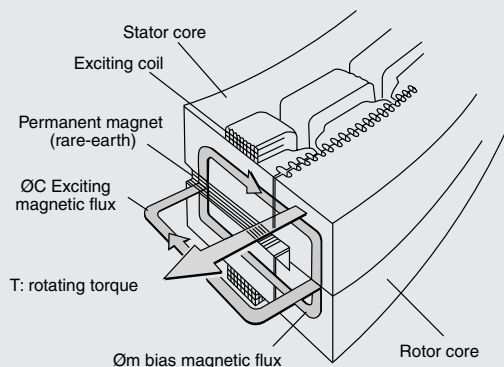

DDM Product Catalog

CA A501-E

High Torque

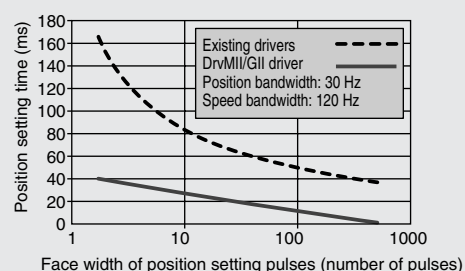
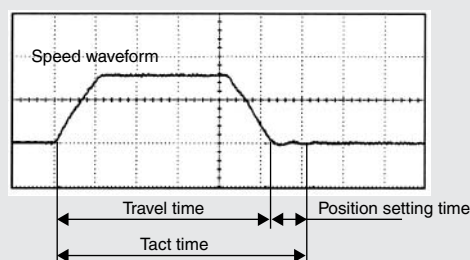
The magnetic circuit of DYNASERV employs the magnetic bias method, in which a rare-earth permanent magnet with a high magnetic force is housed in the stator core. As in the figure below, this mechanism generates a high rotating torque, which is proportional to the square value of the sum of the two magnetic fluxes. As a result, the direct drive (DD) motor offers an unprecedented torque-weight ratio.



High Tact

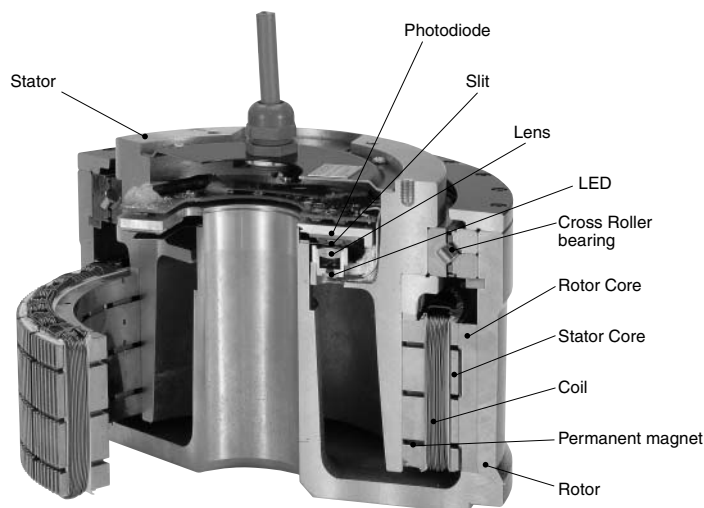
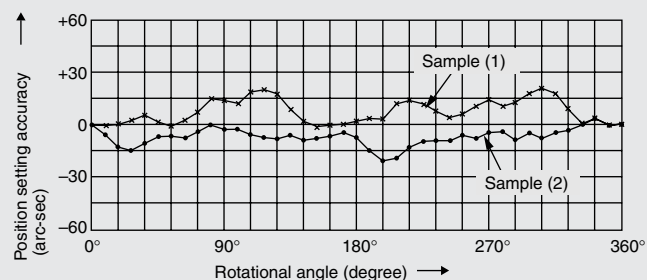
Intelligent Drivers are drastically improved the basic performance of DYNASERV. The employment of digital positioning and speed control technologies and four-fold resolution are among the factors reducing the position setting time conventional DYNASERV to less than half that of DYNASERV.

The standard-equipped feed forward function also contributes to the reduction of the position setting time.



Highly Accurate

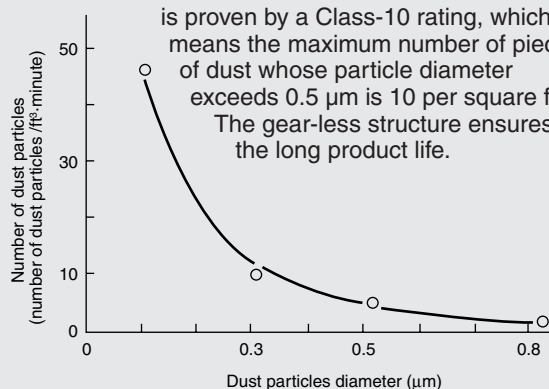
DYNASERV is powered by a newly developed encoder, to which the high resolution and accuracy of DM Series drivers can be attributed. The resolution of DM1A Series is 4,096,000 pulses per revolution. DM1B series is 2,621,440 pulses per revolution. The absolute accuracy and the repeatability of the DM1A Series are ± 15 and ± 1 arcsec, respectively.



DM1A-150

Clean & Long Product Life

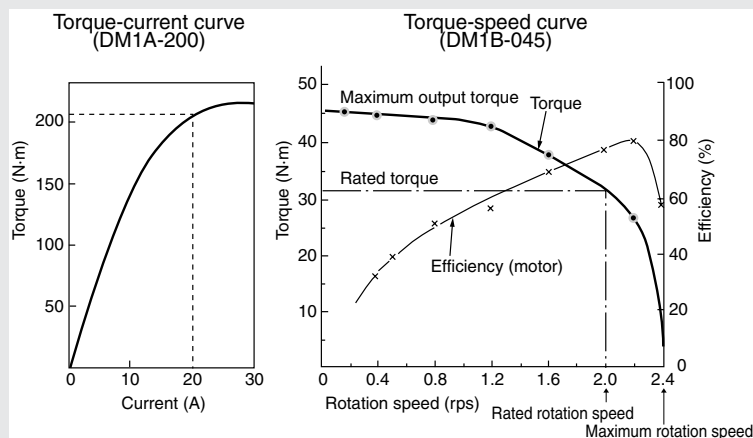
DYNASERV uses a special high-rigidity bearing to support rotations, so it produces a very small amount of dust. The cleanliness of DYNASERV is proven by a Class-10 rating, which means the maximum number of pieces of dust whose particle diameter exceeds $0.5 \mu\text{m}$ is 10 per square foot. The gear-less structure ensures the long product life.



Flat Torque Curve and Smooth Rotation Control

DYNASERV presents a nearly flat torque curve at all operational speeds. Also, the torque-current curve of DYNASERV is linear, which demonstrates its excellent controllability and makes it possible to control acceleration and deceleration according to theoretical values.

DYNASERV achieves a speed ratio of over 1:1000, so the speed can be changed in a wide range. Rotation control can be performed smoothly while restraining speed ripple.



CN1:
Serial
Interface
Connector
(RS232C/485)

TB1:
Power Supply
Terminal

TB2:
Motor Terminal

CN2:
Encoder /
Resolver Connector

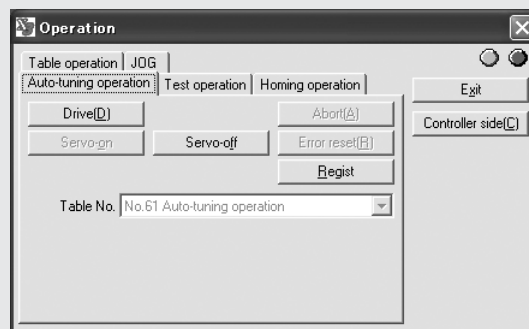
CN4:
Controller
Interface
Connector

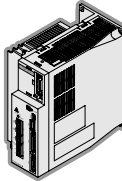
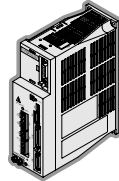
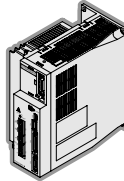
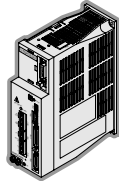
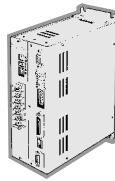
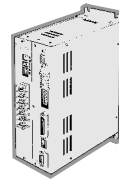
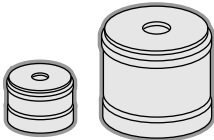
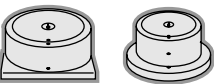
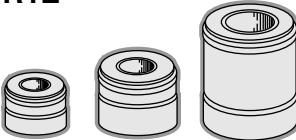
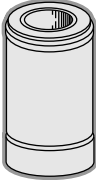
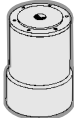
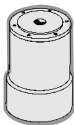
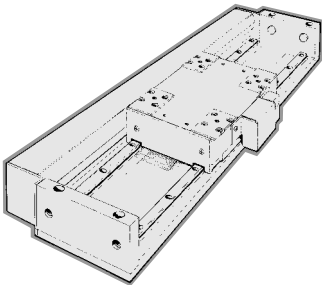
Intelligent Drive DrvGIII

Auto Tuning

Intelligent Drives are provided with the auto tuning function, which automatically sets optimum values to the servo parameters according to the load inertia (load weight).

Also, the servo parameters and the filter settings can be easily changed using the operating software.



Drive Motor			DrvGIII Intelligent Drive		DrvPIII Intelligent Drive			DrvGII Intelligent Drive			DrvMII Intelligent Drive				High-Speed A Type Servo Drive
			500W class	2kW class	500W class	2kW class	Absolute Encoder	500W class	2kW class Without Regenerative Resistor	2kW class With Regenerative Resistor	500W class	2kW class Without Regenerative Resistor	2kW class With Regenerative Resistor	Absolute Encoder	
															
Direct Drive Motor DYNASERV	D M	DM1A, DM1B  (15~200Nm)		✓		✓			✓	✓		✓	✓		
		DM1B-006 DM1C-004  (4~6Nm)	✓		✓			✓			✓				
	D R	DR1A, DR1B, DR1E DR5B, DR5E  (8~400Nm)		✓		✓			✓	✓		✓	✓		
		DR5A  (300~500Nm)													✓
		DR5C  (5~15Nm)	✓		✓			✓			✓				
	D B	DB5C with built-in absolute encoder  (5~15Nm)					✓							✓	
Direct Drive Linear Motor LINEARSERV	L M	 (50~400N)	✓		✓			✓			✓				

		Maximum Torque(N·m)/Maximum Force(N)										Velocity	Encoder Resolution	Absolute Accuracy	Feature	Application
		2	10	30	50	100	150	200	300	400	500					
DYNASERV	DM1A	Ø264			DM1A-050	DM1A-100	DM1A-150	DM1A-200				(rps)	(p/rev)	(arc-sec)	● Built-in Optical Encoder ● High Precision ● Excellent Torque-to-weight Ratio ● Aluminum-based Chassis Type	■ Robot ■ Inspection Machine
	DM1B	Ø160	DM1B-006									1.5	4,096,000	±15		■ Label Printing Machine
	DM1C	Ø116		DM1B-015	DM1B-030	DM1B-045	DM1B-060					2.0	2,621,440	±20 ±60		■ Tip Mounter ■ Index Table
	DR1A	Ø264	DM1C-004		DR1A-050	DR1A-100	DR1A-150	DR1A-200	DR1A-300	DR1A-400		0.5 1.0 1.5	1,638,400	±30		■ Bender ■ Spooling Machine
	DR1E	Ø205			DR1E-030	DR1E-070	DR1E-100	DR1E-130	DR1E-160	DR1E-250		1.0 1.5 2.0	1,228,800	±45	● Built-in Magnetic Encoder ● Excellent Environment Resistance ● Large Diameter Hollow Hole	■ Robot ■ Index Table ■ Slitter ■ Servo Press ■ Loader
	DR1B	Ø150	DR1B-008	DR1B-015	DR1B-030	DR1B-045	DR1B-060		DR1E-220			1.5 2.0	1,015,808	±45		
	DR5A	Ø264							DR5A-300	DR5A-400	DR5A-500	1.5	425,984	±45		■ High-speed Placement Machine ■ Automatic Assembly Machine
	DR5E	Ø205				DR5E-070	DR5E-100					2.0	638,976	±90	● High-speed Type ● DB5C; Direct Drive with Built-in Absolute Encoder	■ Automatic Guided Vehicle ■ Printing ■ Packaging
	DR5B	Ø150		DR5B-030	DR5B-050	DR5B-070						4.0	557,056	±90		
LINEARSERV	DR5C DB5C	Ø107	DB5C-005 DR5C-005	DB5C-010 DR5C-010	DB5C-015 DR5C-015							4.0	425,984	±150		■ CD/DVD Manufacturing System
	LM105 LM110 (50~1800mm) LM130				LM105	LM110			LM130			(m/s)	(μm)	(μm)		
	LM205 LM210 (50~1800mm) LM230 LM240				LM205	LM210			LM230	LM240		0.83	0.05 0.25		● Built-in Optical Linear Encoder ● Highly Accurate Positioning ● Smooth Drive Characteristics	■ Semiconductor Manufacturing / Inspection System ■ LCD Manufacturing / Inspection System ■ X-Y Stage
	LM305 LM310 (50~1800mm) LM330				LM305	LM310			LM330							
	LM505 LM510 (50~1800mm) LM530				LM505	LM510			LM530			2.0	0.5	$5 + \frac{5}{1000} L_s$ Ls: Length of Stroke (mm)		

■ Specifications

(1) DM1A

Item			Unit	DM1A			
				DM1A-050	DM1A-100	DM1A-150	DM1A-200
Motor and drive	Maximum torque		N·m	50	100	150	200
	Maximum velocity		rps	1.2			
	Rated velocity		rps	1.0 [1.0]		1.0 [0.5]	
	Rotation Positioning	Encoder resolution	p/rev	4,096,000			
		Absolute accuracy	arc-sec	±15			
		Repeatability accuracy	arc-sec	±1			
Motor	Rotor inertia		kg·m ²	96×10 ⁻³	119×10 ⁻³	142×10 ⁻³	167×10 ⁻³
	Axial load	Compression	N	4.0×10 ⁴			
		Tension		2.0×10 ⁴			
	Maximum overhung load		N·m	400			
	Axial stiffness	Compression	mm/N	2.0×10 ⁻⁶			
		Tension		3.0×10 ⁻⁶			
	Over hung load stiffness		rad/N·m	4.0×10 ⁻⁷			
	Mechanical accuracy (Run out) ①		μm	100 (10, 5 ②) or less			
	Weight		kg	14.5	19	24	29
	Length L (See the outline drawings.)		mm	113±1	138±1	163±1	188±1

(1) DM1B/C

Item			Unit	DM1C	DM1B				
				DM1C-004	DM1B-006	DM1B-015	DM1B-030	DM1B-045	DM1B-060
Motor and drive	Maximum torque		N·m	4	6	15	30	45	60
	Maximum velocity		rps	2.5 [2.5]		2.4 [2.4]			
	Rated velocity		rps	2.0 [2.0]	2.0 [2.0]	2.0 [2.0]	2.0 [1.5]	2.0 [1.0]	1.5 [1.0]
	Rotation Positioning	Encoder resolution	p/rev	2,621,440					
		Absolute accuracy	arc-sec	±20/±60 ^②		±15			
		Repeatability accuracy	arc-sec	±3		±1			
Motor	Rotor inertia		kg·m ²	2.5×10 ⁻³	7.5×10 ⁻³	12×10 ⁻³	15×10 ⁻³	19×10 ⁻³	23×10 ⁻³
	Axial load	Compression	N	50	200	3.0×10 ⁴			
		Tension		50	200	1.0×10 ⁴			
	Maximum overhung load		N·m	—	50	200			
	Axial stiffness	Compression	mm/N	—	—	2.5×10 ⁻⁶			
		Tension		—	—	3.0×10 ⁻⁶			
	Over hung load stiffness		rad/N·m	—	—	1.0×10 ⁻⁶			
	Mechanical accuracy (Run out) ①		μm	10 or less		100 (10, 5 ^②) or less			100 (10 ^②) or less
	Weight		kg	3	5	5.5	7.5	9.5	12
	Length L (See the outline drawings.)		mm	77±0.5	65±0.7	92.5±1	118±1	143±1	168±1

[Common Spec] Insulating Classes : Class F, Isolation Voltage : 1minute 1500VAC, Insulation Resistance : Over 10MΩ(500VDC), Structure : Outer Rotor Type
Excitation Method : 3 Phase, Coating : Black

Note : ① Mechanical accuracy indicate the axial and radial run-out of the load mounting surface.

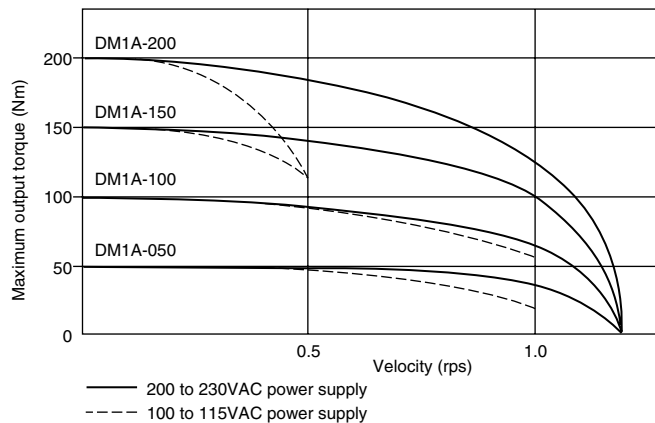
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* Listed figures without remark represent the specification for 200-230VAC.

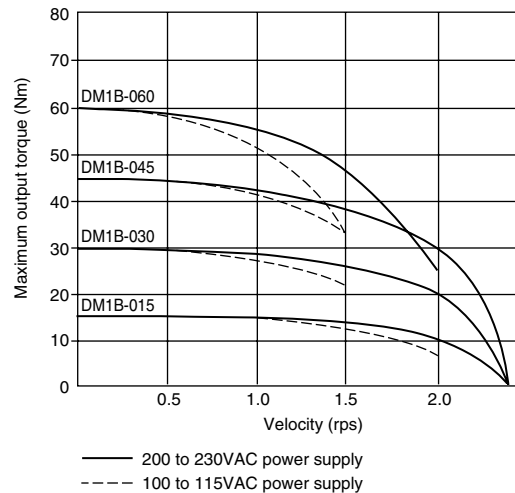
Figures in [] represent the specification for 100-115VAC.

Torque/Velocity Characteristics

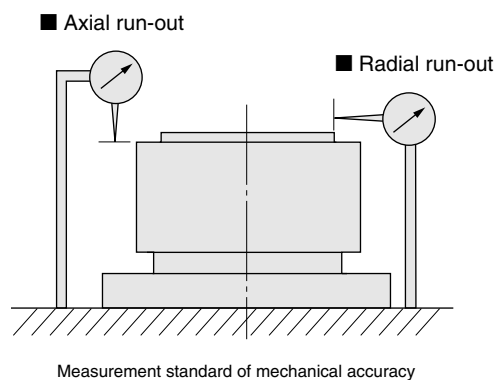
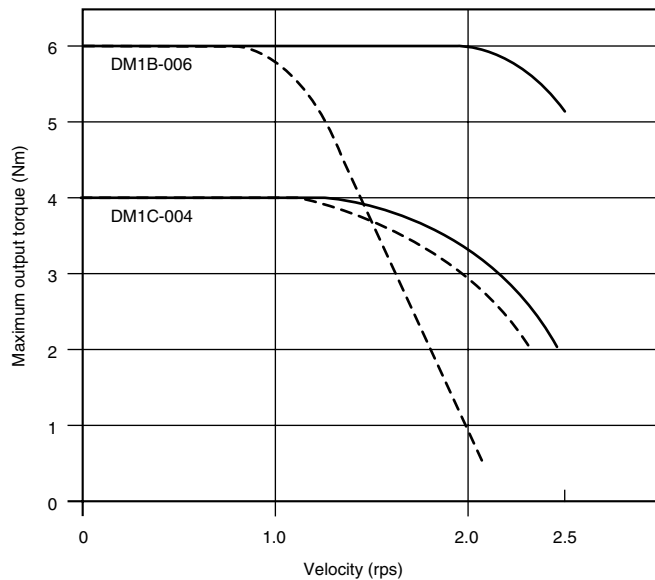
(1) DM1A



(2) DM1B



(3) DM1B-006, DM1C

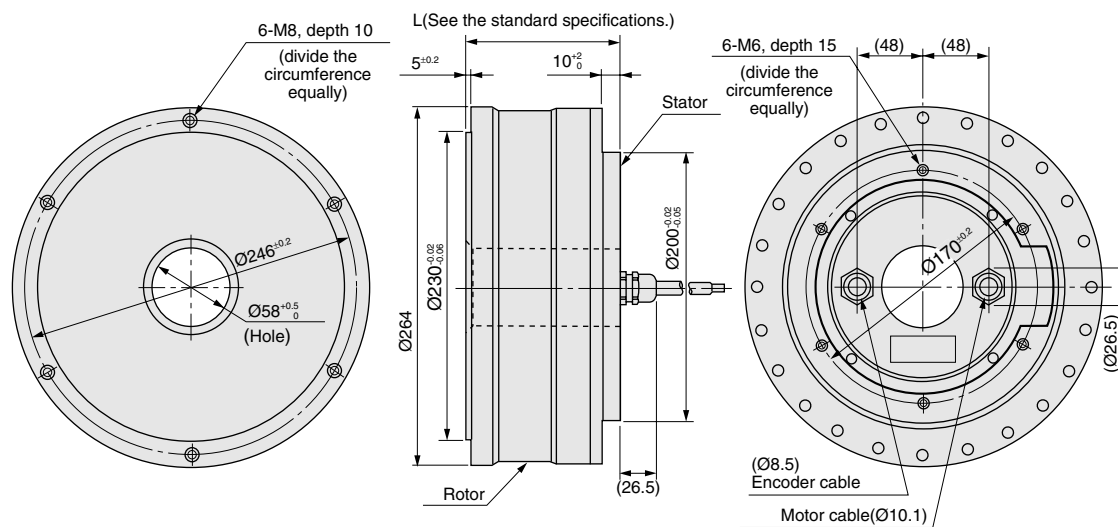


Environment Specifications

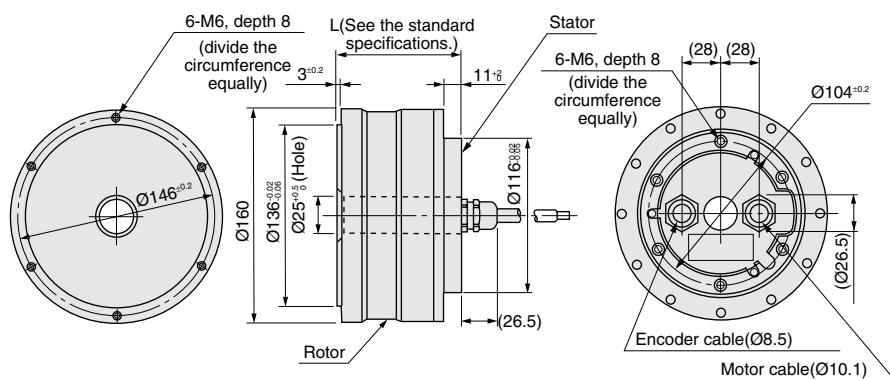
		Motor	Remarks
Operation	Temperature	0 to 45°C	
	Humidity	20 to 85% RH	No condensation
Storage	Temperature	-20 to 85°C	
	Humidity	20 to 85% RH	No condensation
Atmosphere		Must be no corrosive gasses, dust and dirt Must be used at a maximum altitude of 1000 meters above sea level	

External Dimensions (Unit:mm)

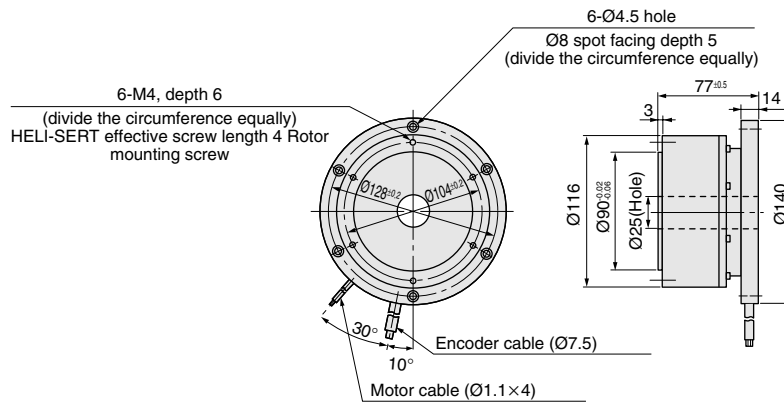
(1) DM1A



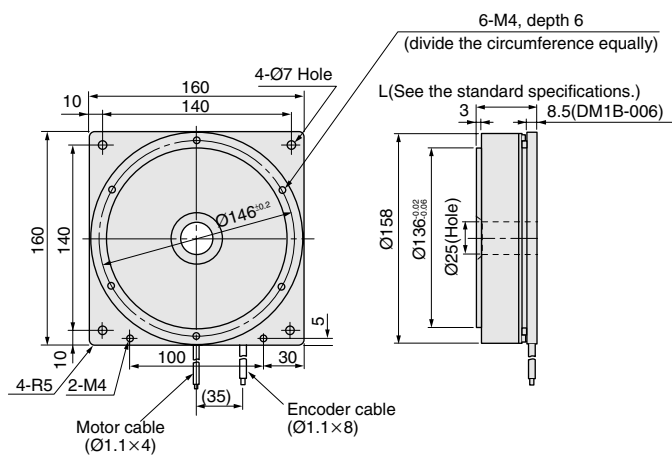
(2) DM1B



(3) DM1C-004



(4) DM1B-006



■ Specifications

(1) DR1A

Item			Unit	DR1A					
				DR1A-050	DR1A-100	DR1A-150	DR1A-200	DR1A-300	DR1A-400
Motor and drive	Maximum torque		N·m	50	100	150	200	300	400
	Maximum velocity		rps	1.8 [1.8]	1.2 [1.2]	1.2 [1.0]	1.2 [0.8]	1.0 [0.5]	0.8 [0.4]
	Rated velocity		rps	1.5 [1.5]	1.0 [1.0]	1.0 [0.5]		0.5 [0.25]	
	Rotation Positioning	Encoder resolution	p/rev	1,638,400					
		Absolute accuracy	arc-sec	±30					
		Repeatability accuracy	arc-sec	±3					
Motor	Rotor inertia		kg·m ²	180×10 ⁻³	200×10 ⁻³	230×10 ⁻³	285×10 ⁻³	340×10 ⁻³	400×10 ⁻³
	Axial load	Compression	N	4.0×10 ⁴					
		Tension		2.0×10 ⁴					
	Maximum overhung load		N·m	400					
	Axial stiffness	Compression	mm/N	2.0×10 ⁻⁶					
		Tension		3.0×10 ⁻⁶					
	Over hung load stiffness		rad/N·m	4.0×10 ⁻⁷					
	Mechanical accuracy (Run out) ①		μm	100 (10, 5 ^②) or less			100 (20 ^②) or less		
	Weight		kg	26	31	36	45	55	65
Length L (See the outline drawings.)		mm	158 ^{±1}	185 ^{±1}	212 ^{±1}	250 ^{±1}	304 ^{±1}	358 ^{±1}	

(2) DR1E/DR1B

Item			Unit	DR1E						DR1B					
				DR1E-030	DR1E-070	DR1E-100	DR1E-130	DR1E-160	DR1E-220	DR1E-250	DR1B-008	DR1B-015	DR1B-030	DR1B-045	DR1B-060
Motor and drive	Maximum torque		N·m	30	70	100	130	160	220	250	8	15	30	45	60
	Maximum velocity		rps	2.4 [2.0]	2.4 [2.0]	2.4 [1.5]	1.2 [1.2]	1.2 [1.0]	1.2 [0.7]		2.4 [2.4]			2.4 [1.8]	2.4 [1.4]
	Rated velocity		rps	2.0 [1.5]	2.0 [1.5]	1.5 [1.0]	1.0 [0.5]			2.0 [2.0]		2.0 [1.5]	2.0 [1.0]	1.5 [1.0]	
	Rotation Positioning	Encoder resolution	p/rev	1,228,800						1,015,808					
		Absolute accuracy	arc-sec	±45						±45					
Repeatability accuracy		arc-sec	±3						±3						
Motor	Rotor inertia		kg·m ²	72×10 ⁻³	85×10 ⁻³	100×10 ⁻³	125×10 ⁻³	140×10 ⁻³	170×10 ⁻³	185×10 ⁻³	15×10 ⁻³	21×10 ⁻³	24×10 ⁻³	26×10 ⁻³	33×10 ⁻³
	Axial load	Compression	N	4.0×10 ⁴						3.0×10 ⁴					
		Tension		2.0×10 ⁴						1.0×10 ⁴					
	Maximum overhung load		N·m	400						200					
	Axial stiffness	Compression	mm/N	2.0×10 ⁻⁶						3.0×10 ⁻⁶					
		Tension		3.0×10 ⁻⁶						4.0×10 ⁻⁶					
	Over hung load stiffness		rad/N·m	4.0×10 ⁻⁷						2.0×10 ⁻⁶					
	Mechanical accuracy (Run out) ①		μm	100 (10, 5 ^②) or less			100 (20 ^②) or less			100 (10, 5 ^②) or less			100(10 ^②) or less		
	Weight		kg	18	22	26	32	36	44	48	6.0	9.0	11	13	15.5
Length L (See the outline drawings.)		mm	156 ^{±1}	183 ^{±1}	210 ^{±1}	243 ^{±1}	271 ^{±1}	327 ^{±1}	355 ^{±1}	85 ^{±1}	123 ^{±1}	151 ^{±1}	179 ^{±1}	207 ^{±1}	

Note : ① Mechanical accuracy indicate the axial and radial run-out of the load mounting surface.

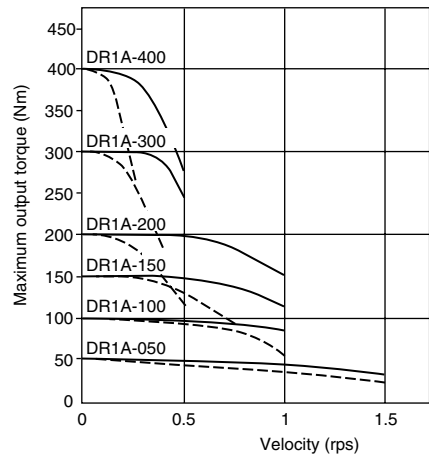
② Selectable

* Listed figures without remark represent the specification for 200-230VAC.

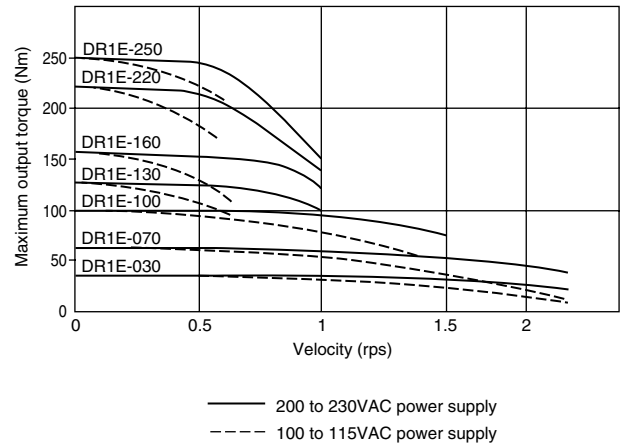
Figures in [] represent the specification for 100-115VAC.

Torque/Velocity Characteristics

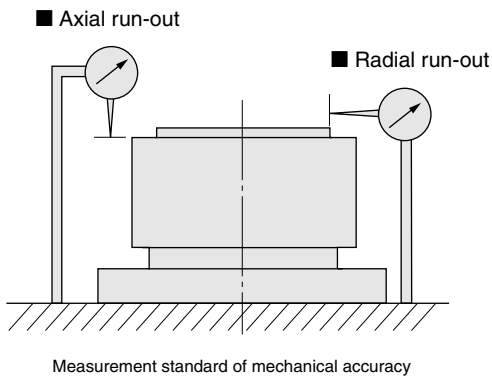
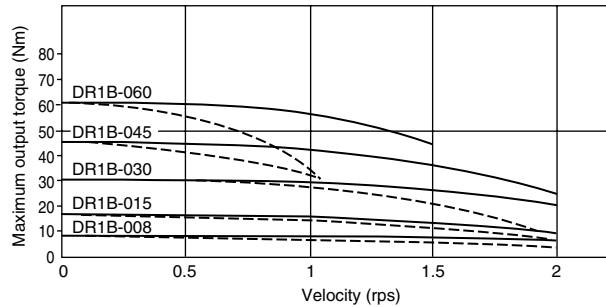
(1) DR1A



(2) DR1E



(3) DR1B



Environment Specifications

		Motor	Remarks
Operation	Temperature	0 to 45°C	
	Humidity	20 to 85% RH	No condensation
Storage	Temperature	-20 to 85°C	
	Humidity	20 to 85% RH	No condensation
Atmosphere		Must be no corrosive gasses, dust and dirt Must be used at a maximum altitude of 1000 meters above sea level	

■ Specifications

(1) DR5A/DR5E

Item			Unit	DR5A			DR5E	
				DR5A-300	DR5A-400	DR5A-500	DR5E-070	DR5E-100
Motor and drive	Maximum torque		N·m	300	400	500	70	100
	Maximum velocity		rps	2.0			4.0	
	Rated velocity		rps	1.5			2.0	
	Rotation Positioning	Encoder resolution	p/rev	851,968			638,976	
		Absolute accuracy	arc-sec	±45			±90	
		Repeatability accuracy	arc-sec	±3			±4	
Motor	Rotor inertia		kg·m ²	340×10 ⁻³	400×10 ⁻³	460×10 ⁻³	100×10 ⁻³	125×10 ⁻³
	Axial load	Compression	N	4.0×10 ⁴			4.0×10 ⁴	
		Tension		2.0×10 ⁴			2.0×10 ⁴	
	Maximum overhung load		N·m	400			400	
	Axial stiffness	Compression	mm/N	2.0×10 ⁻⁶			2.0×10 ⁻⁶	
		Tension		3.0×10 ⁻⁶			3.0×10 ⁻⁶	
	Over hung load stiffness		rad/N·m	4.0×10 ⁻⁷			4.0×10 ⁻⁷	
	Mechanical accuracy (Run out) ①		μm	100 or less			100 or less	
	Weight		kg	55	65	75	26	32
	Length L (See the outline drawings.)		mm	309 ^{±1}	363 ^{±1}	417 ^{±1}	210 ^{±1}	243 ^{±1}

(2) DR5B/DR5C

Item			Unit	DR5B			DR5C		
				DR5B-030	DR5B-050	DR5B-070	DR5C-005	DR5C-010	DR5C-015
Motor and drive	Maximum torque		N·m	30	50	70	5	10	15
	Maximum velocity		rps	5.0			6.0		
	Rated velocity		rps	4.0			4.0		
	Rotation Positioning	Encoder resolution	p/rev	557,056			425,984		
		Absolute accuracy	arc-sec	±90			±150		
		Repeatability accuracy	arc-sec	±5			±5		
Motor	Rotor inertia		kg·m ²	27×10 ⁻³	34×10 ⁻³	37×10 ⁻³	6×10 ⁻³	7×10 ⁻³	8×10 ⁻³
	Axial load	Compression	N	3.0×10 ⁴			5×10 ³		
		Tension		1.0×10 ⁴			3×10 ³		
	Maximum overhung load		N·m	200			20		
	Axial stiffness	Compression	mm/N	3.0×10 ⁻⁶			4×10 ⁻⁶		
		Tension		4.0×10 ⁻⁶			8×10 ⁻⁶		
	Over hung load stiffness		rad/N·m	2.0×10 ⁻⁶			8×10 ⁻⁷		
	Mechanical accuracy (Run out) ①		μm	100 (10, 5 ^②) or less			100 (10 ^②) or less		
	Weight		kg	13.5	16.0	18.0	5.5	6.5	7.5
	Length L (See the outline drawings.)		mm	184 ^{±1}	212 ^{±1}	240 ^{±1}	113 ^{±1}	140 ^{±1}	167 ^{±1}

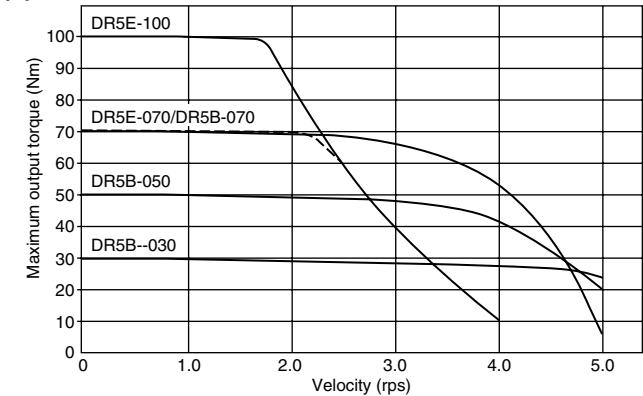
[Common Spec] Insulating Classes : Class F, Isolation Voltage : 1minute 1500VAC, Insulation Resistance : Over 10MΩ(500VDC), Structure : Outer Rotor Type
Excitation Method : 3 Phase, Coating : Black

Note : ① Mechanical accuracy indicate the axial and radial run-out of the load mounting surface.

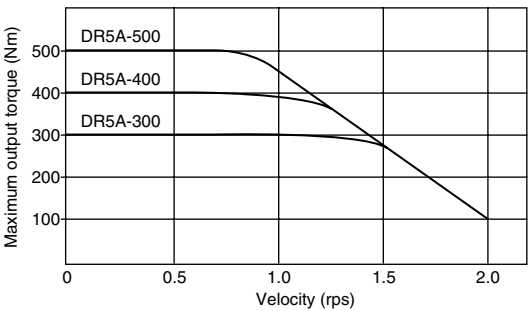
② Selectable

Torque/Velocity Characteristics

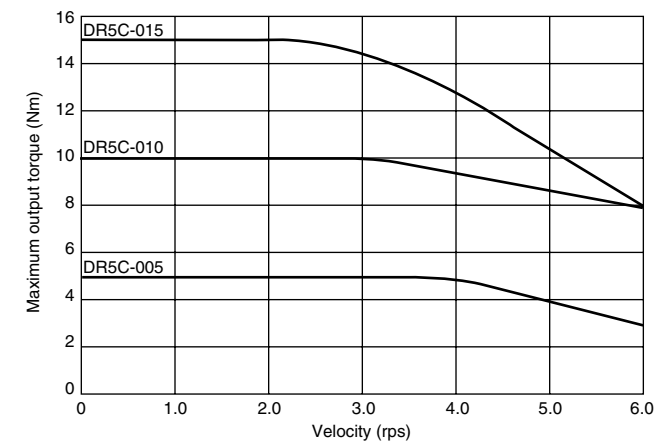
(1) DR5B/DR5E



(2) DR5A



(3) DR5C

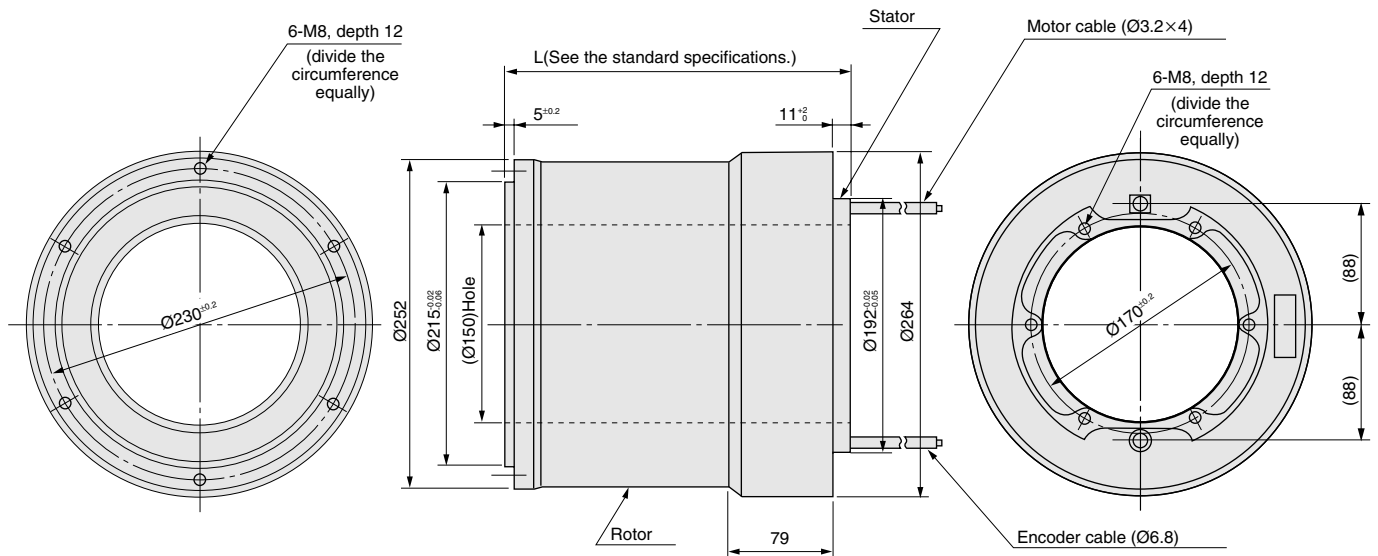


Environment Specifications

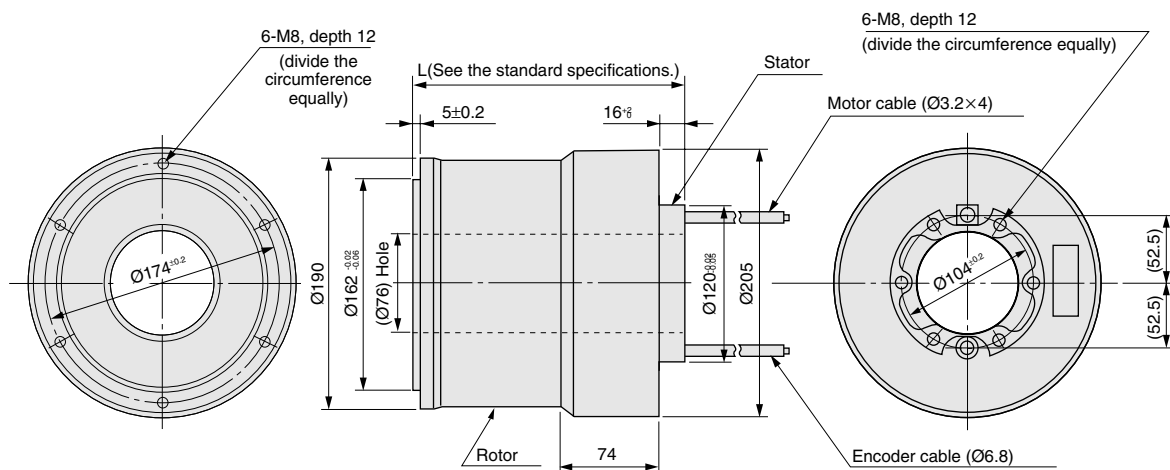
		Motor	Remarks
Operation	Temperature	0 to 45°C	
	Humidity	20 to 85% RH	No condensation
Storage	Temperature	-20 to 85°C	
	Humidity	20 to 85% RH	No condensation
Atmosphere		Must be no corrosive gasses, dust and dirt Must be used at a maximum altitude of 1000 meters above sea level	

■ External Dimensions (Unit:mm)

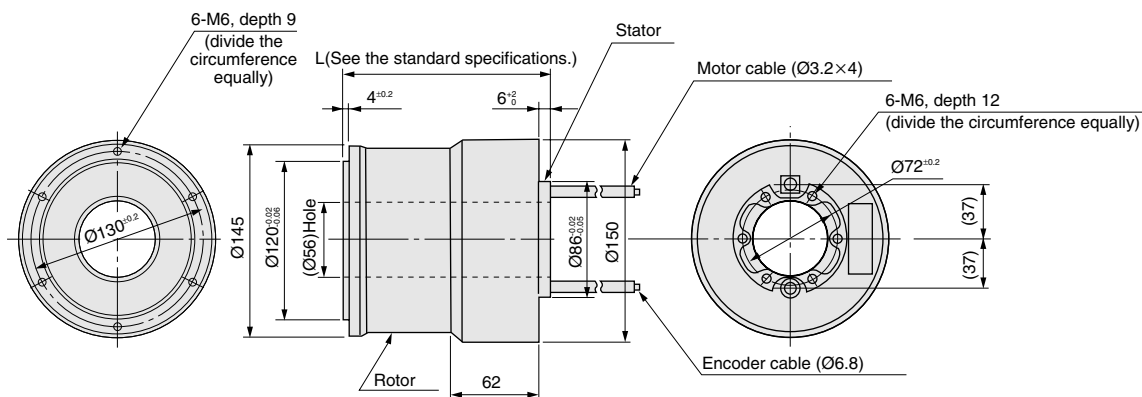
(1) DR1A/DR5A



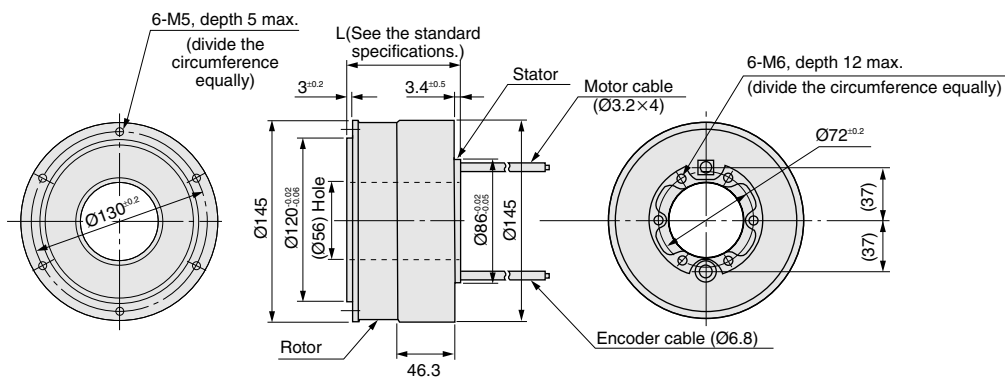
(2) DR1E/DR5E



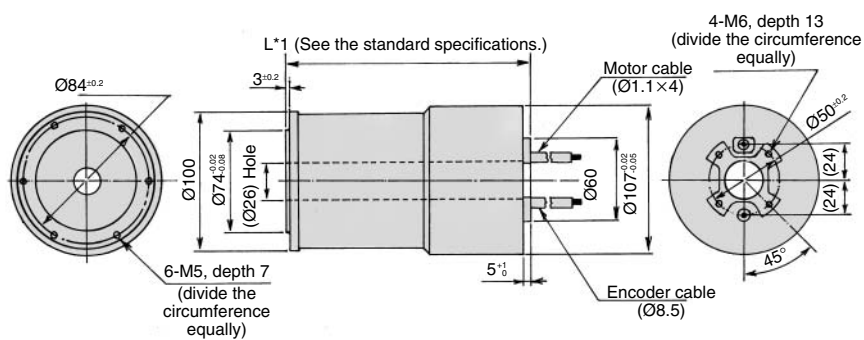
(3) DR1B/DR5B



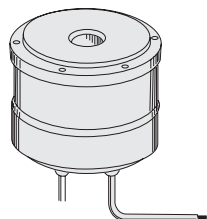
(4) DR1B-008



(5) DR5C

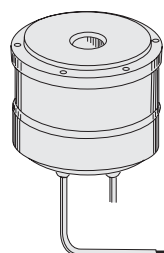


■ Motor Cable



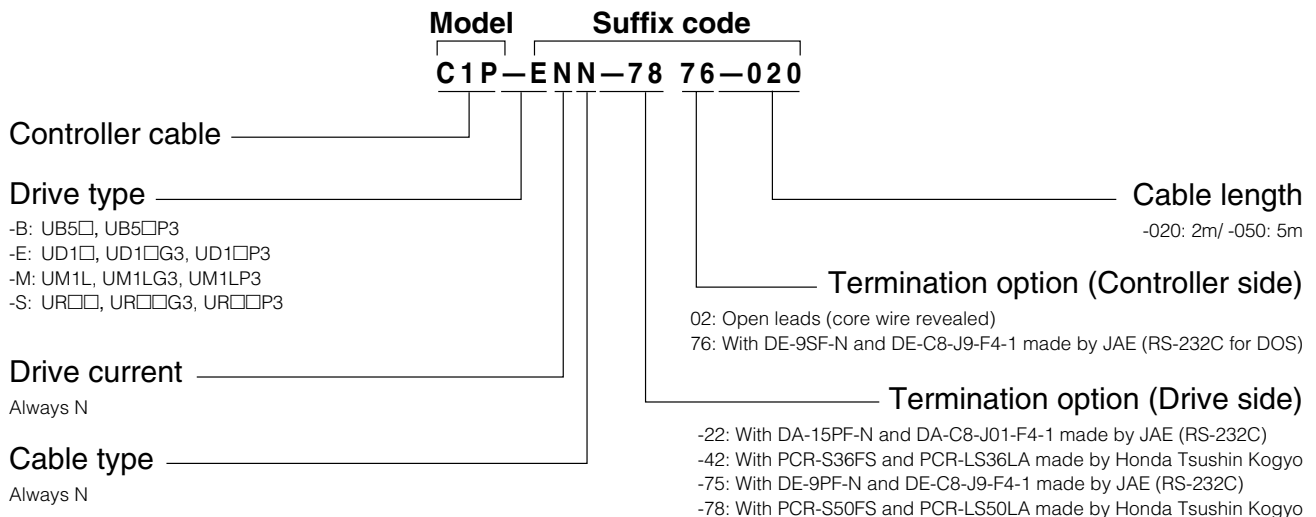
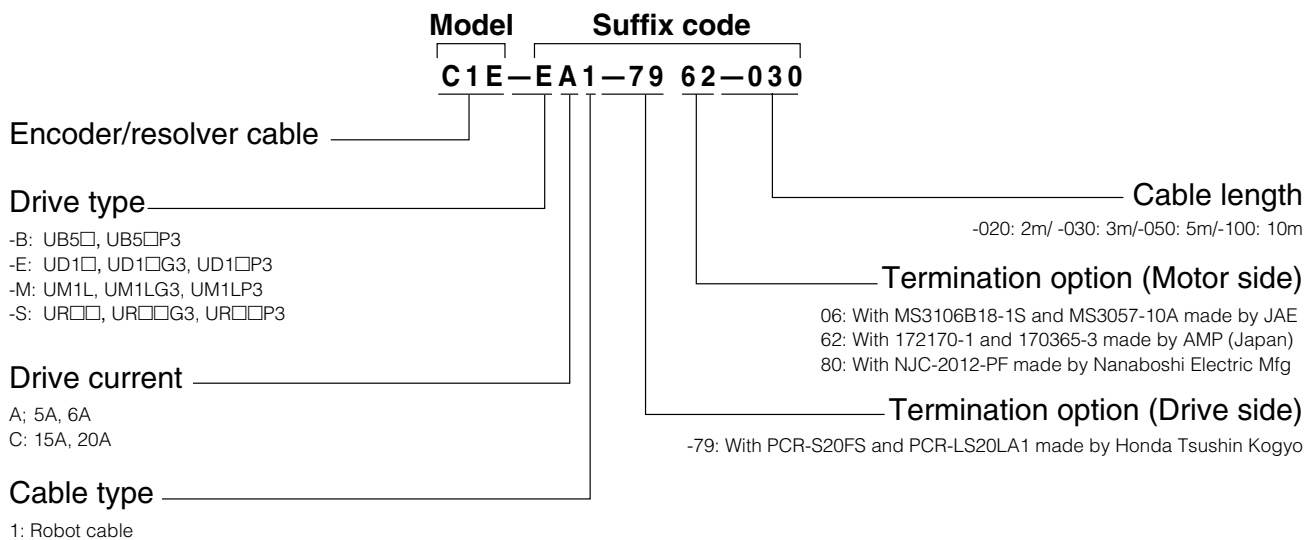
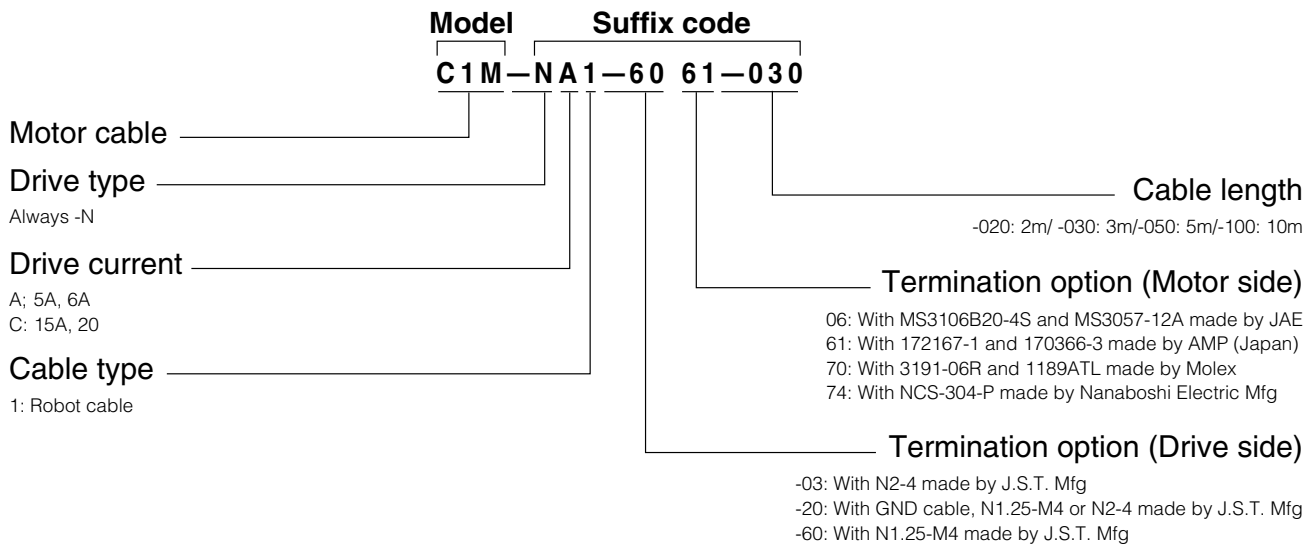
Termination Option	Code	Connector	Note
	-02	Open leads (core wire revealed)	
	-03	With N2-4 made by J.S.T. Mfg	15, 20A
	-08	With MS3101B20-4P made by JAE	
	-20	With GND cable, N1.25-M4 or N2-4 made by J.S.T. Mfg	
	-60	With N1.25-M4 made by J.S.T. Mfg	5, 6A
	-68	With 172159-1 and 170363-3 made by AMP (Japan)	5, 6A
	-71	With 3191-06P and 1190-TL made by Molex	15, 20A
	-72	With NCS-304-Ad made by Nanaboshi Electric Mfg	

■ Encoder Cable



Termination Option	Code	Connector	Note
	02	Open leads (core wire revealed)	
	08	With MS3101B18-1P made by JAE	
	69	With 172162-1 and 170363-3 made by AMP (Japan)	
	73	With NJC-2012-AdM made by Nanaboshi Electric Mfg	
	79	With PCR-S20FS and PCR-LS20LA1 made by Honda Tsushin Kogyo	

Model and Suffix Code



■ Outline

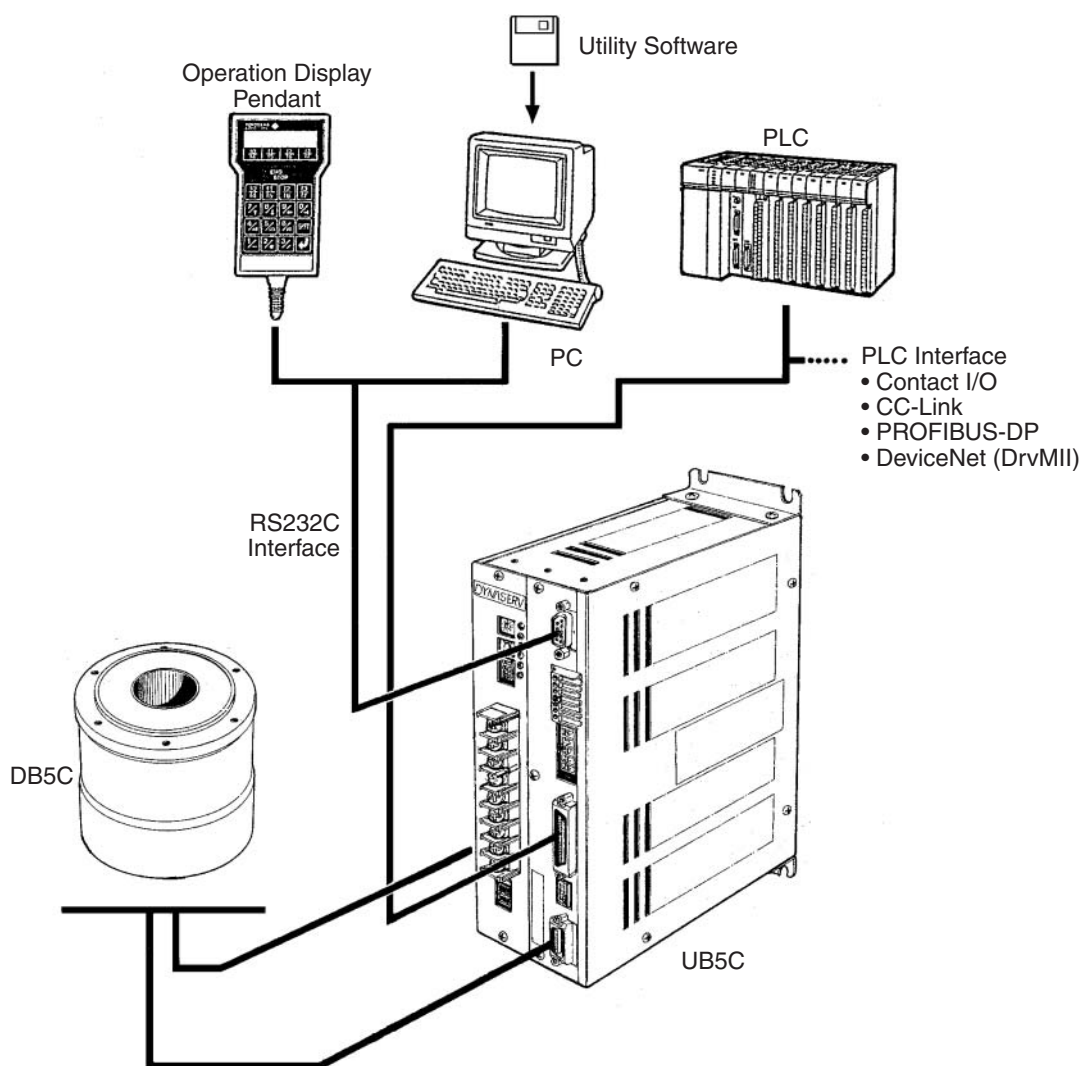
The direct drive system with built-in absolute encoder is configured by DB5C, which has the smallest diameter among those of our products, and either of UB5CP3(DrvPIII) or UB5C(DrvMII) driver.

The size of these series of direct drive motors is compact. The outer diameter, the height, and the through hole diameter are 100 mm, 182 mm (DB5C-015), and 26 mm, respectively. They also operate at high speeds and have a high resolution. The maximum rotation speed and the output torque are 6 r.p.s. and 15 N·m, respectively. The maximum resolution is 425,984 pulses per revolution.

■ Features

- Absolute encoder obviates homing operation
- Built-in index positioning function
Easy index positioning using the Operation Display Pendant.
- Field network compatibility
Compatible not only with contact I/O interface, but also with CC-Link, PROFIBUS-DP, and DeviceNet (only with DrvMII).
- Quick positioning
Efficient I-PD control
- Consistent torque-speed curve behavior up to high speeds

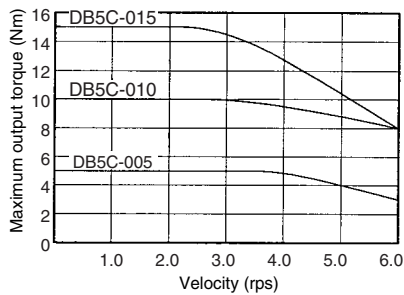
■ System Configuration



Specifications

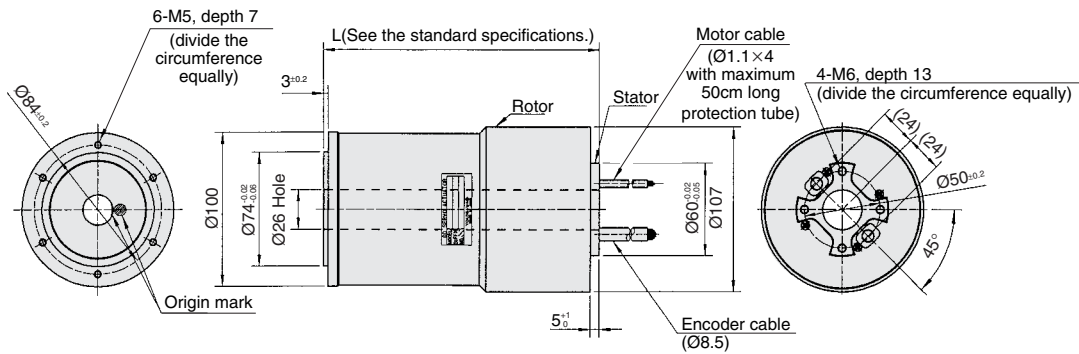
Item			Unit	DB5C/UB5CP3/UB5C		
				DB5C-005 UB5CP3-005 UB5C-005	DB5C-010 UB5CP3-010 UB5C-010	DB5C-015 UB5CP3-015 UB5C-015
Motor and drive	Maximum torque		N·m	5	10	15
	Maximum velocity		rps	6.0		
	Rotation Positioning	Encoder resolution	p/rev	425,984		
		Absolute accuracy	arc-sec	±150		
		Repeatability accuracy	arc-sec	±5		
Motor	Axial load	Compression	N	5×10 ³		
		Tension		3×10 ³		
	Maximum overhung load		N·m	20		
	Axial stiffness	Compression	mm/N	4×10 ⁻⁶		
		Tension		8×10 ⁻⁶		
	Moment displacement stiffness		rad/N·m	8×10 ⁻⁷		
	Weight		kg	5.5	6.5	7.5
	Length L (See the outline drawings.)		mm	128±1	155±1	182±1
	Rotor inertia		kg·m ²	6×10 ⁻³	7×10 ⁻³	8×10 ⁻³

Torque/Velocity Characteristics



External Dimensions (Unit:mm)

Motor



■ Outline

The LM Series LINEARSERV is a linear motor employing the direct drive method.

A feature of this product is a built-in interpolated linear encoder using a unique glass scale. Highly accurate full close position control and smooth driving were not delivered by traditional AC Servomotors with ball screws.

The major features of LM Series LINEARSERV are as follows:

- Absolute accuracy: maximum of 10 μm or maximum scale length of 1000 mm
- Positioning repeatability: 0.1-0.5 μm
- Low vibration: 1% speed ripple
- Force-weight ratio: 7 G
- All-in-one design
- Multiple sliders independent positioning
- Minimal temperature increase

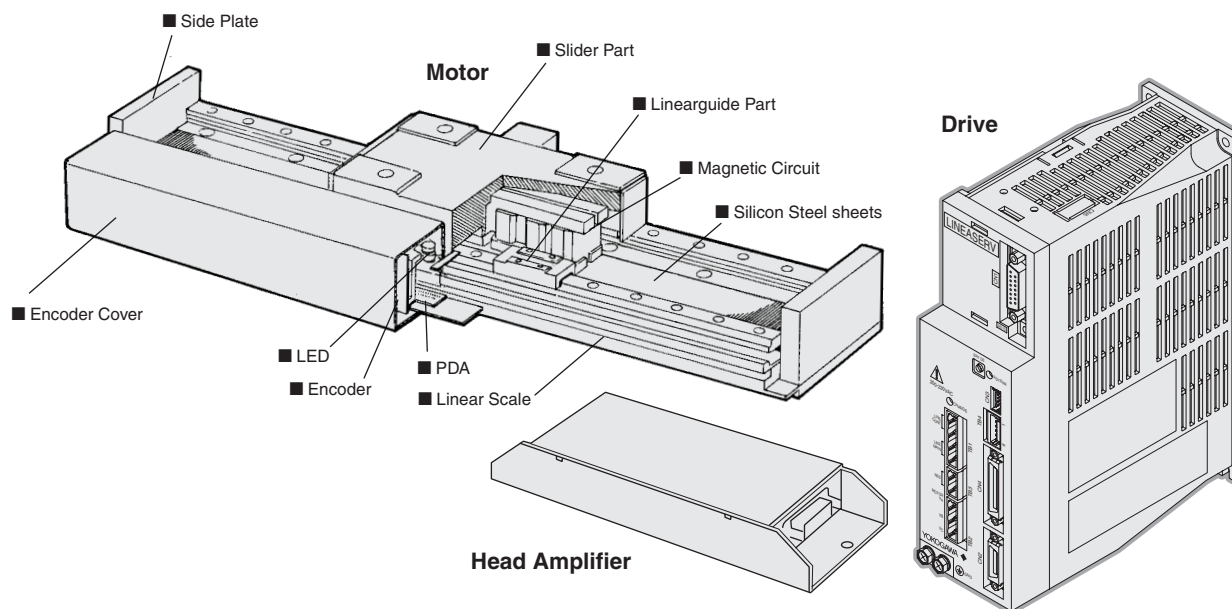
In addition to the above, a structurally proven linear guide is employed to secure adequate rigidity to withstand load.

Also the special models, including high-rigidity models and high-speed models whose maximum speed is 2 m/sec are offered.

The driver has an I-PD position control function. By giving serial pulse commands and the like, position control can be easily performed via interfaces as if using a pulse motor. Also, complicated adjustments are unnecessary, and the size has been reduced, thereby enhancing the operability and handling of the driver to a significant extent.

The LM Series LINEARSERV offers 20 stroke lengths in the range of 50-1800 mm, 4 thrust levels (50, 100, 300, and 400 N), and 4 models (standard model, high-stiffness model, high-speed model, and a high-stiffness and high-speed model). The stroke length, thrust level, and model can be combined for the chosen application.

■ Composition



Specifications

A: Standard model, B: High-stiffness model, C: High-speed model, D: High-stiffness+ High-speed model

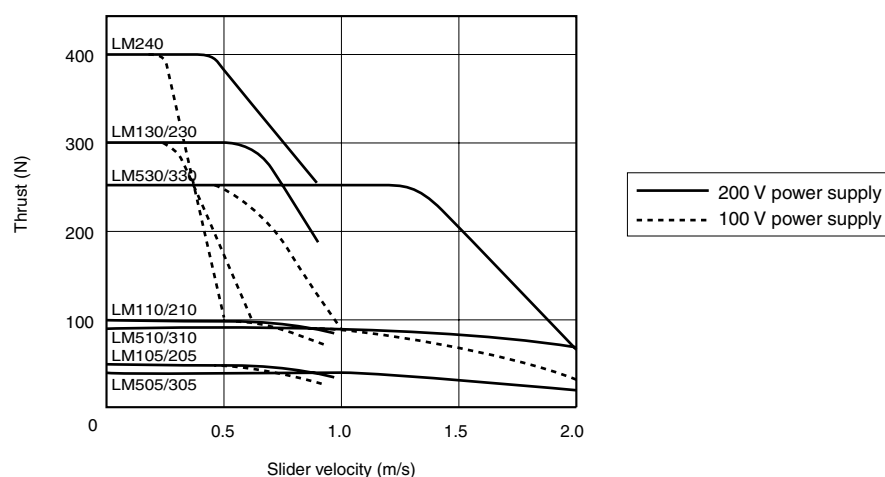
	50N				100N				300N				400N
Motor	A	B	C	D	A	B	C	D	A	B	C	D	B
Maximum thrust (N) ③	50		40		100		90		300		270		400
Maximum velocity (m/s) ②③	0.83(0.16)		2.0		0.83(0.16)		2.0		0.83(0.16)		2.0		0.83(0.16)
Encoder resolution (μm/pulse) ②	0.25(0.05)		0.5		0.25(0.05)		0.5		0.25(0.05)		0.5		0.25(0.05)
Repeated positioning accuracy (μm) ②	±0.5(±0.1)		±1		±0.5(±0.1)		±1		±0.5(±0.1)		±1		±0.5(±0.1)
Absolute positioning accuracy by Length of stroke[Ls] (μm) ①	5+ $\frac{5}{1000}$ Ls												
Maximum load (N)	200	600	200	600	200	600	200	600	1000	2000	1000	2000	2000
Slider weight (kg)	1.0	1.4	1.0	1.4	1.4	1.8	1.4	1.8	5.0	8.7	5.0	8.7	10.0
Rail weight (kg/mm)	12	15	12	15	15	18	15	18	25	45	25	45	50
Home signal (pulse/mm)	1/2.048		1/4.096		1/2.048		1/4.096		1/2.048		1/4.096		1/2.048
Length of stroke[Ls] (mm)	50/100/150/200/300/400/500/600/700/800/900/1000/1100/1200/1300/1400/1500/1600/1700/1800												

① Scale accuracy specification at 23°C (expansion coefficient of glass lines: $8 \times 10^{-6}/^{\circ}\text{C}$)

② Values in () indicate a resolution specification of 0.05 μm.

③ Max force (thrust) and max speed described here are with 200VAC power input to the drive. Refer to the characteristic graph for 100VAC.

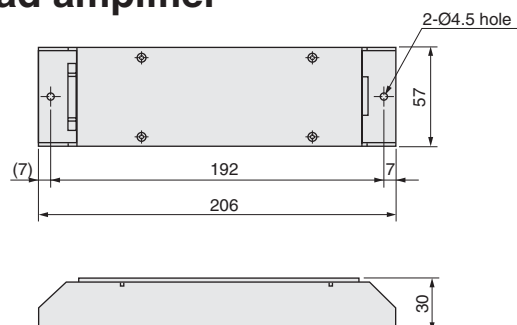
Thrust/Velocity Characteristics



Environment Specifications

		Motor	Remarks
Operation	Temperature	0 to 45°C	
	Humidity	20 to 85% RH	No condensation
Storage	Temperature	-20 to 85°C	
	Humidity	20 to 85% RH	No condensation
Atmosphere		Must be no corrosive gasses, dust and dirt Must be used at a maximum altitude of 1000 meters above sea level	

Head amplifier



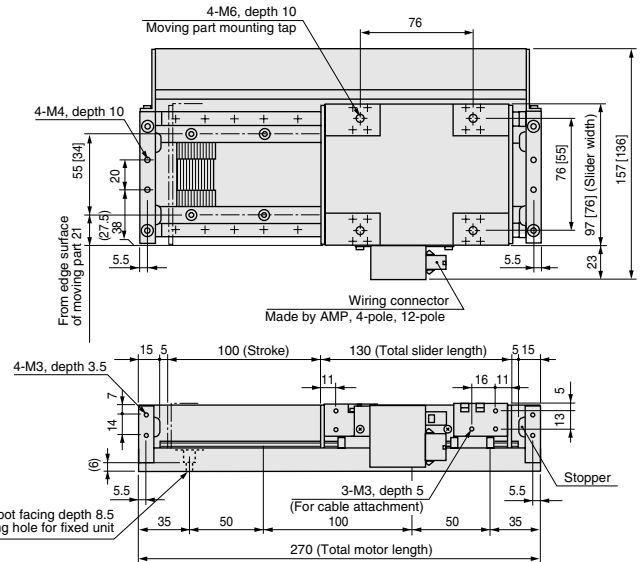
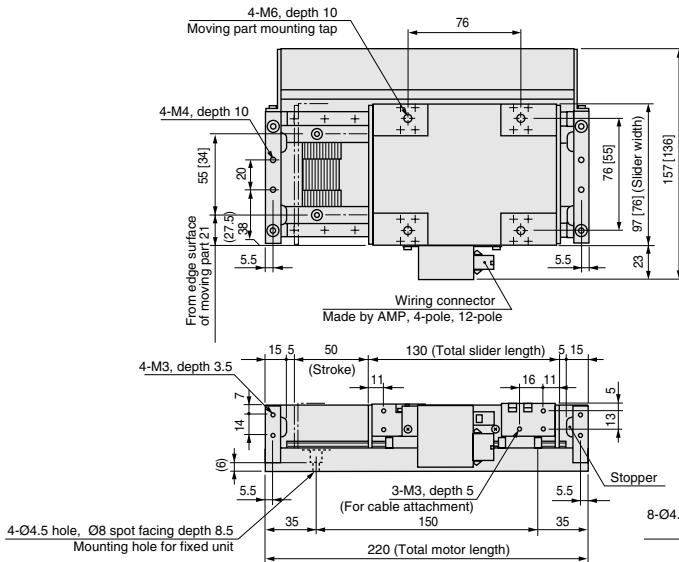
Note: Please combine and use a motor and head amplifier having the same serial number.

■ External Dimensions (Unit:mm)

LM105/LM110/LM505/LM510 (Dimensions in [] indicate LM105/LM505)

(1) Length of stroke 50 mm

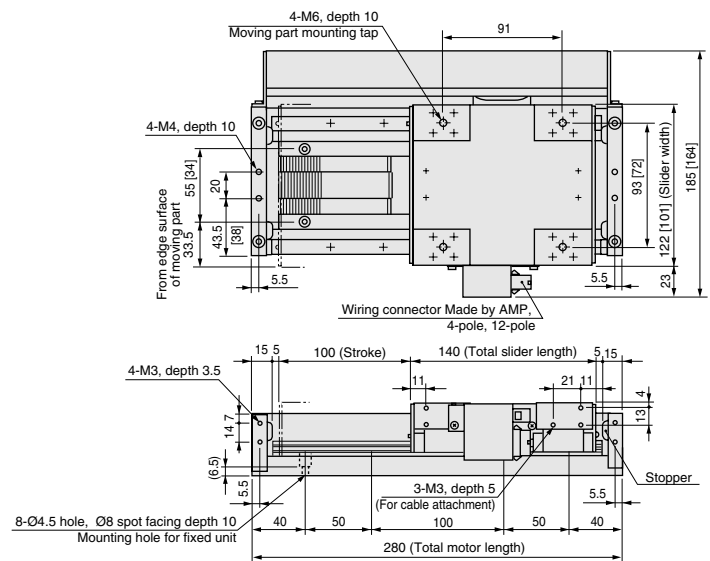
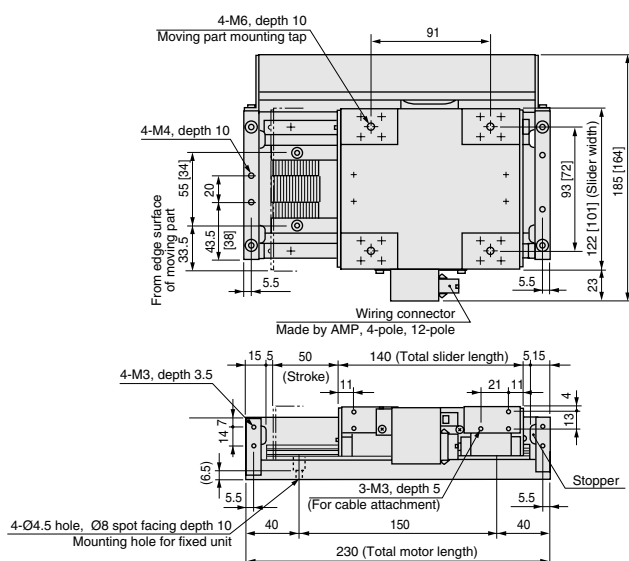
(2) Length of stroke 100 mm



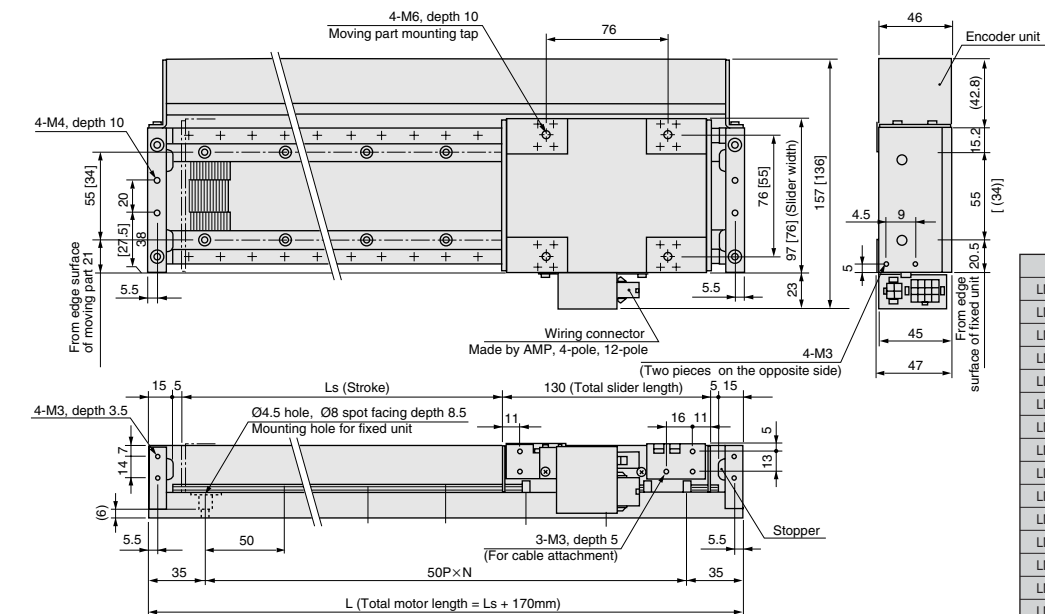
LM205/LM210/LM305/LM310 (Dimensions in [] indicate LM205/LM305)

(1) Length of stroke 50 mm

(2) Length of stroke 100 mm

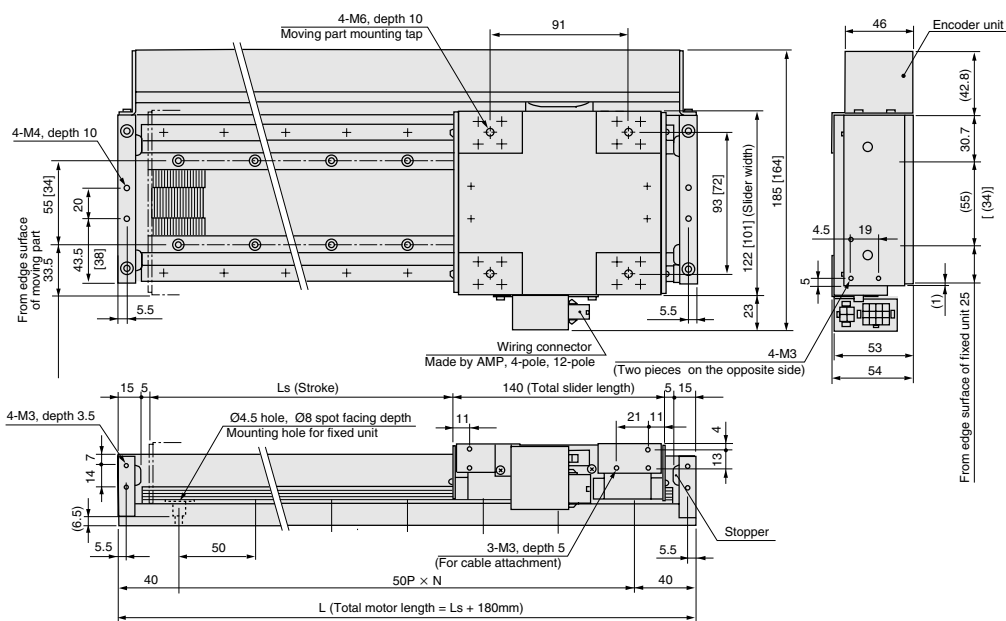


(3) Length of stroke 150 to 1800 mm



Model	L	Ls	N	Mounting hole for fixed unit
LM110-1N-015	320	150	5	2 × 6 pieces
LM110-1N-020	370	200	6	2 × 7 pieces
LM110-1N-030	470	300	8	2 × 9 pieces
LM110-1N-040	570	400	10	2 × 11 pieces
LM110-1N-050	670	500	12	2 × 13 pieces
LM110-1N-060	770	600	14	2 × 15 pieces
LM110-1N-070	870	700	16	2 × 17 pieces
LM110-1N-080	970	800	18	2 × 19 pieces
LM110-1N-090	1070	900	20	2 × 21 pieces
LM110-1N-100	1170	1000	22	2 × 23 pieces
LM110-1N-110	1270	1100	24	2 × 25 pieces
LM110-1N-120	1370	1200	26	2 × 27 pieces
LM110-1N-130	1470	1300	28	2 × 29 pieces
LM110-1N-140	1570	1400	30	2 × 31 pieces
LM110-1N-150	1670	1500	32	2 × 33 pieces
LM110-1N-160	1770	1600	34	2 × 35 pieces
LM110-1N-170	1870	1700	36	2 × 37 pieces
LM110-1N-180	1970	1800	38	2 × 39 pieces

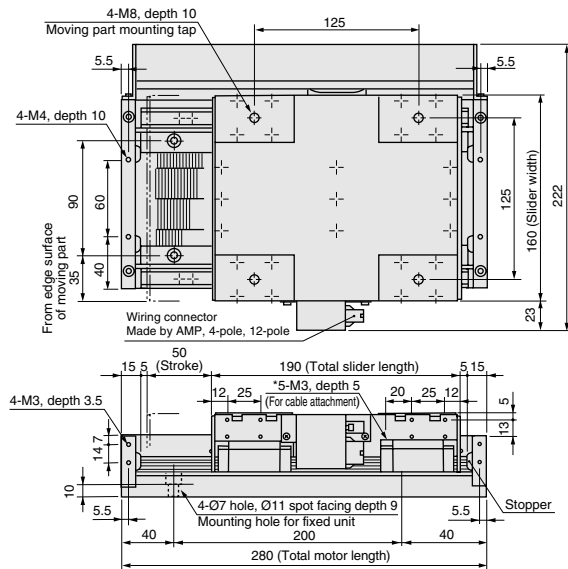
(3) Length of stroke 150 to 1800 mm



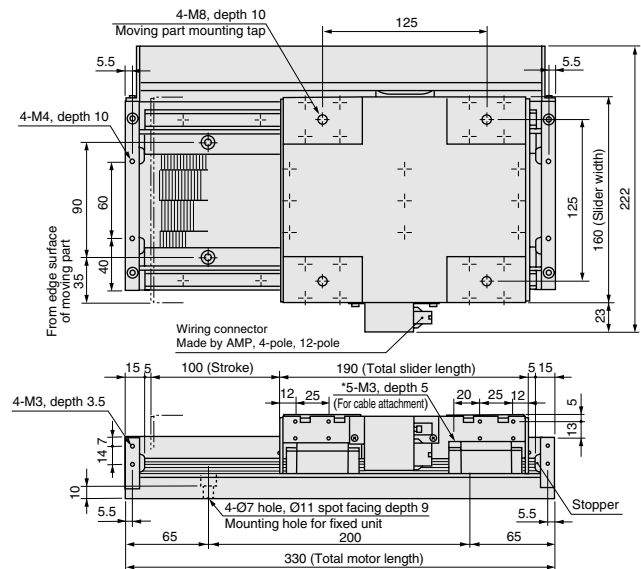
Model	L	Ls	N	Mounting hole for fixed unit
LM210-1N-015	330	150	5	2 × 6 pieces
LM210-1N-020	380	200	6	2 × 7 pieces
LM210-1N-030	480	300	8	2 × 9 pieces
LM210-1N-040	580	400	10	2 × 11 pieces
LM210-1N-050	680	500	12	2 × 13 pieces
LM210-1N-060	780	600	14	2 × 15 pieces
LM210-1N-070	880	700	16	2 × 17 pieces
LM210-1N-080	980	800	18	2 × 19 pieces
LM210-1N-090	1080	900	20	2 × 21 pieces
LM210-1N-100	1180	1000	22	2 × 23 pieces
LM210-1N-110	1280	1100	24	2 × 25 pieces
LM210-1N-120	1380	1200	26	2 × 27 pieces
LM210-1N-130	1480	1300	28	2 × 29 pieces
LM210-1N-140	1580	1400	30	2 × 31 pieces
LM210-1N-150	1680	1500	32	2 × 33 pieces
LM210-1N-160	1780	1600	34	2 × 35 pieces
LM210-1N-170	1880	1700	36	2 × 37 pieces
LM210-1N-180	1980	1800	38	2 × 39 pieces

LM130/LM530

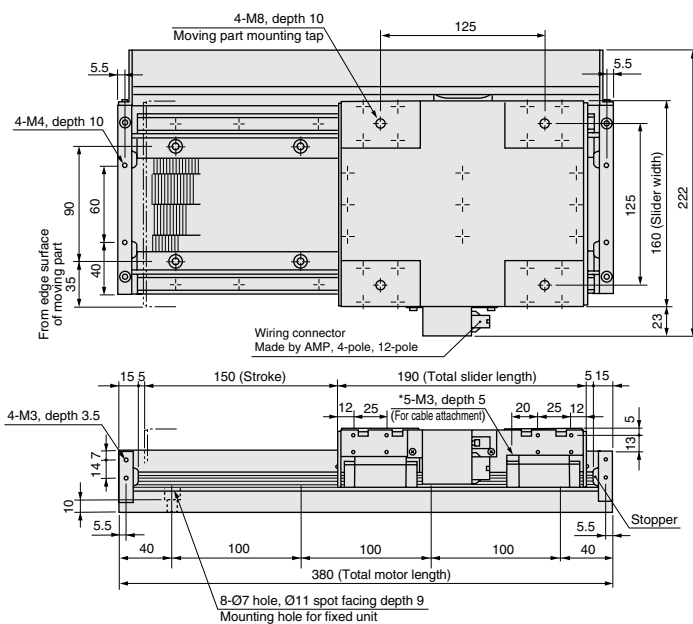
(1) Length of stroke 50 mm



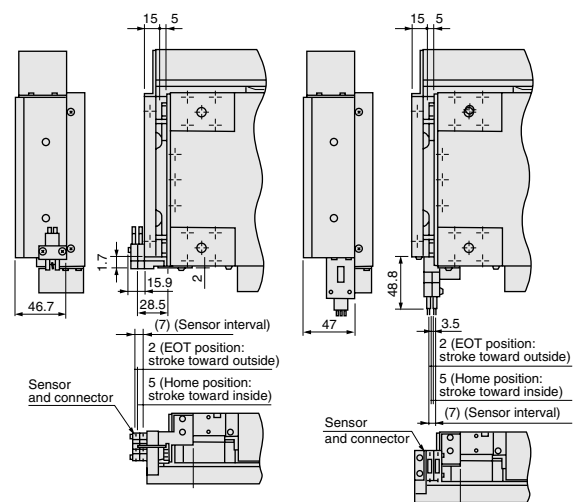
(2) Length of stroke 100 mm



(3) Length of stroke 150 mm

Sensor mounting position diagram
(e.g. LM130)

(1) Outside sensors (2) Inside sensors

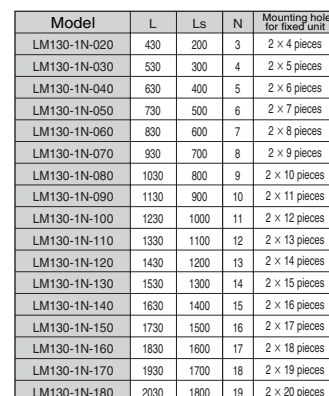


Sensor: EE-SX670A or EE-SX670 (Omron)

Connector: EE-1001 (Omron)

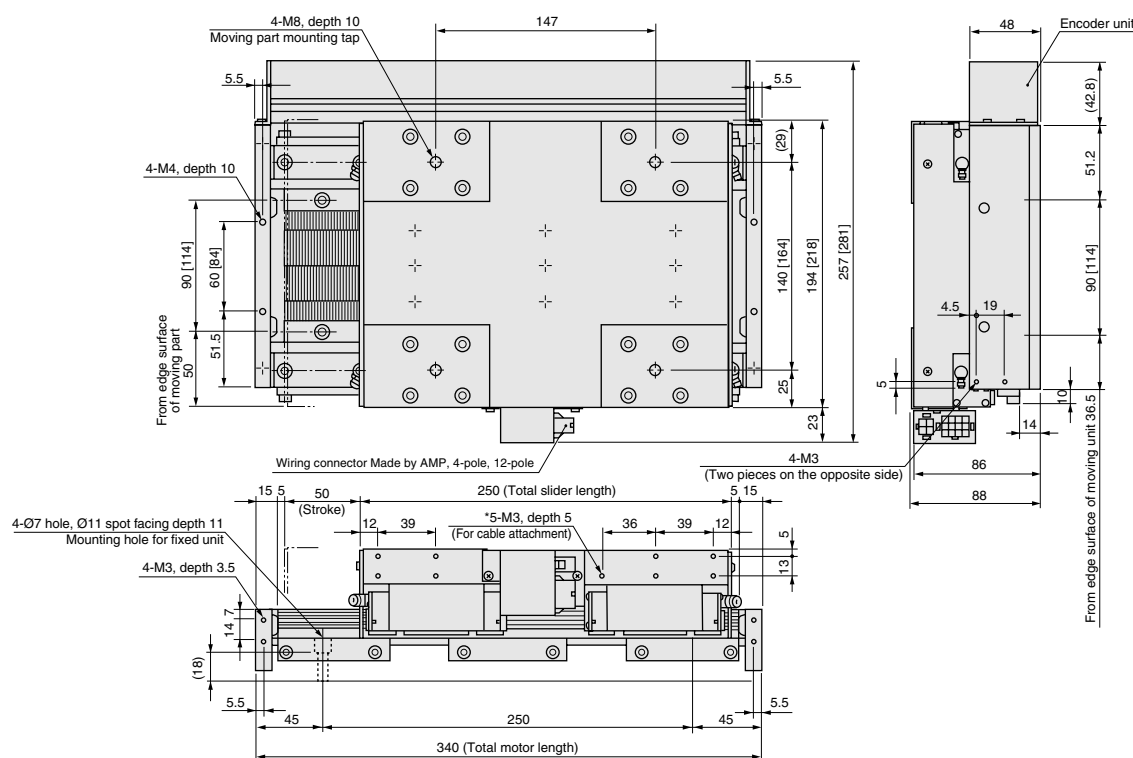
Mounting 4 pieces, 2 for each side

(4) Length of stroke 150 to 1800mm



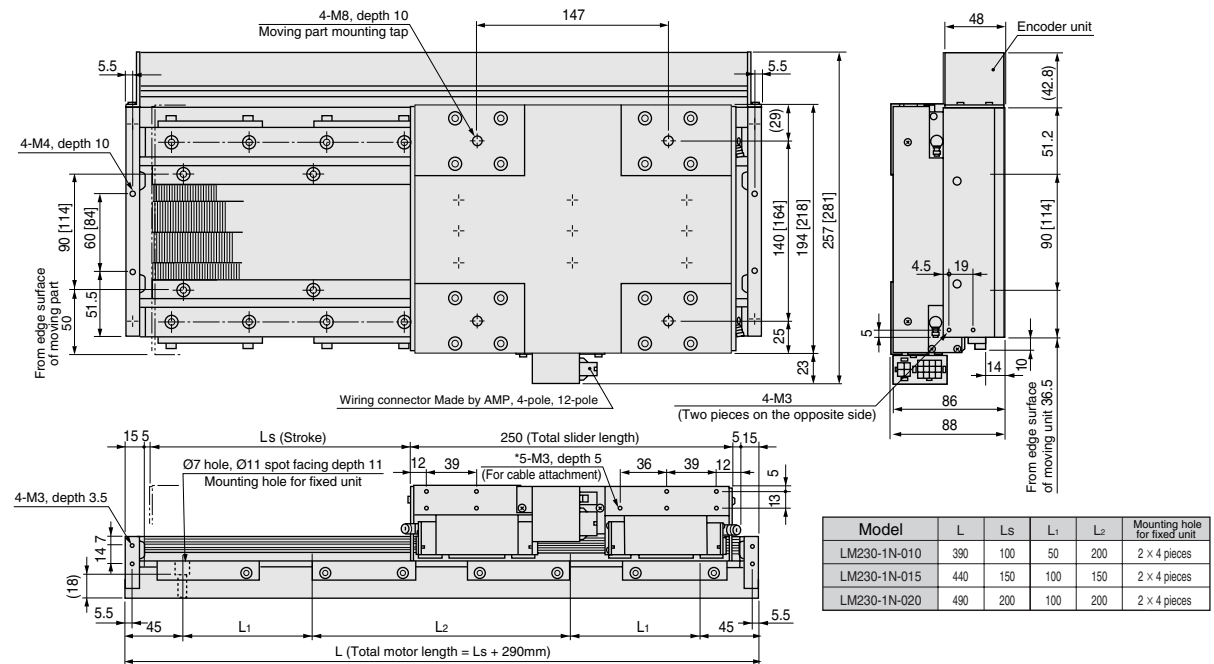
LM230/LM240/LM330 (Dimensions in [] indicate LM240)

(1) Length of stroke 50mm

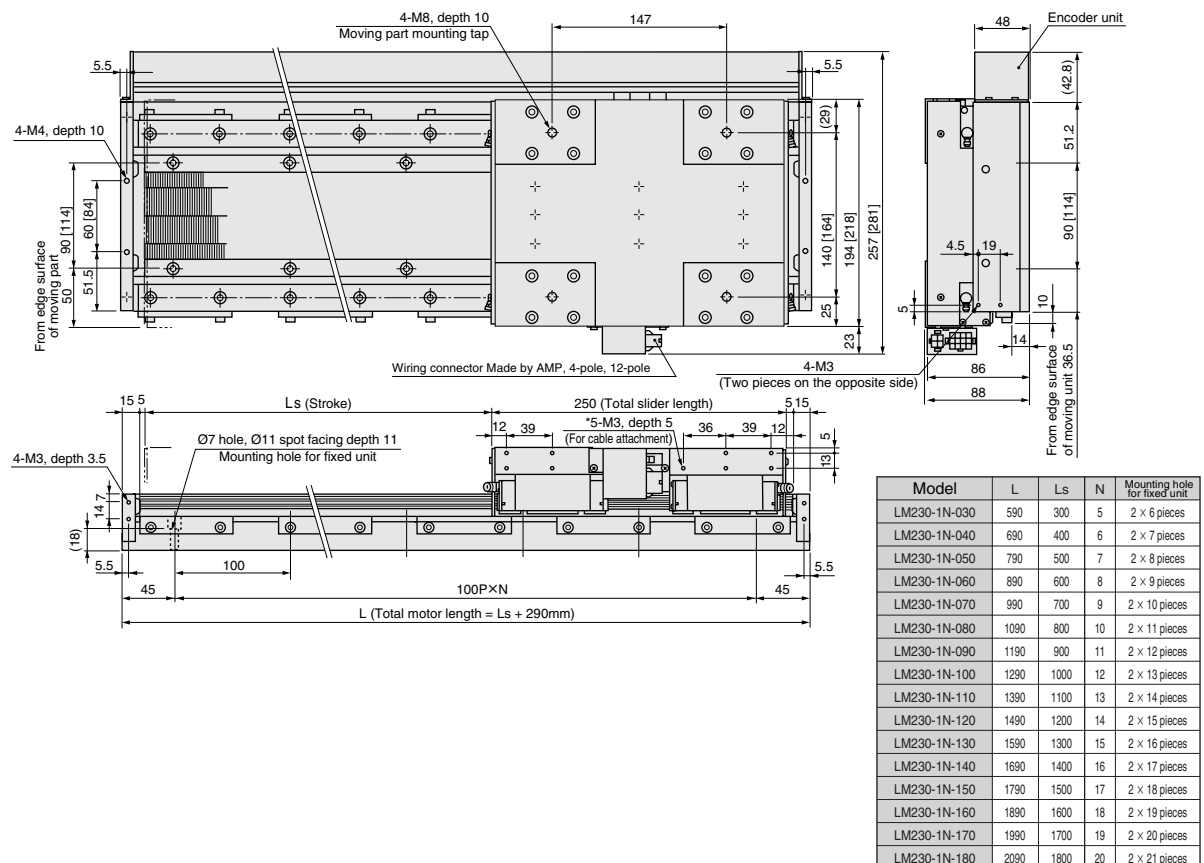


LM230/LM240/LM330 (Dimensions in [] indicate LM240)

(2) Length of stroke 100 to 200mm



(3) Length of stroke 300 to 1800mm



■ Outline

MicroStage is Yokogawa's unique X-Y- θ stage which integrates the direct drive motor DYNASERV and the direct drive linear motor LINEARSERV. Yokogawa's direct drive motor DYNASERV has had a good sales record for over ten years, and the direct drive linear motor LINEARSERV has been developed in line with the concept of the direct drive motor DYNASERV.

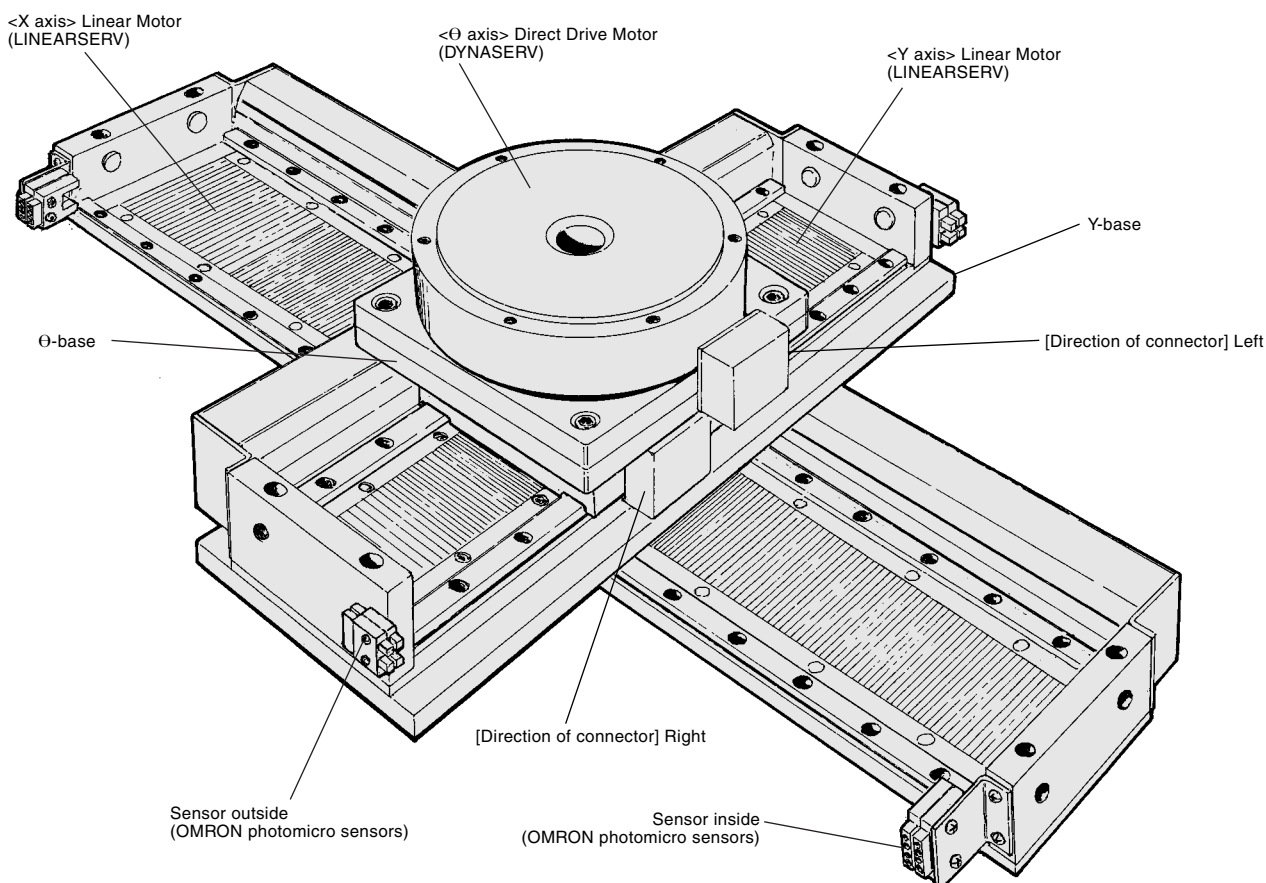
As you are aware, the direct drive motor is a highly accurate and high-tact next-generation actuator characterized by the absence of any speed reduction devices. The direct drive motor has replaced traditional AC/DC servomotors, and it has been used in many FA devices and machines for value-added product development.

MicroStage, which combines the LINEARSERV-based X-Y stage with the DYNASERV-based θ stage, is a linear and rotation stage that is highly accurate and fast, compact.

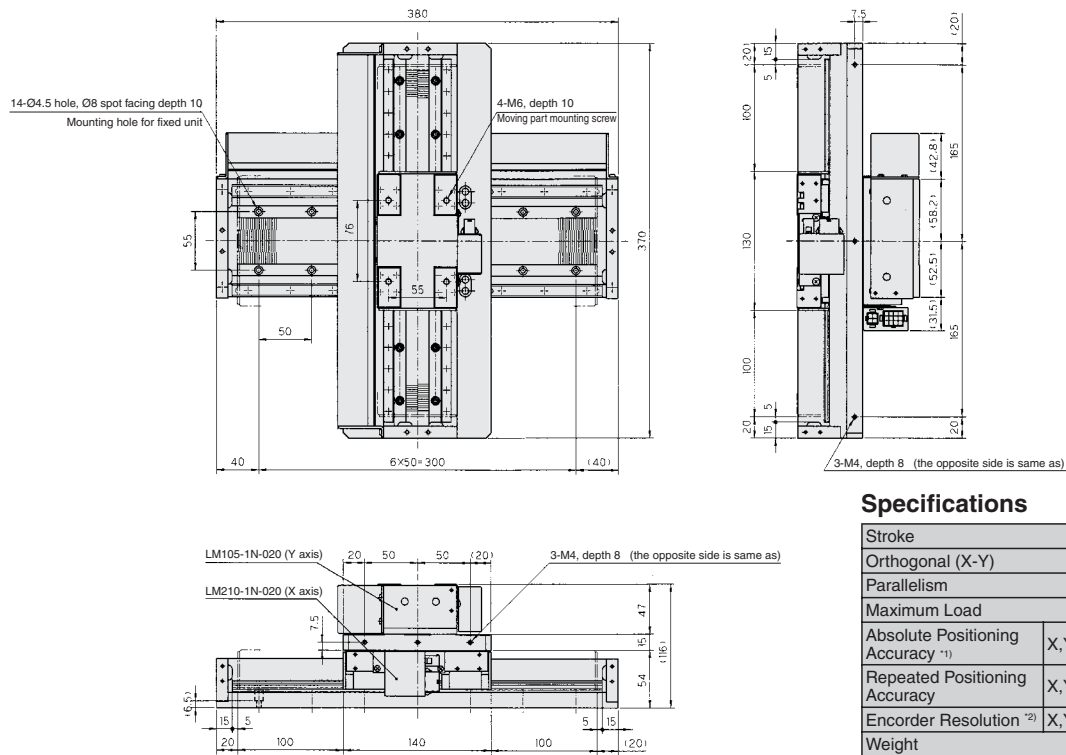
MicroStage has been praised highly for its use with industrial devices and machines of all kinds, especially semiconductor manufacturing and inspection devices and FPD manufacturing devices. This precision stage has been delivered to a great many customers.

Specifications

- Basic composition and stroke refer to the reference drawings since next page
- Perpendicularity (squareness): $25\mu\text{m}$
- Parallelism: $\pm 20\mu\text{m}$ (In a full stroke)
- Repeated positioning accuracy: $\pm 0.1\mu\text{m}$ (X, Y Each axis)
- Encoder resolution (X, Y Each axis)
- Multi-slider
- A supplementary linear guide can be used for a long stroke model.
- Tandem stage (High-Thrust)



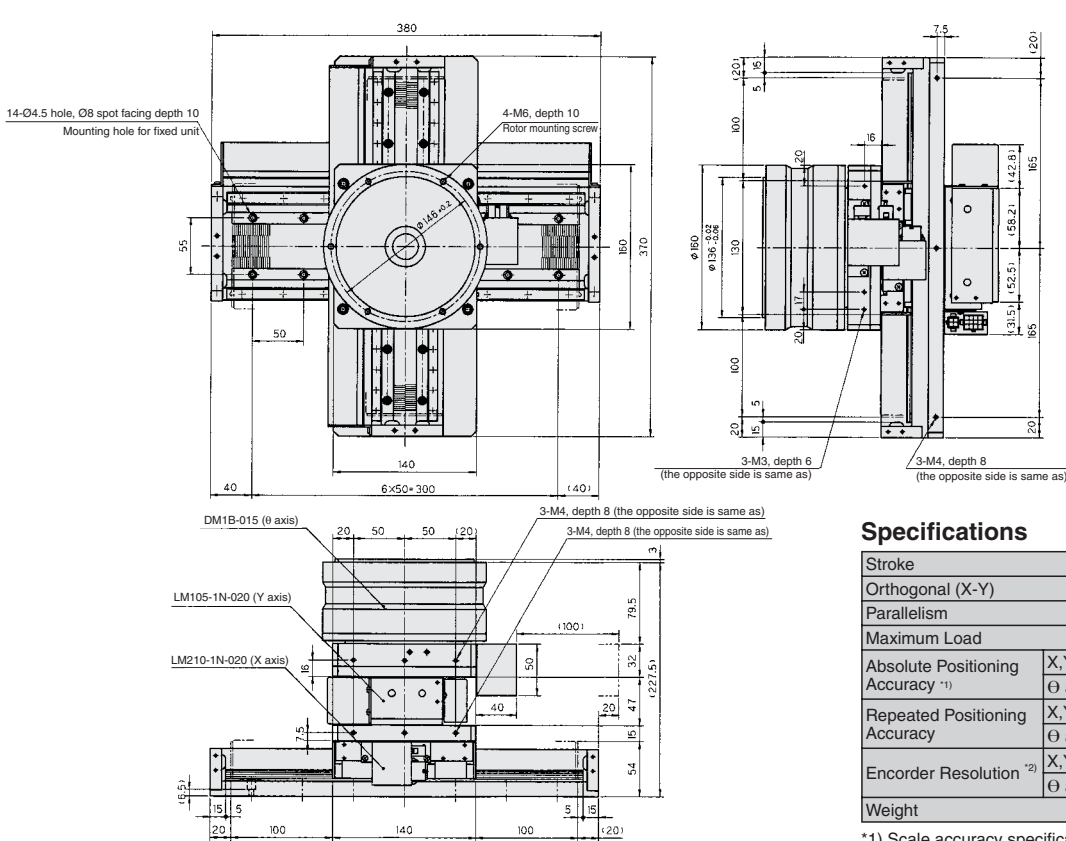
Reference Drawing (1)



Specifications		
Stroke		200mm×200mm
Orthogonal (X-Y)		25μm
Parallelism		±20μm (Full stroke)
Maximum Load		10kg
Absolute Positioning Accuracy ^{*1)}	X,Y axis (Single axis)	6μm
Repeated Positioning Accuracy	X,Y axis (Single axis)	±0.5μm
Encoder Resolution ^{*2)}	X,Y axis (Single axis)	0.5μm
Weight		20kg

*1) Scale accuracy specification at 23°C
*2) Resolution is different depending on the driver.

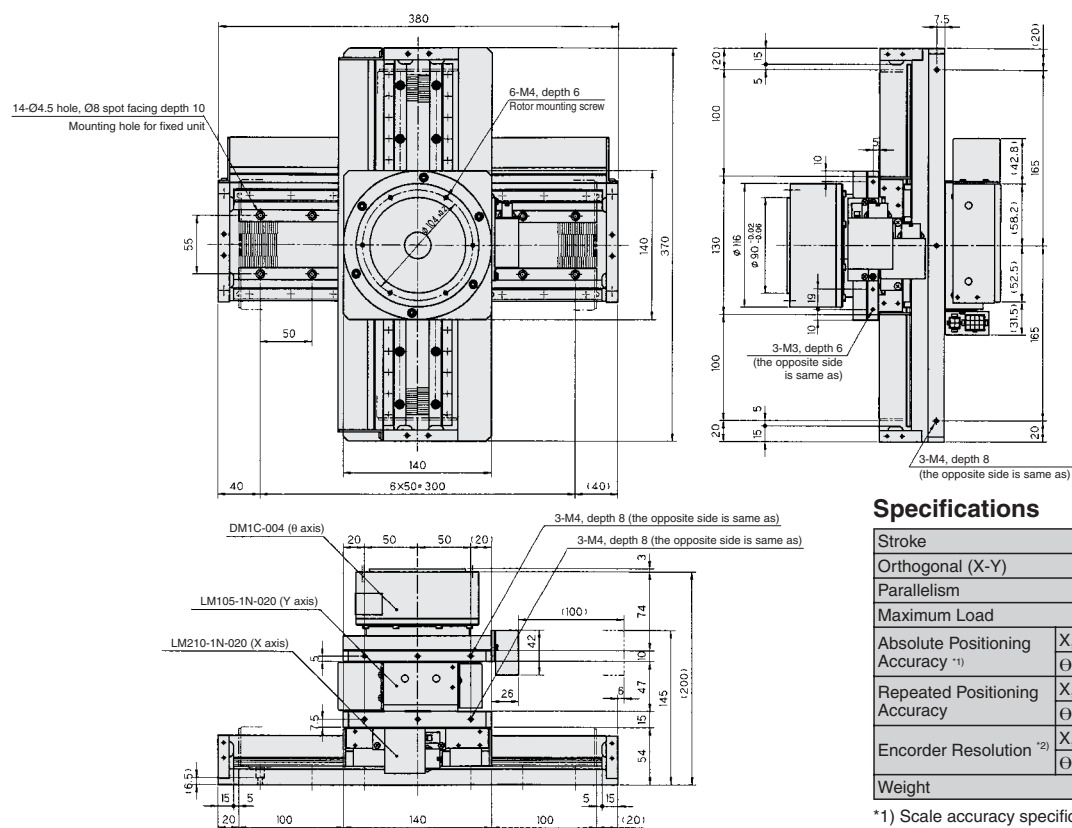
Reference Drawing (2)



Specifications		
Stroke		200mm×200mm
Orthogonal (X-Y)		25μm
Parallelism		±20μm (Full stroke)
Maximum Load		5kg
Absolute Positioning Accuracy ^{*1)}	X,Y axis (Single axis)	6μm
	θ axis (Single axis)	±15arc-sec
Repeated Positioning Accuracy	X,Y axis (Single axis)	±0.5μm
	θ axis (Single axis)	±2arc-sec
Encoder Resolution ^{*2)}	X,Y axis (Single axis)	0.5μm
	θ axis (Single axis)	2,621,440 P/rev
Weight		28kg

*1) Scale accuracy specification at 23°C
*2) Resolution is different depending on the driver.

Reference Drawing (3)



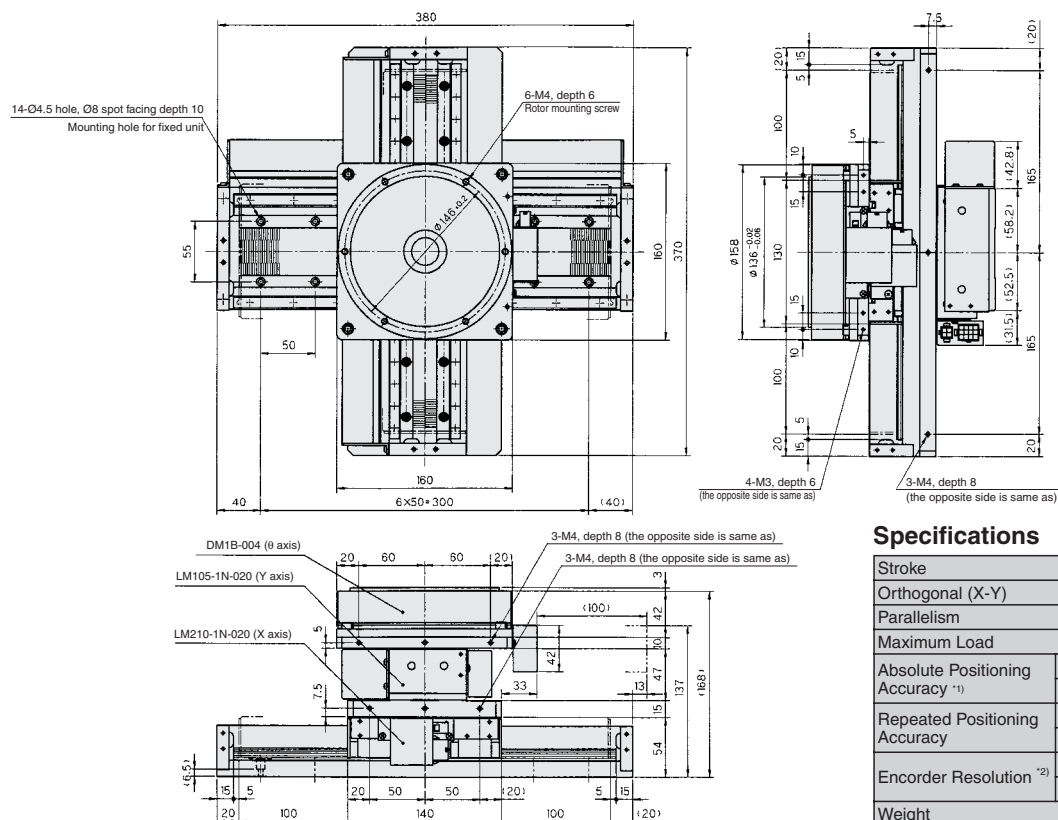
Specifications

Stroke	200mm×200mm
Orthogonal (X-Y)	25μm
Parallelism	±20μm (Full stroke)
Maximum Load	5kg
Absolute Positioning Accuracy ^{*1)}	X, Y axis (Single axis) 6μm
	θ axis (Single axis) ±20arc-sec
Repeated Positioning Accuracy	X, Y axis (Single axis) ±0.5μm
	θ axis (Single axis) ±5arc-sec
Encoder Resolution ^{*2)}	X, Y axis (Single axis) 0.5μm
	θ axis (Single axis) 2,621,440 P/rev
Weight	24kg

*1) Scale accuracy specification at 23°C

*2) Resolution is different depending on the driver.

Reference Drawing (4)



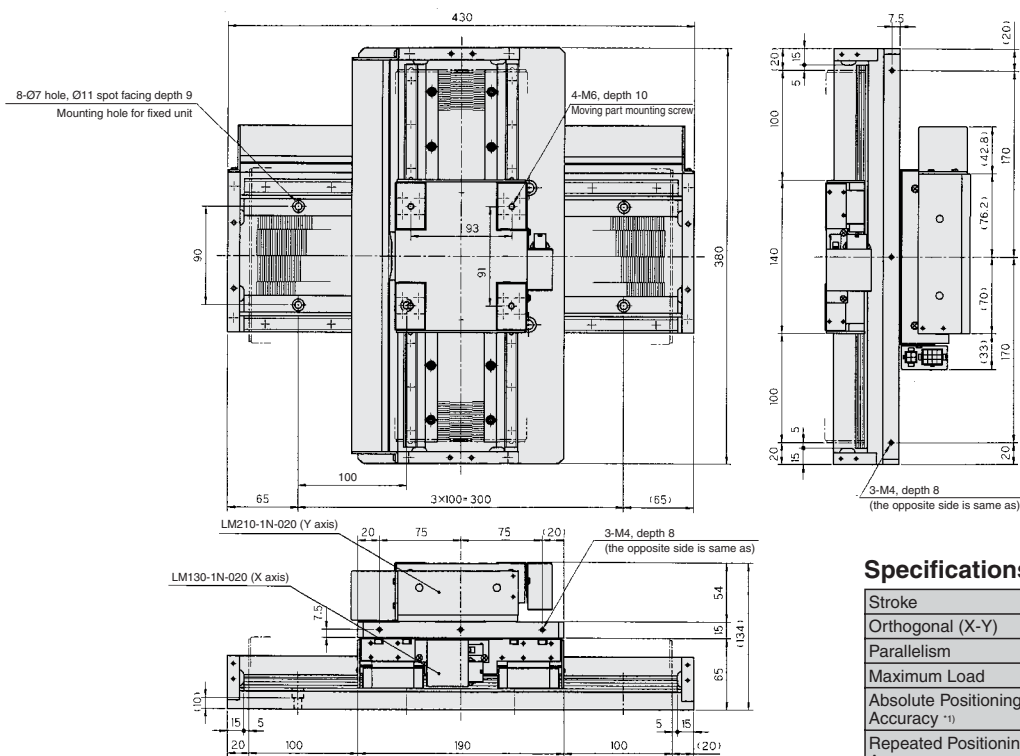
Specifications

Stroke	200mm×200mm
Orthogonal (X-Y)	25μm
Parallelism	±20μm (Full stroke)
Maximum Load	6kg
Absolute Positioning Accuracy ^{*1)}	X, Y axis (Single axis) 6μm
	θ axis (Single axis) ±20arc-sec
Repeated Positioning Accuracy	X, Y axis (Single axis) ±0.5μm
	θ axis (Single axis) ±5arc-sec
Encoder Resolution ^{*2)}	X, Y axis (Single axis) 0.5μm
	θ axis (Single axis) 2,621,440 P/rev
Weight	24kg

*1) Scale accuracy specification at 23°C

*2) Resolution is different depending on the driver.

■ Reference Drawing (5)



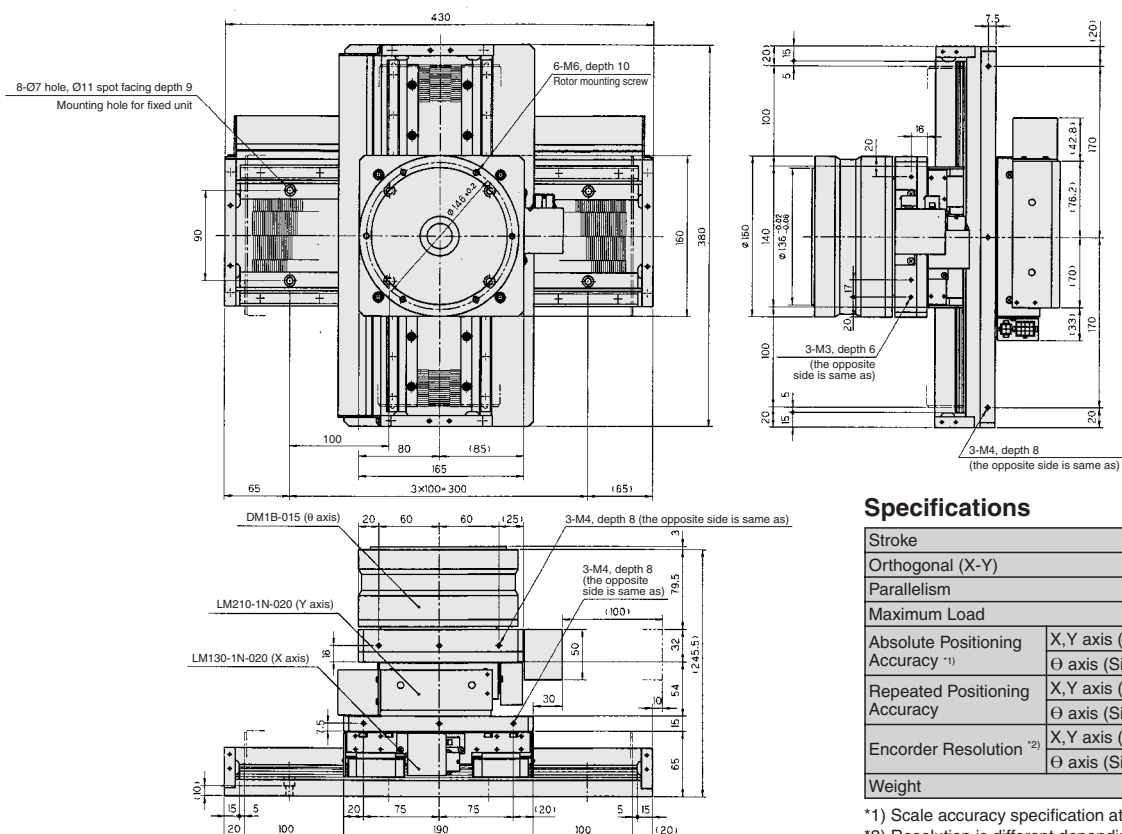
Specifications

Stroke		200mm×200mm
Orthogonal (X-Y)		25μm
Parallelism		±20μm (Full stroke)
Maximum Load		30kg
Absolute Positioning Accuracy ⁽¹⁾	X, Y axis (Single axis)	6μm
Repeated Positioning Accuracy	X, Y axis (Single axis)	±0.5μm
Encoder Resolution ⁽²⁾	X, Y axis (Single axis)	0.5μm
Weight		34kg

*1) Scale accuracy specification at 23°C

*2) Resolution is different depending on the driver.

■ Reference Drawing (6)



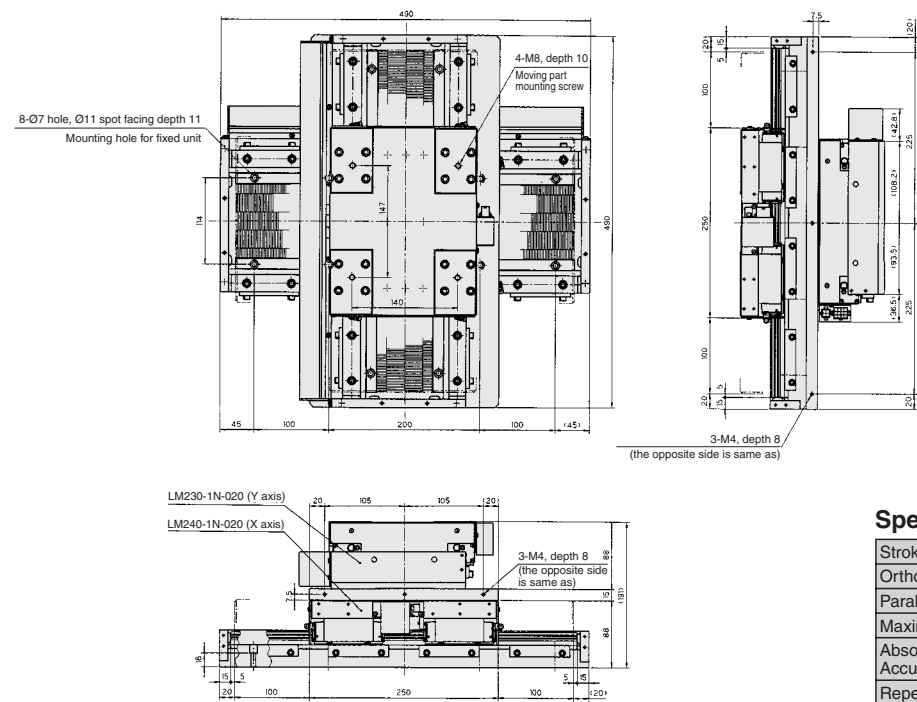
Specifications

Stroke	200mm×200mm
Orthogonal (X-Y)	25μm
Parallelism	±20μm (Full stroke)
Maximum Load	20kg
Absolute Positioning Accuracy ⁻¹⁾	X,Y axis (Single axis) 6μm θ axis (Single axis) ±15arc-sec
Repeated Positioning Accuracy	X,Y axis (Single axis) ±0.5μm θ axis (Single axis) ±2arc-sec
Encoder Resolution ⁻²⁾	X,Y axis (Single axis) 0.5μm θ axis (Single axis) 2,621,440 P/rev
Weight	42ka

*1) Scale accuracy specification at 23°C

*2) Resolution is different depending on the driver.

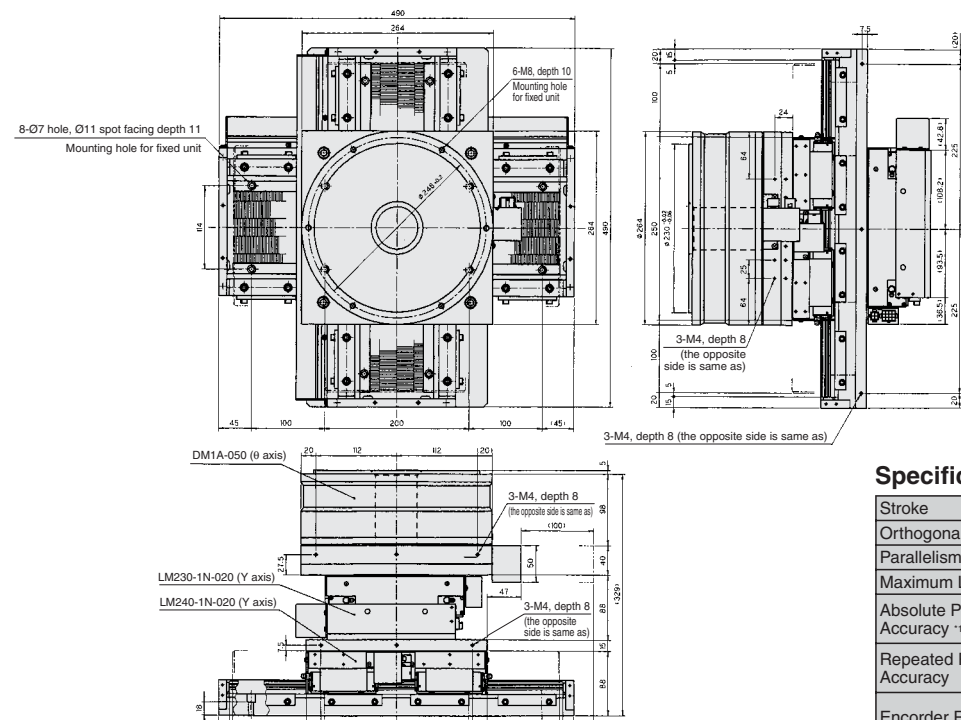
Reference Drawing (7)



Specifications		
Stroke		200mm×200mm
Orthogonal (X-Y)		25μm
Parallelism		±20μm (Full stroke)
Maximum Load		50kg
Absolute Positioning Accuracy ^{*1)}	X, Y axis (Single axis)	6μm
Repeated Positioning Accuracy	X, Y axis (Single axis)	±0.5μm
Encoder Resolution ^{*2)}	X, Y axis (Single axis)	0.5μm
Weight		81kg

^{*1)} Scale accuracy specification at 23°C
^{*2)} Resolution is different depending on the driver.

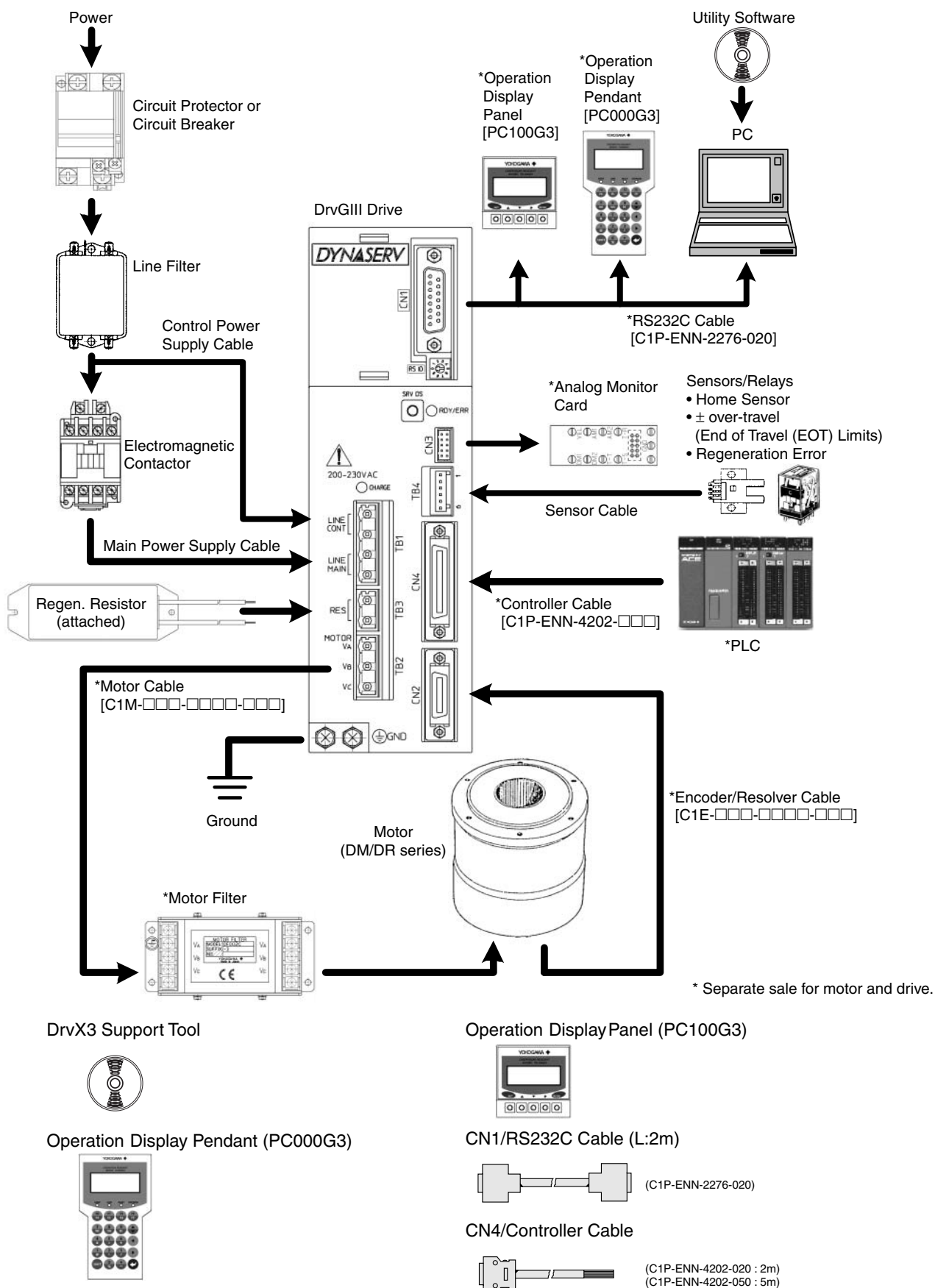
Reference Drawing (8)



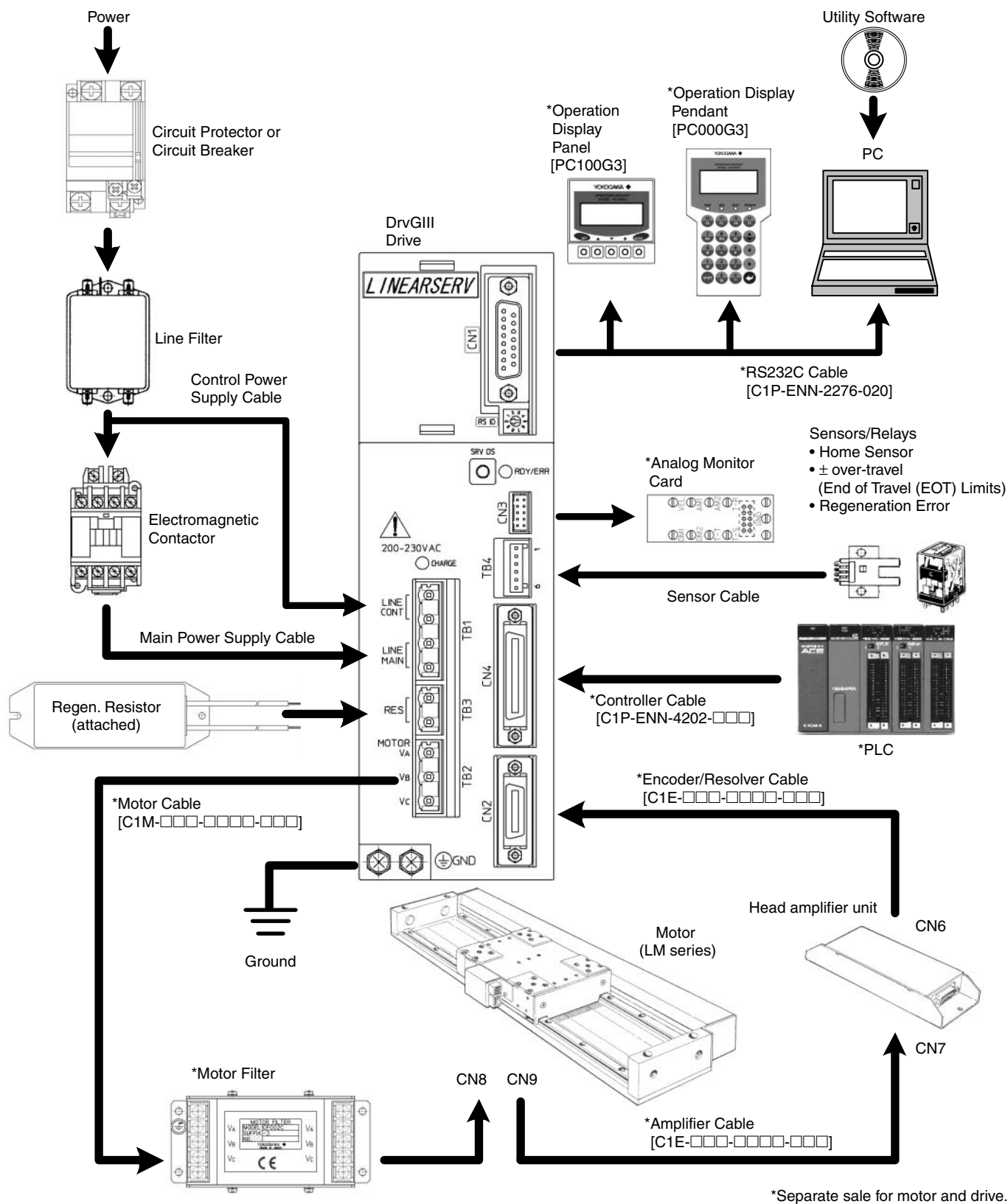
Specifications		
Stroke		200mm×200mm
Orthogonal (X-Y)		25μm
Parallelism		±20μm (Full stroke)
Maximum Load		30kg
Absolute Positioning Accuracy ^{*1)}	X, Y axis (Single axis)	6μm
	θ axis (Single axis)	±15arc-sec
Repeated Positioning Accuracy	X, Y axis (Single axis)	±0.5μm
	θ axis (Single axis)	±2arc-sec
Encoder Resolution ^{*2)}	X, Y axis (Single axis)	0.5μm
	θ axis (Single axis)	4,096,000 P/rev
Weight		104kg

^{*1)} Scale accuracy specification at 23°C
^{*2)} Resolution is different depending on the driver.

■ System Configuration/DYNASERV Connection Diagram



■ System Configuration/LINEARSERV Connection Diagram

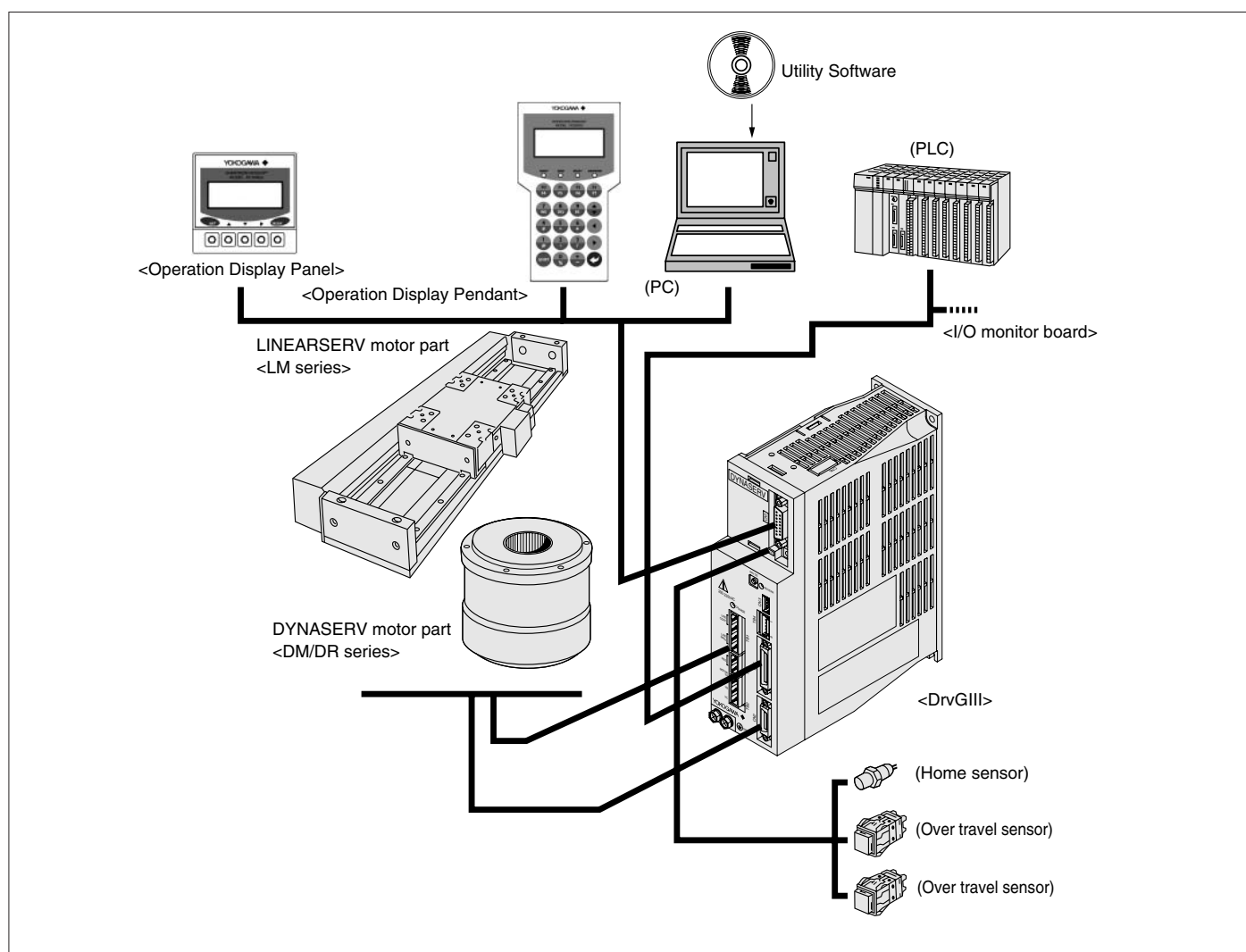


■ Features

The DrvGIII Intelligent Drive is a successor to SD/DR/TM drives. It is a direct drive driver developed in pursuit of greater control performance and operability.

The features are as follows:

- (1) The position settling time is shortened by enhanced controllability.
- (2) The built-in position controller allows operating the motor by the operation table.
- (3) The DrvGIII Intelligent Drive can handle various types of commands, including PLS-SIGN(STEP-DIR), UP-DOWN, A-B encoder position command pulses, speed commands, and torque and thrust commands.
- (4) An auto tuning function has been added.
- (5) In addition to the CE mark, the UL certificate has been granted for the DrvGIII Intelligent Drive.
- (6) A multi-function operating software is available. This user-friendly tool can be used on a PC to perform numerous functions, such as oscilloscope functions, motorless operation, and terminal assignment.
- (7) For user convenience, the Operation Display Panel and the Operation Display Pendant are available for parameter setting and maintenance.



Specifications

			500W Class		2kW Class	
Basic Specifications	Power supply	Main power supply	100 to 115VAC / 200 to 230VAC ^{+10%} _{-15%} 50 / 60Hz			
			Maximum power consumption 1.3kVA		Maximum power consumption 3.4kVA	
		Control power supply	100 to 115VAC / 200 to 230VAC ^{+10%} _{-15%} 50 / 60Hz			
			Maximum power consumption 40VA			
	Environment	Temperature	0 to +50°C (Operation) / -20 to +85°C (Storage)			
		Humidity	20 to 90%RH No condensing (Operation and Storage)			
		Atmosphere	No corrosive gases, dust-free atmosphere Do not locations exceeding 1000m above the sea level			
	Construction	Installation	Wall-mount			
		Fan	N/A		Built-in DC Fan	
		Regenerative Resistor	External		Built-in	
	External Dimensions		60 W × 195 H × 150 D (mm)		100 W × 195 H × 200 D (mm)	
	Weight		1.2kg		2.5kg	
	Conformed Standard		Low voltage (declaration) EN50178, EMC (declaration) EN55011 class A group 1, EN61800-3			
			UL508C			
	Resistance and Pressure		Insulation resistance : 10MΩ or more (DC500V), Insulation pessure : 1500VAC 1min			
	Encoder Resolution Value inside () is factory default value for command and monitor pulses		DYNASERV UD1AG3 : 4,096,000 pulse/rev (1,024,000 pulse/rev) UD1BG3 : 2,621,440 pulse/rev (655,360 pulse/rev) UD1CG3 : 2,621,440 pulse/rev (655,360 pulse/rev) UR1AG3 : 1,638,400 pulse/rev (819,200 pulse/rev) UR1BG3 : 1,015,808 pulse/rev (507,904 pulse/rev) UR1EG3 : 1,228,800 pulse/rev (614,400 pulse/rev) UR5BG3 : 557,056 pulse/rev (278,528 pulse/rev) UR5CG3 : 425,984 pulse/rev (212,992 pulse/rev) UR5EG3 : 638,976 pulse/rev (319,488 pulse/rev)			
			LINEARSERV UM1LG3-□□□B : 0.5 μm (1.0 μm) UM1LG3-□□□C : 0.25 μm (0.5 μm) UM1LG3-□□□E : 0.05 μm (0.1 μm)			
Communication Interface	Serial Interface (RS232C/RS485)		Communication Communication Speed Multi-Channel (RS485)	Start-stop system, Binary communication 38,400bps Max. 10 channels		
	Controller Interface		Pos. Command pulse (input) Pos. Monitor pulse (output) Contact I/O Analog input	[PLS-SIGN (STEP-DIR)], [UP-DOWN], [A-B encoder] [UP-DOWN], [A-B encoder] 12 for input, 6 for output (with user configurable function) Velocity, Torque/Thrust command (Select “T” in the model & suffix code) Torque/Thrust limit, Torque/Thrust feed forward		
Mechanical Input Signal			Home sensor, End Of Travel (EOT)			
Control Section	Pos. Control		I-PD control, PID control			
	Vel. Control		Proportional control, PID control			
	Feed Forward		Position, velocity and acceleration			
	Filter		Velocity command, velocity feedback, phase delay compensation and notch (2ch) filters			
Operation Functions			Homing, test, auto-tuning, positioning and jog move functions			
Protection Functions			Encoder error, over voltage, over current, low bus line power voltage, power failure, over load, regen. Error detection, over speed, excessive pos. deviation, hardware EOT and software EOT (for linear coordinate)			
Monitor			Velocity, current instruction, analog (2ch) and digital (2ch)			
Operation / Display			Operation display panel (optional) Operation display pendant (optional) Utility software			
Miscellaneous			Servo deceleration function at power failure (immediate stop) Dynamic brake (Select “-1B” or “-1L” in the model & suffix code)			

Connectors / Terminals

No.	Item	Connector Part Number	Description	Remark
Power Section	TB1	Power Supply Terminal	Connector : I231-204/026-000 (WAGO)	For main and control power supply
	TB2	Motor Terminal	Connector : I231-203/026-000 (WAGO)	For motor power cable
	TB3	Regenerative Resistor Terminal	Connector : I231-202/026-000 (WAGO)	For regenerative resistor
	GND	GND Terminal	M4 Solder less Terminal	Protection ground
Control Section	TB4	Sensor Terminal	Connector : I733-106 (WAGO)	For home sensor and $\pm$ EOT
	CN1	Serial Interface Connector (RS232C/485)	Connector : IDA-15PF-N (Hirose) Cover : IDA-C8-J10-F4-1	For operation display panel, operation display pendant and PC
	CN2	Encoder / Resolver Connector	Connector : IPCR-S20F (Honda) Cover : IPCR-LS20LA1	For encoder and resolver cable
	CN3	Analog Monitor Connector	Monitor card "7041WC"	For monitors and oscilloscope
	CN4	Controller Interface Connector	Connector : IPCR-S36FS (Honda) Cover : IPCR-LS36LA	For connection to PLC

TB1: Power Supply Terminal

Pin No.	Signal	Definition
1	LINE (CONT) L	AC power input for control circuit
2	LINE (CONT) N	AC power input for control circuit
3	LINE (MAIN) L	AC power input for driving motor
4	LINE (MAIN) N	AC power input for driving motor

TB2: Motor Terminal

Pin No.	Signal	Definition
1	VA	Output of phase A of motor
2	VB	Output of phase B of motor
3	VC	Output of phase C of motor

TB3: Regenerative Resistor Terminal

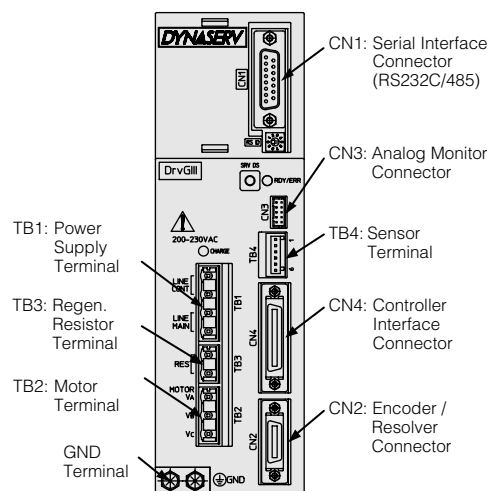
Pin No.	Signal	Definition
1	RES +	Regenerative resistor +
2	RES -	Regenerative resistor -

TB4: Sensor Terminal

Pin No.	Signal	Definition
1	COMP0	Sensor power
2	XORG	Home input B-contact
3	XOTD	- EOT input B-contact
4	XOTU	+EOT input B-contact
5	ERR+	Regeneration error output +
6	ERR-	Regeneration error output -

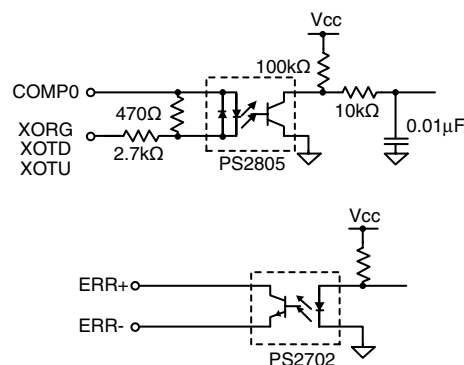
CN1: Serial Interface Connector (RS232C/485)

Pin No.	Signal	Definition
1	FG	Frame GND Signal (Shield)
2	RxD	RxD terminal RS232C single channel communication
3	TxD	TxD terminal RS232C single channel communication
4	A	Rx (+) side terminal RS485 multi-channel communication
5	Y	Tx (+) side terminal RS485 multi-channel communication
6	485SW	Busy condition bit RS485 multi-channel communication
7	TRMP	Terminator terminal RS485 multi-channel communication (short circuit to #14 TRMN)
8	CN1SW	Busy condition bit CN1
9	+5V	+5V power (operation display panel and pendant) Do not connect in RS232C/485 communication
10	SG	Signal GND terminal
11	B	Rx (-) side terminal RS485 multi-channel communication
12	Z	Tx (-) side terminal RS485 multi-channel communication
13	SG	Signal GND terminal
14	TRMN	Terminator terminal RS485 multi-channel communication (short circuit to #7 TRMP)
15	SG	Signal GND terminal



Sensor Input Specifications	
Rated Voltage	12 to 24VDC ($\pm 10\%$)
Rated Input Current	4.1mA/point (at 12VDC) 8.5mA/point (at 24VDC)
Input Impedance	3.0k Ω
Operating Voltage (for COMP0)	3.0VDC when power is OFF 9.0VDC when power is ON
Allowable Leakage Current	To be off at less than 1.0mA

Regeneration Error Output	
Max. Working Voltage	30VDC
Max. Output Current	50mA



■ CN2: Encoder / Resolver Connector

Pin No.	Signal			
	Type DM1B-006 Type DM1C-004	Type DM (excl. Left hand side models)	Type LM	Type DR
1	+10V	+10V	+10V	—
2	—	—	—	+S0
3	θSIG 0	θSIG 0	SIG 0	—
4	—	ECLK+(10V)	—	—
5	θSIG 1	θSIG 1	SIG 1	—
6	—	—	—	-S0
7	ECLK+(3V)	—	ECLK+(3V)	—
8	—	—	—	-C0
9	—	ZERO+	—	—
10	—	—	FG	+C0
11	—	—	—	+S180
12	GND	GND	GND	—
13	—	ECLK-(10V)	—	—
14	GND	GND	GND	—
15	—	—	—	-S180
16	GND	GND	GND	—
17	—	—	—	-C180
18	ECLK-(3V)	—	ECLK-(3V)	—
19	—	ZERO-	—	—
20	—	—	FG	+C180
Case	Shielding wire	Shielding wire	Shielding wire	FG / Shielding wire

■ CN3: Analog Monitor Connector

Pin No.	Signal	Definition
1	VEL	Velocity monitor terminal
2	AMON1	Analog monitor terminal 1 (general purpose monitor 1)
3	AMON2	Analog monitor terminal 2 (general purpose monitor 2)
4	DMON1	Digital monitor terminal 1 (general purpose monitor 1)
5	DMON2	Digital monitor terminal 2 (general purpose monitor 2)
6	T-R	Current command
7	T-T	Reserved
8	T-S	Reserved
9	<Prohibited>	Reserved Do not connect any line.
10	GND	GND terminal for monitor

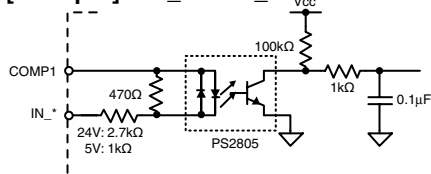
■ CN4: Controller Interface Connector

Pin No.	Signal	Definition
1	COMP1	Interface power +
2	COMN1	Interface power -
3	DO_0	I/O output 0
4	DO_1	I/O output 1
5	DO_2	I/O output 2
6	DO_3	I/O output 3
7	DO_4	I/O output 4
8	DO_5	I/O output 5
9	UA_OUT+	Position present pulse 1+
10	UA_OUT-	Position present pulse 1-
11	DB_OUT+	Position present pulse 2+
12	DB_OUT-	Position present pulse 2-
13	Z_OUT+	Z-pulse +
14	Z_OUT-	Z-pulse -
15	PUA_IN+	Position command pulse 1+
16	PUA_IN-	Position command pulse 1-
17	SDB_IN+	Position command pulse 2+
18	SDB_IN-	Position command pulse 2-
19	DI_0	I/O input 0
20	DI_1	I/O input 1
21	DI_2	I/O input 2
22	DI_3	I/O input 3
23	DI_4	I/O input 4
24	DI_5	I/O input 5
25	DI_6	I/O input 6
26	DI_7	I/O input 7
27	DI_8	I/O input 8
28	DI_9	I/O input 9
29	DI_10	I/O input 10
30	DI_11	I/O input 11
31	(NC)	Do not connect any line.
32	(NC)	
33	ASUB_IN+	Analog sub (auxiliary) input +
34	ASUB_IN-	Analog sub (auxiliary) input -
35	ACMD_IN+	Analog command input +
36	ACMD_IN-	Analog command input -
Shield	Shield treatment terminal	Shield treatment terminal

Default Signal Assignment Settings		
Logic I/O	Definition	Reversed logic
OUT_DRDY	Driver (CPU) ready	Invalid
OUT_SRDY	Servo ready	Invalid
OUT_BUSY	Busy	Invalid
OUT_OVL	Overload signal	Valid
OUT_OVER	Over speed signal	Invalid
OUT_COIN	Coin signal	Invalid

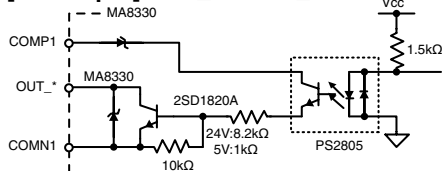
Default Signal Assignment Settings		
Logic I/O	Definition	Reversed logic
IN_ERR_RESET	Error reset	Invalid
IN_SERVO	Servo command	Invalid
IN_START	Drive execution command	Invalid
IN_ABORT	Stops motion & Table Operation	Invalid
IN_I_CODE.0	Code input 0	Invalid
IN_I_CODE.1	Code input 1	Invalid
IN_POSW.0	Coin window select 0	Invalid
IN_POSW.1	Coin window select 1	Invalid
IN_VELFREQ_SEL	Velocity control bandwidth select	Invalid
IN_POSFREQ_SEL	Position control bandwidth select	Invalid
IN_PLS_DIRECT	Pulse priority select	Invalid
IN_POSINT_INH	Pos. control integration prohibited	Invalid

[I/O Input] DI_0 to DI_11



Input is in the on-state when the photo-coupler is in the on-state.

[I/O Output] DO_0 to DO_5



Output is in the on-state when the transistor is in the on-state.

[Position Command Pulse Input] PUA_IN±, SDB_IN±

■ Differential Input Spec

Connect the differential line driver conforming to RS422A standards, which is equivalent to AM26LS31.

Input is in the on-state when the + terminal becomes a higher voltage than the - terminal and the photo-coupler is energized.

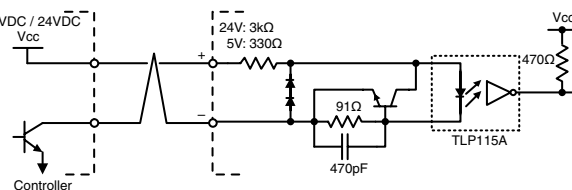
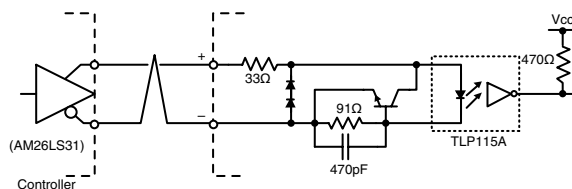
■ Open Collector Input Spec

Input power source for interface.

Input is in the on-state when the photo-coupler is energized.

Interface Spec	A	B
Rated Voltage	12 to 24VDC(±10%)	5VDC (±10%)
Rated Input Current	4.1mA / point (at 12VDC) 8.5mA / point (at 24VDC)	4.0mA / point (at 5VDC)
Input Impedance	3.0kΩ	1.0kΩ
Operating Voltage (for COMP0)	3.0VDC when power is OFF 9.0VDC when power is ON	1.0VDC when power is OFF 4.0VDC when power is ON
Allowable Leakage Current	To be off at less than 1.0mA	

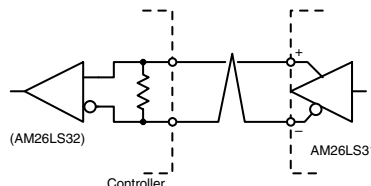
Interface Spec	A	B
Rated Voltage	12 to 24VDC(±10%)	5VDC (±10%)
Max. Load Current	0.1A / point, 0.5A / common	
On-state Voltage	Less than 0.5VDC	
Off-state Leakage Current	Less than 0.1mA	



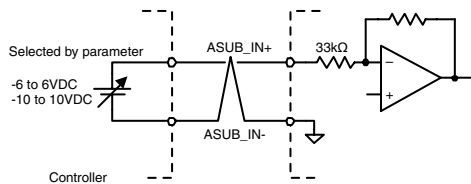
[Actual Position Pulse Output] UA_OUT±, DB_OUT±, Z_OUT±

Connect the differential line receiver conforming to RS422A standards, which is equivalent to AM26LS32.

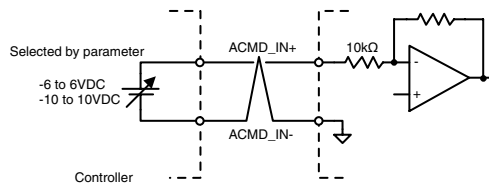
Output is in the on-state when the + terminal becomes a higher voltage than the - terminal.



[Analog Sub (Auxiliary) Input] ASUB_IN±



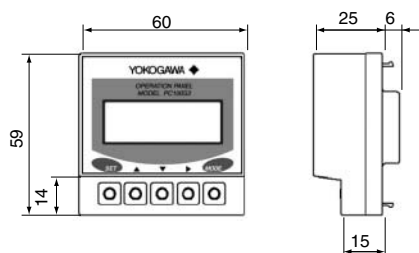
[Analog Command Input] ACMD_IN±



Operation Display Panel (Optional)

Model and Suffix Code : PC100G3

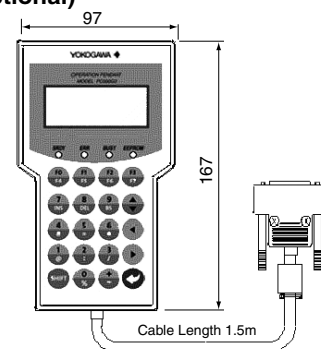
This optional display panel offers the ability to display and set various parameters, and display alarms. Connect to CN1 on the drive



Operation Display Pendant (Optional)

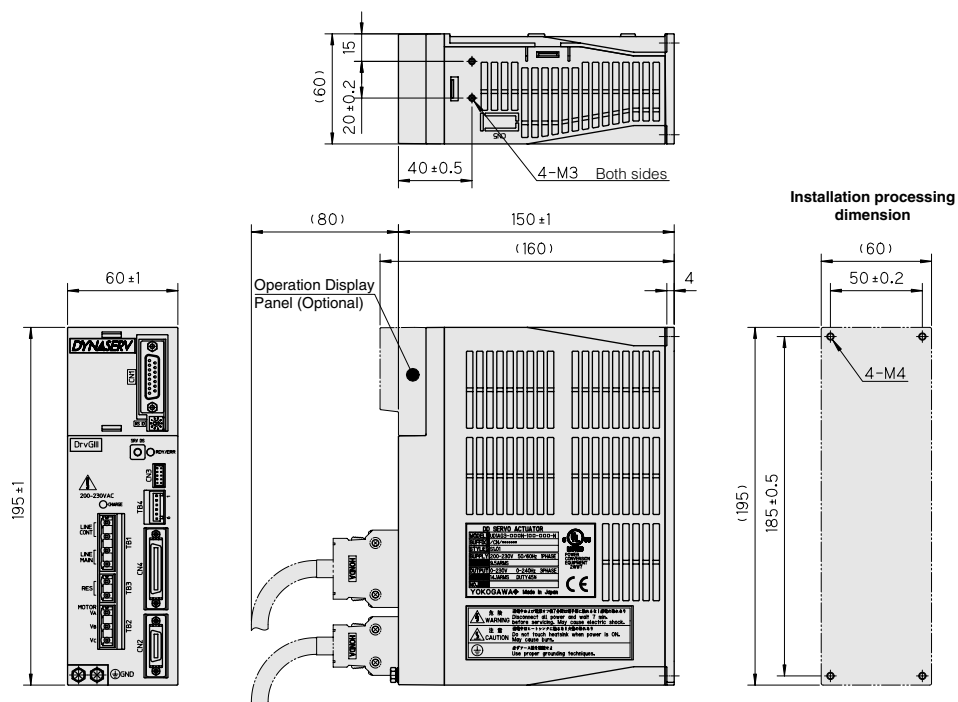
Model and Suffix Code : PC000G3

This optional display pendant offers the ability to display and set various parameters, and display alarms. In addition, 16 unique drive configurations may be stored on the Pendant. Connect to CN1 on the drive

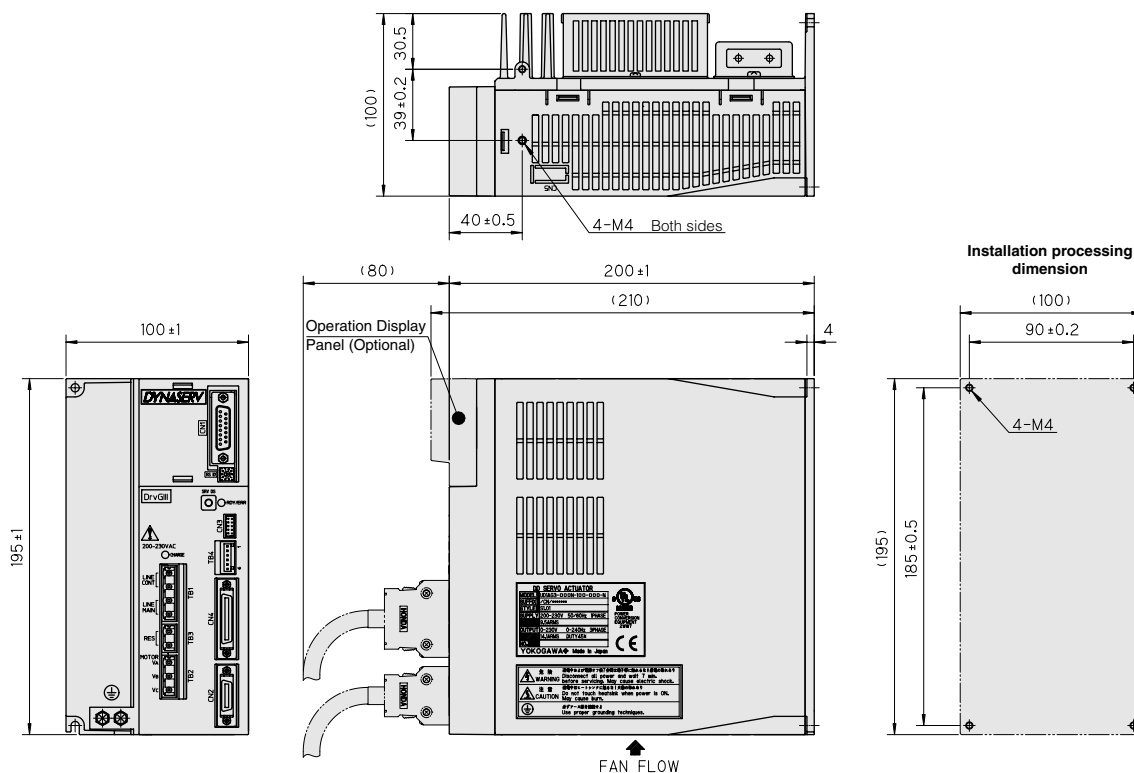


External Dimensions (Unit: mm)

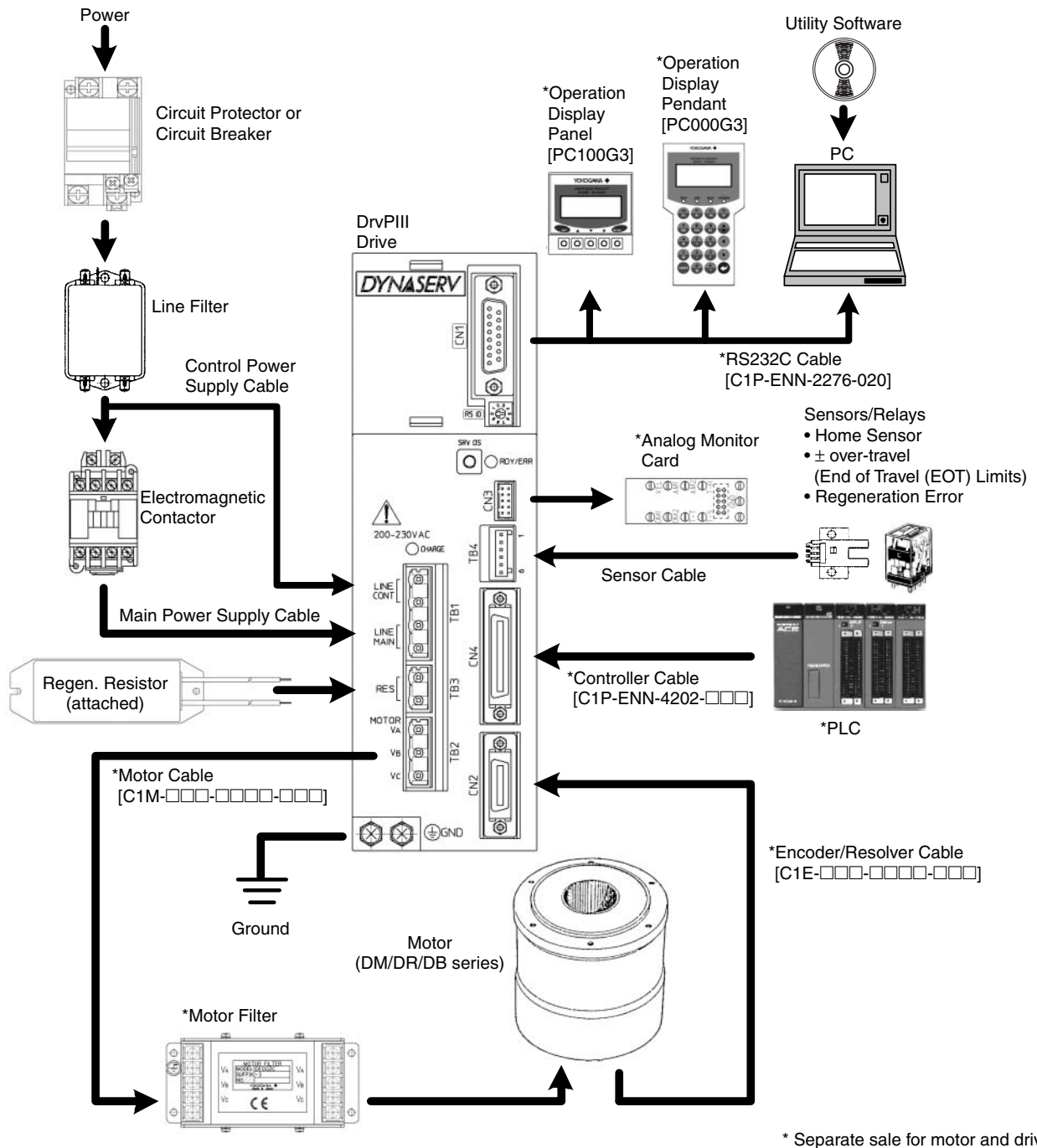
500W Class



2kW Class



■ System Configuration/DYNASERV Connection Diagram



DrvX3 Support Tool



Operation Display Pendant (PC000G3)



Operation Display Panel (PC100G3)



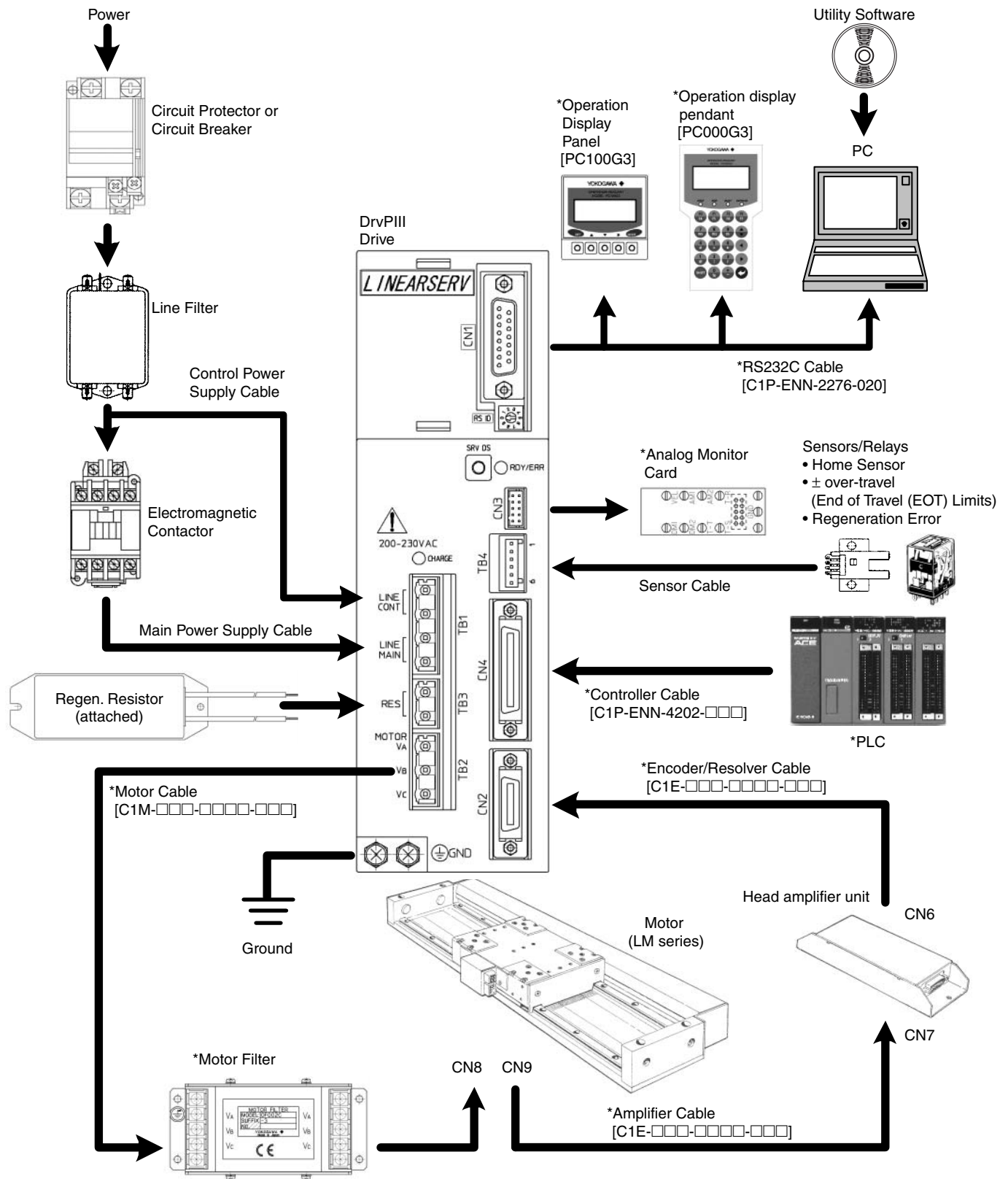
CN1/RS232C Cable (L:2m)



CN4/Controller Cable



■ System Configuration/LINEARSERV Connection Diagram

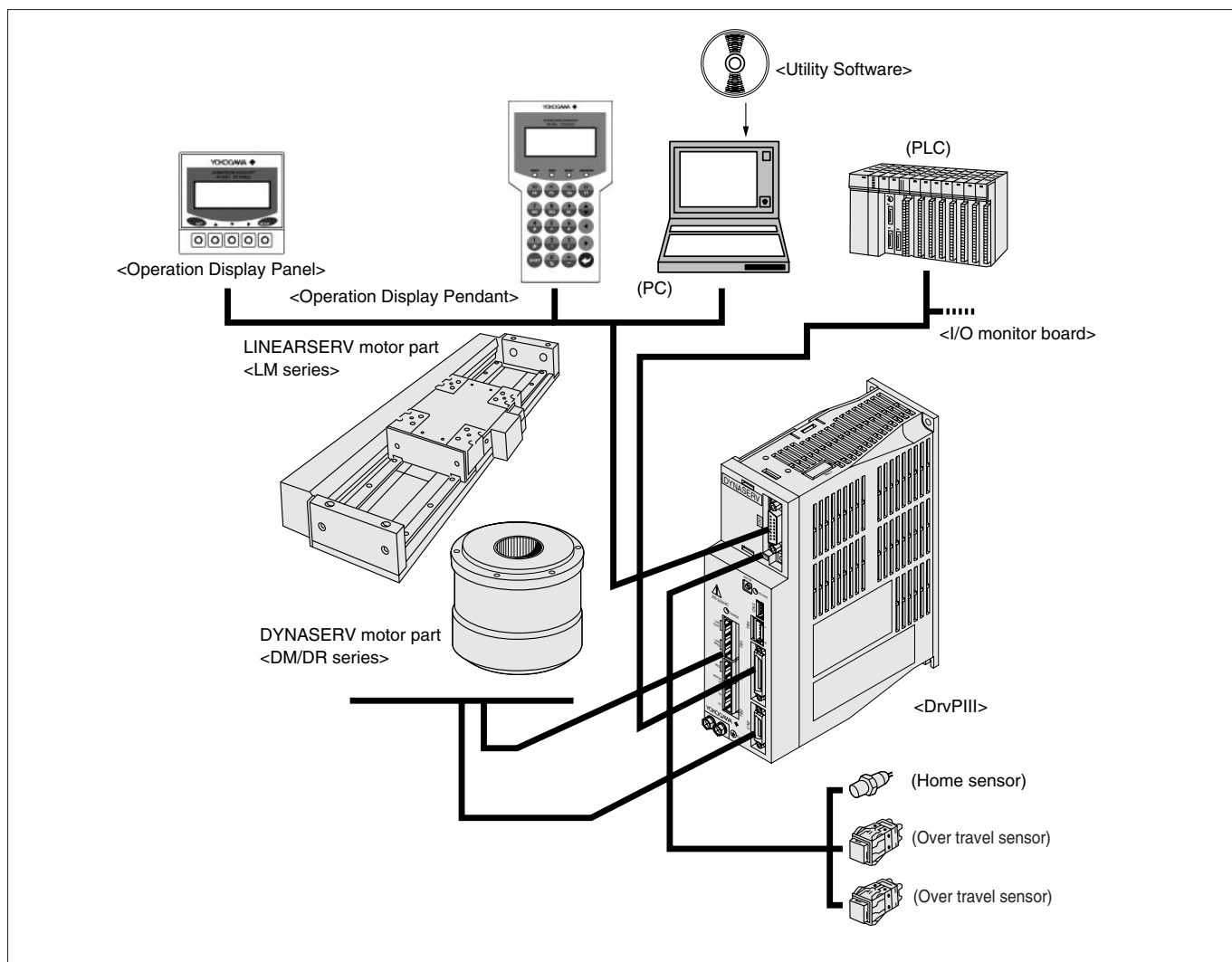


■ Features

The DrvPIII Intelligent Drive is a direct drive motor drive for positioning that has been developed in pursuit of greater control performance and operability. It is compatible with absolute-type and increment-type motors as well as with field networks.

The features of the DrvPIII Intelligent Drive are as follows:

- (1) It is equipped not only with I/O contact points, but also with the CC-Link and PROFIBUS-DP interfaces, which have been adopted in many FA systems.
- (2) When combined with the DB5C that has a user-friendly built-in absolute encoder, it can serve as a convenient absolute direct drive motor obviating necessity of homing operation.
- (3) The position settling time is shortened by enhanced controllability.
- (4) The built-in position controller allows for operation by the operation table.
- (5) An auto tuning function has been added.
- (6) In addition to the CE mark, the UL certificate has been granted for the DrvPIII Intelligent Drive.
- (7) A multi-function support tool is available. This user-friendly tool can be used on a PC to perform numerous functions, such as oscilloscope functions, motorless operation, and terminal assignment.
- (8) For user convenience, the Operation Display Panel and the Operation Display Pendant are available for parameter setting and maintenance.



Specifications

			500 W Class		2 kW Class	
Basic Specification	Power supply	Main power supply	100 to 115VAC / 200 to 230VAC ^{+10%} _{-15%} 50 / 60Hz			
			Maximum power consumption 1.3kVA		Maximum power consumption 3.4kVA	
		Control power supply	100 to 115VAC / 200 to 230VAC ^{+10%} _{-15%} 50 / 60Hz			
			Maximum power consumption 40VA			
	Environment	Temperature	0 to +50C (Operation) / 20 to +85C (Storage)			
		Humidity	20 to 90 %RH, No condensing (Operation and Storage)			
		Atmosphere	No corrosive gases, dust-free atmosphere Must be used at a maximum altitude of 1000 meters above sea level (CE mounting condition)			
	Construction	Installation	Wall-mount			
		Fan	N/A		Built-in DC Fan	
		Regenerative Resistor	External		Built-in	
	External Dimension		60 W×195 H×150 D (mm)		100 W×195 H×200 D (mm)	
	Weight		1.2 kg		2.5 kg	
	Conformed Standard		Low voltage (declaration) EN50178, EMC (declaration) EN55011 class A group 1, EN61800-6-3			
			UL508C			
	HiPot		Insulating resistance: 10 MΩ or more (500 VDC), Withstand voltage 1500 VAC, one minute			
	Encoder Resolution Value inside () is factory default value for command and monitor pulses		DYNASERV UD1AP3 ; 4,096,000 pulses/rev (1,024,000 pulse/rev) UD1BP3 ; 2,621,440 pulses/rev (655,360 pulse/rev) UD1CP3 ; 2,621,440 pulses/rev (655,360 pulse/rev) UR1AP3 ; 1,638,400 pulses/rev (819,200 pulse/rev) UR1BP3 ; 1,015,808 pulses/rev (507,904 pulse/rev) UR1EP3 ; 1,228,800 pulses/rev (614,400 pulse/rev) UR5BP3 ; 557,056 pulses/rev (278,528 pulse/rev) UR5CP3, UB5CP3; 425,984 pulses/rev (212,992 pulse/rev) UR5EP3 ; 638,976 pulses/rev (319,488 pulse/rev)			
			LINEARSERV UM1LP3-□□□B: 0.5μm (1.0 μm) UM1LP3-□□□C: 0.25μm (1.0 μm) UM1LP3-□□□E: 0.05μm (1.0 μm)			
Communication Interface	Serial Interface (RS232C/RS485)		Communication Communication Speed Multi-channel (RS485)	Start-stop system, binary communication 38,400 bps Max. 10 channels		
	Controller Interface		Contact I/O (XA for interface type and specification) No. of input points: 12 points, No. of output points: 6 points (with a terminal assignment function)			
			CC-Link (C1 for interface type and specification) When one occupied station is set up No. of input points: 16 points, No. of output points: 16 points (with a terminal assignment function) Input registers: 4, output registers: 4 When two occupied stations are set up No. of input points: 48 points, No. of output points: 48 points (with a terminal assignment function) Input registers: 8, output registers: 8			
Mechanical Input Signal			Home sensor, End Of Travel (EOT) sensor			
Control Section	Pos. Control		I-PD control, PID control			
	Vel. Control		Proportional control, proportional integral control			
	Feed Forward		Position, velocity, acceleration			
	Filter		Velocity command, velocity feedback, phase delay compensation and notch (2ch) filters			
Operation Functions			Homing, test, auto-tuning, positioning and jog move functions			
Protection Functions			Encoder error, over voltage, over current, low bus line power voltage, power failure, over load, regen. error detection, over speed, excessive pos. deviation, hardware EOT and software EOT (for linear coordinate)			
Monitor			Velocity, current instruction, analog (2ch) and digital (2ch)			
Operation / Display			Operation display panel (optional) Operation display pendant (optional) Utility software			
Miscellaneous			Servo deceleration function at power failure (immediate stop) Dynamic brake (Select -1B or -1L for the model & suffix code.)			

Connectors / Terminals

No.	Item	Connector Part Number	Description	Remark
Power Section	TB1	Power Supply Terminal	Connector : 231-204/026-000 (WAGO)	For main and control power supply
	TB2	Motor Terminal	Connector : 231-203/026-000 (WAGO)	For motor power cable
	TB3	Regenerative Resistor Terminal	Connector : 231-202/026-000 (WAGO)	For regenerative resistor
	GND	GND Terminal	M4 Solder less Terminal	Protection ground
Control Section	TB4	Sensor Terminal	Connector : 733-106 (WAGO)	For home sensor and $\pm$ EOT
	CN1	Serial Interface Connector (RS232C/485)	Connector : DA-15PF-N (Hirose) Cover : DA-C8-J10-F4-1	For operation display panel, operation display pendant and PC
	CN2	Encoder / Resolver Connector	Connector : PCR-S20FS (Honda) Cover : PCR-LS20LA1	For encoder and resolver cable
	CN3	Analog Monitor Connector	Monitor card " R7041WC "	For monitors and oscilloscope
	CN4	Controller Interface Connector	Basic Specification Code XA Connector : PCR-S36FS (Honda) Cover : PCR-LS36LA Basic Specification Code C1 Connector : TMSTBP2.5/4-STF-5.08 (Phoenix Contact)	For connection to PLC

TB1: Power Supply Terminal

Pin No.	Signal	Definition
1	LINE (CONT) L	AC power input for control circuit
2	LINE (CONT) N	AC power input for control circuit
3	LINE (MAIN) L	AC power input for driving motor
4	LINE (MAIN) N	AC power input for driving motor

TB2: Motor Terminal

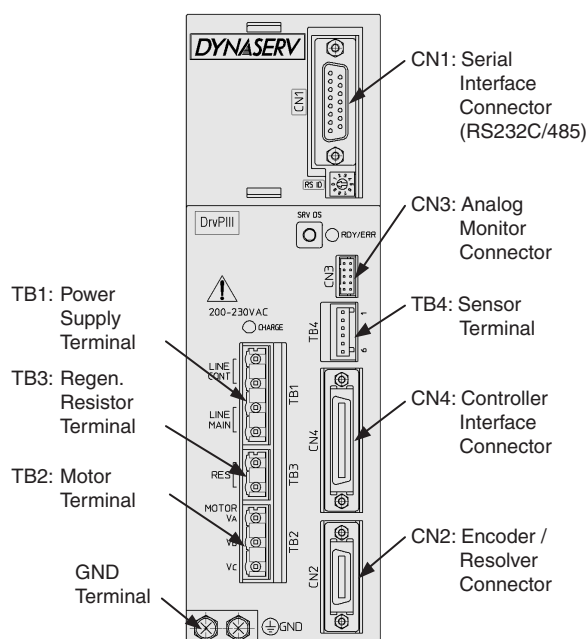
Pin No.	Signal	Definition
1	VA	Output of phase A of motor
2	VB	Output of phase B of motor
3	VC	Output of phase C of motor

TB3: Regenerative Resistor Terminal

Pin No.	Signal	Definition
1	RES +	Regenerative resistor +
2	RES -	Regenerative resistor -

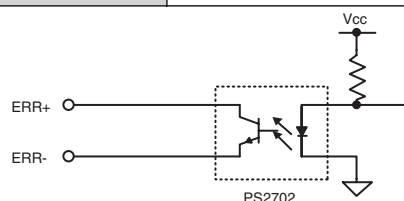
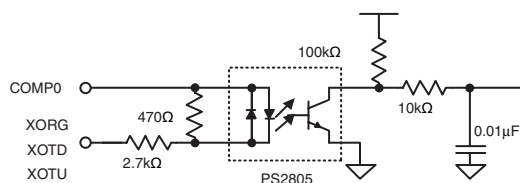
TB4: Sensor Terminal

Pin No.	Signal	Definition
1	COMP0	Sensor power
2	XORG	Home input B-contact
3	XOTD	- EOT input B-contact
4	XOTU	+EOT input B-contact
5	ERR+	Regeneration error output +
6	ERR-	Regeneration error output -



Sensor Input Specifications	
Rated Voltage	12-24VDC ($\pm 10\%$)
Rated Input Current	4.1 mA/point (at 12VDC) 8.5 mA/point (at 24VDC)
Input Impedance	3.0 k Ω
Operating Voltage (for COMP0)	3.0 VDC when power is OFF 9.0 VDC when power is ON
Allowable Leakage Current	To be off at less than 1.0 mA

Regeneration Error Output	
Max. Working Voltage	30 VDC
Max. Output Current	50 mA



■ CN1: Serial Interface Connector (RS232C/485)

Pin No.	Signal	Definition
1	FG	Frame GND Signal (Shield)
2	RxD	RxD terminal RS232C single channel communication
3	TxD	TxD terminal RS232C single channel communication
4	A	Rx (+) side terminal RS485 multi-channel communication
5	Y	Tx (+) side terminal RS485 multi-channel communication
6	485SW	Busy condition bit RS485 multi-channel communication
7	TRMP	Terminator terminal RS485 multi-channel communication (short circuit to #14 TRMN)
8	CN1SW	Busy condition bit CN1
9	+5V	+5V power (operation display panel and pendant) Do not connect in RS232C/485 communication
10	SG	Signal GND terminal
11	B	Rx (-) side terminal RS485 multi-channel communication
12	Z	Tx (-) side terminal RS485 multi-channel communication
13	SG	Signal GND terminal
14	TRMN	Terminator terminal RS485 multi-channel communication (short circuit to #7 TRMP)
15	SG	Signal GND terminal

■ CN2: Encoder / Resolver Connector

Pin No.	Signal				
	Type DM1B-006 Type DM1C-004	Type DM (excl. Left hand side models)	Type LM	Type DR	Type DB
1	+10V	+10V	+10V	-	-1XS0
2	-	-	-	+S0	1XS
3	θSIG 0	θSIG 0	SIG 0	-	-1XS180
4	-	ECLK+(10V)	-	-	-
5	θSIG 1	θSIG 1	SIG 1	-	-1XC0
6	-	-	-	-S0	-NXS0
7	ECLK+(3V)	-	ECLK+(3V)	-	-1XC180
8	-	-	-	-C0	-NXC0
9	-	ZERO+	-	-	-
10	-	-	FG	+C0	1XC
11	-	-	-	+S180	NXS
12	GND	GND	GND	-	-
13	-	ECLK-(10V)	-	-	-
14	GND	GND	GND	-	-
15	-	-	-	-S180	-NXS180
16	GND	GND	GND	-	-
17	-	-	-	-C180	-NXC180
18	ECLK-(3V)	-	ECLK-(3V)	-	-
19	-	ZERO-	-	-	-
20	-	-	FG	+C180	NXC
Case	Shielding wire	Shielding wire	Shielding wire	FG / Shielding wire	FG / Shielding wire

■ CN3: Analog Monitor Connector

Pin No.	Signal	Definition
1	VEL	Velocity monitor terminal
2	AMON1	Analog monitor terminal 1 (general purpose monitor 1)
3	AMON2	Analog monitor terminal 2 (general purpose monitor 2)
4	DMON1	Digital monitor terminal 1 (general purpose monitor 1)
5	DMON2	Digital monitor terminal 2 (general purpose monitor 2)

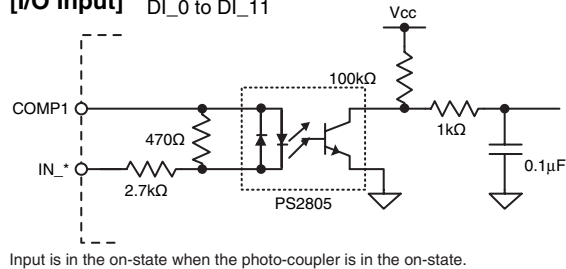
Pin No.	Signal	Definition
6	T-R	Current command
7	T-T	Reserved
8	T-S	Reserved
9	<Prohibited>	Reserved Do not connect any line.
10	GND	GND terminal for monitor

■ CN4: Controller Interface Connector

• Contact I/O XA for interface type and specification

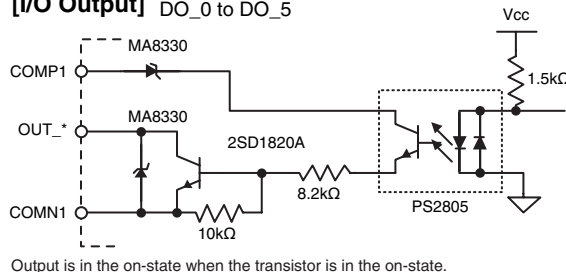
Pin No.	Signal	Definition	
1	COMP1	Interface power +	Input appropriate power according to the interface spec.
2	COMN1	Interface power -	
3	DO_0	I/O output 0	User Configurable Outputs. Defined by assigned signal function. Able to reverse output signal logic.
4	DO_1	I/O output 1	
5	DO_2	I/O output 2	
6	DO_3	I/O output 3	
7	DO_4	I/O output 4	
8	DO_5	I/O output 5	
9 to 18	(NC)		Do not connect any line.
19	DI_0	I/O input 0	User Configurable Inputs. Defined by assigned signal function. Able to reverse input signal logic.
20	DI_1	I/O input 1	
21	DI_2	I/O input 2	
22	DI_3	I/O input 3	
23	DI_4	I/O input 4	
24	DI_5	I/O input 5	
25	DI_6	I/O input 6	
26	DI_7	I/O input 7	
27	DI_8	I/O input 8	
28	DI_9	I/O input 9	
29	DI_10	I/O input 10	
30	DI_11	I/O input 11	
31 to 36	(NC)		Do not connect any line.
Shield		Shield treatment terminal	

[I/O Input] DI_0 to DI_11



Rated Voltage	12 to 24 VDC (±10%)
Rated Input Current	4.1 mA / point (at 12 VDC) 8.5 mA / point (at 24 VDC)
Input Impedance	3.0 kΩ
Operating Voltage (for COMP0)	3.0 VDC when power is OFF 9.0 VDC when power is ON
Allowable Leakage Current	To be off at less than 1.0 mA

[I/O Output] DO_0 to DO_5



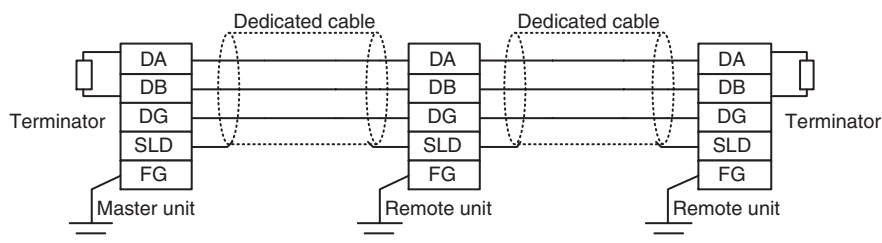
Rated Voltage	12 to 24 VDC (±10%)
Max. Load Current	0.1 A / point, 0.5 A / common
On-state Voltage	Less than 0.5 VDC
Off-state Leakage Current	Less than 0.1 mA

• CC-Link C1 for interface type and specification

Communication Speed	156kbps, 625kbps, 2.5Mbps, 5Mbps, 10Mbps	Dependent on parameter
Occupied Stations	One station or Two stations	Dependent on parameter
Station Number assignment	When one occupied station is set up 1 to 64 When two occupied stations are set up (1,2),(2,3),...,(63,64)	Dependent on rotary switch

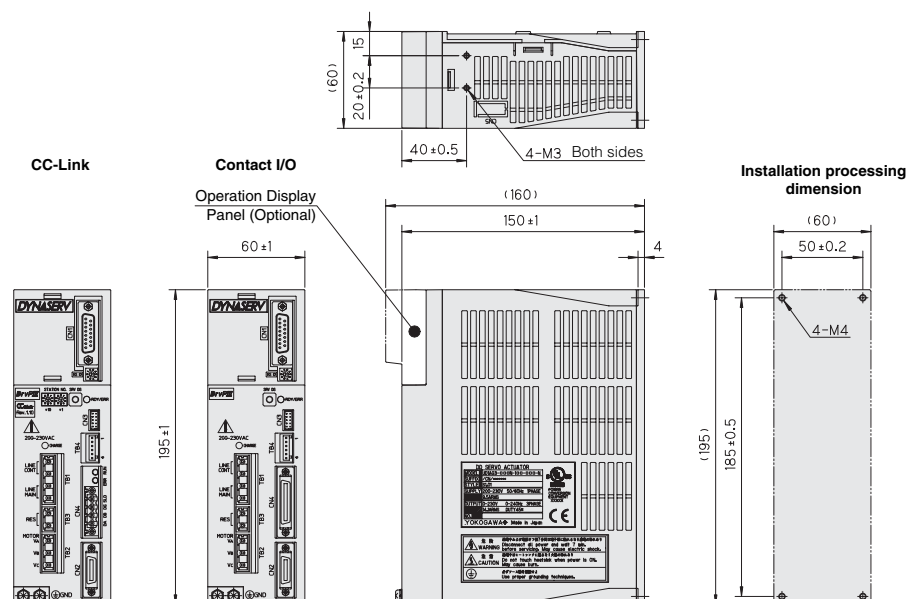
Pin No.	Signal name	Wire color
01	DA	Blue
02	DB	White
03	DG	Yellow
04	SLD	

Refer to the panel of drive for signal detail.

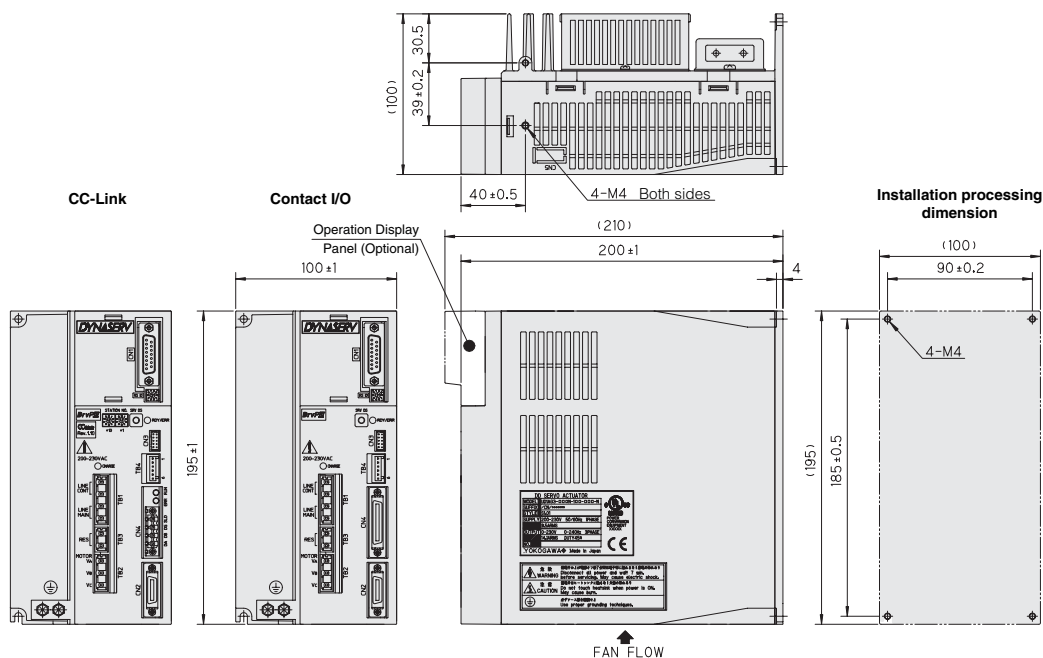


External Dimensions (Unit: mm)

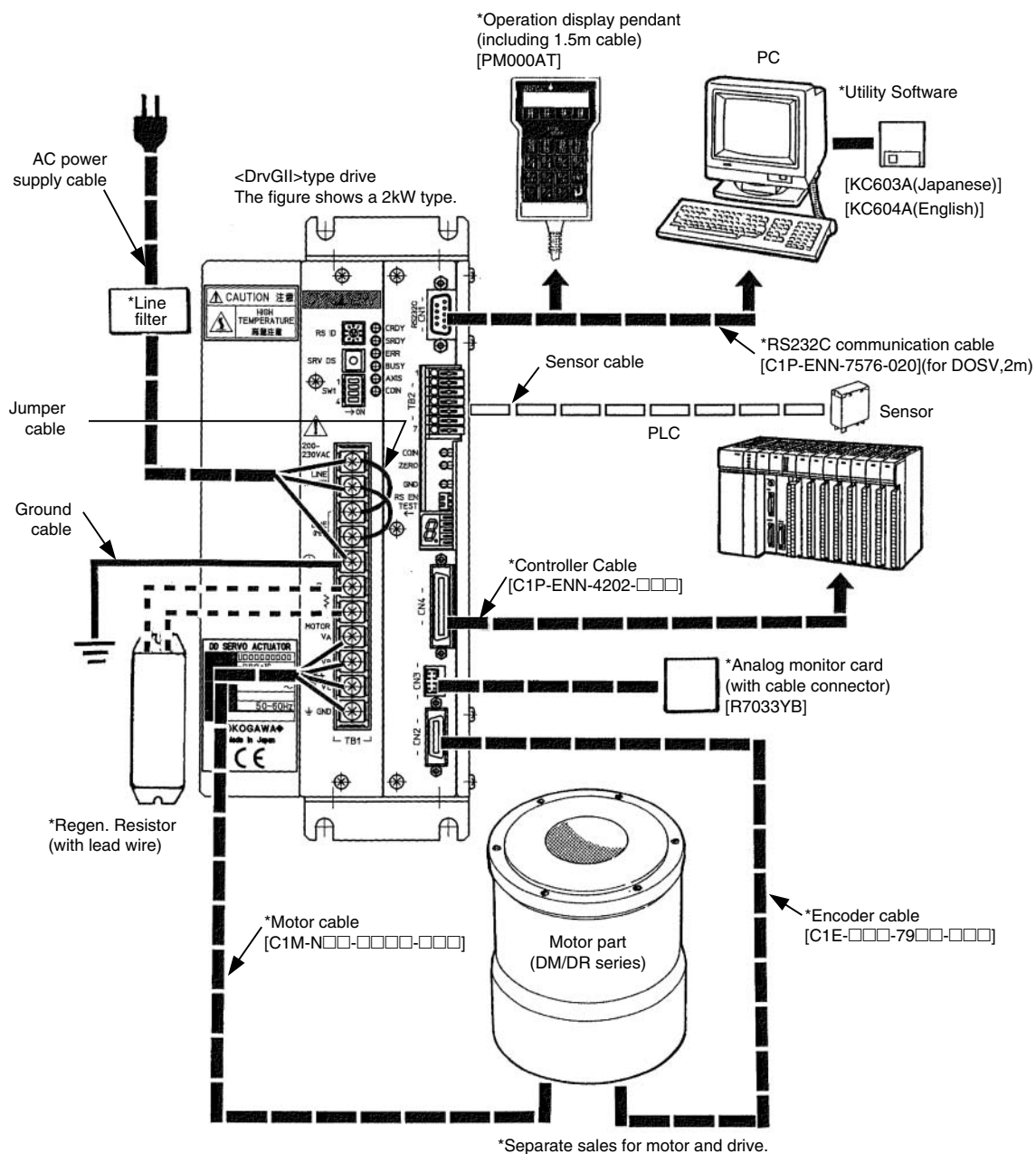
500W Class



2kW Class

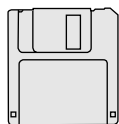


System Configuration/DYNASERV Connection Diagram



DrvGII Utility Software (KC603A, KC604A)

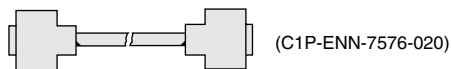
Windows 95, 98, Me, NT4.0, 2000



Operatin Display Pendant (PM000AT)



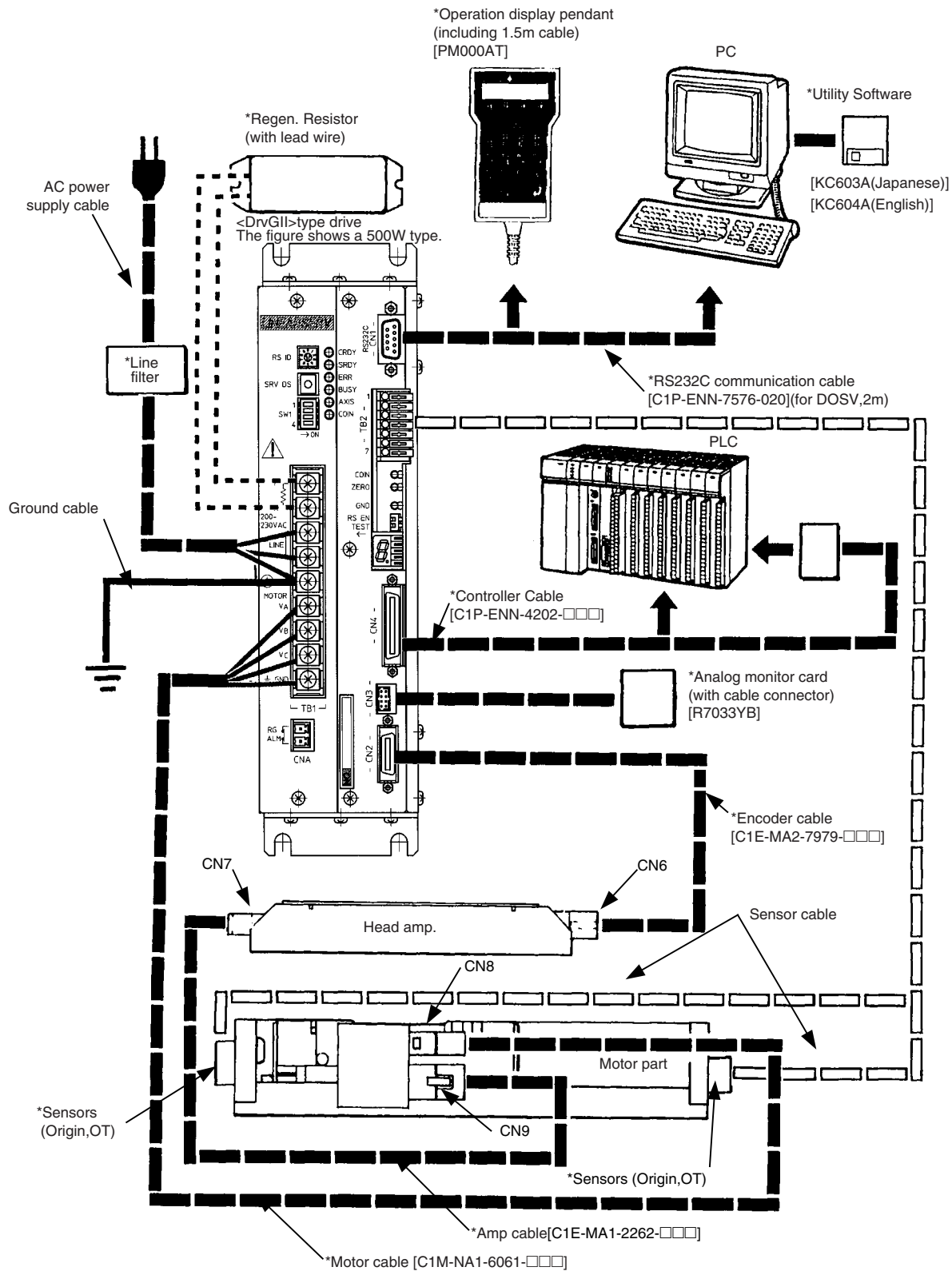
CN1/RS232C Cable (L: 2m)



CN4/Controller Cable



■ System Configuration/LINEARSERV Connection Diagram

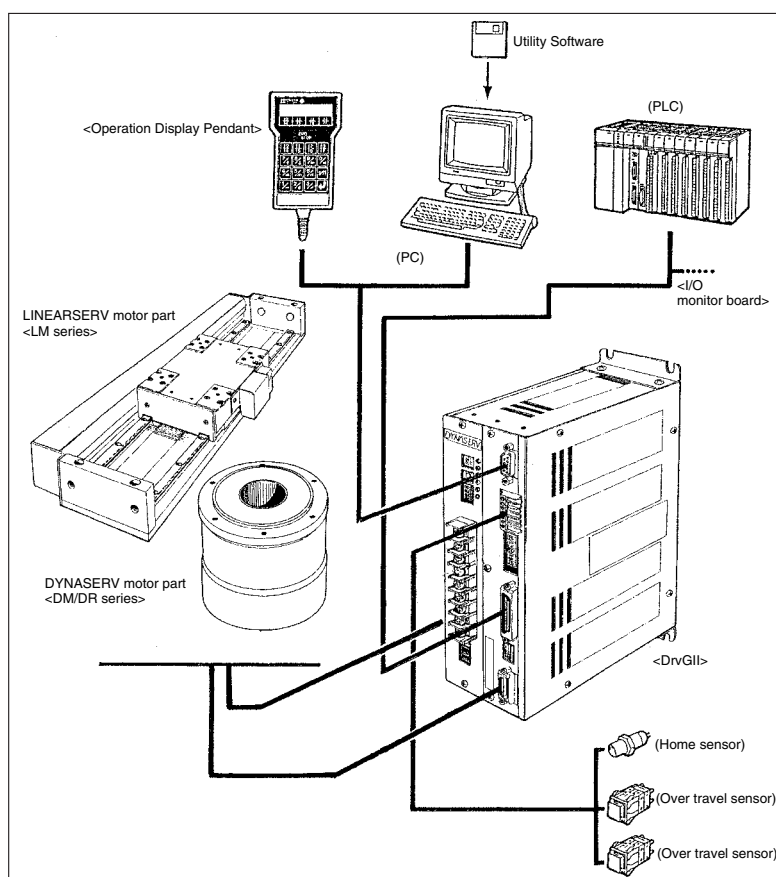


■ Features

The DrvGII Intelligent Drive is a position command driver of the serial pulse input type that far outperforms existing drivers of the same type.

The features are as follows:

- (1) The maximum resolutions of the DM1A and DR1A Series have been raised to 4,096,000 and 1,638,400 pulses per revolution, respectively.
- (2) The volume of this driver has been reduced to half that of our existing drivers.
- (3) This drive supports the auto tuning and home positioning functions.
- (4) It is provided with high-performance utilities, including oscilloscope functions.



■ Specifications

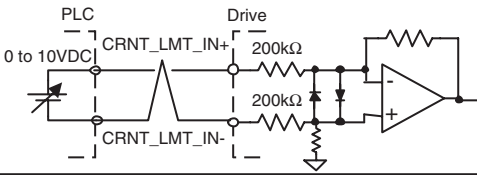
		500W Class		2kW Class			
				With regenerative resistor		Without regenerative resistor	
DYNASERV	Input power supply voltage (AC)	100 to 115V	200 to 230V	100 to 115V	200 to 230V	100 to 115V	200 to 230V
		+10 to −15%	+10 to −15%	+10 to −15%	+10 to −15%	+10 to −15%	+10 to −15%
		50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum current consumption (kVA)	1.3		3.4			
	Ambient operating air temperature and humidity	0 to 50°C, 20 to 90%RH, without condensation					
	Ambient storage air temperature and humidity	-20 to 85°C, 20 to 90%RH, without condensation					
	Operating environment	No corrosive gases and dust should be present.					
	Weight (kg)	1.7		3.6		3.2	
LINEARSERV	Input power supply voltage (AC)	100 to 115V	200 to 230V				
		+10 to −15%	+10 to −15%				
		50Hz/60Hz	50Hz/60Hz				
	Maximum current consumption (kVA)	1.1					
	Ambient operating air temperature and humidity	0 to 50°C, 20 to 90% RH, without condensation					
	Ambient storage air temperature and humidity	-20 to 85°C, 20 to 90% RH, without condensation					
	Operating environment	No corrosive gases and dust should be present.					
	Weight (kg)	1.7					

■ Specifications

Item		Specifications																	
Communication interface		RS232C interface (single channel communication, multi-channel communication) Controller interface (pulse train position command)																	
Mechanical input signal		Homing signal, (+) direction hardware over-travel signal, (-) direction hardware over-travel signal, emergency stop input signal																	
Mechanical output signal		Brake signal (can be switched between clamp and dynamic brake applications with a parameter)																	
Encoder resolution (position command resolution when shipped)		DYNASERV UD1A series : 4,096,000pls/rev (1,024,000pls/rev) UD1B series : 2,621,440pls/rev (655,360pls/rev) UD1C series : 2,621,440pls/rev (655,360pls/rev) UR1A series : 1,638,400pls/rev (819,200pls/rev) UR1B series : 1,015,808pls/rev (507,904pls/rev) UR1E series : 1,228,800pls/rev (614,400pls/rev) UR5B series : 557,056pls/rev (278,528pls/rev) UR5E series : 638,976pls/rev (319,486pls/rev) UR5C series : 425,984pls/rev LINEARSERV UM1L-□□□B : 0.5μm (1.0μm) UM1L-□□□C : 0.25μm (0.5μm) UM1L-□□□E : 0.05μm (0.1μm)																	
Control Section	Method	I-PD position control (position: integral proportional control, velocity: proportional control) Various feed forward functions (position, velocity, acceleration) Various standard filters (velocity command filter, velocity feedback filter, first order delay filter) Optional filter (notch filter 2 channels)																	
	Adjustment	Position control bandwidth: 1 Hz to 32Hz, velocity control loop width: 5Hz to 200Hz Position integral limiter setting Various feed forward percentages (position, velocity, acceleration) Various standard filter settings (velocity command filter bandwidth, velocity feedback filter enable/disable, bandwidth, first order delay filter setting) Optional filter setting (notch filter bandwidth) *1) Calculates proportional gain and acceleration feed forward gain of the velocity control part automatically based on measurement by the auto-tuning operation or manual setting of the load inertia/weight with respect to the settings of velocity control bandwidth and acceleration feed forward percentage. *2) Calculates position control bandwidth, velocity control loop bandwidth, and position integral limiting value automatically during execution of the auto-tuning operation or by manual setting of the servo stiffness																	
Operation function		Follows the position command from the controller interface when none of the operations listed below is being performed. <table border="1"> <thead> <tr> <th rowspan="2">Operation</th><th colspan="2">Pulse train</th></tr> <tr> <th>Controller interface</th><th>RS232C interface</th></tr> </thead> <tbody> <tr> <td>Homing operation</td><td>✓</td><td>✓</td></tr> <tr> <td>Test operation</td><td>✓</td><td>✓</td></tr> <tr> <td>Auto-tuning</td><td>✓</td><td>✓</td></tr> <tr> <td>Jog move</td><td></td><td>✓</td></tr> </tbody> </table>	Operation	Pulse train		Controller interface	RS232C interface	Homing operation	✓	✓	Test operation	✓	✓	Auto-tuning	✓	✓	Jog move		✓
Operation	Pulse train																		
	Controller interface	RS232C interface																	
Homing operation	✓	✓																	
Test operation	✓	✓																	
Auto-tuning	✓	✓																	
Jog move		✓																	
Acceleration/deceleration control		Trapezoidal move: Acceleration curve and deceleration curve can be selected individually. Acceleration time or deceleration time can be selected individually (with respect to the maximum velocity). *3) Real time override possible, interlock possible																	
Protection functions		Encoder/resolver error, power module error (over-voltage and over current), main power supply error, overload, maximum velocity, excessive position deviation, hardware over-travel, software over-travel (only for linear coordinate)																	
Monitor		Analogue signal monitor (velocity, general, torque/thrust command) For general monitoring, what is shown by the monitor can be selected by setting (position error, test operation response, position command value, current position value, position command differential value) Digital signal monitor (settling signal) Monitoring internal information by communication interface Error and alarm display on a 7-segment LED																	
Others		Support software PC utility running under Windows (optional) Possible to connect the operation display pendant (optional)																	

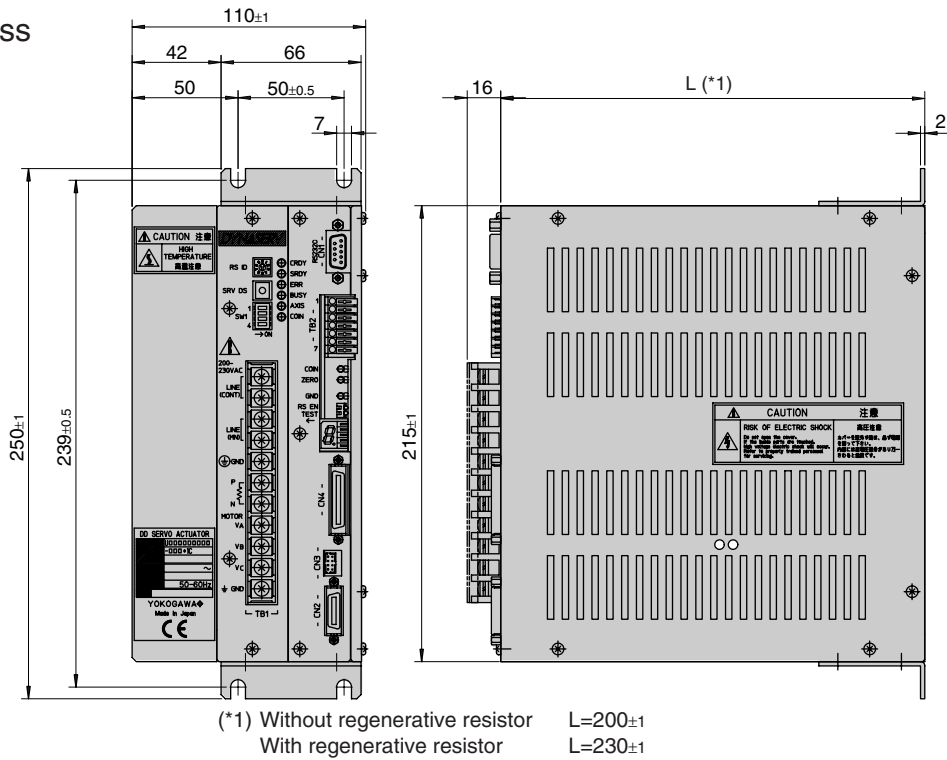
Interface Specifications

	Signal	Pin No.	Definition	Description																		
Signal/Power Source	COMP1	01	External Power Input	Input the interface power supply for contact inputs and contact outputs. <table><tr><td>Specifications</td><td>12 to 24V Contact Specifications</td><td>5V Contact Specifications</td></tr><tr><td>Rated Voltage (±10%)</td><td>12 to 24VDC</td><td>5VDC</td></tr></table>	Specifications	12 to 24V Contact Specifications	5V Contact Specifications	Rated Voltage (±10%)	12 to 24VDC	5VDC												
	Specifications	12 to 24V Contact Specifications	5V Contact Specifications																			
Rated Voltage (±10%)	12 to 24VDC	5VDC																				
	COMN1	02	IN/OUT common signal /GND																			
Position Command Pulse Input	PUA_IN+	15	Position Command Pulse 1 (PLS) (UP) (A)	Connect the differential line driver conforming to RS422A standards, which is equivalent to AM26L31. ■ Differential Input Spec Input is in the on-state when the + terminal becomes a higher voltage than the – terminal and the photo-coupler is energized. <table><tr><td>Pulse Type</td><td>(PLS,SIGN), (UP,DOWN)</td><td>(A,B)</td></tr><tr><td>Max. Input Pulse</td><td>2MHz</td><td>500kHz</td></tr></table>	Pulse Type	(PLS,SIGN), (UP,DOWN)	(A,B)	Max. Input Pulse	2MHz	500kHz												
	Pulse Type	(PLS,SIGN), (UP,DOWN)			(A,B)																	
	Max. Input Pulse	2MHz	500kHz																			
	PUA_IN-	16																				
SDB_IN+	17	Position Command Pulse 2 (SIGN) (DOWN) (B)	Connect the differential line receiver conforming to RS422A standards, which is equivalent to AM26LS31. ■ Open Collector Input Spec. Input is in the on-state when the photocoupler is energized. <table><tr><td>Specifications</td><td>High Speed Type</td><td>Standard Speed Type</td></tr><tr><td>Rated Voltage (±10%)</td><td>5VDC</td><td>5/12 to 24VDC</td></tr><tr><td>Max. Input Pulse</td><td>200kHz</td><td>100kHz</td></tr></table>	Specifications	High Speed Type	Standard Speed Type	Rated Voltage (±10%)	5VDC	5/12 to 24VDC	Max. Input Pulse	200kHz	100kHz										
Specifications	High Speed Type			Standard Speed Type																		
Rated Voltage (±10%)	5VDC	5/12 to 24VDC																				
Max. Input Pulse	200kHz	100kHz																				
SDB_IN-	18																					
Actual Position Pulse	UA_OUT+	09	Actual Position Pulse Output 1 (UP),(A)	Connect the differential line receiver conforming to RS422A standards, which is equivalent to AM26L32. Output is in the on-state when the + terminal becomes a higher voltage than the – terminal. <table><tr><td>Pulse Type</td><td>(UP,DOWN)</td><td>(A,B)</td></tr><tr><td>Max. Input Pulse</td><td>3MHz</td><td>750kHz</td></tr></table>	Pulse Type	(UP,DOWN)	(A,B)	Max. Input Pulse	3MHz	750kHz												
	Pulse Type	(UP,DOWN)			(A,B)																	
	Max. Input Pulse	3MHz	750kHz																			
	UA_OUT-	10																				
	DB_OUT+	11	Actual Position Pulse Output 2 (DOWN),(B)																			
DB_OUT-	12																					
Z_OUT+	13	Z Signal																				
Z_OUT-	14																					
I/O Output	OUT_DRDY	03	Drive ready	Output is in the on-state when the transistor is in the on-state. Select "R" so that it can meet the max. load current requirement. <table><tr><td>Specifications</td><td>12 to 24V Contact Specifications</td><td>5V Contact Specifications</td></tr><tr><td>Rated Voltage (±10%)</td><td>12 to 24VDC</td><td>5VDC</td></tr><tr><td>Max. Load Current</td><td colspan="2">0.1A/point, 0.5A/common</td></tr><tr><td>On-state Voltage</td><td colspan="2">0.5VDC or less</td></tr><tr><td>Off-state Leakage Current</td><td colspan="2">0.1mA or less</td></tr></table>	Specifications	12 to 24V Contact Specifications	5V Contact Specifications	Rated Voltage (±10%)	12 to 24VDC	5VDC	Max. Load Current	0.1A/point, 0.5A/common		On-state Voltage	0.5VDC or less		Off-state Leakage Current	0.1mA or less				
	Specifications	12 to 24V Contact Specifications	5V Contact Specifications																			
	Rated Voltage (±10%)	12 to 24VDC	5VDC																			
	Max. Load Current	0.1A/point, 0.5A/common																				
	On-state Voltage	0.5VDC or less																				
	Off-state Leakage Current	0.1mA or less																				
OUT_SRDY	04	Servo ready																				
OUT_BUSY	05	Busy																				
OUT_XOVL	06	Overload signal																				
OUT_OVER	07	Over signal																				
OUT_COIN	08	Position setting signal																				
I/O Input	IN_ERR_RESET	19	Error reset	Input is in the on-state when the photocoupler is energized. <table><tr><td>Specifications</td><td>12 to 24V Contact Specifications</td><td>5V Contact Specifications</td></tr><tr><td>Rated Voltage (±10%)</td><td>12 to 24VDC</td><td>5VDC</td></tr><tr><td>Rated Input Current</td><td>4.1mA/point (at 12VDC) 8.5mA/point (at 24VDC)</td><td>4.0mA/point (at 5VDC)</td></tr><tr><td>Input Impedance</td><td>3.0kΩ</td><td>1.0kΩ</td></tr><tr><td>Operating Voltage (for COMP0)</td><td>ON 9.0VDC or over OFF 3.0VDC or less</td><td>4.0VDC or over 1.0VDC or less</td></tr><tr><td>Allowable Leakage Current</td><td colspan="2">To be off at less than 1.0mA</td></tr></table>	Specifications	12 to 24V Contact Specifications	5V Contact Specifications	Rated Voltage (±10%)	12 to 24VDC	5VDC	Rated Input Current	4.1mA/point (at 12VDC) 8.5mA/point (at 24VDC)	4.0mA/point (at 5VDC)	Input Impedance	3.0kΩ	1.0kΩ	Operating Voltage (for COMP0)	ON 9.0VDC or over OFF 3.0VDC or less	4.0VDC or over 1.0VDC or less	Allowable Leakage Current	To be off at less than 1.0mA	
	Specifications	12 to 24V Contact Specifications	5V Contact Specifications																			
	Rated Voltage (±10%)	12 to 24VDC	5VDC																			
	Rated Input Current	4.1mA/point (at 12VDC) 8.5mA/point (at 24VDC)	4.0mA/point (at 5VDC)																			
	Input Impedance	3.0kΩ	1.0kΩ																			
	Operating Voltage (for COMP0)	ON 9.0VDC or over OFF 3.0VDC or less	4.0VDC or over 1.0VDC or less																			
	Allowable Leakage Current	To be off at less than 1.0mA																				
	IN_SERVO	20	Servo ON																			
	IN_MODE_START	21	Operation start command																			
	IN_ABORT	22	Operation abort command																			
IN_MODE.0,1	23 to 24	Operation mode number																				
IN_POSW.0,1	25 to 26	Setting width selection																				
IN_GAIN	27	Velocity control bandwidth selection																				
IN_FN	28	Position control bandwidth selection																				
IN_PLS_DIRECT	29	Pulse weight selection																				
IN_PACT	30	Position control integral operation disabled																				

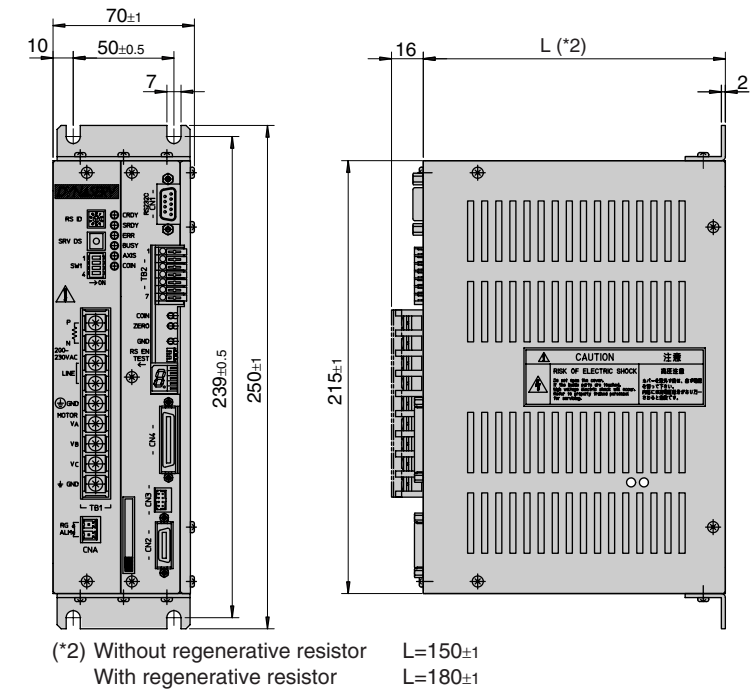
Signal		Pin No.	Definition	Description
Analog input	CRNT_LMT_IN+	33	Current limit 0V: 0% to 10V: 100%	
	CRNT_LMT_IN-	34		
Others	(NC)	31~32 35~35	Do not connect any line.	

External Dimensions (Unit: mm)

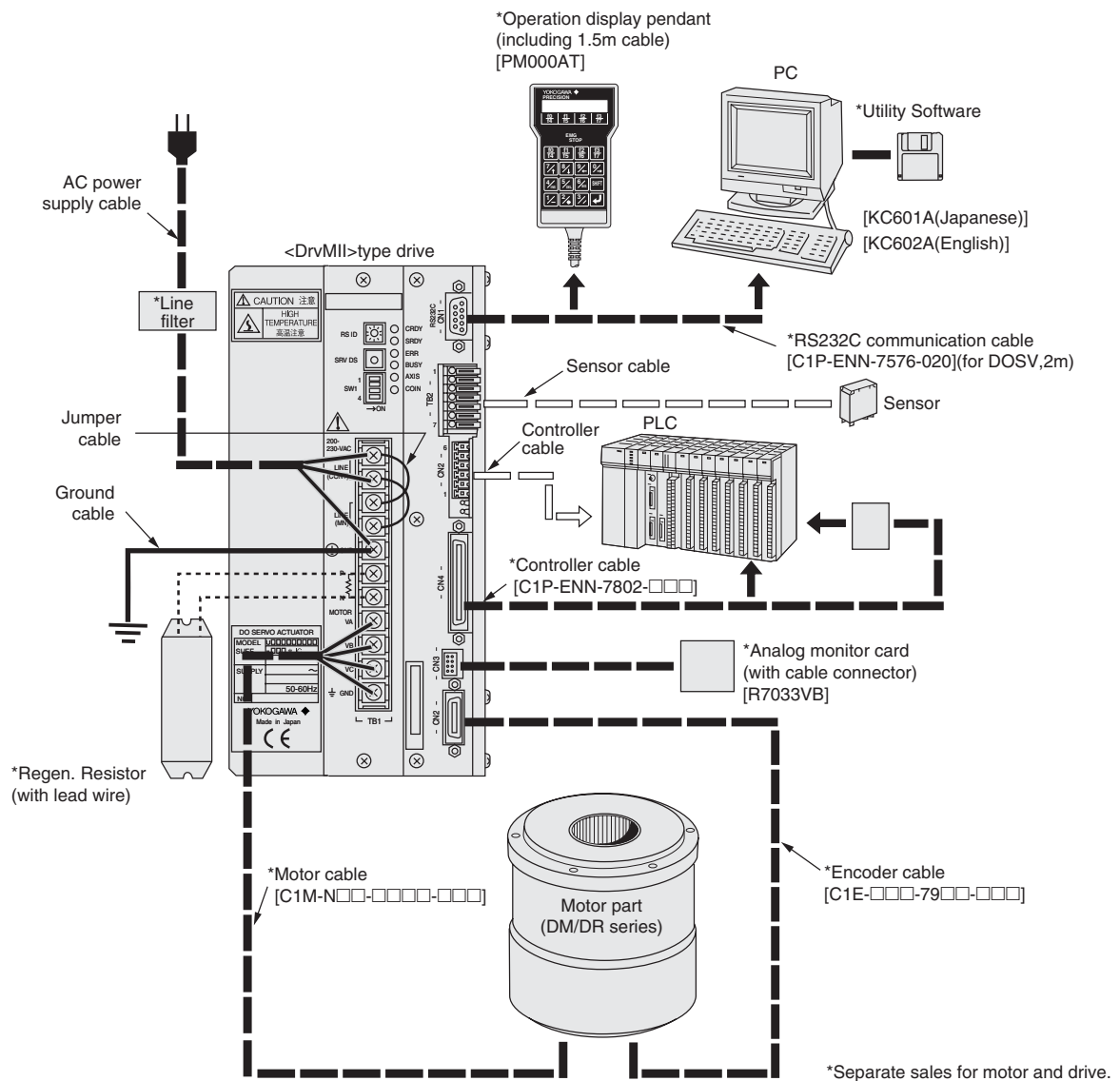
2kW Class



500W Class

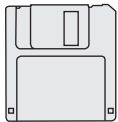


System Configuration/DYNASERV Connection Diagram



DrvMII Utility Software (KC601A, KC602A)

Windows 95, 98, Me, NT4.0, 2000



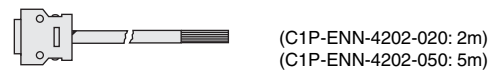
Operation Display Pendant (PM000AT)



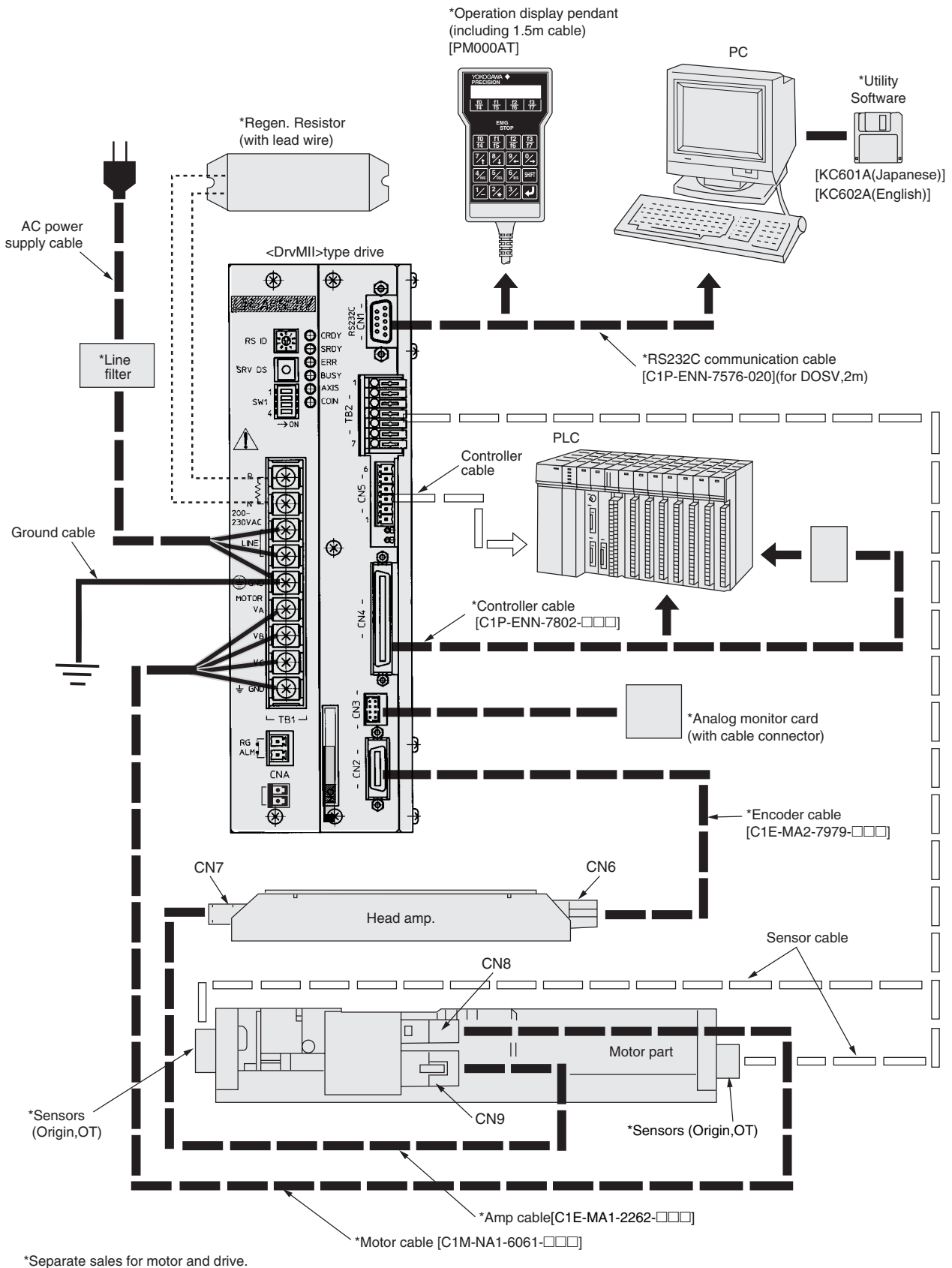
CN1/RS232C Cable (L: 2m)



CN4/Controller Cable



■ System Configuration/LINEARSERV Connection Diagram

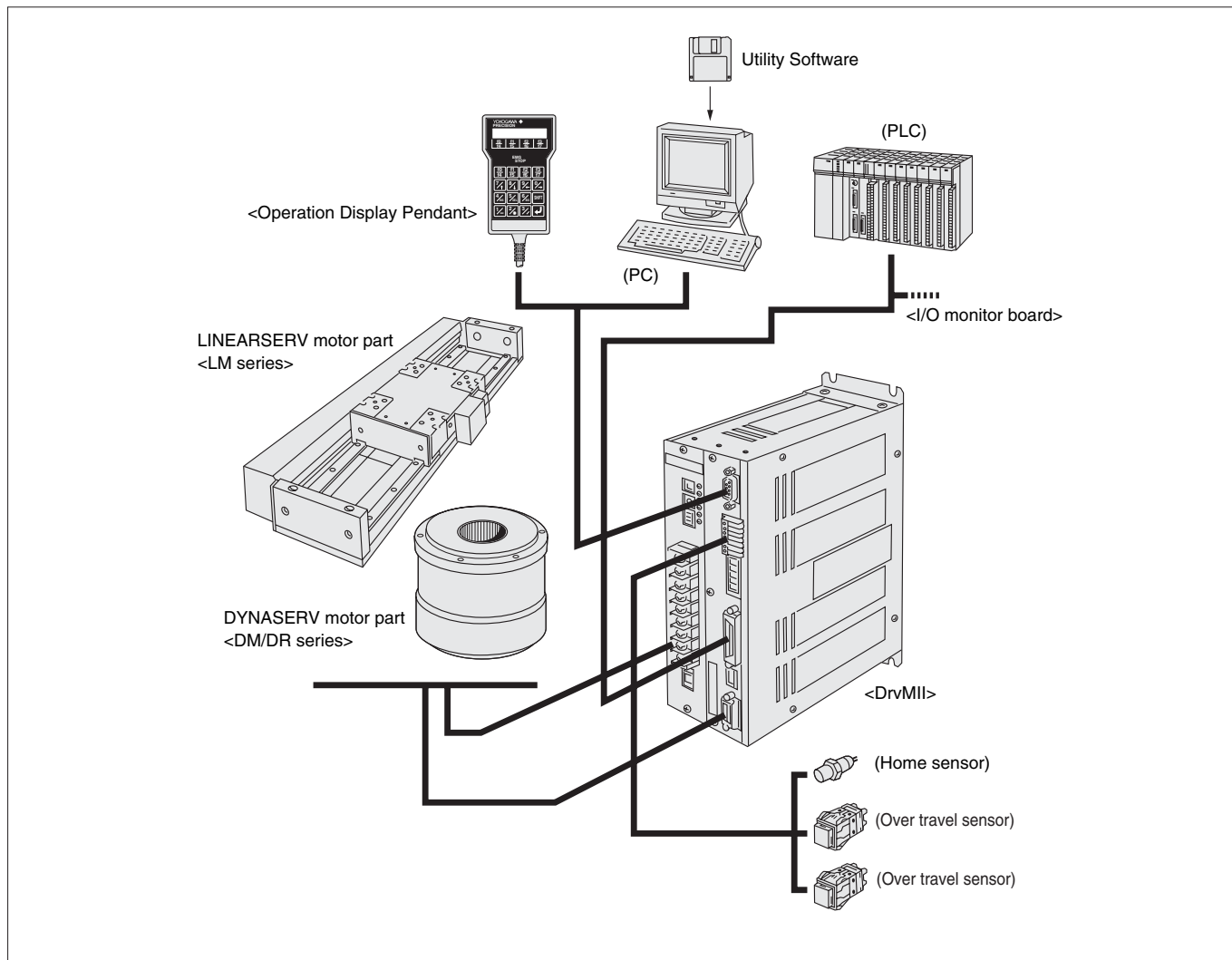


■ Features

The DrvMII Intelligent Drive with built-in general-purpose controller is a successor to existing M-Series drives. Not only does this driver boast greater performance as well as a more compact driver box; it also designed to be compatible with the rotational drive motor DYNASERV and the linear motor LINEARSERV.

The features are as follows:

- (1) As an interface, I/O contact points or Fieldbus (DeviceNet, CC-Link, or PROFIBUS) can be chosen.
- (2) The volume of this driver with an embedded controller function is half that of our previous products.
- (3) The resolution of the DM Series of this drive is quadruple that of previous ones. The resolution of the DR and LM Series of this drive is double that of previous ones.
- (4) This drive is compatible with most models of DYNASERV and LINEARSERV.
- (5) It is provided with high-performance utilities, including oscilloscope functions.



■ Major Operating functions

- | | |
|--------------------------|-------------------------|
| (1) Index move | (5) Others |
| ●Type A | ●Homing |
| ●Type B | ●Test mode |
| (2) Programed move | ●Auto-tuning |
| (3) MDI mode | (load inertia estimate) |
| (4) Table Data operation | ●Signal Search mode |
| | ●Jog move |

Specifications

Item		DYNASERV	LINEASERV
Communication interface		RS232C interface (single channel communication, multi-channel communication) PLC interface (can be selected from the following four types at ordering: contact I/O, PROFIBUS-DP, CC-Link, DeviceNet)	
Input signal	Control input signal	Emergency stop, servo command, start, stop, operation number, code input (BCD 2-digit), error reset, integral position control operation disable, interlock, velocity override selection, jog (+) command, job (-) command, M answer input etc.	
	Mechanical input signal	Homing signal, (+) direction hardware over-travel signal, (-) direction hardware over-travel signal	
Output signal	Control input signal	CPU ready, servo ready, operation under execution, error status, alarm status, position settling status, area signal 0, area signal 1, M code enable, code output (BCD 2-digit) etc.	
	Mechanical input signal	Brake signal	
Position detector resolution		UD1Aseries : 4,096,000pls/rev UD1Bseries : 2,621,440pls/rev UD1Cseries : 2,621,440pls/rev UR1Aseries : 1,638,400pls/rev UR1Bseries : 1,015,808pls/rev UR1Eseries : 1,228,800pls/rev UR5Bseries : 557,056pls/rev UR5Eseries : 638,976pls/rev UB5C/UR5Cseries : 425,984pls/rev	UM1L- □□□ B : 0.5μm UM1L- □□□ C : 0.25μm UM1L- □□□ E : 0.05μm
Coordinate system		Either rotational coordinates or linear coordinates can be selected.	
	Command unit coordinate	Pulse, angle (1/100, 1/1000, 1/10000 degree), user setting unit	Pulse, length (10μm, 1μm, 0.1μm), user setting units
	Operation unit	Command unit, index Type A, index Type B	
Control part	Method	I-PD position control (position: integral proportional control, velocity: proportional control) Various feed forward functions (position, velocity, acceleration) Various standard filters (velocity command filter, velocity feedback filter, first order delay filter) Optional filter (notch filter 2 channels)	
	Adjustment	Position control bandwidth: 1 Hz to 32Hz, velocity control loop width: 5Hz to 200Hz Position integral limiter setting Various feed forward percentages (position, velocity, acceleration) Various standard filter settings (velocity command filter bandwidth, velocity feedback filter enable/disable, bandwidth, first order delay filter setting) Optional filter setting (notch filter bandwidth) *1) Calculates proportional gain and acceleration feed forward gain of the velocity control part automatically based on measurement by the auto-tuning operation or manual setting of the load inertia/weight with respect to the settings of velocity control bandwidth and acceleration feed forward percentage. *2) Calculates position control bandwidth, velocity control loop bandwidth, and position integral limiting value automatically during execution of the auto-tuning operation or by manual setting of the servo stiffness.	
Acceleration/deceleration control		Trapezoidal move: Acceleration curve and deceleration curve can be selected individually. Acceleration time or deceleration time can be selected individually (with respect to the maximum velocity). Cam profile move: Cam profile selection (8 standard parts and 8 user parts) Acceleration curve or deceleration curve at velocity override change can be selected individually. Acceleration time or deceleration time at velocity override change can be selected individually (ratio to override is 100%). Feed time setting or maximum velocity setting *3) Real time override possible, interlock possible	
Operation function		Jog move operation, test operation, auto-tuning operation, homing operation, signal search operation, index operation A, index operation B, table reference operation, program operation, MDI operation	
	Program operation	No. of program blocks: 1000, No. of programs: 100 (including 10 fixed programs) Possible to change parameters and reference monitors in a program. IF statements, FOR statements, WHILE statements, and subprogram calls are possible. Possible to write programs that use variables (50 registration variables and 50 volatile variables). Step execution and repetitive execution are possible.	
Protection functions		Encoder/resolver error, power module error (over-voltage and over current), main power supply error, overload, maximum velocity, excessive position deviation, hardware over-travel, software over-travel (only for linear coordinate)	
Others		M function (2-digit) Support software PC utility running under Windows (optional) Possible to connect the operation display pendant (optional)	
Monitor		Analogue signal monitor (velocity, general, torque/thrust command) For general monitoring, what is shown by the monitor can be selected by setting (position error, test operation response, position command value, current position value, position command differential value) Digital signal monitor (settling signal) Monitoring internal information by communication interface	

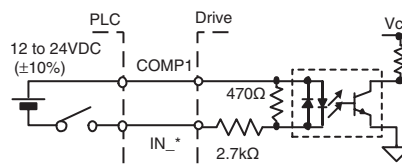
	500W Type		2kW Type			
			With regenerative resistor		Without regenerative resistor	
Input power supply voltage (AC)	AC100V to 115V +10%, -15% 50Hz/60Hz	AC200V to 230V +10%, -15% 50Hz/60Hz	AC100V to 115V +10%, -15% 50Hz/60Hz	AC200V to 230V +10%, -15% 50Hz/60Hz	AC100V to 115V +10%, -15% 50Hz/60Hz	AC200V to 230V +10%, -15% 50Hz/60Hz
Ambient operating air temperature and humidity	0 to 50°C, 20 to 90%RH, without condensation					
Ambient storage air temperature and humidity	-20 to 85°C, 20 to 90%RH, without condensation					
Operating environmen	No corrosive gases and dust should be present.					
Weight (kg)	1.7		3.6		3.2	
Maximum current consumption (kVA)	1.3		3.4			

I/O Signals (Contact I/O type)

Input Signals

[Electrical Specifications]

	Input Specifications
Rated Voltage	12 to 24 VDC ($\pm 10\%$)
Rated Input Current	4.1 mA/point (at 12 VDC) 8.5 mA/point (at 24 VDC)
Input Impedance	3.0 k Ω
Operation Voltage (relative to COMP*)	At OFF 3.0VDC or less At ON 9.0VDC or more
Allowable Leak Current	OFF is guaranteed at 1.0 mA or less



Input is in the on-state when the photocoupler is energized.

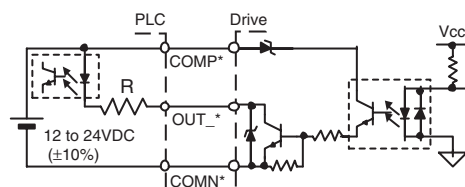
[Input Signals Name]

	Pin No.	Abbreviated Name	Signal Name	Contact I/O
CN4	1	COMP1	Contact I/O interface power supply (12 to 24VDC)	---
	2	IN_EMG	Emergency stop input	DI_0
	3	IN_SERVO	Servo command input	DI_1
	4	IN_MODE_START	Operating action start command input (start)	DI_2
	5	IN_MODE_STOP	Operating action end command input (stop)	DI_3
	6 to 9	IN_MODE[3..0]	Operation mode number input (binary)	DI_7 to 4
	10 to 17	IN_I_CODE[7..0]	Code input (BCD)	DI_15 to 8
	18	IN_PRG_REWIND	Program auto-rewind input	DI_16
	19	IN_INTERLOCK	Interlock command input	DI_17
	20	IN_ABORT	Operating action abort command input (abort)	DI_18
	21	IN_ERR_RESET	Error reset command input	DI_19
	22	IN_M_ANS	M answer input	DI_20
	23	IN_ERRCODE_REQ	Error code request input	DI_21
	24	IN_FN	Position control bandwidth select	DI_22
	25	IN_POS_INH	Integral position control operation disable input	DI_23
	26	IN_JOG_UP	Jog + command input	DI_24
	27	IN_JOG_DN	Jog - command input	DI_25
	28	IN_OVERRIDE_SEL	Velocity override selection input	DI_26
	29	IN_SIGN_INDEX	Index sign input during index operation	DI_27
	30 to 31	IN_ROTDIR_STR_OPT[1..0]	Moving direction at rotational coordinate start-up option input (binary)	DI_29 to 28
	32	IN_ABS_STR_OPT	ABS/INC start-up option input	DI_30
	33	IN_GAIN	Velocity control bandwidth select	DI_31

Output Signals

[Electrical Specifications]

	Output Specifications
Rated Voltage	12 to 24 VDC ($\pm 10\%$)
Maximum Load Current	0.1A/point, 0.5 A/common
ON Voltage	0.5VDC or less
Leak Current at OFF	0.1mA or less



Output is in the on-state when the transistor is in the on-state.

Select "R" so that it can meet the max. load current requirement.

[Output Signals Name]

	Pin No.	Abbreviated Name	Signal Name	Contact I/O
CN4	34	OUT_CPURDY	CPU ready output	DO_0
	35	OUT_SRDY	Servo ready output	DO_1
	36	OUT_MODE_EXE	Operation under execution output	DO_2
	37	OUT_ERR	Error status output	DO_3
	38	OUT_ALARM	Alarm status output	DO_4
	39	OUT_M_EN	M code enable output	DO_5
	40	OUT_ERRCODE_OUT	Output during error/alarm code output	DO_6
	41	OUT_COORDI_RDY	Coordinate system settling status output	DO_7
	42 to 49	OUT_O_CODE[7..0]	Code output (BCD)	DO_15 to 8
	50	COMN1	Out common signal - GND	---
CN5	1	COMP2	Contact out interface power supply	---
	2	OUT_COIN	Position settling status output	DO_16
	3	OUT_POS	Positioning status output	DO_17
	4	OUT_AREA0	Area signal 0 output	DO_18
	5	OUT_AREA1	Area signal 1 output	DO_19
	6	COMN2	Out common signal - GND	---

Note: COMP1 and COMP2 are independent, as are COMN1 and COMN2; they are not short circuited within the drive.

I/O Signals (Open Field Network)

Input Signals

Abbreviated Name	Signal Name	DeviceNet	PROFIBUS-DP	CC-Link
IN_EMG	Emergency stop input	DI_0	DI_0	RY(n+0)0
IN_SERVO	Servo command input	DI_1	DI_1	RY(n+0)1
IN_MODE_START	Operating action start command input (start)	DI_2	DI_2	RY(n+0)2
IN_MODE_STOP	Operating action end command input (stop)	DI_3	DI_3	RY(n+0)3
IN_MODE[3..0]	Operation mode number input (binary)	DI_7 to 4	DI_7 to 4	RY(n+0)7 to 4
IN_I_CODE[7..0]	Code input (BCD)	DI_15 to 8	DI_15 to 8	RY(n+0)F to 8
IN_PRG_REWIND	Program auto-rewind input	DI_16	DI_16	RY(n+1)0
IN_INTERLOCK	Interlock command input	DI_17	DI_17	RY(n+1)1
IN_ABORT	Operating action abort command input (abort)	DI_18	DI_18	RY(n+1)2
IN_ERR_RESET	Error reset command input	DI_19	DI_19	RY(n+1)3
IN_M_ANS	M answer input	DI_20	DI_20	RY(n+1)4
IN_FN	Position control bandwidth select	DI_22	DI_22	RY(n+1)6
IN_POS_INH	Integral position control operation disable input	DI_23	DI_23	RY(n+1)7
IN_JOG_UP	Jog + command input	DI_24	DI_24	RY(n+1)8
IN_JOG_DN	Jog - command input	DI_25	DI_25	RY(n+1)9
IN_OVERRIDE_SEL	Velocity override selection input	DI_26	DI_26	RY(n+1)A
IN_SIGN_INDEX	± sign input during index operation	DI_27	DI_27	RY(n+1)B
IN_ROTDIR_STR_OPT[1..0]	Moving direction at rotational coordinate start-up option input (binary)	DI_29 to 28	DI_29 to 28	RY(n+1)D to C
IN_ABS_STR_OPT	ABS/INC start-up option input	DI_30	DI_30	RY(n+1)E
IN_GAIN	Velocity control bandwidth select	DI_31	DI_31	RY(n+1)F
IN_PRM_WR_REQ	Parameter write request input	DI_32	DI_32	RY(n+2)0
IN_PRM_RD_REQ	Parameter/monitor read request input	DI_34	DI_34	RY(n+2)2
IN_MON_A_CHNG_REQ	Parameter/monitor display A change request input	DI_36	DI_36	RY(n+2)4
IN_MON_B_CHNG_REQ	Parameter/monitor display B change request input	DI_38	DI_38	RY(n+2)6
IN_WR_PRM_NO[15..8]	Parameter write number input (binary)	DI_71 to 64	DI_71 to 64	RWwn+0
IN_WR_PRM_NO[7..0]		DI_79 to 72	DI_79 to 72	
IN_RD_PRM_NO[15..8]	Parameter/monitor read number input (binary)	DI_87 to 80	DI_87 to 80	RWwn+1
IN_RD_PRM_NO[7..0]		DI_95 to 88	DI_95 to 88	
IN_MON_A_PRM_NO[15..8]	Parameter/monitor display A number input (binary)	DI_103 to 96	DI_103 to 96	RWwn+2
IN_MON_A_PRM_NO[7..0]		DI_111 to 104	DI_111 to 104	
IN_MON_B_PRM_NO[15..8]	Parameter/monitor display B number input (binary)	DI_119 to 112	DI_119 to 112	RWwn+3
IN_MON_B_PRM_NO[7..0]		DI_127 to 120	DI_127 to 120	
IN_WR_PRM_DATA[31..24]	Parameter write data input (binary)	DI_135 to 128	DI_135 to 128	RWwn+5 *
IN_WR_PRM_DATA[23..16]		DI_143 to 136	DI_143 to 136	
IN_WR_PRM_DATA[15..8]		DI_151 to 144	DI_151 to 144	RWwn+4 *
IN_WR_PRM_DATA[7..0]		DI_159 to 152	DI_159 to 152	

Note: Pay attention to the order of data.

Output Signals

Abbreviated Name	Signal Name	DeviceNet	PROFIBUS-DP	CC-Link
OUT_CRDY	CPU ready output	DO_0	DO_0	RX(n+0)0
OUT_SRDY	Servo ready output	DO_1	DO_1	RX(n+0)1
OUT_MODE_EXE	Operation under execution output	DO_2	DO_2	RX(n+0)2
OUT_ERR	Error status output	DO_3	DO_3	RX(n+0)3
OUT_ALARM	Alarm status output	DO_4	DO_4	RX(n+0)4
OUT_M_EN	M code enable output	DO_5	DO_5	RX(n+0)5
OUT_COORDI_RDY	Coordinate adjustment output	DO_7	DO_7	RX(n+0)7
OUT_O_CODE[7..0]	Code output (BCD)	DO_15 to 8	DO_15 to 8	RX(n+0)F to 8
OUT_COIN	Position settling status output	DO_16	DO_16	RX(n+1)0
OUT_POS	Positioning status output	DO_17	DO_17	RX(n+1)1
OUT_AREA0	Area signal 0 output	DO_18	DO_18	RX(n+1)2
OUT_AREA1	Area signal 1 output	DO_19	DO_19	RX(n+1)3
OUT_PRM_WR_END	Parameter write end output	DO_20	DO_20	RX(n+1)8
OUT_PRM_WR_OK	Parameter write normal output	DO_21	DO_21	RX(n+1)9
OUT_PRM_RD_END	Parameter/monitor read end output	DO_22	DO_22	RX(n+1)A
OUT_PRM_RD_OK	Parameter/monitor read normal output	DO_23	DO_23	RX(n+1)B
OUT_MON_A_CHNG_END	Parameter monitor display A change end output	DO_24	DO_24	RX(n+1)C
OUT_MON_A_CHNG_OK	Parameter monitor display A change normal output	DO_25	DO_25	RX(n+1)D
OUT_MON_B_CHNG_END	Parameter monitor display B change end output	DO_26	DO_26	RX(n+1)E
OUT_MON_B_CHNG_OK	Parameter monitor display B change normal output	DO_27	DO_27	RX(n+1)F
OUT_REMOTE_READY	Remote station ready output	---	---	RX(n+3)B
OUT_RD_PRM_DATA[31..24]	Parameter/monitor read data output (binary)	DO_71 to 64	DO_71 to 64	RWrn+1 *
OUT_RD_PRM_DATA[23..16]		DO_79 to 72	DO_79 to 72	
OUT_RD_PRM_DATA[15..8]		DO_87 to 80	DO_87 to 80	RWrn+0 *
OUT_RD_PRM_DATA[7..0]		DO_95 to 88	DO_95 to 88	
OUT_MON_A_DATA[31..24]	Parameter/monitor display A data output (binary))	DO_103 to 96	DO_103 to 96	RWrn+3 *
OUT_MON_A_DATA[23..16]		DO_111 to 104	DO_111 to 104	
OUT_MON_A_DATA[15..8]		DO_119 to 112	DO_119 to 112	RWrn+2 *
OUT_MON_A_DATA[7..0]		DO_127 to 120	DO_127 to 120	
OUT_MON_B_DATA[31..24]	Parameter/monitor display B data output (binary)	DO_135 to 128	DO_135 to 128	RWrn+5 *
OUT_MON_B_DATA[23..16]		DO_143 to 136	DO_143 to 136	
OUT_MON_B_DATA[15..8]		DO_151 to 144	DO_151 to 144	RWrn+4 *
OUT_MON_B_DATA[7..0]		DO_159 to 152	DO_159 to 152	
OUT_ERR_CODE_MAIN[7..0]	Error code (main cord) output	DO_167 to 160	DO_167 to 160	RWw(n+6)F to 8
OUT_ERR_CODE_SUB[7..0]	Error code (sub cord) output	DO_175 to 168	DO_175 to 168	RWw(n+6)7 to 0

Note: Pay attention to the order of data.

Outline of Open Field Network

The I/O connection ports of the internal components of field devices used to be wired on a parallel basis. PLC device manufacturers have played a leading role in gradually changing local network wiring from parallel to serial, which has reduced the number of wires used and the wiring cost and has increased reliability and noise-resistance. However, local networks had disadvantages. For example, devices connectable to a local network were limited to those of the PLC device manufacturer of that local network, even though high-performance and low-cost products of different PLC device manufactures were available. In recent years, open and global networks have been proposed, which has led to the dissemination of multi-vendor networks as well as to free and open competition. As a result, users can freely combine high-performance and low-cost devices into their networks.

In addition to the I/O contact points (32 input points and 20 output points) interface, the DrvMII Drive affords compatibility with PROFIBUS-DP, DeviceNet, and CC-Link to support user networks.

In open field networks, I/O contact points can be easily increased, and intelligent devices can communicate closely with a PLC system at the upper levels of a network hierarchy. The DrvMII Drive allows for the addition of contact points and the use of the added points to change parameter values and to refer to monitoring values.

Open and global network

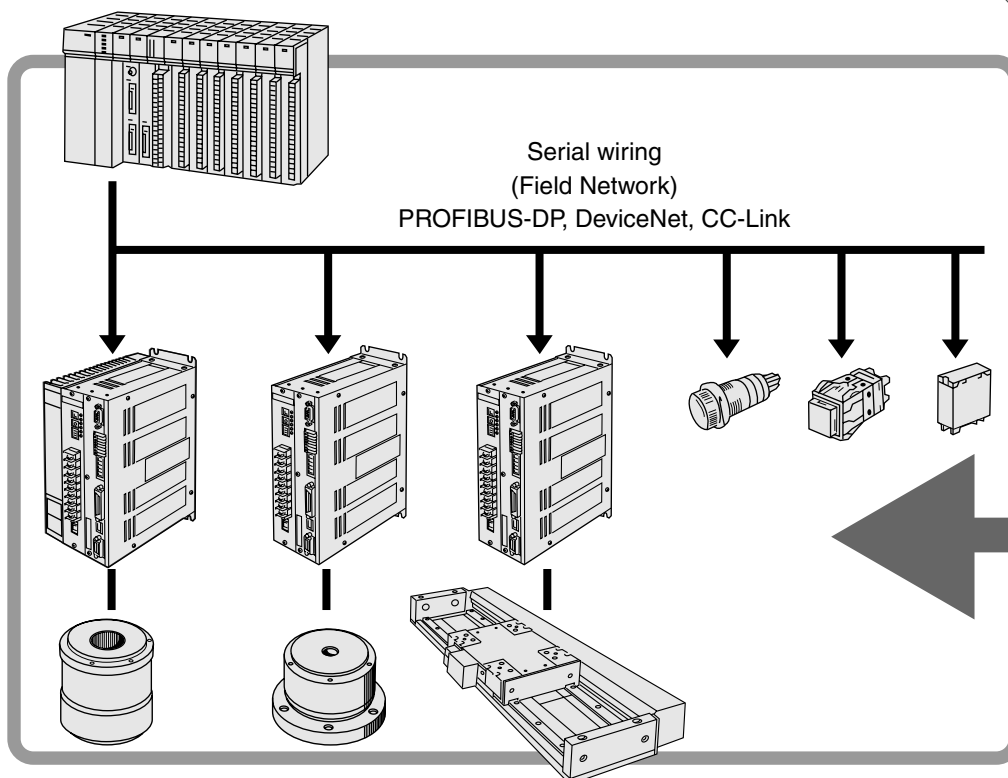
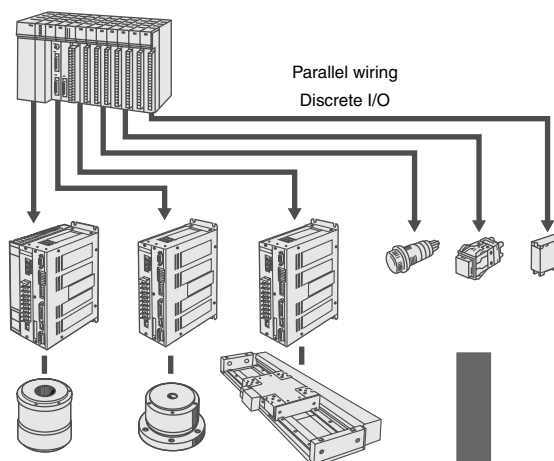
PROFIBUS-DP

DeviceNet

CC-Link

Benefits

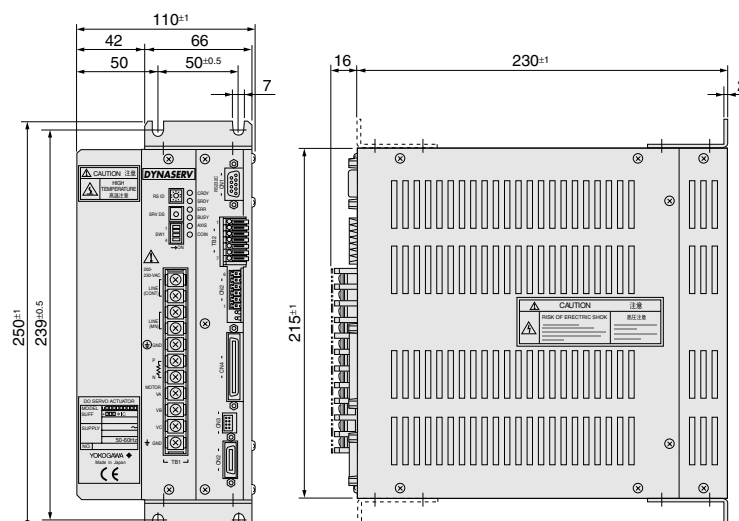
- Minimum wiring
- Cost Saving of wiring cost
- Improved wiring reliability
- Improved anti-noise performance
- Multi-vendor



External Dimensions (Unit:mm)

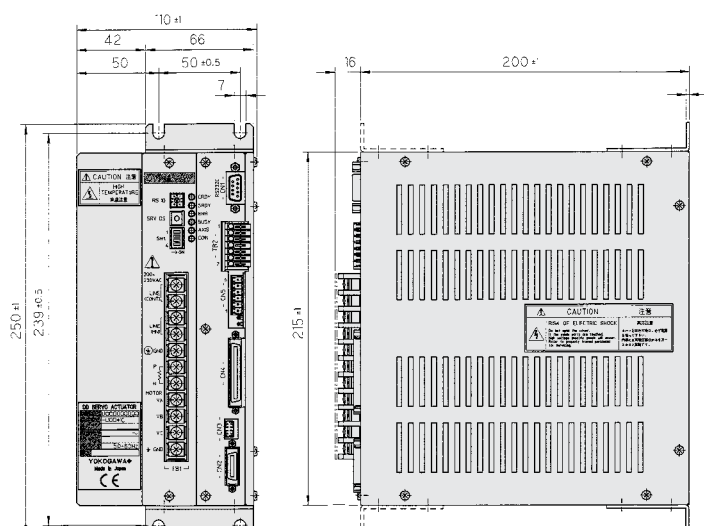
2kW Class

With regenerative resistor

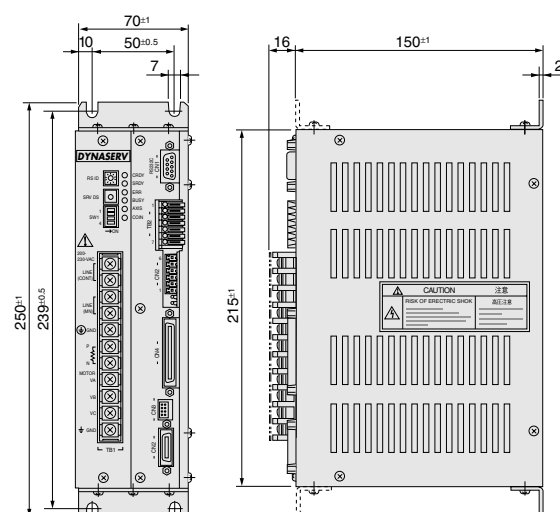


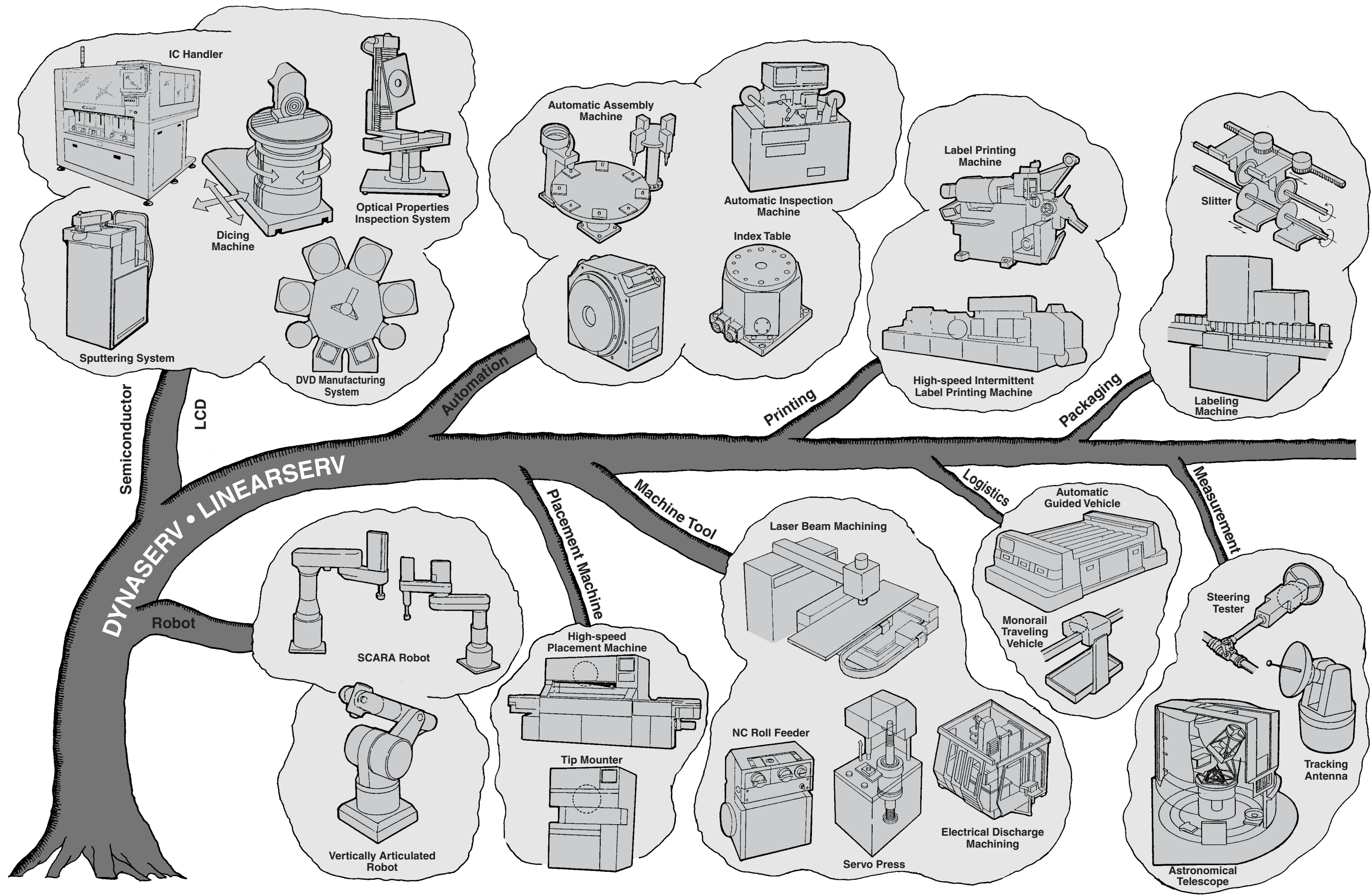
2kW Class

Without regenerative resistor



500W Class







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