

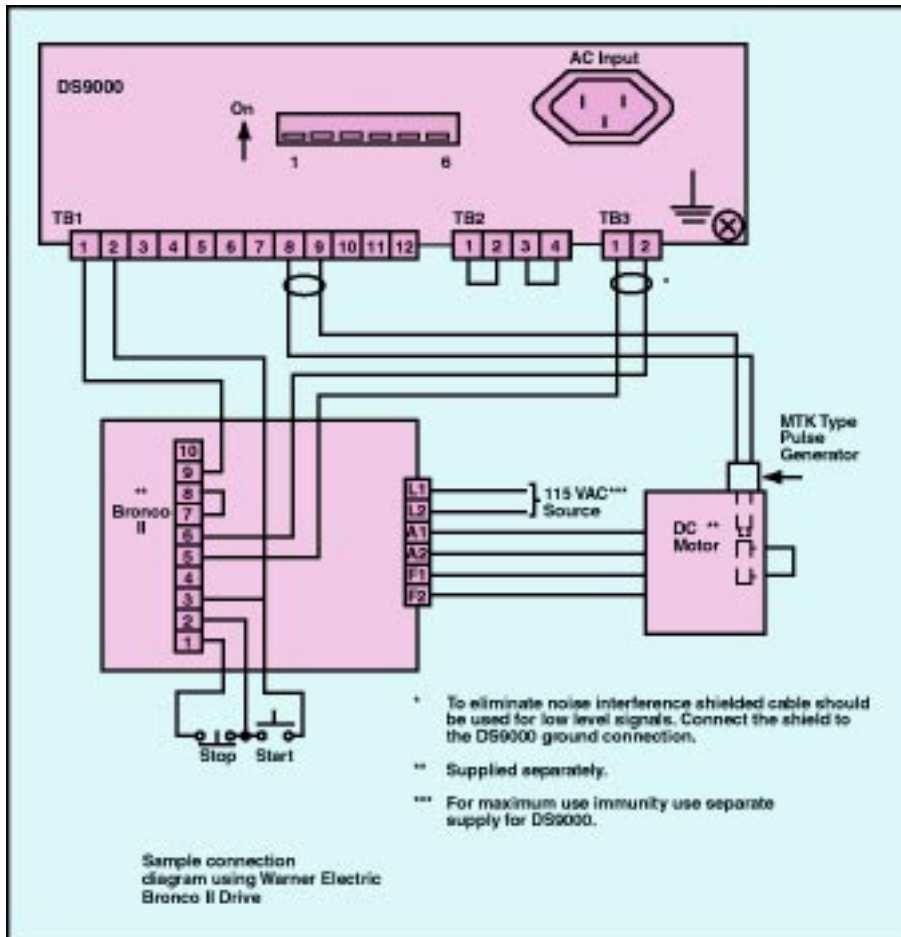
DS9000 Digital Drive Speed Controller

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The Superior Electric DS9000 Digital Speed Controller is a closed loop digital speed regulator which operates as a Speed Set Point Controller or as a precision follower when used with an AC or DC drive. The controller will maintain a long

term speed accuracy of $\pm .01\%$ of top speed. The 16-bit microprocessor provides a 10 msec control loop update time providing tight control and excellent stability. The DS9000 now has improved resistance to electrical noise.



Features:

- ◆ Closed Loop Set Point Controller — long term accuracy $\pm .01\%$ of top speed
- ◆ Feedback Rate Programmable, 60 to 600 pulses per revolution
- ◆ Feedback Signal Selectable —
 - Magnetic pick-up
 - Encoder
 - Open collector Hall
 - Effect Type
- ◆ Speed Control or Follower Mode
- ◆ Isolated output signal to AC or DC motor control 0-10VDC, 5mA
- ◆ Speed setting resolution of 1 RPM
- ◆ Two selectable sets of programmable parameters
- ◆ Four Preset Speeds within each set of parameters
- ◆ Speed or ratio may be changed when operating
- ◆ DS9000A Model provides digital accuracy with analog input, or allows analog trim capability
- ◆ Meets IEC 1000-4-4 (2KV Fast Transients on Power Lines)



The DS9000 Front Panel has a 4-digit LED readout, 6 keypad controls, and 4 LED status indicators. The keypad controls are:

Prog

Selects Program Mode, allows adjustment of:

Tach/Ref

Selects display of either tach signal or Reference Set-Point.

Up

Scrolls up the Program parameters or data values.

Down

Scrolls down the Program parameters or values

Value/Code

Changes display to either actual value of a parameter or parameter name (used in Program Mode only)

HI/LO

Allows displayed value to be changed either one count at a time (LO range) or 100 counts at a time (HI range) by the Up or Down Arrow Key

LED Displays:

HI Adj LED

Indicates that HI/LO key input is in High mode

LO Adj LED

Indicates that HI/LO key input is in Low mode

Tach Ref LED

Indicates that display is actual speed of controlled motor. Indicates Program mode when LED is blinking

Ref LED

Indicates that display is the speed set-point

Operator Adjustments

- 4 Preset Speeds/Ratios
- Minimum Speed
- Maximum Speed
- Acceleration Time
- Deceleration Time

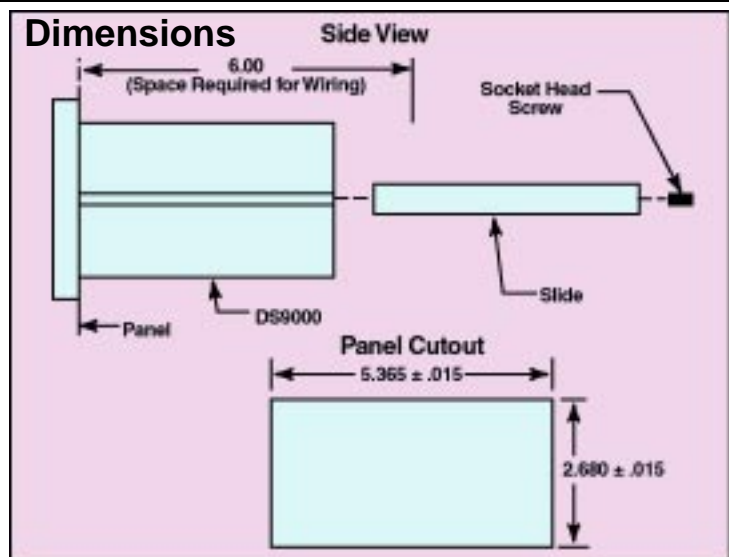
Set-up Adjustments

- Proportional Gain (Stability)
- Integral Gain (Stability)
- Position Error Gain (Follower Mode only)
- PPR of controlled motor tach
- PPR of motor being followed (Master reference for follower)
- Readout Scale Factor for Controlled Motor
- Readout Scale Factor for Reference Signal

Specifications:

AC Supply	115/230 VAC \pm 10%, 15 VA
Ambient	0-50°C
Altitude	0-1000 m or 3300 ft.
Accuracy	Speed Holding \pm 1 RPM Zero cumulative error in follower mode
Response	10 ms internal update time
Display	4 digit, 0.6", Red LED
Feedback Sensor	1. Magnetic pick-up (Superior Electric MTK type) 2. Encoder 3. Open collector proximity switch
Input Frequency Range	- Max. Frequency 25 KHz in Master Mode, 20 KHz in Follower Mode - Min. Frequency 30 Hz in Master Mode; 50 Hz in Follower Mode
Mode	Speed Set Point controller 0-1800 RPM Follower-ratio adjustable 0-999.9% or equivalent DS9000A-Analog Master Controller Analog Follower w/Digital trim Digital Follower w/Analog trim
Speed Range	35:1 with 60 PPR magnetic sensor on 1750 RPM motor 500:1 with 600 PPR Encoder on 1750 RPM motor
Inputs	- Reference pulse train - Feedback pulse train - Start/Stop, 6-30V Isolated Sink or source to Start - 115V/230V AC 50/60 Hz 15VA - Security (prevents accidental or unauthorized parameter changes) - Speed/Ratio (selects one of four possible preset speeds or ratios) - Parameter Data Table (selects one of two unique data tables; A or B) - DS9000A adds 0-10V DC/4-20mA reference or ratio input
Outputs	- Drive control signal 0-10V DC, 5mA Isolated from DS9000 common - +5 VDC power supply for Encoders (40 mA max.) - Excessive following error - Indication for follower mode - DS9000A-10V DC Power supply for speed pot ref.

Description	Model Number	Description	Model Number
Digital Closed Loop speed (set point) or Follower Controller	DS9000	Digital Closed loop with analog input	DS9000A



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