

PBA GROUP

SINGAPORE

PBA (S) Pte Ltd
Headquarters
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6766
Fax: (65) 6576 6765
Email: enquiries@pba.com.sg
Website: www.pba.com.sg

PBA Solutions Pte Ltd
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6776
Fax: (65) 6576 6765
Email: enquiry@pbasolutions.com
Website: www.pbasolutions.com

PBA Systems Pte Ltd (601191)
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6767
Fax: (65) 6484 6768
Email: sales@pbasystems.com.sg
Website: www.pbasystems.com.sg

PBA Technology Pte Ltd (QA251)
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6760
Fax: (65) 6576 6761
Email: enquiry@pbatechnology.com
Website: www.pbatechnology.com

PBA Spindles Pte Ltd
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6778
Fax: (65) 6576 6782
Email: sales@pba-spindles.com
Website: www.pba-spindles.com

PM-PBA Pte Ltd
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6766
Fax: (65) 6576 6765
Email: pm-pba@pba.com.sg

INDIA

PBA Technology Pte Ltd
Address: 212B, 2nd Floor Shivai Plaza,
Marol, Andheri East, Mumbai 400 059,
India
Tel: 91 22 401 58381
Fax: 91 22 401 58389
Email: pbain@pbatechnology.com

INDONESIA

Indonesia Rep: Mr. Raya Tjendrawasi.
H/P: (62)816 4846 547
Email: rayac@cbn.net.id

MALAYSIA

PBA Industries (M) Sdn Bhd
Address: No 12A, Ground Floor Aked
Esplanad, Jalan 14/155B
Bukit Jalil
57000 Kuala Lumpur
Tel: (03) 8993 9101 8993 9102
Fax: (03) 8993 9106
Email: malaysia@pbagroup.net

PBA System (M) Sdn Bhd
Address: No 12A, Ground Floor Aked
Esplanad, Jalan 14/155B
Bukit Jalil
57000 Kuala Lumpur
Tel: (03) 8993 9105
Fax: (03) 8993 9106
Email: malaysia@pbagroup.net

PBA Industries (PG) Sdn Bhd
Address: 17-2-5, Bayan Point,
Medan Kampung Relau,
11900, Penang, Malaysia.
Tel: (04) 6427915 / 04-6452916
Fax: (04) 6447434
Email: inquiries@pbaindustries.com.my

PBA Advantech (M) Sdn Bhd
Address: No 26 & 28, Jalan PTP 1/4,
Taman Perindustrian Tasik Perdana,
47120 Puchong, Selangor
Tel: (03) 8993 9101, 9102, 9103
Email: malaysia@pbagroup.net

PHILIPPINES

PBA (S) Pte Ltd
Philippines Rep Office:
Address: 2, Woodlands Sector 1,
Woodlands Spectrum 1, #03-23,
Singapore 738068
Tel: (65) 6576 6766
Fax: (65) 6576 6765
Email: info@pbagroup.net
Website: www.pbagroup.net

THAILAND

PBA Systems (Thailand) Co., Ltd.
Address: 234/118, Asok-Dindaeng
Road, Huakwang, Bangkok,
Bangkok 10310
Tel: +66 086-848-9969
+66 083-983-4553
E-mail: support@pbathailand.com

**International Magnetics
Technology Co., Ltd**
Address: Nongkhae Industrial Estate
10/19 Soi SRDI Moo4,
Tambon Kokyae, Amphur Nongkhae,
Saraburi 18230, Thailand
Tel: 36374024-7

CHINA

Sales Office 销售办事处:
立狄线性马达 (深圳) 有限公司
PBA Linear Motor Co. Ltd.
宝安42区兴华一路华创达中心商务大厦A
栋407-A
42 Xinghua Road HuaChuangDa Central
Business Building Block A, 407-ABaoan
District, ShenzhenChina 518000
Tel: (86-755) 216 77507
Fax: (86-755) 216 77506

Representative Office 代表机构:
新加坡碧绿威私人有限公司深圳代表处
宝安42区兴华一路华创达中心商务大厦A
栋407-B
42 Xinghua Road HuaChuangDa Central
Business Building,
Block A, 407-B
Baoan District, Shenzhen
China 518000
Tel: (86-755) 216 77507
Fax: (86-755) 216 77506

Ninbo Konit Nihon Magnetics Co Ltd
Address: Ninbo Economic & Technical
Development Zone China
Postal Code 315803
Tel: (86-574) 862 21333
Fax: (86-574) 862 21789

TAIWAN

新加坡商立狄线性马达有限公司
地址: 臺北市民權西路35號6樓之2
Address: 6-2 FL No. 35, Min Chuan West
Road, Taipei
Tel: +886 2 2599 3558
Fax: +886 2 2599 3042
HP: +886 982 090 501 / +886 938 030 774
Email: pba.taiwan@pbagroup.net

KOREA

PBA Systems Pte Ltd
Address: Ace Hitech City 2-1504, 775,
Gyeongin-Ro, Yeongdeungpo-Gu,
Seoul, South Korea
Tel: +82-11-897-1531
Email: hs.cho@pbasystems.com.sg

UK

Hansell Composites Ltd
Address: Unit 3 T Dicken Industrial Estate,
Station Road, Stokesley, Middlesbrough,
Cleveland, TS9 7AB, UK
Email: gs.sim@pba.com.sg

DISTRIBUTORS

USA

GERMANY

ITALY

TAIWAN

KOREA

ISRAEL

UK

SWITZERLAND

CHINA



MaxTune

MX
MaxTune

INTELLIGENT
servo drive

www.pbasystems.com.sg

PBA Systems introduces MaxTune, the next-generation high performance servo drive. MaxTune features hardware and software design innovations that deliver superior servo performance, industry-leading power density, and extensive versatility at a competitive price.

Supports a wide range of applications and requirements

MaxTune supports a wide range of applications, covering a variety of industries. It can be coupled with any servo motor type, including rotary and linear brushless DC motors, as well as DC brush motors. Upcoming connectivity through PROFINET.

High Servo Update Rates

32 kHz in the Current Loop, 8kHz in the Velocity Loop and 4kHz in the Position Loop. This is far higher than most servodrives in the market.

High Performance with your Analog Motion Control Card

The high update rate of 32kHz in the Current Loop as well as the implementation of Field Oriented Control (FOC) with modern hardware enables an industry leading current loop bandwidth of 3kHz. This means that running Maxtune with your Analog Current Motion Control Card (+/- 10V command) will achieve high performance motions. Expect low running positional error and settling times!

High Performance with your Pulse and Direction or Field Bus Motion Control Card

A special Non-linear Control Algorithm coupled with 4kHz position loop update rate gives extremely low settling times when running in Position mode (eg. Pulse and Direction, Up/Down or CANOpen, EtherCAT). Maxtune is able to run in this NLC mode as well as conventional PID.

Easy to Configure

Auto-tuning and Auto-phasing (for commutation) functions enable fast configuration of the servodrive. Get your motor moving in minutes!

Run Without Hall Effect Sensor

Advanced Phase Finding Algorithm enables phase-initialization without Hall Effect Sensors.

High power density in one of the smallest footprints in the market

The automation industry has been accustomed to the inherent tradeoff between power density levels of servo drives and their reliability and performance. MaxTune has brought an end to this equation. Its innovative hardware design and software algorithms offer the highest performance and reliability in one of the industry's smallest footprint drives.

Matched for Optimal Performance



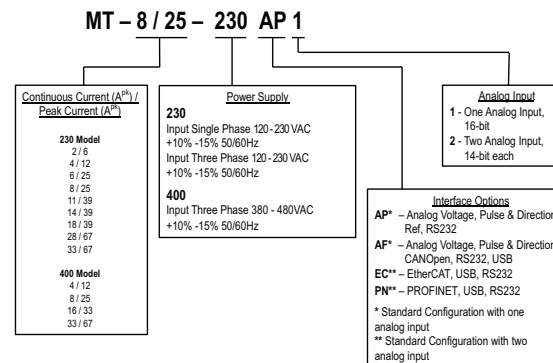
- Supports virtually any motor and feedback type
- Handles any I/O requirement
- Feature-rich with product functionality to cover most of an application's servo control needs
- Fast modifications to address any requirement

New Current Loop Design Industry Leading Frequency Response: up to 3kHz

Advanced Auto-Tune Function Reducing Position Error and Settling Time to almost zero

Anti-Vibration Algorithm Mechanical resonance is eliminated!

Part Numbering System



Ratings	UNITS	2/6	4/12	6/25	8/25	11/39	14/39	16/33	18/39	28/67	33/67
Supply Voltage 120/230 VAC		1 Phase	1 Phase	1 Phase 3 Phase	1 Phase 3 Phase	1 Phase 3 Phase	1 Phase 3 Phase	N/A	3 Phase	3 Phase	3 Phase
Supply Voltage 380/480 VAC		N/A	3 Phase	N/A	3 Phase	N/A	N/A	3 Phase	N/A	N/A	3 Phase
Continuous Current	A ^p	2.1	4.2	6.3	8.4	11.3	14.1	16.9	18.3	28.2	33.9
Peak Current	A ^p	6.3	12.7	25.4	25.4	39.5	39.5	33.9	39.5	67.8	67.8

Basic Specifications		
Motors	DC Brushless, DC Brush	Rotary servomotors, Linear servomotors
Current (Torque) Control	Performance	Update rate 31.25 μ s (32 kHz), Output waveform sinusoidal
	Step Response Time	Actual current reaches command in two cycles, 62.5 μ s (up to 3kHz)
	Control Loop	DQ, PI, Feed-forward
Velocity Control	Performance	Update rate 125 μ s (8 kHz)
	Selectable Velocity Control Loops	PI, PDDF, Standard pole placement, Advance pole placement, Standard pole placement high frequency, Pole placement with active dumping
	Filters	First order low pass filter, Double first order low pass filter, Notch, High pass filter, Band pass filter, User defined polynomial filter
Position Control	Performance	Update rate 250 μ s (4 kHz)
	Control loop	PID and feed-forward
HD Control (Position & Velocity or Velocity)	Performance	Update rate 250 μ s (4 kHz)
	Control Loop	Non-linear control algorithm provides very low tracking error, zero or minimum settling time and smooth movement; includes an adaptive feed-forward feature that is applied at end of movement to achieve zero or minimum settling time
	Filters	One second order low pass, two notch filters, and other filters to handle flexible and resonant systems
Reference Command	Current/Velocity Command	Analog Voltage \pm 10 VDC, Serial RS232 or USB*, CANopen®, EtherCAT®, PROFINET*
	Position Command	Pulse & Direction with electronic gearing, Serial RS232 or USB*, CANopen®, EtherCAT®, PROFINET*
Auto Tuning	Method	Automatic self-configuration optimization of motor phasing, wires, current loop, HD loop, automatic inertia load measurement
Brake	Method	Control stops: several dynamic brake and active disable options
Display	Method	7-segment LED (green), display drive status
GUI	User Interface	MaxLink Windows-based application, Setting, Drive, Motor, Feedback, I/O motion information selection/configuration, Fault history/display, Setup wizard, Expert view
Protective Functions		Partial list, under and over-voltage, over-current, drive and motor over-temperature, motor foldback, drive foldback, feedback lost, not configured
Compliance Standard		UL - UL508c (compliance testing in progress by TUV), STO - Safe Torque Off (compliance testing in progress), RoHS CE - EMC Directive 2004/108/EC, standard IEC61800-3, CE Low Voltage Directive 73/23/EEC IEC61800-5-1
Environment		Ambient temperature: Operation 0-45°C, Storage 0-70°C, Humidity: 10-90% Altitude: < 1000m. If >1000m, derate 5% per 330m, Vibration: 0.5g
Protection / Pollution		Protection class: IP20, pollution degree: 2 as per IEC 60664-1

Communications		
CAN*		CANopen® - CIA 301 application layer and the CIA 402 device profile for drives and motion control, Baud rate 0.5M 1M bits
EtherCAT® *		CIA 301 application layer and the CIA 402 device profile for drives and motion control
PROFINET*		PROFIdrive application layer over PROFINET IO RT
RS232		ASCII-based, MaxLink, HyperTerminal, Baud rate 115200 bit/s
USB*		ASCII-based, MaxLink, HyperTerminal, Baud rate 115200 bit/s
Daisy Chain		Up to 8 axes, Axis address setting from 0-99 using two Rotary switches
I/Os		
First Analog Input	Voltage Range	Analog \pm 10 VDC differential, Resolution 16 bit
Second Analog Input*	Voltage Range	Analog \pm 10 VDC differential, Resolution 14 bit (each first and second)
Pulse & Direction	Signal	RS 422, Max Input Frequency 4 MHz
Equivalent Encoder Output	Signal	A-quad-B and index differential, RS 422, Max Output Frequency 4 MHz
11x Digital Inputs	Signal	24 V, Configurable opto-isolated
6x Digital Output	Signal	24 V, Configurable open collector, opto-isolated
Analog Output	Signal	0-10 V Resolution 8 bit, Configurable
Secondary Feedback	Signal	A-quad-B and index differential, RS 422, Max. Input frequency 4 MHz
Fault Output Relay	Signal	24 V, 1 A, Configurable dry contacts

Motor Feedback		
From Drive	Supply Voltage	5 VDC (7 VDC*)
Incremental Encoder	Signal	A-quad-B with or without index-Halls, Tamagawa, RS 422/485, Max Input Frequency 4 MHz
Hall Sensor	Signal	Open collector single-ended (optional differential-ended)
Resolver	Signal	Sine/Cosine differential, Transformation Ratio 0.45-1.6
Sine Encoder	Signal	Sine/Cosine differential, with or without Halls, 1 Vpp @ 2.5 V, EnDat® 2.1, Hiperface®
SSI Encoder	Signal	Data and clock, can be supported upon request EnDat 2.2, BiSS-C, other SSI
Motor Temperature	Signal	Thermal resistor PTC or NTC, User-defined fault threshold

Notes:

1. Apk = 1.414 * Arms; Vpk = 1.414 * Vrms.
2. * Some features are not available on all models. Check the ordering information, or contact your distributor.