STAC6-Q-H Std Quick Setup Guide

Requirements

To begin, make sure you have the following equipment:

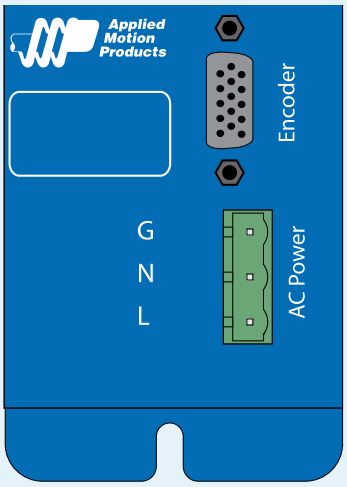
- Only use a compatible Hazardous Location Certified stepper motor. Consult the factory.
- A small flat blade screwdriver for tightening the connectors.
- A personal computer running Microsoft Windows 7, 8, 10 or XP, 32-bit or 64-bit.
- For STAC6-Q-H, *ST Configurator™* software, available at: http://www.applied-motion.com/products/software
- An Applied Motion programming cable (included).
- For more information, the *STAC6-Q-H Hardware Manual* is available by request by emailing support@applied-motion.com.

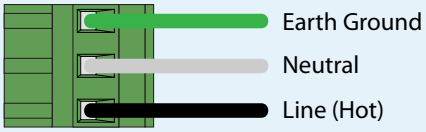
Step 1

Wire the drive to the AC power source.
(Apply power only after reading the following safety instructions and Step 3 is completed.)

STAC6x drives accept 94-135VAC
If using an external fuse, we recommend the following fast-acting fuses:
STAC6x: 6 amp Connecting the Motor

ONLY use a compatible Hazardous Location Certified step motor. Consult Factory. Never connect or disconnect the motor while the power is on.





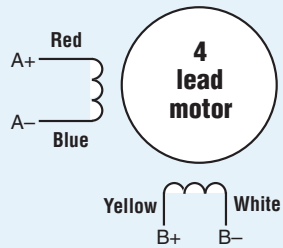
Step 2

Connecting the Motor

ONLY use a compatible Hazadous Location Certified step motor. Consult Factory.
Never connect or disconnect the motor while the power is on.
Note: it is highly recommended that you use a motor with a shielded cable with the STAC6.

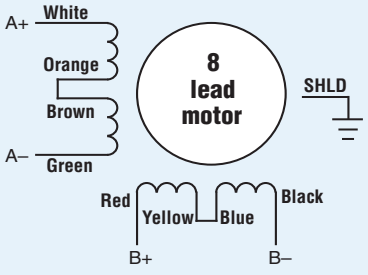
Connection diagram shown below:

4-LEADS

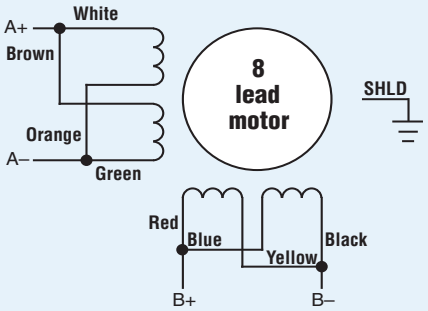


4 Leads

8 LEADS



Series Connected

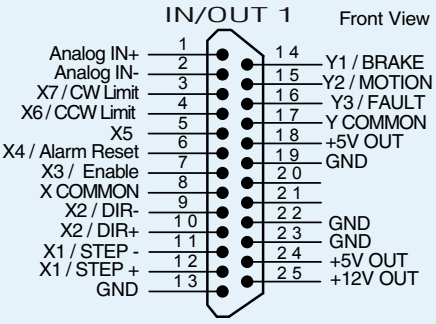


8 Leads Parallel Connected

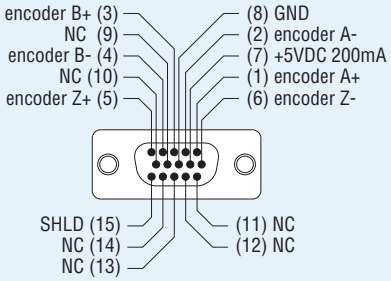
Step 3

Wire the drive's I/O (optional, dependent upon drive type)

IN/OUT 1 Connector



Connect the Encoder (optional)



Additional Information:

Safety Instructions

Only qualified personnel are permitted to transport, assemble, commission, and maintain this equipment. Properly qualified personnel are persons who are familiar with the transport, assembly, installation, commissioning and operation of motors, and who have the appropriate qualifications for their jobs. The qualified personnel must know and observe the following standards and regulations:

IEC 364 resp. CENELEC HD 384 or DIN VDE 0100
IEC report 664 or DIN VDE 0110
National regulations for safety and accident prevention or VBG 4

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 and 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.

• Read all available documentation before assembly and commissioning. Incorrect handling of products in this manual can result in injury and damage to persons and machinery. Strictly adhere to the technical information on the installation requirements.

• It is vital to ensure that all system components are connected to earth ground. Electrical safety is impossible without a low-resistance earth connection.

• In operation, depending on the degree of enclosure protection, the product can have bare components that are live or have hot surfaces. Control and power cables can carry a high voltage even when the motor is not rotating.

• Never pull out or plug in the product while the system is live. There is a danger of electric arcing and danger to persons and contacts.

• After powering down the product, wait at least ten minutes before touching live sections of the equipment or undoing connections (e.g., contacts, screwed connections). Capacitors can store dangerous voltages for long periods of time after power has been switched off. To be safe, measure the contact points with a meter before touching.

Be alert to the potential for personal injury. Follow the recommended precautions and safe operating practices. Safety notices in this manual provide important information. Read and be familiar with these instructions before attempting installation, operation, or maintenance. The purpose of this section is to alert users to possible safety hazards associated with this equipment and the precautions that need to be taken to reduce the risk of personal injury and damage to the equipment.

Failure to observe these precautions could result in serious bodily injury, damage to the equipment ,or operational difficulty.

Over-Current Protection

The STAC6 has hardware over-current detection circuits that protect the drive against “phase to ground” and “phase to phase” motor shorts. These circuits directly disable the amplifier in a rapid fashion to prevent damage to the driver circuitry.

Typically, the over-current circuitry will react to an over-current condition in 3 to 5 micro-seconds. For a short occurring in a motor, the motor leads provide enough resistance and inductance to keep the peak current from exceeding the peak rating of the power transistors during this time period. The motors used with the STAC6 should include 10 foot minimum cables.

In essence the motor/cable system is a part of the over-current circuitry. If the drive is directly shorted with a very short wire, this condition may cause current conditions that exceed the peak current rating of our power transistors and therefore could weaken or cause failure in the drive power devices.

Repetitive short circuits also risk damage to the drive. If a short circuit fault occurs, please power off the drive and investigate carefully before restoring power.

Mounting the Drive

You can mount your drive on the wide or the narrow side of the chassis using #6 screws. If possible, the drive should be securely fastened to a smooth, flat metal surface that will help conduct heat away from the chassis. If this is not possible, then forced airflow from a fan may be required to prevent the drive from overheating.

Installation orientation: The STAC6-Q-H drive is ONLY to be installed standing vertical with motor connections on top).

- ***Never use your drive in a space where there is no air flow or where other devices cause the surrounding air to be more than 55°C.***
- ***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. When mounting multiple STAC6 drives near each other, maintain at least one half inch of space between drives.***

Schedule of Limitations:

- ***Suitability of the use of these drives with ANY stepper motor shall be determined in the end product evaluation.***
- ***This drive does not provide motor overload protection. The maximum current available to the stepper motor is 4.24 A rms (6 Amps peak). Any consideration for stepper motor over¬load protection should be evaluated in the end product.***
- ***The equipment shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC/EN 60079-15 which is accessible only with use of a tool.***
- ***These components have been judged on the basis of the creepages and clearances required in clause 6.4 of IEC/EN 60079-15 4th Edition.***
- ***The sealed device tests were conducted on mechanical sealed relay based on the relay service temperature of -40°C to 101.4°C.***
- ***The relay service temperature of 101.4°C was determined during the temperature test on the Model STAC6-Q-H Stepper Drive at ambient temperature of 55°C.***

The STAC6 contains electrostatically sensitive components that can be damaged by incorrect handling. Discharge yourself before touching the product. Avoid contact with high insulating materials (artificial fabrics, plastic film, etc.). Place the product on a conductive surface.

During operation keep all covers and cabinet doors shut. Otherwise, there are deadly hazards that could possibility cause severe damage to health or the product.

Electrical Ratings:

Input Power: 120Vac, 1 Phase, 1.67A (rms)
Output Power: 120Vdc, 1 Phase, 4.24A (rms), Continuous Duty Rating
Input/Output Signal Connections: 5/12Vdc, 10/100mA, electrically isolated

Markings:

Applied Motion Products, Inc.
404 Westridge Dr
Watsonville, CA 95076

IECEx Cert Number: IECEx UL 15.0067U
Ex nA nC IIB Gc
-40°C < Ta < +55°C
ATEX Cert Number: DEMKO 15 ATEX 1505U II 3 G
USA: Class 1, Zone 2, AEx nA nC IIB; Class 1, Division 2, Groups C & D
Canada: Class 1, Zone 2, Ex nA nC IIB Gc "U"; Class 1, Division 2, Groups C & D

Mating Connectors and Accessories

Mating Connector (Type)	Manufacturer and P/N	Required Wiring
Motor (5-position, screw terminal)	Phoenix Contact 1757048 (included)	solid or stranded CU, minimum -50°C to 125°C 250V wire, 14 AWG -12 AWG, 1 conductor per terminal, stripping length 7 mm, tightening torque 0.5 Nm - 0.6 Nm.
AC Power (3-position, screw terminal)	Phoenix Contact 1767012 (included)	solid or stranded CU, minimum -50°C to 125°C 250V wire, 16 AWG - 12 AWG, 1 conductor per terminal, stripping length 7 mm, tightening torque 0.5 Nm - 0.6 Nm.
RS485 Logic (3-position, screw terminal)	Phoenix Contact 1827622 (included)	solid or stranded CU, minimum -50°C to 125°C 250V wire, 20 AWG - 16 AWG, 1 conductor per terminal, stripping length 7 mm, tightening torque 0.2 Nm - 0.25 Nm.
IN/OUT1 (DB-25 male)	Norcomp 171-025-103L001 connector, Mouser 40-9725HS shell kit	-
Encoder (HD-15 male)	Norcomp 180-015-102-001 connector, AMP 5-748678-1 shell kit	-