

PRODUCT PROFILE

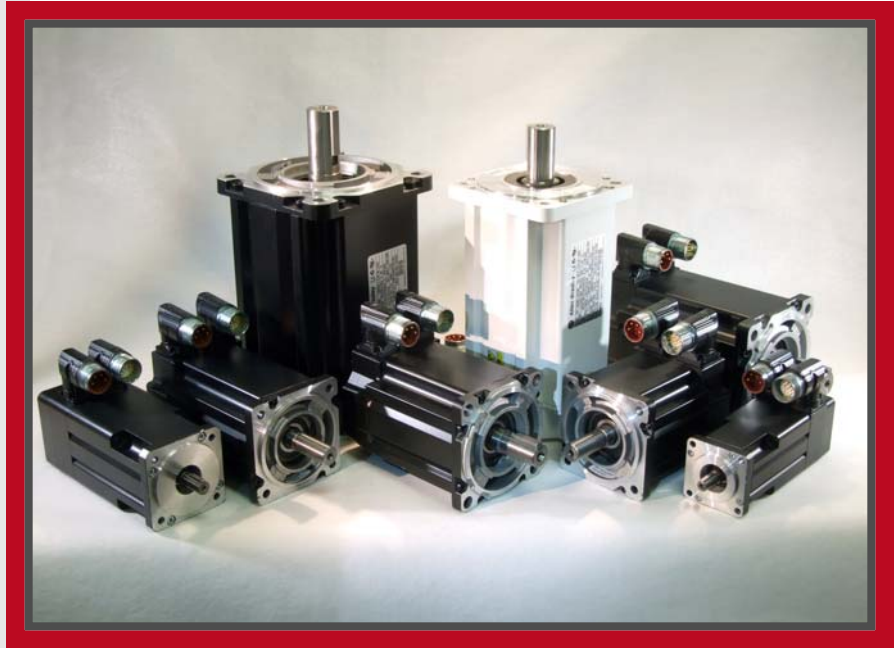
MP-SERIES LOW INERTIA MOTORS

BRUSHLESS SERVO MOTORS WITH ABSOLUTE FEEDBACK OPTION

The Allen-Bradley MP-Series Low Inertia, high output brushless servo motors use innovative design characteristics to reduce motor size while delivering significantly higher torque. These compact and highly dynamic brushless servo motors from Rockwell Automation are designed to meet the demanding requirements of high performance motion systems. This series of servo motors is typically used with the Allen-Bradley Kinetix 2000, Kinetix 6000, Kinetix 7000 and Ultra3000 servo drive families. Available in nine frame sizes, these motors provide continuous stall torque from 0.26 to 163 Nm (2.3-1440 lb-in.) and peak torque from 0.77 to 278 Nm (6.8-2460 lb-in.)

MP-SERIES LOW INERTIA MOTORS PROVIDE:

- Innovative winding technology yields up to 40% higher torque per unit size than conventional servo motors
- Improved winding insulation material for enhanced thermal management and heat transfer, resulting in higher performance
- High-energy rare-earth magnets for quicker acceleration
- **New DIN connector versions of motors allow flexible orientation of connectors and use of a single cable family with all MP-Series Motors**
- Integral 24 volt brake option
- Broad torque range - all within one motor family
- Optional Shaft Seal for IP 66 environmental rating
- Standard IEC 72-1 mounting dimensions
- Operating temperature range: 0 - 40° C (32 - 104° F).
- The MP-Series Low Inertia Motors are UL recognized components to applicable UL and CSA standards and CE marked for all applicable directives.



Applications where more power is required in a smaller package will benefit from the use of MP-Series Low Inertia Motors. Typical applications include: packaging, converting, electronics assembly, automotive, metal forming and material handling.

HIGH PERFORMANCE FEEDBACK

MP-Series Low Inertia motors are available with high performance encoders with a choice of Single-turn (-E, -S) or Multi-turn (-V, -M) high resolution feedback.

- Up to 2 million counts per revolution (-M and -S) for smooth performance (MPL-A/B3xx, -A/B4xx, -A/B45xx, -A/B5xx, -B6xx, -B8xx, and -B9xx motors).
- Up to 260 thousand counts per revolution (-E and -V) for smooth performance (MPL-A/B15xx and -A/B2xx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback with within 4096 turns. The electromechanical design does not require a battery.
- MP-Series servo motors with high resolution encoders may be used as a component of the Kinetix safe-off feature.

Smart Motor Technology



- On-board memory retains motor identity
- RS-485 communication link automatically reports identity to the system upon startup for reduced commissioning time

230 VOLT MOTOR SPECIFICATIONS

Catalog Number	Rated Speed rpm	Rated Output kW	Rotor Inertia* kg-m ² (lb-in.-s ²)	Continuous Stall Torque Nm (lb-in.)	Peak Stall Torque Nm (lb-in.)	Continuous Stall Current Amperes (0-peak)	Peak Stall Current Amperes (0-peak)	230 volt
PL-A1510V	8000	0.16	0.000074 (0.000065)	0.26 (2.3)	0.77 (6.8)	1.05	3.4	
MPL-A1520U	7000	0.27	0.000013 (0.00012)	0.49 (4.3)	1.58 (14)	1.80	6.1	
MPL-A1530U	7000	0.39	0.000023 (0.00020)	0.90 (8.0)	2.82 (25)	2.82	10.1	
MPL-A210V	8000	0.37	0.000015 (0.00013)	0.55 (4.9)	1.52 (13.5)	3.09	10.2	
MPL-A220T	6000	0.62	0.000039 (0.00035)	1.61 (14.2)	4.74 (42)	4.54	15.5	
MPL-A230P	5000	0.86	0.000063 (0.00056)	2.10 (18.6)	8.20 (73)	5.4	23.0	
MPL-A310P	5000	0.73	0.000044 (0.00039)	1.58 (14.0)	3.61 (32)	4.85	14.0	
MPL-A310F	3000	0.46	0.000044 (0.00039)	1.58 (14.0)	3.61 (32)	3.2	9.3	
MPL-A320P	5000	1.3	0.000078 (0.00069)	3.05 (27.0)	7.91 (70)	9.0	29.5	
MPL-A320H	3500	1.0	0.000078 (0.00069)	3.05 (27.0)	7.91 (70)	6.1	19.3	
MPL-A330P	5000	1.8	0.00012 (0.0010)	4.18 (37.0)	11.1 (98)	12.0	38.0	
MPL-A420P	5000	2.0	0.00026 (0.0023)	4.74 (42.0)	10.2 (90)	12.7	46.0	
MPL-A430P	5000	2.2	0.00038 (0.0033)	5.99 (53.0)	19.8 (175)	16.8	67.0	
MPL-A430H	3500	1.8	0.00038 (0.0033)	6.21 (55.0)	19.8 (175)	12.2	45.0	
MPL-A4530F	2800	1.9	0.00040 (0.0036)	8.36 (74.0)	20.3 (180)	13.4	42.0	
MPL-A4530K	4000	2.5	0.00040 (0.0036)	8.13 (72.0)	20.3 (180)	19.5	62.0	
MPL-A4540C	1500	1.5	0.00052 (0.0046)	10.2 (90.0)	27.1 (240)	9.4	29.0	
MPL-A4540F	3000	2.6	0.00052 (0.0046)	10.2 (90.0)	27.1 (240)	18.4	58.0	
MPL-A520K	4000	3.5	0.00078 (0.0069)	10.7 (95.0)	24.3 (215)	23.0	65.0	
MPL-A540K	4000	5.5	0.00147 (0.013)	19.4 (172.0)	48.6 (430)	41.5	120.0	
MPL-A560F	3000	5.3	0.00213 (0.019)	26.8 (237.0)	61.0 (540)	42.0	120.0	

* Rotor inertia values shown are for non-brake encoder motors. Inertias are higher for brake and resolver versions of the motors.

In addition to the MP-Series Low Inertia servo motors, Rockwell Automation offers a variety of other Allen-Bradley MP-Series Motors, enabling you to use exactly the right motor for your application.

MOTOR	DESCRIPTION	FEATURES	APPLICATIONS
	MP-Series Food Grade Motors combine the characteristics of the MP-Series Low Inertia Servo Motors with features specifically designed to meet the unique needs of many food and beverage packaging and handling applications. These motors address the challenges of food environments by incorporating improved sealing techniques and non-corrosive food grade fasteners and coatings.	<ul style="list-style-type: none"> Can be used in close proximity to food IP66 and IP67 for low pressure wash and incidental spillage protection Dilute cleaning compounds can be used Durable two-part food grade epoxy Food grade grease All stainless steel fasteners and shaft High-resolution feedback standard, absolute feedback option Speeds up to 5000 rpm 	<ul style="list-style-type: none"> Food packaging Volumetric filling Form, fill, seal Food handling For meat, poultry and applications, the MP-Series Stainless Steel motors are recommended.
	MP-Series Stainless Steel Motors are specifically designed to meet the unique needs of hygienic environments. Use these servo motors even in high pressure, highly caustic washdown conditions, such as meat and poultry applications.	<ul style="list-style-type: none"> Can be used in close proximity to food IP66, IP67 and IP69K for 1200 psi washdown Smooth, passivated 300 series stainless steel cylindrical exterior Factory-sealed and leak tested High resolution feedback standard, multi-turn absolute feedback option 	<ul style="list-style-type: none"> Meat, poultry and dairy Food slicing and filling Raw food handling Processing Closing machinery Life science Consumer products

460 VOLT MOTOR SPECIFICATIONS

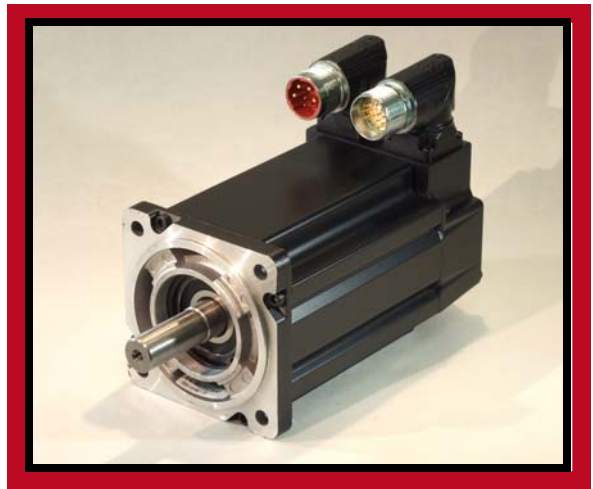
Catalog Number	Rated Speed rpm	Rated Output kW	Rotor Inertia* kg-m ² (lb-in.-s ²)	Continuous Stall Torque Nm (lb-in.)	Peak Stall Torque Nm (lb-in.)	Continuous Stall Current Amperes (0-peak)	Peak Stall Current Amperes (0-peak)
MPL-B1510V	8000	0.16	0.000074 (0.000065)	0.26 (2.3)	0.77 (6.8)	0.95	3.1
MPL-B1520U	7000	0.27	0.000013 (0.00012)	0.49 (4.3)	1.58 (14)	1.80	6.1
MPL-B1530U	7000	0.39	0.000023 (0.00020)	0.90 (8.0)	2.82 (25)	2.00	7.2
MPL-B210V	8000	0.37	0.000015 (0.00013)	0.55 (4.9)	1.52 (13.5)	1.75	5.8
MPL-B220T	6000	0.62	0.000039 (0.00035)	1.61 (14.2)	4.74 (42)	3.30	11.3
MPL-B230P	5000	0.86	0.000063 (0.00056)	2.10 (18.6)	8.20 (73)	2.60	11.3
MPL-B310P	5000	0.77	0.000044 (0.00039)	1.58 (14.0)	3.61 (32.0)	2.4	7.1
MPL-B320P	5000	1.5	0.000078 (0.00069)	3.05 (27.0)	7.91 (70.0)	4.5	14.0
MPL-B330P	5000	1.8	0.00012 (0.0010)	4.18 (37.0)	11.1 (98.0)	6.1	19.0
MPL-B420P	5000	1.9	0.00026 (0.0023)	4.74 (42.0)	13.5 (120.0)	6.4	22.0
MPL-B430P	5000	2.2	0.00038 (0.0033)	6.55 (58.0)	19.8 (175.0)	9.2	32.0
MPL-B4530F	3000	2.1	0.00040 (0.0036)	8.25 (73.0)	20.3 (180.0)	7.0	21.0
MPL-B4530K	4000	2.6	0.00040 (0.0036)	8.25 (73.0)	20.3 (180.0)	11.0	31.0
MPL-B4540F	3000	2.6	0.00052 (0.0046)	10.2 (90.0)	27.1 (240.0)	9.1	29.0
MPL-B4560F	3000	3.2	0.00078 (0.0067)	14.1 (125.0)	34.4 (305.0)	11.8	36.0
MPL-B520K	4000	3.5	0.00078 (0.0069)	10.7 (95.0)	23.2 (205.0)	11.5	33.0
MPL-B540D	2000	3.4	0.00147 (0.013)	19.4 (172.0)	41.0 (362.0)	10.5	23.0
MPL-B540K	4000	5.4	0.00147 (0.013)	19.4 (172.0)	48.6 (430.0)	20.5	60.0
MPL-B560F	3000	5.5	0.00213 (0.019)	26.8 (237.0)	67.8 (600.0)	20.6	68.0
MPL-B580F	3000	7.1	0.00289 (0.023)	34.0 (301.0)	87.0 (770.0)	26.0	94.0
MPL-B580J	3800	7.9	0.00289 (0.023)	34.0 (301.0)	87.0 (770.0)	32.0	115.0
MPL-B640F	3000	6.1	0.00400 (0.0354)	36.7 (325.0)	72.3 (640.0)	32.1	65.0
MPL-B660F	3000	6.15	0.00580 (0.051)	48.0 (425.0)	101.1 (895.0)	38.5	96.0
MPL-B680D	2000	9.3	0.00775 (0.0685)	62.8 (556.0)	154.2 (1365.0)	34.0	94.0
MPL-B680F	3000	7.5	0.00775 (0.0685)	60.0 (531.0)	108.5 (960.0)	48.0	96.0
MPL-B860D	2000	12.5	0.0169 (0.150)	83.0 (735.0)	152.5 (1350.0)	47.5	95.5
MPL-B880C	1500	12.6	0.0224 (0.198)	110.0 (973.0)	203.0 (1800.0)	47.5	97.5
MPL-B880D	2000	12.6	0.0224 (0.198)	110.0 (973.0)	147.0 (1300.0)	67.0	96.0
MPL-B960B	1200	12.7	0.0273 (0.242)	130.0 (1150.0)	231.0 (2050.0)	42.5	94.0
MPL-B960C	1500	14.8	0.0273 (0.242)	124.3 (1100.0)	226.0 (2000.0)	55.0	125.0
MPL-B960D	2000	15.0	0.0273 (0.242)	124.3 (1100.0)	226.0 (2000.0)	70.0	125.0
MPL-B980B	1000	15.2	0.0354 (0.313)	162.7 (1440.0)	278.0 (2460.0)	40.0	94.0
MPL-B980C	1500	16.8	0.0354 (0.313)	158.2 (1400.0)	271.0 (2400.0)	68.0	140.0
MPL-B980D	2000	18.6	0.0354 (0.313)	158.2 (1400.0)	260.0 (2300.0)	79.0	140.0

460 volt

* Rotor inertia values shown are for non-brake encoder motors. Inertias are higher for brake and resolver versions of the motors.

CONNECTORS AND CABLES

New circular DIN connector versions of MP-Series Low Inertia Motors allow flexible orientation of connectors and use of a single cable family with all MP-Series Motors. Motor sizes 100-165mm are available with circular DIN style connectors beginning in early December 2008. The remaining MP-Series Low Inertia Motors will be transitioning to the DIN connectors in mid-2009. Although the DIN style motors provide a variety of benefits, customers will have the option of purchasing the original bayonet style MP-Series Motors until mid-2010.



Motor Cables

Rockwell Automation offers a comprehensive selection of power, feedback, and brake cables for your MP-Series motors. Offerings include standard and continuously flexing cables, in lengths ranging from 1 meter to 90 meters.

The continuously flexing power and brake cables comply with RoHS and NFPA-79 tray ratings, and are composed of UL-listed bulk cable. Jacket coloring is compliant with DESINA specifications.

Refer to the Motion Control Selection Guide, Publication GMC-SG001x to select the cables for your motion control system.



Flex cables are available for MP-Series Motors and other Allen-Bradley motors and actuators with DIN style connectors.

Motor Accessories

Shaft seal kits are available for all frame sizes of the MP-Series Low Inertia motors. When installed correctly, the seals yield an IP66 rating at the shaft. Note that shaft seals are wearing parts that will need to be replaced periodically. Refer to the Motion Control Selection Guide to select the shaft seal kit for your specific motor.

Motor-end connector kits are available for most MP-Series motors. They are used by customers who choose to build their own cables. The kits utilize metallic backshells, compression-style sealing to the cable jacket, and are solder-style or crimp-style connector sockets depending on the kit. Crimping tools are offered by Rockwell Automation for crimp-style sockets. Refer to the Motion Control Selection Guide to select the correct connector kit for your motor and cable.

For more information refer to our web site: www.ab.com/motion, or the Kinetix selection guide, GMC-SG001x

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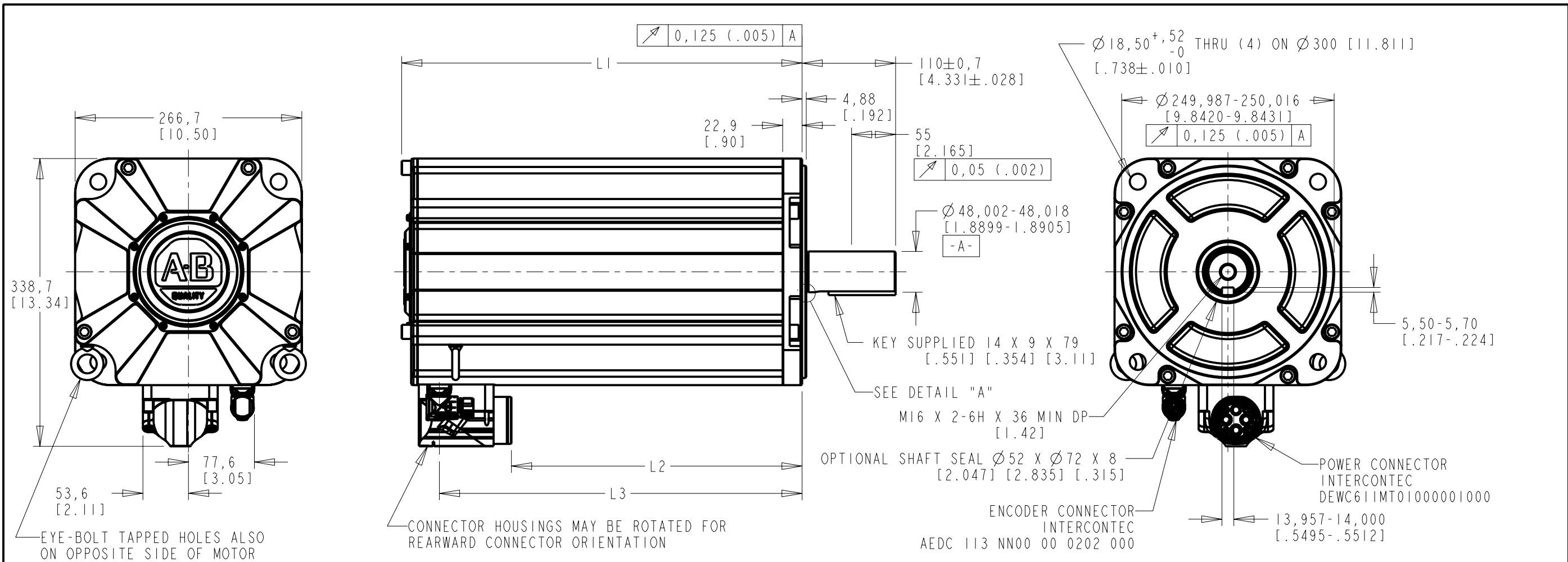
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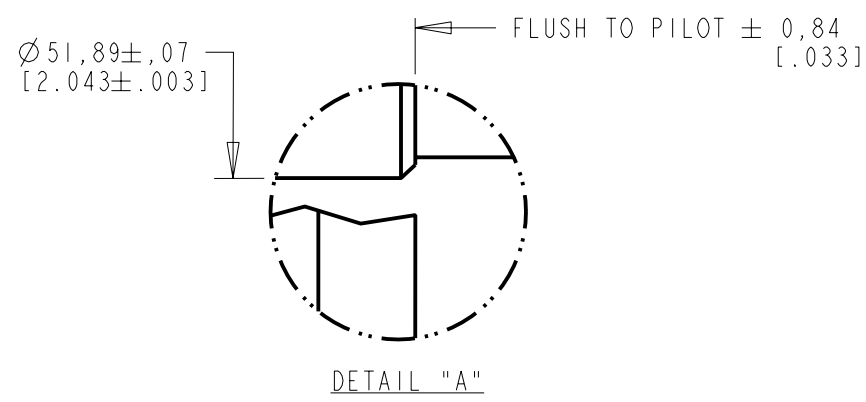
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846



MODEL	L1	L2	L3
960	420,4 [16.55]	291,1 [11.46]	375,9 [14.80]
980	471,2 [18.55]	341,9 [13.46]	426,7 [16.80]

PIN-OUT	
POWER CONNECTOR	
PIN	FUNCTION
U	U
V	V
W	W
-	GND
+	BR+
-	BR-
1	-
2	-

PIN-OUT	
ENCODER CONNECTOR	
PIN	FUNCTION
1	SIN +
2	SIN -
3	COS +
4	COS -
5	DATA +
6	DATA -
7-8	-
9-10	-
11	EPWR 9V
12	ECOM
13	TS +
14	TS -
15-17	-



- NOTE:
- DXF OF THIS DRAWING MUST BE SCALED TO LENGTH ON CHART (960). MODEL SHOWN IS MPL-B980x-xJ74AA.
 - 3D STEP (.stp) FILES AVAILABLE AT ALL LENGTHS.
 - COVERS SINGLE AND MULTI-TURN ABSOLUTE ENCODER (i.e. MPL-B9xxx-MJ74AA and MPL-B9xxx-SJ74AA) B960's thru B980's.

REFERENCES		DESCRIPTION	CAD DOCUMENT	
VERSION	UNLESS OTHERWISE SPECIFIED	MPL-B9xx-xJ74AA, ESM, M58	Allen-Bradley 	
00	DO NOT SCALE DRAWING DIMENSIONS ARE IN MILLIMETERS WITH INCHES REFERENCED [X] UNTOLERANCED DIMENSIONS ARE REFERENCE 3RD ANGLE PROJECTION			
		Rockwell Automation	DR. EQ	DATE 2-10-09
		DXF 2D OR STEP 3D FILE AVAILABLE	SHEET 1	OF 1
			DWG. SIZE B	DOCUMENT NUMBER 10000046456