TSTE SERIES

SPECIFICATION

Servo Pack Model			TSTE10C	TSTE15C	TSTE20C	TSTE30C
Applicable Servo Motors			TSC04051	TSB07301	TSB08751	TSB13102
			TSC04101	—	TSB13551	—
			—	TSC06401	TSC08751	—
Basic Specifications	Max. Applicable Servo Motor Capacity [KW]		0.1	0.4	0.8	1.0
	Continuous Output Current [A rms]		0.94	3.5	4.4	5.16
	Max. Output Current [A rms]		2.82	10.5	13.2	15.5
	Input Power Supply	Main Circuit R、S、T	Single-phase / Three-phase 170 ~ 253Vac			
			50 / 60Hz ±5%			
	Cooling System		Natural Air Circulation		Fan Cooling	
	Control Method		Three-phase full-wave rectification IGBT-PWM (sine-wave driven)			
	Feedback[Encoder Resolution]		Incremental Encoder：2000ppr / 2500ppr			
Internal Functions	LED Display		Power lamps；Five 7-segment LEDs；Four function keys			
	Control Mode		Postion (External or Internal)、Speed、Torque and Dual control mode (P/S、S/T、P/T)			
	Regenerative Discharge		Built-in braking transistor (External braking resistor connectable)			
	Protective Functions		Under voltage、Over voltage、Over load、Over current、Encoder error、 Abnormal DI/DO programming、Memory abnormal、Emergency stop、 Pulse deviation value、Over speed、CPU abnormal、Limit switch error、Over heat			
	Communication Interface		RS-232 / RS-485 (Modbus protocol)			
Position Control Mode	Command Source		External pulse train / Internal parameters (16 programmable position settings)			
	Input Signals	Type	Positive/Negative edge triggered：Sign + Pulse train、CCW + CW pulse train、 90° phase difference 2-phase pulse (phase A + phase B)			
		Form	Line Driver (+5V level)、Open Collector (+5 ~ +24V level)			
		Frequency	Maximum 500 / 200 kpps (line driver/open collector)			
	Electronic Gear Ratio		1/200 ≦ A/B ≦ 200 (A=1 ~ 50000；B=1 ~ 50000)			
	Position Time Constant		Smoothing：0 ~ 10sec			
	Final Position Tolerance		0 ~ 50000 Pulse			
	Feed Forward Compensation		0 ~ 100 %			
	Homing Function		Set by parameters			

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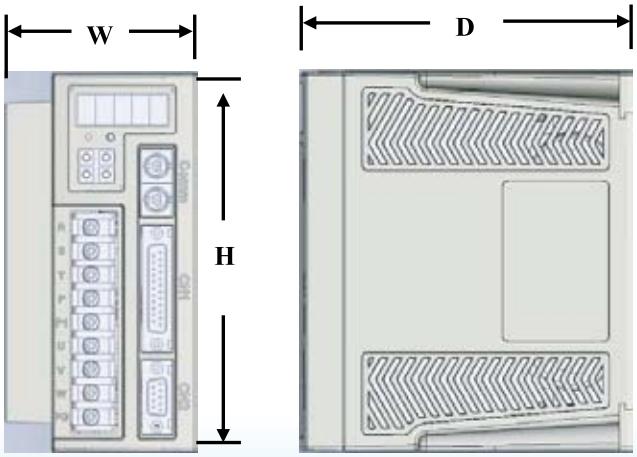
Speed Control Mode	Command Source		External analog signal / Internal parameters (3 speeds set-up)
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ 4500rpm (set by parameters)
		Impedance	10KΩ
	Speed Control Range		1：5000 (Internal) / 1：2000 (External)
	Speed Fluctuation Rate		0.03% or less at load fluctuation 0 ~ 100% (at rated speed)
			0.2% or less at power fluctuation ±10% (at rated speed)
			0.5% or less at ambient temperature fluctuation 0 ~ 50℃ (at rated speed)
	Accel./Decel. Time Constant		Linear：0 ~ 50sec；S curve：0 ~ 5sec；Smoothing：0 ~ 10sec
	Frequency Characteristics		Maximum 300Hz (at JL=JM)
	Torque Limit Operation		External analog signal / Internal parameters
	Zero Speed / Speed Reach Range		0 ~ 4500rpm (set by parameters)
Torque Control Mode	Command Source		External analog signal
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ ±300%
		Impedance	10KΩ
	Accel./Decel. Time Constant		Linear：0 ~ 50sec
	Speed Limit Operation		External analog signal / Internal parameters
	Torque Reach Range		0 ~ 300% (set by parameters)
Input/Output Signals	Position Output	Form	Phase A、B、Z Line Driver / Phase Z Open Collector
		Frequency Dividing Ratio	Rotation resolution Devided by 1 ~ 63
	Digital Input [NPN/PNP]	6 ports Signal allocation can be modified.	Servo on、Alarm reset、P/PI switching、Forward/Reverse limit switch、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
	Digital Output [Photocoupler]	3 ports Signal allocation can be modified.	Servo ready、Servo alarm、Zero speed、Brake interlock、Speed reach、Positioning completed、Homing completed、Torque reach
Environment	Installation Site		Indoor location (avoiding direct sunshine) No corrosive liquid and gas (avoiding oil mist、flammable gas、dust)
	Altitude		Altitude 1000M or lower above sea level
	Temperature		Operating temperature：0 ~ 50℃；Storage temperature：-20 ~ +85℃
	Humidity		90%RH or less (with no condensation)
	Vibration		10 ~ 57Hz：20m/s^2；57 ~ 150Hz：2G

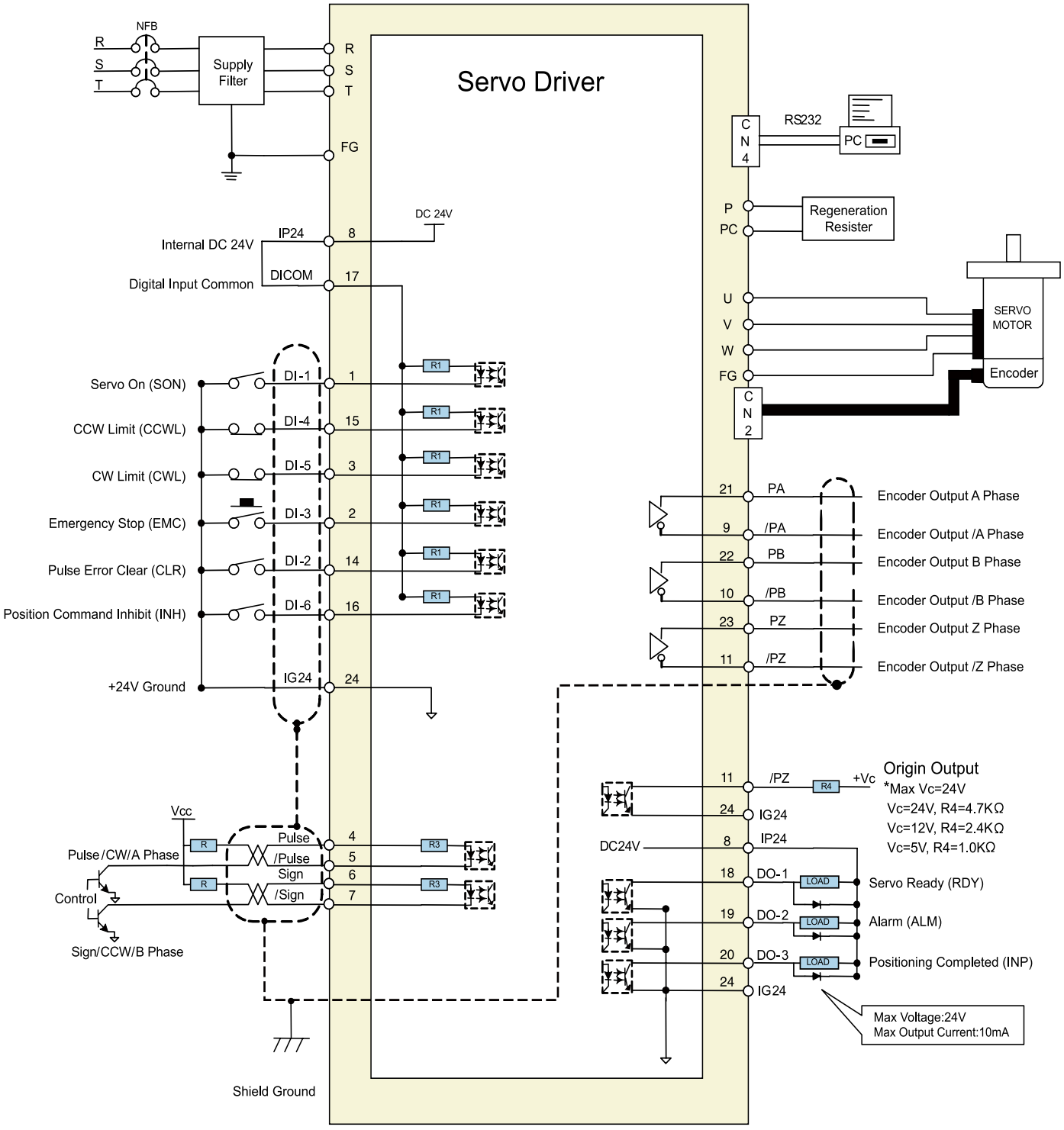
DIMENSION



TSTE	W (mm)	H (mm)	D (mm)
10C/15C	67	160	140
20C/30C	80	160	140

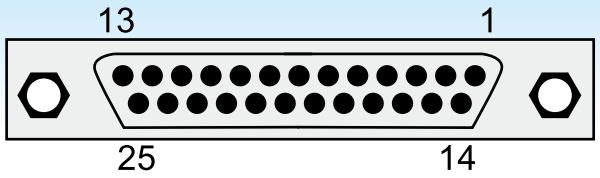
POSITION CONTROL MODE (Pe Mode) (Open Collector)

PS: For other control modes, please refer to the TSTE manual



CONTROL SIGNAL CONNECTOR SPECIFICATION

PS: For CN2 connector specification, please refer to the TSTE manual



Pin No.	Wiring Diagram	Signal
1	DI-I	Digital Input 1 (Servo On)
2	DI-3	Digital Input 3 (PI/P Switch)
3	DI-5	Digital Input 5 (CW Limit)
4	Pulse	Pulse Input (+)
5	/Pulse	Pulse Input (-)
6	Sign	Director Input (+)
7	/Sign	Director Input (-)
8	IP24	+24V Power Output
9	/PA	Encoder Output /A Phase
10	/PB	Encoder Output /B Phase
11	/PZ	Encoder Output /Z Phase
12	SIN	Analog Input Speed/Torque Input
13	AG	Analog Ground

Pin No.	Wiring Diagram	Signal
14	DI-2	Digital Input 2 (Alarm Clear)
15	DI-4	Digital Input 4 (CCW Limit)
16	DI-6	Digital Input 6 (Torque Control)
17	DICOM	+24V Power Input
18	DO-1	Digital Output 1 (Servo Ready)
19	DO-2	Digital Output 2 (Alarm)
20	DO-3	Digital Output 3 (Zero Speed)
21	PA	Encoder Output A Phase
22	PB	Encoder Output B Phase
23	PZ	Encoder Output Z Phase
24	IG24	+24V Ground
25	PIC	Analog Input Speed/Torque Limit Input

PERIPHERAL

Part Number	Description	Applicable Motor	Applicable Driver
DTY2C3MMDR20P0000	3M Connector 20pin		TSTA
DTY2C3MMDR50P0000	3M Connector 50pin		TSTA
DTY3FAMPUVW000000	UVW Connector Cap:AMP 172159-1 Socket: AMP 170362-1	TSC04/06/08, TSB07/08 Series	
DTY3FAMP0PG000000	PG Connector Cap:AMP 172161-1 Socket: AMP 170361-1	TSC04/06, TSB07/08 Series	
0Y303A3104PS1	UVW L Military Connector (MS3108A20-4S)	TSB13 Series (W/O Brake)	
0Y303A3107PS1	UVW L Military Connector (MS3108A20-15S)	TSB13 Series (With Brake)	
0Y303A5504RA1	UVW L Military Connector (MS3108A32-17S)	TSA18/TSC18 Series (W/O Brake)	
0Y303A1903PS1	UVW L Military Connector (MS3108A10SL-3S)	TSA18 Series (With Brake)	
0Y303A3109PS1	PG L Military Connector (MS3108A20-18S)	TSB13/TSA18/TSC18 Series	
DTY3FCB01MUVWCB00	1M UVW Cable (AMP 4 PIN)	TSC04/06/08, TSB07/08 Series	TSTA TSTE
DTY3FCB03MUVWCB00	3M UVW Cable (AMP 4 PIN)		
DTY3FCB05MUVWCB00	5M UVW Cable (AMP 4 PIN)		
DTY3FCB10MUVWCB00	10M UVW Cable (AMP 4 PIN)		
DTY3FCB01MUVWMB00	1M UVW Cable (Military Connector 4PIN)	TSB13 Series	TSTA TSTE
DTY3FCB03MUVWMB00	3M UVW Cable (Military Connector 4PIN)		
DTY3FCB05MUVWMB00	5M UVW Cable (Military Connector 4PIN)		
DTY3FCB10MUVWMB00	10M UVW Cable (Military Connector 4PIN)		
DTY3FCB01M0PGCB00	1M PG Cable (AMP 9 PIN+3M 20PIN)	TSC04/06/08, TSB07/08	TSTA
DTY3FCB03M0PGCB00	3M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB05M0PGCB00	5M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB10M0PGCB00	10M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB01M0PGMB00	1M PG Cable (Military 9 PIN+3M 20PIN)	TSB13, TSA18. TSC18	TSTA
DTY3FCB03M0PGMB00	3M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB05M0PGMB00	5M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB10M0PGMB00	10M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB01M0PGCBPT	1M PG Cable (AMP 9PIN+D-SUB 9PIN)	TSC04/06/08, TSB07/08	TSTE
DTY3FCB03M0PGCBPT	3M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB05M0PGCBPT	5M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB10M0PGCBPT	10M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB01M0PGMBPT	1M LType PG Cable (Military 9 PIN +D-SUB 9PIN)	TSB13, TSA18. TSC18	TSTE
DTY3FCB03M0PGMBPT	3M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		
DTY3FCB05M0PGMBPT	5M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		
DTY3FCB10M0PGMBPT	10M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		