MOONS'
moving in better ways

STAC

Intelligent Stepper Drives

The STAC series are AC input high performance digital stepper drives with multiple control options and many sophisticated features. The STAC series support stand alone programming and various bus control as RS-232/485, Ethernet UDP/TCP, CANopen and EtherNet/IP.

Anti-Resonance
Microstep Emulation
Torque Ripple Smoothing
Advanced Current Control
Stall Detection and Stall Prevention

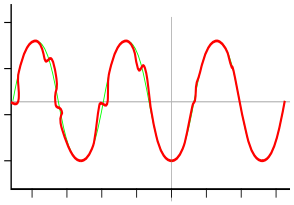
CE RoHS Compliant UL

www.moonsindustries.com

Features

Anti-Resonance

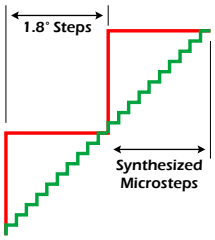
Step motor systems have a natural tendency to resonate at certain speeds. The STAC Series automatically calculates the system's natural frequency and applies damping to the control algorithm. This greatly improves midrange stability, allows for higher speeds, greater torque utilization and also improves settling times.



Delivers better motor performance and higher speeds

Microstep Emulation

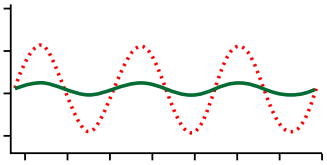
With Microstep Emulation, low resolution systems can still provide smooth motion. The drive can take low-resolution step pulses and create fine resolution micro-step motion.



Delivers smoother motion in any application

Torque Ripple Smoothing

All step motors have an inherent low speed torque ripple that can affect the motion profile of the motor. By analyzing this torque ripple the system can apply a negative harmonic to counter this effect. This gives the motor much smoother motion at low speed.



Delivers smoother motion at lower speeds

Command Signal Smoothing

Command Signal smoothing can soften the effect of immediate changes in velocity and direction, making the motion of the motor less jerky. An added advantage is that it can reduce the wear on mechanical components.

Improves overall system performance

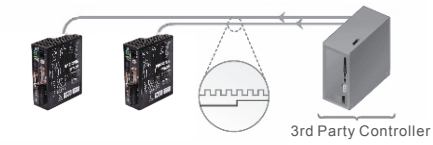
Stall detection & Stall prevention

The Encoder Feedback option board provides Stall Detection and Stall Prevention functionality to the drive. Stall Detection detects the moment the motor has stalled and triggers a drive fault. Stall Prevention automatically senses rotor lag (just before stalling) and reduces motor speed to avoid stalling. Stall Prevention includes Position Maintenance, which maintains shaft position when the motor is stopped.

Auto Setup & Self Test

At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize the system performance.

Step & Direction



S

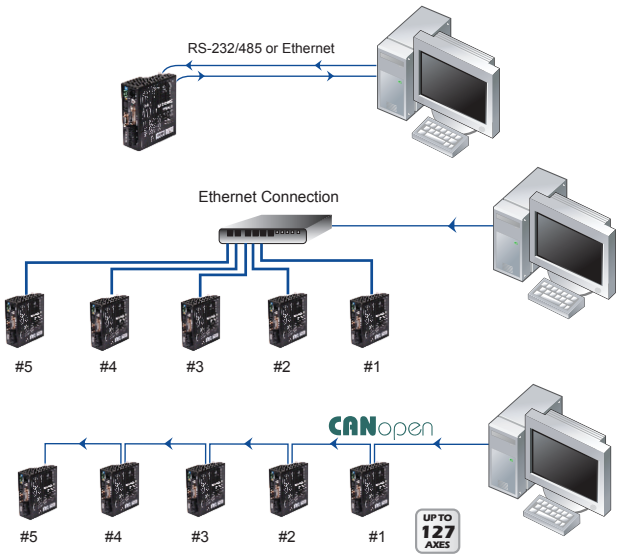
- Step & Direction
- CW & CCW pulse
- Master Encoder

Oscillator / Run-stop

S

- Software configuration
- Two speeds
- Vary speed with analog input
- Joystick compatible

Host Control

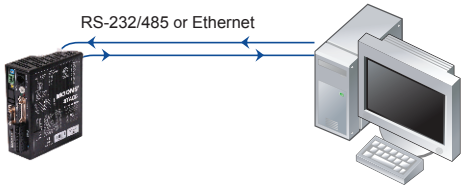


S Q C IP

Accepts commands from host PC or PLC

- Multi-axis capable
- Real time control

Stand-Alone Programmable

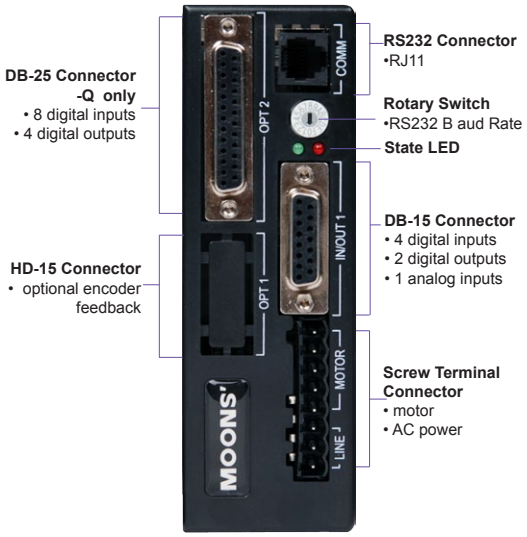


Q

- Accepts commands from host PC or PLC
- Multi-axis capable
- Real time control

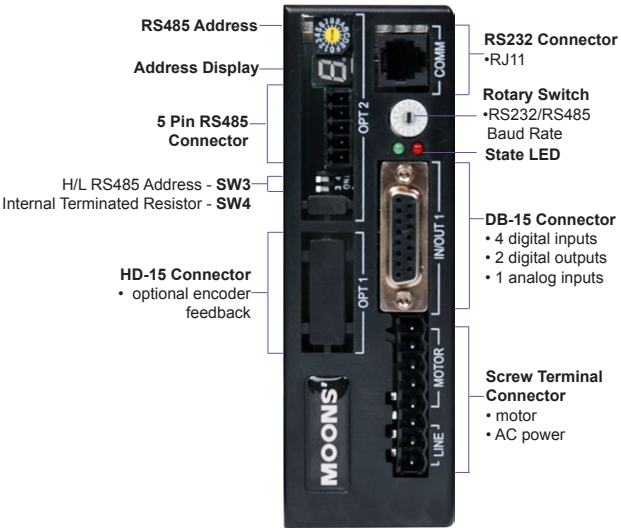
Connection Inferface

RS232



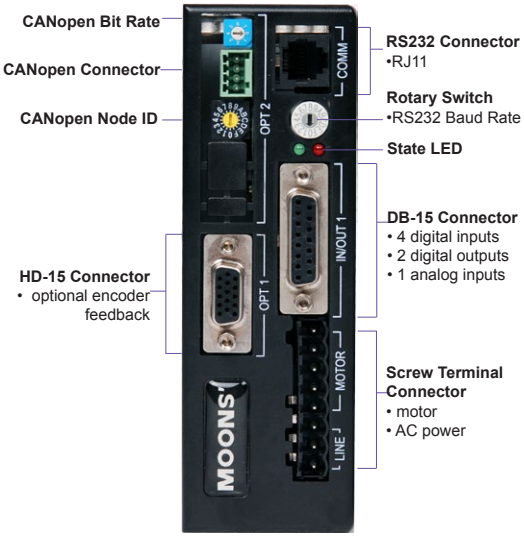
RS232 Version

RS485



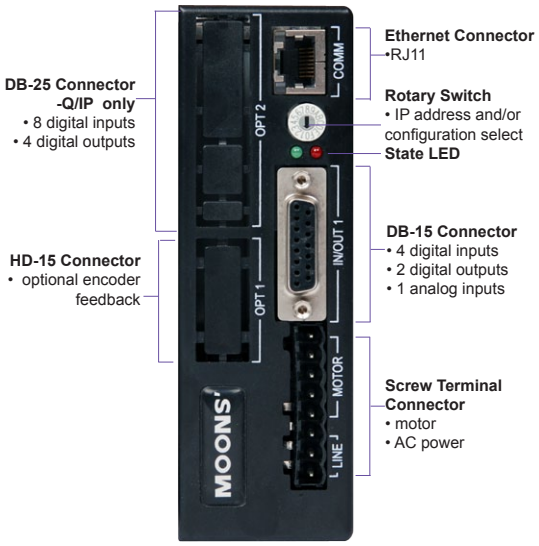
RS485 Version

CANopen



CANopen Version

Ethernet



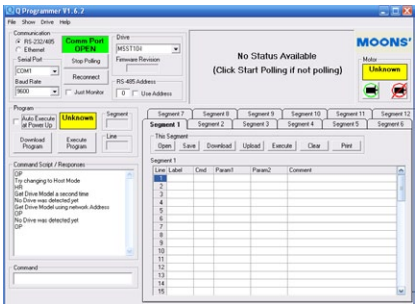
Ethernet Version

ST Configurator

Software Features

- Intuitive interface
- Drive status and alarm monitoring
- Self-test function to test drive/motor operation
- Built-in SCL Terminal
- Online help integrated

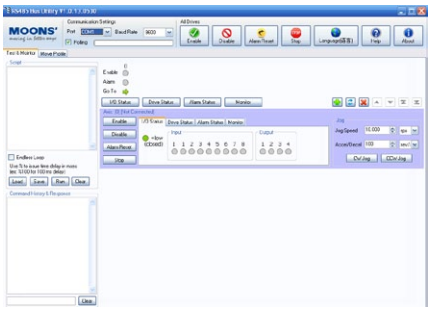
Q Programmer



Software Features

- Single-axis motion control
- Stored program execution
- Multi-tasking
- Conditional processing
- Math functions
- Data registers
- Motion Profile simulation
- Online help integrated

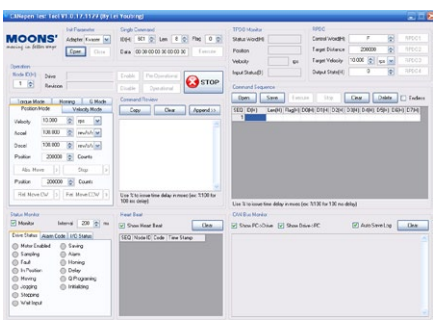
RS485 Bus Utility



Software Features

- Stream SCL commands from the command line
- Simple interface with powerful capability
- Easy setup with RS-485 for 32 axis network motion control
- Monitoring Status of I/O, drive, alarm and the other nine most useful motion parameters
- Write and save SCL command scripts
- Online help integrated
- Supports all RS-485 drives

CANopen Test Tool



Software Features

- Friendly User Interface
- Multiple operation Mode Support
- Multi-Thread, High Performance
- CAN bus monitor and log function
- Kvaser/PEAK adapter support

FREE DOWNLOAD
Our software and user manual can be downloaded from our website:

www.moonsindustries.com

All software applications run on Windows 7, Vista, XP, NT, 2000, 32-bit or 64-bit

Drive Specifications

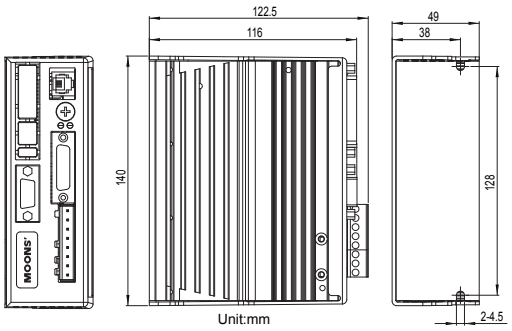
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Current	0.5-2.55A/Phase(peak of sine) in increments of 0.01A
Input Voltage	Signal Phase 94-265VAC
Protection	Over-voltage, under-voltage, over-temp, internal motor shorts (phase-to-phase, phase-to-ground)
Regeneration	Built-in regeneration circuit, 10 watts max.
Idle Current	Automatic idle current reduction to reduce heat after motor stops moving, software selectable current and idle delay
Microstep Resolution	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Microstep Emulation	Performs high resolution stepping by synthesizing fine microsteps from coarse steps. Reduces jerk and extraneous system resonances.
Anti-Resonance	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time
Torque Ripple Smoothing	Allows for fine adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
Encoder Feedback	Optional encoder feedback for stall detection and stall prevention
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Humidity	90% non-condensing
Ambient Temperature	0 - 40.C when mounted to a suitable heat sink
Mass	Approx. 0.68Kg

I/O Specifications

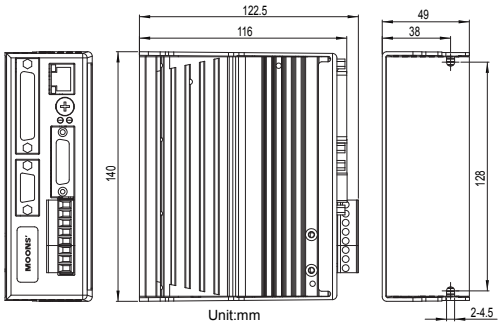
All models	X1, X2 inputs: Optically isolated, differential, 5-24 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz X3, X4 inputs: Optically isolated, differential, 5-24 VDC Y1, Y2 outputs: Optical darlington, sinking or sourcing, 30 VDC max, 100 mA max Analog input: Single-ended. Range is software selectable 0-5, +/-5, 0-10, or +/-10 VDC. Software configurable offset, deadband and filtering. Resolution is 12 bits (+/- 10 volt range), 11 bits (+/-5 or 1-10 volt range) or 10 bits (0-5 volt range).
Expanded I/O	X1, X2 inputs: Optically isolated, differential, 5 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz X3-X6 inputs: Optically isolated, single-ended, shared common, sinking or sourcing, 12-24 VDC X7, X8 inputs: Optically isolated, differential, 12-24 VDC Y1-Y3 outputs: Optical darlington, single-ended, shared common, sinking, 30 VDC max, 100 mA max Y4 output: Optical darlington, sinking or sourcing, 30 VDC max, 100 mA max

Dimensions (Unit : mm)

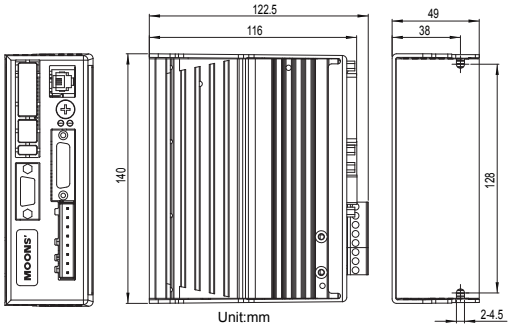
MSSTAC5-CANopen



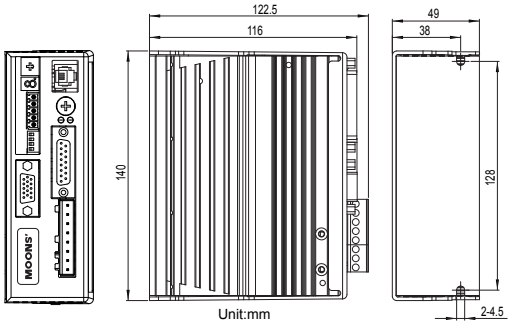
MSSTAC5-Ethernet



MSSTAC5-RS232



MSSTAC5-RS485

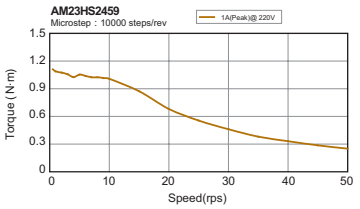


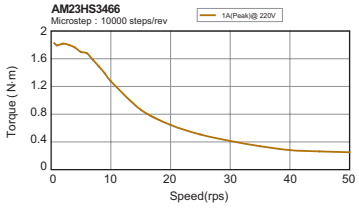
Recommended Motors

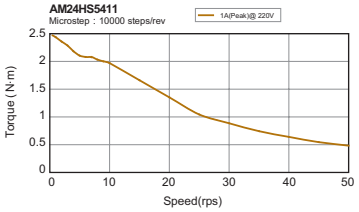
Model	Shaft	Leads	Length"L"	Holding Torque	Current	Resistance	Rotor Inertia	Motor Mass	Dielectric Strength
			mm	N·m	A/Phase	Ω/Phase	g·cm^2	Kg	
AM23HS2459-01	Single Shaft	4	54	1.1	1	16.6	260	0.6	1500V AC 1 minute
AM23HS3466-01	Single Shaft		76	1.8		25.4	460	1.0	
AM24HS5411-01N	Single Shaft		85	2.5		15.4	900	1.4	
AM34HD0802-01	Single Shaft	8	66.5	3	1.8	3.4	1100	1.6	
AM34HD0802-02	Double Shaft								
AM34HD0802-E1000D	W/Encoder								
AM34HD4802-01	Single Shaft		75	3.5		3.6	1350	1.9	
AM34HD1802-01	Single Shaft		96	5		3.6	1850	2.7	
AM34HD1802-03	Double Shaft								
AM34HD1802-E1000D	W/Encoder								
AM34HD6801-01	Single Shaft		115	6.5		4	2400	3.5	
AM34HD2805-01	Single Shaft		125.5	7.1		4.2	2750	3.8	
AM34HD2805-03	Double Shaft								
AM34HD2805-E1000D	W/Encoder								

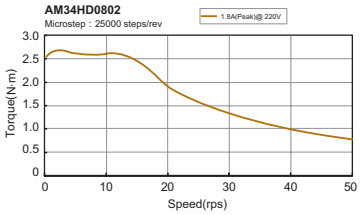
*MOONS' offers standard encoder type motor with 1000 line encoder, A/B/Z differential output.

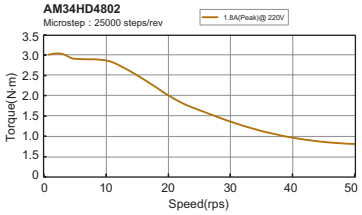
Torque Curves

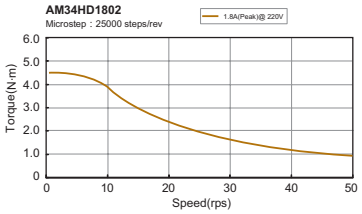


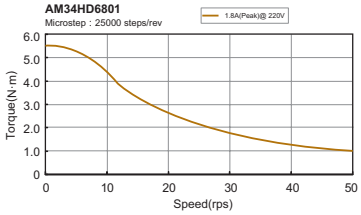


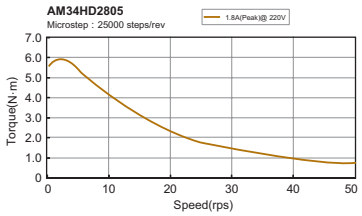








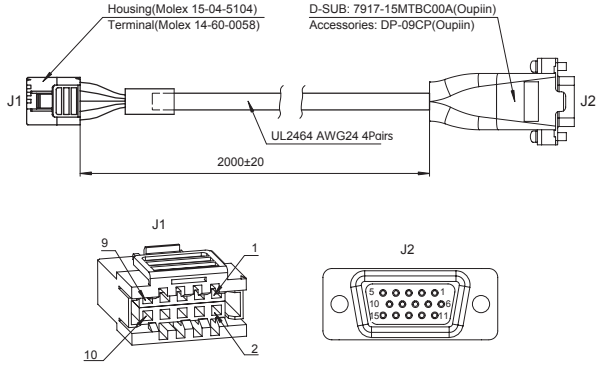




Accessories

Encoder Cable

Moder:2005-200
Description: Encoder cable used with MOONS' drive



J1	Singal	J2	Color
1	NC		
2	Ground	8	GRN/WHT
3	I-	6	ORG/WHT
4	I+	5	ORG
5	A-	2	BUL/WHT
6	A+	1	BLU
7	Power+	7	GRN
8	NC		
9	B-	4	BRN/WHT
10	B+	3	BRN

Numbering System

MSSTAC 5 - S - □ E - 2V

Series: MSSTAC5

Control Mode
S = Basic Type
Q = Q programmer Type
C = CANopen Type
IP = EtherNet/IP Type

Communications
A = RS-232
R = RS-485; (Blank for CANopen or Ethernet)

Feedback
N = None
E = Encoder

Input Voltage
2V = 220VAC

Ordering Information

Model	Control	Current	Voltage	Encoder	RS-232	RS-485	CANopen	Ethernet	Expanded I/O
MSSTAC5-S-AN-2V	S	0.5-2.55A	94-265VAC		√				
MSSTAC5-S-AE-2V				√	√				
MSSTAC5-S-RN-2V						√			
MSSTAC5-S-RE-2V				√		√			
MSSTAC5-S-N-2V								√	
MSSTAC5-S-E-2V				√				√	
MSSTAC5-Q-AN-2V	Q				√				√
MSSTAC5-Q-AE-2V				√	√				√
MSSTAC5-Q-RN-2V						√			
MSSTAC5-Q-RE-2V				√		√			
MSSTAC5-Q-N-2V								√	√
MSSTAC5-Q-E-2V				√				√	√
MSSTAC5-C-N-2V	C				√		√		
MSSTAC5-C-E-2V				√	√		√		
MSSTAC5-IP-N-2V	IP							√	√
MSSTAC5-IP-E-2V				√				√	√

Headquarters
No. 168 Mingjia Road Industrial Park North
Minhang District Shanghai 201107, P.R. China
Tel: +86(0)21-5263 4688
Fax: +86(0)21-6296 8682
Web: www.moonsindustries.com
E-mail: info@moons.com.cn

Service Center
+86-400-820-9661

MOONS' Industries (America), Inc.
1113 North Prospect Avenue,Itasca, IL 60143 U.S.A.
Tel: 001-630-833-5940
Fax: 001-630-833-5946

MOONS' Industries (Europe) S.r.l.
Via Torri Bianche n.1 20059 Vimercate(MB) Italy
Tel: +39 039 62 60 521
Fax: +39 039 96 31 409

MOONS' Industries (South-East Asia) Pte Ltd.
33 Ubi Avenue 3 #08-23 Vertex Singapore 408868
Tel: +65 6634 1198
Fax: +65 6634 1138

Shenzhen Branch Office
Room 2209, 22/F, Kerry Center,No. 2008 Renminnan Road
Shenzhen 518001 P. R.China
Tel: +86 (0)755-2547 2080
Fax: +86 (0)755-2547 2081

Beijing Branch Office
Room 816, Block B, China Electronics Plaza,
No. 3 Danling Street Haidian District Beijing,
100080 P.R. China
Tel: +86 (0)10-5875 3312
Fax: +86 (0)10-5875 2279

Qingdao Branch Office
Room 10E, No.73 Wangjiao Mansion, mid. Hongkong Road
Qingdao 266071 P. R.China
Tel: +86 (0)532-8587 9625
Fax: +86 (0)532-8587 9512

Wuhan Branch Office
Room 3001, World Trade Tower, No.686 Jiefang Avenue,
Jianghan District, Wuhan 430022 P.R.China
Tel: +86 (0)27-8544 8742
Fax: +86 (0)27-8544 8355

Cheng Du Branch Office
Room 1917, Western Tower,
No.19, 4th Section of South People Road, Wuhou
District, Chengdu 610041 P.R.China
Tel: +86 (0)28-8526 8102
Fax: +86 (0)28-8526 8103

Nanjing Branch Office
Room 302, Building A, Tengfei Creation Center,55
Jiangjun Avenue, Jiangning District,Nanjing 211100
P. R.China
Tel: +86 (0)25-5278 5841
Fax: +86 (0)25-5278 5485

Xi'an Branch Office
Room 1006, Block D, Wangzuo International City,
No,1 Tangyan Road, Xi'an 710065 P. R.China
Tel: +86 (0)29-8187 0400
Fax: +86 (0)29-8187 0340

Ningbo Branch Office
Room 309, Block B, Taifu Plaza,No. 565 Jiangjia
Road Jiangdong District Ningbo, 315040 P.R. China
Tel: +86 (0) 574-8705 2739
Fax: +86 (0) 574-8705 2365

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