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WHITE PAPER

Sensor and Timing Relay Compatibility



ALLEN-BRADLEY • ROCKWELL SOFTWARE

**Rockwell
Automation**

Introduction

Timing relays and a variety of sensors are used together in many industrial applications. In many cases, they are compatible and can be directly connected together. In some other instances, there are technical reasons which prevent direct connections and compatibility. The most common reason is that some sensors with SCP (Short Circuit Protection) electronics have been shown to have difficulties with the inductive nature of electromechanical timing relays and the resulting current spikes.

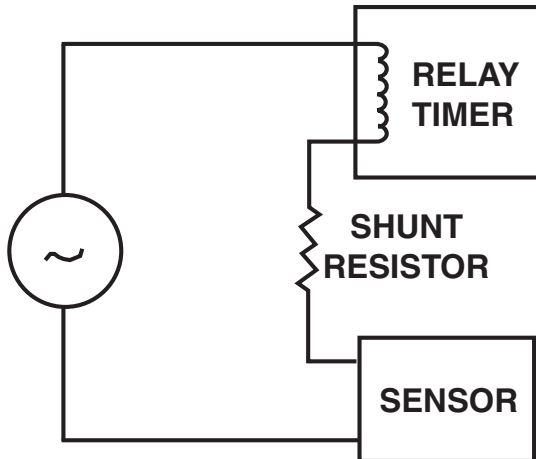
This document will demonstrate that many problems can be resolved if the characteristics of the timing relay and sensors are understood.

Compatibility

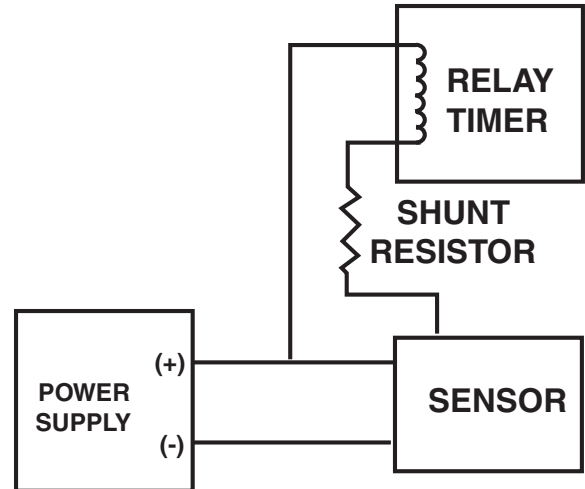
The following chart is intended to describe the various levels of compatibility between the Allen-Bradley timing relay products and various Allen-Bradley sensor products. The chart is structured such that a particular sensor can be selected and readily identified for level of compatibility to all Allen-Bradley timing relays. The vast majority of the sensor products are directly compatible and identified by a green box marked "YES". Those identified in red with "N/A" are not compatible. There is a third category of products that can be made compatible with the addition of an external shunt resistor. Those products are identified by a yellow box, with the value of the required resistor listed in the box. It is recommended that a 1/4 watt resistor be used. A schematic is provided for both the two and three wired sensor devices.

Sensor and Relay Wiring Schematic

TWO WIRE



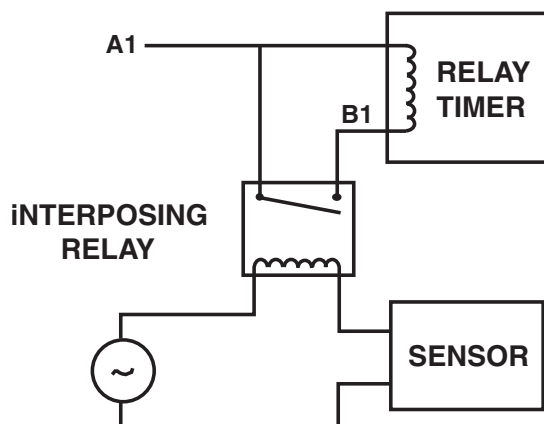
THREE WIRE



Note

Timing relays which have a B1 trigger contact and are specified as "dry contact" trigger only, can not be wired directly to the sensor. An interposing relay can be placed between the sensor and timing relay in order to provide this compatibility.

TWO WIRE



THREE WIRE

