

Ajusto-Spede® Controllers

MODEL 4000 CONTROLLERS



Description

The Model 4000 Dynamatic® Analog controller is a complete controller on one printed circuit board. Input is 115 VAC, CT., 1 phase, 50/60 Hz. Output is 4.3 Amp, 45 VDC. It is available for use with Dynamatic® Air-Cooled Drives, rated .25 through 20 horsepower. This controller has a power relay and several "on-board" modifications as standard. They are speed and torque control, fixed and spring set braking and linear acceleration. An on-board 4-element DIPswitch programs these modifications. Optional field

modifications are available (one per controller) either factory installed or to be added later in the field as required. They include brake circuits, cascade, follower circuits, jogging, threading, torque/speed control, current limit, dancer and Mutuatrol®. These additional boards are simply added by the use of standoffs and a ribbon connector with plug. The controller is available in a NEMA 13 oil-tight enclosure with operator's elements or as an open panel mounting without operator's elements.

Features	Customer Benefits
Linear acceleration circuit, adjustable from 3 to 90 seconds.	Provides soft starts.
Closed loop control keeps drive output speed within 0.5% for load changes from 0 to 100%.	Accurate speed control.
0.5% speed regulation is standard.	Ensures consistent operation.
On-board selectable programmable modifications.	Application versatility.
Small wall mount enclosure is complete with operator's elements or panel mount.	Easy controllers to understand, install, operate and maintain.
Loss of reference protection.	Prevents runaway speeds.
Short circuit and ground fault protection by fused input.	Isolates controller components from short circuits.
Transient suppression by input suppressor.	Prevents controller damage due to transient spikes.
Long Life.	Controllers are built to give long, reliable, low cost life in diverse applications.

Ajusto-Spede® Controllers

Model 4000 Controllers

Specifications

<p>4000 Controller</p>	<p>Units used with</p> <p>Horsepower range</p> <p>Input power, maximum</p> <p>Output power, maximum</p> <p>Speed regulation, no load to full load change</p> <p>Enclosures</p> <p>Built-in modifications</p> <p>Field modifications (1 per unit)</p> <p>Operator devices (on controller)</p> <p>Closed loop speed control</p> <p>Controller protective features</p> <p>Line regulation for +/-10% input line voltage change</p> <p>Thermal drift per degree C</p> <p>Minimum regulated speed range</p> <p>Maximum ambient</p> <p>Standards</p>	<p>Fractional HP Drives AS-14 - 25 Drives AT-140 -250</p> <p>.25 - 20 HP - Standard</p> <p>115 VAC -10%, +20%, Center Tapped (CT), 1 phase, 50/60 Hz, 460 VA</p> <p>45 VDC, 4.3 Amps, 194 watts</p> <p>0.5% Standard</p> <p>NEMA 13 - Standard, panel mount - Optional</p> <p>Linear Acceleration, Fixed Braking, Torque Control</p> <p>Brake Circuits, Cascade, Follower Circuits, Jogging, Threading, Torque/Speed Control, Current Limit, Dancer And Mutuatrol® - Optional</p> <p>Start and Stop pushbuttons and Run Speed Potentiometer - Standard</p> <p>Standard</p> <p>Input fuses, low line voltage, line transients, isolated signal circuits, output over-current</p> <p>+/-0.1%</p> <p>+/-0.05%</p> <p>50 RPM</p> <p>104° F (40° C) enclosed 149° F (65° C) panel mount</p> <p>CSA approved</p>
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Ajusto-Spede® Controllers

Product Information

Completely Assembled Controllers

The Model 4000 Controller is supplied as a panel-mounted controller or in a NEMA 13 enclosure. A power relay with a set of NO contacts, wired to a terminal strip for customer use, is a standard feature. The input power to the controller is provided either by a motor winding in the drive or a separate 115 VAC, CT input transformer. The Model 4000 controller has the operator controls mounted on the cover of the enclosure. Separate operator's stations are sold separately and can be found in the Product Catalog for panel mount controllers. The modified controllers below include the basic speed controller and mounting of the modification board. The controllers below are completely assembled. For applications where downtime is critical, spare modification board part numbers are also supplied on the next page.

A complete NEMA 13 enclosed controller consists of a NEMA 13 Enclosure with cover and, when applicable, a modification board. The base is an enclosure containing the basic printed circuit board. The cover includes oil-tight operator's elements when required. **NOTE: MODIFIED CONTROLLERS INCLUDE THE BASIC SPEED CONTROLLER**

4000 Controller Selection Table

Description	Complete Controllers & Modifications	
	Open Panel Mount	NEMA 13 Enclosure
	Part Number	Part Number
Basic Speed Controller	15-000533-1001	15-000551-1001
Main Control – PCB Only – Unassembled	Not Panel Mounted	15-000530-1005
Modified Controllers:		
Accel/Decel, Linear	15-000533-1025	15-000551-1025
Accel/Decel, Linear & Separately Adjustable Jog	15-000533-1025	15-000551-1026
Braking, Adjustable	15-000533-1002	15-000551-1002
Braking, Adjustable & Jog at Run Speed	15-000533-1004	15-000551-1004
Cascade, Man/Auto	15-000533-1008	15-000551-1008
Dancer Position (Potentiometer sold separately see Product Catalog)	15-000533-1016	15-000551-1016
Dancer Position & Mutuatrol	15-000537-1001	NA
Follower, Instrument Signal, Man/Auto		
a. Ratio Pot Internal	15-000533-1010	15-000551-1010
b. Ratio Pot External	15-000533-1011	15-000551-1011
Follower, Tachometer, Man/Auto	15-000533-1009	15-000551-1009
Jog at Run Speed	15-000533-1003	15-000551-1003
Jog, Separately Adjustable	15-000533-1005	15-000551-1005
Mutuatrol	15-000533-1017	15-000551-1017
Mutuatrol & Jog at Run Speed	15-000533-1018	15-000551-1018
Threading		
a. Thread Pot Internal	15-000533-1006	15-000551-1006
b. Thread Pot External	15-000533-1007	15-000551-1007
Torque Control	15-000533-1012	15-000551-1012
Torque/Speed Control	15-000533-1013	15-000551-1013
Torque Limit (includes 15-203-3 Current Transformer)	15-000533-1014	15-000551-1014
Torque Limit & Jog at Run Speed	15-000533-1015	15-000551-1015
Blank Cover Control	NA	15-000551-1030

Ajusto-Spede® Controllers

Product Information

Spare Modification Boards Selection Table

Description	Modification Board Part Number
Basic Speed Controller Accel/Decel, Linear Accel/Decel & Adjustable Jog Braking, Adjustable	-- 15-000446-1004 15-000446-1004 15-000444-1004
Braking, Adjustable & Jog at Run Speed Cascade, Man/Auto Dancer Position (order Dancer Pot, No.15-393-715)	15-000444-1004 15-000444-1003 15-000444-1007
Follower, Instrument Signal, Man/Auto a. Ratio Pot Internal b. Ratio Pot External	15-000446-1005 15-000446-1005
Follower, Tachometer, Man/Auto Jog at Run Speed Jog, Separately Adjustable Mutuatrol	15-000444-1001 NA 15-000444-1003 15-000446-1002
Mutuatrol & Jog at Run Speed Threading a. Thread Pot Internal b. Thread Pot External Torque Control	15-000446-1002 15-000444-1003 15-000444-1003 NA
Torque/Speed Control Torque Limit (includes a 15-203-3 Current Transformer) Torque Limit & Jog at Run Speed Blank Cover Controller	15-000444-1005 15-000445-1001 15-000445-1001 --

Ajusto-Spede® Controllers
MODEL 4050 CONTROLLERS



Description

The Model 4050 Dynamatic® Analog controller is a complete controller. Input is 115 VAC, CT., 1 phase, 50/60 Hz. Output is 8.0 Amp, 45 VDC. It is suitable for use with drives rated .25 through 200 HP. This controller has a power relay and several "on-board" modifications as standard. They are speed and torque control, fixed and spring set braking and linear acceleration. These modifications are programmed by an on-board, 4 element DIP switch. Optional field modifications are available (one per controller) either

factory installed or to be added later in the field as required. They include brake circuits, cascade, follower circuits, jogging, threading, torque/speed control, current limit and dancer. These additional boards are simply added by the use of standoffs and a ribbon connector with plug. The controller is supplied as a panel mounted controller. This controller requires a separately mounted operator's station with a Run Speed potentiometer and Start/Stop pushbutton.

Features	Customer Benefits
Linear acceleration circuit, adjustable from 3 to 90 seconds.	Provides soft starts.
Closed loop control keeps drive output speed within 0.5% for load changes from 0 to 100%.	Accurate speed control.
0.5% speed regulation is standard.	Ensures consistent operation.
On-board programmable modifications.	Application versatility.
Small panel mount that uses a remote operator's station.	Easy controllers to understand, install, operate and maintain.
Loss of reference protection.	Prevents runaway speeds.
Short circuit and ground fault protection by fused input.	Isolates controller components from short circuits.
Transient suppression by input suppressor.	Prevents controller damage due to transient spikes.
Long Life.	Controllers are built to give long, reliable, low cost life in diverse applications.

Ajusto-Spede® Controllers

Model 4050 Controllers

Specifications

<p>4050 Controller</p>	<p>Units used with</p> <p>Horsepower range</p> <p>Input power, maximum</p> <p>Output power, maximum</p> <p>Speed regulation no load to full load change</p> <p>Enclosures</p> <p>Built-in modifications</p> <p>Field modifications</p> <p>Operator devices (on a separate operator's station)</p> <p>Closed Loop speed control</p> <p>Controller protective features</p> <p>Line regulation for +/-10% input line voltage change</p> <p>Thermal drift per degree C</p> <p>Minimum regulated speed range</p> <p>Maximum ambient</p> <p>Standards</p>	<p>Fractional HP Drives AS-14 - 27 Drives AT-140 - 440 Drives AS-705 Brakes</p> <p>.25 - 200 HP – Standard</p> <p>115 VAC, -10%, +20%, Center Tapped (CT), 1 phase, 50/60 Hz, 800 VA</p> <p>45 VDC, 8.0 Amps, 360 watts</p> <p>0.5% - Standard</p> <p>NEMA 13 - Standard, panel mount - Optional</p> <p>Linear Acceleration, Fixed Braking, Torque Control</p> <p>Brake Circuits, Cascade, Follower Circuits, Jogging, Threading, Torque/Speed Control, Current Limit and Dancer – Optional</p> <p>Start and Stop Pushbutton and Run Speed Potentiometer – Standard</p> <p>Standard</p> <p>Input fuses, low line voltage, line transients, isolated signal circuits, output over-current.</p> <p>+/-0.1%</p> <p>+/-0.05%</p> <p>50 RPM</p> <p>104° F (40° C) enclosed 149° F (65° C) panel mount</p> <p>CSA approved</p>
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Ajusto-Spede® Controllers

Product Information

Completely Assembled Controllers

The Model 4050 Controller is supplied as a panel-mounted controller or in a NEMA 13 enclosure. A power relay with a set of NO contacts, wired to a terminal strip for customer use, is a standard feature. The input power to the controller is provided either by a motor winding in the drive or a separate 115 VAC, CT input transformer. The Model 4050 controller requires a separate operator's station that is sold separately and can be found in the Product Catalog. The modified controllers below include the basic speed controller and mounting of the modification board. The controllers below are completely assembled. For applications where downtime is critical, spare modification board part numbers are also supplied on the next page.

4050 Controller Selection Table

Description	Complete Controllers	
	Open Panel Mount	NEMA 13 Enclosure
	Part Number	Part Number
Basic Speed Controller	15-000539-0001	15-000553-0001
Modified Controllers:		
Accel/Decel, Linear	15-000539-0025	15-000553-0025
Accel/Decel, Linear & Separately Adjustable Jog	15-000539-0025	15-000553-0025
Braking, Adjustable	15-000539-0002	15-000553-0002
Braking, Adjustable & Jog at Run Speed	15-000539-0004	15-000553-0004
Cascade, Man/Auto	15-000539-0008	15-000553-0008
Dancer Position (order Dancer Position pot No.15-393-715)	15-000539-0016	15-000553-0016
Follower, Instrument Signal, Man/Auto		
a. Ratio Pot Internal	15-000539-0010	15-000553-0010
b. Ratio Pot External	15-000539-0011	15-000553-0011
Follower, Tachometer, Man/Auto	15-000539-0009	15-000553-0009
Jog at Run Speed	15-000539-0003	15-000553-0003
Jog, Separately Adjustable	15-000539-0005	15-000553-0005
Mutuatrol (4.3 ADC maximum output for Brake)	15-000539-0017	15-000553-0017
Threading		
a. Thread Pot Internal	15-000539-0006	15-000553-0006
b. Thread Pot External	15-000539-0007	15-000553-0007
Torque Control	15-000539-0012	15-000553-0012
Torque/Speed Control	15-000539-0013	15-000553-0013
Torque Limit (includes 15-203-3 Current Transformer)	15-000539-0014	15-000553-0014
Torque Limit (without Current Transformer)	--	--
Torque Limit & Jog at Run Speed	15-000539-0015	15-000553-0015

Ajusto-Spede® Controllers

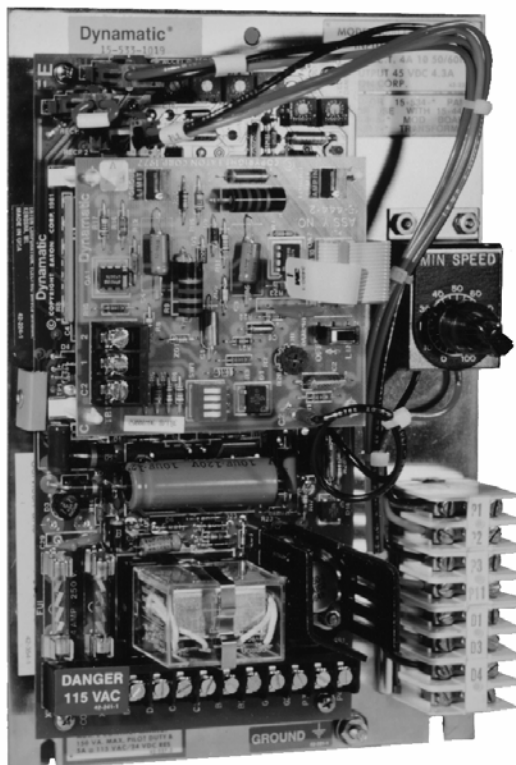
Product Information

Spare Modification Boards Selection Table

Description	Modification Board Part Number
Basic Speed Controller Accel/Decel, Linear Accel/Decel, Linear & Separately Adjustable Jog Braking, Adjustable	-- 15-000446-1004 15-000446-1004 15-000444-1004
Braking, Adjustable & Jog at Run Speed Cascade, Man/Auto Dancer Position (order Dancer Position Pot, No.15-393-715)	15-000444-1004 15-000444-1003 15-000444-1007
Follower, Instrument Signal, Man/Auto a. Ratio Pot Internal b. Ratio Pot External	15-000446-1005 15-000446-1005
Follower, Tachometer, Man/Auto Jog at Run Speed Jog, Separately Adjustable	15-000444-1001 NA 15-000444-1003
Mutuatrol (4.3 ADC maximum output for Brake) Threading a. Thread Pot Internal b. Thread Pot External	15-000446-1002 15-000444-1003 15-000444-1003
Torque Control Torque/Speed Control Torque Limit (includes 15-203-3 Current Transformer) Torque Limit (without Current Transformer) Torque Limit & Jog at Run Speed	NA 15-000444-1005 15-000445-1001 15-000444-1002 15-000445-1001

Ajusto-Spede® Controllers

**MODEL 4000 PRESS DRIVE CONTROLLER
Product Information**



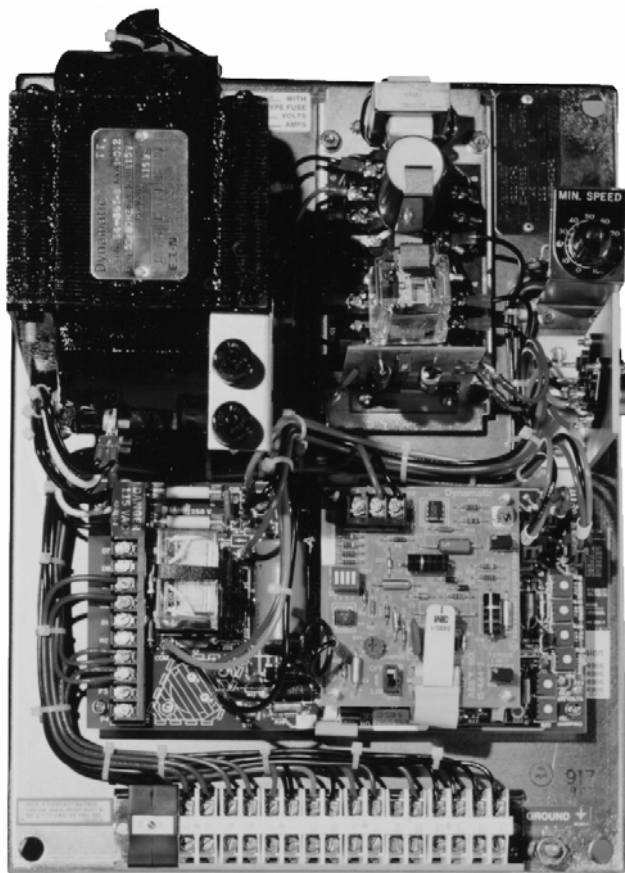
The 4000 Press Drive Controllers are panel mounted and shock resistant. A loose input power transformer is included for customer mounting, along with the following modifications: torque limit, minimum speed potentiometer and an 'E' relay. Select model required for available input voltage from table below.. Torque limit requires a loose current transformer (part number 15-000203-00xx; be wired to the ac motor power leads. Most commonly used model is 015-000203-0003. Specify single line voltage and motor HP when ordering or quoting this controller. The Model 4000 controller and its modifications can be supplied on an open shock resistant sub-panel. See the Auxiliary Devices Section in the Product Catalog for shock mounting kit, and the description of separate Run Speed potentiometer and Stroke Per Minute (SPM) meter.

4000 Press Drive Controller Selection Table

Part Number	Description	Modifications
15-000533-4000	115 V CT, 1 phase, 60 Hz. input 45 VDC, 4.3 Amps	Torque limit, Minimum speed pot and "E" relay
15-000533-2019	230/460 V, 1 phase, 60 Hz. input 45 VDC, 4.3 Amps	Torque limit, Minimum speed pot and "E" relay

Ajusto-Spede® Controllers

MODEL 4050 PRESS DRIVE CONTROLLER
Product Information



The 4050 Press Drive Controller is panel mounted and shock resistant. A factory mounted input power transformer is included along with the following modifications: torque limit input power transformer is included for customer mounting, along with the following modifications: torque limit, minimum speed potentiometer and an 'E' relay. Select model required for available input voltage from table below.. Torque limit requires a loose current transformer (part number 15-000203-00xx; be wired to the ac motor power leads. Most commonly used model is 015-000203-0003. Specify single line voltage and motor HP when ordering or quoting this controller. The Model 4050 controller and its modifications can be supplied on an open shock resistant sub-panel. See the Auxiliary Devices Section in the Product Catalog for shock mounting kit, and the description of separate Run Speed potentiometer and Stroke Per Minute (SPM) meter.

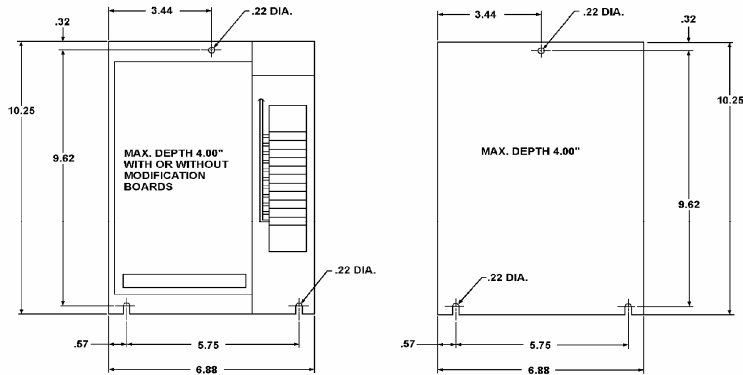
4050 Press Drive Controller Selection Table

Part Number	Description	Modifications
15-000539-0019	115 V, 1 phase, 60 Hz. Input 45 VDC, 8.0 Amps	Torque limit and minimum speed pot
15-000541-0001	115 V, 1 phase, 60 Hz. input 45 VDC, 8.0 Amps	Torque limit, low speed trip, minimum speed pot and "E" relay
15-000541-0004	230/460 V, 1 phase, 60 Hz. input 45 VDC, 8.0 Amps	Torque limit, low speed trip, minimum speed pot and "E" relay

❶ Not included on the 15-000539-0019.

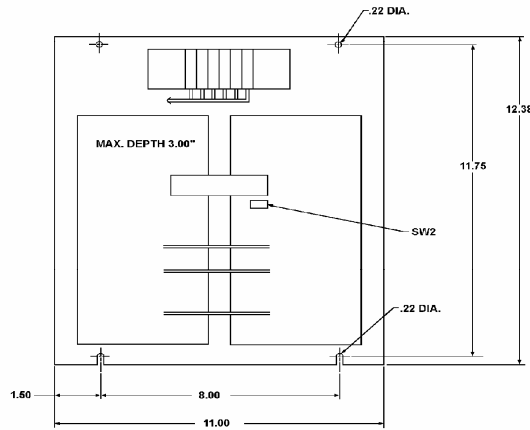
Ajusto-Spede® Controllers

Models 4000 and 4050 Panel Mount Outline Drawings



MODEL 4000

MODEL 4050



MODEL 4000
WITH DANCER POSITION & MUTUATROL

DIMENSIONS ARE IN INCHES