GENERAL

The DYNA Plus 8 or Plus 16 Actuator can be operated with any of the DYNA controllers to provide an engine governor for speed and power control. The actuators can also be used in remote positioning and load control systems.

The Plus 8 and Plus 16 Actuators require an amplifier module for power amplification.

The governor 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.

A feedback transducer returns an actuator shaft position feedback signal to the power amplifier section of the control. The design of the armature and return springs, combined with the feedback transducer and control electronics, causes the armature to take a known, positive position for each value of position control voltage. Using this feedback loop, the actuator can deliver full input power and, therefore, high output torque at any off-speed condition.

SPECIFICATIONS

- Operating voltage: 24 or 125 VDC ± 20%.
- Ambient operating temperature: –65°F (–55°C) to +255°F (+125°C).
- Mechanical vibration: Tested 5 to 500 Hz at 25 G’s.
- Sealing: Unit is oil, water and dust tight.

<table>
<thead>
<tr>
<th>ACTUATOR</th>
<th>Plus 8</th>
<th>Plus 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td>Joules</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Foot-pounds</td>
<td>8.1</td>
</tr>
<tr>
<td>Torque</td>
<td>Newton-Meters</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Pound-feet</td>
<td>8.3</td>
</tr>
<tr>
<td>Output</td>
<td>Rotary</td>
<td>45°</td>
</tr>
<tr>
<td>Weight</td>
<td>Kilograms</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>Pounds</td>
<td>52</td>
</tr>
<tr>
<td>Current @24 VDC</td>
<td>Maximum Amperes @ Stall</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Nominal Steady State Amperes</td>
<td>5</td>
</tr>
<tr>
<td>Current @125 VDC</td>
<td>Maximum Amperes @ Stall</td>
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<tr>
<td></td>
<td>Nominal Steady State Amperes</td>
<td>1.0</td>
</tr>
<tr>
<td>Nominal Response Time for 63% of Stroke (Seconds)</td>
<td>0.102</td>
<td>0.108</td>
</tr>
</tbody>
</table>

TYPICAL APPLICATION

- Speed governing
- Tandem engine governing
- No-break engine governing
- Fuel, smoke, torque limiting
- Tailshaft governing
- Remote throttle control
- Test stand throttle control
- Remote valve control
- Remote damper control
- Remote propeller pitch control

STANDARD ACTUATOR FEATURES

- All-electric
- All engine compatibility
- Mounts in any position
- Engine mounted
- 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
- Through output shaft

AVAILABLE ACTUATOR MODELS

- DYN-18000 Plus 8
- DYN-25000 Plus 16
**Typical Wiring for 8 or 16 DYNA Governor System Using 24 VDC**

- **Dyna Governor:**
  - Actuator: DYNZ 10000-0-0-24
  - Amplifier Module: DYNZ 91000-0-0-24
  - Controller: DYN1 10000-X-0-24

- **Plus 8 Governor for 24 VDC**
  - Actuator: DYNZ 10000-0-0-24
  - Amplifier Module: DYNZ 91000-0-0-24
  - Controller: DYN1 10000-X-0-24
  - Cable "A": DYNZ 254-X
  - Cable "B": DYNZ 254-X
  - Cable "C": Not Required
  - Cable "D": DYNZ 256-X
  - Installation Wiring Drawing: YN-54

- **Plus 16 Governor for 24 VDC**
  - Actuator: DYNZ 25000-0-0-24
  - Amplifier Module: DYNZ 91001-0-0-24
  - Controller: DYN1 10000-X-0-24
  - Cable "A": DYNZ 254-X
  - Cable "B": DYNZ 256-X
  - Cable "C": DYNZ 256-X
  - Cable "D": DYNZ 101-X
  - Installation Wiring Drawing: YN-54

*The white wire from Pin C must not be connected to the same terminal as the black wire from Pin C.*

†Power switch wiring is shown for a negative ground system. When a positive ground system is being wired, the installer should switch (break) both the positive and negative leads.

**Wiring procedure when a remote speed setting potentiometer is not used:**
2. If the terminal block does not exist, isolate and tape the D lead. Solder the ends of F and H together, tape and isolate both the connection and the drain shield from ground.

![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.](image)

![Typical Wiring for 8 or 16 DYNA Governor System Using 24 VDC](image)
WARNING! Do Not Connect Pin A or Pin C of 10 Pin Connector on Control Box to Power
Optional Remote Speed Control Pot
DYN 10000

*Magnetic Pickup (DYN Y*)

Shielded* #22 AWG Triads

*Pin E used on Remote Droop Application

Typical Wiring for +8 or +16 DYN Governor System Using 125 VDC

Power switch wiring is shown for a negative ground system. When a positive ground system is being wired, the installer should switch/break both the positive and negative leads.

Wiring procedure when a remote speed setting potentiometer is not used:
1) Jumper H and F on the terminal strip.
2) If the terminal block does not exist, isolate and tape the D lead. Solder the ends of F and H together; tape and isolate both the connection and the drain shield from ground.

*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.
Dimensions in Millimeters
(Inches in Parenthesis)

AMPLIFIER MODULE — WEIGHT APPROX. 12 lbs.
DYN2 91000, DYN2 91001, DYN2 91002, DYN2 91003

CAUTION
As a safety measure, Barber-Colman Company recommends that all engines and turbines be equipped with an independent overspeed shutdown device.

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.