



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

Anti resonance

Advanced current control

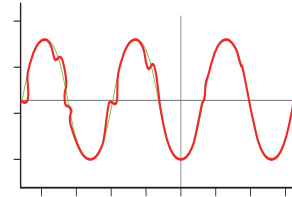
Torque ripple smoothing



Features

Anti-Resonance

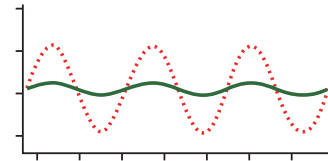
Step motor systems have a natural tendency to resonate at certain speeds. The STB drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves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

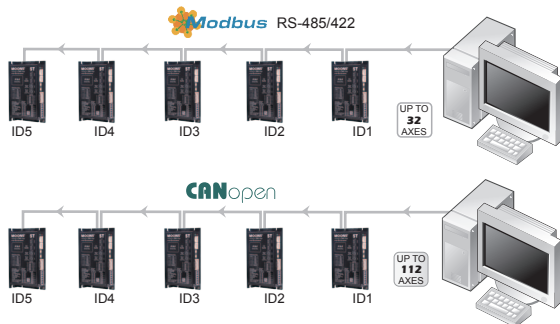


Produces smoother motion at low speeds

Auto Setup & Self Test

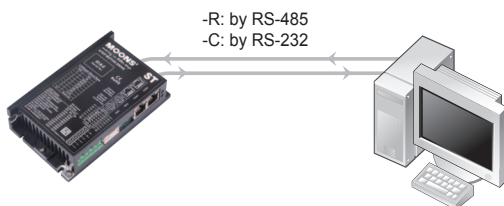
At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize the system performance. The drive can also detect open and short circuits.

Host Control



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

Stand-Alone Programmable

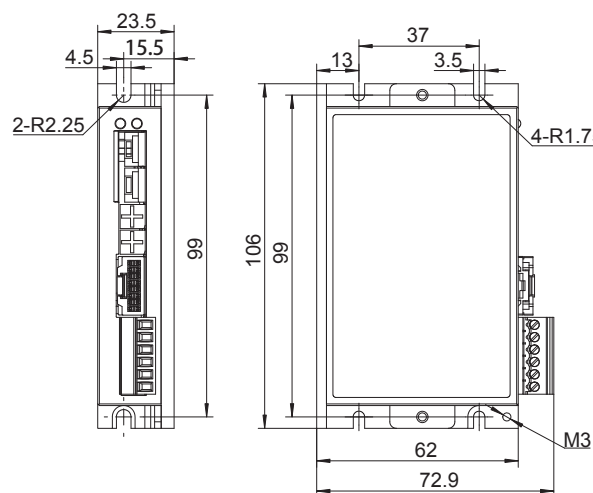


- Stored program execution
- Multi-tasking
- Conditional processing
- Math functions
- Data registers

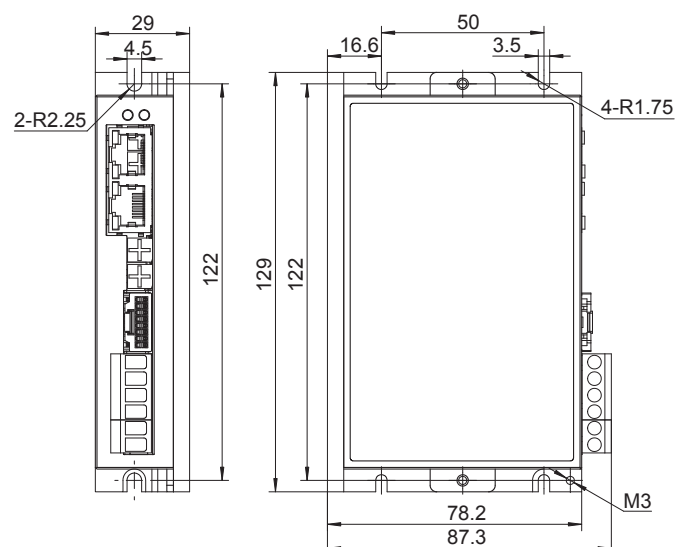
Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Current	MSSTB05: 0.1-5.0A/phase (peak-of-sine) in 0.01 amp increments
	MSSTB10: 0.1-10.0A/phase (peak-of-sine) in 0.01 amp increments
voltage range	MSSTB05: 24 - 48VDC
	MSSTB10: 24 - 70VDC
Input Voltage 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)

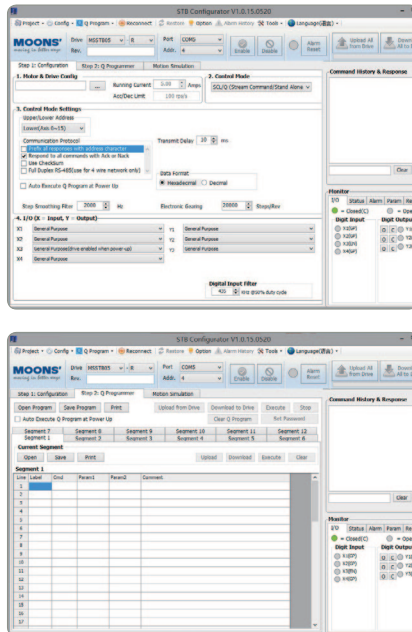
MSSTB05



MSSTB10



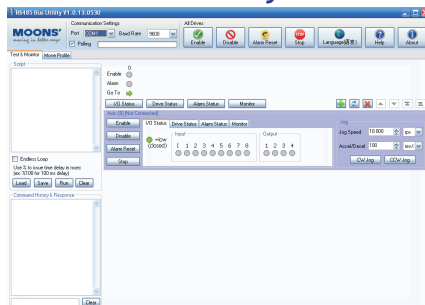
STB Configurator



Software Features

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

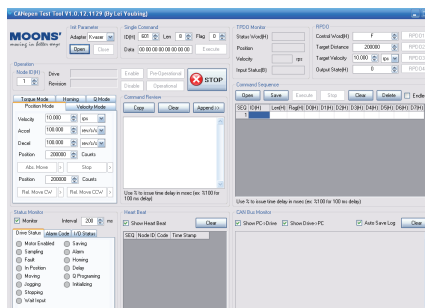
RS485 Bus Utility



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

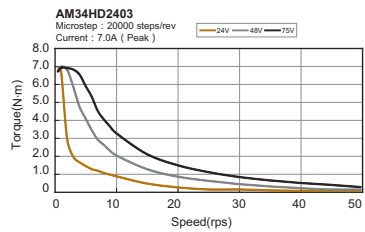
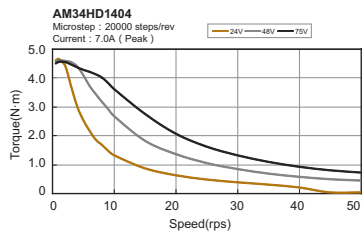
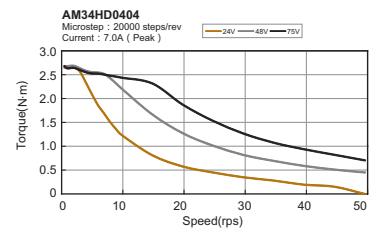
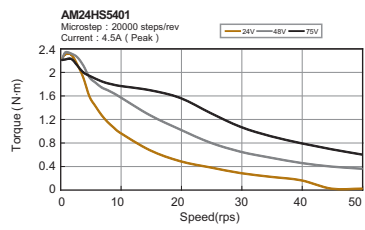
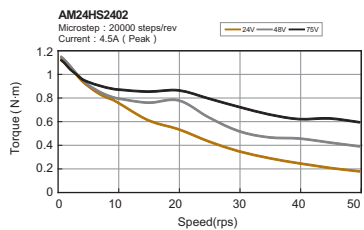
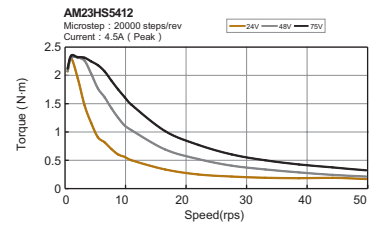
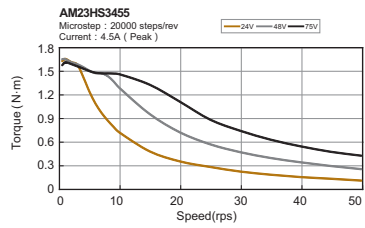
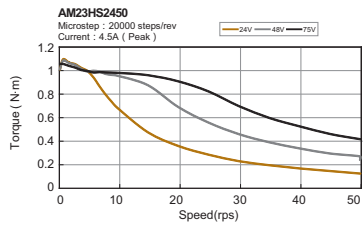
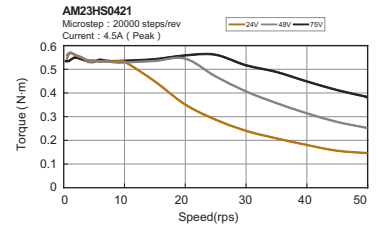
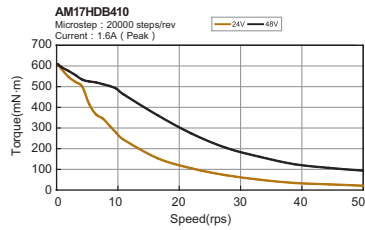
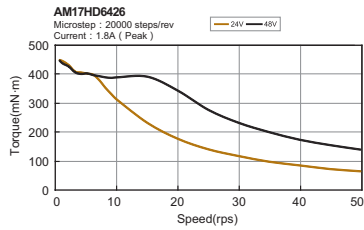
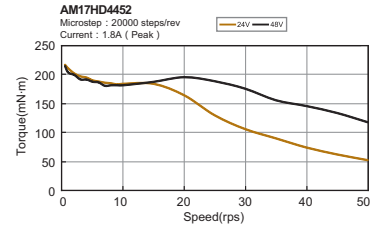
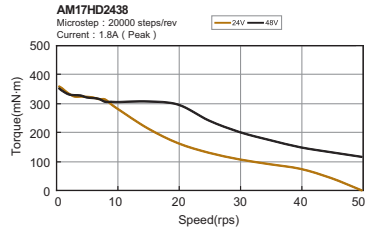
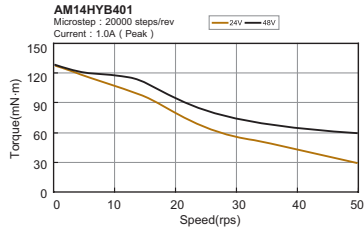
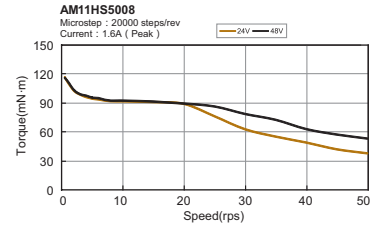
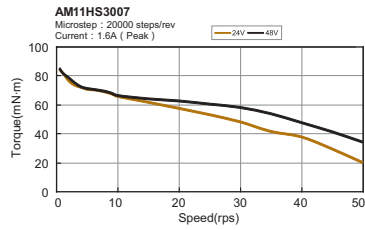
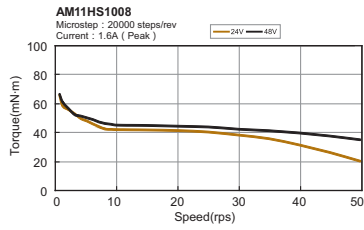
Our software and user manual can be downloaded from our website:
www.moonsindustries.com

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		48.3	0.5	1.8	2.3	82.0	0.36	
AM17HD6426-06N	Single Shaft								
AM17HD6426-05N	Double Shaft								
AM17HD6426-E1000D	W/Encoder		62.8	0.8	1.6	2.6	123	0.6	
AM17HDB410-01N	Single Shaft								
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.

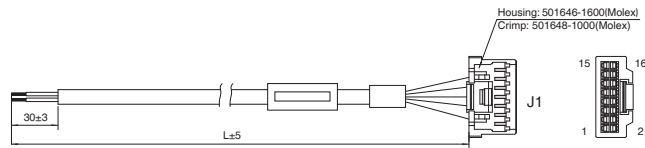
Torque Curves



Accessories (Sold Separately)

I/O Cable

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

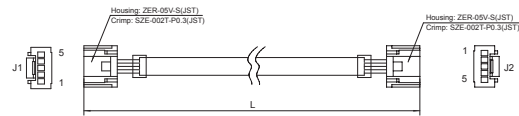


Pin No.	Assignment	Description	Color	Pin No.	Assignment	Description	Color
1	X1+	X1 Digital Input	Red	9	Y1+	Y1 Digital Output	Blue
2	X1-		Black	10	Y1-		Blue/Black
3	X2+	X2 Digital Input	Brown	11	Y2+	Y2 Digital Output	Green
4	X2-		Brown/Black	12	Y2-		Green/Black
5	X3+	X3 Digital Input	Gray	13	Y3+	Y3 Digital 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(L)
2111-025 *	0.25m
2111-050	0.5m
2111-100	1m
2111-300	3m

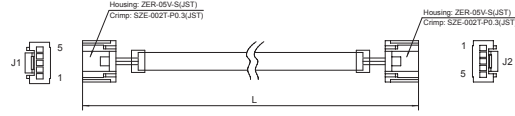
* 2111-025 is included in the drive package.



CANopen Daisy Chain Cable (MSSTB05-C Only)

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

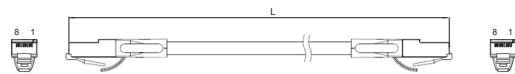
* 2112-025 is included in the drive package.



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

Common Type	Flexible Type	Length(L)
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			√	√

★ **Headquarters**
SHANGHAI AMP&MOONS' AUTOMATION CO.,LTD.

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: ama-info@moons.com.cn

■ **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

■ **Qingdao Branch Office**

Room 1012, Zhuoyue Tower, No.16 Fengcheng Road,
Shibei District, Qingdao 266000 P. R.China
Tel: +86 (0)532-8096 9935
Fax: +86 (0)532-8091 9938

■ **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

■ **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

■ **MOONS' INDUSTRIES (AMERICA), INC.**

1113 North Prospect Avenue, Itasca, IL 60143 USA
Tel: +1 630 833 5940
Fax: +1 630 833 5946

■ **APPLIED MOTION PRODUCTS, INC.**

404 Westridge Dr. Watsonville, CA 95076, USA
1-800-525-1609
Tel: +1 831 761 6555
Fax: +1 831 761 6544

■ **MOONS' INDUSTRIES (SOUTH-EAST ASIA) PTE LTD.**

33 Ubi Avenue 3 #08-23 Vertex Singapore 408868
Tel: +65 6634 1198
Fax: +65 6634 1138

■ **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

■ **Wuhan Branch Office**

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

■ **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

■ **Guangzhou Branch Office**

Room 4006, Tower B, China Shine Plaza,
No. 9 Linhe Xi Road, Tianhe District, 510610
P.R. China
Tel: +86 (0)20-38010153
Fax: +86 (0)20-38103661

■ **MOONS' INDUSTRIES EUROPE S.R.L.**

Via Torri Bianche n.1 20871 Vimercate (MB) Italy
Tel: +39 039 626 0521
Fax: +39 039 963 1409

■ **MOONS' INDUSTRIES JAPAN CO., LTD**

〒222-0033
神奈川県横浜市港北区新横浜2丁目12番地1
新横浜光伸ビル6F 601
Tel: +81 045 475 5788
Fax: +81 045 475 5787



<http://www.moonsindustries.com>
E-mail: ama-info@moons.com.cn
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