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Sure*step*®

Stepping System Components

SureStep Power Supply / DC Input Drive Compatibility

Drive(1)(2) Model #	Recommended Linear Power Supply(1)(2)(5)			
	STP-PWR-3204	STP-PWR-4805	STP-PWR-4810	STP-PWR-7005(3)
STP-DRV-4035	√	No	No	No
STP-DRV-4830	√	√	√	No
STP-DRV-4845	√	√	√	No
STP-DRV-4850	√	√	√	No
STP-DRV-6575	√	√	√	No
STP-DRV-80100	√	√	√	√
STP-MTRD-17(4)	√	√	√	No
STP-MTRD-23(4)	√	√	√	√
STP-MTRD-24(4)	√	√	√	√

1) Do NOT use a power supply that exceeds the drive's input voltage range. If using a linear power supply, ensure that the unloaded voltage does not float above the drive's maximum input range.
2) For best performance, use the lowest voltage power supply that supplies the required speed and torque.
3) An unloaded STP-PWR-7005 can float above the allowable input voltages of some drives if it is fed with a high AC input voltage (greater than 120VAC).
4) Integrated motor/drives are included here because they include a drive as well as a motor.
5) STP-DRVAC-x drives are AC powered and cannot be powered by DC power supplies.

SureStep Power Supply / DC Input Drive Compatibility

Drive(1)(2) Model #	Recommended Switching Power Supply(1)(2)(4)		
	PSB12-xxxS	PSB24-xxxS	PSB48-xxxS
STP-DRV-4035	√	√	No
STP-DRV-4830	√	√	√
STP-DRV-4845	No	√	√
STP-DRV-4850	No	√	√
STP-DRV-6575	No	√	√
STP-DRV-80100	No	√	√
STP-MTRD-17(3)	√	√	√
STP-MTRD-23(3)	√	√	√
STP-MTRD-24(3)	√	√	√

1) Do NOT use a power supply that exceeds the drive's input voltage range.
2) For best performance, use the lowest voltage power supply that supplies the required speed and torque.
3) Integrated motor/drives are included here because they include a drive as well as a motor.
4) STP-DRVAC-x drives are AC powered and cannot be powered by DC power supplies.

SureStep AC Motor/Drive Compatibility

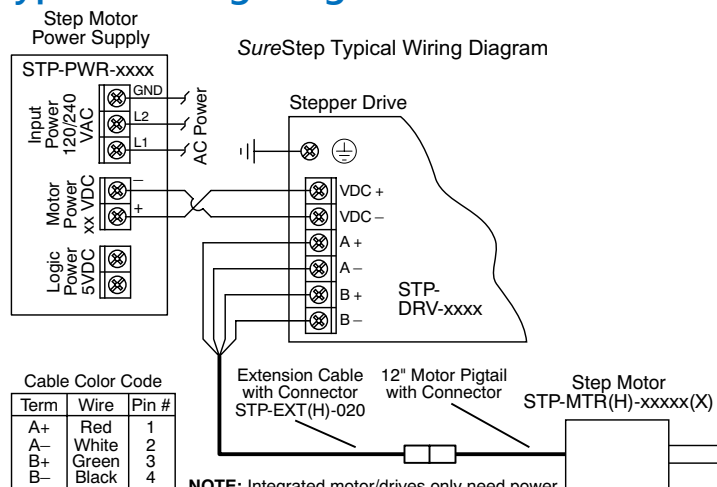| Model #	STP-DRVAC-24025	
	Series Wired Motor	Parallel Wired Motor
STP-MTRAC-23044(x)	√	No
STP-MTRAC-23055(x)	√	No
STP-MTRAC-23078(x)	√	No
STP-MTRAC-34075(x)	√	No
STP-MTRAC-34115(x)	√	No
STP-MTRAC-34156(x)	√	No

NOTE: STP-MTRAC-34156(x) motors have a 5/8" front shaft.

SureStep DC Input Drive / Motor Compatibility(3)

Motor(1) Model #(1)	Rated Amps(2)	Extension Cable	Recommended Drive(1) STP-DRV-4035(1)	STP-DRV-4830	STP-DRV-4845	STP-DRV-4850(1)	STP-DRV-6575(1)	STP-DRV-80100(1)
STP-MTRL-14026(x)	0.35	STP-EXTL-0xx	√	√	–	√	–	–
STP-MTRL-14034(x)	0.8		√	√	–	√	–	–
STP-MTR-17040(x)	1.7	STP-EXT-0xx	√	√	√	√	√	√
STP-MTR-17048(x)	2.0		√	√	√	√	√	√
STP-MTR-17060(x)	2.0		√	√	√	√	√	√
STP-MTR-23055(x)	2.8		√	√	√	√	√	√
STP-MTR-23079(x)	2.8		√	√	√	√	√	√
STP-MTR-34066(x)	2.8		√	√	√	√	√	√
STP-MTRAC-42100(x)	4.2	STP-EXT420xx	–	–	√	√	√	√
STP-MTRAC-42151(x)	6						√	√
STP-MTRAC-42202(x)	6						√	√
STP-MTRH-23079(x)	5.6	STP-EXTH-0xx					√	√
STP-MTRH-34066(x)	6.3		–				√	√
STP-MTRH-34097(x)	6.3						√	√
STP-MTRH-34127(x)	6.3						√	√
STP-MTRACH-42100(x)	6	STP-EXTH420xx					√	√
STP-MTRACH-42151(x)	8						–	√
STP-MTRACH-42202(x)	8						–	√

1) The combinations above will perform according to the published speed/torque curves. Using a motor with a current rating higher than the drive's output rating will proportionally limit the motor torque.
2) Listed NEMA42 motor amperages are for Bipolar Series wiring. See the NEMA42 motor specs for amperages with other wiring types.
3) Table not applicable to integrated motor/drives as drives and motors are already paired.

Typical Wiring Diagram

*Sure*Step Typical Wiring Diagram

Step Motor Power Supply — STP-PWR-xxxx — Input Power 120/240 VAC (GND, L2, L1) — AC Power — Motor Power xx VDC (–, +) — Logic Power 5VDC

Stepper Drive — STP-DRV-xxxx (VDC +, VDC –, A +, A –, B +, B –)

Cable Color Code

Term	Wire	Pin #
A+	Red	1
A–	White	2
B+	Green	3
B–	Black	4

Extension Cable with Connector STP-EXT(H)-020 — 12" Motor Pigtail with Connector — Step Motor STP-MTR(H)-xxxxx(X)

NOTE: Integrated motor/drives only need power since the drive and motor are one unit. MTRAC motors do not need an extension cable, they have 10' leads coming from the motor.

NOTE: STP-MTRAC-23xxx/34xxx motors and STP-DRVAC drives are designed to work with AC input power to the drive. They are not designed to work with DC input power.

Stepping System Drives

SureStep®

SureStep Series – Microstepping Drives Features Comparison

Drive Model	Standard Microstepping Drives						Advanced Microstepping Drives		
	STP-DRVAC-24025	STP-DRV-4830	STP-DRV-4845	STP-DRV-6575	STP-MTRD-x	STP-DRV-4035	STP-DRV-4850	STP-DRV-80100	STP-MTRD-xR
Price	$0432p:	$432n:	$432o:	$-009uj:	See Integrated Motor/Drives section	Retired	$-009ui:	$009uk:	See Integrated Motor/Drives section
Drive Type	Microstepping drive with pulse input				Integrated stepper motor/drive	Micro-stepping drive with pulse input	Advanced microstepping drive with pulse or analog input, serial communication;includes programming/communication cable STP-232RJ11-CBL		Advanced integrated stepper motor/drive with internal encoder
	enclosed				enclosed	open-frame	enclosed		enclosed
Output Current	0.6–2.5 A/phase	0.35–3.0 A/phase	0.8–4.5 A/phase	1.0–7.5 A/phase	–	0.4–3.5 A/phase	0.1–5 A/phase	0.1–10 A/phase	–
Input Voltage	nominal: 120/240 VAC range: 90–240 VAC	nominal: 12–48 VDC range: 10–53 VDC	nominal: 24–48 VDC range: 20–60 VDC	nominal: 24–75 VDC range: 20–85 VDC	nominal: 12-48 VDC (NEMA 17) 12-70 VDC (NEMA 23) range: 10-55 VDC (NEMA 17) 11-74 VDC (NEMA 23)	nominal: 12–32 VDC range: 12–42 VDC	nominal: 24–48 VDC range: 18– 53 VDC	nominal: 24–80 VDC range: 18–88 VDC	nominal: 12-48 VDC (NEMA 17) 12-70 VDC (NEMA 23, 24) range: 10-55 VDC (NEMA 17) 11-74 VDC (NEMA 23) 10-75 VDC (NEMA 24)
Configuration Method	rotary dial, dip switches, jumpers				dip switches		SureMotion Pro software (SM-PRO: free download)		
Amplifier Type	MOSFET, dual H-bridge, 4-quadrant				Dual H-bridge, 4 quadrant	MOSFET, dual H-bridge, bipolar chopper	MOSFET, dual H-bridge, 4-quadrant		Dual H-bridge, 4 quadrant
Current Control	4-state PWM @ 20 kHz	4-state PWM @ 16 kHz	4-state PWM @ 20 kHz		4-state PWM @ 16 kHz	4-state PWM @ 20 kHz			
Microstep Resolution	dipswitch selectable						software selectable		
	200 to 25,600 steps/rev		200 to 20,000 steps/rev		200 to 25,600 steps/rev	400 to 10,000 steps/rev	200 to 51200 steps/rev		
Modes of Operation Step & Dir	YES	YES	YES	YES	YES	YES	YES	YES	YES
CW/CCW	YES	YES	YES	YES	YES	n/a	YES	YES	YES
A/B Quad	n/a	n/a	n/a	n/a	n/a	n/a	YES	YES	YES
Oscillator	n/a	n/a	n/a	n/a	n/a	n/a	YES	YES	YES
Serial Indexing	n/a	n/a	n/a	n/a	n/a	n/a	YES	YES	YES
Digital Input Signals Step/Pulse	step & direction, CW/CCW step				step & direction, CW/CCW step	step & direction	step & direction, CW/CCW step, A/B quadrature, run/stop & direction, jog CW/CCW, CW/CCW limits		
Direction									
Enable	motor disable				motor enable	motor disable	motor enable, alarm reset, speed select (oscillator mode)		
Analog Input	n/a	n/a	n/a	n/a	n/a	n/a	speed control		signal range, offset, dead band, and filtering
Output Signal	fault	n/a	fault	fault	fault	n/a	fault, motion, tach		brake, fault, motion, tach
Communication Interface	n/a	n/a	n/a	n/a	n/a	n/a	YES (programming/communication cable included)		
Non-volatile Memory Storage	n/a	n/a	n/a	n/a	n/a	n/a	YES		
Idle Current Reduction	YES								
Self Test	YES								
Additional Features	Step pulse noise filter, accepts AC power input	Step pulse noise filter	Load inertia (anti-resonance & damping feature to improve motor performance) Step pulse noise filter			n/a	Anti-resonance (Electronic Damping) Auto setup Microstep emulation Torque ripple smoothing (allows for fine adjustment of phase in the range 0.25 to 1.5 rps) Waveform (command signal) smoothing		

Refer to Specifications Tables for detailed specifications.