

# ACCURAX G5 Servo System

Extreme mechatronics meets X-Stream Automation



**accurax**

» Sub micron precision and ms settling time

» Motion network and safety built-in

» Double registration and full closed loop

# Extreme mechatronics...

## 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.

### Panel operator functions

- Display shows user selected data
- Keys for setting/monitoring parameters
- 2 configurable analog outputs for monitoring

### Rugged and smart design

- IP67 motor and connectors
- No flying leads
- 5G vibration resistance

### 40% reduction in motor cogging

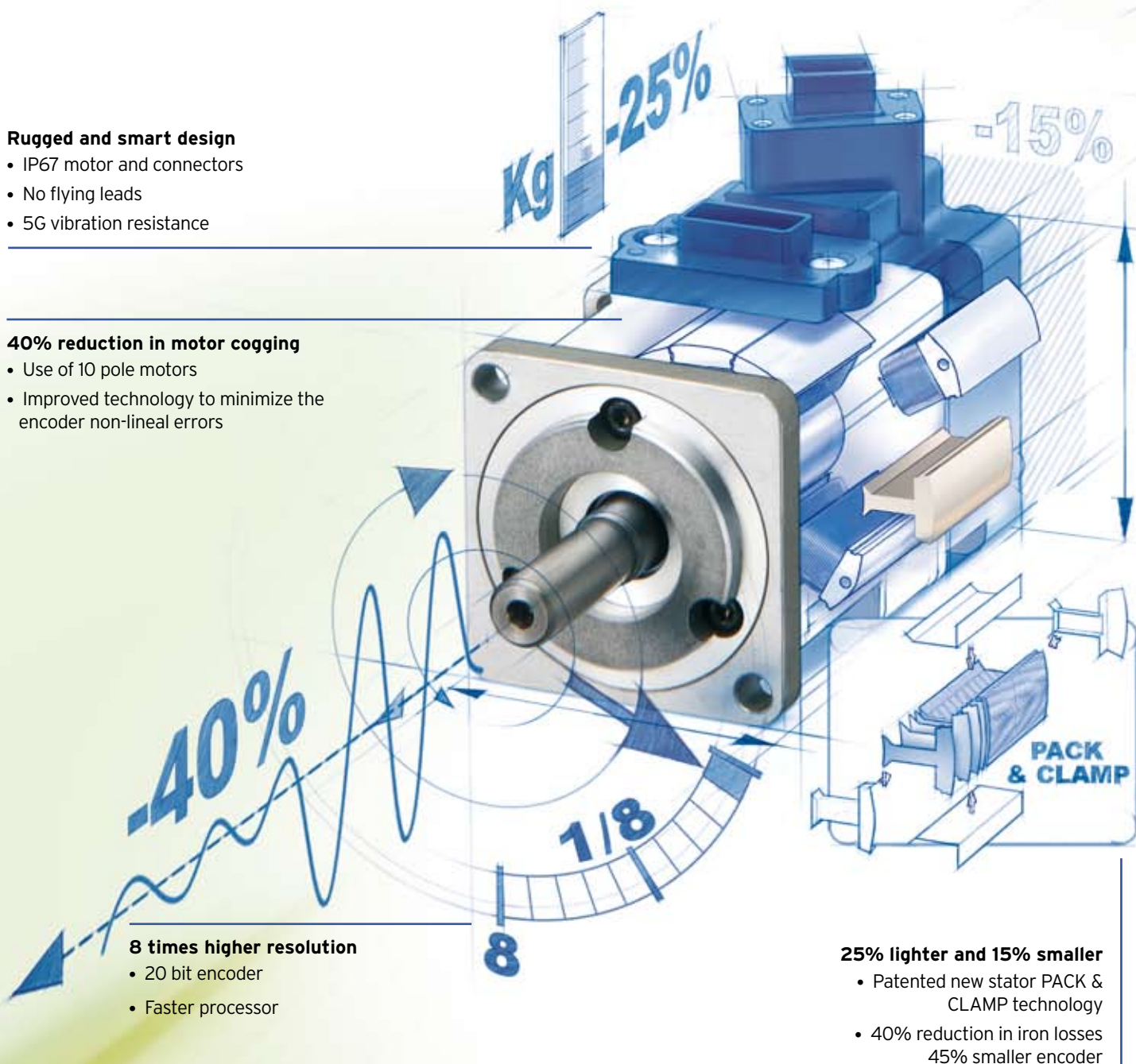
- Use of 10 pole motors
- Improved technology to minimize the encoder non-linear errors

### 8 times higher resolution

- 20 bit encoder
- Faster processor

### 25% lighter and 15% smaller

- Patented new stator PACK & CLAMP technology
- 40% reduction in iron losses  
45% smaller encoder





**Up to 50% cabinet size reduction**

- Up to 40% smaller drive
- Extra 10% saving thanks to side by side mounting

**Safety conformance**

- PL-d according ISO13849-1:2008
- STO: IEC61800-5-2:2007
- SIL2 according to EN61508:2001
- Cat.3: EN954-1:1996

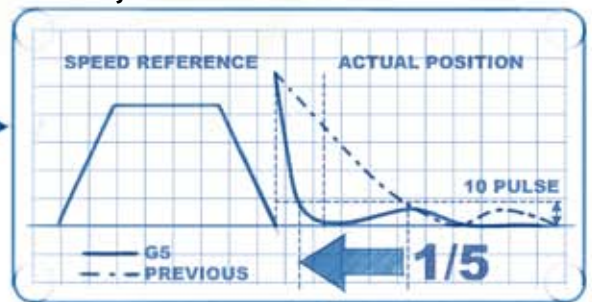


**Fast & accurate**

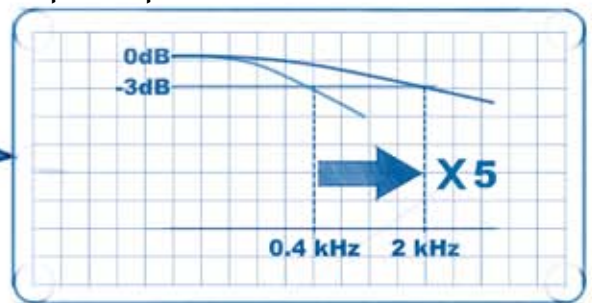
- 5 times faster settling time -0~2 ms
- 2 kHz speed response
- Torque feed forward reduces following error



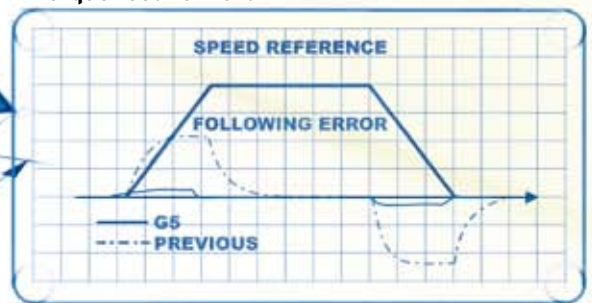
**Settling time**



**Speed response**



**Torque feed forward**

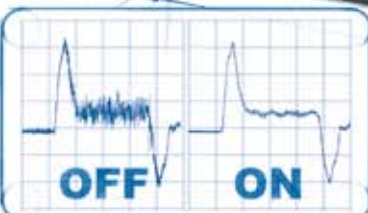


**100,000 hr operation in rugged industrial conditions**

- No fan below 1 kW
- Long life capacitors

**Load vibration suppression**

- Up to 4 preset frequencies
- Setting frequency from 1 to 200Hz



Vibration suppression



# ... meets X-Stream Automation

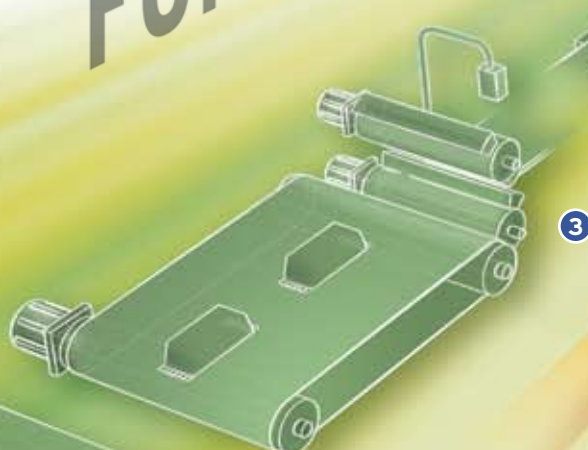
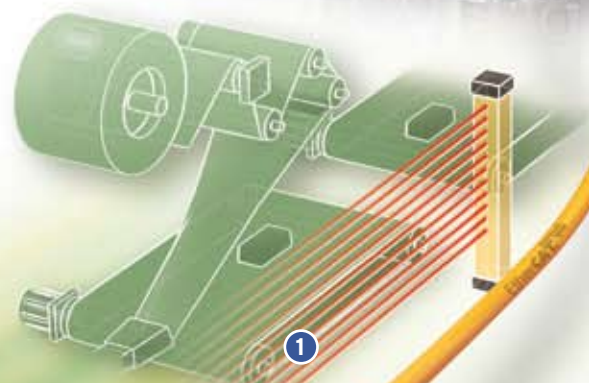
Accurax G5 seamlessly integrates into Omron's ONE SOFTWARE - ONE CONNECTION automation architecture. It utilises Ethernet connectivity and is fully configured through the CX-Drive component of the CX-One software suite. Accurax G5 also simplifies your mechanical and electrical design by including double registration input, full closed loop and multi-drive safety functionality.

- 1 Built-in safety: multi-drives in a single safety relay circuit**  
The two safety inputs and the external device monitoring (EDM) output can be linked from one servo drive to another without using additional safety relays. Up to 8 servo drives can be connected to a single safety relay, saving hardware and wiring costs.

- 2 Full closed loop**  
Accurax G5 has a built-in external encoder input for full closed loop operation, for when additional accuracy is required. The external encoder input eliminates the errors caused by, for example, slip in the material.

- 3 Double registration input**  
Accurax G5 increases application versatility by providing 2 independent registration inputs per axis, especially relevant for applications such as flow wrappers. By registering the product input position and the mark position on the film, the system can make relative corrections ensuring high accuracy with a simple mechanical design.

INTEGRATED  
FUNCTIONALITY







Trajexia machine controller

NS HMI

Ethernet

EtherCAT

ETHERNET  
CONNECTIVITY

INTUITIVE  
SOFTWARE

**Open connectivity**

- DeviceNet
- PROFIBUS
- CANopen
- MECHATROLINK II
- EtherCAT

**One software - One connection**

- Full access to all devices from one connection
- One software for machine control programming and system setup



Auto tuning wizard

FFT function

Easy drive configuration and monitoring

Real time and Data trace

Alarm History/Trace

Servo setup

CAM control, Registration, Interpolation, Axes synchronization

Data trace, Alarm display, Axis configuration wizard, CAM editor

IEC languages

Machine control

R88D-KN□□□-ML2, R88D-KT□, R88M-K□

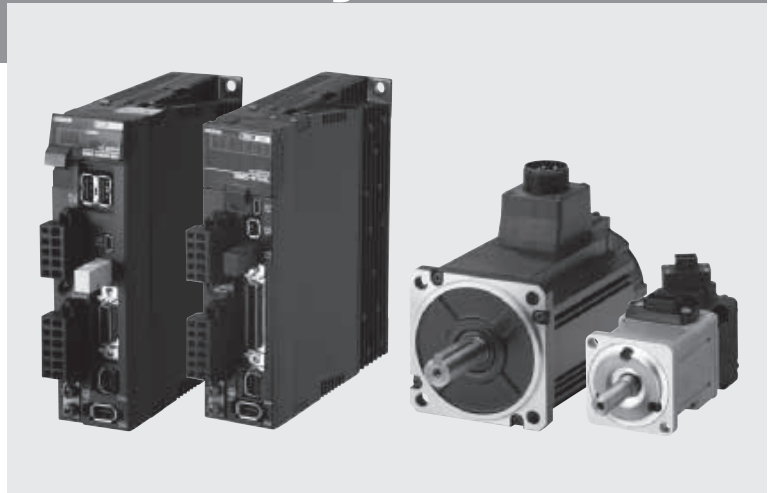
# Accurax G5 servo system

**Accurate motion control in a compact size servo drive family. MECHATROLINK-II motion bus and safety built-in.**

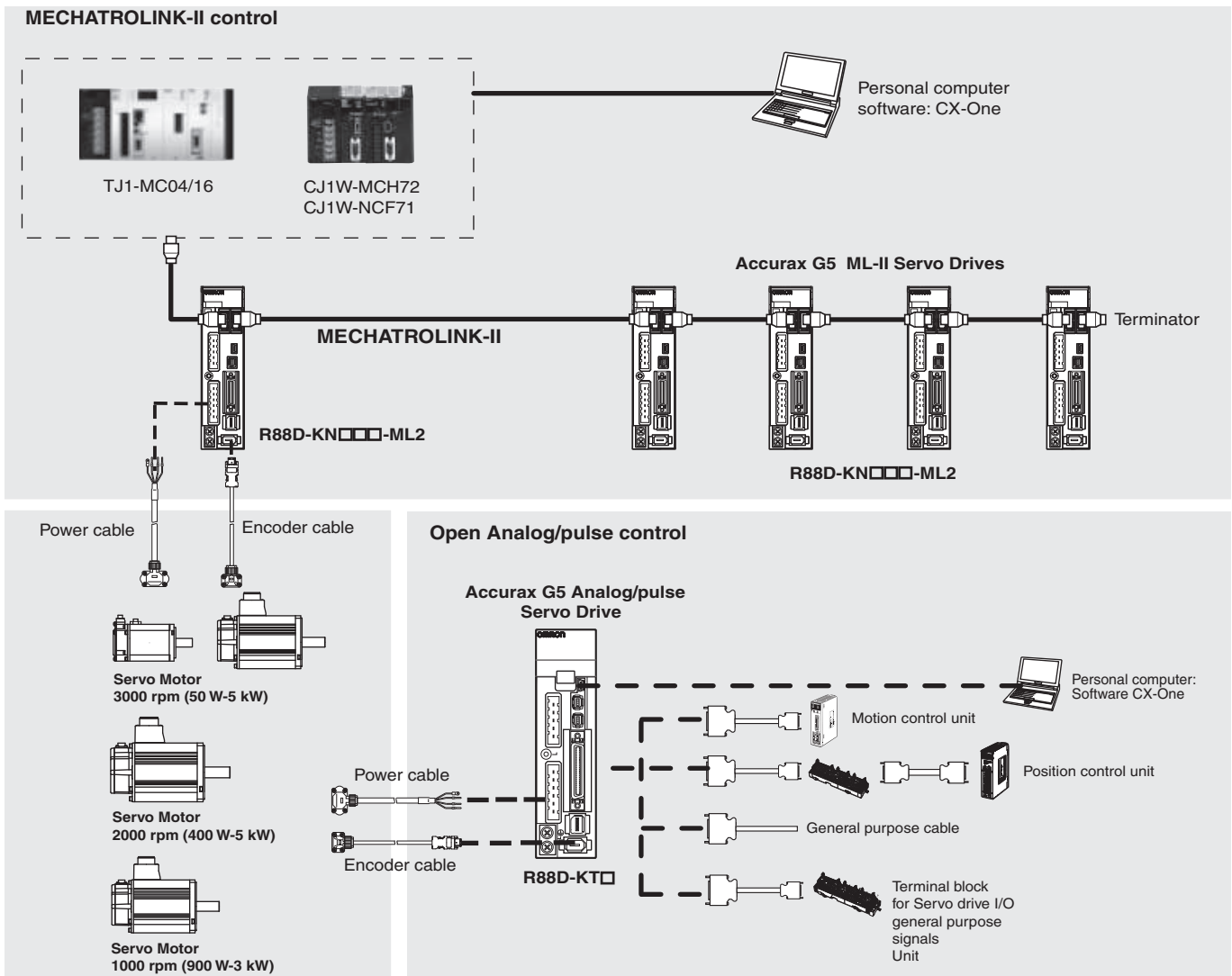
- MECHATROLINK-II and Analog/ Pulse servo drive models
- Safety conforming ISO13849-1 Performance Level D
- High-response frequency of 2 kHz
- High accuracy provided by 20 bits encoder
- Full closed loop encoder built-in
- Real time auto-tuning
- Advanced tuning algorithms (Anti-vibration function, torque feedforward, disturbance observer)
- IP67 protection in all motor models

**Ratings**




- 230 VAC Single-phase 50 W to 1.5 kW (8.59 Nm)
- 400 VAC three-phase 400 W to 5 kW (28.7 Nm)



**System configuration**



**Servo motor/servo drive combination**

	Accurax G5 rotary servo motor					Accurax G5 servodrive					
	Voltage	Speed	Rated torque	Capacity	Model	MECHATROLINK-II model		Analog/Pulse model			
						230V	400V	230V	400V		
	230 V	3000 min <sup>-1</sup>	0.16 Nm	50 W	R88M-K05030(H/T)-□	R88D-KN01H-ML2	-	R88D-KT01H	-		
			0.32 Nm	100 W	R88M-K10030(H/T)-□	R88D-KN01H-ML2	-	R88D-KT01H	-		
			0.64 Nm	200 W	R88M-K20030(H/T)-□	R88D-KN02H-ML2	-	R88D-KT02H	-		
			1.3 Nm	400 W	R88M-K40030(H/T)-□	R88D-KN04H-ML2	-	R88D-KT04H	-		
			2.4 Nm	750 W	R88M-K75030(H/T)-□	R88D-KN08H-ML2	-	R88D-KT08H	-		
			3.18 Nm	1000 W	R88M-K1K030(H/T)-□	R88D-KN15H-ML2	-	R88D-KT15H	-		
			4.77 Nm	1500 W	R88M-K1K530(H/T)-□	R88D-KN15H-ML2	-	R88D-KT15H	-		
			2.39 Nm	750 W	R88M-K75030(F/C)-□	-	R88D-KN10F-ML2	-	R88D-KT10F	-	
			3.18 Nm	1000 W	R88M-K1K030(F/C)-□	-	R88D-KN15F-ML2	-	R88D-KT15F	-	
			4.77 Nm	1500 W	R88M-K1K530(F/C)-□	-	R88D-KN15F-ML2	-	R88D-KT15F	-	
	400 V	3000 min <sup>-1</sup>	6.37 Nm	2000 W	R88M-K2K030(F/C)-□	-	R88D-KN20F-ML2	-	R88D-KT20F		
			9.55 Nm	3000 W	R88M-K3K030(F/C)-□	-	R88D-KN30F-ML2	-	R88D-KT30F		
			12.7 Nm	4000 W	R88M-K4K030(F/C)-□	-	R88D-KN50F-ML2	-	R88D-KT50F		
			15.9 Nm	5000 W	R88M-K5K030(F/C)-□	-	R88D-KN50F-ML2	-	R88D-KT50F		
			4.77 Nm	1000 W	R88M-K1K020(H/T)-□	R88D-KN10H-ML2	-	R88D-KT10H	-		
			7.16 Nm	1500 W	R88M-K1K520(H/T)-□	R88D-KN15H-ML2	-	R88D-KT15H	-		
			1.91 Nm	400 W	R88M-K40020(F/C)-□	-	R88D-KN06F-ML2	-	R88D-KT06F		
			2.86 Nm	600 W	R88M-K60020(F/C)-□	-	R88D-KN06F-ML2	-	R88D-KT06F		
			4.77 Nm	1000 W	R88M-K1K020(F/C)-□	-	R88D-KN10F-ML2	-	R88D-KT10F		
			7.16 Nm	1500 W	R88M-K1K520(F/C)-□	-	R88D-KN15F-ML2	-	R88D-KT15F		
	400 V	2000 min <sup>-1</sup>	9.55 Nm	2000 W	R88M-K2K020(F/C)-□	-	R88D-KN20F-ML2	-	R88D-KT20F		
			14.3 Nm	3000 W	R88M-K3K020(F/C)-□	-	R88D-KN30F-ML2	-	R88D-KT30F		
			19.1 Nm	4000 W	R88M-K4K020(F/C)-□	-	R88D-KN50F-ML2	-	R88D-KT50F		
			23.9 Nm	5000 W	R88M-K5K020(F/C)-□	-	R88D-KN50F-ML2	-	R88D-KT50F		
			8.59 Nm	900 W	R88M-K90010(H/T)-□	R88D-KN15H-ML2	-	R88D-KT15H	-		
			8.59 Nm	900 W	R88M-K90010(F/C)-□	-	R88D-KN15F-ML2	-	R88D-KT15F		
			19.1 Nm	2000 W	R88M-K2K010(F/C)-□	-	R88D-KN30F-ML2	-	R88D-KT30F		
			28.7 Nm	3000 W	R88M-K3K010(F/C)-□	-	R88D-KN50F-ML2	-	R88D-KT50F		
			230 V	1000 min <sup>-1</sup>	8.59 Nm	900 W	R88M-K90010(H/T)-□	R88D-KN15H-ML2	-	R88D-KT15H	-
			400 V	1000 min <sup>-1</sup>	8.59 Nm	900 W	R88M-K90010(F/C)-□	-	R88D-KN15F-ML2	-	R88D-KT15F

**Servo drive type designation**

**R88D-KN01H-ML2**

Accurax G5 Series servo drive

Drive Type

T: Analog/pulse type

N: Network type

Model

Blank: Analog/pulse type

ML2: MECHATROLINK-II comms

Capacity and Voltage

Voltage	Code	Output
230 V	01H	100 W
	02H	200 W
	04H	400 W
	08H	750 W
	10H	1 kW
	15H	1.5 kW
400 V	06F	600 W
	10F	1.0 kW
	15F	1.5 kW
	20F	2.0 kW
	30F	3.0 kW
	50F	5.0 kW

**Servo drive 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)□	
Max. applicable motor capacity	W	100	200	400	750	1000	1500	
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	1000m 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-□
Applicable servo motor	R88M-K□	40020(F/C)-□	75030(F/C)-□	1K030(F/C)-□	2K030(F/C)-□	3K030(F/C)-□	4K030(F/C)-□	
		60020(F/C)-□	1K020(F/C)-□	1K530(F/C)-□	2K020(F/C)-□	3K020(F/C)-□	5K030(F/C)-□	
		-	-	1K520(F/C)-□	-	2K010(F/C)-□	4K020(F/C)-□	
		-	-	90010(F/C)-□	-	-	5K020(F/C)-□	
		-	-	-	-	-	3K010(F/C)-□	
Max. applicable motor capacity	kW	0.6	1.0	1.5	2.0	3.0	5.0	
Continuous output current	Arms		2.9	4.7	6.7	9.4	16.5	
Input power	Main circuit	3-phase, 380 to 480 VAC + 10 to -15% (50/60Hz)						
Supply	Control circuit	24 VDC ±15%						
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	1000 m or less above sea level						
	Vibration/shock resistance	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		1.9		2.7		4.7	



**General specifications (for MECHATROLINK-II servo drives)**

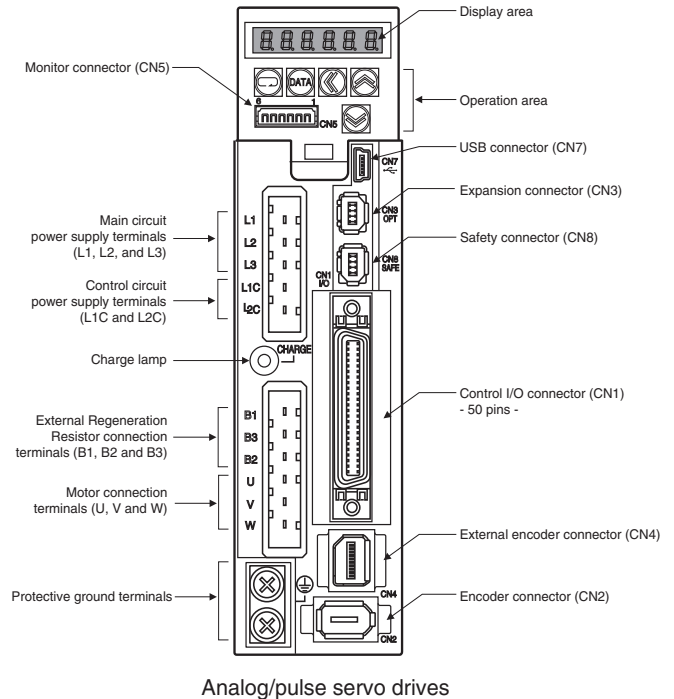
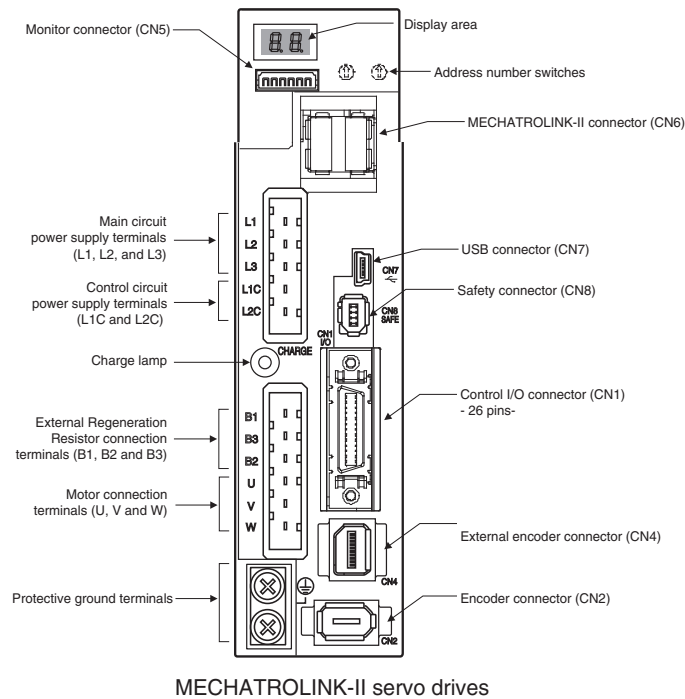
<b>Control mode</b>		Position control, velocity control, torque control, full-closed control.	
<b>Performance</b>	Frequency characteristics	2 kHz	
	Speed zero clamp	Preset velocity command can be clamped to zero by the speed zero clamp input.	
	soft start time setting	0 to 10 s (acceleration, deceleration can be set separately).	
<b>Command input</b>	MECHATROLINK-II communication	MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands)	
<b>I/O signal</b>	Sequence input signal	- Multi-function input x 8 by parameter setting (forward/reverse drive prohibition, emergency stop, external latch, origin proximity, forward/reverse torque limit, general purpose monitor input).	
	Sequence output signal	It is possible to output three types of signal form incl.: brake release, servo ready, servo alarm, positioning complete, motor rotation speed detection, torque limit detection, zero speed detection, speed coincidence detection, warning, position command status, speed limit detection, alarm output, speed command status.	
<b>USB Communications</b>	Interface	Personal computer/ Connector mini-USB	
	Communications standard	Compliant with USB 2.0 standard	
	Function	Parameter setting and status monitoring	
	MECHATROLINK-II communications	Communications protocol	MECHATROLINK-II
	Station address	41H to 51 FH (max. number of slaves: 30)	
	Transmission speed	10 Mbps	
	Transmission cycle	1, 2 & 4 ms	
	Data length	32-bytes	
<b>Integrated functions</b>	Automatic load inertia detection		Automatic motor parameter setting. One parameter rigidity setting.
	Dynamic brake (DB)		Built-in. Operates during main power OFF, servo alarm, servo OFF or overtravel.
	Regenerative processing		Internal resistor included in models from 600 W to 5 kW. Regenerative resistor externally mounted (option).
	Overtravel (OT) prevention function		DB stop, deceleration stop or coast to stop during P-OT, N-OT operation
	Encoder divider function		Optional division possible
	Protective functions		Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat...
	Analog monitor functions for supervision		Analog monitor of motor speed, speed reference, torque reference, command following error, analog input... The monitoring signals to output and their scaling can be specified with parameters. Number of channels: 2 (Output voltage: ±10V DC)
	Panel operator	Display functions	2-digit 7-segment LED display shows the drive status, alarm codes, parameters... MECHATROLINK-II communications status LED indicator (COM)
		Switches	2 x rotary switches for setting the MECHATROLINK-II node address
	CHARGE lamp		Lits when the main circuit power supply is turned ON.
Safety terminal	Functions	Safety Torque OFF function to cut off the motor current and stop the motor. Output signal for failure monitoring function.	
	Conformed standards	EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3).	
External encoder feedback		Serial signal and line-driver A-B-Z encoder for full-close control	

**General specifications (for analog/pulse servo drives)**

<b>Control mode</b>		7 modes selectable by parameter: (1) position control, (2) velocity control, (3) torque control, (4) position/velocity control, (5) position/torque control, (6) velocity/torque control and (7) full-closed control.		
<b>Speed/torque control</b>	<b>Performance</b>	Frequency characteristics	2 kHz	
		Speed zero clamp	Preset velocity command can be clamped to zero by the speed zero clamp input.	
		Soft start time setting	0 to 10 s (acceleration, deceleration can be set separately). S-curve acceleration/deceleration is also available.	
	Input signal	Speed control	Speed reference voltage	6 VDC at rated speed: set at delivery (the scale and polarity can be set by parameters)
Torque limit			3 VDC at rated torque (torque can be limited separately in positive/negative direction).	
	Torque control	Preset speed control	Preset speed is selectable from 8 internal settings by digital inputs.	
		Torque reference voltage	3 VDC at rated torque: set at delivery (the scale and polarity can be set by parameters).	
		Speed limit	Speed limit can be set by parameter.	
<b>Position control</b>	Input signal	Command pulse	Input pulse type	Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase+ B-phase) or CCW/CW pulse train
			Input pulse frequency	4 Mpps max. (200 Kpps max. at open collector).
			Command pulse scaling (Electronic Gear)	Applicable scaling ratio: 1/1000 - 1000 Any value of 1-2 <sup>30</sup> can be set for numerator (encoder resolution) and denominator (command pulse resolution per motor revolution). The combination has to be within the range shown above.
<b>Full-closed control</b>	Input signal	Command pulse	Input pulse type	Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase+ B-phase) or CCW/CW pulse train
			Input pulse frequency	4 Mpps max. (200 Kpps max. at open collector).
			Command pulse scaling (Electronic Gear)	Applicable scaling ratio: 1/1000 - 1000 Any value of 1-2 <sup>30</sup> can be set for numerator (encoder resolution) and denominator (command pulse resolution). The combination has to be within the range shown above.
	External encoder scaling	Applicable scaling ratio: 1/20 - 160 Any value of 1-2 <sup>30</sup> can be set for numerator (encoder resolution) and denominator (external encoder resolution per motor revolution). The combination has to be within the range shown above.		
<b>I/O signal</b>	Position signal output		A-phase, B-phase, Z-phase line driver output and Z-phase open-collector output.	
	Sequence input signal		- Multi-function input x 10 by parameter setting (servo ON, control mode switching, forward/reverse drive prohibition, vibration filter switching, gain switching, electronic gear switching, error counter reset, pulse prohibition, alarm reset, internal speed selection, torque limit switching, zero speed, emergency stop, inertia ratio switching, velocity/torque command sign).  - Dedicated input x 1 (SEN: sensor ON, ABS data request).	
	Sequence output signal		It is possible to output four types of signal form incl.: brake release, servo ready, servo alarm, positioning complete, motor rotation speed detection, torque limit detection, zero speed detection, speed coincidence detection, warning, position command status, speed limit detection, speed command status.	

Integrated functions	USB Communications	Interface	Personal computer/ Connector mini-USB
		Communications standard	Compliant with USB 2.0 standard
		Function	Parameter setting and status monitoring
		Automatic load inertia detection	Automatic motor parameter setting. One parameter rigidity setting.
		Dynamic brake (DB)	Built-in. Operates during main power OFF, servo alarm, servo OFF or overtravel.
		Regenerative processing	Internal resistor included in models from 600 W to 5 kW. Regenerative resistor externally mounted (option).
		Overtravel (OT) prevention function	DB stop, deceleration stop or coast to stop during P-OT, N-OT operation
		Encoder divider function	Optional division possible
		Electronic gearing (Numerator/Denominator)	Up to 4 electronic gear numerators by combining with inputs.
		Internal speed setting function	8 speeds may be set internally
	Protective functions	Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat...	
	Analog monitor functions for supervision	Analog monitor of motor speed, speed reference, torque reference, command following error, analog input... The monitoring signals to output and their scaling can be specified by parameters. Number of channels: 2 (Output voltage: $\pm 10V$ DC)	
	Panel operator	Display functions	6-digit 7-segment LED display shows the drive status, alarm codes, parameters...
		Panel operator keys	Used to set/monitor parameters and drive condition (5 key switches).
	CHARGE lamp		Lits when the main circuit power supply is turned ON.
	Safety terminal	Functions	Safety torque OFF function to cut off the motor current and stop the motor. Output signal for failure monitoring function.
		Conformed standards	EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3).
	External encoder feedback		Serial signal and line-driver A-B-Z encoder for full-close control
	Expansion connector		Serial bus for option board

Servo drive part names



**Note:** the above pictures show 230V servo drives models only. The 400V servo drives have 24 VDC power input terminals for control circuit instead of L1C and L2C terminals.

**Servo motor type designation**

**R88M-K05030H-BOS2**

Accurax G5 Series Servomotor

Capacity

050	50 W
100	100 W
200	200 W
400	400 W
600	600 W
750	750 W
900	900 W
1K0	1 kW
1K5	1.5 kW
2K0	2 kW
3K0	3 kW
4K0	4 kW
5K0	5 kW

Rated Speed (r/min)

10	1000
20	2000
30	3000

Shaft end specifications

Blank	Straight shaft, no key
S2	Straight, key, tapped (standard)

Oil seal specifications

Blank	No oil seal
O	Oil seal

Brake specifications

Blank	No brake
B	Brake

Voltage and encoder specifications

H: 230 V and 20-bit incremental encoder

T: 230 V and 17-bit absolute encoder

F: 400 V and 20-bit incremental encoder

C: 400 V and 17-bit absolute encoder



**Servo motor specifications**

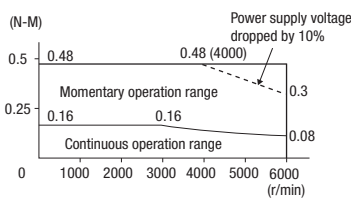
**Servo motors 3000 r/min, 230 V**

**Ratings and specifications**

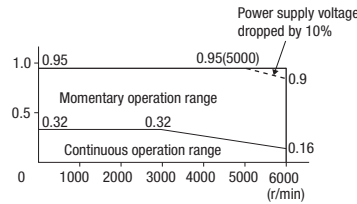
Voltage		230 V							
Servo motor model R88M-K□	20-bit incremental encoder	05030H-□	10030H-□	20030H-□	40030H-□	75030H-□	1K030H-□	1K530H-□	
	17-bit absolute encoder	05030T-□	10030T-□	20030T-□	40030T-□	75030T-□	1K030T-□	1K530T-□	
Rated output	W	50	100	200	400	750	1000	1500	
Rated torque	N·m	0.16	0.32	0.64	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)	1.2	1.1	1.5	2.4	4.1	6.6	8.2	
Instantaneous max. current	A (rms)	5.1	4.7	6.5	10.2	17.4	28	35	
Rated speed	min <sup>-1</sup>	3000							
Max. speed	min <sup>-1</sup>	6000			5000				
Torque constant	N·m/A (rms)	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			20		15		
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 (at 20°C)	W		7		9		17	
	Current consumption (at 20°C)	A		0.3		0.36		0.70±10%	
	Static friction torque	N·m (minimum)		0.29		1.27		2.5	
	Rise time for holding torque	ms (max.)		35		50		7.8	
	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								

**Torque-speed characteristics**

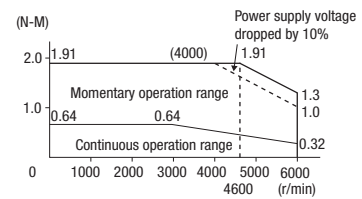
R88M-K05030H/T (50 W)



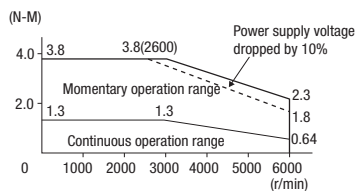
R88M-K10030H/T (100 W)



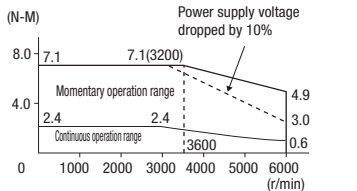
R88M-K20030H/T (200 W)



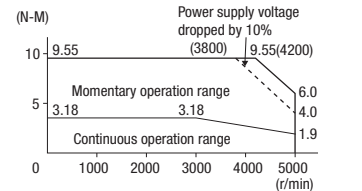
R88M-K40030H/T (400 W)



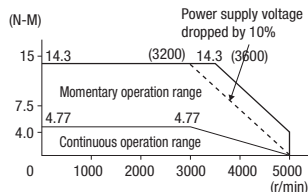
R88M-K75030H/T (750 W)



R88M-K1K030H/T (1 kW)



R88M-K1K530H/T (1.5 kW)



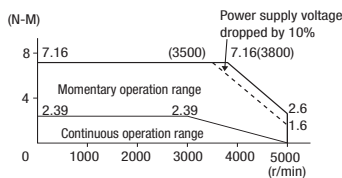
Servo motors 3000 r/min, 400 V

Ratings and specifications

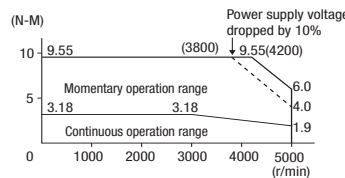
Voltage		400 V							
Servo motor model R88M-K□	20-bit incremental encoder	75030F-□	1K030F-□	1K530F-□	2K030F-□	3K030F-□	4K030F-□	5K030F-□	
	17-bit absolute encoder	75030C-□	1K030C-□	1K530C-□	2K030C-□	3K030C-□	4K030C-□	5K030C-□	
Rated output	W	750	1000	1500	2000	3000	4000	5000	
Rated torque	N·m	2.39	3.18	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>	3000							
Max. speed	min <sup>-1</sup>	5000					4500		
Torque constant	N·m/A (rms)	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)	30							
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 (at 20°C)	W	17			19		22	
	Current consumption (at 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
Basic specifications	Rise time for holding torque	ms (max.)					50		110
	Release time	ms (max.)					15		50
	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								

Torque-speed characteristics

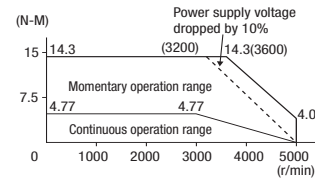
R88M-K75030F/C (750 W)



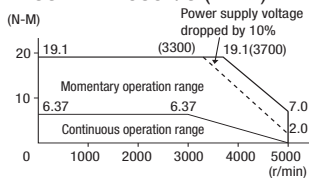
R88M-K1K030F/C (1 kW)



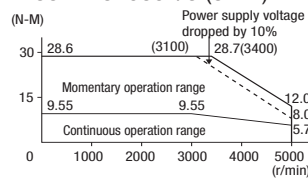
R88M-K1K530F/C (1.5 kW)



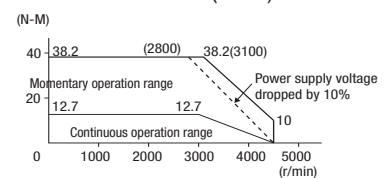
R88M-K2K030F/C (2 kW)



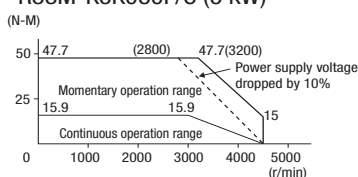
R88M-K3K030F/C (3 kW)



R88M-K4K030F/C (4 kW)



R88M-K5K030F/C (5 kW)

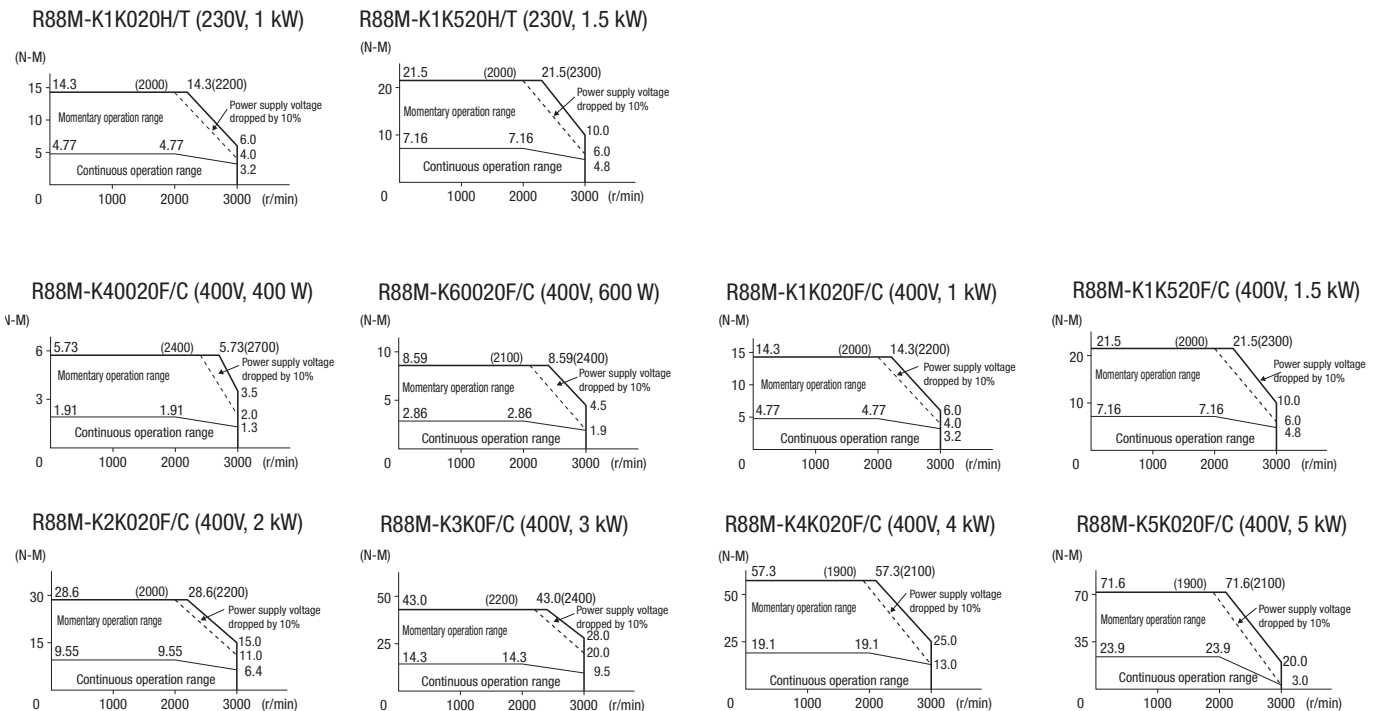


Servo motors 2000 r/min, 230V/ 400 V

Ratings and specifications

Voltage		230 V					400 V				
Servo motor model	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	1000	1500	400	600	1000	1500	2000	3000	4000	5000
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>	2000									
Max. speed	min <sup>-1</sup>	3000									
Torque constant	N·m/A (rms)	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									
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
Rated voltage		24VDC ±10%									
Brake specifications	Holding brake moment inertia	(J) kg·m <sup>2</sup> ×10 <sup>-4</sup>									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%	0.70 ±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	25		
	Time Rating	Continuous									
Basic specifications	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										

Torque-speed characteristics



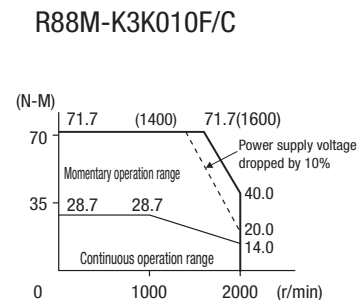
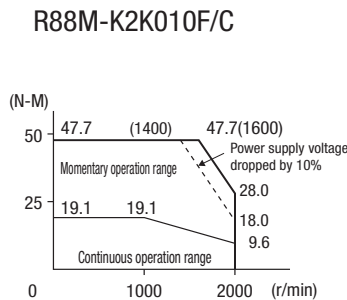
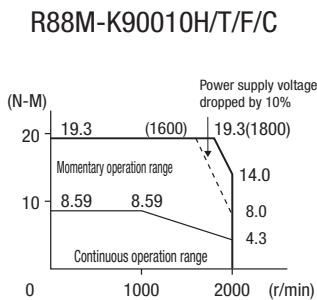


Servo motors 1000 r/min, 230V/ 400 V

Ratings and specifications

Applied voltage		230 V	400 V			
Servo motor model R88M-K□	20-bit incremental encoder	90010H-□	90010F-□	2K010F-□	3K010F-□	
	17-bit absolute encoder	90010T-□	90010C-□	2K010C-□	3K010C-□	
Rated output	W	900	900	2000	3000	
Rated torque	N·m	8.59		19.1	28.7	
Instantaneous peak torque	N·m	19.3		47.7	71.7	
Rated current	A (rms)	7.6	3.8	8.5	11.3	
Instantaneous max. current	A (rms)	24	12	30	40	
Rated speed	min <sup>-1</sup>	1000				
Max. speed	min <sup>-1</sup>	2000				
Torque constant	N·m/A (rms)	0.86	1.72	1.76	1.92	
Rotor moment of inertia (JM)	kg·m <sup>2</sup> ×10 <sup>-4</sup> (without brake)	6.70		30.3	48.4	
	kg·m <sup>2</sup> ×10 <sup>-4</sup> (with brake)	7.99		31.4	49.2	
Allowable load moment of inertia (JL)	Multiple of (JM)	10				
Rated power rate	kW/s (without brake)	110		120	170	
	kW/s (with brake)	92.4		116	167	
Allowable radial load	N	686		1176	1470	
Allowable thrust load	N	196		490		
Approx. mass	Kg (without brake)	6.7		14	20	
	Kg (with brake)	8.2		17.5	23.5	
Brake specifications	Rated voltage	24VDC ±10%				
	Holding brake moment of inertia J	kg·m <sup>2</sup> ×10 <sup>-4</sup>		4.7		
	Power consumption (at 20°C)	W		19	31	34
	Current consumption (at 20°C)	A		0.79±10%	1.3±10%	1.4±10%
	Static friction torque	N·m (minimum)		13.7	24.5	58.8
	Release time	ms (max.)		100	80	150
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 MΩ min. at 500 VDC between the power terminals and FG terminal				
	Enclosure	Totally-enclosed, self-cooling, IP67 (excluding shaft opening)				
	Mounting	Flange-mounted				

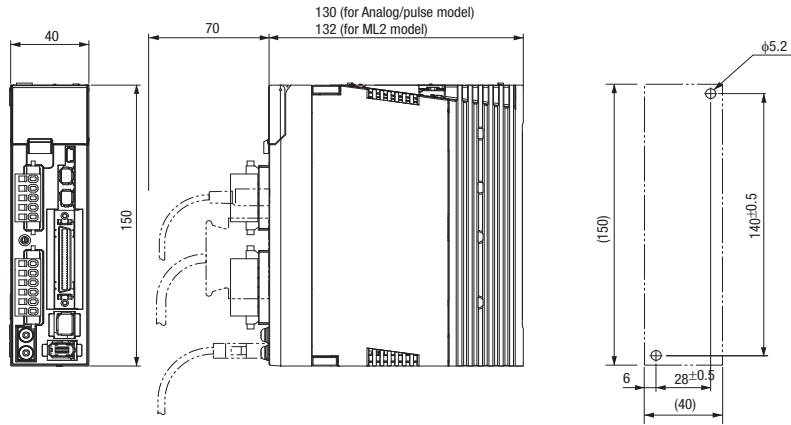
Torque-speed characteristics



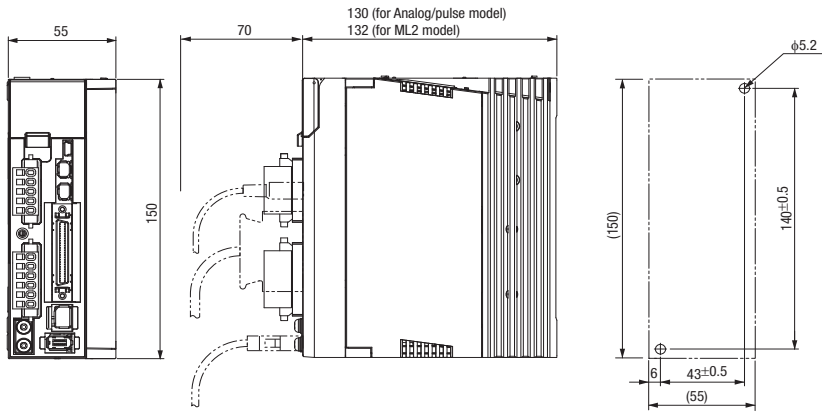
Dimensions

Servo Drives

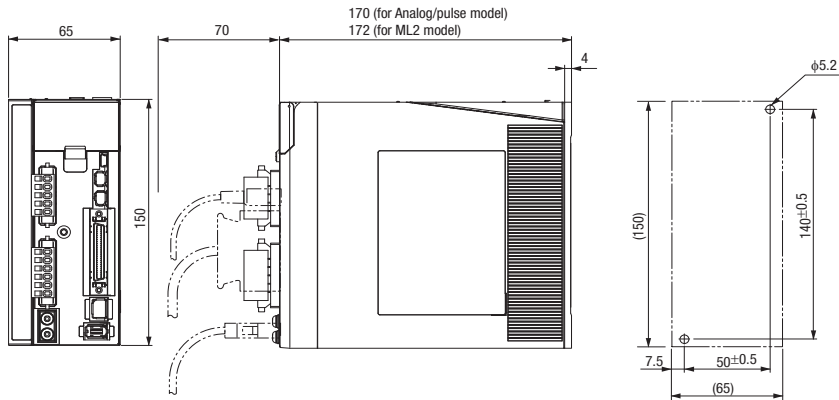
R88D-KT01/02H, R88D-KN01/02H-ML2 (230 V, 100 - 200 W)



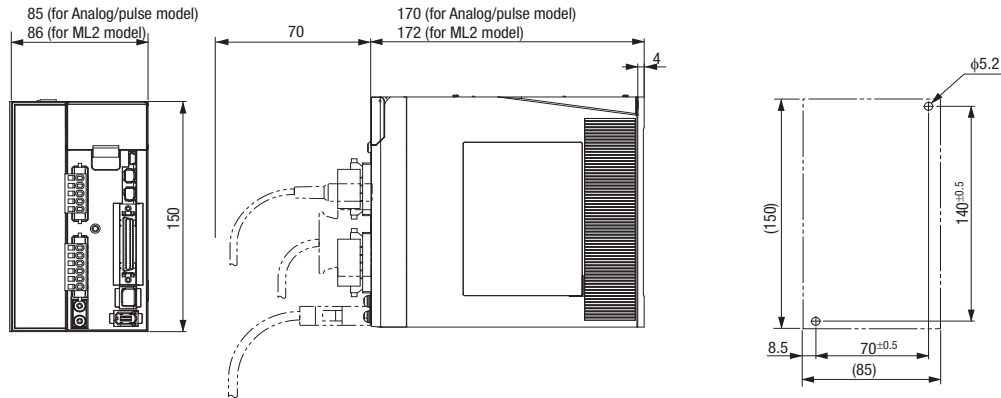
R88D-KT04H, R88D-KN04H-ML2 (230 V, 400 W)



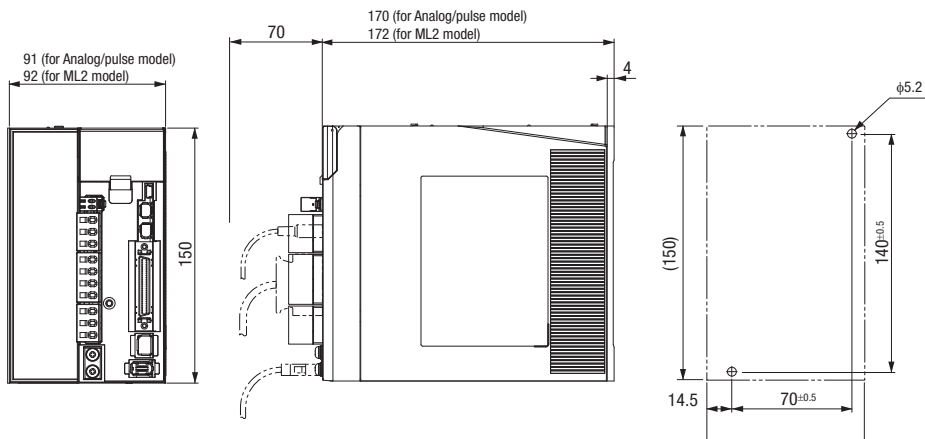
R88D-KT08H, R88D-KN08H-ML2 (230 V, 750 W)



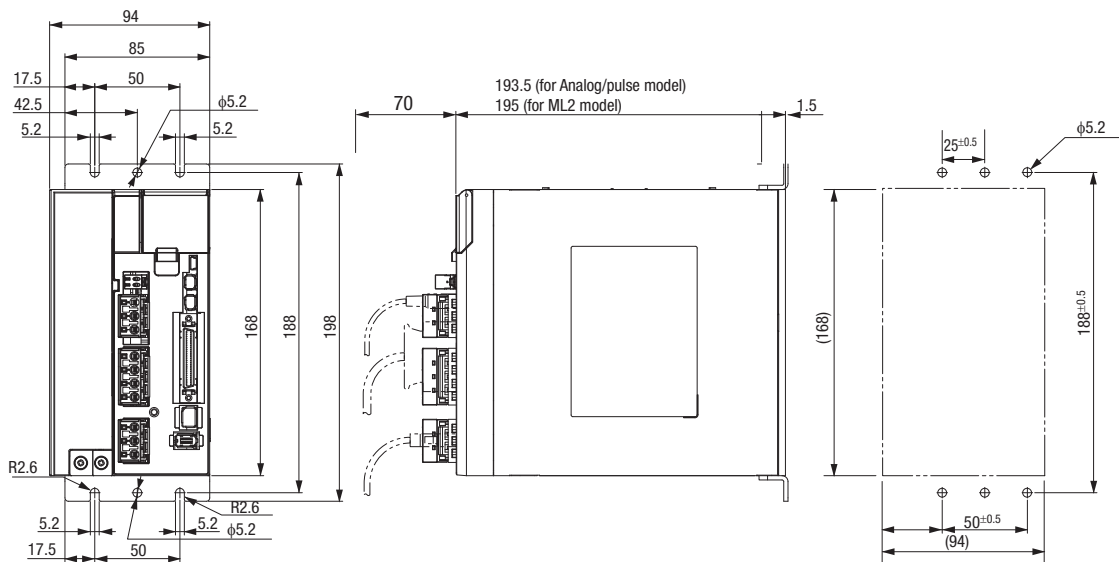
**R88D-KT10/15H, R88D-KN10/15H-ML2 (230 V, 1 - 1.5 kW)**



**R88D-KT06/10/15F, R88D-KN06/10/15F-ML2 (400 V, 600 W - 1.5 kW)**

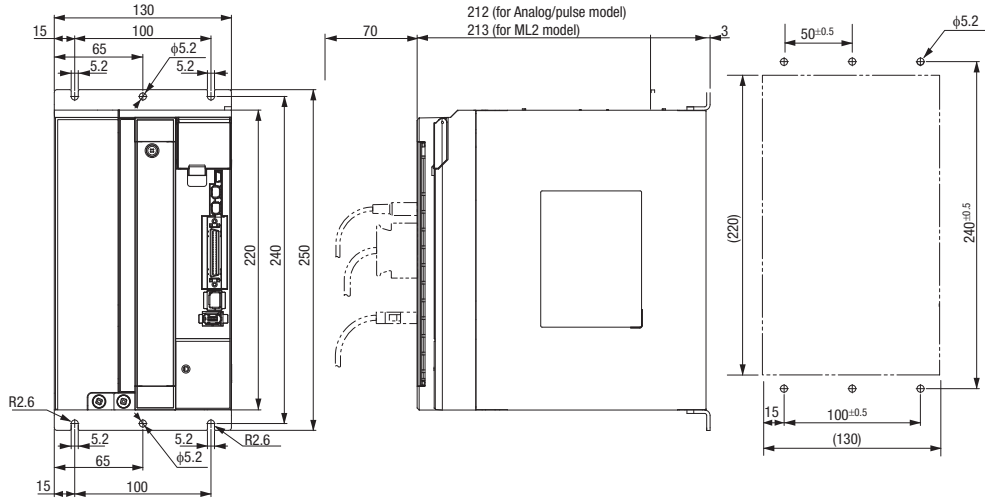


**R88D-KT20F, R88D-KN20F-ML2 (400 V, 2 kW)**



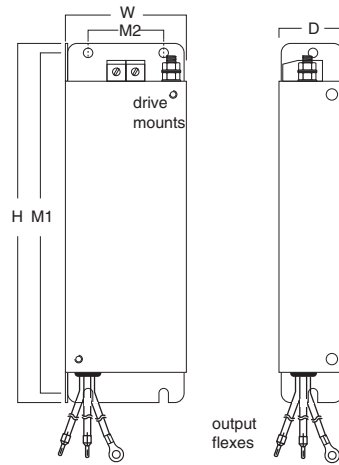


R88D-KT30/50F, R88D-KN30/50F-ML2 (400 V, 3 - 5 kW)



Filters

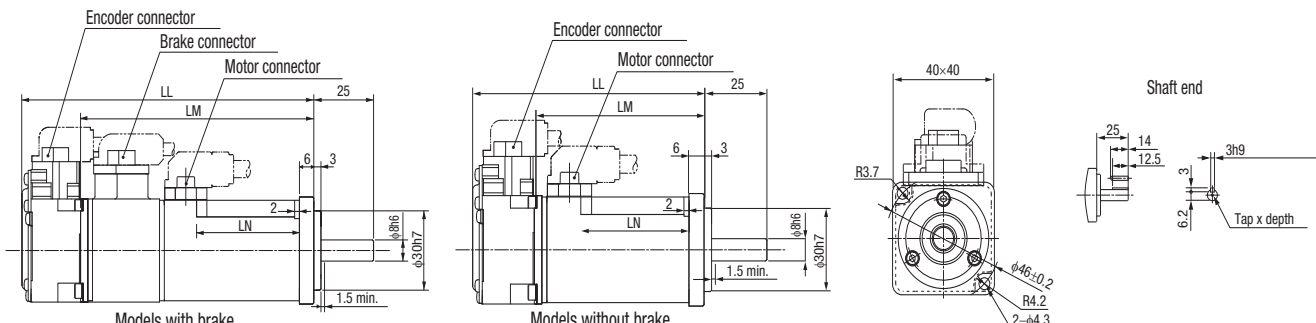
Filter model	External dimensions			Mount dimensions	
	H	W	D	M1	M2
R88A-FIK102-RE	190	42	44	180	20
R88A-FIK104-RE	190	57	30	180	30
R88A-FIK107-RE	190	64	35	180	40
R88A-FIK114-RE	190	86	35	180	60
R88A-FIK304-RE	190	86	40	180	60
R88A-FIK306-RE	245	94	40	235	60
R88A-FIK312-RE	290	130	45	280	100



Servomotors

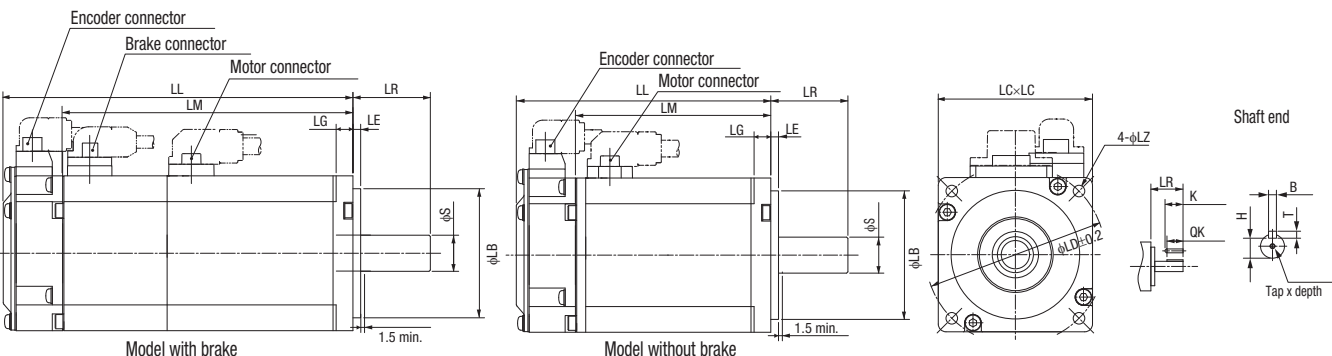
Type 3000 r/min motors (230 V, 50 - 100 W)

Dimensions (mm) Model	Without brake		With brake		LN	Shaft End Dimensions Tap x Depth	Approx. Mass (Kg)	
	LL	LM	LL	LM			Without brake	With brake
R88M-K05030(H/T)-□S2	72	48	102	78	23	M3 x 6L	0.32	0.53
R88M-K10030(H/T)-□S2	92	68	122	98	43		0.47	0.68



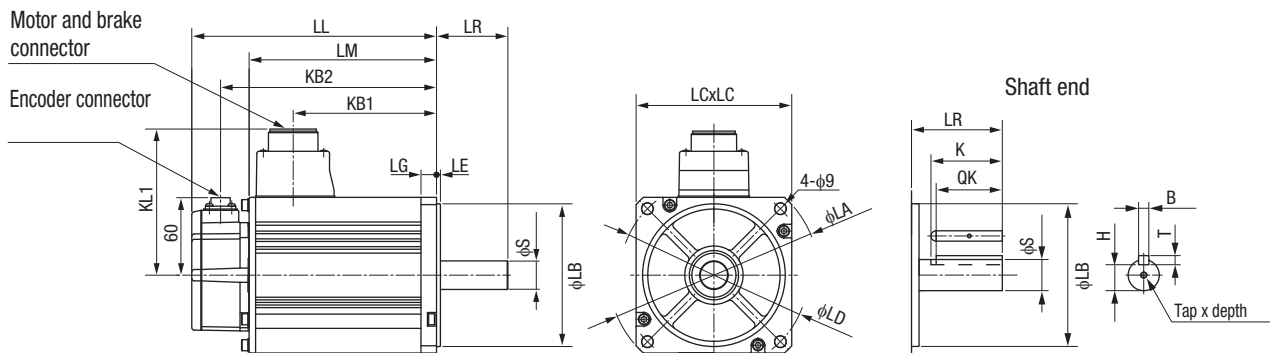
Type 3000 r/min motors (230 V, 200 - 750 W)

Dimensions (mm) Model	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 x 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	M4x8L	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	M5x10L	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



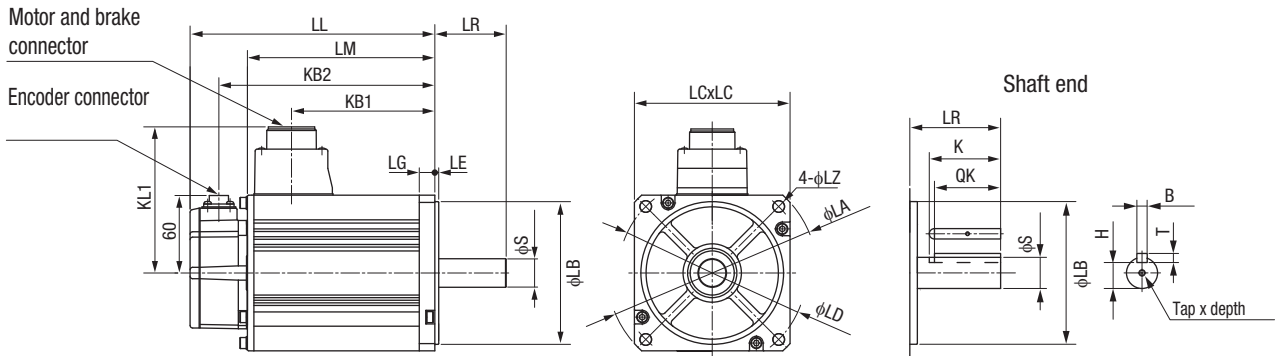
Type 3000 r/min motors (230 V, 1 - 1.5 kW/ 400V, 750 W - 5 kW)

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 x 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>	M5x 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																	
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	9.4
	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



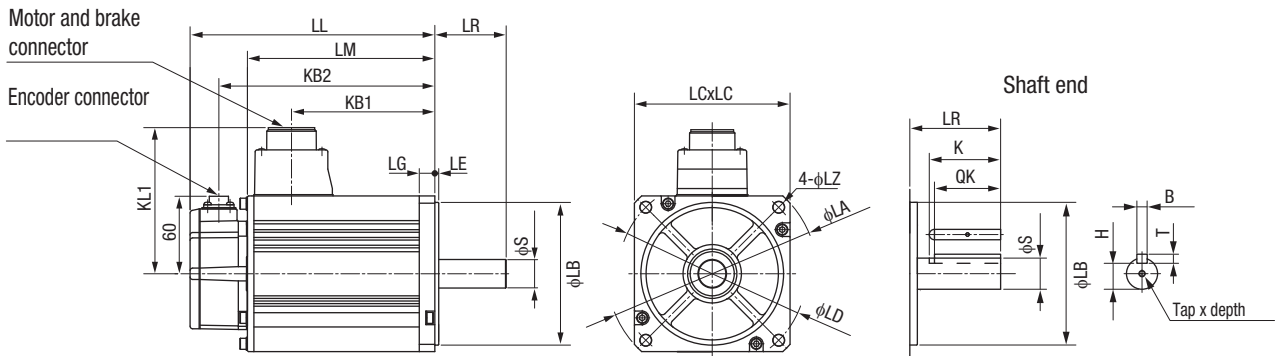
Type 2000 r/min motors (230 V, 1 - 1.5 kW / 400 V, 400W - 5 kW)

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>	M5x12L	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																6.7	8.2	
400	40020(F/C)-□S2	131.5	87.5	56.5	109.5	101	158.5	114.5	53.5	136.5	103		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
	60020(F/C)-□S2	141	97	66	119		168	124	63	146																3.5	4.5	
	1K020(F/C)-□S2	138	94	60	116	116	163	119	57	141	118		165	110 <sup>h7</sup>	130	145	6	12		22 <sup>h6</sup>			41	18	8 <sup>h9</sup>	7	5.2	6.7
	1K520(F/C)-□S2	155.5	111.5	77.5	133.5		180.5	136.5	74.5	158.5																	6.7	8.2
	2K020(F/C)-□S2	173	129	95	151		198	154	92	176																	8	9.5
	3K020(F/C)-□S2	208	164	127	186	118	233	189	127	211		65									24 <sup>h6</sup>	M8x20L	55	51	20		11	12.6
	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>	M12x25L		50	30	10 <sup>h9</sup>	8	15.5	18.7
	5K020(F/C)-□S2	196	152	115	174		221	177	115	199																18.6	21.8	



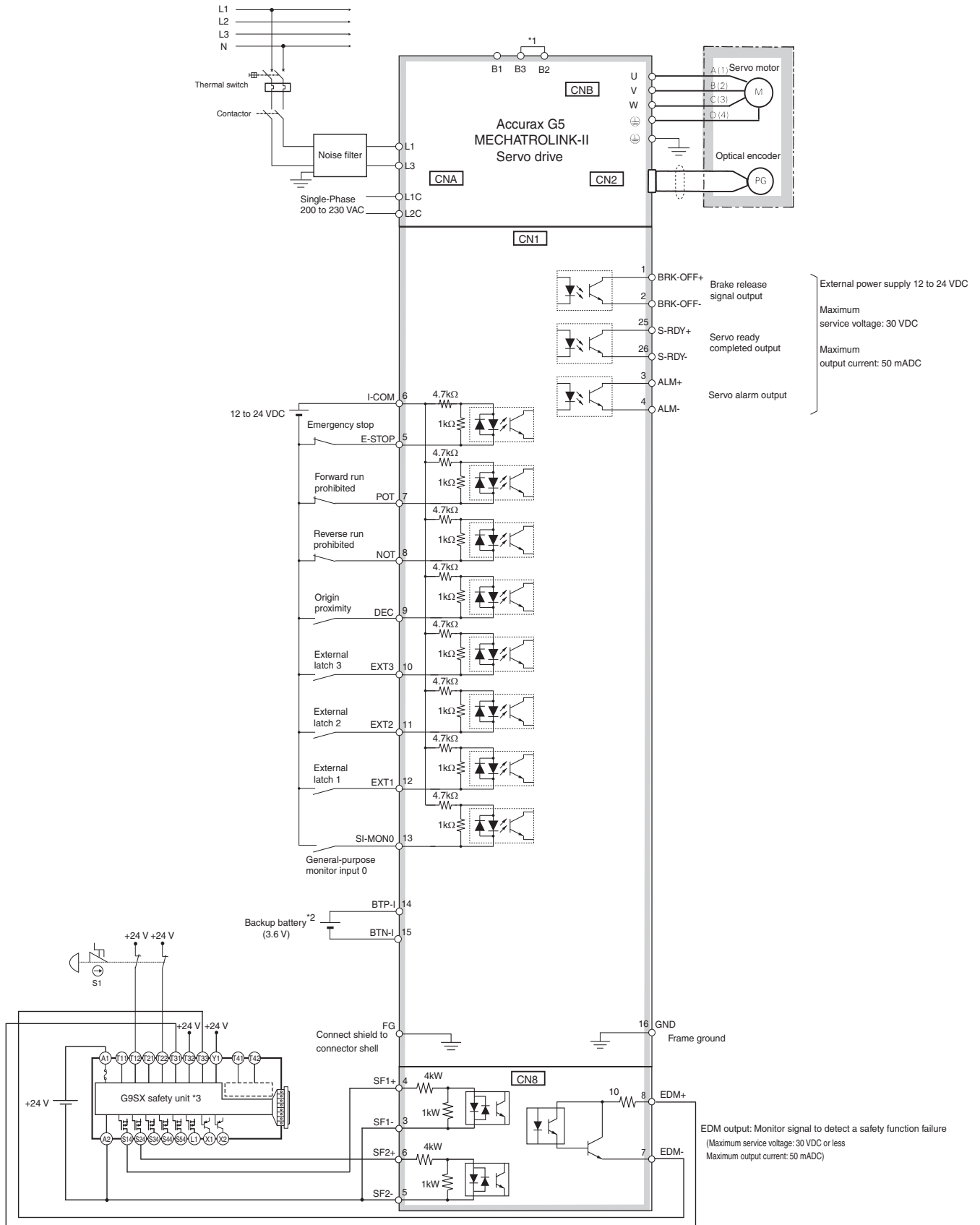
Type 1000 r/min motors (230 V, 900W / 400 V, 900W - 3 kW)

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 x Depth	K	QK	H	B	T	Without brake	With brake
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>	M5x12L	45	41	18	8 <sup>h9</sup>	7	6.7	8.2
400	90010(F/C)-□S2								74.5		118																	
	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>	M12x25L	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																20	23.5	



**Installation**

**Single-phase, 230 VAC (for MECHATROLINK-II servo drives)**



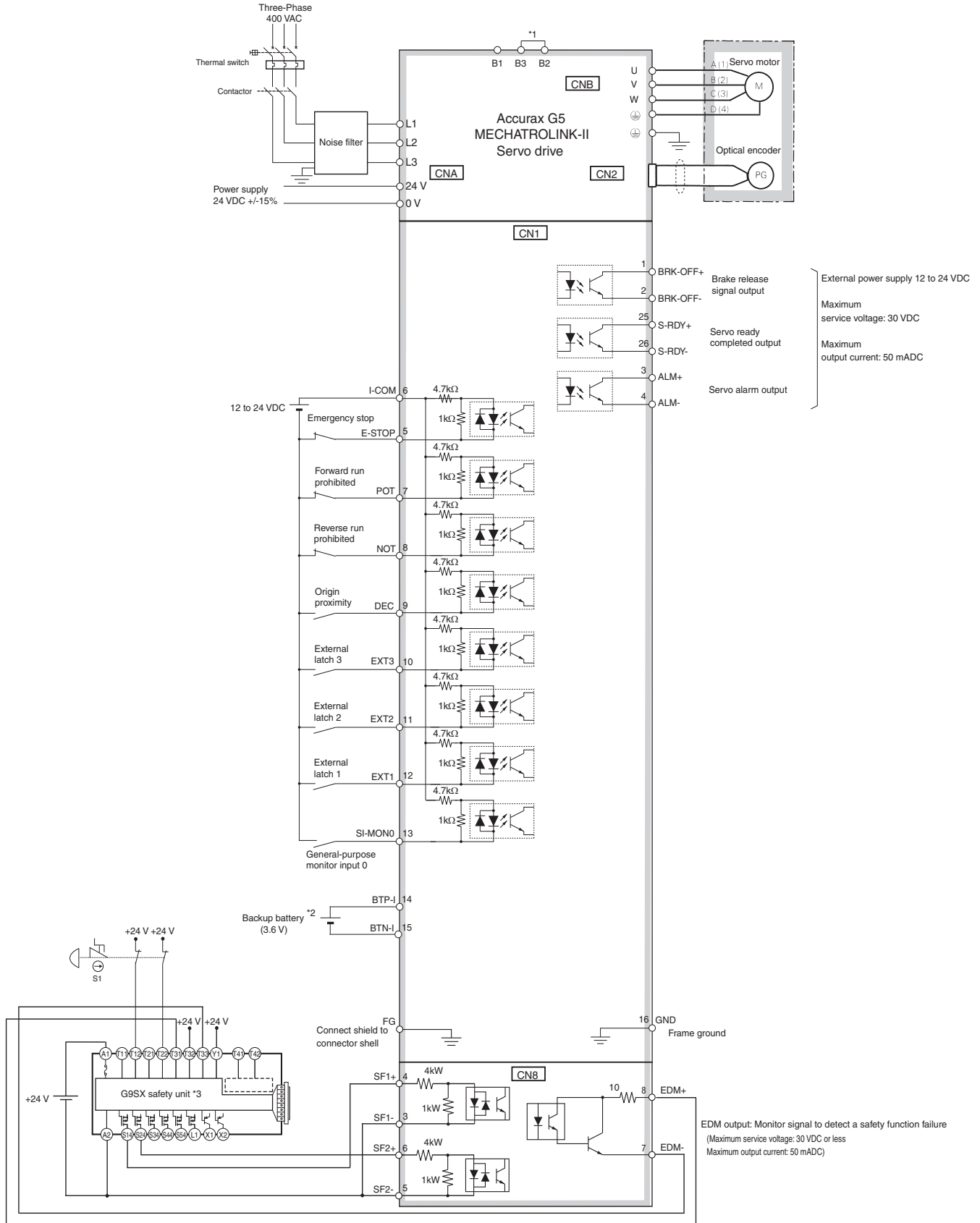
\*1 For servo drives for 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

\*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

**Note:** The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Three-phase, 400 VAC (for MECHATROLINK-II servo drives)



\*1 Normally B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

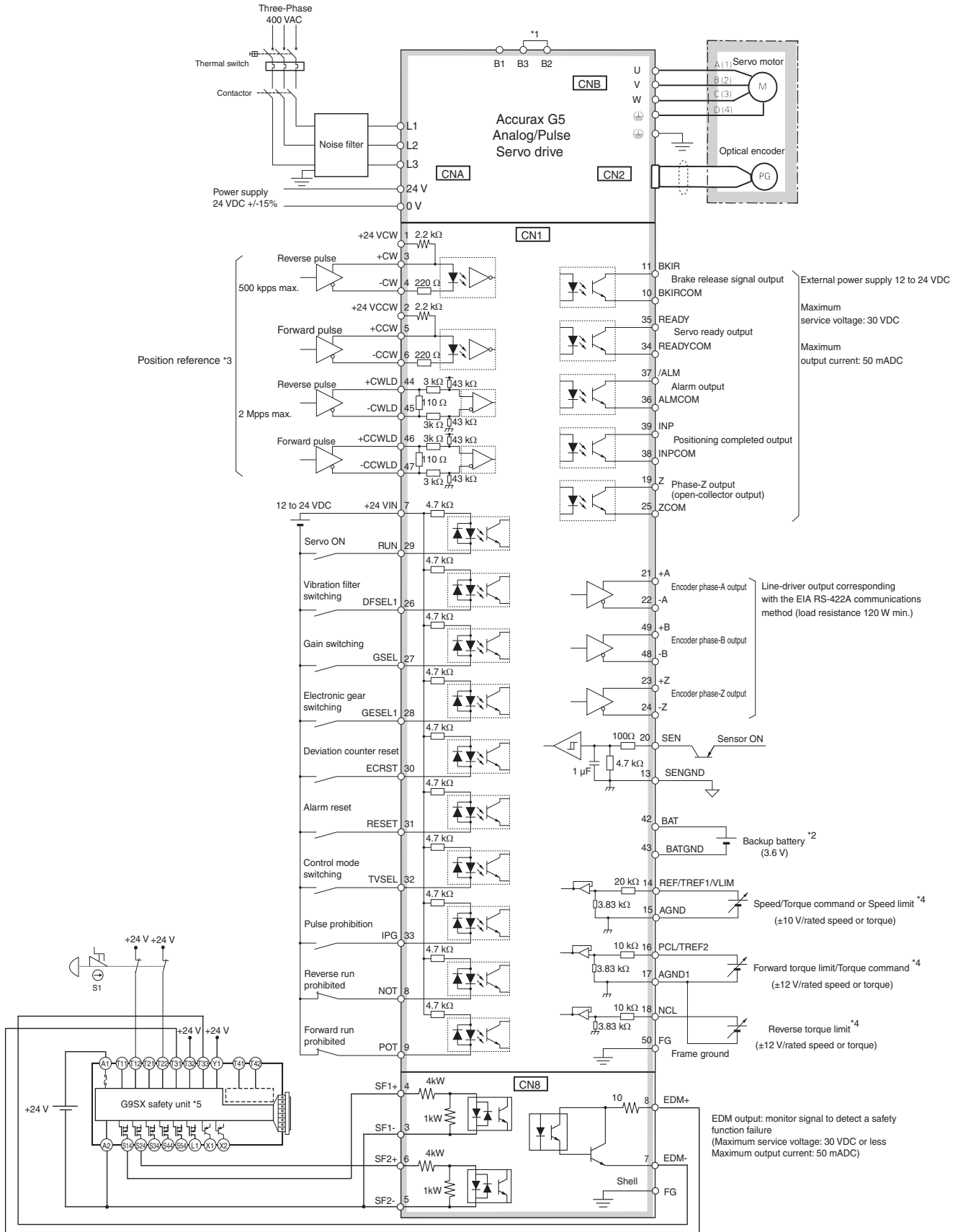
\*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

**Note:** The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.





Three-phase, 400 VAC (for analog/pulse servo drives)

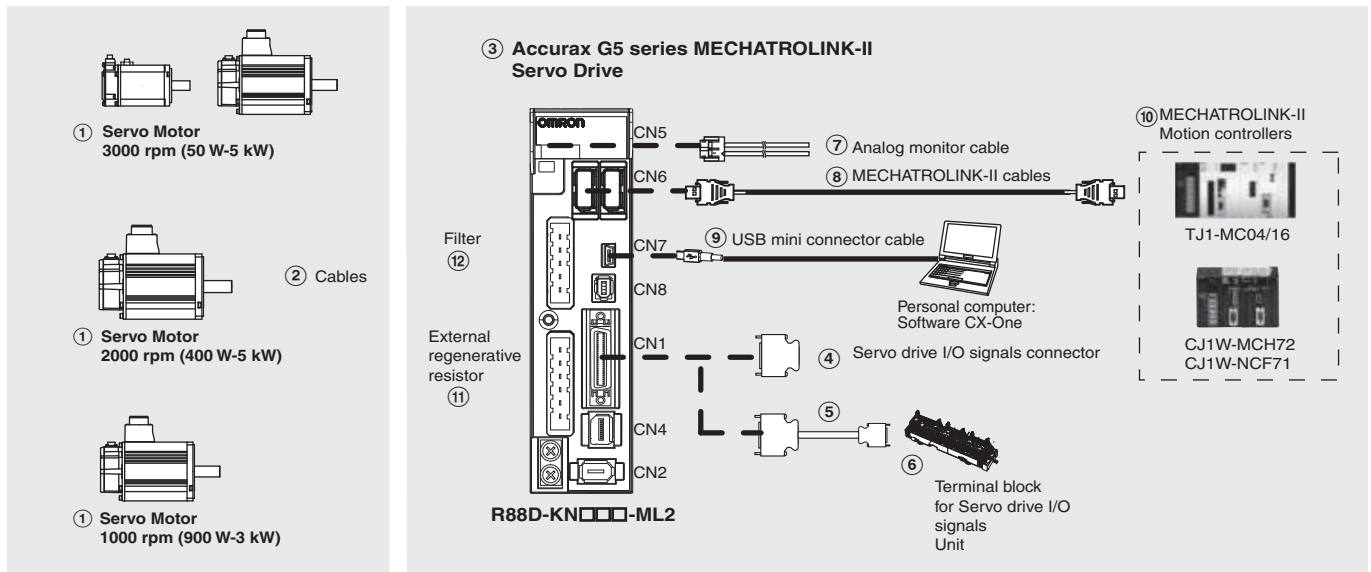


\*1 Normally B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.  
 \*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.  
 \*3 Only available in Position control mode.  
 \*4 The input function depends on control mode used (Position, speed or torque control).  
 \*5 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

**Note:** The input function of pins 8,9 and 26 to 33, and output function of pins 10, 11, 34, 35, 38 and 39, can be changed via parameter settings.

**Ordering information**

**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 & encoder cables**

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

**Servo drives**

Symbol	Specifications	Servo drive model	① Compatible G5 series rotary servo motors	
③	1 phase 230 VAC	100 W	R88D-KN01H-ML2	R88M-K05030(H/T)-□ R88M-K10030(H/T)-□
		200 W	R88D-KN02H-ML2	R88M-K20030(H/T)-□
		400 W	R88D-KN04H-ML2	R88M-K40030(H/T)-□
		750 W	R88D-KN08H-ML2	R88M-K75030(H/T)-□
		1.0 kW	R88D-KN10H-ML2	R88M-K1K020(H/T)-□ R88M-K1K030(H/T)-□
		1.5 kW	R88D-KN15H-ML2	R88M-K1K530(H/T)-□ R88M-K1K520(H/T)-□ R88M-K90010(H/T)-□
	3 phase 400 VAC	600 W	R88D-KN06F-ML2	R88M-K40020(F/C)-□ R88M-K60020(F/C)-□
		1.0 kW	R88D-KN10F-ML2	R88M-K75030(F/C)-□ R88M-K1K020(F/C)-□
		1.5 kW	R88D-KN15F-ML2	R88M-K1K030(F/C)-□ R88M-K1K530(F/C)-□ R88M-K1K520(F/C)-□ R88M-K90010(F/C)-□
		2.0 kW	R88D-KN20F-ML2	R88M-K2K030(F/C)-□ R88M-K2K020(F/C)-□
		3.0 kW	R88D-KN30F-ML2	R88M-K3K030(F/C)-□ R88M-K3K020(F/C)-□ R88M-K2K010(F/C)-□
		5.0 kW	R88D-KN50F-ML2	R88M-K4K030(F/C)-□ R88M-K5K030(F/C)-□ R88M-K4K020(F/C)-□ R88M-K5K020(F/C)-□ R88M-K3K010(F/C)-□

**Control cables (for CN1)**

Symbol	Description	Connect to		Model
④	I/O connector kit (26 pins)	For I/O general purpose	-	R88A-CNW01C
⑤	Terminal block cable	For I/O general purpose	1 m	XW2Z-100J-B34
			2 m	XW2Z-200J-B34
⑥	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

**Analog monitor (for CN5)**

Symbol	Name		Model
⑦	Analog monitor cable	1m	R88A-CMK001S

**MECHATROLINK-II Motion controllers**

Symbol	Name	Model
⑩	Trajexia stand-alone motion controller	TJ1-MC04 (4 axes)
		TJ1-MC16 (16 axes)
	Trajexia-PLC motion controller	CJ1W-MCH72
	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)	

**MECHATROLINK-II cables (for CN6)**

Symbol	Specifications	Length	Model
⑧	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

**External regenerative resistor**

Symbol	Regenerative resistor unit model	Specifications
⑪	R88A-RR08050S	50 Ω, 80 W
	R88A-RR080100S	100 Ω, 80 W
	R88A-RR22047S	47 Ω, 220 W
	R88A-RR50020S	20 Ω, 500 W

**USB personal computer cable (for CN7)**

Symbol	Name		Model
⑨	USB mini-connector cable	2m	AX-CUSBM002-E

**Filters**

Symbol	Applicable servodrive	Filter model	Rated current	Leakage current	Rated voltage
⑫	R88D-KN01H-ML2, R88D-KN02H-ML2	R88A-FIK102-RE	2.4 A	3.5 mA	250 VAC single-phase
	R88D-KN04H-ML2	R88A-FIK104-RE	4.1 A	3.5 mA	
	R88D-KN08H-ML2	R88A-FIK107-RE	6.6 A	3.5 mA	
	R88D-KN10H-ML2, R88D-KN15H-ML2	R88A-FIK114-RE	14.2 A	3.5 mA	400 VAC three-phase
	R88D-KN06F-ML2, R88D-KN10F-ML2, R88D-KN15F-ML2	R88A-FIK304-RE	4 A	0.3 mA / 32 mA <sup>1</sup>	
	R88D-KN20F-ML2	R88A-FIK306-RE	6 A	0.3 mA / 32 mA <sup>1</sup>	
	R88D-KN30F-ML2, R88D-KN50F-ML2	R88A-FIK312-RE	12.1 A	0.3 mA / 32 mA <sup>1</sup>	

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

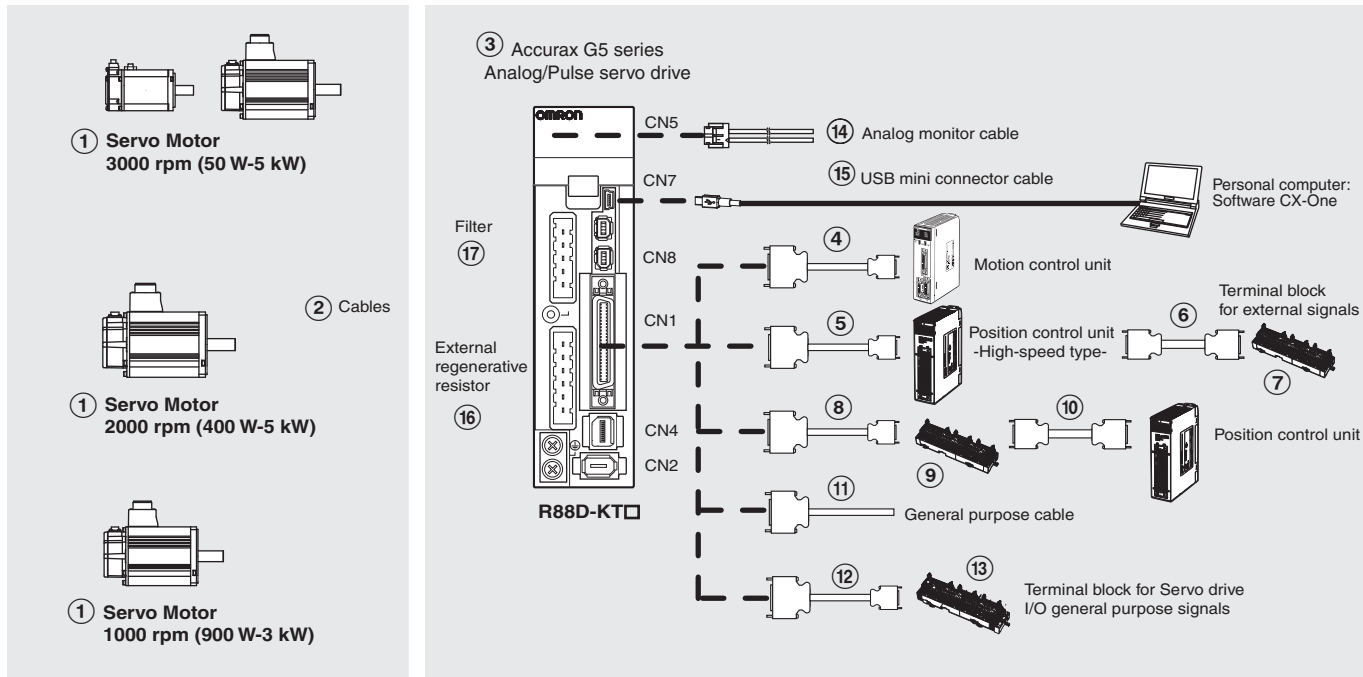
**Connectors**

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

**Computer software**

Specifications	Model
Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.91 or higher)	CX-drive

Accurax G5 series Analog/pulse Reference configuration



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

Servo motors, power & encoder cables

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

Servo drives

Symbol	Specifications		Servo drive model	① Compatible Accurax G5 series rotary servo motors
③	1 phase 230 VAC	100 W	R88D-KT01H	R88M-K05030(H/T)-□ R88M-K10030(H/T)-□
		200 W	R88D-KT02H	R88M-K20030(H/T)-□
		400 W	R88D-KT04H	R88M-K40030(H/T)-□
		750 W	R88D-KT08H	R88M-K75030(H/T)-□
		1.0 kW	R88D-KT10H	R88M-K1K020(H/T)-□
		1.5 kW	R88D-KT15H	R88M-K1K030(H/T)-□ R88M-K1K530(H/T)-□ R88M-K1K520(H/T)-□ R88M-K90010(H/T)-□
	3 phase 400 VAC	600 W	R88D-KT06F	R88M-K40020(F/C)-□ R88M-K60020(F/C)-□
		1.0 kW	R88D-KT10F	R88M-K75030(F/C)-□ R88M-K1K020(F/C)-□
		1.5 kW	R88D-KT15F	R88M-K1K030(F/C)-□ R88M-K1K530(F/C)-□ R88M-K1K520(F/C)-□ R88M-K90010(F/C)-□
		2.0 kW	R88D-KT20F	R88M-K2K030(F/C)-□ R88M-K2K020(F/C)-□
		3.0 kW	R88D-KT30F	R88M-K3K030(F/C)-□ R88M-K3K020(F/C)-□ R88M-K2K010(F/C)-□
		5.0 kW	R88D-KT50F	R88M-K4K030(F/C)-□ R88M-K5K030(F/C)-□ R88M-K4K020(F/C)-□ R88M-K5K020(F/C)-□ R88M-K3K010(F/C)-□



Control cables (for CN1)

Symbol	Description	Connect to		Model	
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 axis)	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 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	
	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)	
	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	-		
⑩	Position control unit connecting cable	CQM1H-PLB21  CS1W-NC113 or C200HW-NC113  CS1W-NC213/413 or C200HW-NC213/413  CS1W-NC133  CS1W-NC233/433  CJ1W-NC113  CJ1W-NC213/413  CJ1W-NC133  CJ1W-NC233/433  CJ1M-CPU21/22/23	0.5 m	XW2Z-050J-A3	
			1 m	XW2Z-100J-A3	
			0.5 m	XW2Z-050J-A6	
			1 m	XW2Z-100J-A6	
			0.5 m	XW2Z-050J-A7	
			1 m	XW2Z-100J-A7	
			0.5 m	XW2Z-050J-A10	
			1 m	XW2Z-100J-A10	
			0.5 m	XW2Z-050J-A11	
			1 m	XW2Z-100J-A11	
			0.5 m	XW2Z-050J-A14	
			1 m	XW2Z-100J-A14	
			0.5 m	XW2Z-050J-A15	
			1 m	XW2Z-100J-A15	
			0.5 m	XW2Z-050J-A18	
			1 m	XW2Z-100J-A18	
			0.5 m	XW2Z-050J-A19	
			1 m	XW2Z-100J-A19	
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	

**Analog monitor (for CN5)**

Symbol	Name		Model
⑭	Analog monitor cable	1m	R88A-CMK001S

**USB personal computer cable (for CN7)**

Symbol	Name		Model
⑮	USB mini-connector cable	2m	AX-CUSBM002-E

**External regenerative resistor**

Symbol	Regenerative resistor unit model	Specifications
⑯	R88A-RR08050S	50 Ω, 80 W
	R88A-RR080100S	100 Ω, 80 W
	R88A-RR22047S	47 Ω, 220 W
	R88A-RR50020S	20 Ω, 500 W

**Filters**

Symbol	Applicable servodrive	Filter model	Rated current	Leakage current	Rated voltage
⑰	R88D-KT01H, R88D-KT02H	R88A-FIK102-RE	2.4 A	3.5 mA	250 VAC single-phase
	R88D-KT04H	R88A-FIK104-RE	4.1 A	3.5 mA	
	R88D-KT08H	R88A-FIK107-RE	6.6 A	3.5 mA	
	R88D-KT10H, R88D-KT15H	R88A-FIK114-RE	14.2 A	3.5 mA	400 VAC three-phase
	R88D-KT06F, R88D-KT10F, R88D-KT15F	R88A-FIK304-RE	4 A	0.3 mA / 32 mA <sup>1</sup>	
	R88D-KT20F	R88A-FIK306-RE	6 A	0.3 mA / 32 mA <sup>1</sup>	
	R88D-KT30F, R88D-KT50F	R88A-FIK312-RE	12.1 A	0.3 mA / 32 mA <sup>1</sup>	

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

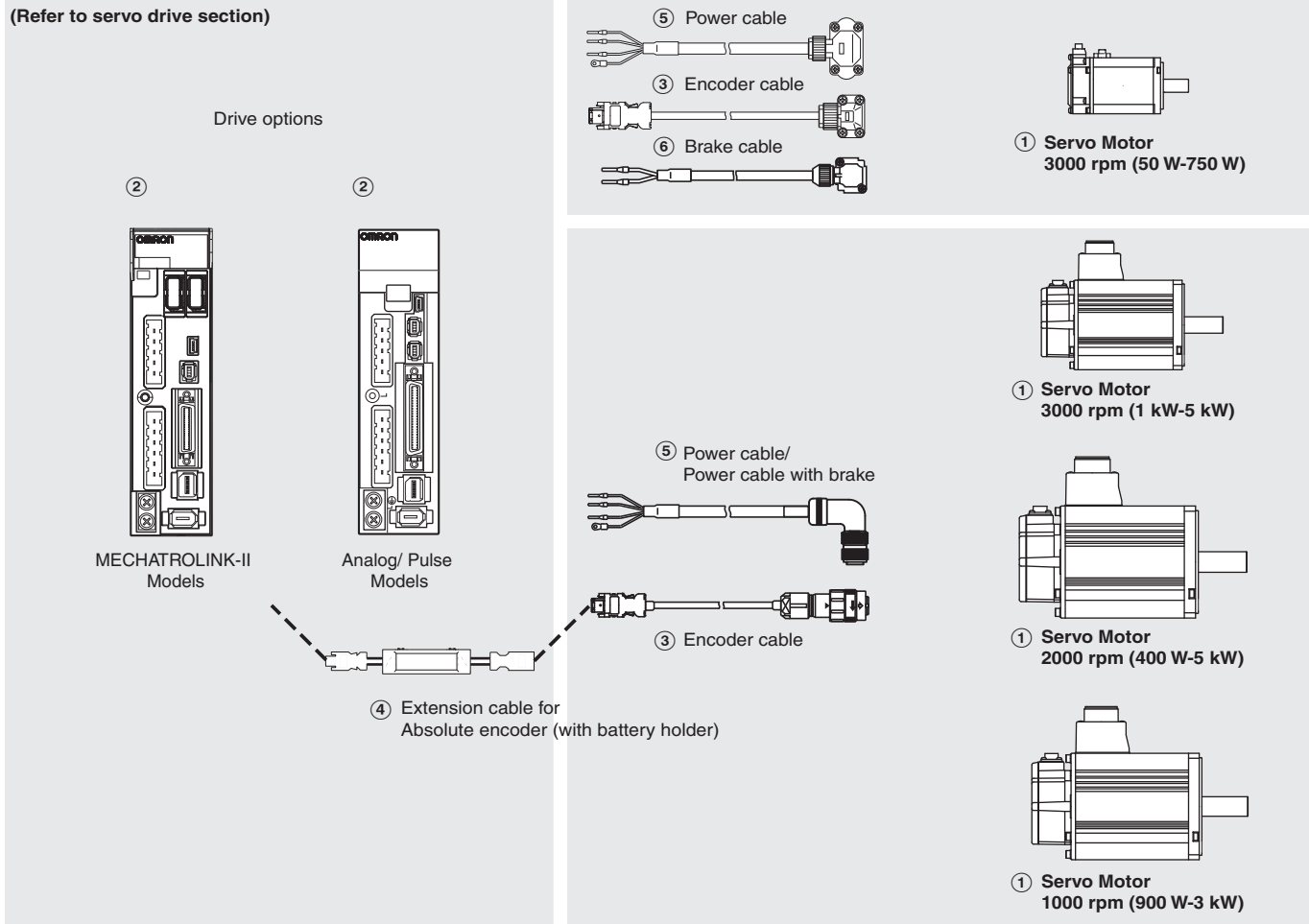
**Connectors**

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	Model
Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.90 or higher)	CX-drive

## Accurax G5 Servo Motor configuration



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



### Servo motor

① Select motor from R88M-K family 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.


Servo motors 3000 r/min (50 - 5000 W)

Symbol	Specifications				Servo motor model	Compatible servo drives <sup>(2)</sup>				
	Voltage	Encoder and design	Rated torque	Capacity		G5 MECHATROLINK-II	G5 Analog/Pulse			
<p>①</p>  <p>230 V (50 - 750 W)</p>  <p>230 V (1000 - 1500 W) 400 V (750 - 5000 W)</p>	230 V	<b>Incremental encoder (20 bit)</b>  Straight shaft with key and tap	Without brake	0.16 Nm	50 W	R88M-K05030H-S2	R88D-KN01H-ML2	R88D-KT01H		
				0.32 Nm	100 W	R88M-K10030H-S2	R88D-KN01H-ML2	R88D-KT01H		
0.64 Nm				200 W	R88M-K20030H-S2	R88D-KN02H-ML2	R88D-KT02H			
1.3 Nm				400 W	R88M-K40030H-S2	R88D-KN04H-ML2	R88D-KT04H			
2.4 Nm				750 W	R88M-K75030H-S2	R88D-KN08H-ML2	R88D-KT08H			
3.18 Nm				1000 W	R88M-K1K030H-S2	R88D-KN15H-ML2	R88D-KT15H			
4.77 Nm				1500 W	R88M-K1K530H-S2	R88D-KN15H-ML2	R88D-KT15H			
230 V		230 V	<b>Incremental encoder (20 bit)</b>  Straight shaft with key and tap	With brake	0.16 Nm	50 W	R88M-K05030H-BS2	R88D-KN01H-ML2	R88D-KT01H	
					0.32 Nm	100 W	R88M-K10030H-BS2	R88D-KN01H-ML2	R88D-KT01H	
					0.64 Nm	200 W	R88M-K20030H-BS2	R88D-KN02H-ML2	R88D-KT02H	
					1.3 Nm	400 W	R88M-K40030H-BS2	R88D-KN04H-ML2	R88D-KT04H	
					2.4 Nm	750 W	R88M-K75030H-BS2	R88D-KN08H-ML2	R88D-KT08H	
					3.18 Nm	1000 W	R88M-K1K030H-BS2	R88D-KN15H-ML2	R88D-KT15H	
					4.77 Nm	1500 W	R88M-K1K530H-BS2	R88D-KN15H-ML2	R88D-KT15H	
	230 V		230 V	<b>Absolute encoder (17 bit)</b>  Straight shaft with key and tap	Without brake	0.16 Nm	50 W	R88M-K05030T-S2	R88D-KN01H-ML2	R88D-KT01H
						0.32 Nm	100 W	R88M-K10030T-S2	R88D-KN01H-ML2	R88D-KT01H
						0.64 Nm	200 W	R88M-K20030T-S2	R88D-KN02H-ML2	R88D-KT02H
						1.3 Nm	400 W	R88M-K40030T-S2	R88D-KN04H-ML2	R88D-KT04H
						2.4 Nm	750 W	R88M-K75030T-S2	R88D-KN08H-ML2	R88D-KT08H
						3.18 Nm	1000 W	R88M-K1K030T-S2	R88D-KN15H-ML2	R88D-KT15H
						4.77 Nm	1500 W	R88M-K1K530T-S2	R88D-KN15H-ML2	R88D-KT15H
230 V		230 V		<b>Absolute encoder (17 bit)</b>  Straight shaft with key and tap	With brake	0.16 Nm	50 W	R88M-K05030T-BS2	R88D-KN01H-ML2	R88D-KT01H
						0.32 Nm	100 W	R88M-K10030T-BS2	R88D-KN01H-ML2	R88D-KT01H
						0.64 Nm	200 W	R88M-K20030T-BS2	R88D-KN02H-ML2	R88D-KT02H
						1.3 Nm	400 W	R88M-K40030T-BS2	R88D-KN04H-ML2	R88D-KT04H
						2.4 Nm	750 W	R88M-K75030T-BS2	R88D-KN08H-ML2	R88D-KT08H
						3.18 Nm	1000 W	R88M-K1K030T-BS2	R88D-KN15H-ML2	R88D-KT15H
						4.77 Nm	1500 W	R88M-K1K530T-BS2	R88D-KN15H-ML2	R88D-KT15H
	400 V		400 V	<b>Incremental encoder (20 bit)</b>  Straight shaft with key and tap	Without brake	2.39 Nm	750 W	R88M-K75030F-S2	R88D-KN10F-ML2	R88D-KT10F
						3.18 Nm	1000 W	R88M-K1K030F-S2	R88D-KN15F-ML2	R88D-KT15F
						4.77 Nm	1500 W	R88M-K1K530F-S2	R88D-KN15F-ML2	R88D-KT15F
						6.37 Nm	2000 W	R88M-K2K030F-S2	R88D-KN20F-ML2	R88D-KT20F
						9.55 Nm	3000 W	R88M-K3K030F-S2	R88D-KN30F-ML2	R88D-KT30F
						12.7 Nm	4000 W	R88M-K4K030F-S2	R88D-KN50F-ML2	R88D-KT50F
						15.9 Nm	5000 W	R88M-K5K030F-S2	R88D-KN50F-ML2	R88D-KT50F
With brake		2.39 Nm			750 W	R88M-K75030F-BS2	R88D-KN10F-ML2	R88D-KT10F		
		3.18 Nm			1000 W	R88M-K1K030F-BS2	R88D-KN15F-ML2	R88D-KT15F		
		4.77 Nm			1500 W	R88M-K1K530F-BS2	R88D-KN15F-ML2	R88D-KT15F		
		6.37 Nm			2000 W	R88M-K2K030F-BS2	R88D-KN20F-ML2	R88D-KT20F		
		9.55 Nm			3000 W	R88M-K3K030F-BS2	R88D-KN30F-ML2	R88D-KT30F		
		12.7 Nm			4000 W	R88M-K4K030F-BS2	R88D-KN50F-ML2	R88D-KT50F		
		15.9 Nm			5000 W	R88M-K5K030F-BS2	R88D-KN50F-ML2	R88D-KT50F		
400 V		400 V		<b>Absolute encoder (17 bit)</b>  Straight shaft with key and tap	Without brake	2.39 Nm	750 W	R88M-K75030C-S2	R88D-KN10F-ML2	R88D-KT10F
						3.18 Nm	1000 W	R88M-K1K030C-S2	R88D-KN15F-ML2	R88D-KT15F
						4.77 Nm	1500 W	R88M-K1K530C-S2	R88D-KN15F-ML2	R88D-KT15F
						6.37 Nm	2000 W	R88M-K2K030C-S2	R88D-KN20F-ML2	R88D-KT20F
						9.55 Nm	3000 W	R88M-K3K030C-S2	R88D-KN30F-ML2	R88D-KT30F
						12.7 Nm	4000 W	R88M-K4K030C-S2	R88D-KN50F-ML2	R88D-KT50F
						15.9 Nm	5000 W	R88M-K5K030C-S2	R88D-KN50F-ML2	R88D-KT50F
				With brake	2.39 Nm	750 W	R88M-K75030C-BS2	R88D-KN10F-ML2	R88D-KT10F	
					3.18 Nm	1000 W	R88M-K1K030C-BS2	R88D-KN15F-ML2	R88D-KT15F	
					4.77 Nm	1500 W	R88M-K1K530C-BS2	R88D-KN15F-ML2	R88D-KT15F	
					6.37 Nm	2000 W	R88M-K2K030C-BS2	R88D-KN20F-ML2	R88D-KT20F	
					9.55 Nm	3000 W	R88M-K3K030C-BS2	R88D-KN30F-ML2	R88D-KT30F	
					12.7 Nm	4000 W	R88M-K4K030C-BS2	R88D-KN50F-ML2	R88D-KT50F	
					15.9 Nm	5000 W	R88M-K5K030C-BS2	R88D-KN50F-ML2	R88D-KT50F	

Servo motors 2000 r/min (1 - 5 kW)

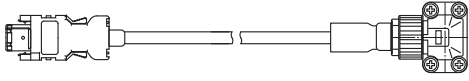

Symbol	Specifications				Servo motor model	Compatible servo drives (2)				
	Voltage	Encoder and design	Rated torque	Capacity		G5 MECHATROLINK-II	G5 Analog/Pulse			
	230 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	4.77 Nm	1000 W	R88M-K1K020H-S2	R88D-KN10H-ML2	R88D-KT10H		
			With brake	7.16 Nm	1500 W	R88M-K1K520H-S2	R88D-KN15H-ML2	R88D-KT15H		
			Without brake	4.77 Nm	1000 W	R88M-K1K020H-BS2	R88D-KN10H-ML2	R88D-KT10H		
			With brake	7.16 Nm	1500 W	R88M-K1K520H-BS2	R88D-KN15H-ML2	R88D-KT15H		
			Absolute encoder (17 bit) Straight shaft with key and tap	Without brake	4.77 Nm	1000 W	R88M-K1K020T-S2	R88D-KN10H-ML2	R88D-KT10H	
				With brake	7.16 Nm	1500 W	R88M-K1K520T-S2	R88D-KN15H-ML2	R88D-KT15H	
		Without brake		4.77 Nm	1000 W	R88M-K1K020T-BS2	R88D-KN10H-ML2	R88D-KT10H		
		With brake		7.16 Nm	1500 W	R88M-K1K520T-BS2	R88D-KN15H-ML2	R88D-KT15H		
		400 V		Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	1.91 Nm	400 W	R88M-K40020F-S2	R88D-KN06F-ML2	R88D-KT06F
						2.86 Nm	600 W	R88M-K60020F-S2	R88D-KN06F-ML2	R88D-KT06F
			4.77 Nm			1000 W	R88M-K1K020F-S2	R88D-KN10F-ML2	R88D-KT10F	
			7.16 Nm			1500 W	R88M-K1K520F-S2	R88D-KN15F-ML2	R88D-KT15F	
	9.55 Nm		2000 W			R88M-K2K020F-S2	R88D-KN20F-ML2	R88D-KT20F		
	14.3 Nm		3000 W			R88M-K3K020F-S2	R88D-KN30F-ML2	R88D-KT30F		
	19.1 Nm		4000 W			R88M-K4K020F-S2	R88D-KN50F-ML2	R88D-KT50F		
	23.9 Nm		5000 W			R88M-K5K020F-S2	R88D-KN50F-ML2	R88D-KT50F		
	With brake		1.91 Nm			400 W	R88M-K40020F-BS2	R88D-KN06F-ML2	R88D-KT06F	
			2.86 Nm		600 W	R88M-K60020F-BS2	R88D-KN06F-ML2	R88D-KT06F		
			4.77 Nm		1000 W	R88M-K1K020F-BS2	R88D-KN10F-ML2	R88D-KT10F		
			7.16 Nm		1500 W	R88M-K1K520F-BS2	R88D-KN15F-ML2	R88D-KT15F		
			9.55 Nm		2000 W	R88M-K2K020F-BS2	R88D-KN20F-ML2	R88D-KT20F		
			14.3 Nm		3000 W	R88M-K3K020F-BS2	R88D-KN30F-ML2	R88D-KT30F		
			19.1 Nm		4000 W	R88M-K4K020F-BS2	R88D-KN50F-ML2	R88D-KT50F		
			23.9 Nm		5000 W	R88M-K5K020F-BS2	R88D-KN50F-ML2	R88D-KT50F		
			Absolute encoder (17 bit) Straight shaft with key and tap		Without brake	1.91 Nm	400 W	R88M-K40020C-S2	R88D-KN06F-ML2	R88D-KT06F
	2.86 Nm					600 W	R88M-K60020C-S2	R88D-KN06F-ML2	R88D-KT06F	
	4.77 Nm	1000 W		R88M-K1K020C-S2		R88D-KN10F-ML2	R88D-KT10F			
	7.16 Nm	1500 W		R88M-K1K520C-S2		R88D-KN15F-ML2	R88D-KT15F			
	9.55 Nm	2000 W		R88M-K2K020C-S2		R88D-KN20F-ML2	R88D-KT20F			
	14.3 Nm	3000 W		R88M-K3K020C-S2		R88D-KN30F-ML2	R88D-KT30F			
19.1 Nm	4000 W	R88M-K4K020C-S2		R88D-KN50F-ML2		R88D-KT50F				
23.9 Nm	5000 W	R88M-K5K020C-S2		R88D-KN50F-ML2		R88D-KT50F				
With brake	1.91 Nm	400 W		R88M-K40020C-BS2		R88D-KN06F-ML2	R88D-KT06F			
	2.86 Nm	600 W		R88M-K60020C-BS2	R88D-KN06F-ML2	R88D-KT06F				
	4.77 Nm	1000 W		R88M-K1K020C-BS2	R88D-KN10F-ML2	R88D-KT10F				
	7.16 Nm	1500 W		R88M-K1K520C-BS2	R88D-KN15F-ML2	R88D-KT15F				
	9.55 Nm	2000 W		R88M-K2K020C-BS2	R88D-KN20F-ML2	R88D-KT20F				
	14.3 Nm	3000 W		R88M-K3K020C-BS2	R88D-KN30F-ML2	R88D-KT30F				
	19.1 Nm	4000 W		R88M-K4K020C-BS2	R88D-KN50F-ML2	R88D-KT50F				
	23.9 Nm	5000 W		R88M-K5K020C-BS2	R88D-KN50F-ML2	R88D-KT50F				

Servo motors 1000 r/min (900 - 3000 W)

Symbol	Specifications				Servo motor model	Compatible servo drives (2)				
	Voltage	Encoder and design	Rated torque	Capacity		G5 MECHATROLINK-II	G5 Analog/Pulse			
	230 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88M-K90010H-S2	R88D-KN15H-ML2	R88D-KT15H		
			With brake	8.59 Nm	900 W	R88M-K90010H-BS2	R88D-KN15H-ML2	R88D-KT15H		
		Absolute encoder (17 bit) Straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88M-K90010T-S2	R88D-KN15H-ML2	R88D-KT15H		
			With brake	8.59 Nm	900 W	R88M-K90010T-BS2	R88D-KN15H-ML2	R88D-KT15H		
			400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	8.59 Nm	900 W	R88M-K90010F-S2	R88D-KN15F-ML2	R88D-KT15F
						19.1 Nm	2000 W	R88M-K2K010F-S2	R88D-KN30F-ML2	R88D-KT30F
	28.7 Nm	3000 W				R88M-K3K010F-S2	R88D-KN50F-ML2	R88D-KT50F		
	8.59 Nm	900 W				R88M-K90010F-BS2	R88D-KN15F-ML2	R88D-KT15F		
	19.1 Nm	2000 W				R88M-K2K010F-BS2	R88D-KN30F-ML2	R88D-KT30F		
	28.7 Nm	3000 W				R88M-K3K010F-BS2	R88D-KN50F-ML2	R88D-KT50F		
	Absolute encoder (17 bit) Straight shaft with key and tap	Without brake			8.59 Nm	900 W	R88M-K90010C-S2	R88D-KN15F-ML2	R88D-KT15F	
					19.1 Nm	2000 W	R88M-K2K010C-S2	R88D-KN30F-ML2	R88D-KT30F	
					28.7 Nm	3000 W	R88M-K3K010C-S2	R88D-KN50F-ML2	R88D-KT50F	
		With brake			8.59 Nm	900 W	R88M-K90010C-BS2	R88D-KN15F-ML2	R88D-KT15F	
					19.1 Nm	2000 W	R88M-K2K010C-BS2	R88D-KN30F-ML2	R88D-KT30F	
					28.7 Nm	3000 W	R88M-K3K010C-BS2	R88D-KN50F-ML2	R88D-KT50F	

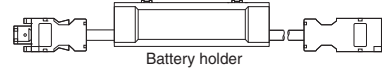


**Encoder Cables**  
for absolute and incremental encoders

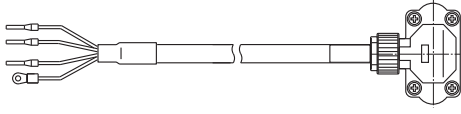
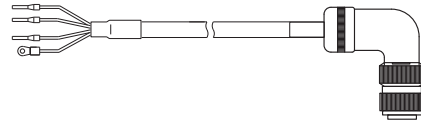
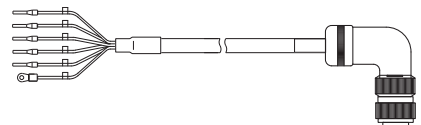
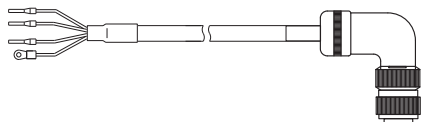
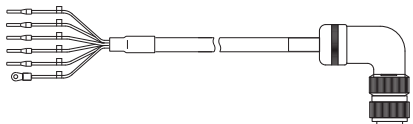
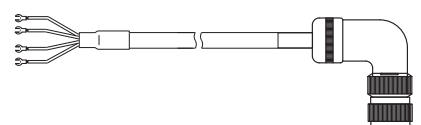
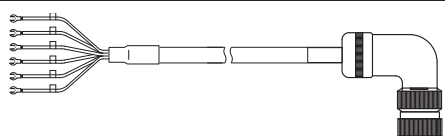
Symbol	Specifications	Model	Appearance		
③	Encoder cable for servomotors R88M-K(050/100/200/400/750)30(H/T)□	1.5 m	R88A-CRKA001-5CR-E		
		3 m	R88A-CRKA003CR-E		
		5 m	R88A-CRKA005CR-E		
		10 m	R88A-CRKA010CR-E		
		15 m	R88A-CRKA015CR-E		
	20 m	R88A-CRKA020CR-E			
	Encoder cable for servomotors R88M-K(1K0/1K5)30(H/T)□ 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□	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	Specifications	Model	Appearance		
④	Absolute Encoder battery cable	Battery not included	0.3 m	R88A-CRGD0R3C	 <p>Battery holder</p>
		Battery included (R88A-BAT01G)	0.3 m	R88A-CRGD0R3C-BS	
	Absolute Encoder backup battery	2,000 mA.h 3.6V	-	R88A-BAT01G	

**Power cables**

Symbol	Specifications	Model	Appearance				
⑤	For 200V servomotors R88M-K(050/100/200/400/750)30(H/T)□  <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 200V servomotors R88M-K(1K0/1K5)30(H/T)□ R88M-K(1K0/1K5)20(H/T)□ R88M-K90010(H/T)□	without brake	1.5 m		R88A-CAGB001-5SR-E	
			□-S2	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	□-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			
	For 400V servomotors R88M-K(750/1K0/1K5/2K)30(F/C)□ R88M-K(400/600/1K0/1K5/2K)20(F/C)□ R88M-K90010(F/C)□	without brake	1.5 m	R88A-CAGB001-5SR-E			
		□-S2	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		□-BS2	1.5 m	R88A-CAKF001-5BR-E			
			3 m	R88A-CAKF003BR-E			
			5 m	R88A-CAKF005BR-E			
			10 m	R88A-CAKF010BR-E			
For 400V servomotors R88M-K(3K0/4K0/5K0)30(F/C)□ R88M-K(3K0/4K0/5K0)20(F/C)□ R88M-K(2K0/3K0)10(F/C)□	without brake	1.5 m	R88A-CAGD001-5SR-E				
	□-S2	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	□-BS2	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					

**Brake cable (for 3000 r/min 50-750 W Motors)**

Symbol	Specifications	Model	Appearance	
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	

**Connectors for encoder, power and brake cables**

Specifications	Applicable Servomotor	Model	
Connectors for making encoder cables	Drive side (CN2)	All models	R88A-CNW01R
	Motor side	R88M-K(050/100/200/400/750)30(H/T)□	R88A-CNK02R
	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□	R88A-CNK04R
Connectors for making power cables	Motor side	R88M-K(050/100/200/400/750)30(H/T)□	R88A-CNK11A
	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	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(400/600/1K0/1K5/2K0/3K0/4K0/5K0)20(F/C)-BS2 R88M-K(900/2K0/3K0)10(F/C)-BS2	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	MS3108E22-22S
	Connector for brake cable	Motor side	R88M-K(050/100/200/400/750)30(H/T)-BS2

- 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-CNW01R connector and R88A-CRGD0R3C cable).

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

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