

TBL-*i* Series AC Servo Motor/Driver

Introducing a New Super Compact AC Servo Motor

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



Super compact and easy to use.

Completely new super compact size compared to conventional models!

Conforms easily to any needs.



Actual Size - Requires 100W at this size

TBL-i Series

Introducing a New Super Compact AC Servo Motor.

The new **TBL-i** Series from Tamagawa Seiki Co.,Ltd. is a super compact AC servo motor developed in line with our goal of a more compact motor. On average, **TBL-i** Series motors are about 1/3 the size of conventional TBL-S Series motors in terms of volume. Also, rotor inertia has been optimally designed in anticipation of actual usage loads, giving these motors an optimum power rating given their motor capacity.

Features

- Compact size
- High speed rotation
 - High speed rotation possible to a maximum rotation speed of 5,000 rev/min.
(Rated rotation speed is 3,000 rev/min.)
- Models with built-in absolute encoder and brushless resolver as an optional sensor are also available.
- Minimal-wiring encoder only 9 Wires is formerly are used for the wiring of the encoder.

3Times the Torque at the Same Size!

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TBL-i Series
100W



Actual Size

Requires 100W at this size (TS4503N1000)

Conventional Model
30W



TBL-S Series 30W model (TS3272N500)

TBL-i Series AC Servo Motor (with Encoder)



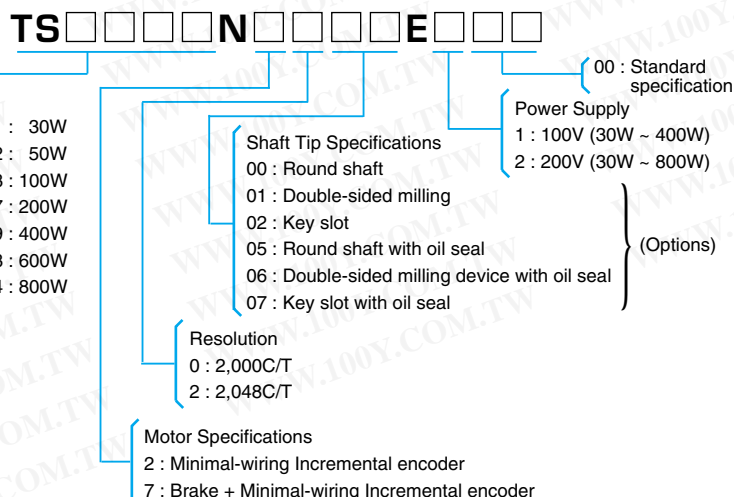
Specifications

Mounting Flange mm		□ 40			□ 60		□ 80	
Model		TS4501	TS4502	TS4503	TS4507	TS4509	TS4513	TS4514
Voltage (V)		100 or 200	100 or 200	100 or 200	100 or 200	100 or 200	200	200
Output (W)		30	50	100	200	400	600	800
Rated Torque N·m		0.095	0.159	0.319	0.64	1.27	1.91	2.55
	(kgf·cm)	(0.97)	(1.62)	(3.25)	(6.5)	(13)	(19.5)	(26)
	(oz·in)	(13.47)	(22.50)	(45.13)	(90.3)	(180.5)	(270.8)	(361.1)
Maximum Torque N·m		0.28	0.48	0.95	1.91	3.82	5.74	7.65
	(kgf·cm)	(2.9)	(4.9)	(9.7)	(19.5)	(39)	(58.5)	(78)
	(oz·in)	(40.3)	(68.4)	(134.7)	(270.8)	(541.6)	(812.4)	(1083.2)
Rated Current A [AC100V/AC200V]		0.6/0.3	0.9/0.5	1.5/0.9	3.2/1.4	5.2/3.2	—/4.2	—/4.6
Rated Rotation Speed r/min.		3,000						
Maximum Rotation Speed r/min.		5,000						
Rotor Inertia [GD ² /4] kg·m ²		0.013 X 10 ⁻⁴	0.023 X 10 ⁻⁴	0.042 X 10 ⁻⁴	0.20 X 10 ⁻⁴	0.36 X 10 ⁻⁴	1.00 X 10 ⁻⁴	1.30 X 10 ⁻⁴
	(gf·cm·s ²)	(0.013)	(0.023)	(0.043)	(0.20)	(0.37)	(1.02)	(1.33)
	(oz·in·s ²)	(1.81 X 10 ⁻⁴)	(3.19 X 10 ⁻⁴)	(5.97 X 10 ⁻⁴)	(2.78 X 10 ⁻³)	(5.14 X 10 ⁻³)	(1.42 X 10 ⁻²)	(1.85 X 10 ⁻²)
Approximate Mass kg		0.3	0.4	0.5	1.1	1.6	2.6	3.2
Sensor		Incremental encoder 2,000C/T, 2,048C/T (Option : absolute encoder, brushless resolver)						

* Please ask for a separate specification sheet, for models having sensors, brakes or other options.

Description of Model Numbers

TBL-i Series model numbers are assigned as described here.

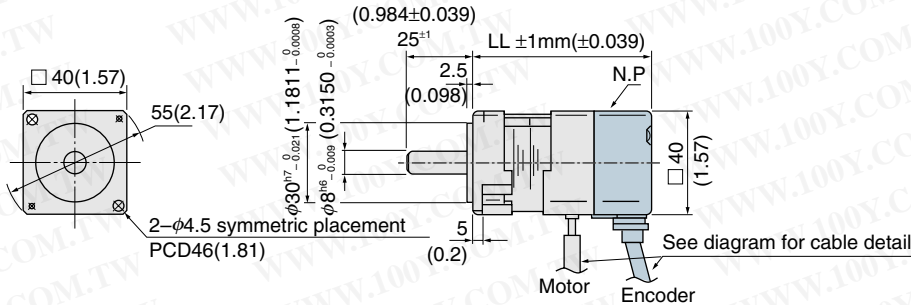


Note : Ask separately concerning model numbers of models with an absolute encoder and brushless resolver.

Outline (Standard Type)

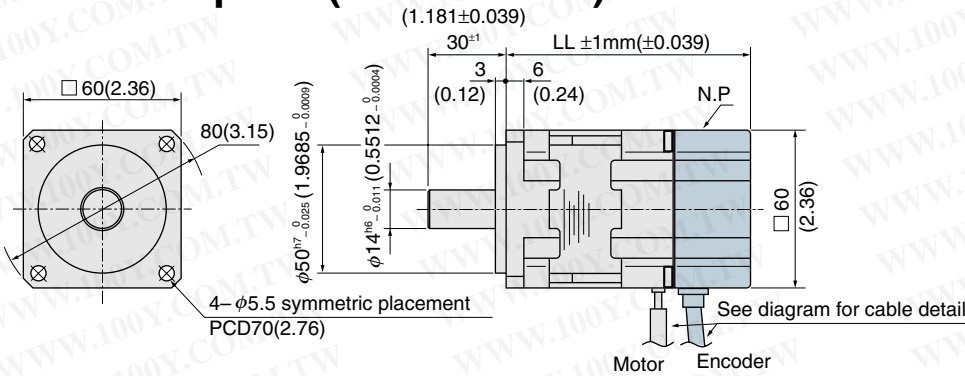
DIMENSION : mm (inch)

40-mm Square (30W. 50W. 100W)



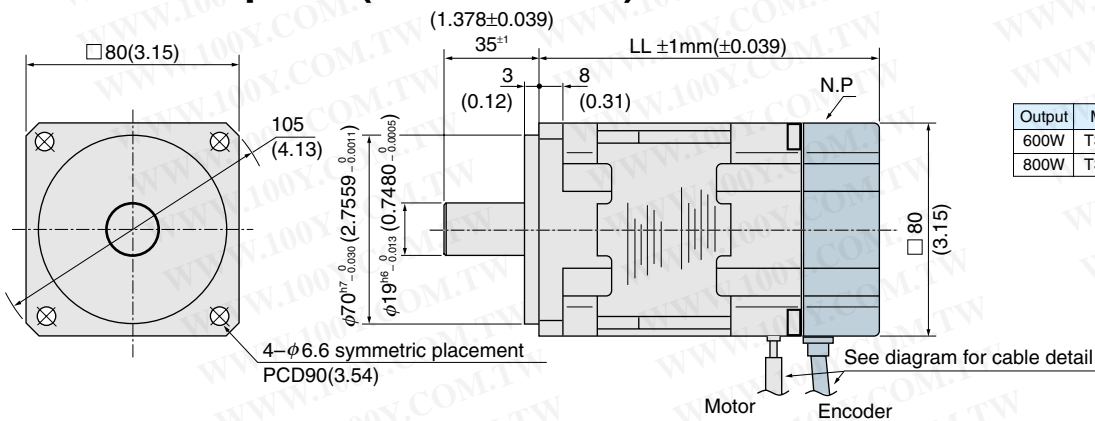
Output	Model	LL(mm)
30W	TS4501	62.5(2.46)
50W	TS4502	71.5(2.81)
100W	TS4503	98.5(3.52)

60-mm Square (200W. 400W.)



Output	Model	LL(mm)
200W	TS4507	97(3.82)
400W	TS4509	125(4.92)

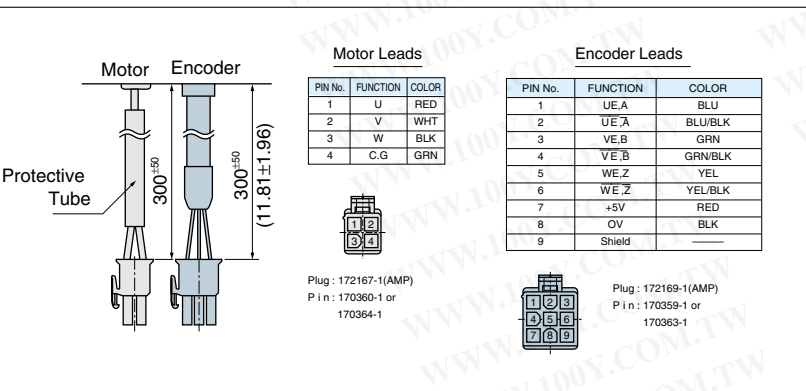
80-mm Square (600W. 800W.)



Output	Model	LL(mm)
600W	TS4513	129(5.08)
800W	TS4514	146(5.75)

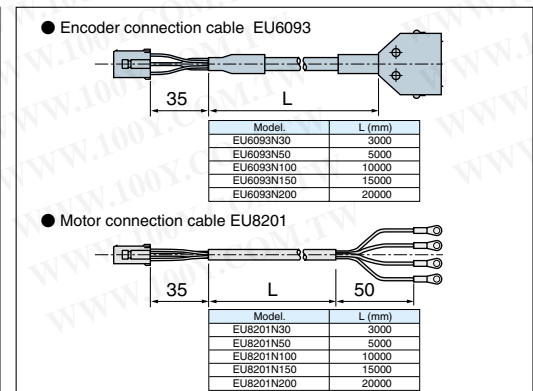
Cable Detail

DIMENSION : mm(inch)



Options

DIMENSION : mm

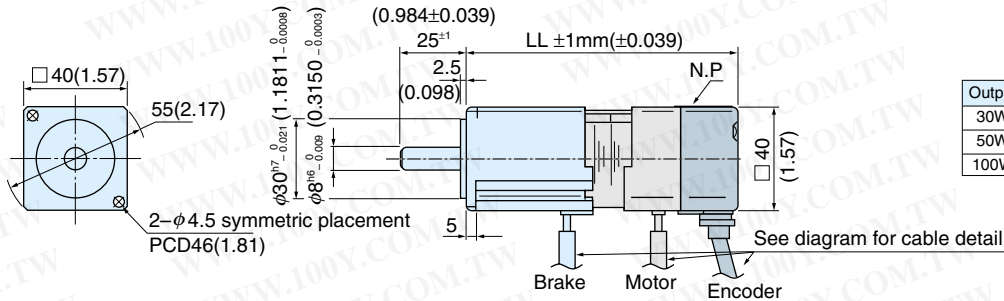


Outline (with Brake)

Brake power supply : Standard 24V DC

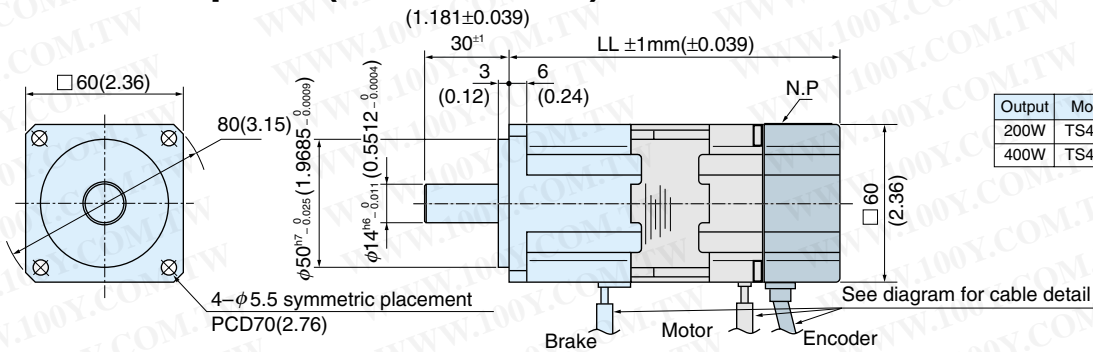
DIMENSION : mm (inch)

40-mm Square (30W. 50W. 100W)



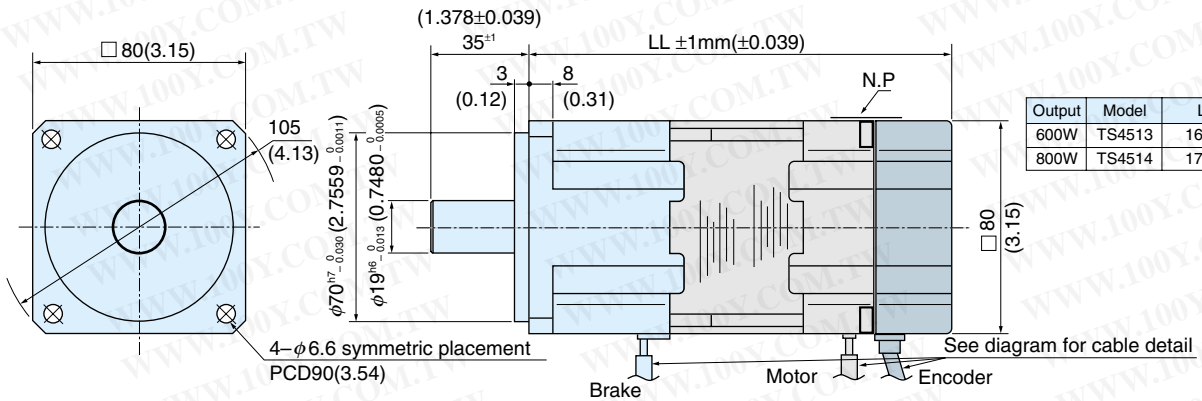
Output	Model	LL(mm)
30W	TS4501	93.5(3.68)
50W	TS4502	102.5(4.03)
100W	TS4503	120.5(4.74)

60-mm Square (200W. 400W.)



Output	Model	LL(mm)
200W	TS4507	126.5(4.98)
400W	TS4509	154.5(6.97)

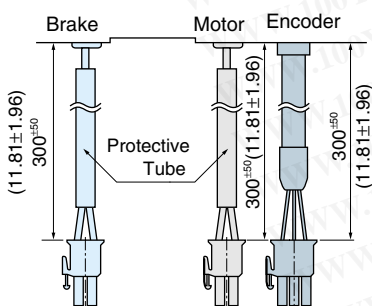
80-mm Square (600W. 800W.)



Output	Model	LL(mm)
600W	TS4513	160(6.29)
800W	TS4514	177(6.97)

Cable Detail

DIMENSION : mm (inch)



Brake Leads

PIN No.	FUNCTION	COLOR
1	BK	YEL
2	BK	VEL



Plug : 172165-1(AMP)
 P i n : 170359-1 or 170363-1

Motor Leads

PIN No.	FUNCTION	COLOR
1	U	RED
2	V	WHT
3	W	BLK
4	C.G	GRN



Plug : 172167-1(AMP)
 P i n : 170360-1 or 170364-1

Encoder Leads

PIN No.	FUNCTION	COLOR
1	UE,A	BLU
2	UE',A'	BLU/BLK
3	VE,B	GRN
4	VE',B'	GRN/BLK
5	WE,Z	YEL
6	WE',Z'	YEL/BLK
7	+5V	RED
8	0V	BLK
9	Shield	---

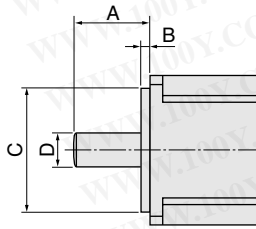


Plug : 172169-1(AMP)
 P i n : 170359-1 or 170363-1

Shaft Tip Specifications

DIMENSION : mm (inch)

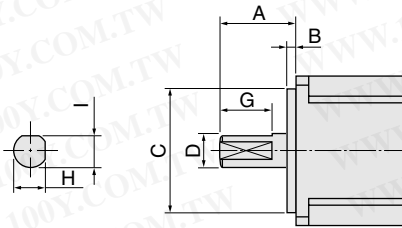
● Round Shaft



Motor Capacity	Dimensions			
	A	B	C	D
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})

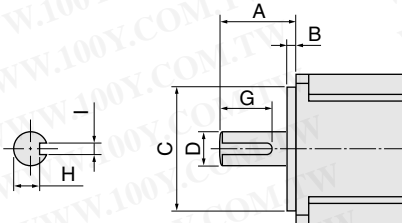
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● Double-Sided Milling (Option)



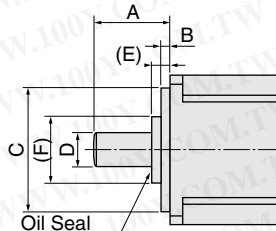
Motor Capacity	Dimensions						
	A	B	C	D	G	H	I
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})	16 (0.630)	7.5±0.2 (0.295±0.007)	7.5±0.2 (0.295±0.007)
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})	20 (0.787)	13±0.2 (0.512±0.007)	13±0.2 (0.512±0.007)
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})	25 (0.984)	17.5±0.2 (0.689±0.007)	17.5±0.2 (0.689±0.007)

● Key Way (Option)



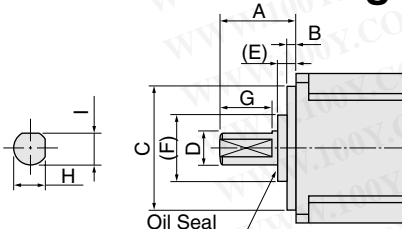
Motor Capacity	Dimensions							Accessory Key
	A	B	C	D	G	H	I	
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})	16 (0.630)	6.2 _{-0.2} (0.244 _{-0.007})	3 P9 _{-0.008} (0.1181 _{-0.0012})	3X3X16 (0.118X0.118X0.630)
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})	20 (0.787)	11 _{-0.2} (0.433 _{-0.007})	5 P9 _{-0.008} (0.1969 _{-0.0012})	5X5X20 (0.197X0.197X0.787)
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})	25 (0.984)	15.5 _{-0.2} (0.610 _{-0.007})	6 P9 _{-0.012} (0.2362 _{-0.0016})	6X6X25 (0.236X0.236X0.984)

● Round Shaft with Oil Seal (Option)



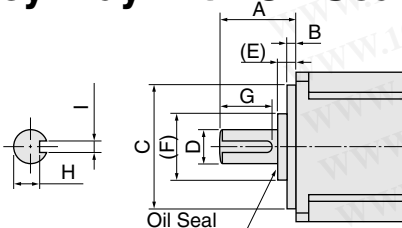
Motor Capacity	Dimensions					
	A	B	C	D	(E)	(F)
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})	7 (0.276)	φ20 (φ0.787)
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})	7 (0.276)	φ27 (φ1.063)
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})	7 (0.276)	φ34 (φ1.339)

● Double-Sided Milling with Oil Seal (Option)



Motor Capacity	Dimensions								
	A	B	C	D	(E)	(F)	G	H	I
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})	7 (0.276)	φ20 (φ0.787)	16 (0.630)	7.5±0.02 (0.295±0.007)	7.5±0.2 (0.295±0.007)
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})	7 (0.276)	φ27 (φ1.063)	20 (0.787)	13±0.02 (0.512±0.007)	13±0.2 (0.512±0.007)
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})	7 (0.276)	φ34 (φ1.339)	25 (0.984)	17.5±0.02 (0.689±0.007)	17.5±0.2 (0.689±0.007)

● Key Way with Oil Seal (Option)



Motor Capacity	Dimensions									
	A	B	C	D	(E)	(F)	G	H	I	Accessory Key
30W,50W,100W	25±1 (0.984±0.039)	2.5 (0.098)	φ30 h7 _{-0.02} (φ1.1811 _{-0.008})	φ8 h6 _{-0.009} (φ0.3150 _{-0.0003})	7 (0.276)	φ20 (φ0.787)	16 (0.630)	6.2 _{-0.2} (0.244 _{-0.007})	3 P9 _{-0.008} (0.1181 _{-0.0012})	3X3X16 (0.118X0.118X0.630)
200W,300W	30±1 (1.181±0.039)	3 (0.12)	φ50 h7 _{-0.02} (φ1.9685 _{-0.008})	φ14 h6 _{-0.011} (φ0.5512 _{-0.0004})	7 (0.276)	φ27 (φ1.063)	20 (0.787)	11 _{-0.2} (0.433 _{-0.007})	5 P9 _{-0.008} (0.1969 _{-0.0012})	5X5X20 (0.197X0.197X0.787)
600W,800W	35±1 (1.378±0.039)	3 (0.12)	φ70 h7 _{-0.03} (φ2.7559 _{-0.011})	φ19 h6 _{-0.013} (φ0.7480 _{-0.0005})	7 (0.276)	φ34 (φ1.339)	25 (0.984)	15.5 _{-0.2} (0.610 _{-0.007})	6 P9 _{-0.012} (0.2362 _{-0.0016})	6X6X25 (0.236X0.236X0.984)

TBL-*i* Series Compatible Compact Driver AU6550 Series

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Description

Utilizing high speed DSP and software, this digital control driver can be used in combination with TBL-*i* Series motors.

Features

- Servo driver utilizing high speed DSP.
- Compact
 - Incorporates three control modes (speed control, position control and torque control) and many functions in a compact body.
- Allows setting of different parameters
 - Setting made using push button switches on the panel.
- Comes standard equipped with restore circuit and dynamic brake.
- Supports many functions
 - Low oscillation control possible even for low rigidity mechanisms by using a control filter function.
 - Division and multiplication of encoder signal possible.
 - Feed forward function, etc.
- Comes standard equipped with position control circuit and external encoder input circuit.



Basic Specifications

Driver Model	AU6550N ***
Control Model	Position, speed and current control (various controls selected by mode setting)
Motor Drive System	Transistor PWM, sine wave drive
Angle Sensor	Incremental encoder (line driver output)
Operating Temperature and Humidity	0 [deg] C to 50 [deg] C, 90% RH or less (without condensation)
Construction	Rack mount type

Model-Specific Specifications (Interface Voltage:5V Input Signal)

N Number Models	N101	N102	N104	N106	N201	N202	N204	N206
AC Power Input	AC100/110V · 10% 50/60Hz				AC200/220V · 10% 50/60Hz			
Rated Output Current Arms	1.25	2.1	4.2	6.4	1.25	2.1	4.0	6.4
Instantaneous Maximum Current Arms	3.75	6.3	12.6	19.2	3.75	6.3	12.6	19.2
Motor Outout (reference)	(50W)	(100W)	(200W)	(400W)	(100W)	(200W)	(400W)	(800W)

Model-Specific Specifications (Interface Voltage:24V Input Signal (5V command pulse))

N Number Models	N181	N182	N184	N186	N281	N282	N284	N286
AC Power Input	AC100/110V · 10% 50/60Hz				AC200/220V · 10% 50/60Hz			
Rated Output Current Arms	1.25	2.1	4.2	6.4	1.25	2.1	4.0	6.4
Instantaneous Maximum Current Arms	3.75	6.3	12.6	19.2	3.75	6.3	12.6	19.2
Motor Outout (reference)	(50W)	(100W)	(200W)	(400W)	(100W)	(200W)	(400W)	(800W)

Functions and Features

Protective Functions	Over current, overload over-speed, differential counter overflow, IGBT error, encoder error, drive power supply error
Display Functions	Operating mode, alarm number, SV-ON signal, in-position, input signal data
Parameter Settings	The following parameters can be set by push button switches on the driver panel. Setting range : 0 to 7FFF (hex) (32,768 steps) <ul style="list-style-type: none"> · Control mode · Position loop gain · Speed loop gain · Speed loop integral gain · Feed forward amount · Speed limit · Current limit · In-position range · Filter constant · Speed (current) command scale · Offset · Acceleration limit · Over-speed limit alarm level · Zero clamp voltage · Division/multiplication setting · Other
Positioning Accuracy	±1 pulse or less
Speed Control Range	1 : 1000
Division and Multiplication Function	Position control performed by division or multiplication of the encoder signal. Division select: 1/1 to 1/32 and 2/2 to 2/32; Multiplication select: times 1, times 2
P Control Operation	Sets integral correction of speed control system to off using P control command input(PCTRL).
Feed Forward	Performs F/V conversion of command pulse and adds result to speed loop command. *1
External Encoder Input	Position control is possible using external encoders other than that supplied with the motor.
Acceleration Limit	Controls acceleration/deceleration below setting value when speed control mode is on. *2
Zero Clamp Function	Speed (current) command is set to "0" when analog command is below setting value.
Standard Load Inertia	$J_L \leq 30J_M$
Dynamic Brake	Turns AC power supply off, and turns dynamic brake on after drive voltage dissipates. *3
Regeneration Function	Regeneration circuit and regeneration resistor built-in
Rotation Direction	CCW in forward direction as viewed from motor shaft end.

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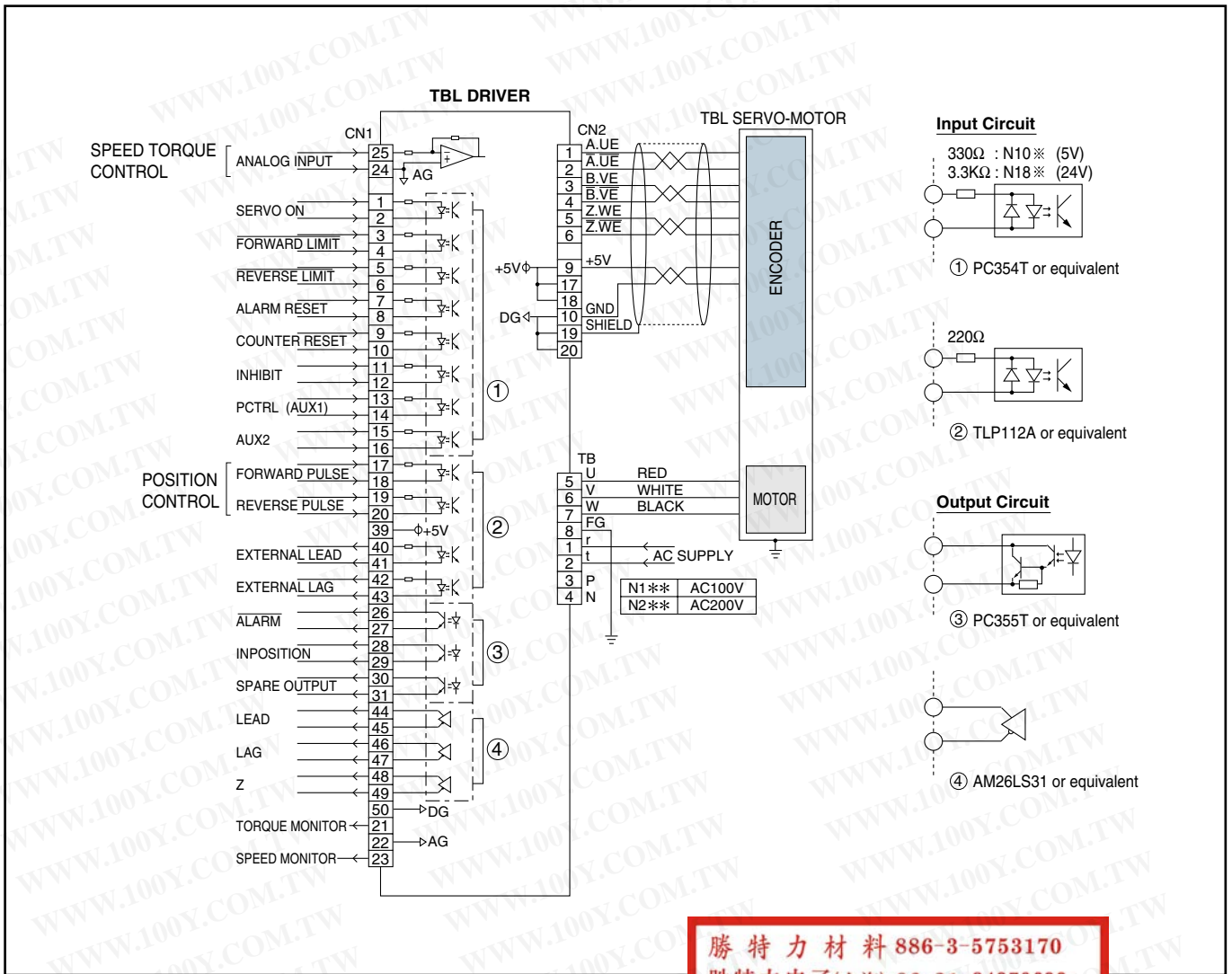
*1 Only enabled when position control is on. *2 Only enabled when speed control is on.
*3 Depending on the given settings, this may be read as "dynamic brake is turned on when alarm is generated".

I/O Signals

I-O	Name	Description
Input Signals	FORWARD PULSE	CCW rotation command pulse input *1 $f \leq 500\text{KHz}$
	REVERSE PULSE	CW rotation command pulse input *1
	ALARM RESET	Alarm reset when "1"
	COUNTER RESET	Differential counter reset "1"
	SERVO ON	"1" : Servo operation on; "0" : Motor free
	FORWARD-LIMIT	Stops rotation toward CCW when "0" *4
	REVERSE-LIMIT	Stops rotation toward CW when "0" *4
	INHIBIT	Acceptance of command pulse inhibited when "1"
	PCTRL(AUX1)	Integral correction of speed control system off when "1"
	AUX2	Auxiliary command input
Output Signals	ANALOG INPUT	Analog command input: -10 to +10V *2 Speed control : Speed command (CCW+) Current control : Current command (CCW+)
	INPOSITION	"1" when position deviation is less than setting value
	ALARM	"0" when alarm is generated; "1" all other times
	SPARE OUTPUT	Auxiliary signal output
	LEAD	Encoder LEAD signal *3 "1" : Photo coupler ON
	LAG	Encoder LAG signal *3 "0" : Photo coupler OFF
	Z	Encoder ZERO signal
	SPEED MONITOR	Motor rotation speed monitor (+ when 8V/6,000r/min, CCW rotation)
TORQUE MONITOR	Motor current monitor *5 $\cong 8\text{V}/4.2\text{Arms} (N^{**1})$ $\cong 8\text{V}/7.1\text{Arms} (N^{**2})$ $\cong 8\text{V}/14.1\text{Arms} (N^{**4})$ $\cong 8\text{V}/21.2\text{Arms} (N^{**6})$	

*1 Position command pulse input also possible using a pulse/direction system. *4 Logic can be changed.
*2 Command input scaling and rotation direction can be changed. *5 Depending on the given settings, monitor output of any data other than the current monitor is possible.
*3 Signal obtained by dividing encoder signal is output.

External Connections



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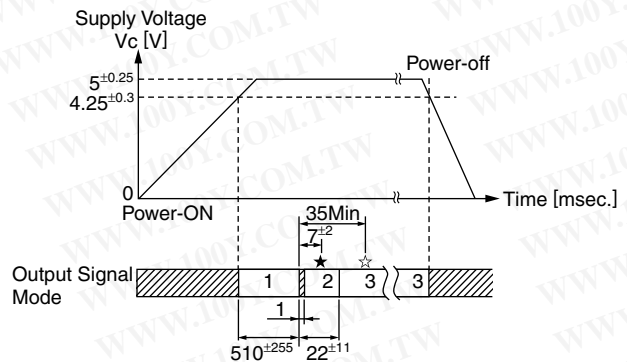
Encoder Connections

● MINIMAL WIRING TYPE

CN2 Pin No.	Function (Mode)		
	1	2	3
1	HZ	Uch Output	Ach Output
2	HZ	Ūch Output	Āch Output
3	HZ	Vch Output	Bch Output
4	HZ	V̄ch Output	B̄ch Output
5	HZ	Wch Output	Zch Output
6	HZ	W̄ch Output	Z̄ch Output
9	DC + 5V		
10	GND		
19	Shield		

HZ : High Impedance

● TIMING CHART



Figures show No. of Function Mode.

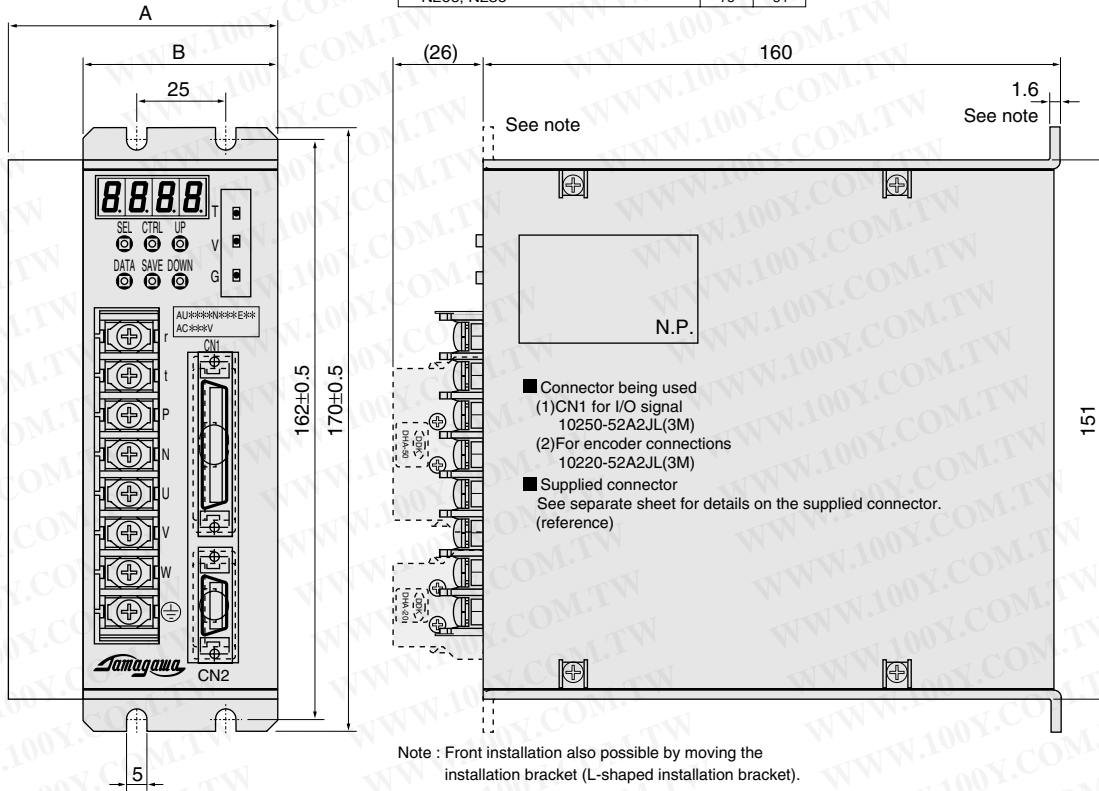
★ : Recommended position for latching U,V & W Phases.

☆ : Recommended position to start counting A,B & Z Phases

▨ : Non-using zones.

Outline

AU6550N□□□	A (mm)	B (mm)
N101, N102, N104, N201, N202	55	50
N182, N184, N281, N282	71	50
N106, N186, N204, N284	75	54
N206, N286	75	54



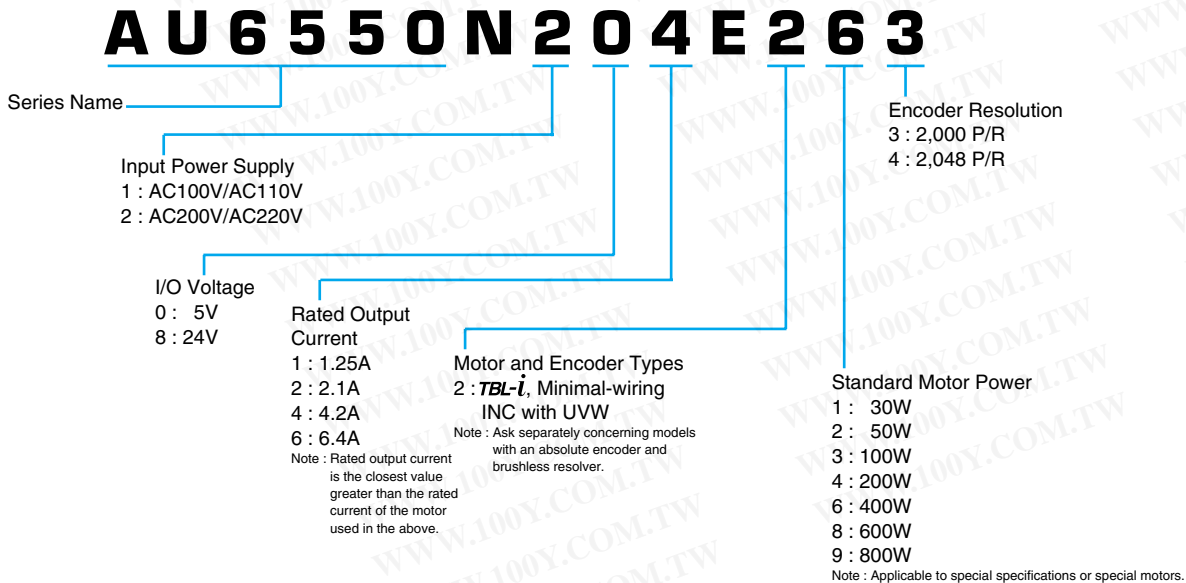
- Connector being used
 - (1) CN1 for I/O signal 10250-52A2JL(3M)
 - (2) For encoder connections 10220-52A2JL(3M)
- Supplied connector
See separate sheet for details on the supplied connector. (reference)

Note : Front installation also possible by moving the installation bracket (L-shaped installation bracket).
Allowed deviation from given dimensions : +/-1

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List of Standard Models

Model numbers for this driver are assigned as described here.



List of *i* series Motor Compatible Driver Combinations

● 100V Minimal-wiring Incremental encoder 2,000C/T with U,V and W

AC Servo Motor Output	AC Servo Motor Model, 100V Type		Compatible Driver Model	
	Without Brake	With Brake	5V Input Signal	24V Input Signal
30W	TS4501N20 * * E100	TS4501N70 * * E100	AU6550N101E213	AU6550N181E213
50W	TS4502N20 * * E100	TS4502N70 * * E100	AU6550N101E223	AU6550N181E223
100W	TS4503N20 * * E100	TS4503N70 * * E100	AU6550N102E233	AU6550N182E233
200W	TS4507N20 * * E100	TS4507N70 * * E100	AU6550N104E243	AU6550N184E243
400W	TS4509N20 * * E100	TS4509N70 * * E100	AU6550N106E263	AU6550N186E263

● 100V Minimal-wiring Incremental encoder 2,048C/T with U,V and W

AC Servo Motor Output	AC Servo Motor Model, 100V Type		Compatible Driver Model	
	Without Brake	With Brake	5V Input Signal	24V Input Signal
30W	TS4501N22 * * E100	TS4501N72 * * E100	AU6550N101E214	AU6550N181E214
50W	TS4502N22 * * E100	TS4502N72 * * E100	AU6550N101E224	AU6550N181E224
100W	TS4503N22 * * E100	TS4503N72 * * E100	AU6550N102E234	AU6550N182E234
200W	TS4507N22 * * E100	TS4507N72 * * E100	AU6550N104E244	AU6550N184E244
400W	TS4509N22 * * E100	TS4509N72 * * E100	AU6550N106E264	AU6550N186E264

● 200V Minimal-wiring Incremental encoder 2,000C/T with U,V and W

AC Servo Motor Output	AC Servo Motor Model, 200V Type		Compatible Driver Model	
	Without Brake	With Brake	5V Input Signal	24V Input Signal
30W	TS4501N20 * * E200	TS4501N70 * * E200	AU6550N201E213	AU6550N281E213
50W	TS4502N20 * * E200	TS4502N70 * * E200	AU6550N201E223	AU6550N281E223
100W	TS4503N20 * * E200	TS4503N70 * * E200	AU6550N201E233	AU6550N281E233
200W	TS4507N20 * * E200	TS4507N70 * * E200	AU6550N202E243	AU6550N282E243
400W	TS4509N20 * * E200	TS4509N70 * * E200	AU6550N204E263	AU6550N284E263
600W	TS4513N20 * * E200	TS4513N70 * * E200	AU6550N206E283	AU6550N286E283
800W	TS4514N20 * * E200	TS4514N70 * * E200	AU6550N206E293	AU6550N286E293

● 200V Minimal-wiring Incremental encoder 2,048C/T with U,V and W

AC Servo Motor Output	AC Servo Motor Model, 200V Type		Compatible Driver Model	
	Without Brake	With Brake	5V Input Signal	24V Input Signal
30W	TS4501N22 * * E200	TS4501N72 * * E200	AU6550N201E214	AU6550N281E214
50W	TS4502N22 * * E200	TS4502N72 * * E200	AU6550N201E224	AU6550N281E224
100W	TS4503N22 * * E200	TS4503N72 * * E200	AU6550N201E234	AU6550N281E234
200W	TS4507N22 * * E200	TS4507N72 * * E200	AU6550N202E244	AU6550N282E244
400W	TS4509N22 * * E200	TS4509N72 * * E200	AU6550N204E264	AU6550N284E264
600W	TS4513N22 * * E200	TS4513N72 * * E200	AU6550N206E284	AU6550N286E284
800W	TS4514N22 * * E200	TS4514N72 * * E200	AU6550N206E294	AU6550N286E294

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WARRANTY

Tamagawa Seiki warrants that this product is free from defects in material or workmanship under normal use and service for a period of one year from the date of shipment from its factory. This warranty, however, excludes incidental and consequential damages caused by careless use of the product by the user. Even after the warranty period, Tamagawa Seiki offers repair service, with charge, in order to maintain the quality of the product. The MTBF (mean time between failures) of our product is quite long; yet, the predictable failure rate is not zero. The user is advised, therefore, that multiple safety means be incorporated in your system or product so as to prevent any consequential troubles resulting from the failure of our product.

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JAB
QS,QMS
Accreditation
R014,R0312



ISO 14001 Certificate on Head office

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All specifications are subject to change without notice.

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T12-1525N4 2,000. 2000.7