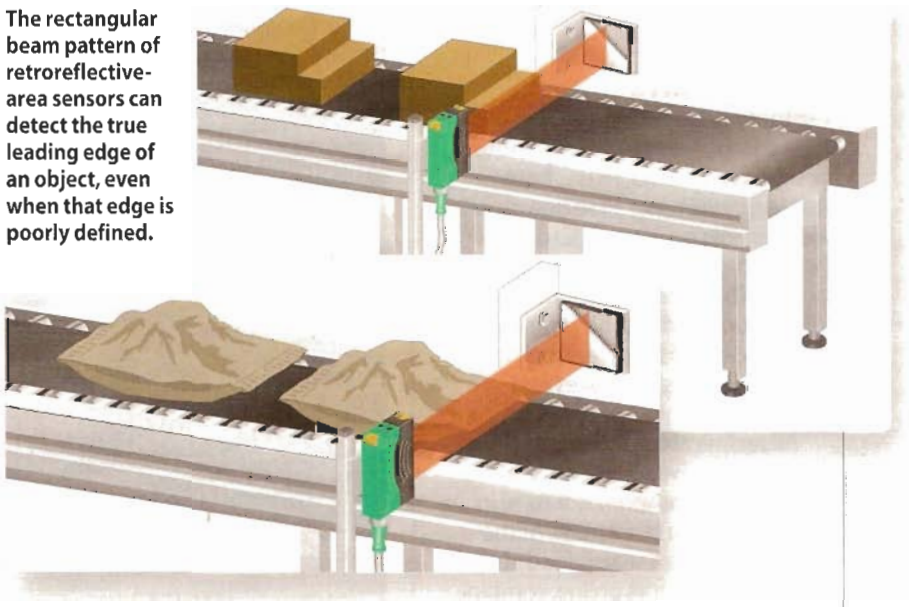
Retroreflective-area sensors

The usual way of detecting objects of varying shapes, heights, or positions has been through the use of an array of single-beam photoelectric sensors or a thru-beam light grid: a photoelectric array in two separate housings. This method can't precisely sense an object's true leading edge, especially when the leading edge is indistinct. For example, various types of pallets, parts ejected from a die, stacks of newspapers, bent rods, and cartons of varying height, width, or shape, can all provide indefinite leading edges making part detection erratic.



The rectangular beam pattern of retroreflective-area sensors can detect the true leading edge of an object, even when that edge is poorly defined.

Retroreflective-area sensors are now replacing these older methods. This type of sensor uses multiple transmitter beams and multiple receiver elements in a single sensor housing to produce a continuous height-detection field. The sensor housing mounts opposite a corner-cube reflector. Without a target object present, light from the transmitters in the sensor housing travels to the reflector where it bounces back to the receivers housed with the transmitters. The simple press of a push-button initiates a teach mode in the sensor that lets it learn what conditions signify that no target is present. Conditions change when a target object enters the sensing area between the sensor and the reflector, triggering the sensor output.

Unlike an array of single-beam sensors that have conical light patterns with a small diameter, retroreflective-area sensors have a rectangular pattern of light with a continuous height. This makes it possible to detect the same size object consistently throughout the entire sensing area. Moreover, the sensor can detect an object's true leading edge even if the object has no defined shape or position.

Retroreflective-area sensors only have a single sensor housing along with a reflector. Thus their material and installation costs are well under that of thru-beam light grids or a comparable array of single-beam sensors. Operationally, they are mechanically and electrically the same as a single beam device. **MD**

Pepperl+Fuchs (*www.am.pepperl-fuchs.com*) supplied information for this column.

Edited by **Robert Repas**