

SERVO



HMI



SELECTION GUIDE

To be the most valuable industrial automation system service provider

ABOUT US

Yasaka aims to be the most valuable industrial automation product & service provider. our main products include PLC (Programmable Logic Controller),HMI (Human Machine Interface), Inverter, Servo drive and motor, motion controller and industrial robot.

- Strong R&D team: huge investment in R&D to design cutting-edge products;
- Self-developed ERP system: complete control of product development, purchasing & manufacturing;
- Rigorous SFCS barcode management: process control, traceability system
- Superior supply chain: global sourcing of raw materials to ensure product performance and stability

Control

PLC & Motion controllers
 Robot and manipulator controllers
 CNC controllers
 Analog & Communication control modules
 Tension control & temperature control modules

Drive

Servo drives
 Servo motors
 General-purpose vector control inverters
 New-energy drives
 Photovoltaic inverters

Sensing

High precision magneto-optical encoders
 Machine vision
 Photoelectric sensors
 Proximity sensors
 Temperature sensors

Visualization

Display and control terminals
 HMI & touch screen
 IoT Equipment network
 ERP/MES/SFCS

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SERVO

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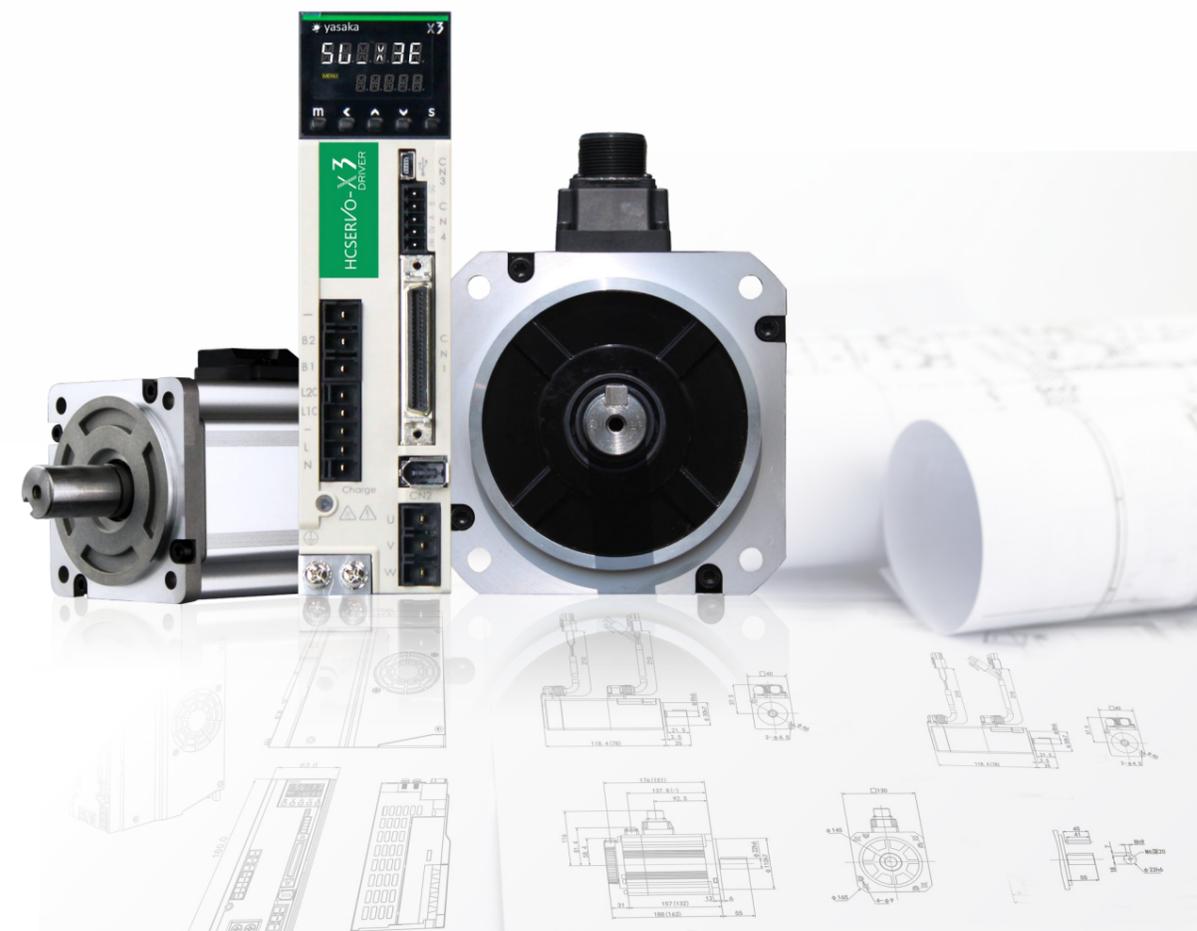
HMI

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SERVO

SV series servo provides the best solution for all the fields of manufacturing, which requires automation, high-speed, high-precision and convenience.



HCSV-X3 Servo Drives



SV-X3E series servo drives have provided the best solution for all the fields of manufacturing, which requires automation, high-speed, high-precision and convenience.

SV-X3E series servo drives have smallest size in industry with operation panel with unified height (160mm) and length (130mm) design for easy installation and space saving.

SV-X3E series servo drives are equipped with high contrast LCD displays and with many user friendly designs.



Model name identification

SV-X3 E A 075A - D - **

① ② ③ ④ ⑤ ⑥

① Product series Specifications
X3 Series

② Version code Specifications
D/E/T

③ Voltage specifications	Symbol	Specifications
A	Single-phase 220V	
1	Single-phase 110V	
4	Three-phase 400V	
5	Single/three-phase 220V	
6	DC power supply	

④ Main power specifications			
Symbol	Specifications	Symbol	Specifications
005A	50W	300A	3KW
010A	100W	400A	4KW
020A	200W	500A	5KW
040A	400W	750A	7.5KW
075A	750W	115B	11.5KW
100A	1KW	150B	15KW
150A	1.5KW	220B	22KW
200A	2KW		

⑤ Control power specifications	
Symbol	Specifications
D	DC24V
A	AC220V

⑥ Customized version Specifications
**

Items	Applicable motors	X3E			X3T (under development)					
		External dimension(mm)			Weight (KG)	Input Power		Control algorithm	Output specifications	
		W	H	D				Rated current (Arms)	Output frequency(Hz)	
005	50W	42	160	135	0.7	Frame A	1PH 200~240V +10% -15% 50/60Hz	IGBT PWM control sinusoidal wave driving	0.6	0~500
010	100W								1.2	
020	200W								1.6	
040	400W	2.6								
075	750W	4.1								
100	1kW	84	160	135	1.6	Frame B	1PH 200~230V +10% -15% 50/60Hz		5.2	0~416.6
150	1.5kW								9.4	
200	2kW								13.4	

Encoder feedback	17-bit or 20-bit, incremental or absolute	
Temperature	Ambient temperature for use	0 ~ 55°C
	Ambient temperature for storage	-20 ~ 65°C
Humidity	Ambient humidity for use	20~85%RH or less(Without condensation)
	Ambient humidity for storage	20~85%RH or less(Without condensation)
Atmosphere for use & storage	Indoors(Not subject to direct sunlight); free from corrosive gas, flammable gas, oil mist, or dust	
Altitude	1000m or less above sea level	
Vibration	5.8m/s ² (0.6G) or less, 10 ~ 60Hz(No continuous operation allowed at frequency of resonance)	
Insulation & dielectric capacity	1 minute at 1500 VAC across the primary and FG	
Control signal	Input	Photo-coupler insulation 9-channel input
	Output	Photo-coupler insulation 9-channel output
Analog signal	Input	2-channel input
Pulse signal	Input	2-channel input (photo-coupler RS422 differential, open-collector)
	Output	4-channel output (A/B differential, Z differential or open collector)
Communication function	PC software communication Remote communication (1:n)	EtherCAT
Regeneration function	Internal or external regenerative resistor	
Dynamic brake	Not built-in	
Control mode	7 control modes: Position control, speed control, torque control, position/speed control, position/torque control, speed/torque control, fully closed loop control (optional module required)	
Position control mode	Digital input signals	Servo ON, alarm reset, speed instruction negation, zero-speed clamp, internal speed control, external forward/reverse torque limit etc.
	Digital output signals	Servo ON, alarm clear, gain switchover, positive/negative direction drive prohibition input, forced alarm input, inertia switchover
	Operation mode	Alarm state, servo ready, brake off, speed reached, torque limiting, speed limiting, speed reached, speed coincidence, motor rotation output, zero-speed output, etc.
Pulse output	Output pulse form	Point table, communication, manual pulse input
	Frequency division ratio	A/B phase: differential output Z phase: differential or open-collector output Differential output
		1~65535

Items		X3E	X3T	
Position control mode	Pulse input	Max input pulse frequency	Differential input: 2Mpps Open-collector input: 200Kpps	
		Input pulse type	Differential input; positive/negative direction can be selected by parameter, A/B phase, instruction/ direction	
		Input pulse form	Pulse+ direction, A-Phase + B-Phase, CW+CCW	
		Electronic gear	A/B A : 1 ~ 1073741824 B : 1 ~ 1073741824	
		Smoothing	The number of instruction pulse frequency× Electronic gear Applicable scaling ratio: 1/1000-1000	
Position control mode	Analog input	Torque limit command input		
		Torque feedforward input		
	Instantaneous speed observer	-	Provided	
	2-DOF control	-	Provided	
Speed control	Input signals	Servo ON, alarm reset, speed instruction negation, zero-speed clamp, internal speed control, external forward/reverse torque limit etc.	Internal command speed selection, zero-speed clamp, speed command sign input, control mode switchover	
	Output signals	Alarm state, servo ready, brake off, speed reached, torque limiting, speed limiting, speed reached, speed coincidence, motor rotation output, zero-speed output, etc.	Speed conformity output, speed command output	
	Pulse output	Pulse signal format	Encoder position pulse output forms: A-Phase, B-Phase: Differential output Z-Phase: Differential output or open collector output	
	Analog input	Speed input	Input voltage -10V to +10V (Maximum speed at ±10V)	Input voltage: -10V~ +10V ; 6V corresponding to rated speed (default)
		Torque limit source	1)Internal torque limit by P03.09, P03.10 2)External torque limit by P03.11, P03.12 enabled by P_CL/N_CL signals 3)TLMTF i.e. AI1 or AI2 as external forward/reverse torque limit 4)TLMTF as forward limit; TLMTN as reverse limit	Provided
		Torque feedforward	1)Internal torque feedforward 2)TFFD, AI1 or AI2	Input torque feedforward based on analog voltage
		Internal speed instruction	0 to 16-segment speed can be selected by DI terminal combination.	Internal speed 8-segment switchover based on control input
Torque control	Digital input signals	Servo ON, alarm reset, reverse torque instruction, zero-speed clamp	Zero-speed clamp, torque instruction sign input, control mode switchover	
	Digital output signals	Alarm status, servo ready, brake release, torque limit, speed limit output, emergency stop	Torque conformity output, torque limit output	
	Torque input	DC±10V/ rated torque (default before shipment and the range can be set by function codes)	Input torque instruction based on the analog voltage; Input voltage -10V to 10V	
	Output pulse signal		Encoder position pulse output forms: A-Phase, B-Phase: Differential output Z-Phase: Differential output or open collector output	
	Speed limit	1) Positive/ negative speed limit P03.27, P03.28 2) SPL i.e. AI input	Speed limit value can be set based on the parameters.	
Common	Speed monitoring		Provided	
	Vibration control		Provided	
	Adaptive notch filter		Provided	
	Encoder output division and multiplication		Provided	
	Adjustment/function setting	Adjust by PC software of SV-X3E		
	Protective functions	Overvoltage, power supply error, overcurrent, overheat, overload, encoder error, overspeed, excessive position deviation, parameter error	Hardware error: Overvoltage, undervoltage, overspeed, power supply error, overcurrent, overheat, overload, encoder error, etc. Software error: Excessive position deviation, frequency division and EEPROM error etc.	
	Self-adaptive notch filter		Provided	
Internal position control function		Provided		

X3E Series Servo Drive



Fast

Control loop calculation cycle: 40μs
Speed loop band-width: 1.2 KHz
Positioning time ≤ 5ms
(Tacc=50ms, Vmax=3000rpm)

Steady

Online load parameter identification
Online automatic gain tuning
Online adaptive notch filter for resonance elimination
Low-frequency damping control

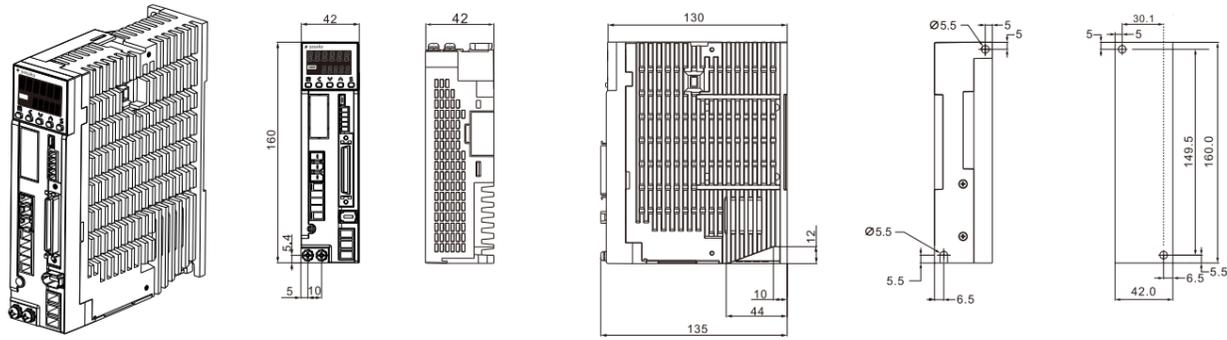
Accurate

Theoretical positioning accuracy ±1/131072
Speed control accuracy: ±1 RPM
Torque control resolution: 0.1%* rated torque
Analog input resolution: Max.16-bit

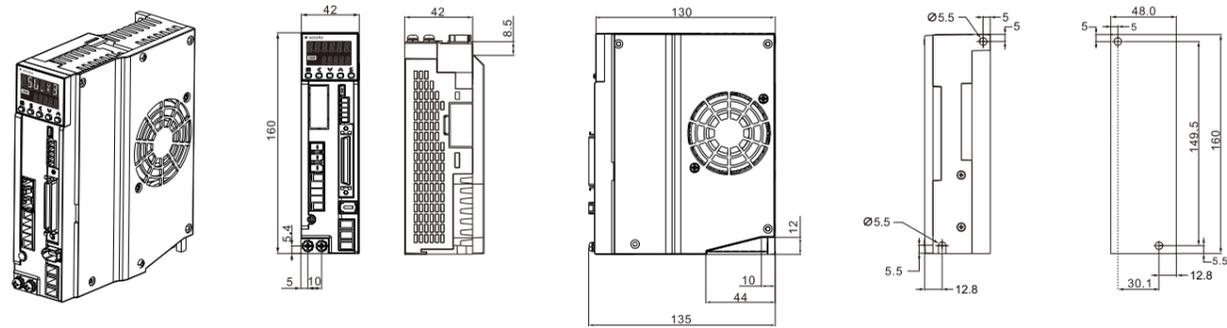
Advanced functions

Multiple homing options
Parameter grouping
Online control mode switchover
Standard 17-bit encoder, optional 20-bit
Two groups of gain switchover, quick response and steady stop
Built-in 16-segment position control (Point table P08 Group)
High-accuracy and high-response interrupt positioning setting (P08.86)
Potential energy load torque compensation (P06.10/ Z-axis Robot)
Built-in process control, tool turret function /E-CAM
I/O function customization (P04)
AC control power input
Wide voltage input range, lowest 50% (P06.36)
Instantaneous power failure protection (P06.24)
Regenerative braking and dynamic braking
Absolute system voltage monitoring, under-voltage warning function (P06.48)
Protective functions
Overcurrent/overvoltage/overspeed/Input/output phase loss/encoder error
Protection classification, level 1-3 for warning and failure.
PC software for parameter management, monitoring and oscilloscope
I/O function configurable by communication without physical wiring
Support gantry synchronization, high-speed pulse input, and analog output
CANOpen extension

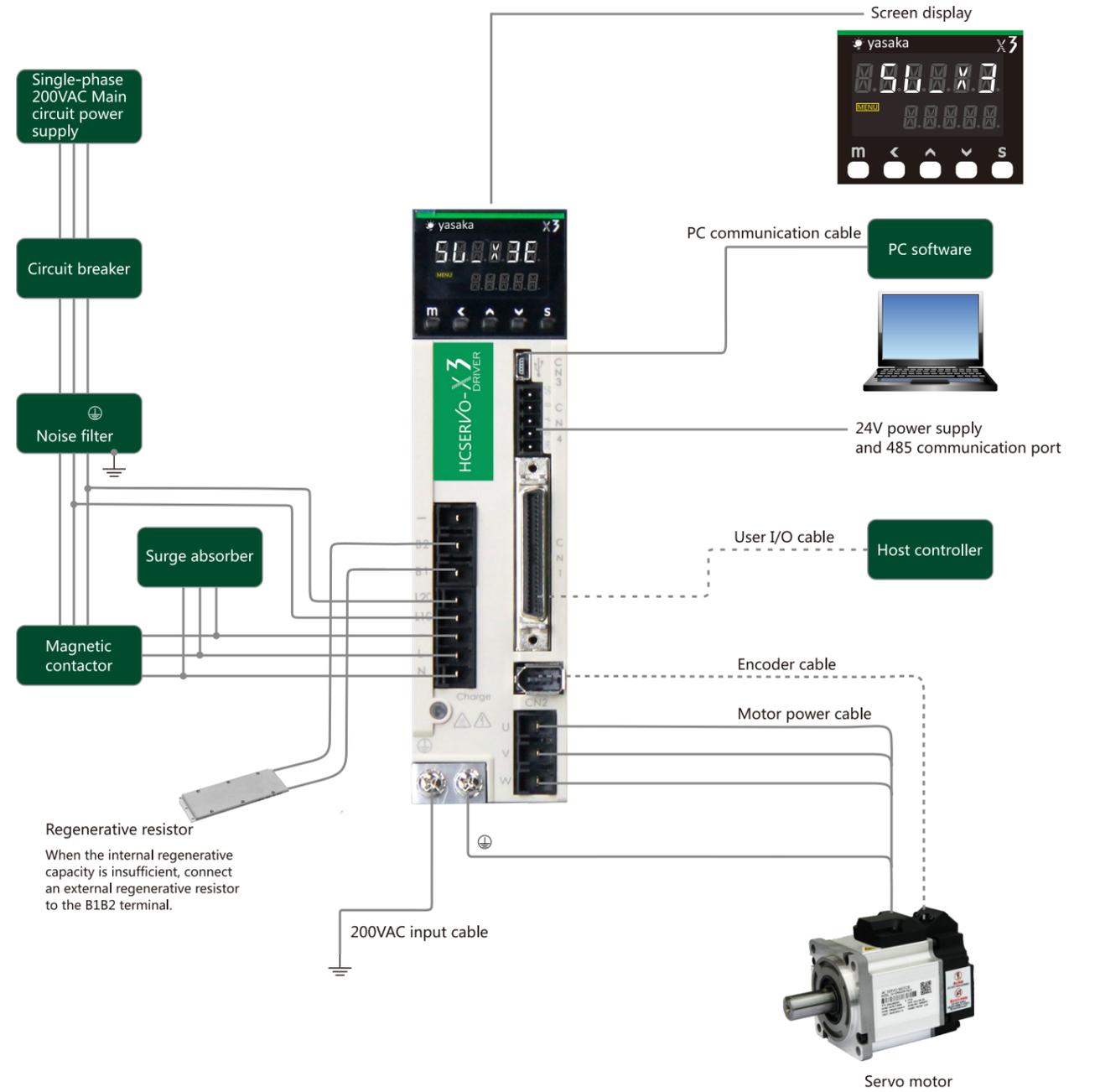
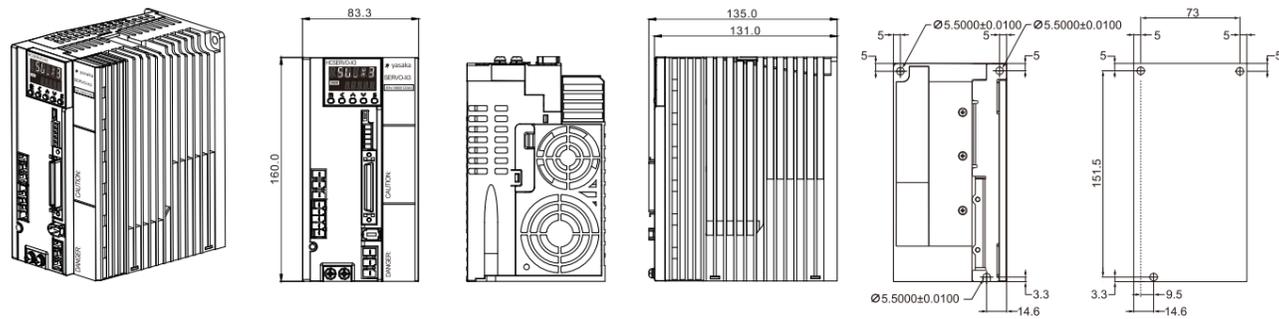
Models of 200W or below



Models of 400W/750W



Models of 1kW to 2kW



Note 1) External 24VDC is needed for control power of models of 750W or less. For 1kW or more, this is supplied internally.

[Notes for Correct Wiring]

- ※24VDC control circuit and 200VAC main circuit should come from the same 200VAC power supply.
- ※Please do not install a switch between 24VDC and the servo drive. If the switch is needed, connect it to the 200VAC cable.
- ※A twisted-pair shielded cable should be used when I/O communication cable (between upper control device and drive) is over 50cm.
- ※The encoder cable should be less than 20m.

RS-485 communication wirings

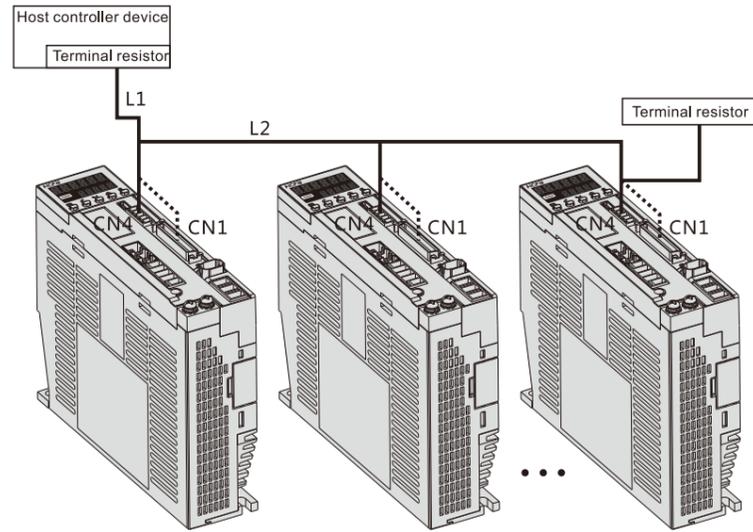
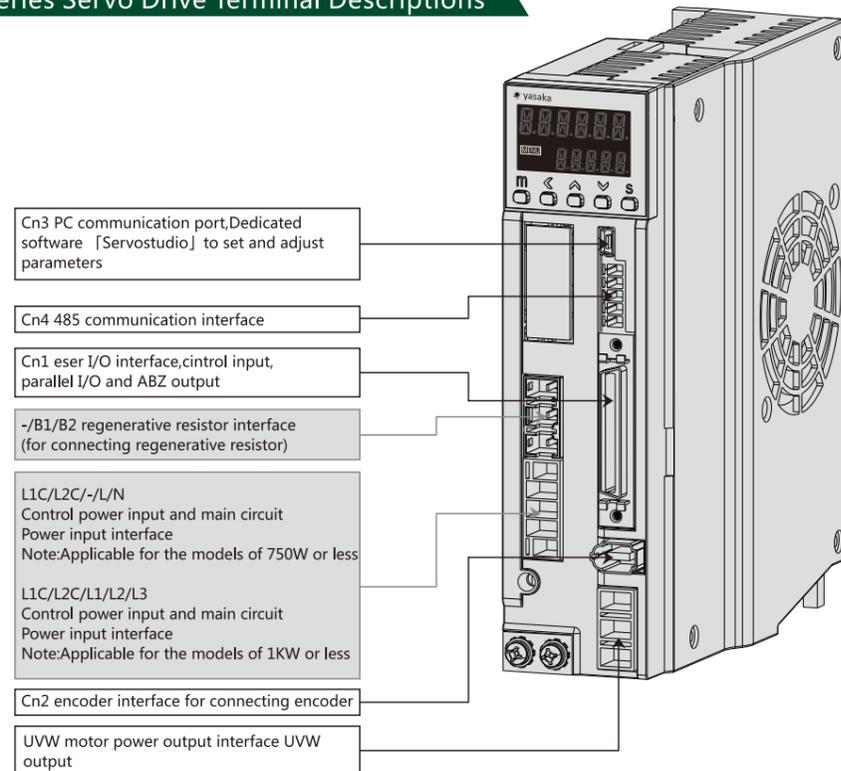


Figure 4.4.1 Multi-station connection example

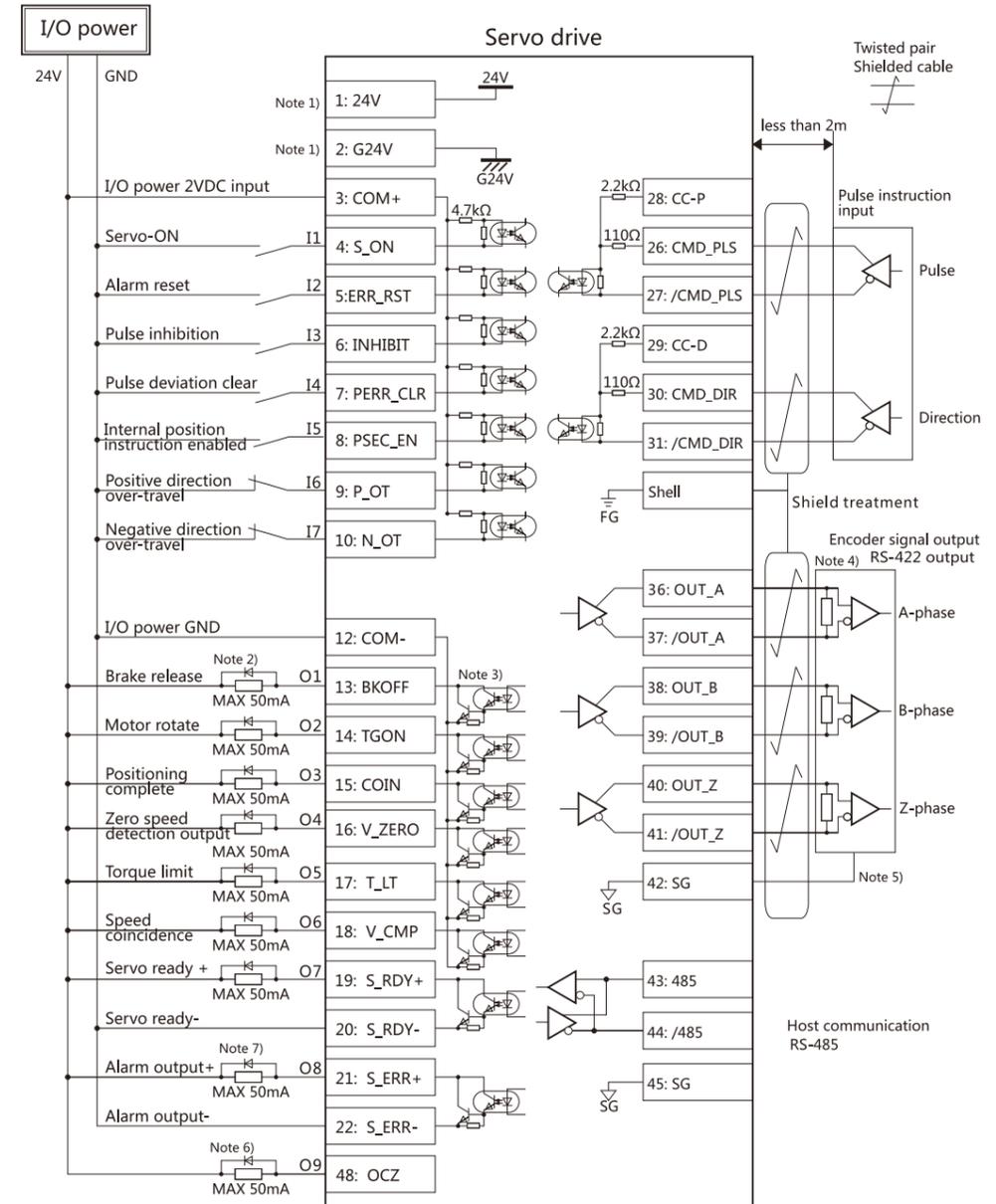
L1=5m (max): cables between upper controller and servo drive should be less than 5m.
 L2=250mm (max): cables between each servo drive should be less than 250mm.
 Terminal resistor: Connect the terminal resistor between the Pin A & B of CN4 or Pin 43 & 44 of CN1 at the last drive and host controller (220Ω).

X3E Series Servo Drive Terminal Descriptions



Standard wiring diagrams

Pulse instruction differential input



Note 1: Control power output (24V, G24V) can be used as I/O power (COM+, COM-). But the maximum output current is 150mA, and when driving the output such as relay and brake, please use external independent power.
 Note 2: Please connect protective circuit (diode) when driving load with inductive component such as relay.
 Note 3: The output circuit is the transistor output mode of the Darlington-connected method of the collector open circuit, which is connected with relay or optocoupler. Please don't connect transistor directly because the voltage VCE (SAT) between collector and emitter is about 1V which cannot meet the required voltage VIL of TTL IC when transistor is ON.
 Note 4: The differential pulse output and 485 communication circuits need to connect the terminal resistor.
 Note 5: Connect the signal ground on the host control device of output signal of the encoder. The connection of signal ground and power supply GND may cause malfunction.
 Note 6: O9 does not configure any functions by default, but can be used as the DO output and the OC output of Z-pulse. In this case, do not configure any DO function to O9 that is P04. 29 is set to 0, and P04. 54 is set to 1.
 Note 7: The default function of O8 is the fault output, and the default output logic state is normally closed output.
 ※DI function can be configured flexibly by function codes. DI becomes valid when connected by default and its positive/negative logic can be modified by function codes.
 ※DO function can be configured flexibly by function codes. DO becomes valid when connected by default and its positive/negative logic can be modified by function codes.

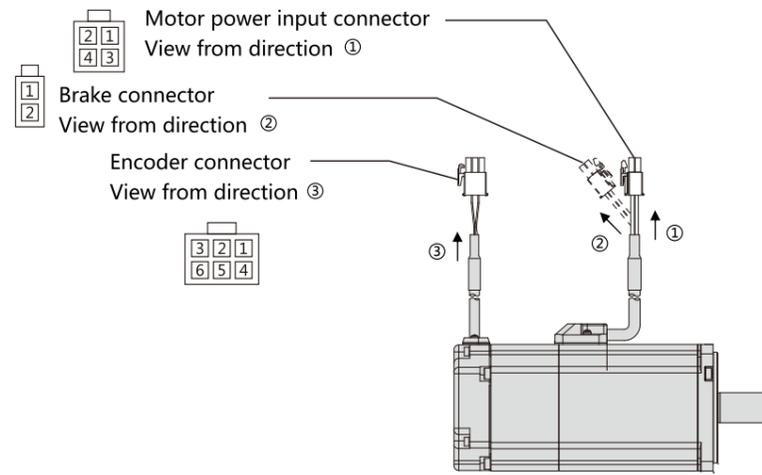


Model name identification

SV-X3
MA
075A
- B
2
L
N
- **

<p>① Product series</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Specifications</th></tr> <tr><td>X3 series</td></tr> </table>	Specifications	X3 series	<p>③ Power specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Symbol</th><th>Specifications</th><th>Symbol</th><th>Specifications</th></tr> </thead> <tbody> <tr><td>005A</td><td>50W</td><td>500A</td><td>5KW</td></tr> <tr><td>010A</td><td>100W</td><td>750A</td><td>7.5KW</td></tr> <tr><td>020A</td><td>200W</td><td>115B</td><td>11.5KW</td></tr> <tr><td>040A</td><td>400W</td><td>150B</td><td>15KW</td></tr> <tr><td>075A</td><td>750W</td><td>220B</td><td>22KW</td></tr> <tr><td>100A</td><td>1KW</td><td></td><td></td></tr> <tr><td>150A</td><td>1.5KW</td><td></td><td></td></tr> <tr><td>200A</td><td>2KW</td><td></td><td></td></tr> <tr><td>300A</td><td>3KW</td><td></td><td></td></tr> <tr><td>400A</td><td>4KW</td><td></td><td></td></tr> </tbody> </table>	Symbol	Specifications	Symbol	Specifications	005A	50W	500A	5KW	010A	100W	750A	7.5KW	020A	200W	115B	11.5KW	040A	400W	150B	15KW	075A	750W	220B	22KW	100A	1KW			150A	1.5KW			200A	2KW			300A	3KW			400A	4KW			<p>④ Brake specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Symbol</th><th>Specifications</th></tr> <tr><td>N</td><td>No brake</td></tr> <tr><td>B</td><td>With brake</td></tr> </table> <p>⑤ Power voltage specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Symbol</th><th>Specifications</th></tr> <tr><td>1</td><td>110V</td></tr> <tr><td>2</td><td>220V</td></tr> <tr><td>4</td><td>400V</td></tr> <tr><td>6</td><td>48V</td></tr> </table>	Symbol	Specifications	N	No brake	B	With brake	Symbol	Specifications	1	110V	2	220V	4	400V	6	48V	<p>⑥ Shaft-end specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Symbol</th><th>Specifications</th></tr> <tr><td>K</td><td>Keyway shaft /Without oil seal</td></tr> <tr><td>L</td><td>Keyway shaft /with oil seal</td></tr> </table> <p>⑧ Customized version Specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>**</td><td></td></tr> </table>	Symbol	Specifications	K	Keyway shaft /Without oil seal	L	Keyway shaft /with oil seal	**		<p>⑦ Encoder specifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Symbol</th><th>Specifications</th></tr> <tr><td>N</td><td>Single-turn absolute 17-bit</td></tr> <tr><td>A</td><td>Multi-turn absolute 17-bit</td></tr> <tr><td>B</td><td>Multi-turn absolute 20-bit</td></tr> <tr><td>C</td><td>Multi-turn absolute 22-bit</td></tr> <tr><td>D</td><td>Multi-turn absolute 24-bit</td></tr> <tr><td>T</td><td>Tamagawa 17-bit</td></tr> <tr><td>M</td><td>Tamagawa 23-bit</td></tr> <tr><td>K</td><td>Nikon 20-bit</td></tr> </table>	Symbol	Specifications	N	Single-turn absolute 17-bit	A	Multi-turn absolute 17-bit	B	Multi-turn absolute 20-bit	C	Multi-turn absolute 22-bit	D	Multi-turn absolute 24-bit	T	Tamagawa 17-bit	M	Tamagawa 23-bit	K	Nikon 20-bit
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Motor connector and pin signals (750W or below)



Cable list (750W or below)

Name	Cable
Motor power input	AWG18
Brake ^{Note 1)}	AWG22
Encoder (Incremental)	Power supply: AWG22 Signal: AWG24
Encoder (Absolute)	

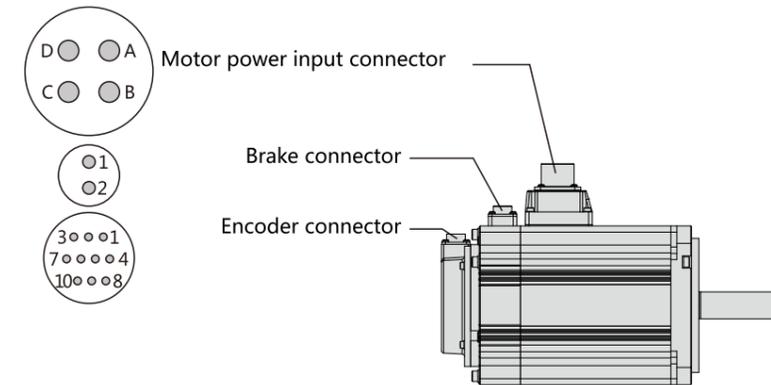
Note 1) For motor with brake.

Pin signals (750W or below)

Name	Pin No.	Signal name	Contents	Wire color
Motor power input	1	U	Motor power U phase	Red
	2	V	Motor power V phase	White
	3	W	Motor power W phase	Black
	4	FG	Motor housing grounding	Green
Brake	1	BRK +	Brake power supply 24VDC	Yellow(orange)
	2	BRK -	Brake power supply GND	Blue(brown)
Encoder (incremental / absolute)	1	—	NC	-
	2	+D	Serial communication data + data	White (red dotted)
	3	-D	Serial communication data - data	White (black dotted)
	4	VCC	Encoder power supply 5V	Orange (red dotted)
	5	GND	Signal ground	Orange (black dotted)
	6	SHIELD	Shielded wires	Black

※1 For motor with brake.
 ※2 External capacitor and battery are taking GND as the reference potential.
 ※3 Internal connection (IC) has been connected internally. Do not connect it with any other wires.

Motor connector and pin signals (1kW or above)



Cable list (1kW or above)

Name	Cable
Motor power input	AWG14
Brake ^{Note 1)}	AWG18
Encoder (Incremental)	Power supply: AWG22 Signal: AWG24
Encoder (Absolute)	

Note 1: For motor with brake

Pin signals (1kW or above)

Name	Pin No.	Signal name	Contents	Remarks
Motor power input	A	U	Motor power U phase	
	B	V	Motor power V phase	
	C	W	Motor power W phase	
	D	FG	Motor housing grounding	
Brake※1	1	BRK1	Brake power supply 24VDC	
	2	BRK2	Brake power supply GND	
Encoder (incremental)	1	VCC	Encoder power supply 5V output	
	2	GND	Signal ground	
	3	—	NC	
	4	—	NC	
	5	+D	Serial communication data + data	
	6	-D	Serial communication data - data	
	7	—	NC	
	8	—	NC	
	9	—	NC	
	10	SHIELD	Shielded wires	
Encoder (Absolute)	1	VCC	Encoder power supply 5V output	
	2	GND	Signal ground	
	3	CAP	External capacitor (※2)	
	4	BAT	External battery (※2)	
	5	+D	Serial communication data +	
	6	-D	Serial communication data -	
	7	IC	Internal connection (※3)	
	8	IC	Internal connection (※3)	
	9	GND	Signal ground	
	10	—	NC	

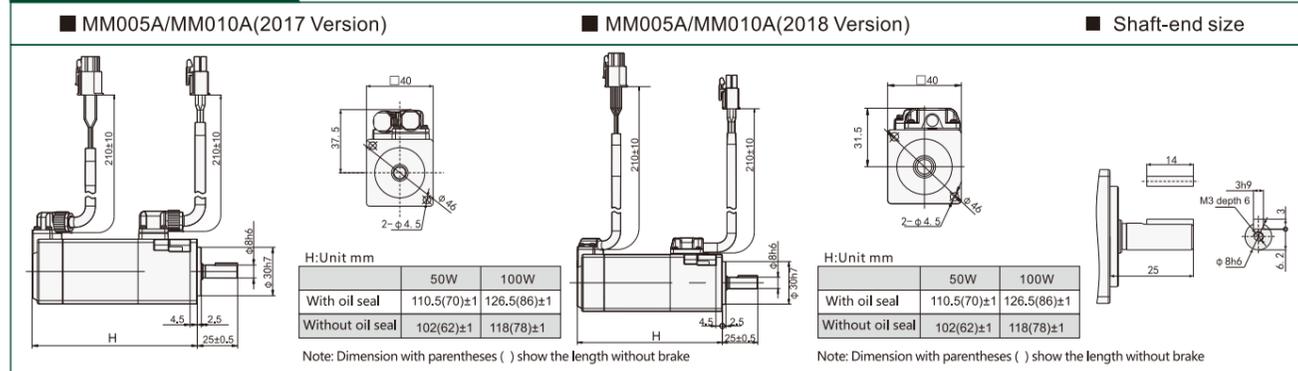
※1 For motor with brake.
 ※2 External capacitor and battery are taking GND as the reference potential.
 ※3 Internal connection (IC) has been connected internally. Do not connect it with any other wires.

MM005A/010A

50W/100W Medium Inertia



External dimensions

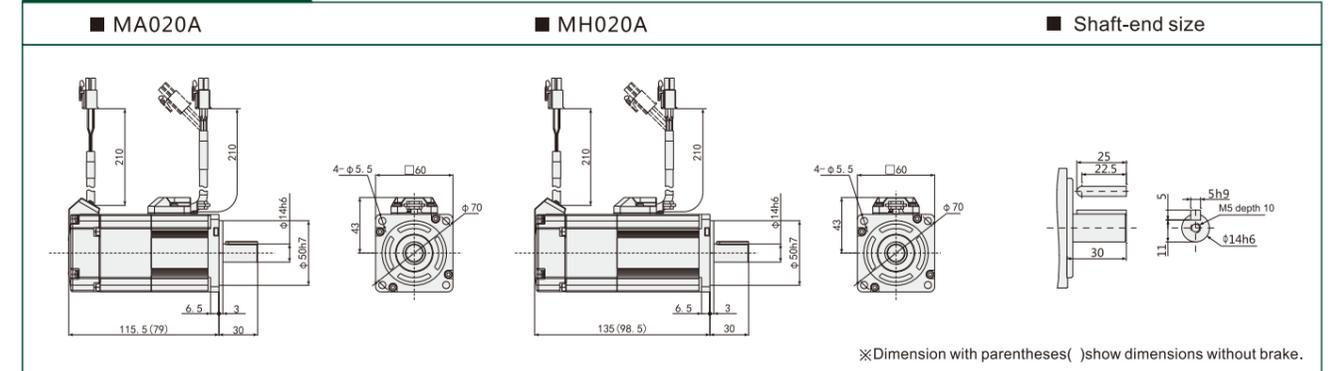


MA020A / MH020A

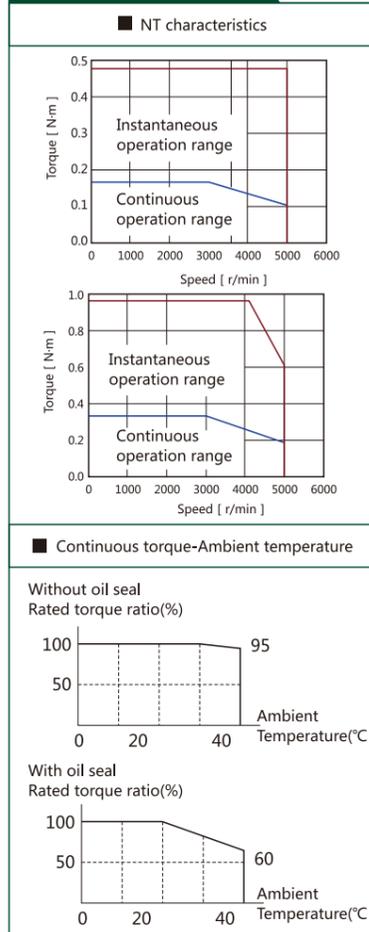
200W Low Inertia / 200W High Inertia



External dimensions



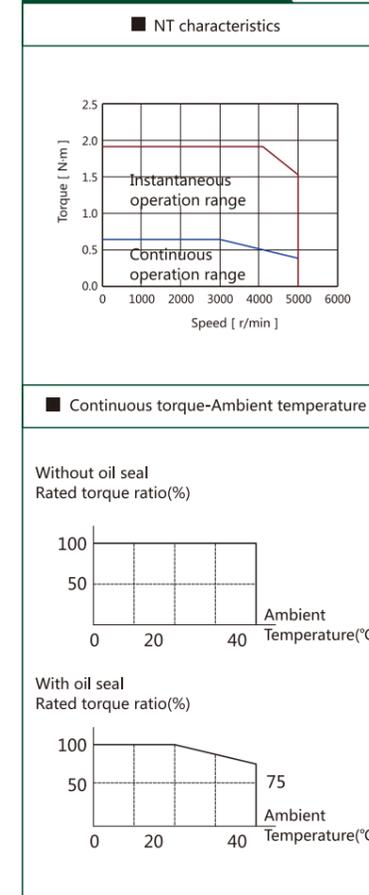
NT characteristics



Specifications

Items	Units	Specification		
Model Name		50W Medium Inertia MM005A	100W Medium Inertia MM005A	
Fitting flange size	mm	□40		
Approximate mass	No brake	0.4		
	With brake	0.6	0.8	
Rated voltage	V	200		
Rated output	W	50	100	
Rated torque	N·m	0.16	0.32	
Instantaneous max. torque	N·m	0.56	1.12	
Rated current	Arms	0.6	0.8	
Instantaneous max. current	Arms	1.8	2.4	
Rated speed	r/min	3000		
Max. speed	r/min	6000		
Torque constant	N·m/A	0.30	0.45	
Induced voltage constant per phase	MV(r/min)	10.6	15.8	
Rated power rate	No brake	5.4	13.1	
	With brake	4.7	12.2	
Mechanical time constant	No brake	2.67	1.61	
	With brake	3.04	1.74	
Electrical time constant	ms	0.6	0.7	
Moment of inertia	No brake	0.047	0.077	
	With brake	0.054	0.083	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	0.25	
	Static friction torque		0.16 or more	0.29 or more
	Suction time	ms	35 at 100% voltage	
	Release time	ms	20 at 100% voltage	
Release voltage	V	1V DC or more		

NT characteristics



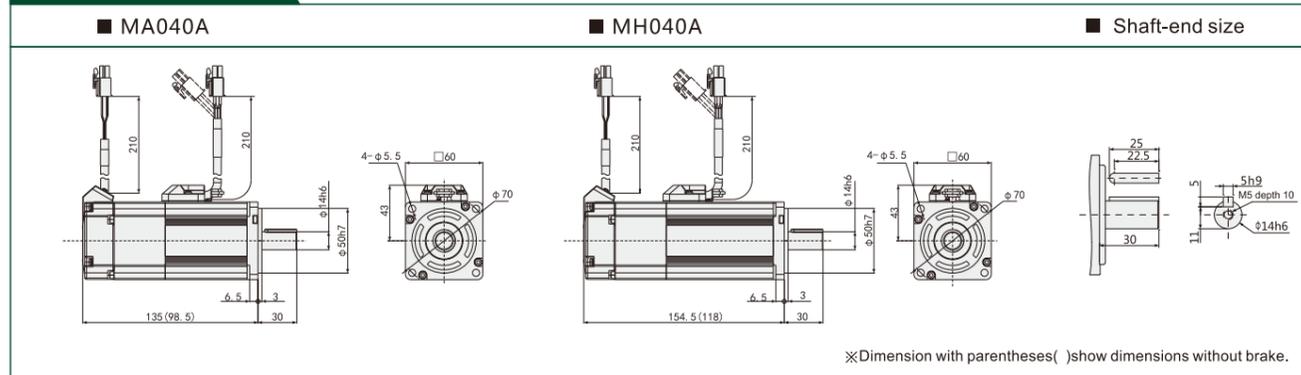
Specifications

Items	Units	Specification		
Model Name		200W Low Inertia MA020A	200W High Inertia MH020A	
Fitting flange size	mm	□60		
Approximate mass	No brake	0.9	1.0	
	With brake	1.4	1.5	
Rated voltage	V	AC200		
Rated output	W	200		
Rated torque	N·m	0.64		
Instantaneous max. torque	N·m	1.91		
Rated current	Arms	1.7		
Instantaneous max. current	Arms	4.9		
Rated speed	r/min	3000		
Max. speed	r/min	5000		
Torque constant	N·m/A	0.417		
Induced voltage constant per phase	MV(r/min)	14.5		
Rated power rate	No brake	23.9	9.3	
	With brake	19.5	8.6	
Mechanical time constant	No brake	1.12	2.87	
	With brake	1.37	3.12	
Electrical time constant	ms	1.99		
Moment of inertia	No brake	0.17	0.43	
	With brake	0.21	0.47	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	0.4 MAX	
	Static friction torque		1.27 or more	
	Suction time	ms	50 at 100% voltage	
	Release time	ms	12 at 100% voltage	
Release voltage	V	1V DC or more		

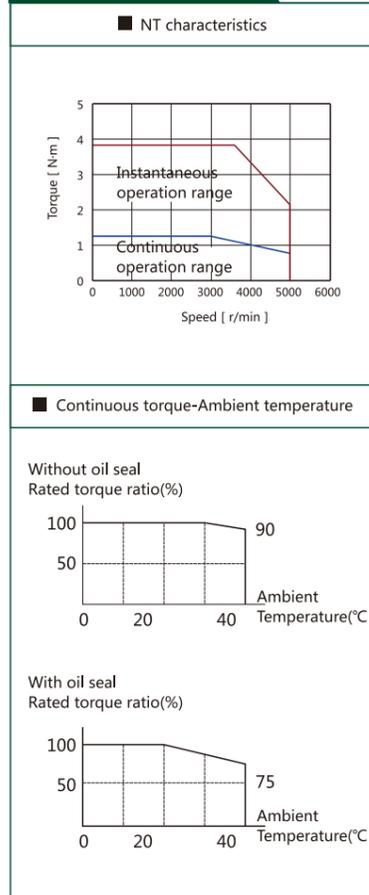
MA040A / MH040A
400W Low Inertia / 400W High Inertia



External dimensions



NT characteristics



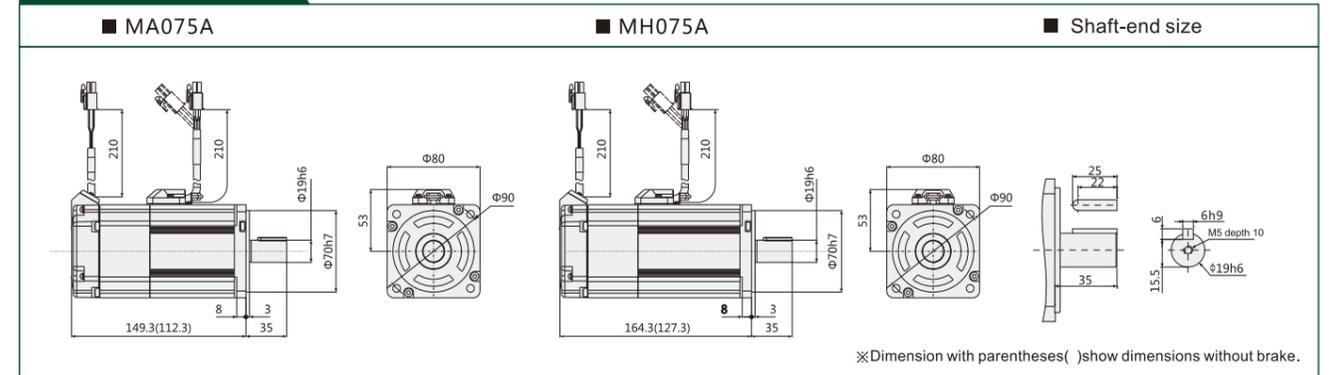
Specifications

Items	Units	Specification		
Model Name		400W Low Inertia MA040A	400W High Inertia MH040A	
Model Name	M□□□□□2□□**			
Fitting flange size	mm	□60		
Approximate mass	No brake	1.3	1.5	
	With brake	1.8	2.0	
Rated voltage	V	AC200		
Rated output	W	400		
Rated torque	N·m	1.27		
Instantaneous max. torque	N·m	3.82		
Rated current	Arms	2.7		
Instantaneous max. current	Arms	7.8		
Rated speed	r/min	3000		
Max. speed	r/min	5000		
Torque constant	N·m/A	0.498		
Induced voltage constant per phase	MV(r/min)	17.4		
Rated power rate	No brake	58.7	23.5	
	With brake	51.9	22.4	
Mechanical time constant	No brake	0.67	1.66	
	With brake	0.75	1.75	
Electrical time constant	ms	2.47		
Moment of inertia	No brake	0.28	0.69	
	With brake	0.31	0.72	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	0.4 MAX	
	Static friction torque		1.27 or more	
	Suction time	ms	50 at 100% voltage	
	Release time	ms	15 at 100% voltage	
	Release voltage	V	1V DC or more	

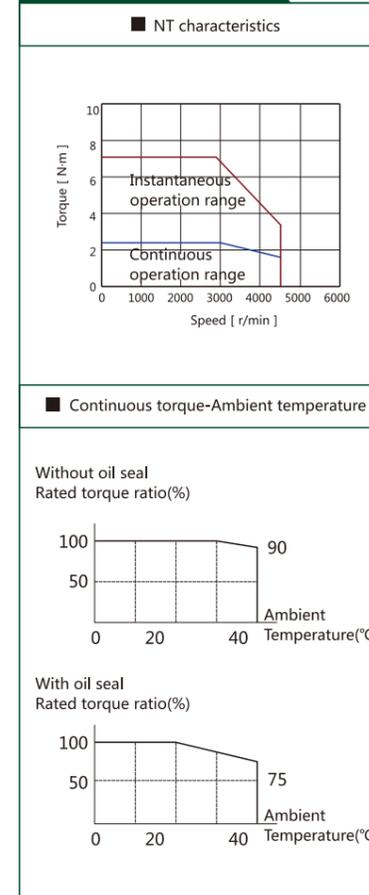
MA075A / MH075A
750W Low Inertia / 750W High Inertia



External dimensions



NT characteristics



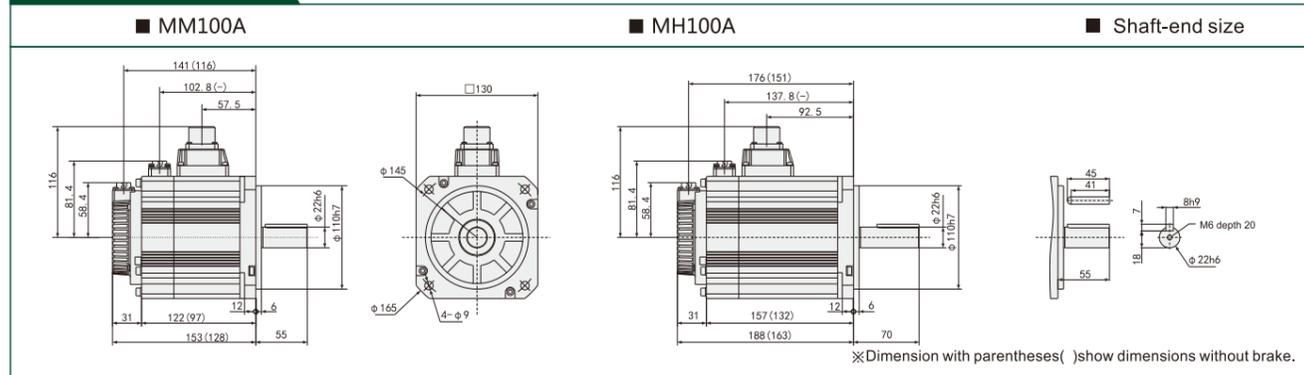
Specifications

Items	Units	Specification		
Model Name		750W Low Inertia MA075A	750W High Inertia MH075A	
Model Name	M□□□□□2□□**			
Fitting flange size	mm	□80		
Approximate mass	No brake	2.5	2.7	
	With brake	3.3	3.5	
Rated voltage	V	AC200		
Rated output	W	750		
Rated torque	N·m	2.39		
Instantaneous max. torque	N·m	7.1		
Rated current	Arms	4.3		
Instantaneous max. current	Arms	12.8		
Rated speed	r/min	3000		
Max. speed	r/min	4500		
Torque constant	N·m/A	0.61		
Induced voltage constant per phase	MV(r/min)	21.3		
Rated power rate	No brake	64.1	35.9	
	With brake	52.8	32.1	
Mechanical time constant	No brake	0.53	0.94	
	With brake	0.64	1.06	
Electrical time constant	ms	4.3		
Moment of inertia	No brake	0.89	1.59	
	With brake	1.08	1.78	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	0.4	
	Static friction torque		2.39 or more	
	Suction time	ms	70 at 100% voltage	
	Release time	ms	20 at 100% voltage	
	Release voltage	V	1V DC or more	

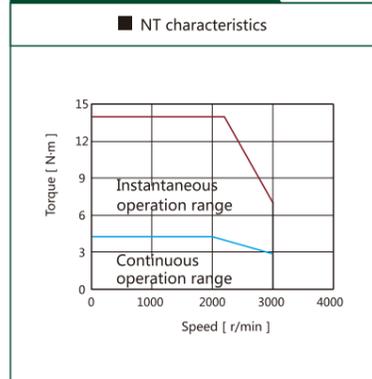
MM100A / MH100A
1KW Medium Inertia / 1KW High Inertia



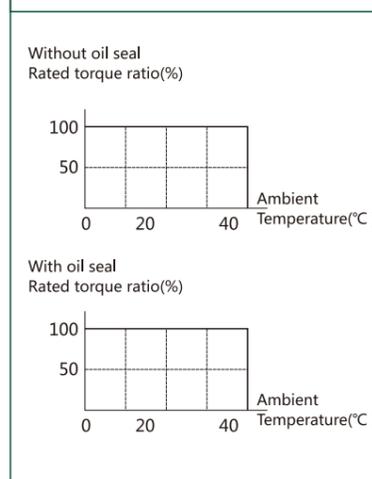
External dimensions



NT characteristics



Continuous torque-Ambient temperature



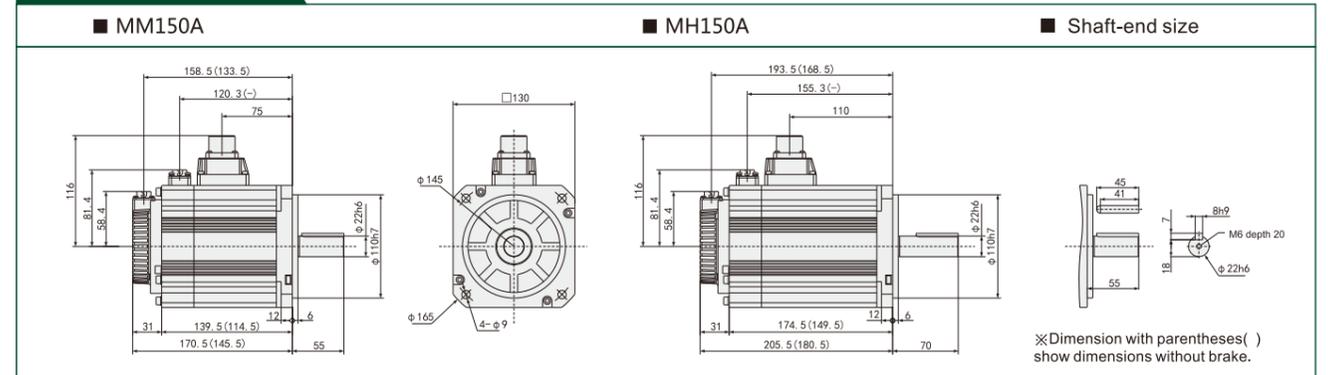
Specifications

Items	Units	Specification		
Model Name		1KW Medium Inertia MM100A	1KW High Inertia MH100A	
Model Name		M□□□□□2□□**		
Fitting flange size	mm	□130		
Approximate mass	No brake	5.6	7.6	
	With brake	7.0	9.0	
Rated voltage	V	AC200		
Rated output	W	1000		
Rated torque	N·m	4.77		
Instantaneous max. torque	N·m	14.3		
Rated current	Arms	5.6		
Instantaneous max. current	Arms	15.6		
Rated speed	r/min	2000		
Max. speed	r/min	3000		
Torque constant	N·m/A	0.88		
Induced voltage constant per phase	MV(r/min)	30.9		
Rated power rate	No brake	50.0	9.2	
	With brake	36.5	8.6	
Mechanical time constant	No brake	0.76	4.17	
	With brake	1.05	4.43	
Electrical time constant	ms	10.1		
Moment of inertia	No brake	4.56	24.9	
	With brake	6.24	26.4	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	1	
	Static friction torque	9.55 or more		
	Suction time	ms	120 at 100% voltage	
	Release time	ms	30 at 100% voltage	
	Release voltage	V	1V DC or more	

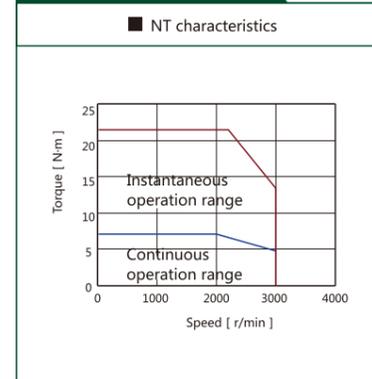
MM150A / MH150A
1.5KW Medium Inertia / 1.5KW High Inertia



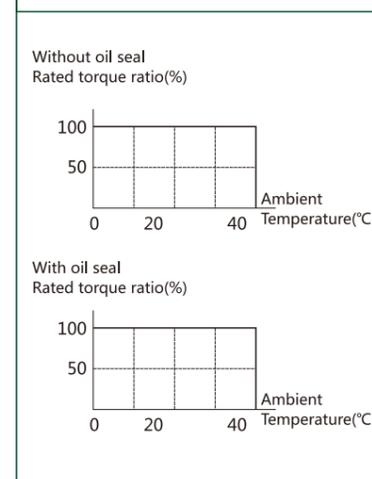
External dimensions



NT characteristics



Continuous torque-Ambient temperature



Specifications

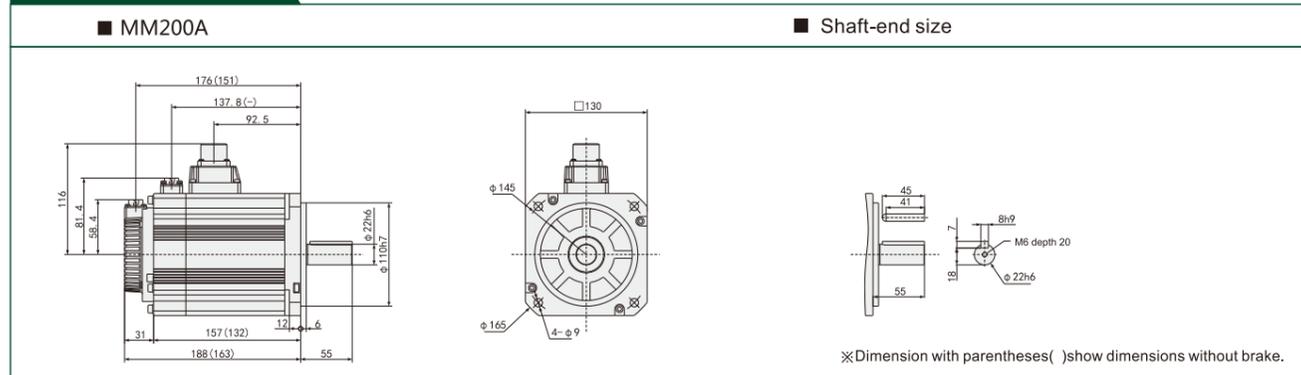
Items	Units	Specification		
Model Name		1.5KW Medium Inertia MM150A	1.5KW High Inertia MH150A	
Model Name		M□□□□□2□□**		
Fitting flange size	mm	□130		
Approximate mass	No brake	7.0	9.0	
	With brake	8.4	10.4	
Rated voltage	V	AC200		
Rated output	W	1500		
Rated torque	N·m	7.16		
Instantaneous max. torque	N·m	21.5		
Rated current	Arms	9.9		
Instantaneous max. current	Arms	27.9		
Rated speed	r/min	2000		
Max. speed	r/min	3000		
Torque constant	N·m/A	0.81		
Induced voltage constant per phase	MV(r/min)	28.4		
Rated power rate	No brake	76.9	13.8	
	With brake	61.4	13.3	
Mechanical time constant	No brake	0.60	3.32	
	With brake	0.75	3.46	
Electrical time constant	ms	12.2		
Moment of inertia	No brake	6.67	37.12	
	With brake	8.35	38.65	
Brake specification	Usage	— Holding		
	Rated voltage	V	DC24V±10%	
	Rated current	A	1	
	Static friction torque	9.55 or more		
	Suction time	ms	120 at 100% voltage	
	Release time	ms	30 at 100% voltage	
	Release voltage	V	1V DC or more	

MM200A

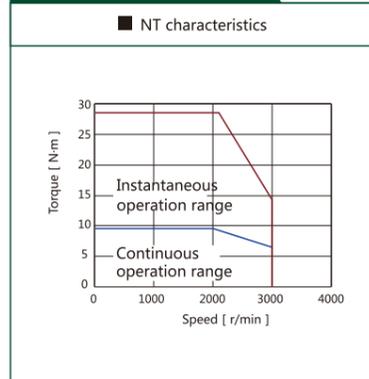
2KW Medium Inertia



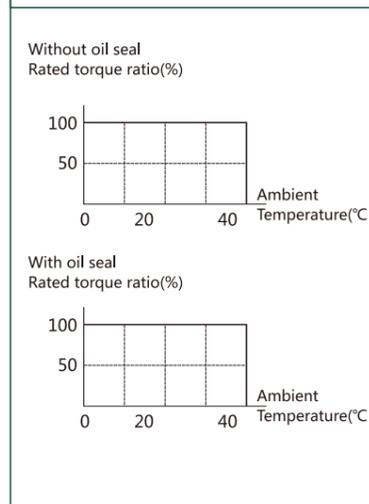
External dimensions



NT characteristics



Continuous torque-Ambient temperature



Specifications

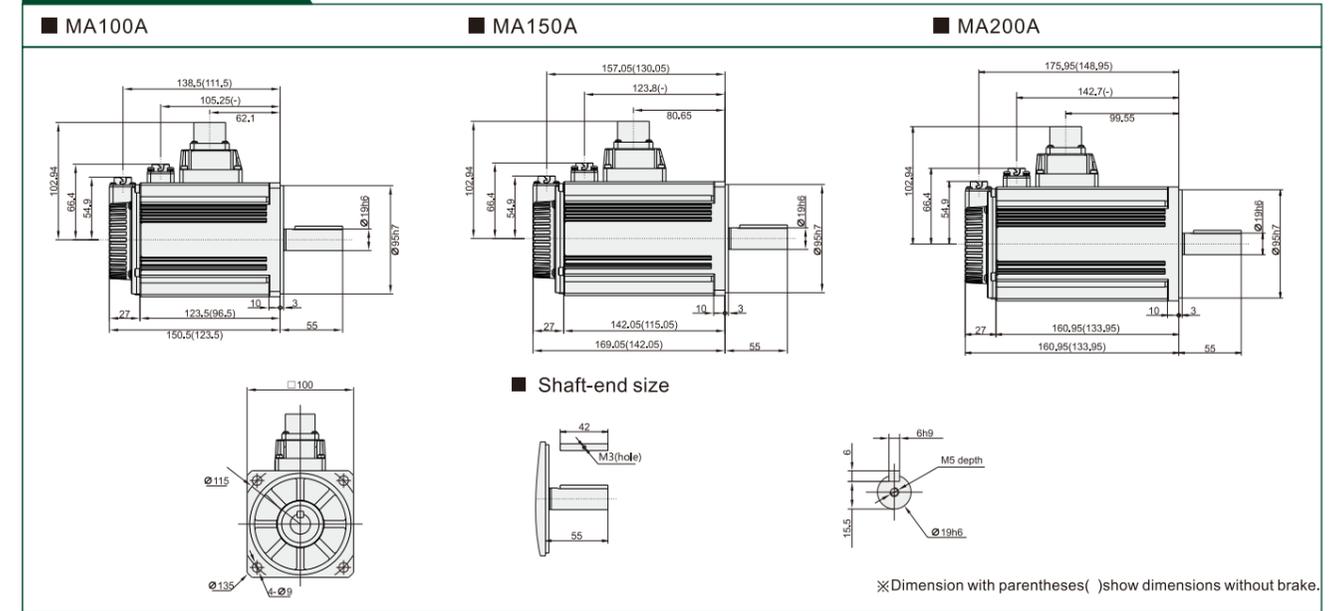
Items	Units	Specification	
Model Name		2KW Medium Inertia MM200A	
Fitting flange size	mm	□130	
Approximate mass	No brake	8.4	
	With brake	9.8	
Rated voltage	V	AC200	
Rated output	W	2000	
Rated torque	N·m	9.55	
Instantaneous max. torque	N·m	28.6	
Rated current	Arms	12.2	
Instantaneous max. current	Arms	34.6	
Rated speed	r/min	2000	
Max. speed	r/min	3000	
Torque constant	N·m/A	0.85	
Induced voltage constant per phase	MV(r/min)	29.6	
Rated power rate	No brake	104.9	
	With brake	87.9	
Mechanical time constant	No brake	0.58	
	With brake	0.69	
Electrical time constant	ms	12.2	
Moment of inertia	No brake	8.70	
	With brake	10.38	
Brake specification	Usage	—	Holding
	Rated voltage	V	DC24V±10%
	Rated current	A	1
	Static friction torque		9.55 or more
	Suction time	ms	120 at 100% voltage
	Release time	ms	30 at 100% voltage
	Release voltage	V	1V DC or more
	Release voltage	—	t=20° □470 Aluminum heat sink

MA100A/150A/200A

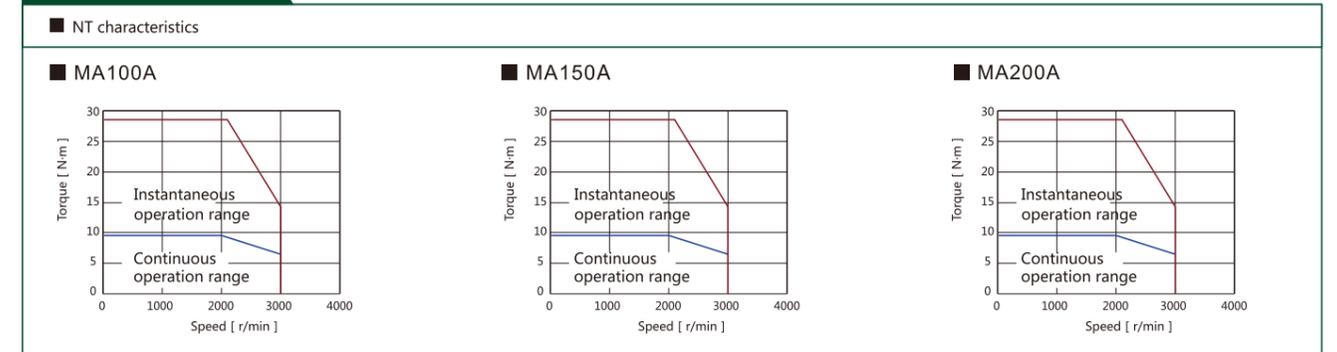
1KW/1.5KW/2KW Low Inertia



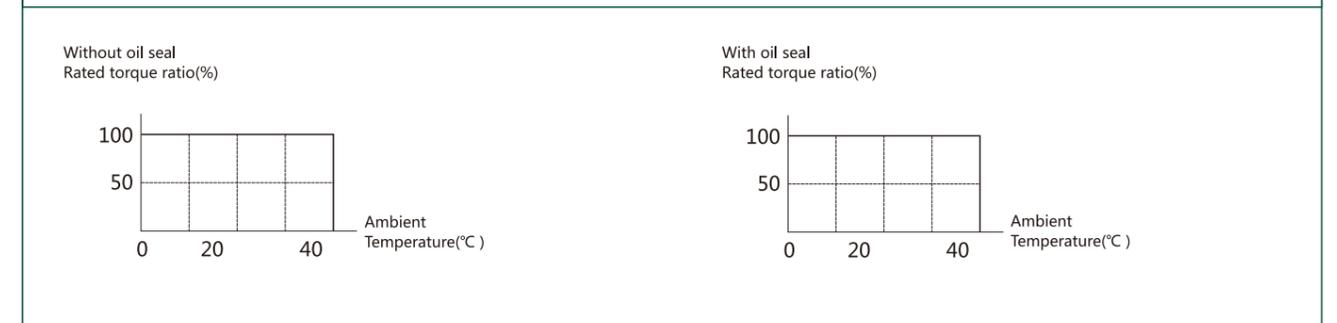
External dimensions



NT characteristics



Continuous torque-Ambient temperature



Specifications

Items		Units	Specification		
			1KW Low Inertia MA100A	1.5KW Low Inertia MA150A	2KW Low Inertia MA200A
Model Name M□□□□□2□□**					
Fitting flange size		mm	100	100	100
Approximate mass	No brake	Kg	3.5	4.4	5.3
	With brake		4.5	5.4	6.3
Rated voltage		V	200	200	200
Rated output		W	1000	1500	2000
Rated torque		N·m	3.18	4.77	6.37
Instantaneous max. torque		N·m	9.55	14.3	19.1
Rated current		Arms	6.6	8.2	11.3
Instantaneous max. current		Arms	28	35	48
Rated speed		r/min	3000	3000	3000
Max. speed		r/min	5000	5000	5000
Torque constant		N·m/A	0.52	0.628	0.607
Induced voltage constant per phase		MV(r/min)	18.15	21.92	21.247
Rated power rate	No brake	KW/S	49.82	80.12	110.26
	With brake		43.03	71.775	101.19
Mechanical time constant	No brake	ms	0.619	0.507	0.425
	With brake		0.717	0.566	0.463
Electrical time constant		ms	7.22	8.08	9.37
Moment of inertia	No brake	×10 ⁻⁴ Kg·m ²	2.03	2.84	3.68
	With brake		2.35	3.17	4.01
Brake specification	Usage	—	Holding	Holding	Holding
	Rated voltage	V	24±10%	24±10%	24±10%
	Rated current	A	0.81±10%	0.81±10%	0.81±10%
	Static friction torque		7.8or more	7.8or more	7.8or more
	Suction time	ms	50	50	50
	Release time	ms	15	15	15
Release voltage		V	2V or more	2V or more	2V or more



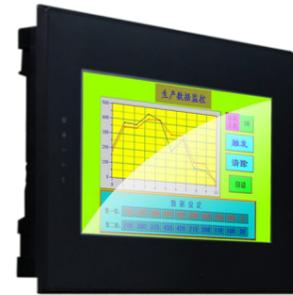
HMI

Newest design, exquisite appearance, more powerful function and more stable performance



Performance

ARM A83352, Higher performance, **50%** improved compared to last generation products



Easy-to-use

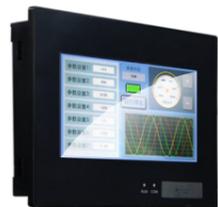
New configuration software-HCT Designer, make the operation easier

TP2507

TL2000/TP2000

Meet your needs in more applications

All-new, more elegant product appearance, more stable performance, more functions to meet customers' requirements in different applications.



TP2504

Ethernet

communication port, USB and SD card supported



TP2510

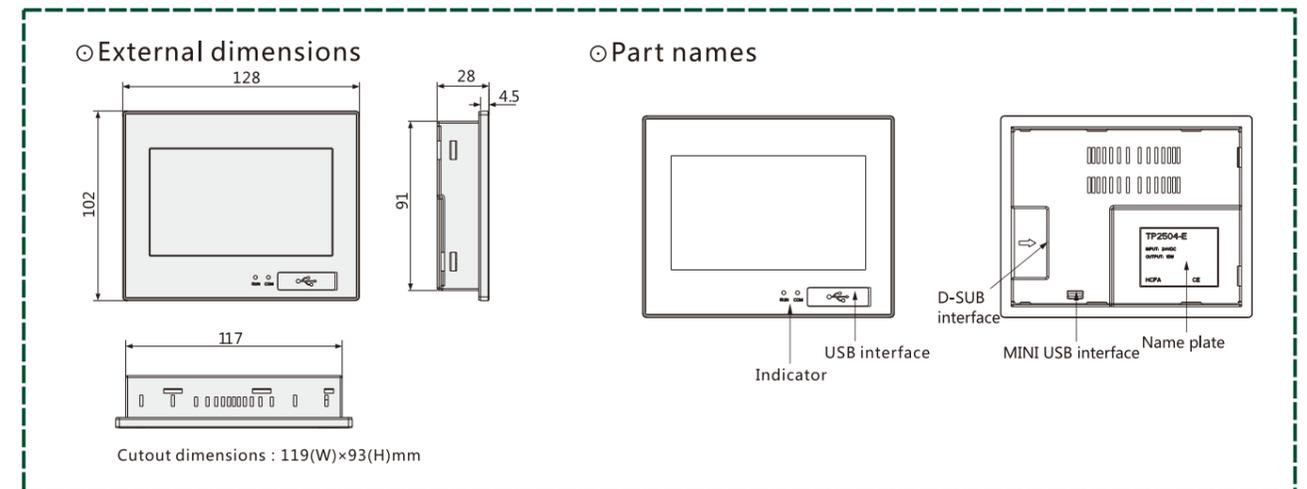
Size

Full range of sizes, exquisite appearance and easy to install



Parameter	TL2504 *	TP2504 *	TP2504-E
Color display	16-bit	24-bit	24-bit
Ethernet	None	None	Provided
SD CARD	None	None	None
USB HOST	Provided	Provided	Provided
USB DEVICE	Provided	Provided	Provided
COM1/COM3	Provided	Provided	Provided
COM2/COM4	None	None	None
Isolated power supply	Non-isolated power Surge protection	Non-isolated power Surge protection	Non-isolated power Surge protection

*:under development



Basic parameters

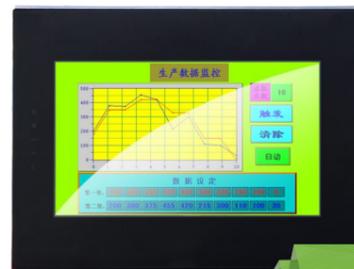
Electrical specification	
Power Consumption	<5W
Rated voltage	24VDC, Input Range: 20. 4V~26. 4VDC
Power protection	Non-isolated power supply, Protect from surging and thunder strike
Allowable momentary power-off	<5mS
CE	Complied with EN61000-6-2:2005, EN61000-6-4:2007
RoHS	Surge Immunity ±4KV, EFT: ±4KV, ESD: 4KV, Air: 8KV

Environment Specification	
Operation Temperature	0~50°C
Storage Temperature	-20~60°C
Operation Humidity	10~90% RH (Without condensation)
Vibration Resistance	10~25 Hz(2G/30min in X,Y,Z direction)
Cooling	Natural air cooling

Others	
Enclosure Rating	Front IP65(With NEMA Panel), Back IP20
Housing Material	PBT+PC
Cutout Dimension	119×93 (mm)
Dimension	128×102×28 (mm)
Weight	About 260g

Hardware specification	
Display	4.3" TFT LCD
Resolution	480×272
Color	24 bit
Brightness	300 cd/m ²
Backlight	LED
LCD lifetime	50,000 hours
Touch Panel	4 wire resistive touch panel(Surface hardness 4H)
CPU	600MHz ARM Cortex A8
Memory	128M Flash + 128M DDR3
RTC	Built in real-time clock
Ethernet	10M / 100M Ethernet port
USB Port	1 USB Device 2.0 port 1 USB Host 2.0 port
Program Download	USB Host/ USB Slave/ SD card/ Ethernet are provided.
COM port	COM1 : RS232/RS485/RS422 COM3 : RS232

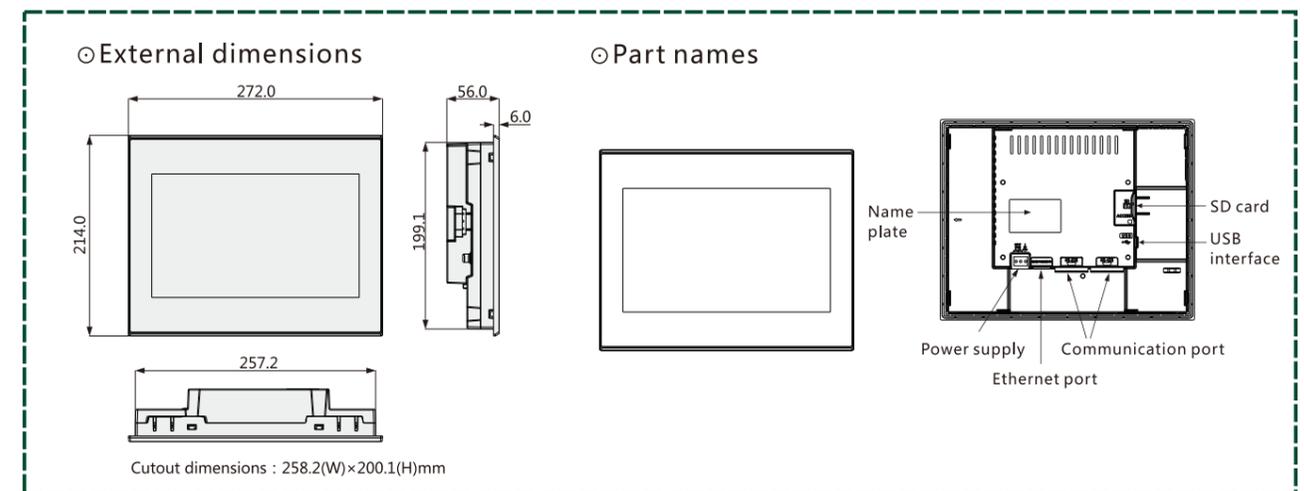
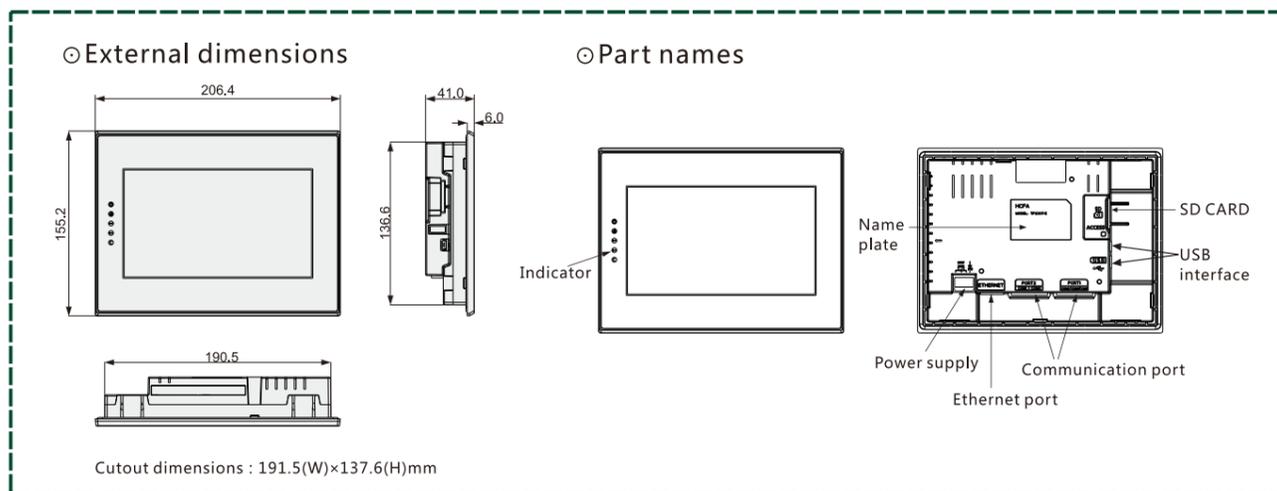
Accessories	
TP16-PLC-R4-8P-3M-Elbow	Communication line between TP2504 and YASAKA PLC, RS422, Round 8PIN, 3M


7" touch screen

Parameter	TL2507	TP2507	TP2507-E
Color display	24-bit	24-bit	24-bit
Ethernet	None	None	Provided
SD CARD	None	Provided	Provided
USB HOST	Provided	Provided	Provided
USB DEVICE	Provided	Provided	Provided
COM1/COM3	Provided	Provided	Provided
COM2/COM4	None	Provided	Provided
Isolated power supply	Non-isolated power Surge protection	Isolated power Surge protection	Isolated power Surge protection


10.1" touch screen

Parameters	TL2510	TP2510	TP2510-E
Color display	24-bit	24-bit	24-bit
Ethernet	None	None	Provided
SD CARD	None	Provided	Provided
USB HOST	Provided	Provided	Provided
USB DEVICE	Provided	Provided	Provided
COM1/COM3	Provided	Provided	Provided
COM2/COM4	None	Provided	Provided
Isolated power supply	Non-isolated power Surge protection	Isolated power Surge protection	Isolated power Surge protection


Basic parameters

Electrical specification	
Power Consumption	<7W
Rated voltage	24VDC, Input Range: 18V~28VDC
Power protection	Isolated power supply block, Protect from surging and thunder strike
Allowable momentary power-off	<5mS
CE	Complied with EN61000-6-2:2005, EN61000-6-4:2007
RoHS	Surge Immunity ±4KV, EFT: ±4KV, ESD: 4KV, Air: 8KV

Environment Specification	
Operation Temperature	0~50°C
Storage Temperature	-20~60°C
Operation Humidity	10~90% RH (Without condensation)
Vibration Resistance	10~25 Hz(2G/30min in X,Y,Z direction)
Cooling	Natural air cooling

Others	
Enclosure Rating	Front IP65(With NEMA Panel), Back IP20
Housing Material	PBT+PC
Cutout Dimension	191.5×137.6 (mm)
Dimension	206.4×155.2×41.0 (mm)
Weight	About 900g

Hardware specification	
Display	7" TFT LCD
Resolution	800×480
Color	24 bit
Brightness	300 cd/m ²
Backlight	LED
LCD lifetime	50,000 hours
Touch Panel	4 wire resistive touch panel(Surface hardness 4H)
CPU	600MHz ARM Cortex A8
Memory	128M Flash + 128M DDR3
RTC	Built in real-time clock
Ethernet	10M / 100M Ethernet port
USB Port	1 USB Device 2.0 port 1 USB Host 2.0 port
Program Download	USB Host/ USB Slave/ SD card/ Ethernet are provided.
COM port	COM1/COM2 : RS232/RS485/RS422 ; COM3/COM4 : RS232

Accessories	
TP16-PLC-R4-8P-5M	Communication line between TP2000 series HMI and YASAKA PLC, RS422, Round 8PIN, 5M
TP16-PLC-R2-9S-5M	Communication line between TP2000 series HMI and 232, RS232, 9PIN serial port(female), 5M

Basic parameters

Electrical specification	
Power Consumption	<10W
Rated voltage	24VDC, Input Range: 18V~28VDC
Power protection	Isolated power supply block, Protect from surging and thunder strike
Allowable momentary power-off	<5mS
CE	Complied with EN61000-6-2:2005, EN61000-6-4:2007
RoHS	Surge Immunity ±4KV, EFT: ±4KV, ESD: 4KV, Air: 8KV

Environmental Specification	
Operation Temperature	0~50°C
Storage Temperature	-20~60°C
Operation Humidity	10~90% RH (Without condensation)
Vibration Resistance	10~25 Hz(2G/30min in X,Y,Z direction)
Cooling	Natural air cooling

Others	
Enclosure Rating	Front IP65(With NEMA Panel), Back IP20
Housing Material	PBT+PC
Cutout Dimension	258.2×200.1 (mm)
Dimension	272×214×56 (mm)
Weight	About 1300g

Hardware specification	
Display	10.1" TFT LCD
Resolution	800×480
Color	24 bit
Brightness	300 cd/m ²
Backlight	LED
LCD lifetime	50,000 hours
Touch Panel	4 wire resistive touch panel(Surface hardness 4H)
CPU	600MHz ARM Cortex A8
Memory	128M Flash + 128M DDR3
RTC	Built in real-time clock
Ethernet	10M / 100M Ethernet port
USB Port	1 USB Device 2.0 port 1 USB Host 2.0 port
Program Download	USB Host/ USB Slave/ SD card/ Ethernet are provided.
COM port	COM1/COM2: RS232/ RS485/ RS422 COM3/COM4: RS232

Accessories	
TP16-PLC-R4-8P-5M	Communication line between TP2000 series HMI and YASAKA PLC, RS422, Round 8PIN, 5M
TP16-PLC-R2-9S-5M	Communication line between TP2000 series HMI and 232, RS232, 9PIN serial port(female), 5M