

### TSTA Drivers



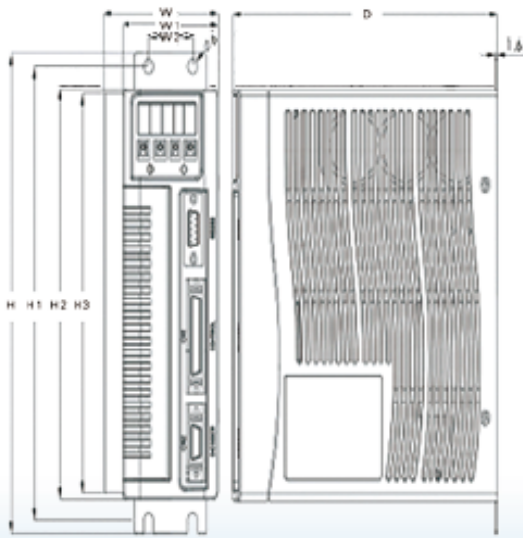
#### Specification

Model No.	TSTA15C	TSTA20C	TSTA30C	TSTA50D	TSTA75D
Input Power Supply	Main Circuit R, S, T			Single/Three Phase 200-230Vac +10%~-15% 5/60 Hz +/-5%	
	Control Circuit R, S			Three Phase 200~300Vac +10%~-15% 5/60 Hz +/-5%	
Weight(KG)		1.9	1.9	2.4	4.7
Cooling System		Natural Air Circulation			Fan Cooling
Control of Main Circuit		SVPWM Control			
Control Mode		Position (External or Internal), Speed, Torque, Position/Speed, Speed/Torque, Position/Torque			
Encoder Resolution Feedback Resolution		2000ppr/8000ppr; 2500ppr/10000ppr; 8192ppr/32768ppr			
Command Source		External Pulse Control/Internal Parameters			

Model No.	TSTA15C	TSTA20C	TSTA30C	TSTA50D	TSTA75D
Position Control Mode	Input Pulse	Type	Positive / Negative Edge Trigger Type: Pulse+Direction, A phase + B Phase, CCW Pulse + CW Pulse		
		Max Frequency	500 KPPS (Line Driver) /200KPPS (Open Collector)		
	Internal Position Command	16 Programmable Position Parameters			
	Feed Forward Gain	0~100%			
	Built-in Control Voltage	+24V			
	Electronic Gear	$1/200 \leq A/B \leq 200$ (A=1~50000, B=1~50000)			
	Position Smoothing Constant	Ripple Time Constant 0~10 sec (Time Constant 0~10sec)			
	(Input Ripple Filtering)				
	Final Position Tolerance (In Position)	0~50000 Pulse			
	Torque Limit Operation	Set by Parameters			
Feed Forward Compensation	Set by Parameters				
Speed Control Mode	Speed Control Range	1:50000(Internal) 1:20000(External)			
	Speed Fluctuation Rate	-0.03% or less at load fluctuation 0 to 100% (at rated speed)			
		0.2% or less at power fluctuation +/- 10 (at rated speed)			
		0.5% or less at ambient temperature fluctuation 00C to 500 C (at rated speed)			
	Internal Speed Command	Three preset speeds available through defining user's parameter			
	Zero Speed Command	0~3000rpm			
	Limit of Speed	Line and speed up or down, time constant 0~50 sec,			
	Up or Down	Smoothing time constant 0~10 sec			
	P/P Switch	Switch by control terminal input			
	Speed Reached	0~3000rpm			
Frequency Response Characteristics	Max. 400Hz				
Servo Lock	Set by parameters(switch to lock on position command)				
Voltage Command	0~+/-10Vdc/0 ~ +/- 3000rpm				
Input Impedance	10kΩ				

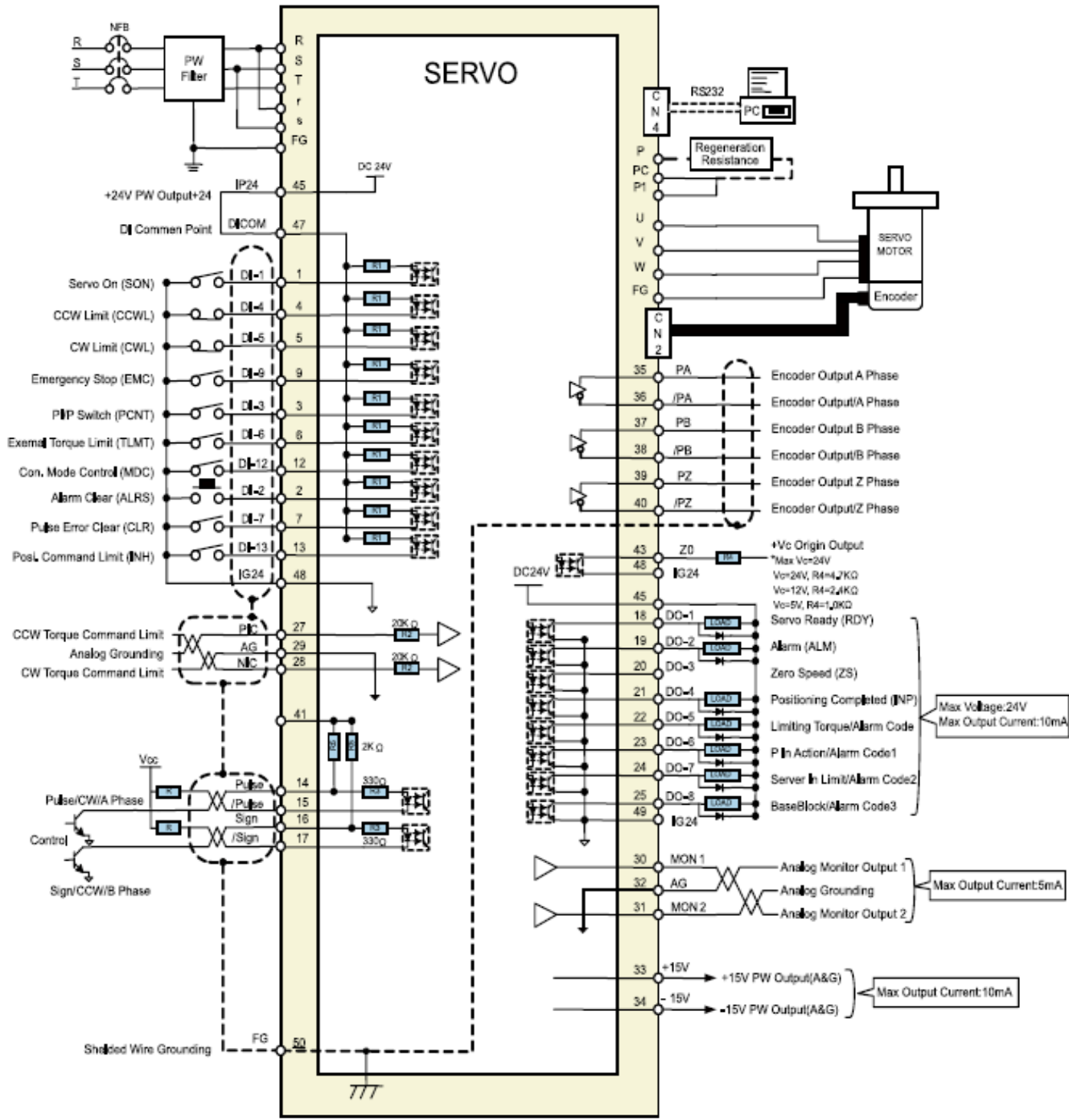
Torque Control Mode	Voltage Command		0~+/-10Vdc/0 ~ +/- 300%
	Input Impedance		10kΩ
	Torque Time Constant		Time Constant 0~50sec
Digital	Position Output	Output Type	A, B, Z line drive output
		Encoder Ratio	1~8192 encoder ratio (any arbitrary value)
	Input	Optional input to 13 Ports	servo on, alarm reset, P/PI switching, forward/reverse inhibit limit, external torque limit, external torque limit, pulse deviation clear, servo lock, emergency stop, speed command selection, control mode switching, pulse command inhibit, gain switching, electronic gear ratio setting, internal pulse command trigger, internal pulse command pause, homing mode positioning, external reference signal, internal position command switching, speed/torque command reverse, torque mode forward/reverse start.
	Output	Fix Output to 4 Ports Optional input to 4 Ports	Servo Ready, servo alarm, zero speed, brake interlock, speed reach, positioning completed, homing completed, torque search
Analog Monitoring Output			Monitor signal can be set by parameters
Protection Function			Over voltage, over load, IGBT error, encoder error, DI/DO writer-in error, memory abnormal, emergency stop, over current, pulse deviation value, over speed, CPU abnormal, inhibit limit, over heat
Communication Interface			RS232 (connect to PC or digital operator)
Environment	Altitude Install Location		Altitude 1000m or lower above sea level indoor (avoiding direct sunshine) no corrosive smoke (avoiding oil smoke, inflammable gas and dust)
	Temperature		Operating temperature 0~55 <sup>0</sup> C, storage temperature -20~+85 <sup>0</sup> C
	Humidity		Operating, storage below 85 <sup>0</sup> C
	Vibration		Below 0.5G

## Dimension

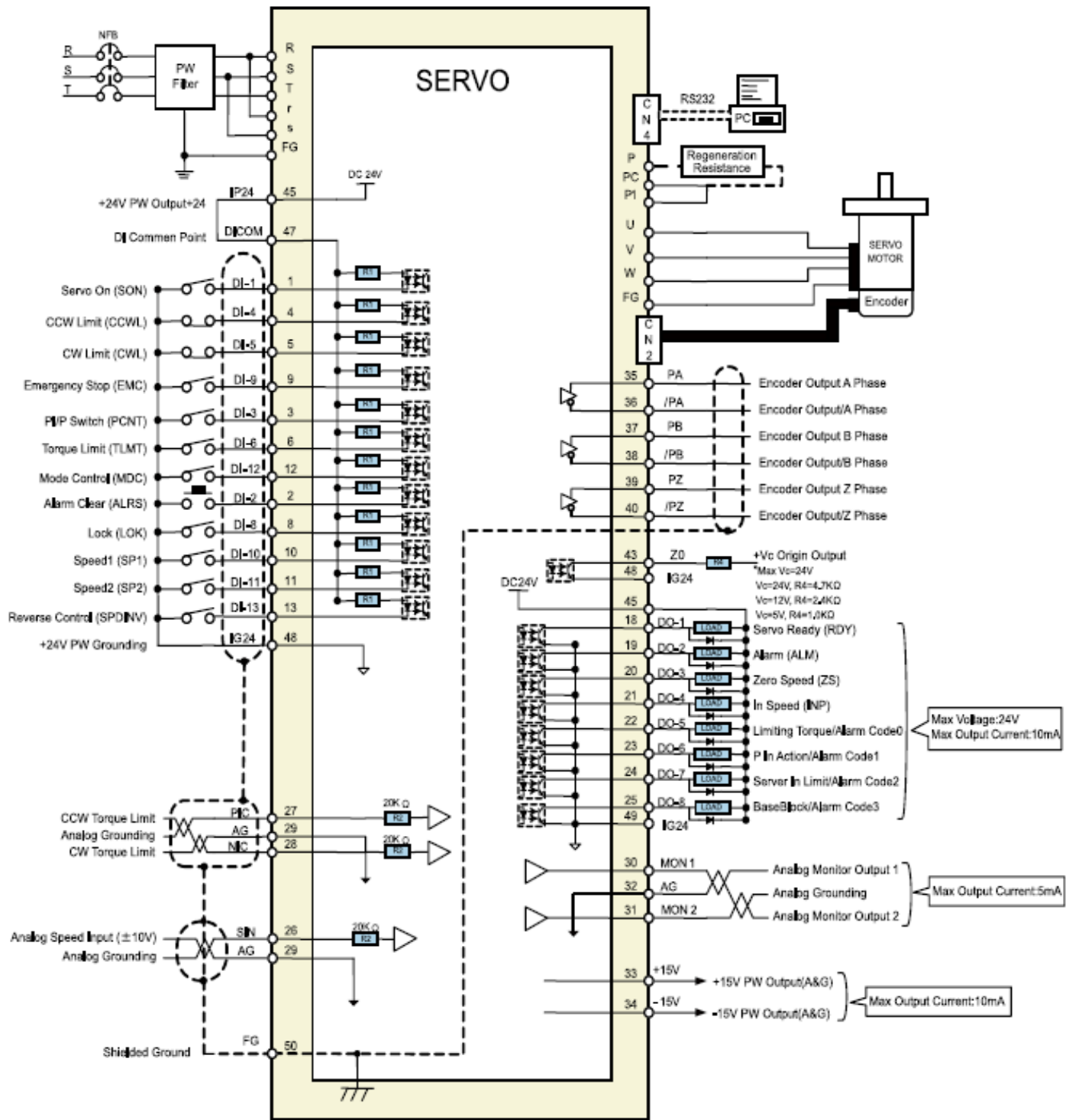


	(mm)							
	H	H1	H2	H3	W	W1	W2	D
TSTA-15C/20C	206	176	171	0	67	67	31	185
TSTA-30C	206	195	176	171	80	67	31	185
TSTA-50D/75D	287.5	271.5	248.2	245	110	70	46	181.6

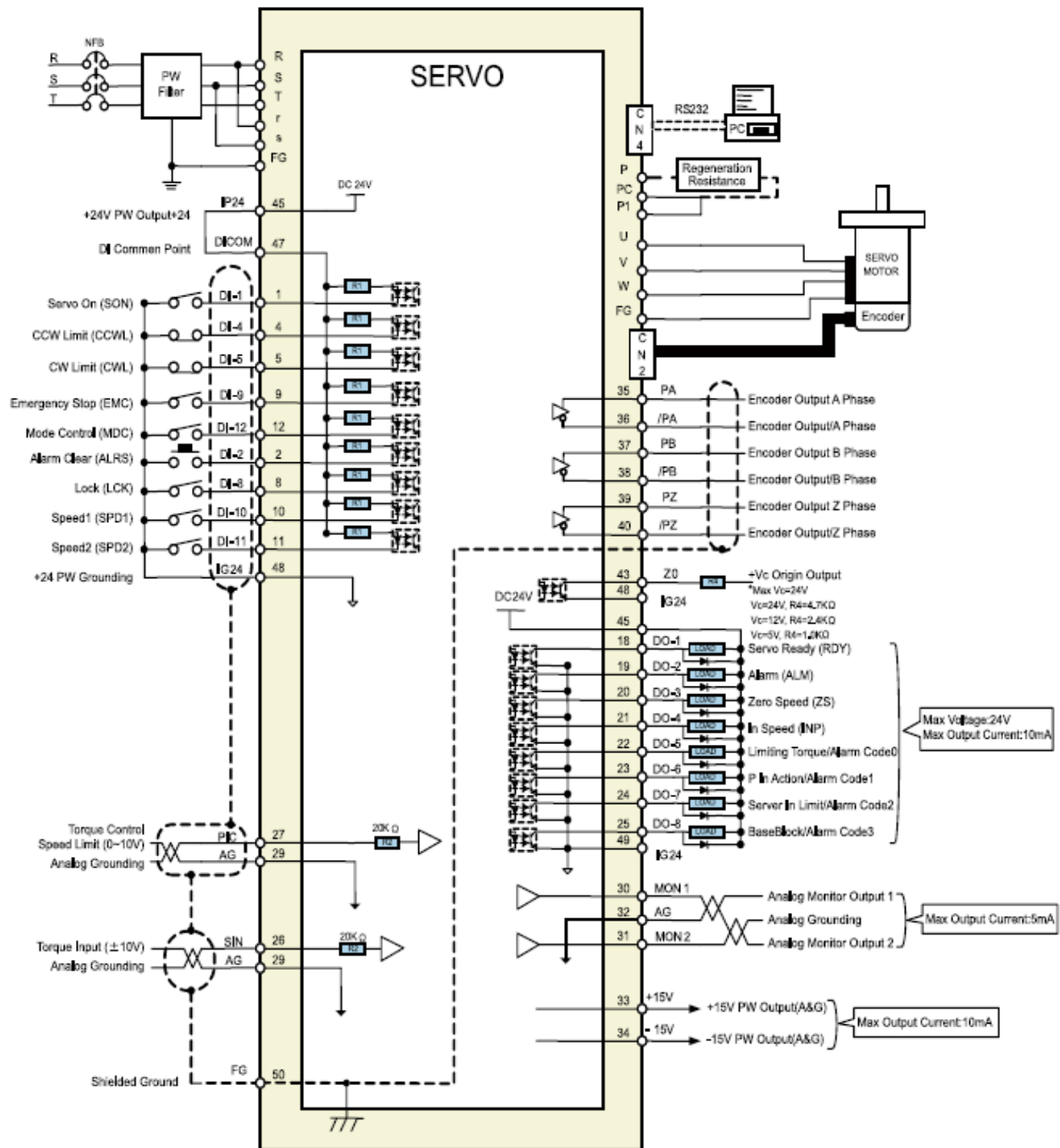
# Position Control Mode



# Speed Control Mode



# Torque Control Mode



## Motor Power Cable Connection Specification

### General

Pin No.	Lead Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green	FG
Mechanical Brake Control Wire		DC+24V
		0V

### Military Connector (With Mechanical Brake)

Pin No.	Lead Color	Signal
B	Red	U
G	White	V
E	Black	W
C	Green	FG
A	Mechanical Brake	DC+24V
F		0V

### Military Connector (Without Mechanical Brake)

Pin No.	Lead Color	Signal
A	Red	U
B	White	V
C	Black	W
D	Green	FG

## CN2 (Encoder Connection Specifications) - ESDA

Pin No.	Signal	Symbol	Wiring Diagram	Lead Color		
				7F 7H 7I	7T (Tamagawa)	TSB13 (Military)
1	Power Output (+)	<b>+5V</b>		White	Red	B
2						
3	Power Output (-)	<b>0V</b>		Black	Black	I
4						
5	Encoder A Phase Input	<b>A</b>	Di-3	Green	Blue	A
6		<b><math>\bar{A}</math></b>		Blue	Blue/Black	C
7	Encoder B Phase Input	<b>B</b>	Di-3	Red	Green	H
8		<b><math>\bar{B}</math></b>		Pink	Green/Black	D
9	Encoder B Phase Input	<b>Z</b>	Di-3	Yellow	Yellow	G
10		<b><math>\bar{Z}</math></b>		Orange	Yellow/Black	E
20	Shield	<b>FG</b>		Shielded Twisted-Pair Cables		F

