e-Front runners

FUJI SERVO SYSTEM

ALPHA5 Smart

ALPHA5 Smart

MEH556e

Smart servo for smart users

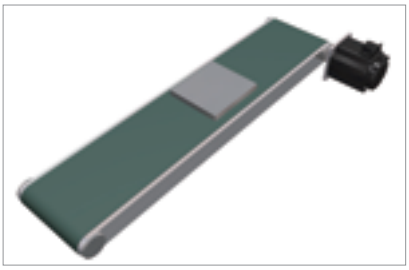
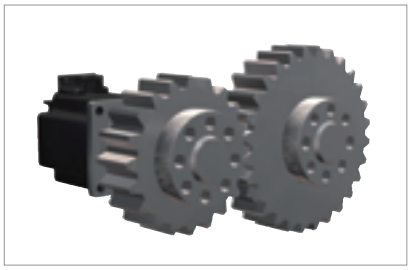
Smart adjustment	Advanced auto-tuning function and robust performance for unprecedented smart adjustment.
Smart design	Inherits the main features of ALPHA5. Highly adaptable smart design.
Smart operation	The new Servo Operator allows smart operation anytime anywhere.

C O N T E N T S

Feature 1 | Smart Adjustment

New auto-tuning function

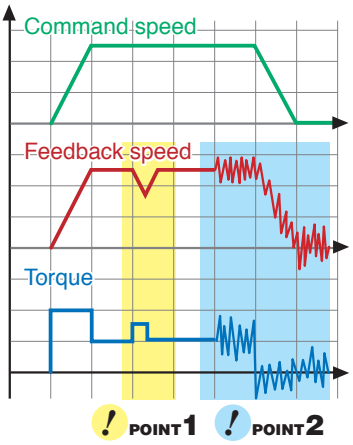
Optimal tuning even with low-rigidity devices.


Easy adjustment even for long belt mechanisms, gears with considerable backlash, and rack and pinion mechanisms.

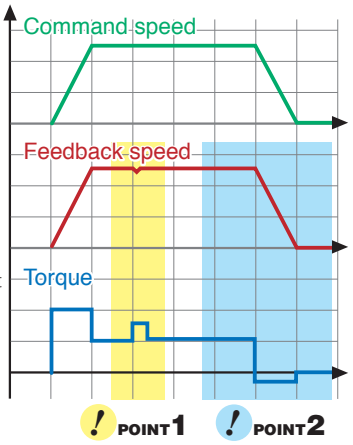
Before...

With low rigidity, response cannot be improved due to resonance.



With the Smart...

The Smart allows response to be improved without generating resonance even with low rigidity. This enables greater resistance to disturbance (or impact load).



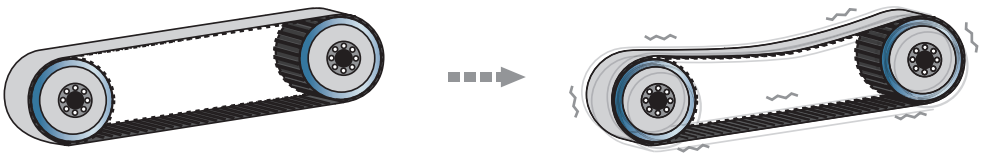
POINT1 Resistance to impact load

POINT2 Low machine resonance

Superior stability

Smooth, stable operation even with changes due to wear or variation* among devices.

Before... If the rigidity changes or varies among devices the motor oscillates, causing the machine resonance.



With the Smart... The motor runs smoothly without oscillating, even with varying rigidity.

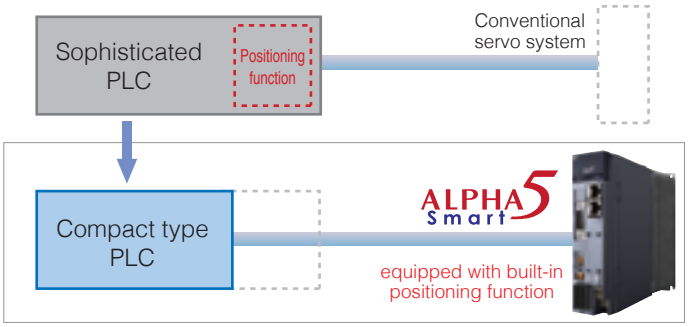
* Variations in device rigidity such as belt tension or parts.

Feature 2 | Smart Design

PTP positioning

Positioning function built in as standard

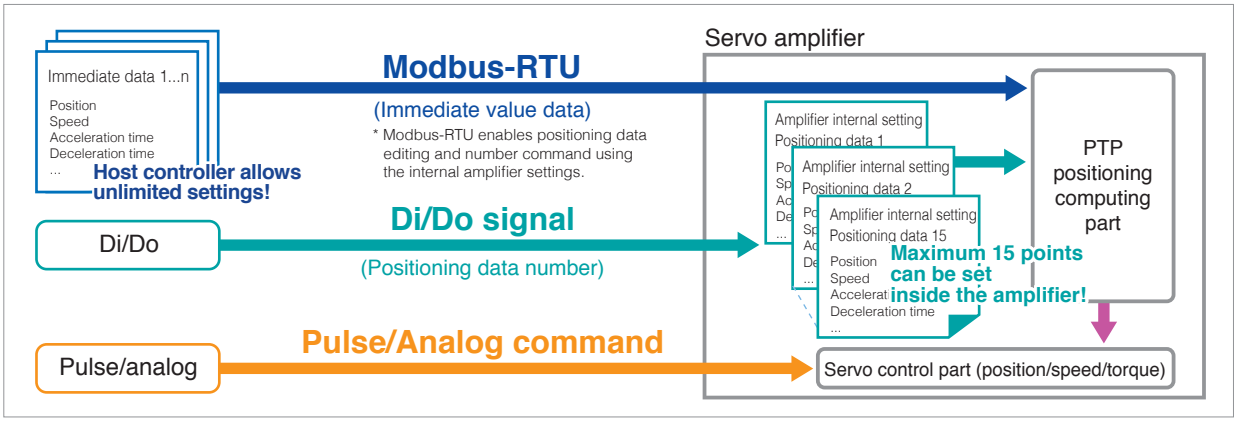
No external units or special equipment required for positioning



3-in1 functionality

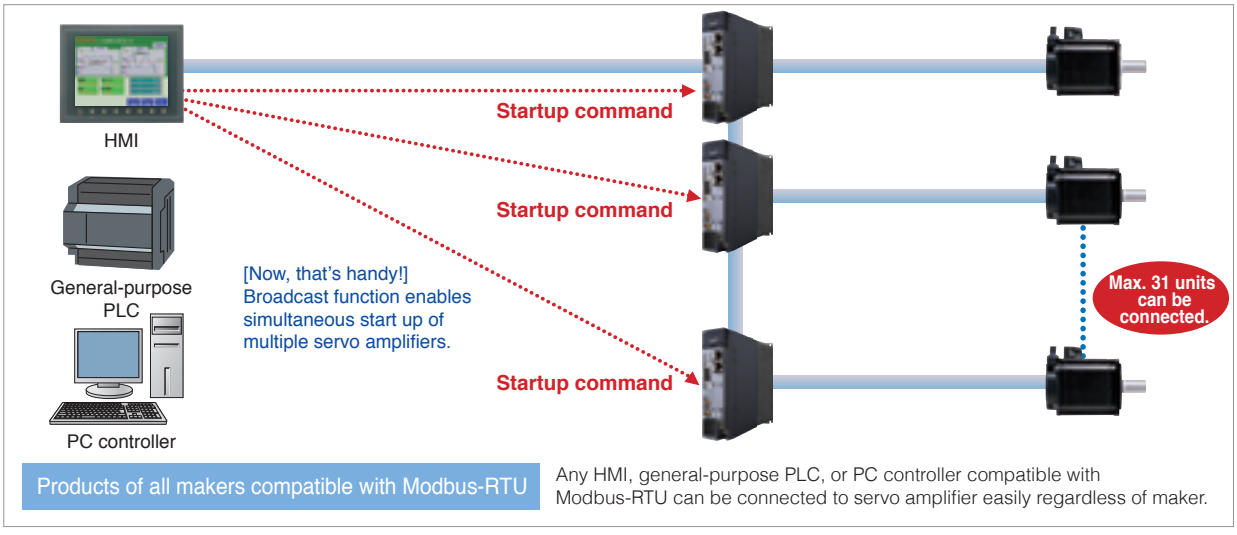
Three operations via one unit:

- Positioning via Modbus-RTU communications (immediate value data)
- Positioning via Di/Do signal (positioning data 15 points*)
- Position, speed, and torque control via pulse/analog input



Simple operation via Modbus-RTU communications

Modbus-RTU communications enables PTP positioning, parameter editing, and the use of various monitors. Just connect an HMI, general-purpose PLC, or PC controller directly to the servo amplifier.



Long-life design

Servo amplifier parts designed to last longer

Electrolytic capacitor: 10 years

Cooling fan: 10 years

* Operating conditions
  - Ambient temperature: Average 30°C/year
  - Load factor: Within 80%
  - Operation rate: Within 20 hours/day

Easy ABS battery replacement

ABS backup battery can be mounted on front face of servo amplifier for easy replacement

Regulatory compliance

Global Comptibility

The standard model complies with CE marking, UL/cUL and TÜV.

* Some of the models are in the process to be certisfied.

RoHS Directive

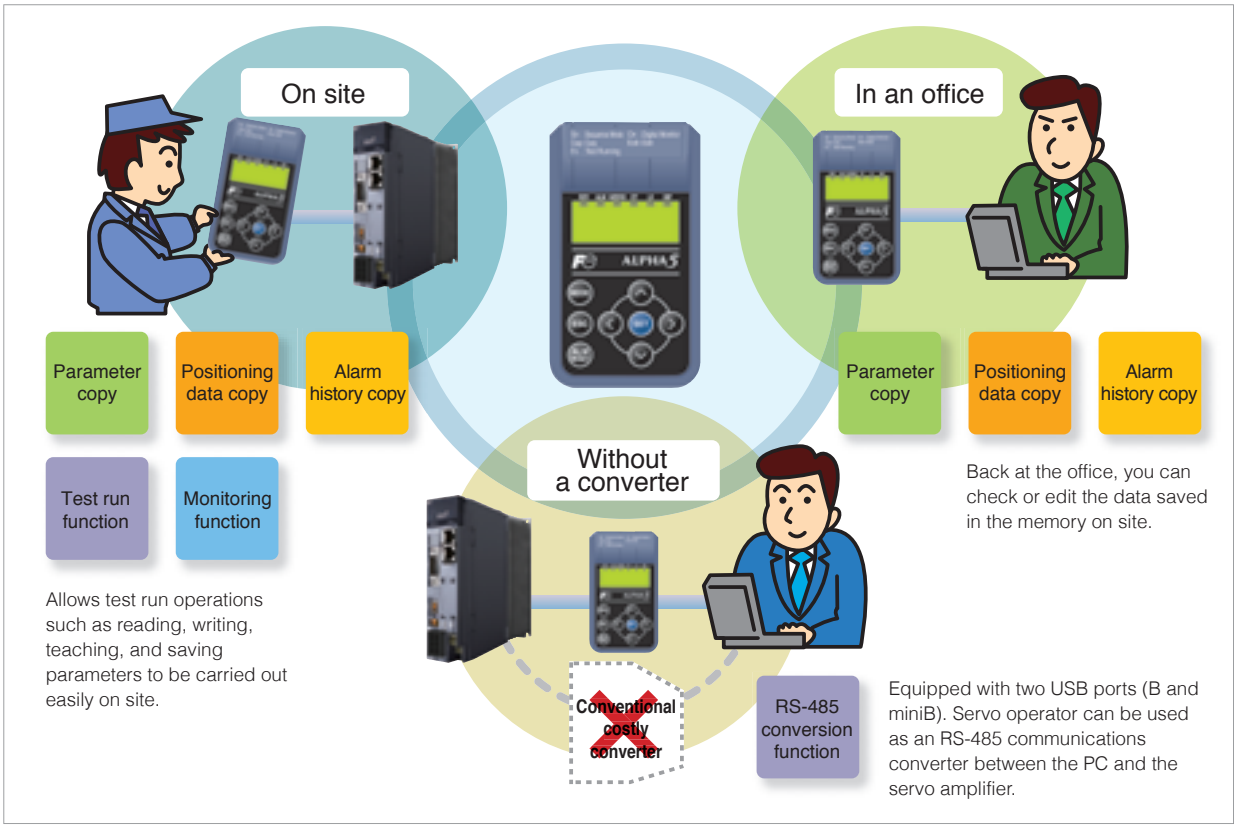
Compliant with the European Restriction of Hazardous Substances (ROHS) Directive. The use of six hazardous substances has been reduced for a more environmentally-friendly servo system.

<Six hazardous materials>
Lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), polybrominated diphenylether (PBDE)

Feature 3 | Smart Operation

New servo operator

New handy-sized portable servo operator now available

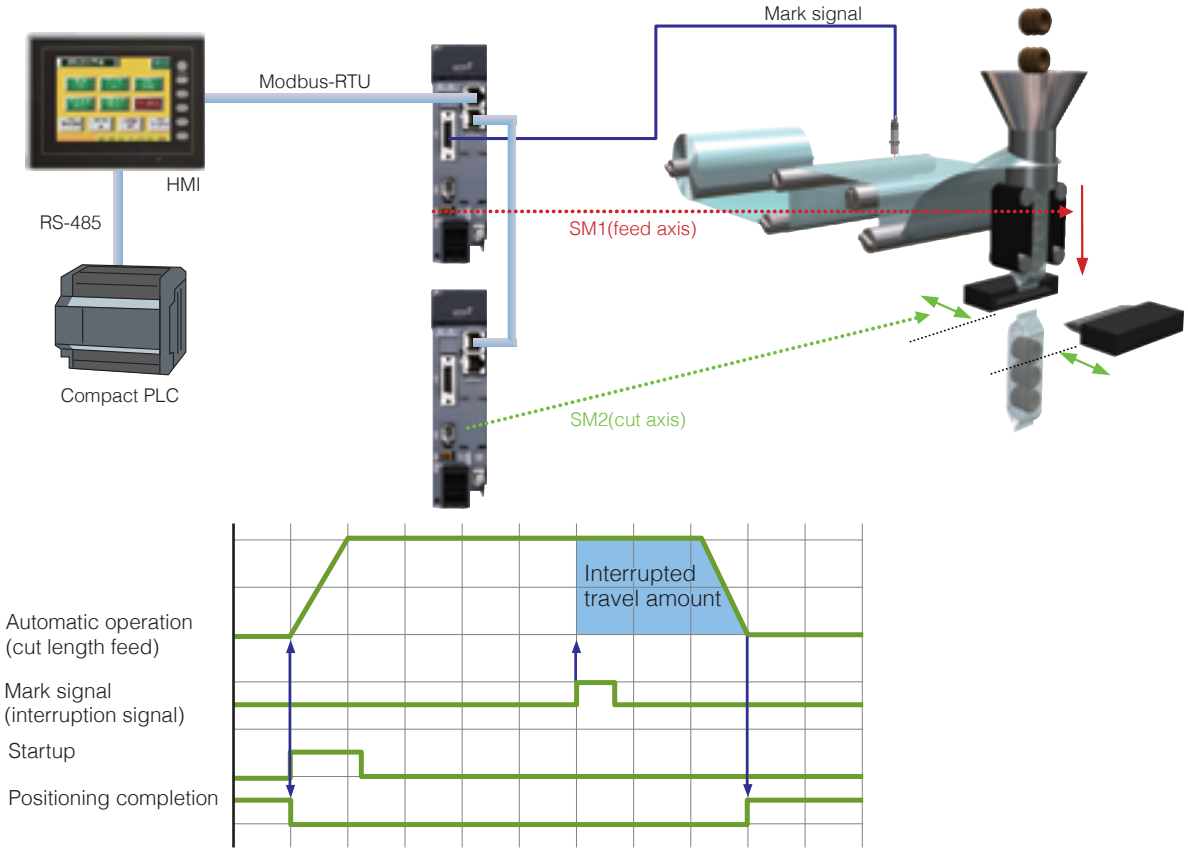


Allows test run operations such as reading, writing, teaching, and saving parameters to be carried out easily on site.

Back at the office, you can check or edit the data saved in the memory on site.

Equipped with two USB ports (B and miniB). Servo operator can be used as an RS-485 communications converter between the PC and the servo amplifier.

Packaging Machine



Features

1. Servo amplifier features a built-in positioning function

The servo amplifier's positioning data enables film feeding without the positioning controller.

2. Less wiring required

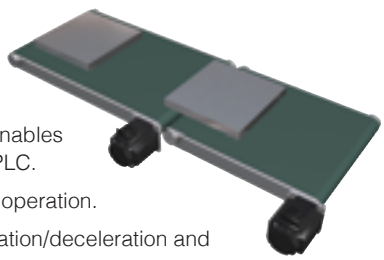
Wiring requires fewer man-hours as basic positioning is carried out via Modbus-RTU communications.

3. Interrupted positioning

The interrupted positioning function allows a specified amount of travel after the mark is detected for more precise mark operation.

Conveyor

Workpiece feeder, carrier, etc.



<Key Points>

- The positioning data enables positioning without a PLC.
- Enables simultaneous operation.
- Enables rapid acceleration/deceleration and high-speed operation.
- Enables high-accuracy positioning.
- High-tact operation mode allows high-frequency operation.

XY Table

Engraving machine, 2D positioning unit, etc.

<Key Points>

- The positioning data enables positioning without a PLC.
- Enables rapid acceleration/deceleration and high-speed operation.
- Enables high-accuracy positioning.
- Trace operation mode allows optimal operation.

ALPHA5 Series Lineup

Coming soon.

Type		Voltage(V)	Applicable motor capacity(kW) 0.05	0.1	0.2	0.4	0.5	0.75	0.85	1.0	1.3	1.5	2.0	3.0	4.0	5.0
Servo Amplifier																
	ALPHA5 Smart	3-phase 200V	■	■	■	■	■	■	■	■	■	■	■	■	■	▭
		Single-phase 200V	■	■	■	■	■	■								
 General-purpose interface	ALPHA5 VV type	3-phase 200V	■	■	■	■	■	■	■	■	■	■	■	■	■	■
		Single-phase 200V	■	■	■	■	■	■								
		Single-phase 100V	■	■	■	■										
 High speed serial bus (SX bus)	ALPHA5 VS type/ ALPHA5 LS type	3-phase 200V	■	■	■	■	■	■	■	■	■	■	■	■	■	■
		Single-phase 200V	■	■	■	■	■	■								
		Single-phase 100V	■	■	■	■										
Servomotor																
 **GYS motor** Ultra-low inertia	GYS motor 3000r/min (Max. speed 0.75kW or less: 6000r/min 1.0kW or more: 5000r/min)	200V series (11 models)	▭	▭	▭	▭		▭		▭		▭	▭	▭	▭	▭
		100V series (4 models)	▭	▭	▭	▭										
 **GYC motor** Low inertia	GYC motor 3000r/min (Max. speed 0.75kW or less: 6000r/min 1.0kW or more: 5000r/min)	200V series (7 models)		▭	▭	▭		▭		▭		▭	▭			
 **GYG motor** Middle inertia	GYG motor 2000r/min (Max. speed 3000r/min)	200V series (5 models)					▭	▭		▭		▭	▭			
 **GYG motor** Middle inertia	GYG motor 1500r/min (Max. speed 3000r/min)	200V series (3 models)					▭		▭		▭					
 **GYB motor** Middle inertia	GYB motor 3000r/min (Max. speed 6000r/min)	200V series (3 models)			▭	▭		▭								

Servo Amplifier

RYH 201 F 5 - V V 2

Code	[Basic type]
RYH	ALPHA5 Smart series

Code	[Applicable motor output]
201	20×10^1=200W, 100W, 50W
401	40×10^1= 400W
751	75×10^1=750W, 500W
152	15×10^2=1.5kW, 1.0kW, 850W
202	20×10^2=2.0kW
302	30×10^2=3.0kW

Code	[Series]
F	1500 to 3000r/min series

Code	[Order of development]
5	5

Code	[Input voltage]
2	3-phase 200V

Code	[Upper interface]
V	General-purpose interface (pulse, analog voltage)

Code	[Major functions]
V	Position, speed and torque control

Servomotor

GYS 500 D 5 - H B 2 - B

Code	[Basic type]
GYS	Ultra-low inertia
GYC	Low inertia
GYG	Middle inertia

Code	[Rated output]
500	50×10^0=0.05kW
101	10×10^1=0.1kW
201	20×10^1=0.2kW
401	40×10^1=0.4kW, 0.375kW
501	50×10^1=0.5kW
751	75×10^1=0.75kW
851	85×10^1=0.85kW
102	10×10^2=1.0kW
132	13×10^2=1.3kW
152	15×10^2=1.5kW
202	20×10^2=2.0kW
302	30×10^2=3.0kW

Code	[Rated speed]
D	3000r/min series
C	2000r/min series
B	1500r/min series

Code	[Order of development]
5	5

Code	[Brake]
Blank	Not provided
B	Provided

Code	[Input voltage]
2	3-phase 200V

Code	[Oil seal/shaft]	Applicable motor GYS, GYC, GYG
A	Without an oil seal, straight shaft with a key	△ (*○)
B	Without an oil seal, straight shaft without a key	◎
C	Without an oil seal, straight shaft with a key, tapped	○
E	With an oil seal, straight shaft with a key	△
F	With an oil seal, straight shaft without a key	△
G	With an oil seal, straight shaft with a key, tapped	△

◎ : Standard item ○ : Semi-standard item
△ : Made-to-order item
* Applicable with GYS and GYC motors of 0.1kW or less

Code	[Encoder]
H	18-bit ABS/INC
R	20-bit INC

Servo Amplifier / Motor

Servo amplifier \ Applicable motor	Applicable motor capacity	 GYS motor Ultra-low inertia 3000[r/min]GYS Ultra-low inertia Brake: Not provided (incorporated)	 GYC motor Low inertia 3000[r/min]GYC Low inertia Brake: Not provided (incorporated)	 GYG motor Middle inertia 2000[r/min]GYG Middle inertia Brake: Not provided (incorporated)	 GYG motor Middle inertia 1500[r/min]GYG Middle inertia Brake: Not provided (incorporated)
RYH201F5-VV2	50W	GYS500D5-□□2 (-B)			
	100W	GYS101D5-□□2 (-B)	GYC101D5-□□2 (-B)		
	200W	GYS201D5-□□2 (-B)	GYC201D5-□□2 (-B)		
RYH401F5-VV2	400W	GYS401D5-□□2 (-B)	GYC401D5-□□2 (-B)		
RYH751F5-VV2	500W			GYG501C5-□□2 (-B)	GYG501B5-□□2 (-B)
	750W	GYS751D5-□□2 (-B)	GYC751D5-□□2 (-B)	GYG751C5-□□2 (-B)	
RYH152F5-VV2	850W				GYG851B5-□□2 (-B)
	1.0kW	GYS102D5-□□2 (-B)	GYC102D5-□□2 (-B)	GYG102C5-□□2 (-B)	
	1.5kW	GYS152D5-□□2 (-B)	GYC152D5-□□2 (-B)	GYG152C5-□□2 (-B)	
RYH202F5-VV2	2.0kW	GYS202D5-□□2 (-B)	GYC202D5-□□2 (-B)	GYG202D5-□□2 (-B)	GYG132D5-□□2 (-B)
RYH302F5-VV2	3.0kW	GYS302D5-□□2 (-B)			

Common specifications

Applicable motor rated speed		3000r/min									2000r/min					1500r/min		
Applicable motor output [kW]		0.05	0.1	0.2	0.4	0.75	1.0	1.5	2.0	3.0	0.5	0.75	1.0	1.5	2.0	0.5	0.85	1.3
Amplifier type	RYH□□□F5-VV2	201			401	751	152		202	302	751		152		202	751	152	202
Outer frame number		1a			1b	2a	2b		3a	3b	2a		2b		3a	2a	2b	3a
Mass [kg]		0.8				1.2	1.3		2.2		1.2		1.3		2.2	1.2	1.3	2.2
Protective construction / cooling		Open / natural cooling				Open / mechanical cooling												
Power supply	Phase	Single-phase, 3-phase					3-phase				Single-phase, 3-phase		3-phase			Single-phase, 3-phase	3-phase	
	Voltage / frequency	200 to 240VAC 50/60Hz																
	Allowable voltage fluctuation	3-phase : 170 to 264 VAC, Single-phase : 180 to 264 VAC																
Control system		Fully-digital sinusoidal PWM drive																
Max voltage for regenerative resistance [W]	Built-in resistor	–				20			30		20				30	20		30
	External resistor	17				50			260		50				260	50		260
Feedback		INC 20bit/rev, ABS/INC 18bit/rev																
Overload capability		300% / 3 sec.																
Speed fluctuation ratio*	Load fluctuation	Within ± 0.01% (load fluctuation 0 to 100% at rated operation speed)																
	Power supply fluctuation	0% (power supply fluctuation -10 to +10% at rated operation speed)																
	Temperature fluctuation	Within ± 0.2% (25 ± 10°C at rated operation speed)																
Capability and function VV type	Speed control	Closed loop control with speed adjuster, acceleration/deceleration time setting, manual feed rate/max. rotation speed, speed command zero clamp, etc.																
	Number of position data sets	15-point (position, speed, acceleration/deceleration time setting, timer, M code and various statuses)																
	Positon control	Closed loop control with position adjuster, electronic gear, output pulse setting, feed forward, homing, interrupt positioning, auto startup, etc.																
	Torque control	Closed loop control with current adjuster (proportional open loop control of current and torque), torque limit, speed limit at torque control, etc.																
	Accessory functions	Easy tuning, profile operation, sequence test mode, auto tuning, auto notch filter, vibration suppressing online learning, etc.																
Protective function (Alarm display)		Over Current (oc1, oc2), Over Speed (oS), High Voltage (Hu), Encoder Trouble (Et1, Et2), Circuit Trouble (ct), Data Error (dE), Combination Error (cE), Resistor Tr Heat (tH), Encoder Communication Error (Ec), Cont (CONTrol signal) Error (ctE), Over Load (oL1, oL2), Power Low Voltage (LuP), Resistor Heat (rH1, rH2, rH3), Over Flow (oF), Amp Heat (AH), Encoder Heat (EH), Absolute Data Lost (dL1, dL2, dL3), Absolute Data Over Flow (AF), Initial Error (iE)																
Operation and display section of main body(keypad)		4-digit alphanumeric display with 7-segment LED 4 operation switches (MODE, SET, UP and DOWN)																
Working conditions	Installation place	Indoors at altitude ≤ 1000m, free from dust, corrosive gases and direct sunlight In case of compliance with CE marking: pollution degree 2, over voltage category III																
	Temperature / humidity	-10 to 55°C/10 to 90%RH (without condensation)																
	Vibration / shock resistance	Vibration resistance: 3mm: 2 to 9Hz or less, 9.8m/s²: 9 to 20Hz or less, 2m/s²: 20 to 55Hz or less, 1m/s²: 55 to 200Hz or less Shock resistance: 19.6m/s² (2G)																
Standards		UL/cUL (UL508c), CE marking (low voltage directive EN61800-5-1), RoHS directive (Some of the models are in the process to be certisfied.)																

*This value represents the average value of the speed fluctuation that is generated from load fluctuation, power supply fluctuation, and temperature fluctuation as the percentage to the rated rotation speed.

Interface specifications

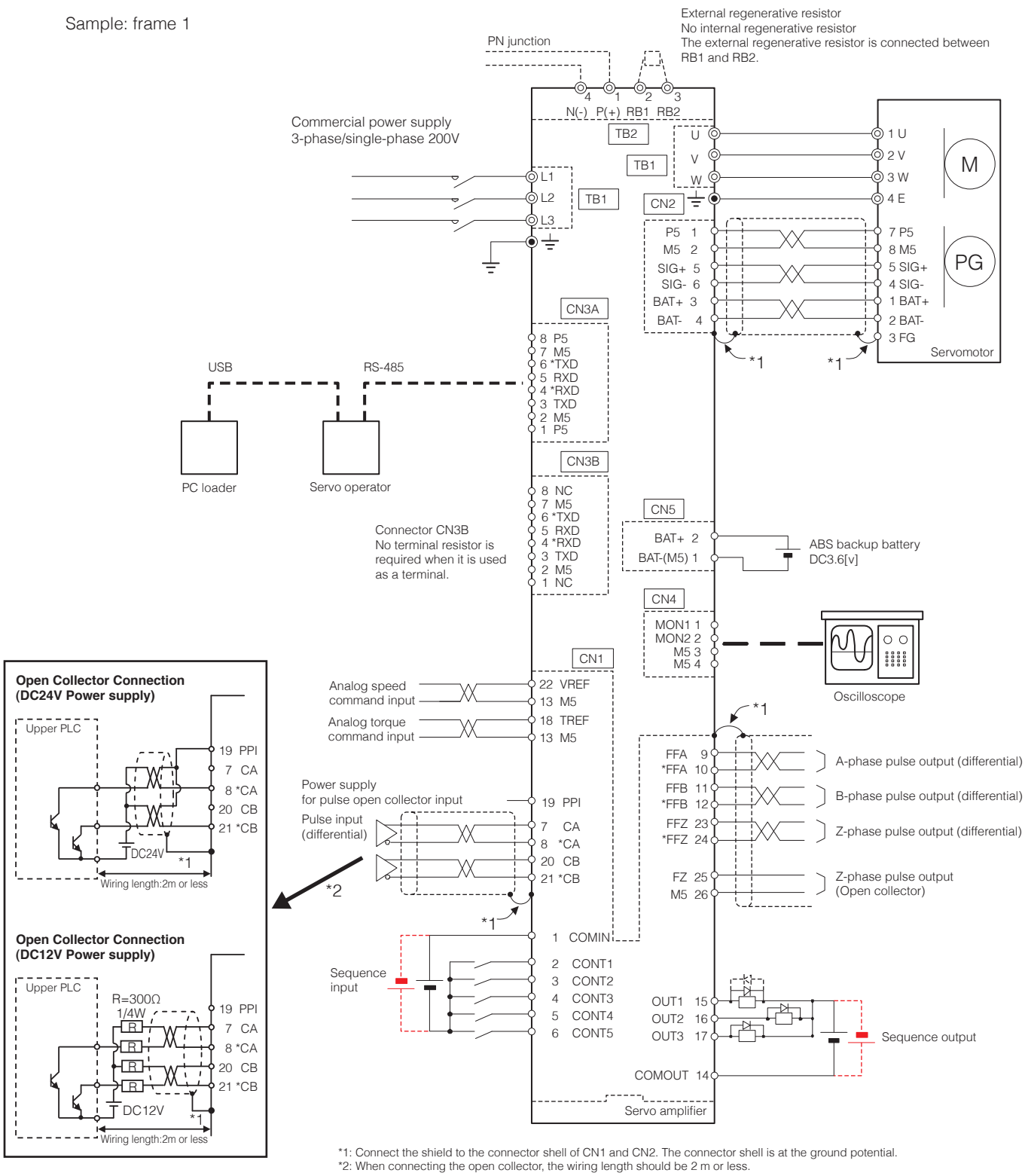
Item		Specifications
Command interface	Positioning function	RS-485 (Modbus-RTU), Di/Do
	Position control	Pulse input
	Speed control	Analog voltage input
	Torque control	Analog voltage input
Communication interface		Two RS-485 ports (for parameter editing and monitor)
		Fuji's original protocol Modbus-RTU
		9600/19200/38400/115200 bps, connection of max. 31 units

Terminal name	Symbol	Specifications
Pulse input	CA,*CA CB,*CB	Differential input: max. input frequency ≤ 1.0MHz Open collector input: max. input frequency ≤ 200kHz (in case of signals at 90-degree phase difference, the above relationship is true for the four-fold frequency.) Pulse format: Command pulse/Command direction; Forward/Reverse pulse; Two signals at 90-degree phase difference } Select one of these formats with a parameter setting.
	PPI	Pull-up power input at open collector input (24VDC ± 5%)
Pulse output	FFA,*FFA FFB,*FFB	Differential output: max. output frequency ≤ 1MHz Two signals at 90-degree phase difference Pulse output count setting n (pulses/rev): 16 ≤ n ≤ 262144
	FFZ,*FFZ	Differential output: 1 pulse/rev
	FZ	Open collector output: 1 pulse/rev
	M5	Reference potential (0V)
Analog monitor voltage output	MON1 MON2	0V to ± 10VDC Resolution: 14bits / ± full scale The output data depends on internal parameter.
	M5	Reference potential (0V)
Common for sequence I/O	COMIN	Common for sequence input signal
	COMOUT	Common for sequence output signal
Sequence input signal	CONT1 to CONT5	12VDC-10% to 24VDC+10% Current consumption 8mA (per contact; used at circuit voltage of 12 to 24VDC) Function of each signal depends on parameter setting Compatible with both sink and source input methods
	COMIN	Reference potential
Sequence output signal	OUT1 to OUT3	30VDC / 50mA (max.) Function of each signal depends on parameter setting Compatible with both sink and source output methods
	COMOUT	Reference potential
Analog voltage input (for speed and torque control)	VREF	Speed command voltage input Input range: from -10 to 0 to -10V, input impedance 20kΩ Resolution: 15 bits / ± full scale
	TREF	Torque command voltage input Input range: from -10 to 0 to +10V, input impedance 20kΩ Resolution: 14 bits / ± full scale
	M5	Reference potential (0V)

Connection Diagram

VV type

Sample: frame 1



*1: Connect the shield to the connector shell of CN1 and CN2. The connector shell is at the ground potential.
*2: When connecting the open collector, the wiring length should be 2 m or less.

Caution

The diagram shown above is given as a reference for model selection.
When actually using the selected servo system, make wiring connections according to the connection diagram and instructions described in the user's manual.

Servomotor Specifications

GYS motor

■Standard specifications

Motor type (-B) indicates the brake-incorporated type.	GYS500D5 -□□2(-B)	GYS101D5 -□□2(-B)	GYS201D5 -□□2(-B)	GYS401D5 -□□2(-B)	GYS751D5 -□□2(-B)	GYS102D5 -□□2(-B)	GYS152D5 -□□2(-B)	GYS202D5 -□□2(-B)	GYS302D5 -□□2(-B)
Rated output [kW]	0.05	0.1	0.2	0.4	0.75	1.0	1.5	2.0	3.0
Rated torque [N · m]	0.159	0.318	0.637	1.27	2.39	3.18	4.78	6.37	9.55
Rated speed [r/min]	3000								
Max. speed [r/min]	6000 *1					5000			
Max. torque [N · m]	0.478	0.955	1.91	3.82	7.17	9.55	14.3	19.1	28.7
Inertia [kg · m²] ( ) indicates brake-incorporated type.	0.0192×10^{-4} (0.0223×10^{-4})	0.0371×10^{-4} (0.0402×10^{-4})	0.135×10^{-4} (0.159×10^{-4})	0.246×10^{-4} (0.270×10^{-4})	0.853×10^{-4} (0.949×10^{-4})	1.73×10^{-4} (2.03×10^{-4})	2.37×10^{-4} (2.67×10^{-4})	3.01×10^{-4} (3.31×10^{-4})	8.32×10^{-4} (10.42×10^{-4})
Recommended load inertia ratio	30 times or less *2					20 times or less *2			
Rated current [A]	0.85	0.85	1.5	2.7	4.8	7.1	9.6	12.6	18.0
Max. current [A]	2.55	2.55	4.5	8.1	14.4	21.3	28.8	37.8	54.0
Winding insulation class	Class B					Class F			
Rating	Continuous								
Degree of enclosure protection	Totally enclosed, self-cooled (IP 67. excluding the shaft-through and connectors)					Totally enclosed, self-cooled (IP 67. excluding the shaft-through)*3			
Terminals (motor)	Cable 0.3m (with connector)					Cannon connector			
Terminals (encoder)	Cable 0.3m (with connector)					Cannon connector			
Overheat protection	Not provided (The servo amplifier detects temperature.)								
Mounting method	By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)								
Shaft extension	Straight shaft								
Paint color	N1.5								
Encoder	18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)								
Vibration level	V5 or below					Up to rated rotation speed: V10 or below Over rated rotation speed and up to 5000r/min: V15 or below			
Installation place, altitude and environment	For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flamable gases, oil mist and dust								
Ambient temperature, humidity	-10 to +40°C, within 90% RH (without condensation)								
Vibration resistance [m/s²]	49					24.5			
Mass [kg] ( ) indicates brake-incorporated type.	0.45 (0.62)	0.55 (0.72)	1.2 (1.7)	1.8 (2.3)	3.4 (4.2)	4.4 (5.9)	5.2 (6.8)	6.3 (7.9)	11.0 (13.0)
Compliance with standards	UL/cUL (UL1004), CE marking (EN60034-1, EN60034-5), RoHS directive								

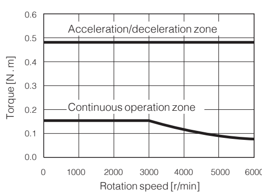
*1 The maximum rotation speed is 5000r/min when using the motor in combination with Fuji's gear head.
*2 The load inertia ratio to the inertia of servo motor. If the moment of load inertia ratio value exceeds the list value, please contact us.
*3 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

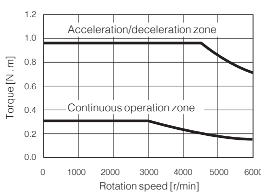
■Brake specifications (motor equipped with a brake)

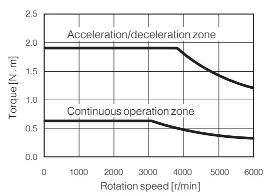
Motor type	GYS500D5 -□□2-B	GYS101D5 -□□2-B	GYS201D5 -□□2-B	GYS401D5 -□□2-B	GYS751D5 -□□2-B	GYS102D5 -□□2-B	GYS152D5 -□□2-B	GYS202D5 -□□2-B	GYS302D5 -□□2-B
Static friction torque [N · m]	0.34		1.27		2.45	6.86			17
Rated DC voltage [V]	DC24±10%								
Attraction time [ms]	35		40		60	100			120
Release time [ms]	10		20		25	40			30
Power consumption [W]	6.1 (at 20 °C)		7.3 (at 20 °C)		8.5 (at 20 °C)	17.7 (at 20 °C)			12 (at 20 °C)

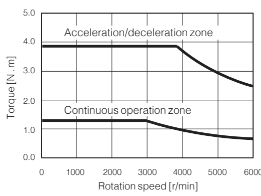
■Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)

GYS500D5-□□2	GYS101D5-□□2	GYS201D5-□□2	GYS401D5-□□2
0.05kW	0.1kW	0.2kW	0.4kW

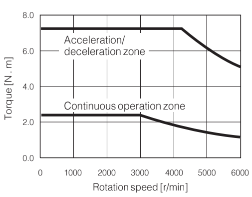


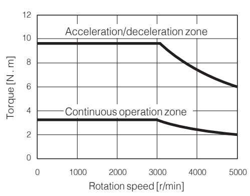


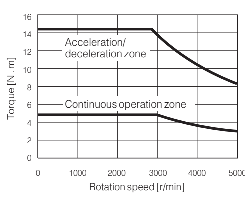


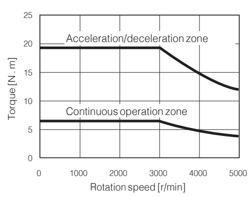


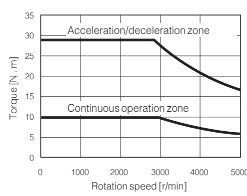
GYS751D5-□□2	GYS102D5-□□2	GYS152D5-□□2	GYS202D5-□□2	GYS302D5-□□2
0.75kW	1.0kW	1.5kW	2.0kW	3.0kW











These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier.
The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

· Model GYS500D, 101D : 200×200×6 [mm]
· Model GYS201D, 401D : 250×250×6 [mm]
· Model GYS751D : 300×300×6 [mm]
· Model GYS102D, 152D, 202D : 350×350×8 [mm]
· Model GYS302D : 400×400×12 [mm]

Servomotor Specifications

GYC motor

■Standard specifications

Motor type (-B) indicates the brake-incorporated type.		GYC101D5 -□□2(-B)	GYC201D5 -□□2(-B)	GYC401D5 -□□2(-B)	GYC751D5 -□□2(-B)	GYC102D5 -□□2(-B)	GYC152D5 -□□2(-B)	GYC202D5 -□□2(-B)
Rated output	[kW]	0.1	0.2	0.4	0.75	1.0	1.5	2.0
Rated torque	[N · m]	0.318	0.637	1.27	2.39	3.18	4.78	6.37
Rated speed	[r/min]	3000						
Max. speed	[r/min]	6000 *1				5000		
Max. torque	[N · m]	0.955	1.91	3.82	7.17	9.55	14.3	19.1
Inertia	[kg · m²]	0.0577×10^{-4}	0.213×10^{-4}	0.408×10^{-4}	1.21×10^{-4}	3.19×10^{-4}	4.44×10^{-4}	5.69×10^{-4}
( ) indicates brake-incorporated type.		(0.0727×10^{-4})	(0.288×10^{-4})	(0.483×10^{-4})	(1.66×10^{-4})	(5.29×10^{-4})	(6.54×10^{-4})	(7.79×10^{-4})
Recommended load inertia ratio		30 times or less *2				20 times or less *2		
Rated current	[A]	1.0	1.5	2.6	4.8	6.7	9.6	12.6
Max. current	[A]	3.0	4.5	7.8	14.4	20.1	28.8	37.8
Winding insulation class		Class B				Class F		
Rating		Continuous						
Degree of enclosure protection		Totally enclosed, self-cooled (IP 67. excluding the shaft-through and connectors)				Totally enclosed, self-cooled (IP 67. excluding the shaft-through) *3		
Terminals (motor)		Cable 0.3m (with connector)				Cannon connector		
Terminals (encoder)		Cable 0.3m (with connector)				Cannon connector		
Overheat protection		Not provided (The servo amplifier detects temperature.)						
Mounting method		By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)						
Shaft extension		Straight shaft						
Paint color		N1.5						
Encoder		18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)						
Vibration level		V5 or below				Up to rated rotation speed: V10 or below Over rated rotation speed and up to 5000r/min: V15 or below		
Installation place, altitude and environment		For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flamable gases, oil mist and dust						
Ambient temperature, humidity		-10 to +40°C, within 90% RH (without condensation)						
Vibration resistance	[m/s²]	49				24.5		
Mass	[kg]	0.75	1.3	1.9	3.5	5.7	7.0	8.2
( ) indicates brake-incorporated type.		(1.0)	(1.9)	(2.6)	(4.3)	(8.0)	(9.8)	(11.0)
Compliance with standards		UL/cUL (UL1004), CE marking (EN60034-1, EN60034-5), RoHS directive						

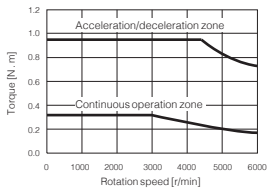
*1 The maximum rotation speed is 5000r/min when using the motor in combination with Fuji's gear head.
*2 The load inertia ratio to the inertia of servo motor. If the moment of load inertia ratio value exceeds the list value, please contact us.
*3 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

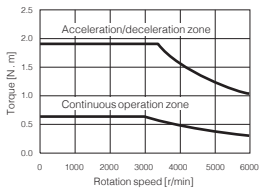
■Brake specifications (motor equipped with a brake)

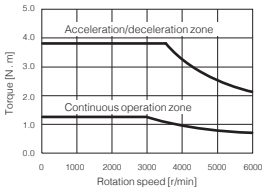
Motor type		GYC101D5 -□□2-B	GYC201D5 -□□2-B	GYC401D5 -□□2-B	GYC751D5 -□□2-B	GYC102D5 -□□2-B	GYC152D5 -□□2-B	GYC202D5 -□□2-B
Static friction torque	[N · m]	0.318	1.27		2.39	17		
Rated DC voltage	[V]	DC24±10%						
Attraction time	[ms]	60	80		50	120		
Release time	[ms]	40			80	30		
Power consumption	[W]	6.5 (at 20 °C)	9.0 (at 20 °C)		8.5 (at 20 °C)	12 (at 20 °C)		

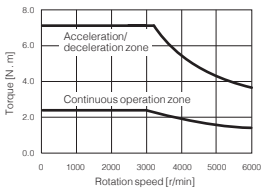
■Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)

GYC101D5-□□2	GYC201D5-□□2	GYC401D5-□□2	GYC751D5-□□2
0.1kW	0.2kW	0.4kW	0.75kW

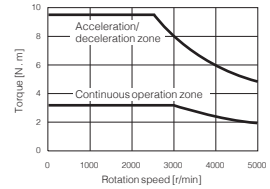


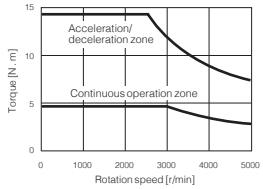


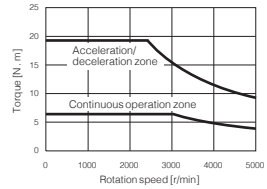




GYC102D5-□□2	GYC152D5-□□2	GYC202D5-□□2
1.0kW	1.5kW	2.0kW







These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier.
The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

- Model GYC101D, 201D, 401D : 250×250×6 [mm]
- Model GYC751D : 300×300×6 [mm]
- Model GYC102D : 300×300×12 [mm]
- Model GYC152D, 202D : 400×400×12 [mm]

GYG motor [2000r/min, 1500r/min]

■Standard specifications

Motor type (-B) indicates the brake-incorporated type.		2000r/min					1500r/min		
		GYG501C5 -□□2(-B)	GYG751C5 -□□2(-B)	GYG102C5 -□□2(-B)	GYG152C5 -□□2(-B)	GYG202C5 -□□2(-B)	GYG501B5 -□□2(-B)	GYG851B5 -□□2(-B)	GYG132B5 -□□2(-B)
Rated output	[kW]	0.5	0.75	1.0	1.5	2.0	0.5	0.85	1.3
Rated torque	[N · m]	2.39	3.58	4.77	7.16	9.55	3.18	5.41	8.28
Rated speed	[r/min]	2000					1500		
Max. speed	[r/min]	3000							
Max. torque	[N · m]	7.2	10.7	14.3	21.5	28.6	9.5	16.2	24.8
Inertia	[kg · m²]	7.96×10^{-4}	11.55×10^{-4}	15.14×10^{-4}	22.33×10^{-4}	29.51×10^{-4}	11.55×10^{-4}	15.15×10^{-4}	22.33×10^{-4}
( ) indicates brake-incorporated type.		(10.0×10^{-4})	(13.6×10^{-4})	(17.2×10^{-4})	(24.4×10^{-4})	(31.6×10^{-4})	(13.6×10^{-4})	(17.3×10^{-4})	(24.5×10^{-4})
Recommended load inertia ratio		10 times or less *1							
Rated current	[A]	3.5	5.2	6.4	10.0	12.3	4.7	7.3	11.5
Max. current	[A]	10.5	15.6	19.2	30.0	36.9	14.1	21.9	34.5
Winding insulation class		Class F							
Rating		Continuous							
Degree of enclosure protection		Totally enclosed, self-cooled (IP 67. excluding the shaft-through)*2							
Terminals (motor)		Cannon connector							
Terminals (encoder)		Cannon connector							
Overheat protection		Not provided (The servo amplifier detects temperature.)							
Mounting method		By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)							
Shaft extension		Straight shaft							
Paint color		N1.5							
Encoder		18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)							
Vibration level		V10 or below							
Installation place, altitude and environment		For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flamable gases, oil mist and dust							
Ambient temperature, humidity		-10 to +40°C, within 90% RH (without condensation)							
Vibration resistance	[m/s²]	24.5							
Mass	[kg]	5.3	6.4	7.5	9.8	12.0	6.4	7.5	9.8
( ) indicates brake-incorporated type.		(7.5)	(8.6)	(9.7)	(12.0)	(14.2)	(8.6)	(9.7)	(12.0)
Compliance with standards		UL/cUL (UL1004), CE marking (EN60034-1, EN60034-5), RoHS directive							

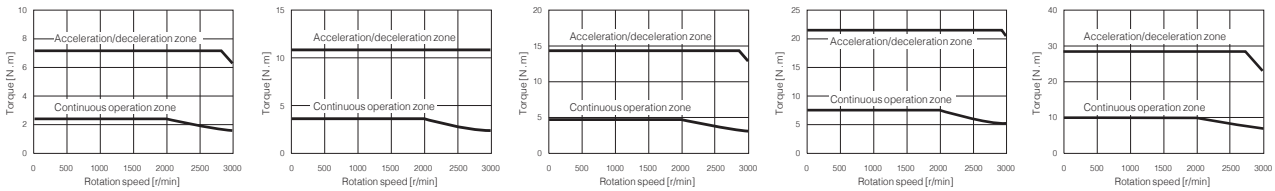
*1 The load inertia ratio to the inertia of servo motor. If the moment of load inertia ratio value exceeds the list value, please contact us.
*2 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

■Brake specifications (motor equipped with a brake)

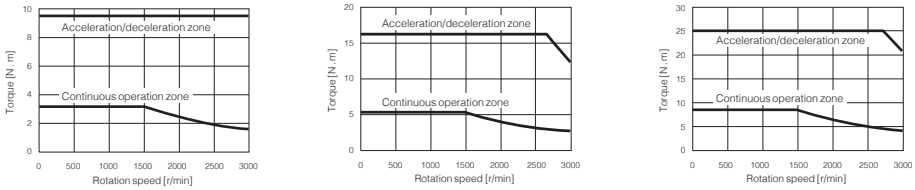
Motor type		GYG501C5 -□□2-B	GYG751C5 -□□2-B	GYG102C5 -□□2-B	GYG152C5 -□□2-B	GYG202C5 -□□2-B	GYG501B5 -□□2-B	GYG851B5 -□□2-B	GYG132B5 -□□2-B
Static friction torque	[N · m]	17							
Rated DC voltage	[V]	DC24±10%							
Attraction time	[ms]	120							
Release time	[ms]	30							
Power consumption	[W]	12 (at 20 °C)							

■Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)

GYG501C5-□□2	GYG751C5-□□2	GYG102C5-□□2	GYG152C5-□□2	GYG202C5-□□2
0.5kW	**0.75kW**	**1.0kW**	**1.5kW**	**2.0kW**



GYG501B5-□□2	GYG851B5-□□2	GYG132B5-□□2
0.5kW	0.85kW	1.3kW



These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier.
The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

- Model GYG501C, 751C, 102C : 300 ×300 ×12 [mm]
- Model GYG152C, 202C : 400 ×400 ×12 [mm]
- Model GYG501B, 851B : 300 ×300 ×12 [mm]
- Model GYG132B : 400 ×400 ×12 [mm]

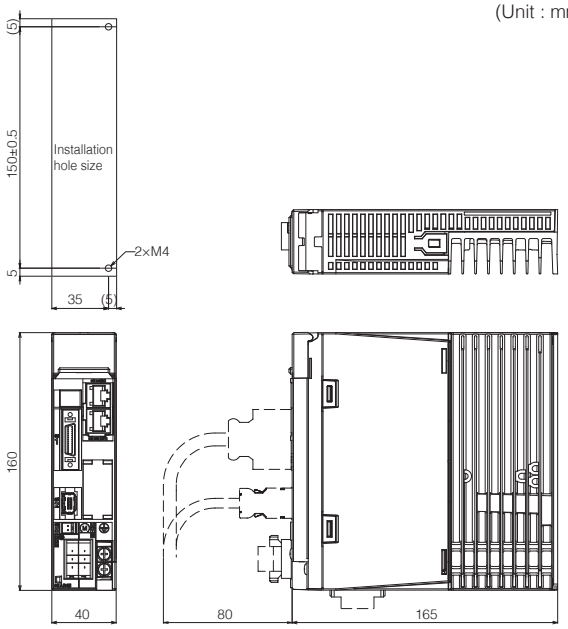
External Dimensions

Servo amplifier

Frame 1

Applicable motor output	Type
200W, 100W, 50W	RYH201F5-VV2
400W	RYH401F5-VV2

(Unit : mm)

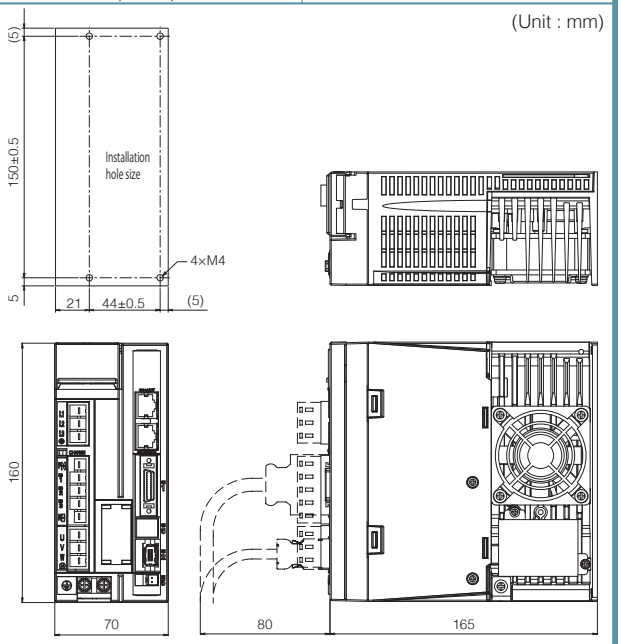


[Mass:0.8kg]

Frame 2

Applicable motor output	Type
750W, 500W	RYH751F5-VV2
1.5kW, 1.0kW, 850W	RYH152F5-VV2

(Unit : mm)

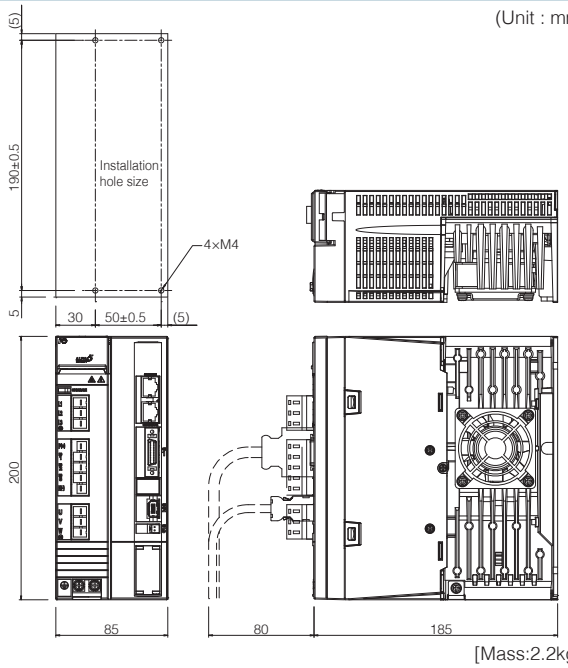


[Mass:1.3kg]

Frame 3

Applicable motor output	Type
2.0kw, 1.3kw(1500r/min)	RYH202F5-VV2
3.0kw	RYH302F5-VV2

(Unit : mm)

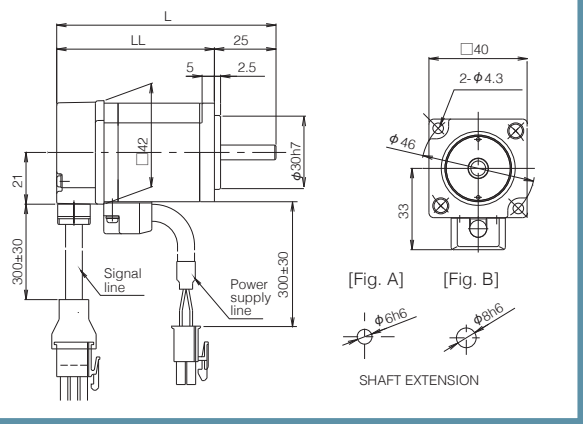


[Mass:2.2kg]

GYS motor

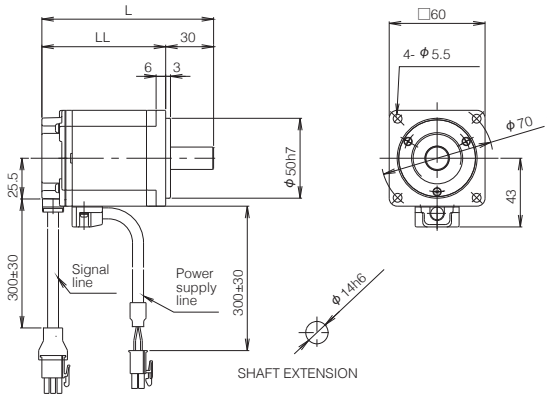
Rated speed	Rated output	Type	Shaft shape	Overall length L	Dimensions (flange) LL	Mass [kg]
3000r/min	0.05kW	GYS500D5-□B2	Fig. A	89	64	0.45
	0.1kW	GYS101D5-□B2	Fig. B	107	82	0.55

(Unit : mm)



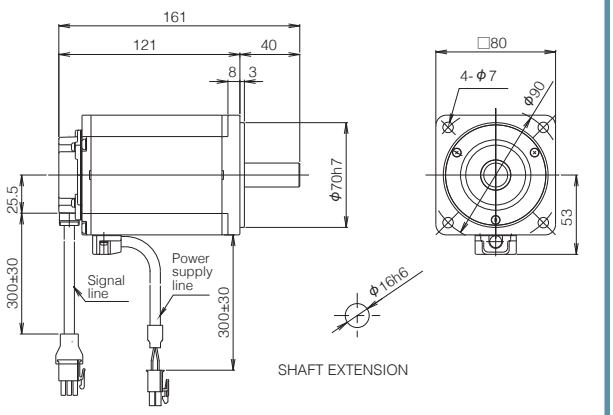
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Mass [kg]
3000r/min	0.2kW	GYS201D5-□B2	107.5	77.5	1.2
	0.4kW	GYS401D5-□B2	135.5	105.5	1.8

(Unit : mm)



Rated speed	Rated output	Type
3000r/min	0.75kW	GYS751D5-□B2

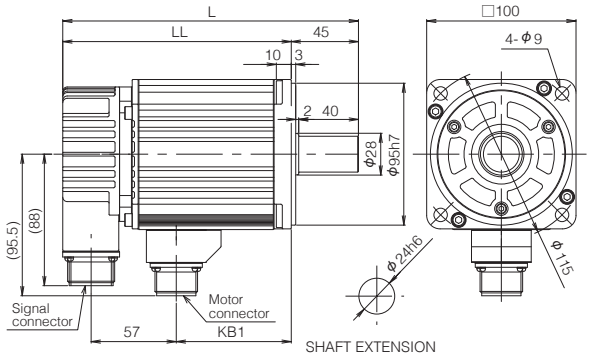
(Unit : mm)



[Mass:3.4kg]

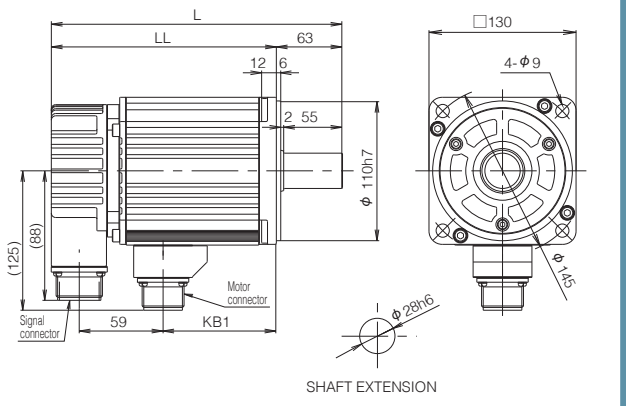
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
3000r/min	1.0kW	GYS102D5-□B2	198	153	77	4.4
	1.5kW	GYS152D5-□B2	220.5	175.5	99.5	5.2
	2.0kW	GYS202D5-□B2	243	198	122	6.3

(Unit : mm)



Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
3000r/min	3.0kW	GYS302D5-□B2	266.5	203.5	125.5	11

(Unit : mm)



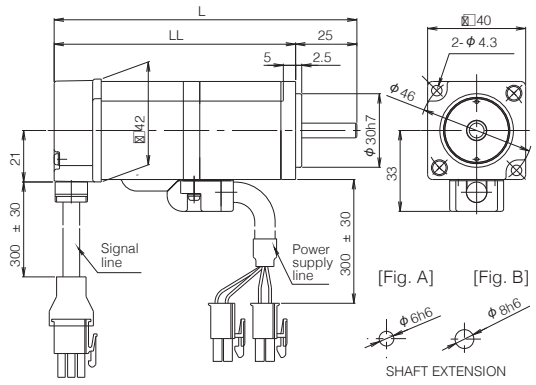
* See page 22 for the shaft extension specifications of the motor with a key.

External Dimensions

GYS motor (with a brake)

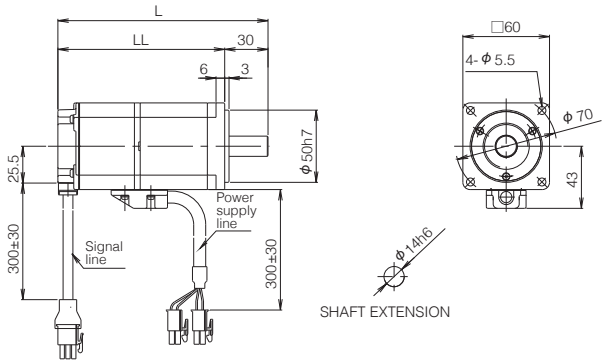
Rated speed	Rated output	Type	Shaft shape	Overall length L	Dimensions (flange) LL	Mass [kg]
3000r/min	0.05kW	GYS500D5-□B2-B	Fig. A	123.5	98.5	0.62
	0.1kW	GYS101D5-□B2-B	Fig. B	141.5	116.5	0.72

(Unit : mm)



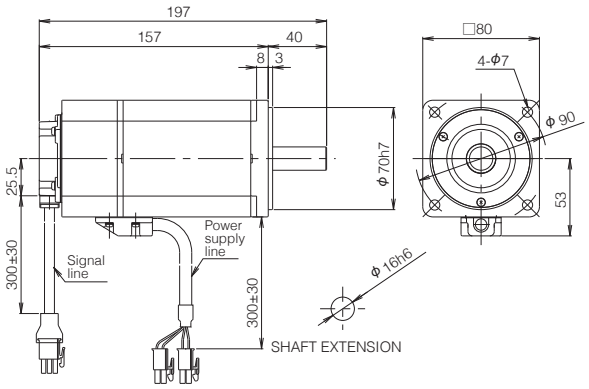
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Mass [kg]
3000r/min	0.2kW	GYS201D5-□B2-B	145.5	115.5	1.7
	0.4kW	GYS401D5-□B2-B	173.5	143.5	2.3

(Unit : mm)



Rated speed	Rated output	Type
3000r/min	0.75kW	GYS751D5-□B2-B

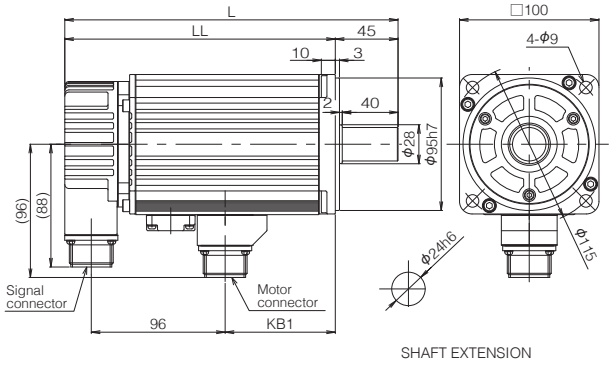
(Unit : mm)



[Mass:4.2kg]

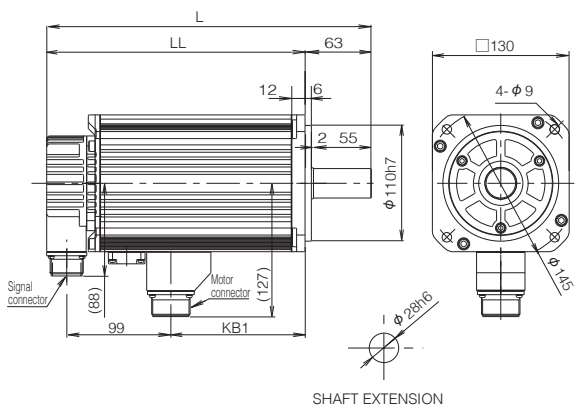
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
3000r/min	1.0kW	GYS102D5-□B2-B	239	194	79	5.9
	1.5kW	GYS152D5-□B2-B	261.5	216.5	101.5	6.8
	2.0kW	GYS202D5-□B2-B	284	239	124	7.9

(Unit : mm)



Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
3000r/min	3.0kW	GYS302D5-□B2-B	308.5	245.5	127.5	13

(Unit : mm)

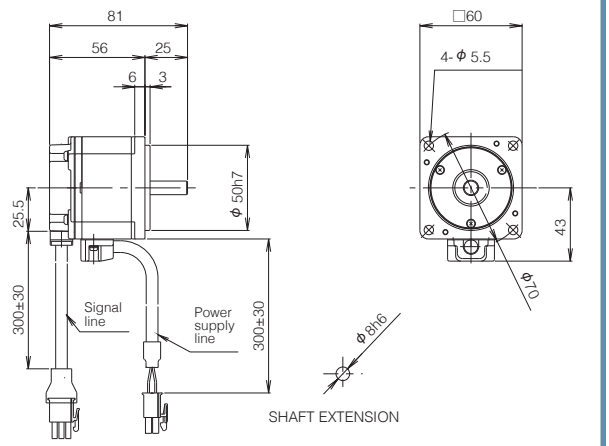


* See page 22 for the shaft extension specifications of the motor with a key.

GYC motor

Rated speed	Rated output	Type
3000r/min	0.1kW	GYC101D5-□B2

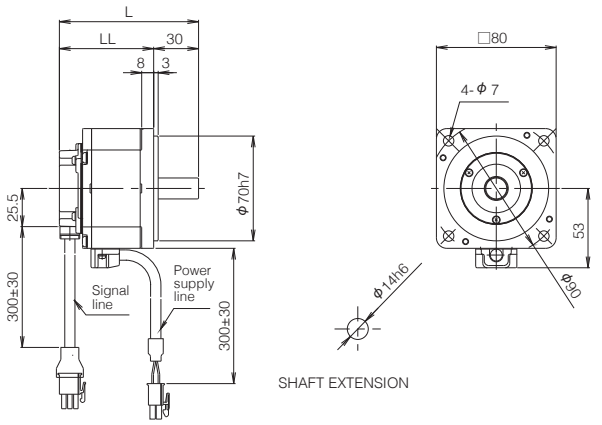
(Unit : mm)



[Mass:0.75kg]

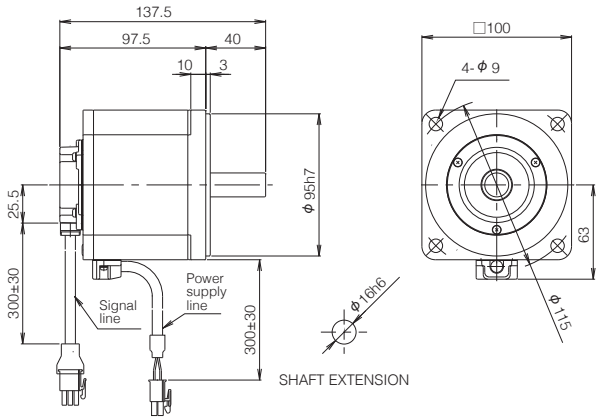
Rated speed	Rated output	Type	Overall length	Dimensions (flange)	Mass [kg]
			L	LL	
3000r/min	0.2kW	GYC201D5-□B2	93	63	1.3
	0.4kW	GYC401D5-□B2	108	78	1.9

(Unit : mm)



Rated speed	Rated output	Type
3000r/min	0.75kW	GYC751D5-□B2

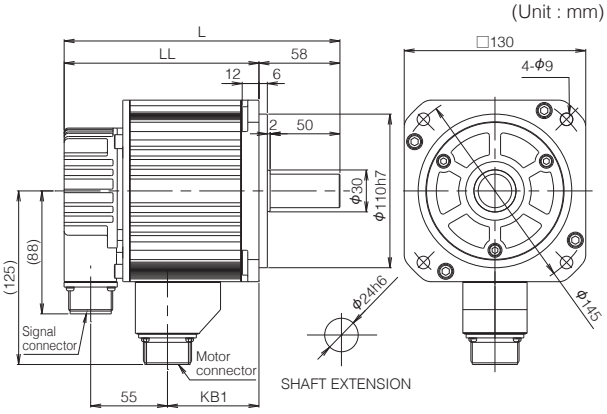
(Unit : mm)



[Mass:3.5kg]

Rated speed	Rated output	Type	Overall length	Dimensions (flange)	Terminal	Mass [kg]
			L	LL	KB1	
3000r/min	1.0kW	GYC102D5-□B2	197.5	139.5	65.5	5.7
	1.5kW	GYC152D5-□B2	212.5	154.5	80.5	7.0
	2.0kW	GYC202D5-□B2	227.5	169.5	95.5	8.2

(Unit : mm)



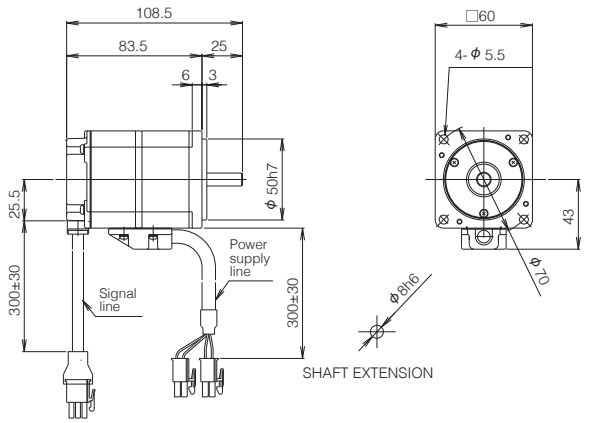
* See page 22 for the shaft extension specifications of the motor with a key.

External Dimensions

GYC motor (with a brake)

Rated speed	Rated output	Type
3000r/min	0.1kW	GYC101D5-□B2-B

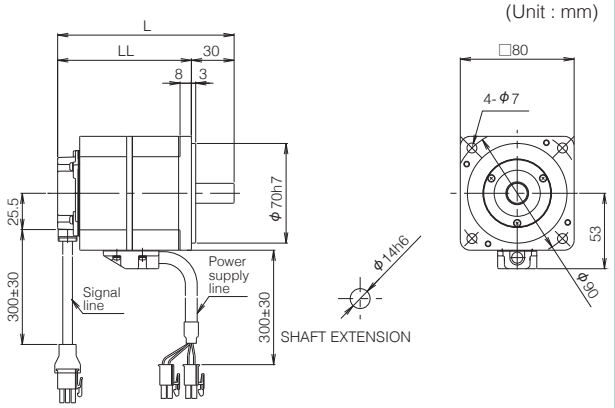
(Unit : mm)



[Mass:1.0kg]

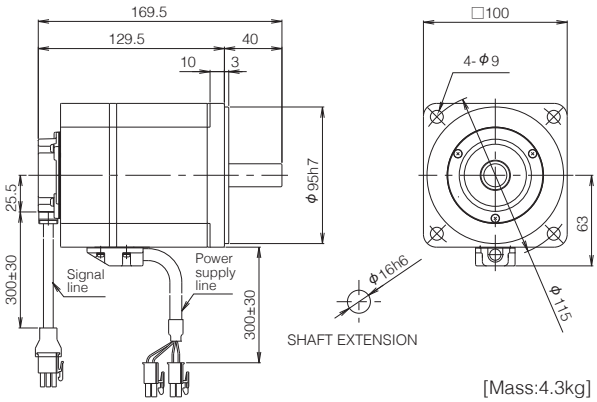
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Mass [kg]
3000r/min	0.2kW	GYC201D5-□B2-B	124	94	1.9
	0.4kW	GYC401D5-□B2-B	139	109	2.6

(Unit : mm)



Rated speed	Rated output	Type
3000r/min	0.75kW	GYC751D5-□B2-B

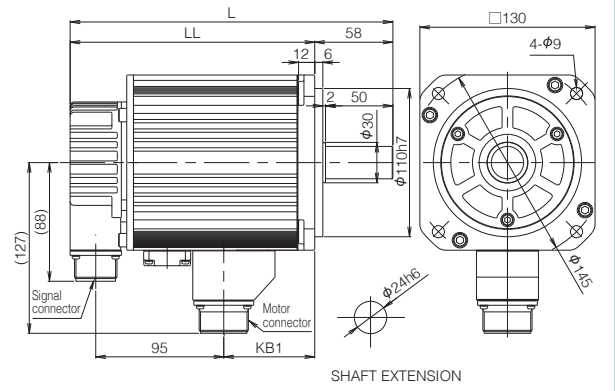
(Unit : mm)



[Mass:4.3kg]

Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
3000r/min	1.0kW	GYC102D5-□B2-B	239.5	181.5	67.5	8.0
	1.5kW	GYC152D5-□B2-B	254.5	196.5	82.5	9.8
	2.0kW	GYC202D5-□B2-B	269.5	211.5	97.5	11

(Unit : mm)

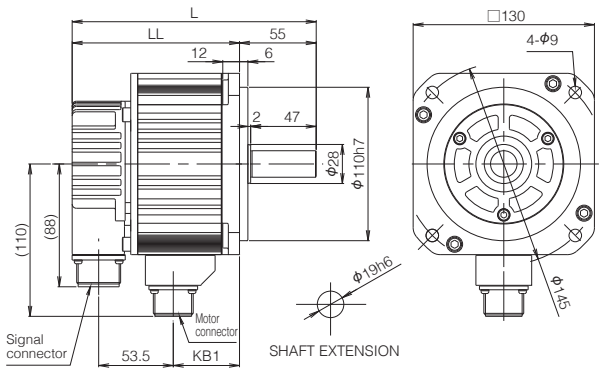


* See page 22 for the shaft extension specifications of the motor with a key.

GYG motor [2000r/min]

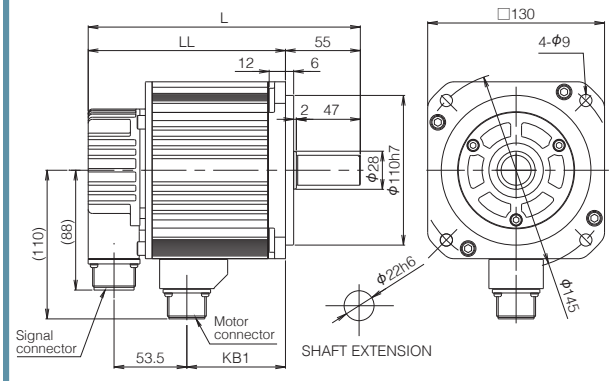
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
2000r/min	0.5kW	GYG501C5-□B2	175	120	47.5	5.3
	0.75kW	GYG751C5-□B2	187.5	132.5	60	6.4

(Unit : mm)



Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
2000r/min	1.0kW	GYG102C5-□B2	200	145	72.5	7.5
	1.5kW	GYG152C5-□B2	225	170	97.5	9.8
	2.0kW	GYG202C5-□B2	250	195	122.5	12

(Unit : mm)

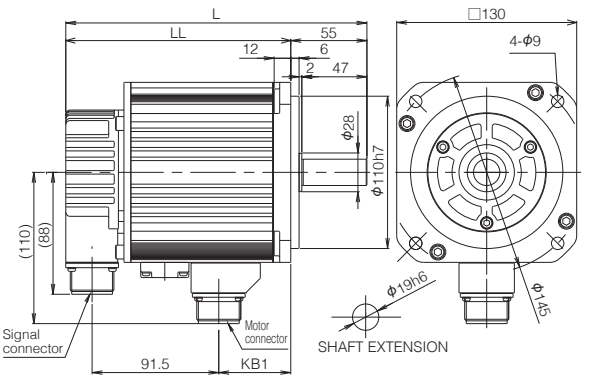


* See page 22 for the shaft extension specifications of the motor with a key.

GYG motor [2000r/min] (with a brake)

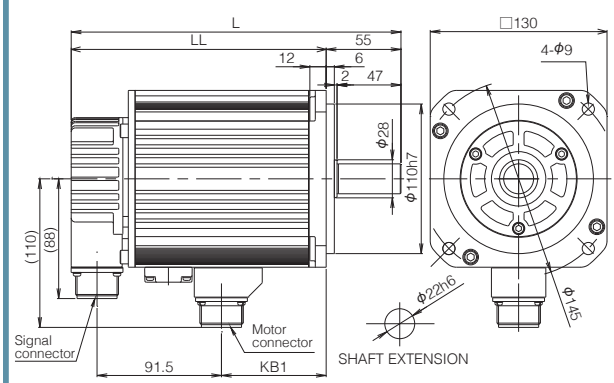
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
2000r/min	0.5kW	GYG501C5-□B2-B	217.5	162.5	52	7.5
	0.75kW	GYG751C5-□B2-B	230	175	64.5	8.6

(Unit : mm)



Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
2000r/min	1.0kW	GYG102C5-□B2-B	242.5	187.5	77	9.7
	1.5kW	GYG152C5-□B2-B	267.5	212.5	102	12
	2.0kW	GYG202C5-□B2-B	292.5	237.5	127	14.2

(Unit : mm)



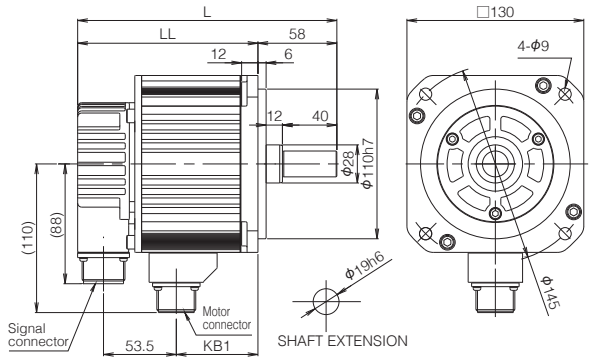
* See page 22 for the shaft extension specifications of the motor with a key.

External Dimensions

GYG motor [1500r/min]

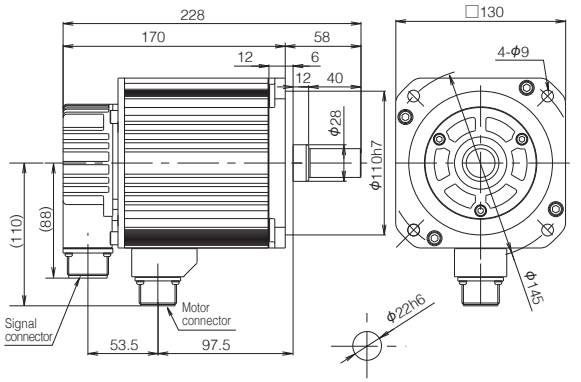
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
1500r/min	0.5kW	GYG501B5-□B2	190.5	132.5	60	6.4
	0.85kW	GYG851B5-□B2	203	145	72.5	7.5

(Unit : mm)



Rated speed	Rated output	Type
1500r/min	1.3kW	GYG132B5-□B2

(Unit : mm)



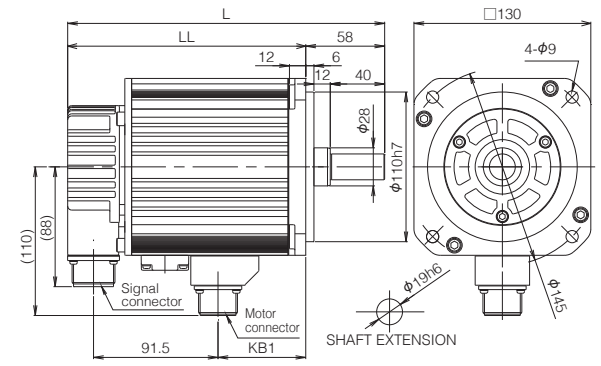
[Mass:9.8kg]

* See page 22 for the shaft extension specifications of the motor with a key.

GYG motor [1500r/min] (with a brake)

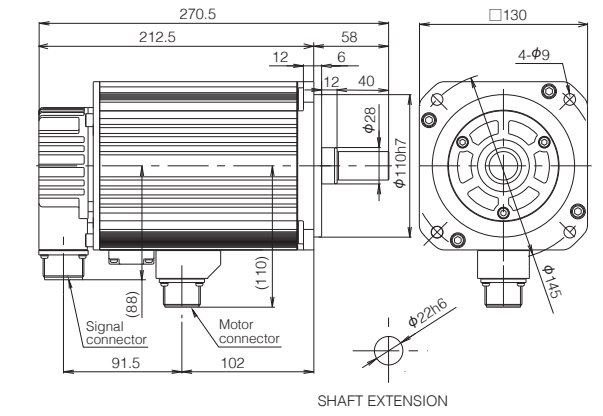
Rated speed	Rated output	Type	Overall length L	Dimensions (flange) LL	Terminal KB1	Mass [kg]
1500r/min	0.5kW	GYG501B5-□B2-B	233	175	64.5	8.6
	0.85kW	GYG851B5-□B2-B	245.5	187.5	77	9.7

(Unit : mm)



Rated speed	Rated output	Type
1500r/min	1.3kW	GYG132B5-□B2-B

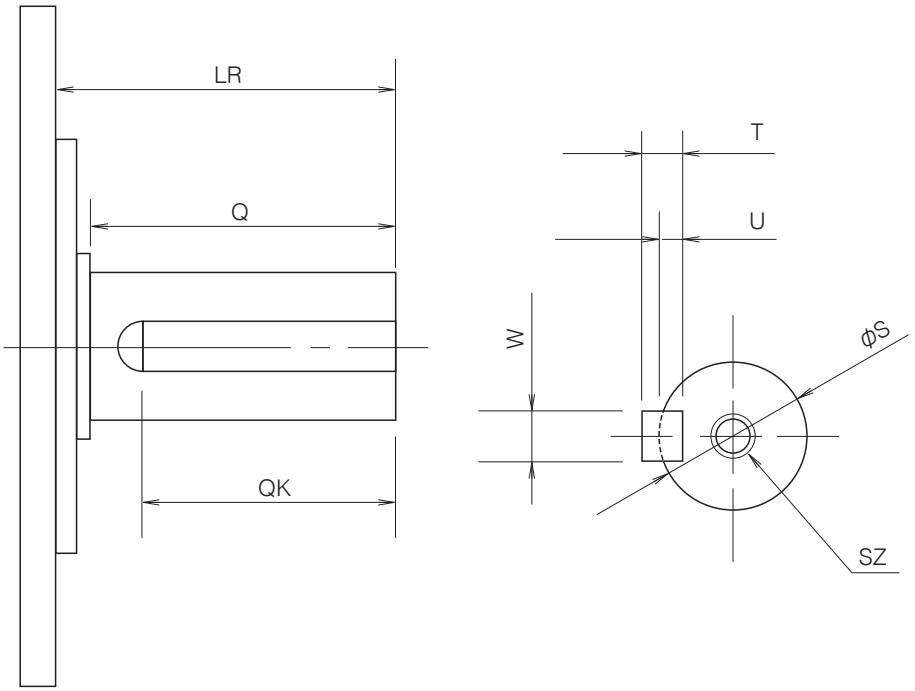
(Unit : mm)



[Mass:12kg]

* See page 22 for the shaft extension specifications of the motor with a key.

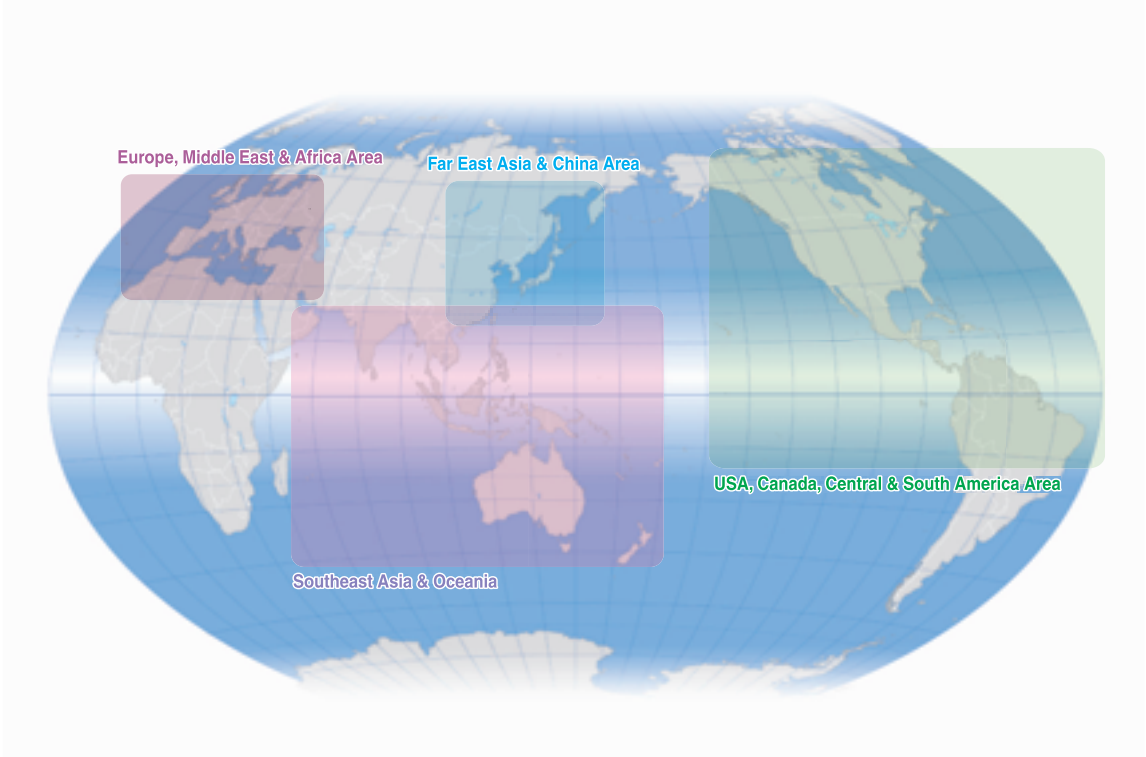
Optional shaft extension specifications (with a key, tapped)



Motor type	LR	Q	QK	S	T	U	W	SZ
GYS motor								
GYS500D5-□A□-□*1	25	–	14	ϕ6h6	2	1.2	2	–
GYS101D5-□A□-□*1				ϕ8h6	3	1.8	3	–
GYS201D5-□C□-□	30		20	ϕ14h6	5	3	5	M5 depth:8
GYS401D5-□C□-□								
GYS751D5-□C2-□	40		30	ϕ16h6				
GYS102D5-□C2-□	45	40	32	ϕ24h6	7	4	8	M8 depth:16
GYS152D5-□C2-□								
GYS202D5-□C2-□								
GYS302D5-□C2-□	63	55	45	ϕ28h6				
GYC motor								
GYC101D5-□A2-□*1	25	–	14	ϕ8h6	3	1.8	3	–
GYC201D5-□C2-□	30		16	ϕ14h6	5	3	5	M5 depth:8
GYC401D5-□C2-□								
GYC751D5-□C2-□	40		22	ϕ16h6				
GYC102D5-□C2-□	58	50	40	ϕ24h6	7	4	8	M8 depth:16
GYC152D5-□C2-□								
GYC202D5-□C2-□								
GYG motor 2000r/min								
GYG501C5-□C2-□	55	47	35	ϕ19h6	6	3.5	6	M6 depth:12
GYG751C5-□C2-□								
GYG102C5-□C2-□				ϕ22h6	7	4	8	M8 depth:16
GYG152C5-□C2-□								
GYG202C5-□C2-□								
GYG motor 1500r/min								
GYG501B5-□C2-□	58	40	30	ϕ19h6	6	3.5	6	M6 depth:12
GYG851B5-□C2-□								
GYG132B5-□C2-□				ϕ22h6	7	4	8	M8 depth:16

*1 The shaft extension of the GYS and GYC motors of 0.1kW or less is not tapped.

Service Network



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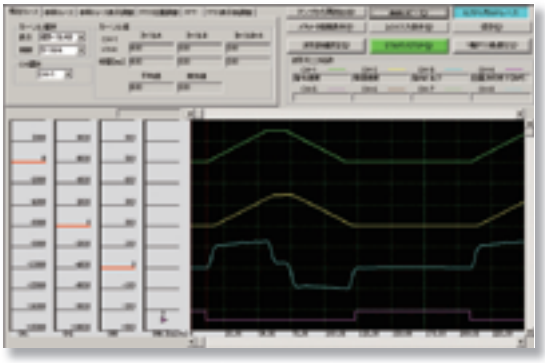
Please access the URL below for further details:
http://www.fujielectric.co.jp/products/provide_data/drive/network/world/world-top.html

PC loader

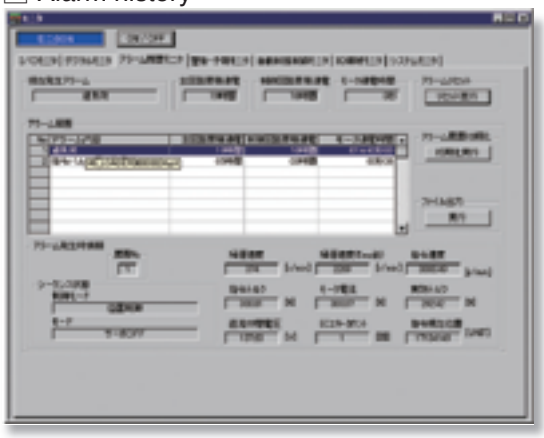
The following features can be readily accessible by connecting the servo amplifier to a PC: waveform trace, parameter editing, various monitor display, alarm history, maintenance information, test run, and machine characteristic analysis, etc.
The PC loader software can be downloaded for free from Fuji's website.
URL http://www.fujielectric.com/products/servo/alpha5smart/index.html

☐ Waveform trace



☐ Parameter editing

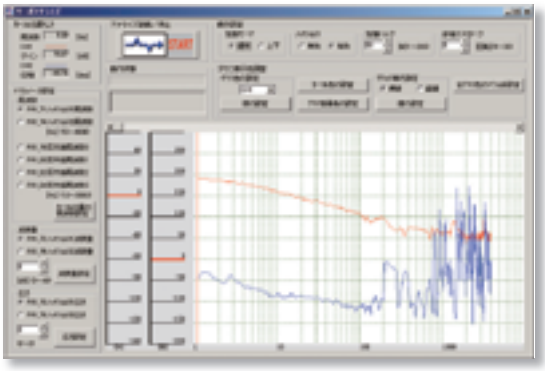
☐ Alarm history



☐ Maintenance information

☐ Test run

☐ Machine characteristics analysis



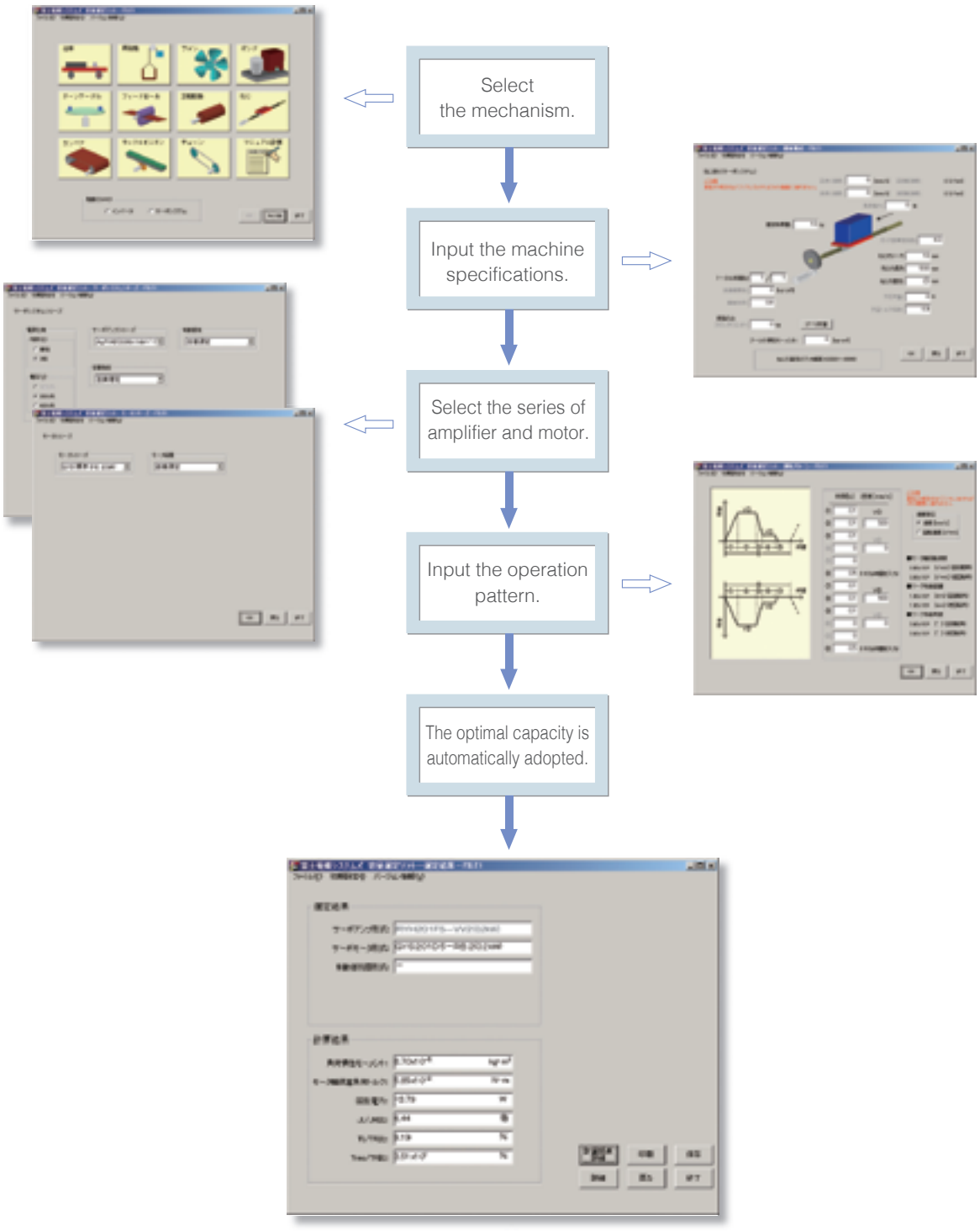
Capacity Adoption

Capacity adoption software

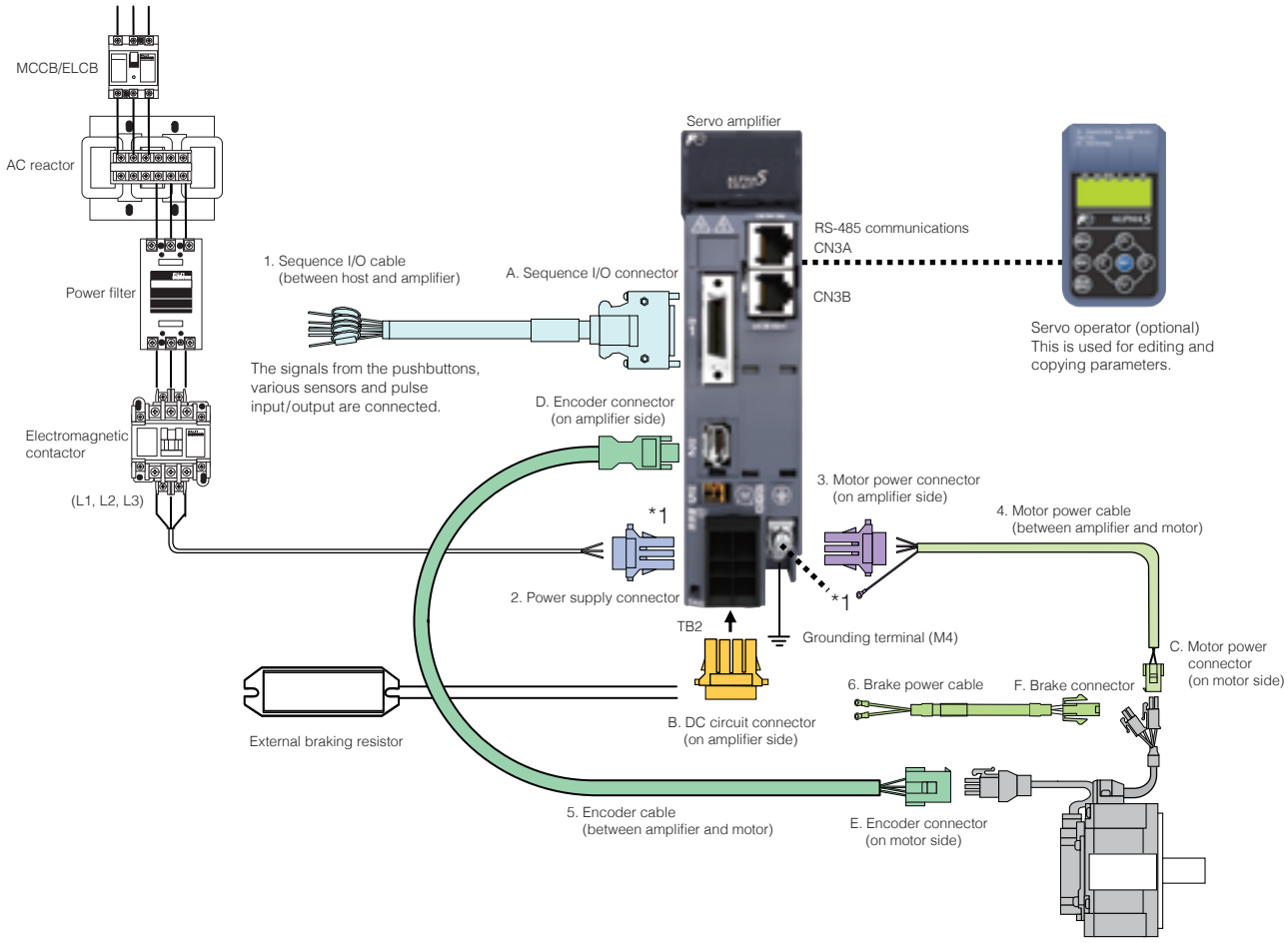
In this software the items including optimal capacity and regenerative braking resistor can be automatically adopted by inputting the machine specifications and operation patterns. The capacity adoption software can be downloaded for free from Fuji's website.

URL http://www.fujielectric.com/products/servo/alpha5smart/index.html

How to adopt the capacities



Configuration diagram



*1: "power supply connector" (2) and "motor power connector on amplifier side" (3) are shared with the models with the motor output of 0.4 kW or less.

Peripheral equipment

Input power	Rated speed	Motor output [kW]	Applicable servo amplifier type	Power capacity [kVA]	Input current [A]	Power filter	AC reactor	Wiring breaker MCCB	Earth leakage breaker ELCB	Electromagnetic contactor MC
Single-phase 200V	3000r/min	0.05	RYH201F5-VV2	0.1	0.7	RNFTC06-20	ACR2-0.4A	BW32AAG-2P/3	EW32AAG-2P/3	SC-03
		0.1		0.2	1.3					
		0.2		0.4	2.4		ACR2-0.75A	BW32AAG-2P/5	EW32AAG-2P/5	
		0.4	RYH401F5-VV2	0.8	4.7	RNFTC10-20	ACR2-1.5A	BW32AAG-2P/10	EW32AAG-2P/10	
		0.75	RYH751F5-VV2	1.5	8.6	RNFTC20-20	ACR2-2.2A	BW32AAG-2P/15	EW32AAG-2P/15	SC-0
	2000r/min	0.5	RYH751F5-VV2	1.0	5.8	RNFTC10-20	ACR2-1.5A	BW32AAG-2P/10	EW32AAG-2P/10	SC-03
		0.75		1.5	8.6	RNFTC20-20	ACR2-2.2A	BW32AAG-2P/15	EW32AAG-2P/15	SC-0
	1500r/min	0.5	RYH751F5-VV2	1.0	5.8	RNFTC10-20	ACR2-1.5A	BW32AAG-2P/10	EW32AAG-2P/10	SC-03
3-phase 200V	3000r/min	0.05	RYH201F5-VV2	0.1	0.4	RNFTC06-20	ACR2-0.4A	BW32AAG-3P/3	EW32AAG-3P/3	SC-03
		0.1		0.2	0.7					
		0.2		0.4	1.4					
		0.4	RYH401F5-VV2	0.8	2.7		ACR2-0.75A	BW32AAG-3P/5	EW32AAG-3P/5	
		0.75	RYH751F5-VV2	1.5	5.0	RNFTC10-20	ACR2-1.5A	BW32AAG-3P/10	EW32AAG-3P/10	
		1.0	RYH152F5-VV2	2.0	6.6		ACR2-2.2A	BW32AAG-3P/15	EW32AAG-3P/15	
		1.5		2.9	9.8	RNFTC20-20		BW32AAG-3P/20	EW32AAG-3P/20	SC-4-1
		2.0	RYH202F5-VV2	3.9	13.0		ACR2-3.7A	BW32AAG-3P/30	EW32AAG-3P/30	
		3.0	RYH302F5-VV2	5.9	19.5	RNFTC30-20	ACR2-5.5A	BW32AAG-3P/40	EW32AAG-3P/40	SC-N1
	2000r/min	0.5	RYH751F5-VV2	1.0	3.3	RNFTC06-20	ACR2-0.75A	BW32AAG-3P/10	EW32AAG-3P/10	SC-03
		0.75		1.5	5.0	RNFTC10-20	ACR2-1.5A			
		1.0	RYH152F5-VV2	2.0	6.6		ACR2-2.2A	BW32AAG-3P/15	EW32AAG-3P/15	
		1.5		2.9	9.8	RNFTC20-20		BW32AAG-3P/20	EW32AAG-3P/20	SC-4-1
		2.0	RYH202F5-VV2	3.9	13.0		ACR2-3.7A	BW32AAG-3P/30	EW32AAG-3P/30	
	1500r/min	0.5	RYH751F5-VV2	1.0	3.3	RNFTC06-20	ACR2-0.75A	BW32AAG-3P/10	BW32AAG-3P/10	SC-03
		0.85	RYH152F5-VV2	1.7	5.6	RNFTC10-20	ACR2-1.5A			
		1.3	RYH202F5-VV2	2.6	8.5	RNFTC20-20	ACR2-2.2A	BW32AAG-3P/15	EW32AAG-3P/15	SC-0

Option

■Basic option

* Prepare the optional items below when using the ALPHA5 Smart series.

Motor series	Rated speed	Rated output	Brake	1. Sequence I/O cable (between host and amplifier)	2. Power supply connector	B. DC circuit connector (on amplifier side)	3. Motor power connector (on amplifier side)	4. Motor power cable (between amplifier and motor)	5. Encoder cable (between amplifier and motor)	6. Brake power cable
GYS motor	3000r/min	0.05kW to 0.4kW	W/o	WSC-D26P02 *3 WSC-D26P02-F WSC-D26P03	WSK-S06P-F	WSK-R04P-F	*1	WSC-M04P02-E(2m) WSC-M04P05-E(5m) WSC-M04P10-E(10m) WSC-M04P20-E(20m)	WSC-P06P02-E(2m) WSC-P06P05-E(5m) WSC-P06P10-E(10m) WSC-P06P20-E(20m)	–
			W/							WSC-M02P02-E(2m) WSC-M02P05-E(5m) WSC-M02P10-E(10m) WSC-M02P20-E(20m)
		0.75kW	W/o		WSK-S03P-F	*2	WSK-M03P-F			–
			W/							WSC-M02P02-E(2m) WSC-M02P05-E(5m) WSC-M02P10-E(10m) WSC-M02P20-E(20m)
		1.0kW to 3.0kW	W/o					Prepared by the customer.	WSC-P06P05-C(5m) WSC-P06P10-C(10m) WSC-P06P20-C(20m)	–
			W/							Prepared by the customer.
GYC motor	3000r/min	0.05kW to 0.4kW	W/o		WSK-S06P-F	WSK-R04P-F	*1	WSC-M04P02-E(2m) WSC-M04P05-E(5m) WSC-M04P10-E(10m) WSC-M04P20-E(20m)	WSC-P06P02-E(2m) WSC-P06P05-E(5m) WSC-P06P10-E(10m) WSC-P06P20-E(20m)	–
			W/							WSC-M02P02-E(2m) WSC-M02P05-E(5m) WSC-M02P10-E(10m) WSC-M02P20-E(20m)
		0.75kW	W/o		WSK-S03P-F	*2	WSK-M03P-F			–
			W/							WSC-M02P02-E(2m) WSC-M02P05-E(5m) WSC-M02P10-E(10m) WSC-M02P20-E(20m)
		1.0kW to 2.0kW	W/o					Prepared by the customer.	WSC-P06P05-C(5m) WSC-P06P10-C(10m) WSC-P06P20-C(20m)	–
			W/							Prepared by the customer.
GYG motor	2000r/min	0.5kW to 2.0kW	W/o							–
			W/							Prepared by the customer.
GYG motor	1500r/min	0.5kW to 1.3kW	W/o							–
			W/							Prepared by the customer.

■Connector kit options

* If the cables are fabricated by the customer use the connectors below.

Motor series	Rated speed	Rated output	Brake	A. Sequence I/O connector	2. Power supply connector	B. DC circuit connector (on amplifier side)	3. Motor power connector (on amplifier side)	C. Motor power connector (on motor side)	Encoder connector		F. Brake connector
									D. on amplifier side	E. on motor side	
GYS motor	3000r/min	0.05kW to 0.4kW	W/o	WSK-D26P	WSK-S06P-F	WSK-R04P-F	*1	WSK-M04P-E	WSK-P06P-M	WSK-P09P-D	–
			W/								WSK-M02P-E
		0.75kW	W/o		WSK-S03P-F	*2	WSK-M03P-F				–
			W/								WSK-M02P-E
		1.0kW to 3.0kW	W/o					WSK-M04P-CA		WSK-P06P-C	–
			W/					WSK-M06P-CA			
GYC motor	3000r/min	0.05kW to 0.4kW	W/o		WSK-S06P-F	WSK-R04P-F	*1	WSK-M04P-E		WSK-P09P-D	–
			W/								WSK-M02P-E
		0.75kW	W/o		WSK-S03P-F	*2	WSK-M03P-F				–
			W/								WSK-M02P-E
		1.0kW to 2.0kW	W/o					WSK-M04P-CB		WSK-P06P-C	–
			W/					WSK-M06P-CB			
GYG motor	2000r/min	0.5kW to 2.0W	W/o					WSK-M04P-CA			–
			W/					WSK-M06P-CA			
GYG motor	1500r/min	0.5kW to 1.3kW	W/o					WSK-M04P-CA			–
			W/					WSK-M06P-CA			

*1: The connector is shared by the motor power (on the amplifiler side) and the power supply.
*2: The connector is not necessary as it is included in the package of servo amplifier.
*3: When connecting the open collector, use the sequence input/output cable for open collector.

■External regenerative resistor options

Amplifier frame	Built-in	External braking resistor type		External braking resistor type
RYH201F5-VV2	–	WSR-401	17W／68Ω	39 to 180
RYH401F5-VV2	–			39 to 90
RYH751F5-VV2	20W／40Ω	WSR-152	50W／15Ω	13 to 47
RYH152F5-VV2	20W／15Ω			8.2 to 27
RYH202F5-VV2	45W／12Ω	DB11-2	260W／10Ω	8.2 to 20
RYH302F5-VV2				8.2 to 13

■ABS backup battery

Amplifier	Optional battery type	
	W/ battery case	Individual battery
All	WSB-SC	WSB-S

Servo amplifier

Specifications						Type
Model	Control mode	Command interface	Input voltage	Applicable motor	Applicable motor output	
VV type	Position, speed and torque control (With built-in linear positioning function)	General-purpose interface (pulse or analog voltage) (Modbus-RTU)	Single-phase or 3-phase 200 to 240V	GYS/GYC/GYG motor	0.2kW, 0.1kW, 0.05kW	RYH201F5-VV2
					0.4kW	RYH401F5-VV2
					0.75kW, 0.5kW	RYH751F5-VV2
			3-phase 200 to 240V		1.5kW, 1.0kW, 0.85kW	RYH152F5-VV2
					2.0, 1.3kW	RYH202D5-VV2
					3.0kW	RYH302D5-VV2

Servomotor

Specifications							Type
Model	Voltage	Rated speed	Oil seal/shaft	Encoder	Brake	Rated output	
GYS motor (ultra low inertia)	200V	3000r/min	Without an oil seal and a key (*1)	18-bit ABS/INC	Without a brake	0.05kW	GYS500D5-HB2
						0.1kW	GYS101D5-HB2
						0.2kW	GYS201D5-HB2
						0.4kW	GYS401D5-HB2
						0.75kW	GYS751D5-HB2
						1.0kW	GYS102D5-HB2
						1.5kW	GYS152D5-HB2
						2.0kW	GYS202D5-HB2
						3.0kW	GYS302D5-HB2
					With a brake	0.05kW	GYS500D5-HB2-B
						0.1kW	GYS101D5-HB2-B
						0.2kW	GYS201D5-HB2-B
						0.4kW	GYS401D5-HB2-B
						0.75kW	GYS751D5-HB2-B
						1.0kW	GYS102D5-HB2-B
						1.5kW	GYS152D5-HB2-B
						2.0kW	GYS202D5-HB2-B
						3.0kW	GYS302D5-HB2-B
				20-bit INC	Without a brake	0.05kW	GYS500D5-RB2
						0.1kW	GYS101D5-RB2
						0.2kW	GYS201D5-RB2
						0.4kW	GYS401D5-RB2
						0.75kW	GYS751D5-RB2
						1.0kW	GYS102D5-RB2
						1.5kW	GYS152D5-RB2
						2.0kW	GYS202D5-RB2
						3.0kW	GYS302D5-RB2
					With a brake	0.05kW	GYS500D5-RB2-B
						0.1kW	GYS101D5-RB2-B
						0.2kW	GYS201D5-RB2-B
						0.4kW	GYS401D5-RB2-B
						0.75kW	GYS751D5-RB2-B
						1.0kW	GYS102D5-RB2-B
						1.5kW	GYS152D5-RB2-B
						2.0kW	GYS202D5-RB2-B
						3.0kW	GYS302D5-RB2-B

*1: The motor without an oil seal, with a key and tapped is available as a semi-standard item.
The other specifications are handled as an order-made item.

Model List

Servomotor

Specifications							Type
Model	Voltage	Rated speed	Oil seal/shaft	Encoder	Brake	Rated output	
GYC motor (low inertia)	200V	3000r/min	Without an oil seal and a key (*1)	18-bit ABS/INC	Without a brake	0.1kW	GYC101D5-HB2
						0.2kW	GYC201D5-HB2
						0.4kW	GYC401D5-HB2
						0.75kW	GYC751D5-HB2
						1.0kW	GYC102D5-HB2
						1.5kW	GYC152D5-HB2
						2.0kW	GYC202D5-HB2
					With a brake	0.1kW	GYC101D5-HB2-B
						0.2kW	GYC201D5-HB2-B
						0.4kW	GYC401D5-HB2-B
						0.75kW	GYC751D5-HB2-B
						1.0kW	GYC102D5-HB2-B
						1.5kW	GYC152D5-HB2-B
						2.0kW	GYC202D5-HB2-B
				20-bit INC	Without a brake	0.1kW	GYC101D5-RB2
						0.2kW	GYC201D5-RB2
						0.4kW	GYC401D5-RB2
						0.75kW	GYC751D5-RB2
						1.0kW	GYC102D5-RB2
						1.5kW	GYC152D5-RB2
						2.0kW	GYC202D5-RB2
					With a brake	0.1kW	GYC101D5-RB2-B
						0.2kW	GYC201D5-RB2-B
						0.4kW	GYC401D5-RB2-B
						0.75kW	GYC751D5-RB2-B
						1.0kW	GYC102D5-RB2-B
						1.5kW	GYC152D5-RB2-B
						2.0kW	GYC202D5-RB2-B
GYG motor (medium inertia)	200V	2000r/min	Without an oil seal and a key (*1)	18-bit ABS/INC	Without a brake	0.5kW	GYG501C5-HB2
						0.75kW	GYG751C5-HB2
						1.0kW	GYG102C5-HB2
						1.5kW	GYG152C5-HB2
						2.0kW	GYG202C5-HB2
					With a brake	0.5kW	GYG501C5-HB2-B
						0.75kW	GYG751C5-HB2-B
						1.0kW	GYG102C5-HB2-B
						1.5kW	GYG152C5-HB2-B
						2.0kW	GYG202C5-HB2-B
				20-bit INC	Without a brake	0.5kW	GYG501C5-RB2
						0.75kW	GYG751C5-RB2
						1.0kW	GYG102C5-RB2
						1.5kW	GYG152C5-RB2
						2.0kW	GYG202C5-RB2
					With a brake	0.5kW	GYG501C5-RB2-B
						0.75kW	GYG751C5-RB2-B
						1.0kW	GYG102C5-RB2-B
						1.5kW	GYG152C5-RB2-B
						2.0kW	GYG202C5-RB2-B
GYG motor (medium inertia)	200V	1500r/min	Without an oil seal and a key (*1)	18-bit ABS/INC	Without a brake	0.5kW	GYG501B5-HB2
						0.85kW	GYG851B5-HB2
						1.3kW	GYG132B5-HB2
					With a brake	0.5kW	GYG501B5-HB2-B
						0.85kW	GYG851B5-HB2-B
						1.3kW	GYG132B5-HB2-B
				20-bit INC	Without a brake	0.5kW	GYG501B5-RB2
						0.85kW	GYG851B5-RB2
						1.3kW	GYG132B5-RB2
					With a brake	0.5kW	GYG501B5-RB2-B
						0.85kW	GYG851B5-RB2-B
						1.3kW	GYG132B5-RB2-B

*1: The motor without an oil seal, with a key and tapped is available as a semi-standard item.
The other specifications are handled as an order-made item.

Option

■Connector and cable

Name		Specifications		Type
For main circuit of amplifier	Power supply + motor power connector (for amplifier main power)	0.05 to 0.4kW	1 set	WSK-S06P-F *5
	Power supply connector (for amplifier main power)	0.5 to 3.0kW	1 set	WSK-S03P-F
	DC circuit connector (wiring of external regenerative resistor and DC link circuit)	0.05 to 0.4kW	1 set	WSK-R04P-F
		0.5 to 3.0kW	1 set	WSK-R05P-F *1
	Motor power connector (wiring of main motor power)	0.5 to 3.0kW	1 set	WSK-M03P-F
For sequence I/O (between host and amplifier)	Sequence I/O cable *6	All capacities (for line driver)	3m (bare wires on one side)	WSC-D26P03
			2m (bare wires on one side)	WSC-D26P02
		All capacities (for open collector)	2m (bare wires on one side)	WSC-D26P02-F
	Sequence I/O connector kit *4	Amplifier side : All capacities	1 set	WSK-D26P
For encoder	Encoder cable (between amplifier and motor)	3000r/min 0.05 to 0.75kW	2m (connector at both ends)	WSC-P06P02-E
			5m (connector at both ends)	WSC-P06P05-E
			10m (connector at both ends)	WSC-P06P10-E
			20m (connector at both ends)	WSC-P06P20-E
		3000r/min 1.0 to 3.0kW 2000r/min 0.5 to 2.0kW 1500r/min 0.5 to 1.3kW	5m (connector at both ends)	WSC-P06P05-C
			10m (connector at both ends)	WSC-P06P10-C
			20m (connector at both ends)	WSC-P06P20-C
	Encoder connector kit *4	Amplifier side : All capacities	1 set	WSK-P06P-M
		Motor side : GYS/GYC 0.05 to 0.75kW	1 set	WSK-P09P-D
		Motor side : GYS 0.5 to 3.0kW GYC 1.0 to 2.0kW GYG 0.5 to 2.0kW	1 set	WSK-P06P-C
For motor power (between amplifier and motor)	Motor power cable *2	0.05 to 0.75kW	2m (bare wires on one side)	WSC-M04P02-E
			5m (bare wires on one side)	WSC-M04P05-E
			10m (bare wires on one side)	WSC-M04P10-E
			20m (bare wires on one side)	WSC-M04P20-E
	Motor power connector kit *4	Motor side : GYS/GYC 0.05 to 0.75kW	1 set	WSK-M04P-E
		Motor side : GYS 1.0 to 2.0kW GYG 0.5 to 2.0kW	1 set	WSK-M04P-CA
		Motor side : GYS 3.0kW GYC 1.0 to 2.0kW	1 set	WSK-M04P-CB
For brake power	Motor power cable *3	0.05 to 0.75kW	2m (bare wires on one side)	WSC-M02P02-E
			5m (bare wires on one side)	WSC-M02P05-E
			10m (bare wires on one side)	WSC-M02P10-E
			20m (bare wires on one side)	WSC-M02P20-E
	Motor power connector kit	Motor side : 0.05 to 0.75kW	1 set	WSK-M02P-E *4
		Motor side : GYS 1.0 to 2.0kW GYG 0.5 to 2.0kW	1 set	WSK-M06P-CA
		Motor side : GYS 3.0kW GYC 1.0 to 2.0kW	1 set	WSK-M06P-CB

*1: One connector is included in the accessory of the main body of the servo amplifier.
*2: Use this cable with motor power connector (on amplifier side) WSK-M03P-E.
*3: Use this cable as a brake cable of the motor equipped with a brake.
*4: Use this connector when the customer fabricates a cable at arbitrary length.
*5: The power supply connector and motor power connector are shared.
*6: When connecting the open collector, use the sequence input/output cable for open collector.

■Common option

Specifications				Type
ABS backup battery	Set of battery and case (*With case)		1 set	WSB-SC
	Battery (*Discrete replacement battery)		1 piece	WSB-S
External regenerative resistor	3000r/min for 0.05 to 0.4kW			WSR-401
	3000r/min for 0.75 to 1.5kW, 2000r/min for 0.5 to 1.0kW, 1500r/min for 0.5 to 0.85kW			WSR-152
	3000r/min for 2.0 to 3.0kW, 2000r/min for 2.0kW, 1500r/min for 1.3kW			DB11-2
For PC loader connection	RS-232C - RS-485 conversion adaptor	For connection of RS-485 port of VV type servo amplifier *1	—	NW0H-CNV
	Cable		2m (connector at both ends)	WSC-PCL
Servo operator *1	—			WSP-51

*1: Use a commercially-available USB cable (USB-A : USB-B, or USB-A : mini-B) when connecting the servo operator to PC.
Use a commercially-available LAN cable when connecting the servo operation to the servo amplifier.

Product Warranty

Please take the following items into consideration when placing your order.

When requesting an estimate and placing your orders for the products included in these materials, please be aware that any items such as specifications which are not specifically mentioned in the contract, catalog, specifications or other materials will be as mentioned below.
In addition, the products included in these materials are limited in the use they are put to and the place where they can be used, etc., and may require periodic inspection. Please confirm these points with your sales representative or directly with this company.
Furthermore, regarding purchased products and delivered products, we request that you take adequate consideration of the necessity of rapid receiving inspections and of product management and maintenance even before receiving your products.

1. Free of Charge Warranty Period and Warranty Range

1-1 Free of charge warranty period

(1) The product warranty period is "1 year from the date of purchase" or 24 months from the manufacturing date imprinted on the name place, whichever date is earlier.
(2) However, in cases where the use environment, conditions of use, use frequency and times used, etc., have an effect on product life, this warranty period may not apply.
(3) Furthermore, the warranty period for parts restored by Fuji Electric's Service Department is "6 months from the date that repairs are completed."

1-2 Warranty range

(1) In the event that breakdown occurs during the product's warranty period which is the responsibility of Fuji Electric, Fuji Electric will replace or repair the part of the product that has broken down free of charge at the place where the product was purchased or where it was delivered. However, if the following cases are applicable, the terms of this warranty may not apply.

1) The breakdown was caused by inappropriate conditions, environment, handling or use methods, etc. which are not specified in the catalog, operation manual, specifications or other relevant documents.
2) The breakdown was caused by the product other than the purchased or delivered Fuji's product.
3) The breakdown was caused by the product other than Fuji's product, such as the customer's equipment or software design, etc.
4) Concerning the Fuji's programmable products, the breakdown was caused by a program other than a program supplied by this company, or the results from using such a program.
5) The breakdown was caused by modifications or repairs affected by a party other than Fuji Electric.
6) The breakdown was caused by improper maintenance or replacement using consumables, etc. specified in the operation manual or catalog, etc.
7) The breakdown was caused by a chemical or technical problem that was not foreseen when making practical application of the product at the time it was purchased or delivered.
8) The product was not used in the manner the product was originally intended to be used.
9) The breakdown was caused by a reason which is not this company's responsibility, such as lightning or other disaster.

(2) Furthermore, the warranty specified herein shall be limited to the purchased or delivered product alone.
(3) The upper limit for the warranty range shall be as specified in item (1) above and any damages (damage to or loss of machinery or equipment, or lost profits from the same, etc.) consequent to or resulting from breakdown of the purchased or delivered product shall be excluded from coverage by this warranty.

1-3. Trouble diagnosis

As a rule, the customer is requested to carry out a preliminary trouble diagnosis. However, at the customer's request, this company or its service network can perform the trouble diagnosis on a chargeable basis. In this case, the customer is asked to assume the burden for charges levied in accordance with this company's fee schedule.

2. Exclusion of Liability for Loss of Opportunity, etc.

Regardless of whether a breakdown occurs during or after the free of charge warranty period, this company shall not be liable for any loss of opportunity, loss of profits, or damages arising from special circumstances, secondary damages, accident compensation to another company, or damages to products other than this company's products, whether foreseen or not by this company, which this company is not be responsible for causing.

3. Repair Period after Production Stop, Spare Parts Supply Period (Holding Period)

Concerning models (products) which have gone out of production, this company will perform repairs for a period of 7 years after production stop, counting from the month and year when the production stop occurs. In addition, we will continue to supply the spare parts required for repairs for a period of 7 years, counting from the month and year when the production stop occurs. However, if it is estimated that the life cycle of certain electronic and other parts is short and it will be difficult to procure or produce those parts, there may be cases where it is difficult to provide repairs or supply spare parts even within this 7-year period. For details, please confirm at our company's business office or our service office.

4. Transfer Rights

In the case of standard products which do not include settings or adjustments in an application program, the products shall be transported to and transferred to the customer and this company shall not be responsible for local adjustments or trial operation.

5. Service Contents

The cost of purchased and delivered products does not include the cost of dispatching engineers or service costs. Depending on the request, these can be discussed separately.

6. Applicable Scope of Service

Above contents shall be assumed to apply to transactions and use of the country where you purchased the products.
Consult the local supplier or Fuji for the detail separately.

Reference Material

ALPHA 5 Series

The ALPHA 5 Series is the all-round type servo system which supports the system allowing the motion control via high-speed serial bus.

Programmable operation display MONITOUCH V8 Series

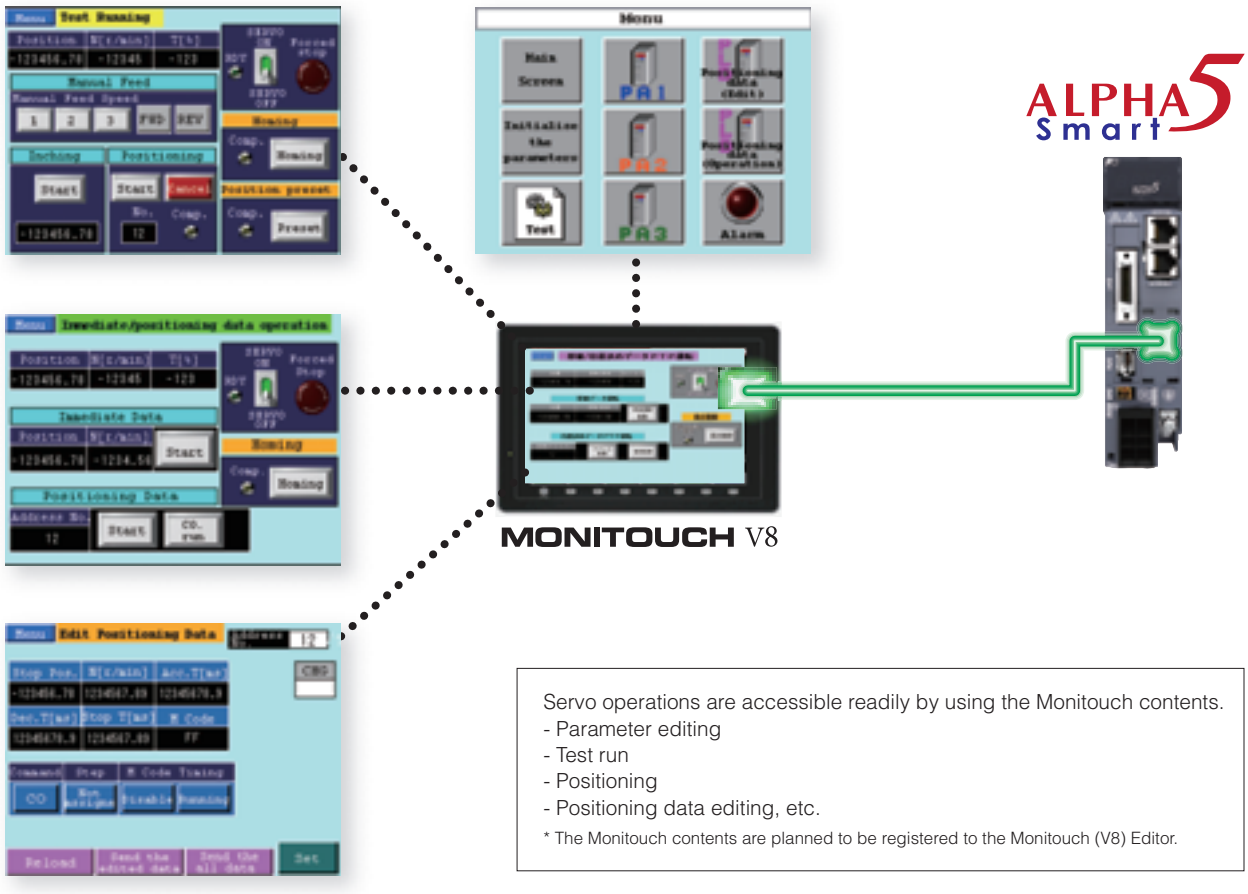
Various product types ranging from 5.7" (QVGA) to 15" (XGA) are included in the product line.
Equipped with industry's first high-quality video with 1677-million colors supporting 8-way communications.

Compact size speed reducer for servo motors

The compact size motor speed reducer for GYS and GYC motors.
Smooth and quiet operation with low-pulsation can be achieved by the helical gear.
Backlash: 0.25°
Reduction ratio: 1/5, 1/9, 1/15, 1/25

Easy operation! The contents of the Monitouch

The Monitouch (V8) can be connected directly to the servo amplifier via Modbus-RTU communications.
The dedicated Monitouch contents (screens) have been prepared for operations.



Servo operations are accessible readily by using the Monitouch contents.
- Parameter editing
- Test run
- Positioning
- Positioning data editing, etc.

* The Monitouch contents are planned to be registered to the Monitouch (V8) Editor.

MEMO

MEMO

MEMO

⚠ SAFETY PRECAUTIONS

1. This catalog is intended for use in selecting required servo systems. Before actually using these products, carefully read their instruction manuals and understand their correct usage.
2. Products described in this catalog are neither designed nor manufactured for combined use with a system or equipment that will affect human lives.
   If you are considering using these products for special purposes, such as atomic energy control, aerospace, medical application, or traffic control, please consult our sales office.
3. If you use our product with equipment that is expected to cause serious injury or damage to your property in case of failure, be sure to take appropriate safety measures for the equipment.

The Inverter Value Engineering Center (Suzuka Area) has acquired environment management system ISO14001 and quality management system ISO9001 certifications.

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