

SANMOTION

DC SERVO SYSTEMS

T



SANYODENKI

SANMOTION T

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Simplified Setup Process for Optimum Operating Conditions



Improved Systems Precision and Shortened Cycle Time



Curtailed Running Cost

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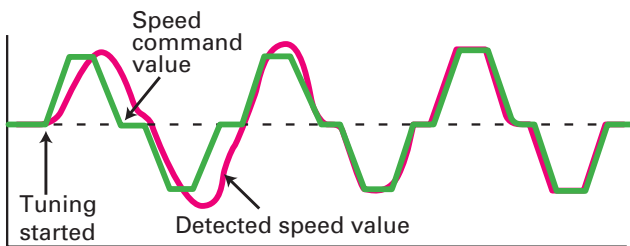
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CONCEPT
1

Simplified Setup Process for Optimum Operating Conditions

Automatic Tuning

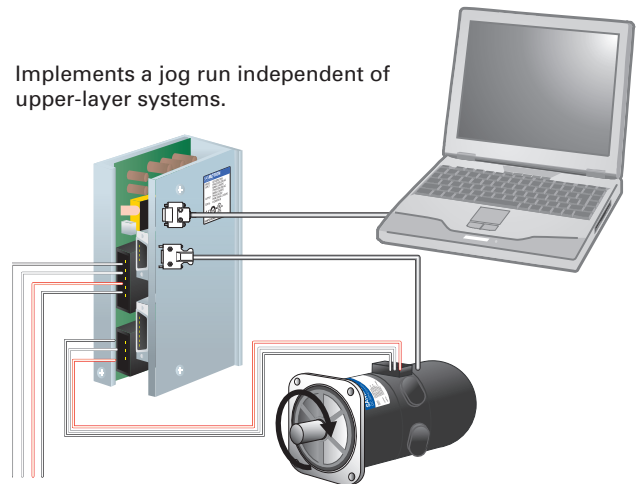
Automatic tuning with high response has been made feasible by the selection of an inertia fixation function and five types of automatic tuning characteristics with the use of a new algorithm, 30-step setting of responsiveness, and automatic parameter storage function.



Trial Run Function (Jog Function)

The built-in jog function ensuring the link between motor and amplifier allows you to perform a trial operation without connecting with any upper layer system.

Implements a jog run independent of upper-layer systems.



Implements the action check of motor and amplifier separately.

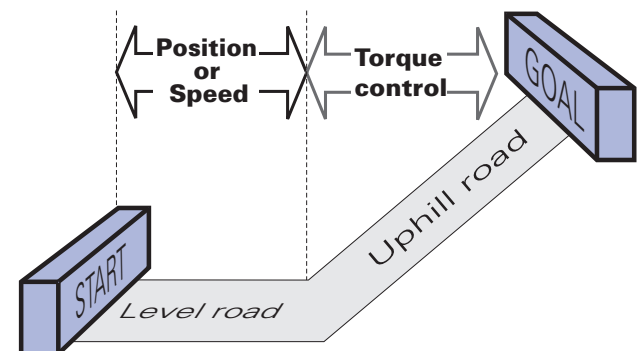
Conformance to Overseas Standards

Our standard specifications meet overseas standards (UL, CSA, and EN). For complying with the EMC Directive, you can use EMC filters. You can also employ your servomotors conforming to overseas standards (UL and EN).



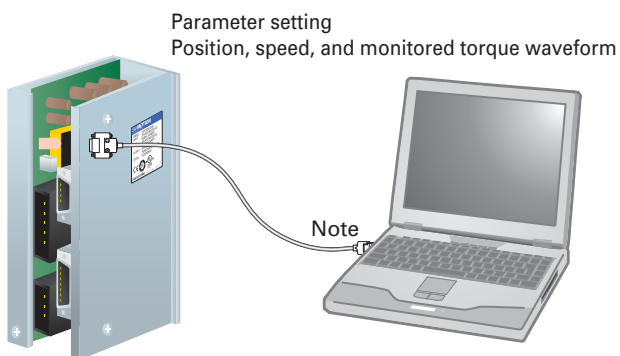
All-in-One Control

Switching between user parameters allows you to select any of the torque, position, and speed controls.



Setup Software

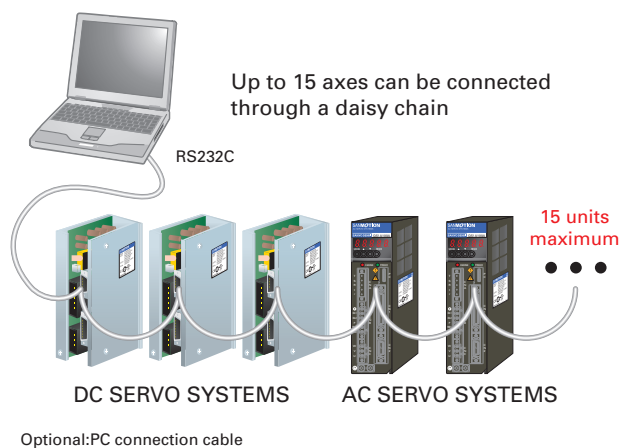
The setup software enables setting of parameters, graphic display of monitored waveforms of position, speed, and torque, and allows you to conduct a systems analysis.



Note: PC connection cable
Code: AL-00490833-01 (Optional)

Simultaneous Monitoring Function

The setup software implements simultaneous monitoring of a maximum of 15 amplifier axes. This function is useful for monitoring waveforms in synchronous operation.



Optional: PC connection cable

Waterproof Performance

The SANMOTION T Series units with IP43 protection have improved resistance to adverse environmental conditions.

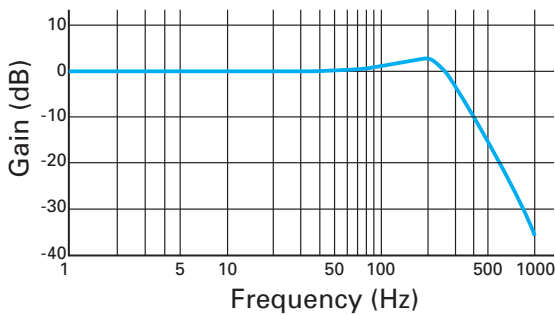


CONCEPT
2

Improved Systems Precision and Shortened Cycle Time

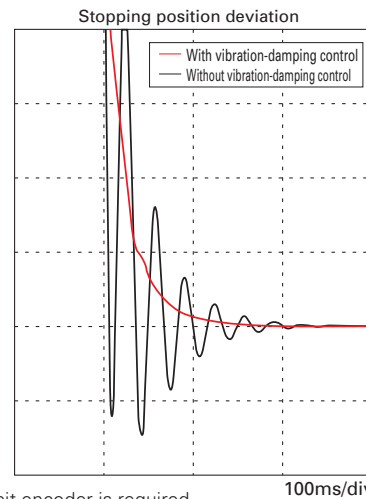
High Response

With the use of the 4th order notch filter that reduces phase lag, this system suppresses resonance in mechanical systems and improves the speed responsiveness of the unit.



Vibration-damping Control

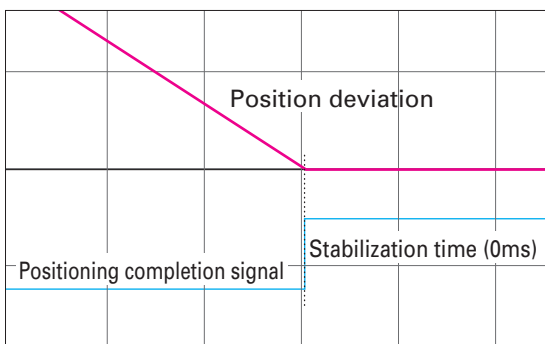
The feed forward vibration-damping control function allows you to suppress the vibration of the edges and base of a machine. Additionally, four frequencies that dominate vibrations can be set in advance and selected on site for each application.



Note: A 17-bit encoder is required.

Shortened Positioning Stabilization Time

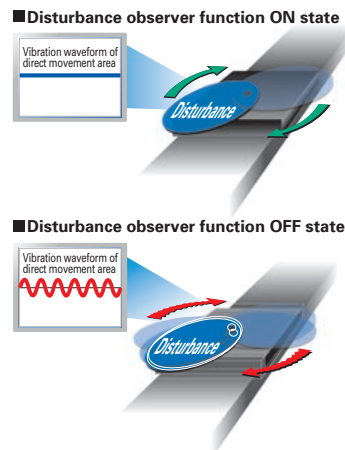
With the newly employed algorithm, the time required for stabilizing the unit positioning can be substantially reduced.



An example of positioning stabilization of high rigidity machinery 5ms/div

Disturbance Suppression

The newly developed disturbance observer with an expanded application frequency range can suppress the influence of redundant axes in a multiple-axis configuration. Also, with the use of the processing function that can select the effective conditions of the disturbance observer, the disturbance observer can be made effective only when required.



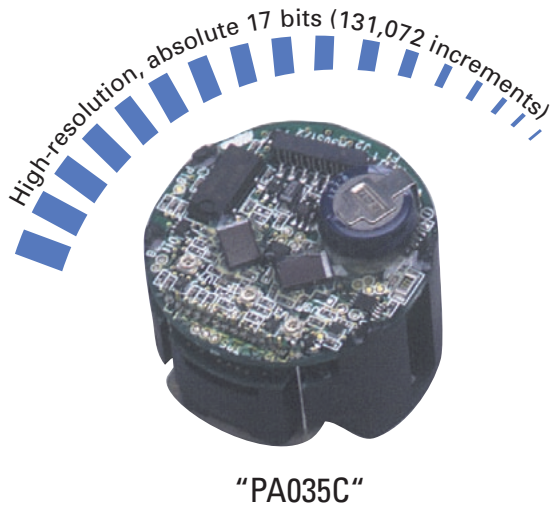
Note: A 17-bit encoder is required.

CONCEPT
3

Curtailed Running Cost

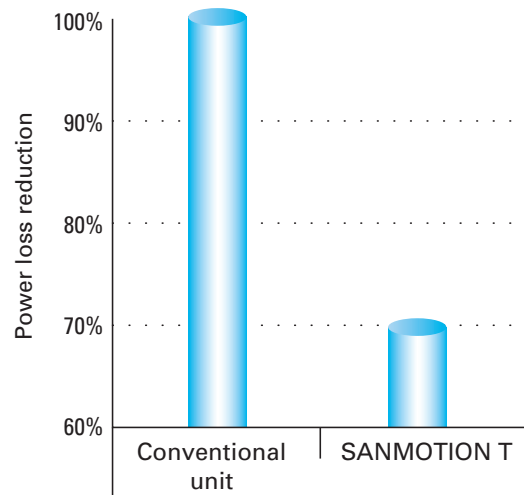
High Resolution

17-bit (131,072 increments) encoder can be employed.



Power Loss Reduction by 30%

A low-power loss module has been employed to reduce the power loss in the main circuit by 30%.



Features and Functions

Model Number Nomenclature

System Configuration

Standard Specifications

External Wiring Diagram

Dimensions

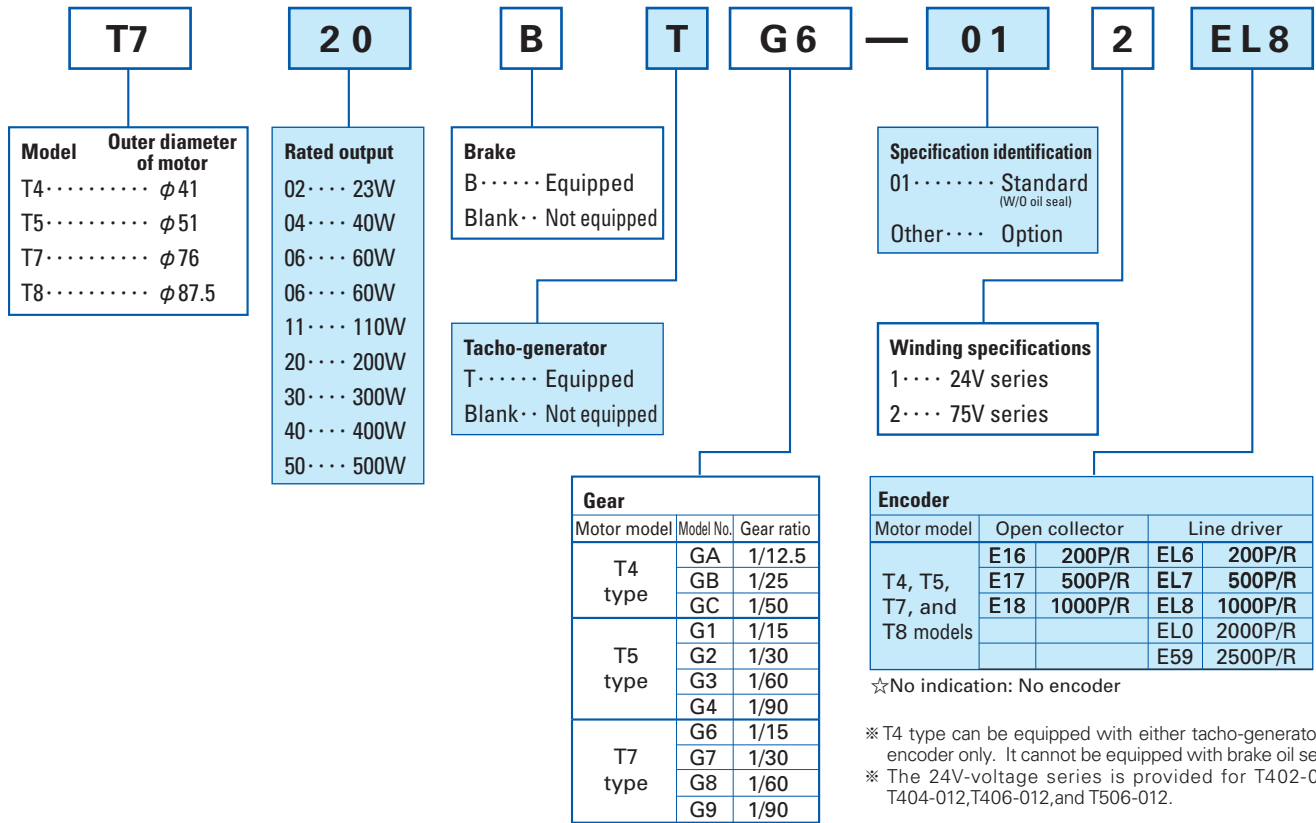
Setup Software

Optional Equipment

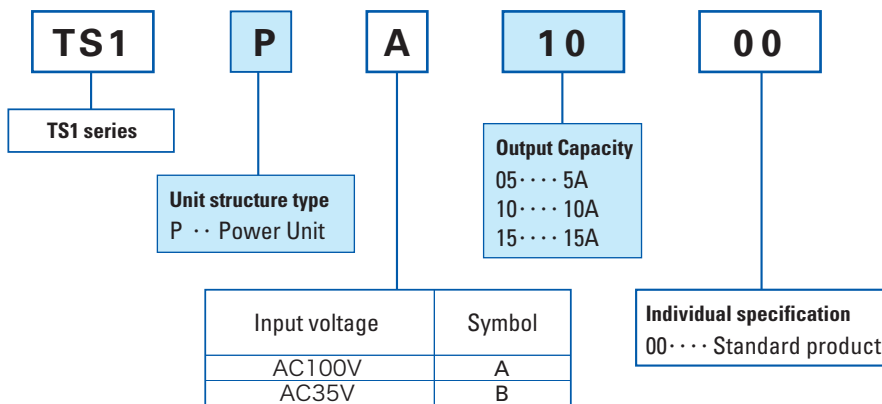
Servo Motor Model Number Nomenclature

Servo Motor

Example: The model number is as follows when 200W rated output, 76mm outer diameter, incremental encoder (1000P/R), a brake, tachometer generator gear (1/15 gear ratio), and 75V series voltage specification are selected for "SANMOTION T" servo motor:



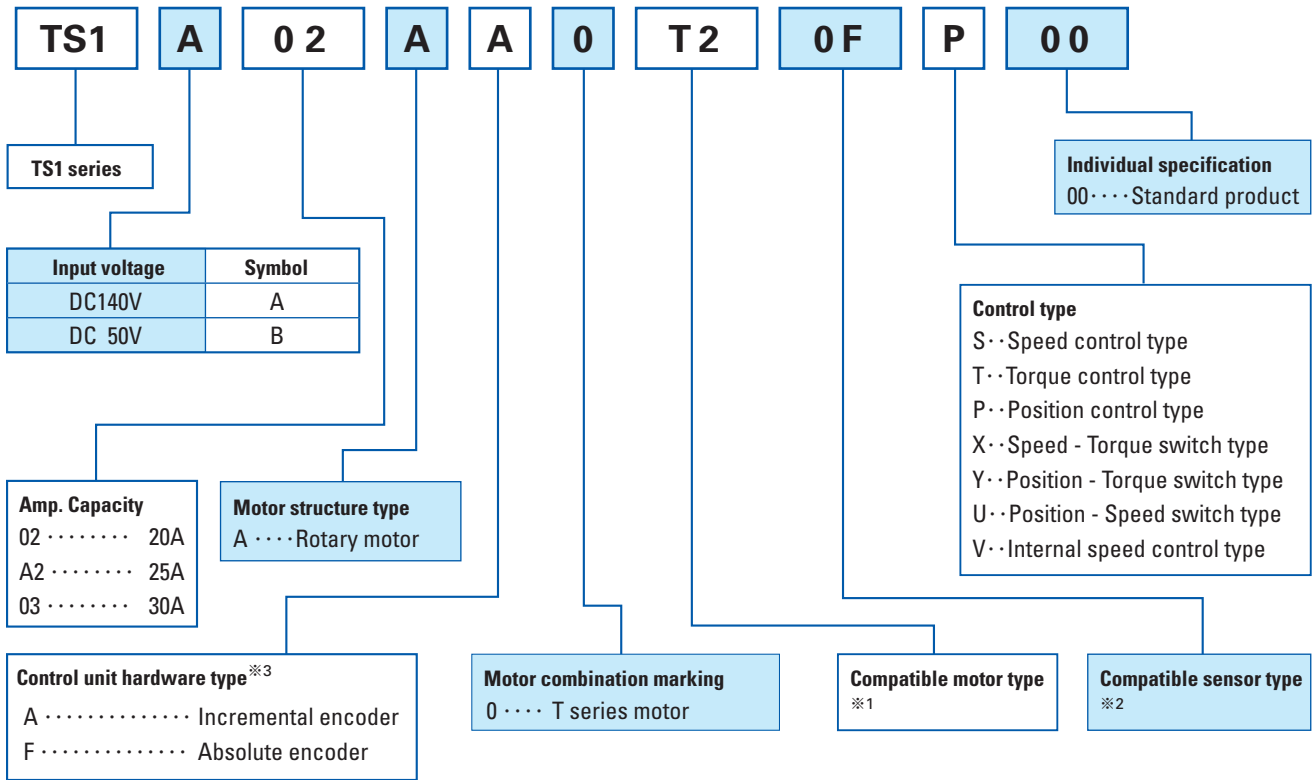
Power Unit



Servo Amplifier Model Number Nomenclature

Servo Amplifier

Example: The model number shown below is for when "SANMOTION T "series servo amplifier with input voltage of DC140V, 20A capacity, and incremental encoder (1000P/R).



※ 1) Compatible motor type

Input voltage-140V DC		
Type of Amplifier.	Type of Motor	Code
TS1A02A	T404-012	T2
	T406-012	T3
	T506-012	T4
TS1AA2A	T511-012	T5
	T720-012	T6
TS1A03A	T730-012	T7
	T840-012	T8
	T850-012	T9

Input voltage-50V DC		
Type of Amplifier.	Type of Motor	Code
TS1B02A	T402-011	T1

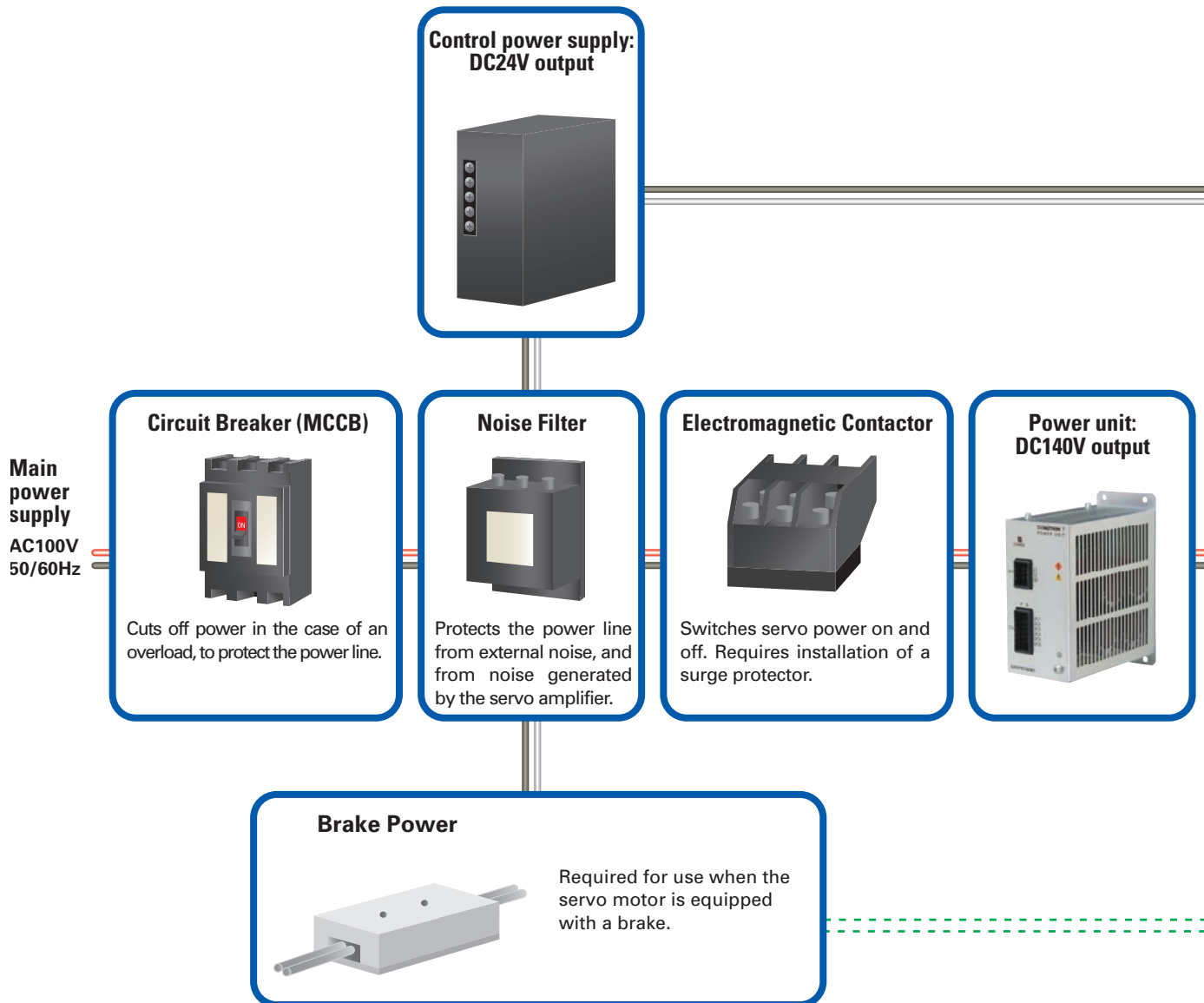
※ 2) Compatible sensor type

Incremental encoder				
Code	Format	Divisions per rotation [P/R]	Abbreviation	Hard type. ^{※3}
B4	Optical	200	INC-E	A
B5	Optical	500	INC-E	A
0F	Optical	1000	INC-E	A
0C	Optical	1024	INC-E	A
01	Optical	2000	INC-E	A
04	Optical	2500	INC-E	A

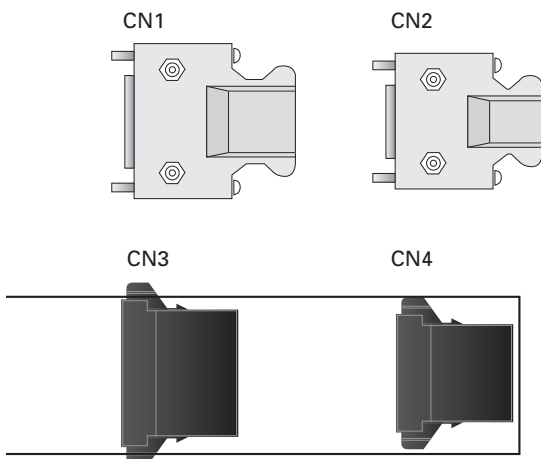
Absolute encoder							
Code	Format	Transmission format	Divisions per rotation [P/R]	Multiple rotation	Abbreviation	Hard type. ^{※3}	Remarks
A3	Optical	Half duplex start-stop synchronization 2.5M	17bit	16bit	PA035C-2.5MH	F	
A4	Optical	Half duplex start-stop synchronization 2.5M	17bit	16bit	PA035C-4.0MH	F	Option

Features and Functions
Model Number Nomenclature
System Configuration
Standard Specifications
External Wiring Diagram
Dimensions
Setup Software
Optional Equipment

Amplifier System Configuration

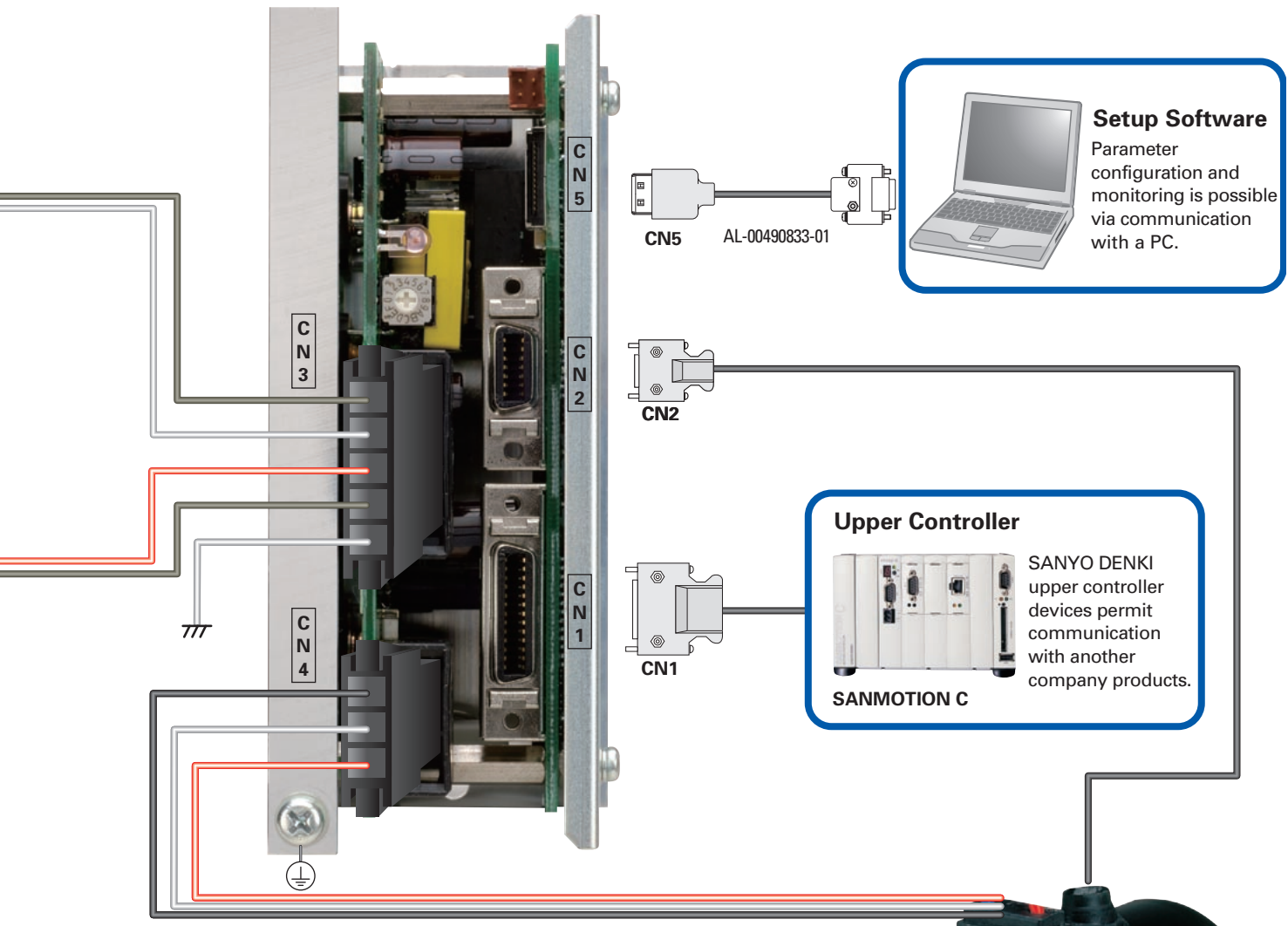


■ Connector Types(Amplifier)



■ Connectors for Amplifier Connections

	Contents	Model Number
Single Connectors	CN1 (Plug, Housing)	AL-00608709
	CN2 (Plug, Housing)	AL-00608710
	CN3 (Housing, Contact)	AL-00608711
	CN4 (Housing, Contact)	AL-00608712
Connector Sets	CN1,CN2 (Plug, Housing) CN3,CN4 (Housing, Contact)	AL-00608713

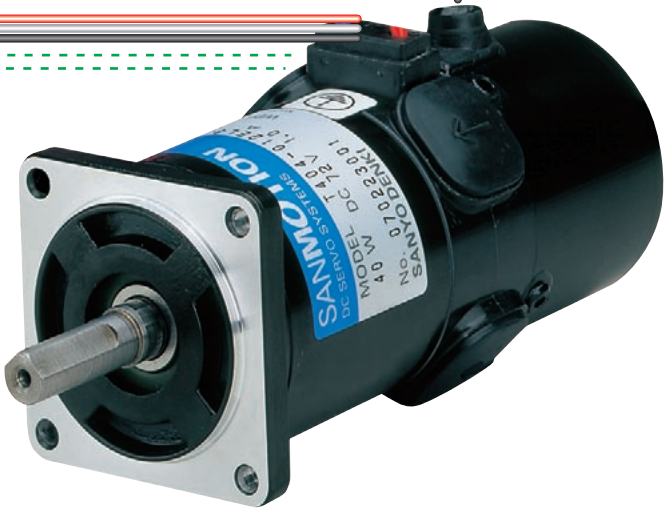
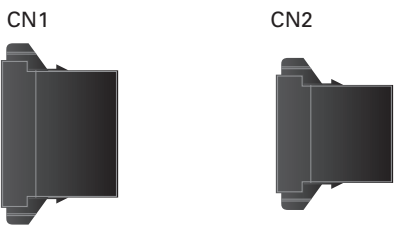


Setup Software
 Parameter configuration and monitoring is possible via communication with a PC.

Upper Controller
 SANYO DENKI upper controller devices permit communication with another company products.
SANMOTION C

Wiring required for brake.

■ Connector Types(Power Unit)



■ Connectors for Power Unit

	Contents	Model Number
Single Connectors	CN1 (Housing and contact)	AL-00632983
	CN2 (Housing and Contact)	AL-00632984
	CN3 (Housing and Contact)	AL-00632985
Connector Sets	CN1,2,3 (Housing and Contact)	AL-00632986

Note) Standard set (AL-00632986) is attached to the Power Unit.

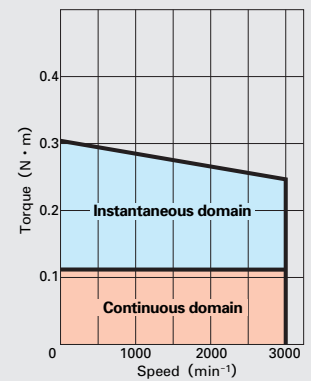
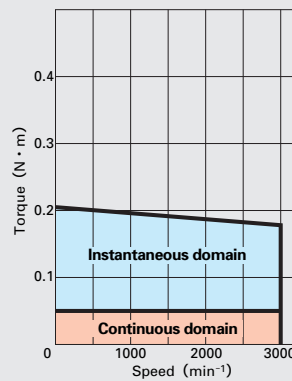
- Features and Functions
- Model Number Nomenclature
- System Configuration
- Standard Specifications
- External Wiring Diagram
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- Optional Equipment

Standard Specifications

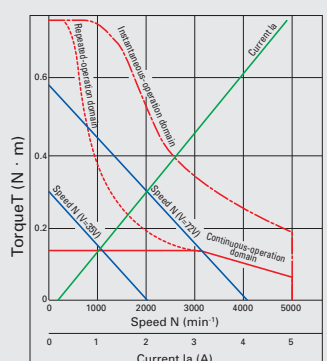
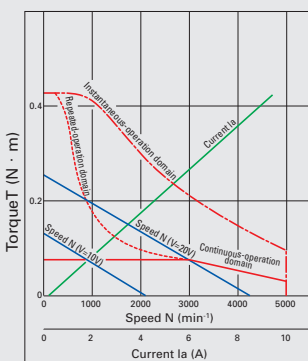
Applicable amplifier model No.				TS1B02AA	TS1A02AA
Motor Model No.				T402-011EL8	T404-012EL8
	Condition	Symbol	Unit (SI)		
Servo amplifier Input power(Control circuit)				DC24V +10, -15%	
Servo amplifier Input power(Main circuit)				DC50V +10, -15%	DC140V +10, -15%
Amplifier operation temperature and humidity				Temperature: 0 ~ 55°C Humidity: Maximum 90% (no condensation)	
Power capacity(Rated)			kVA	0.2	0.2
Amplifier mass			kg	0.45	
Rated output	★	P_R	W	23	40
Rated speed	★	N_R	min^{-1}	3000	
Maximum speed	★	N_{max}	min^{-1}	3000	
Rated torque	★	T_R	$\text{N} \cdot \text{m}$	0.029	0.059
Continuous stall torque	★	T_S	$\text{N} \cdot \text{m}$	0.053	0.120
Instantaneous maximum stall torque	★	T_{PS}	$\text{N} \cdot \text{m}$	0.206	0.319
Rated armature voltage	★	E_R	V	20	72
Rated armature current	★	I_R	A	1.9	1.0
Continuous stall armature current	★	I_S	A	1.9	0.9
Instantaneous maximum stall armature current	★	I_P	A	5.4	2.1
Torque constant	☆	K_T	$\text{N} \cdot \text{m}/\text{A}$	0.047	0.174
Voltage constant per phase	☆	K_E	$\text{V}/\text{kmin}^{-1}$	4.9	18.2
Phase resistance	☆	R_a	Ω	3.2	18.6
Rated power rate	★	O_R	kW/s	1.2	2.1
Electrical time constant	☆	t_c	ms	0.35	0.35
Mechanical time constant	☆	t_m	ms	7.1	4.8
Load inertia		J_L	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	0.16×10^{-4}	0.27×10^{-4}
Sensor (INC)			P/R	1000(Line driver)	
Rotor inertia (including sensor)		J_M	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	0.055×10^{-4}	0.092×10^{-4}
Motor mass (including sensor)			kg	0.55	0.65
Break-holding torque	★	T_B	$\text{N} \cdot \text{m}$	—	—
Break excitation voltage	☆	V_B	V	—	—
Break excitation current	☆	I_B	A	—	—
Break inertia		J_B	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	—	—
Break mass			kg	—	—
Motor operation temperature and humidity				Temperature: 0 ~ 40°C Humidity: Maximum 90% (no condensation)	

★ mark indicates a typical value after temperature increased and saturated in the combination with the standard amplifier
 ☆ mark indicates a typical value when the winding temperature is at 25°C.

Amp. → Motor Characteristic curve

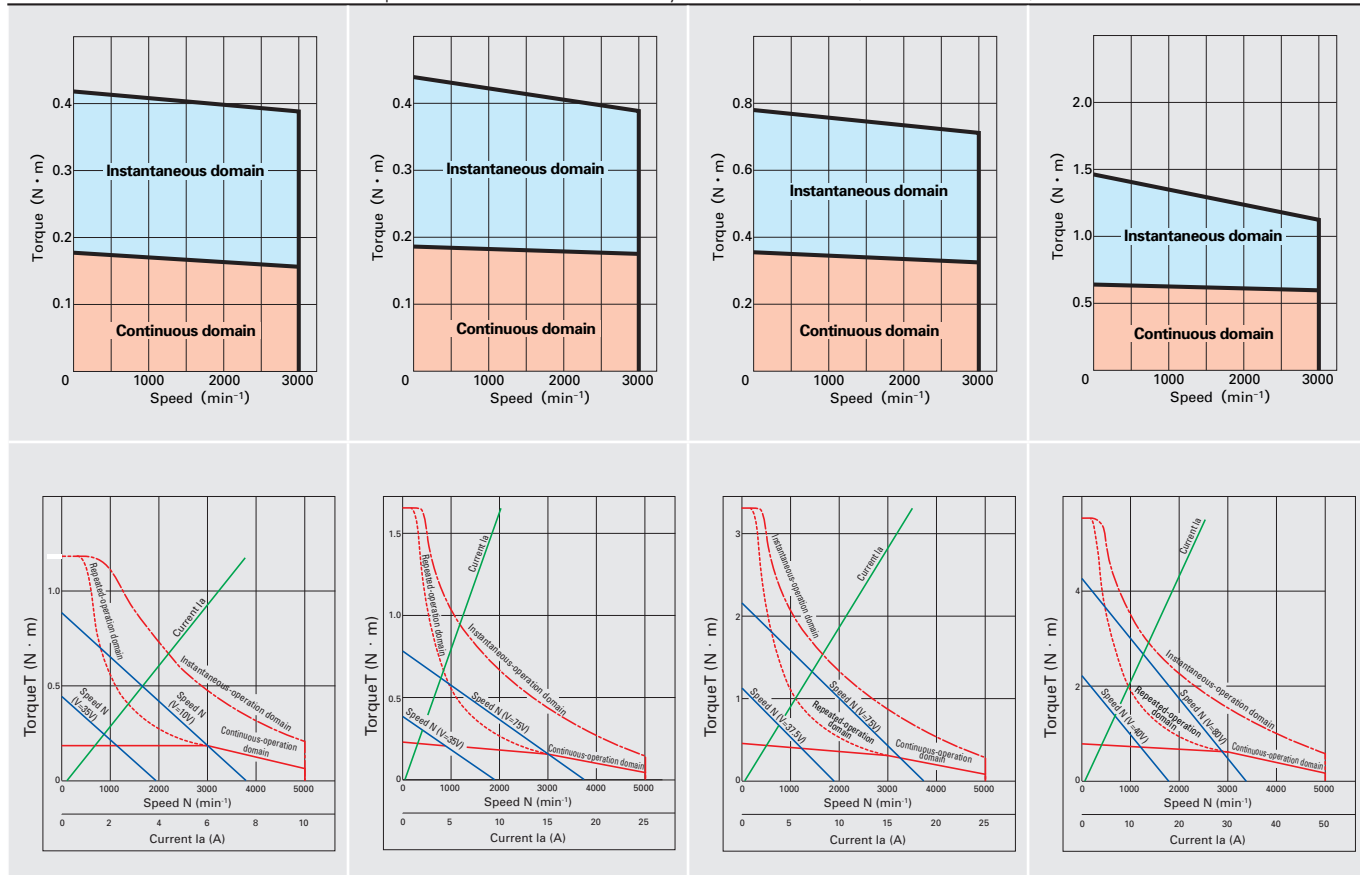


Motor Characteristic curve



TS1A02AA		TS1AA2AA	
T406-012EL8	T506-012EL8	T511-012EL8	T720-012EL8
DC24V +10, -15%			
DC140V +10, -15%			
Temperature: 0 ~ 55°C Humidity: Maximum 90% (no condensation)			
0.3	0.3	0.4	0.6
0.45			
60	60	110	200
3000			
3000			
0.098	0.137	0.221	0.605
0.175	0.192	0.358	0.658
0.441	0.441	0.784	1.47
70	75	75	80
1.4	1.2	2.0	3.4
1.4	1.3	2.2	3.7
2.9	2.8	4.5	7.7
0.177	0.183	0.21	0.23
18.5	19.1	21.8	24.2
11.8	12.1	5.1	2.8
3.2	1.7	3.2	2.7
0.37	0.47	0.63	1.1
4.1	7.4	4.3	7.8
0.34×10^{-4}	0.68×10^{-4}	1.13×10^{-4}	4.43×10^{-4}
1000(Line driver)			
0.116×10^{-4}	0.228×10^{-4}	0.378×10^{-4}	1.478×10^{-4}
0.75	0.9	1.2	2.05
—	—	0.29	1.47
—	—	90	90
—	—	0.06	0.11
—	—	0.01×10^{-4}	0.09×10^{-4}
—	—	0.26	0.59

Temperature: 0 ~ 40°C Humidity: Maximum 90% (no condensation)



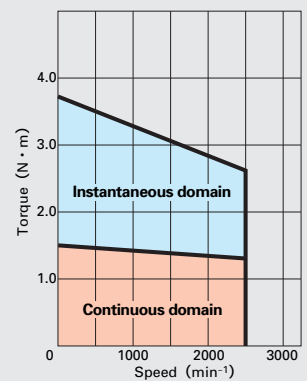
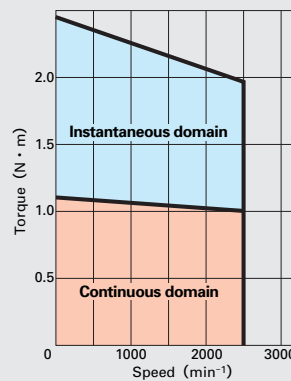
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Standard Specifications

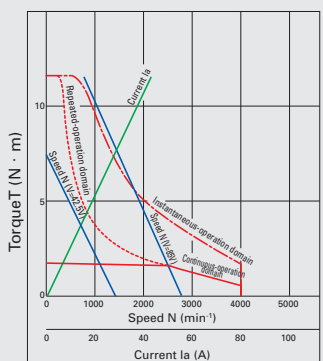
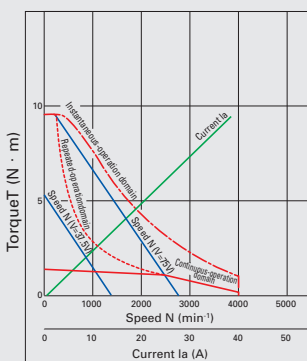
Applicable amplifier model No.				TS1AA2AA	TS1A03AA
Motor Model No.				T730-012EL8	T840-012EL8
	Condition	Symbol	Unit (SI)		
Servo amplifier Input power(Control circuit)				DC24V +10, -15%	
Servo amplifier Input power(Main circuit)				DC140V +10, -15%	
Amplifier operation temperature and humidity				Temperature: 0 ~ 55°C Humidity: Maximum 90% (no condensation)	
Power capacity(Rated)			kVA	0.9	1.0
Amplifier mass			kg	0.45	0.65
Rated output	★	P_R	W	300	400
Rated speed	★	N_R	min^{-1}	2500	
Maximum speed	★	N_{max}	min^{-1}	2500	
Rated torque	★	T_R	$\text{N} \cdot \text{m}$	1.00	1.33
Continuous stall torque	★	T_S	$\text{N} \cdot \text{m}$	1.05	1.37
Instantaneous maximum stall torque	★	T_{PS}	$\text{N} \cdot \text{m}$	2.45	3.72
Rated armature voltage	★	E_R	V	75	85
Rated armature current	★	I_R	A	5.2	5.8
Continuous stall armature current	★	I_S	A	5.5	6
Instantaneous maximum stall armature current	★	I_P	A	10.9	13.7
Torque constant	☆	K_T	$\text{N} \cdot \text{m}/\text{A}$	0.273	0.31
Voltage constant per phase	☆	K_E	$\text{V}/\text{kmin}^{-1}$	28.6	32.9
Phase resistance	☆	R_a	Ω	1.1	0.95
Rated power rate	★	O_R	kW/s	5.1	5.0
Electrical time constant	☆	t_c	ms	1.5	2.0
Mechanical time constant	☆	t_m	ms	4.0	5.2
Load inertia		J_L	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	8.12×10^{-4}	15×10^{-4}
Sensor (INC)			P/R	1000(Line driver)	
Rotor inertia (including sensor)		J_M	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	2.708×10^{-4}	5.008×10^{-4}
Motor mass (including sensor)			kg	2.75	3.65
Break-holding torque	★	T_B	$\text{N} \cdot \text{m}$	1.47	1.96
Break excitation voltage	☆	V_B	V	90	90
Break excitation current	☆	I_B	A	0.11	0.11
Break inertia		J_B	$\text{kg} \cdot \text{m}^2(\text{GD}^2/4)$	0.09×10^{-4}	0.2×10^{-4}
Break mass			kg	0.59	0.79
Motor operation temperature and humidity				Temperature: 0 ~ 40°C Humidity: Maximum 90% (no condensation)	

★ mark indicates a typical value after temperature increased and saturated in the combination with the standard amplifier
 ☆ mark indicates a typical value when the winding temperature is at 25°C.

Amp. → Motor Characteristic curve

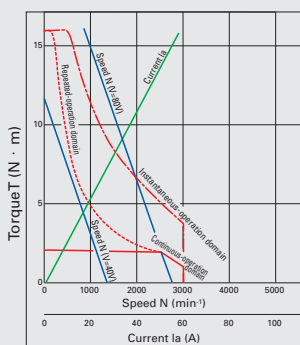
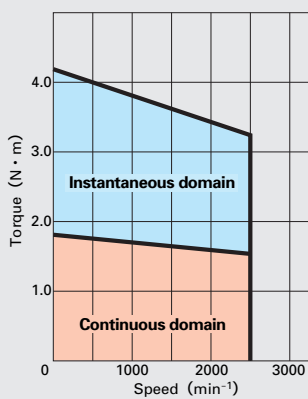


Motor Characteristic curve



TS1A03AA
T850-012EL8
DC24V +10, -15%
DC140V +10, -15%
The same as the left
1.3
0.65
500
2500
2500
1.65
1.73
4.21
80
7.6
7.6
17.6
0.287
30
0.56
6.4
1.9
4.1
18×10^{-4}
1000(Line driver)
6.008×10^{-4}
4.25
1.96
90
0.11
0.2×10^{-4}
0.79

The same as the left



Power Unit specifications

Applicable Power unit model No.	Unit	TS1PA05	TS1PA10	TS1PA15
Power unit Input voltage	V	AC100V +10% , -15% or AC35V +10% , -15%		
Power unit rated output current	A	5	10	15
Power unit operation temperature and humidity		Temperature: 0 to 55°C Humidity: Maximum 90% (no condensation)		
Power capacity(Rated) at AC100V input	KVA	1.4	2.8	4.2
Power unit weight	Kg	0.70	0.75	0.80

Features and Functions

Model Number Nomenclature

System Configuration

Standard Specifications

External Wiring Diagram

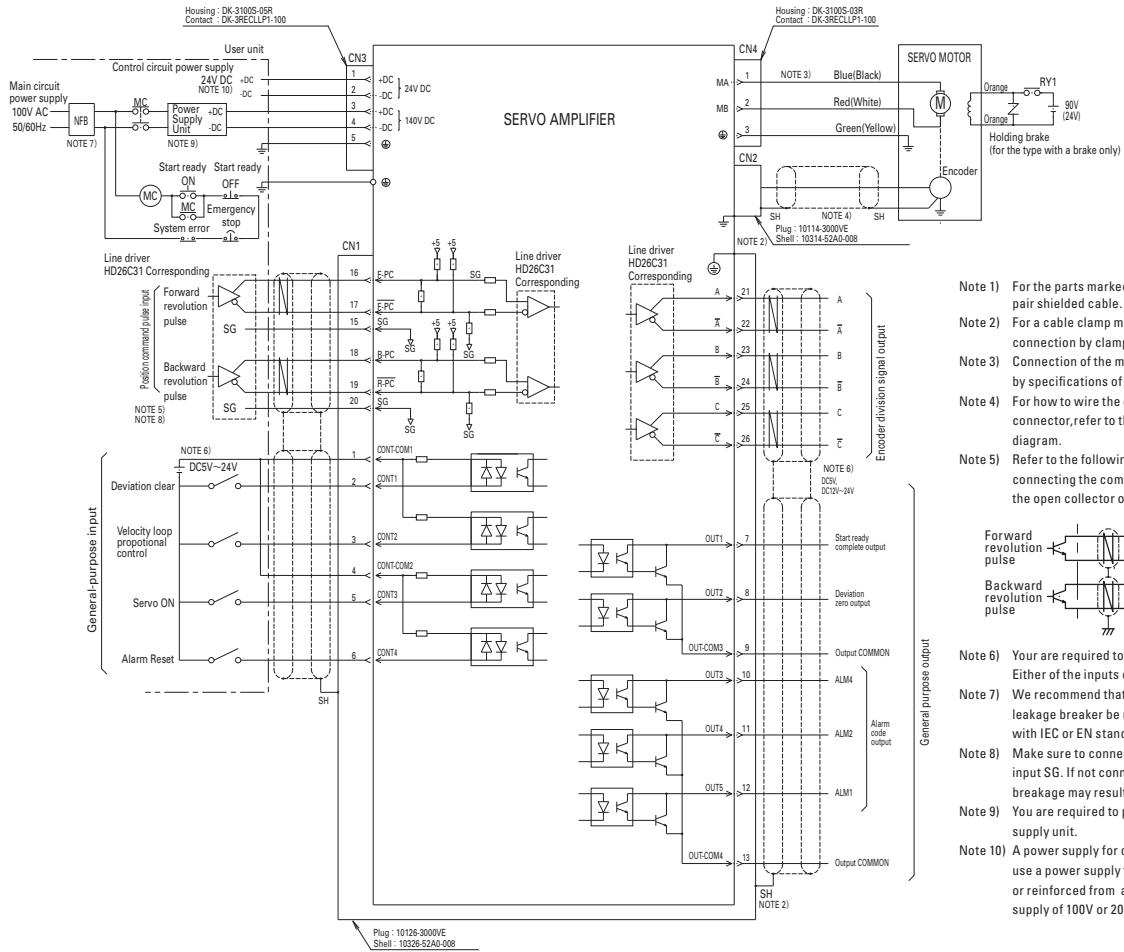
Dimensions

Setup Software

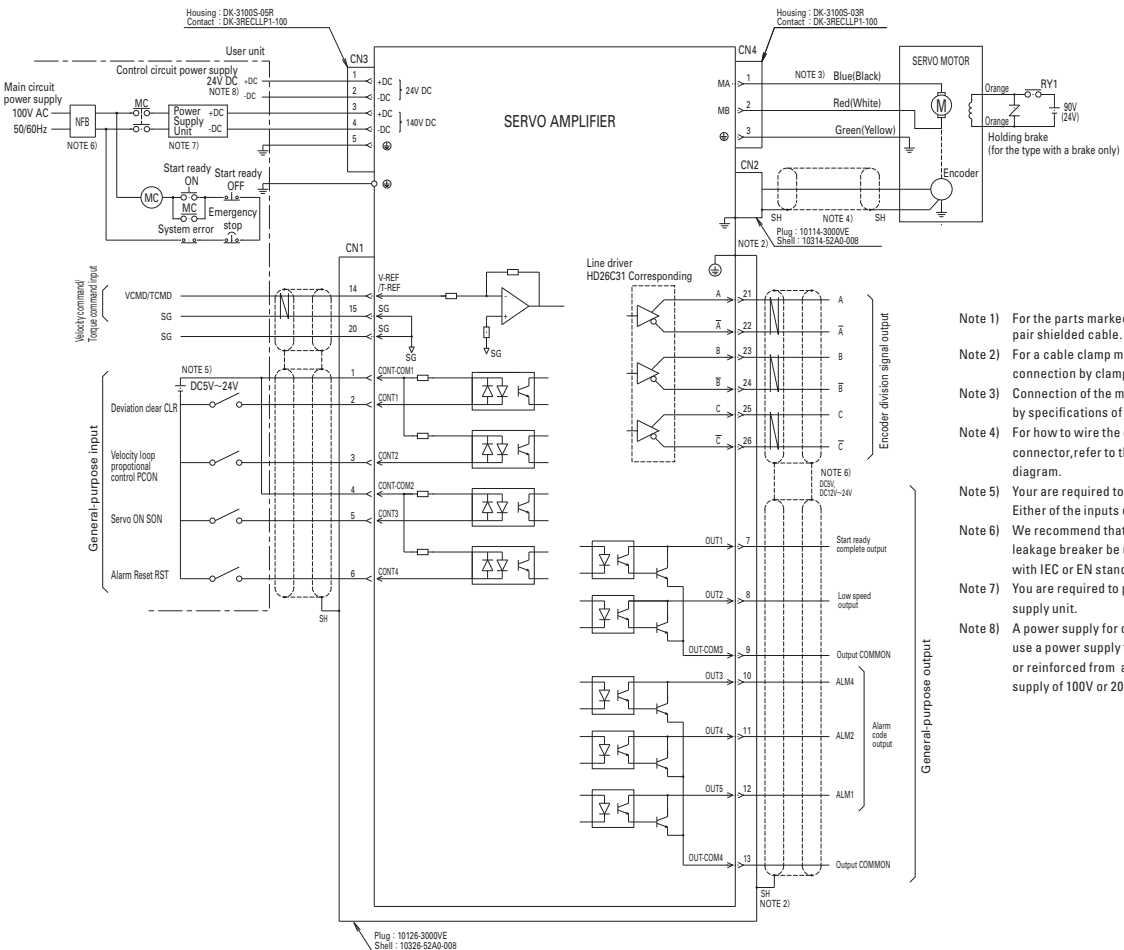
Optional Equipment

External Wiring Diagram

Position command Type

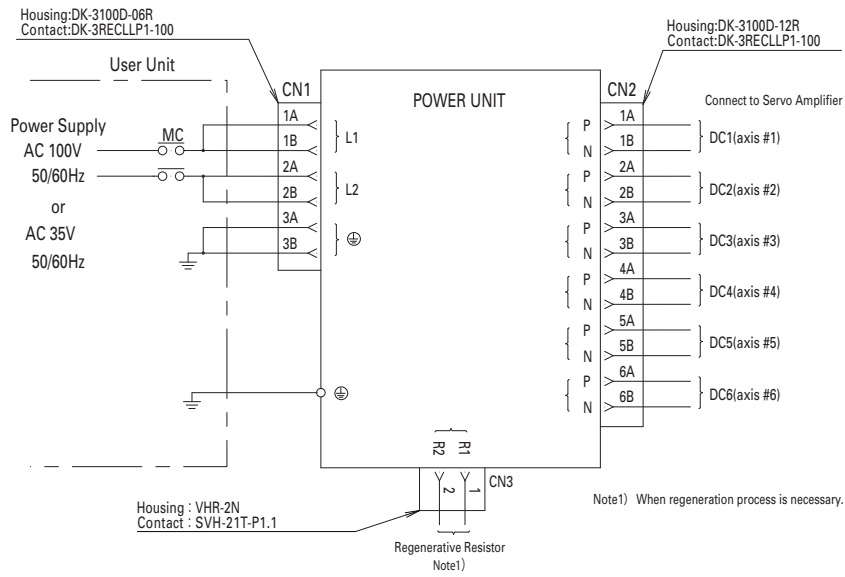


Velocity command/Torque command Type



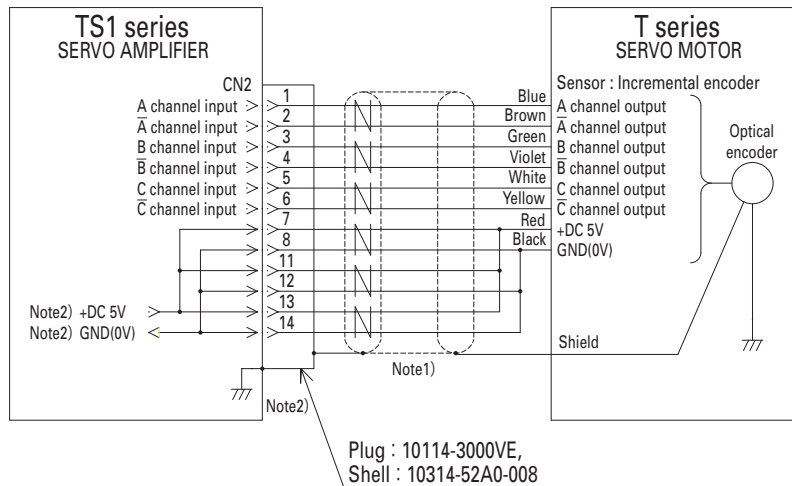
Power Unit / Sensor Wiring Diagram


Power Unit



Sensor

Incremental encoder (PP031/PP038/PP062) Lead wire type



Note 1) For the parts marked , use a twisted pair shielded cable.

Note 2) The sensor power connection differs depending on the cable length. Refer to the following table.

Sensor cable length	5m or less	10m or less	20m or less
+DC 5V wiring	13-pin connection (7 and 11 pins need not be connected)	11- and 13-pin connection (7 pin need not be connected)	7-, 11- and 13-pin connection
GND (0V) wiring	14-pin connection (6 and 12 pins need not be connected)	12- and 14-pin connection (8 pin need not be connected)	8-, 12- and 14-pin connection

Features and Functions

Model Number Nomenclature

System Configuration

Standard Specifications

External Wiring Diagram

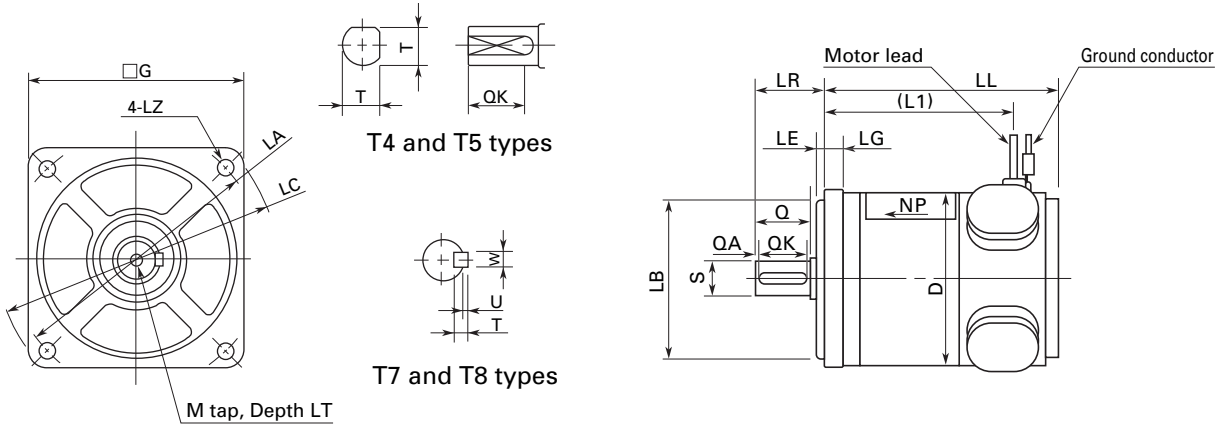
Dimensions

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Optional Equipment

Motor dimensions

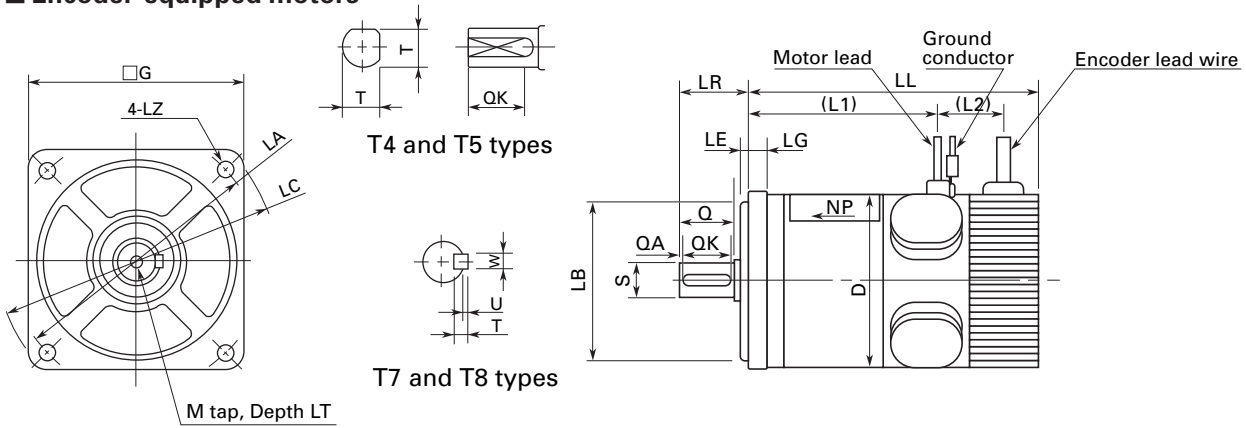
■ Motors



Unit : mm

Model	LL	LG	L1	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T402	55.5		42											-					-	-
T404	68.5	5	55	48 ± 0.2	$34-0.025^0$	2	56	42	3.5	24 ± 0.5	41	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T406	81.5		68											-					-	-
T506	80.5	5	67	60 ± 0.3	$50-0.025^0$	2.5	69	54	4.5	24 ± 0.5	51	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T511	100.5		87											-					-	-
T720	100.5	8	83	90 ± 0.3	$70-0.030^0$	3	100	76	5.5	30 ± 0.8	76	$14-0.011^0$	25	2	20	5	5	2	M5	8
T730	124.5		107																	
T840	132	8	113	100 ± 0.3	$80-0.030^0$	3	112	88	6.6	35 ± 0.8	87.5	$16-0.011^0$	30	2	25	5	5	2	M6	10
T850	147		128																	

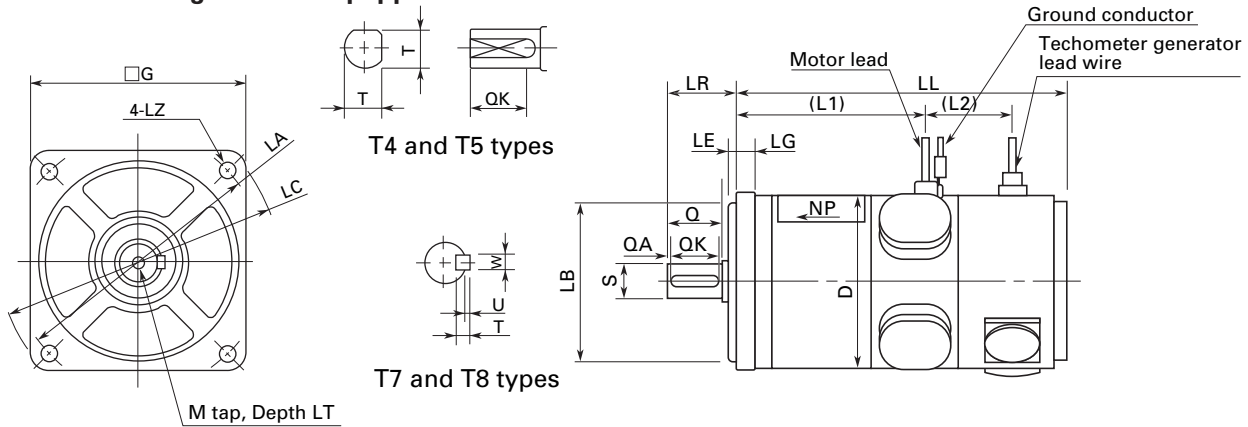
■ Encoder-equipped motors



Unit : mm

Model	LL	LG	L1	L2	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T402	83		42																	-	-
T404	96	5	55	18	48 ± 0.2	$34-0.025^0$	2	56	42	3.5	24 ± 0.5	41	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T406	109		68																	-	-
T506	110	5	67	22	60 ± 0.3	$50-0.025^0$	2.5	69	54	4.5	24 ± 0.5	51	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T511	130		87																	-	-
T720	134.5	8	83	36	90 ± 0.3	$70-0.030^0$	3	100	76	5.5	30 ± 0.8	76	$14-0.011^0$	25	2	20	5	5	2	M5	8
T730	158.5		107																		
T840	166	8	113	38	100 ± 0.3	$80-0.030^0$	3	112	88	6.6	35 ± 0.8	87.5	$16-0.011^0$	30	2	25	5	5	2	M6	10
T850	181		128																		

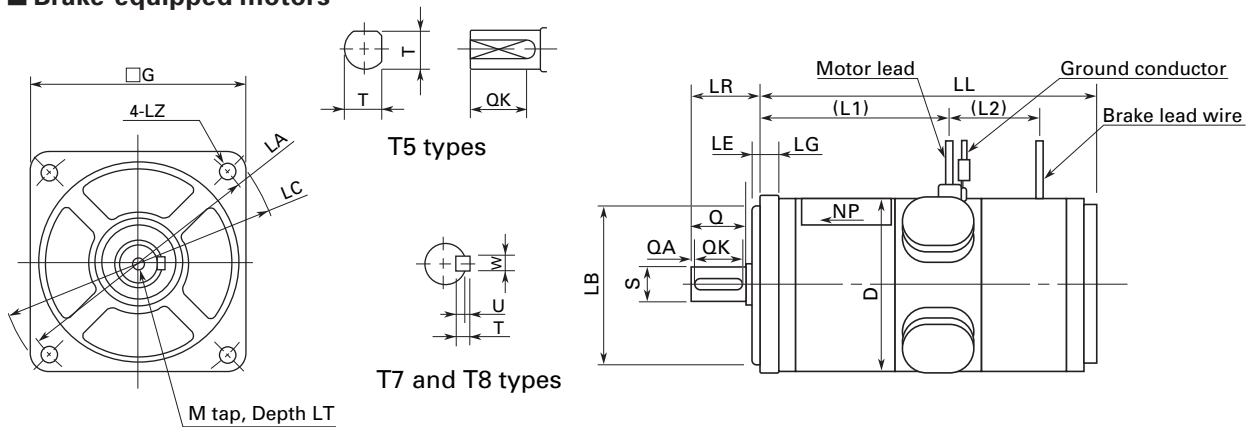
■ Tachometer generator-equipped motors



Unit : mm

Model	LL	LG	L1	L2	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T402	88.5		42												-					-	-
T404	101.5	5	55	18	48 ± 0.2	$34-0.025^0$	2	56	42	3.5	24 ± 0.5	41	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T406	114.5		68												-					-	-
T506	123.5	5	67	22	60 ± 0.3	$50-0.025^0$	2.5	69	54	4.5	24 ± 0.5	51	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T511	143.5		87												-					-	-
T720	142	8	83	36	90 ± 0.3	$70-0.030^0$	3	100	76	5.5	30 ± 0.8	76	$14-0.011^0$	25	2	20	5	5	2	M5	8
T730	166		107																		
T840	174.5	8	113	38	100 ± 0.3	$80-0.030^0$	3	112	88	6.6	35 ± 0.8	87.5	$16-0.011^0$	30	2	25	5	5	2	M6	10
T850	189.5		128																		

■ Brake-equipped motors



Unit : mm

Model	LL	LG	L1	L2	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T506	117	5	67	36	60 ± 0.3	$50-0.025^0$	2.5	69	54	4.5	24 ± 0.5	51	$7-0.009^0$	20	-	15	w/ 2 slots, 6.5			-	-
T511	137		87												-					-	-
T720	138.5	8	83	40	90 ± 0.3	$70-0.030^0$	3	100	76	5.5	30 ± 0.8	76	$14-0.011^0$	25	2	20	5	5	2	M5	8
T730	162.5		107																		
T840	169	8	113	40	100 ± 0.3	$80-0.030^0$	3	112	88	6.6	35 ± 0.8	87.5	$16-0.011^0$	30	2	25	5	5	2	M6	10
T850	184		128																		

Features and Functions

Model Number Nomenclature

System Configuration

Standard Specifications

External Wiring Diagram

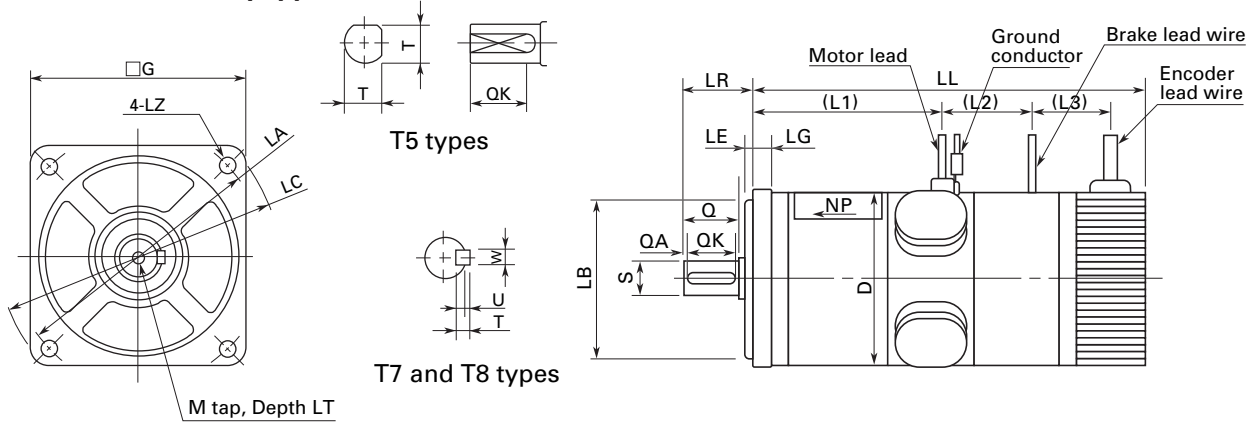
Dimensions

Setup Software

Optional Equipment

Motor dimensions

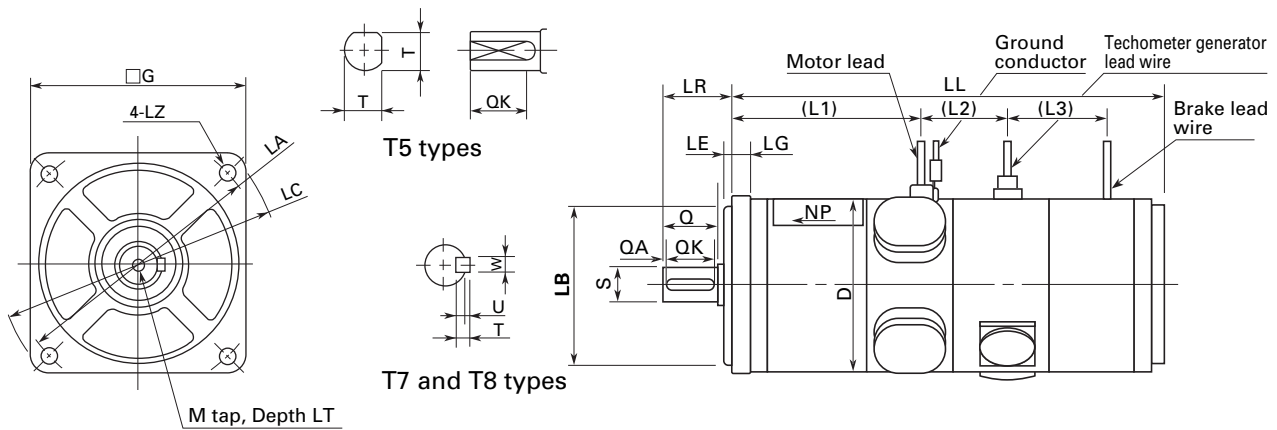
Encoder brake-equipped motors



Unit : mm

Model	LL	LG	L1	L2	L3	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QB	W	T	U	M	LT
T506	146.5	5	67	36	22	60 ± 0.3	0 50-0.025	2.5	69	54	4.5	24 ± 0.5	51	0 7-0.009	20	-	15	w/ 2 slots, 6.5			-	-
T511	166.5		87																			
T720	172.5	8	83	38	35	90 ± 0.3	0 70-0.030	3	100	76	5.5	30 ± 0.8	76	0 14-0.011	25	2	20	5	5	2	M5	8
T730	196.5		107																			
T840	203	8	113	40	35	100 ± 0.3	0 80-0.030	3	112	88	6.6	35 ± 0.8	87.5	0 16-0.011	30	2	25	5	5	2	M6	8
T850	218		128																			

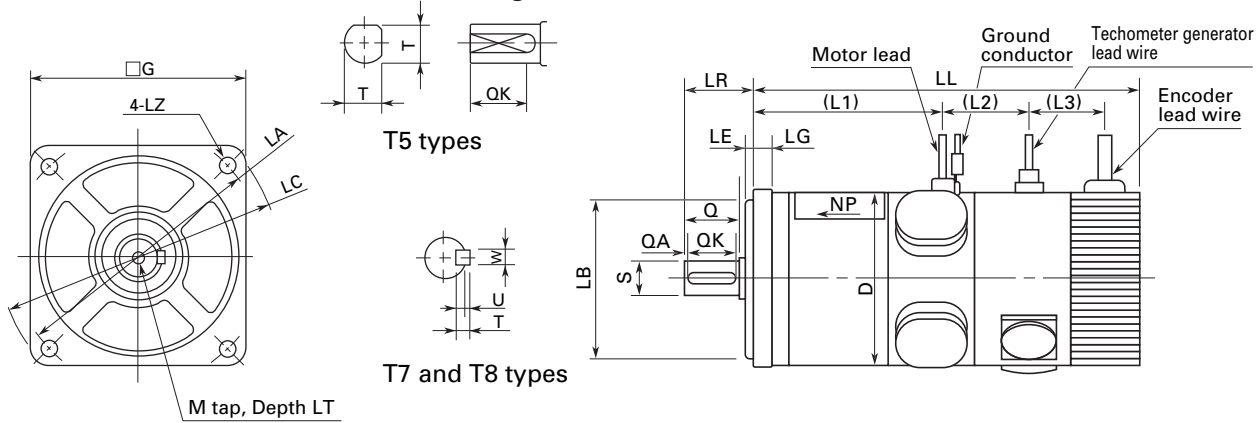
Techometer generator brake-equipped motors



Unit : mm

Model	LL	LG	L1	L2	L3	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QB	W	T	U	M	LT
T506	160	5	67	38	42	60 ± 0.3	0 50-0.025	2.5	69	54	4.5	24 ± 0.5	51	0 7-0.009	20	-	15	w/ 2 slots, 6.5			-	-
T511	180		87																			
T720	180	8	83	40	44	90 ± 0.3	0 70-0.030	3	100	76	5.5	30 ± 0.8	76	0 14-0.011	25	2	20	5	5	2	M5	8
T730	204		107																			
T840	211.5	8	113	38	44	100 ± 0.3	0 80-0.030	3	112	88	6.6	35 ± 0.8	87.5	0 16-0.011	30	2	25	5	5	2	M6	8
T850	226.5		128																			

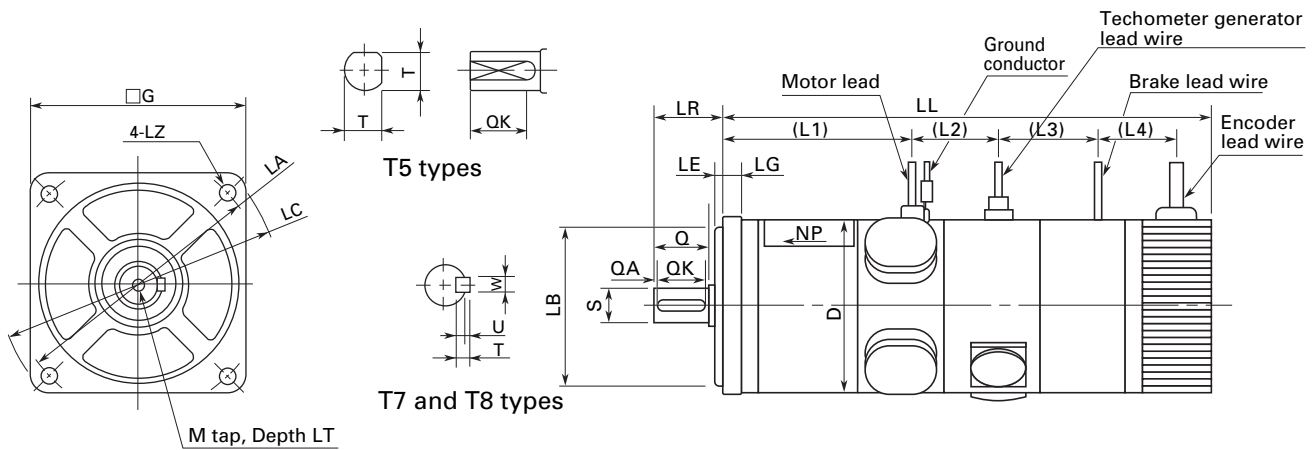
■ Motors with encoder and tachometer generator



Unit : mm

Model	LL	LG	L1	L2	L3	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T506	153	5	67	38	27	60 ± 0.3	$50^{0-0.025}$	2.5	69	54	4.5	24 ± 0.5	51	$7^{0-0.009}$	20	-	15	w/ 2 slots, 6.5			-	-
T511	173		87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T720	176	8	83	38	40	90 ± 0.3	$70^{0-0.030}$	3	100	76	5.5	30 ± 0.8	76	$14^{0-0.011}$	25	2	20	5	5	2	M5	8
T730	200		107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T840	208.5	8	113	38	42	100 ± 0.3	$80^{0-0.030}$	3	112	88	6.6	35 ± 0.8	87.5	$16^{0-0.011}$	30	2	25	5	5	2	M6	8
T850	223.5		128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

■ Motors with encoder, tachometer generator, and brake



Unit : mm

Model	LL	LG	L1	L2	L3	L4	LA	LB	LE	LC	G	LZ	LR	D	S	Q	QA	QK	W	T	U	M	LT
T506	189.5	5	67	38	42	22	60 ± 0.3	$50^{0-0.025}$	2.5	69	54	4.5	24 ± 0.5	51	$7^{0-0.009}$	20	-	15	w/ 2 slots, 6.5			-	-
T511	209.5		87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T720	214	8	83	38	44	35	90 ± 0.3	$70^{0-0.030}$	3	100	76	5.5	30 ± 0.8	76	$14^{0-0.011}$	25	2	20	5	5	2	M5	8
T730	238		107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T840	245.5	8	113	38	44	35	100 ± 0.3	$80^{0-0.030}$	3	112	88	6.6	35 ± 0.8	87.5	$16^{0-0.011}$	30	2	25	5	5	2	M6	8
T850	260.5		128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Features and Functions

Model Number Nomenclature

System Configuration

Standard Specifications

External Wiring Diagram

Dimensions

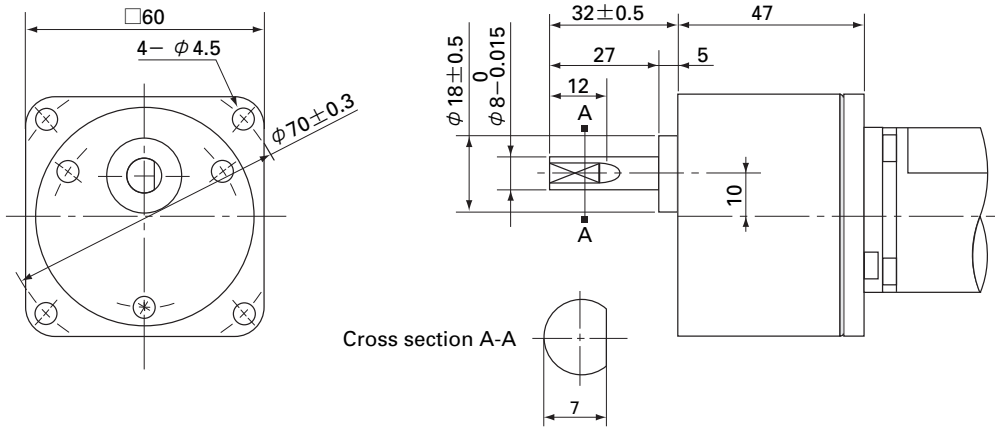
Setup Software

Optional Equipment

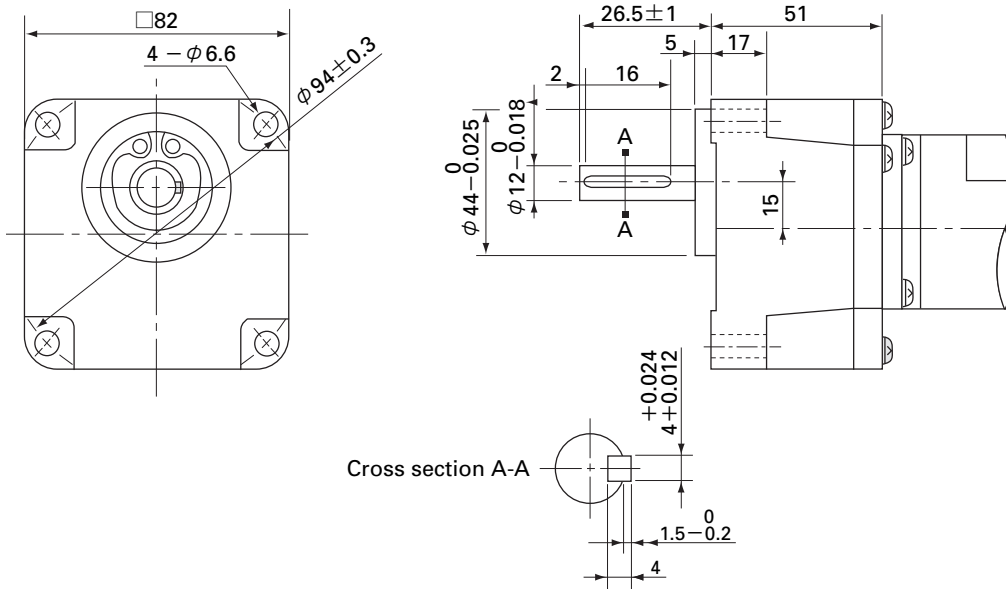
Gear dimensions

■ Dimensions of a typical gear for T4

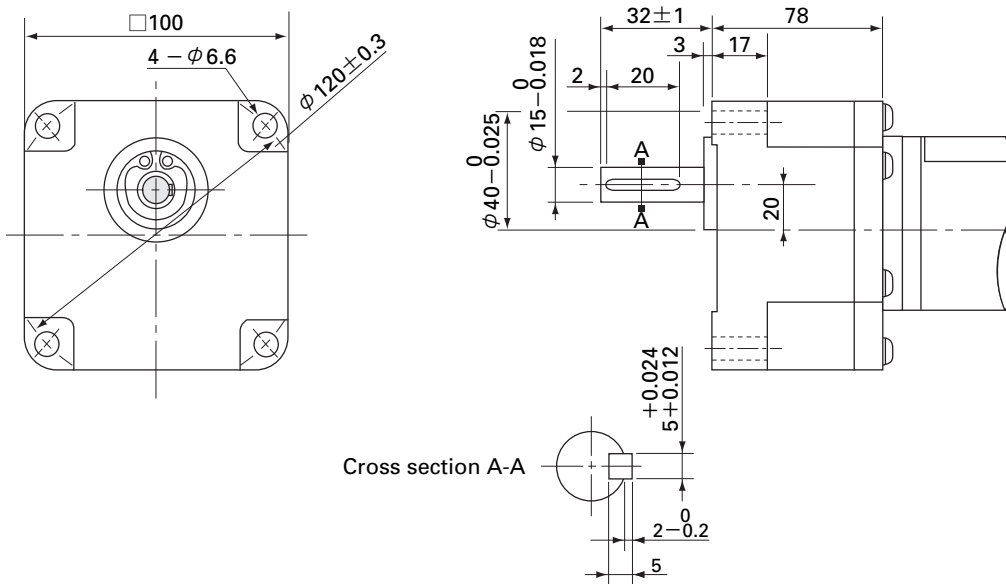
Unit : mm



■ Dimensions of a typical gear for T5



■ Dimensions of a typical gear for T7

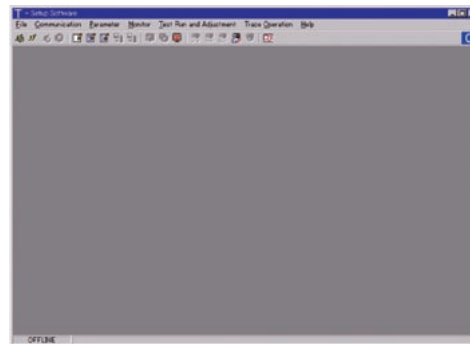


Setup Software

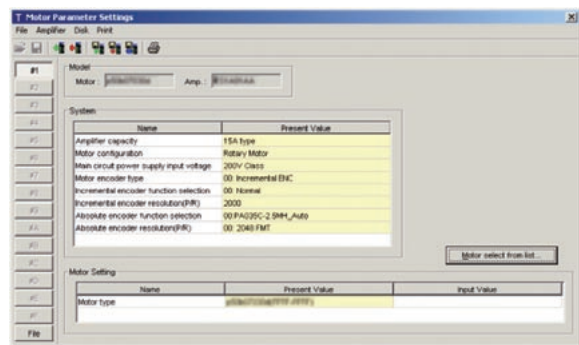
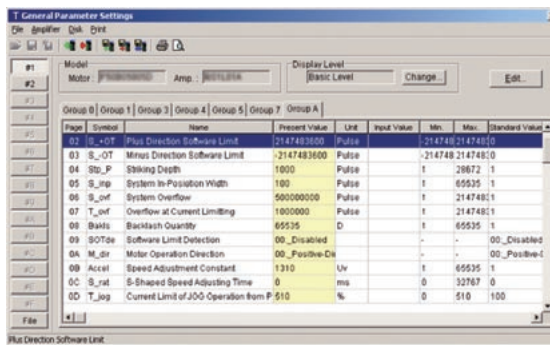
(1) Setup Software Start-up Screen



(2) Main Screen



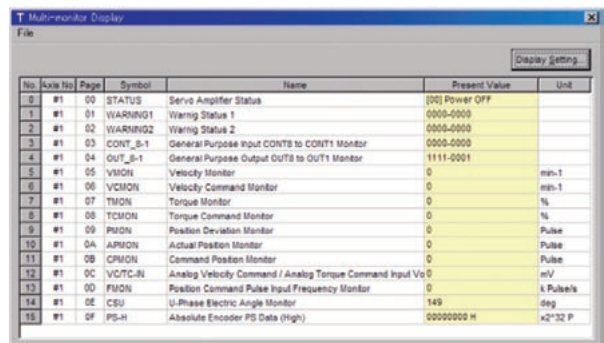
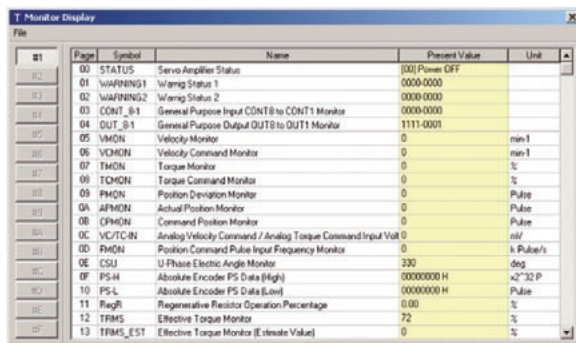
(3) Parameter Configuration Screen



Configuration of General Parameters:
Enables parameter loading, saving, etc., via PC connection

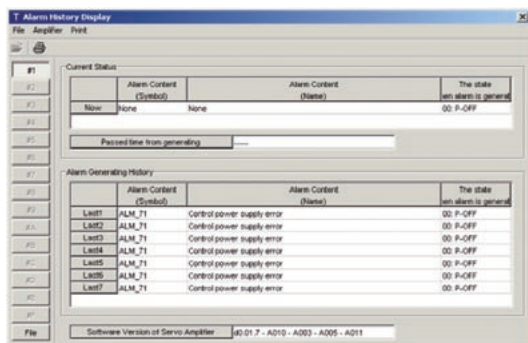
Configuration of Motor Parameters:
Combined motors can be configured via PC connection

(4) Monitor Functions



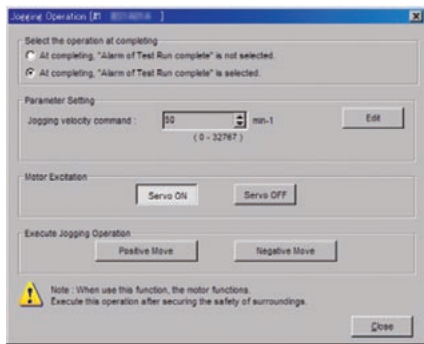
Monitor Display:
Observe Operation and Input/Output signal status

Multi-monitor Display:
Simultaneous monitoring of operational status of multiple servo amplifiers networked to a PC.

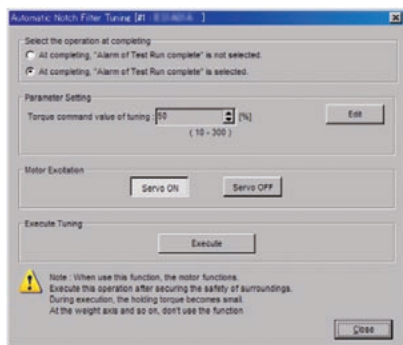


Alarm Record Display:
(Current and past alarm occurrence can be checked.)

(5) Test Run and Adjustment Function



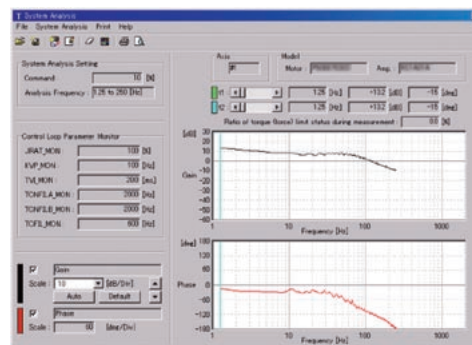
Speed Jogging:
Simplifies motor operation and the issuing of velocity commands from a PC



Automatic Notch Filter Tuning:
Configures the appropriate notch filter settings

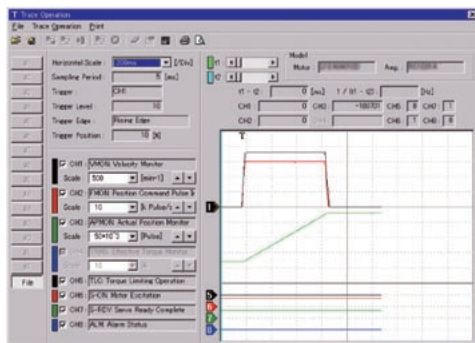


Pulse Feed Jogging:
Simplifies motor operation and the entering of distance and travel speed data from a PC



System Analysis:
Analyzes servo system frequency characteristics

(6) Trace Operation

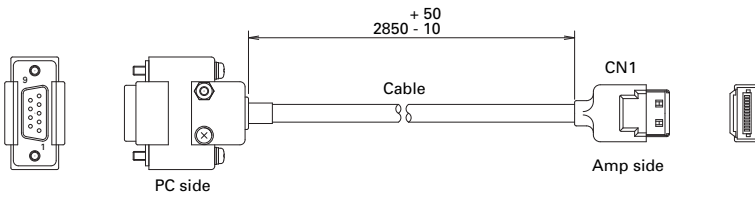


Graphically displays servo motor speed, current, and terminal status

Optional Equipment

PC Interface Cable

Unit : mm



Model No.: AL-00490833-01

A note regarding RS-232C communications:
The user must provide a PC for computer interface.
Parameter settings may require adjustment.

Connector list (For Amplifier)

	Contents	Model number	Manufacturer	Manufacturer' s model number	Conformity amplifier
Single connector	CN1 (Plug and housing)	AL-00608709	Sumitomo 3M Ltd./Molex Ltd.	10126-3000VE + 10326-52A0-008/ 54306-2619 + 54331-0261	All models
	CN2 (Plug and housing)	AL-00608710	Sumitomo 3M Ltd./Molex Ltd.	10114-3000VE + 10314-52A0-008/ 54306-1419 + 54331-0141	
	CN3 (Housing and contact)	AL-00608711	DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100S-05R + DK-3RECLLP1-100/ 1-178288-5 + 1-175218-2	
	CN4 (Housing and contact)	AL-00608712	DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100S-03R + DK-3RECLLP1-100/ 1-178288-3 + 1-175218-2	
Standard set	CN1,2 (Plug and housing)	AL-00608713	Sumitomo 3M Ltd./Molex Ltd.	10126-3000VE + 10326-52A0-008/ 10114-3000VE + 10314-52A0-008/ 54306-2619 + 54331-0261 54306-1419 + 54331-0141	
	CN3,4 (Housing and contact)		DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100S-05R + DK-3RECLLP1-100/ DK-3100S-03R + DK-3RECLLP1-100/ 1-178288-5 + 1-175218-2 1-178288-3 + 1-175218-2	

Note1) CN1,2 ... Sumitomo 3M company product and Molex company product are standardized goods.

Note2) CN3,4 ...DDK company product and Tyco electronics AMP company product are standardized goods.

* Hand crimp tool for contacts can be used for both.

Connector list (For Power Unit)

	Contents	Model number	Manufacturer	Manufacturer' s model number
Single connector	CN1 (Housing and contact)	AL-00632983	DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100D-06R + DK-3RECLLP1-100/ 178289-3 + 1-175218-2
	CN2 (Housing and contact)	AL-00632984	DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100D-12R + DK-3RECLLP1-100/ 178289-6 + 1-175218-2
	CN3 (Housing and contact)	AL-00632985	J.S.T Mfg Co Ltd.	VHR-2N + SVH-21T-P1.1
Standard set	CN1,2 (Housing and contact)	AL-00632986	DDK Ltd./ Tyco Electronics AMP K.K.	DK-3100D-06R + DK-3RECLLP1-100/ DK-3100D-12R + DK-3RECLLP1-100/ 178289-3 + 1-175218-2 178289-6 + 1-175218-2
	CN3 (Housing and contact)		J.S.T Mfg Co Ltd.	VHR-2N + SVH-21T-P1.1

Note1) CN1,2 ... DDK company product and Tyco electronics AMP company product are standardized goods.

*Hand crimp tool for contacts can be used for both.

Note2) Standard set(AL-00632986) is attached to the Power Unit.

Inquiry Check Sheet

Please provide the following information when placing an order or making an inquiry.
Also feel free to include any questions that require our attention.

Company Name: _____
 Department: _____
 Telephone : _____
 Fax: _____
 1) Application: _____
 2) Machine Name: _____
 3) Number of Units: _____

Date: _____
 To contact us:
 Phone: +81 3 3917 5157
 Fax: +81 3 3917 0643

Item	Contents																																																																																																
①	Name of target equipment Equipment name, category (transport, processing, test, other)																																																																																																
②	Name of servo axis Axis name, axial mechanism (horizontal/vertical), brake mechanism (yes/no)																																																																																																
③	Current condition of above axis Manufacturer Name () Series Name () Motor Capacity () Hydraulic, Mechanical, or New System ()																																																																																																
④	Positioning accuracy ± mm / ± μm																																																																																																
⑤	Operation pattern <div style="text-align: center;"> <p style="font-size: small;"> Acceleration α: _____ G • _____ [m/s²] Feeding Speed V _____ [m/s] Moving Distance D: _____ [m/s] Reference formula: [1G=9.8, m/s²], 1(m/s²)?0.1G] [α(m/s²)=V(m/sec)÷t1(sec)] [D(m)=V(m/sec)×(t1+t2)(sec)] </p> </div>																																																																																																
⑥	Mechanism Ball-screw/screw-rotation type (horizontal), ball-screw/nut-rotation type (horizontal), rack and pinion (horizontal), belt/chain (horizontal), rotary table, roll feed, instability																																																																																																
⑦	Mechanical structure <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td>WT (table mass)</td><td>kg</td><td>WL (work mass)</td><td>kg</td><td>WA (mass of other drive parts)</td><td>kg</td> </tr> <tr> <td>WR (rack mass)</td><td>kg</td><td>WB (belt/chain mass)</td><td>kg</td><td>WC (counterbalance mass)</td><td>kg</td> </tr> <tr> <td>Fa (external force in axial direction)</td><td>N</td><td>Fb (ball-screw preload)</td><td>N</td><td>T (roll pushing force)</td><td>N</td> </tr> <tr> <td>Dr1 (drive-side roll diameter)</td><td>mm</td><td>Dr2 (follower-side roll diameter)</td><td>mm</td><td></td><td></td> </tr> <tr> <td>Lr1 (drive-side roll length)</td><td>mm</td><td>Lr2 (follower-side roll length)</td><td>mm</td><td>G (reduction ratio)</td><td></td> </tr> <tr> <td>JG (speed-reducer inertia)</td><td>kg·m²</td><td>JC (coupling inertia)</td><td>kg·m²</td><td></td><td></td> </tr> <tr> <td>JN (nut inertia)</td><td>kg·m²</td><td>JO (other motor-axis conversion inertia)</td><td>kg·m²</td><td></td><td></td> </tr> <tr> <td>Db (ball-screw diameter)</td><td>mm</td><td>Lb (ball-screw axial length)</td><td>mm</td><td>Pb (ball-screw lead)</td><td>mm</td> </tr> <tr> <td>Dp (pinion/pulley diameter)</td><td>mm</td><td>Lp (pinion axial length)</td><td>mm</td><td>Tp (pulley thickness)</td><td>mm</td> </tr> <tr> <td>Dt (table diameter)</td><td>mm</td><td>Dh (table-support diameter)</td><td>mm</td><td>LW (load shift from axis)</td><td>mm</td> </tr> <tr> <td>Ds (table shaft diameter)</td><td>mm</td><td>Ls (table shaft length)</td><td>mm</td><td></td><td></td> </tr> <tr> <td>ρ (specific gravity of ball-screw/pinion/pulley/table-shaft material)</td><td></td><td></td><td>kg/cm³</td><td></td><td></td> </tr> <tr> <td>μ(friction coefficient between sheet and sliding-surface/support-section/roll)</td><td></td><td>P1 (specific gravity of roll-1 material)</td><td></td><td>kg/cm³</td><td></td> </tr> <tr> <td>ρ2 (specific gravity of roll-2 material)</td><td>kg/cm³</td><td>κ(internal friction coefficient of preload nut)</td><td></td><td></td><td></td> </tr> <tr> <td>η(mechanical efficiency)</td><td></td><td>JL (load inertia of motor-axis conversion)</td><td></td><td>kg·m²</td><td></td> </tr> <tr> <td>TF (friction torque of motor axis conversion)</td><td>N·m</td><td>TU (imbalance torque of motor axis conversion)</td><td></td><td>N·m</td><td></td> </tr> </table>	WT (table mass)	kg	WL (work mass)	kg	WA (mass of other drive parts)	kg	WR (rack mass)	kg	WB (belt/chain mass)	kg	WC (counterbalance mass)	kg	Fa (external force in axial direction)	N	Fb (ball-screw preload)	N	T (roll pushing force)	N	Dr1 (drive-side roll diameter)	mm	Dr2 (follower-side roll diameter)	mm			Lr1 (drive-side roll length)	mm	Lr2 (follower-side roll length)	mm	G (reduction ratio)		JG (speed-reducer inertia)	kg·m ²	JC (coupling inertia)	kg·m ²			JN (nut inertia)	kg·m ²	JO (other motor-axis conversion inertia)	kg·m ²			Db (ball-screw diameter)	mm	Lb (ball-screw axial length)	mm	Pb (ball-screw lead)	mm	Dp (pinion/pulley diameter)	mm	Lp (pinion axial length)	mm	Tp (pulley thickness)	mm	Dt (table diameter)	mm	Dh (table-support diameter)	mm	LW (load shift from axis)	mm	Ds (table shaft diameter)	mm	Ls (table shaft length)	mm			ρ (specific gravity of ball-screw/pinion/pulley/table-shaft material)			kg/cm ³			μ(friction coefficient between sheet and sliding-surface/support-section/roll)		P1 (specific gravity of roll-1 material)		kg/cm ³		ρ2 (specific gravity of roll-2 material)	kg/cm ³	κ(internal friction coefficient of preload nut)				η(mechanical efficiency)		JL (load inertia of motor-axis conversion)		kg·m ²		TF (friction torque of motor axis conversion)	N·m	TU (imbalance torque of motor axis conversion)		N·m	
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⑧	Speed reducer Customer-provided (/); Sanyo standard (planet/spur/no-backlash-planet:: /); other (/)																																																																																																
⑨	Sensor type Sensor type specified (yes / no) Yes: (incremental , optical absolute , optical absolute [resolver absolute with incremental function]) Resolution ()																																																																																																
⑩	Input format Position , speed, torque, communications (SERCOS / CAN / DeviceNet) other ()																																																																																																
⑪	Upper-level equipment (controller) Sequencer , laptop , customer-developed product , Sanyo-provided , other ()																																																																																																
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⑭	Development schedule Prototype period: ()Year ()Month Production period: ()Year ()Month																																																																																																
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Features and Functions
 Model Number Nomenclature
 System Configuration
 Standard Specifications
 External Wiring Diagram
 Dimensions
 Setup Software
 Optional Equipment

■ Precautions For Adoption



Failure to follow the precautions on the right may cause moderate injury and property damage, or in some circumstances, could lead to a serious accident. Always follow all listed precautions.

Cautions

- Read the accompanying Instruction Manual carefully prior to using the product.
- If applying to medical devices and other equipment affecting people's lives, please contact us beforehand and take appropriate safety measures.
- If applying to equipment that can have significant effects on society and the general public, please contact us beforehand.
- Do not use this product in an environment where vibration is present, such as in a moving vehicle or shipping vessel.
- Do not perform any retrofitting, re-engineering, or modification to this equipment.
- The amplifiers presented in this catalog are meant to be used for general industrial applications. If using for special applications related to aviation and space, nuclear power, electric power, submarine repeaters, etc., please contact us beforehand.

* For any question or inquiry regarding the above, contact our Sales Department.

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