



Intelligent field bus control stepper drive

The STB series are high performance fieldbus control stepper drive which also integrates with built-in motion controller. The drives can be controlled by SCL, Modbus/RTU or CANopen in real time. Motion profiles can also be programmed and stored in drives (Q Program) and then be triggered by SCL, Modbus/RTU or CANopen commands. The drives support RS-485/422 or CANopen communication.

Compact size

Advanced current control

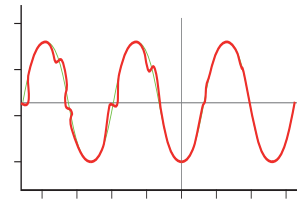
Anti resonance

Torque ripple smoothing



Anti-Resonance

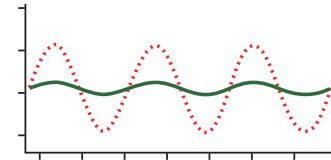
Step motor systems have a natural tendency to resonate at certain speeds. The STB drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves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



Provides better motor performance and higher speeds

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.

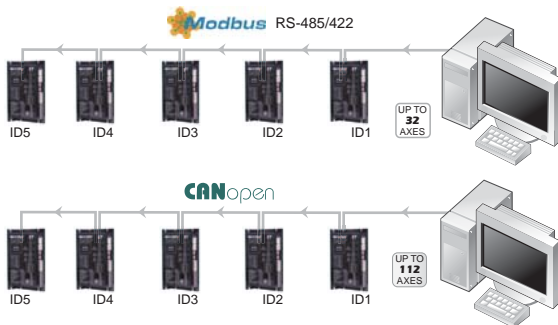


Produces smoother motion at low speeds

Auto Setup & Self Test

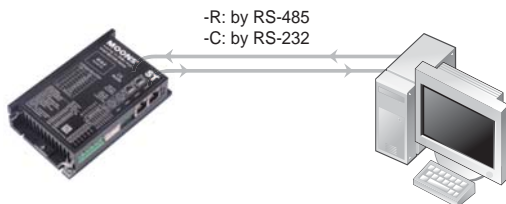
At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize the system performance. The drive can also detect open and short circuits.

Host Control



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

Stand-Alone Programmable

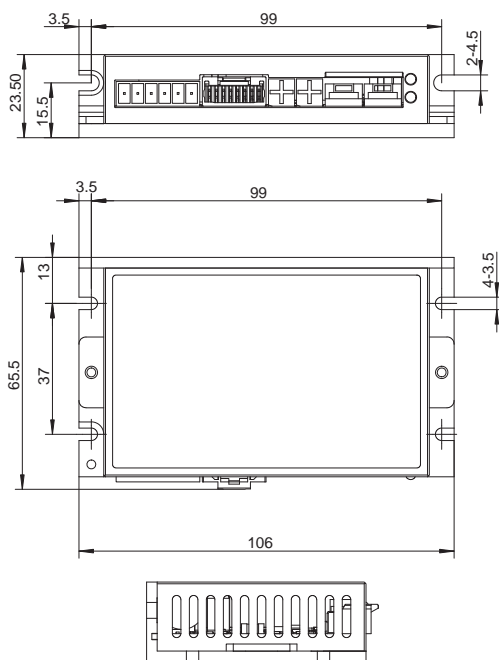


- Stored program execution
- Multi-tasking
- Conditional processing
- Math functions
- Data registers

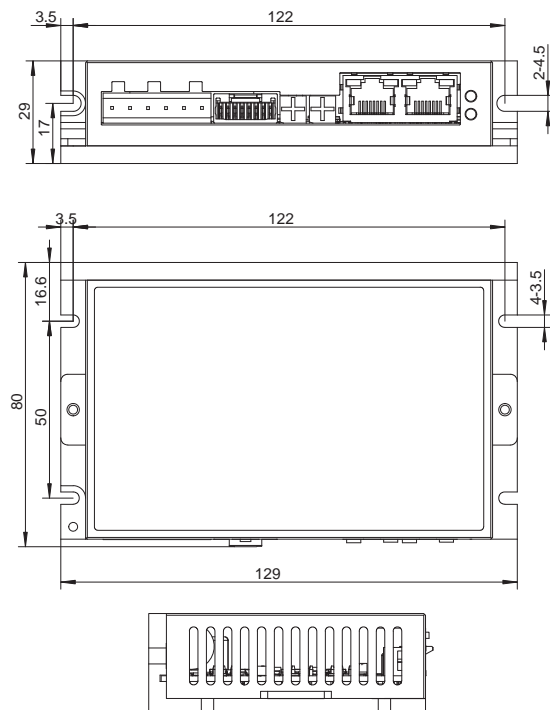
Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Current	MSSTB05: 0.1-5.0A/phase (peak-of-sine) in 0.01 amp increments
	MSSTB10: 0.1-10.0A/phase (peak-of-sine) in 0.01 amp increments
voltage range	MSSTB05: 24 - 48VDC
	MSSTB10: 24 - 70VDC
Input Voltage Range	MSSTB05: 18 - 53VDC
	MSSTB10: 18 - 75VDC
Protection	Over-voltage, under-voltage, over-temp, Over-current
Idle Current Reduction	Reduction range of 0 - 90% of running current after a delay selectable in milliseconds
Controller	
Anti-Resonance	Raises the system-damping ratio to eliminate midrange instability and allow stable operation throughout the speed range of the motor
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
Auto Test & Auto Setup	Auto test and setup at power on (ie. motor resistance, and capacitance) to optimize your system performance.
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Operation Mode	R Version: SCL, Q, Modbus
	C Version: CANopen (CiA301 and CiA402 standard). Q program can also be triggered via CANopen Command
Digital Input	4 digital inputs: X1, X2: Optically isolated, differential, 5-24VDC, minimum pulse width = 250ns, maximum pulse frequency = 2MHz X3, X4: Optically isolated, differential, 5-24VDC, minimum pulse width = 50µs, maximum pulse frequency = 10KHz
Digital Output	3 digital Outputs Y1, Y2, Y3: Optically isolated, 30V/100mA max
Communication Port	R model: dual port RS-485(MSSTB05: crimp style connector / MSSTB10: RJ45 connector)
	C model: dual port CANopen (MSSTB05: crimp style connector / MSSTB10: RJ45 connector) RS-232 included
Physical	
Ambient Temperature	0 - 40°C when mounted to a suitable heat sink
Humidity	90% non-condensing

Dimensions (Unit : mm)

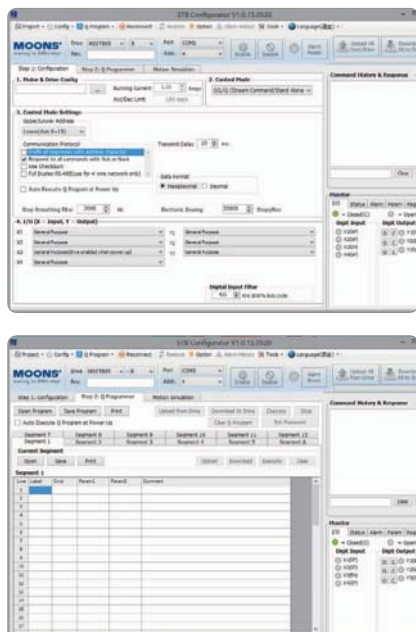
MSSTB05



MSSTB10



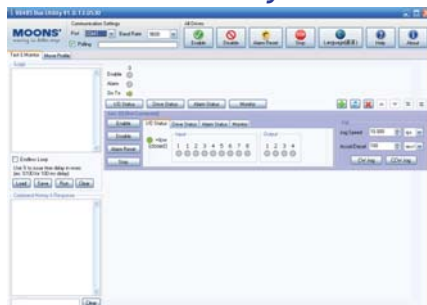
STB Configurator



Software Features

- Intuitive interface
- Drive status and alarm monitoring
- Built-in SCL Terminal
- Built-in Q Program
- Motion simulation

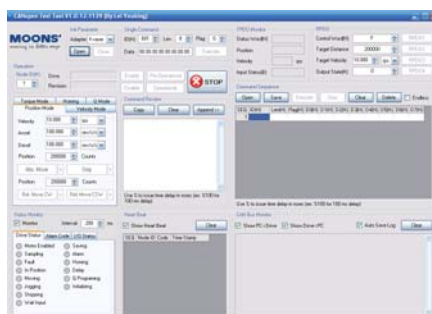
RS485 Bus Utility



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/ZLG adapter support

FREE DOWNLOAD

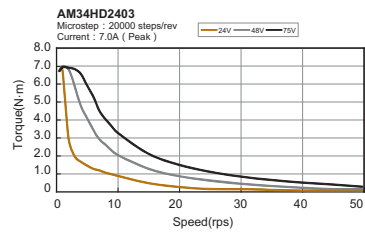
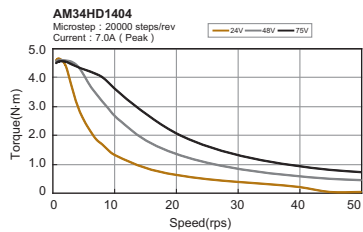
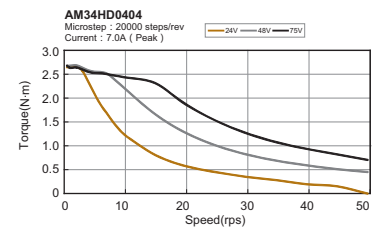
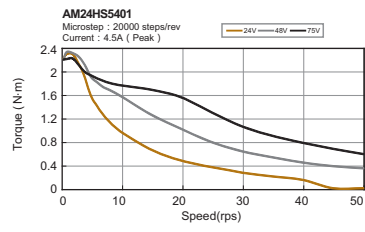
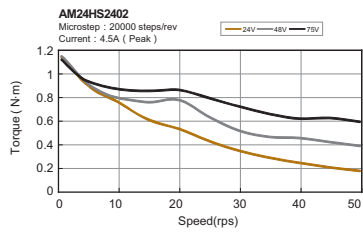
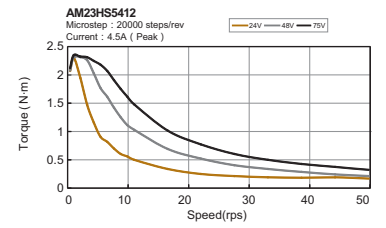
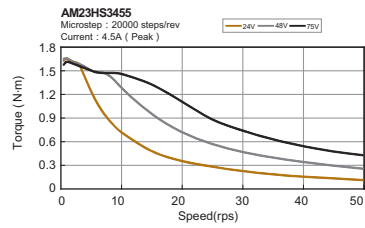
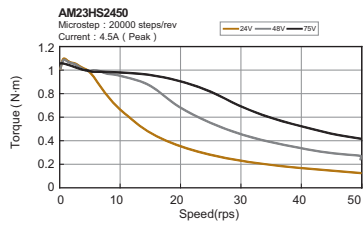
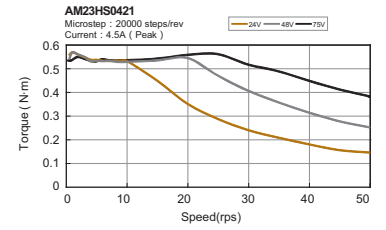
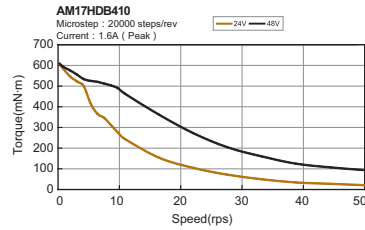
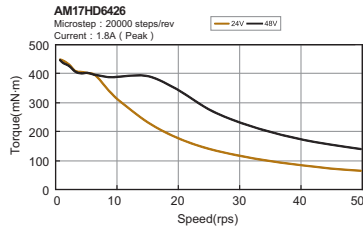
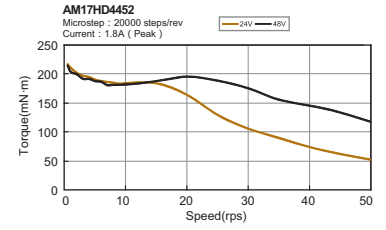
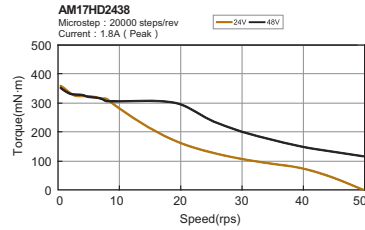
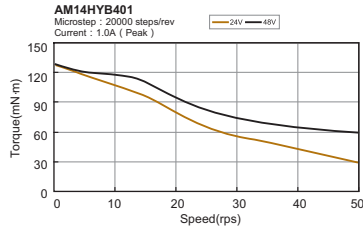
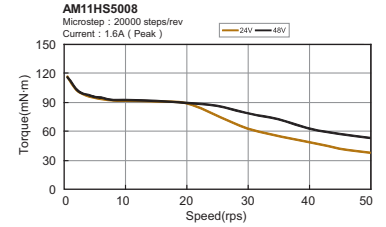
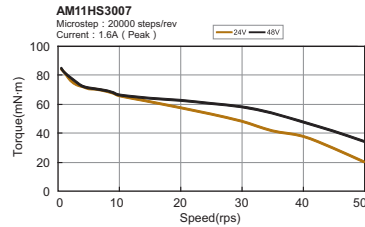
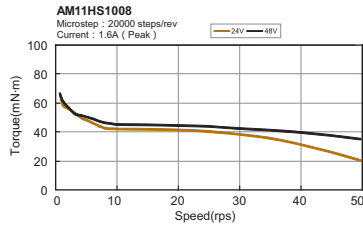
Our software and user manual can be downloaded from our website:
www.moonsindustries.com

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	
AM11HS1008-07	Single Shaft	4	31.0	0.05	1.6	2.5	9.0	0.1	500V AC 1 minute
AM11HS3007-02	Single Shaft		40.0	0.08	1.6	1.7	12.0	0.15	
AM11HS5008-01	Single Shaft		51.0	0.12	1.6	3.5	18.0	0.2	
AM14HYB401-03	Single Shaft		40.0	0.2	1.0	4.3	20.0	0.21	
AM17HD4452-02N	Single Shaft		34.3	0.25	1.8	1.5	38.0	0.23	
AM17HD4452-01N	Double Shaft								
AM17HD4452-E1000D	W/Encoder								
AM17HD2438-02N	Single Shaft		39.8	0.4	1.8	1.9	57.0	0.28	
AM17HD2438-01N	Double Shaft								
AM17HD2438-E1000D	W/Encoder								
AM17HD6426-06N	Single Shaft		48.3	0.5	1.8	2.3	82.0	0.36	
AM17HD6426-05N	Double Shaft								
AM17HD6426-E1000D	W/Encoder								
AM17HDB410-01N	Single Shaft		62.8	0.8	1.6	2.6	123	0.6	
AM23HS0421-01	Single Shaft		41.0	0.6	4.5	0.48	135.0	0.42	
AM23HS0421-02	Double Shaft								
AM23HS0421-E1000D	W/Encoder								
AM23HS2450-01	Single Shaft		54.0	1.2	4.5	0.63	260.0	0.6	
AM23HS2450-02	Double Shaft								
AM23HS2450-E1000D	W/Encoder								
AM23HS3455-01	Single Shaft		76.0	1.8	4.5	0.75	460.0	1.0	
AM23HS3455-02	Double Shaft								
AM23HS3455-E1000D	W/Encoder								
AM23HS5412-01	Single Shaft		111.0	3.2	4.5	1.2	750.0	1.5	
AM24HS2402-08N	Single Shaft		54.0	1.2	4.5	0.43	450.0	0.83	
AM24HS5401-10N	Single Shaft		85.0	2.5	4.5	0.65	900.0	1.4	
AM24HS5401-24N	Double Shaft								
AM24HS5401-E1000D	W/Encoder								
AM34HD0404-08	Single Shaft		66.5	3.0	7.0	0.24	1100.0	1.6	
AM34HD0404-09	Double Shaft								
AM34HD0404-E1000D	W/Encoder								
AM34HD1404-06	Single Shaft		96.0	5.0	7.0	0.33	1850.0	2.7	
AM34HD1404-07	Double Shaft								
AM34HD1404-E1000D	W/Encoder								
AM34HD2403-07	Single Shaft		125.5	7.1	7.0	0.49	2750.0	3.8	
AM34HD2403-08	Double Shaft								
AM34HD2403-E1000D	W/Encoder								

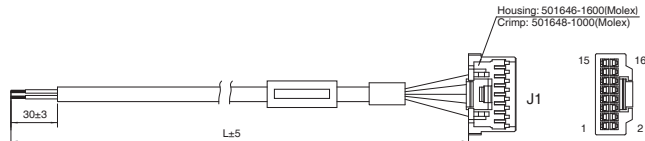
*MOONS' offers standard encoder type motor with 1000 line encoder, A/B/Z differential output.

Torque Curves



I/O Cable

P/N	Length
1008-030	0.3m
1008-100	1m
1008-200	2m

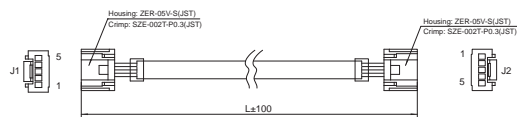


Pin No.	Assignment	Description	Color	Pin No.	Assignment	Description	Color
1	X1+	X1 Digital Input	Red	9	Y1+	Y1 Digital Output	Blue
2	X1-		Black	10	Y1-		Blue/Black
3	X2+	X2 Digital Input	Brown	11	Y2+	Y2 Digital Output	Green
4	X2-		Brown/Black	12	Y2-		Green/Black
5	X3+	X3 Digital Input	Gray	13	Y3+	Y3 Digital Output	Yellow
6	X3-		Gray/Black	14	Y3-		Yellow/Black
7	X4+	X4 Digital Input	White	15	SHIELD	Shielded	black heat-shrink tube
8	X4-		White/Black	16	SHIELD		black heat-shrink tube

RS-485 Daisy Chain Cable (MSSTB05-R Only)

P/N	Length
2111-025 *	0.25m
2111-050	0.5m
2111-100	1m
2111-300	3m

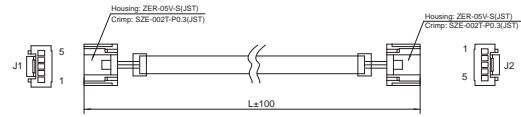
* 2111-025 is included in the drive package.



CANopen Daisy Chain Cable (MSSTB05-C Only)

P/N	Length
2112-025 *	0.25m
2112-050	0.5m
2112-100	1m
2112-300	3m

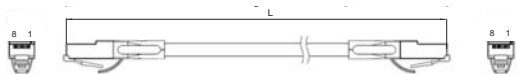
* 2112-025 is included in the drive package.



RS-485 / CANopen Daisy Chain Cable (MSSTB10-R / MSSTB10-C Only)

Common Type	Flexible Type	Length
2012-030 *	2013-030	0.3m
2012-300	2013-300	3m

* 2012-030 is included in the drive package.



RC-880 Regeneration Clamp

RC-880 is used to limit increase in power supply voltage when the motor is decelerating under load. This is commonly referred to as "regeneration".

RC-880 can clamp the regeneration and prevent the power supply and/or drive being damaged or destroyed. Connect the RC-880 between the power supply and the drive.

Max. Supply Voltage: 80V
Max. Output Current: 8A(rms)
Continuous Power: 50W



Numbering System

MSSTB 05 - R

MSSTB Series

Output Current
05 = 5A Peak
10 = 10A Peak

Communication
R = RS-485
C = CANopen

Ordering Information

Model	Current	Voltage	RS-485	Modbus/RTU	CANopen	Q Program
MSSTB05-R	0.1-5.0A	24-48VDC	√	√		√
MSSTB10-R	0.1-10.0A	24-70VDC	√	√		√
MSSTB05-C	0.1-5.0A	24-48VDC			√	√
MSSTB10-C	0.1-10.0A	24-70VDC			√	√

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