

Ajusto-Spede® Controllers

MODEL EC-2000 CONTROLLERS



Description

The Dynamatic® EC-2000 Digital Controller consists of a single printed circuit board rated for 115 VAC, 1 phase, 60 Hz input. It has the flexibility of 45 or 90 VDC coil voltage at 8 Amps and is available for use with a wide range of drives and brakes rated 1 through 200 horsepower and high powered applications up to 2,000 horsepower. Please consult factory for high-powered applications. A power relay is a standard feature. The basic circuit board includes provisions for many control functions. Some of these functions are multiple cascading, linear accel/decel, manual or auto signal follower. The EC-2000 can also be run in speed mode or in torque mode. Selection of these options is made through the soft touch keypad. Many other modifications are included. This controller is designed to offer all standard industrial modifications without the need for auxiliary modification boards. An optional 230/460 VAC, 1 phase transformer is also available.

Features	Customer Benefits
0.1% Speed Regulation	Precise speed control standard. No over-speed trips.
Digital Processing.	Easy repeatable setup and control.
Parameter Setup.	PC computer programming capability.
Dual Output Voltage.	Compatible with 45, 90, 180 & 220 VDC and auto 45 VDC forcing.
Low Power Requirements.	Virtually no electrical noise created plant power-friendly.
No Line Harmonic Distortion.	High PF and standard power company correction compatible.
High Starting Torque.	Idle motor start with 250% starting torque capability.
Wide Speed Range.	No additional cost for low speed operation.
Loss of Feedback Protection.	No speed runaway.
Loss of Reference Protection.	Choice continuation or stop at loss of reference.
Loss of Coil Continuity.	Automatic troubleshooting of coil loss.
Long Life.	Controllers are built to give long, reliable, low cost life in diverse applications.

revised 4/12/2018

Ajusto-Spede[®] Controllers

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Specifications

EC-2000 Controller	Units used with	Fractional HP Drives AS-14 - 27 Drives AT-140 - 440 Drives DCD-132 - 225 Drives AS-703 - 705 (45 or 90 VDC) AS-706 - 707 (90 VDC only) Air-Cooled Brakes WC-620 - WC-640 Water-Cooled Brakes
	Horsepower range	1-200 HP - Standard
	Digital	Standard
	Input, power maximum	115 VAC, +/- 10%, 1 Ph, 50/60 Hz, 285 to 1295 watts
	Standard Output, power maximum	45 VDC, 8 Amps; 90 VDC, 8 Amps
	High Power	45 VDC, 20 Amps; 45 VDC, 50 Amp; 90 VDC, 20 Amps; 90 VDC, 50 Amps – Consult Factory for other ratings
	Speed regulation 25% to full load change	0.1% - Standard
	Regulated speed range	68:1 - Standard
	Enclosure	NEMA 1 - Standard
	Operator devices (Keypad)	Run & Jog operation, Stop button and Run Speed settable reference from the keypad - Standard
	Built-in modifications	Linear accel/decel, torque control, 0.01% regulation, adjustable braking, spring set braking (relay contacts available), signal follower input, adjustable jog, torque/speed control and threading - Standard
	Field modifications	None
	Closed Loop speed control	Standard
	Controller protective features	Input fuses, low line voltage, line transients, isolated signal circuits output over-current, trip or indication only
	Line regulation for +/-10% input line voltage change	+/-0.3%
	Thermal drift per degree C	0%
	Minimum regulated speed range	25 RPM
	Maximum ambient	104° F (40° C) enclosed 149° F (65° C) panel mount

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Ordering Information

The Model EC-2000 Controller can be provided as a panel mount, or it can be provided in a NEMA 1 or NEMA 12 Enclosure. The NEMA 1 and NEMA 12 enclosures include the installed keypad. The panel mount versions do not include the keypad, cable or mounting hardware, but may be ordered loose (see below). A power relay is built in. Optional current transformers are required for torque limit operation and are priced starting on Page 124. Input transformers are not required, but are available. Please contact the factory for further information.

EC-2000 Controller Selection Table - 8 A

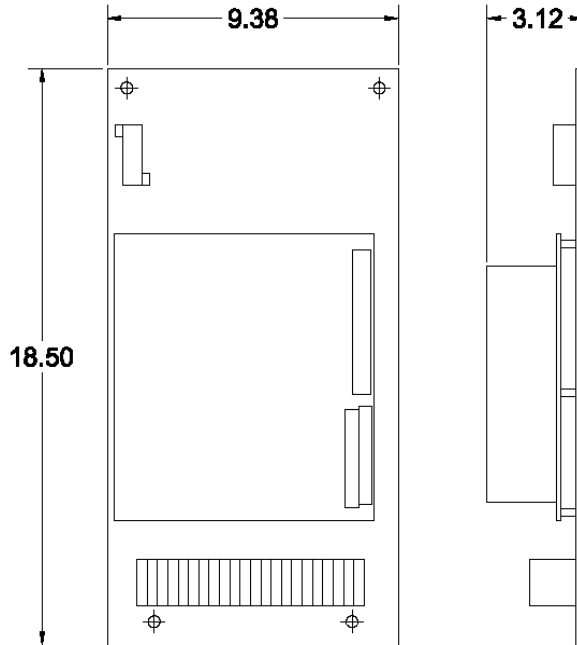
Description	Part Number
Panel Mount Control w/o Keypad	15-002000-0100
Panel Mount Replacement for Mark III Control w/o Keypad (Dimensional Replacement)	15-002000-0200
Includes NEMA 1 Enclosure and Keypad	15-002000-0300
Includes NEMA 12 Enclosure and Keypad	15-002000-0400
Press Drive Control (keypad not included, CT extra)	15-002000-0500
Panel Mount Replacement for Mark III Control w/o keypad. Includes 230/460v Panel Mount Transformer	15-002000-1201
Press Drive Control with 230/460V transformer. (keypad not included, CT extra)	15-002000-1501
Includes NEMA 1 Enclosure, Keypad and 230/460V transformer. Speed-pot Auto-Man Switch in cover.	15-002000-2201
Press Drive Control in NEMA 1 Enclosure, keypad in cover. CT extra.	15-002000-2500
Power XFMR 230/460V Prim 500VA 5.5 Amp	15-000360-0001
Power XFMR 230/460V Prim 1000VA 8.0 Amp	15-000361-0001
Keypad Kit with Cable & Mounting Hardware	37-000544-0100
Current XFMR (Req. for Torque Limit) 0-70 Amp	15-000203-0003
Current XFMR (Req. for Torque Limit) 70 – 125 Amp	15-000203-0125
Current XFMR (Req. for Torque Limit) 125 – 250 Amp	15-000203-0250

NOTE 1 - Panel mount, NEMA 1 and NEMA 12 are standard designs, 45VDC/90VDC programmable, see below for large Higher Power Eddy Current units. For Specials, consult factory.

Ajusto-Spede[®] Controllers

STANDARD CONTROLLER ENGINEERING INFORMATION

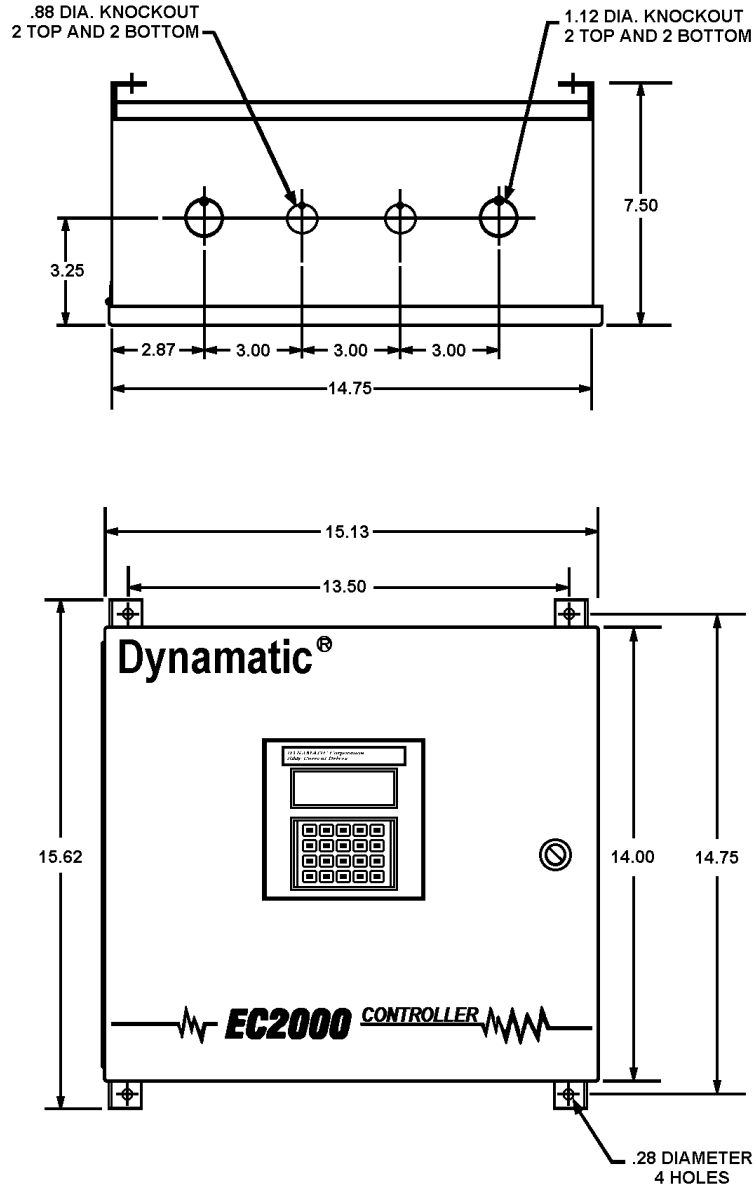
Standard EC-2000 Open Panel Outline Drawing



DIMENSIONS ARE IN INCHES

Ajusto-Spede[®] Controllers

Standard EC-2000 NEMA-1 Enclosure Outline Drawing (31-606-3 B)



DIMENSIONS ARE IN INCHES



DRIVE SOURCE INTERNATIONAL, INC.

1-800-548-2169

www.dynamatic.com

World's leading manufacturer of Eddy Current drives, brakes and controls

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Sturtevant, Wisconsin, U.S.A. 53177
Tel: 262-554-7977 Fax: 262-554-7041
Toll Free: 1-800-548-2169
E-Mail: sales@dynamatic.com

DSI - STANDARD TERMS AND CONDITIONS OF SALE

1. PRICE BOOKS

Price books are intended only as sources of general information. They are not to be construed as quotations or as representations that products described therein are available, or will be made available for immediate delivery.

2. QUOTATIONS

Seller may make quotations verbally or in writing. Verbal quotations shall expire automatically unless Seller receives Buyer's purchase order number on the day the quotation is made. Written quotations shall expire automatically unless Seller receives Buyer's written purchase order within 15 days after the date appearing on the quotation. No quotation is to operate as an offer to sell but only as a description of products. Accordingly, even prior to its expiration date, any quotation is subject to change by Seller at any time upon verbal or written notice to Buyer. All quotations are deemed to incorporate Seller's Standard Terms and Conditions of Sale.

3. ACCEPTANCE OF PURCHASE ORDERS.

Notwithstanding any contrary language contained in Buyer's purchase order, each purchase order shall be subject to acceptance by an authorized employee of Seller's plant, and each purchase and sale transaction shall be governed exclusively by these Standard Terms and Conditions of Sale. Seller reserves the right at any time before delivery and payment to correct clerical, stenographic or other errors in quotations, purchase orders or acknowledgments.

4. PRICE POLICY

Regardless of prices set forth in quotations, acknowledgments or elsewhere, Buyer shall pay a purchase price as follows:

- (a) For the following products: Fractional Horsepower Adjusto-Spede®, AC Motors, renewal parts and service, Buyer shall pay Seller's published prices in effect on the date when shipment is made or service performed.
- (b) For all other products, Buyer shall pay a purchase price equal to the smaller of: (a) Seller's published prices in effect on the date when shipment is made or (b) the prices set forth in Seller's acknowledgment increased by 1% for each month or fraction thereof that elapses between the date when the acknowledgment is mailed from Seller's factory to Buyer (designated as the "Issue Date" on the acknowledgment) and the date when shipment is made or the date for which shipment was originally scheduled (as stated on the acknowledgment) by Seller, whichever occurs sooner. However, in the event that shipment is originally scheduled to occur in excess of 12 months after Issue Date, Buyer shall pay Seller's published prices in effect on the date when shipment is made; and in any case where shipment is delayed beyond Seller's originally scheduled date for shipment by Buyer's actions or at Buyer's request,

Buyer shall pay escalation charges based on the revised delivery schedule.

5. MINIMUM BILLING

The minimum billing for each purchase order shall be \$100.00 net.

6. TAXES

Any and all sales, use, personal property or other excise taxes which the Seller may be required to pay or collect, including first destination taxes, will be added to each invoice and shall be payable by Buyer on the same terms as the purchase price unless the Buyer has furnished the Seller a tax exemption certificate acceptable to the taxing authority.

7. PAYMENT TERMS

Payment terms shall be net 30 days except for International orders, which will be cash in advance. However, on orders of \$100,000.00 or more and having delivery schedule 6 months or longer from date of order, the payment terms shall be as specified by Seller at time of quotation.

8. SHIPPING TERMS

Except as otherwise agreed, Seller shall be entitled to select carrier and make delivery in more than one shipment, in which event Buyer shall pay separately for each partial shipment.

All shipments shall be made F.O.B. point of shipment. Seller shall prepay freight (UPS shipments only), which shall be billed to Buyer as a separate item on the product invoice at Seller's standard rates applicable to the destination, or at Buyer's option, shipment shall be made freight collect. All truck shipments shall be made freight collect, unless otherwise agreed.

9. PACKAGING

At no additional charge, all products shall be packaged for domestic shipment in accordance with Seller's standard specifications. Additional charge shall be made if Buyer specifies special domestic packaging, packaging in accordance with government or military standards, overseas packaging or other special packaging. Refer to Seller's plant, nearest sales office or representative for further information.

10. TITLE AND RISK OF LOSS

Risk of loss in transit shall be borne entirely by Buyer at all times after the products are delivered to the carrier for shipment. However, title to the products and right to stop delivery in transit shall remain with Seller until Seller receives payment in full.

11. DELAYS OR DEFAULT IN DELIVERY

Seller shall have no liability to Buyer, and Buyer shall not be entitled to cancel any purchase order, for Seller's delay or default in delivery due to strikes, secondary boycotts, riots,

wars, accidents, fires, floods, explosions, vandalism, government embargoes, priorities or regulations, shortages of labor, fuel, materials, supplies, power or transportation facilities, or other similar or dissimilar causes beyond Seller's reasonable control. Under no circumstances shall Seller have any liability for penalties or consequential damages of any kind resulting in whole or in part from Seller's delay in delivering, or failure to deliver, any products ordered by Buyer.

12. CHANGES TO ORDERS IN PROCESS

There shall be a charge for any and all changes in specification after an order is in process, based on the status of the order at the time the change is made. The additional charge shall be a minimum of \$50 net per item when engineering has not been started or is not required and a minimum of \$100 net per item when re-engineering is required. The additional charge shall be in addition to any change in the price of the product resulting from the change in specification. The order "Issue Date" will be moved forward to the date of the change and shipment will be rescheduled in accordance with the then current lead times. Buyer shall pay escalation charges based on the new "Issue Date" and scheduled shipping date as defined in paragraph B.

13. CANCELLATION

After Seller accepts Buyer's purchase order by faxing Seller's written acknowledgment, Buyer's cancellation of any order or portion thereof may be accomplished only upon (i) Seller's receipt of written cancellation notice at Seller's plant (cancellation notice by telephone will be deemed only as authorization for Seller temporarily to suspend performance on Buyer's order pending written confirmation of cancellation) and ii) Buyer's payment of the following cancellation charges:

Notwithstanding anything to the contrary contained herein, the minimum cancellation charges for products shall be 50% per line item or 50% per complete order.

With respect to all costs and expenses described above, Seller shall provide such substantiating documentation as Buyer may reasonably request, and Seller's computations, thus documented, and shall be conclusive and binding between the parties. With respect to all canceled products, materials and supplies described above, Seller shall, upon payment of the applicable cancellation charges, make such disposition as Buyer may specify in writing within 30 calendar days after Seller notifies Buyer of the applicable cancellation charges. Buyer's failure to so specify within said 30-day period shall constitute Buyer's authorization for Seller to make such disposition as Seller chooses with no further obligation to Buyer.

14. PATENT INFRINGEMENT

With respect to all products manufactured to Buyer's design, Buyer shall indemnify and hold Seller harmless from and against any and all loss, cost, expense, claims, demands, suits and judgments resulting from actual or alleged patent infringements. With respect to all other products sold by Seller, Seller shall defend any suit or proceeding brought against Buyer on a claim that such a product, or any part thereof when employed in the manner intended by Seller, infringes any U.S. patent, provided that Seller is notified promptly in writing and given all necessary information, assistance and authority to defend same. Seller shall pay all damages and costs awarded against Buyer as a result thereof. If the court finds such an infringement, and the use

of any product, in the manner intended by Seller is enjoined, Seller shall at its sole expense, at Buyer's option (a) procure for Buyer the right to continue using said product, (b) replace said product with a non-infringing product, (c) modify said product so that it becomes non-infringing or (d) remove said product and refund its purchase price and transportation and installation costs. Seller shall have no further liability for actual or alleged patent infringement except as provided herein.

15. PRODUCT WARRANTY AND DISCLAIMER

Seller warrants to Buyer, subject to the limitations, conditions and disclaimers stated herein, that all new products manufactured by Seller shall be free from defect in material and workmanship and shall deliver their rated output as indicated on the nameplates for a period of one (1) year from the date of shipment to the Buyer. Buyer must notify Seller in writing of defect or failure to deliver rated output within the applicable warranty period and give Seller the opportunity to determine that the defect or failure exists. Buyer shall, at Buyer's expense, make each allegedly defective product available for Seller's inspection at Buyer's place of business or, at Seller's option, return each such product to Sellers plant or service center as designated by Seller, freight both ways to be paid by Buyer. No products shall be returned to Seller's plant or service center except in accordance with Seller's prior written instructions. Determination of any defect is made at Seller's sole discretion and Seller's decision is final. To remedy any defect, the Seller may at its option, repair, rebuild or replace the defective component or complete product, using new or re-manufactured components or complete product. In any case the repaired, rebuilt or replaced product shall be warranted hereunder for the then non-expired portion of the original warranty period. Seller's sole obligation to Buyer, and Buyer's sole remedy against Seller, for any breach of this warranty shall be Seller's obligation to repair or replace the product as provided herein or, at Seller's option, to repay, upon return of the defective product, the price paid for such product by Buyer.

Any tampering, misuse, mis-application, and/or improper installation of the product by Buyer or Buyer's representatives may void warranty. Additionally, any service/repair work performed by any personnel not pre-authorized by Seller to perform the service/repair work will void warranty. Products sold by Seller, but not manufactured by Seller, shall be warranted as to defects in material and workmanship consistent with the warranty policy of the original manufacturer of the products. In no event shall Seller have any liability for incidental or consequential damages of any kind resulting from a breach of this warranty. THIS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY FOR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

16. RETURNS

No products shall be returned to Seller, whether for inspection, repair, replacement or any other reason, without prior written consent from Seller's plant, sales office or representative

Revised April 12, 2018