



# INTEGRATED SERVO & STEPPER MOTORS

TOLOMATIC ACTUATOR & JVL INTEGRATED MOTOR



**LINEAR SOLUTIONS MADE EASY**



## TOLOMATIC AND JVL PARTNERSHIP

Tolomatic has partnered with JVL to provide integrated servo and stepper motors paired with Tolomatic's broad range of configurable actuators. JVL's innovative motors are integrated with the drive control electronics, providing a flexible motion control solution that can exist outside of the control cabinet. These motors pair seamlessly with Tolomatic actuators and can be ordered together to provide a all-in-one solution for your automation needs.

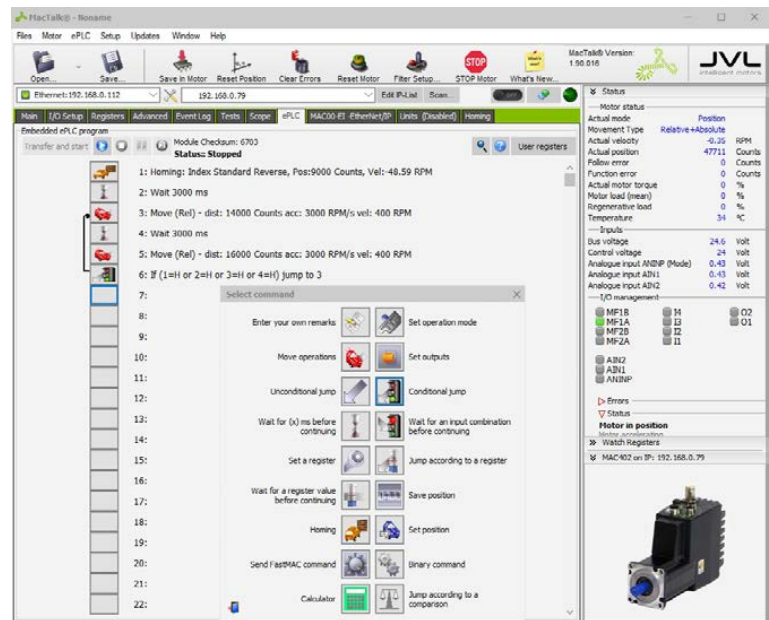
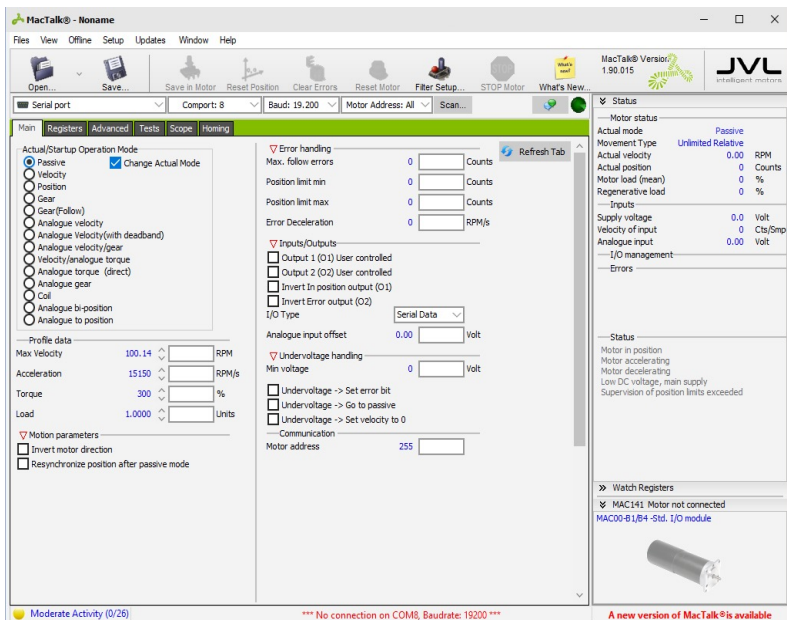
## JVL INTEGRATED MOTOR FEATURES

- Added features like **Safe-Torque-Off** and **Absolute multi-turn encoders** on listed premium configurations (see table)
- High efficiency, quiet and maintenance free operation
- Fast installation with fewer opportunities for wiring errors
- Easy setup and configuration, featuring JVL's MacTalk® software
- Digital I/O and Ethernet/IP Communication options available as standard options.



## MacTalk® ALL-IN-ONE SOFTWARE

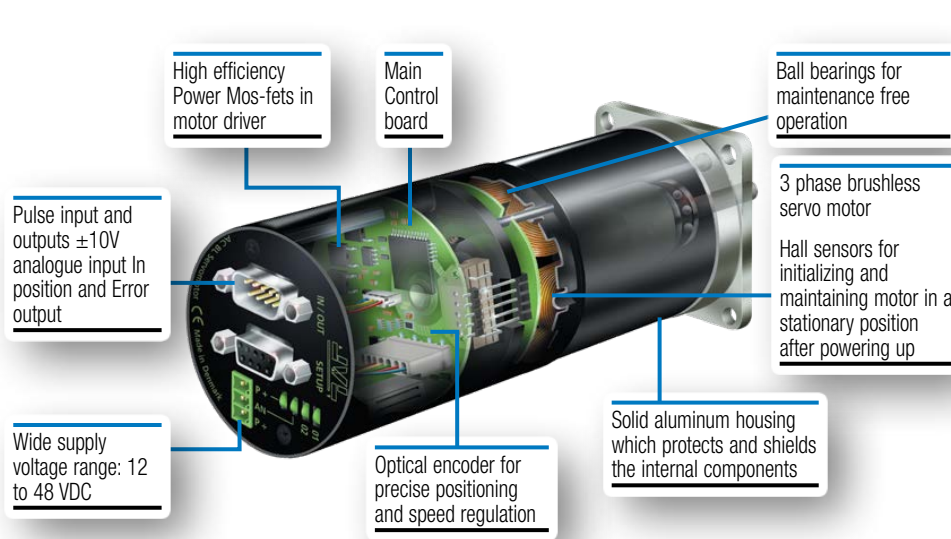
- Simple, intuitive software for drive commissioning and E-PLC programming
- E-PLC allows JVL motors to function without use of a standard PLC; allows for system/software modularization when used with a standard PLC
- Easy IO – IO mapping not required
- Automatic bus voltage detection
- Flexible motion command options; commands can be updated mid-move
- Programming for electronic gearing, axis synchronization





**JVL INTEGRATED SERVO MOTORS**

- Speeds up to 4000 RPM and peak torque ratings up to 33.6 in-lb (3.8Nm)
- Tolomatic standard offering includes: MAC 140, 141, 402 motors



**MAC 140/141**

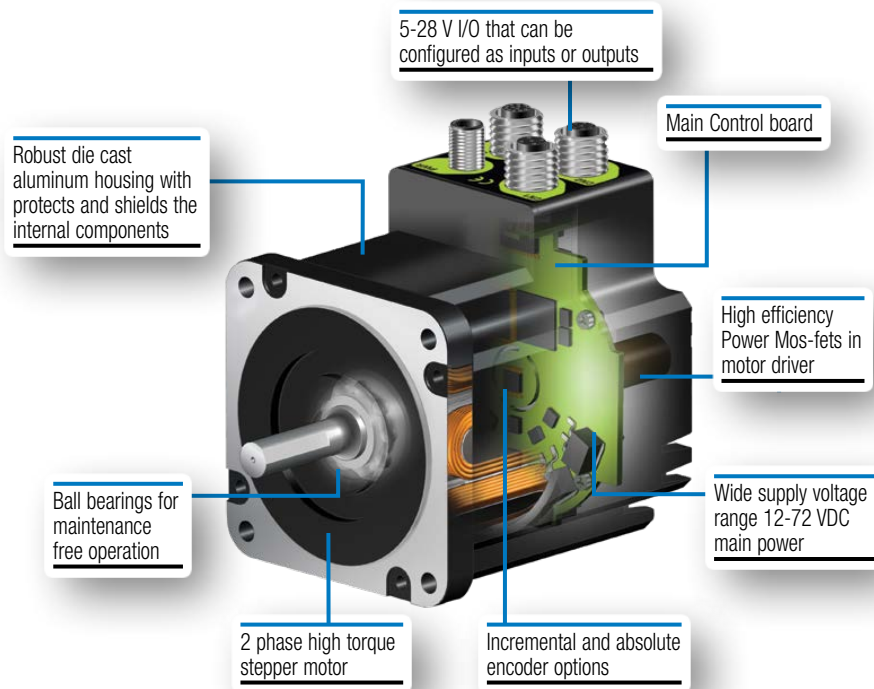


**MAC 402**



**JVL INTEGRATED STEPPER MOTORS**

- Speeds up to 3000 RPM and peak torque rating of 44.4 in-lb (5 Nm)
- Tolomatic standard offering includes: MIS 173, 232, 341 motors



**MIS 173**



**MIS 232**



**MIS 341**





**TOLOMATIC OFFERING**

For our customers' convenience, a selection of JVL servo and stepper motors have been pre-configured and are offered in the form of either a standard or a premium option. Standard motors are equipped with incremental encoders, digital I/O communication, and ePLC programming. Premium motors can include additional features such as Absolute Encoders, Ethernet I/P communication, and Safety Torque Off (STO). For more information on the JVL features Please visit: [www.jvl.dk](http://www.jvl.dk)

**NEED TO OPTIMIZE ON COST?**

For applications where precise motion location is not necessary the MIS232 open-loop, with digital I/O control motor is a good solution to reduce system costs. This motor does not require an encoder and is a perfect solution for price sensitive applications.

**SPECIFICATIONS**

	Config.	Supply Voltage	Speed Range	Cont. Torque		Peak Torque		Rated Power	Rotor Inertia		Encoder Options
				lb-in	Nm	lb-in	Nm		lb*in <sup>2</sup>	kg*cm <sup>2</sup>	
Integrated Servo Motors	MAC140	12-48VDC	4000	2.83	0.32	7.97	0.90	134	0.059	0.173	8192 CPR, abs multiturn or 4096 CPR, incremental
	MAC141	12-48VDC	2700	4.25	0.48	14.07	1.59	134	0.078	0.227	
	MAC402	12-48VDC	3000	11.33	1.28	33.63	3.80	400	0.116	0.340	
Integrated Stepper Motors	MIS173	12-72VDC	3000	4.96	0.56	-	-	142	0.018	0.054	4096 CPR, magnetic + abs multiturn or 1024 CPR magnetic semi-abs
	MIS232	12-72VDC	3000	15.75	1.78	-	-	85	0.164	0.480	
	MIS341	12-72VDC	3000	44.43	5.02	-	-	220	0.923	2.700	

Temperature range for all motors 0-40°C (32-104°F)

**ORDERING**

**A M J 1 C 3 A 1 C R 5 4**

**MOTOR ORDER CODE**  
AM Tolomatic Motor

**MOTOR TYPE & COMMUNICATION OPTION**

MAC Integrated Servo	
<b>J1</b>	I/O, Inc. Encoder (Gen 1, Discontinued)
<b>J2</b>	I/O, Inc. Encoder
<b>J3</b>	Ethernet/IP, Abs. Encoder*
<b>J4</b>	Ethernet/IP, Inc. Encoder
MIS Integrated Stepper	
<b>L1</b>	I/O, No Encoder
<b>L2</b>	I/O, Inc. Encoder
<b>L3</b>	Ethernet/IP, Abs. Encoder, STO
<b>L4</b>	Ethernet/IP, Inc. Encoder

\*MAC402 motor size includes STO

**MOTOR SIZE**

MAC Integrated Servo	
<b>C3</b>	MAC140
<b>C4</b>	MAC141
<b>M1</b>	MAC402
MIS Integrated Stepper	
<b>B2</b>	MIS173
<b>C2</b>	MIS232
<b>D2</b>	MIS341

**BRAKE**

<b>A</b>	No Brake
<b>B</b>	Brake

**GEARHEAD**

<b>0*</b>	3:1 Gearhead (34-frame output)
<b>1</b>	No Gearhead
<b>2</b>	5:1 Gearhead
<b>3</b>	10:1 Gearhead
<b>4**</b>	5:1 Gearhead (23-frame output)
<b>5**</b>	10:1 Gearhead (23-frame output)
<b>6</b>	3:1 Gearhead
<b>7**</b>	3:1 Gearhead (23-frame output)
<b>8*</b>	5:1 Gearhead (34-frame output)
<b>9*</b>	10:1 Gearhead (34-frame output)

\*MAC402 only  
\*\*MIS341 only

**CABLE OPTIONS**

<b>CR54</b>	Power and I/O Cables, 5m
<b>CR56</b>	Power & M12/RJ45 Ethernet Cables, 5m
<b>CR57</b>	Power, M12/RJ45 Ethernet & I/O Cables, 5m
<b>CR204</b>	Power and I/O Cables, 20m
<b>CR206</b>	Power & M12/RJ45 Ethernet Cables, 20m
<b>CR207</b>	Power, M12/RJ45 Ethernet & I/O Cables, 20m





**CABLES - Field Retrofit Ordering**

Used On:	Part Number	Description
All Motors	3604-1933	5m, Drive Power Cable
	3604-3451	20m, Drive Power Cable
MAC402 Motor Only	3604-3455	5m, Motor Power Cable
	3604-3456	20m, Motor Power Cable
All I/O Motors	3604-1934	5m, 8-pin Male, I/O Cable
	3604-3452	20m, 8-pin Male, I/O Cable
MAC I/O Motors Only	3604-3453	5m, 8-Pin Female, I/O Cable
	3604-3454	20m, 8-Pin Female, I/O Cable
All Ethernet/IP Motors	3604-3459	5m, Ethernet/IP Cable
	3604-3460	20m, Ethernet/IP Cable
All MAC Ethernet/IP & All MIS Motors	3604-3461	5m, 17-Pin, I/O Cable
	3604-3462	20m, 17-Pin, I/O Cable
AMJ3M1xx & AML3xxxx Motors only	3604-3445	5m, STO Cable
	3604-3449	20m, STO Cable
All Motors Except MAC402	3604-3457	5m, Brake Cable
	3604-3458	20m, Brake Cable
MAC I/O Motors Only	3604-3439	5-Pin RS232 Programming Cable
MAC Ethernet/IP Motors Only	3604-3495	17-Pin RS232 programming Cable
All MAC Motors	3604-3441	USB Adaptor for RS232 Programming Cable
MIS I/O Motors Only	3604-3437	5-Pin RS485 Programming Cable
MIS Ethernet/IP Motors Only	3604-3436	17-Pin RS485 Programming Cable
All MIS Motors	3604-1864	USB adaptor for RS485 Programming Cable
All Motors	3604-3435	MACTALK Drive Programming Software

**POWER SUPPLIES - Field Retrofit Ordering**

Part Number	Description	Voltage
3604-2147	Power Supply, 48VDA, 120W, 2.5A	48VDC
3604-2148	Power Supply, 48VDA, 240W, 5A	48VDC
3604-2149	Power Supply, 48VDA, 480W, 10A	48VDC

**PROGRAMMING KIT - Field Retrofit Ordering**

Part Number	Description
3604-9200	MAC Integrated Servo J1 & J2 (Basic I/O) programming kit
3604-9201	MAC Integrated Servo J3 & J4 (Ethernet/IP) programming kit
3604-9202	MIS Integrated Stepper L1 & L2 (Basic I/O) programming kit
3604-9203	MIS Integrated Stepper L3 & L4 (Ethernet/IP) programming kit

**JVL PART NUMBER CODES**

Ordering Code	JVL motor code	JVL Communication Module Code	Ordering Code	JVL motor code	JVL Communication Module Code
AMJ1C3xx	MAC140-A1AAAA	MAC00-R4	AML1C2xx	MIS232A1M5N075	SMC75
AMJ1C4xx	MAC141-A1AAAA		AML2B2xx	MIS173Q8Q5H266	SMC66
AMJ2M1Ax	MAC402-D2-CAGM	MAC00-B42	AML2C2xx	MIS232Q1Q5H266	SMC66
AMJ2M1Bx	MAC402-D5-CAGM		AML2D2xx	MIS341C14Q5H285	SMC85
AMJ3C3xx	MAC140-F1HAAA	MAC00-EI41	AML3B2xx	MIS173Q8EIH4S6	SMC66 with STO
AMJ3C4xx	MAC141-F1HAAA		AML3C2xx	MIS232Q1EIH4S6	SMC66 with STO
AMJ3M1Ax	MAC402-D2-FRGM		AML3D2xx	MIS341C14EIH4S8	SMC85 with STO
AMJ3M1Bx	MAC402-D5-FRGM		AML4B2xx	MIS173Q8EIH266	SMC66
AMJ4C3xx	MAC140-F1GAAA		AML4C2xx	MIS232Q1EIH266	SMC66
AMJ4C4xx	MAC141-F1GAAA		AML4D2xx	MIS341C14EIH285	SMC85
AMJ4M1Ax	MAC402-D2-CAGM				
AMJ4M1Bx	MAC402-D5-CAGM				

**USA - Headquarters**

**Tolomatic Inc.**  
3800 County Road 116  
Hamel, MN 55340, USA  
**Phone:** (763) 478-8000  
Toll-Free: **1-800-328-2174**  
sales@tolomatic.com  
[www.tolomatic.com](http://www.tolomatic.com)

**MEXICO**

**Centro de Servicio**  
Parque Tecnológico Innovación  
Int. 23, Lateral Estatal 431,  
Santiago de Querétaro,  
El Marqués, México, C.P. 76246  
**Phone:** +1 (763) 478-8000  
help@tolomatic.com

**EUROPE**

**Tolomatic Europe GmbH**  
Elisabethenstr. 20  
65428 Rüsselsheim  
Germany  
**Phone:** +49 6142 17604-0  
help@tolomatic.eu  
[www.tolomatic.com/de-de](http://www.tolomatic.com/de-de)

**CHINA**

**Tolomatic Automation Products (Suzhou) Co. Ltd.**  
No. 60 Chuangye Street, Building 2  
Huqiu District, SND Suzhou  
Jiangsu 215011 - P.R. China  
**Phone:** +86 (512) 6750-8506  
Tolomatic\_China@tolomatic.com

All brand and product names are trademarks or registered trademarks of their respective owners. Information in this document is believed accurate at time of printing. However, Tolomatic assumes no responsibility for its use or for any errors

that may appear in this document. Tolomatic reserves the right to change the design or operation of the equipment described herein and any associated motion products without notice. Information in this document is subject to change without notice.

Visit [www.tolomatic.com](http://www.tolomatic.com) for the most up-to-date technical information