



DYNA 8000 GOVERNOR SYSTEM

GENERAL

The DYNA 8000 system will provide an engine governor for speed and power control of piston and gas turbine engines or steam and water turbines.

The actuator is basically a simple, proportional, electric solenoid having a sliding armature whose magnetic force is proportional to input coil current. Balanced between the force of its return spring and the magnetic force, the armature glides on anti-friction bearings, providing a hysteresis-free linear movement. Linear motion is converted to an output shaft rotation by a bell crank.

TYPICAL APPLICATIONS

- Speed governing
- Remote throttle control
- Test stand throttle control
- Generator sets
- Power carts
- Pump sets

STANDARD FEATURES

- All electric
- All engine compatibility
- Mounts in any position
- Engine mounted (actuator only)
- High reliability due to few moving parts
- Proportional actuator
- No hydraulic or oil line
- No special maintenance
- Spring returns output shaft to minimum position on removal of power or loss of magnetic pickup signal
- Precise repeatability



AVAILABLE MODELS

Actuators:

Part No.

DYNC-11020-000-0-12	Standard Clockwise
DYNC-11020-000-0-24	Output Shaft Rotation
DYNC-11024-000-0-12	Standard Counter Clockwise
DYNC-11024-000-0-24	Output Shaft Rotation

Controllers: Speed Controllers

Part No.

Input Signal Frequency

DYN1 -10652-000-0-12/24	250-1200 Hz
DYN1 -10653-000-0-12/24	1200-2500 Hz
DYN1 -10654-000-0-12/24	2500-5000 Hz
DYN1 -10656-000-0-12/24	5000-9500 Hz
DYN1 -10682-000-0-12/24	250-1200 Hz
DYN1 -10683-000-0-12/24	1200-2500 Hz
DYN1 -10684-000-0-12/24	2500-5000 Hz
DYN1 -10686-000-0-12/24	5000-9500 Hz

Controllers: Conforming to CE Specifications

Part No.

Input Signal Frequency

DYN1 -10652-001-0-12/24	250-1200 Hz
DYN1 -10653-001-0-12/24	1200-2500 Hz
DYN1 -10654-001-0-12/24	2500-5000 Hz
DYN1 -10656-001-0-12/24	5000-9500 Hz
DYN1 -10682-001-0-12/24	250-1200 Hz
DYN1 -10683-001-0-12/24	1200-2500 Hz
DYN1 -10684-001-0-12/24	2500-5000 Hz
DYN1 -10686-001-0-12/24	5000-9500 Hz



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SPECIFICATIONS (ACTUATOR)

Operating Voltage:

12 VDC or 24 VDC, $\pm 20\%$

Sealed Unit:

Oil, water and dust tight

Connection:

Terminal strip

Actuator Ambient Operating Temperature:

-65°F (-55°C) to +255°F (+125°C)

Mechanical Vibration:

5 to 500 Hz, Curve F, per Mil-Std. 810C, Method 514-2.

SPECIFICATIONS (CONTROLLER)

Operating Voltages:

12 VDC or 24 VDC, $\pm 20\%$

Circuit Boards:

Are covered with a heavy conformal coating for moisture and vibration protection.

Connection:

Terminal Strip

Controller Ambient Operating Temperature:

-40°F (-40°C) to +180°F (+85°C).

Temperature Stability:

Better than ± 0.5 percent over a temperature range of

-40°F (-40°C) to 167°F (+75°C)

Steady State Speed Band:

$\pm 0.25\%$

Adjustments:

Speed, Gain, Integral and Droop.

Mechanical Vibration:

Withstands the following vibration without failure or degraded performance: 0.06 inch double amplitude at 5 to 18 Hz; 1 G at 18 to 30 Hz; 0.02 inch double amplitude at 30 to 48 Hz; 2.5 G's at 48 to 70 Hz.

INPUT SIGNAL FREQUENCY

$$\text{Input Signal Frequency in Hertz} = \frac{\text{Engine RPM} \times \text{Number of Gear Teeth on Flywheel}}{60 \text{ Seconds}}$$

Select your controller for the correct input signal frequency range generated by the magnetic pickup at the maximum engine operated (RPM) speed.

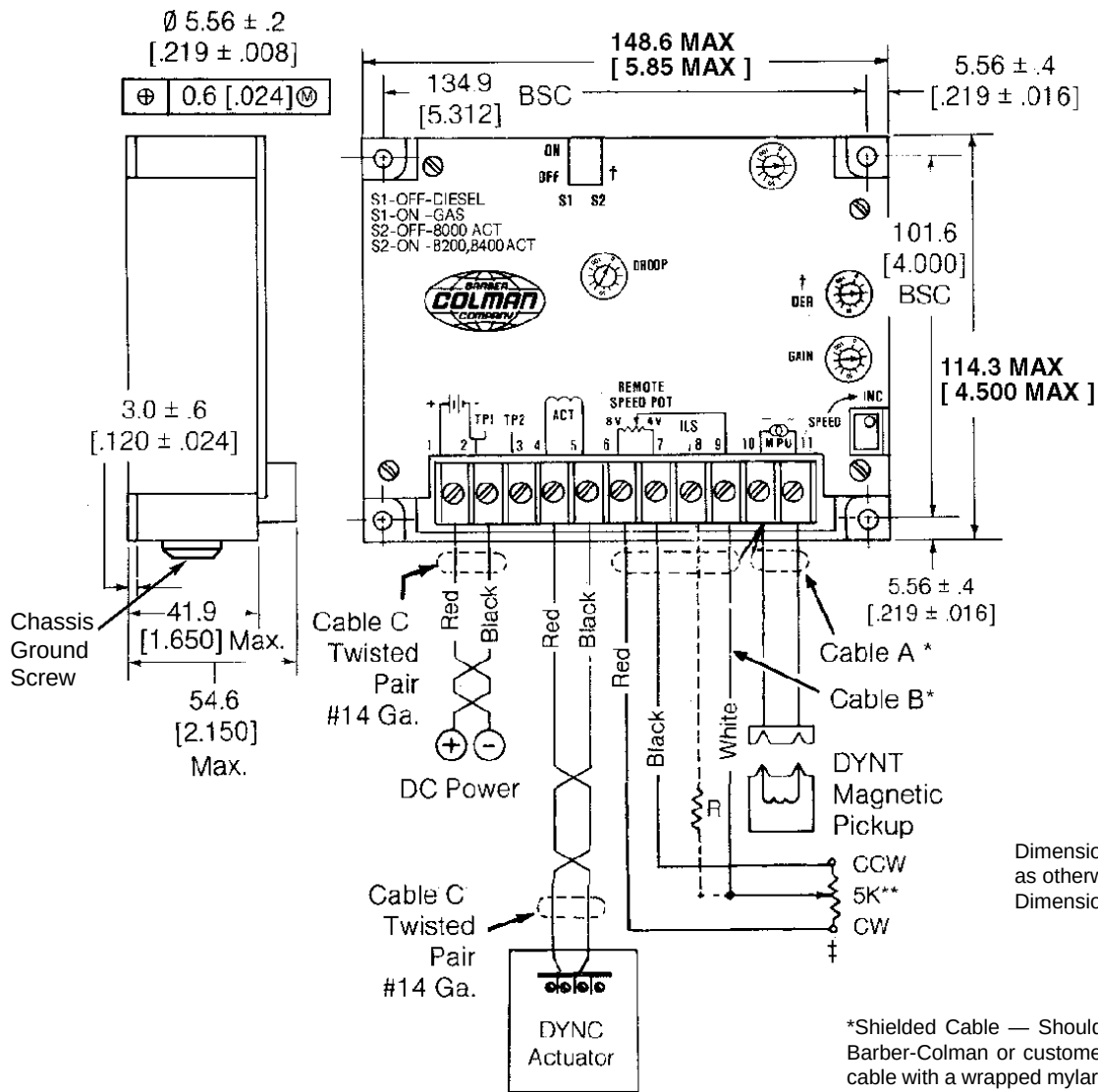
DYNA 8000 Actuators

Work	Joules	1.2
	Foot-Pounds	1.0
Torque	Newton-Meters	1.4
	Pound-Foot	1.0
Output	Rotary	35°
Weight	Kilograms	5
	Pounds	11.0
Current @ 12 VDC	Maximum Amperes @ Stall	12.5
	Nominal Steady State Amperes	3.5
Current @ 24 VDC	Maximum Amperes @ Stall	9.5
	Nominal Steady State Amperes	2.5
Nominal Response Time for 63% of Stroke (Seconds)		0.030

DYNA 8000 Controllers

Output Current@ 12 VDC	Nominal Quiescent Current	80 ma
	Maximum Amperes @ Stall	13 amps
Output Current@ 24 VDC	Nominal Quiescent Current	80 ma
	Maximum Amperes @ Stall	13 amps
Weight	Kilograms	0.863
	Pounds	1.9

DIMENSIONS — DYNA 8000 CONTROLLER

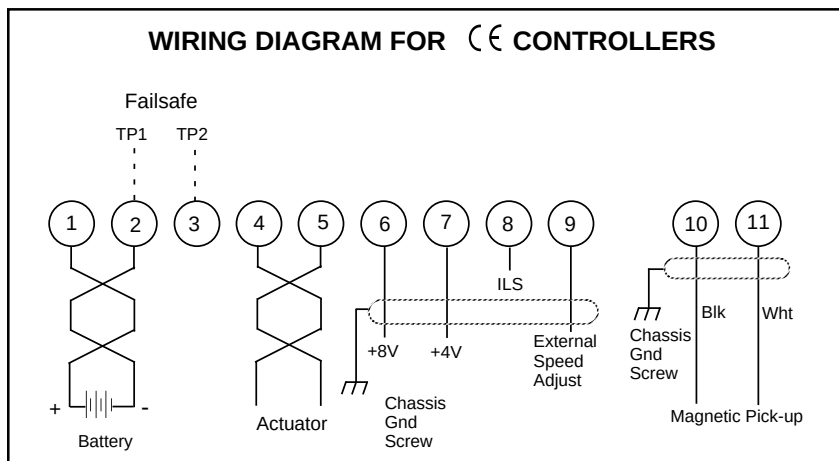


*Shielded Cable — Should be purchased from Barber-Colman or customer should purchase a cable with a wrapped mylar supported aluminum foil shield with a drain wire.

**Remote Speed Potentiometer and 499K OHM Resistor — DYNS 10000

†The 5K Remote Speed Potentiometer can be wired two different ways.

1. As shown by the solid line from the wiper of the 5K Potentiometer and then connected to Terminal #9. (No resistor required.) Adjustable range is approximately $\pm 5\%$ at 1800 RPM.
2. As shown by the dashed line from the wiper of the 5K Potentiometer through Resistor R and then connected to Terminal #8. Reducing the value of R increases the remote adjustable speed range.

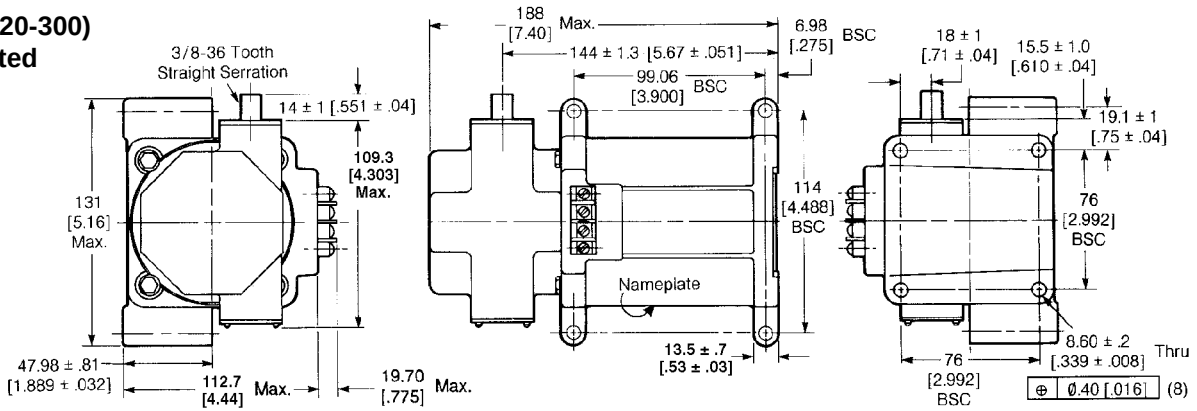


INSTALLATION DRAWINGS

(DYNC 11020-300)

Side Mounted Actuator

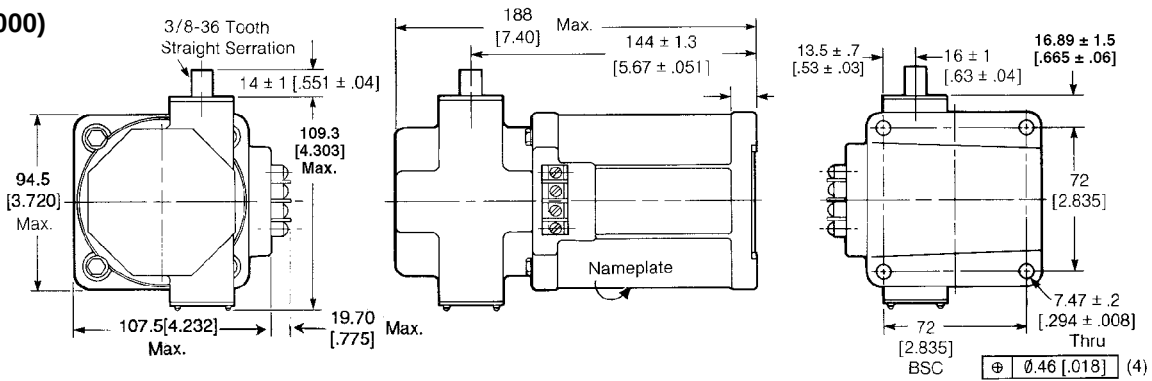
Clockwise Rotation



(DYNC 11020-000)

Base Mounted Actuator

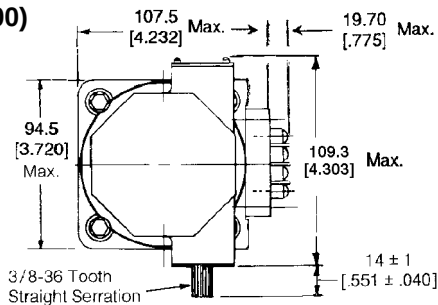
Clockwise Rotation



(DYNC 11024-000)

Base Mounted Actuator

Counter- clockwise Rotation



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CAUTION

As a safety measure, the engine should be equipped with an independent overspeed shutdown device in the event of failure which may render the governor inoperative.

NOTE

Barber-Colman believes that all information provided herein is correct and reliable and reserves the right to update at any time. Barber-Colman does not assume any responsibility for its use unless otherwise expressly undertaken.