

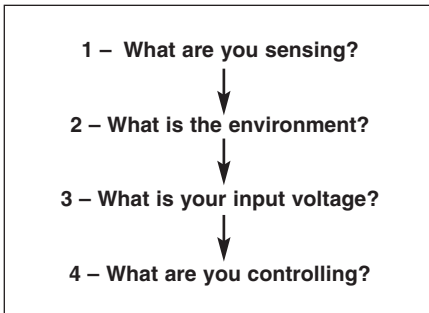
Choosing the correct sensor for your application

Many situations have developed that have resulted in the loss of valuable production hours, due to not enough time being taken to choose the correct sensor for the application.

These situations can be avoided if each application is systematically approached in the following manner.

Which sensor?

Four basic questions should be asked:



1 – What are you sensing?

It is extremely important to know what the material is you are sensing as the material relates directly to the type of sensor chosen.

At this stage, it is also relevant to consider what distance away from the target would suit your application best.

The final information required is to know the size and shape.

To give a general guideline, the following chart gives an indication of each type of sensor relating to sensing distances.

Range/longest to shortest

Photoelectric – Through-Beam

Photoelectric – Retroreflective

Ultrasonic – Proximity

Photoelectric – Diffuse Reflective

Photoelectric – Background Suppression

Photoelectric – Convergent Beam

Photoelectric – Fiber Optics

Magnetic

Capacitive Proximity

Inductive Proximity

2 – What is the environment?

Consider the surrounding and working conditions, steam coolant, metal surfaces, temperature both high and low, all can influence the performance of the sensor.

Ensure not only that the sensor can detect the target cleanly and clearly, but how it will be able to withstand maintenance and wash-down situations.

Sensing variables/least to most affected relating to ambient conditions.

Magnetic

Inductive Proximity

Photoelectric – Through-Beam

Ultrasonic – Proximity

Photoelectric – Convergent Beam

Photoelectric – Retroreflective

Photoelectric – Background Suppression

Photoelectric – Diffuse Reflective

Capacitive Proximity

3 – What is your input voltage?

A large factor relating to the exact sensor or sensor system you might eventually choose. A lot of the smaller type sensors need to have power supplies in order that the correct stable D.C. voltage is available.

Eventually this question may not be needed to be taken into account as more and more sensors are becoming available in a multi-voltage AC/DC format, 12-265 AC/DC.

4 – What are you controlling?

Always examine the type of output required and its capability to drive the external circuitry.

The most common problem when dealing with D.C. output circuits relates to “sourcing” or “sinking” PNP or NPN.

Always determine the answer to this question prior to any purchase by examining the specification of the control or counter system you are interfacing with, to ensure compatibility.

AC circuits generally come in two types, solid state and electromechanical relays.

Finally remember, any problems or questions, call Sensor Application Support for help.

APPLICATION ASSISTANCE

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