

# Scanning Devices

## Scanning & Sensor Technology Solutions

### Spark Detector Systems - Design Alternatives

#### *How Fast or How Far*

Photo-darlington sensors incorporate a preamplifier stage at the sensor position to provide sufficient drive current to support long cable runs, 20 feet or more. The extra stage takes time, requiring up to .5 millisecond (500 microseconds) to respond to a light impulse. Photo-transistor sensors operate at higher speed, responding to light impulses an order of magnitude faster, on the order of .05 milliseconds (50 microseconds). But cable runs are limited to a few feet.

How far from the amplifier do you need to place the sensors? Is timing significant? For example, if the amplifier's output is a mechanical relay, response time will be 10-15 milliseconds, the time to move the relay's mechanical arm. The difference between the two sensor types will not be significant.

#### *Plastic or Glass*

Scanning Devices P-4-DARL photo-darlington sensor is hermetically sealed in a glass -lens package. It's operating temperature range is -65 degrees C to + 125 degrees C. Scanning Devices P-4-1 photo-darlington sensor is plastic enclosed with no glass components. It's operating temperature range is -20 degrees C to + 70 degrees C.

Glass may be a concern in food processing applications. Does your application require the wider temperature range? Is glass-free a concern?

#### *Fail Safe Operation*

Series 110 Photoelectric Amplifier can be wired to operate (energize its output) on light or dark at its photo sensors. You might think it's a coin toss to pick which one during normal operations, but think about the failure mode in your system. What does the amplifier report when a cable breaks or when the power is removed? Insure the light or dark choice does what is required when failure occurs or power is turned off.

#### *Viewing the Range*

Photo sensors are focused in a narrow viewing cone. To be detected a spark has to be in view. Typical ovens are reflective stainless steel, providing many surfaces diffuse light throughout the region. Consider positioning two sensors viewing at right angles to detected a wide area.

#### *AC or DC*

Amplifiers are available with 110 VAC input power or 24 VDC input power. Use the system power of your choice.



Scanning Devices P-4-1 Photodarlington Sensor with integrated amplifier in 3/8" diameter threaded barrel.



Scanning Devices Series 110B-A Plug-in Amplifier features Light or Dark Operation

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