Brushless AC
Motion Control

Real time problem
solving for up to 32 axes

motion control solutions

Add 10% to all prices
Price Increase Effective 14 May 2006

Australian Stock Product Catalogue, 4th October 2004

BALDOR
MOTORS AND DRIVES
AUSTRALIAN BALDOR PTY LIMITED
www.baldor.com.au

Servo Products & Positioning Systems

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Australian Baldor is proud to now offer our full product range online at www.baldor.com.au

Browse through Baldor's extensive range or use the catalogue search to find your product.

Our new web site allows you to download detailed information such as, performance data, dimension drawings and name plate data when you want it!!

Product Feature

'NextMove™ ESB'

'NextMove™ ESB' 7-Axis Intelligent Motion Controller

- **Control for 3 servo and 4 stepper axes**
- **High speed DSP processor.**
- **Onboard digital and analog I/O**
- **Fieldbus compatible (CANopen)**
- **Multi-tasking MintMT™ or 'C' programming**
- **For more Details see page 31**

Add 10% to all prices

Price Increase Effective 14 May 2006

BALDOR MOTORS AND DRIVES
AUSTRALIAN BALDOR PTY LIMITED

Baldor ...driving Australian industry into the future!

Dear Baldor Customer,

The 2004-2005 issue of the Australian Baldor Servo Products & Positioning Systems Catalogue includes many changes and additions.

Baldor continues to develop innovative brushless ac servo motors with the introduction of our 'C' type motors. These models utilise new 'Ring Magnet' technology combined with 'Neodymium' magnets to produce exceptional torque in a more compact body. These products begin on page 6.

Hycore 10, Hybrid Core Linear Motor combines the best features and performance of the traditional high speed high force, closed loop brushless linear servo motors, with the advantages of the lower cost linear stepper motor technology. The result is an extremely economical means of providing linear motion. See Page 48.

FlexDrive II, Flex+Drive II and MintDrive II are in full production and usher in a new era of high performance brushless ac servo controls. These products begin on page 14. We have also introduced MicroFlex, a highly cost effective entry level servodriver with new Space Vector Modulation (SVM) technology which reduces switching losses and harmonics to increase efficiency and enable motors to operate at higher speeds. See page 13.

Delta Tau has introduced several new products including the Advantage 400 NC Controllers. These are low cost CNC controllers for four and five axis machine applications. Please refer to pages 40 & 41. The PMAC2A-PC/104 has also been added, this is a low cost four axis motion controller in a PC104 form factor. Accessory boards are "stacked" onto the main board to provide additional axis and options. Refer to page 38 & 39.

Baldor also offers an extensive range of special-purpose motion control products such as NanoMove™.

Our front cover design shows Baldor drive systems operational in the food and packaging industries all over the world.

...the broadest range,
...fast availability,
...total support,
...best value.

Four very important factors that place Australian Baldor ahead of our competitors.

Table of Contents

All prices are EXCLUSIVE of GST.

All prices and specifications are subject to correction and/or alteration without prior notice.

All product specifications are subject to change without prior notice.

Selecting a Motion Control Package

Where to start!

Today's industry is continually pushing towards more efficient, cost effective and faster productivity rates.

This means that many more machines and processes are being carefully analysed and upgraded to accomplish these goals.

This process of 'automation' brings new people into contact with the world of motion control, and presents those already involved with new and challenging tasks.

Technology in this field is literally in 'hyperdrive mode' with new equipment being designed and introduced almost weekly and this means there are many devices from motors to controls to positioning systems that need to be understood.

In selecting a motion control package, the load is being positioned rapidly and accurately. The first and most important area requiring identification is the 'Mechanics of the Load' which is to be moved.

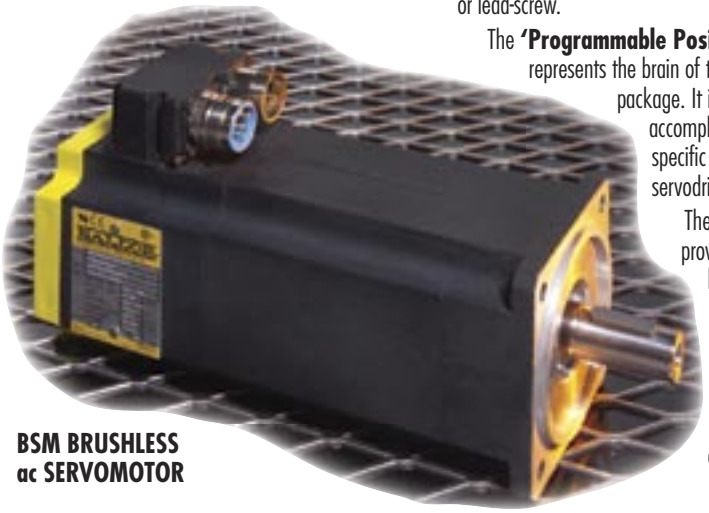
Once the load and its dynamics are known, the torque is known, and the selection of a 'Motor' which will deliver that torque can begin.

This is followed by the selection of the 'Servodriver/Amplifier' which will supply the power to move the motor and the machine's load.

The next step may be to select the desired 'Programmable Positioning Controller' to suit the application and servo equipment.

Finally, the most suitable 'User Interface' can be selected to provide the necessary input and output link to the operator.

If the mechanics of the load (friction and inertia) have been properly determined, the torque to accomplish the task has been accurately established. Therefore the motor should be correctly sized to deliver that torque, and the control should be adequately sized to power and move the motor. If not, the motion control package will either take too long to position the load, or it may be damaged by overheating.



BSM BRUSHLESS
ac SERVOMOTOR

Components and Information Linkages of a Basic Motion Control Package

Components of a Motion Control Package

The basic motion control components and information linkages are illustrated in the adjacent block diagram. Slight variations of this diagram are possible in actual usage.

The **'Transformer',** when required, takes incoming ac power and steps it down to an appropriate level that the power supply can use.

The **'Power Supply'** converts ac power to the proper dc power level that the amplifier and logic circuitry can use. This is generally integrated in current technology drives.

The **'Servodriver/Amplifier'** takes low level incoming command signals (these may be a simple ±10V signal from a potentiometer to computer controlled signals from a positioning system) and applies them to the dc power from the power supply, thereby amplifying the signal. This amplified signal is then applied directly to the 'motor', thereby telling the motor what to do: start, how fast to go, and when to stop.

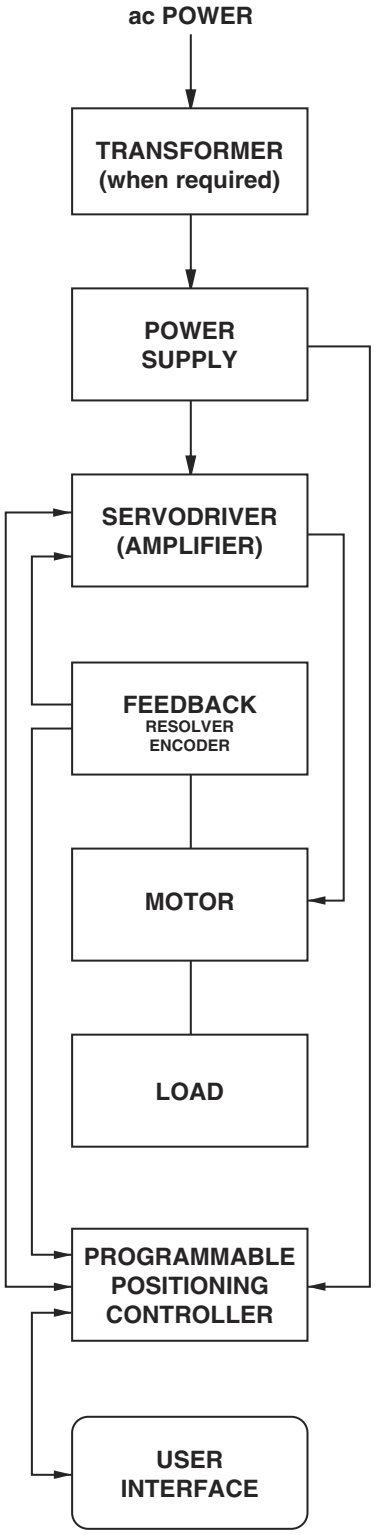
The **'Motor'** supplies the movement, or the muscle of the system. It may be a rotary or a linear design, a permanent magnet dc servo motor, a 'vector' motor, or a brushless ac servo motor. The motor takes the high power from the servodriver/amplifier and uses it to move the mechanical system and load.

The **'Feedback/Resolver/Encoder/Other'** provides a signal which is read by the 'Programmable Positioning Controller', enabling it to keep track of the load's position. Through a comparison of the 'desired' position (the position programmed in) and the 'feedback' position (actual load position), the positioning controller will command the entire package to move the load to the desired position.

The **'Load'** represents the mechanics being positioned. The load is coupled/connected through mechanical linkages such as direct gearing, belt-pulley, or lead-screw.

The **'Programmable Positioning Controller'** represents the brain of the motion control package. It is programmed to accomplish a specific task in a specific time. It commands the servodriver/amplifier.

The **'User Interface'** provides communications between the 'Programmable Positioning Controller' and the user for the input of programming data and the output of operational information.



An Introduction to Brushless ac Servo Systems

Servo Systems (using brushless ac motors) are very high performance variable speed drives which give full torque at zero speed, and are also capable of high speeds without the limitations of the brush type drives.

'BSM' Brushless ac Servo Motors

BALDOR ac Servo Systems utilise BSM Type N motors (which incorporate high performance Neodymium magnets), BSM Type B motors (which incorporate Ferrite magnets for normal applications), or BSM Type C motors (which incorporate high performance Neodymium magnets and Ring Magnet technology). These designs incorporate magnets on the rotating part of the motor while a three phase ac winding is incorporated on the stationary portion of the motor. Each individual coil in the motor's winding is switched on and off in rotation, thereby inducing the rotor to turn in a synchronised step. This requires electronic commutation (which is performed by the Baldor Servodriver) and in order to be able to turn on and off the coil, the exact position of the rotor poles must be known. To do this a resolver or encoder is used and is factory set in the motor. This gives precise rotor position along with speed reference and also can eliminate the need for additional feedback components in a closed loop positioning system application. Many motors are stocked with encoder feedback. Other feedback options are also available, please contact Australian Baldor for details.

Baldor Brushless Transistor Servodrivers

The BALDOR Brushless Transistor Servodrivers (SD23H, *MicroFlex™*/*Flex™*/Flex+/*Mint™*) take an appropriate dc Bus voltage from an internal power supply, which is then switched at high frequency to a sinusoidal three phase ac output waveform.

The Servodriver is supplied with dc voltage by an uncontrolled rectifier. An ac inverter, equipped with transistors, allows control of the motor's stator rotating field according to size and angle position, through change of frequency and voltage. A digital current regulator equalises the sinusoidal desired current value information obtained from the read-only memory with digitalised actual current value. Torque control is produced together with information from the resolver or encoder for the positioning of the rotor magnets. This control is superimposed by an analogue or digital speed control system.

Baldor SD23H, MicroFlex, FlexDrive II, Flex+Drive II, and MintDrive II Servo Controllers are digital based drives, ensuring the most accurate control and eliminating potential drift due to temperature variation. Digital drives also provide less current overshoot than do analogue type drives.

Which Servo System will suit your needs?

Baldor SD23H single axis digital servodriver is the simplest of all the Baldor servo systems to set-up and operate. An inbuilt keypad and routines (common to Baldor Inverter/Vector drives) allows direct user access to all of the set-up parameters without the need for a computer or extensive programming knowledge. The SD23H provides most of the commonly used features and functions for simple servodrive applications. Can provide up to 15 programmable moves/positions with optional firmware.

MicroFlex, FlexDrive II, Flex+Drive II, and MintDrive Servo Controllers are digital based drives, performing all of their servo tasks and internal monitoring etc via digital interface. Drive set up is via PC Software and RS232 or RS485 communications.

MicroFlex is an extremely cost effective solution for single and multi-axis motion control applications which require up to 9amps continuous output. It is ideally suited for use with Baldor's range of rotary servo and linear motors, motion controllers, as well as ac stepper motors. MicroFlex provides an encoder output for connection to external motion controllers such as NextMove. This approach provides a cost effective complete package solution for your motion control application.

FlexDrive II is a state-of-the-art digital servodriver for use with brushless ac rotary motors, linear motors and motion controllers. Models up to 27.5 amps continuous output cater for larger servo tasks. Feedback options include, Resolver, Commutating Encoder and EnDat – single and multi-turn absolute. FlexDrive II can perform simple PLC tasks eliminating the need for external PLCs. Comprehensive fieldbus options.

Flex+Drive II is a FlexDrive II servodriver with built-in incremental/absolute positioning capabilities for applications requiring fast, accurate and repeatable moves. Flex+Drive II can be programmed with repeatable trapezoidal moves/positions (7 as standard or up to 256 with option) or controlled with ±10Vdc, pulse and direction or electronic handwheel input signals. Flex+Drive II is ideal for applications such as indexing, cut-to-length, rotary index tables, labelling, etc.

MintDrive II is a fully programmable, single axis, stand-alone, motion control package which provides, motion control, I/O handling, serial communications, machine level networking and optional operator interface panel all working together under the control of the powerful MintMT program. MintDrive II is suitable for complex and exacting applications. For a comprehensive explanation of MintMT programming capabilities refer to page 29.

NEW MODELS

'BSM' Brushless ac Servo Motors

- **High performance Brushless ac Servo Motors provide fast response and are designed to ensure maximum in-field durability and reliability. They offer an extremely high torque to inertia ratio in a compact and well thought-out package.**
- **'BSM 50N/63N/80N/90N/100N' incorporate ultra low inertia 'niodymium' magnets which provide performance comparable to 'rare earth' magnets and lower cost advantages.**
- **'BSM 80B/90B/100B' motors provide the high performance and economy for normal applications.**
- **'BSM C Series Motors' are the most cost effective Baldor brushless servo motor per unit of torque. They have been developed with a new 'Ring Magnet' rotor design which incorporates Neodymium magnet material. Major advantages include a 20-50% increase in torque and a reduced length of the motor (when compared with B series ferrite magnet motors). C series motors will also be available in the BSM100 size in the near future.**

Also see additional features on page 8

'BSM' ac Servomotors

Catalogue Number Group A3	List Price $	Cont. Stall Torque Nm	Current at Cont.Stall Torque A	Peak Stall Torque Nm	Current at Peak Stall Torque A	Rated Tqe at 2000rpm Nm	Rated Tqe at 4000rpm Nm	Rated Tqe at 6000rpm Nm	Max Speed rpm
BSM50N-175AA	**774**	**0.45**	0.69	1.42	2.00	0.40	0.30	–	7000
BSM63N-150AA	**998**	**0.77**	1.98	3.08	7.14	0.67	0.65	0.63	7000
BSM63N-175AA	**998**	**0.77**	1.08	3.08	3.91	0.68	0.65	–	7000
BSM50N-275AA	**891**	**0.91**	1.40	3.62	5.00	0.85	0.78	–	7000
BSM80C-150AF	**945**	**1.20**	2.75	3.60	7.03	1.15	1.08	1.00	10000
BSM80C-175AF	**945**	**1.20**	1.93	3.60	4.92	1.15	1.08	–	10000
BSM50N-375AA	**1,010**	**1.36**	2.20	5.42	8.00	1.28	1.12	–	7000
BSM50N-375AF	**1,082**	**1.36**	2.20	5.42	8.00	1.28	1.12	–	7000
BSM63N-250AA	**1,098**	**1.47**	3.05	5.88	10.99	1.25	1.23	1.23	7000
BSM63N-275AA	**1,098**	**1.47**	2.11	5.88	7.61	1.25	1.23	–	7000
BSM80N-150AA	**1,045**	**1.65**	3.05	6.60	11.00	1.57	1.57	1.57	7000
BSM80N-175AA	**1,045**	**1.65**	2.14	6.60	7.69	1.57	1.57	–	7000
BSM80B-150AA	**867**	**1.63**	3.70	4.75	11.00	1.49	1.34	1.20	7000
BSM80B-175AA	**867**	**1.63**	2.60	4.75	8.00	1.38	1.13	–	7000
BSM63N-350AA	**1,218**	**2.09**	4.40	8.36	15.86	1.89	1.77	1.75	7000
BSM63N-375AA	**1,218**	**2.09**	3.09	8.36	11.15	1.75	1.61	–	7000
BSM63N-375AF	**1,276**	**2.09**	3.09	8.36	11.15	1.75	1.61	–	7000
BSM80B-250AA	**963**	**2.20**	4.30	6.44	14.00	2.21	2.17	2.13	7000
BSM80B-275AA	**963**	**2.20**	3.50	6.44	13.00	2.11	2.03	1.91	7000
BSM90B-175AA	**901**	**2.35**	3.70	6.44	11.00	2.17	2.09	1.96	6000
BSM90B-1150AA	**901**	**2.35**	1.90	6.44	6.00	2.15	2.02	–	6000
BSM90B-1250AA	**901**	**2.35**	1.40	6.44	4.00	1.89	–	–	4600
BSM80C-275AA	**924**	**2.40**	3.24	7.20	8.26	2.34	1.90	–	7000
BSM80C-275AF	**995**	**2.40**	3.24	7.20	8.26	2.34	1.90	–	7000
BSM90C-1150AF	**925**	**2.60**	2.15	7.80	5.49	2.46	2.25	1.70	7000
BSM80B-350AA	**1,005**	**3.08**	7.00	8.43	21.00	2.93	2.76	2.60	7000
BSM80B-375AA	**1,005**	**3.08**	5.20	8.43	16.00	2.70	2.40	–	7000
BSM80N-250AA	**1,150**	**3.20**	5.60	12.80	20.20	3.00	2.85	2.70	7000
BSM80N-275AA	**1,150**	**3.20**	3.90	12.80	14.00	3.00	2.80	–	7000
BSM80C-375AA	**951**	**3.60**	6.29	10.80	16.05	3.40	3.20	1.10	7000
BSM80C-375AF	**1,024**	**3.60**	6.29	10.80	16.05	3.40	3.20	1.10	7000
BSM80C-475AF	**1,056**	**4.30**	6.30	12.90	16.97	4.00	3.70	–	7000
BSM90B-275AA	**1,001**	**4.30**	7.10	12.32	21.00	3.62	3.00	2	6000
BSM90B-2150AA	**1,001**	**4.30**	3.70	12.32	11.00	3.50	3.00	2.00	6000
BSM90B-2250AA	**1,001**	**4.30**	2.00	12.32	6.00	3.34	–	–	3600
BSM80N-350AA	**1,302**	**4.52**	8.61	18.08	31.01	4.00	3.80	3.60	7000
BSM80N-375AA	**1,302**	**4.52**	5.54	18.08	19.96	4.00	3.90	–	7000
BSM100C-1150AF	**1,318**	**5.00**	4.35	15.00	10.20	4.60	4.30	–	6000
BSM90C-275AF	**1,020**	**5.20**	9.02	15.70	27.06	4.97	4.75		7000
BSM90C-275AA	**948**	**5.20**	9.02	15.70	27.06	4.97	4.75		7000
BSM90C-2150AF	**1,020**	**5.20**	4.41	15.60	11.30	5.00	4.60	4.35	10000
BSM90C-2150AA	**948**	**5.20**	4.41	15.60	11.30	5.00	4.60	4.35	10000
BSM90N-175AA	**1,692**	**6.00**	8.00	24.00	29.00	6.00	6.00	–	6000
BSM90N-1150AA	**1,692**	**6.00**	4.10	24.00	15.00	6.00	6.00	–	6000

Continued on Page 8 and 9.

Details continued over page

Details continued over page

NOTE — For a detailed explanation of motor nomenclature see page 10.
Please refer to www.baldor.com.au for latest information and performance data.

Details continued from over page

Catalogue Number	Motor Winding Constant Vrms/krpm	Motor Torque Constant Kt Nm/A	Resistance (L–L) ohms	Inductance (L–L) mH	Rotor Inertia kgcm²	N° of Motor Poles	Safe Amplifier Nom Current A	Combination Motor/Amplifier Stall Trq Nm	Combination Motor/Amplifier Peak Trq Nm
BSM50N-175AA	45.90	0.75	47.60	68.00	0.068	4	2.5*	0.45	1.42
BSM63N-150AA	26.04	0.43	12.10	17.20	0.203	4	2.5*	0.77	2.15
BSM63N-175AA	47.60	0.79	37.40	53.63	0.203	4	2.5*	0.77	3.08
BSM50N-275AA	45.90	0.75	16.20	35.10	0.124	4	2.5*	0.91	3.62
BSM80C-150AF	30.90	0.51	8.60	14.00	1.810	4	2.5*	1.20	3.60
BSM80C-175AF	44.20	0.73	17.60	29.10	1.810	4	2.5*	1.20	3.60
BSM50N-375AA	43.60	0.72	8.25	15.16	0.180	4	2.5*	1.36	3.95
BSM50N-375AF	43.60	0.72	8.25	15.16	0.180	4	2.5*	1.36	3.95
BSM63N-250AA	32.33	0.54	5.60	11.47	0.384	4	2.5	1.34	2.68
BSM63N-275AA	46.71	0.77	11.60	24.77	0.384	4	2.5*	1.47	3.86
BSM80N-150AA	36.30	0.60	5.10	13.97	0.915	4	2.5	1.50	3.00
BSM80N-175AA	51.80	0.85	9.53	28.00	0.915	4	2.5*	1.65	4.25
BSM80B-150AA	30.60	0.51	4.00	12.73	3.501	4	5*	1.63	4.75
BSM80B-175AA	44.70	0.74	7.80	26.77	3.501	4	2.5	1.63	3.70
BSM63N-350AA	31.88	0.53	3.28	5.87	0.564	4	5*	2.09	5.27
BSM63N-375AA	45.36	0.75	5.92	13.67	0.564	4	2.5	1.88	3.75
BSM63N-375AF	45.36	0.75	5.92	13.67	0.564	4	2.5	1.88	3.75
BSM80B-250AA	32.70	0.54	2.50	7.66	5.649	4	5*	2.20	5.40
BSM80B-275AA	46.20	0.76	4.80	17.93	5.649	4	5*	2.20	6.44
BSM90B-175AA	45.00	0.74	3.80	14.19	4.519	8	5*	2.35	6.44
BSM90B-1150AA	84.00	1.38	12.70	49.45	4.519	8	2.5*	2.35	6.44
BSM90B-1250AA	116.30	1.92	21.40	92.56	4.519	8	2.5*	2.35	6.44
BSM80C-275AA	52.70	0.87	7.20	18.90	3.730	4	2.5	2.17	4.35
BSM80C-275AF	52.70	0.87	7.20	18.90	3.730	4	3.0*	2.40	5.22
BSM90C-1150AF	86.10	1.42	11.50	27.60	4.400	8	2.5*	2.60	7.80
BSM80B-350AA	31.20	0.51	1.50	5.57	7.682	4	10*	3.08	10.20
BSM80B-375AA	41.80	0.69	2.70	9.41	7.682	4	5.0	3.08	6.90
BSM80N-250AA	38.29	0.63	0.81	5.30	1.717	4	5.0	3.17	6.33
BSM80N-275AA	54.70	0.90	3.20	12.73	1.717	4	5.0*	3.20	9.04
BSM80C-375AA	40.70	0.67	2.20	8.20	5.530	4	5.0	3.35	6.70
BSM80C-375AF	40.70	0.67	2.20	8.20	5.530	4	5.0	3.35	6.70
BSM80C-475AF	48.30	0.76	1.90	6.20	7.340	4	5.0	3.80	7.60
BSM90B-275AA	42.80	0.70	1.20	5.28	8.925	8	7.5*	4.30	10.50
BSM90B-2150AA	82.30	1.36	4.60	22.36	8.925	8	5*	4.30	12.32
BSM90B-2250AA	146.70	2.42	16.10	62.06	8.925	8	2.5*	4.30	12.10
BSM80N-350AA	35.20	0.58	0.94	4.00	1.717	4	7.5	4.37	8.75
BSM80N-375AA	54.70	0.91	2.22	9.30	1.717	4	5.0	4.52	9.06
BSM100C-1150AF	88.40	1.46	5.20	19.20	7.110	8	3.0	4.38	8.76
BSM90C-275AF	40.99	0.68	2.25	8.25	8.810	8	7.5	5.10	10.00
BSM90C-275AA	40.99	0.68	2.25	8.25	8.810	8	7.5	5.10	10.00
BSM90C-2150AF	84.00	1.38	5.00	14.83	8.810	8	3.0	4.17	8.00
BSM90C-2150AA	84.00	1.38	5.00	14.83	8.810	8	3.0	4.17	8.00
BSM90N-175AA	49.96	0.83	1.24	4.15	3.389	8	7.5	6.00	12.39
BSM90N-1150AA	96.79	1.60	4.33	17.60	3.389	8	5.0*	6.00	16.00

Continued on Page 8 and 9.

NOTE — For a detailed explanation of motor nomenclature see page 10.
Please refer to www.baldor.com.au for latest information and performance data.

Brushless ac Servomotor & Servodriver 'Matched Performance™' Selection Guide

The specification tables for BSM Servomotors on pages 6 to 9 provide some basic information which will assist with quick selection of a suitable Servodriver to suit individual motors in our range.

Before using these tables, ensure that all load and application information is analysed, and all calculations necessary to determine the correct motor for your application have been completed.

One critical selection criteria is 'Inertia Matching'. This is the 'motor's rotor inertia' matched to the 'load inertia reflected back to the motor shaft'. A ratio of 1:1 is ideal. Ratios of 1:5 are possible and in some circumstances higher ratios are possible, but may not be recommended due to stability problems.

IMPORTANT – When using these tables, the information relating to 'Recommended Safe Amplifier Nominal Current' should be adhered to unless specific advice is obtained from our technical support team.

Safe Amplifier Nominal Currents marked with * exceed the continuous current rating of the motor and could cause motor overheating if the load exceeds the motor torque.

Using the correct motor as the basis of your system, determine the 'Recommended Safe Amplifier Nominal Current' figure from the table, then select a suitable Servodriver which has the same 'Nominal Current' from the various types offered on the following pages.

Some variations to these recommendations may be possible depending on the application characteristics. Further technical assistance is more likely to be needed where a particularly high peak torque output is required for rapid acceleration.

IMPORTANT – Safe Amplifier Nominal Currents marked with * exceed the continuous current rating of the motor and could cause motor overheating if the load exceeds the motor torque.

NEW MODELS

'BSM' Brushless ac Servo Motors (continued)

'BSM' ac Servomotors

- Totally Enclosed Non Ventilated (TENV) casing prevents entry of any dust and other detrimental materials.
- Rugged integral feedback sensor/brushless resolver.
- Standard IEC mounting dimensions for easy integration into your equipment.
- NO BRUSHES, NO CARBON DUST and NO MAINTENANCE.
- Inertia of a typical ac servomotor is substantially less than its dc counterpart. This results in lower total inertia and more net usable power for the load.
- Excellent heat transfer design yields lower temperature rise and longer bearing life.
- Optimum rotor inertia mass through use of high quality permanent magnets.
- Up to 5 times the continuous torque is permissible.
- Rated speed range up to 7,000 rpm with constant torque up to rated speed.
- Small electrical and mechanical time constants.
- Protection IP 54 standard.

Catalogue Number Group A3	List Price $	Cont. Stall Torque Nm	Current at Cont. Stall Torque A	Peak Stall Torque Nm	Current at Peak Stall Torque A	Rated Tqe at 2000rpm Nm	Rated Tqe at 4000rpm Nm	Rated Tqe at 6000rpm Nm	Max Speed rpm
BSM90N-1250AA	**1,692**	**6.00**	2.60	24.00	9.68	6.00	–	–	4000
BSM100B-1150AA	**1,345**	**5.90**	5.10	18.64	15.00	5.70	5.50	–	5000
BSM100B-1250AA	**1,345**	**5.90**	3.30	18.64	10.00	5.90	–	–	3800
BSM90B-375AA	**1,116**	**6.50**	11.10	18.98	33.00	5.45	4.49	–	6000
BSM90B-3150AA	**1,116**	**6.50**	5.30	18.98	16.00	6.02	5.57	–	6000
BSM90B-3250AA	**1,116**	**6.50**	3.00	18.98	9.00	5.06	–	–	3600
BSM90C-375AF	**1,129**	**7.80**	12.10	23.30	36.30	7.46	6.80		7000
BSM90C-3150AF	**1,129**	**7.80**	6.04	23.40	15.42	7.34	6.80	–	7000
BSM90C-3150AA	**1,056**	**7.80**	6.04	23.40	15.42	7.34	6.80	–	7000
BSM90C-3250AF	**1,129**	**7.80**	3.40	23.40	8.80	7.40	–	–	7000
BSM90N-275AA	**1,960**	**10.00**	12.00	40.00	43.29	9.50	9.00	–	6000
BSM90N-2150AA	**1,960**	**10.00**	6.30	40.00	22.90	9.00	8.00	–	5700
BSM90N-2250AA	**1,960**	**10.00**	4.30	40.00	15.58	8.50	–	–	4000
BSM100C-2150AF	**1,462**	**10.00**	8.65	30.00	20.40	9.40	8.60	–	7000
BSM100C-2250AF	**1,462**	**10.00**	5.37	30.00	12.70	8.80	–	–	7000
BSM100B-2150AA	**1,504**	**12.00**	9.20	35.25	27.00	11.23	11.00	–	5700
BSM100B-2250AA	**1,504**	**12.00**	6.10	35.25	18.00	11.52	–	–	3800
BSM90N-375AA	**2,478**	**13.30**	19.60	53.20	70.73	13.30	13.00	–	6000
BSM90N-3150AA	**2,478**	**13.30**	8.92	53.20	32.14	13.30	13.00	–	5800
BSM90N-3250AA	**2,478**	**13.30**	5.77	53.20	20.79	13.30	–	–	4000
BSM100N-1150AA	**2,176**	**14.00**	10.20	56.00	36.95	7.00	–	–	3000
BSM100N-1250AA	**2,176**	**14.00**	6.40	56.00	23.09	7.00	–	–	3000
BSM100C-3150AF	**1,639**	**14.20**	12.28	42.60	29.00	13.00	12.00	–	4000
BSM100C-3250AF	**1,639**	**14.20**	7.98	42.60	17.70	12.30	–	–	4000
BSM100B-375AA	**1,684**	**17.00**	27.30	49.50	81.00	16.57	15.00	15.00	6000
BSM100B-3150AA	**1,684**	**17.00**	14.00	49.50	42.00	16.42	15.00	–	5700
BSM100B-3250AA	**1,684**	**17.00**	8.20	49.50	24.00	16.72	–	–	3800
BSM100C-4150AF	**1,915**	**20.00**	18.87	60.00	42.90	18.50	17.00	2.50	7000
BSM100C-4250AF	**1,915**	**20.00**	11.40	60.00	27.00	17.50	–	–	4000
BSM100B-475AA	**1,947**	**20.00**	35.00	58.75	104.00	19.26	17.00	16.00	6000
BSM100B-4150AA	**1,947**	**20.00**	16.40	58.75	48.00	19.07	17.00	–	5900
BSM100B-4250AA	**1,947**	**20.00**	9.80	58.75	29.00	19.26	–	–	3700
BSM100N-2150AA	**2,595**	**23.00**	16.80	92.00	60.73	12.50	–	–	3000
BSM100N-2250AA	**2,595**	**23.00**	10.80	92.00	39.00	12.50	–	–	3000
BSM100C-6150AF	**2,297**	**30.00**	25.97	90.00	61.30	27.85	25.50	–	6000
BSM100C-6250AF	**2,297**	**30.00**	14.10	90.00	36.00				6000
BSM100N-3150AA	**2,989**	**33.90**	22.90	136.00	82.47	18.00	–	–	3000
BSM100N-3250AA	**2,989**	**33.90**	16.03	136.00	57.73	18.00	–	–	3000
BSM100N-4150AA	**3,678**	**40.00**	28.90	160.00	104.23	25.00	–	–	3000
BSM100N-4250AA	**3,678**	**40.00**	18.00	160.00	48.84	25.00	–	–	3000

Details continued over page

Details continued over page

Refer to page 10 for options

NOTE — For a detailed explanation of motor nomenclature see page 10.

Please refer to www.baldor.com.au for latest information and performance data.

Details continued from over page

Catalogue Number	Motor Winding Constant Vrms/krpm	Motor Torque Constant Kt Nm/A	Resistance (L–L) ohms	Inductance (L–L) mH	Rotor Inertia kgcm²	N° of Motor Poles	Safe Amplifier Nom Current A	Combination Motor/Amplifier Stall Trq Nm	Combination Motor/Amplifier Peak Trq Nm
BSM90N-1250AA	149.89	2.47	10.66	43.50	3.39	8	2.5	6.00	12.35
BSM100B-1150AA	89.10	1.47	3.70	21.77	21.29	8	5.0	6.40	14.70
BSM100B-1250AA	137.80	2.28	8.40	48.99	21.29	8	5*	6.40	18.64
BSM90B-375AA	41.60	0.68	0.60	3.38	13.22	8	15*	6.50	20.40
BSM90B-3150AA	87.00	1.44	2.80	15.50	13.22	8	5.0	6.50	14.40
BSM90B-3250AA	152.60	2.52	9.40	46.70	13.22	8	5*	6.50	18.98
BSM90C-375AF	45.90	0.76	0.69	2.69	13.10	8	10.0	7.60	15.00
BSM90C-3150AF	91.80	1.52	2.70	11.40	13.10	8	5.0	7.60	15.00
BSM90C-3150AA	91.80	1.52	2.70	11.40	13.10	8	5.0	7.60	15.00
BSM90C-3250AF	160.60	2.65	9.77	32.40	13.10	8	3*	3.40	15.90
BSM90N-275AA	55.88	0.92	0.52	2.66	6.33	8	10.0	9.24	18.48
BSM90N-2150AA	105.80	1.75	0.92	10.50	6.33	8	5.0	8.73	17.46
BSM90N-2250AA	155.25	2.57	3.94	22.50	6.33	8	5*	10.00	25.68
BSM100C-2150AF	88.40	1.46	1.60	8.90	14.23	8	6	8.76	17.52
BSM100C-2250AF	142.80	2.36	4.20	25.20	14.23	8	3	7.08	14.16
BSM100B-2150AA	93.20	1.54	1.40	11.50	43.61	8	7.5	11.55	23.10
BSM100B-2250AA	140.40	2.32	3.20	24.10	43.61	8	5*	11.60	23.20
BSM90N-375AA	41.34	0.68	0.21	1.26	9.26	8	20.0	13.30	27.36
BSM90N-3150AA	90.97	1.51	1.02	5.53	9.26	8	10.0	13.30	30.10
BSM90N-3250AA	140.65	2.33	2.39	13.18	9.26	8	5.0	11.63	23.26
BSM100N-1150AA	91.32	1.52	0.92	6.68	13.56	8	10.0	14.00	30.30
BSM100N-1250AA	146.59	2.43	2.36	17.57	13.56	8	5.0	12.13	24.25
BSM100C-3150AF	88.40	1.46	0.84	6.40	21.34	8	7.5*	10.00	21.90
BSM100C-3250AF	145.20	2.40	2.20	17.30	21.34	8	5*	10.00	24.00
BSM100B-375AA	44.30	0.73	0.20	1.53	66.14	8	25.0	17.00	36.50
BSM100B-3150AA	86.20	1.47	0.80	6.04	66.14	8	15*	17.00	44.10
BSM100B-3250AA	146.80	2.43	2.00	19.50	66.14	8	7.5	17.00	36.45
BSM100C-4150AF	84.10	1.39	0.57	4.30	28.45	8	15.0*	20.00	41.70
BSM100C-4250AF	134.30	2.22	1.50	11.20	28.45	8	9.0	19.98	39.96
BSM100B-475AA	40.50	0.67	0.13	1.03	75.43	8	35.0	20.00	46.90
BSM100B-4150AA	87.10	1.44	0.65	5.58	75.43	8	15.0	20.00	43.20
BSM100B-4250AA	145.20	2.40	2.00	18.27	75.43	8	7.5	18.00	36.00
BSM100N-2150AA	91.56	1.52	0.40	3.33	22.15	8	15.0	22.73	45.45
BSM100N-2250AA	142.45	2.36	0.88	8.35	22.15	8	10.0	23.00	47.12
BSM100C-6150AF	88.40	1.46	0.32	3.20	42.68	8	20.0	29.20	58.40
BSM100C-6250AF	151.3	2.50	0.90	9.40	42.68	8	10.0	25.00	50.00
BSM100N-3150AA	99.69	1.65	0.25	2.74	30.84	8	20.0	32.98	65.96
BSM100N-3250AA	142.42	2.36	0.61	5.96	30.84	8	15*	34.00	70.68
BSM100N-4150AA	92.83	1.54	0.18	1.87	39.43	8	27.5*	40.00	84.43
BSM100N-4250AA	148.53	2.46	0.42	4.86	39.43	8	15.0	36.86	73.71

Refer to page 10 for options

Details continued from over page

NOTE — For a detailed explanation of motor nomenclature see page 10.

Please refer to www.baldor.com.au for latest information and performance data.

Brushless stainless steel motors available, for further details contact Australian Baldor.

Brushless ac Servomotor & Servodriver 'Matched Performance™' Selection Guide

The specification tables for BSM Servomotors on pages 6 to 9 provide some basic information which will assist with quick selection of a suitable Servodriver to suit individual motors in our range.

Before using these tables, ensure that all load and application information is analysed, and all calculations necessary to determine the correct motor for your application have been completed.

One critical selection criteria is 'Inertia Matching'. This is the 'motor's rotor inertia' matched to the 'load inertia reflected back to the motor shaft'. A ratio of 1:1 is ideal. Ratios of 1:5 are possible and in some circumstances higher ratios are possible, but may not be recommended due to stability problems.

IMPORTANT – When using these tables, the information relating to 'Recommended Safe Amplifier Nominal Current' should be adhered to unless specific advice is obtained from our technical support team.

Safe Amplifier Nominal Currents marked with * exceed the continuous current rating of the motor and could cause motor overheating if the load exceeds the motor torque.

Using the correct motor as the basis of your system, determine the 'Recommended Safe Amplifier Nominal Current' figure from the table, then select a suitable Servodriver which has the same 'Nominal Current' from the various types offered on the following pages.

Some variations to these recommendations may be possible depending on the application characteristics. Further technical assistance is more likely to be needed where a particularly high peak torque output is required for rapid acceleration.

IMPORTANT – Safe Amplifier Nominal Currents marked with * exceed the continuous current rating of the motor and could cause motor overheating if the load exceeds the motor torque.

Accessories & Options for 'BSM' Brushless ac Servo Motors

Motor Model Number Nomenclature — eg. BSM63A-150AA					
BSM	IEC Frame **63** 50 = 55 x 55mm 63 = 67 x 67mm 80 = 89 x 89mm 90 = 120 x 120mm 100 = 146 x 146mm	Magnet Type **B-** B = Ferrite C = Niodymium (ring magnet) N = Niodymium	Stack Length **1** 1 = 1 inch 2 = 2 inches 3 = 3 inches 4 = 4 inches 6 = 6 inches	Bus Vdc/krpm **50** 33 = 33 Vdc/krpm 50 = 50 Vdc/krpm 75 = 75 Vdc/krpm 150 = 150 Vdc/krpm 250 = 250 Vdc/krpm	Options **X1/X2/X3** X1 = Motor Options X2 = Feedback Options X3 = Accessory Options

TABLE NOTES:
n/c = No Charge.
BSM50/63/80 standard motor has commutation resolver, 2 threaded connectors for resolver and motor, IEC square mount flange, IP54 protection.
BSM90/100 standard motor has commutation resolver, 1 threaded connector for resolver, motor lead wire via terminal box, IEC square mount flange, IP54 protection.

Options for BSM 50/63/80/90/100 Brushless Servo Motors. (Continued below.)

Motor Model (BSM)		50	50	50	63	63	80	80	90	90	100	100
Brake Torque (Nm)		0.7	1.0	1.4	1.4	2.0	3.0	4.5	9.9	15.0	19.0	34.0
Motor Magnet Type and Stack Length		N-1	N-2	N-3	N-1 N-2	N-3	N-1 N-2 C/B1 C/ B2 C/B-3	N-3	N-1 N-2 B/C-1 B/C 2 C/B-3	N-3	N-1 N-2 B/C-1 B/C2 B/C-3 B/C-4	N-3 N-44 C4 C5-C6
Option X1 Group A3	X1Code	$			$							
Standard Motor	A	n/c			n/c	n/c	n/c	n/c	n/c	–	–	–
Brake	B	277			353	416	353	499	437	554	762	901
Shaft Seal	C	28			28	28	28	28	28	28	28	28
Brake and Shaft Seal	D	305			381	444	381	527	464	582	797	929

See Page 50 for motor/control cables and connectors,

Options for BSM 50/63/80/90/100 Brushless Servo Motors. (Continued from above.)

Option Description Group A3	Option X2	Motor Type 50N	63 N	80 N	90 N	100 N	80 B/C	90 B/C	100 B/C
		List Price $							
Standard Resolver	A	n/c	n/c	n/c	n/c	n/c	n/c	n/c	n/c
Encoder with Commutation 1000 ppr	E	76	76	76	76	76	76	76	76
Encoder with Commutation 2500 ppr	F	76	76	76	76	76	76	76	76
SSI Encoder (single turn)	S1	300	300	300	300	300	300	300	300
Other Feedback Unit (specify) eg. ENDAT	X	poa	poa	poa	poa	poa	poa	poa	poa
Provision for Resolver Only	Y	-110	-110	-110	-110	-110	-110	-100	-110
Halls Only	H	-60	-60	-60	-60	-60	-60	-60	-60
	Option X3								
IP 65 Protection	K	70	70	70	70	70	70	70	70
No Keyway (A33)	M	n/a	48	48	48	48	48	48	48
DIN 42955-R (A29)	N	n/a	118	118	118	118	118	118	118
No Keyway + DIN 42955-R (A33 + A29)	O	n/a	186	186	186	186	186	186	186
Motor connector on 90A-1 & 90B-1 only	P	n/a	std	std	68	n/a	std	68	n/a
Blower External for BSM90/100 only	Z	n/a	n/a	n/a	990	990	n/a	990	990

n/c = No Charge. std = Standard Equipment. poa = Price On Application. n/a = not applicable. SSI = Serial Synchronous Interface Encoder

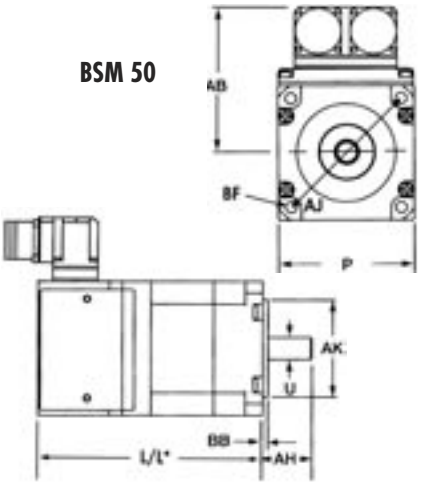
Dimension Specifications for 'BSM' Brushless Servo Motors

Dimensions in mm. L* = with Brake Option. All dimensions are approximate only and subject to constant change. Please confirm current specifications with Baldor.

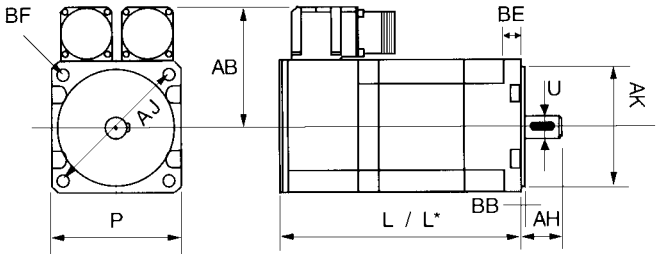
Catalogue N°	P	AK	AJ	BB	BF	BE	L	L*	AB	U	AH	Key	Tap	Wt. kg
BSM50N-1	55	40	63	2.5	4.5		102	137	67	9	20	–		1.1
BSM50N-2	55	40	63	2.5	4.5		127	162	67	9	20	–		1.6
BSM50N-3	55	40	63	2.5	4.5		153	188	67	9	20	–		2.0
BSM63N-1	67	60	75	2.5	5.6	8.0	116	145	65	11	23	4x4x12	M4x10	1.5
BSM63N-2	67	60	75	2.5	5.6	8.0	141	201	65	11	23	4x4x12	M4x10	2.2
BSM63A/N-3	67	60	75	2.5	5.6	8.0	167	227	65	11	23	4x4x12	M4x10	2.9
BSM80A/N-1	89	80	100	3.0	6.6	8.6	151	178	75	19	40	6x6x24	M6x16	3.6
BSM80A/N-2	89	80	100	3.0	6.6	8.6	183	242	75	19	40	6x6x24	M6x16	4.9
BSM80A/N-3	89	80	100	3.0	6.6	8.6	215	274	75	19	40	6x6x24	M6x16	6.3
BSM80B-1	89	80	100	3.0	6.6	8.6	183	210	75	19	40	6x6x24	M6x16	4.5
BSM80B-2	89	80	100	3.0	6.6	8.6	220	281	75	19	40	6x6x24	M6x16	6.0
BSM80B-3	89	80	100	3.0	6.6	8.6	258	319	75	19	40	6x6x24	M6x16	7.7
BSM90A/N-1	120	110	130	3.5	10.0	12.0	178	258	108	24	50	8x7x35	M8x16	8.0
BSM90A/N-2	120	110	130	3.5	10.0	12.0	228	308	108	24	50	8x7x35	M8x16	13.0
BSM90A/N-3	120	110	130	3.5	10.0	12.0	279	359	108	24	50	8x7x35	M8x16	17.0
BSM90B-1	120	110	130	3.5	10.0	12.0	181	261	108	24	50	8x7x35	M8x16	7.9
BSM90B-2	120	110	130	3.5	10.0	12.0	238	318	108	24	50	8x7x35	M8X16	11.8
BSM90B-3	120	110	130	3.5	10.0	12.0	295	375	108	24	50	8x7x35	M8x16	15.7
BSM100A/N-1	146	130	165	4.0	12.0	15.0	203	244	121	28	60	8x7x50	M10x20	16.0
BSM100A/N-2	146	130	165	4.0	12.0	15.0	254	295	121	28	60	8x7x50	M10x20	22.0
BSM100A/N-3	146	130	165	4.0	12.0	15.0	305	346	121	28	60	8x7x50	M10x20	28.0
BSM100A/N-4	146	130	165	4.0	12.0	15.0	356	396	121	28	60	8x7x50	M10x20	34.0
BSM100B-1	146	130	165	4.0	12.0	15.0	197	238	121	28	60	8x7x50	M10x20	13.4
BSM100B-2	146	130	165	4.0	12.0	15.0	273	314	121	28	60	8x7x50	M10x20	20.5
BSM100B-3	146	130	165	4.0	12.0	15.0	349	390	121	28	60	8x7x50	M10x20	27.6
BSM100B-4	146	130	165	4.0	12.0	15.0	381	422	121	28	60	8x7x50	M10x20	34.7
BSM80C-1	89	80	100	3.0	6.6	8.6	144	172	75	19	40	6x6x24	M6x16	4.1
BSM80C-2	89	80	100	3.0	6.6	8.6	169	197	75	19	40	6x6x24	M6x16	4.5
BSM80C-3	89	80	100	3.0	6.6	8.6	195	222	75	19	40	6x6x24	M6x16	6.0
BSM80C-4	89	80	100	3.0	6.6	8.6	220	248	75	19	40	6x6x24	M6x16	7.0
BSM90C-1	120	110	130	3.5	10.0	12.0	165	226	108	24	50	8x7x35	M8x16	7.9
BSM90C-2	120	110	130	3.5	10.0	12.0	203	264	108	24	50	8x7x35	M8x16	11.8
BSM90C-3	120	110	130	3.5	10.0	12.0	241	302	108	24	50	8x7x35	M8x16	13.6
BSM100C-1	146	130	165	4.0	12.0	15.0	165	206	121	28	60	8x7x50	M10x20	24.5
BSM100C-2	146	130	165	4.0	12.0	15.0	203	244	121	28	60	8x7x50	M10x20	26.0
BSM100C-3	146	130	165	4.0	12.0	15.0	241	282	121	28	60	8x7x50	M10x20	37.7
BSM100C-4	146	130	165	4.0	12.0	15.0	279	320	121	28	60	8x7x50	M10x20	40.0
BSM100C-6	146	130	165	4.0	12.0	15.0	317	358	121	28	60	8x7x50	M10x20	42.0

Please refer to www.baldor.com.au for latest information and performance data.

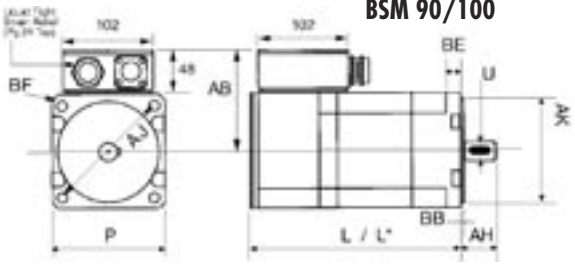
BSM 50



BSM 63/80



BSM 90/100



How to utilise the Motor 'Torque Constant'

The adjacent formulae and explanation will assist in motor/servodriver selection by utilising the 'Torque Constant' value.

The 'Torque Constant' can be used to determine the 'Minimum Continuous Input Amps' required by a motor so that it can produce its 'Rated Continuous Torque'.

The 'Torque Constant' can be used to determine the 'Peak Torque' available from a motor, given the available peak torque from a servodriver.

The 'Torque Constant' is a figure which can be used to determine either –

1. The minimum continuous input amps required by the motor to enable the motor to achieve the full nominal continuous torque value given in our tables.

e.g. – Motor Model BSM80N-350 can develop a continuous stall torque = 4.52 Nm
And has a Motor Torque Constant of = 0.58 Nm/amp.

To achieve rated torque, the minimum continuous input amps can be determined using the following formula –

$$\text{Minimum Cont. Motor Input Amps} = \frac{\text{Stall Torque}}{\text{Torque Constant}} = \frac{4.52}{0.58} = 7.79 \text{ amps}$$

or

2. The PEAK TORQUE that the motor can develop is dependant on the PEAK AMPS available from the drive.

e.g. – Motor Model BSM80N-350 has a Torque Constant of – 0.58 Nm/amp – and if the available peak input amps = 20.0 amps, then the available peak motor torque can be determined using the following formula –

Available Peak Motor Torque (Nm) = (Peak Amps from Amplifier) x (Torque Constant)
= 20.0 x 0.58
= 11.6 Nm

NOTE – Of course the motor cannot provide continuous torque values greater than the rated torque value given in our tables, even when a high input amperage is available.

'SD23H' Digital Single-Axis Brushless ac Servo Controllers

N10980

SD23H 10 AMP

- Comprehensive features and easy setup without the need of a computer or extensive programming knowledge.
- Fully programmable with simplified setup via onboard Keypad and Auto-Tuning.
- 8 Selectable Operating Modes – Keypad, Standard 3 Wire Control, 2 Wire Control with fifteen user programmable speed settings, Bipolar Speed/ Torque Control, Serial, Process.
- Removable remote mountable IP65 operator keypad/display with membrane keys and sure-touch tactile feel. Keys include forward/reverse, stop, jog, local/remote control, reset/cancel, programming access, display selection, up/down parameter adjustment and program entry.
- English text information provided by a built-in 32 character, backlit LCD display for user friendly programming and operation.
- Harmonised componentry, utilising common component modules, expansion boards and cabling with other Baldor harmonised drives such as ZD Flux Vector Drives, 17H Encoderless Vector Drives, ID-Inverter Drives and 20H dc Drives.
- Designed for easy installation and setup with servodriver and power supply in one neat package.
- Resolver Feedback.
- Simulated Encoder Output.
- External PID Loop for Process Control.
- Full four quadrant operation (motoring and reversing in either direction) with braking option.
- Full digital control for precise operation.
- Differential Analogue Input, ±5Vdc, ±10Vdc, 4–20mA. Other analogue input 0 – 10Vdc, 2 programmable analogue outputs 0 – 5Vdc.
- 9 programmable OPTO digital logic inputs and 4 programmable OPTO outputs.
- 16/32 BIT Microprocessor controlled PWM output.
- IGBT power technology for quiet operation.
- Choice of PWM operating modes with simple selection by program entry.
  - Standard - 2.5kHz PWM
  - High Frequency - 8kHz PWM

  Adjustable to 16kHz with derating.
- IP23 (NEMA 1) cabinet enclosure.
- Choice of models for 230Vac or 415Vac input. Can operate on 50Hz or 60Hz input.
- 230Vac models are suitable for either 1 or 3 phase input to produce 3 phase output. Deration required with 230V/1phase input on some models.
- Catalogue numbers with suffix -E have built-in regenerative braking transistor circuitry and resistor for a minimum braking torque of 100% of motor torque rating for 6 seconds at 20% braking duty cycle. Terminals to accept additional 'RGA' external resistors are provided for applications requiring increased braking specifications.
- Catalogue numbers with suffix -ER have built-in regenerative braking transistor circuitry and terminals to accept optional 'RGA' external resistors where dynamic braking torque is required. Resistor kits are available to provide braking torque of up to 150% of motor torque rating.
- Optional plug-in expansion boards to provide RS232/422/485 communications/control, pneumatic interface and other facilities for specific applications.

Protection & Self Diagnostics

- Protection/diagnostic indication is provided for phase to phase and phase to ground fault, instantaneous overcurrent, bus over/under voltage, motor overload, motor overspeed, motor and control overtemperature, invalid power base ID, line power loss, microprocessor failure, following error, regeneration overload, soft start fault and parameter loss.
- LCD and LED displays with unique error messages for each fault and for fast diagnosis of problem, plus cause of last 31 trips retained in memory.

OPTION AVAILABLE

- Optional 15 programmable position firmware. Please contact Baldor for details.

  Cat. N° IC0032A09 = $125

  (for new purchases only, must be fitted by Australian Baldor)

Catalogue Number Group A3	Servodriver Output Cont/Peak @ 8kHz A(rms)	Cont/Peak @ 2.5kHz A(rms)	Input Voltage 50Hz ±5% 3ph Vac	Output Bus Nominal Vdc	Overall Dimensions H x W x D mm	Weight kg	List Price $
23H SINGLE AXIS BRUSHLESS SERVODRIVER + INTEGRATED POWER SUPPLY (3ph input)							
SD23H2A03-E	3/6	4/8	180 – 230	300	312 x 203 x 181	9.1	**1,261**
SD23H2A04-E	4/8	7/14	180 – 230	300	312 x 203 x 181	9.1	**1,414**
SD23H2A07-E*	7/14	10/20	180 – 230	300	312 x 203 x 181	9.1	**1,630**
SD23H2A10-E*	10/20	16/32	180 – 230	300	312 x 203 x 181	9.1	**1,821**
SD23H2A16-E*	16/32	22/44	180 – 230	300	391 x 254 x 180	13.7	**2,191**
SD23H2A22-E*	22/44	28/56	180 – 230	300	391 x 254 x 180	13.7	**3,625**
SD23H2A28-E*	28/56	42/84	180 – 230	300	391 x 254 x 180	13.7	**3,919**
SD23H2A42-ER*	42/92	54/108	180 – 230	300	431 x 267 x 245	27.2	**4,682**
SD23H2A54-ER*	54/92	68/116	180 – 230	300	431 x 267 x 245	27.2	**5,611**
SD23H4A04-E	4/8	5/10	340 – 460	600	312 x 203 x 181	9.1	**1,575**
SD23H4A05-E	5/10	8/16	340 – 460	600	312 x 203 x 181	9.1	**1,760**
SD23H4A08-E	8/16	11/22	340 – 460	600	312 x 203 x 181	9.1	**2,353**
SD23H4A11-E	11/22	14/28	340 – 460	600	391 x 254 x 180	13.7	**3,305**
SD23H4A15-E	15/30	21/42	340 – 460	600	391 x 254 x 180	13.7	**3,989**
SD23H4A21-EO	21/42	27/54	340 – 460	600	431 x 267 x 245	27.2	**4,288**
SD23H4A27-ER	27/46	34/58	340 – 460	600	431 x 267 x 245	27.2	**5,466**
REGENERATION/BRAKING RESISTORS, EXPANSION BOARDS AND CABLES							
Refer to the Baldor 501A price list or contact Baldor for detailed information.							
LINE REACTORS – Line and Load Reactors are recommended for all 'SD23H' Controls.							
Refer to the Baldor 501A price list or contact Baldor for detailed information.							

*Requires derate on 1 phase input. Contact Baldor.

*Micro*Flex™ Brushless ac Servo Driver

The MicroFlex™ is an extremely cost effective solution for single and multi-axis motion control applications. It is ideally suited for use with Baldor's range of rotary servo and linear motors, and motion controllers, as well as ac stepper motors.

- **Brushless ac amplifier – 3, 6 or 9 amps.**
- **High performance control of ac servo motors and 3 phase stepper motors.**
- **Sinusoidal or trapezoidal commutation.**
- **Space Vector Modulation (SVM) reduces switching losses and harmonics which increases efficiency and enables motors to operate at higher speeds.**
- **Mains on-line 230V ac single phase or 230V ac 3 phase.**
- **Encoder and SSI feedback – software selectable.**
- **RS232 port for commissioning and diagnostics.**

- MicroFlex uses the industry standard ±10V input command signal, and may be configured as a torque or velocity reference from the accompanying Windows software Mint WorkBench v5.
- A step and direction interface is also supplied, making MicroFlex an ideal upgrade or replacement for stepper based packages.
- For closed loop feedback packages, encoder, SSI or Hall sensors (only) are supported.
- The MicroFlex has full auto-tuning capability through WorkBench. It is a fully protected unit, and includes encoder loss, over current, over voltage, and over temperature protection.
- Baldor's MicroFlex is available with current ratings of 3, 6 and 9 amps continuous with 200% available for peak current. Voltage is direct 230V ac single or three phase input.
- MicroFlex may be used with Baldor's range of NextMove motion controllers. The MicroFlex provides an encoder output for connection to external motion controllers. This approach provides a cost effective complete package solution for your motion control application.

Feature		Description
General Purpose I/O	Digital Inputs	Enable, Reset (software configurable) – Opto-isolated (10 – 30Vdc)
	Digital Outputs	Drive OK – Opto-isolated
	Demand Input	±10 with 12 bit ADC resolution or Step and Direction (400 MHz max)
Feedback (software configurable)		Incremental encoder with encoder loss detection. Max frequency 10 MHz Absolute SSI with 6 wire interface Hall sensor (no encoder) for trapezoidal commutation Simulated encoder output for connection to external motion controller
Commutation		Sinusoidal commutation with encoder or SSI Trapezoidal commutation with Hall sensors only
Modes of Operation		Torque control (analog input only) or Velocity control
Communications		RS232 for commissioning and diagnostics
Protection		DC bus over voltage monitoring, DC bus under voltage monitoring, peak over current, motor short circuit, over temperature, I^2T over current
Regenerative Capability		Regenerative braking IGBT – requires external dump resistor
Control Supply Input		20 – 30Vdc externally supplied
Connectors		D-type for serial port and feedback. Two part screw terminal for motor and power

'Multi Pack'
Save with a pack of 12 units.
Please contact Australian Baldor.

'Resolver Based MicroFlex'
Available 2nd quarter 2005

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* RGxx = Resistor N°	Dimensions Package Size mm	Weight kg	List Price $
***Micro*Flex™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY** (With RS232 Configuration Port)								
FMH2A03TR-EN23	3.0	6.0	180 – 230/ 1 or 3 phase	325	RG56	180Hx80Wx160L	1.75	**1,003**
FMH2A06TR-EN23	6.0	12.0*	180 – 230/ 1 or 3 phase	325	RG39	180Hx80Wx160L	1.85	**1,100**
FMH2A09TR-EN23	9.0	18.0*	180 – 230/ 1 or 3 phase	325	RG39	180Hx80Wx160L	1.90	**1,368**
***Micro*Flex™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY** (With RS485 Configuration Port)								
FMH2A03TR-EN43	3.0	6.0	180 – 230/ 1 or 3 phase	325	RG56	180Hx80Wx160L	1.75	**1,003**
FMH2A06TR-EN43	6.0	12.0*	180 – 230/ 1 or 3 phase	325	RG39	180Hx80Wx160L	1.85	**1,100**
FMH2A09TR-EN43	9.0	18.0*	180 – 230/ 1 or 3 phase	325	RG39	180Hx80Wx160L	1.90	**1,368**
FAN001-024^			24Vdc @ 325mA					**140**

External 20-30Vdc control supply. * External ventilation required. ^Group E8

Baldor Digital Control Brushless ac Servo Drives
*Series II – Flex*Drive™ II & *Flex+*Drive™ II

FlexDrive II, Flex+Drive II **are part of a new generation of Baldor servo controls, which share a common control platform. Based on the MintMT™ Operating System, the Series II controls share a common front-end and parameter set with the Baldor *Next*Move series of motion controllers.**

FlexDrive II **and** ***Flex+Drive II*** **servo drivers offer:**

- **New 32-bit front-end common to all Series II *Flex*Drives and *Mint*Drives.**
- **Rotary and linear motor support.**
- **Feedback options include:**
  - **Resolver**
  - **Commutating Encoder**
  - **EnDat – single and multi-turn absolute**
- **Handwheel encoder for both encoder and resolver based motors.**
- **Higher performance encoder input, 12MHz (post quadrature), for high speed linear motor applications.**
- **Auto-tuning of current, velocity and position loops with Hall sequence detection and calculation of motor inductance and resistance.**
- **Preset jog speeds, selectable from user inputs. (7 standard or up to 256 with option).**
- **PLC task with simple AND/OR logic**
- **All software for the Series II is shipped on CD-ROM. This contains not only the front end, but also full documentation, including details on the ActiveX control for PC programming.**

Flex+Drive II **also offers**

- **Mint programmable for indexing applications and simple following (gearing) applications.**
- **Preset positions selectable from user inputs, with independent absolute and relative indexing positions. (7 standard or up to 256 with option).**

Factory-fit Options:

- **Additional 10 digital inputs and 5 digital outputs**
- **DeviceNet fieldbus**
- **Profibus-DP fieldbus**
- **CANopen fieldbus**

Feature Comparison *(For all new applications, Baldor recommends you choose Series II drives)*

Feature	*Flex*Drive	*Flex+*Drive	*Flex*Drive II	*Flex+*Drive II
Digital Inputs	8 + Enable PNP/NPN Fixed functionality		8 + Enable PNP/NPN Software Configurable	
Digital Outputs	3 NPN + 1 Relay		3 PNP + 1 Relay Software Configurable	
Analog Inputs	1 – 12bit		1 – 14bit Software Programmable	
Serial Connector	9-pin female		9-pin male	
RS485	Option (4-wire with RTS/CTS)		Std – user configurable 4-wire	
RS232	Option		Std – user configurable	
Baud Rate	9,600		(57,600 max RS232) (19,000 max RS485)	
24V Logic Supply	Option for single phase controls		Option for single phase controls	
Resolver Feedback	Yes		Yes	
Encoder Feedback	Yes (loss of master encoder)		Yes	
Encoder Frequency	400kHz		12MHz (post quad)	
EnDat (absolute)	No		Yes	
Linear Motor control	LinDrive	Lin+Drive	Yes	
Master Encoder	Yes (resolver motors only)		Yes	
Pulse Direction	Yes	No	Yes	
Position Latch	No		2x (1µs)	
Control Law	PI Pole Placement		PI (current) + accel feedforward PID (vel) PIDVFF (pos)	
Autotune	Via front end		Via front end	
Hall Sequence Detection	No		Yes	
Inductance & Resistance Measurement	No		Yes	
Velocity/Currency loops	500µs Velocity/125µs Current		250µs Velocity/125µs Current	
Position Loop	1ms		500µsec	
Profiler Rate	1ms		1ms/2ms	
EEPROM Parameter Storage	Yes		yes	
CANOpen	Yes		Yes	
DeviceNet	No		Yes	
Profibus-DP	No		Yes	
Windows Front End	16bit Dedicated for each Control		32bit Universal front end	
Programmable I/O Functions	Hardware Limits Only		Yes	
Software Limits	Yes		Yes	
PLC Task	Yes		Yes (extended conditions)	
AND/OR Operations	No		Yes	
Preset Positions	No	Yes – up to 15	No	Yes – up to 256 with I/O expansion
Jog	Yes		Yes	
Preset Jog Speeds	1 – via PLC task		Yes – up to 256 with I/O expansion	
Homing	No	Yes	No	Yes
Electronic Gearing	Yes	No	Yes	
Fault Log	10 faults with timestamp		32 faults with timestamp Cleared faults also Latched	
Tuning Scope	Yes 2 Channels		Yes 6 Channels	
Save to CSV	Save to .gph file		Yes	
Mint Programmable	No		No	Yes
Program Size	N/A		N/A	16K
Host Interface	ASCII		BBP2	
Windows programming tools	No		Active X	

NOTE: 'FlexDrive™' and 'Flex+Drive™' products are mature, with no further development or software enhancements possible.

Flex+Drive II
SERVODRIVER

Baldor Digital Control Brushless ac Servo Drives *Series II* *Flex*Drive™ II & *Flex*+Drive™ II

Drive Specifications

Input Voltage Range	Nom. 230Vac/1ph (220 – 250Vac)	Nom. 415Vac/3ph (180 – 528Vac)
Input Frequency	50/60Hz ±5%	
Logic Input Supply	+20.4 – 28.8Vdc/1.75A	
Output Bus voltage	320Vdc @230Vac/1 ph input	586Vdc @415Vac/3 ph input
Efficiency	≥ 95%	
Minimum Load Inductance	200µH	
Operating Altitude	1000m ASL (derate 1.1% per 300m above)	
Operating Temperature	0 to +40°C (derate 2.5%/°C to max. 50°C	
Storage Temperature	-25 to + 70°C	
Humidity	10% – 90% non-condensing	
Shock	1G	
Vibration	1 G (10 – 60 Hz)	

Alternative Configurations

(Available with original order only. Non-standard configurations ex-factory only)

Feedback	FlexDrive II	Flex+Drive II
E = Encoder	Standard	Standard
R = Resolver	+$110	+$110
D = Endat	+$110	+$110
Bus Options		
N = None	standard	standard
B = CAN open + extra I/O	N/A	+$500
C = CAN open (1 channel)	+$253	+$253
D = Devicenet	+$490	+$490
P = Profibus	+$440	+$440
Serial Port		
2 = RS232	standard	standard
4 = RS485	user selectable	
Logic Supply Voltage		
0 = Internally generated	Std on 1ph/not avail. on 3ph	
3 = Customer supplied	Std on 3ph/no charge on 1ph	

'FlexDrive' – Catalogue N° and Configuration Information

F	D	H	2	A	0	2	T	B	–	R	N	2	3

Control Family
FDH = F*LEX*Drive II
FPH = *FLEX*+Drive II
FD = *FLEX*Drive
FP = *FLEX*+Drive

Input/Bus Voltage
1 = 115Vac/160Vdc
2 = 230Vac/300Vdc
4 = 400-460Vac/560Vdc

Current Continuous
A02 = 2.5 amps
A05 = 5.0 amps
A07 = 7.5 amps
A10 = 10 amps
A15 = 15 amps
A20 = 20 amps
A27 = 27.5 amps

Enclosure Type
T = Panel Mount WITH Internal Power Supply
P = Panel Mount WITHOUT Power Supply (DC input)
S = Panel Mount WITH Internal Power Supply (suitable for sharing across multiple drives)

Braking Capabilities
R = Requires External Resistor
B = Built in Regeneration Resistor
O = No internal braking capability

Feedback Options
R = Resolver
E = Encoder
D = Endat

Bus Options
N = None
B = Baldor CAN
C = 1 CAN channel (CAN open)
D = Devicenet
P = Profibus

Serial Port Options
2 = RS232
4 = RS485

Logic Supply Voltage Options
0 = Internally Generated
3 = External Customer supplied +24Vdc

Add 10% to all prices
Price Increase Effective 14 May 2006

'FlexDrive II™' Servo Drives

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Standard/With Option Refer to Page 21	Weight kg	List Price $
FlexDrive II™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY								
FDH2A02TB-RN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**1,585**
FDH2A02TB-EN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**1,475**
FDH2A05TB-RN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**1,782**
FDH2A05TB-EN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**1,672**
FDH2A07TR-RN23	7.5	15	220-250/1ph	300	RG39	D	2.30	**1,918**
FDH2A07TR-EN23	7.5	15	220-250/1ph	300	RG39	D	2.30	**1,808**
FDH2A15TR-RN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	**2,684**
FDH2A15TR-EN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	**2,576**
FDH4A02TB-RN23	2.5	5	180-528/3ph	560	B	G	4.90	**2,476**
FDH4A02TB-EN23	2.5	5	180-528/3ph	560	B	G	4.90	**2,368**
FDH4A05TB-RN23	5.0	10	180-528/3ph	560	B	G	4.90	**2,548**
FDH4A05TB-EN23	5.0	10	180-528/3ph	560	B	G	4.90	**2,440**
FDH4A07TR-RN23	7.5	15	180-528/3ph	560	RG68	G	4.90	**2,624**
FDH4A07TR-EN23	7.5	15	180-528/3ph	560	RG68	G	4.90	**2,516**
FDH4A15TR-RN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	**3,158**
FDH4A15TR-EN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	**3,050**
FDH4A20TR-RN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	**3,635**
FDH4A20TR-EN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	**3,527**
FDH4A27TR-RN23	27.5	55	180-528/3ph	560	RG11	H	9.05	**4,113**
FDH4A27TR-EN23	27.5	55	180-528/3ph	560	RG11	H	9.05	**4,005**

NOTES: **EXTERNAL REGENERATION RESISTORS –** May be required depending upon load characteristics. Refer to page 21. * 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

'FlexDrive™' Servo Drives (Series I)

NOTE: Not for new applications. Please choose from FlexDrive™ II 'FDH' or 'FPH' models.
These products are mature, with no further development or software enhancements possible.

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Dimensions Refer to Page 21 Package Size	Weight kg	List Price $
FlexDrive™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY								
FD2A02TB-RN20	2.5	5	184 – 253/1ph	300	B	A	1.24	**1,638**
FD2A05TB-RN20	5.0	10	184 – 253/1ph	300	B	B	2.13	**1,841**
FD2A07TR-RN20	7.5	15	184 – 253/1ph	300	RG39	C	2.18	**1,980**

NOTES: **EXTERNAL REGENERATION RESISTORS –** May be required depending upon load characteristics. Refer to page 21. * 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

'Flex+Drive II™' Servo Drives

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Standard/With Option Refer to Page 21	Weight Std/With Option kg	List Price $
Flex+Drive II™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY								
FPH2A02TB-RN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**1,829**
FPH2A02TB-RB23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**2,329**
FPH2A02TB-EN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**1,721**
FPH2A02TB-EB23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	**2,221**
FPH2A05TB-RN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**2,023**
FPH2A05TB-RB23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**2,523**
FPH2A05TB-EN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**1,915**
FPH2A05TB-EB23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	**2,415**
FPH2A07TR-RN23	7.5	15	220-250/1ph	300	RG39	D	2.30	**2,157**
FPH2A07TR-RB23	7.5	15	220-250/1ph	300	RG39	D	2.30	**2,657**
FPH2A07TR-EN23	7.5	15	220-250/1ph	300	RG39	D	2.30	**2,049**
FPH2A07TR-EB23	7.5	15	220-250/1ph	300	RG39	D	2.30	**2,549**
FPH2A15TR-RN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	**2,955**
FPH2A15TR-EN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	**2,847**
FPH2A15TR-EB23	15.0	30	184-253/3Ph	300	RG10	E	3.30	**3,350**
FPH4A02TB-RN23	2.5	5	180-528/3ph	560	B	G	4.90	**2,751**
FPH4A02TB-EN23	2.5	5	180-528/3ph	560	B	G	4.90	**2,643**
FPH4A05TB-RN23	5.0	10	180-528/3ph	560	B	G	4.90	**2,821**
FPH4A05TB-EN23	5.0	10	180-528/3ph	560	B	G	4.90	**2,713**
FPH4A07TR-RN23	7.5	15	180-528/3ph	560	RG68	G	4.90	**2,883**
FPH4A07TR-EN23	7.5	15	180-528/3ph	560	RG68	G	4.90	**2,775**
FPH4A15TR-RN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	**3,414**
FPH4A15TR-EN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	**3,306**
FPH4A20TR-RN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	**3,891**
FPH4A20TR-EN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	**3,783**
FPH4A27TR-RN23	27.5	55	180-528/3ph	560	RG11	H	9.05	**4,370**
FPH4A27TR-EN23	27.5	55	180-528/3ph	560	RG11	H	9.05	**4,262**

NOTES: **EXTERNAL REGENERATION RESISTORS –** May be required depending upon load characteristics. Refer to page 21. * 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

'Flex+Drive™' Servo Drives (Series I)

NOTE: Not for new applications. Please choose from Flex*Drive™ II *'FDH' or 'FPH' models.
These products are mature, with no further development or software enhancements possible.

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Dimensions Refer to Page 21 Package Size	Weight kg	List Price $
FlexDrive™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY								
FP2A05TB-RN20	5.0	10	184 – 253/1ph	300	B	B	2.13	**2,183**
FP2A07TR-RN20	7.5	15	184 – 253/1ph	300	RG39	C	2.18	**2,328**
FP2A02TB-RN20	2.5	5.0	184 – 253/1ph	300	B	A	1.24	**1,973**

NOTES: **EXTERNAL REGENERATION RESISTORS –** May be required depending upon load characteristics. Refer to page 21. * 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

'*Mint*Drive II™' Single Axis Brushless ac Motion Controllers

***MINT*Drive™ II DIGITAL MOTION CONTROLLER**

N10980

***Mint*Drive II™ is a powerful motion controller, brushless ac servo driver and power supply integrated into a single neat stand-alone package.**

Motion control, I/O handling, serial communications, machine level networking and optional operator panel work together under the control of a Mint MT™ program which is stored within the drive.

- Common connectors and pin-outs with FlexDrive II and Flex+Drive II.
- Common Windows™ WorkBench v5 front end, with other Baldor motion controllers.
- Resolver feedback with simulated encoder output.
- Optional encoder feedback with buffered encoder output up to 12MHz.
- Absolute encoder, Endat and Hiperface optional.
- Fieldbus options: DeviceNet, Profibus-DP, or CANopen.
- High performance control card using the latest DSP motor control technology.
- Rotary and linear motors supported, software selectable.
- New Auto-tuning algorithm, provides 'torque optimisation' and Hall sequence detection to help eliminate miswiring.
- User selectable RS232/485
- Multi-tasking Mint MT programming for motion and I/O based applications.
- Faster compilation and start up times.
- Full support of positional moves, software gearboxes, flying shears and CAM profiles.
- Two high speed inputs for registration control.
- Improved programming environment, easy navigation, syntax highlighting.
- Improved performance bandwidth of up to 400Hz.
- Built in braking resistor on 2.5 and 5.0 amp models.
- Drive supports 5v and 24v pulse and direction signal.

Protection Features

- Overvoltage • Short Circuit • Over Temperature • Over Current • Under Voltage • I^2t • Electronic Fusing • Loss of Feedback.

Standard/Optional Configurations

- Refer to the Catalogue N° and Alternative Configuration information below.

Drive Specifications

Input Voltage Range	Nom. 230Vac/1ph (220 – 250Vac)	Nom. 415Vac/3ph (180 – 528Vac)
Input Frequency	50/60Hz ±5%	
Logic Input Supply	+20.4 – 28.8Vdc/1.75A	
Output Bus voltage	320Vdc @230Vac/1 ph input	586 @415Vac/3 ph input
Efficiency	≥ 95%	
Minimum Load Inductance	200µH	
Operating Altitude	1000m ASL (derate 1.1% per 300m above)	
Operating Temperature	0 to +40°C (derate 2.5%/°C to max. 50°C	
Storage Temperature	-25 to + 70°C	
Humidity	10% – 90% non-condensing	
Shock	1G	
Vibration	1 G (10 – 60 Hz)	

Alternative Configurations

(Available with original order only. Non-standard configurations ex-factory only)

Feedback	**MintDrive**	**MintDrive II**
E = Encoder	n/a	Standard
R = Resolver	Standard	+$110
D = Endat	n/a	+$110
Bus Options		
N = None	Standard	standard
B = Baldor CAN + extra I/O	Standard	+$500
C = CAN open (1 channel)	Standard	+$253
D = Devicenet	n/a	+$490
P = Profibus	n/a	+$440
Serial Port		
2 = RS232	Standard	Standard
4 = RS485	user selectable	
Logic Supply Voltage		
0 = Internally generated	Std on 1ph/not avail. on 3ph	
3 = Customer supplied	Std on 3ph/no charge on 1ph	

n/a = Not Applicable n/c = No Charge

*Mint*Drive™ II Capabilities

On board memory	512K Flash for firmware and program storage, 512K flash, 8K NVRAM for parameter storage.
Feedback.	Resolver/Encoder/Absolute Encoder.
Resolver.	14 bit ±3 count accuracy.
Simulated output.	512/1024/2048/4096
Encoder	Accepts three channel encoders (A, B & Z) with Hall. Operates differential (TTL or RS422) output type. 12MHz quadrature counts. 5V, 200mA power to encoder, 15 pin D type.
I/O Power supply.	Customer to supply 24 volts minimum 1.75 amps.
Digital inputs.	8 Opto isolated 24V. Can be connected to positive or negative common (for use with NPN and PNP output transistors). Software configurable for forward and reverse limits, home, stop and drive error. Software programmable level and edge triggered. 2 ms sample rate.
Digital outputs.	3 Opto isolated 24V PNP Software configurable for Drive Okay. 50mA per channel, 350mA max source per channel, 500mA max for 3 channels.
Fast Position Latch	Inputs configurable to latch position of axis position and master encoder in 1µsec
Relay Output	Fault output, normally closed. 1A @ 30Vdc or 0.5A @ 125Vac.
Analog Outputs	2 – 8 bit ±10v. User programmable.
Analog Inputs/Command	2 – 14 bit resolution ±10v.
Reference.	Programmable gain and offset.
Master Encoder	One channel for synchronisation and following applications. Incremental Encoder. RS422 differential AB signals with index Z pulse. 2.5 MHz maximum frequency.
Pulse & Direction	+5Vdc to +24 Vdc Pulse and direction programmable from inputs 4 and 5, or master encoder input, maximum frequency 1 MHz.
Serial Ports	User selectable via DIP switch for RS232 or RS485 communications. RS232 max baud rate 57,600 for programming. RS485 max baud rate 19,200 for programming and multi-drop communications. 32 devices supported on RS485 port.
Programming.	MintMT- Multi tasking Motion basic.

'*Mint*Drive' – Catalogue N° and Configuration Information

M	D	H	2	A	0	2	T	B	–	R	N	2	3

Control Family
MDH = MintDrive II
MD = MintDrive

Input/Bus Voltage
1 = 115Vac/160Vdc
2 = 230Vac/300Vdc
4 = 400-460Vac/560Vdc

Current Continuous
A02 = 2.5 amps
A05 = 5.0 amps
A07 = 7.5 amps
A10 = 10 amps
A15 = 15 amps
A20 = 20 amps
A27 = 27.5 amps

Enclosure Type
T = Panel Mount WITH Internal Power Supply
P = Panel Mount WITHOUT Power Supply (DC input)
S = Panel Mount WITH Internal Power Supply
(suitable for sharing across multiple drives)

Braking Capabilities
R = Requires External Resistor
B = Built in Regeneration Resistor
O = No internal braking capability

Feedback Options
R = Resolver
E = Encoder
D = Endat

Bus Options
N = None
B = Baldor CAN
C = 1 CAN channel (CAN open)
D = Devicenet
P = Profibus

Serial Port Options
2 = RS232
4 = RS485

Logic Supply Voltage Options
0 = Internally Generated
3 = External Customer supplied +24Vdc

'MintDrive II™' Motion Controllers

Please refer to Page 19 for Catalogue N° and Configuration information

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Standard/With Option Refer to Page 21	Weight kg	List Price $
MintDrive II™ SINGLE AXIS MOTION CONTROLLER/BRUSHLESS ac SERVODRIVER/POWER SUPPLY (customer to provide 24Vdc Internal Logic Supply)								
MDH2A02TB-RN23	2.5	5	220 – 250/1ph	300	B	A std, B w/Opt	1.25/1.55	**2,137**
MDH2A02TB-EN23	2.5	5	220 – 250/1ph	300	B	A std, B w/Opt	1.25/1.55	**2,029**
MDH2A02TB-RB23	2.5	5	220 – 250/1ph	300	B	A std, B w/Opt	1.25/155	**2,648**
MDH2A02TB-EB23	2.5	5	220 – 250/1ph	300	B	A std, B w/Opt	1.25/1.55	**2,540**
MDH2A05TB-RN23	5.0	10	220 – 250/1ph	300	B	C std, D w/Opt	4.63/5.07	**2,334**
MDH2A05TB-EN23	5.0	10	220 – 250/1ph	300	B	C std, D w/Opt	4.63/5.07	**2,226**
MDH2A05TB-RB23	5.0	10	220 – 250/1ph	300	B	C std, D w/Opt	4.63/5.07	**2,845**
MDH2A05TB-EB23	5.0	10	220 – 250/1ph	300	B	C std, D w/Opt	4.63/5.07	**2,737**
MDH2A07TR-RN23	7.5	15	220 – 250/1ph	300	RG39	D	5.1	**2,471**
MDH2A07TR-EN23	7.5	15	220 – 250/1ph	300	RG39	D	5.1	**2,363**
MDH2A07TR-RB23	7.5	15	220 – 250/1ph	300	RG39	D	5.1	**2,982**
MDH2A07TR-EB23	7.5	15	220 – 250/1ph	300	RG39	D	5.1	**2,874**
MDH2A15TR-EN23	15.0	30	184-253/3Ph	300	RG10	E	3.3	**3,120**
MDH2A15TR-RN23	15.0	30	184-253/3Ph	300	RG10	E	3.3	**3,228**
MDH2A15TR-EB23	15.0	30	184-253/3Ph	300	RG10	E	3.3	**3,620**
MDH4A02TB-EN23	2.5	5	180-528/3PH	560	B	G	10.8	**2,921**
MDH4A02TB-EB23	2.5	5	180-528/3PH	560	B	G	10.8	**3,421**
MDH4A05TB-EN23	5.0	10	180-528/3PH	560	B	G	10.8	**2,988**
MDH4A05TB-EB23	5.0	10	180-528/3PH	560	B	G	10.8	**3,488**
MDH4A07TR-EN23	7.5	15	180-528/3PH	560	RG68	G	10.8	**3,033**
MDH4A07TR-EB23	7.5	15	180-528/3PH	560	RG68	G	10.8	**3,533**
MDH4A15TR-EN23	15.0	30	180-528/3PH	560	RG27A	H	9.1	**3,565**
MDH4A15TR-EB23	15.0	30	180-528/3PH	560	RG27A	H	9.1	**4,065**
MDH4A20TR-EN23	20.0	40	180-528/3PH	560	RG27A	H	9.1	**4,044**
MDH4A20TR-EB23	20.0	40	180-528/3PH	560	RG27A	H	9.1	**4,544**
MDH4A27TR-EN23	27.5	55	180-528/3PH	560	RG11	H	9.1	**4,523**
MDH4A27TR-EB23	27.5	55	180-528/3PH	560	RG11	H	9.1	**5,023**

***EXTERNAL REGENERATION/BRAKING RESISTORS –** May be required depending upon load characteristics. Refer to page 21 for detailed information.

MintDrive™ Motion Controllers (Series I)

Please refer to Page 19 for Catalogue N° and Configuration information

NOTE: Not for new applications. Please choose from MintDrive II 'MDH' models.
These products are mature, with no further development or software enhancements possible.

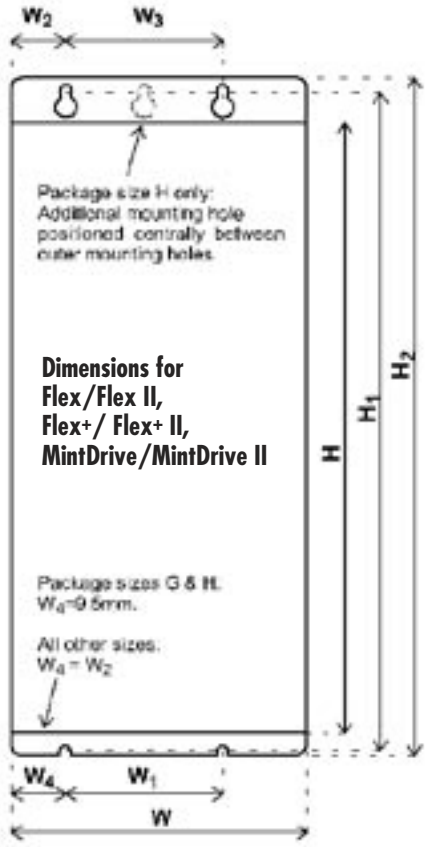
Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Refer to Page 21	Weight kg	List Price $
*** MintDrive™ SINGLE AXIS MOTION CONTROLLER/BRUSHLESS ac SERVODRIVER/POWER SUPPLY** (with 24Vdc Internal Logic Supply)								
MD2A02TB-RC20	2.5	5	184 – 253/1ph	300	B	A	1.2	**3,072**
MD2A05TB-RC20	5.0	10	184 – 253/1ph	300	B	B	2.1	**3,335**
MD2A07TR-RC20	7.5	15	184 – 253/1ph	300	RG39	C	2.2	**3,677**

***EXTERNAL REGENERATION/BRAKING RESISTORS –** May be required depending upon load characteristics. Refer to page 21 for detailed information.

Dimensions of Flex/Flex II, Flex+/Flex+ II, MintDrive/MintDrive II

Package Code	Dimensions W	H	Depth	W1	W2	W3	H1	H2	Weight kg
A	67.5	173	152	40	15	40	195.5	205	1.25
B	84.0	173	152	40	15	40	195.5	205	1.55
C	92.5	173	152	40	23	40	195.5	205	2.1
C	109	173	152	40	23	40	195.5	205	2.3
E	55	357	262	36	27.5	–	384	400	5.0
G	65	357	262	48	32.5	–	384	400	4.9
H	130	357	328	111	27.5	75	384	400	9.05

For safe operation allow 15mm minimum clearance on all sides.



External Regeneration Resistors

for *Flex*Drive/*Flex*Drive II, *Flex+*Drive/*Flex+*Drive II, *Mint*Drive/*Mint*Drive II/MicroFlex

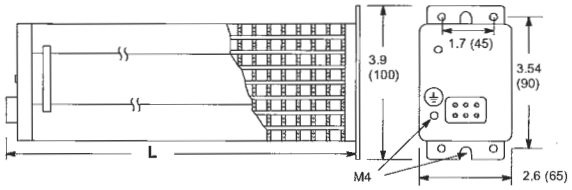
Control Rated Amps	Control Model Flex/Flex+/Mint Series I & II	Size Refer to Dimension Table	230Vac Controls Resistor Cat N°	230Vac Controls Resistor Watts	400/460Vac Controls Resistor Cat N°	400/460Vac Controls Resistor Watts	List Price (Group E8)
2.5/3.0	..2A02TR	A	RG56	44.00			**85**
5.0	..2A05TR	B	RG56	44.00			**85**
7.5/6/9	..2A07TR	C	RG39	100.00			**115**
2.5	4A02TB	G	Built in				
5.0	4A05TB	G	Built in				
7.5	..4A07TR	G			RG68	320	**125**
15.0	..4A15TR	H			RG27A	320	**125**
20.0	..4A20TR	H			RG23	640	**250**
27.5	..4A27TR	H			RG11*	640	**314**

*RG11 resistor is made up of 2 x RG22A resistors in parallel.

Contact Australian Baldor for additional braking capability for drives with built-in resistors.

L = 140mm for 44 watt
228mm for 100 watt
337mm for 320/640 watt

Clearance Requirements (all sizes)
51mm top and bottom – 26mm
left and right



EMC/EMI Filters CE and C✓

State-of-the-art industrial drive EMI/EMC filtering. Meet Standards EN 555011/55014, IEC 22G/21/CDV, UL1283 and EN 133200. Designed for cable lengths up to 50m and performance may be adequate for cable lengths up to 75m or more.

EMC/EMI Filter Description	Rated Amps @40°C	Leakage Current mA	Voltage	Dimensions mm	Weight kg	Catalogue N° Group E8	List Price $
24V Supply Filter MicroFlex and Flex/Mint,	3.0	40.0	2x250	85x54x40	0.27	FI0014A00	**71**
Input 1ph/240Vac 50/60Hz							
MicroFlex 3A, Flex/Mint 2.5A	6.0	40.0	2x250	114x58x46	0.45	FI0015A00	**71**
Flex/Flex+/Mint 5.0A	10.0	40.0	2x250	156x58x46	0.73	FI0015A01	**106**
MicroFlex 6A, Flex/Mint 7.5A	12.0	40.0	2x250	156x58x46	0.73	FI0015A02	**134**
MicroFlex 3,6,9A, Footprint Filter	22.0	33.0	2x250	255x100x40	3.00	FI0029A00	**215**
Input 3ph ≤ 480Vac 50/60Hz.							
	7.7	33.0	3x480	190x40x71	0.50	FI0018A00	**149**
	17.5	33.0	3x480	250x45x70	0.80	FI0018A03	**225**
	32.9	33.0	3x480	270x50x85	1.20	FI0018A01	**250**
Input 3ph ≤ 440Vac 50/60Hz.							
	36.0	28.0	3x440	200x150x75	3.00	FI0017A03	**390**
	50.0	29.6	3x440	200x150x75	3.10	FI0017A04	**410**

An Introduction to dc Servo Systems

dc Servo Systems are high performance, low inertia, variable speed drives, giving full torque at zero rpm. They are a closed loop drive which has an integral tachometer on the motor shaft giving a voltage output signal even with the slightest of movement.

Baldor provides several alternative mounting arrangements for servo systems including stand-alone self-contained units, and chassis mount units. Rack mounting systems are not detailed in this catalogue, but are also available.

The Baldor Transistor Servodriver

The Servodriver is the main logic control or brain of the servo system. It takes in a dc voltage from the Power Supply module which is then pulse width modulated to create an almost pure dc output from zero to full volts (with a Form Factor > 1.01). The Servodriver input control signals come from an external ±10V source (eg. potentiometer or any process signal), with zero volts being stationary and 10V being full speed, positive one direction, negative opposite direction. The tachometer feed back to the Servodriver is then compared to the input signal and is continually monitored and therefore holds precise speed.

Power Supply for the Servodriver

The power supply for the Servodriver is simply a bridge rectifier with built in filtering. The power supply takes in ac voltage and creates a dc Bus voltage output which is sent to the Servodriver. The following are the appropriate ac input voltages to the power supply to produce the dc Bus volts.

dc Bus Volts required from Power Supply	ac Input Volts required to Power Supply
40	28
60	43
90	64
150	107
180	128
200	142

The preferred supply is three phase, however single phase can be used in many applications.

Motor Voltage/Speed Constant

The operating speed of a dc servo motor is a direct linear relationship to the applied dc voltage and is referred to as the Voltage Constant (Vdc/krpm).

For example an MT4525-CTYCN motor which has a Voltage Constant of 43Vdc/krpm, requires 43 x 3 = 129Vdc for 3000rpm operation.

Warning on ac Input Voltage

Our experience has shown that more problems arise with overvoltage rather than undervoltage of the ac mains input, therefore careful consideration should be given to the following information on the selection of the correct input voltage.

Since most motors achieve their rated speed with fewer volts than the Servodrivers maximum output volts, it is better to use the motor voltage to select the transformer's ac rating rather than the above chart, providing the undervoltage limits are not exceeded in the power supply and Servodriver. For example an MT4535-BTYCN motor achieves its full rpm at 128 volts (see rated volts of chosen motor), therefore one could drop by 10% the input ac volts from 107 to say 96 volts which would reduce the maximum output volts of the power supply from 150 to 136 Vdc and thereby eliminating possible damaging overvoltage situations.

Power Supply Regeneration

In most instances the power supply is fully regenerative, that is, it has built in resistors which absorb the energy created when the dc motor is used to slow down or stop. Because it is acting like a generator, this surplus energy is dumped into the resistors, thus enabling the motors to change speed or stop very rapidly. For large inertial loads it may be necessary to install larger capacity external resistors in lieu of standard internal resistors to absorb the additional energy within an acceptable time span.

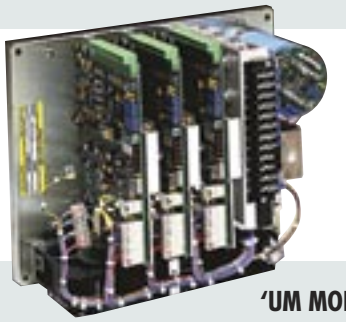
'UM-H' Chassis Mount Servo System

The Baldor UM Series 'H' high frequency type dc servodriver provides high performance with attention to economy. It is designed to operate a wide range of Baldor dc servomotors, and could be used with nearly any good quality dc servomotor. The UM Series servo amplifier typically contains one to six servodriver modules and one multi-axis chassis with built-in power supply, over voltage regulator and associated hardware.

'TSD' Stand-alone Servo System

The Baldor TSD (Twin Servo Driver) is a stand-alone, one or two axis brush type PWM servodriver designed around a simplified and integrated package concept which allows this unit to be taken from its shipping carton and placed into operation within 10 minutes. It is capable of up to 500 watts per axis and is a perfect match for Baldor MT2200 and MT3300 motors.

Series 'UM' dc Servo Control Systems



'UM MODULE

The Baldor UM high frequency dc servodrivers provide high performance with attention to economy. It is designed to operate a wide range of Baldor dc servomotors, and could be used with nearly any good quality dc servomotor. The UM Series servo amplifier typically contains one to four servodriver modules and one multi-axis chassis. The chassis includes the required power supply, over voltage regulator and associated hardware.

Features

- No audible noise with 20kHz switching.
- Multi-axis, up to 4 axes on a single chassis.
- Reduced motor heating due to an excellent form factor of 1.01.
- Easily set up for current (torque) control applications.
- External inductors not required (short circuit proof).
- Adjustable current limits – Peak and Continuous.
- Screw terminal inputs (no special tools).
- Test points and reset button to aid in setup.
- Zero deadband.
- Extremely high band width.
- Protection features, including diagnostic LEDs – Over-current, Over-voltage, Ground Fault, Surge Current, Thermal Protection.
- Auxiliary inputs and outputs – Remote on/off, interlock line, Overtravel limits, (separate right and left for NO and NC switches), Remote reset, Externally adjustable current, Motor current monitor, ±15V dc output, Differential or single ended input.
- Clear and simple support documentation.
- The most popular models, which are list here, are normally available ex-stock. However other ratings are available. Please contact your Baldor supplier for your specific requirements.

Series 'TSD' Servo Control System

The Baldor TSD (Twin Servo Driver) is a stand-alone, one or two axis brush type PWM servodriver, utilising the latest in FET/IGBT transistors for efficiency and 'bullet-proof' reliability. The simple, fully packaged concept allows this unit to be taken from it shipping carton and placed into operation within 10 minutes. Just attach a plug, plug it in and it's ready to go. It is capable of up to 500 watts per axis and is a perfect match for Baldor M2200 and M3300 motors.

- Easily set up for velocity or torque (current) control applications.
- Form factor 1.01 or better.
- Zero deadband performance
- Adjustable current limits: Peaks and Continuous.
- Detachable screw terminal inputs (no special tools).
- Plugs into a standard 240 Vac, 1 phase, 50 Hz outlet (no transformers required). A cord is supplied ready to accept a plug.
- Panel mount enclosure ensures there are no exposed electronics.
- Simplified 'start up' as all connections are defined right on the exterior of the enclosure.
- ON/OFF main toggle switch.
- No audible noise with 20 kHz switching.
- No additional inductors required.
- Protection features, with LED indicators for — • Voltage Error • Surge Current • Over Temperature

'TSD' SERVODRIVER

- Extremely high bandwidth.
- Detachable calibration card 'Personality Module'. Helps simplify the set up of additional drives and makes servicing possible without a skilled technician.
- Auxiliary inputs and outputs • Overtravel limits, left and right • Remote reset • Enable line • ±15Vdc output • Motor current monitor
- Clear and simple support documentation.

Catalogue N° Group A3	Integrated Features	Output Continuous/Peak amps	Nominal bus Vdc	Nominal Input Vac	Input Phase ph	Control Axes	Weight kg	List Price $
TSD Servodriver + Power Supply								
TSD-050-05-1-I	Servodriver+Power Supply	5/10	50	240	1	1	7.7	**1,050**
TSD-050-05-2-I	Servodriver+Power Supply	5/10	50	240	1	2	8.6	**1,640**
TSD-100-05-1-I	Servodriver+Power Supply	5/10	100	240	1	1	9.0	**1,138**
TSD-100-05-2 I	Servodriver+Power Supply	5/10	100	240	1	2	11.8	**1,812**
UM Servodriver + Power Supply								
UM2-150-5-01S	Servodriver+Power Supply*	15/30	150	105	1	1	5.6	**2,084**
UM2-150-5-02S	Servodriver+Power Supply*	15/30	150	105	1	2	6.3	**3,069**
UM4-150-6-01S	Servodriver+Power Supply*	15/30	150	105	3	1	6.9	**2,136**
UM4-150-6-02S	Servodriver+Power Supply*	15/30	150	105	3	2	7.5	**3,051**
UM4-150-6-03S	Servodriver+Power Supply*	15/30	150	105	3	3	8.3	**3,967**
UM4-150-6-04S	Servodriver+Power Supply*	15/30	150	105	3	4	9.1	**4,883**
UM Individual Servodriver or Power Supply Modules								
UM3015HS-100	Servodriver	15/30	100			1	0.8	**809**
UM3015HS-150	Servodriver	15/30	150			1	0.8	**915**
UM2-100-5	Power Supply+Chassis*		100	70	1	≤2	5.0	**1,065**
UM2-150-5	Power Supply+Chassis*		150	105	1	≤2	5.0	**1,100**
UM4-150-6	Power Supply+Chassis*		150	105	3	≤4	6.1	**1,221**

Notes — Separate 240Vac single phase input required for Fan and Logic Power requirements.
Models marked with * require an Isolation Transformer.

Series 'M2200', 'M3300' & 'M4500' dc Servomotors

Features

- Continuous Stall Torques from 0.021 Nm to 6.55Nm normally ex-stock.
- Integral Tachometer standard.
- High quality materials and manufacture for Low Inertia characteristics.
- Ceramic Magnets standard.
- Ideal for use with SCR and Transistor Drives.
- Peak Stall Torques 5-8 times continuous stall torques.
- Good thermal characteristics.
- Excellent low speed and smooth running characteristics.

'MTE2250' SERIES SERVOMOTOR

- Encoder and Resolver feedback units available.
- Integral Fail Safe Brake optional on M3300 and M4500 series only.
- Special Flange or Shaft optional.

Catalogue Number Group A3	Old Model Number	List Price $	Stall Torque Continuous Nm	Stall Torque Peak Nm	Power at Peak Stall Trq kW	Mech. Time Constant millisec	Elec. Time Constant millisec	Theor. Accel at Peak Trq. rad/s²	Current at Cont Stl Trq A	Current at Peak Trq A	Voltage at Peak Trq V
M2200 SERIES SERVOMOTORS — 57mm dia. (2 1/4")											
MT-2240-AMYAN	IM2240-B14	**436**	0.21	1.40		7.8	2.0	40,000	2.05	12.3	
MT-2250-AMYAN	IM2250-B14	**472**	0.35	1.83	0.67	7.4	2.8	38,961	3.40	16.05	42.0
MT-2250-ADYCN	IM2250-B5-A24	**571**	0.35	1.83	0.67	12.0	2.8	38,961	3.40	16.05	42.0
MTE-2250-AMACN	IM2250-B14-A30A	**1,142**	0.35	1.83	0.67	7.4	2.8	38,961	3.40	16.05	42.0
M3300 SERIES SERVOMOTORS — 86mm dia. (3 3/8")											
MT-3363-BDYCN	IM3363-B5-A24	**770**	1.27	8.5	1.70	9.99	2.54	24,700	4.76	28.5	54.0
MTE-3363-BDACN	IM3363-B5-A30A	**1,576**	1.27	8.5	1.70	9.99	2.54	24,700	4.76	28.5	54.0
M4500 SERIES SERVOMOTORS — 101mm dia. (4")											
MT-4525-BTYCN	SD22/SD25-20A1	**858**	3.40	14.7	1.10	8.43	4.52	9,360	6.16	24.0	44.2
MT-4525-CTYCN	SD22/SD25-30A1	**858**	3.40	14.7	1.10	8.0	4.9	9,360	9.17	36.0	30.7
MT-4525-DTYCN	SD22/SD25-40A1	**858**	3.40	14.7	1.10	8.0	4.8	9,360	12.0	46.6	22.7
MT-4535-ATYCN	SD32/SD35-15A1	**944**	4.52	21.5	1.50	7.51	5.15	9,110	5.70	24.0	63.1
MT-4535-BTYCN	SD32/SD35-20A1	**944**	4.52	21.5	1.50	8.07	4.19	9,110	8.30	36.0	42.8
MT-4535-CTYCN	SD32/SD35-30A1	**944**	4.52	21.5	1.50	8.63	4.2	9,110	11.2	47.0	30.9
MT-4545-ATYCN	SD42/SD45-15A1	**1,073**	5.65	28.2	1.70	6.63	4.8	9,030	8.00	36.0	48.6
MT-4545-BTYCN	SD42/SD45-20A1	**1,073**	5.65	28.2	1.80	7.27	4.2	9,030	10.6	48.0	37.2
MT-4545-CTYCN	SD42/SD45-30A1	**1,073**	5.65	28.2	2.00	9.44	3.2	9,030	15.7	37.0	27.9
MT-4555-ATYCN	SD52/SD55-15A1	**1,270**	6.33	32.0	2.10	7.9	5.9	7,900	8.50	42.0	50.0
MT-4555-BTYCN	SD52/SD55-20A1	**1,270**	6.33	32.0	2.00	8.7	6.5	7,900	10.9	48.8	38.0

Details continued over page

All specification ratings at 25°C.

Optional Encoders, Plugs and Connectors for MT2200, MT3300and MT4500 Motors

Catalogue N° Group A3	List Price $	Description
Encoder Assembly – Encoder, housing, wired with socket and shaft coupling		
A64A	**682**	500 pulses/rev to suit MT4500 motors
A64B	**682**	1000 pulses/rev to suit MT4500 motors
A64E	**929**	2500 pulses/rev to suit MT4500 motors
MSCF	**62**	Mating 6 Pole MS Plug for 2250/3363-BDYCN style motors with MS Connector
MSCN	**62**	Mating 14 Pole Plug for motor/tach/encoder to suit MTE2250 motor
MSCLM	**66**	Mating 12 Pole Plug for encoder to suit MTE3363 motor and A64A, A64B and A64E
MSCI	**62**	Mating Connector Required on ALL MT4500 series motors

Series 'M2200', 'M3300' & 'M4500' dc Servomotors

Additional Features of 'M4500' dc Servomotors

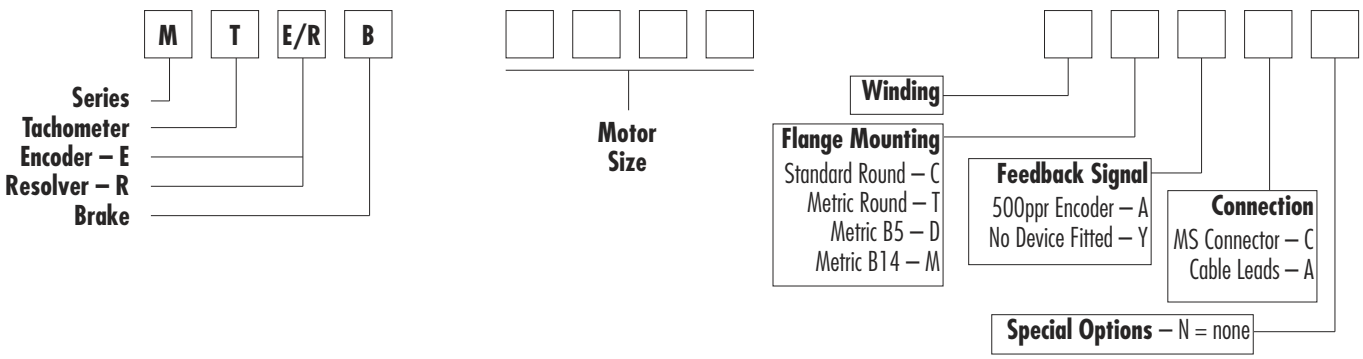
- Rear end through shaft for Encoder on all MT4500 series motors.
- Thermal protection on all MT4500 Series motors.
- Motors to 200 Nm available on special order.

'MT4500' SERIES SERVOMOTOR

Details continued from over page

New Model Number	Old Model Number	Torque Constant Nm/amp	Voltage Constant V/rad/s	Voltage Constant Vdc/Krpm	Arm. Resistance Less Brushes Ohms	Armature Inductance millihenrys	Max. Terminal Voltage Vdc	Max. Speed rpm	Tacho Volt Gradient V/krpm	Arm. Polar Mom of Inertia kgm²	Static Friction Torque Nm	Motor Weight kg
M2200 SERIES SERVOMOTORS — 57mm dia. (2 1/4")												
MT-2240-AMYAN	IM2240-B14	0.115	0.115	12	4.0	7.7	60	5000	7.0	.000035	0.02	1.28
MT-2250-AMYAN	IM2250-B14	0.115	0.115	12	2.3	5.8	60	5000	7.0	.000054	0.02	1.64
MT-2250-ADYCN	IM2250-B5-A24	0.120	0.120	12	0.9	2.5	60	5000	7.0	.000054	0.02	1.64
MTE-2250-AMACN	IM2250-B14-A30A	0.115	0.115	12	2.3	5.8	60	5000	7.0	.000054	0.02	1.64
M3300 SERIES SERVOMOTORS — 86mm dia. (3 3/8")												
MT-3363-BDYCN	IM3363-B5-A24	0.297	0.297	30	2.4	6.1	100	4000	7.0	.00037	0.05	4.90
MTE-3363-BDACN	IM3363-B5-A30A	0.297	0.297	30	2.4	6.1	100	4000	7.0	.00037	0.05	4.90
M4500 SERIES SERVOMOTORS — 101mm dia. (4")												
MT-4525-BTYCN	SD22/SD25-20A1	0.61	0.61	64	1.99	9.0	180	2500	9.5	.0016	0.17	7.0
MT-4525-CTYCN	SD22/SD25-30A1	0.41	0.41	43	1.02	4.2	180	3500	9.5	.0016	0.17	7.0
MT-4525-DTYCN	SD22/SD25-40A1	0.31	0.31	33	0.65	2.3	180	4500	9.5	.0016	0.17	7.0
MT-4535-ATYCN	SD32/SD35-15A1	0.879	0.879	92	2.7	13.9	180	1900	9.5	.0024	0.19	8.5
MT-4535-BTYCN	SD32/SD35-20A1	0.60	0.60	63	1.36	5.7	180	2500	9.5	.0024	0.19	8.5
MT-4535-CTYCN	SD32/SD35-30A1	0.44	0.44	47	0.81	3.4	180	3000	9.5	.0024	0.19	8.5
MT-4545-ATYCN	SD42/SD45-15A1	0.78	0.78	82	1.50	7.2	180	2000	9.5	.0032	0.20	12.0
MT-4545-BTYCN	SD42/SD45-20A1	0.59	0.59	62	0.94	4.0	180	2500	9.5	.0032	0.20	12.0
MT-4545-CTYCN	SD42/SD45-30A1	0.40	0.40	42	0.56	1.8	180	3000	9.5	.0032	0.20	12.0
MT-4555-ATYCN	SD52/SD55-15A1	0.86	0.86	90	1.52	7.9	180	1500	9.5	.004	0.21	12.5
MT-4555-BTYCN	SD52/SD55-20A1	0.60	0.60	63	0.62	3.8	180	2200	9.5	.004	0.21	12.5

Baldor 'M' Series dc Motor Nomenclature System eg. MTE2250-AMACN



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HMI Panels

Text Displays

Motion Controllers

NextMove ESB

NextMove BXII

NextMove ST

AC Servo Drives

FlexDrive II

Flex+Drive II

MintDrive II

MicroFlex

Series 23H

AC Servo Motors

N-Series

C-Series

Washdown

Linear Motors

Linear Stepper (LMSS)

Cog Free Servo (LMCF)

Iron Core Brushless (LMBL)

Brushed DC (LMBR)

Induction (LMAC)

Dual-Axis Stepper (LMDS)

Hyc

Linear Stages

Enclosed Stage (LSE)

Single Bearing Stage (LSS)

Cross Roller (LSC)

Extruded Stage (LSX)

Air Bearing Stage (LSA)

Add 10% to all prices
Price Increase Effective 14 May 2006

lor's Motion Products


Touch Panels



NextMove ES


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DC Servo Drives


TSD


UM


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Iron Core Brushless (LMIC)


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NanoMove

DC Servo Motors


DC Servo


Cog-Free Gantry (LSG)

Linear Actuators


LMNC


LMNM


LMPY

Accessories


8 x CAN Input


8 x CAN Relay


8 x CAN Output


24 x CAN I/O


Encoder Splitter


Series II I/O Breakout


NextMove PCI Breakout


NextMove ES Backplane

Software Tools


Mint WorkBench


MintNC

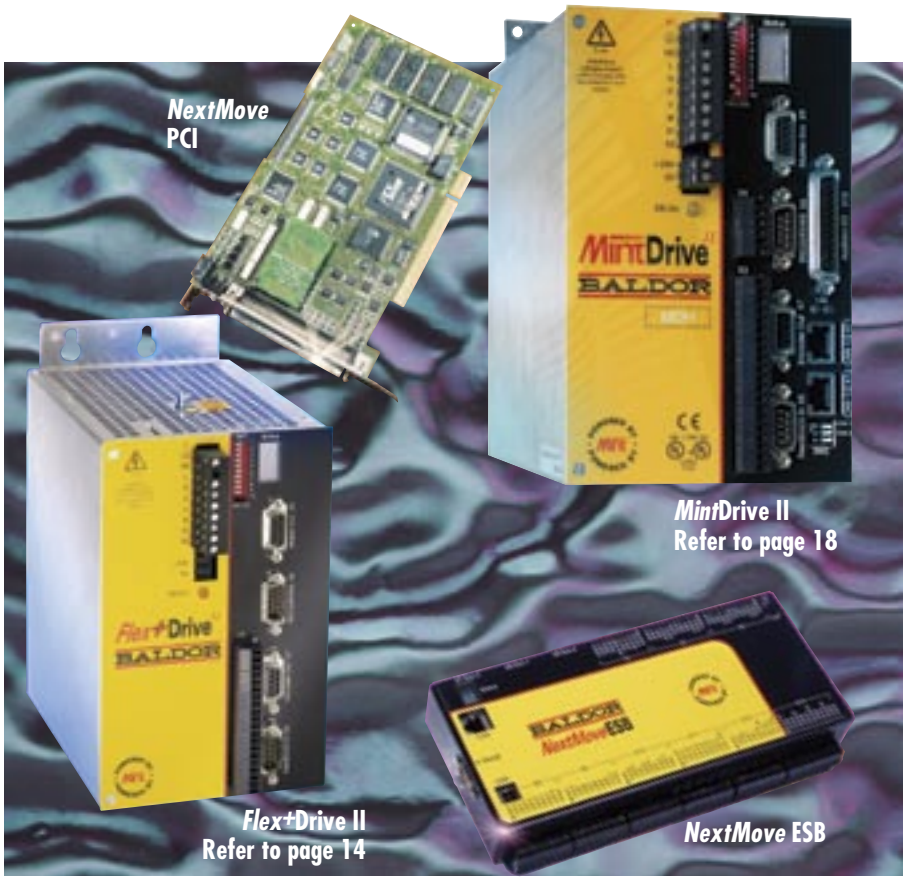
Baldor Programmable Motion Control Systems

AUSTRALIAN BALDOR offers a variety of Programmable Motion Control Systems ranging from 'Cards' for installation into a host computer or stand-alone use, to 'Packaged Stand-alone' systems with power supply, servodriver and positioning card integrated into one neat ready-to-install package.

Baldor Motion Control Systems use a common programming language *Mint*MT™ and provide varying degrees of programmability and capabilities, to efficiently and cost effectively accommodate even the most difficult application.

Typical Applications

■ NC Machine Tools ■ Feed Drives for Machine Tools ■ Cut-to-Length Systems ■ Testing Machines ■ Measuring Machines ■ Packaging/Labelling ■ Punch Presses and Coil Winders ■ Coating and Processing Lines ■ Welding Robots ■ Civil and Military Radar, Military Fire Control Systems ■ Robotics and Positioning Drives ■ Conveyor Systems and Materials Handling



Baldor *NextMove*™ Motion Controllers

Description Axes & Type	Catalogue N° Group E5	List Price $
***NextMove*™ BXII Boxed Servo Motion Controllers**		
2 Axes – Servo (PNP or NPN inputs/PNP outputs)	**NMX004-501**	**3,219**
3 Axes – Servo (PNP or NPN inputs/PNP outputs)	**NMX004-502**	**3,729**
4 Axes – Servo (PNP or NPN inputs/PNP outputs)	**NMX004-503**	**4,243**
***NextMove*™ PCI Servo Motion Controllers**		
1 Axis – Servo or Stepper, user configured (PNP outputs)	**PCI001-501**	**2,833**
2 Axes – Servo or Stepper, user configured (PNP outputs)	**PCI001-502**	**3,085**
3 Axes – Servo or Stepper, user configured (PNP outputs)	**PCI001-503**	**3,342**
4 Axes – Servo or Stepper, user configured (PNP outputs)	**PCI001-504**	**3,600**
8 Axes – 4 Servo and 4 Stepper (PNP outputs)	**PCI001-505**	**4,114**
Developer's Kit – 1 x Nextmove PCI 8 axis (4 servo and 4 stepper) with PNP outputs, 1 x breakout unit, 1 x breakout cable 2m, 1 x NextMove PC to PCI connection adaptor, 1 x output module NPN FET – optional, manuals and software	**PCI010-501**	**5,014**
***NextMove*™ ST Stepper Motion Controllers**		
3 Axes – Stepper Drive and Motion Controler (USB/RS232)	**NST001-501**	**2,113**
3 Axes – Stepper Drive and Motion Controler (USB/RS485)	**NST002-502**	**2,113**
***NextMove*™ ES Servo Motion Controllers**		
6 Axes – 2 Axes Servo + 4 Axes Stepper (Eurocard Rack Format USB/RS232)	**NES002-501**	**1,375**
6 Axes – 2 Axes Servo + 4 Axes Stepper (Eurocard Rack Format USB/RS485)	**NES002-502**	**1,375**
Std Controller backplane non isolated	**BPL010-501**	**485**
Opto Isolated controller backplane PNP	**BPL010-502**	**735**
Opto Isolated controller backplane NPN	**BPL010-503**	**735**
***NextMove*™ ESB Servo Motion Controller**		
7 Axes – 3 Axes Servo + 4 Axes Stepper (USB/RS232)	**NSB002-501**	**2,200**
7 Axes – 3 Axes Servo + 4 Axes Stepper (USB/RS485)	**NSB002-502**	**2,200**

Add 10% to all prices
Price Increase Effective 14 May 2006

Features and Functionality of Baldor *Mint*MT™ Servo Positioning System Programming Language

*Mint*MT Multi-Tasking offers:

- **Faster execution speed and fast boot time.**
- **Offline compiler for improved error checking and debugging capability.**
- **Saving source code on controller in compressed format.**
- **Background PLC tasks.**
- **Local data.**
- **Modern up-to-date programming language.**
- **Tasks with local subroutines and data.**
- **Events for high speed response to real time events.**
- ***Mint*MT supports a wide range of motion and control functions outlined below.**
  - **Positional Moves**
  - **Interpolated Moves**
  - **Master/Follower**

Positional Moves

- Absolute and Relative moves. Allows high speed point to point motion on one or all axes.
- Speed, Acceleration and Deceleration can be defined for each move type.
- Trapezoidal profiled moves. Provides the fastest point to point move but exert the maximum jerk and shock on a system.
- S-ramp profiled moves. Provides a smoother velocity profile that prolongs the life of machine mechanics.
- Contouring. Allows a stream of point-to-point moves to be blended together into a continuous and smooth motion.
- Splining. Allows a stream of moves, defined in terms of position, velocity and time, to be blended together into a continuous and smooth motion. Used in applications where path speed and continuous velocity are important. (Available on NextMove™ only).

Interpolated Moves

- Linear interpolation across any two or more axes allows positional moves to be defined in terms of linear vectors. Absolute and relative vectored moves are supported.
- Circular Interpolation across axes 0 and 1 (SmartMove) or any pair of axes simultaneously (NextMove). Allows a complete or partial arc to be defined. Absolute and relative circle moves are supported.
- Contouring. Allows a string of linear and circular interpolated moves to be blended together into a continuous complex path of motion.

Master/Follower

- Electronic Cam replaces the traditional mechanical cam with a servo motor and software programmable cam profile.
  SmartMove supports one cam profile on each of the first two axes.
  NextMove supports one cam profile for any available axis.
- Electronics Gearbox and Clutch enables two motor shafts to be linked together in precise synchronisation with a software programmable gear ratio. Any axis may be geared to any other axis or to the pulse and direction inputs.
- Flying Shear. Allows operations to be performed at regular intervals on a continuously moving web. Acceleration, synchronisation and return stroke are linked by software to the movement of the product.

Baldor Motion Toolkit CD-ROM

This toolkit is a complete application development package, including comprehensive tools for Microsoft Windows™, using the ActiveX control, and embedded 'C' libraries for the NextMove range of motion controllers. Additionally, it is a resource of manuals and documentation. The Toolkit is split into two areas: v5.0 and v1.2.

The following products are supported by the Baldor Motion Toolkit v5 link:

- MicroFlex, FlexDrive II and Flex+Drive II
- MintDrive II
- NextMove BXII, NextMove ESB and NextMove PCI running MintMT

The following products are supported by the Baldor Motion Toolkit v1.2 link:

- FlexDrive and DBSC family
- MintDrive
- SmartMove and Eurosystem family
- NextMove PC
- NextMove BX running Mint v3 and Mint v4
- NextMove PCI running Mint v4

*Mint*MT Workbench

Baldor's new MintMT Workbench provides for configuration and programming of the following controls:

- MicroFlex, FlexDrive II and Flex+Drive II
- MintDrive II
- NextMove BXII, NextMove ESB and NextMove PCI

Software features include:

- Program Navigator- single click takes you directly to a task, function, or subroutine.
- Toolbar - single click navigation and quick access to useful tools.
- Terminal Window - accepts direct commands, program interaction and active during program run.
- Spy Window - user selectable parameters such as position, velocity, position error, bus voltage current, temperature, etc.
- I/O Status - user defined application names and LED mimic.

Simplified Programming

- Compiled source code with English keywords.
- Context sensitive help for all Mint keywords.
- User defined variable names, unlimited in length.
- User defined multi-dimensional arrays.
- Comprehensive math and bit-wise operators.
- Modular programming with user defined functions and procedures.

Comprehensive Programming Tools to assist:

- Commissioning Wizard
- 6 channel software oscilloscope
- On-line help
- SupportMe

Advanced Programming Tools available

PC Motion control applications and visual user interfaces can easily be written for Mint based products, in Visual Basic, Visual C++, Delphi, Labview and any other ActiveX compliant programming systems.

The supplied Application Programming Interface (API) can access the Mint Motion Layer(MML) directly to take advantage of the full power and functionality of Mint, or simply allow operator interfaces to display and control a Mint or embedded 'C' program.

Mint Comms Array

The Mint Comms array provides an efficient way to transfer data bi-directionally between an executing Mint program and a host application (PC or PLC). 99 data elements are available for use within any Mint program. Using the Comms Array, a Host Application can communicate with multiple devices over a fieldbus or RS485 network.

Peer-to-Peer Communications

The functionality of the Comms Array is further enhanced with the Mint Peer-to-Peer communications over the CANOpen network. Once a network is established, with a MintMT master (NextMove PCI, NextMove BXII or MintDrive II), any MintMT node is free to communicate with any other MintMT node on the network, passing data to their respective comms array.

'NextMove™ ST' 3 Axis Stepper Control

NextMove ST is a low cost, 'all in one' three-axis drive for stepper motors, incorporating a high-performance motion controller which runs the multi-tasking Mint motion language or C programs.

Application versatility is boosted by the ability to control a fourth external stepper motor drive - for associated automation tasks such as materials feed/product positioning - plus onboard I/O and a CANbus interface for implementing PLC-style machine control functions.

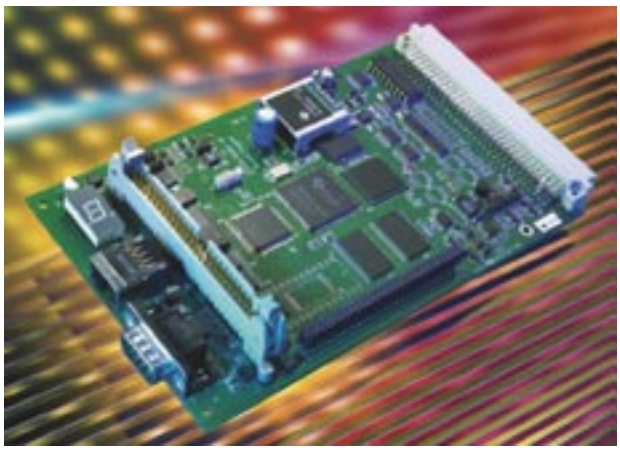
- 3-axis stepper motor control and motion controller
- Control for 4th external axis
- High speed DSP processor
- Onboard digital and analog I/O
- CAN for distributed control
- Multi-tasking MintMT or 'C' programmable

'NextMove™ BX II' 2 to 4 Axis Servo Control

- 2-4 axis standalone servo motion controller
- High speed DSP processor
- Onboard digital and analog I/O
- CAN for distributed control
- RS232 and RS485 serial interfaces
- Multi-tasking MintMT or 'C' programmable

- NextMove BXII is a high performance standalone motion controller for 2 to 4 axes of servo control providing high speed interpolation between all four axes, or synchronization with an external master encoder or virtual axis.
- The motion control capability is based on a high-performance DSP core running the latest multi-tasking version of the Mint language - MintMT.
- An onboard I/O complement of 16 digital inputs, 8 digital outputs, four 12-bit differential analog inputs, allows users to employ the module for machine control as well - eliminating the need for a separate I/O controller such as a PLC.
- I/O may be expanded easily by means of the controller's CANbus ports, supporting both CANopen and Baldor CAN devices.
- Servo axes are controlled from the industry standard ±10V analog outputs (14-bit) and encoder feedback.
- The NextMove BXII has a 6 term PIDVFA loop for fine control of the servo axes.
- NextMove BXII is ideally matched with Baldor's FlexDrive II and MicroFlex range of servo controls and BSM servo motor range for a complete servo control system eliminating the need for a separate I/O controller such as a PLC.

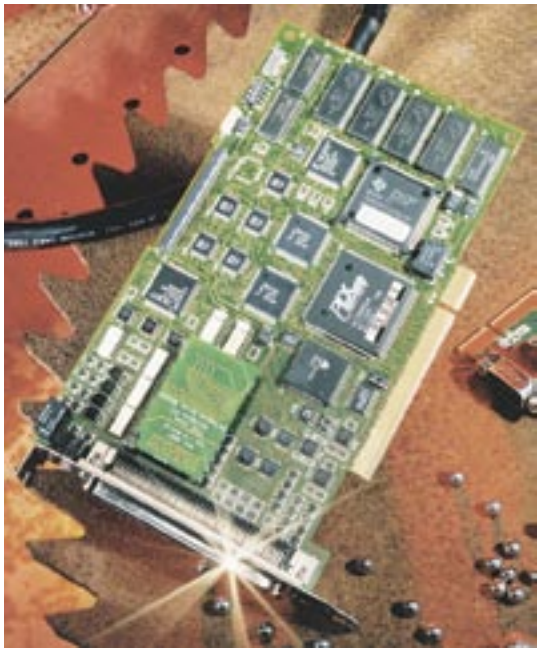
'NextMove™ ES' 6-Axis Motion Control



NextMove ES is an economic rack mounted motion controller for up to 2 axes of servo and 4 axes of steppers which runs the multi-tasking Mint motion language or C programs. Application versatility is boosted by onboard I/O and a CANbus interface for implementing PLC-style machine control functions.

- 6-axis standalone stepper and servo motion controller
- Control for 2 servo and 4stepper axes
- Eurocard rack format
- High speed DSP processor
- Onboard digital and analog I/O
- CAN for distributed control
- Multi-tasking MintMT or 'C'programmable

'NextMove™ PCI' 1 to 12 Axes Servo or Stepper Control



- **1-12 axis PCI-bus servo/stepper motion controller**
- **High speed DSP processor**
- **Onboard digital and analog I/O**
- **CAN for distributed control**
- **High speed PCI bus interface**
- **Multi-tasking MintMT or 'C'**

- NextMove PCI is a high performance PCI card motion controller for 1 to 8 axes (12 axes with optional expansion card) of servo or stepper control providing high speed interpolation between all axes, or synchronization with an external master encoder.
- The motion control capability is based on a high-performance DSP core running the latest multi-tasking version of the Mint language - MintMT.
- An onboard I/O complement of 20 digital inputs, 12 digital outputs, four 12-bit differential analog inputs, allows users to employ the module for machine control as well - eliminating the need for a separate I/O controller such as a PLC.
- I/O may be expanded easily by means of the controller's CANbus ports, supporting both CANopen and Baldor CAN devices, or alternatively using the axis expansion card which provides the same complement of I/O as the main NextMove PCI controller.
- Servo axes are controlled from the industry standard ±10V analog outputs (14-bit) and encoder feedback.
- The NextMove PCI has a 6 term PIDVFA loop for fine control of the servo axes.
- NextMove PCI is ideally matched with Baldor's FlexDriveII and MicroFlex range of servo controls and BSM servo motor range for a complete servo control system.

'NextMove™ ESB' 7-Axis Intelligent Motion Controller

- **Control for 3 servo and 4 stepper axes**
- **High speed DSP processor.**
- **Onboard digital and analog I/O**
- **Fieldbus compatible (CANopen)**
- **Multi-tasking *Mint*MT™ or 'C' programming**

- NextMove ESB is an economic standalone motion controller for up to 3 axes of servo and 4 axes of steppers.
- The motion control capability is based on a high-performance DSP core running the latest multi-tasking version of the Mint language - *Mint*MT or C programs. For a detailed description of MintMT features, please refer to page 31.
- Application versatility is boosted by onboard I/O and a CANbus interface for implementing PLC-style machine control functions.
- An onboard I/O complement of 20 digital inputs, 16 digital outputs, two 12-bit differential analog inputs and an isolated output, allows users to employ the module for machine control as well eliminating the need for a separate I/O controller such as a PLC.
- I/O may be expanded easily by means of the board's CANopen-compatible fieldbus port.
- Servo axes are controlled from the industry standard ±10V analog outputs and encoder feedback.
- The NextMove ESB has a 6 term PIDVF loop for fine control of the servo axes.
- Stepper axes can be controlled from any of the four step and direction outputs. The stepper outputs can also be used to interface to Baldor's FlexDrive II control, which combined with the 7 servo axes, can give up to 7 axes of servo control.
- NextMove ESB's USB interface provides a fast and reliable connection to the PC. An RS232 port is also available that can be used to connect to PLCs and HMI units, in addition to the PC.
- Programming flexibility is further enhanced with the ability to program in 'C', or using the supplied ActiveXTM control. The ActiveX control allows motion and I/O sequencing to be performed in any Windows programming tool, such as Visual Basic.

Quick-view of *NextMove™ ST*	Quick-view of *NextMove™ ES*
■ Panel mount standalone format	■ Eurocard rack format
■ 3 axis stepper motor control and motion controller. 2Amp @ 37VDC, half stepping	■ 6 axis standalone stepper and servo motion controller. 2 axis servo – PID with velocity and acceleration feed forward terms, 100umsec update rate fro 2 axes. 4 stepper pulse and direction, 500kHz max. frequency
■ Control for 4th external axis. Pulse, direction and boost. 3 MHz m ax. frequency. 5V open collector	■ 4 of the digital inputs can be configured for high speed position capture of axis and master encoder positions, 1usec capture time
■ 1 analogue output 0-10V at 8bit, Optically isolated	■ Enable Output: SPDT relay 150mA @ 24VDC
■ 24 inputs, 5V TTL, software configurable for limits, home, stop and error. Software configurable level and edge triggered. 1ms sample rate	■ 20 inputs, 5 VTTL, Opto-isolated backplane available. Software configurable for limits, home, stop and error. May be connected to positive and negative common. 1ms sample rate
■ 16 outputs, 5V open collector Darlington. Software configurable for drive enable. 50mA per channel, 350mA max. current sink per channel, 500mA max, for 8 channels	■ 12 outputs, 5V open collector Darlington. Opto-isolated backplane available. Software configurable for drive enable. 50mA per channel, 350mA max. current source per channel, 500mA max. for 8 channels
■ 2 differential +/-10V analogue inputs, 12 bit resolution	■ 4 of the digital inputs can be configured for high speed position capture of axis and master encoder positions, 1usec capture time.
■ Accepts pulse train input with direction. For following type applications. 5VTTL level inputs, 20MHz. input frequency	■ Accepts pulse train input with direction. For following type applications.5VTTL level inputs, 20MHz. input frequency
■ Single CAN port via RJ45 connector, Software configurable for CANopen or Baldor CAN via firmware download. CANopen DS301. Support for CANopen DS401 I/O devices. Support for Baldor's range of digital I/O expansion units	■ Single CAN port via RJ45 connector, Software configurable for CANopen or Baldor CAN via firmware download. CANopen DS301. Support for CANopen DS401 I/O devices.Baldor CAN. Support for Baldor's range of digital I/O expansion units.
■ 1MByte Flash for firmware and program storage. 1 MByte SRAM, 32 kBytes NVRAM (non-volatile RAM) for parameter storage	■ 2MByte Flash for firmware and program storage. 2 MByte SRAM, 32 kBytes NVRAM (non-volatile RAM) for parameter storage
■ Interfacing is via a 2 part screw terminals	■ Interfacing is via 96-pin DIN41612. Optional breakout board with two part screw terminals and D-type connectors
■ MintMT – multitasking Motion Basic Embedded 'C', Texas Instruments compiler must be purchased separately Windows 9X/NT/2000/XP via ActiveX control	■ MintMT – multitasking Motion Basic Embedded 'C', Texas Instruments compiler must be purchased separately, Windows 9X/NT/2000/XP via ActiveX control
■ Dimensions: 262mm long, 140mm wide, 54mm high	■ Dimensions: 160mm long, 100mm high.
■ Power requirements: input voltage: drive stage 12 -37 VDC @ 3 Amps/9 – 27VAC @100VA. Control logic: 24VDC @ 600mA	■ Power requirements: 5VDC @ 1 Amp, +/-12VDC @ 100mA
■ RS232 via 9-pin D-type. USB 1.1. Supported by Windows 2000/XP). A 2mtr USB cable is supplied.	■ RS232 via 9-pin D-type. .USB 1.1. supported by Windows 2000/XP). A 2mtr USB cable is supplied.

Quick-view of *NextMove™ ESB*	Quick-view of *NextMove™ PCI*	Quick-view of *NextMove™ BXII*
■ Panel mount standalone format.	■ PCI plug-in card.	■ Boxed panel mount stand-alone format.
■ 3 axis stepper motor control and motion controller. 2Amp @ 37VDC, half stepping	■ Available with 1, 2, 3 or 4 servo control axes with PIDVF servo loop (200µsec update rate), 14 bit ±10V analogue demand and incremental encoder feedback up to 7.5 MHz quadrature count. This may be expanded to 8 axes using the optional expansion card. There is an additional master encoder channel on the main card.	■ Available with 2, 3 or 4 servo control axes with PIDVF servo loop (500µsec update rate), 14 bit ±10V analogue demand and incremental encoder feedback up to 8 MHz quadrature count. There is an additional master encoder input for software gearbox applications.
■ Control for 4th external axis. Pulse, direction and boost. 3 MHz maximum frequency. 5V open collector	■ 4 axes of stepper motor control with differential line driver step and direction outputs to stepper motor amplifiers. This may be expanded to 8 axes using the optional expansion card.	■ NOT APPLICABLE
■ 1 analogue output 0-10V at 8bit, Optically isolated	■ Enable Output: SPDT Relay 150mA @ 24Vdc.	■ Enable Output: SPDT Relay 500mA @ 24Vdc.
■ 24 inputs, 5V TTL, software configurable for limits, home, stop and error. Software configurable level and edge triggered. 1ms sample rate	■ 20 opto-isolated inputs, 12-24V. All inputs are level or edge triggered and user configurable as limit, home, stop and error inputs. User selectable PNP or NPN.	■ 16 opto-isolated inputs, 12-24V. All inputs are level or edge triggered and user configurable as limit, home, stop and error inputs. User selectable PNP or NPN.
■ 16 outputs, 5V open collector Darlington. Software configurable for drive enable. 50mA per channel, 350mA max. current sink per channel, 500mA max, for 8 channels	■ 12 opto-isolated outputs, 12-24V, 350mA max. All outputs are configurable as drive enable or error output. PNP Darlington standard, NPN and FET options available at time of original purchase.	■ 8 opto-isolated PNP outputs, 12-24V, 500mA max. All outputs are configurable as drive enable or error output and are over-current and short-circuit protected.
■ 2 differential +/-10V analogue inputs, 12 bit resolution	■ The first 4 inputs can be used as hardware position capture inputs (200nsec) to provide an accurate snap-shot for registration applications. General purpose inputs can be configured to interrupt the program and call a service routine. Four outputs can be used for fast position compare (4µsec on delay).	■ 4 fast interrupt inputs provide an accurate snap-shot for registration applications. Each input will latch the position of all axes on the controller. Response time is 30µsec for 1 input and 1msec for others. Input levels are opto-isolated 12-24V, PNP or NPN configurable.
■ Accepts pulse train input with direction. For following type applications. 5VTTL level inputs, 20MHz. input frequency.	■ For joystick control or interfacing to sensors, 4 x 12 bit differential ±10V, ±5V, 0-10V or 0-5V analogue inputs are provided.	■ For joystick control or interfacing to sensors, 8 x 12 bit single ended or 4 x 12 bit differential ±10V or 0-5V analog inputs are provided.
■ Single CAN port via RJ45 connector, Software configurable for CANopen or Baldor CAN via firmware download. CANopen DS301. Support for CANopen DS401 I/O devices. Support for Baldor's range of digital I/O expansion units. Max of 63 nodes.	■ Two CANbus ports support up to 63 CAN devices. One interfaces with Baldor's range of I/O modules and keypads, the other is dedicated to the CANopen protocol for connection to MintDrive and third party devices which include I/O and operator interfaces.	■ 2 channels of CANbus are provided and may be used to support up to 63 CAN devices which include input and output modules, keypad and other intelligent servo and stepper drives from the Baldor Control range.
■ 1MByte Flash for firmware and program storage. 1 MByte SRAM, 32 kBytes NVRAM (non-volatile RAM) for parameter storage	■ 2Mbytes of zero wait state RAM is provided for fast program execution, plus 24kbytes of non volatile memory for user parameter storage. Firmware can be downloaded via the PCI bus.	■ Program and Data: 512K RAM expandable to 2MB battery backed. System: 512K FLASH expandable to 2MB. Firmware can be downloaded from a host via the serial port.
■ Interfacing is via a 2 part screw terminals	■ Interfacing is via a 100 way high density EMC shielded D-type connector which may be connected to an optional breakout unit with an optional cable.	■ Interfacing is via a D-type connectors for encoder and serial ports, 2 part screw terminals for I/O and power, and RJ45 connectors for CAN.
■ MintMT – multitasking Motion Basic. Embedded 'C', Texas Instruments compiler must be purchased separately. Windows 9X/NT/2000/XP via ActiveX control	■ An optional breakout unit is housed in a compact DIN-rail mounting module. This provides 5mm pitch removable screw terminals for I/O and D-type connectors for encoders.	■ NOT APPLICABLE.
■ Dimensions: 262mm long, 140mm wide, 54mm high	■ Dimensions: PCI card, 175mm x 107mm, weight 250g.	■ Dimensions exterior: 312mm high, 190mm deep, 59mm wide.
■ Power requirements: input voltage: drive stage 12 -37 VDC @ 3 Amps/9 – 27VAC @100VA. Control logic: 24VDC @ 600mA	■ Power is supplied from the PCI bus 15W PCI class). A user power supply, 12-24V at up to 850mA is required for the opto-isolated outputs. The unit is CE compliant for the EMC Directive.	■ Power requirements are 24Vdc, 700mA. A user power supply, 12-24V at up to 850mA is required for the opto-isolated outputs. The unit is CE compliant for the EMC Directive.
■ RS232 via 9-pin D-type.USB 1.1. Supported by Windows 2000/XP). A 2mtr USB cable is supplied.	■ DP RAM Communications via PCI bus.	■ RS232 and RS485 (multi-drop) serial communications ports.

Accessories for *NextMove*™ & *Mint*Drive™

Catalogue Nº Group E5	Description	*Mint*DRIVE *Mint*DRIVE II	*NextMove* ST/ES/ESB	*NextMove* BX II	*NextMove* PCI	List Price $
CAN I/O Modules						
ION001-501	Baldor CAN 8 Digital Input Expansion Module (DIN Rail Mt)	✓	✓	✓	✓	437
ION003-501	Baldor CAN 8 Digital Output Expansion Mod (DIN Rail Mt)	✓	✓	✓	✓	437
ION002-501	Baldor CAN 8 Relay Output Expansion Mod (DIN Rail Mt)	✓	✓	✓	✓	476
ION004-501	Baldor CAN 24 I/O Expansion Module (*Requires alternative firmware, call Baldor)	✓	✓	✓	✓	856
Expansion/Breakout Modules						
NMP004-501	Breakout Unit (Terminal Connections)				✓	540
OPT008-501	Encoder splitter board	✓		✓	✓	270
PCI002-501	Expansion Card (4 Axis - Servo/Stepper, user configured) with interconnect (1 card)				✓	1,765
PCI002-502	Expansion Card (8 Axis - 4 Servo and 4 Stepper) with interconnect (1 card)				✓	2,460
PCI003-501	Breakout Unit for controller and expansions cards [with interconnect (1 card)] 1 part connectors				✓	669
PCI003-502	Breakout Unit for controller and expansions cards [with interconnect (1 card)] 2 part connectors (Shipped with CAN Module fitted to J11 – CANopen slot Non-Isolated CAN Module fitted to J14 – Baldor CAN Stepper output module fitted to J15/16)				✓	786
OPT017-501	I/O Breakout Board for Fieldbus option B	✓				348
OPT025-501	Stepper Output Module – differential drive output				✓	80
OPT025-502	Isolated CAN Module – with original purchase only				✓	80
OPT025-503	Non-isolated CAN Module – with original purchase only				✓	80
OPT025-504	Expansion interconnect (2 cards)				✓	80
OPT025-505	Expansion dual interconnect (2 cards)				✓	80
OPT025-506	NextMove PC to PCI connection adaptor				✓	294
OPT025-507	PCI, Output Module PNP darlington				✓	80
OPT025-508	PCI, Output Module NPN FET				✓	80
OPT026-501	Mint Drive Resolver 9-15 Pin Converter	✓				115
OPT029-501	4 way Encoder Splitter Board	✓		✓	✓	380
OPT029-502	8 way Encoder Splitter Board	✓		✓	✓	530
CBL010MF-A2	Feedback cable assembly motion control to amplifier (1m)		✓	✓		167
CBL020MF-A2	Feedback cable assembly motion control to amplifier (1m)		✓	✓		200

■ ***NextMove***™ and ***Mint*DRIVE**™ use their CANbus port for connecting to Baldor's I/O modules and HMI operator panel.

■ ***NextMove***™ and ***Mint*DRIVE**™ CANbus port support the following accessories.
- 8 digital input modules.
- 8 digital output modules.
- 8 relay output modules – (Any output type)
- 24 input,24 output modules
- Operator panel – Maximum of 4.

■ Each CANbus module has two CANbus connectors which are electrically identical. This allows several modules to be 'daisy chained' using Baldor's point to point cable assemblies. I/O modules can be DIN rail mounted for easy installation.

■ **8 Input Module (ION001-501)**
• 8 digital inputs • Opto isolated and may be connected to positive or negative common (for use with NPN and PNP output transistors) • Inputs are guaranteed to be active in the range ±12V to ±24V and inactive between ±2V • LEDs indicate status of each input • Two part connectors for power and inputs • Power requirements; +12 to +24Vdc, 45mA to 90mA respectively.

■ **8 PNP Output Module (ION003-501)**
• 8 digital outputs • Opto isolated and protected against over-current and over-temperature • 50mA continuous source on all channels • 350mA max source on single channel on simultaneously • 500mA max total output for all 8 channels • LEDs indicate status of each output • Activated from MINT program using REMOTEOUT keyword • Two part connectors for power and outputs • Power requirements: +12 to +24Vdc, 110mA to 130mA respectively.

■ **8 Relay Output Module (ION002-501)**
• 8 relay outputs • Form C (SPDT) relays rated at 0.5A @ 125 Vac, 2A @ 30 Vdc • LEDs indicate status of each output • Activated from MINT program using REMOTEOUT keyword • Two part connectors for power and outputs • Power requirements: +24Vdc @ 215mA.

Accessories for *NextMove*™ & *Mint*Drive™

Catalogue N° Group E8	Description	*Mint*DRIVE *Mint*DRIVE II	*NextMove* ST/ES/ESB	*NextMove* BXII	*NextMove* PCI	List Price $
Cables						
CBL004-501	Baldor CAN Cable Assembly – 0.25 metre RJ45/RJ45	✓	✓	✓	✓	54
CBL004-502	Baldor CAN Cable Assembly – 0.5 metre RJ45/RJ45	✓	✓	✓	✓	55
CBL004-503	Baldor CAN Cable Assembly – 1 metre RJ45/RJ45	✓	✓	✓	✓	58
CBL004-504	Baldor CAN Cable Assembly – 2 metre RJ45/RJ45	✓	✓	✓	✓	63
CBL004-505	Baldor CAN Cable Assembly – 3 metre RJ45/RJ45	✓	✓	✓	✓	69
CBL004-506	Baldor CAN Cable Assembly – 5 metre RJ45/RJ45	✓	✓	✓	✓	100
CBL004-507	Baldor CAN Cable Assembly – 10 metre RJ45/RJ45	✓	✓	✓	✓	155
CBL004-508	Baldor CAN Cable Assembly – 25 metre RJ45/RJ45	✓	✓	✓	✓	199
CBL001-501	Serial Communications Cable – 3m	✓	✓	✓		80
CBL021-501	Breakout Cable – 1m (100 way)				✓	283
CBL021-502	Breakout Cable – 1.5m (100 way)				✓	333
CBL021-503	Breakout Cable – 3m (100 way)				✓	406
CBL006-501	Expansion Cable – 1m (37 way)				✓	74
CBL006-502	Expansion Cable – 2m (37 way)				✓	99
CBL007-501	Keypad Interface Cable – 150mm	✓	✓	✓	✓	40
CBL008-501	Keypad Interface Cable – 1.5m	✓	✓	✓	✓	96
CBL023-501	RS232 Cable for MintDrive – 3m (MintDrive 1 only)	✓				111
CBL022-502	Auxiliary I/O Breakout Board Cable	✓				106

HMI Panels (Human/Machine Interface) (see back cover)

Catalogue N° Group E5	Description	*Flex + II*	*MintDrive I, MintDrive II*	*NextMove BX II*	*NextMove ESB, NextMove ST, NextMove ES*	List Price $
KPD002-501*	Keypad Baldor CAN operator panel. 4 line x 20 character, 27 keys. 3 axis	N/A	YES**	YES	YES	680
KPD002-505*	Keypad Baldor CAN operator panel. 4 line x 20 character, 27 keys. 4 axis.	N/A	YES**	YES	YES	750
KPD-KG420-20	Keypad 4x20 Character Graphic display HMI	YES	YES	YES	YES	680
KPD-KG420-30	Keypad 4x20 Character graphic LCD + numeric keypad	YES	YES	YES	YES	975
KPD-KG840-10	Keypad 8x40 Character graphic LCD + numeric /Function keys	YES	YES	YES	YES	1350
KPD-TS03M-10	Touchscreen 3.9" Graphic Monochrome Touchscreen HMI	YES	YES	YES	YES	1000
KPD-TS05M-10	Touchscreen 5.6" Graphic Monochrome Touchscreen, 16 LINE X 40 Character, 320 X 240 Pixel	YES	YES	YES	YES	1725
KPD-TS05C-10	Touchscreen 5.6" Graphic STN Colour Touchscreen, 16 LINE X 40 Character, 320 X 240 Pixel	YES	YES	YES	YES	2675
KPD-TS10C-10	Touchscreen 10.4" GRAPHIC TFT COLOUR TOUCH SCREEN	YES	YES	YES	YES	5501
KPD-TS12C-10	Touchscreen 12.1" COLOR TFT TOUCH SCREEN	YES	YES	YES	YES	6877
KPD-OPTC	CAN Open Option Card, allows Comms between HMI & CAN Open on Controller.					227
CBL034-501	RS232 Communication Cable Between PC & HMI					113
OPT033-501	Gender changer for CBL034-501 (Required when using KPD-KG420-20)					26
KPD-SW	HMI Programming Software					375

*To be discontinued when existing stocks are depleted.
** Only if Baldor CAN option is installed in drive.

Delta Tau Multi Axis Positioning Systems

Power, Flexibility & Ease of Use

Delta Tau combines power, flexibility and ease of use with a full line of machine control products. So whatever your application needs and whatever your time constraints may be, Delta Tau has a solution to keep you ahead of your competitors.

Power

Delta Tau motion controllers utilise the latest in DSP technology, including the Motorola 56k series DSP microprocessors. Its fast and precise calculation capabilities translate into a highly accurate and fast-paced motion trajectory calculation and control. In addition, a high-level BASIC-like language is used for performing real-time custom servo loop tasks in an Open Servo structure.

The continuously increasing computational speeds (20-240MHz) of Delta Tau motion controllers enable these products to offer many advanced features.

Flexibility

With six generations of proven in-the-field motion controllers, Delta Tau offers a broad and diverse line of motion control products. The PMAC controllers can provide 1 to 32 axes of linear or rotary servo, stepper or hydraulic motion in any combination in up to 16 coordinated systems, a variety of analog or digital I/Os, different types of encoder feedback, analog (±10V) and digital (direct PWM) outputs to servo amplifiers, as well as pulse and direction output for steppers. Communications options include RS232/422, USB and ethernet, while fieldbus options including DeviceNet, Profibus, MACRO and others. We can provide the best solution for today, with the best upgrade path to the future.

Ease of Use

Delta Tau provides a complete suite of software tools using step-by-step instructions, allowing the user to quickly integrate their motion system. The Delta Tau motion programming language is intuitive, using plain English command statements, such as WHILE, IF and ELSE. Move commands are simply programmed with an axis letter, such as X, Y, Z, followed by the move distance in inches, revolutions, millimetres or other units specified. Transparent to the user, simple-written motion programs are converted to very precise multi-axis motion trajectories. Since the motion controller is also a PLC device, it can run logic programs independently but concurrently with motion programs, simplifying the task of implementing I/O processes that are simultaneous with motion programs. PLC programs may be written in ASCII language, compiled, or by using IEC- 1131 Relay Ladder Logic.

Standard PMAC Features

Standard Servo Features per Channel

- 1x ±10 Vdc Analog Output (16 Bit DAC)
- 1x Quadrature Incremental Encoder Input (A,B and Index Single Ended/ Differential Inputs with digital delay filter)
- Dedicated I/O (over travel limit, home switch, amplifier fault/enable)

Standard PMAC Features per Unit

- On-board 8 General Purpose I/O, OPTO-22 compatible (standard)
- Flash Memory - Zero Wait State RAM
- Dual Feedback Capability (Separate Velocity and Position feedback signals)
- 'S-curve' Acceleration and Deceleration (precise and smooth trajectory control)
- Advanced PID servo motion algorithms
- Cascading Servo Loop capability (tight coupling of velocity/force loop)
- G-Code Command Processing for CNC
- 256 Motion programs capacity
- 32 Asynchronous PLC program capability
- Rotating buffers for large programs (1 per co-ordinate system)
- Electronic Gearing
- Leadscrew and Backlash Compensation
- Linear and Circular Interpolation
- Stand-alone or host commanded operation
- Coordinate translation and rotation (2D and 3D)
- User-written servo capabilities for custom servo algorithms (freedom to do your own advanced algorithm)

PMAC2A-PC/104

- The PMAC2-PC/104 is a compact, inexpensive version of the PMAC family intended for simple applications. While it is PC/104 bus-compatible and PC/104 form-factor compliant (90mm x 95mm), it is capable of standalone operation. The PMAC2A-PC/104 can be composed of up to three boards in a stack configuration, allowing to control up to 8 axes with either analog +/-10Volts, digital PWM, or pulse and direction amplifier command signals. The PMAC2-PC/104 uses PMAC2 firmware and PMAC2 ASICs; however, its interface and connections can be PMAC(1) analog style as well.

PMAC2A-PC/104

PMAC2-PC/104 has the following features:

- 40/80/160 MHz DSP563 CPU
- 128k x 24 SRAM user memory
- 512k x 8 flash memory for user backup and firmware
- 8-bit parallel PC/104 host computer interface (software and electrically compatible with ISA)
- 4 channels axis interface circuitry, each including
  - 12-bit +/-10V differential analog (filtered PWM)
  - 3-channel differential single-ended encoder input
  - pulse-and-direction output pair
  - 5 TTL input flags, 2 TTL output flags, usable as general purpose I/O
  - optional 2 channels of 12-bit A/D converters
  - 50-pin IDC header for amplifier and encoder interfaces
  - 34-pin IDC flag, pulse-and-direction interfaces
  - RS-232 serial port with 10-pin IDC header
- The ACC-1P piggyback board provides four additional channels of axis interface circuitry identical to the first four. Optionally, it can also provide general-purpose I/O, including a multiplexer port that can link to hundreds of I/O points on ACC-34 family boards.
- The ACC-2P piggyback board provides high-speed communications links and/or general purpose I/O. It can be used for USB or Ethernet communications and it can provide dual-ported RAM for USB, Ethernet, or PC/104. This board permits the PMAC2-PC/104 to run a basic PMAC-NC system.
- Note that unlike most PMAC boards the PMAC2-PC/104 does not provide optical isolation between analog and digital circuitry, and that the flags are unisolated at TTL level.

Optional PMAC Features

- The following lists only a few of the popular options. Please contact Australian Baldor to discuss any special requirements.

I/O Line Options

- Expansion boards for up to 288 Direct I/O points
- Expansion boards for up to a total of 2048 multiplexed I/O points
- Analog-to-Digital Converted inputs (12 or 16 Bit ADC)

Feedback Interface Options

- Optically Isolated Incremental Encoder inputs
- 12-bit resolver-to-digital converter feedback
- Sinusoidal encoder feedback

- Yaskawa absolute encoders feedback
- Analog feedback inputs
- Parallel binary (laser interferometers) feedback
- MLDT (e.g. Temposonics) feedback
- Absolute Serial feedback (Hiperface, EnDat, SSI)

Other Popular Options

- Battery Backed Parameter RAM
- Direct PWM Interface
- Extended (Pole-Placement) servo Algorithm for difficult-to-control systems
- Dynamic multi-block lookahead
- Forward and Inverse Kinematics
- Reverse and Retrace capability
- Fieldbus Communications - DeviceNet, Profibus
- Ethernet Communications (UDP/TCPIP)

PMAC Software Features

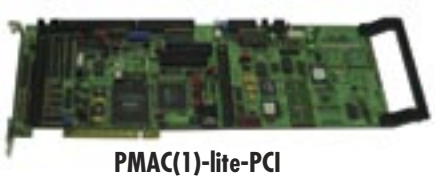
- The PMAC setup software is purchased separately from the PMAC. This is a site licence, therefore only one software licence is generally required to allow programming of multiple PMAC cards.
- The PMAC setup software provides a very simple method for the selection of motor parameters and overall check of the machine connections in a step-by-step sequence of setup screens. Several versions of the setup program are available for the different types of the PMAC motion controller.

Pewin32 PRO Software Suite

- Pewin32 PRO is the PMAC Executive program for Microsoft Windows®. It is an environment rich with software tools for the development and maintenance of any application using the PMAC motion controller. These tools allow the optimisation of the servo parameters to achieve maximum motor speed and accuracy and also permit the customisation of the motion and PLC programs inside PMAC for the application requirements. All types of communications methods are implemented for all the available communication ports, delivering a robust and reliable interchange of data with either single or multiple PMACs. A set of diagnosis tools is also available for displaying variables values, monitoring connector and motor status and plotting motion profiles. The capability to define projects allows combining set of files and configurations for an easy reference to each particular application.

PEWIN32 Pro components:

- PEWIN32 Pro – the main program for developing and maintaining any PMAC application.
- PMAC Plot Pro – allows to create motion trajectory plots or plot any memory register information.
- P1 Setup32 Pro – provides a step-by-step method for configuring any PMAC(1) type (analog) motion controller.
- P2 Setup32 Pro – provides a step-by-step method for configuring any PMAC2 type (digital) motion controller.
- Turbo Setup32 Pro – provides a step-by-step method for configuring any PMAC-Turbo type (analog/digital) motion controller.
- UMAC Config Pro – provides a method for checking the hardware UMAC).



PMAC(1)-lite-PCI

Quick-Comparison of 'PMAC' Features

PMAC Feature.	PMAC(1)-MINI-PCI	PMAC(1)-LITE-PCI	PMAC(1)-PCI	PMAC(1)-TURBO-PCI	PMAC2A-PC/104
Maximum number of servo channels supported.	2 + 2 ENCODER INPUTS	4	8 + Additional 8 with accessories	8 + Additional 32 with accessories	4 standard + 4 with addtl accessory.
Maximum number of coordinate systems	8	8	8	8	8
BUS communications (PC Based Systems)	PCI	PCI	PCI	PCI	PC104 form factor with option for PC104/ USB/ Ethernet
Serial comms (stand alone installations)	RS232/RS422 Accessory required	RS232/RS422	RS232/RS422 Accessory required	RS232/RS422 Option 9T required	RS232
Dual Ported RAM (high speed comms)	Option-2 on board	Option-2 on board	Option-2 on board	Option-2 on board	Available on accessory 2P
Standard Processor speed	40Mhz	40Mhz	40Mhz	80Mhz	40Mhz
Optional processor speeds	80,160Mhz	80,160Mhz	80,160Mhz	160,240Mhz	80, 160Mhz
max number P,Q & M variables	1024 each variable type	1024 each variable type	1024 each variable type	8096 each variable type	1024
Memory expansion	No	No	No	Yes**	No
Multi Block look ahead for accel control	Option-6L	Option-6L	Option-6L	Yes	Option-6L
Built in Inverse kinematic subroutines.	No	No	No	Yes	No
Pulse & Direction (PFM) outputs.	2 Option -15*	Accessory required	Accessory required	Accessory required	4 DAC or PFM but not both
Max number of on board A/D converters.	2 using option-15, 10 bit resolution	1 using Option-15, 10 bit resolution	1 using Option-15, 10 bit resolution	1 using Option-15, 10 bit resolution	2- Opt-12, 12 bit resolution.

* not available if using A/D converter

** Contact Australian Baldor

'PMAC' Standard Configurations

Catalogue N° Group D4	PMAC MOTION CONTROL CARD FEATURES	List Price $
PMAC(1)-MINI-PCI	Base version without options provides 1 slot board. 40 MHz, DSP563xx CPU, 128k x 24 internal zero wait SRAM. 512 x 8 flash memory for firmware and user back up. RS232/RS422 serial interface, 33 MHz PCI bus interface. 2 channels axis interface circuitry, each including 16 bit ±10v analog output. 3 channel differential/single ended encoder input. 4 input flags, 2 output flags. Part number 400-603712-10x. Requires V1.17 or newer firmware.	2,854
PMAC(1)-Lite-PCI	Base version without options, one slot Universal board. 40 MHz, DSP563xx CPU, 128k x 24 zero wait SRAM. 512 x 8 flash memory for firmware and user back up. RS232/RS422 serial interface, (33 MHz PCI bus interface. 4 channels axis interface circuitry, each including 16 bit ±10v analog output. 3 channel differential/single ended encoder input. 4 input flags, 2 output flags. Part number 400-603657-10x	4,273
PMAC(1)-Lite-PCI-16	Standard version with option, provides 1 slot board. 40 MHz, DSP563xx CPU, 128k x 24 internal zero wait SRAM. 512 x 8 flash memory for firmware and user back up. RS232/RS422 serial interface, 33 MHz PCI bus interface. 2 channels axis interface circuitry, each including 16 bit ±10v analog output. 3 channel differential/single ended encoder input. 4 input flags, 2 output flags. Part number 400-603757-10x with Opt-16 Battery backed parameter RAM. Requires V1.17 or newer firmware.	4,443
PMAC(1)-PCI	Base version without options 1-1/2 slot board.40 MHz, DSP563xx CPU. 128k x 24 internal zero wait state SRAM, flash memory back up, RS232/RS422 serial interface, 33MHz PCI Bus. 4 channels axis interface circuitry, each including 16 bit ±10v analog input, 4 input flags 2 output flags, Interface to external 16 bit serial ADC, Display, control panel, mixed I/O, direct I/O interface ports. Buffered expansion port. Part number 400-603588-10x.	5,128
PMAC(1)-PCI-1-2-16	8 Axis Version with options provides 1-1/2 slot board.40 MHz, DSP563xx CPU. 128k x 24 internal zero wait state SRAM, flash memory back up, RS232/RS422 serial interface, 33MHz PCI Bus. 4 channels axis interface circuitry, each including 16 bit ±10v analog input, 4 input flags 2 output flags, Interface to external 16 bit serial ADC, Display, control panel, mixed I/O, direct I/O interface ports. Buffered expansion port. Part number 400-603588-10x with Opt-1 additional 4 axis, plus Opt-2 DP Ram and Opt-16 Battery backed parameter RAM.	6,997
PMAC(1)-TURBO-PCI	Base version without options 1-1/2 slot board. 80 MHz, DSP56303 CPU (120 MHz PMAC Equivalent), 128k x 24 SRAM compiled/assembled program memory. 128k x 24SRAM user data memory. 1M x 8 flash memory for firmware and user back up. RS232/RS422 serial interface, 33 MHz PCI bus interface. 4 channels axis interface circuitry, each including 16 bit ±10v analog output. 3 channel differential/single ended encoder input. 4 input flags, 2 output flags. Part number 400-603588-TRx.	5,983
PMAC(1)-TURBO -PCI-1-2-16A	8 axis version with options provides1-1/2 slot board. 80 MHz, DSP56303 CPU (120 MHz PMAC Equivalent), 128k x 24 SRAM compiled/assembled program memory. 128k x 24SRAM user data memory. 1M x 8 flash memory for firmware and user back up. RS232/RS422 serial interface, 33 MHz PCI bus interface. 4 channels axis interface circuitry, each including 16 bit ±10v analog output. 3 channel differential/single ended encoder input. 4 input flags, 2 output flags. Part number 400-603588-TRx.With Opt-1 additional 4 axis, Opt-2 DP RAM, Opt-16A battery backed parameter RAM.	7,938
PMAC2A-PC/104	Base version no options, provides 90 x 95 mm board with 40 MHz DSP563xx CPU, 128k x 24 internal zero wait state SRAM,512k x 8 flash memory for user back up. RS232 serial interface, 4 channels axis interface circuitry each including: 12 bit =/- 10V analog output.Pulse & direction digital output,3 channel A,B,C, Quadper axis differential /single ended encoder output. 4 input flags, 2 output flags TTL levels. 50 Pin IDC header,34Pin IDC header for flag interface. PID/Notch/Feedforward servo algorithms. 1 year warranty from date of shipment. One manual per set of 1-4. Cables, mounting plates, mating connectors not included. Part N°400-603670-10x.	1,842
PMAC2A-PC/104-2-12	As above with PC/104 bus stack interface for use with PC104 computer and 2- Channel on board 12-bit A/D converter.	2,072

The above listed products are a small range of the available products and options/accessories. The above are the common items sold. Please contact Australian Baldor or your favoured distributor for combinations and options you require.

Options for PMAC Positioning Systems

Catalogue N° Group D4 **Options**	**Description** **(Must be ordered with original purchase – cannot be retrofitted)**	List Price $				
		MINI PCI	PMAC(1)-Lite-PCI	PMAC(1)-PCI	PMAC(1)-Turbo-PCI	PMAC2A-PC/104
OPT-1	4 additional channels. (8 channels total on main board).	N/A	N/A	1142	1142	N/A
OPT-2	Dual Ported RAM for PC 8Kx16 high speed, 2x10cm cables.	430	475	475	475	N/A
OPT-5CF	80MHz CPU, Zero wait state RAM DSP563xx CPU (160MHz DSP56002 equivalent). Requires V1.17 or newer firmware	1360	1515	1515	N/A	998
OPT-5EF	160MHz CPU, Zero wait state RAM DSP563xx CPU (320MHz DSP56002 equivalent). Requires V1.17 or newer firmware	2043	2278	2278	N/A	1669
OPT-5C3	80MHz CPU, Zero wait state RAM DSP56303 CPU with expanded 512Kx24 SRAM 4Mx8 flash memory	N/A	N/A	N/A	1515	N/A
OPT-6	Extended servo Algorithm firmware	175	175	175	175	175
OPT-6L	Multi Block Look Ahead Firmware	175	175	175	N/A	175
OPT-8A	High Accuracy Crystal Clock (±15ppm) for Long Term Velocity Accuracy. (Standard clock is 100ppm)	170	170	170	170	170
OPT-15	2 channel V to F converter for analog input (this option uses an encoder channel) or pulse & direction output. 11 bit resolution.	86	19	19	19	N/A
OPT-16	16k x 24 SRAM battery-backed parameter memory	N/A	189	189	(16a) 284	N/A
Accessories	**Ordered separately**					
X1P-2	'ACC-1P' provides 4 additional channels axis interface circuitry for a total of 8 servo channels, each including: • 12-bit ±10V analog output • Pulse-&-direction digital outputs • Quadrature encoder inputs A, B, C, channels with differential/single-ended. 4input flags , 2 Output flags, 2 Channel A/D converter +-10V input Opt 2 (not compatible w/ACC-8FS pwm outputs.)"	N/A	N/A	N/A	N/A	1055
X2P-1B-3	High-speed-communications/digital-I/O board. With 10 Mbit/sec Ethernet interface & USB 2.0, Plus on board digital I/O: Multiplexed port "opto" port," handwheel" port.	N/A	N/A	N/A	N/A	998
X2P-1B-2-3	High-speed-communications/digital-I/O board. With 10 Mbit/sec Ethernet interface & USB 2.0, Plus on board digital I/O: Multiplexed port "opto" port," handwheel" port. With Dual Ported Ram option 2A	N/A	N/A	N/A	N/A	1359
X8D-P	PMAC(1) 4 channel break out board, IDC headers, with 40cm cable. Various options available	380	380	380	380	N/A
X8P-P	PMAC(1) 4 channel breakout board terminal block, with 40cm cable	309	309	309	309	N/A
X9HMI-D	PMAC-HMI Development Software compatible with Windows 98, ME, 2000 & XP	2115	2115	2115	2115	2115
X9HMI-R	PMAC-HMI Run Time software Compatible with Windows 98, ME, 2000 & XP	650	650	650	650	650
X9PNPRO	PMAC Communications library, PCOMM32PRO for VB/C++ linkable code for Windows 98/ ME/2000 Dynamic link DLL site license. Options available	813	813	813	813	813
X9PTPRO	PMAC Visual programming library (Ptalk DTPRO OCX) linkable code for Windows 98/ME/2000 for use with Visual basic & Visual Studio NET. Site license.	1301	1301	1301	1301	1301
X9WPRO	PMAC Executive Professional Suite software for Windows 98/2000/ME, includes Pro Plot, PRO Tune, PRO Exec, set up programming, executable code site license.	1301	1301	1301	1301	1301
X34AA-2-3	32 in/Out Opto Isolated I/O w/parity & low by pass filter, option 2 sourcing config, Option 3 rail mount	1073	1073	1073	1073	1073

The above listed products are a small range of the available products and options/accessories. The above are the common items sold. Please contact Australian Baldor or your favoured distributor for combinations and options you require.

For accessory compatibility, contact Australian Baldor.

'Advantage 400 Controller'

The Advantage 400 provides an economical, yet high performance CNC or general purpose machine control solution with full-featured four axes plus spindle control. With its combination of easily customized features, options and low cost, the Advantage 400 CNC controller provides a powerful value-added solution for machine tool applications.

The front end includes a flat 8.4" LCD TFT colour monitor with 800 x 600 display resolution, F1 - F10 Function Keys, Cycle Start/Cycle Stop and Reset buttons, Feed-rate potentiometer, Hand-Wheel 50ppr and USB-Interface for keyboard and other USB compatable peripherals.

The controller utalises an embedded PC104 computer with a 166MHz CPU, 128 SDRAM, 16MB Flash disk and Windows CE.net. Optional extras include 32/64/128MB Flash Memory and Ethernet RJ45 interface port.

Complete CNC software interface provides ,program editing, message tools and tool managment. RS274 G-code languge with linear, circular and spline interplations, DNC-interface for running long programes from external memory. Support for up to 64 PLC's for I/Os and machine sequence managment with optional 2D graphical simulation.

Included features for Advantage 400 controller, Advantage 400 pack, Advantage 400 lite.

- **24 volt sourcing opto-couplers, 32 input/ 16 output.**
- **4 x 12 bit analogue input and 2 x 12bit analogue output.**
- **2 additional external encoder channels.**
- **Industrial enclosure.**
- **Internal 40 watt power supply.**

Catalogue N° Group D5	Description	List Price $
Advantage 400 Universal Motion Controller		
700-100007-EOX	Standard Configuration: Includes a keyboard, 8.4" Color TFT Flat Panel LCD monitor, PC104 Vortex 586 Processor, PMAC2 104 Motion Controller, 16 Megabyte Flash disk, 40 Watt power supply, Microsoft Windows CE.net operating system, USB Interface. Operator Control Panel: Manual pulse generator, Analog potentiometers for Feedrate Override and Spindle Override Software: NC 400 G-Code Software	8,266
Options		
700-100401-E01	5-Axis Configuration	629
700-100402-E01	8.4" Touch Panel Controller	629
700-100403-E01	VGA Connectors	85
700-100404-E01	Screw Terminal for 24V Input	128
700-100405-E01	RS 232 Input to PC104	85
700-100406-E01	Additional USB-Connectors	85
700-100407-E01	Additional 2-Channel 12-bit A/D converter +/-10V	255
700-100446-E01	External Hand Wheel Box, 1000 PPR, Axes and Resolution select switches	852
700-100211-E01	32 MB Flash Disk	298
700-100212-E01	64 MB Flash Disk	424
700-100213-E01	128 MB Flash Disk	846
700-100430-E01	Ethernet Interface,Full-duplex transfer mode, doubles effective bandwidth, NE2000 compatible with built-in 16KB RAM buffer, Throughput: 10/100 Mbps	255
700-100420-E01	Multiplex-Port Interface (JTHW)	181
700-100251-E01	NC 400 Software	426
700-100252-E01	PcommCE, DLL for Windows CE.net	1,063
700-131009-E01	HDD 20GB Hard Drive 2.5", 12ms	633
800-110017-E01	Windows 98 Operating System	741
800-110017-E01	Windows 98 Operating 8.4" Front	741
Advantage 400 Lite Universal Motion Controller		
700-100006-EOX	Standard Configuration: PC104 Vortex 586 Processor, PMAC2 104 Motion Controller, 16 Megabyte Flash disk, 40 Watt power supply, Microsoft Windows CE.net operating system, USB-Interface,VGA-Interface, Parallel Printer port. Software: NC 400 G-Code Software. (Supplied without LCD display)	6,646
Advantage 400 Pack		
700-100010-EOX	Standard Configuration: PMAC2A - PC/104 Motion Controller, Advantage 400 main Board, 40 Watt power supply. (Supplied without LCD display & PC104 Computer)	4,686
Options		
300-603672-10x	ACC-2P: High-speed-communications/digital-I/O board (Requires at least one of Opt 1A, 1B, 2, or 3)	317
31A-603672-OPT-1A	ACC-2P Opt 1A: 12 Mbit/sec USB interface	275
31B-603672-OPT-1B	ACC-2P Opt 1B: 10 Mbit/sec Ethernet interface / 12 Mbit/sec USB interface	415
302-603672-OPT-2	ACC- 2P Opt 2: On-board 8K x 16 dual-ported RAM for USB, Ethernet or PC/104 ports. If using for USB or Ethernet communications, ACC-2P Opt 1A or 1B must be ordered. If used for PC/104-bus communications, PMAC2A-PC/104 Opt 2A must be ordered	415

Operator Panel

- 8.4" TFT color display with 640 x 480 resolution
- CNC standard keyboard with alphanumeric keys and F1-F10 function keys
- Cycle Start / Cycle Stop / Reset buttons
- Feedrate potentiometer
- Handwheel with 50 pulses per revolution
- USB communications port and optional Ethernet port

Computer

- Embedded PC104 computer
- 586 166 MHz CPU
- 32bit Core
- 128MB SDRAM
- 16MB Flash card or disk on chip
- Windows CE.net operating system
- Optional 32/64/128 MB flash memory
- Optional Ethernet RJ-45 interface

Axis Controller CPU

- 40 MHz DSP56311 CPU
- 128k x 24 internal zero-wait-state SRAM
- 512k x 8 flash memory for user backup and firmware
- 55 microseconds per axis default servo cycle time
- Servo algorithm with velocity feed forward, acceleration feed forward and notch filters

Software Interface

- Complete CNC interface
- Position, distance and following error display
- Program editor in RS274 G-code language
- Message and error pages
- Optional 2D graphical simulation

Part Programming

- RS274 G-code language
- Multiple work coordinate systems
- Linear, circular, spline and PVT interpolations
- Canned cycles including threading, tapping and boring
- Cutter radius compensation
- Up to 256 programs stored in local memory
- DNC interface for running long programs from external memory
- PLC programming
- PLCs for I/Os and machine sequences management
- Simple and easy basic-like programming language

Built-in Features

- Leadscrew and planar compensation
- Backslash compensation
- Move until external trigger
- Capture of positions from an external trigger
- Compare of positions with rapid output toggling
- Master-slave capability
- External time-base feature for synchronization of part program to an external encoder

Machine Hardware Interface

- 4-Axis control with analog ±10V or pulse and direction output commands
- TTL encoder feedback
- 1x extra encoder inputs for handwheel or external time-base (+ one for operator panel handwheel)
- 2x extra analog +/-10V outputs
- 3x 12-bits analog Inputs (+ one for operator panel feed potentiometer) 32 digital inputs and 16 digital outputs
- Optional multiplexed input/output port (JTHW) for extended control panel connection and extra I/Os
- Optional CAN bus interface for I/Os management

Machine Signals Connection

- 4 Sub-D15 for four encoder inputs
- 1 Sub-D25 for amplifier connections: analog ±10V command output, amplifier enable and amplifier fault
- 1 Sub-D25 for flags connection: home, limit+, limit- and user
- 1 Sub-D25 for stepper driver connections: pulse and direction and EQU output for compare position feature
- 1 Sub-D15 for one extra encoder input used for handwheel or external time-base
- 1 Sub-D15 for two extra analog ±10V outputs and three analog inputs
- 1 Sub-D37 for 32 digital inputs
- 1 Sub-D25 for 16 digital outputs
- 1 HE26 multiplexed port for optional control panel and I/Os connections
- 1 Sub-D9 for RS232 interface
- 1 Sub-D9 for CAN bus devices

Power Supply

- 40W
- Input: 230V AC
- Output 5A @ 5V, 3A @ +12V and 0.35A @ -12V

Dimensions

- Width: 304.6 mm
- Height: 205.0 mm
- Depth: 100.0 mm

Advantage 400

Advantage 400 lite

Advantage 400 pack

Additional Delta Tau Motion Control Products

Australian Baldor is the Australasian Agent for Delta Tau products. Delta Tau is a leading designer and manufacturer of motion control electronics, and offer an extensive range of systems with application targeted features. Additional Delta Tau products available on rapid indent basis include:

- **PMAC2**
- **UMAC**
- **QMAC**
- **MACRO**
- **PMAC-NC**

PMAC2

- PMAC2 is a 5th generation PMAC technology. It is a completely digital card and is PRIMARILY INTENDED TO COMMUNICATE DIRECTLY WITH DIGITAL AMPLIFIERS. It is intended to compliment the PMAC(1) generation controllers not replace them. The standard PMAC(1) range will be appropriate for most applications requiring traditional analog amplifier interfaces. The PMAC2 directly outputs PWM to a digital amplifier. It requires accessories to output an analog signal, therefore it is not cost effective on those systems requiring analog inputs.
- PMAC2 is available in a number of configurations and CPU speed options including Turbo.

UMAC

- The UMAC (Universal Motion & Automation Controller) is a modular Turbo PMAC2 system built in a 3U-format Eurocard. The configuration of a UMAC system begins with the selection of a PMAC2 CPU or MACRO fibre optic interface, and the addition of the necessary axis boards, I/O boards, communication interfaces (USB, Ethernet, DeviceNet etc), and any other machine interface board. In addition a PC/104 computer can be installed inside the UMAC system.
- UMAC type boards mount inside 3U racks, and the system is completed with a selection of power supplies. Each UMAC system is expandable and scalable by connecting multiple racks together by the fibre optic protocol.

QMAC

- The QMAC system packages the Turbo PMAC2 controller, breakout connectors and power supply in a single system. A dedicated 4-axis controller with the same computation capabilities of the UMAC system, the QMAC provides a cost effective 4-axis application specific solution.
- The QMAC supports all common amplifier interfaces: pulse-and-direction for traditional stepper servo drives, ±10V analog for velocity and torque-mode drives, double analog for sine-wave drives, and direct PWM for digital power block drives.
- The QMC features 16 in/8 out optically isolated general purpose digital I/O. Options include 8 analog inputs with 12-bit digital conversion and 48 I/O points.
- The QMAC system can communicate with other devices through its standard RS-232 port or optional USB/Ethernet. Also, MACRO, DeviceNet or Profibus interfaces can be used for field-bus expansion.

MACRO

- MACRO is an acronym for Motion & Control Ring Optical, which is a none proprietary digital interface developed by Delta Tau Data Systems for connection of multi axis motion controllers, amplifiers, and I/O on a fibre optic or twisted pair copper (RJ45 connector) ring.
- The fibre optic MACRO interface enables the PMAC2, to control multiple servo axis and I/O even when separated by a great distance. With the MACRO interface the MACRO system can be up to 3 kilometres from the PMAC controller. With the RJ45 interface the system can be up to 30 metres. The speed is 125Mbits/sec data transmission rate. Up to 256 nodes can be supported and up to 16 master controllers. Conversion interfaces for DeviceNet or Profibus are available.

PMAC-NC

- The Advantage 810 NC, delivers an easy to integrate and cost effective open architecture solution for OEM and retrofit applications. Consisting of an operator control panel with user definable function keys and embedded PC in a slim line design, the Advantage 810 NC is preloaded with all the required software, including the NC Autopilot quick set up tool. Integration and connectivity between the operator console and the motion controller is simplified by utilising a single USB interface cable.

Additional Information

For detailed information on these or any of the many options and accessories available for the Delta Tau range of products, please contact Australian Baldor technical support team, or Email: info@baldor.com.au

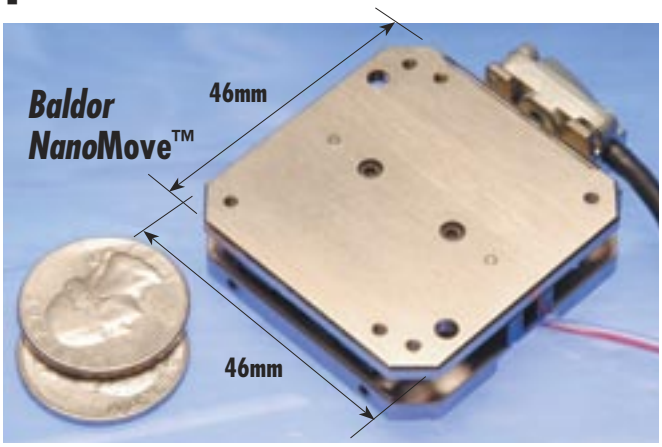
UMAC

(Also see outside back cover)

Baldor Motion Control *Nano*Stepper™ & *Nano*Move™

- Sub-micron positioning stage
- Sub-micron resolution & repeatability
- Unmatched resolution, accuracy, repeatability and speed
- Low profile
- Closed or open-loop positioning
- 10 or 20nm linear encoder
- Acceleration up to 2g
- Translation up to 3 x 1.5m.

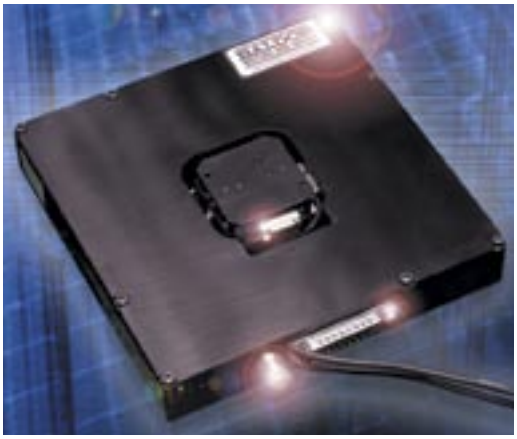
Applications: • fibre-optics • scanning probe microscopy • electronic component alignment • biological sample manipulation • automated manufacturing



Baldor NanoMove is a unique piezoelectric motor designed for fine positioning within a compact size just 46 x 46 x 12.7mm. Available as single or dual axis stages, the motor is capable of moving payloads of 1.8kg at 100mm/sec over a 10 x 10mm area. Encoder feedback offers a resolution of 10nm (or optional 20nm) and a repeatable accuracy of less than 50nm.

Where larger work areas are required, but with the same level of performance in accuracy and repeatability, NanoStepper is available. Incorporating dual-axis air bearing stepper for course positioning over a range up to 3.0 x 1.5m, the NanoStepper performs the initial move, with the integrated dual-axis piezoelectric NanoMove moving the payload to the final nanometer position.

Baldor NanoStepper™



Baldor Linear Stage Gantry *'LSG"*

- XYZ linear gantry platform
- High performance with dual X axis linear motor
- High-accuracy encoder with 0.1µm resolution
- Quick move-and-settle for high through-put
- Compact footprint

Applications:
• pick and place • high speed automated assembly • vision inspection • bonding • instrumentation test/probing • dispensing • laser cutting/welding drilling/routing • robotic solder/desolder, • sorting • general purpose automation workstations.

Using linear motor technology, the Baldor Linear Stage Gantry (LSG) is designed to speed up and simplify the building of high throughput, precision positioning systems. Providing a custom built XYZ assembly offering moves speeds of up to 3 m/s and resolutions from 50µm to 0.1 µm, the LSG is a shortcut to the design of automation machinery.

Each axis features linear brushless AC cog-free servo motors consisting of a stationary magnet track and moving coil assembly, bearings, encoder, limit switches, cable carrier and option of bellows or covers. The gantry can move a payload of 9kg vertically or horizontally at varying speeds and accelerations.

'Carson' Low-Backlash Planetary Gearboxes

Precision manufactured compact gearboxes which provide high torque capacities to match Baldor BSM ac Brushless Servo Motor performance.

Planetary gear train enables high torque transmission whilst allowing the most compact construction for more flexible installation.

Precision gear and housing manufacture produces minimal 'backlash' for more accurate positioning.

Manufactured in USA and proven in thousands of installations throughout the world.

Ratios of 3:1, 4:1, 7:1, 22:1, 40:1, 49:1, 55:1, 70:1 and 100:1 are available on indent order basis.

For alternative configurations, please contact Baldor for technical assistance.

Planetary Gearbox Catalogue Number Group A3	Gear Ratio	Gearbox Only Length GL mm	Gearbox Only Weight kg	Length 'AL' (mm) when coupled to (Motor Type–Stack Length) A-1 AL	A-2 AL	A-3 AL	B-1 AL	B-2 AL	B-3 AL	Gearbox List Price $
B63-23EP005	5.5:1	114	1.0	230	256	281	–	–	–	**626**
B63-23EP010	10:1	114	1.0	230	256	281	–	–	–	**626**
B63-23EP016	16:1	142	1.65	258	283	309	–	–	–	**918**
B63-23EP028	28:1	142	1.65	258	283	309	–	–	–	**918**
B63-23EP055	55:1	142	1.65	258	283	309	–	–	–	**918**
B63-23EP100	100:1	142	1.65	258	283	309	–	–	–	**918**
B80-34EP005	5.5:1	152	2.7	303	335	367	335	372	410	**901**
B80-34EP010	10:1	152	2.7	303	335	367	335	372	410	**901**
B80-34EP016	16:1	186	4.4	337	369	401	369	406	444	**1,168**
B80-34EP028	28:1	186	4.4	337	369	401	369	406	444	**1,168**
B80-34EP055	55:1	186	4.4	337	369	401	369	406	444	**1,168**
B80-34EP100	100:1	186	4.4	337	369	401	369	406	444	**1,168**
B90-42PP005	5.5:1	186	4.7	364	414	469	367	424	481	**1,165**
B90-42PP010	10:1	186	4.7	364	414	469	367	424	481	**1,165**
B90-42PP016	16:1	227	7.64	405	455	506	408	465	522	**1,677**
B90-42PP028	28:1	227	7.64	405	455	506	408	465	522	**1,677**
B90-42PP055	55:1	227	7.64	405	455	506	408	465	522	**1,677**
B90-42PP100	100:1	227	7.64	405	455	506	408	465	522	**1,677**
B100-56PP005	5.5:1	220	12.32	423	474	525	417	493	569	**3,421**
B100-56PP010	10:1	220	12.32	423	474	525	417	493	569	**3,421**
B100-56PP016	16:1	274	19.73	477	528	579	471	547	623	**4,298**
B100-56PP028	28:1	274	19.73	477	528	579	471	547	623	**4,298**
B100-56PP055	55:1	274	19.73	477	528	579	471	547	623	**4,298**
B100-56PP100	100:1	274	19.73	477	528	579	471	547	623	**4,298**

BSM Motor & Gearboxes Performance

The BSM Motor and Planetary Gearbox combinations detailed in these tables have been selected to provide the most appropriate choices for most applications.

However, many other combinations are possible. Technical assistance with selecting appropriate motor/gearbox combinations not listed is available from Australian Baldor offices.

Please refer to the BSM Motor pages for an explanation of the motor nomenclature system.

WARNING:

Because Baldor BSM Servo Motors can provide extremely high output torque ratings under peak conditions, it is important to select an appropriate gearbox model to prevent damage to the gearboxes due to overload.

Generally the 'Calculated Cont. Output Torque from the Gearbox @ Motor Rated Speed' **SHOULD NOT EXCEED** 50% of the 'Maximum Permitted Cont. Output Torque @ Actual Motor Input Speed'

NOTE: * These configurations require special consideration to prevent damage to the gearbox due to torque overload under peak conditions.

Gearbox Catalogue N°	Baldor BSM Motor Frame Catalogue N°	Baldor Motor Winding Type	Continuous Motor Stall Torque Nm	Motor Torque @ 2000rpm Nm	Stall Torque from Motor & Gearbox Nm	Calculated Output Torque @ 2000rpm Motor Speed Nm	Max. Permitted Cont. Output Torque @ 5000rpm Motor Speed Nm	Motor+G'box Total Inertia (@ motor shaft) (X10^{-6}) kg.m^2
Gearbox Ratio 5.5:1								
B63-23EP005	BSM63N	-175	0.77	0.65	3.8	3.2	27.9	23.293
B63-23EP005	BSM63N	-275	1.47	1.25	7.3	6.2	27.9	41.393
B63-23EP005	BSM63N	-375	2.09	1.80	10.3	8.9	27.9	59.393
B80-34EP005	BSM80N	-175	1.65	1.55	8.2	7.7	61.4	108.554
B80-34EP005	BSM80B	-175	1.63	1.55	8.1	7.7	61.4	368.054
B80-34EP005	BSM80N	-275	3.20	3.00	15.8	14.9	61.4	188.754
B80-34EP005	BSM80B	-275	2.20	2.10	10.9	10.4	61.4	583.054
B80-34EP005	BSM80C	-275	2.40	2.26	11.9	11.2	61.4	299.654
B80-34EP005	BSM80N	-375	4.52	4.00	22.4	19.8	61.4	268.954
B80-34EP005	BSM80B	-375	3.08	2.90	15.2	14.4	61.4	787.054
B80-34EP005	BSM80C	-375	3.60	3.40	17.8	16.8	61.4	440.954
B90-42PP005	BSM90N	-175	6.00	6.00	29.7	29.7	120.0	405.196
B90-42PP005	BSM90B	-175	2.35	2.10	11.6	10.4	120.0	519.296
B90-42PP005	BSM90N	-275	10.00	9.50	49.5	47.0	120.0	698.996
B90-42PP005	BSM90B	-275	4.30	3.50	21.3	17.3	120.0	961.296
B90-42PP005	BSM90C	-275	5.20	5.00	25.7	24.8	120.0	680.596
B90-42PP005	BSM90N	-2150	10.00	8.50	49.5	42.1	120.0	698.996
B90-42PP005	BSM90B	-2150	4.30	3.50	21.3	17.3	120.0	961.296
B90-42PP005	BSM90C	-2150	5.20	5.00	25.7	24.8	120.0	680.596
B90-42PP005	BSM90N	-3150	13.30	13.00	65.8	64.4	120.0	992.696
B90-42PP005	BSM90B	-3150	6.50	5.50	32.2	27.2	120.0	1386.296
B90-42PP005	BSM90C	-3150	7.80	7.34	38.6	36.3	120.0	988.296

(continued on next page)

'Carson' Low-Backlash Planetary Gearboxes

- **Backlash of standard gearboxes listed –**
  for ratios ≤10:1 = 6 arc minutes.
  for ratios ≥16:1 = 10 arc minutes.
- **Precision Backlash Gearboxes (available on indent order basis)**
  for ratios ≤10:1 = 3 arc minutes.
  for ratios ≥16:1 = 7 arc minutes.
- **High Efficiency**
  for ratios ≤10:1 = 90%.
  for ratios ≥16:1 = 85%.
- **All ratios are suitable for input speed of up to 5000rpm.**
- **Operating Temperature Range**
  -30 to +120°C.

WARNING:

Because Baldor BSM Servo Motors can provide extremely high output torque ratings under peak conditions, it is important to select an appropriate gearbox model to prevent damage to the gearboxes due to overload.

Generally the 'Calculated Cont. Output Torque from the Gearbox @ Motor Rated Speed' **SHOULD NOT EXCEED** 50% of the 'Maximum Permitted Cont. Output Torque @ Actual Motor Input Speed'

BSM Motor & Gearboxes Performance

For alternative configurations, please contact Australian Baldor for technical assistance

Gearbox Catalogue N°	Baldor BSM Motor Frame Catalogue N°	Baldor Motor Winding Type	Continuous Motor Stall Torque Nm	Motor Torque @ 2000rpm Nm	Stall Torque from Motor & Gearbox Nm	Calculated Output Torque @ 2000rpm Motor Speed Nm	Max. Permitted Cont. Output Torque @ 5000rpm Motor Speed Nm	Motor+G'box Total Inertia (@ motor shaft) ($X10^{-6}$) $kg.m^2$
Gearbox Ratio 5.5:1 (continued from previous page)								
B100-56PP005	BSM100N	-1150	14.00	7.00	69.3	34.7	240.8	1814.337
B100-56PP005	BSM100B	-1150	5.93	5.80	29.4	28.7	240.8	2587.537
B100-56PP005	BSM100N	-2150	18.03	18.03	89.2	89.2	240.8	2673.037
B100-56PP005	BSM100B	-2150	12.00	11.20	59.4	55.4	240.8	4828.537
B100-56PP005	BSM100N	-3150	25.41	25.41	125.8	125.8	240.8	3542.937
B100-56PP005	BSM100B	-3150	17.00	16.40	84.2	81.2	240.8	7072.537
B100-56PP005	BSM100N	-4150	32.50	32.50	160.9	160.9	240.8*	4401.637
B100-56PP005	BSM100B	-4150	20.00	19.00	99.0	94.1	240.8	8001.537
Gearbox Ratio 10:1								
B63-23EP010	BSM63N	-175	0.77	0.65	6.9	5.9	24.3	21.825
B63-23EP010	BSM63N	-275	1.47	1.25	13.2	11.3	24.3*	39.925
B80-34EP010	BSM80N	-175	1.65	1.55	14.9	14.0	57.1	100.422
B80-34EP010	BSM80B	-175	1.63	1.55	14.7	14.0	57.1	359.922
B80-34EP010	BSM80N	-275	3.20	3.00	28.8	27.0	57.1	180.622
B80-34EP010	BSM80B	-275	2.20	2.10	19.8	18.9	57.1	574.922
B80-34EP010	BSM80C	-275	2.40	2.26	21.6	20.3	57.1	291.522
B80-34EP010	BSM80B	-375	3.08	2.90	27.7	26.1	57.1	778.922
B80-34EP010	BSM80C	-375	3.60	3.40	32.4	30.6	57.1*	432.822
B90-42PP010	BSM90N	-175	6.00	6.00	54.0	54.0	116.3	378.655
B90-42PP010	BSM90B	-175	2.35	2.10	21.2	18.9	116.3	492.755
B90-42PP010	BSM90B	-275	4.30	3.50	38.7	31.5	116.3	934.755
B90-42PP010	BSM90C	-275	5.20	5.00	46.8	45.0	116.3	654.055
B90-42PP010	BSM90B	-2150	4.30	3.50	38.7	31.5	116.3	934.755
B90-42PP010	BSM90C	-2150	5.20	5.00	46.8	45.0	116.3	654.055
B90-42PP010	BSM90B	-3150	6.50	5.50	58.5	49.5	116.3	1359.755
B90-42PP010	BSM90C	-3150	7.80	7.30	70.2	65.7	116.3*	961.755
B100-56PP010	BSM100N	-1150	14.00	7.00	126.0	63.0	245.6	1703.656
B100-56PP010	BSM100B	-1150	5.93	5.80	53.4	52.2	245.6	2476.856
B100-56PP010	BSM100N	-2150	18.03	18.03	162.3	162.3	245.6*	2562.356
B100-56PP010	BSM100B	-2150	12.00	11.20	108.0	100.8	245.6	4717.856
B100-56PP010	BSM100B	-3150	17.00	16.40	153.0	147.6	245.6*	6961.856

* These configurations require special consideration to prevent damage to the gearbox due to torque overload under peak conditions.

B90-42PP

B63-23EP

'Carson' Low-Backlash Planetary Gearboxes

Precision manufactured compact gearboxes which provide high torque capacities to match Baldor BSM ac Brushless Servo Motor performance.

Planetary gear train enables high torque transmission whilst allowing the most compact construction for more flexible installation.

Precision gear and housing manufacture produces minimal 'backlash' for more accurate positioning.

Manufactured in USA and proven in thousands of installations throughout the world.

- **Backlash of standard gearboxes listed –**
  for ratios ≤10:1 = 6 arc minutes.
  for ratios ≥16:1 = 10 arc minutes.
- **Precision Backlash Gearboxes (available on indent order basis)**
  for ratios ≤10:1 = 3 arc minutes.
  for ratios ≥16:1 = 7 arc minutes.
- **High Efficiency**
  for ratios ≤10:1 = 90%.
  for ratios ≥16:1 = 85%.
- **All ratios are suitable for input speed of up to 5000rpm.**
- **Operating Temperature Range**
  -30 to +120°C.
- **Ratios of 3:1, 4:1, 7:1, 22:1, 40:1, 49:1, 55:1, 70:1 and 100:1 are available on indent order basis.**

WARNING:

Because Baldor BSM Servo Motors can provide extremely high output torque ratings under peak conditions, it is important to select an appropriate gearbox model to prevent damage to the gearboxes due to overload.

Generally the 'Calculated Cont. Output Torque from the Gearbox @ Motor Rated Speed' **SHOULD NOT EXCEED** 50% of the 'Maximum Permitted Cont. Output Torque @ Actual Motor Input Speed'

* These configurations require special consideration to prevent damage to the gearbox due to torque overload under peak conditions.

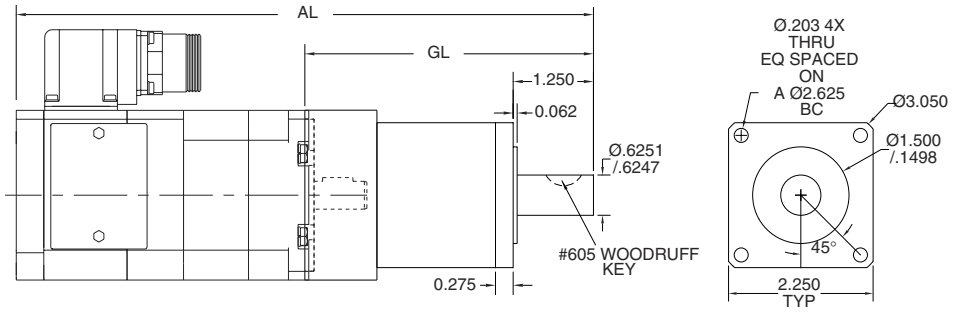
BSM Motor & Gearboxes Performance

For alternative configurations, please contact Australian Baldor for technical assistance

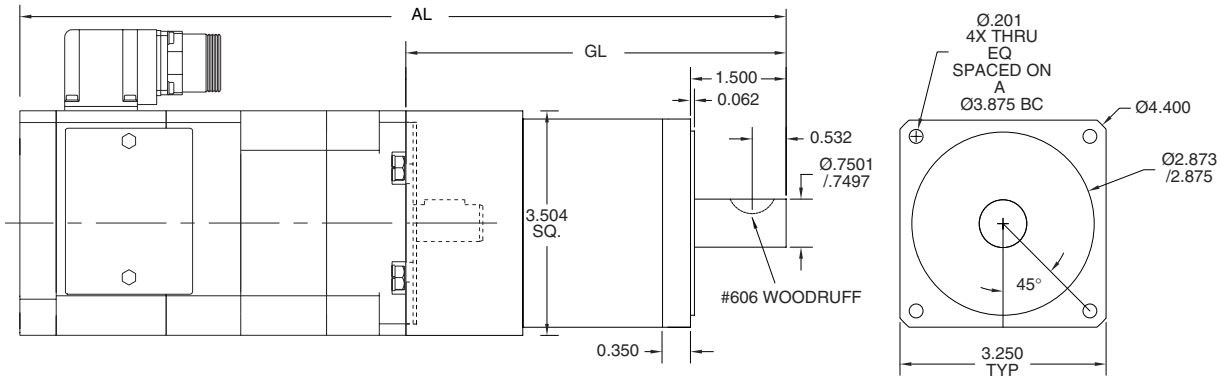
Gearbox Catalogue N°	Baldor BSM Motor Frame Catalogue N°	Baldor Motor Winding Type	Continuous Motor Stall Torque Nm	Motor Torque @ 2000rpm Nm	Stall Torque from Motor & Gearbox Nm	Calculated Output Torque @ 2000rpm Motor Speed Nm	Max. Permitted Cont. Output Torque @ 5000rpm Motor Speed Nm	Motor+G'box Total Inertia (@ motor shaft) (X10^{-6}) kg.m^2
Gearbox Ratio 16:1								
B63-23EP016	BSM63N	-175	0.77	0.65	10.5	8.8	48.2	26.308
B63-23EP016	BSM63N	-275	1.47	1.25	20.0	17.0	48.2	44.408
B63-23EP016	BSM63N	-375	2.09	1.80	28.4	24.5	48.2*	62.408
B80-34EP016	BSM80N	-175	1.65	1.55	22.4	21.1	116.0	123.801
B80-34EP016	BSM80B	-175	1.63	1.55	22.2	21.1	116.0	383.301
B80-34EP016	BSM80N	-275	3.20	3.00	43.5	40.8	116.0	204.001
B80-34EP016	BSM80B	-275	2.20	2.10	29.9	28.6	116.0	598.301
B80-34EP016	BSM80C	-275	2.40	2.26	32.6	30.7	116.0	314.901
B80-34EP016	BSM80N	-375	4.52	4.00	61.5	54.4	116.0*	284.201
B80-34EP016	BSM80B	-375	3.08	2.90	41.9	39.4	116.0	802.301
B80-34EP016	BSM80C	-375	3.60	3.40	49.0	46.2	116.0	456.201
B90-42PP016	BSM90N	-175	6.00	6.00	81.6	81.6	273.3	457.487
B90-42PP016	BSM90B	-175	2.35	2.10	32.0	28.6	273.3	571.587
B90-42PP016	BSM90N	-275	10.00	9.50	136.0	129.2	273.3	751.287
B90-42PP016	BSM90B	-275	4.30	3.50	58.5	47.6	273.3	1013.587
B90-42PP016	BSM90C	-275	5.20	5.00	70.7	68.0	273.3	732.887
B90-42PP016	BSM90N	-2150	10.00	8.50	136.0	115.6	273.3	751.287
B90-42PP016	BSM90B	-2150	4.30	3.50	58.5	47.6	273.3	1013.587
B90-42PP016	BSM90C	-2150	5.20	5.00	70.7	68.0	273.3	732.887
B90-42PP016	BSM90N	-3150	13.30	13.00	180.9	176.8	273.3*	1044.987
B90-42PP016	BSM90B	-3150	6.50	5.50	88.4	74.8	273.3	1438.587
B90-42PP016	BSM90C	-3150	7.80	7.34	106.1	99.8	273.3	1040.587
B016-56PP016	BSM100N	-1150	14.00	7.00	190.4	95.2	590.3	1996.171
B016-56PP016	BSM100B	-1150	5.93	5.80	80.6	78.9	590.3	2769.371
B016-56PP016	BSM100N	-2150	18.03	18.03	245.2	245.2	590.3	2854.871
B016-56PP016	BSM100B	-2150	12.00	11.20	163.2	152.3	590.3	5010.371
B016-56PP016	BSM100N	-3150	25.41	25.41	345.6	345.6	590.3*	3724.771
B016-56PP016	BSM100B	-3150	17.00	16.40	231.2	223.0	590.3	7254.371
B016-56PP016	BSM100B	-4150	20.00	19.00	272.0	258.4	590.3	8183.371
Gearbox Ratio 28:1								
B63-23EP028	BSM63N	-175	0.77	0.65	18.3	15.5	54.3	22.514
B63-23EP028	BSM63N	-275	1.47	1.25	35.0	29.8	54.3*	40.614
B80-34EP028	BSM80N	-175	1.65	1.55	39.3	36.9	135.9	104.375
B80-34EP028	BSM80B	-175	1.63	1.55	38.8	36.9	135.9	363.875
B80-34EP028	BSM80N	-275	3.20	3.00	76.2	71.4	135.9*	184.575
B80-34EP028	BSM80B	-275	2.20	2.10	52.4	50.0	135.9	578.875
B80-34EP028	BSM80C	-275	2.40	2.26	57.1	53.8	135.9	295.475
B80-34EP028	BSM80B	-375	3.08	2.90	73.3	69.0	135.9*	782.875
B80-34EP028	BSM80C	-375	3.60	3.40	85.7	80.9	135.9*	436.775
B90-42PP028	BSM90N	-175	6.00	6.00	142.8	142.8	329.1	391.417
B90-42PP028	BSM90B	-175	2.35	2.10	55.9	50.0	329.1	505.517
B90-42PP028	BSM90B	-275	4.30	3.50	102.3	83.3	329.1	947.517
B90-42PP028	BSM90C	-275	5.20	5.00	123.8	119.0	329.1	666.817
B90-42PP028	BSM90B	-2150	4.30	3.50	102.3	83.3	329.1	947.517
B90-42PP028	BSM90C	-2150	5.20	5.00	123.8	119.0	329.1	666.817
B90-42PP028	BSM90B	-3150	6.50	5.50	154.7	130.9	329.1	1372.517
B90-42PP028	BSM90C	-3150	7.80	7.30	185.6	173.7	329.1*	974.517
B028-56PP028	BSM100N	-1150	14.00	7.00	333.2	166.6	739.9	1755.608
B028-56PP028	BSM100B	-1150	5.93	5.80	141.1	138.0	739.9	2528.808
B028-56PP028	BSM100N	-2150	18.03	18.03	429.1	429.1	739.9*	2614.308
B028-56PP028	BSM100B	-2150	12.00	11.20	285.6	266.6	739.9	4769.808
B028-56PP028	BSM100B	-3150	17.00	16.40	404.6	390.3	739.9	7013.808
B028-56PP028	BSM100B	-4150	20.00	19.00	476.0	452.2	739.9*	7942.808

B63-23EP Dimensions (refer to page 44 for 'GL' and 'AL' information)

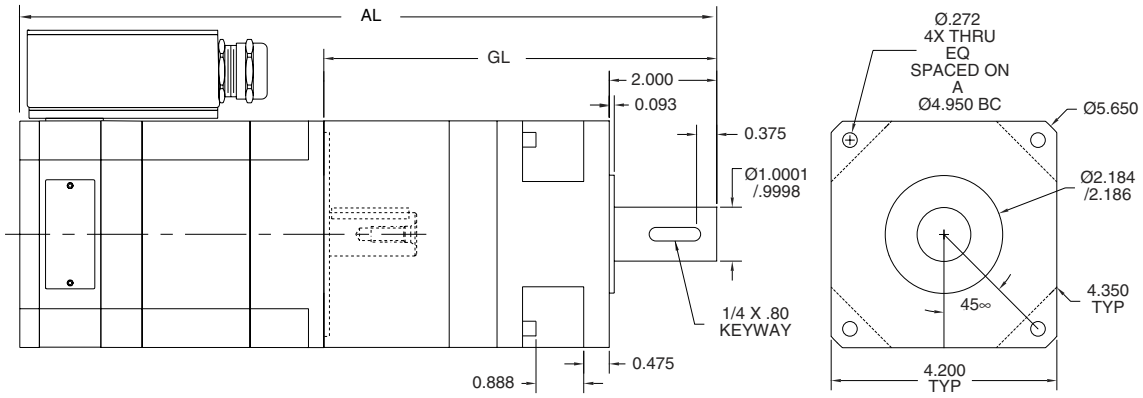
NOTE: Measurements shown on these drawings are in inches.



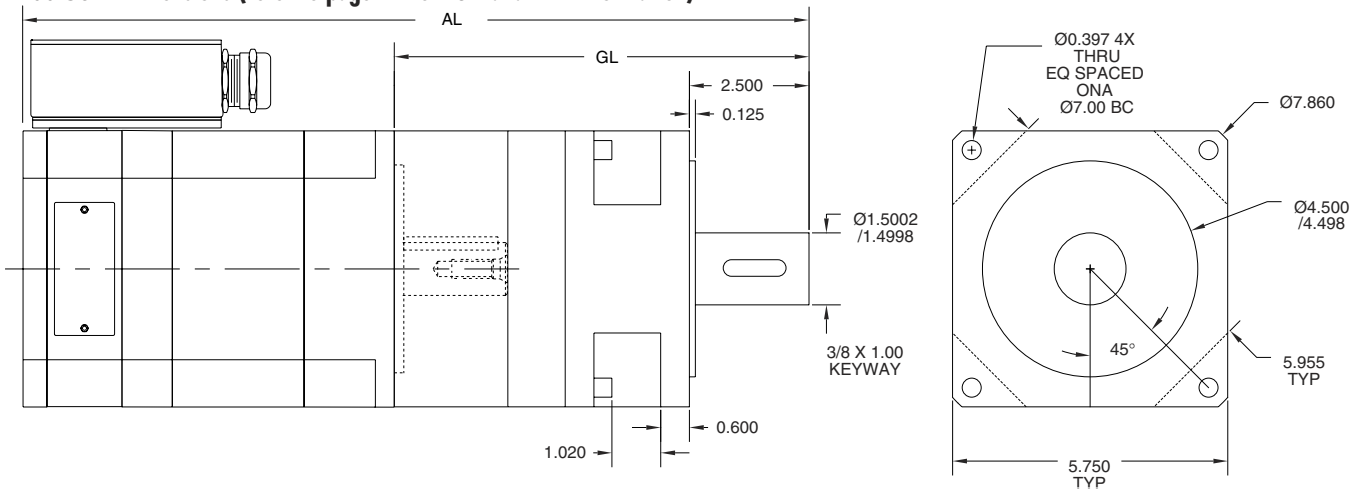
B80-34EP Dimensions (refer to page 44 for 'GL' and 'AL' information)



B90-42PP Dimensions (refer to page 44 for 'GL' and 'AL' information)



B100-56PP Dimensions (refer to page 44 for 'GL' and 'AL' information)



BALDOR MOTORS AND DRIVES
AUSTRALIAN BALDOR PTY LIMITED

HyCore™ 10

Hybrid Core Linear Motor

- **Affordable linear motor**
- **Accurate positioning**
- **High performance - zero backlash**
- **Very fast - speeds to1.5m/sec**
- **High accelerations - up to 3g**
- **High peak forces to 800N**

Baldor has redefined linear motors with a technological breakthrough. Baldor's new HyCore™ motor combines the best features and performance of traditional high speed, high force, closed loop brushless linear servo motors, with the cost advantages of open loop linear stepper motor technology.

HyCore™ includes benefits, which linear motors bring to an application: zero backlash; high efficiency; unlimited travel; fast velocities and high accelerations.

Linear motors consist of two parts – a stationary "platen" and a moving "forcer". Baldor's unique HyCore™ contains no magnets on the stationary platen, thus it can easily be cut to length to suit the application. This also includes the benefit of not attracting metal particles.

The HyCore™ "forcer" consists of a three phase servo motor winding. It is controlled via closed loop using feedback from an external encoder. This provides benefits of higher performance, higher forces, and improved accuracy. Baldor's new HyCore™ provides the highest forces per cost of any linear design available in the marketplace. Additionally, the continuous force capability can be extended by 20% with air cooling, increasing value further.HyCore™ is extremely cost effective in applications requiring long stroke or high continuous duty. It has been designed to replace ball screw and belt/pulley actuators in many applications.

Baldor's range of FlexDriveII, MintDriveII, and MicroFlex controls are ideally matched to the HyCore™ motor, offering the highest performance. Baldor is able to offer a complete range of motion control components including rotary servo motors, programmable motion controllers, servo drives and programmable servo drives. Contact Baldor today and find out how HyCore™ can increase the performance of your machine.

Catolouge Number Group E6	Continuous Force N	List Price $
Three Phase - closed loop brushless Hycore 10 (without linear encoder)		
LMHS10A-3C0A	53	1,035
LMHS10B-3C0A	105	1,273
LMHS10B-6C0A	158	2,301
LMHS10C-3C0A	209	1,493
LMHS10C-6C0A	209	2,687
LMHS10D-3C0A	316	1,849
LMHS10D-6C0A	418	3,444

HyCore Design Specifications

- Velocities to 1.5 m/s (60 ips)
- Accelerations to 3g
- Peak forces to 800 N (180 lbs)
- Continuous force to 465 N (105 lbs)
- Low velocity ripple
- Unlimited travels >100m (4000 inch)
- Large air gap .25-.75mm (0.01 - 0.03 inch)
- Rapid settling times
- Compatible with existing drives

Feature/Customer benefits of Baldor's HyCore Motor...

- Highly efficient – provides higher forces with an overall smaller electrical load
- Modular design – quick for you to assemble, saving time and money
- Large air gap – for simplicity during assembly, making your job easier
- Stationary "platen" without magnets – no attraction of loose metal particles
- Quick move-and-settle time – improves machine accuracy, repeatability and throughput
- Compact package – allows machine designers to work with smaller footprint which easily fits
- Accuracy and repeatability of close loop packages – to improve machines' quality and reliablity
- Optional forced air cooling – increases force up to 20% additional capability

Catolouge N° Group E6	Size Code	Length (mm)	List Price $
Platen selection			
LTSH10A-0200	A	200	288
LTSH10A-0300	A	300	306
LTSH10A-1000	A	1000	465
LTSH10B-0200	B	200	306
LTSH10B-0300	B	300	330
LTSH10B-1000	B	1000	582
LTSH10C-0200	C	200	314
LTSH10C-0300	C	300	347
LTSH10C-1000	C	1000	632
LTSH10D-0200	D	200	364
LTSH10D-0300	D	300	414
LTSH10D-1000	D	1000	883

Note: Custom Platens are available up to 3 metres in length POA.

Applications for Hycore drives include:

- **In place of ballscrews or belts and pulleys**
- **Inspection**
- **Imaging**
- **Pick and place**
- **Transfer**
- **Load and unload**

Isolated Power Supplies

For servo drives and motion control products

- Switchmode Power Supplies
- Isolated Secondary Voltages
- Compact Din Rail Mounting Available
- C Tick CE UL CSA
- Low Ripple
- Full Range Input Voltage
- Compact Construction
- Short Circuit & Overvoltage Protection

Product	Description	Catalogue Number Group E8	List Price $
PSX2B 	85-264VAC Input, 5VDC @ 5.0A, 60W, with 0V (G1) + 15VDC @ 2A, -15V @ 0.5A with common (G2). Input/Output harness supplied, Enclosed unit with molex connection. Dimensions: 210 x 92 x 38mm. Weight .36kg	PSX2B	175
	DIN Rail Mounting Bracket	PSSX2B-DIN	32
PS24-4 	88-264VAC Input/24VDC @ 4.5A, 108W Enclosed unit with screw terminals. (for use with single axis drives). Dimensions: 199 x 98 x 38mm Weight .65kg	PS24-4	101
	DIN Rail Mounting Bracket and Clip	PS24-4DIN	15
PS24-10 	85-264VAC Input/24VDC @ 10A, 240W. Enclosed unit with screw terminals. (for use with up to two axis drives). Dimensions: 190 x 93 x 65mm. Weight .1.1kg	PS24-10	211
	DIN Rail Mounting Bracket and Clip	PS24-4DIN	15
PS24-10S 	85-264VAC Input/24 VDC @ 10.0A. Continuous 20A peak. Enclosed unit with screws terminals. Input/Output harness supplied. (for use with up to four axis drives). Dimensions: 252 x 108 x 58mm. Weight .69kg	PS24-10S	256
	DIN Rail Mounting Bracket	PS24SX2B-DIN	32

Inductors (Chokes)

Where indicated, inductors are required to provide protection for the Servodriver under static or dynamic short circuit of the motor windings. One inductor is required per motor input phase/line. For each ac servomotor, 3 inductors are required. For each dc servomotor, 2 inductors are required.

Catalogue N° Group E8	Inductance mH	Current Amps	Weight kg	List Price $
L040-12	0.4	12	0.58	**46**
L040-20	0.4	20	1.33	**90**
L020-40	0.2	40	2.30	**110**

Mains Transformers – 1 or 3 Phase ac

- Manufactured in Australia to Baldor Specifications
- Please contact Australian Baldor for details and pricing

Servo System Accessories

Cable rated current	Description	Catalogue Number Group E8	Length (m)	List Price $
BSM Motor to Drive power cables				
12 Amps	Power Cable Assembly: CE Style threaded motor connector (motor end only)	CBL025SP-12	2.50	131.00
		CBL050SP-12	5.00	170.00
		CBL075SP-12	7.50	210.00
		CBL100SP-12	10.00	250.00
		CBL150SP-12	15.00	328.00
		CBL200SP-12	20.00	407.00
	Power Cable: no connectors	CBL050-501	1-49	20/m
		Price Break @ 50M	50-99	17/m
		Price Break @ 100M	100+	16/m
	Power Connector Only (motor end)	MCSPOW-08		55
20 Amps	Power Cable	CBL051-501		24/m
35 Amps	Power Cable	CBL052-501		31/m

Description	Catalogue Number Group E8	Length (m)	List Price $
BSM Motor to Drive Encoder/Hall feedback cables			
Feedback Cable Assembly: CE style threaded motor connector with DB 3 row High Density connector on drive end FDH/FPH & MINT drives	CBL025SF-E1	2.5	142
	CBL050SF-E1	5.0	163
	CBL075SF-E1	7.5	185
	CBL100SF-E1	10	206
	CBL150SF-E1	15	249
	CBL200SF-E1	20	292
Feedback Cable Assembly: CE style threaded motor connector and low density 2 row 15-pin D-type drive connector. MicroFlex Drives only	CBL025SF-E2	2.5	142
	CBL050SF-E2	5.0	163
	CBL075SF-E2	7.5	185
	CBL100SF-E2	10	206
	CBL150SF-E2	15	249
	CBL200SF-E2	20	292
Feedback Cable: no connectors	CBL043-501	1-49	15/m
	Price Break @ 50M	50-99	13/m
	Price Break @ 100M	100+	12/m
Feedback Connector Only (motor end)	MCSENC-16		45

Description	Catalogue Number Group E8	Length (m)	List Price $
BSM Motor to Drive Feedback Cables - (for use with MircoFlex SSI and all Baldor drives with Resolver feedback)			
Feedback Cable Assembly: CE style threaded motor connector. NO drive connector	CBL025SF-R	2.5	88
	CBL050SF-R	5.0	110
	CBL075SF-R	7.5	132
	CBL100SF-R	10	154
	CBL150SF-R	15	198
	CBL200SF-R	20	243
Feedback Cable: no connectors	CBL044-501	1-49	15/m
	Price Break @ 50M	50-99	13/m
	Price Break @ 100M	100+	12/m
Feedback Connector Only (motor end)	MCSRES-12		45

Add 10% to all prices
Price Increase Effective 14 May 2006

☎ (03) 9753 4355
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