



DYNA II *Digital* Isochronous Load Sharing Module with *Reverse* Power and *Forward* Power Relay Outputs and an Analog *Forward* Power Monitoring Output

GENERAL

The Barber-Colman DYNA II *Digital* Isochronous Load Sharing Module is compatible with the standard DYN1 controller. The unit provides proportional division of a common load between multiple engine generator sets while maintaining a fixed frequency on an isolated bus. The unit also has the capability of providing electrical load droop and the load pulse features if required on an application.

FEATURES

- Isochronous Load Sharing
- Reverse Power Relay Output
- Forward Power Relay Output
- Forward Power Monitoring Analog Signal
- Internal Paralleling Line Relay
- Load Pulse
- Droop Operation Capability

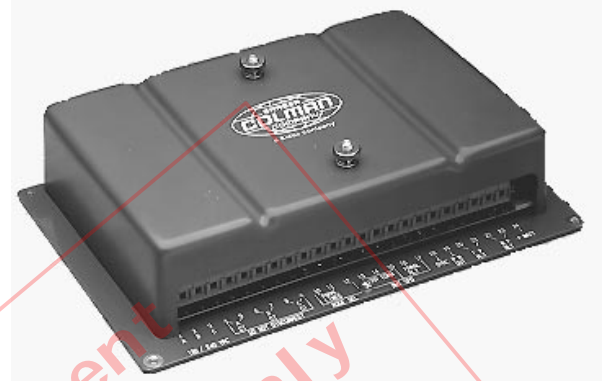
TYPICAL APPLICATIONS

which require any of the following:

- Isochronous load sharing between two or more generator sets.
- Single or multiple unit peak shaving applications.
- Droop load sharing when paralleling with an infinite bus.
- Reverse or Forward power output contact signals.
- Analog signal for forward power monitoring of a system.
- Improvement of off-speed transient response by using the load pulse feature.

MULTI-GEN SET CAPABILITY

The ILS Control will enable a common load to be proportionately shared among any number of engine generators in a system. The generators need not have the same kilowatt ratings. All generators in the system will assume equal percentages of their full load capacity.



AVAILABLE MODELS



DYN2-80108	115 to 230 Vac \pm 20% 50 to 60 Hz \pm 5%
DYN2-80109	240 to 480 Vac \pm 20% 50 to 60 Hz \pm 5%
DYN2-80110	240 to 480 Vac \pm 20% 400 Hz \pm 5%

SPECIFICATIONS

- **AC Voltage Input:** 3 Phase, 115 to 230 Vac or 240 to 480 Vac \pm 20% line-to-line. 50 to 60 Hz or 400 Hz \pm 5%. (See available models.)
- **DC Voltage Input:** 9-30 Vdc
- **Current Input:** 3 Phase
2.5 to 5.0 Amperes per phase at maximum generator load.
0.32 Va burden per phase on each current transformer at 2.5 Amperes.
1.25 Va burden per phase on each current transformer at 5.0 Amperes.
- **Load Sharing Setability (Accuracy)**
Adjustable to \pm 0.5% between sets of equal size at full load.
- **Outputs (Dependent on Load Gain Adjustment)**
 1. **Test Jacks:** 6.0 Vdc typical at full load.
 2. **Paralleling Line:** 3.0 Vdc typical at full load.
 3. **Speed Correcting Signal:** Compatible with standard DYN1 controllers.
 4. **Reverse Power Relay Contacts** — Normally Closed
10 Amperes Resistive @ 115 Vac (U.L. Approved)
5 Amperes Resistive @ 230 Vac (U.L. Approved)
 5. **Forward Power Relay Contacts** — Normally Open
10 Amperes Resistive @ 115 Vac (U.L. Approved)
5 Amperes Resistive @ 230 Vac (U.L. Approved)
 6. **Forward Power Monitor:** 0-5 Vdc or 0-5 ma dc analog signal with full scale accuracy of 1%. Minimum meter movement of 10,000 ohms.



OPERATION

The ILS Control compares the load on its generator to that on other generators in the same system and signals the governor to increase or decrease engine fuel to maintain its proportional share of the total system load. Current input signals from each of the three generator phases are summed to determine the actual kilowatt load for each generator. Each generator set's load is compared to all other loads and any difference from desired load sharing commands the DYNA governor to change fuel so that load is proportionately shared.

ADJUSTMENTS

1. **Current Transformer Calibration:** Calibration to correct for variation in current obtained from the current transformers. Clockwise increases the output signal obtained at the test points.
2. **Load Sharing Gain:** Test Point Signal — clockwise increases signal voltage at test points. Clockwise will decrease percentage of load carried by the generator.
3. **Droop:** 0 to 10% — clockwise increases droop setting.
4. **Load Pulse:** Clockwise increases load pulse output.
5. **Reverse Power Relay Trip Point:** Clockwise increases trip point. Trip Point is adjustable with a range of 0 to 40% of full load. The Trip Point has an inverse time constant which decreases relay trip time on larger reverse power levels.

Examples:

- Trip time with a reverse power of 5% over setpoint is approximately 20 seconds.
- Trip time with a reverse power of 40% over setpoint, is approximately 5 seconds.

6. Forward Power Relay Trip Points:

On Point, Clockwise to increase, independent of "Off" point, adjustable with a range of 20 to 120% of full load.

Off Point, Clockwise to increase, independent of "On" point, adjustable with a range of 10 to 100% of full load.

7. **Forward Power Monitor Gain:** Clockwise to increase analog output signal, adjustable range of 5.0 Vdc or 0-5 ma dc minimum at full load.

ENVIRONMENTAL

Ambient Operating Temperature: -40°C (-40°F) to 85°C (185° F)

Enclosure: The ILS Module is one compact assembly. The module cover is a sturdy non-conductive plastic that is secured to the module by two knurled nuts. The module is designed for behind-the-panel mounting.

Mounting: Attitude at any position.

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 38 Hz; 2.5 G's at 48 to 70 Hz.

Shock: Withstands 15 G's in each of three mutually perpendicular axes.

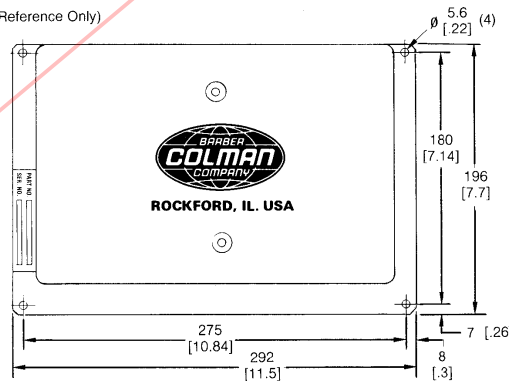
Humidity: Will operate properly through condensing conditions.

Manual: F-22396

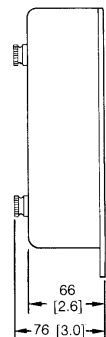
Typical Wiring Diagram: Bulletin 16H,16J,16K and 16L.

Weight: 1.25 Kg (2.75 lbs.)

Dimensions (For Reference Only)



Dimensions in Millimeters
Inches in Brackets []



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— 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.

— 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.