

## 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.

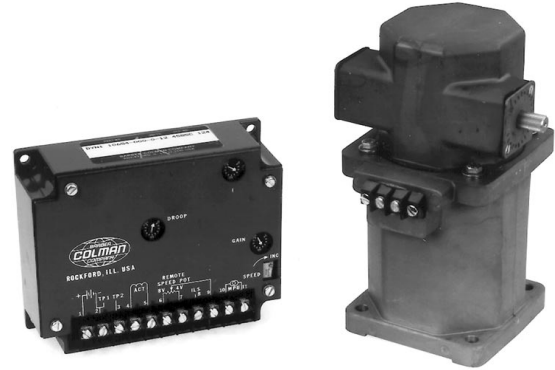
The actuator is basically a simple, proportional, electric solenoid having a sliding armature whose magnetic force is proportional to input coil current. Balanced between the force of its return spring and the magnetic force, the armature glides on anti-friction bearings, providing a hysteresis-free 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.	Output Shaft Rotation
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

## SPECIFICATIONS (ACTUATOR)

### Operating Voltage:

12 VDC or 24 VDC, ± 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, ± 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:

± 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.

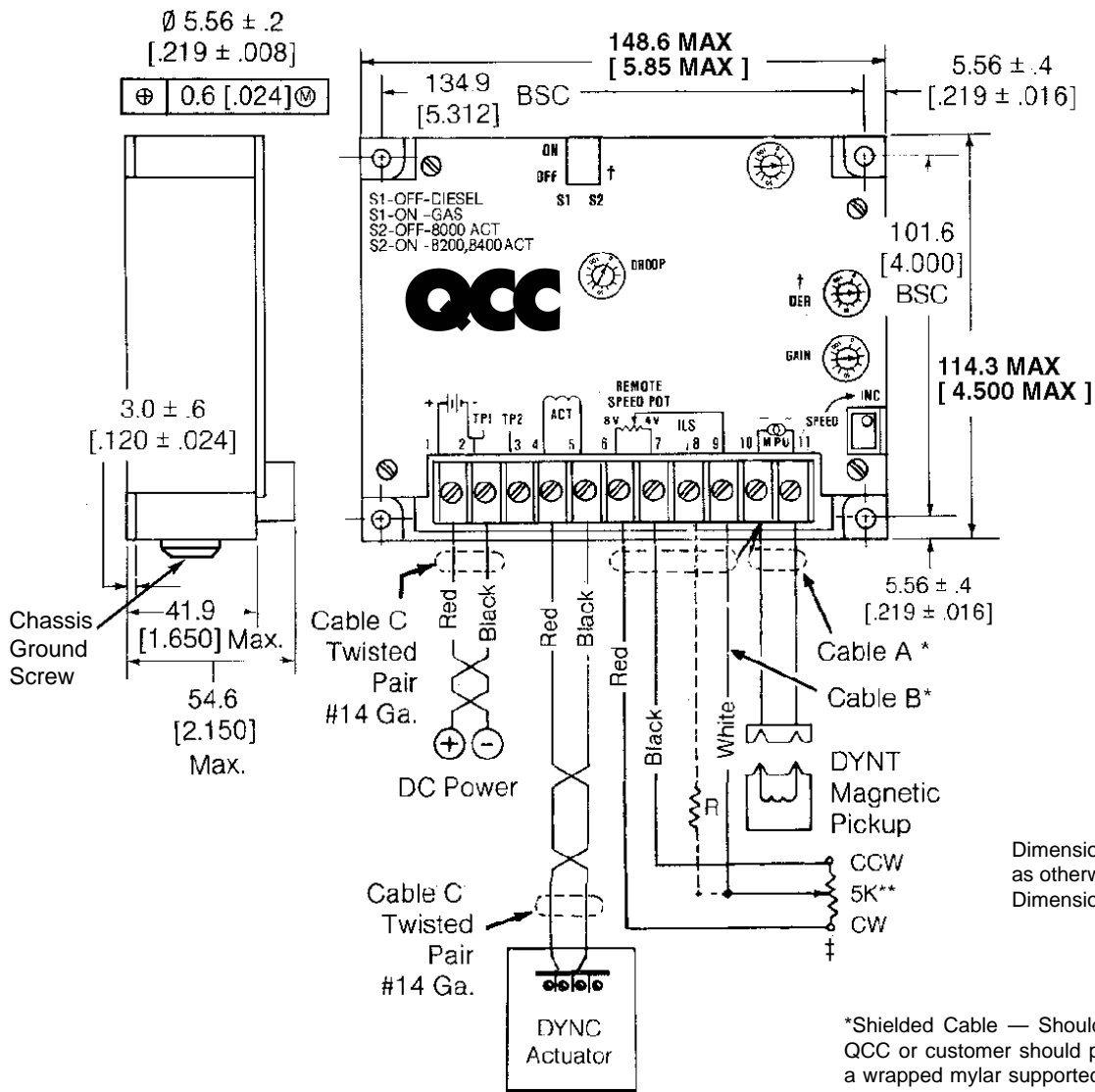
### DYNA 8000 Actuators

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

### DYNA 8000 Controllers

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

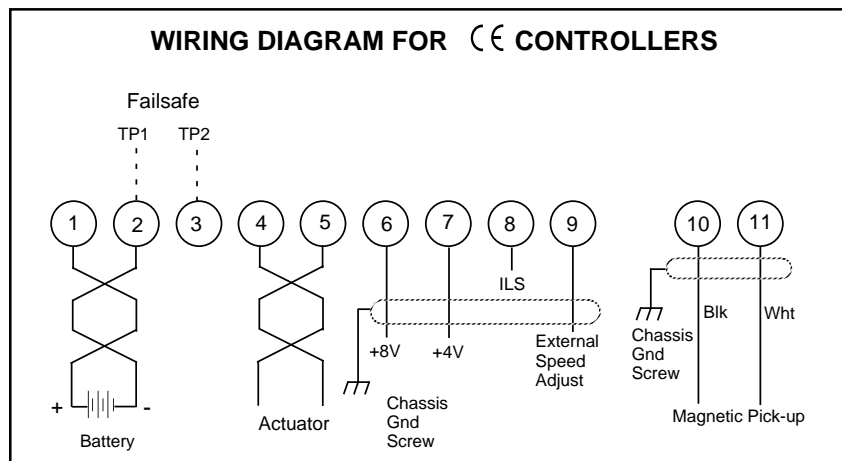
# DIMENSIONS — DYNA 8000 CONTROLLER



\*Shielded Cable — Should be purchased from QCC 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.



- 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.
- 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.

