

SSt-Eclipse, Model E4xx/5xx

DSP-Based Digital Servo Drives

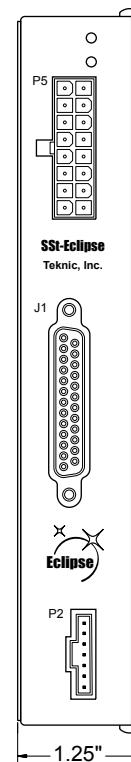
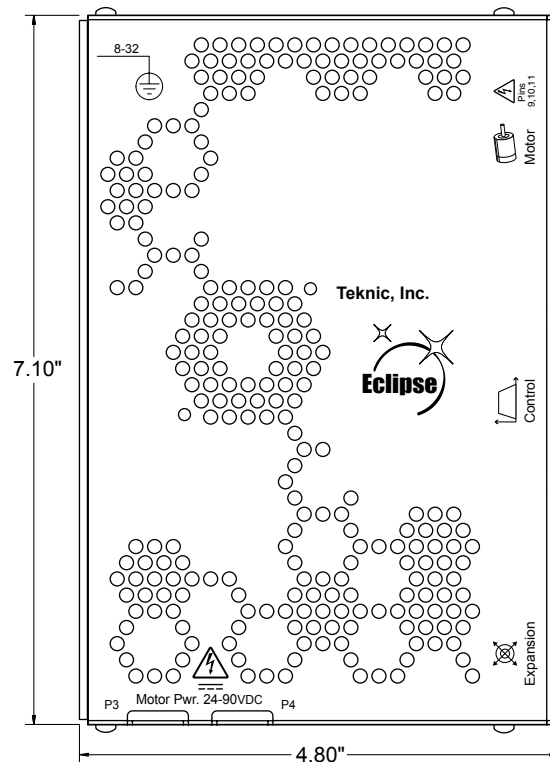


FEATURES

- Exceptional servo control for path following and point-point applications, includes: advanced estimators, electronic inertia matching and smooth operating multi-state feed-forward terms.
- Integrated, extruded heat-sink/case does not require additional heat sinking elements.
- Universal motor interface drives brush, 3-phase brushless, 2-phase brushless, voice-coils, etc.
- Full galvanic isolation between control signals and servo power/phases minimizes noise problems and speeds electrical and safety integration.
- Digital filtering of input and feedback signals provides high immunity to electrical noise while warning of noisy conditions.
- Daisy chained DC power connectors and internal protection reduces power distribution requirements.
- Load+Motor feedback mode available for stable and precise end-point positioning.
- Enhanced diagnostic tools speed troubleshooting and enable detailed system analysis.
- RoHS compliant.

MODEL LIST

Model	Peak Current [A]	RMS Current [ARMS]	Bus Voltage [Vdc]
SSt-E427-KCx	20	6	24-90
SSt-E490-KCx	23	7	24-90
SSt-E520-RCx	28	8	24-90
SSt-E545-RCx	33	12	24-90

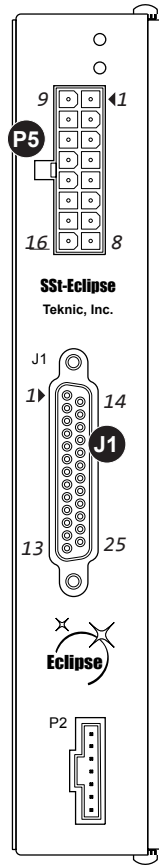


SPECIFICATIONS

GENERAL	Dimensions, in (mm):	7.10 (180) x 4.80 (122) x 1.25 (32)
	Weight, oz (g):	17 (494)
ENVIRONMENTAL	Operating Temperature:	0-40°C
	Humidity:	0-90%, non-condensing
COMPLIANCE	Electrical safety:	EN61010, UL508C
	EMI:	EN 61326
	Machine safety:	EN 954-1, with proper power control
OUTPUT POWER	PWM ripple frequency:	28kHz, center balance vector type
	Conversion efficiency:	>99%
COMPENSATOR	TSPD:	35µS
	Position/velocity control:	Enhanced PIV with proprietary velocity, acceleration and jerk estimators, Inertia Matching Technology (IMT), Regressive AutoSpline (RAS), and Anti-Hunt. Provides velocity, acceleration, jerk and friction feed-forward gains.
	Torque control:	Synchronous vector with DQ decoupling, SmartSaturation, and auto calibration
ENCODER	Primary (Motor) Interface:	Single-ended or differential (user-selectable)
	Secondary (Load) Interface:	Differential
	Max count rate:	24 MHz, quadrature, count rate
	Features:	Bad sequence detection, digital filtering adjustable from 100kHz to 40MHz
MOTOR COMPATIBILITY	Requirements:	Rotary brush or 3-phase brushless rotary/linear motor, galvo, voice coil
LIMIT INPUTS	Interface:	TTL with 2kΩ pull-up, digitally filtered
HALL SENSOR INPUTS	Specifications:	5kΩ pull-up to +5VDC
	Features:	Digitally filtered, used to set torque/force vector on initialization (drive may also operate in sensorless mode)
DEDICATED INTERFACE INPUTS/OUTPUTS	Outputs:	Drive ready, move done, in-range, all-systems-go, encoder and limit pass-through, +5VDC
	Inputs:	Enable motor, Mode (engage/disengage drive features such as torque/force foldback, hardstop homing, electronic gear-shift, etc.), digital step and direction, ±10V torque/force, ±10V velocity, encoder, limits, etc.
REAL-TIME MONITOR PORT	Features:	Configurable filtering, sync pulse, scaling/zoom, non-volatile
	Output variables:	Position error, actual velocity, commanded velocity, velocity error, commanded torque/force, actual torque/force, SGN velocity, SGN position, measured position, commanded jerk, commanded acceleration, max phase voltage
PROTECTION AND SAFETY FUNCTIONS	Drive protection:	Short circuit (phase-to-phase, phase-to-ground), over-temperature, over voltage, over current, protected for open windings, fused
	Motor protection:	True RMS torque/force limiting, automatic speed-limit, motor jam detection, over temperature
	Mechanical safeguards:	Hardstop detection, limit switch servoing, adjustable tracking error limit and shutdown thresholds, adjustable torque/force limits, adjustable speed limits
	Electrical isolation:	1.0 mm
STEP AND DIRECTION MODE	Maximum step rate:	24MHz
	Features:	Digitally filtered, adjustable from 100kHz to 24MHz
±10V ANALOG MODE	Format:	Differential input, ±10V range, >10kΩ, 10% of peak per volt scale
INPUT SUPPLY	Input voltage:	24-90 VDC
	Input current:	Up to 6.75A RMS, 15A peak (application dependant)
COUNTRY OF ORIGIN	Manufactured in:	USA
WARRANTY	Duration:	3-year standard, 5-year optional

CONNECTOR DETAIL

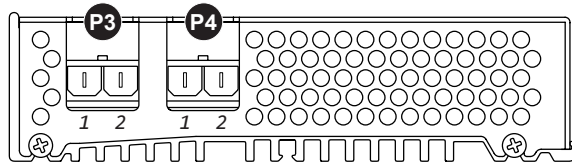
P5-Motor Connector	
PIN#	DESCRIPTION
1	MOTOR PHASE SHIELD
2	NO CONNECT
3	COMM. S-T
4	COMM. R-S
5	COMM. T-R
6	ENCODER/HALL SHIELD
7	ENCODER/HALL GND
8	ENCODER A~
9	MOTOR PHASE R
10	MOTOR PHASE S
11	MOTOR PHASE T
12	+5V OUT
13	ENCODER I
14	ENCODER B
15	ENCODER A
16	ENCODER B~



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J1-Controller Connector	
PIN#	DESCRIPTION
1	CHASSIS
2	RS-232 DATA INTO DRIVE
3	RS-232 DATA OUT OF DRIVE
4	ENABLE~
5	READY~
6	STEP
7	GND
8	DIR
9	ANALOG IN +
10	ANALOG IN -
11	I (IN/OUT)
12	B (IN/OUT)
13	A (IN/OUT)
14	RESERVED
15	HLFB~
16	MODE~
17	-LIMIT~
18	+LIMIT~
19	+5VDC OUT
20	+5VDC IN
21	GND
22	RESERVED
23	I~ (IN/OUT)
24	B~ (IN/OUT)
25	A~ (IN/OUT)

P3,P4-Power Connector	
PIN#	DESCRIPTION
1	24-90VDC (V+)
2	24-90VDC (V-)



Eclipse 4xx/5xx end-on view