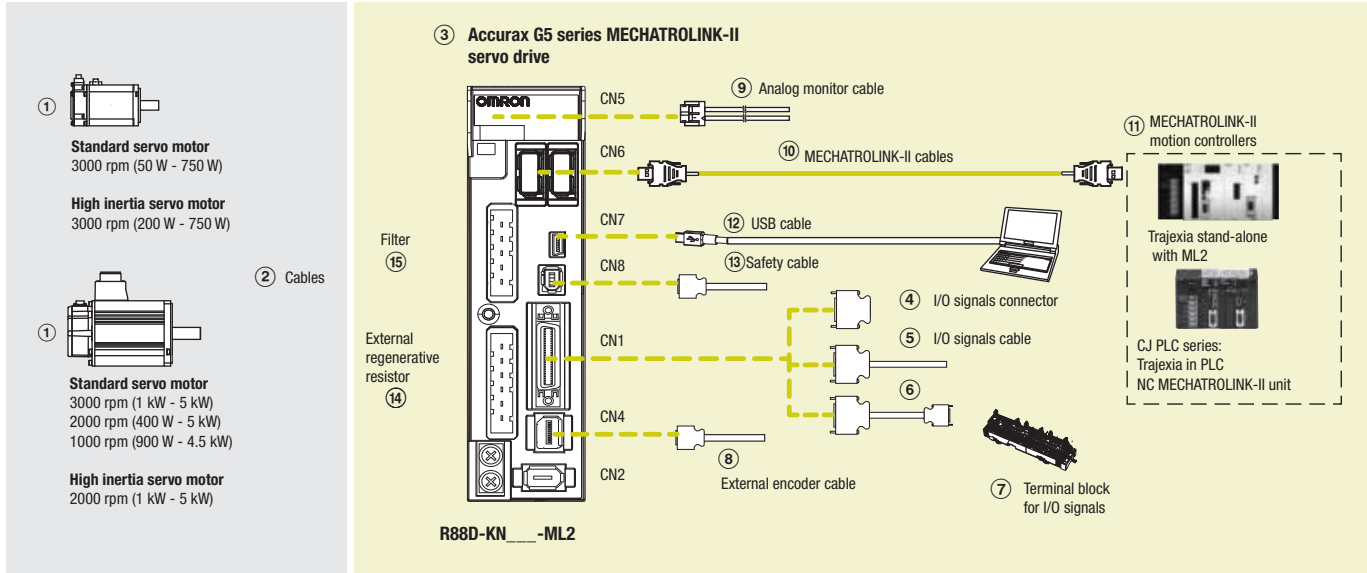
Specifications	Order code
External encoder connector (for CN4)	R88A-CNK41L
Safety I/O signal connector (for CN8)	R88A-CNK81S

## Computer software

Specifications	Order code
Sysmac Studio version 1.0 or higher	SYSMAC-SE2_ _ _
CX-Drive version 2.10 or higher	CX-DRIVE 2.10
CX-One software package including CX-Drive 2.10 or higher	CX-ONE

**Note:** If CX-One is installed on the same computer as Sysmac Studio, it must be CX-One v4.2 or higher.

## Accurax G5 series MECHATROLINK-II reference configuration



**Note:** The symbols ①②③④⑤... show the recommended sequence to select the components in Accurax G5 servo system

## Servo motors, power and encoder cables

**Note:** ①② Refer to the Accurax G5 servo motor section for servomotor, motor cables or connectors selection

## Servo drives

Symbol	Specifications	① Compatible G5 series rotary servo motors		Servo drive models	
		Standard models	High inertia models		
③	1 phase 230 VAC	100 W	R88M-K05030(H/T)-_	-	R88D-KN01H-ML2
			R88M-K10030(H/T)-_	-	
			R88M-K20030(H/T)-_	R88M-KH20030(H/T)-_	R88D-KN02H-ML2
		200 W	R88M-K40030(H/T)-_	R88M-KH40030(H/T)-_	R88D-KN04H-ML2
			R88M-K75030(H/T)-_	R88M-KH75030(H/T)-_	R88D-KN08H-ML2
			R88M-K1K020(H/T)-_	-	R88D-KN10H-ML2
		400 W	R88M-K1K030(H/T)-_	-	R88D-KN15H-ML2
			R88M-K1K530(H/T)-_	-	
			R88M-K1K520(H/T)-_	-	
	3 phase 400 VAC	600 W	R88M-K90010(H/T)-_	-	
			R88M-K40020(F/C)-_	-	R88D-KN06F-ML2
			R88M-K60020(F/C)-_	-	
		1.0 kW	R88M-K75030(F/C)-_	-	R88D-KN10F-ML2
			R88M-K1K020(F/C)-_	R88M-KH1K020(F/C)-_	
			R88M-K1K030(F/C)-_	-	R88D-KN15F-ML2
		1.5 kW	R88M-K1K530(F/C)-_	-	
			R88M-K1K520(F/C)-_	R88M-KH1K520(F/C)-_	
			R88M-K90010(F/C)-_	-	
2.0 kW	R88M-K2K030(F/C)-_	-	R88D-KN20F-ML2		
	R88M-K2K020(F/C)-_	R88M-KH2K020(F/C)-_			
	R88M-K3K030(F/C)-_	-	R88D-KN30F-ML2		
3.0 kW	R88M-K3K020(F/C)-_	R88M-KH3K020(F/C)-_			
	R88M-K2K010(F/C)-_	-			
	R88M-K4K030(F/C)-_	-	R88D-KN50F-ML2		
5.0 kW	R88M-K5K030(F/C)-_	-			
	R88M-K4K020(F/C)-_	R88M-KH4K020(F/C)-_			
	R88M-K5K020(F/C)-_	R88M-KH5K020(F/C)-_			
	R88M-K4K510C-_	-			
	R88M-K3K010(F/C)-_	-			

## Control cables (CN1)

Symbol	Description	Connect to	Length	Order code
④	I/O connector kit (26 pins)	For I/O general purpose	-	R88A-CNW01C
⑤	I/O signals cable		1 m	R88A-CPKB001S-E
⑥	Terminal block cable	For I/O general purpose	2 m	R88A-CPKB002S-E
			1 m	XW2Z-100J-B34
2 m	XW2Z-200J-B34			
-	XW2B-20G4			
-	XW2B-20G5			
-	XW2D-20G6			
⑦	Terminal block (M3 screw and for pin terminals)			
	Terminal block (M3.5 screw and for fork/round terminals)			
	Terminal block (M3 screw and for fork/round terminals)			

## External encoder cable (CN4)

Symbol	Name	Length	Order code
⑧	External encoder cable	5 m	R88A-CRKM005SR-E
		10 m	R88A-CRKM010SR-E
		20 m	R88A-CRKM020SR-E

## Analogue monitor (CN5)

Symbol	Name	Length	Order code
⑨	Analogue monitor cable	1 m	R88A-CMK001S

## MECHATROLINK-II cables (CN6)

Symbol	Specifications	Length	Order code
⑩	MECHATROLINK-II Terminator resistor	-	JEPMC-W6022-E
	MECHATROLINK-II cables	0.5 m	JEPMC-W6003-A5-E
		1 m	JEPMC-W6003-01-E
		3 m	JEPMC-W6003-03-E
		5 m	JEPMC-W6003-05-E
		10 m	JEPMC-W6003-10-E
		20 m	JEPMC-W6003-20-E
		30 m	JEPMC-W6003-30-E

## MECHATROLINK-II motion controllers

Symbol	Name	Order code
⑪	Trajexia stand-alone Motion control unit	TJ2-MC64 (64 axes)
		TJ1-MC16 (16 axes)
		TJ1-MC04 (4 axes)
		TJ1-ML16 (16 axes)
	ML2 master unit	TJ1-ML04 (4 axes)
		TJ1-ML04 (4 axes)
	Trajexia-PLC motion controller	CJ1W-MCH72 (30 axes)
		CJ1W-MC472 (4 axes)
		CJ1W-MC471 (4 axes)
	Position controller unit for CJ1 PLC	CJ1W-NCF71 (16 axes)
		CJ1W-NC471 (4 axes)
CJ1W-NC271 (2 axes)		
Position controller unit for CS1 PLC	CS1W-NCF71 (16 axes)	
	CS1W-NC471 (4 axes)	
	CS1W-NC271 (2 axes)	

## USB personal computer cable (CN7)

Symbol	Name	Length	Order code
⑫	USB mini-connector cable	2 m	AX-CUSBM002-E

## Cable for safety functions (CN8)

Symbol	Description	Order code
⑬	Safety connector with 3 m cable (with loose wires at one end)	R88A-CSK003S-E

## External regenerative resistor

Symbol	Specifications	Order code
⑭	50 Ω, 80 W	R88A-RR08050S
	100 Ω, 80 W	R88A-RR080100S
	47 Ω, 220 W	R88A-RR22047S
	20 Ω, 500 W	R88A-RR50020S

## Filters

Symbol	Applicable servodrive	Rated current	Leakage current	Rated voltage	Order code
⑮	R88D-KN01H-ML2, R88D-KN02H-ML2	2.4 A	3.5 mA	250 VAC single-phase	R88A-FIK102-RE
	R88D-KN04H-ML2	4.1 A	3.5 mA		R88A-FIK104-RE
	R88D-KN08H-ML2	6.6 A	3.5 mA		R88A-FIK107-RE
	R88D-KN10H-ML2, R88D-KN15H-ML2	14.2 A	3.5 mA		R88A-FIK114-RE
	R88D-KN06F-ML2, R88D-KN10F-ML2, R88D-KN15F-ML2	4 A	0.3 mA /32 mA <sup>*1</sup>	400 VAC three-phase	R88A-FIK304-RE
	R88D-KN20F-ML2	6 A	0.3 mA /32 mA <sup>*1</sup>		R88A-FIK306-RE
	R88D-KN30F-ML2, R88D-KN50F-ML2	12.1 A	0.3 mA /32 mA <sup>*1</sup>		R88A-FIK312-RE

\*1 Momentary peak leakage current for the filter at switch-on/off.

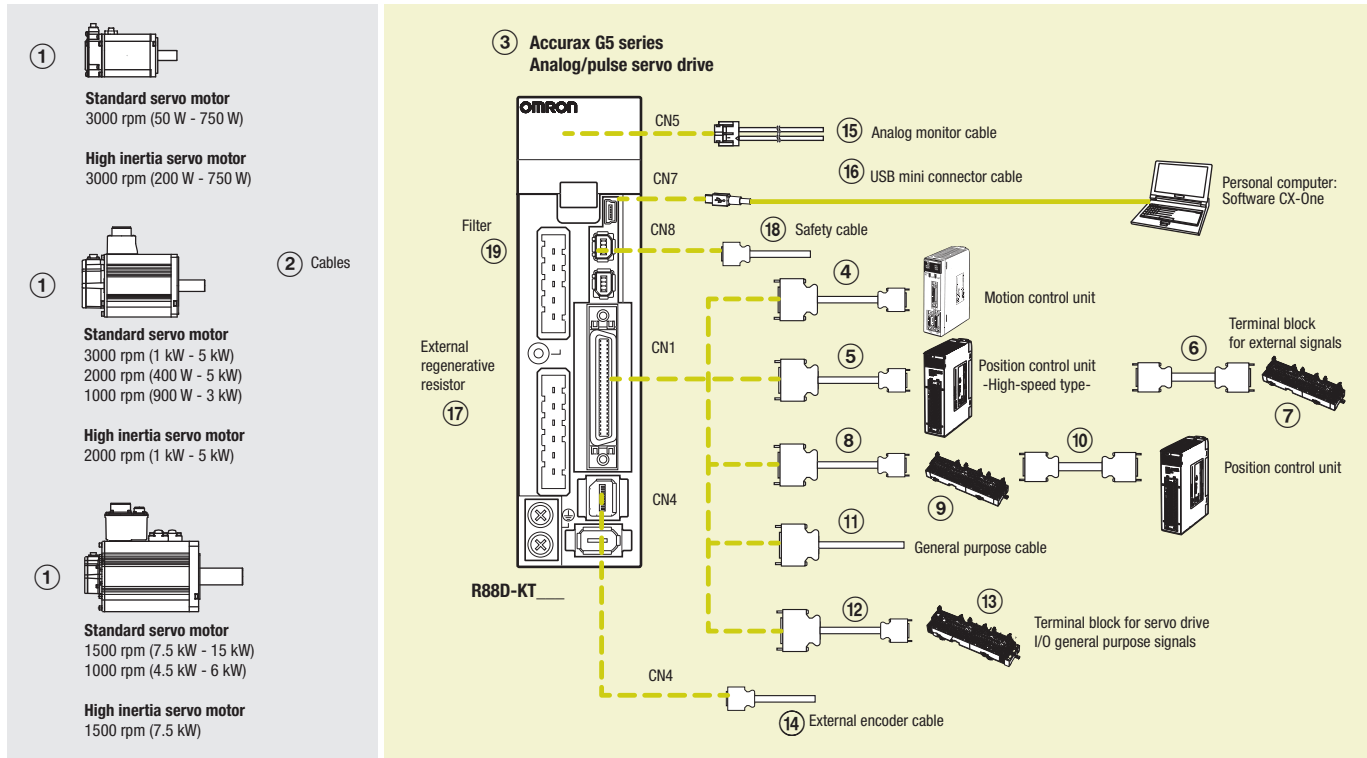
## Connectors

Specifications	Order code
External encoder connector (for CN4)	R88A-CNK41L
Safety I/O signal connector (for CN8)	R88A-CNK81S

## Computer software

Specifications	Order code
CX-Drive version 1.91 or higher	CX-DRIVE 1.91
CX-One software package including CX-Drive 1.91 or higher	CX-ONE

## Accurax G5 series analogue/pulse reference configuration



**Note:** The symbols ①②③④⑤... show the recommended sequence to select the components in Accurax G5 servo system

### Servo motors, power and encoder cables

**Note:** ①② Refer to the Accurax G5 servo motor section for servomotor, motor cables or connectors selection

### Servo drives

Symbol	Specifications	① Compatible Accurax G5 series rotary servo motors		Servo drive models <sup>*1</sup>	
		Standard models	High inertia models		
③	1 phase 230 VAC	100 W	R88M-K05030(H/T)-_	-	R88D-KT01H
			R88M-K10030(H/T)-_	-	
200 W		R88M-K20030(H/T)-_	R88M-KH20030(H/T)-_	R88D-KT02H	
		R88M-K40030(H/T)-_	R88M-KH40030(H/T)-_	R88D-KT04H	
750 W		R88M-K75030(H/T)-_	R88M-KH75030(H/T)-_	R88D-KT08H	
		1.0 kW	R88M-K1K020(H/T)-_	-	R88D-KT10H
1.5 kW		R88M-K1K030(H/T)-_	-	R88D-KT15H	
		R88M-K1K530(H/T)-_	-		
		R88M-K1K520(H/T)-_	-		
		R88M-K90010(H/T)-_	-		
	600 W	R88M-K40020(F/C)-_	-	R88D-KT06F	
		R88M-K60020(F/C)-_	-		
	1.0 kW	R88M-K75030(F/C)-_	-	R88D-KT10F	
		R88M-K1K020(F/C)-_	R88M-KH1K020(F/C)-_		
1.5 kW	R88M-K1K030(F/C)-_	-	R88D-KT15F		
	R88M-K1K530(F/C)-_	-			
	R88M-K1K520(F/C)-_	R88M-KH1K520(F/C)-_			
	R88M-K90010(F/C)-_	-			
2.0 kW	R88M-K2K030(F/C)-_	-	R88D-KT20F		
	R88M-K2K020(F/C)-_	R88M-KH2K020(F/C)-_			
3.0 kW	R88M-K3K030(F/C)-_	-	R88D-KT30F		
	R88M-K3K020(F/C)-_	R88M-KH3K020(F/C)-_			
	R88M-K2K010(F/C)-_	-			
5.0 kW	R88M-K4K030(F/C)-_	-	R88D-KT50F		
	R88M-K5K030(F/C)-_	-			
	R88M-K4K020(F/C)-_	R88M-KH4K020(F/C)-_			
	R88M-K5K020(F/C)-_	R88M-KH5K020(F/C)-_			
	R88M-K4K510C-_	-			
	R88M-K3K010(F/C)-_	-			
7.5 kW	R88M-K6K010C-_	-	R88D-KT75F		
	R88M-K7K515C-_	R88M-KH7K515C-_			
15 kW	R88M-K11K015C-_	-	R88D-KT150F		
	R88M-K15K015C-_	-			

<sup>\*1</sup> Drive Programming – embedded indexer functionality – is available in the Accurax G5 analogue/pulse models with firmware 1.10 or higher.

## Control cables (CN1)

Symbol	Description	Connect to	Length	Order code	
④	Control cable (1 axis)	Motion control units CS1W-MC221 CS1W-MC421	1 m	R88A-CPG001M1	
			2 m	R88A-CPG002M1	
			3 m	R88A-CPG003M1	
	Control cable (2 axes)	Motion control units CS1W-MC221 CS1W-MC421	1 m	R88A-CPG001M2	
			2 m	R88A-CPG002M2	
			3 m	R88A-CPG003M2	
⑤	Control cable (line-driver output for 1 axis)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G9	
			5 m	XW2Z-500J-G9	
			10 m	XW2Z-10MJ-G9	
	Control cable (open-collector output for 1 axis)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G13	
			3 m	XW2Z-300J-G13	
	Control cable (line-driver output for 2 axes)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G1	
			5 m	XW2Z-500J-G1	
			10 m	XW2Z-10MJ-G1	
	Control cable (open-collector output for 2 axes)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G5	
			3 m	XW2Z-300J-G5	
	⑥	Terminal block cable for external signals (for input common, forward/reverse run prohibited inputs, emergency stop input, origin proximity input and interrupt input)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434 CJ1W-NC214 CJ1W-NC414	0.5 m	XW2Z-C50X
				1 m	XW2Z-100X
2 m				XW2Z-200X	
3 m				XW2Z-300X	
5 m				XW2Z-500X	
10 m				XW2Z-010X	
⑦	Terminal block for external signals (M3 screw, pin terminals)		–	XW2B-20G4	
	Terminal block for ext. signals (M3.5 screw, fork/round terminals)		–	XW2B-20G5	
	Terminal block for ext. signals (M3 screw, fork/round terminals)		–	XW2D-20G6	
⑧	Cable from servo relay unit to servo drive	CS1W-NC1□3, CJ1W-NC1□3, C200HW-NC113, CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3, C200HW-NC213/413, CQM1H-PLB21 or CQM1-CPU43 CJ1M-CPU21/22/23	1 m	XW2Z-100J-B25	
			2 m	XW2Z-200J-B25	
			1 m	XW2Z-100J-B31	
			2 m	XW2Z-200J-B31	
⑨	Servo relay unit	Position control units CS1W-NC1□3, CJ1W-NC1□3 or C200HW-NC113	–	XW2B-20J6-1B (1 axis)	
			–	XW2B-40J6-2B (2 axes)	
		Position control units CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3 or C200HW-NC213/413	–	XW2B-20J6-3B (1 axis)	
			–	XW2B-20J6-8A (1 axis) XW2B-40J6-9A (2 axes)	
		CQM1H-PLB21 or CQM1-CPU43 CJ1M-CPU21/22/23	–	XW2B-20J6-3B (1 axis)	
			–	XW2B-20J6-8A (1 axis) XW2B-40J6-9A (2 axes)	
⑩	Position control unit connecting cable	CQM1H-PLB21	0.5 m	XW2Z-050J-A3	
			1 m	XW2Z-100J-A3	
		CS1W-NC113 or C200HW-NC113	0.5 m	XW2Z-050J-A6	
			1 m	XW2Z-100J-A6	
		CS1W-NC213/413 or C200HW-NC213/413	0.5 m	XW2Z-050J-A7	
			1 m	XW2Z-100J-A7	
		CS1W-NC133	0.5 m	XW2Z-050J-A10	
			1 m	XW2Z-100J-A10	
		CS1W-NC233/433	0.5 m	XW2Z-050J-A11	
			1 m	XW2Z-100J-A11	
		CJ1W-NC113	0.5 m	XW2Z-050J-A14	
			1 m	XW2Z-100J-A14	
		CJ1W-NC213/413	0.5 m	XW2Z-050J-A15	
			1 m	XW2Z-100J-A15	
		CJ1W-NC133	0.5 m	XW2Z-050J-A18	
			1 m	XW2Z-100J-A18	
		CJ1W-NC233/433	0.5 m	XW2Z-050J-A19	
			1 m	XW2Z-100J-A19	
CJ1M-CPU21/22/23	0.5 m	XW2Z-050J-A33			
	1 m	XW2Z-100J-A33			
⑪	General purpose cable	For general purpose controllers	1 m	R88A-CPG001S	
			2 m	R88A-CPG002S	
⑫	Terminal block cable	For general purpose controllers	1 m	XW2Z-100J-B24	
			2 m	XW2Z-200J-B24	
⑬	Terminal block (M3 screw and for pin terminals)		–	XW2B-50G4	
	Terminal block (M3.5 screw and for fork/round terminals)		–	XW2B-50G5	
	Terminal block (M3 screw and for fork/round terminals)		–	XW2D-50G6	

## External encoder cable (CN4)

Symbol	Name	Length	Order code
⑭	External encoder cable	5 m	R88A-CRKM005SR-E
		10 m	R88A-CRKM010SR-E
		20m	R88A-CRKM020SR-E

## Analogue monitor (CN5)

Symbol	Name	Length	Order code
⑮	Analogue monitor cable	1 m	R88A-CMK001S

## USB personal computer cable (CN7)

Symbol	Name	Length	Order code
⑯	USB mini-connector cable	2 m	AX-CUSBM002-E

## External regenerative resistor

Symbol	Specifications	Order code
⑰	50 Ω, 80 W	R88A-RR08050S
	100 Ω, 80 W	R88A-RR080100S
	47 Ω, 220 W	R88A-RR22047S
	20 Ω, 500 W	R88A-RR50020S

## Cable for safety functions (CN8)

Symbol	Description	Order code
⑱	Safety connector with 3 m cable (with loose wires at one end)	R88A-CSK003S-E

## Filters

Symbol	Applicable servodrive	Rated current	Leakage current	Rated voltage	Order code
⑲	R88D-KT01H, R88D-KT02H	2.4 A	3.5 mA	250 VAC single-phase	R88A-FIK102-RE
	R88D-KT04H	4.1 A	3.5 mA		R88A-FIK104-RE
	R88D-KT08H	6.6 A	3.5 mA		R88A-FIK107-RE
	R88D-KT10H, R88D-KT15H	14.2 A	3.5 mA		R88A-FIK114-RE
	R88D-KT06F, R88D-KT10F, R88D-KT15F	4 A	0.3 mA/32 mA <sup>*1</sup>	400 VAC three-phase	R88A-FIK304-RE
	R88D-KT20F	6 A	0.3 mA/32 mA <sup>*1</sup>		R88A-FIK306-RE
	R88D-KT30F, R88D-KT50F	12.1 A	0.3 mA/32 mA <sup>*1</sup>		R88A-FIK312-RE
	R88D-KT75F	–	–		R88A-FIK330-RE
	R88D-KT150F	–	–		R88A-FIK350-RE

\*1 Momentary peak leakage current for the filter at switch-on/off.

## Connectors

Specifications	Model
I/O connector kit – 50 pins – (for CN1)	R88A-CNU11C
External encoder connector (for CN4)	R88A-CNK41L
Safety I/O signal connector (for CN8)	R88A-CNK81S

## Computer software

Specifications	Order code
CX-Drive version 2.10 or higher	CX-DRIVE 2.10
CX-One software package including CX-Drive 2.10 or higher	CX-ONE

## Specifications

### Single-phase, 230 V

Servo drive type	R88D-K_	01H_	02H_	04H_	08H_	10H_	15H_	
Applicable servo motor	R88M-K_	05030(H/T)-_	20030(H/T)-_	40030(H/T)-_	75030(H/T)-_	1K020(H/T)-_	1K030(H/T)-_	
		10030(H/T)-_	–	–	–	–	1K530(H/T)-_	
		–	–	–	–	–	1K520(H/T)-_	
		–	–	–	–	–	90010(H/T)-_	
Basic specifications	Max. applicable motor capacity	W	100	200	400	750	1,000	1,500
	Continuous output current	Arms	1.2	1.6	2.6	4.1	5.9	9.4
	Input power	Main circuit	Single-phase/3-phase, 200 to 240 VAC + 10% to –15% (50/60 Hz)					
	Supply	Control circuit	Single-phase, 200 to 240 VAC + 10% to –15% (50/60 Hz)					
	Control method		IGBT-driven PWM method, sinusoidal drive					
	Feedback		Serial encoder (incremental/absolute value)					
	Conditions	Usage/storage temperature	0 to 55°C/–20 to 65°C					
		Usage/storage humidity	90% RH or less (non-condensing)					
		Altitude	1,000 m or less above sea level					
		Vibration/shock resistance	(max.)	5.88 m/s <sup>2</sup> 10–60 Hz (Continuous operation at resonance point is not allowed)/19.6 m/s <sup>2</sup>				
Configuration		Base mounted						
Approx. weight	kg	0.8		1.1	1.6		1.8	

## Three-phase, 400 V

Servo drive type	R88D-K_	06F_	10F_	15F_	20F_	30F_	50F_	75F_	150F_
Applicable servo motor	R88M-K_	40020(F/C)-_	75030(F/C)-_	1K030(F/C)-_	2K030(F/C)-_	3K030(F/C)-_	4K030(F/C)-_	6K010C-_	11K015C-_
		60020(F/C)-_	1K020(F/C)-_	1K530(F/C)-_	2K020(F/C)-_	3K020(F/C)-_	5K030(F/C)-_	7K515C-_	15K015C-_
		-	-	1K520(F/C)-_	-	-	2K010(F/C)-_	4K020(F/C)-_	-
		-	-	90010(F/C)-_	-	-	-	5K020(F/C)-_	-
		-	-	-	-	-	-	4K510C-_	-
		-	-	-	-	-	-	3K010(F/C)-_	-
<b>Max. applicable motor capacity</b>	<b>W</b>	0.6	1.0	1.5	2.0	3.0	5.0	7.5	15.0
<b>Continuous output current</b>	<b>Arms</b>	2.9		4.7	6.7	9.4	16.5	22.0	33.4
<b>Input power</b>	<b>Main circuit</b>	3-phase, 380 to 480 VAC + 10% to -15% (50/60Hz)							
<b>Supply</b>	<b>Control circuit</b>	24 VDC±15%							
<b>Control method</b>	IGBT-driven PWM method, sinusoidal drive								
<b>Feedback</b>	Serial encoder (incremental/absolute value)							Absolute encoder	
<b>Conditions</b>	<b>Usage/storage temperature</b>	0 to 55°C/-20 to 65°C							
	<b>Usage/storage humidity</b>	90% RH or less (non-condensing)							
	<b>Altitude</b>	1,000 m or less above sea level							
	<b>Vibration/shock resistance</b>	5.88 m/s <sup>2</sup> 10-60 Hz (Continuous operation at resonance point is not allowed)/19.6 m/s <sup>2</sup>							
<b>Configuration</b>	Base mounted								
<b>Approx. weight</b>	<b>kg</b>	1.9			2.7	4.7		13.5	21.0

## Dimensions

Drive model	Specification	EtherCAT model				ML2 model				Analogue/pulse model				Diagram	
		H	W	D	D1	H	W	D	D1	H	W	D	D1		
R88D-KT01/02H, R88D-KN01/02H-_	230 V	100-200 W	150	40	132	70	150	40	132	70	150	40	130	70	
R88D-KT04H, R88D-KN04H-_		400 W	150	55	132	70	150	55	132	70	150	55	130	70	
R88D-KT08H, R88D-KN08H-_		750 W	150	65	172	70	150	65	172	70	150	65	170	70	
R88D-KT10/15H, R88D-KN10/15H-_		1-1.5 kW	150	86	172	70	150	86	172	70	150	85	170	70	
R88D-KT06/10/15F, R88D-KN06/10/15F-_	400 V	600 W-1.5 kW	150	92	172	70	150	92	172	70	150	91	170	70	
R88D-KT20F, R88D-KN20F-_		2 kW	198	94	195	70	198	94	195	70	198	94	193.5	70	
R88D-KT30/50F, R88D-KN30/50F-_		3-5 kW	250	130	214	70	250	130	214	70	250	130	212	70	
R88D-KT75F, R88D-KN75H-ECT		7.5 kW	250	233	334	70	-	-	-	-	250	233	334	70	
R88D-KT150F, R88D-KN150H-ECT		15 kW	450	261	271	70	-	-	-	-	450	261	270	70	



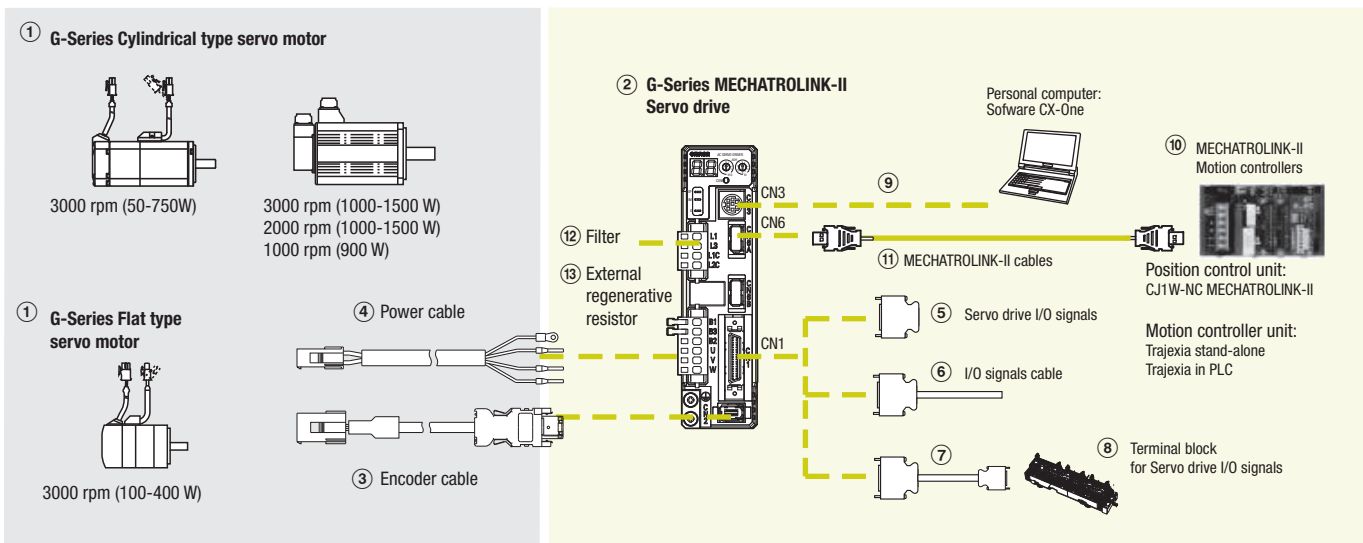
## Compact in size, big in features. Save space, save wiring, save time

The G-series servo drive with built-in MECHATROLINK-II significantly reduces wiring and set-up time, while saving up to 30% of cabinet space. So you not only save on space, wiring and installation time, but also significantly reduce the chance of connection errors.

- High response frequency of 1 kHz
- Auto-tuning for easy and quick start-up
- Vibration suppression and adaptive resonance suppression filter
- Positioning, speed and torque control modes
- Fast and accurate positioning
- Separated supply for main power and control power
- Incremental and absolute encoder available

### Ordering information

#### G-Series MECHATROLINK-II model reference configuration



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

#### Servo motors, power & encoder cables

Note: ①③④ Refer to the G-Series servo motor section for servomotor, motor cables or connectors selection

#### Servo drives

Symbol	Specifications	① Compatible rotary servo motors		Servo drive model	
		Cylindrical type	Flat type		
②	1 phase 200 VAC	100 W	R88M-G05030_	R88M-GP10030_	R88D-GN01H-ML2
			R88M-G10030_		
		200 W	R88M-G20030_	R88M-GP20030_	R88D-GN02H-ML2
			R88M-G40030_	R88M-GP40030_	R88D-GN04H-ML2
		750 W	R88M-G75030_	-	R88D-GN08H-ML2
		1.0 kW	R88M-G1K020T_	-	R88D-GN10H-ML2
		1.5 kW	R88M-G90010T_	-	R88D-GN15H-ML2
			R88M-G1K030T_	-	
		R88M-G1K520T_	-		
		R88M-G1K530T_	-		

#### Control cables (for CN1)

Symbol	Name	Connect to	Length	Order code
⑤	I/O connector kit	Servo drive I/O signals	-	R88A-CNU01C
⑥	General purpose cable		1 m	R88A-CPGB001S-E
			2 m	R88A-CPGB002S-E
⑦	Terminal block cable		1 m	XW2Z-100J-B33
		2 m	XW2Z-200J-B33	
⑧	Terminal block	-	XW2B-20G4	
			XW2B-20G5	
			XW2D-20G6	

#### Computer cable (for CN3)

Symbol	Name	Length	Order code
⑨	Computer cable RS232	2 m	R88A-CCG002P2

#### MECHATROLINK-II Motion controllers

Symbol	Name	Axes	Order code
⑩	Trajexia stand-alone motion controller	4	TJ1-MC04
		16	TJ1-MC16
		64	TJ2-MC64
	Trajexia-PLC motion controller,	4	CJ1W-MC472
		30	CJ1W-MCH72
		Position controller unit for CJ1 PLC	2
	Position controller unit for CJ1 PLC	4	CJ1W-NC471
		16	CJ1W-NCF71
		Position controller unit for CS1 PLC	2
	Position controller unit for CS1 PLC	4	CS1W-NC471
		16	CS1W-NCF71





## Control cables (for CN1)

Symbol	Description	Connect to	Length	Order code	
⑤	Control cable (1 axis)	Motion control units CS1W-MC221 CS1W-MC421	1 m	R88A-CPG001M1	
			2 m	R88A-CPG002M1	
			3 m	R88A-CPG003M1	
	Control cable (2 axis)	Motion control units CS1W-MC221 CS1W-MC421	1 m	R88A-CPG001M2	
			2 m	R88A-CPG002M2	
			3 m	R88A-CPG003M2	
⑥	Control cable (line-driver output for 1 axis)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G9	
			5 m	XW2Z-500J-G9	
			10 m	XW2Z-10MJ-G9	
	Control cable (open-collector output for 1 axis)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G13	
			3 m	XW2Z-300J-G13	
	Control cable (line-driver output for 2 axis)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G1	
			5 m	XW2Z-500J-G1	
			10 m	XW2Z-10MJ-G1	
	Control cable (open-collector output for 2 axis)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G5	
			3 m	XW2Z-300J-G5	
	⑦	Terminal block cable for external signals (for input common, forward/reverse run prohibited inputs, emergency stop input, origin proximity input and interrupt input)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434 CJ1W-NC214 CJ1W-NC414	0.5 m	XW2Z-C50X
				1 m	XW2Z-100X
2 m				XW2Z-200X	
3 m				XW2Z-300X	
5 m				XW2Z-500X	
10 m				XW2Z-010X	
⑧	Terminal block for external signals (M3 screw, pin terminals)		–	XW2B-20G4	
	Terminal block for ext. signals (M3.5 screw, fork/round terminals)		–	XW2B-20G5	
	Terminal block for ext. signals (M3 screw, fork/round terminals)		–	XW2D-20G6	
⑨	Cable from servo relay unit to servo drive	CS1W-NC1□3, CJ1W-NC1□3, C200HW-NC113, CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3, C200HW-NC213/413, CQM1H-PLB21 or CQM1-CPU43 CJ1M-CPU21/22/23	1 m	XW2Z-100J-B25	
			2 m	XW2Z-200J-B25	
			1 m	XW2Z-100J-B31	
			2 m	XW2Z-200J-B31	
⑩	Servo relay unit	Position control units CS1W-NC1□3, CJ1W-NC1□3 or C200HW-NC113  Position control units CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3 or C200HW-NC213/413  CQM1H-PLB21 or CQM1-CPU43 CJ1M-CPU21/22/23	–	XW2B-20J6-1B (1 axis)	
			–	XW2B-40J6-2B (2 axes)	
			–	XW2B-20J6-3B (1 axis)	
			–	XW2B-20J6-8A (1 axis)	
			–	XW2B-40J6-9A (2 axes)	
⑪	Position control unit connecting cable	CQM1H-PLB21 or CQM1-CPU43	0.5 m	XW2Z-050J-A3	
			1 m	XW2Z-100J-A3	
		CS1W-NC113 or C200HW-NC113	0.5 m	XW2Z-050J-A6	
			1 m	XW2Z-100J-A6	
		CS1W-NC213/413 or C200HW-NC213/413	0.5 m	XW2Z-050J-A7	
			1 m	XW2Z-100J-A7	
		CS1W-NC133	0.5 m	XW2Z-050J-A10	
			1 m	XW2Z-100J-A10	
		CS1W-NC233/433	0.5 m	XW2Z-050J-A11	
			1 m	XW2Z-100J-A11	
		CJ1W-NC113	0.5 m	XW2Z-050J-A14	
			1 m	XW2Z-100J-A14	
		CJ1W-NC213/413	0.5 m	XW2Z-050J-A15	
			1 m	XW2Z-100J-A15	
		CJ1W-NC133	0.5 m	XW2Z-050J-A18	
			1 m	XW2Z-100J-A18	
		CJ1W-NC233/433	0.5 m	XW2Z-050J-A19	
			1 m	XW2Z-100J-A19	
CJ1M-CPU21/22/23	0.5 m	XW2Z-050J-A33			
	1 m	XW2Z-100J-A33			
⑫	General purpose cable	For general purpose controllers	1 m	R88A-CPG001S	
			2 m	R88A-CPG002S	
⑬	Terminal block cable	For general purpose controllers	1 m	XW2Z-100J-B24	
			2 m	XW2Z-200J-B24	
⑭	Terminal block (M3 screw and for pin terminals)		–	XW2B-50G4	
	Terminal block (M3.5 screw and for fork/round terminals)		–	XW2B-50G5	
	Terminal block (M3 screw and for fork/round terminals)		–	XW2D-50G6	

## Computer cable (for CN3)

Symbol	Name	Length	Order code
⑮	Computer cable RS232	2 m	R88A-CCG002P2

## Filters

Symbol	Applicable servodrive	Rated current	Leakage current	Rated voltage	Order code
⑯	R88D-GT1H_ R88D-GT02H_	2.4 A	3.5 mA	250 VAC single-phase	R88A-FIK102-RE
	R88D-GT04H_	4.1 A	3.5 mA		R88A-FIK104-RE
	R88D-GT08H_	6.6 A	3.5 mA		R88A-FIK107-RE
	R88D-GT10H_ R88D-GT15H_	14.2 A	3.5 mA		R88A-FIK114-RE

## External regenerative resistor

Symbol	Specifications	Order code
⑰	50 Ω, 80 W	R88A-RR08050S
	100 Ω, 80 W	R88A-RR080100S
	47 Ω, 220 W	R88A-RR22047S
	20 Ω, 500 W	R88A-RR50020S

## Connectors

Specifications	Order code
I/O connector kit, 50 pins (for CN1)	R88A-CNU11C

## Computer software

Specifications	Order code
Configuration and monitoring software tool for servo drives and inverters. (CX-Drive version 1.70 or higher)	CX-Drive
Complete Omron software package including CX-Drive. (CX-One version 3.10 or higher)	CX-One

## Specifications

### General specifications

Servo drive type	R88D-G	01H_	02H_	04H_	08H_	10H_	15H_		
Applicable servomotor	R88M-G_	05030_/10030_	20030_	40030_	75030_	G1K020T_	90010T_/1K030T_/1K5_OT_		
	R88M-GP_	10030_	20030_	40030_	-	-	-		
Basic specifications	Max. applicable motor capacity	W	100	200	400	750	1,000	1,500	
	Continuous output current	Arms	1.16	1.6	2.7	4.0	5.9	9.8	
	Max. output current	Arms	3.5	5.3	7.1	14.1	21.2	28.3	
	Input power	Main circuit	For single-phase, 200 to 240 VAC + 10% to -15% (50/60 Hz)			For single-phase/three-phase, 200 to 240 VAC + 10% to -15% (50/60 Hz)			
	Supply	Control circuit	For single-phase, 200 to 240 VAC + 10% to -15% (50/60 Hz)						
	Control method	IGBT-driven PWM method							
	Feedback	Serial encoder (incremental/absolute)							
	Conditions	Usage/storage temperature	0 to 55°C / -20 to 65°C						
		Usage/storage humidity	90% RH or less (non-condensing)						
		Altitude	1,000m or less above sea level						
		Vibration/shock resistance	5.88 m/s <sup>2</sup> /19.6 m/s <sup>2</sup>						
Configuration	Base mounted								
Approx. weight	Kg	0.8		1.1	1.5	1.7			

### MECHATROLINK-II servo drive specifications

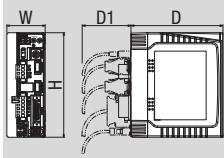
Position/Speed/torque control mode	Performance	Speed variance	Load variance During 0 to 100% load ±0.01 max. (at rated speed)
		Voltage variance	
Temperature variance	0 to 50°C ±0.1% max. (at rated speed)		
Command input	Frequency characteristics	1 kHz	
	Torque control accuracy (reproducibility)	±3% (at 20% to 100% of rated torque)	
	Soft start time setting	0 to 10 s (acceleration time and deceleration time can be set)	
I/O signal	MECHATROLINK communication	MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands)	
	Sequence input signal	Emergency stop, 3 external latch signals, forward/reverse torque limit, forward/reverse run prohibit, origin proximity, 3 general-purpose inputs	
	Sequence output signal	It is possible to output three types of signals: positioning completed, speed coincidence, rotation speed detection, servo ready, current limit, speed limit, brake release and warning signal	

Integrated functions	Communications	RS-232 communications	Interface	Personal computer
			Transmission rate	From 2,400 to 57,600 bps
			Functions	Parameter setting, status display, alarm display (monitor, clear, history), servo drive data tracing function, test run/autotuning operations, real time trace, absolute encoder setting, default values function
		MECHATROLINK communications	Communications protocol	MECHATROLINK-II
			Transmission rate	10 Mbps
			Data length	32 bytes
	Tuning	Horizontal and vertical axis mode. One parameter rigidity setting. Load inertia detection.		
	Dynamic brake (DB)	Operates when main power OFF, servo alarm, overtravel or servo OFF		
	Regenerative processing	Built-in regeneration resistor in models from 750 W to 1.5 kW. External regeneration resistor optionally.		
	Overtravel (OT) prevention function	Dynamic brake, disables torque or emergency stop torque during POT and NOT operation		
	Emergency stop (STOP)	Emergency stop input		
	Encoder divider function	Optional division pulses possible		
	Electronic gearing	0,01 < Numerator/Denominator < 100		
	Internal speed setting function	8 internal speeds		
	Protective functions	Overvoltage, undervoltage, overcurrent, overload, regeneration overload, servo drive overheat		
	Analog monitor output	The actual servomotor speed, command speed, torque and number of accumulated pulses can be measured using an oscilloscope or other device.		
Panel operator	Display functions	A 2-digit 7-segment LED display shows the servo drive status, alarm codes, parameters, etc.		
		MECHATROLINK-II communications status LED indicator (COM)		
	Switches	Rotary switch for setting the MECHATROLINK-II node address		

Analogue/pulse servo drive specifications

Performance	Control mode		Position, speed and torque control mode	
	Speed variance	Load variance	During 0 to 100% load ±0.01 max. (at rated speed)	
		Voltage variance	0% at ±10% of rated voltage (at rated speed)	
		Temperature dependence	0 to 50°C ±0.1% max. (at rated speed)	
Frequency characteristics	1 kHz			
Torque control accuracy (reproducibility)	±3% (at 20% to 100% of rated torque)			
Soft start time setting	0 to 10 s (acceleration time and deceleration time can be set)			
Position control	Input signal	Command pulse	Input pulse type	Signal + pulse, 90° phase displacement 2-phase pulse (phase A/B) or reverse and forward pulses (CW/CCW)
		Input pulse frequency	500 kpps max. line-driver input, 200 kpps max. open-collector input	
		Electronic gearing	0,01 < Numerator/Denominator < 100	
Speed/torque control	Input signal	Speed control	Speed reference voltage	10 VDC at 3,000 r/min: set at delivery (the scale can be set by parameters)
		Torque control	Torque limit	3 VDC at rated torque (torque can be limited separately in positive/negative direction)
			Preset speed control	Preset speed is selectable from 8 internal settings by digital inputs.
	Input signal	Torque reference voltage	3 VDC at rated torque: set at delivery (the scale and polarity can be set by parameters).	
I/O signal	Sequence input signal	Forward/reverse run prohibit, deviation counter reset, alarm reset, control mode switch, pulse prohibited, speed selection, gain switch, zero speed designation, origin proximity		
	Sequence output signal	Brake release, servo ready and alarm output. It is possible also to output two types of configurable signals: current limit, rotation speed detection, warning signal, speed coincidence, positioning completed		
Integrated functions	Communications	RS-232 communications	Interface	Personal computer
			Transmission rate	From 2,400 to 57,600 bps
			Functions	Parameter setting, status display, alarm display (monitor, clear, history), servo drive data tracing function, test run/autotuning operations, real time trace, absolute encoder setting, default values function
		RS-485 communications data	Interface	Communication data interface between servo drives and personal computer.
			Transmission rate	From 2,400 to 57,600 bps
			Functions	Parameter setting, status display, alarm display (monitor, clear, history), servo drive data tracing function, test run/autotuning operations, real time trace, absolute encoder setting, default values function
	Tuning	Horizontal and vertical axis mode. One parameter rigidity setting. Load inertia detection.		
	Dynamic brake (DB)	Operates when main power OFF, servo alarm, overtravel or servo OFF		
	Regenerative processing	Built-in regeneration resistor in models from 750 W to 1.5 kW. External regeneration resistor optionally.		
	Overtravel (OT) prevention function	Dynamic brake, disables torque or emergency stop torque during POT and NOT operation		
	Emergency stop (STOP)	Emergency stop input		
	Encoder divider function	Optional division pulses possible		
	Protective functions	Overvoltage, undervoltage, overcurrent, overload, regeneration overload, servo drive overheat		
	Analog monitor output	The actual servomotor speed, command speed, torque and number of accumulated pulses can be measured using an oscilloscope or other device.		
	Panel operator	Display functions	A 6-digit 7-segment LED display shows the servo drive status, alarm codes, parameters, etc.	
		Switches	Unit No. switch for serial communications. Value from 0 to F. To identify which servo drive the computer is accessing in RS232 communications when multiple servo drives.	

## Dimensions

Drive model	Specification		ML2 models				Analogue/pulse models				
			H	W	D	D1	H	W	D	D1	
R88D-GN01/02H-ML2, R88D-GT01/02H	200 V	100 to 200 W	150 mm	40 mm	132 mm	70 mm	150 mm	40 mm	130 mm	70 mm	
R88D-GN04H-ML2, R88D-GT04H		400 W	150 mm	55 mm	132 mm	70 mm	150 mm	55 mm	130 mm	70 mm	
R88D-GN08H-ML2, R88D-GT08H		750 W	150 mm	65 mm	172 mm	70 mm	150 mm	65 mm	170 mm	70 mm	
R88D-GN10/15H-ML2, R88D-GT10/15H		1 kW to 1.5 kW	150 mm	85 mm	172 mm	70 mm	150 mm	85 mm	170 mm	70 mm	



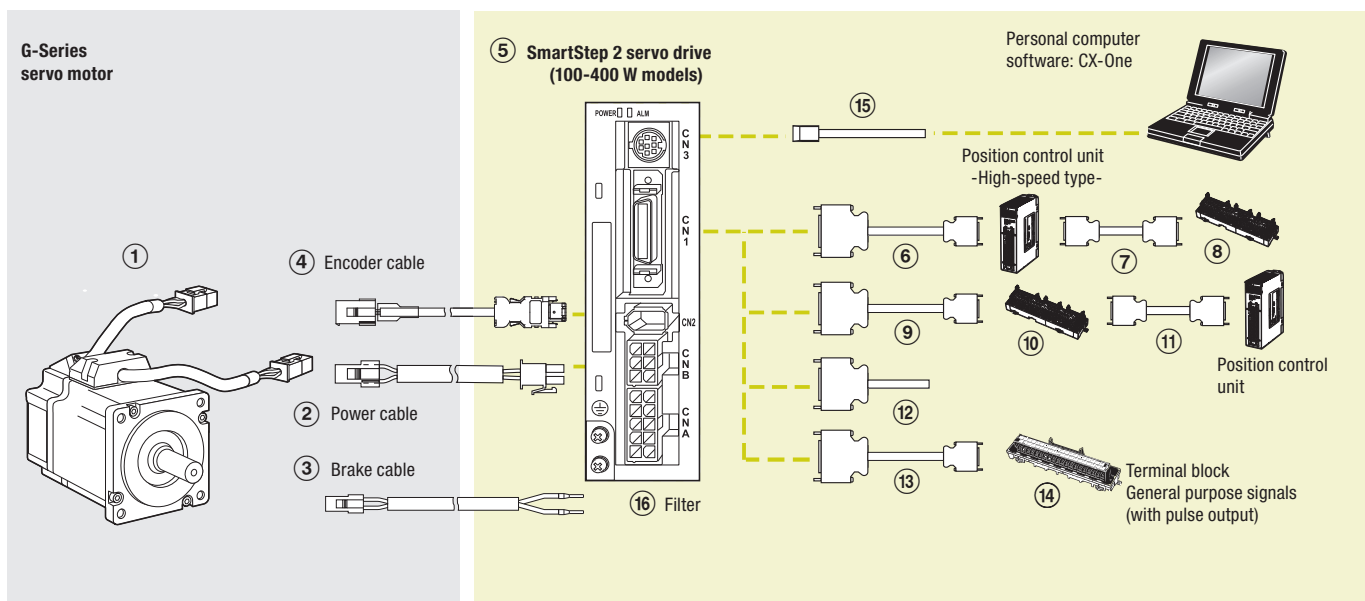
## Another step forward in drive simplicity

The new SmartStep offers an ideal solution for point-to-point motion applications where simplicity is essential. SmartStep 2 keeps things simple whilst combining high performance and advanced features in a cost effective solution.

- On-line Auto-tuning and Easy set up
- Ultra-compact size. The footprint is only 48% compared to the previous SmartStep
- Two torque limits
- Electronic gear, four internal speed settings and wide range of pulse settings
- Adaptive resonance suppression filter
- Position control via pulse input 500 kpps
- Configuration and commissioning using CX Drive-software

### Ordering information

#### SmartStep2 servo drive configuration (100-400 W)



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in a SmartStep 2 servo system

#### Servo motor

Note: ①②③④ refer to G-Series motor section for detailed motor specifications and selection.

#### Servo drives

Symbol	Specifications		Compatible servo motors ①		SmartStep 2 drive model
			Cylindrical type	Flat type	
⑤	200 VAC	100 W	R88M-G05030H- <u>  </u>	-	R7D-BP01H
		200 W	R88M-G10030H- <u>  </u>	R88M-GP10030H- <u>  </u>	R7D-BP02HH
		400 W	R88M-G20030H- <u>  </u>	R88M-GP20030H- <u>  </u>	R7D-BP04H

#### Power supply cables (for CNA)

Symbol	Specifications	Appearance	Order code
⑤	Power supply input cable for single-phase power (connectors attached)		R7A-CLB002S2

#### Control cables (for CN1)

Symbol	Description	Connect to	Length	Order code
⑥	Control cable (line-driver output for 1 axis)	Position control unit (high-speed type)	1 m	XW2Z-100J-G12
		CJ1W-NC234	5 m	XW2Z-500J-G12
		CJ1W-NC434	10 m	XW2Z-10MJ-G12
	Control cable (open-collector output for 1 axis)	Position control unit (high-speed type)	1 m	XW2Z-100J-G16
CJ1W-NC214		3 m	XW2Z-300J-G16	
Control cable (line-driver output for 2 axis)	Position control unit (high-speed type)	CJ1W-NC234	1 m	XW2Z-100J-G4
		CJ1W-NC434	5 m	XW2Z-500J-G4
		CJ1W-NC434	10 m	XW2Z-10MJ-G4
Control cable (open-collector output for 2 axis)	Position control unit (high-speed type)	CJ1W-NC214	1 m	XW2Z-100J-G8
		CJ1W-NC414	3 m	XW2Z-300J-G8

Symbol	Description	Connect to	Length	Order code
⑦	Terminal block cable for external signals (for input common, forward/reverse run prohibited inputs, emergency stop input, origin proximity input and interrupt input)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434 CJ1W-NC214 CJ1W-NC414	0.5 m	XW2Z-C50X
			1 m	XW2Z-100X
			2 m	XW2Z-200X
			3 m	XW2Z-300X
			5 m	XW2Z-500X
⑧	Terminal block for external signals ( with M3 screw and for pin terminals)		-	XW2B-20G4
	Terminal block ext. signals ( with M3.5 screw and for fork/round terminals)		-	XW2B-20G5
	Terminal block ext. signals ( with M3 screw and fork/round pin terminals)		-	XW2D-20G6
⑨	Cable from servo relay unit to servo drive	CS1W-NC1_3, CJ1W-NC1_3, C200HW-NC113, CS1W-NC2_3/4_3, CJ1W-NC2_3/4_3, C200HW-NC213/413, CQM1H-PLB21 or CQM1-CPU43-V1 CJ1M-CPU21/22/23	1 m	XW2Z-100J-B29
			2 m	XW2Z-200J-B29
			1 m	XW2Z-100J-B32
			2 m	XW2Z-200J-B32
⑩	Servo relay unit	CS1W-NC1_3, CJ1W-NC1_3 or C200HW-NC113 position control unit CS1W-NC2_3/4_3, CJ1W-NC2_3/4_3 or C200HW-NC213/413 position control unit CQM1H-PLB21 or CQM1-CPU43-V1 CJ1M-CPU21/22/23	-	XW2B-20J6-1B (1 axis)
			-	XW2B-40J6-2B (2 axes)
			-	XW2B-20J6-3B (1 axis)
			-	XW2B-20J6-8A (1 axis)
			-	XW2B-40J6-9A (2 axes)
⑪	Position control unit connecting cable	CJ1W-NC133	0.5 m	XW2Z-050J-A18
			1 m	XW2Z-100J-A18
		CJ1W-NC233/433	0.5 m	XW2Z-050J-A19
			1 m	XW2Z-100J-A19
		CS1W-NC133	0.5 m	XW2Z-050J-A10
			1 m	XW2Z-100J-A10
		CS1W-NC233/433	0.5 m	XW2Z-050J-A11
			1 m	XW2Z-100J-A11
		CJ1W-NC113	0.5 m	XW2Z-050J-A14
			1 m	XW2Z-100J-A14
		CJ1W-NC213/413	0.5 m	XW2Z-050J-A15
			1 m	XW2Z-100J-A15
		CS1W-NC113 C200HW-NC113	0.5 m	XW2Z-050J-A6
			1 m	XW2Z-100J-A6
		CS1W-NC213/413 C200HW-NC213/413	0.5 m	XW2Z-050J-A7
			1 m	XW2Z-100J-A7
		CJ1M-CPU21/22/23	0.5 m	XW2Z-050J-A33
			1 m	XW2Z-100J-A33
CQM1H-PLB21 CQM1-CPU43-V1	0.5 m	XW2Z-050J-A3		
	1 m	XW2Z-100J-A3		
⑫	General purpose cable	For general purpose controllers	1 m	R7A-CPB001S
			2 m	R7A-CPB002S
⑬	Terminal block cable	For general purpose controllers	1 m	XW2Z-100J-B28
			2 m	XW2Z-200J-B28
⑭	Terminal block ( with M3 screw and for pin terminals) Terminal block ( with M3.5 screw and for fork/round terminals) Terminal block ( with M3 screw and fork/round pin terminals)		-	XW2B-34G4
			-	XW2B-34G5
			-	XW2B-34G6
			-	XW2D-34G6

### Cable for CN3

Symbol	Name	Length	Order code
⑮	Personal Computer Monitor Cable	2 m	R88A-CCG002P2

### Filters

Symbol	Applicable servo drive	Rated current	Rated voltage	Order code
⑯	R7D-BP01H/ 02HH/ 04H	4 A	1 pH, 230 V	R7A-FIB104-RE

### Connectors

Specifications	Order code
Main Circuit Connector (CNA)	R7A-CNB01P
Servomotor Connector (CNB)	R7A-CNB01A
Control I/O Connector (CN1)	R88A-CNW01C
Encoder Input Connector (CN2)	R88A-CNW01R
Servomotor Connector for Encoder Cable	R88A-CNG02R
Servomotor Connector for Servomotor Power Cable	R88A-CNG01A
Brake Cable Connector	R88A-CNG01B

### External regeneration resistor

Specification	Order code
80 W, 50 Ω	R88A-RR08050S
80 W, 100 Ω	R88A-RR080100S
220 W, 47 Ω	R88A-RR22047S

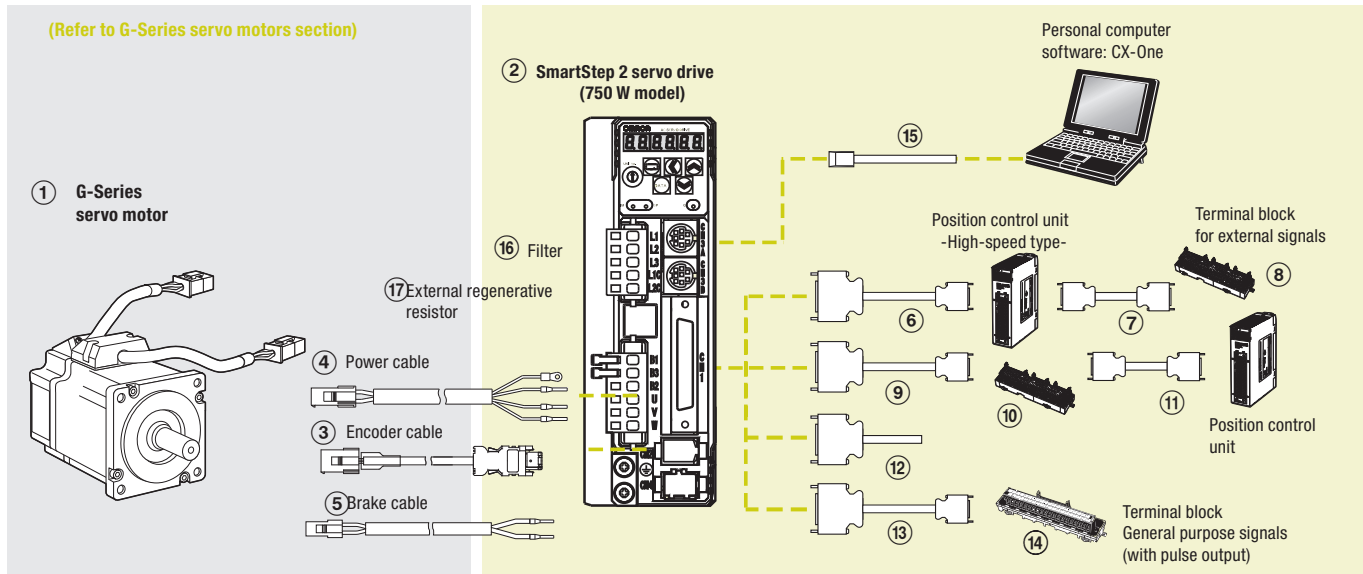
### External regeneration resistor cable

Specifications	Order code
External Regenerative Resistor Connection Cable, 2 meters	R7A-CLB002RG

### Parameter unit & computer software

Specifications	Order code
Parameter copy unit (with cable)	R88A-PR02G
Configuration and monitoring software tool for servo drives and inverters. (CX-Drive version 1.8 or higher)	CX-Drive

## SmartStep2 servo drive configuration (750 W)



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in a SmartStep 2 servo system.

### Servo motor

Note: ①③④⑤ refer to G-Series motor section for detailed motor specifications and selection.

### Servo drives

Symbol	Specifications	① Compatible rotary servo motors	
		Cylindrical type	Servo drive model
②	1 phase 200 VAC 750 W	R88M-G75030H_	R88D-GP08H

### Control cables (for CN1)

Symbol	Description	Connect to	Length	Order code
⑥	Control cable (line-driver output for 1 axis)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G9
			5 m	XW2Z-500J-G9
	Control cable (open-collector output for 1 axis)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G13
			3 m	XW2Z-300J-G13
⑦	Control cable (line-driver output for 2 axis)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434	1 m	XW2Z-100J-G1
			5 m	XW2Z-500J-G1
	Control cable (open-collector output for 2 axis)	Position control units (high-speed type) CJ1W-NC214 CJ1W-NC414	1 m	XW2Z-100J-G5
			3 m	XW2Z-300J-G5
⑧	Terminal block cable for external signals (for input common, forward/reverse run prohibited inputs, emergency stop input, origin proximity input and interrupt input)	Position control units (high-speed type) CJ1W-NC234 CJ1W-NC434 CJ1W-NC214 CJ1W-NC414	0.5 m	XW2Z-C50X
			1 m	XW2Z-100X
			2 m	XW2Z-200X
			3 m	XW2Z-300X
			5 m	XW2Z-500X
			10 m	XW2Z-010X
⑨	Terminal block for external signals (M3 screw, pin terminals) Terminal block ext. signals (M3.5 screw, fork/round terminals) Terminal block ext. signals (M3 screw, fork/round terminals)		-	XW2B-20G4
			-	XW2B-20G5
			-	XW2D-20G6
⑩	Cable from servo relay unit to servo drive	CS1W-NC1_3, CJ1W-NC1_3, C200HW-NC113/213/413, CS1W-NC2_3/4_3, CJ1W-NC2_3/4_3 or CQM1H-PLB21	1 m	XW2Z-100J-B25
			2 m	XW2Z-200J-B25
		CJ1M-CPU21/22/23	1 m	XW2Z-100J-B31
			2 m	XW2Z-200J-B31
⑪	Servo relay unit	CS1W-NC1_3, CJ1W-NC1_3 or C200HW-NC113 position control unit	-	XW2B-20J6-1B (1 axis)
		CS1W-NC2_3/4_3, CJ1W-NC2_3/4_3 or C200HW-NC213/413 position control unit	-	XW2B-40J6-2B (2 axes)
		CQM1H-PLB21	-	XW2B-20J6-3B (1 axis)
		CJ1M-CPU21/22/23	-	XW2B-20J6-8A (1 axis)
			-	XW2B-40J6-9A (2 axes)

Symbol	Description	Connect to	Length	Order code
⑪	Position control unit connecting cable	CQM1H-PLB21	0.5 m	XW2Z-050J-A3
			1 m	XW2Z-100J-A3
		CS1W-NC113 or C200HW-NC113	0.5 m	XW2Z-050J-A6
			1 m	XW2Z-100J-A6
		CS1W-NC213/413 or C200HW-NC213/413	0.5 m	XW2Z-050J-A7
			1 m	XW2Z-100J-A7
		CS1W-NC133	0.5 m	XW2Z-050J-A10
			1 m	XW2Z-100J-A10
		CS1W-NC233/433	0.5 m	XW2Z-050J-A11
			1 m	XW2Z-100J-A11
		CJ1W-NC113	0.5 m	XW2Z-050J-A14
			1 m	XW2Z-100J-A14
		CJ1W-NC213/413	0.5 m	XW2Z-050J-A15
			1 m	XW2Z-100J-A15
CJ1W-NC133	0.5 m	XW2Z-050J-A18		
	1 m	XW2Z-100J-A18		
CJ1W-NC233/433	0.5 m	XW2Z-050J-A19		
	1 m	XW2Z-100J-A19		
CJ1M-CPU21/22/23	0.5 m	XW2Z-050J-A33		
	1 m	XW2Z-100J-A33		
⑫	General purpose cable	For general purpose controllers	1 m	R88A-CPG001S
			2 m	R88A-CPG002S
⑬	Terminal block cable	For general purpose controllers	1 m	XW2Z-100J-B24
			2 m	XW2Z-200J-B24
⑭	Terminal block (M3 screw and for pin terminals)		-	XW2B-50G4
	Terminal block (M3.5 screw and for fork/round terminals)		-	XW2B-50G5
	Terminal block (M3 screw and for fork/round terminals)		-	XW2D-50G6

### Computer cable (for CN3)

Symbol	Name	Length	Order code
⑮	Computer cable RS232	2 m	R88A-CCG002P2

### Filter

Symbol	Rated current	Leakage current	Rated voltage	Applicable servodrive	Order code
⑯	6.6 A	3.5 mA	250 VAC single-phase	R88D-GP08H	R88A-FIK107-RE

### External regenerative resistor

Symbol	Specifications	Order code
⑰	50 Ω, 80 W	R88A-RR08050S
	100 Ω, 80 W	R88A-RR080100S
	47 Ω, 220 W	R88A-RR22047S
	20 Ω, 500 W	R88A-RR50020S

### Connectors

Specifications	Order code
I/O connector kit -50 pins- (for CN1)	R88A-CNU11C
Power cable connector (motor side)	R88A-CNG01A
Encoder connector (Servo drive side CN2)	R88A-CNW01R
Incremental encoder cable connector (motor side)	R88A-CNG02R

### Computer software

Specifications	Order code
Configuration and monitoring software tool for servo drives and inverters (CX-Drive version 1.91 or higher).	CX-Drive

## Specifications

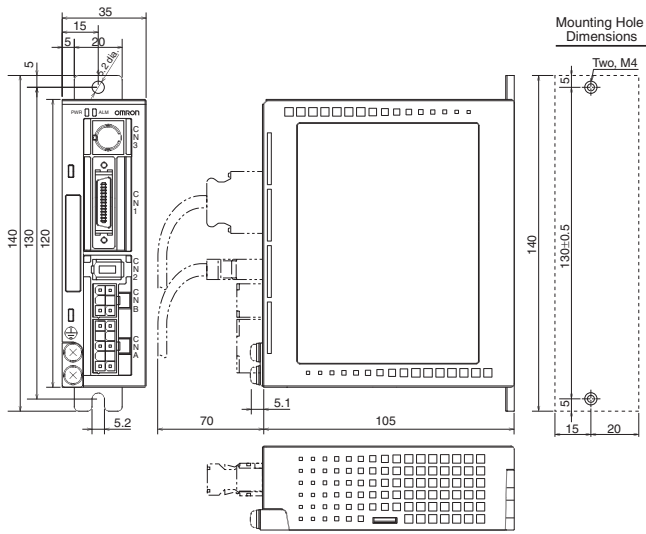
### Performance specifications

Item	200 VAC input type			
	100 W	200 W	400 W	750 W
	R7D-BP01H	R7D-BP02HH	R7D-BP04H	R88D-GP08H
Continuous output current (rms)	1.0 A	1.6 A	2.5 A	4 A
Momentary maximum output current (rms)	3.3 A	4.9 A	7.8 A	14.1 A
Main-circuit power supply	Single-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz			Single-phase/three-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz
Control circuit input power	-			Single-phase 200 to 240 VAC (170 to 264 V)
Control method	All-digital method			
Feedback	10,000 pulses/revolution incremental encoder			
Inverter method	PWM method based on IGBT			
PWM frequency	12 kHz		6 kHz	
Weight	0.35 kg	0.42 kg	0.42 kg	1.5 kg
Compatible motor voltage	200 V			
Command pulse response	Line drive: 500 kpps			
Compatible motor capacity	50 W 100 W	200 W	400 W	750 W
Applicable servo motor (R88M-)	G05030H G10030H GP10030H	G020030H GP20030H	G40030H GP40030H	G75030H

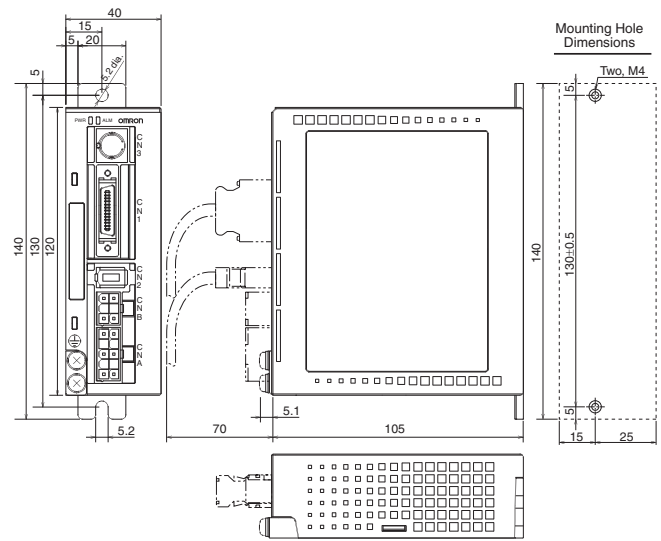


## Dimensions

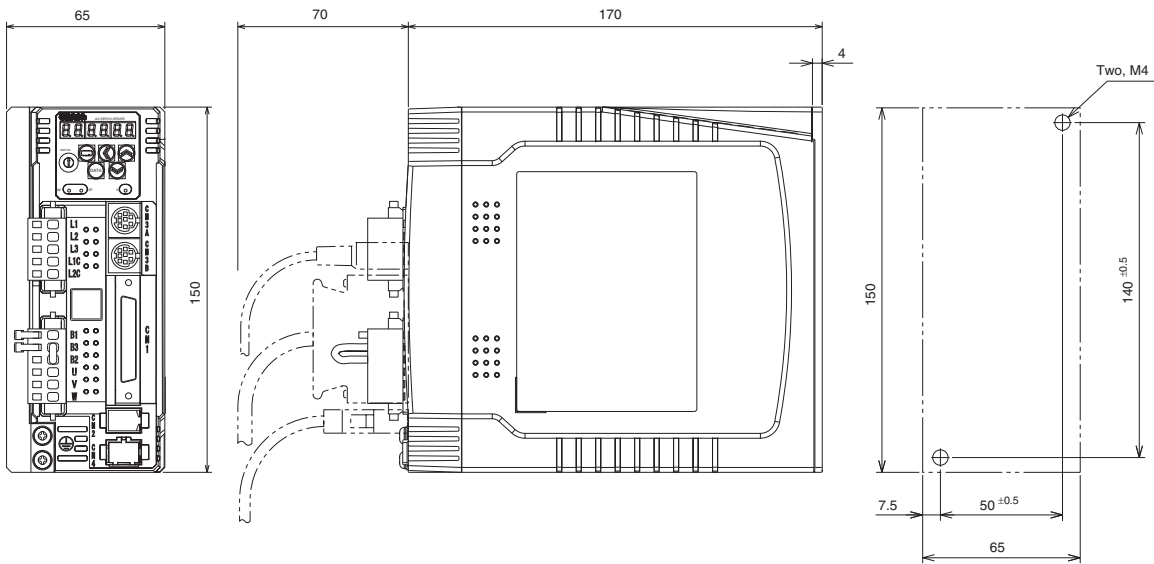
**R7D-BP01H (230 V, 100 W)**



**R7D-BP02HH/04H (230 V, 200-400 W)**



**R88D-GP08H (230 V, 750 W)**



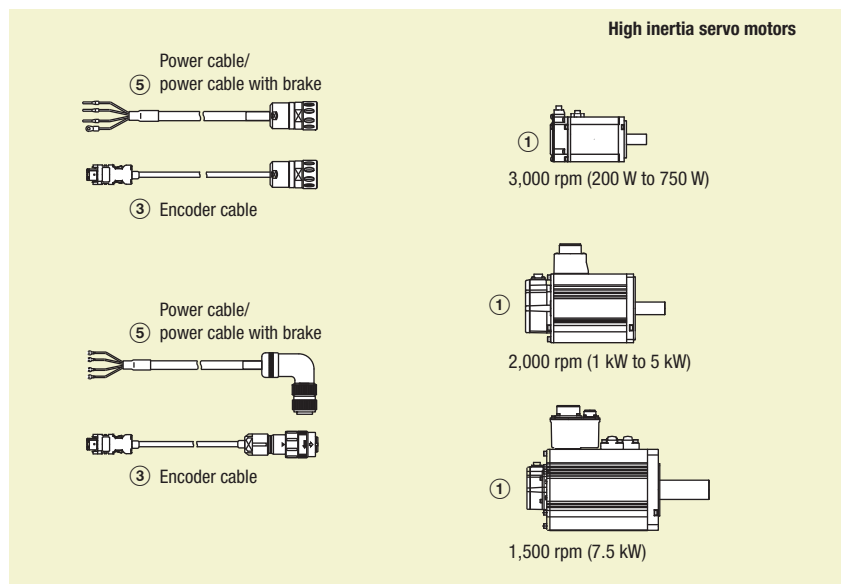
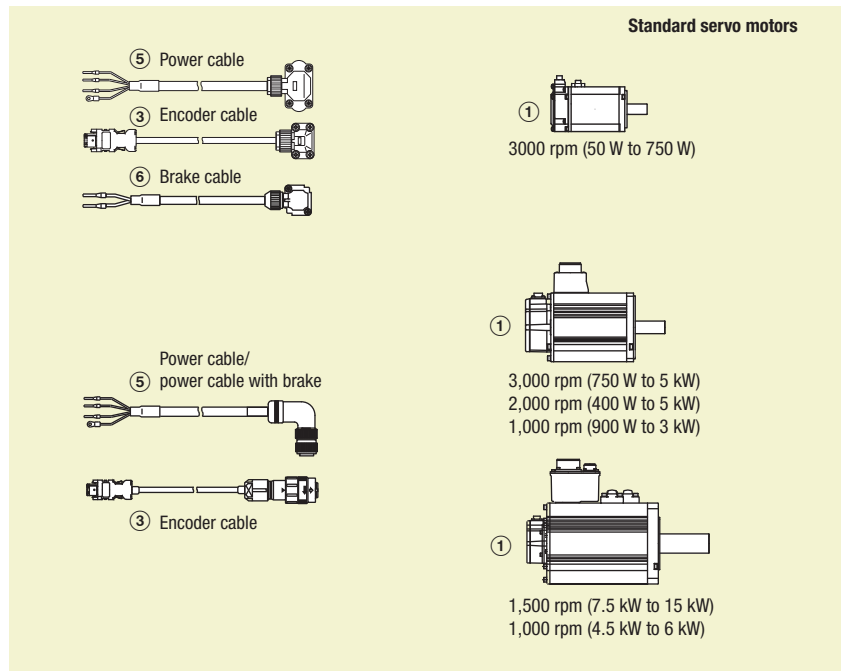
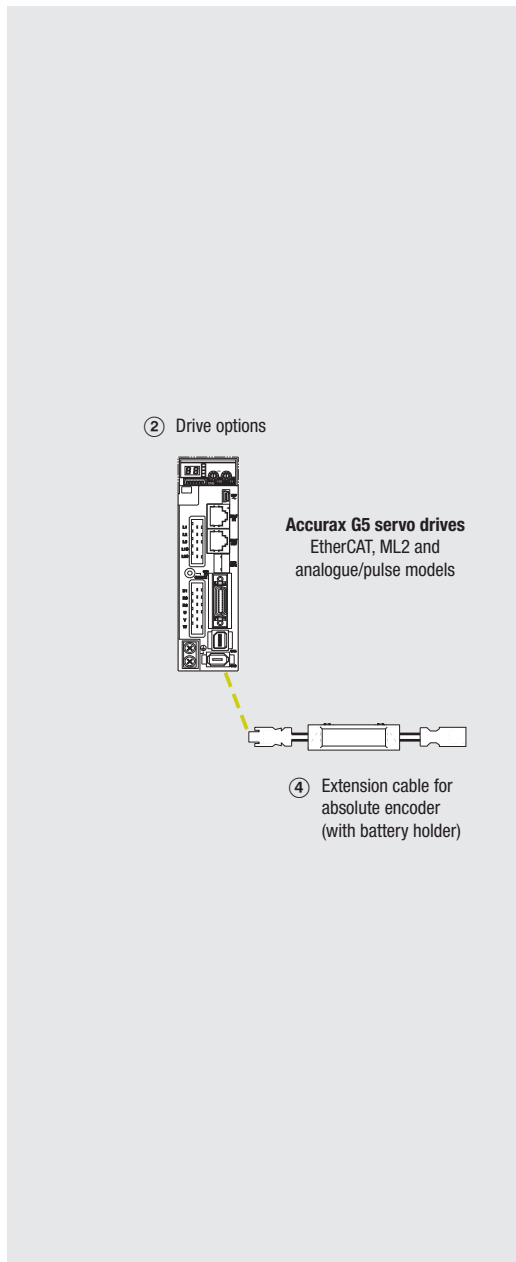


### Servo motor family for accurate motion control

Accurax G5 servo motors include IP67 protection and connectors on the motor body. Use of 10 pole motors and 20 bit encoder results in 40% reduction in motor cogging. The servomotors are 25% lighter and 15% smaller due to patented new stator design PACK & CLAMP technology, 40% iron loss reduction and 15% smaller encoder.

- Standard and high inertia servo motor models
- Peak torque 300% of rated torque during 3 seconds or more depending on model
- High accuracy provided by a 20 bit resolution encoder, ABS encoder as an option
- IP67 protection in all models
- Ultra-light and compact size motor
- Low speed ripple and low torque ripple due to low torque cogging
- Various shaft, brake and seal options

### Ordering information



**Note:** The symbols ①②③ ... show the recommended sequence to select the servo motor and cables

#### Servo motor



① Select motor from R88M-K or R88M-KH families using motor tables in next pages.

#### Servo drive


② Refer to Accurax G5 servo drive section for detailed drive specifications and selection of drive accessories.

## Standard servo motors


### Servo motors 3,000 r/min (50 to 5,000 W)

Symbol	Specifications				② Compatible servo drives		Order code		
	Voltage	Encoder and design	Rated torque	Capacity	G5 EtherCAT/ML2	G5 analogue/pulse			
①  230 V (50 to 750 W)   230 V (1,000 to 1,500 W)  400 V (750 to 5,000 W)	230 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	0.16 Nm	50 W	R88D-KN01H-__	R88D-KT01H	R88M-K05030H-S2	
				0.32 Nm	100 W	R88D-KN01H-__	R88D-KT01H	R88M-K10030H-S2	
				0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-K20030H-S2	
				1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-K40030H-S2	
				2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-K75030H-S2	
				3.18 Nm	1,000 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K030H-S2	
				4.77 Nm	1,500 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K530H-S2	
				0.16 Nm	50 W	R88D-KN01H-__	R88D-KT01H	R88M-K05030H-BS2	
			0.32 Nm	100 W	R88D-KN01H-__	R88D-KT01H	R88M-K10030H-BS2		
			0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-K20030H-BS2		
			1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-K40030H-BS2		
			2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-K75030H-BS2		
			3.18 Nm	1,000 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K030H-BS2		
			4.77 Nm	1,500 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K530H-BS2		
			Absolute encoder (17 bit) Straight shaft with key and tap	Without brake	0.16 Nm	50 W	R88D-KN01H-__	R88D-KT01H	R88M-K05030T-S2
					0.32 Nm	100 W	R88D-KN01H-__	R88D-KT01H	R88M-K10030T-S2
	0.64 Nm	200 W			R88D-KN02H-__	R88D-KT02H	R88M-K20030T-S2		
	1.3 Nm	400 W			R88D-KN04H-__	R88D-KT04H	R88M-K40030T-S2		
	2.4 Nm	750 W			R88D-KN08H-__	R88D-KT08H	R88M-K75030T-S2		
	3.18 Nm	1,000 W			R88D-KN15H-__	R88D-KT15H	R88M-K1K030T-S2		
	With brake	0.16 Nm		50 W	R88D-KN01H-__	R88D-KT01H	R88M-K05030T-BS2		
		0.32 Nm		100 W	R88D-KN01H-__	R88D-KT01H	R88M-K10030T-BS2		
		0.64 Nm		200 W	R88D-KN02H-__	R88D-KT02H	R88M-K20030T-BS2		
		1.3 Nm		400 W	R88D-KN04H-__	R88D-KT04H	R88M-K40030T-BS2		
		2.4 Nm		750 W	R88D-KN08H-__	R88D-KT08H	R88M-K75030T-BS2		
		3.18 Nm		1,000 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K030T-BS2		
	400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	2.39 Nm	750 W	R88D-KN10F-__	R88D-KT10F	R88M-K75030F-S2	
				3.18 Nm	1,000 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K030F-S2	
4.77 Nm				1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K530F-S2		
6.37 Nm				2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K030F-S2		
9.55 Nm				3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K030F-S2		
12.7 Nm				4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K030F-S2		
15.9 Nm				5,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K5K030F-S2		
With brake				2.39 Nm	750 W	R88D-KN10F-__	R88D-KT10F	R88M-K75030F-BS2	
				3.18 Nm	1,000 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K030F-BS2	
				4.77 Nm	1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K530F-BS2	
				6.37 Nm	2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K030F-BS2	
				9.55 Nm	3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K030F-BS2	
	12.7 Nm		4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K030F-BS2			
Absolute encoder (17 bit) Straight shaft with key and tap	Without brake		2.39 Nm	750 W	R88D-KN10F-__	R88D-KT10F	R88M-K75030C-S2		
			3.18 Nm	1,000 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K030C-S2		
			4.77 Nm	1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K530C-S2		
			6.37 Nm	2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K030C-S2		
			9.55 Nm	3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K030C-S2		
			12.7 Nm	4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K030C-S2		
	With brake		2.39 Nm	750 W	R88D-KN10F-__	R88D-KT10F	R88M-K75030C-BS2		
			3.18 Nm	1,000 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K030C-BS2		
			4.77 Nm	1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K530C-BS2		
			6.37 Nm	2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K030C-BS2		
			9.55 Nm	3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K030C-BS2		
		12.7 Nm	4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K030C-BS2			
15.9 Nm	5,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K5K030C-BS2					



## Servo motors 2,000 r/min (1 to 5 kW)

Symbol	Specifications					② Compatible servo drives		Order code	
	Voltage	Encoder and design		Rated torque	Capacity	G5 EtherCAT/ML2	G5 analogue/pulse		
	230 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	4.77 Nm	1,000 W	R88D-KN10H-__	R88D-KT10H	R88M-K1K020H-S2	
				7.16 Nm	1,500 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K520H-S2	
				4.77 Nm	1,000 W	R88D-KN10H-__	R88D-KT10H	R88M-K1K020H-BS2	
			7.16 Nm	1,500 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K520H-BS2		
			Absolute encoder (17 bit) Straight shaft with key and tap	Without brake	4.77 Nm	1,000 W	R88D-KN10H-__	R88D-KT10H	R88M-K1K020T-S2
					7.16 Nm	1,500 W	R88D-KN15H-__	R88D-KT15H	R88M-K1K520T-S2
		400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	4.77 Nm	1,000 W	R88D-KN10F-__	R88D-KT10F	R88M-K1K020F-S2
					7.16 Nm	1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K520F-S2
					9.55 Nm	2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K020F-S2
					14.3 Nm	3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K020F-S2
					19.1 Nm	4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K020F-S2
					23.9 Nm	5,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K5K020F-S2
					1.91 Nm	400 W	R88D-KN06F-__	R88D-KT06F	R88M-K40020F-S2
				With brake	2.86 Nm	600 W	R88D-KN06F-__	R88D-KT06F	R88M-K60020F-S2
	4.77 Nm				1,000 W	R88D-KN10F-__	R88D-KT10F	R88M-K1K020F-BS2	
	7.16 Nm				1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K520F-BS2	
	9.55 Nm				2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K020F-BS2	
	14.3 Nm				3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K020F-BS2	
	19.1 Nm				4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K020F-BS2	
	23.9 Nm				5,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K5K020F-BS2	
	Absolute encoder (17 bit) Straight shaft with key and tap	Without brake	1.91 Nm	400 W	R88D-KN06F-__	R88D-KT06F	R88M-K40020C-S2		
			2.86 Nm	600 W	R88D-KN06F-__	R88D-KT06F	R88M-K60020C-S2		
			4.77 Nm	1,000 W	R88D-KN10F-__	R88D-KT10F	R88M-K1K020C-S2		
			7.16 Nm	1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K520C-S2		
			9.55 Nm	2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K020C-S2		
			14.3 Nm	3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K020C-S2		
			19.1 Nm	4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K020C-S2		
		With brake	1.91 Nm	400 W	R88D-KN06F-__	R88D-KT06F	R88M-K40020C-BS2		
2.86 Nm			600 W	R88D-KN06F-__	R88D-KT06F	R88M-K60020C-BS2			
4.77 Nm			1,000 W	R88D-KN10F-__	R88D-KT10F	R88M-K1K020C-BS2			
7.16 Nm			1,500 W	R88D-KN15F-__	R88D-KT15F	R88M-K1K520C-BS2			
9.55 Nm			2,000 W	R88D-KN20F-__	R88D-KT20F	R88M-K2K020C-BS2			
14.3 Nm			3,000 W	R88D-KN30F-__	R88D-KT30F	R88M-K3K020C-BS2			
19.1 Nm			4,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K4K020C-BS2			
23.9 Nm	5,000 W	R88D-KN50F-__	R88D-KT50F	R88M-K5K020C-BS2					

## Servo motors 1,500 r/min (7.5 to 15 kW)


Symbol	Specifications					② Compatible servo drives		Order code
	Voltage	Encoder and design		Rated torque	Capacity	G5 EtherCAT	G5 analogue/pulse	
	400 V	Absolute encoder (17 bit) straight shaft with key and tap	Without brake	47.8 Nm	7,500 W	R88D-KN75F-ECT	R88D-KT75F	R88M-K7K515C-S2
				70.0 Nm	11,000 W	R88D-KN150F-ECT	R88D-KT150F	R88M-K1K1015C-S2
				95.5 Nm	15,000 W	R88D-KN150F-ECT	R88D-KT150F	R88M-K15K015C-S2
			With brake	47.8 Nm	7,500 W	R88D-KN75F-ECT	R88D-KT75F	R88M-K7K515C-BS2
				70.0 Nm	11,000 W	R88D-KN150F-ECT	R88D-KT150F	R88M-K1K1015C-BS2
				95.5 Nm	15,000 W	R88D-KN150F-ECT	R88D-KT150F	R88M-K15K015C-BS2

## Servo motors 1,000 r/min (900 to 6,000 W)


Symbol	Specifications				② Compatible servo drives			Order code		
	Voltage	Encoder and design		Rated torque	Capacity	G5 EtherCAT	G5 analogue/pulse		G5 ML2	
 900 W to 3 kW	230 V	Incremental encoder (20 bit) straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88D-KN15H-ECT	R88D-KT15H	R88D-KN15H-ML2	R88M-K90010H-S2	
			With brake	8.59 Nm	900 W	R88D-KN15H-ECT	R88D-KT15H	R88D-KN15H-ML2	R88M-K90010H-BS2	
		Absolute encoder (17 bit) straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88D-KN15H-ECT	R88D-KT15H	R88D-KN15H-ML2	R88M-K90010T-S2	
			With brake	8.59 Nm	900 W	R88D-KN15H-ECT	R88D-KT15H	R88D-KN15H-ML2	R88M-K90010T-BS2	
		400 V	Incremental encoder (20 bit) straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88D-KN15F-ECT	R88D-KT15F	R88D-KN15F-ML2	R88M-K90010F-S2
					19.1 Nm	2,000 W	R88D-KN30F-ECT	R88D-KT30F	R88D-KN30F-ML2	R88M-K2K010F-S2
	28.7 Nm				3,000 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K3K010F-S2	
	With brake			8.59 Nm	900 W	R88D-KN15F-ECT	R88D-KT15F	R88D-KN15F-ML2	R88M-K90010F-BS2	
				19.1 Nm	2,000 W	R88D-KN30F-ECT	R88D-KT30F	R88D-KN30F-ML2	R88M-K2K010F-BS2	
				28.7 Nm	3,000 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K3K010F-BS2	
	 4.5 kW to 6 kW	400 V	Absolute encoder (17 bit) straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88D-KN15F-ECT	R88D-KT15F	R88D-KN15F-ML2	R88M-K90010C-S2
					19.1 Nm	2,000 W	R88D-KN30F-ECT	R88D-KT30F	R88D-KN30F-ML2	R88M-K2K010C-S2
28.7 Nm					3,000 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K3K010C-S2	
With brake				43.0 Nm	4,500 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K4K510C-S2	
				57.3 Nm	6,000 W	R88D-KN75F-ECT	R88D-KT75F	-	R88M-K6K010C-S2	
				8.59 Nm	900 W	R88D-KN15F-ECT	R88D-KT15F	R88D-KN15F-ML2	R88M-K90010C-BS2	
400 V		Absolute encoder (17 bit) straight shaft with key and tap	Without brake	19.1 Nm	2,000 W	R88D-KN30F-ECT	R88D-KT30F	R88D-KN30F-ML2	R88M-K2K010C-S2	
				28.7 Nm	3,000 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K3K010C-S2	
				43.0 Nm	4,500 W	R88D-KN50F-ECT	R88D-KT50F	R88D-KN50F-ML2	R88M-K4K510C-S2	
			With brake	57.3 Nm	6,000 W	R88D-KN75F-ECT	R88D-KT75F	-	R88M-K6K010C-S2	
				8.59 Nm	900 W	R88D-KN15F-ECT	R88D-KT15F	R88D-KN15F-ML2	R88M-K90010C-BS2	
				19.1 Nm	2,000 W	R88D-KN30F-ECT	R88D-KT30F	R88D-KN30F-ML2	R88M-K2K010C-S2	

## High inertia servo motors


### Servo motors 3,000 r/min (200 to 750 W)

Symbol	Specifications				② Compatible servo drives		Order code		
	Voltage	Encoder and design		Rated torque	Capacity	G5 EtherCAT/ML2		G5 analogue/pulse	
 High inertia servo motor	230 V	Incremental encoder (20 bit)	Without brake	0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-KH20030H-S2-D	
				1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-KH40030H-S2-D	
				2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-KH75030H-S2-D	
			Straight shaft with key and tap	With brake	0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-KH20030H-BS2-D
					1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-KH40030H-BS2-D
					2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-KH75030H-BS2-D
		Absolute encoder (17 bit)	Straight shaft with key and tap	Without brake	0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-KH20030T-S2-D
					1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-KH40030T-S2-D
					2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-KH75030T-S2-D
				With brake	0.64 Nm	200 W	R88D-KN02H-__	R88D-KT02H	R88M-KH20030T-BS2-D
					1.3 Nm	400 W	R88D-KN04H-__	R88D-KT04H	R88M-KH40030T-BS2-D
					2.4 Nm	750 W	R88D-KN08H-__	R88D-KT08H	R88M-KH75030T-BS2-D


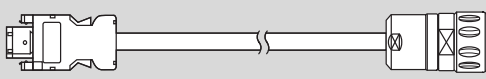
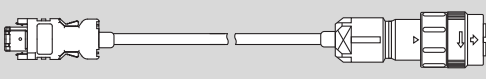
### Servo motors 2,000 r/min (1 to 5 kW)

Symbol	Specifications				② Compatible servo drives		Servo motor model		
	Voltage	Encoder and design		Rated torque	Capacity	G5 EtherCAT/ML2	G5 analogue/pulse	Order code	
 2,000 r/min servo motor	400 V	Incremental encoder (20 bit)	Shaft end with key	Without brake	4.77 Nm	1,000 W	R88D-_KN10F-__	R88D-KT10F	R88M-KH1K020F-S1
					7.16 Nm	1,500 W	R88D-_KN15F-__	R88D-KT15F	R88M-KH1K520F-S1
					9.55 Nm	2,000 W	R88D-_KN20F-__	R88D-KT20F	R88M-KH2K020F-S1
					14.3 Nm	3,000 W	R88D-_KN30F-__	R88D-KT30F	R88M-KH3K020F-S1
					19.1 Nm	4,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH4K020F-S1
					23.9 Nm	5,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH5K020F-S1
				With brake	4.77 Nm	1,000 W	R88D-_KN10F-__	R88D-KT10F	R88M-KH1K020F-BS1
					7.16 Nm	1,500 W	R88D-_KN15F-__	R88D-KT15F	R88M-KH1K520F-BS1
					9.55 Nm	2,000 W	R88D-_KN20F-__	R88D-KT20F	R88M-KH2K020F-BS1
					14.3 Nm	3,000 W	R88D-_KN30F-__	R88D-KT30F	R88M-KH3K020F-BS1
					19.1 Nm	4,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH4K020F-BS1
					23.9 Nm	5,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH5K020F-BS1
		Absolute encoder (17 bit)	Shaft end with key	Without brake	4.77 Nm	1,000 W	R88D-_KN10F-__	R88D-KT10F	R88M-KH1K020C-S1
					7.16 Nm	1,500 W	R88D-_KN15F-__	R88D-KT15F	R88M-KH1K520C-S1
					9.55 Nm	2,000 W	R88D-_KN20F-__	R88D-KT20F	R88M-KH2K020C-S1
					14.3 Nm	3,000 W	R88D-_KN30F-__	R88D-KT30F	R88M-KH3K020C-S1
					19.1 Nm	4,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH4K020C-S1
					23.9 Nm	5,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH5K020C-S1
				With brake	4.77 Nm	1,000 W	R88D-_KN10F-__	R88D-KT10F	R88M-KH1K020C-BS1
					7.16 Nm	1,500 W	R88D-_KN15F-__	R88D-KT15F	R88M-KH1K520C-BS1
					9.55 Nm	2,000 W	R88D-_KN20F-__	R88D-KT20F	R88M-KH2K020C-BS1
					14.3 Nm	3,000 W	R88D-_KN30F-__	R88D-KT30F	R88M-KH3K020C-BS1
					19.1 Nm	4,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH4K020C-BS1
					23.9 Nm	5,000 W	R88D-_KN50F-__	R88D-KT50F	R88M-KH5K020C-BS1

## Servo motors 1,500 r/min (7.5 kW)

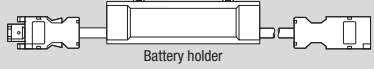

Symbol	Specifications				② Compatible servo drives		Servo motor model	
	Voltage	Encoder and design	Rated torque	Capacity	G5 EtherCAT	G5 analogue/pulse	Order code	
① 	400 V	Absolute encoder (17 bit) Shaft end with key	Without brake	47.8 Nm	7,500 W	R88D-KN75F-ECT	R88D-KT75F	R88M-KH7K515C-S1
			With brake	47.8 Nm	7,500 W	R88D-KN75F-ECT	R88D-KT75F	R88M-KH7K515C-BS1

## Encoder cables for absolute and incremental encoders

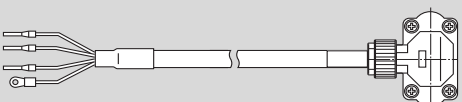

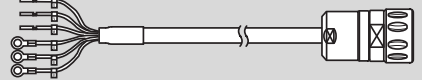
Symbol	Appearance	Specifications	Order code	
③		Encoder cable for servomotors R88M-K(050/100/200/400/750)30(H/T)_	1.5 m	R88A-CRKA001-5CR-E
			3 m	R88A-CRKA003CR-E
			5 m	R88A-CRKA005CR-E
			10 m	R88A-CRKA010CR-E
			15 m	R88A-CRKA015CR-E
			20 m	R88A-CRKA020CR-E
		Encoder cable for servomotors R88M-KH(200/400/750)30(H/T)_	3 m	R88A-CRWA003C-DE
			5 m	R88A-CRWA005C-DE
			10 m	R88A-CRWA010C-DE
			15 m	R88A-CRWA015C-DE
		Encoder cable for servomotors R88M-K(1K0/1K5)30(H/T)_ R88M-K(750/1K0/1K5/2K0/3K0/4K0/5K0)30(F/C)_ R88M-K(400/600/1K0/1K5/2K0/3K0/4K0/5K0)20_ R88M-K(7K5/11K0/15K0)15_ R88M-K(900/2K0/3K0/4K5/6K0)10_ R88M-KH(1K0/1K5/2K0/3K0/4K0/5K0)20(F/C)_ R88M-KH7K515C_	1.5 m	R88A-CRKC001-5NR-E
			3 m	R88A-CRKC003NR-E
5 m			R88A-CRKC005NR-E	
10 m			R88A-CRKC010NR-E	
		15 m	R88A-CRKC015NR-E	
		20 m	R88A-CRKC020NR-E	

**Note:** For servomotors fitted with an absolute encoder you have to add the extension battery cable R88A-CRGD0R3C\_ (see below) or connect a backup battery in the CN1 I/O connector.

## Absolute encoder battery cable (encoder extension cable only)

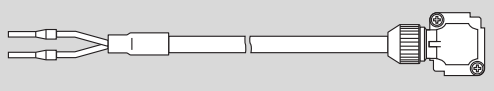

Symbol	Appearance	Specifications	Order code		
④	 Battery holder	Absolute encoder battery cable	Battery not included	0.3 m	R88A-CRGD0R3C-E
			Battery included	0.3 m	R88A-CRGD0R3C-BS-E
		Absolute encoder backup battery	2,000 mA.h 3.6V	-	R88A-BAT01G

## Power cables

Symbol	Appearance	Specifications	Order code		
⑤		For 200 V servomotors R88M-K(050/100/200/400/750)30(H/T)-__S2 <b>Note:</b> for servomotors with brake R88M-K(050/100/200/400/750)30(H/T)-BS2, the separate brake cable R88A-CAKA___BR-E is needed	Power cable only (without brake)	1.5 m	R88A-CAKA001-5SR-E
				3 m	R88A-CAKA003SR-E
				5 m	R88A-CAKA005SR-E
				10 m	R88A-CAKA010SR-E
				15 m	R88A-CAKA015SR-E
				20 m	R88A-CAKA020SR-E
		For 200 V servomotors R88M-KH(200/400/750)30(H/T)-__S2	without brake	3 m	R88A-CAWA003S-DE
				5 m	R88A-CAWA005S-DE
				10 m	R88A-CAWA010S-DE
				15 m	R88A-CAWA015S-DE
		For 200 V servomotors R88M-KH(200/400/750)30(H/T)-__S2	with brake	3 m	R88A-CAWA003B-DE
				5 m	R88A-CAWA005B-DE
10 m				R88A-CAWA010B-DE	
15 m				R88A-CAWA015B-DE	
		20 m	R88A-CAWA020B-DE		

Symbol	Appearance	Specifications		Order code		
⑤		For 200 V servomotors R88M-K(1K0/1K5)30(H/T)-__S2 R88M-K(1K0/1K5)20(H/T)-__S2 R88M-K90010(H/T)-__S2	without brake	1.5 m R88A-CAGB001-5SR-E 3 m R88A-CAGB003SR-E 5 m R88A-CAGB005SR-E 10 m R88A-CAGB010SR-E 15 m R88A-CAGB015SR-E 20 m R88A-CAGB020SR-E		
			with brake	1.5 m R88A-CAGB001-5BR-E 3 m R88A-CAGB003BR-E 5 m R88A-CAGB005BR-E 10 m R88A-CAGB010BR-E 15 m R88A-CAGB015BR-E 20 m R88A-CAGB020BR-E		
			For 400 V servomotors R88M-K(750/1K0/1K5/2K)30(F/C)-__S2 R88M-K(400/600/1K0/1K5/2K0)20(F/C)-__S2 R88M-K90010(F/C)-__S2 R88M-KH(1K0/1K5)20(F/C)-_S1	without brake	1.5 m R88A-CAGB001-5SR-E 3 m R88A-CAGB003SR-E 5 m R88A-CAGB005SR-E 10 m R88A-CAGB010SR-E 15 m R88A-CAGB015SR-E 20 m R88A-CAGB020SR-E	
				with brake	1.5 m R88A-CAKF001-5BR-E 3 m R88A-CAKF003BR-E 5 m R88A-CAKF005BR-E 10 m R88A-CAKF010BR-E 15 m R88A-CAKF015BR-E 20 m R88A-CAKF020BR-E	
				For 400 V servomotors R88M-KH2K020(F/C)-_S1	without brake	1.5 m R88A-CAKC001-5SR-E 3 m R88A-CAKC003SR-E 5 m R88A-CAKC005SR-E 10 m R88A-CAKC010SR-E 15 m R88A-CAKC015SR-E 20 m R88A-CAKC020SR-E
					with brake	1.5 m R88A-CAKF001-5BR-E 3 m R88A-CAKF003BR-E 5 m R88A-CAKF005BR-E 10 m R88A-CAKF010BR-E 15 m R88A-CAKF015BR-E 20 m R88A-CAKF020BR-E
		For 400 V servomotors R88M-K(3K0/4K0/5K0)30(F/C)-__S2 R88M-K(3K0/4K0/5K0)20(F/C)-__S2 R88M-K(2K0/3K0)10(F/C)-__S2 R88M-K4K510C-__S2 R88M-KH(3K0/4K0/5K0)20(F/C)-_S1			without brake	1.5 m R88A-CAGD001-5SR-E 3 m R88A-CAGD003SR-E 5 m R88A-CAGD005SR-E 10 m R88A-CAGD010SR-E 15 m R88A-CAGD015SR-E 20 m R88A-CAGD020SR-E
					with brake	1.5 m R88A-CAGD001-5BR-E 3 m R88A-CAGD003BR-E 5 m R88A-CAGD005BR-E 10 m R88A-CAGD010BR-E 15 m R88A-CAGD015BR-E 20 m R88A-CAGD020BR-E
			For 400 V servomotors R88M-K6K010C-__S2 R88M-K7K515C-__S2 R88M-KH7K515C-_S1 <b>Note:</b> for servomotors with brake R88M-K(6K010/7K515)C-BS2 and R88M-KH7K515C-BS1 the separate brake cable R88A-CAGE-__BR-E is needed		Power cable only (without brake)	1.5 m R88A-CAKE001-5SR-E 3 m R88A-CAKE003SR-E 5 m R88A-CAKE005SR-E 10 m R88A-CAKE010SR-E 15 m R88A-CAKE015SR-E 20 m R88A-CAKE020SR-E
					Power cable only (without brake)	1.5 m R88A-CAKG001-5SR-E 3 m R88A-CAKG003SR-E 5 m R88A-CAKG005SR-E 10 m R88A-CAKG010SR-E 15 m R88A-CAKG015SR-E 20 m R88A-CAKG020SR-E

## Brake cables (for 200 V 50 to 750 W servo motors and 400 V 6 to 15 kW servo motors)

Symbol	Appearance	Specifications	Order code	
⑥		Brake cable only. For 200 V servo motors with brake R88M-K(050/100/200/400/750)30(H/T)-BS2	1.5 m	R88A-CAKA001-5BR-E
			3 m	R88A-CAKA003BR-E
			5 m	R88A-CAKA005BR-E
			10 m	R88A-CAKA010BR-E
			15 m	R88A-CAKA015BR-E
	20 m	R88A-CAKA020BR-E		
		Brake cable only. For 400 V servo motors with brake R88M-K6K010C-BS2 R88M-K(7K5/11K0/15K0)15C-BS2 R88M-KH7K515C-BS1	1.5 m	R88A-CAGE001-5BR-E
			3 m	R88A-CAGE003BR-E
			5 m	R88A-CAGE005BR-E
			10 m	R88A-CAGE0010BR-E
15 m			R88A-CAGE015BR-E	
20 m	R88A-CAGE020BR-E			

## Connectors for encoder, power and brake cables

Specifications	Applicable servo motor	Order code	
Connectors for making encoder cables	Drive side (CN2)	All models	R88A-CNWO1R
	Motor side	R88M-K(050/100/200/400/750)30(H/T)_	R88A-CNK02R
	Motor side	R88M-KH(200/400/750)_	SPOC-17H-FRON169
	Motor side	R88M-K(1K0/1K5)30(H/T)_ R88M-K(750/1K0/1K5/2K0/3K0/4K0/5K0)30(F/C)_ R88M-K(400/600/1K0/1K5/2K0/3K0/4K0/5K0)20_ R88M-K(900/2K0/3K0)10_ R88M-K(4K5/6K0)10C-_ R88M-K(7K5/11K0/15K0)15C-_ R88M-KH(1K0/1K5/2K0/3K0/4K0/5K0/7K5)_	R88A-CNK04R
Connectors for making power cables	Motor side	R88M-K(050/100/200/400/750)30(H/T)_	R88A-CNK11A
	Motor side	R88M-KH(200/400/750)30(H/T)_	SPOC-06K-FSDN169
	Motor side	R88M-K(1K0/1K5)30(H/T)-S2 R88M-K(1K0/1K5)20(H/T)-S2 R88M-K90010(H/T)-S2 R88M-K(750/1K0/1K5/2K0)30(F/C)-S2 R88M-K(400/600/1K0/1K5/2K0)20(F/C)-S2 R88M-K90010(F/C)-S2 R88M-KH(1K0/1K5)20(F/C)-S1	MS3108E20-4S
	Motor side	R88M-K(1K0/1K5)30(H/T)-BS2 R88M-K(1K0/1K5)20(H/T)-BS2 R88M-K90010(H/T)-BS2	MS3108E20-18S
	Motor side	R88M-K(750/1K0/1K5/2K0/3K0/4K0/5K0)30(F/C)-BS2 R88M-K(400/600/1K0/1K5/2K0)20(F/C)-BS2 R88M-K(900/2K0/3K0)10(F/C)-BS2 R88M-K4K510C-BS2 R88M-KH(1K0/1K5/2K0/3K0/4K0/5K0)20(F/C)-BS1	MS3108E24-11S
	Motor side	R88M-K(3K0/4K0/5K0)30(F/C)-S2 R88M-K(3K0/4K0/5K0)20(F/C)-S2 R88M-K(2K0/3K0)10(F/C)-S2 R88M-K4K510C-S2 R88M-KH(2K0/3K0/4K0/5K0)20(F/C)-S1	MS3108E22-22S
	Motor side	R88M-K6K010C-_ R88M-K(7K5/11K0/15K0)15C-_ R88M-KH7K515C- S1	MS3108E32-17S
	Motor side	R88M-K(050/100/200/400/750)30(H/T)-BS2	R88A-CNK11B
Motor side	R88M-K6K010C-BS2 R88M-K(7K5/11K0/15K0)15C-BS2 R88M-KH7K515C-BS1	MS3108E14S-2S	

Note: 1. All cables listed are flexible and shielded (except the R88A-CAKA\_\_\_-BR-E which is only a flexible cable).  
 2. All connectors and cables listed have IP67 class (except R88A-CNWO1R connector and R88A-CRGDOR3C cable).

## Specifications

### Standard servo motors 3,000 r/min, 230 V

Voltage		230 V							
Servo motor model R88M-K_	20-bit incremental encoder	05030H-_	10030H-_	20030H-_	40030H-_	75030H-_	1K030H-_	1K530H-_	
	17-bit absolute encoder	05030T-_	10030T-_	20030T-_	40030T-_	75030T-_	1K030T-_	1K530T-_	
Rated output	W	50	100	200	400	750	1,000	1,500	
Rated torque	N·m	0.16	0.32	0.64	1.3	2.4	3.18	4.77	
Instantaneous peak torque	N·m	0.48	0.95	1.91	3.8	7.1	9.55	14.3	
Rated current	A (rms)	1.1	1.1	1.5	2.4	4.1	6.6	8.2	
Instantaneous max. current	A (rms)	4.7	4.7	6.5	10.2	17.4	28	35	
Rated speed	min <sup>-1</sup>	3,000							
Max. speed	min <sup>-1</sup>	6,000						5,000	
Torque constant	N·m/A	0.11±10%	0.21±10%	0.31±10%	0.39±10%	0.42±10%	0.37	0.45	
Rotor moment of inertia (JM)	kg·m <sup>2</sup> × 10 <sup>-4</sup> (without brake)	0.025	0.051	0.14	0.26	0.87	2.03	2.84	
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (with brake)	0.027	0.054	0.16	0.28	0.97	2.35	3.17	
Allowable load moment of inertia (JL)	Multiple of (JM)	30 <sup>+1</sup>					20 <sup>+1</sup>	15 <sup>+1</sup>	



Voltage		230 V						
Servo motor model R88M-K_	20-bit incremental encoder	05030H_-	10030H_-	20030H_-	40030H_-	75030H_-	1K030H_-	1K530H_-
	17-bit absolute encoder	05030T_-	10030T_-	20030T_-	40030T_-	75030T_-	1K030T_-	1K530T_-
Rated power rate	kW/s (without brake)	10.1	19.9	29.0	62.4	65.6	49.8	80.1
	kW/s (with brake)	9.4	18.8	25.4	58	58.8	43	71.8
Allowable radial load	N	68			245		490	
Allowable thrust load	N	58			98		196	
Approx. mass	kg (without brake)	0.32	0.47	0.82	1.2	2.3	3.5	4.4
	kg (with brake)	0.53	0.68	1.3	1.7	3.1	4.5	5.4
Brake specifications	Rated voltage	24VDC±10%						
	Holding brake moment of inertia J	kg·m <sup>2</sup> × 10 <sup>-4</sup>		0.002		0.0018		0.33
	Power consumption (20°C)	W	7		9		17	19
	Current consumption (20°C)	A	0.3		0.36		0.70±10%	0.81±10%
	Static friction torque	N.m (minimum)	0.29		1.27		2.5	7.8
	Rise time for holding torque	ms (max.)	35		50			
	Release time	ms (max)	20		15			
Basic specifications	Time Rating	Continuous						
	Insulation class	Type B					Type F	
	Ambient operating/storage temperature	0 to 40°C/-20 to 65°C						
	Ambient operating/storage humidity	20% to 80% (non-condensing)					20% to 85% (non-condensing)	
	Vibration class	V-15						
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal						
	Enclosure	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)						
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>						
	Mounting	Flange-mounted						

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

### Standard servo motors 3,000 r/min, 400 V

Voltage		400 V							
Servo motor model R88M-K_	20-bit incremental encoder	75030F_-	1K030F_-	1K530F_-	2K030F_-	3K030F_-	4K030F_-	5K030F_-	
	17-bit absolute encoder	75030C_-	1K030C_-	1K530C_-	2K030C_-	3K030C_-	4K030C_-	5K030C_-	
Rated output	W	750	1,000	1,500	2,000	3,000	4,000	5,000	
Rated torque	N·m	2.39	3.18	4.77	6.37	9.55	12.7	15.9	
Instantaneous peak torque	N·m	7.16	9.55	14.3	19.1	28.6	38.2	47.7	
Rated current	A (rms)	2.4	3.3	4.2	5.7	9.2	9.9	12	
Instantaneous max. current	A (rms)	10	14	18	24	39	42	51	
Rated speed	min <sup>-1</sup>	3,000							
Max. speed	min <sup>-1</sup>	5,000					4,500		
Torque constant	N·m/A	0.78	0.75	0.89	0.87	0.81	0.98		
Rotor moment of inertia (JM)	kg·m <sup>2</sup> × 10 <sup>-4</sup> (without brake)	1.61	2.03	2.84	3.68	6.5	12.9	17.4	
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (with brake)	1.93	2.35	3.17	4.01	7.85	14.2	18.6	
Allowable load moment of inertia (JL)	Multiple of (JM)	20 <sup>-1</sup>	15 <sup>-1</sup>						
Rated power rate	kW/s (without brake)	35.5	49.8	80.1	110	140	126	146	
	kW/s (with brake)	29.6	43	71.8	101	116	114	136	
Allowable radial load	N	490					784		
Allowable thrust load	N	196					343		
Approx. mass	kg (without brake)	3.1	3.5	4.4	5.3	8.3	11	14	
	kg (with brake)	4.1	4.5	5.4	6.3	9.4	12.6	16	
Brake specifications	Rated voltage	24VDC±10%							
	Holding brake moment of inertia J	kg·m <sup>2</sup> × 10 <sup>-4</sup>		0.33				1.35	
	Power consumption (20°C)	W	17	19			22		
	Current consumption (20°C)	A	0.70±10%	0.81±10%			0.90±10%		
	Static friction torque	N.m (minimum)	2.5	7.8			11.8	16.1	
	Rise time for holding torque	ms (max.)	50					110	
	Release time	ms (max)	15					50	
Basic specifications	Time Rating	Continuous							
	Insulation class	Type F							
	Ambient operating/storage temperature	0 to 40°C/-20 to 65°C							
	Ambient operating/storage humidity	20% to 85% (non-condensing)							
	Vibration class	V-15							
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal							
	Enclosure	Totally-enclosed, self-cooling, IP67(excluding shaft opening)							
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>							
	Mounting	Flange-mounted							

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

## Standard servo motors 2,000 r/min, 230 V/400 V

Voltage		230 V					400 V						
Servo motor model R88M-K_	20-bit incremental encoder	1K020H_	1K520H_	40020F_	60020F_	1K020F_	1K520F_	2K020F_	3K020F_	4K020F_	5K020F_		
	17-bit absolute encoder	1K020T_	1K520T_	40020C_	60020C_	1K020C_	1K520C_	2K020C_	3K020C_	4K020C_	5K020C_		
Rated output	W	1,000	1,500	400	600	1,000	1,500	2,000	3,000	4,000	5,000		
Rated torque	N·m	4.77	7.16	1.91	2.86	4.77	7.16	9.55	14.3	19.1	23.9		
Instantaneous peak torque	N·m	14.3	21.5	5.73	8.59	14.3	21.5	28.7	43	57.3	71.6		
Rated current	A (rms)	5.7	9.4	1.2	1.5	2.8	4.7	5.9	8.7	10.6	13		
Instantaneous max. current	A (rms)	24	40	4.9	6.5	12	20	25	37	45	55		
Rated speed	min <sup>-1</sup>	2,000											
Max. speed	min <sup>-1</sup>	3,000											
Torque constant	N·m/A	0.63	0.58	1.27	1.38	1.27	1.16	1.27	1.18	1.40	1.46		
Rotor moment of inertia (JM)	kg·m <sup>2</sup> × 10 <sup>-4</sup> (without brake)	4.60	6.70	1.61	2.03	4.60	6.70	8.72	12.9	37.6	48		
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (with brake)	5.90	7.99	1.90	2.35	5.90	7.99	10	14.2	38.6	48.8		
Max. load moment of inertia (JL)	Multiple of (JM)	10 <sup>+1</sup>											
Rated power rate	kW/s (without brake)	49.5	76.5	22.7	40.3	49.5	76.5	105	159	97.1	119		
	kW/s (with brake)	38.6	64.2	19.2	34.8	38.6	64.2	91.2	144	94.5	117		
Allowable radial load	N	490							784				
Allowable thrust load	N	196							343				
Approx. mass	kg (without brake)	5.2	6.7	3.1	3.5	5.2	6.7	8	11	15.5	18.6		
	kg (with brake)	6.7	8.2	4.1	4.5	6.7	8.2	9.5	12.6	18.7	21.8		
Brake specifications	Rated voltage	24VDC ±10%											
	Holding brake moment inertia (J) kg·m <sup>2</sup> × 10 <sup>-4</sup>	1.35								4.7			
	Power consumption (20°C)	W	14	19	17		14	19	22		31		
	Current consumption (20°C)	A	0.59±10%		0.79±10%		0.59±10%		0.79±10%		0.90±10%	1.3±10%	1.3 ±-10%
	Static friction torque	N·m (minimum)	4.9	13.7	2.5		4.9	13.7	16.2		24.5		
	Rise time for holding torque	ms (max.)	80	100	50		80	100	110		80		
	Release time	ms (max)	70	50	15		70	50	25				
Basic specifications	Time Rating	Continuous											
	Insulation class	TypeF											
	Ambient operating/storage temperature	0 to 40 °C/-20 to 85°C											
	Ambient operating/storage humidity	20% to 85% (non-condensing)											
	Vibration class	V-15											
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal											
	Enclosure	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)											
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>											
Mounting	Flange-mounted												

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

## Standard servo motors 1,500 r/min, 400 V

Applied voltage		400 V			
Servo motor model R88M-K_	17-bit absolute encoder	7K515C_	11K015C_	15K015C_	
Rated output	W	7,500	11,000	15,000	
Rated torque	N·m	47.8	70.0	95.5	
Instantaneous peak torque	N·m	119.0	175.0	224.0	
Rated current	A (rms)	22.0	27.1	33.1	
Instantaneous max. current	A (rms)	83	101	118	
Rated speed	min <sup>-1</sup>	1,500			
Max. speed	min <sup>-1</sup>	3,000		2,000	
Torque constant	N·m/A	1.54		2.10	
Rotor moment of inertia (JM)	kg·m <sup>2</sup> × 10 <sup>-4</sup> (without brake)	101	212	302	
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (with brake)	107	220	311	
Allowable load moment of inertia (JL)	Multiple of (JM)	10 <sup>+1</sup>			
Rated power rate	kW/s (without brake)	226		302	
	kW/s (with brake)	213		293	
Allowable radial load	N	1,176		2,254	
Allowable thrust load	N	490		686	
Approx. mass	kg (without brake)	36.4		70.2	
	kg (with brake)	40.4		76.3	
Brake specifications	Rated voltage	24VDC±10%			
	Holding brake moment of inertia J	kg·m <sup>2</sup> × 10 <sup>-4</sup>		7.1	
	Power consumption (20°C)	W		34	26
	Current consumption (20°C)	A		1.4±10%	1.08±10%
	Static friction torque	N·m (minimum)		58.8	100
	Rise time for holding torque	ms (max.)		150	300
	Release time	ms (max)		50	140

<b>Applied voltage</b>		<b>400 V</b>		
<b>Servo motor model R88M-K_</b>	<b>17-bit absolute encoder</b>	<b>7K515C-__</b>	<b>11K015C-__</b>	<b>15K015C-__</b>
<b>Basic specifications</b>	<b>Time Rating</b>	Continuous		
	<b>Insulation class</b>	Type F		
	<b>Ambient operating/storage temperature</b>	0 to 40 °C/-20 to 65°C		
	<b>Ambient operating/storage humidity</b>	20% to 85% RH (non-condensing)		
	<b>Vibration class</b>	V-15		
	<b>Insulation resistance</b>	20 MΩ min. at 500 VDC between the power terminals and FG terminal		
	<b>Enclosure</b>	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)		
	<b>Vibration resistance</b>	Vibration acceleration 49 m/s <sup>2</sup>		
	<b>Mounting</b>	Flange-mounted		

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

### Standard servo motors 1000 r/min, 230 V/400 V

<b>Applied voltage</b>		<b>230 V</b>		<b>400 V</b>			
<b>Servo motor model R88M-K_</b>	<b>20-bit incremental encoder</b>	<b>90010H-__</b>	<b>90010F-__</b>	<b>2K010F-__</b>	<b>3K010F-__</b>		
	<b>17-bit absolute encoder</b>	<b>90010T-__</b>	<b>90010C-__</b>	<b>2K010C-__</b>	<b>3K010C-__</b>	<b>4K510C-__</b>	<b>6K010C-__</b>
<b>Rated output</b>	<b>W</b>	900	900	2,000	3,000	4,500	6,000
<b>Rated torque</b>	<b>N·m</b>	8.59		19.1	28.7	43.0	57.3
<b>Instantaneous peak torque</b>	<b>N·m</b>	19.3		47.7	71.7	107.0	143.0
<b>Rated current</b>	<b>A (rms)</b>	7.6	3.8	8.5	11.3	14.8	19.4
<b>Instantaneous max. current</b>	<b>A (rms)</b>	24	12	30	40	55	74
<b>Rated speed</b>	<b>min<sup>-1</sup></b>	1,000					
<b>Max. speed</b>	<b>min<sup>-1</sup></b>	2,000					
<b>Torque constant</b>	<b>N·m/A</b>	0.86	1.72	1.76	1.92	2.05	2.08
<b>Rotor moment of inertia (JM)</b>	<b>kg·m<sup>2</sup> × 10<sup>-4</sup> (without brake)</b>	6.70		30.3	48.4	79.1	101
	<b>kg·m<sup>2</sup> × 10<sup>-4</sup> (with brake)</b>	7.99		31.4	49.2	84.4	107
<b>Allowable load moment of inertia (JL)</b>	<b>Multiple of (JM)</b>	10 <sup>+1</sup>					
<b>Rated power rate</b>	<b>kW/s (without brake)</b>	110		120	170	233	325
	<b>kW/s (with brake)</b>	92.4		116	167	219	307
<b>Allowable radial load</b>	<b>N</b>	686		1,176	1,470		1,764
<b>Allowable thrust load</b>	<b>N</b>	196		490			588
<b>Approx. mass</b>	<b>kg (without brake)</b>	6.7		14	20	29.4	36.4
	<b>kg (with brake)</b>	8.2		17.5	23.5	33.3	40.4
<b>Brake specifications</b>	<b>Rated voltage</b>	24VDC±10%					
	<b>Holding brake moment of inertia J</b>	<b>kg·m<sup>2</sup> × 10<sup>-4</sup></b>	1.35		4.7		
	<b>Power consumption (20°C)</b>	<b>W</b>	19		31	34	
	<b>Current consumption (20°C)</b>	<b>A</b>	0.79±10%		1.3±10%	1.4±10%	
	<b>Static friction torque</b>	<b>N·m (minimum)</b>	13.7		24.5	58.8	
	<b>Rise time for holding torque</b>	<b>ms (max.)</b>	100		80	150	
	<b>Release time</b>	<b>ms (max)</b>	50		25	50	
<b>Basic specifications</b>	<b>Time Rating</b>	Continuous					
	<b>Insulation class</b>	Type F					
	<b>Ambient operating/storage temperature</b>	0 to 40 °C/-20 to 65°C					
	<b>Ambient operating/storage humidity</b>	20% to 85% RH (non-condensing)					
	<b>Vibration class</b>	V-15					
	<b>Insulation resistance</b>	20 MΩ min. at 500 VDC between the power terminals and FG terminal					
	<b>Enclosure</b>	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)					
	<b>Vibration resistance</b>	Vibration acceleration 49 m/s <sup>2</sup>					
<b>Mounting</b>	Flange-mounted						

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

### High inertia servo motors 3,000 r/min, 230 V

<b>Voltage</b>		<b>230 V</b>		
<b>Servo motor model R88M-KH_</b>	<b>20-bit incremental encoder</b>	<b>20030H-__</b>	<b>40030H-__</b>	<b>75030H-__</b>
	<b>17-bit absolute encoder</b>	<b>20030T-__</b>	<b>40030T-__</b>	<b>75030T-__</b>
<b>Rated output</b>	<b>W</b>	200	400	750
<b>Rated torque</b>	<b>N·m</b>	0.64	1.3	2.4
<b>Instantaneous peak torque</b>	<b>N·m</b>	1.91	3.8	7.1
<b>Rated current</b>	<b>A (rms)</b>	1.6	2.6	4.0
<b>Instantaneous max. current</b>	<b>A (rms)</b>	6.9	11.0	17.0
<b>Rated speed</b>	<b>min<sup>-1</sup></b>	3,000		
<b>Max. speed</b>	<b>min<sup>-1</sup></b>	5,000		4,500
<b>Torque constant</b>	<b>N·m/A</b>	0.29±10%	0.36±10%	0.45±10%
<b>Rotor moment of inertia (JM)</b>	<b>kg·m<sup>2</sup> × 10<sup>-4</sup> (without brake)</b>	0.42		1.51
	<b>kg·m<sup>2</sup> × 10<sup>-4</sup> (with brake)</b>	0.45		1.61

Voltage		230 V		
Servo motor model R88M-KH_	20-bit incremental encoder	20030H_-	40030H_-	75030H_-
	17-bit absolute encoder	20030T_-	40030T_-	75030T_-
Allowable load moment of inertia (JL)	Multiple of (JM)	30 <sup>*1</sup>		20 <sup>*1</sup>
Rated power rate	kW/s (without brake)	9.58	24.1	37.7
	kW/s (with brake)	9.06	23.3	35.3
Allowable radial load	N	245		392
Allowable thrust load	N	98		147
Approx. mass	kg (without brake)	0.96	1.4	2.5
	kg (with brake)	1.4	1.8	3.3
Brake specifications	Rated voltage	24 VDC±5%		
	Holding brake moment of inertia J	kg·m <sup>2</sup> × 10 <sup>-4</sup>	0.018	0.075
	Power consumption (at 20°C)	W	9	10
	Current consumption (at 20°C)	A	0.36	0.42
	Static friction torque	N.m (minimum)	1.27	2.45
	Rise time for holding torque	ms (max.)	50	70
	Release time	ms (max)	15	20
Basic specifications	Time Rating	Continuous		
	Insulation class	Type B		
	Ambient operating/storage temperature	0 to 40°C/-20 to 65°C		
	Ambient operating/storage humidity	20% to 85% RH (non-condensing)		
	Vibration class	V-15		
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal		
	Enclosure	Totally-enclosed, self-cooling, IP65 (excluding shaft opening and lead wire ends)		
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>		
	Mounting	Flange-mounted		

\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

### High inertia servo motors 2,000 and 1,500 r/min, 400 V

R/min, voltage		2,000r/min, 400 V						1,500r/min, 400 V
Servo motor model R88M-KH_	20-bit incremental encoder	1K020F_-	1K520F_-	2K020F_-	3K020F_-	4K020F_-	5K020F_-	
	17-bit absolute encoder	1K020C_-	1K520C_-	2K020C_-	3K020C_-	4K020C_-	5K020C_-	7K515C_-
Rated output	W	1,000	1,500	2,000	3,000	4,000	5,000	7,500
Rated torque	N·m	4.77	7.16	9.55	14.3	19.1	23.9	47.8
Instantaneous peak torque	N·m	14.3	21.5	28.6	43.0	57.3	71.6	119
Rated current	A (rms)	2.9	4.7	5.5	8.0	10.5	13.0	22.0
Instantaneous max. current	A (rms)	12	20	24	34	45	55	83
Rated speed	min <sup>-1</sup>	2,000						1500
Max. speed	min <sup>-1</sup>	3,000						3000
Torque constant	N·m/A	1.27	1.16	1.31	1.34	1.38	1.39	1.54
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (without brake)	24.7	37.1	57.8	90.2	112	162	273
	kg·m <sup>2</sup> × 10 <sup>-4</sup> (with brake)	26.0	38.4	62.9	95.3	117	167	279
Max. load moment of inertia (JL)	Multiple of (JM)	5 <sup>*1</sup>						
Rated power rate	kW/s (without brake)	9.2	13.8	15.8	22.7	32.5	35.1	86.7
	kW/s (with brake)	8.8	13.4	14.5	21.5	31.1	34.1	85.1
Allowable radial load	N	490		784				1,176
Allowable thrust load	N	196		343				490
Approx. mass	kg (without brake)	6.7	8.6	12.2	16.0	18.6	23.0	42.3
	kg (with brake)	8.1	10.1	15.5	19.2	21.8	26.2	46.2
Brake specifications	Rated voltage	24 VDC±10%						
	Holding brake moment inertia (J)	kg·m <sup>2</sup> × 10 <sup>-4</sup>	1.35		4.7			
	Power consumption (20°C)	W	14	19	31			
	Current consumption (20°C)	A	0.59±10%	0.79±10%	1.30±10%			
	Static friction torque	N.m (minimum)	4.9	13.7	24.5			
	Rise time for holding torque	ms (max.)	80	100	80			
	Release time	ms (max)	70	50	25			
Basic specifications	Time Rating	Continuous						
	Insulation class	Type F						
	Ambient operating/storage temperature	0 to 40°C/-20 to 65°C						
	Ambient operating/storage humidity	20% to 85% RH (non-condensing)						
	Vibration class	V-15						
	Insulation resistance	20 MW min. at 500 VDC between the power terminals and FG terminal						
	Enclosure	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)						
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>						
	Mounting	Flange-mounted						

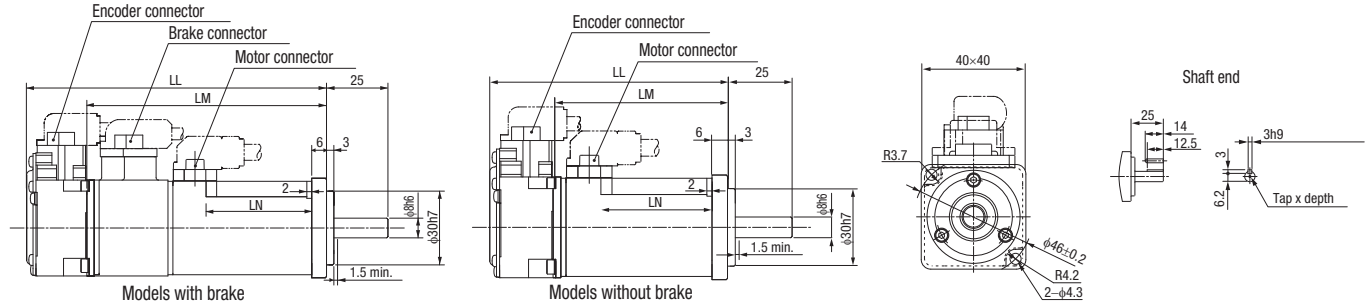
\*1 Applicable load inertia: The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.

## Dimensions

### Standard servo motors

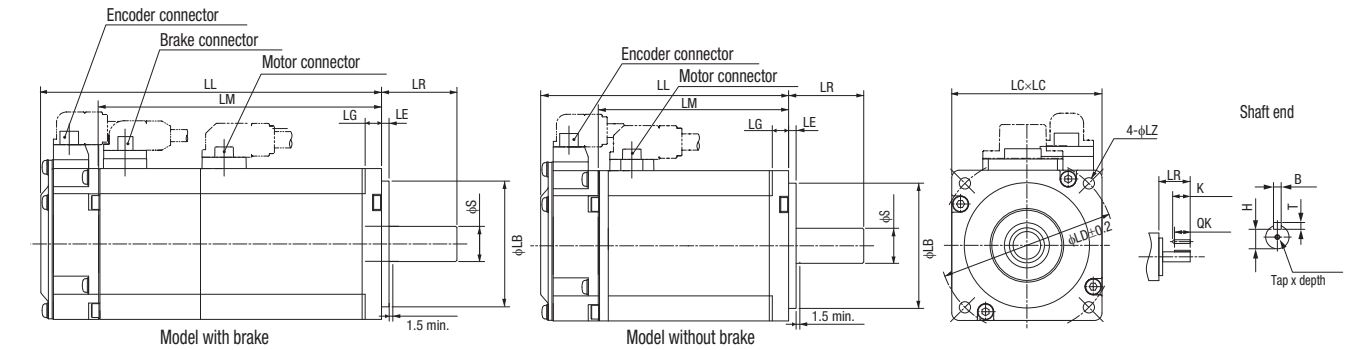
#### Type 3,000 r/min motors (230 V, 50 to 100 W)

Dimensions (mm)	Without brake		With brake		LN	Shaft end dimensions	Approx. mass (kg)	
	LL	LM	LL	LM			Without brake	With brake
R88M-K05030(H/T)-_S2	72	48	102	78	23	M3 × 6L	0.32	0.53
R88M-K10030(H/T)-_S2	92	68	122	98	43		0.47	0.68



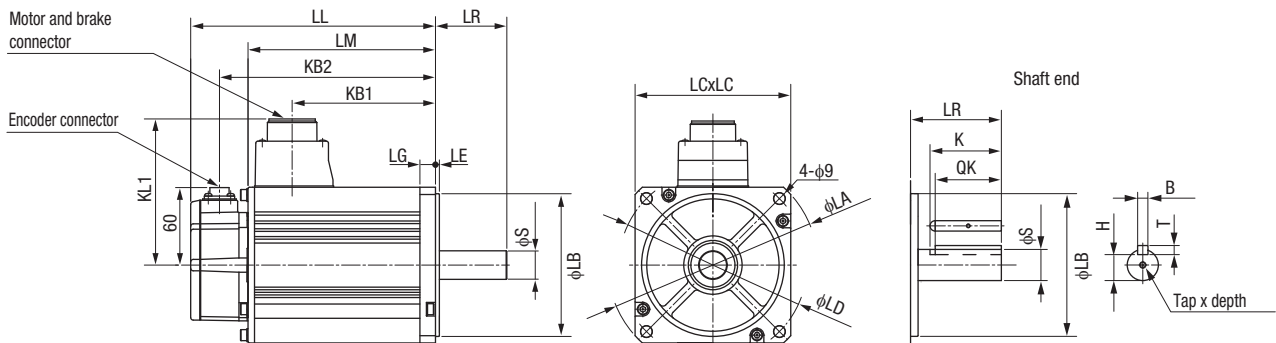
#### Type 3,000 r/min motors (230 V, 200 to 750 W)

Dimensions (mm)	Without brake		With brake		LR	Flange surface					Shaft end dimensions						Approx. mass kg			
	LL	LM	LL	LM		LB	LC	LD	LE	LG	LZ	S	K	QK	H	B	T	Tap × Depth	Without brake	With brake
R88M-K20030(H/T)-_S2	79.5	56.5	116	93	30	50 <sup>h7</sup>	60	70	3	6.5	4.5	11 <sup>h6</sup>	20	18	8.5	4 <sup>h9</sup>	4	M4 × 8L	0.82	1.3
R88M-K40030(H/T)-_S2	99	76	135.5	112.5								14 <sup>h6</sup>	25	22.5	11	5 <sup>h9</sup>	5	M5 × 10L	1.2	1.7
R88M-K75030(H/T)-_S2	112.2	86.2	148.2	122.2	35	70 <sup>h7</sup>	80	90		8	6	19 <sup>h6</sup>		22	15.5	6 <sup>h9</sup>	6		2.3	3.1



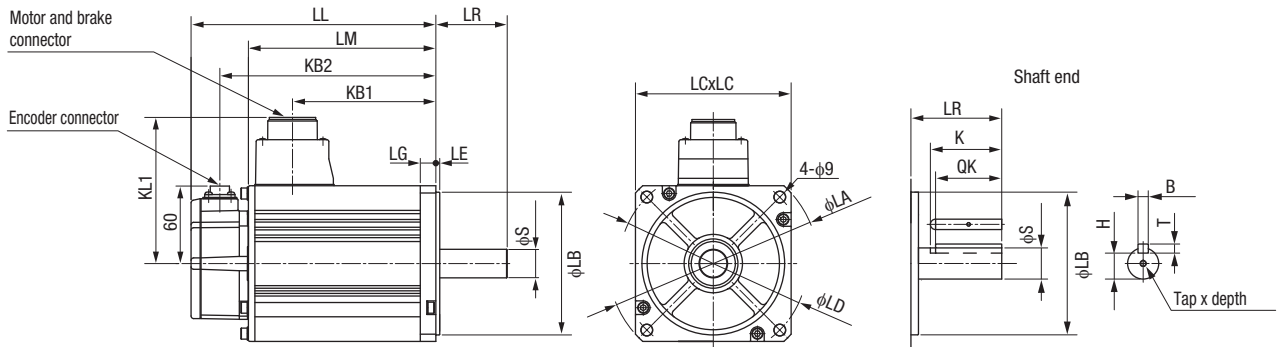
#### Type 3,000 r/min motors (230 V, 1 to 1.5 kW/ 400V, 750 W to 5 kW)

Voltage	Model	Without brake					With brake					LR	Flange surface					Shaft end dimensions						Approx. mass (kg)			
		LL	LM	KB1	KB2	KL1	LL	LM	KB1	KB2	KL1		LA	LB	LC	LD	LE	LG	S	Tap × Depth	K	QK	H	B	T	Without brake	With brake
230	1K030(H/T)-_S2	141	97	66	119	101	168	124	66	146	101	55	135	95 <sup>h7</sup>	100	115	3	10	19 <sup>h6</sup>	M5 × 12L	45	42	15.5	6 <sup>h9</sup>	6	3.5	4.5
	1K530(H/T)-_S2	159.5	115.5	84.5	137.5		186.5	142.5	84.5	164.5																4.4	5.4
400	75030(F/C)-_S2	131.5	87.5	56.5	109.5		158.5	114.5	53.5	136.5	103															3.1	4.1
	1K030(F/C)-_S2	141	97	66	119		168	124	63	146																3.5	4.5
	1K530(F/C)-_S2	159.5	115.5	84.5	137.5		186.5	142.5	81.5	164.5																4.4	5.4
	2K030(F/C)-_S2	178.5	134.5	103.5	156.5		205.5	161.5	100.5	183.5																5.3	6.3
	3K030(F/C)-_S2	190	146	112	168	113	215	171	112	193	113	162	110 <sup>h7</sup>	120	145	12	22 <sup>h6</sup>						41	18	8 <sup>h9</sup>	7	8.3
	4K030(F/C)-_S2	208	164	127	186	118	233	189	127	211	118	65	165		130	6	24 <sup>h6</sup>									11	12.6
	5K030(F/C)-_S2	243	199	162	221		268	224	162	246																14	16



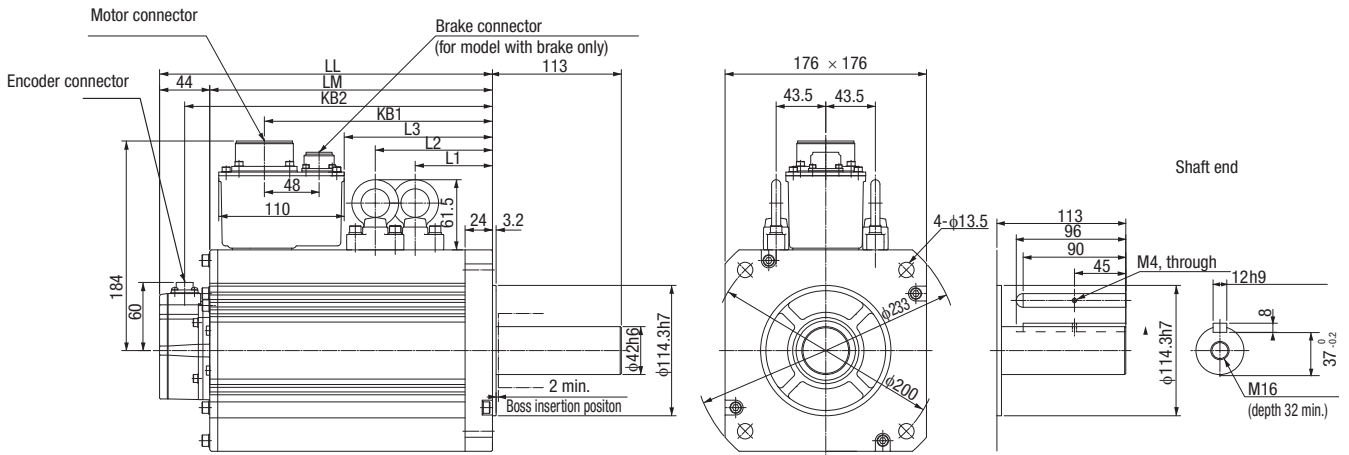
### Type 2,000 r/min motors (230 V, 1 to 1.5 kW/400 V, 400 W to 5 kW)

Dimensions (mm)		Without brake					With brake					LR	Flange surface							Shaft end dimensions						Approx. mass (kg)																	
Voltage	Model	LL	LM	KB1	KB2	KL1	LL	LM	KB1	KB2	KL1		LA	LB	LC	LD	LE	LG	LZ	S	Tap x Depth	K	QK	H	B	T	Without brake	With brake															
230	1K020(H/T)-S2	138	94	60	116	116	163	119	60	141	116	55	165	110 <sup>h7</sup>	130	145	6	12	9	22 <sup>h6</sup>	M5 x 12L	45	41	18	8 <sup>h9</sup>	7	5.2	6.7															
	1K520(H/T)-S2	155.5	111.5	77.5	133.5		180.5	136.5	77.5	158.5			135	95 <sup>h7</sup>	100	115	3	10								19 <sup>h6</sup>			42	15.5	6 <sup>h9</sup>	6	3.1	4.1									
400	40020(F/C)-S2	131.5	87.5	56.5	109.5	101	158.5	114.5	53.5	136.5	103	65	165	110 <sup>h7</sup>	130	145	6	12	9	22 <sup>h6</sup>	M8 x 20L	55	51	20	8 <sup>h9</sup>	3.5	4.5																
	60020(F/C)-S2	141	97	66	119		168	124	63	146																19 <sup>h6</sup>																	
	1K020(F/C)-S2	138	94	60	116	116	163	119	57	141	118																																
	1K520(F/C)-S2	155.5	111.5	77.5	133.5		180.5	136.5	74.5	158.5																																	
	2K020(F/C)-S2	173	129	95	151		198	154	92	176																																	
	3K020(F/C)-S2	208	164	127	186	118	233	189	127	211																																	
	4K020(F/C)-S2	177	133	96	155	140	202	158	96	180	140															70	233	114.3 <sup>h7</sup>	176	200	3.2	18	13.5	35 <sup>h6</sup>	M12 x 25L		50	30	10 <sup>h9</sup>	8	15.5	18.7	
5K020(F/C)-S2	196	152	115	174		221	177	115	199																																		



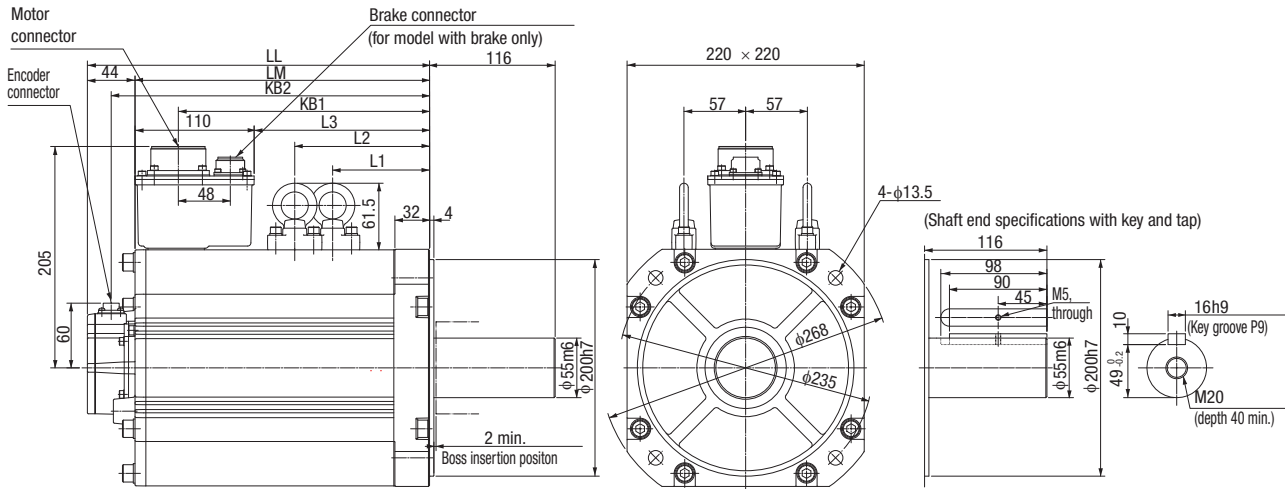
### Type 1,500 r/min motors (400 V, 7.5 kW)

Dimensions (mm)		Without brake							With brake							Approx. mass (kg)	
Voltage	Model	LL	LM	KB1	KB2	L1	L2	L3	LL	LM	KB1	KB2	L1	L2	L3	Without brake	With brake
400	7K515C-S2	312	268	219	290	117.5	117.5	149	337	293	253	315	117.5	152.5	183	36.4	40.4



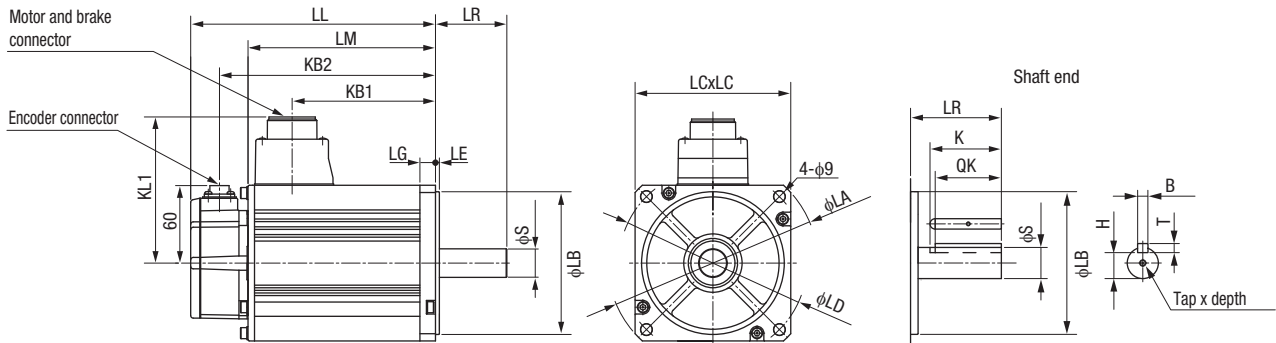
## Type 1,500 r/min motors (400 V, 11 to 15 kW)

Dimensions (mm)		Without brake									With brake						Approx. mass (kg)	
Voltage	Model	LL	LM	KB1	KB2	L1	L2	L3	LL	LM	KB1	KB2	L1	L2	L3	Without brake	With brake	
<b>R88M-K</b>																		
400	11K015C-S2	316	272	232	294	124.5	124.5	162	364	320	266	342	124.5	159.5	196	52.7	58.9	
	15K015C-S2	384	340	300	362	158.5	158.5	230	432	388	334	410	158.5	193.5	264	70.2	76.3	



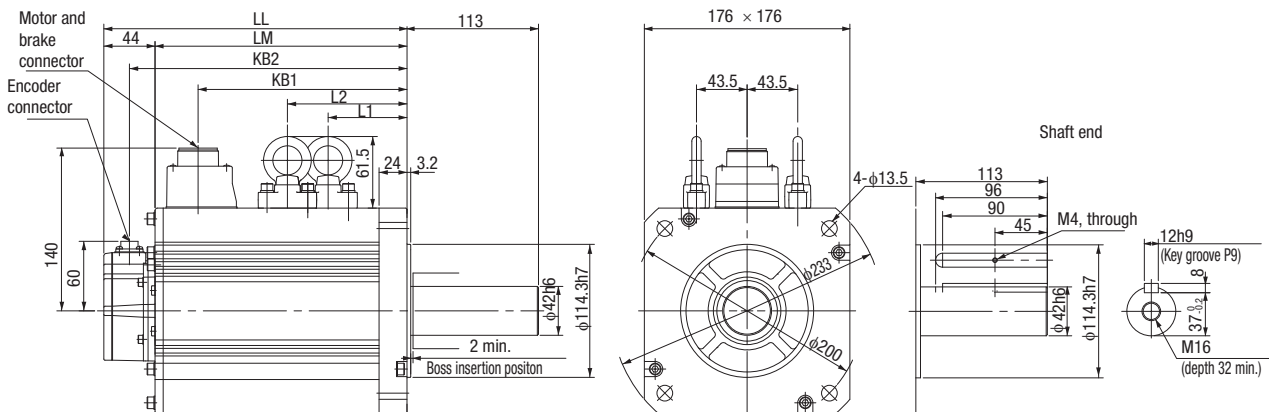
## Type 1,000 r/min motors (230 V, 900 W/400 V, 900 W to 3 kW)

Dimensions (mm)		Without brake					With brake					LR Flange surface							Shaft end dimensions						Approx. mass (kg)			
Voltage	Model	LL	LM	KB1	KB2	KL1	LL	LM	KB1	KB2	KL1	LA	LB	LC	LD	LE	LG	LZ	S	Tap × Depth	K	QK	H	B	T	Without brake	With brake	
<b>R88M-K</b>																												
230	90010(H/T)-S2	155.5	111.5	77.5	133.5	116	180.5	136.5	77.5	158.5	116	70	165	110 <sup>h7</sup>	130	145	6	12	9	22 <sup>h6</sup>	M5 × 12L	45	41	18	8 <sup>h9</sup>	7	6.7	8.2
400	90010(F/C)-S2																				M5 × 10L							
	2K010(F/C)-S2	163.5	119.5	82.5	141.5	140	188.5	144.5	82.5	166.5	140	80	233	114.3 <sup>h7</sup>	176	200	3.2	18	13.5	35 <sup>h6</sup>	M12 × 25L	55	50	30	10 <sup>h9</sup>	8	14	17.5
	3K010(F/C)-S2	209.5	165.5	128.5	187.5		234.5	190.5	128.5	212.5																		



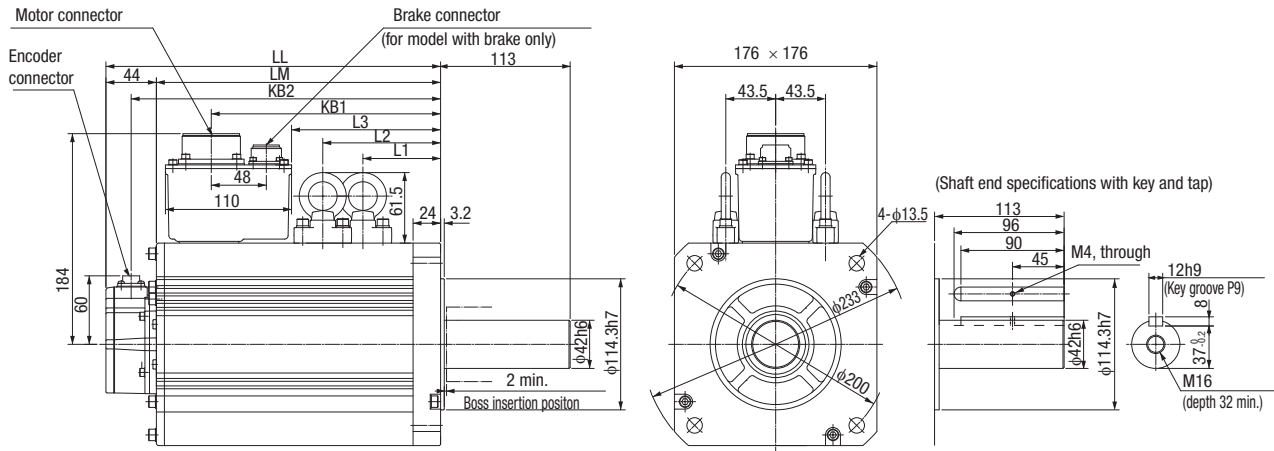
## Type 1,000 r/min motors (400 V, 4.5 kW)

Dimensions (mm)		Without brake						With brake						Approx. mass (kg)	
Voltage	Model	LL	LM	KB1	KB2	L1	L2	LL	LM	KB1	KB2	L1	L2	Without brake	With brake
<b>R88M-K</b>															
400	4K510C-S2	266	222	185	244	98	98	291	247	185	269	98	133	29.4	33.3



## Type 1,000 r/min motors (400 V, 6 kW)

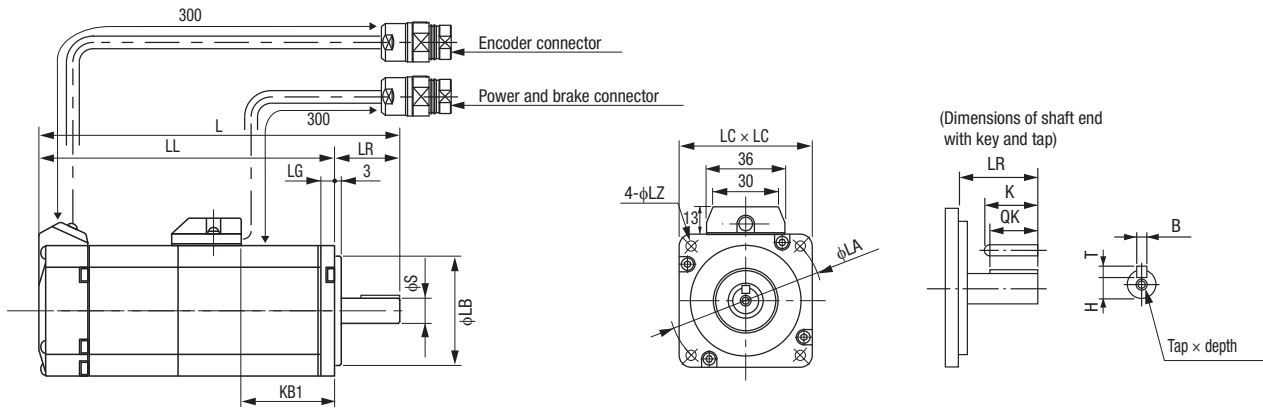
Dimensions (mm)		Without brake							With brake							Approx. mass (Kg)	
Voltage	Model	LL	LM	KB1	KB2	L1	L2	L3	LL	LM	KB1	KB2	L1	L2	L3	Without brake	With brake
400	R88M-K 6K010C-S2	312	268	219	290	117.5	117.5	149	337	293	253	315	117.5	152.5	183	36.4	40.4



## High inertia servo motors

### Type 3,000 r/min motors (230 V, 200 to 750 W)

Dimensions (mm)		Without brake		With brake		KB1	LR	Flange surface					Shaft end dimensions					Approx. mass (kg)			
Voltage	Model	L	LL	L	LL			LA	LB	LC	LG	LZ	S	Tap × Depth	K	QK	H	B	T	Without brake	With brake
230	R88M-KH□ 20030(H/T)-S2-D	129	99	165.5	135.5	42	30	70	50 <sup>h7</sup>	60	6.5	4.5	11 <sup>h6</sup>	M4 × 8L	20	18	8.5	4 <sup>h9</sup>	4	0.96	1.4
	40030(H/T)-S2-D	148.5	118.5	185	155	61.5		90	50 <sup>h7</sup>				14 <sup>h6</sup>	M5 × 10L	25	22.5	11	5 <sup>h9</sup>	5	1.4	1.8
	75030(H/T)-S2-D	162.2	127.2	199.2	164.2	67.2	35	90	70 <sup>h7</sup>	80	8	6	19 <sup>h6</sup>	M5 × 10L	25	22	15.5	6 <sup>h9</sup>	6	2.5	3.3



Encoder connector wiring



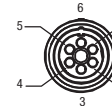
Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-176-MRW040 (MALE)

Pin No.	Signal
1	BAT - (0 V)
2	BAT +
3	S +
4	S -
5 to 7	Free
8	ESV (power supply)
9	EOV (power supply)
10 to 17	Free
Connector case	FG (Ground)

\* Note: Pins 1 and 2 used only for motors with ABS encoder.

Mating connector:  
Plug type: SPOC-17H-FRON169 (FEMALE)

Power and brake connector wiring



Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-06J-MSC236 (MALE)

Pin No.	Output
1	Phase U
2	Phase V
3	Phase W
4	*Brake terminal
5	*Brake terminal
6	FG (ground)

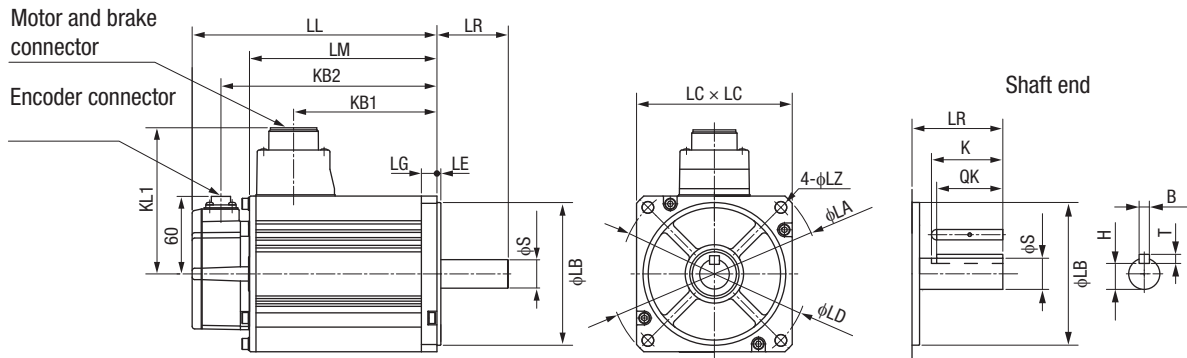
\* Note: Pins 4 and 5 used only for motors with brake.

Mating connector:  
Plug type: SPOC-06K-FSDN169 (FEMALE)



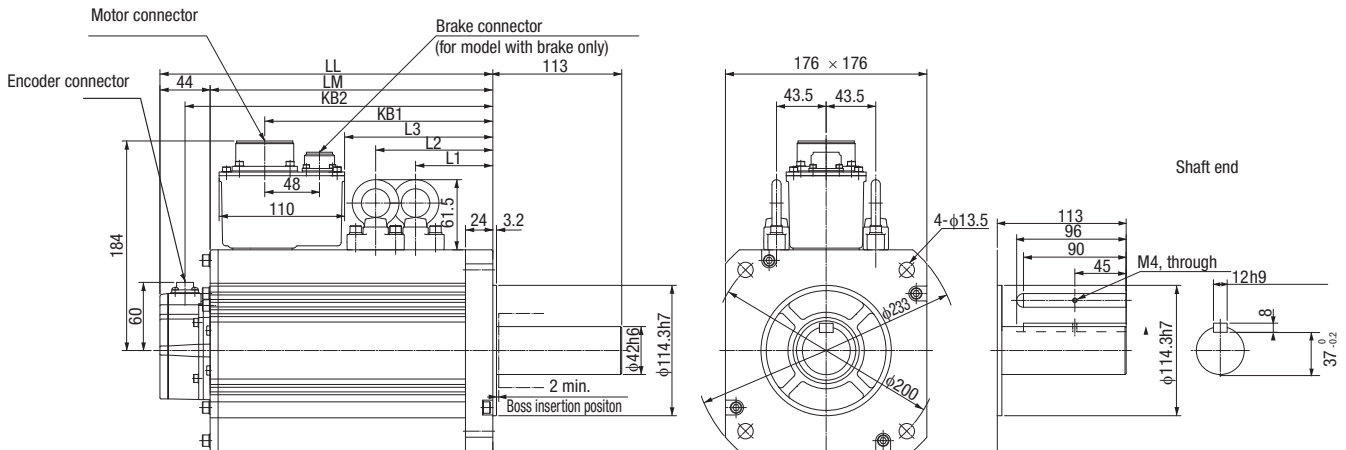
## Type 2,000 r/min motors (400 V, 1 kW to 5 kW)

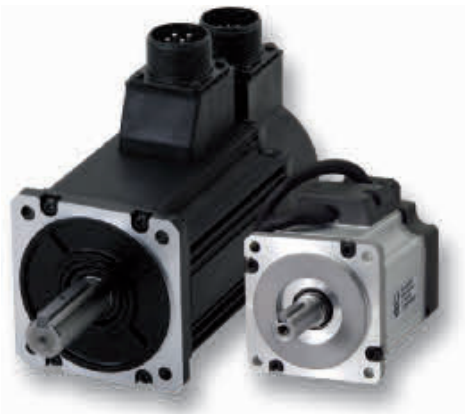
Dimensions (mm)		Without brake					With brake					LR	Flange surface							Shaft End Dimensions						Approx. mass (Kg)	
Voltage	Model	LL	LM	KB1	KB2	KL1	LL	LM	KB1	KB2	KL1	70	LA	LB	LC	LD	LE	LG	LZ	S	K	QK	H	B	T	Without brake	With brake
		R88M-KH□																									
400	1K020(F/C)-_S1	173	129	95	151	116	201	157	92	179	118		165	110 <sup>h7</sup>	130	145	6	12	9	22 <sup>h6</sup>	45	41	18	8 <sup>h9</sup>	7	6.7	8.1
	1K520(F/C)-_S1	190.5	146.5	112.5	168.5		218.5	174.5	109.5	196.5															8.6	10.1	
	2K020(F/C)-_S1	177	133	96	155	140	206	162	96	184	140	80	233	114.3 <sup>h7</sup>	176	200	3.2	18	13.5	35 <sup>h6</sup>	55	50	30	10 <sup>h9</sup>	8	12.2	15.5
	3K020(F/C)-_S1	196	152	115	174		225	181	115	203															16.0	19.2	
	4K020(F/C)-_S1	209.5	165.5	128.5	187.5		238.5	194.5	128.5	216.5															18.6	21.8	
	5K020(F/C)-_S1	238.5	194.5	157.5	216.5		267.5	223.5	157.5	245.5															23.0	26.2	



## Type 1,500 r/min motors (400 V, 7.5 kW)

Dimensions (mm)		Without brake							With brake						Approx. mass (Kg)		
Voltage	Model	LL	LM	KB1	KB2	L1	L2	L3	LL	LM	KB1	KB2	L1	L2	L3	Without brake	With brake
		R88M-KH_															
400	7K515C-_S1	357	313	264	335	146.5	146.5	194	382	338	298	360	146.5	181.5	228	42.3	46.2



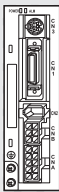


Compact in size, big in features

A wide range of compact servo motors to meet all application needs. When used with a SmartStep 2 drive, the G-Series servo motors offer the simplicity and cost-effectiveness of a stepper with the added advantages of a servo system.

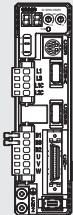
- Peak torque 300% of continuous torque during 3 seconds or more depending on model
- Servo motors supported by SmartStep2, G-Series and Accurax G5 servo drives
- Cylindrical and Flat servo motors types are available
- Encoder accuracy of 10,000 step/rev as standard and 17-bit INC/ABS encoder as optional
- IP65 as standard and shaft oil seal available
- Motors with brake as option

Ordering information

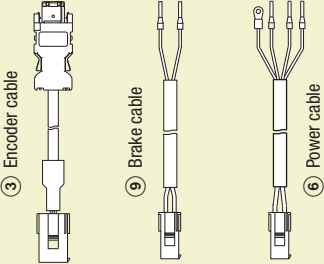
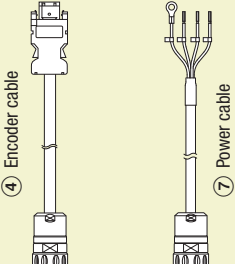
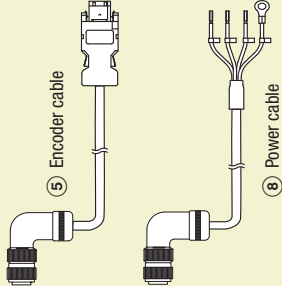
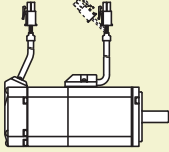
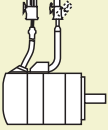
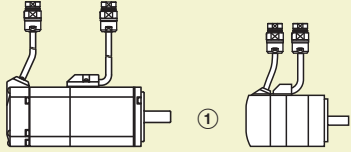
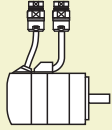



**SmartStep 2**  
Servo drive controlled by pulses (100 to 750 W)

Drive options  
②



**G-Series servo drive**  
ML2 and analogue/pulse models (100 to 1500 W)

		
 <p><b>Servo motor with standard connector</b> 3,000 rpm (50 to 750 W)</p>	 <p><b>Flat type servo motor with standard connector</b> 3,000 rpm (100 to 400 W)</p>	 <p><b>Servo motor with circular connector</b> 3,000 rpm (50 to 750 W)</p>
 <p><b>Flat type servo motor with circular connector</b> 3,000 rpm (100 to 400 W)</p>		 <p>3,000 rpm (1,000 to 1,500 W) 2,000 rpm (1,000 to 1,500 W) 1,000 rpm (900 W)</p>

**Note:** The symbols ①②③④⑤⑥ ... show the recommended sequence to select the servo motor and cables



**Servo drive**

② Refer to G-Series and SmartStep2 servo drive section for detailed drive specifications and selection of drive accessories.


**Servo motor**

① Select motor from cylindrical and flat types using motor tables in next pages.

## Cylindrical servo motors 3,000/2,000/1,000 r/min (230 V, 50 to 1.5 kW)



Symbol	Specifications					② Compatible servo drives		Servo motor with standard connector	Servo motor with circular connector	
	Encoder and design	Speed	Design	Rated torque	Capacity	SmartStep 2	G-Series	Order code		
 <p>(50 to 750 W)</p>  <p>(900 to 1,500 W)</p>	Incremental encoder (10,000 pulses) Straight shaft with key and tap	3,000 min <sup>-1</sup>	Without brake	0.16 Nm	50 W	R7D-BP01H	R88D-G_01H_	R88M-G05030H-S2	R88M-G05030H-S2-D	
				0.32 Nm	100 W	R7D-BP01H	R88D-G_01H_	R88M-G10030H-S2	R88M-G10030H-S2-D	
				0.64 Nm	200 W	R7D-BP02HH	R88D-G_02H_	R88M-G20030H-S2	R88M-G20030H-S2-D	
				1.3 Nm	400 W	R7D-BP04H	R88D-G_04H_	R88M-G40030H-S2	R88M-G40030H-S2-D	
				2.4 Nm	750 W	R88D-GP08H	R88D-G_08H_	R88M-G75030H-S2	R88M-G75030H-S2-D	
			With brake	0.16 Nm	50 W	R7D-BP01H	R88D-G_01H_	R88M-G05030H-BS2	R88M-G05030H-BS2-D	
				0.32 Nm	100 W	R7D-BP01H	R88D-G_01H_	R88M-G10030H-BS2	R88M-G10030H-BS2-D	
				0.64 Nm	200 W	R7D-BP02HH	R88D-G_02H_	R88M-G20030H-BS2	R88M-G20030H-BS2-D	
				1.3 Nm	400 W	R7D-BP04H	R88D-G_04H_	R88M-G40030H-BS2	R88M-G40030H-BS2-D	
				2.4 Nm	750 W	R88D-GP08H	R88D-G_08H_	R88M-G75030H-BS2	R88M-G75030H-BS2-D	
	Absolute/incremental encoder (17 bits) Straight shaft with key and tap	3,000 min <sup>-1</sup>	Without brake	0.16 Nm	50 W	–	R88D-G_01H_	R88M-G05030T-S2	R88M-G05030T-S2-D	
				0.32 Nm	100 W	–	R88D-G_01H_	R88M-G10030T-S2	R88M-G10030T-S2-D	
				0.64 Nm	200 W	–	R88D-G_02H_	R88M-G20030T-S2	R88M-G20030T-S2-D	
				1.3 Nm	400 W	–	R88D-G_04H_	R88M-G40030T-S2	R88M-G40030T-S2-D	
				2.4 Nm	750 W	–	R88D-G_08H_	R88M-G75030T-S2	R88M-G75030T-S2-D	
			With brake	0.16 Nm	50 W	–	R88D-G_01H_	R88M-G05030T-BS2	R88M-G05030T-BS2-D	
				0.32 Nm	100 W	–	R88D-G_01H_	R88M-G10030T-BS2	R88M-G10030T-BS2-D	
				0.64 Nm	200 W	–	R88D-G_02H_	R88M-G20030T-BS2	R88M-G20030T-BS2-D	
				1.3 Nm	400 W	–	R88D-G_04H_	R88M-G40030T-BS2	R88M-G40030T-BS2-D	
				2.4 Nm	750 W	–	R88D-G_08H_	R88M-G75030T-BS2	R88M-G75030T-BS2-D	
	2,000 min <sup>-1</sup>	Without brake	3.18 Nm	1 kW	–	R88D-G_15H_	R88M-G1K030T-S2	–		
			4.77 Nm	1.5 kW	–	R88D-G_15H_	R88M-G1K530T-S2	–		
			With brake	0.16 Nm	50 W	–	R88D-G_01H_	R88M-G05030T-BS2	R88M-G05030T-BS2-D	
				0.32 Nm	100 W	–	R88D-G_01H_	R88M-G10030T-BS2	R88M-G10030T-BS2-D	
				0.64 Nm	200 W	–	R88D-G_02H_	R88M-G20030T-BS2	R88M-G20030T-BS2-D	
		1.3 Nm		400 W	–	R88D-G_04H_	R88M-G40030T-BS2	R88M-G40030T-BS2-D		
		2.4 Nm		750 W	–	R88D-G_08H_	R88M-G75030T-BS2	R88M-G75030T-BS2-D		
			1,000 min <sup>-1</sup>	Without brake	3.18 Nm	1 kW	–	R88D-G_15H_	R88M-G1K030T-BS2	–
					4.77 Nm	1.5 kW	–	R88D-G_15H_	R88M-G1K530T-BS2	–
					With brake	4.8 Nm	1 kW	–	R88D-G_10H_	R88M-G1K020T-S2
7.15 Nm	1.5 kW					–	R88D-G_15H_	R88M-G1K520T-S2	–	
4.8 Nm	1 kW					–	R88D-G_10H_	R88M-G1K020T-BS2	–	
7.15 Nm	1.5 kW	–	R88D-G_15H_	R88M-G1K520T-BS2		–				
8.62 Nm	900 W	–	R88D-G_15H_	R88M-G90010T-S2		–				
8.62 Nm	900 W	–	R88D-G_15H_	R88M-G90010T-BS2	–					

## Flat type servo motors 3,000 r/min (230 V, 100 to 400 W)


Symbol	Specifications				② Compatible servo drives		Servo motor with standard connector	Servo motor with circular connector
	Encoder and design		Rated torque	Capacity	SmartStep 2	G-Series	Order code	
	Incremental encoder (10,000 pulses) Straight shaft with key and tap	Without brake	0.32 Nm	100 W	R7D-BP01H	R88D-G_01H_	R88M-GP10030H-S2	R88M-GP10030H-S2-D
			0.64 Nm	200 W	R7D-BP02HH	R88D-G_02H_	R88M-GP20030H-S2	R88M-GP20030H-S2-D
			1.3 Nm	400 W	R7D-BP04H	R88D-G_04H_	R88M-GP40030H-S2	R88M-GP40030H-S2-D
		With brake	0.32 Nm	100 W	R7D-BP01H	R88D-G_01H_	R88M-GP10030H-BS2	R88M-GP10030H-BS2-D
			0.64 Nm	200 W	R7D-BP02HH	R88D-G_02H_	R88M-GP20030H-BS2	R88M-GP20030H-BS2-D
			1.3 Nm	400 W	R7D-BP04H	R88D-G_04H_	R88M-GP40030H-BS2	R88M-GP40030H-BS2-D
	Absolute/incremental encoder (17 bits) Straight shaft with key and tap	Without brake	0.32 Nm	100 W	–	R88D-G_01H_	R88M-GP10030T-S2	R88M-GP10030T-S2-D
			0.64 Nm	200 W	–	R88D-G_02H_	R88M-GP20030T-S2	R88M-GP20030T-S2-D
		With brake	1.3 Nm	400 W	–	R88D-G_04H_	R88M-GP40030T-S2	R88M-GP40030T-S2-D
			0.32 Nm	100 W	–	R88D-G_01H_	R88M-GP10030T-BS2	R88M-GP10030T-BS2-D
0.64 Nm	200 W	–	R88D-G_02H_	R88M-GP20030T-BS2	R88M-GP20030T-BS2-D			
1.3 Nm	400 W	–	R88D-G_04H_	R88M-GP40030T-BS2	R88M-GP40030T-BS2-D			

## Encoder cables

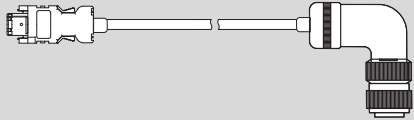
### For 50 to 750 W servo motors with standard connectors

Symbol	Appearance	Specifications		Length	Order code	
③		Encoder cable (50 to 750 W) R88M-G(50/100/200/400/750)30 R88M-GP(100/200/400)30	Absolute encoder T-	1.5 m	R88A-CRGA001-5CR-E	
				3 m	R88A-CRGA003CR-E	
				5 m	R88A-CRGA005CR-E	
				10 m	R88A-CRGA010CR-E	
				15 m	R88A-CRGA015CR-E	
				20 m	R88A-CRGA020CR-E	
				Incremental encoder H-	1.5 m	R88A-CRGB001-5CR-E
					3 m	R88A-CRGB003CR-E
					5 m	R88A-CRGB005CR-E
					10 m	R88A-CRGB010CR-E
					15 m	R88A-CRGB015CR-E
					20 m	R88A-CRGB020CR-E

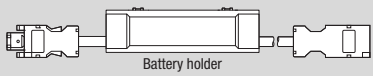

### For 50 to 750 W servo motors with circular connector

Symbol	Appearance	Specifications	Length	Order code
④		Encoder cable (50 to 750 W) R88M-G(50/100/200/400/750)30_ _ _ _ _D R88M-GP(100/200/400)30_ _ _ _ _D	3 m	R88A-CRWA003C-DE
			5 m	R88A-CRWA005C-DE
			10 m	R88A-CRWA010C-DE
			15 m	R88A-CRWA015C-DE
			20 m	R88A-CRWA020C-DE

### For 900 to 1,500 W servo motors

Symbol	Appearance	Specifications	Length	Order code
⑤		Encoder cable (900-1500 W) R88M-G(1K0/1K5)30T- _ R88M-G(1K0/1K5)20T- _ R88M-G90010T- _	1.5 m	R88A-CRGC001-5NR-E
			3 m	R88A-CRGC003NR-E
			5 m	R88A-CRGC005NR-E
			10 m	R88A-CRGC010NR-E
			15 m	R88A-CRGC015NR-E
			20 m	R88A-CRGC020NR-E



### Battery cable for G-series servo drive models with absolute encoder

Symbol	Appearance	Specifications		Order code	
④	 <p>Battery holder</p>	Absolute encoder battery cable	Battery not included	0.3 m	R88A-CRGDOR3C-E
			Battery included	0.3 m	R88A-CRGDOR3C-BS-E
		Absolute encoder backup battery 2,000 mA.h 3.6 V	-		R88A-BAT01G




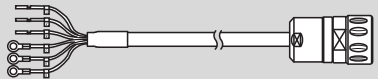
**Note:** The absolute encoder battery cable is only an extension and must be used with an absolute encoder cable.

## Power cables


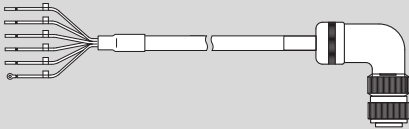
### For 50 to 750 W servo motors with standard connectors

Symbol	Appearance	Specifications	Applicable servo drive	Length	Order code	
⑥		For servomotors from 50 to 400 W R88M-G(050/100/200/400)30_ _ R88M-GP(100/200/400)30_ _	SmartStep 2	1.5 m	R7A-CAB001-5SR-E	
				3 m	R7A-CAB003SR-E	
				5 m	R7A-CAB005SR-E	
				10 m	R7A-CAB010SR-E	
				15 m	R7A-CAB015SR-E	
		For servomotors from 50 to 750W R88M-G(050/100/200/400/750)30_ _ R88M-GP(100/200/400)30_ _	For servomotors with brake, a separate cable (R88A-CAGA_BR-E) is needed	SmartStep 2 (only 750 W) and G-Series	1.5 m	R88A-CAGA001-5SR-E
					3 m	R88A-CAGA003SR-E
					5 m	R88A-CAGA005SR-E
					10 m	R88A-CAGA010SR-E
					15 m	R88A-CAGA015SR-E
20 m	R88A-CAGA020SR-E					

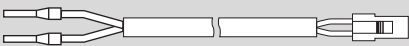
## For 50 to 750 W servo motors with circular connectors

Symbol	Appearance	Specifications	Applicable servo drive	Length	Order code		
⑦		For servomotors from 50 to 400 W R88M-G(050/100/200/400)30_ R88M-GP(100/200/400)30_	Without brake -S2-D	SmartStep 2	1.5 m	R7A-CAB001-5SR-DE	
					3 m	R7A-CAB003SR-DE	
					5 m	R7A-CAB005SR-DE	
					10 m	R7A-CAB010SR-DE	
					15 m	R7A-CAB015SR-DE	
					20 m	R7A-CAB020SR-DE	
				With brake -BS2-D		1.5 m	R7A-CAB001-5BR-DE
						3 m	R7A-CAB003BR-DE
						5 m	R7A-CAB005BR-DE
						10 m	R7A-CAB010BR-DE
						15 m	R7A-CAB015BR-DE
						20 m	R7A-CAB020BR-DE
	For servomotors from 50 to 750 W R88M-G(050/100/200/400/750)30_ R88M-GP(100/200/400)30_	Without brake -S2-D	SmartStep 2 (only 750 W) and G-Series	3 m	R88A-CAWA003S-DE		
				5 m	R88A-CAWA005S-DE		
				10 m	R88A-CAWA010S-DE		
				15 m	R88A-CAWA015S-DE		
					With brake -BS2-D	3 m	R88A-CAWA003B-DE
						5 m	R88A-CAWA005B-DE
						10 m	R88A-CAWA010B-DE
						15 m	R88A-CAWA015B-DE
20 m	R88A-CAWA020B-DE						

## For 900 to 1,500 W servo motors

Symbol	Appearance	Specifications	Applicable servo drive	Length	Order code		
⑧		For servomotors from 900 to 1.5 kW R88M-G(1K0/1K5)30T_ R88M-G(1K0/1K5)20T_ R88M-G90010T_	Without brake -S2	G-Series	1.5 m	R88A-CAGB001-5SR-E	
					3 m	R88A-CAGB003SR-E	
					5 m	R88A-CAGB005SR-E	
					10 m	R88A-CAGB010SR-E	
					15 m	R88A-CAGB015SR-E	
					With brake -BS2	1.5 m	R88A-CAGB001-5BR-E
						3 m	R88A-CAGB003BR-E
						5 m	R88A-CAGB005BR-E
						10 m	R88A-CAGB010BR-E
						15 m	R88A-CAGB015BR-E
20 m	R88A-CAGB020BR-E						

## Brake cable with standard connector

Symbol	Appearance	Specifications	Order code	
⑥		Brake cable only. For servomotors from 50 to 750W with brake  R88M-G(050/100/200/400/750)30_-BS2, R88M-GP(100/200/400)30_-BS2	1.5 m	R88A-CAGA001-5BR-E
			3 m	R88A-CAGA003BR-E
			5 m	R88A-CAGA005BR-E
			10 m	R88A-CAGA010BR-E
			15 m	R88A-CAGA015BR-E
			20 m	R88A-CAGA020BR-E

## Connectors for power, encoder and brake cables

Specifications			Applicable servomotor	Order code	
Connectors for power cable	Drive side (CNB)	-	R88M-G(050/100/200/400)30H_ R88M-GP(100/200/400)30H_	R7A-CNB01A	
	Motor side	Standard connector	R88M-G(050/100/200/400/750)30_ R88M-GP(100/200/400)30_ R88M-G(1K0/1K5)30_-S2 R88M-G(1K0/1K5)20_-S2 R88M-G90010_-S2	R88A-CNG01A MS3108E20-4S	
			R88M-G(1K0/1K5)30_-BS2 R88M-G(1K0/1K5)20_-BS2 R88M-G90010_-BS2	MS3108E20-18S	
			Circular connector (Hypertac)	R88M-G(50/100/200/400/750)30_ -D R88M-GP(100/200/300)_ -D	SPOC-06K-FSDN169
			Connectors for encoder cable	Drive side (CN2)	-
Motor side	Standard connector	R88M-G(050/100/200/400/750)30T_ R88M-GP(100/200/400)30T_- R88M-G(050/100/200/400/750)30H_ R88M-GP(100/200/400)30H_-	R88A-CNG01R R88A-CNG02R		
		R88M-G(1K0/1K5)30T_ R88M-G(1K0/1K5)20T_ R88M-G90010T_-	MS3108E20-29S		
		Circular connector (Hypertac)	R88M-G(50/100/200/400/750)30_ -D R88M-GP(100/200/300)_ -D	SPOC-17H-FRON169	
		Connector for brake cable	Motor side	Standard connector	R88M-G(050/100/200/400/750)30_-BS2 R88M-GP(100/200/400)30_-BS2

## Connectors included with the motor

Specifications		Applicable servomotor	Order code
Power and brake connector (MALE)	Circular connector (Hypertac)	R88M-G(50/100/200/400/750)30_ -D R88M-GP(100/200/300)_ -D	SRUC-06J-MSCN236
Encoder connector (MALE)		R88M-G(50/100/200/400/750)30_ -D R88M-GP(100/200/300)_ -D	SRUC-17G-MRWN087

Note: 1. All cables listed are flexible and shielded (except the R88A-CAGA \_\_\_ BR-E which is only a flexible cable).

2. The R88A-CRGC \_\_\_ NR-E, R88A-CAGB \_\_\_ SR-E, R88A-CAGB \_\_\_ BR-E, R88A-CRWA \_\_\_ C-DE, R88A-CAWA \_\_\_ S-DE and R88A-CAWA \_\_\_ B-DE cables have IP67 class (including connector).

## Specifications

### Cylindrical servo motors 3,000/2,000/1,000 r/min

Applied voltage		230 V												
Servo motor model R88M-__		G05030_	G10030_	G20030_	G40030_	G75030_	G1K030T	G1K530T	G1K020T	G1K520T	G90010T			
Rated output	W	50	100	200	400	750	1,000	1,500	1,000	1,500	900			
Rated torque	N·m	0.16	0.32	0.64	1.3	2.4	3.18	4.77	4.8	7.15	8.62			
Instantaneous peak torque	N·m	0.45	0.90	1.78	3.67	7.05	9.1	12.8	13.5	19.6	18.4			
Rated current	A (rms)	1.1		1.6	2.6	4	7.2	9.4	5.6	9.4	7.6			
Instantaneous max. current	A (rms)	3.4		4.9	7.9	12.1	21.4	28.5	17.1	28.5	17.1			
Rated speed	min <sup>-1</sup>	3,000							2,000		1,000			
Max. speed	min <sup>-1</sup>	5,000				4,500	5,000		3,000		2,000			
Torque constant	N·m/A (rms)	0.14	0.19	0.41	0.51	0.64	0.44	0.51	0.88	0.76	1.13			
Rotor moment of inertia (JM)	kg·m <sup>2</sup> ×10 <sup>-4</sup>	0.025	0.051	0.14	0.26	0.87	1.69	2.59	6.17	11.2				
Allowable load moment of inertia (JL)	Multiple of (JM)	30					20	15		10				
Rated power rate	kW/s	10.4	20.1	30.3	62.5	66	60	88	37.3	45.8	66.3			
Applicable Encoder		Incremental encoder (10,000 pulses)					-		Incremental / Absolute encoder (17 bits)					
Allowable radial load	N	68		245		392		490		686				
Allowable thrust load	N	58		98		147		196						
Approx. mass	kg (without brake)	0.3	0.5	0.8	1.2	2.3	4.5	5.1	6.8	8.5				
	kg (with brake)	0.5	0.7	1.3	1.7	3.1	5.1	6.5	8.7	10.1	10			
Brake specifications	Rated voltage	24 VDC±5%						24 VDC±10%						
	Holding brake moment of inertia J	kg·m <sup>2</sup> ×10 <sup>-4</sup>		0.002		0.018		0.075		0.25		0.33	1.35	
	Power consumption (at 20°C)	W		7		9		10		18		19		
	Current consumption (at 20°C)	A		0.3		0.36		0.42		0.74		0.81	0.79	
	Static friction torque	N·m (minimum)		0.29		1.27		2.45		4.9		7.8	4.9	13.7
	Rise time for holding torque	ms (max.)		35		50		70		50		80	100	
Release time	ms (max)		20		15		20		15		70	50		

Applied voltage		230 V										
Servo motor model R88M-__		G05030_	G10030_	G20030_	G40030_	G75030_	G1K030T	G1K530T	G1K020T	G1K520T	G90010T	
Basic specifications	Rating	Continuous										
	Insulation grade	Type B					Type F					
	Ambient operating/storage temperature	0 to 40°C/-20 to 65°C					0 to 40°C/-20 to 80°C					
	Ambient operating/storage humidity	85% RH max. (non-condensing)										
	Vibration class	V-15										
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal										
	Enclosure	Totally-enclosed, self-cooling, IP65 (excluding shaft opening and lead wire ends)										
	Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>					Vibration acceleration 24.5 m/s <sup>2</sup>					
	Mounting	Flange-mounted										

### Flat servo motors 3,000 r/min

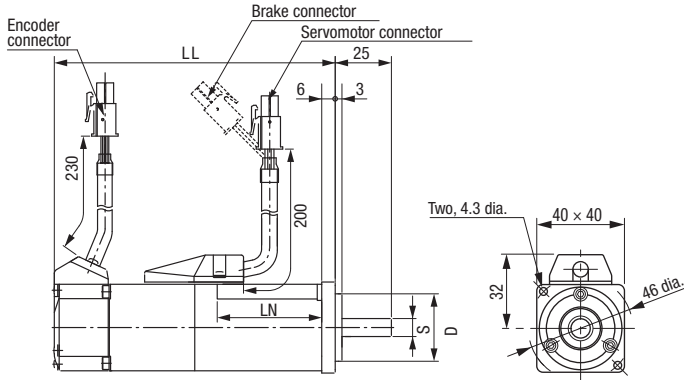
Applied voltage		230 V			
Servo motor model R88M-__		GP10030_		GP20030_	GP40030_
Rated output	W	100		200	400
Rated torque	N·m	0.32		0.64	1.3
Instantaneous peak torque	N·m	0.86		1.8	3.65
Rated current	A (rms)	1		1.6	2.5
Instantaneous max. current	A (rms)	3.1		4.9	7.5
Rated speed	min <sup>-1</sup>	3,000			
Max. speed	min <sup>-1</sup>	5,000			
Torque constant	N·m/A (rms)	0.34		0.42	0.54
Rotor moment of inertia (JM)	kg·m <sup>2</sup> ×10 <sup>-4</sup>	0.1		0.35	0.64
Allowable load moment of inertia (JL)	Multiple of (JM)	20			
Rated power rate	kW/s	10.2		11.5	25.5
Applicable encoder		Incremental (10,000 pulses)			
		Incremental/Absolute encoder (17 bits)			
Allowable radial load	N	68		245	
Allowable thrust load	N	58		98	
Approx. mass	kg (without brake)	0.7		1.3	1.8
	kg (with brake)	0.9		2	2.5
Brake specifications	Rated voltage	24 VDC±10%			
	Holding brake moment of inertia J	kg·m <sup>2</sup> ×10 <sup>-4</sup>	0.03		0.09
	Power consumption (at 20°C)	W	7		10
	Current consumption (at 20°C)	A	0.29		0.41
	Static friction torque	N·m (minimum)	0.29		1.27
	Rise time for holding torque	ms (max.)	50		60
Release time	ms (max)	15			
Basic specifications	Rating	Continuous			
	Insulation grade	Type B			
	Ambient operating/storage temperature	0 to 40°C/-20 to 80°C			
	Ambient operating/storage humidity	85% RH max. (non-condensing)			
	Vibration class	V-15			
	Insulation resistance	20 MΩ min. at 500 VDC between the power terminals and FG terminal			
	Enclosure	Totally-enclosed, self-cooling, IP65 (excluding shaft opening and lead wire ends)			
Vibration resistance	Vibration acceleration 49 m/s <sup>2</sup>				
Mounting	Flange-mounted				

## Dimensions

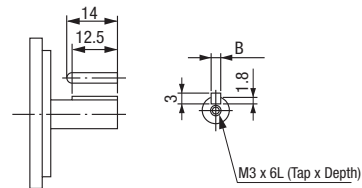
### Cylindrical type 3,000 r/min (230 V, 50 to 100 W)

Dimensions (mm)	Without brake	With brake	LN	Flange surface D	Shaft end		Aprox. mass (kg)	
Model	LL	LL			S	B	Without brake	With brake
R88M-G05030_-S2_-	72	102	26.5	30 <sup>h7</sup>	8 <sup>h6</sup>	3 <sup>h9</sup>	0.3	0.5
R88M-G10030_-S2_-	92	122	46.5				0.5	0.7

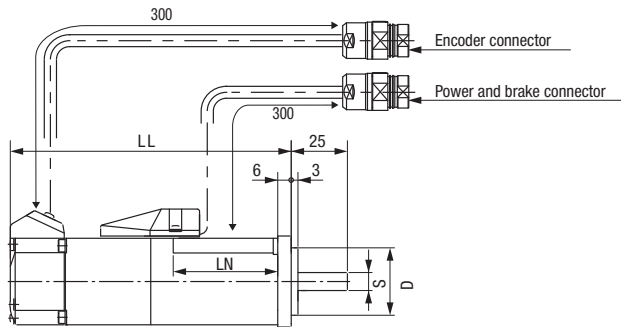
### Servo motor with standard connector



(Dimensions of shaft end with key and tap)



### Servo motor with circular connector



#### Encoder connector wiring



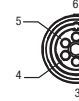
Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-17G-MRWN087 (MALE)

Encoder connector	
Pin No.	Signal
1	BAT - (0 V)
2	BAT +
3	S +
4	S -
5 to 7	Free
8	ESV (power supply)
9	EDV (power supply)
10 to 17	Free
Connector case	FG (Ground)

\*Note: Pins 1 and 2 used only for motors with ABS encoder.

Mating connector:  
Plug type: SPOC-17H-FRON169 (FEMALE)

#### Power and brake connector wiring



Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-06J-MSCN236 (MALE)

Power and brake connector	
Pin No.	Output
1	Phase U
2	Phase V
3	Phase W
4	*Brake terminal
5	*Brake terminal
6	FG (ground)

\*Note: Pins 4 and 5 used only for motors with brake.

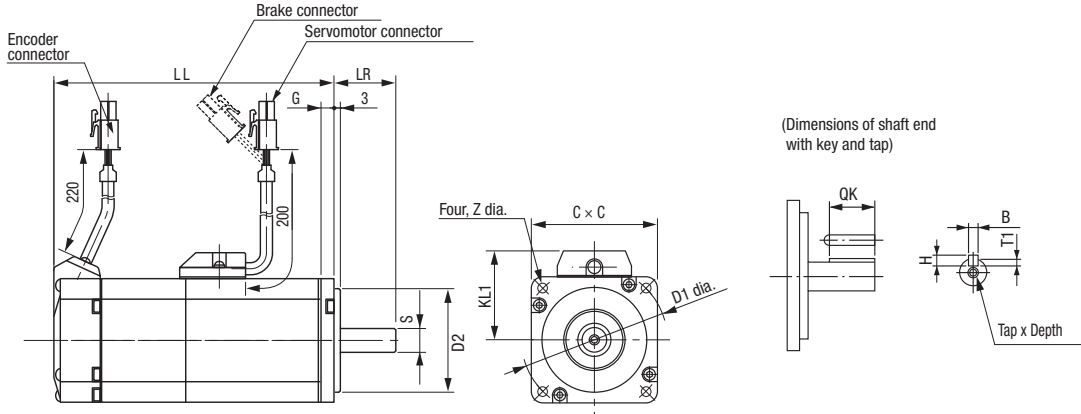
Mating connector:  
Plug type: SPOC-06K-FSDN169 (FEMALE)



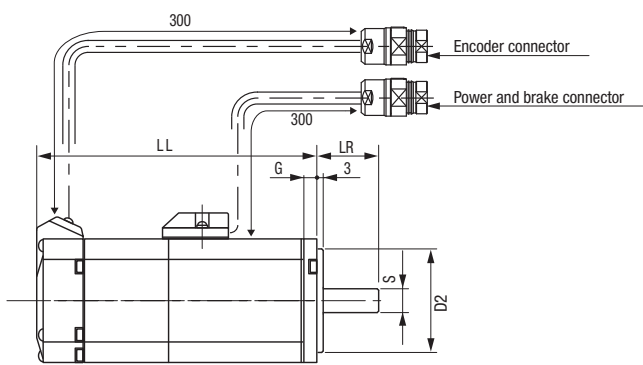
### Cylindrical type 3,000 r/min (230 V, 200 to 750 W)

Dimensions (mm)	Without brake		With brake		LR	KL1	Flange surface					Shaft end					Approx. mass (kg)	
	LL	LL	LL	LL			D1	D2	C	G	Z	S	QK	B	H	T1	Tap x depth	Without brake
R88M-G20030_-S2_-	79.5	116	30	43		70	50 <sup>h7</sup>	60	6.5	4.5	11 <sup>h6</sup>	18	4 <sup>h9</sup>	4	2.5	M4 x 8L	0.8	1.3
R88M-G40030_-S2_-	99	135.5									14 <sup>h6</sup>	22.5	5 <sup>h9</sup>	5	3	M5 x 10L	1.2	1.7
R88M-G75030_-S2_-	112.2	149.2	35	53		90	70 <sup>h7</sup>	80	8	6	19 <sup>h6</sup>	22	6 <sup>h9</sup>	6	3.5		2.3	3.1

### Servo motor with standard connector



### Servo motor with circular connector



#### Encoder connector wiring

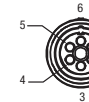


Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-17G-MRW087 (MALE)

Encoder connector	
Pin No.	Signal
1	BAT - (0 V)
2	BAT +
3	S +
4	S -
5 to 7	Free
8	ESV (power supply)
9	EDV (power supply)
10 to 17	Free
Connector case	FG (Ground)

\*Note: Pins 1 and 2 used only for motors with ABS encoder.  
Mating connector:  
Plug type: SPOC-17H-FRON169 (FEMALE)

#### Power and brake connector wiring



Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-06J-MSCN236 (MALE)

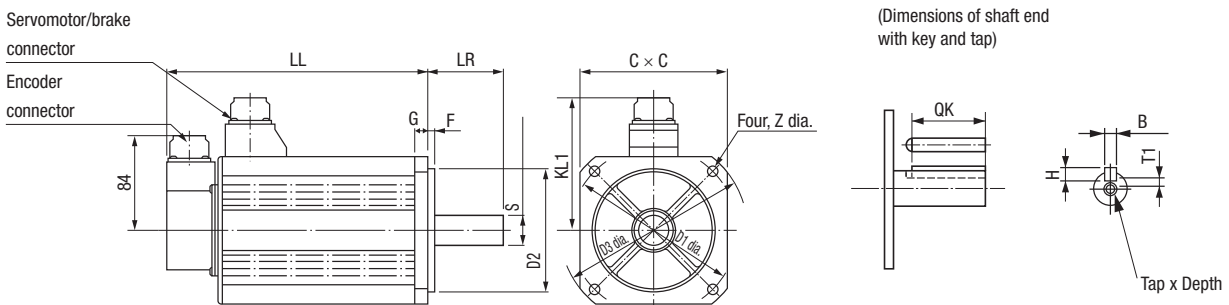
Power and brake connector	
Pin No.	Output
1	Phase U
2	Phase V
3	Phase W
4	*Brake terminal
5	*Brake terminal
6	FG (ground)

\*Note: Pins 4 and 5 used only for motors with brake.

Mating connector:  
Plug type: SPOC-06K-FSDN169 (FEMALE)

### Cylindrical type 3,000, 2,000 and 1,000 r/min (230 V, 900 kW to 1.5 kW)

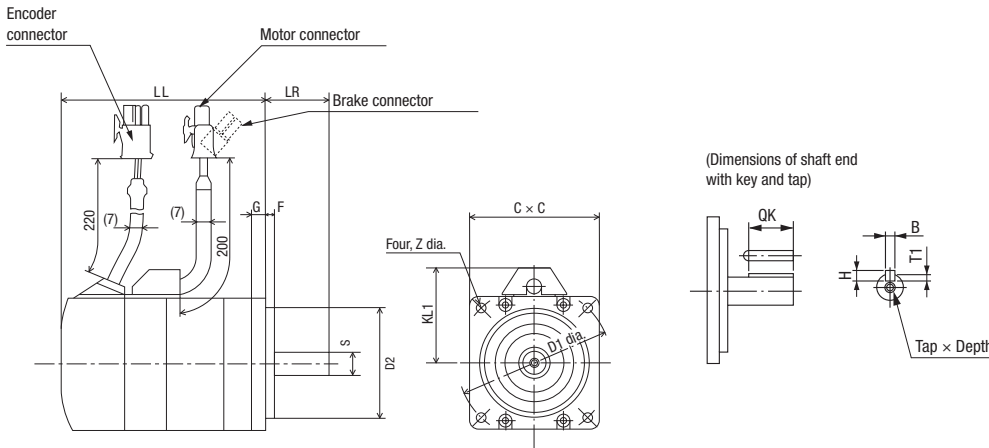
Dimensions (mm)	Without brake		With brake		LR	KL1	Flange surface					Shaft end					Approx. mass (kg)		
	LL	LL	LL	LL			D1	D2	D3	C	G	F	Z	S	QK	B	H	T1	Tap x depth
R88M-G1K030T_-S2	175	200	55	98	100	80 <sup>h7</sup>	120	90	7	3	6.6	19 <sup>h6</sup>	42	6 <sup>h9</sup>	6	3.5	M5 x 12L	4.5	5.1
R88M-G1K530T_-S2	180	205			103	115	95 <sup>h7</sup>	135	100	10	9							5.1	6.5
R88M-G1K020T_-S2	150	175			118	145	110 <sup>h7</sup>	165	130	12	6	22 <sup>h6</sup>	41	8 <sup>h9</sup>	7	4		6.8	8.7
R88M-G1K520T_-S2	175	200																8.5	10.1
R88M-G90010T_-S2	175	200	70																10



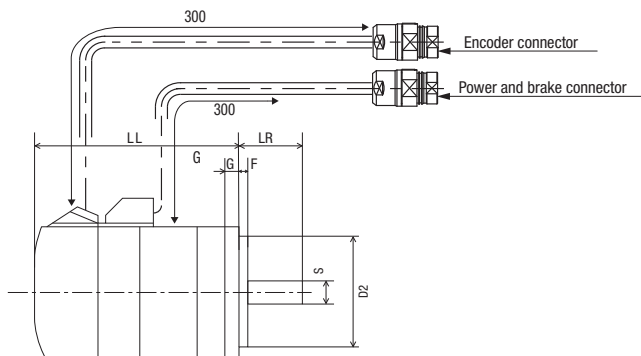
## Flat type 3,000 r/min (230 V, 100 W to 400 W)

Dimensions (mm)	Without brake		LR	KL1	Flange surface							Shaft end					Approx. mass (kg)	
	LL	LL			D1	D2	C	F	G	Z	S	QK	B	H	T1	Tap × depth	Without brake	With brake
R88M-GP10030H- S2-__	60.5	84.5	25	43	70	50 <sup>h7</sup>	60	3	7	4.5	8 <sup>h6</sup>	12.5	3 <sup>h9</sup>	3	1.8	M3 × 6L	0.7	0.9
R88M-GP10030T- S2-__	87.5	111.5																
R88M-GP20030H- S2-__	67.5	100	30	53	90	70 <sup>h7</sup>	80	5	8	5.5	11 <sup>h6</sup>	18	4 <sup>h9</sup>	4	2.5	M4 × 8L	1.3	2
R88M-GP20030T- S2-__	94.5	127																
R88M-GP40030H- S2-__	82.5	115									14 <sup>h6</sup>	22.5	5 <sup>h9</sup>	5	3.0	M5 × 10L	1.8	2.5
R88M-GP40030T- S2-__	109.5	142																

### Servo motor with standard connector



### Servo motor with circular connector



#### Encoder connector wiring



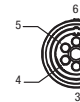
Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-17G-MRWN087 (MALE)

Encoder connector	
Pin No.	Signal
1	BAT - (0 V)
2	BAT +
3	S +
4	S -
5 to 7	Free
8	ESV (power supply)
9	EOV (power supply)
10 to 17	Free
Connector case	FG (Ground)

\*Note: Pins 1 and 2 used only for motors with ABS encoder.

Mating connector:  
Plug type: SPOC-17H-FRON169 (FEMALE)

#### Power and brake connector wiring



Cable length 300±30  
Connector optional  
Made by Hypertac  
SRUC-06J-MSCN236 (MALE)

Power and brake connector	
Pin No.	Output
1	Phase U
2	Phase V
3	Phase W
4	*Brake terminal
5	*Brake terminal
6	FG (ground)

\*Note: Pins 4 and 5 used only for motors with brake.

Mating connector:  
Plug type: SPOC-06K-FSDN169 (FEMALE)

# BORN TO DRIVE MACHINES

## Harmonised motor and machine control

Specifically created for your application, the MX2 was developed to harmonise advanced motor and machine control. Thanks to its advanced design and algorithms the MX2 provides smooth control down to zero speed, plus precise operation for fast cyclic operations and torque control capability in open loop.

The MX2 also gives you comprehensive functionality for machine control such as positioning, speed synchronisation and logic programming. The MX2 is fully integrated within the Omron smart automation platform.

The MX2 is the child of a true leader in machine automation.

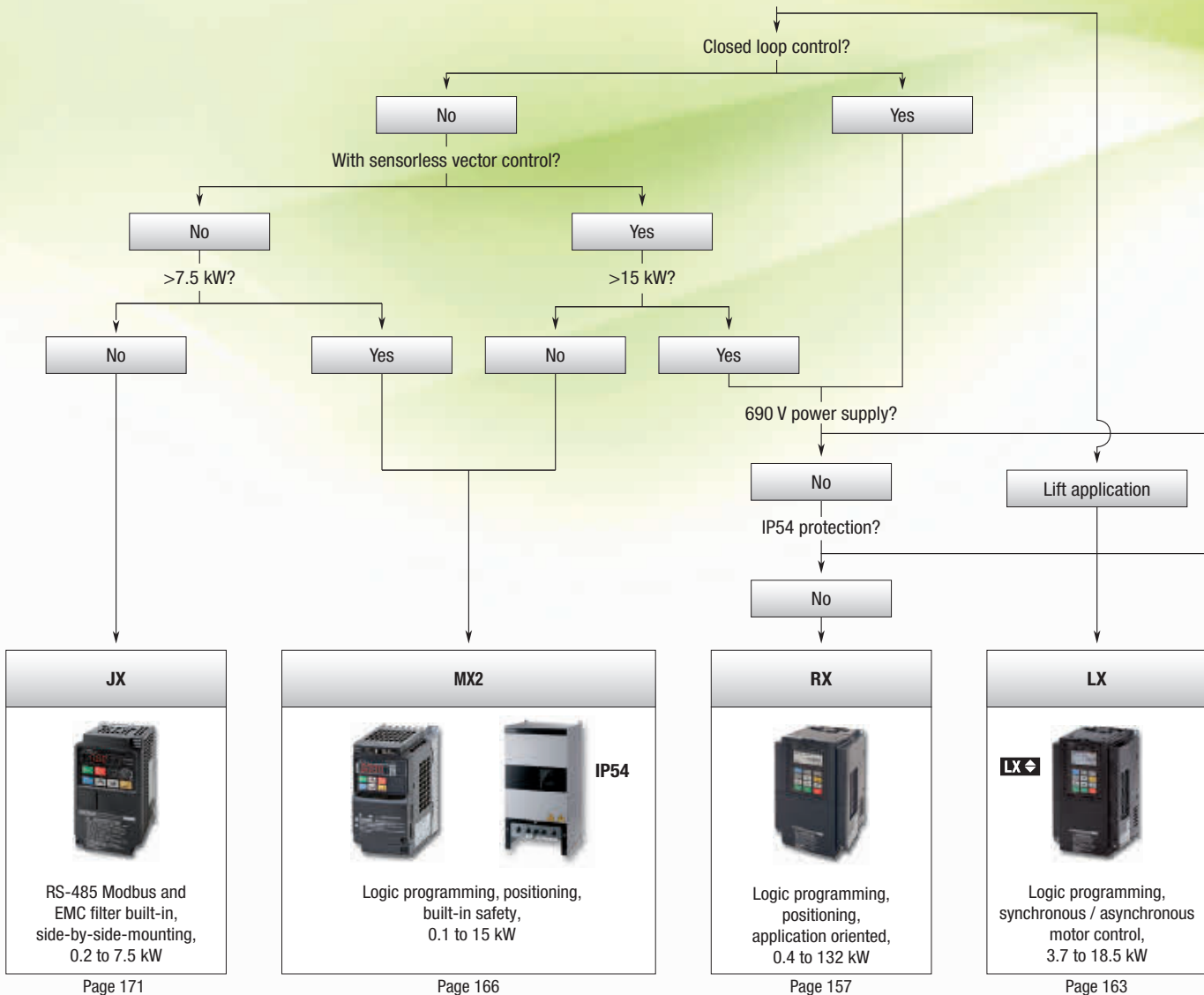
200% starting torque

Torque control in open loop

Special motors

One parameter auto-tuning

### What is your inverter application needs?



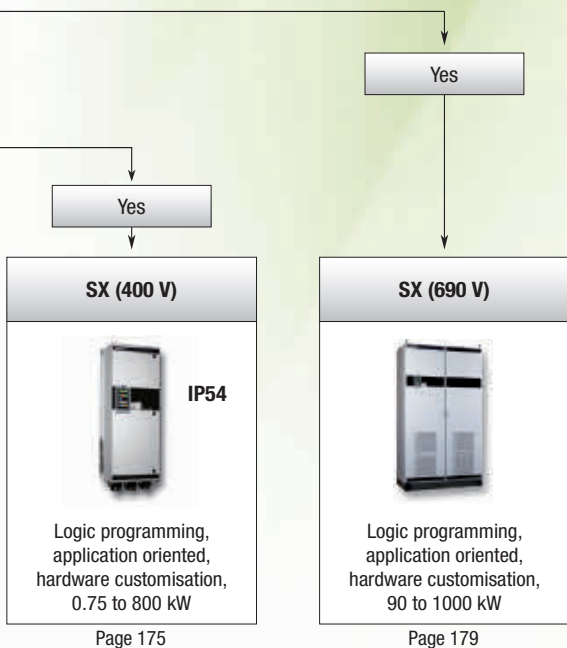
### MOTOR CONTROL

- Near stand-still operation (0.5 Hz)
- Smooth control of high inertia loads
- Control of fast cyclic loads
- Ideal for low to medium torque applications
- Can replace a flux vector or servo drive in suitable systems
- Permanent magnet motors
- Fire mode
- Just by entering the kW rating of the motor the MX2 gives you smooth and safe operation





### MACHINE CONTROL




- Safety inside**
  - Conforms to safety norm ISO-13849 CAT3 performance level PLD
  - 2 Safety inputs
  - External device monitoring (EDM)
- Logic programming**
  - Flow chart programming
  - Text editor
  - Intuitive – up to 5 tasks in parallel
- Positioning**
  - Up to 8 pre-set positions with “Homing”
  - Speed synchronisation
- Integrated in the Omron Smart Automation**
  - CX-Drive programming tool connected via integrated USB port on MX2.
  - Modbus RS485 built-in
  - Option units for EtherCAT, Profibus, DeviceNet, ML-II and more...





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Model	RX	LX
		
	<b>Customised to your machine</b>	<b>Lift applications</b>
<b>400 V three-phase</b>	<b>0.4 kW to 132 kW</b>	<b>3.7 kW to 18.5 kW</b>
<b>200 V three-phase</b>	<b>0.4 kW to 55 kW</b>	–
<b>Application</b>	High performance, built-in know-how functionality	Lift control with asynchronous and synchronous motors
<b>Control method</b>	Open and closed loop for vector and V/F control	Open and closed loop vector control and V/F control
<b>Torque features</b>	200% at 0.0 Hz (CLV) 150% at 0.3 Hz (OLV)	150% at 0.0 Hz (CLV) 200% at 0.3 Hz (OLV)
<b>Connectivity</b>	Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT, CompoNet	Modbus
<b>Logic programming</b>	Standard firmware	Standard firmware
<b>Page</b>	157	163

Model	MX2	JX
	  IP54	
	<b>Born to drive machines</b>	<b>Compact and complete</b>
<b>400 V three-phase</b>	<b>0.4 kW to 15 kW</b>	<b>0.4 kW to 7.5 kW</b>
<b>200 V three-phase</b>	<b>0.1 kW to 15 kW</b>	<b>0.2 kW to 7.5 kW</b>
<b>200 V single-phase</b>	<b>0.1 kW to 2.2 kW</b>	<b>0.2 kW to 2.2 kW</b>
<b>Application</b>	Harmonized motor and machine control	General purpose built-in communications
<b>Control method</b>	Open loop speed and torque control for vector and speed for V/F control	V/F control
<b>Torque features</b>	200% at 0.5 Hz	150% at 3 Hz
<b>Connectivity</b>	Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT, CompoNet, EtherNet IP	Modbus
<b>Logic programming</b>	Standard firmware	N/A
<b>Customisation options</b>	IP54 enclosure	N/A
<b>Page</b>	166	171

Model	SX (400 V)	SX (690 V)
	 IP54	
	<b>High performance vector control</b>	
<b>400 V three-phase</b>	<b>0.75 kW to 800 kW</b>	–
<b>690 V three-phase</b>	–	<b>90 kW to 1,000 kW</b>
<b>Application</b>	High power flux vector and variable torque applications	High power flux vector and variable torque applications
<b>Control method</b>	Flux vector and V/F control	Flux vector and V/F control
<b>Torque features</b>	120% at 0,0 Hz (CLV) 120% at 0,5 Hz (OLV)	120% at 0,0 Hz (CLV) 120% at 0,5 Hz (OLV)
<b>Connectivity</b>	Modbus, DeviceNet, PROFIBUS, EtherCAT, Modbus TCP, CAN	Modbus, DeviceNet, PROFIBUS, EtherCAT, Modbus TCP, CAN
<b>Logic programming</b>	Standard firmware	Standard firmware
<b>Customisation options</b>	Hardware customisation (main switch, liquid cooling, 12-pulse rectifier, ...)	Hardware customisation (main switch, liquid cooling, 12-pulse rectifier, ...)
<b>Page</b>	175	179

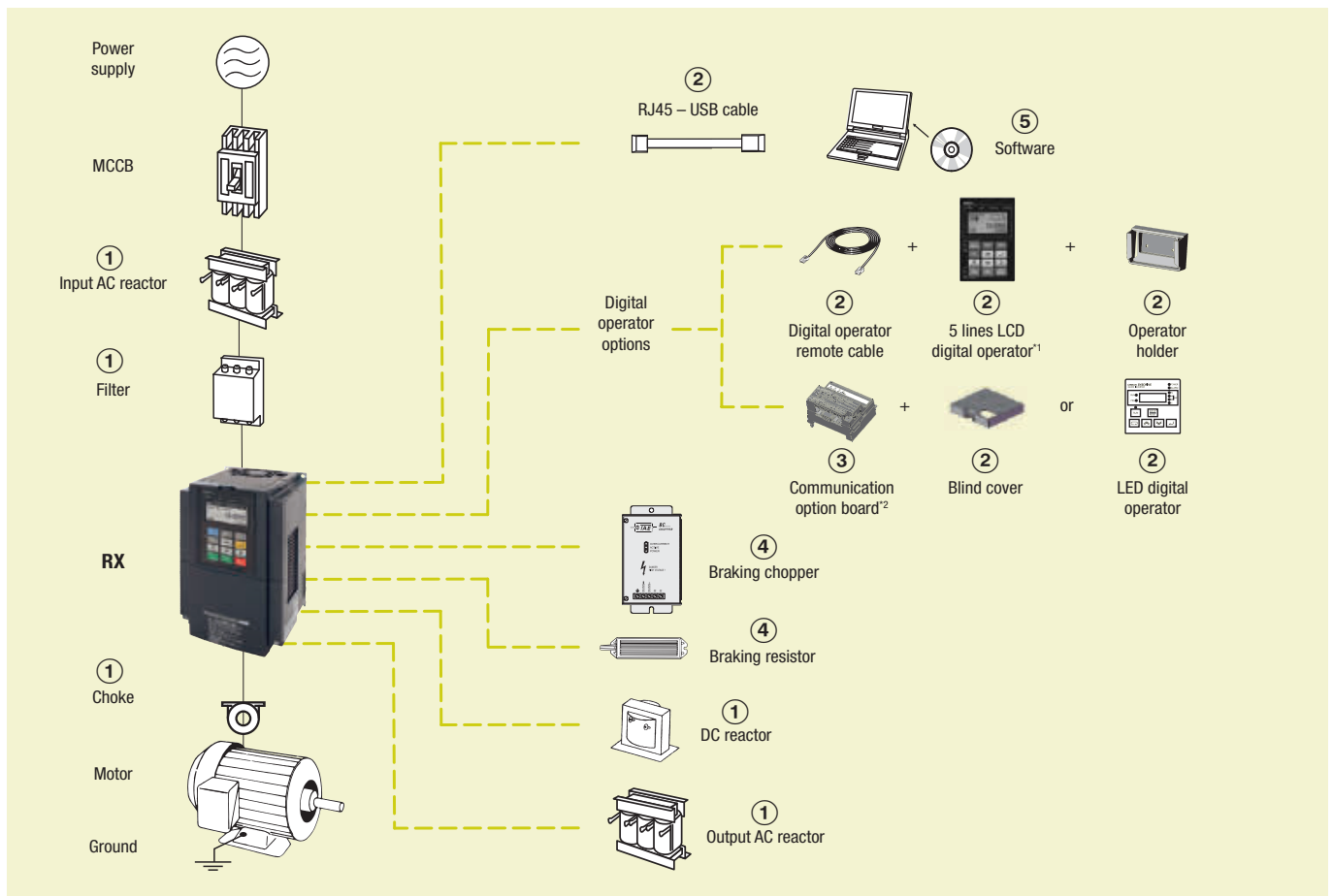


### Customised to your machine

Omron realises that you need quality and reliability, plus the ability to easily and quickly customise your inverter to the application in hand. And with the RX, you have the perfect tool for the job. Naturally it combines the same high level of quality and performance for which Omron is renowned. It also has abundant application functionality on board and you can customise it yourself to match your precise requirements.

- Ratings up to 132 kW
- Full torque at 0 Hz in closed loop
- Sensor-less and vector closed-loop control
- Built-in EMC filter
- Built-in logic programmability
- Built-in application oriented functionality
- Fieldbus communications: Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT and CompoNet

### Ordering information



<sup>1</sup> The 5 lines LCD digital operator is provided with the inverter from factory.

<sup>2</sup> When a communication option board is mounted, there are two options: mount a blind cover or a LED digital operator.

3G3RX

Specifications					Order code	Specifications					Order code
Voltage class	Constant torque		Variable torque		Standard	Voltage class	Constant torque		Variable torque		Standard
	Max motor kW	Rated current A	Max motor kW	Rated current A			Max motor kW	Rated current A	Max motor kW	Rated current A	
Three-phase 200 V	0.4	3.0	0.75	3.7	3G3RX-A2004-E1F	Three-phase 400 V	0.4	1.5	0.75	1.9	3G3RX-A4004-E1F
	0.75	5.0	1.5	6.3	3G3RX-A2007-E1F		0.75	2.5	1.5	3.1	3G3RX-A4007-E1F
	1.5	7.5	2.2	9.4	3G3RX-A2015-E1F		1.5	3.8	2.2	4.8	3G3RX-A4015-E1F
	2.2	10.5	4.0	12	3G3RX-A2022-E1F		2.2	5.3	4.0	6.7	3G3RX-A4022-E1F
	4.0	16.5	5.5	19.6	3G3RX-A2037-E1F		4.0	9.0	5.5	11.1	3G3RX-A4040-E1F
	5.5	24	7.5	30	3G3RX-A2055-E1F		5.5	14	7.5	16	3G3RX-A4055-E1F
	7.5	32	11	44	3G3RX-A2075-E1F		7.5	19	11	22	3G3RX-A4075-E1F
	11	46	15	58	3G3RX-A2110-E1F		11	25	15	29	3G3RX-A4110-E1F
	15	64	18.5	73	3G3RX-A2150-E1F		15	32	18.5	37	3G3RX-A4150-E1F
	18.5	76	22	85	3G3RX-A2185-E1F		18.5	38	22	43	3G3RX-A4185-E1F
	22	95	30	113	3G3RX-A2220-E1F		22	48	30	57	3G3RX-A4220-E1F
	30	121	37	140	3G3RX-A2300-E1F		30	58	37	70	3G3RX-A4300-E1F
	37	145	45	169	3G3RX-A2370-E1F		37	75	45	85	3G3RX-A4370-E1F
	45	182	55	210	3G3RX-A2450-E1F		45	91	55	105	3G3RX-A4450-E1F
	55	220	75	270	3G3RX-A2550-E1F		55	112	75	135	3G3RX-A4550-E1F
-	-	-	-	-	75	149	90	160	3G3RX-B4750-E1F		
-	-	-	-	-	90	176	110	195	3G3RX-B4900-E1F		
-	-	-	-	-	110	217	132	230	3G3RX-B411K-E1F		
-	-	-	-	-	132	260	160	290	3G3RX-B413K-E1F		

① Rasmi line filter

200 V					400 V				
Model 3G3R_X-__	Leakage Nom/Max	Rated current A	Weight kg	Order code	Model 3G3RX-__	Leakage Nom/Max	Rated current A	Weight kg	Order code
A2004/A2007/A2015/A2022/A2037	0.7/40 mA	18	2.0	AX-FIR2018-RE	A4004/A4007/A4015/A4022/A4040	0.3/40 mA	10	1.9	AX-FIR3010-RE
A2055/A2075/A2110	0.7/40 mA	53	2.5	AX-FIR2053-RE	A4055/A4075/A4110	0.3/40 mA	30	2.2	AX-FIR3030-RE
A2150/A2185/A2220	1.2/70 mA	110	8.0	AX-FIR2110-RE	A4150/A4185/A4220	0.8/70 mA	53	4.5	AX-FIR3053-RE
A2300	1.2/70 mA	145	8.6	AX-FIR2145-RE	A4300	3/160 mA	64	7.0	AX-FIR3064-RE
A2370/A2450	6/300 mA	250	13.0	AX-FIR3250-RE	A4370	2/130 mA	100	8.0	AX-FIR3100-RE
A2550	6/300 mA	320	13.2	AX-FIR3320-RE	A4450/A4550	2/130 mA	130	8.6	AX-FIR3130-RE
-	-	-	-	-	A4750/A4900	10/500 mA	250	13.0	AX-FIR3250-RE
-	-	-	-	-	A411K/A413K	10/500 mA	320	13.2	AX-FIR3320-RE

① Input AC reactors

3-phase 200 VAC		3-phase 400 VAC	
Inverter model 3G3RX-__	Order code	Inverter model 3G3RX-__	Order code
A2004/A2007/A2015	AX-RAI02800100-DE	A4004/A4007/A4015	AX-RAI07700050-DE
A2022/A2037	AX-RAI00880200-DE	A4022/A4040	AX-RAI03500100-DE
A2055/A2075	AX-RAI00350335-DE	A4055/A4075	AX-RAI01300170-DE
A2110/A2150	AX-RAI00180670-DE	A4110/A4150	AX-RAI00740335-DE
A2185/A2220	AX-RAI00091000-DE	A4185/A4220	AX-RAI00360500-DE
A2300/A2370	AX-RAI00071550-DE	A4300/A4370	AX-RAI00290780-DE
A2450/A2550	AX-RAI00042300-DE	A4450/A4550	AX-RAI00191150-DE
-	-	A4750/A4900	AX-RAI00111850-DE
-	-	A411K/A413K	AX-RAI00072700-DE

① DC reactors

3-phase 200 VAC		3-phase 400 VAC	
Inverter model 3G3RX-__	Order code	Inverter model 3G3RX-__	Order code
A2004	AX-RC10700032-DE	A4004	AX-RC43000020-DE
A2007	AX-RC06750061-DE	A4007	AX-RC27000030-DE
A2015	AX-RC03510093-DE	A4015	AX-RC14000047-DE
A2022	AX-RC02510138-DE	A4022	AX-RC10100069-DE
A2037	AX-RC01600223-DE	A4040	AX-RC06400116-DE
A2055	AX-RC01110309-DE	A4055	AX-RC04410167-DE
A2075	AX-RC00840437-DE	A4075	AX-RC03350219-DE
A2110	AX-RC00590614-DE	A4110	AX-RC02330307-DE
A2150	AX-RC00440859-DE	A4150	AX-RC01750430-DE
A2185/A2220	AX-RC00301275-DE	A4185/A4220	AX-RC01200644-DE
A2300	AX-RC00231662-DE	A4300	AX-RC00920797-DE
A2370	AX-RC00192015-DE	A4370	AX-RC00741042-DE
A2450	AX-RC00162500-DE	A4450	AX-RC00611236-DE
A2550	AX-RC00133057-DE	A4550	AX-RC00501529-DE

3-phase 200 VAC		3-phase 400 VAC	
Inverter model 3G3RX-	Order code	Inverter model 3G3RX-	Order code
		A4750	AX-RC00372094-DE
		A4900	AX-RC00312446-DE
		A411K	AX-RC00252981-DE
		A413K	AX-RC00213613-DE

① Chokes






Diameter	Description	Order code
21	For 2.2 kW motors or below	AX-FER2102-RE
25	For 15 kW motors or below	AX-FER2515-RE
50	For 45 kW motors or below	AX-FER5045-RE
60	For 55 kW motors or above	AX-FER6055-RE

① Output AC Reactor

200 V		400 V	
Model 3G3RX-	Order code	Model 3G3RX-	Order code
A2004	AX-RA011500026-DE	A4004/A4007/A4015	AX-RA016300038-DE
A2007	AX-RA007600042-DE		
A2015	AX-RA004100075-DE		
A2022	AX-RA003000105-DE	A4022	AX-RA011800053-DE
A2037	AX-RA001830160-DE	A4040	AX-RA007300080-DE
A2055	AX-RA001150220-DE	A4055	AX-RA004600110-DE
A2075	AX-RA000950320-DE	A4075	AX-RA003600160-DE
A2110	AX-RA000630430-DE	A4110	AX-RA002500220-DE
A2150	AX-RA000490640-DE	A4150	AX-RA002000320-DE
A2185	AX-RA000390800-DE	A4185	AX-RA001650400-DE
A2220	AX-RA000330950-DE	A4220	AX-RA001300480-DE
A2300	AX-RA000251210-DE	A4300	AX-RA001030580-DE
A2370	AX-RA000191450-DE	A4370	AX-RA000800750-DE
A2450	AX-RA000161820-DE	A4450	AX-RA000680900-DE
A2550	AX-RA000132200-DE	A4550	AX-RA000531100-DE
		A4750	AX-RA000401490-DE
		A4900	AX-RA000331760-DE
		A411K	AX-RA000262170-DE
		A413K	AX-RA000212600-DE

Note: This table corresponds with HD rating. When ND is used, please choose the reactor for the next size inverter.

② Accessories

Types	Appearance	Description	Order code
Remote digital operator		5 line LCD digital operator with copy function <sup>*1</sup>	3G3AX-OP05
		Operator holder (for inside cabinet mounting)	3G3AX-OP05-H-E
		LED remote digital operator	3G3AX-OP01
		Mounting kit	4X-KITmini
LED digital operator		To be used in combination with communication option boards	3G3AX-OP03
Blind cover			3G3AX-OP05-B-E
Cables		3 m remote digital operator cable	3G3AX-CAJOP300-EE
		RJ45 to USB connection cable	USB-CONVERTERCABLE 3G3AX-PCACN2

\*1 This digital operator is provided with the RX inverter from factory.

③ Option boards

Types	Description	Functions	Order code
Encoder feedback	PG speed controller option card	Phase A,B and Z pulse (differential pulse) inputs (RS-422) Pulse train position command input (RS-422) Pulse monitor output (RS-422) PG frequency range: 100 kHz max	3G3AX-PG
Communication option board	DeviceNet option card	Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current ... through communications with the host controller	3G3AX-RX-DRT
	Profibus option card		3G3AX-RX-PRT
	Ethercat option card		3G3AX-RX-ECT
	CompoNet option card		3G3AX-RX-CRT
	Mechatrolink-II option card		3G3AX-RX-MRT
I/O option	Extra input/output option card	8 digital inputs, 8 digital outputs, 4 analog inputs, 1 analog output	3G3AX-EI021-ROE



④ Braking unit, braking resistor unit

Inverter					Braking resistor unit											
Voltage	Max. motor kW	Inverter 3G3RX_	Braking unit AX-BCR_	Connectable min. resistance Ω	Inverter mounted type (3% ED, 10 sec max)		Braking torque %	External resistor 10% ED 10 sec max for built-in 5 sec max for braking unit		Braking torque %						
					Order code	Resist Ω		Order code	Resist Ω							
200 V (single-/three-phase)	0.55	2004	Built-in	50	AX-REM00K1200-IE	200	180	AX-REM00K1200-IE	200	180						
	1.1	2007					100	AX-REM00K2070-IE	70	200						
	1.5	2015					35	AX-REM00K2070-IE	70	140	AX-REM00K4075-IE	75	130			
	2.2	2022								90	AX-REM00K4035-IE	35	180			
	4.0	2037								50	AX-REM00K6035-IE	35	100			
	5.5	2055					16	AX-REM00K4035-IE	35	75	AX-REM00K9020-IE	20	150			
	7.5	2075								55	AX-REM01K9017-IE	17	110			
	11.0	2110					10	AX-REM00K6035-IE	35	40	AX-REM02K1017-IE	17	75			
	15.0	2150								7.5	AX-REM00K9017-IE	17	55	AX-REM03K5010-IE	10	95
	18.5	2185											AX-REM03K5010-IE	10	75	AX-REM19K0008-IE
	22.0	2220					5	-	-	-	65	-	-	80		
	30.0	2300									2035090-TE			4	AX-REM19K0006-IE	6
	37.0	2370					2070130-TE	2.8	-	-	-	-	-	6	60	
	45.0	2450												2 x AX-REM19K0006-IE	3	105
	55.0	2550												3	85	
			3	85												
400 V (three-phase)	0.55	4004	Built-in	100	AX-REM00K1400-IE	400	200	AX-REM00K1400-IE	400	200						
	1.1	4007					70	AX-REM00K1200-IE	200	200	AX-REM00K2200-IE	200	200			
	1.5	4015								190	AX-REM00K5120-IE	120	190			
	2.2	4022								200	AX-REM00K6100-IE	100	200			
	4.0	4040					35	AX-REM00K2120-IE	120	120	AX-REM00K9070-IE	70	140			
	5.5	4055								75	AX-REM00K4075-IE	75	150			
	7.5	4075					24	AX-REM00K6100-IE	100	100	AX-REM01K9070-IE	70	110			
	11.0	4110								50	AX-REM02K1070-IE	70	75			
	15.0	4150								70	AX-REM00K9070-IE	70	110			
	18.5	4185					20	AX-REM03K5035-IE	35	90	AX-REM19K0030-IE	30	100			
	22.0	4220								75	85					
	30.0	4300					4015045-TE	16	AX-REM19K0020-IE	20	95					
	37.0	4370					4017068-TE	11	-	-	-	-	15	125		
	45.0	4450											100			
	55.0	4550					4035090-TE	8.5	-	-	-	-	2 x AX-REM19K0020-IE	10	100	
	75.0	4750	3 x AX-REM19K0030-IE	10	75											
90.0	4900	4070130-TE	5.5	2 x AX-REM38K0012-IE	6	105										
110.0	411K	4090240-TE	3.2	-	-	-	-	3 x AX-REM38K0012-IE	4	125						
132.0	413K							105								

⑤ Computer software

Description	Installation	Order code
Computer software	Configuration and monitoring software tool	CX-Drive
Computer software	Configuration and monitoring software tool	CX-One
Computer software	Software tool for energy saving calculation	€Saver

Specifications

200 V class

Three-phase: 3G3RX-		A2004	A2007	A2015	A2022	A2037	A2055	A2075	A2110	A2150	A2185	A2220	A2300	A2370	A2450	A2550		
Max applicable motor 4P kW <sup>*1</sup>	at CT	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55		
	at VT	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75		
Output characteristics	Inverter capacity kVA	200 V	at CT	1.0	1.7	2.5	3.6	5.7	8.3	11.0	15.9	22.1	26.3	32.9	41.9	50.2	63.0	76.2
			at VT	1.3	2.1	3.2	4.1	6.7	10.4	15.2	20.0	26.3	29.4	39.1	49.5	59.2	72.7	93.5
	240 V	at CT	1.2	2.0	3.1	4.3	6.8	9.9	13.3	19.1	26.6	31.5	39.4	50.2	60.2	75.6	91.4	
		at VT	1.5	2.6	3.9	5.0	8.1	12.4	18.2	24.1	31.5	35.3	46.9	59.4	71.0	87.2	112.2	
	Rated output current (A)	at CT	3.0	5.0	7.5	10.5	16.5	24	32	46	64	76	95	121	145	182	220	
	at VT	3.7	6.3	9.4	12	19.6	30	44	58	73	85	113	140	169	210	270		
Max. output voltage		Proportional to input voltage: 0 to 240 V																
Max. output frequency		400 Hz																
Power supply	Rated input voltage and frequency		3-phase 200 to 240 V 50/60 Hz															
	Allowable voltage fluctuation		-15% to 10%															
	Allowable frequency fluctuation		5%															
Braking	Regenerative braking		Internal BRD circuit (external discharge resistor)										External regenerative braking unit					
	Minimum connectable resistance		50	50	35	35	35	16	10	10	7.5	7.5	5					
Protective structure		IP20																
Cooling method		Forced air cooling																

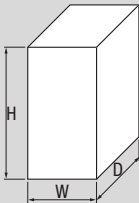
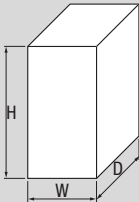
\*1 Based on a standard 3-phase standard motor.

400 V class

Three-phase: 3G3RX-		A4004	A4007	A4015	A4022	A4040	A4055	A4075	A4110	A4150	A4185	A4220	A4300	A4370	A4450	A4550	B4750	B4900	B411K	B413K		
Max applicable motor 4P kW <sup>*1</sup>	at CT	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132		
	at VT	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160		
Output characteristics	Inverter capacity kVA	400 V	at CT	1.0	1.7	2.5	3.6	6.2	9.7	13.1	17.3	22.1	26.3	33.2	40.1	51.9	63.0	77.6	103.2	121.9	150.3	180.1
			at VT	1.3	2.1	3.3	4.6	7.7	11.0	15.2	20.9	25.6	30.4	39.4	48.4	58.8	72.7	93.5	110.8	135	159.3	200.9
	480 V	at CT	1.2	2.0	3.1	4.3	7.4	11.6	15.8	20.7	26.6	31.5	39.9	48.2	62.3	75.6	93.1	123.8	146.3	180.4	216.1	
		at VT	1.5	2.5	4.0	5.5	9.2	13.3	18.2	24.1	30.7	36.5	47.3	58.1	70.6	87.2	112.2	133	162.1	191.2	241.1	
	Rated output current (A)	at CT	1.5	2.5	3.8	5.3	9.0	14	19	25	32	38	48	58	75	91	112	149	176	217	260	
	at VT	1.9	3.1	4.8	6.7	11.1	16	22	29	37	43	57	70	85	105	135	160	195	230	290		
Max. output voltage		Proportional to input voltage: 0 to 480 V																				
Max. output frequency		400 Hz																				
Power supply	Rated input voltage and frequency		3-phase 380 to 480 V 50/60 Hz																			
	Allowable voltage fluctuation		-15% to 10%																			
	Allowable frequency fluctuation		5%																			
Braking	Regenerative braking		Internal BRD circuit (external discharge resistor)										External regenerative braking unit									
	Minimum connectable resistance		100	100	100	100	70	70	35	35	24	24	20									
Protective structure		IP20															IP00					
Cooling method		Forced air cooling																				

\*1 Based on a standard 3-phase standard motor.

## Dimensions

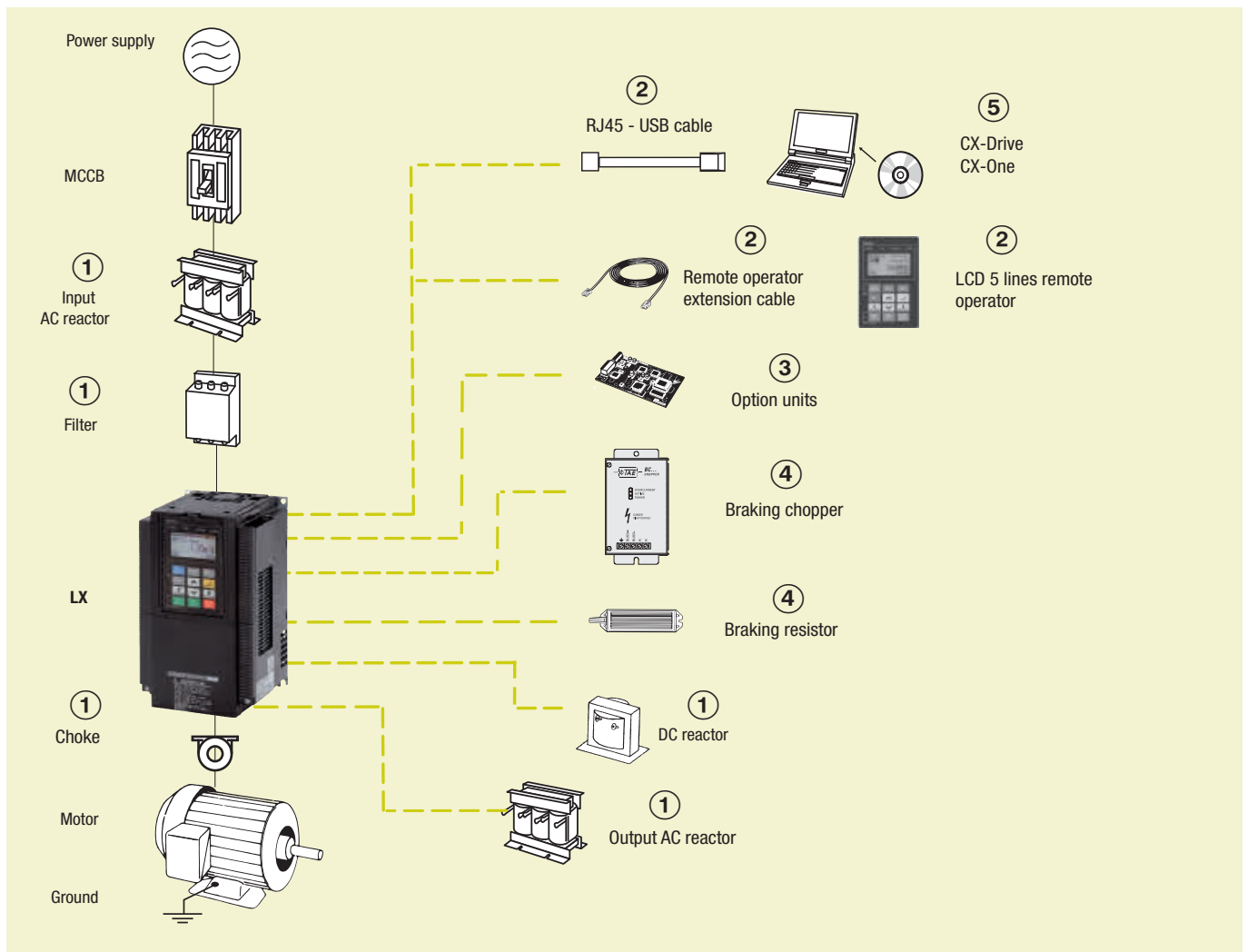
Voltage class	Inverter model	Dimensions in mm				Weight (kg)	
		H	W	D			
Three-phase 200 V	3G3RX-A2004	255	150	140	3.5		
	3G3RX-A2007						
	3G3RX-A2015						
	3G3RX-A2022						
	3G3RX-A2037						
	3G3RX-A2055	260	210	170	6		
	3G3RX-A2075						
	3G3RX-A2110						
	3G3RX-A2150	390	250	190	14		
	3G3RX-A2185						
	3G3RX-A2220						
	3G3RX-A2300	540	310	195	20		
	3G3RX-A2370	550	390	250	30		
	3G3RX-A2450						
3G3RX-A2550	700	480	250	43			
Three-phase 400 V	3G3RX-A4004	255	150	140	3.5		
	3G3RX-A4007						
	3G3RX-A4015						
	3G3RX-A4022						
	3G3RX-A4040						
	3G3RX-A4055	260	210	170	6		
	3G3RX-A4075						
	3G3RX-A4110						
	3G3RX-A4150	390	250	190	14		
	3G3RX-A4185						
	3G3RX-A4220						
	3G3RX-A4300	540	310	195	22		
	3G3RX-A4370	550	390	250	30		
	3G3RX-A4450						
	3G3RX-A4550						
	3G3RX-B4750	700	390	270	60		
	3G3RX-B4900						
	3G3RX-B411K	740	480	270	80		
	3G3RX-B413K						



### Born to drive lifts

- Current vector control with or without PG
- High starting torque (200%/0.3 Hz Sensorless vector, 200%/0 Hz close loop vector control)
- IM&PM motor control
- Rescue function with flexible power supply (Control 220 VAC, Power from 48 VDC or 36 VAC)
- Static & Rotary advanced auto tuning
- Safety embedded: IEC 61508 SIL2
- One parameter Dynamic tuning
- Lift language (Hz, m/s, rpm ...)
- Built-in logic programmability
- Universal dual encoder option (Endat, Hiperface, Line driver)
- Floor position auto-learning function of up to 40 floors
- Dedicated lift functionality (Brake control, Lift sequence ...)

### Ordering information



### 3G3LX

Specifications			Order code
Voltage class	Max motor kW	Rated current A	
Three-phase 400 V	3.7	9	3G3LX-A4037-E
	4.0	11	3G3LX-A4040-E
	5.5	14	3G3LX-A4055-E
	7.5	19	3G3LX-A4075-E
	11	27	3G3LX-A4110-E
	15	34	3G3LX-A4150-E
	18.5	41	3G3LX-A4185-E

① Line filters

400 V				
Model 3G3LX_	Leakage Nom / Max	Rated current A	Weight kg	Order code
A4037	3.3/53 mA	10	1.0	AX-FIL3010-SE
A4040 / A4055	3.3/53 mA	15	1.5	AX-FIL3015-SE
A4075 / A4110	3.4/58 mA	30	2.1	AX-FIL3030-SE
A4150 / A4185	3.4/58 mA	53	4.1	AX-FIL3053-SE

① Input AC Reactors

3-Phase 400 VAC	
Inverter Model 3G3LX_	Order code
A4037	AX-RAI03500100-DE
A4040 / A4055 / A4075	AX-RAI01300170-DE
A4110 / A4150	AX-RAI00740335-DE
A4185	AX-RAI00360500-DE

① Input AC Reactors for EN12015

3-Phase 400 VAC	
Inverter Model 3G3LX_	Order code
A4037	AX-LX-RAI4037-CE
A4040	AX-LX-RAI4040-CE
A4055	AX-LX-RAI4055-CE
A4075	AX-LX-RAI4075-CE
A4110	AX-LX-RAI4110-CE
A4150	AX-LX-RAI4150-CE
A4185	AX-LX-RAI4185-CE

② Accessories

Types	Description	Functions	Order code
Digital operator	LCD remote operator	5 Line LCD remote operator with copy function, cable length max. 3 m. *1	AX-OP05-E
	Remote operator cable	3 meters cable for connecting remote operator	3G3AX-CAJOP300-EE
	LED remote operator	LED remote operator, cable length max. 3 m	3G3AX-OP01
	Mounting kit for LED operator	Mounting kit for LED operator on panel	4X-KITMINI
Accessories	USB converter/USB cable	RJ45 to USB connection cable	3G3AX-PCACN2 USB-convertercable

\*1 please note, models with firmware 4287 and 4288, the operator will only display 2 lines of text.

③ Option boards

Types	Description	Functions	Order code
Encoder feedback	PG speed controller option card	Phase A, B and Z pulse (differential pulse) inputs (RS-422) Pulse train position command input (RS-422) Pulse monitor output (RS-422) PG frequency range: 100 kHz max	3G3AX-PG
		Two encoder input board supporting Phase A, B and Z pulse (differential pulse) inputs (RS-422) EnDat 2.1 and 2.2 Hiperface 3G3AX-ABS --> PG frequency range: 100 kHz max 3G3AX-ABS30 --> PG frequency range: 30 KHz max to improve noise immunity	3G3AX-ABS 3G3AX-ABS30
		Option	Expansion I/O board

④ Braking unit, braking resistor unit

Inverter				Braking resistor unit				
Voltage	Max. motor kW	Inverter 3G3LX_ 3-phase	Braking Unit AX-BCR_	Connectable min. resistance Ω	Connectable resistance at continuous running Ω	External resistor 10%ED 10 sec max for built-in 5 sec max for Braking Unit		Braking torque %
						Order code	Resist Ω	
400 V (Three-phase)	3.7	4037	Built-in	70	200	AX-REM02K1110-IE	110	55
	4.0	4040		70	200	AX-REM02K1110-IE	110	50
	5.5	4055		70	200	AX-REM02K1110-IE	110	40
	7.5	4075		35	150	AX-REM03K5085-IE	85	45
	11.0	4110		35	150	AX-REM03K5085-IE	85	30
	15.0	4150		24	100	AX-REM19K0032-IE	32	65
	18.5	4185		24	100	AX-REM19K0032-IE	32	55

Recommended values with a 2:1 roping ratio, 1 m/s lift speed and medium lift usage

⑤ Computer software

Description	Installation	Order code
Computer software	Configuration and monitoring software tool	CX-Drive
Computer software	Configuration and monitoring software tool	CX-One

Specifications

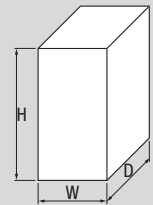
400V class

Three-phase: 3G3LX_		A4037	A4040	A4055	A4075	A4110	A4150	A4185	
Motor kW <sup>*1</sup>		3.7	4.0	5.5	7.5	11.0	15.0	18.5	
Output characteristics	Inverter capacity kVA	400 V	5.7	5.9	9.7	13.1	17.3	22.1	26.3
		480 V	6.8	7.1	11.6	15.8	20.7	26.6	31.5
	Rated output current (A) (3min, 50%ED)		9	11	14	19	27	34	41
	Max. output voltage		Proportional to input voltage: 0..480 V						
Max. output frequency		400 Hz							
Power supply	Rated input voltage and frequency		Control supply: 1-phase 200..240 V 50/60 Hz Power supply: 3-phase 380..480 V 50/60 Hz Do not turn the inverter power on and off more often than once every 3 minutes						
	Allowable voltage fluctuation		-15% +10%						
	Allowable frequency fluctuation		5%						
Braking	Regenerative braking		Internal BRD circuit (external discharge resistor)						
	Minimum connectable resistance (Ohms)		70	70	70	35	35	24	24
	Duty at minimum resistance		10%						
Minimum resistance at continuous running (Ohms)		200	200	200	150	150	100	100	
Protective structure		IP20							
Cooling method		Forced air cooling							

\*1 Based on a standard IM 3-Phase standard motor.

Dimensions

Voltage class	Inverter model	Dimensions in mm				Weight (kg)
		H	W	D		
Three-phase 400 V	3G3LX-A4037	255	150	140	3.5	
	3G3LX-A4040	260	210	170	6	
	3G3LX-A4055					
	3G3LX-A4075					
	3G3LX-A4110	390	250	190	14	
	3G3LX-A4150					
	3G3LX-A4185					



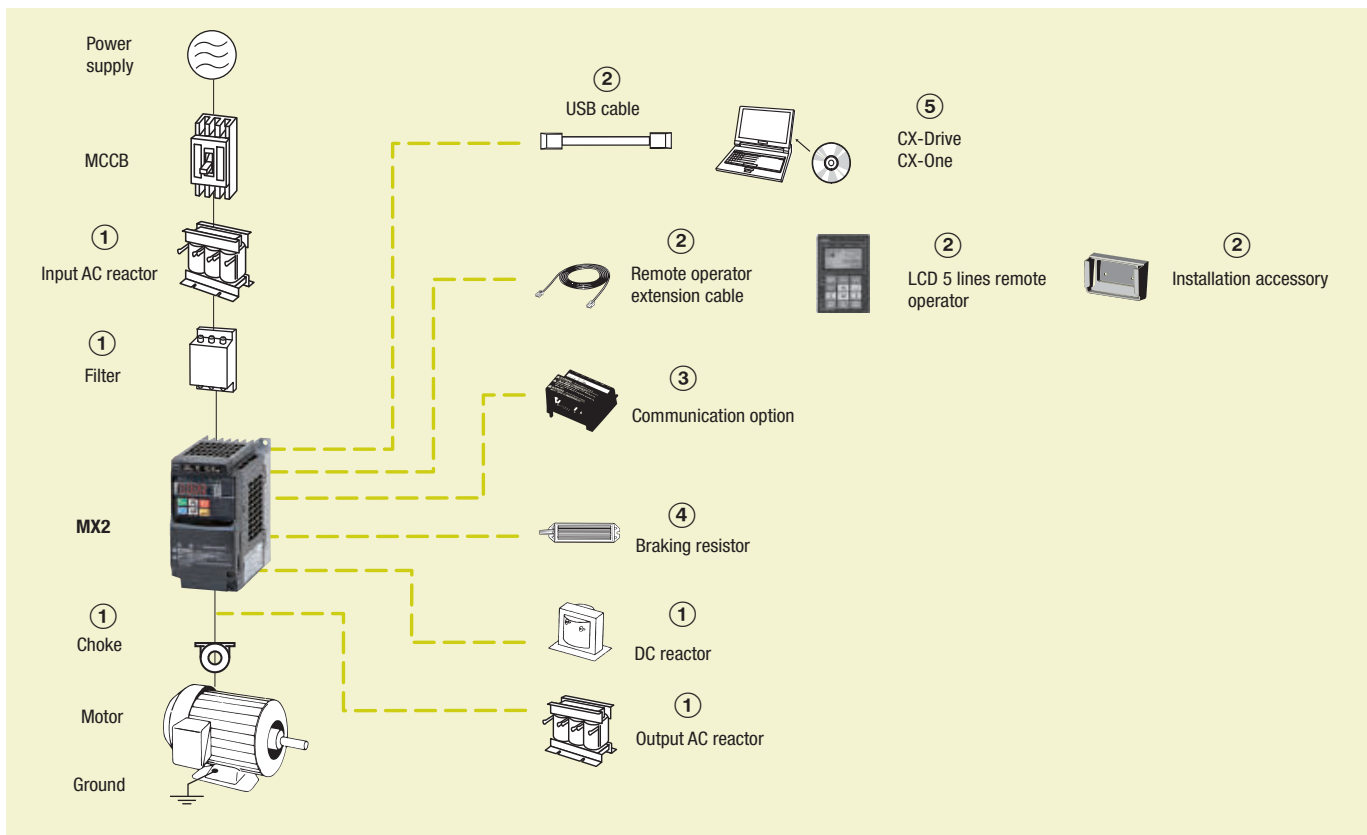


### Born to drive machines

MX2 has been developed to harmonise advanced motor and machine control. Thanks to its advanced design algorithms the MX2 provides smooth control down to zero speed, plus precise operation for fast cyclic operations and torque control capability in open loop. The MX2 also gives you comprehensive functionality for machine control such as positioning, speed synchronisation and logic programming.

- Current vector control
- Double rating VT 120%/1 min and CT 150%/1 min
- IM & PM motor control
- Torque control in open loop vector
- Positioning functionality
- Built-in application functionality (i.e. Brake control)
- Fieldbus comms: Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT, CompoNet

### Ordering information



### 3G3MX2

Voltage class	Constant torque		Variable torque		Order code	
	Max motor kW	Rated current A	Max motor kW	Rated current A	IP20	IP54
Single-phase 200 V	0.1	1.0	0.2	1.2	3G3MX2-AB001-E	3G3MX2-DB001-E/EC
	0.2	1.6	0.4	1.9	3G3MX2-AB002-E	3G3MX2-DB002-E/EC
	0.4	3.0	0.55	3.5	3G3MX2-AB004-E	3G3MX2-DB004-E/EC
	0.75	5.0	1.1	6.0	3G3MX2-AB007-E	3G3MX2-DB007-EC
	1.5	8.0	2.2	9.6	3G3MX2-AB015-E	3G3MX2-DB015-EC
	2.2	11.0	3.0	12.0	3G3MX2-AB022-E	3G3MX2-DB022-EC
Three-phase 200 V	0.1	1.0	0.2	1.2	3G3MX2-A2001-E	3G3MX2-D2001-E/EC
	0.2	1.6	0.4	1.9	3G3MX2-A2002-E	3G3MX2-D2002-E/EC
	0.4	3.0	0.55	3.5	3G3MX2-A2004-E	3G3MX2-D2004-E/EC
	0.75	5.0	1.1	6.0	3G3MX2-A2007-E	3G3MX2-D2007-E/EC
	1.5	8.0	2.2	9.6	3G3MX2-A2015-E	3G3MX2-D2015-EC
	2.2	11.0	3.0	12.0	3G3MX2-A2022-E	3G3MX2-D2022-EC
	3.7	17.5	5.5	19.6	3G3MX2-A2037-E	3G3MX2-D2037-EC
	5.5	25.0	7.5	30.0	3G3MX2-A2055-E	3G3MX2-D2055-EC
	7.5	33.0	11	40.0	3G3MX2-A2075-E	3G3MX2-D2075-EC
	11	47.0	15	56.0	3G3MX2-A2110-E	3G3MX2-D2110-EC
15	60.0	18.5	69.0	3G3MX2-A2150-E	3G3MX2-D2150-EC	

Voltage class	Constant torque		Variable torque		Order code	
	Max motor kW	Rated current A	Max motor kW	Rated current A	IP20	IP54
Three-phase 400 V	0.4	1.8	0.75	2.1	3G3MX2-A4004-E	3G3MX2-D4004-EC
	0.75	3.4	1.5	4.1	3G3MX2-A4007-E	3G3MX2-D4007-EC
	1.5	4.8	2.2	5.4	3G3MX2-A4015-E	3G3MX2-D4015-EC
	2.2	5.5	3.0	6.9	3G3MX2-A4022-E	3G3MX2-D4022-EC
	3.0	7.2	4.0	8.8	3G3MX2-A4030-E	3G3MX2-D4030-EC
	4.0	9.2	5.5	11.1	3G3MX2-A4040-E	3G3MX2-D4040-EC
	5.5	14.8	7.5	17.5	3G3MX2-A4055-E	3G3MX2-D4055-EC
	7.5	18.0	11	23.0	3G3MX2-A4075-E	3G3MX2-D4075-EC
	11	24.0	15	31.0	3G3MX2-A4110-E	3G3MX2-D4110-EC
	15	31.0	18.5	38.0	3G3MX2-A4150-E	3G3MX2-D4150-EC

① Line filters

Inverter		Line filter Rasmi		Line filter Schaffner	
Voltage	Model 3G3MX2-__	Current (A)	Order code	Current (A)	Order code
1-Phase 200 VAC	AB001/AB002/ AB004	10	AX-FIM1010-RE	8	AX-FIM1010-SE-V1
	AB007	14	AX-FIM1014-RE	27	AX-FIM1024-SE-V1
	AB015/AB022	24	AX-FIM1024-RE	27	AX-FIM1024-SE-V1
	3-Phase 200 VAC	A2001/A2002/ A2004/A2007	10	AX-FIM2010-RE	7.8
3-Phase 200 VAC	A2015/A2022	20	AX-FIM2020-RE	16	AX-FIM2020-SE-V1
	A2037	30	AX-FIM2030-RE	25	AX-FIM2030-SE-V1
	A2055/A2075	60	AX-FIM2060-RE	50	AX-FIM2060-SE-V1
	A2110	80	AX-FIM2080-RE	75	AX-FIM2080-SE-V1
	A2150	100	AX-FIM2100-RE	100	AX-FIM2100-SE-V1
	3-Phase 400 VAC	A4004/A4007	5	AX-FIM3005-RE	6
3-Phase 400 VAC	A4015/A4022/ A4030	10	AX-FIM3010-RE	12	AX-FIM3010-SE-V1
	A4040	14	AX-FIM3014-RE	15	AX-FIM3014-SE-V1
	A4055/A4075	30	AX-FIM3030-RE	29	AX-FIM3030-SE-V1
	A4110/A4150	50	AX-FIM3050-RE	48	AX-FIM3050-SE-V1

① Input AC reactors

Inverter		AC Reactor
Voltage	Model 3G3MX2-__	Order code
3-Phase 200 VAC	A2002/A2004/A2007	AX-RAI02800080-DE
	A2015/A2022/A2037	AX-RAI00880200-DE
	A2055/A2075	AX-RAI00350335-DE
	A2110/A2150	AX-RAI00180670-DE
1-Phase 200 VAC	AB002/AB004	AX-RAI02000070-DE
	AB007	AX-RAI01700140-DE
	AB015	AX-RAI01200200-DE
	AB022	AX-RAI00630240-DE
3-Phase 400 VAC	A4004/A4007/A4015	AX-RAI07700050-DE
	A4022/A4030/A4040	AX-RAI03500100-DE
	A4055/A4075	AX-RAI01300170-DE
	A4110/A4150	AX-RAI00740335-DE

① DC reactors

200 V single-phase		200 V three-phase		400 V three-phase	
Inverter	Order code	Inverter	Order code	Inverter	Order code
3G3MX2-AB001	AX-RC10700032-DE	3G3MX2-A2001	AX-RC21400016-DE	3G3MX2-A4004	AX-RC43000020-DE
3G3MX2-AB002		3G3MX2-A2002		3G3MX2-A4007	AX-RC27000030-DE
3G3MX2-AB004	AX-RC06750061-DE	3G3MX2-A2004	AX-RC10700032-DE	3G3MX2-A4015	AX-RC14000047-DE
3G3MX2-AB007	AX-RC03510093-DE	3G3MX2-A2007	AX-RC06750061-DE	3G3MX2-A4022	AX-RC10100069-DE
3G3MX2-AB015	AX-RC02510138-DE	3G3MX2-A2015	AX-RC03510093-DE	3G3MX2-A4030	AX-RC08250093-DE
3G3MX2-AB022	AX-RC01600223-DE	3G3MX2-A2022	AX-RC02510138-DE	3G3MX2-A4040	AX-RC06400116-DE
-		3G3MX2-A2037	AX-RC01600223-DE	3G3MX2-A4055	AX-RC04410167-DE
		3G3MX2-A2055	AX-RC01110309-DE	3G3MX2-A4075	AX-RC03350219-DE
		3G3MX2-A2075	AX-RC00840437-DE	3G3MX2-A4011	AX-RC02330307-DE
		3G3MX2-A2011	AX-RC00590614-DE	3G3MX2-A4015	AX-RC01750430-DE
		3G3MX2-A2015	AX-RC00440859-DE	-	

① Chokes

Diameter	Description	Order code
21	For 2.2 KW motors or below	AX-FER2102-RE
25	For 15 KW motors or below	AX-FER2515-RE
50	For 45 KW motors or below	AX-FER5045-RE

① Output AC reactor

Inverter		AC Reactor	
Voltage	Model 3G3MX2-__	Order code	
200 VAC	A2001/A2002/A2004/AB001/AB002/ AB004	AX-RAO11500026-DE	
	A2007/AB007	AX-RAO07600042-DE	
	A2015/AB015	AX-RAO04100075-DE	
	A2022/AB022	AX-RAO03000105-DE	
	A2037	AX-RAO01830160-DE	
	A2055	AX-RAO01150220-DE	
	A2075	AX-RAO00950320-DE	
	A2110	AX-RAO00630430-DE	
	A2150	AX-RAO00490640-DE	
	400 VAC	A4004/A4007/A4015	AX-RAO16300038-DE
		A4022	AX-RAO11800053-DE
A4030/A4040		AX-RAO07300080-DE	
A4055		AX-RAO04600110-DE	
A4075		AX-RAO03600160-DE	
A4110		AX-RAO02500220-DE	
A4150	AX-RAO02000320-DE		



## ② Accessories

Types	Description	Functions	Order code
Digital operator	LCD remote operator	5 Line LCD remote operator with copy function, cable length max. 3m.	AX-OP05-E
	Remote operator cable	3 meters cable for connecting remote operator	3G3AX-CAJOP300-EE
	LED remote operator	LED remote operator, cable length max. 3m	3G3AX-OP01
	Mounting kit for LED operator	Mounting kit for LED operator on panel	4X-KITMINI
	Operator holder	Holder to put the AX-OP05-E inside of the cabinet	3G3AX-OP05-H-E
Accessories	PC configuration cable	Mini USB to USB connector cable	AX-CUSBM002-E

## ③ Communication option boards

Description	Functions	Order code
Profibus option card	Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through communications with the host controller.	3G3AX-MX2-PRT
DeviceNet option card		3G3AX-MX2-DRT
Ethercat option card		3G3AX-MX2-ECT
CompoNet option card		3G3AX-MX2-CRT
Mechatrolink II option card		3G3AX-MX2-MRT
Ethernet IP option board		3G3AX-MX2-EIP
Extra input/output option board	1 analog voltage input, 1 analog current input, 1 analog voltage output, 8 discrete logic inputs, 4 discrete logic outputs	3G3AX-MX2-EI015-E

## ④ Braking unit, braking resistor unit

Inverter				Braking resistor unit						
Voltage	Max. motor kW	Inverter 3G3MX2_		Connectable min. resistance Ω	Inverter mounted type (3 %ED, 10 sec max)		Braking torque %	Inverter mounted type (10%ED, 10 sec max)		Braking torque %
		3-phase	1-phase		Order code	Resist Ω		Order code	Resist Ω	
200 V (Single-/Three-phase)	0.12	2001	B001	100	AX-REM00K1400-IE	400	200	AX-REM00K1400-IE	400	200
	0.25	2002	B002			180		180		
	0.55	2004	B004		AX-REM00K1200-IE	200	180	AX-REM00K1200-IE	200	180
	1.1	2007	B007	50		100	AX-REM00K2070-IE	70	200	
	1.5	2015	B015		AX-REM00K2070-IE	70	140	AX-REM00K4075-IE	75	130
	2.2	2022	B022	35		90	AX-REM00K4035-IE	35	180	
	4.0	2040	-		AX-REM00K4075-IE	75	50	AX-REM00K6035-IE	35	100
	5.5	2055	-	20	AX-REM00K4035-IE	35	75	AX-REM00K9020-IE	20	150
	7.5	2075	-	17		55	AX-REM01K9017-IE	17	110	
	11	2110	-		AX-REM00K6035-IE	35	40	AX-REM02K1017-IE	17	75
15	2150	-	10	AX-REM00K9017-IE	17	55	AX-REM03K5010-IE	10	95	
400 V (Three-phase)	0.55	4004	-	180	AX-REM00K1400-IE	400	200	AX-REM00K1400-IE	400	200
	1.1	4007	-			200		200		
	1.5	4015	-		AX-REM00K1200-IE	200	190	AX-REM00K2200-IE	200	190
	2.2	4022	-	100	AX-REM00K2200-IE	200	130	AX-REM00K5120-IE	120	200
	3.0	4030	-		AX-REM00K2120-IE	120	160		160	
	4.0	4040	-		120	120	AX-REM00K6100-IE	100	140	
	5.5	4055	-	70	AX-REM00K4075-IE	75	140	AX-REM00K9070-IE	70	150
	7.5	4075	-			100	100	AX-REM01K9070-IE	70	110
	11	4110	-		AX-REM00K6100-IE	100	50	AX-REM02K1070-IE	70	75
	15	4150	-	35	AX-REM00K9070-IE	70	55	AX-REM03K5035-IE	35	110

## ⑤ Computer software

Description	Installation	Order code
Computer software	Configuration and monitoring software tool	CX-Drive
Computer software	Configuration and monitoring software tool	CX-One
Computer software	Software tool for Energy Saving calculation	€Saver

Specifications

200 V class

Single-phase: 3G3MX02- _		B001	B002	B004	B007 <sup>*1</sup>	B015	B022	–	–	–	–	–	
Three-phase: 3G3MX2- _		2001	2002	2004	2007	2015	2022	2037	2055	2075	2110	2150	
Motor kW <sup>*2</sup>	For VT setting	0.2	0.4	0.55	1.1	2.2	3.0	5.5	7.5	11	15	18.5	
	For CT setting	0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	
Output characteristics	Inverter capacity kVA	200 VT	0.4	0.6	1.2	2.0	3.3	4.1	6.7	10.3	13.8	19.3	23.9
		200 CT	0.2	0.5	1.0	1.7	2.7	3.8	6.0	8.6	11.4	16.2	20.7
		240 VT	0.4	0.7	1.4	2.4	3.9	4.9	8.1	12.4	16.6	23.2	28.6
		240 CT	0.3	0.6	1.2	2.0	3.3	4.5	7.2	10.3	13.7	19.5	24.9
	Rated output current (A) at VT		1.2	1.9	3.5	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0
	Rated output current (A) at CT		1.0	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0	47.0	60.0
	Max. output voltage		Proportional to input voltage: 0 ... 240 V										
Max. output frequency		400 Hz											
Power supply	Rated input voltage and frequency		Single-phase 200..240 V 50/60 Hz 3-phase 200..240 V 50/60 Hz										
	Allowable voltage fluctuation		–15% ... +10%										
	Allowable frequency fluctuation		5%										
Braking torque	At short-time deceleration		100%: <50Hz			70%: <50Hz		Approx 20%		–			
	At capacitor feedback		50%: <60Hz			50%: <60Hz							
Cooling method		Self cooling <sup>*3</sup>				Forced-air-cooling							

\*1 Three phase model use forced-air-cooling but single phase model is self cooling.

\*2 Based on a standard 3-Phase standard motor.

\*3 Forced air cooling for IP54 models

400 V class

Three-phase: 3G3MX2- _		4004	4007	4015	4022	4030	4040	4055	4075	4110	4150	
Motor kW <sup>*1</sup>	For VT setting	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5	
	For CT setting	0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	
Output characteristics	Inverter capacity kVA	380 VT	1.3	2.6	3.5	4.5	5.7	7.3	11.5	15.1	20.4	25.0
		380 CT	1.1	2.2	3.1	3.6	4.7	6.0	9.7	11.8	15.7	20.4
		480 VT	1.7	3.4	4.4	5.7	7.3	9.2	14.5	19.1	25.7	31.5
		480 CT	1.4	2.8	3.9	4.5	5.9	7.6	12.3	14.9	19.9	25.7
	Rated output current (A) at VT		2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0
	Rated output current (A) at CT		1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0
Max. output voltage		Proportional to input voltage: 0 ... 480 V										
Max. output frequency		400 Hz										
Power supply	Rated input voltage and frequency		3-phase 380 ... 480 V 50/60 Hz									
	Allowable voltage fluctuation		–15% ... +10%									
	Allowable frequency fluctuation		5%									
Braking torque	At short-time deceleration <sup>*2</sup>		100%: <50Hz			70%: <50Hz		–				
	At capacitor feedback		50%: <60Hz			50%: <60Hz						
Cooling method		Self cooling <sup>*2</sup>			Forced-air-cooling							

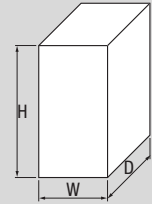
\*1 Based on a standard 3-Phase standard motor.

\*2 Forced air cooling for IP54 models

## Dimensions

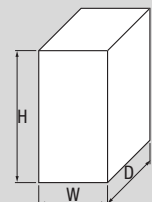
### IP20

Voltage class	Inverter model	Dimensions in mm			Weight (kg)	
		H	W	D		
Single-phase 200 V	3G3MX2-AB001	128	68	109	1.0	
	3G3MX2-AB002				1.0	
	3G3MX2-AB004			122.5	1.1	
	3G3MX2-AB007	128	108	170.5	1.4	
	3G3MX2-AB015				1.8	
	3G3MX2-AB022				1.8	
Three-phase 200 V	3G3MX2-A2001	128	68	109	1.0	
	3G3MX2-A2002				1.0	
	3G3MX2-A2004			122.5	1.1	
	3G3MX2-A2007			145.5	1.2	
	3G3MX2-A2015	128	108	170.5	1.6	
	3G3MX2-A2022				1.8	
	3G3MX2-A2037	128	140	170.5	2.0	
	3G3MX2-A2055	260	140	155	3.0	
	3G3MX2-A2075				3.4	
	3G3MX2-A2110	296	180	175	5.1	
	3G3MX2-A2150	350	220	175	7.4	
	Three-phase 400 V	3G3MX2-A4004	128	108	143.5	1.5
		3G3MX2-A4007				1.6
		3G3MX2-A4015				1.8
3G3MX2-A4022					1.9	
3G3MX2-A4030					1.9	
3G3MX2-A4040		128	140	170.5	2.1	
3G3MX2-A4055		260		155	3.5	
3G3MX2-A4075					3.5	
3G3MX2-A4110		296	180	175	4.7	
3G3MX2-A4150					5.2	



### IP54

Voltage class	Inverter model	Dimensions in mm			Weight (kg)
		H	W	D	
Single-phase 200 V	3G3MX2-DB001-E	464.74	179.5	292.7	8.0
	3G3MX2-DB001-EC	482.8	309.5	317.7	11.8
	3G3MX2-DB002-E	464.74	179.5	292.7	8.0
	3G3MX2-DB002-EC	482.8	309.5	317.7	11.8
	3G3MX2-DB004-E	464.74	179.5	292.7	8.4
	3G3MX2-DB004-EC	482.8	309.5	317.7	12.1
	3G3MX2-DB007-EC				12.4
	3G3MX2-DB015-EC				16.0
	3G3MX2-DB022-EC				16.0
	Three-phase 200 V	3G3MX2-D2001-E	464.74	179.5	292.7
3G3MX2-D2001-EC		482.8	309.5	317.7	11.8
3G3MX2-D2002-E		464.74	179.5	292.7	8.0
3G3MX2-D2002-EC		482.8	309.5	317.7	11.8
3G3MX2-D2004-E		464.74	179.5	292.7	8.1
3G3MX2-D2004-EC		482.8	309.5	317.7	11.9
3G3MX2-D2007-E		464.74	179.5	292.7	8.2
3G3MX2-D2007-EC		482.8	309.5	317.7	12.0
3G3MX2-D2015-EC					15.4
3G3MX2-D2022-EC					15.6
3G3MX2-D2037-EC					16.2
3G3MX2-D2055-EC		627.04	325	299.5	18.8
3G3MX2-D2075-EC					19.2
3G3MX2-D2110-EC		710.35	379	329.7	25.3
3G3MX2-D2150-EC					28.0
Three-phase 400 V	3G3MX2-D4004-EC	482.8	309.5	317.7	12.0
	3G3MX2-D4007-EC				12.5
	3G3MX2-D4015-EC				12.4
	3G3MX2-D4022-EC				12.5
	3G3MX2-D4030-EC				12.5
	3G3MX2-D4040-EC			13.1	
	3G3MX2-D4055-EC	627.04	325	299.5	18.7
	3G3MX2-D4075-EC				18.7
	3G3MX2-D4110-EC	710.35	379	329.7	23.8
	3G3MX2-D4150-EC				24.3



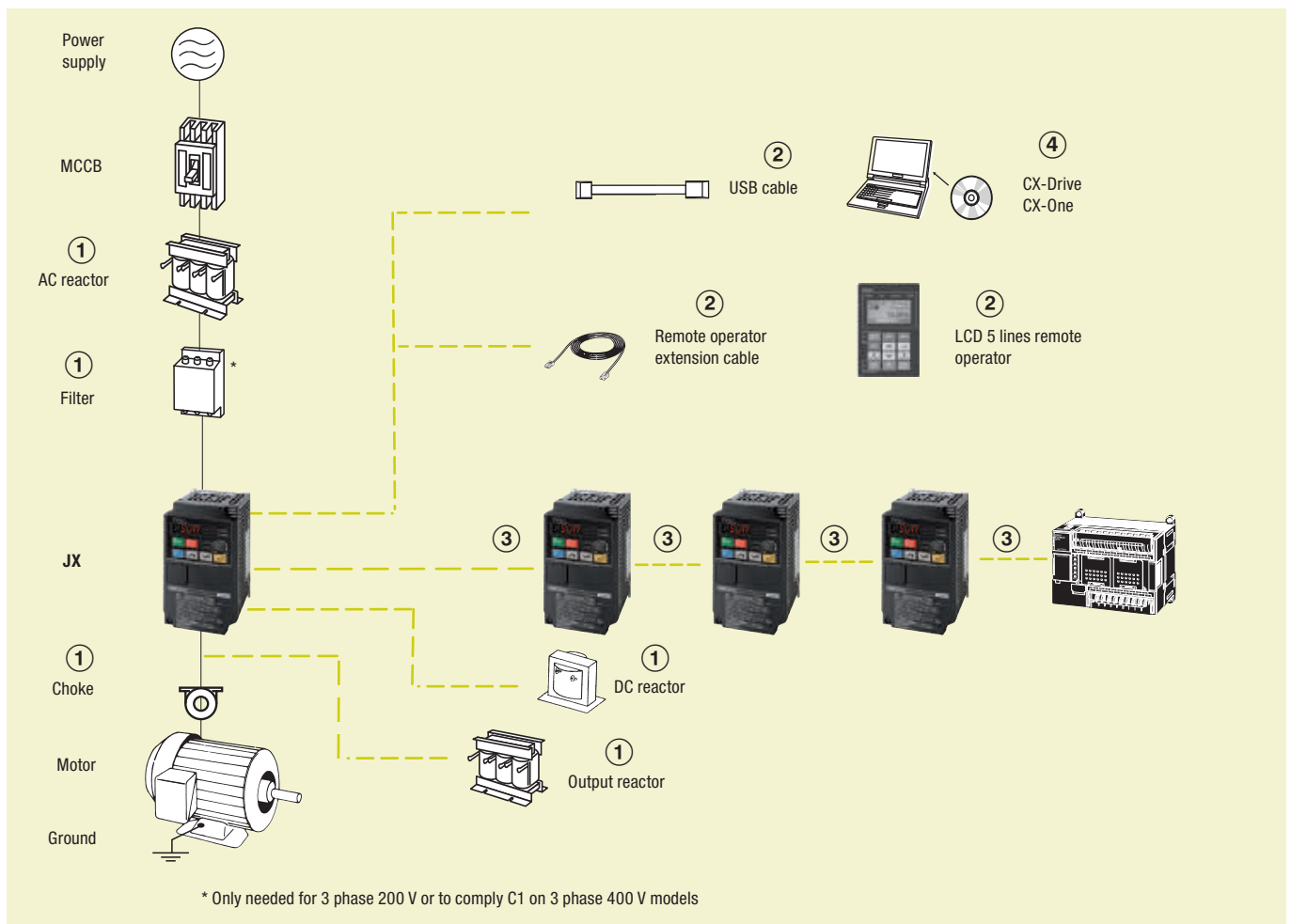


### Compact and complete

With the RFI filter built-in, and the communications integrated as standard, the JX provides a compact and complete solution to a whole range of simple applications, such as conveyor control. The RS485 Modbus is built into the RJ45 port of the inverter front, making it very easy to add inverters into the network without any extra option boards. Therefore, saving costs and space.

- V/f controlled inverter
- Side by side mounting
- EMC filter built-in
- RS485 Modbus built-in
- Overload detection function (150% during 60 s)
- PID
- Micro-surge voltage suppression
- Automatic energy saving

### Ordering information



3G3JX

Specifications			Order code
Voltage class	Max. applicable motor output kW	Rated output current (A)	Standard
Single-phase 200 V	0.2	1.4	3G3JX-AB002-EF
	0.4	2.6	3G3JX-AB004-EF
	0.75	4	3G3JX-AB007-EF
	1.5	7.1	3G3JX-AB015-EF
	2.2	10	3G3JX-AB022-EF
Three-phase 200 V	0.2	1.4	3G3JX-A2002-E
	0.4	2.6	3G3JX-A2004-E
	0.75	4	3G3JX-A2007-E
	1.5	7.1	3G3JX-A2015-E
	2.2	10	3G3JX-A2022-E
	3.7	15.9	3G3JX-A2037-E
	5.5	24	3G3JX-A2055-E
Three-phase 400 V	0.4	1.5	3G3JX-A4004-EF
	0.75	2.5	3G3JX-A4007-EF
	1.5	3.8	3G3JX-A4015-EF
	2.2	5.5	3G3JX-A4022-EF
	4.0	8.6	3G3JX-A4040-EF
	5.5	13	3G3JXA4055-EF
	7.5	16	3G3JXA4075-EF

① Line filters

Inverter		Line filter Rasmi		
Voltage	Model 3G3JX-__	Rated current (A)	Weight (kg)	Order code
1-Phase 200 VAC	AB002 / AB004	6	0.5	AX-FIJ1006-RE
	AB007	10	0.6	AX-FIJ1010-RE
	AB015 / AB022	26	0.8	AX-FIJ1026-RE
3-Phase 200 VAC	A2002 / A2004 / A2007	6	1.0	AX-FIJ2006-RE
	A2015 / A2022 / A2037	20	1.3	AX-FIJ2020-RE
	A2055 / A2075	40	2.3	AX-FIJ2040-RE
3-Phase 400 VAC	A4004 / A4007 / A4015	5	0.9	AX-FIJ3005-RE
	A4022 / A4040	11	1.1	AX-FIJ3011-RE
	A4055 / A4075	20	1.7	AX-FIJ3020-RE

① Input AC Reactors

Inverter		AC Reactor
Voltage	Model 3G3JX-__	Order code
3-Phase 200 VAC	A2002 / A2004 / A2007	AX-RAI02800080-DE
	A2015 / A2022 / A2037	AX-RAI00880175-DE
	A2055 / A2075	AX-RAI00350335-DE
1-Phase 200 VAC	AB002 / AB004	Under development
	AB007	
	AB015 / AB022	
3-Phase 400 VAC	A4004 / A4007 / A4015	AX-RAI07700042-DE
	A4022 / A4040	AX-RAI03500090-DE
	A4055 / A4075	AX-RAI01300170-DE

① DC Reactors

200 V single-phase		200 V three-phase		400 V three-phase	
Inverter	Order code	Inverter	Order code	Inverter	Order code
3G3JX-AB002	AX-RC10700032-DE	3G3JX-A2002	AX-RC21400016-DE	-	
3G3JX-AB004	AX-RC06750061-DE	3G3JX-A2004	AX-RC10700032-DE	3G3JX-A4004	AX-RC43000020-DE
3G3JX-AB007	AX-RC03510093-DE	3G3JX-A2007	AX-RC06750061-DE	3G3JX-A4007	AX-RC27000030-DE
3G3JX-AB015	AX-RC02510138-DE	3G3JX-A2015	AX-RC03510093-DE	3G3JX-A4015	AX-RC14000047-DE
3G3JX-AB022	AX-RC01600223-DE	3G3JX-A2022	AX-RC02510138-DE	3G3JX-A4022	AX-RC10100069-DE
-		3G3JX-A2037	AX-RC01600223-DE	3G3JX-A4040	AX-RC06400116-DE
		3G3JX-A2055	AX-RC01110309-DE	3G3JX-A4055	AX-RC04410167-DE
		3G3JX-A2075	AX-RC00840437-DE	3G3JX-A4075	AX-RC03350219-DE

① Chokes

Diameter	Description	Order code
21	For 2.2 KW motors or below	AX-FER2102-RE
25	For 7.5 KW motors or below	AX-FER2515-RE

① Output AC Reactors

Inverter	Model 3G3JX-□	AC Reactor
Voltage		Order code
200 VAC	A2001 / A2002 / A2004 AB001 / AB002 / AB004	AX-RA011500026-DE
	A2007/AB007	AX-RA007600042-DE
	A2015 / AB015	AX-RA004100075-DE
	A2022 / AB022	AX-RA003000105-DE
	A2037	AX-RA001830160-DE
	A2055	AX-RA001150220-DE
	A2075	AX-RA000950320-DE
400 VAC	A4004 / A4007 / A4015	AX-RA016300038-DE
	A4022	AX-RA011800053-DE
	A4040	AX-RA007300080-DE
	A4055	AX-RA004600110-DE
	A4075	AX-RA003600160-DE

② Accessories

Types	Description	Functions	Order code
Digital operator	LCD remote operator	5 Line LCD remote operator with copy function, cable length max. 3 m. <sup>*1</sup>	AX-OP05-E
	Remote operator cable	3 meters cable for connecting remote operator	3G3AX-CAJOP300-EE
	LED remote operator	LED remote operator, cable length max. 3 m	3G3AX-OP01
Accessories	Mounting kit for LED operator	Mounting kit for LED operator on panel	4X-KITMINI
	USB converter / USB cable	RJ45 to USB connection cable	3G3AX-PCACN2 USB-convertercable
	RJ45 T-Branch cable	T cable for RS-422 connection	3G3AX-CTB020-EE
	RJ45 Terminator resistor	Terminator resistor for RS-422 connection	3G3AX-CTR150-EE

\*1 Please note, for 3G3JX inverters models, the operator will only display 2 lines of text.

④ Computer software

Description	Installation	Order code
Computer software	Configuration and monitoring software tool	CX-Drive
Computer software	Configuration and monitoring software tool	CX-One
Computer software	Software tool for Energy Saving calculation	€Saver

Specifications

200 V class

Single-phase: 3G3JX_		AB002	AB004	AB007	AB015	AB022	-	-	-	
Three-phase: 3G3JX_		A2002	A2004	A2007	A2015	A2022	A2037	A2055	A2075	
Motor kW <sup>*1</sup>	Applicable motor capacity	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	
Output characteristics	Inverter capacity kVA	200 V	0.4	0.9	1.3	2.4	3.4	5.5	8.3	11.0
		240 V	0.5	1.0	1.6	2.9	4.1	6.6	9.9	13.3
	Rated output current (A)		1.4	2.6	4.0	7.1	10.0	15.9	24.0	32.0
	Max. output voltage		Proportional to input voltage: 0...240 V							
	Max. output frequency		400 Hz							
Power supply	Rated input voltage and frequency		Single-phase 200...240 V 50/60 Hz Three-phase 200...240 V 50/60 Hz							
	Rated input current (A) Three-phase 200 V		1.8	3.4	5.2	9.3	13.0	20.0	30.0	40.0
	Rated input current (A) Single-phase 200 V		3.1	5.8	9.0	16.0	22.5	-	-	-
	Allowable voltage fluctuation		-15%...+10%							
	Allowable frequency fluctuation		+5%							
Built-in filter		EMC filter (C1 single phase)								
Braking torque	At short-time deceleration	Approx. 50%			50% for 3-phase 20 to 40% for 1-phase	Approx 20% to 40%		Approx 20%		
	At capacitor feedback									
Cooling method		Self cooling			Forced-air-cooling					

\*1 Based on a standard 3-Phase standard motor.

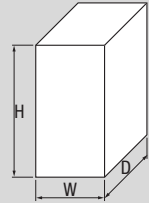
400 V class

Three-phase: 3G3JX_		A4004	A4007	A4015	A4022	A4040	A4055	A4075	
Motor kW <sup>*1</sup>	Applicable motor capacity	0.4	0.75	1.5	2.2	4.0	5.5	7.5	
Output characteristics	Inverter capacity kVA	380 V	0.9	1.6	2.5	3.6	5.6	8.5	10.5
		480 V	1.2	2.0	3.1	4.5	7.1	10.8	13.3
	Rated output current (A)		1.5	2.5	3.8	5.5	8.6	13.0	16.0
	Max. output voltage		Proportional to input voltage: 0...480 V						
	Max. output frequency		400 Hz						
Power supply	Rated input voltage and frequency		3-phase 380...480 V 50/60 Hz						
	Rated input current (A)		2.0	3.3	5.0	7.0	11.0	16.5	20.0
	Allowable voltage fluctuation		-15%...+10%						
	Allowable frequency fluctuation		+5%						
Built-in filter		EMC filter C2 class							
Braking torque	At short-time deceleration	Approx. 50%			Approx. 20% to 40%		Approx. 20%		
	At capacitor feedback								
Cooling method		Self cooling			Forced-air-cooling				

\*1 Based on a standard 3-Phase standard motor.

## Dimensions

Voltage class	Max. applicable motor output kW	Inverter model	Dimensions in mm			
			H	W	D	Weight (kg)
Single-phase 200 V	0.2	3G3JX-AB002	155	80	95.5	0.8
	0.4	3G3JX-AB004			109.5	0.9
	0.75	3G3JX-AB007	189	110	130.5	1.5
	1.5	3G3JX-AB015			157.5	2.3
	2.2	3G3JX-AB022			167.5	2.4
Three-phase 200 V	0.2	3G3JX-A2002	155	80	95.5	0.8
	0.4	3G3JX-A2004			109.5	0.9
	0.75	3G3JX-A2007	189	110	132.5	1.1
	1.5	3G3JX-A2015			157.5	2.2
	2.2	3G3JX-A2022			167.5	2.4
	3.7	3G3JX-A2037	250	180	167.5	4.2
	5.5	3G3JX-A2055				
	7.5	3G3JX-A2075				
Three-phase 400 V	0.4	3G3JX-A4004	189	110	130.5	1.5
	0.75	3G3JX-A4007			157.5	2.3
	1.5	3G3JX-A4015			167.5	2.4
	2.2	3G3JX-A4022	250	180	167.5	4.2
	4.0	3G3JX-A4040				
	5.5	3G3JX-A4055				
	7.5	3G3JX-A4075				

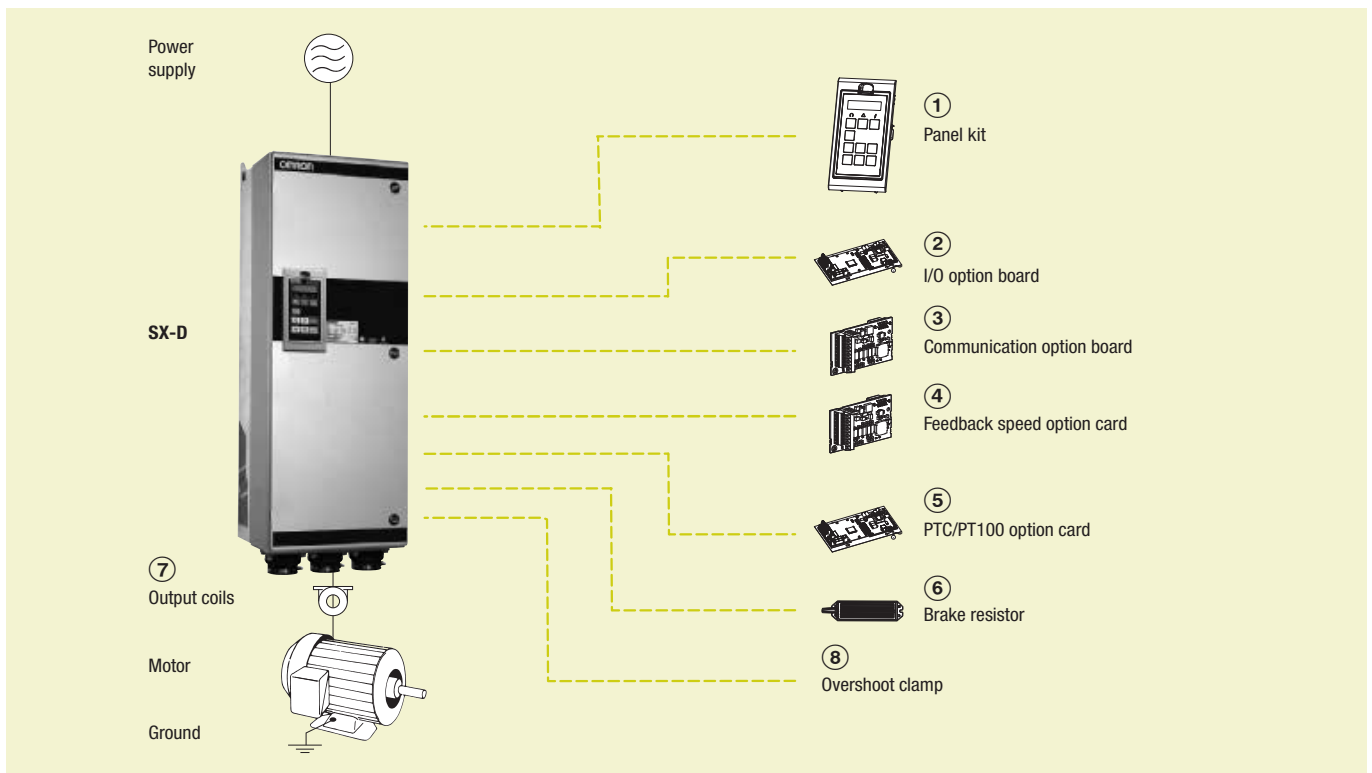




## High performance vector control

- 400 V class three-phase 0.75 to 800 kW
- IP54 full range
- Compact design and robustness
- Built-in EMC filter for complete family and fuses from 200 kW
- Safety according EN13849-1 and EN62061 standards
- Logic programmability
- Communication options (EtherCAT, PROFINET, CAN, Modbus, DeviceNet, PROFIBUS, Modbus TCP)

## Ordering information





## SX

Specifications					Order code			
Voltage	Heavy duty		Normal duty		IP54 model		IP20 model	
					Direct torque control	V/F	Direct torque control	V/F
400 V	0.55 kW	2.0 A	0.75 kW	2.5 A	SX-D40P7-EF	SX-D40P7-EV	-	-
	1.1 kW	3.2 A	1.5 kW	4.0 A	SX-D41P5-EF	SX-D41P5-EV	-	-
	1.5 kW	4.8 A	2.2 kW	6.0 A	SX-D42P2-EF	SX-D42P2-EV	-	-
	2.2 kW	6.0 A	3 kW	7.5 A	SX-D43P0-EF	SX-D43P0-EV	-	-
	3 kW	7.6 A	4 kW	9.5 A	SX-D44P0-EF	SX-D44P0-EV	-	-
	4 kW	10.4 A	5.5 kW	13 A	SX-D45P5-EF	SX-D45P5-EV	-	-
	5.5 kW	14.4 A	7.5 kW	18 A	SX-D47P5-EF	SX-D47P5-EV	-	-
	7.5 kW	21 A	11 kW	26 A	SX-D4011-EF	SX-D4011-EV	-	-
	11 kW	25 A	15 kW	31 A	SX-D4015-EF	SX-D4015-EV	-	-
	15 kW	29.6 A	18.5 kW	37 A	SX-D4018-EF	SX-D4018-EV	-	-
	18.5 kW	37 A	22 kW	46 A	SX-D4022-EF	SX-D4022-EV	-	-
	22 kW	49 A	30 kW	61 A	SX-D4030-EF	SX-D4030-EV	-	-
	30 kW	59 A	37 kW	74 A	SX-D4037-EF	SX-D4037-EV	-	-
	37 kW	72 A	45 kW	90 A	SX-D4045-EF	SX-D4045-EV	-	-
	45 kW	87 A	55 kW	109 A	SX-D4055-EF	SX-D4055-EV	-	-
	55 kW	117 A	75 kW	146 A	SX-D4075-EF	SX-D4075-EV	-	-
	75 kW	140 A	90 kW	175 A	SX-D4090-EF	SX-D4090-EV	-	-
	90 kW	168 A	110 kW	210 A	SX-D4110-EF	SX-D4110-EV	-	-
	110 kW	200 A	132 kW	250 A	SX-D4132-EF	SX-D4132-EV	-	-
	132 kW	240 A	160 kW	300 A	SX-D4160-E1F	SX-D4160-E1V	SX-A4160-EF	SX-A4160-EV
	160 kW	300 A	200 kW	375 A	SX-D4200-E1F	SX-D4200-E1V	SX-A4200-EF	SX-A4200-EV
	200 kW	344 A	220 kW	430 A	SX-D4220-E1F	SX-D4220-E1V	SX-A4220-EF	SX-A4220-EV
	220 kW	400 A	250 kW	500 A	SX-D4250-E1F	SX-D4250-E1V	SX-A4250-EF	SX-A4250-EV
	250 kW	480 A	315 kW	600 A	SX-D4315-E1F	SX-D4315-E1V	SX-A4315-EF	SX-A4315-EV
	315 kW	520 A	355 kW	650 A	SX-D4355-E1F	SX-D4355-E1V	SX-A4355-EF	SX-A4355-EV
	355 kW	600 A	400 kW	750 A	SX-D4400-E1F	SX-D4400-E1V	SX-A4400-EF	SX-A4400-EV
	400 kW	688 A	450 kW	860 A	SX-D4450-E1F	SX-D4450-E1V	SX-A4450-EF	SX-A4450-EV
450 kW	800 A	500 kW	1,000 A	SX-D4500-E1F	SX-D4500-E1V	SX-A4500-EF	SX-A4500-EV	
500 kW	960 A	630 kW	1,200 A	SX-D4630-E1F	SX-D4630-E1V	SX-A4630-EF	SX-A4630-EV	
630 kW	1,200 A	800 kW	1,500 A	SX-D4800-E1F	SX-D4800-E1V	SX-A4800-EF	SX-A4800-EV	

### ① Panel kit

Type	Description	Function	Order code
Panel kit	Panel kit	Complete panel kit including operator	SX-OP02-00-E
	Blank panel kit	Complete panel kit including a blank operator	SX-OP02-01-E
Operator	External control panel	External control panel (SX-D40P7 to SX-D47P5)	SX-OP02-71-E
	External blank panel	External blank panel (SX-D4011 to SX-D4022)	SX-OP02-81-E
	Handheld control panel	Complete handheld control panel	SX-OPHH-00-E
	Digital operator	Inverter digital operator	SX-OP01-00-E
	Blank operator	Blank operator	SX-OP01-11-E

### ② I/O option board

Description	Function	Order code
Additional I/O option	Provides 3 extra relay outputs and 3 additional digital inputs	01-3876-01
Crane option	Dedicated option board for crane application, including additional I/O and functions	01-3876-07

### ③ Communication option board

Description	Function	Order code
RS232/485	MODBUS RTU serial communication by RS232 or RS485 interface with galvanic isolation	01-3876-04
PROFIBUS-DP option card	Used for operating the inverter through PROFIBUS-DP communication with the host controller	01-3876-05
DeviceNet option card	Used for operating the inverter through DeviceNet communication with the host controller	01-3876-06
Modbus/TCP, Ethernet	Used for operating the inverter through Modbus/TCP communication with the host controller	01-3876-09
EtherCAT option card	Used for operating the inverter through EtherCAT communication with the host controller	01-3876-10
PROFINET option card	Used for operating the inverter through PROFINET communication with the host controller	Under development
CAN option card	Used for operating the inverter through CAN communication with the host controller	Under development

### ④ Encoder feedback option card

Description	Function	Order code
Encoder option	Used for connection of the actual motor speed via encoder. Up to 100 kHz with TTL and HTL incremental encoders with 5/24 V power supply	01-3876-03

### ⑤ PTC/PT100 option card

Description	Function	Order code
Thermal protection	Allows to connect a motor thermistor to the inverter	01-3876-08

## ⑥ Braking chopper and braking resistor

All inverter sizes could be fitted with an optional built-in brake chopper from factory but is not possible to install it later. The choice of the resistor depends on the application switch-on duration and duty-cycle. Following tables describes the activation level of the built-in braking chopper and the minimum resistor that could be used depending on the input voltage.

R for different input voltage (Ω)			Order code	R for different input voltage (Ω)			Order code
220–240 VAC	380–415 VAC	440–480 VAC		220–240 VAC	380–415 VAC	440–480 VAC	
43	43	50	SX-40P7	3.8	3.8	4.4	SX-4075
43	43	50	SX-41P5	3.8	3.8	4.4	SX-4090
43	43	50	SX-42P2	2.7	2.7	3.1	SX-4110
43	43	50	SX-43P0	2.7	2.7	3.1	SX-4132
43	43	50	SX-44P0	2 × 3.8	2 × 3.8	2 × 4.4	SX-4160
43	43	50	SX-45P5	2 × 3.8	2 × 3.8	2 × 4.4	SX-4200
43	43	50	SX-47P5	2 × 2.7	2 × 2.7	2 × 3.1	SX-4220
26	26	30	SX-4011	2 × 2.7	2 × 2.7	2 × 3.1	SX-4250
26	26	30	SX-4015	3 × 2.7	3 × 2.7	3 × 3.1	SX-4315
17	17	20	SX-4018	3 × 2.7	3 × 2.7	3 × 3.1	SX-4355
17	17	20	SX-4022	3 × 2.7	3 × 2.7	3 × 3.1	SX-4400
9.7	9.7	N/A	SX-4030	4 × 2.7	4 × 2.7	4 × 3.1	SX-4450
9.7	9.7	N/A	SX-4037	4 × 2.7	4 × 2.7	4 × 3.1	SX-4500
3.8	3.8	4.4	SX-4045	6 × 2.7	6 × 2.7	6 × 3.1	SX-4630
3.8	3.8	4.4	SX-4055	–	–	–	–

Supply voltage (VAC)	Built-in brake chopper trigger level (VDC)
220–240	380
380–415	660
440–480	780

## ⑦ Output coils

Output coils above SX-D4132-E should be order from factory as they should be installed inside of the cabinet

Voltage	Inverter model	Rated current	Inductance	Rated voltage	Max carrier	Max output frequency	Max temp	Order code	
400 V	SX-40P7-E	2.8 A	1.5 mH	800 V	10 KHz	200 Hz	40°C	473160 00	
	SX-41P5-E	4.4 A	1.0 mH					473161 00	
	SX-42P2-E	6.6 A	0.65 mH					473162 00	
	SX-43P0-E	11.0 A	0.4 mH					473163 00	
	SX-44P0-E								
	SX-45P5-E	14.3 A	0.3 mH					473164 00	
	SX-47P5-E	18.2 A	0.25 mH					473165 00	
	SX-4011-E	26.4 A	0.175 mH					6 KHz	473166 00
	SX-4015-E	32 A	0.15 mH						473167 00
	SX-4018-E	65 A	0.1 mH		473168 00				
	SX-4022-E								
	SX-4030-E								
	SX-4037-E	90 A	0.1 mH		473169 00				
	SX-4045-E								
	SX-4055-E	146 A	0.05 mH		473170 00				
	SX-4075-E								
	SX-4090-E	175 A	0.05 mH		473171 00				
	SX-4110-E	275 A	0.032 mH		1.5 KHz	100 Hz		473172 00	
SX-4132-E									

## ⑧ Overshoot clamp

Note: Only two types of overshoot clamps could be order for after mounting

Inverter	Function	Order code
SX-40P7 to SX-4132	Together with the output coils, the overshoot clamp restricts the voltage and the dV/dt on the motor winding. Inverters must be ordered including the option DC+/DC– connectors.	52163
SX-4160 to SX-4800	Together with the output coils, the overshoot clamp restricts the voltage and the dV/dt on the motor winding. Doesn't require the "DC+/DC–" option.	52220

## Computer software

Installation	Order code
Configuration and monitoring software tool	CX-Drive
Configuration and monitoring software tool	CX-One
Software tool for energy saving calculation	ESaver

## Specifications

Three-phase: SX- 4 ___ -E		0P7	1P5	2P2	3P0	4P0	5P5	7P5	011	015	018	022	030	037	045	055	
Motor kW <sup>*1</sup>	For HD setting	0.55	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	
	For ND setting	0.75	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	
Output characteristics	Max output current (A) _-EF	3.8	6.0	9.0	11.3	14.3	19.5	27.0	39.0	46.0	55.0	69.0	92.0	111	108	131	
	Max output current (A) _-EV	3.0	4.8	7.2	9.0	11.4	15.6	21.6	31.0	37.0	44.0	55.0	73.0	89.0	108	131	
	Rated output current (A) at HD	2.0	3.2	4.8	6.0	7.6	10.4	14.4	21.0	25.0	29.6	37.0	49.0	59.0	72.0	87.0	
	Rated output current (A) at ND	2.5	4.0	6.0	7.5	9.5	13.0	18.0	26.0	31.0	37.0	46.0	61.0	74.0	90.0	109	
	Output voltage	0 to Mains supply voltage															
	Max. output frequency	400 Hz															
Power supply	Rated input voltage and frequency	3-phase 230 to 480 V 50/60 Hz															
	Allowable voltage fluctuation	10% to -15% (-10% at 230V)															
	Allowable frequency fluctuation	45 to 65 Hz															

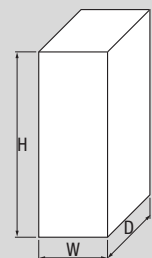
\*1 Based on a standard 4-pole motor for maximum applicable motor output

Three-phase: SX- 4 ___ -E		075	090	110	132	160	200	220	250	315	355	400	450	500	630	800	
Motor kW <sup>*1</sup>	For HD setting	55	75	90	110	132	160	200	220	250	315	355	400	450	500	630	
	For ND setting	75	90	110	132	160	200	220	250	315	355	400	450	500	630	800	
Output characteristics	Max output current (A) _-EF	175	210	252	300	360	450	516	600	720	780	900	1,032	1,200	1,440	1,800	
	Max output current (A) _-EV	175	210	252	300	360	450	516	600	720	780	900	1,032	1,200	1,440	1,800	
	Rated output current (A) at HD	117	140	168	200	240	300	344	400	480	520	600	688	800	960	1,200	
	Rated output current (A) at ND	146	175	210	250	300	375	430	500	600	650	750	860	1,000	1,200	1,500	
	Output voltage	0 to Mains supply voltage															
	Max. output frequency	400 Hz															
Power supply	Rated input voltage and frequency	3-phase 230 to 480 V 50/60 Hz															
	Allowable voltage fluctuation	10% to -15% (-10% at 230V)															
	Allowable frequency fluctuation	45 to 65 Hz															

\*1 Based on a standard 4-pole motor for maximum applicable motor output

## Dimensions

Degree of protection	Drive model	H	W	D
IP20	SX-A4160 to SX-A4200	1,036	500	390
	SX-A4220 to SX-A4250	1,036	500	450
	SX-A4315 to SX-A4400	1,036	730	450
	SX-A4450 to SX-A4500	1,036	1,100	450
	SX-A4630 to SX-A4800	1,036	1,560	450
IP54	SX-D40P7 to SX-D47P5	416	202.6	200
	SX-D4011 to SX-D4022	512	178	292.1
	SX-D4030 to SX-D4037	590	220	295
	SX-D4045 to SX-D4090	950	284.5	314
	SX-D4110 to SX-D4132	950	344.5	314
	SX-D4160 to SX-D4250	2,250	600	600
	SX-D4315 to SX-D4400	2,250	900	600
	SX-D4450 to SX-D4500	2,250	1,200	600
	SX-D4630 to SX-D4800	2,250	1,800	600



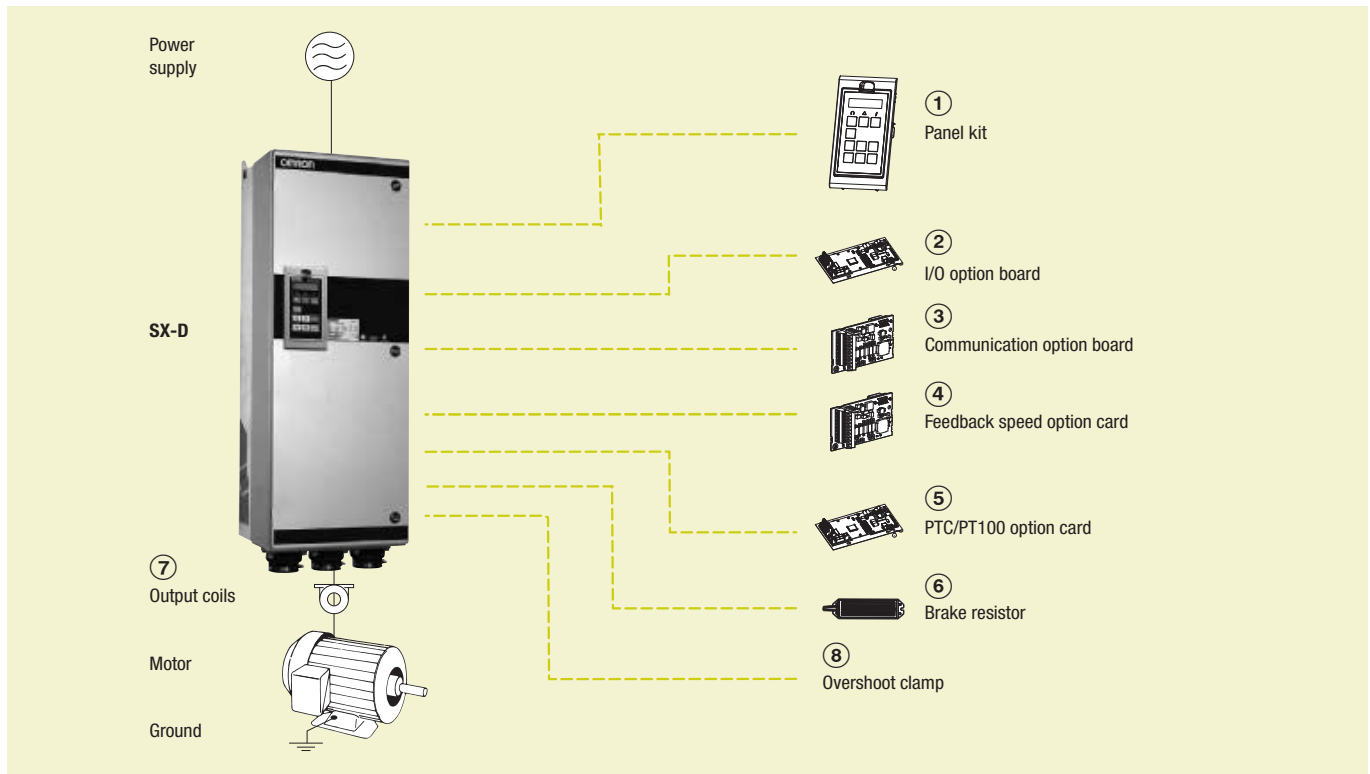


### Force and flow in harmony

Designed to drive any high power application from 90 kW up to 1 MW, the new SX series of compact inverters features embedded application dedicated functionality plus logic programming and customizable LCD information to give you all the control flexibility required for applications ranging from high torque to smooth flow and pressure control.

- 500 V-690 V power supply from 90 kW up to 1 MW
- IP54 full range
- Compact design and robustness
- Built-in EMC filter for complete family and fuses from 200 kW
- Safety according EN13849-1 and EN62061 standards
- Logic programmability
- Hardware customization
- Communication options (EtherCAT, PROFINET, CAN, Modbus, DeviceNet, PROFIBUS, Modbus TCP)

### Ordering information



### SX

Specifications				Order code				
Voltage	Heavy duty		Normal duty		IP54 model		IP20 model	
					Direct torque control	V/F	Direct torque control	V/F
690 V	75 kW	72 A	90 kW	90 A	SX-D6090-EF	SX-D6090-EV	-	-
	90 kW	87 A	110 kW	109 A	SX-D6110-EF	SX-D6110-EV	-	-
	110 kW	117 A	132 kW	146 A	SX-D6132-EF	SX-D6132-EV	-	-
	132 kW	140 A	160 kW	175 A	SX-D6160-EF	SX-D6160-EV	-	-
	160 kW	168 A	200 kW	210 A	SX-D6200-E1F	SX-D6200-E1V	-	-
	200 kW	200 A	250 kW	250 A	SX-D6250-E1F	SX-D6250-E1V	SX-A6250-EF	SX-A6250-EV
	250 kW	240 A	315 kW	300 A	SX-D6315-E1F	SX-D6315-E1V	SX-A6315-EF	SX-A6315-EV
	315 kW	300 A	355 kW	375 A	SX-D6355-E1F	SX-D6355-E1V	SX-A6355-EF	SX-A6355-EV
	315 kW	344 A	450 kW	430 A	SX-D6450-E1F	SX-D6450-E1V	SX-A6450-EF	SX-A6450-EV
	355 kW	400 A	500 kW	500 A	SX-D6500-E1F	SX-D6500-E1V	SX-A6500-EF	SX-A6500-EV
	450 kW	480 A	600 kW	600 A	SX-D6600-E1F	SX-D6600-E1V	SX-A6600-EF	SX-A6600-EV
	500 kW	520 A	630 kW	650 A	SX-D6630-E1F	SX-D6630-E1V	SX-A6630-EF	SX-A6630-EV
	600 kW	600 A	710 kW	750 A	SX-D6710-E1F	SX-D6710-E1V	SX-A6710-EF	SX-A6710-EV
	650 kW	688 A	800 kW	860 A	SX-D6800-E1F	SX-D6800-E1V	SX-A6800-EF	SX-A6800-EV
	710 kW	720 A	900 kW	900 A	SX-D6900-E1F	SX-D6900-E1V	SX-A6900-EF	SX-A6900-EV
	800 kW	800 A	1,000 kW	1,000 A	SX-D61K0-E1F	SX-D61K0-E1V	SX-A61K0-EF	SX-A61K0-EV

## ① Panel kit

Type	Description	Function	Order code
Panel kit	Panel kit	Complete panel kit including operator	SX-OP02-00-E
	Blank panel kit	Complete panel kit including a blank operator	SX-OP02-01-E
Operator	Handheld control panel	Complete handheld control panel	SX-OPHH-00-E
	Digital operator	Inverter digital operator	SX-OP01-00-E
	Blank operator	Blank operator	SX-OP01-11-E

## ② I/O option board

Description	Function	Order code
Additional I/O option	Provides 3 extra relay outputs and 3 additional digital inputs	01-3876-01
Crane option	Dedicated option board for crane application, including additional I/O and functions	01-3876-07

## ③ Communication option board

Description	Function	Order code
RS232/485	MODBUS RTU serial communication by RS232 or RS485 interface with galvanic isolation	01-3876-04
PROFIBUS-DP option card	Used for operating the inverter through PROFIBUS-DP communication with the host controller	01-3876-05
DeviceNet option card	Used for operating the inverter through DeviceNet communication with the host controller	01-3876-06
Modbus/TCP, Ethernet	Used for operating the inverter through Modbus/TCP communication with the host controller	01-3876-09
EtherCAT option card	Used for operating the inverter through EtherCAT communication with the host controller	01-3876-10
PROFINET option card	Used for operating the inverter through PROFINET communication with the host controller	Under development
CAN option card	Used for operating the inverter through CAN communication with the host controller	Under development

## ④ Encoder feedback option card

Description	Function	Order code
Encoder option	Used for connection of the actual motor speed via encoder. Up to 100 kHz with TTL and HTL incremental encoders with 5/24 V power supply	01-3876-03

## ⑤ PTC/PT100 option card

Description	Function	Order code
Thermal protection	Allows to connect a motor thermistor to the inverter	01-3876-08

## ⑥ Braking chopper and braking resistor

All inverter sizes could be fitted with an optional built-in brake chopper from factory but is not possible to install it later. The choice of the resistor depends on the application switch-on duration and duty-cycle. Following tables describes the activation level of the built-in braking chopper and the minimum resistor that could be used depending on the input voltage.

Rmin for different input voltage (Ω)			Order code
500–525 VAC	550–600 VAC	660–690 VAC	
4.9	5.7	6.5	SX-D6090-EF
4.9	5.7	6.5	SX-D6110-EF
4.9	5.7	6.5	SX-D6132-EF
4.9	5.7	6.5	SX-D6160-EF
2 × 4.9	2 × 5.7	2 × 6.5	SX-D6200-EF
2 × 4.9	2 × 5.7	2 × 6.5	SX-D6250-EF
2 × 4.9	2 × 5.7	2 × 6.5	SX-D6315-EF
2 × 4.9	2 × 5.7	2 × 6.5	SX-D6355-EF
3 × 4.9	3 × 5.7	3 × 6.5	SX-D6450-EF
3 × 4.9	3 × 5.7	3 × 6.5	SX-D6500-EF
4 × 4.9	4 × 5.7	4 × 6.5	SX-D6600-EF
4 × 4.9	4 × 5.7	4 × 6.5	SX-D6630-EF
6 × 4.9	6 × 5.7	6 × 6.5	SX-D6710-EF
6 × 4.9	6 × 5.7	6 × 6.5	SX-D6800-EF
6 × 4.9	6 × 5.7	6 × 6.5	SX-D6900-EF
6 × 4.9	6 × 5.7	6 × 6.5	SX-D61K0-EF

Supply voltage (VAC)	Built-in brake chopper trigger level (VDC)
500–525	860
550–600	1,000
660–690	1,150

## ⑦ Output coils

Output coils above SX-D4132-E should be order from factory as they should be installed inside of the cabinet

Voltage	Inverter model	Rated current	Inductance	Rated voltage	Max carrier	Max output frequency	Max temp	Order code
690 V	SX-D6090-EF	90 A	0.1 mH	800 V	6 kHz	200 Hz	40°C	473169 00
	SX-D6110-EF	146 A	0.05 mH		6 kHz	200 Hz		473170 00
	SX-D6132-EF							
	SX-D6160-EF	175 A	0.05 mH		6 kHz	200 Hz		473171 00

## ⑧ Overshoot clamp

**Note:** Only two types of overshoot clamps could be order for after mounting

Inverter	Function	Order code
SX-6090 to SX-6160	Together with the output coils, the overshoot clamp restricts the voltage and the dV/dt on the motor winding. Inverters must be ordered including the option DC+/DC- connectors.	52163
SX-6200 to SX-61K0	Together with the output coils, the overshoot clamp restricts the voltage and the dV/dt on the motor winding. Doesn't require the "DC+/DC-" option.	52220

## Computer software

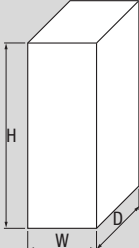
Installation	Order code
Configuration and monitoring software tool	CX-Drive
Configuration and monitoring software tool	CX-One
Software tool for energy saving calculation	€Saver

## Specifications

Three-phase: SX- 6__-EF		90	110	132	160	200	250	315	355	450	500	600	630	710	800	900	1K0	
Motor kW <sup>*1</sup>	For HD setting	75	90	110	132	160	200	250	315	315	355	450	500	600	650	710	800	
	For ND setting	90	110	132	160	200	250	315	355	450	500	600	630	710	800	900	1,000	
Output characteristics	Max output current (A)	108	131	175	210	252	300	360	450	516	600	720	780	900	1,032	1,080	1,200	
	Rated output current (A) at HD	72	87	117	140	168	200	240	300	344	400	480	520	600	688	720	800	
	Rated output current (A) at ND	90	109	146	175	210	250	300	375	430	500	600	650	750	860	900	1,000	
	Output voltage	0 to Mains supply voltage																
	Max. output frequency	400 Hz																
Power supply	Rated input voltage and frequency	3-phase 500 to 690 V, 50/60 Hz																
	Allowable voltage fluctuation	10% to -15%																
	Allowable frequency fluctuation	45 to 65 Hz																

\*1 Based on a standard 4-pole motor for maximum applicable motor output

## Dimensions

Degree of protection	Drive model	H	W	D	
IP20	SX-A6200 to SX-A6375	1,176	500	450	
	SX-A6450 to SX-A6500	1,176	730	450	
	SX-A6600 to SX-A6630	1,176	1,100	450	
	SX-A6710 to SX-A61K0	1,176	1,560	450	
IP54	SX-D6090 to SX-D6160	952.5	344.5	314	
	SX-D6200 to SX-D6355	2,250	600	600	
	SX-D6450 to SX-D6500	2,250	900	600	
	SX-D6600 to SX-D6630	2,250	1,200	600	
	SX-D6710 to SX-D61K0	2,250	1,800	600	