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Application Note 50524
(Revision A, 5/2003)

Original Instructions

Use of Current Transformers to Measure Unbalanced Single-Phase Low-Voltage Loads

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Use of Current Transformers to Measure Unbalanced Single-Phase Low-Voltage Loads

This method of sensing generator loads is intended to overcome incorrect load measurement of small dual-voltage single-phase generators when encountering unbalanced low-voltage loads.

In order to overcome the load-measurement difficulties encountered when a two-voltage single-phased generator carries an unbalanced low-voltage load, current transformers (CTs) should be placed on both output lines.

Normally, when only one CT is used, the load on only one line of the output is monitored. If a load is placed on the unmonitored line, it may remain undetected. However, if a CT is placed on each line of the single-phase output and wired in parallel, the total load is detected through the measurement of the total output of the CTs. If one line receives an additional load, the output of the CT monitoring that line will increase. This action will cause the total output of the CTs to increase, and the resulting voltage increase will be detected by the load sensor. The load sensor will signal the governor of the increased load being placed on the system.

This method may be used either in isochronous or droop operations, and is generally used with—but not limited to—a Woodward 8290-048 Load Sensor.

⚠WARNING

If the combined current of the CTs exceeds 5 A at full generator load, two 0.25 Ω, 25 W resistors must be placed as shown in the wiring diagram (Figure 1). The resistors are required to ensure that the current output remains within the operational parameters of the load sensor.

DO NOT operate equipment without connecting CTs to load sensors or burden resistors.

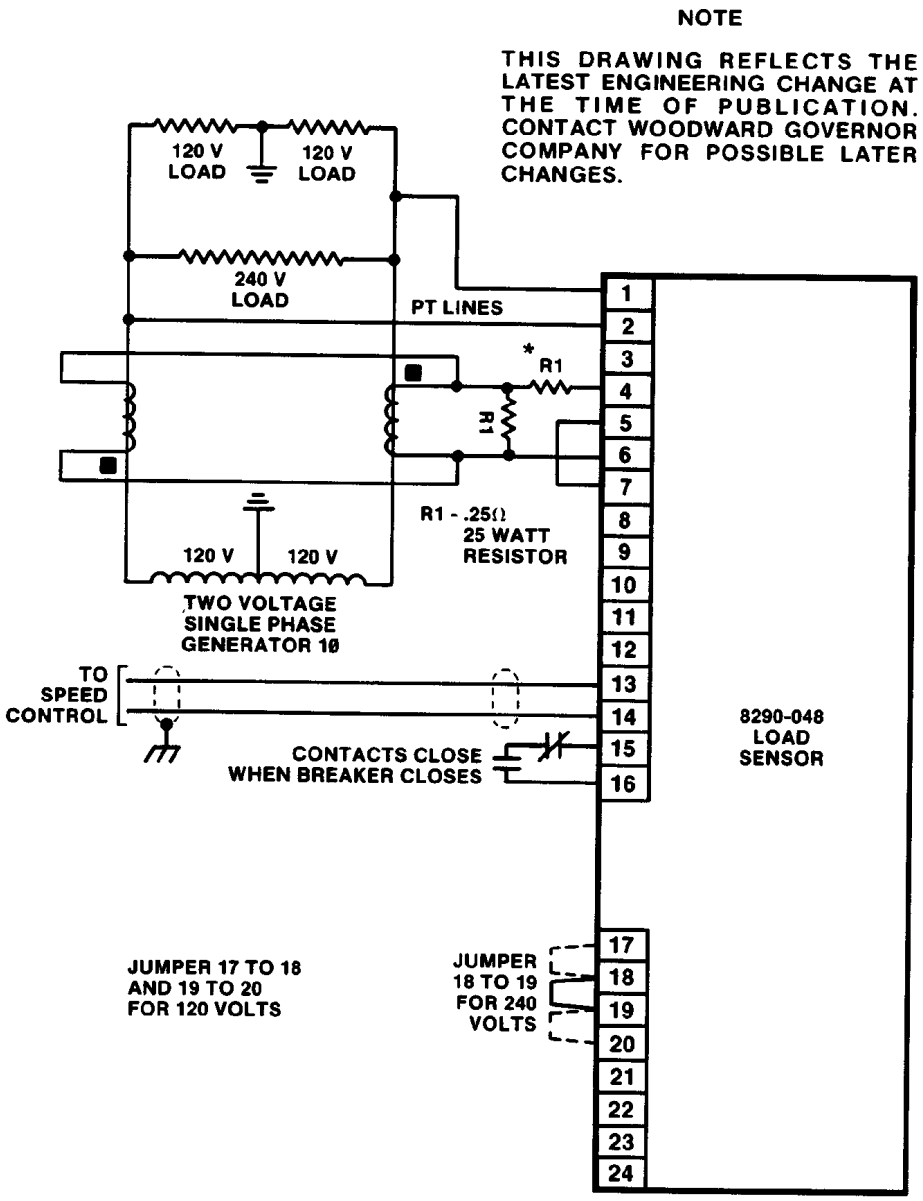

Figure 1. Wiring Diagram

IMPORTANT

- **Use resistors R1 if total CT output is more than 5 A.**
- **Resistors R1 are not required if total CT output is 5 A or less.**

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Please reference publication 50524A.

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