AUTOMATIONDIRECT.com

Sure step™ **STEPPING SYSTEMS**

STP-DRV-4830
Microstepping Drive

Note: STP-DRV-4830 drives are suitable for driving 2-phase and 4-phase stepping motors with 4, 6, or 8 leads.

WARNING

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call our technical support at 770-844-4200.

This publication is based on information that was available at the time it was printed. At ***Automationdirect.com***® we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without obligation. This publication may also discuss features that may not be available in certain revisions of the product.

***Sure*Step™ Microstepping Drive Specifications**		
Part Number		**STP-DRV-4830**
Input Power		12–48 VDC (external power supply required; fuse at 3A fast-acting)
Output Current		0.35–3.0 A/phase (peak of sine)
Current Controller		Dual H-bridge digital MOSFET, 4 quadrant PWM at 16kHz
Input Signals	**Step**	5–24 VDC nominal (range: 4–30 VDC); optically isolated, differential. 3 µsec at 150kHz, 1 µsec at 500kHz. Maximum pulse frequency = 150kHz or 500kHz (user selectable). Function = Step or Step CW pulse.
	Direction	5–24 VDC nominal (range: 4–30 VDC); optically isolated, differential. 3 µsec at 150kHz, 1 µsec at 500kHz. Maximum pulse frequency = 150kHz or 500kHz (user selectable). Function = Direction or Step CCW pulse.
	Enable	5–24 VDC nominal (range: 4–30 VDC); optically isolated, differential. Max pulse frequency = 10kHz, min pulse width = 50µsec. Function = disable motor when closed.
DIP Switch Selectable Functions	**Running Current**	The output current of the drive to the motor is set by the SW1, SW2, and SW3 switches and can be changed from 0.35A to 3.0A per phase.
	Step Pulse Type (Control Mode)	Step and Direction: Step signal = step/pulse; Direction signal = direction. Step CW & CCW: Step signal = CW step; Direction signal = CCW step.
	Step Pulse Noise Filter	Select 150kHz or 500kHz
	Idle Current Reduction	Reduce power consumption and heat generation by limiting motor idle current to 90% or 50% of running current. (Holding torque is reduced by the same %.)
	Step Resolution	Selectable from 200 steps/rev up to 25600 steps/rev
	Self Test	Automatically rotate the motor back and forth two turns in each direction in order to confirm that the motor is operational.
	Smoothing Filter	Softens the effect of immediate changes in velocity and direction, making the motion of the motor less jerky. Can cause a small delay in following the control signal.
Drive Cooling Method		Natural convection (mount drive to metal surface)
Mounting		Use (2) #6 screws to mount to metal surface
Removable Connectors*		Degson: 15EDGK-5.08-02P-14-00AH, 2-pin power connector 15EDGK-3.81-04P-14-00A(H), 4-pin motor connector 15EDGK-3.5-06P-14-00A(H), 6-pin I/O connector
Weight		3.0 oz [85.9 g] – (including mating connectors)
Operating Temperature		0–85 °C [32–185 °F] – (interior of electronics section)
Ambient Temperature		0–40 °C [32–104 °F] – (drive must be mounted to suitable heat sink)
Humidity		Maximum 90% non-condensing
Agency Approvals		CE
**Replacement connectors are available in connector kit STP-CON-5*		

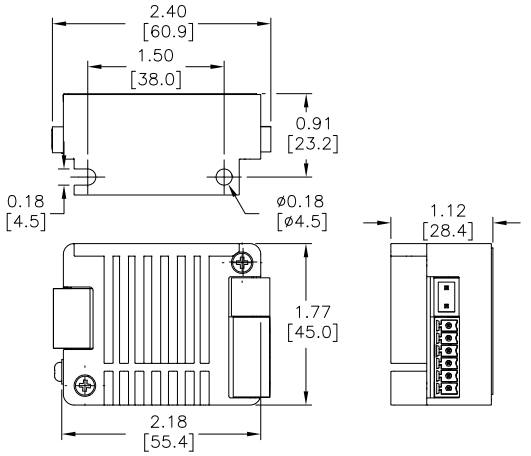
MOUNTING THE DRIVE

The STP-DRV-4830 drive is mounted on the narrow side of the chassis using (2) #6 screws. Fasten the drive securely to a smooth, flat, metal surface that will help conduct heat away from the chassis. Otherwise, forced air flow from a fan may be required to prevent overheating.

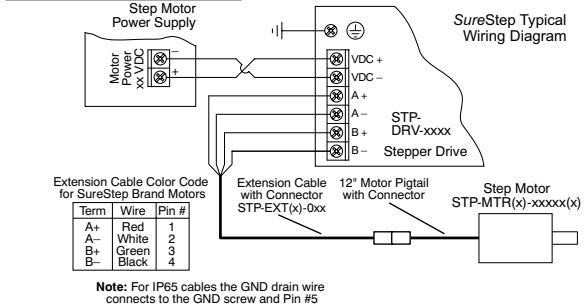
WARNING:

- Never mount the drive in a space where there is no air flow, or where other devices can heat the surrounding air to 40°C [104°F].
- Never put the drive where it can get wet, or where metal or other electrically-conductive particles can get on the circuitry.
- Always provide air flow around the drive. Minimum allowable spacing between multiple drives is 0.5 inches [13 mm].

DIMENSIONS



TYPICAL WIRING DIAGRAM



Note: For IP65 cables the GND drain wire connects to the GND screw and Pin #5

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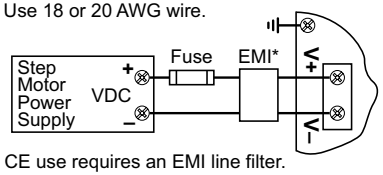
CONNECTING THE POWER SUPPLY

- Connect the green ground screw to earth ground
- Use 18 or 20 AWG wire.



* CE use requires an EMI line filter.

STP-PWR-xxxx or PSBxx-xxxS power supplies from AutomationDirect are good choices to power the step-motor drive.

If the power supply you choose does not have a fuse on the output, you will need to install a fast-acting 3A fuse on the "+" power supply lead.

WARNING: Do not to reverse the polarity from the power supply to the drive. Reverse connection will destroy your drive and void the warranty.

CONNECTING THE MOTOR

WARNING: When connecting a step motor to the STP-DRV-4830 drive, be sure that the motor power supply is switched off. When using a motor not supplied by *AutomationDirect*, secure any unused motor leads so that they can't short out. Never disconnect the motor while the drive is powered up. Never connect the motor leads to ground or directly to the power supply. (See Typical Wiring Diagram on the back side of this data sheet for the step motor lead color code of *AutomationDirect*-supplied motors.

CONNECTING THE INPUT SIGNALS

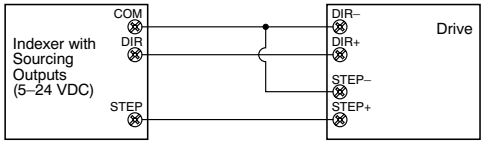
The STP-DRV-4830 drive has three inputs:

- STEP: a high speed digital input for step pulse commands; 5–24 VDC logic
- DIR: a high speed digital input for the direction signal; 5–24 VDC logic
- EN: a 5–24V input for commanding the removal of power from the motor; also clears faults and re-enables the motor in the case of drive faults, e.g. over-current/short-circuit faults

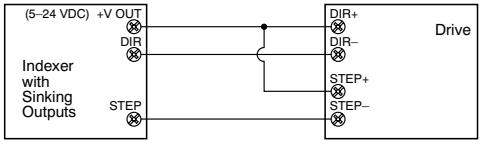
Note: STEP and DIR inputs can be converted to STEP CW and STEP CCW by changing the position of SW11 (control mode).

CONNECTING THE INPUT SIGNALS – STEP & DIRECTION

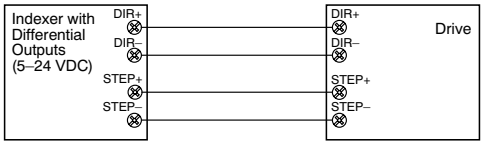
Connecting Drive to Indexer with Sourcing Outputs



Connecting Drive to Indexer with Sinking Outputs

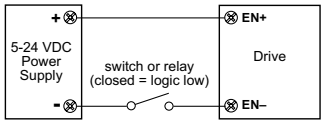


Connecting Drive to Indexer with Differential Outputs

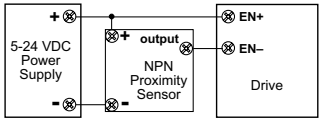


CONNECTING THE INPUT SIGNALS – ENABLE

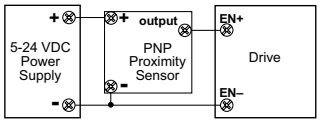
Connecting Drive EN to Switch or Relay



Connecting Drive EN to NPN

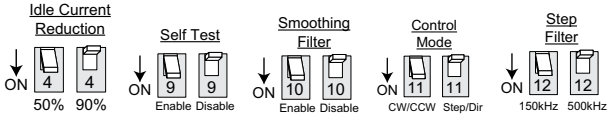


Connecting Drive EN to PNP



DIP SWITCH SETTINGS

STP-DRV-4830 Current Table			
Peak A	**Switch 1**	**Switch 2**	**Switch 3**
0.35	ON	ON	ON
0.8	OFF	ON	ON
1.2	ON	OFF	ON
1.7	OFF	OFF	ON
2.0	ON	ON	OFF
2.4	OFF	ON	OFF
2.8	ON	OFF	OFF
3.0	OFF	OFF	OFF



STP-DRV-4830 Microstep Table				
MStep	**Switch 5**	**Switch 6**	**Switch 7**	**Switch 8**
200	ON	ON	ON	ON
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
6000	ON	ON	OFF	OFF
8000	OFF	ON	OFF	OFF
10000	ON	OFF	OFF	OFF
20000	OFF	OFF	OFF	OFF

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