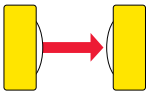
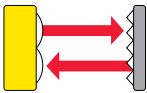
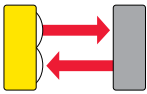
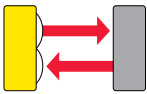
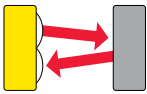
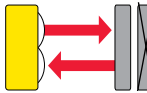


Beam Break	<p><b>Opposed Mode</b> Best for general use and use in contaminated environments.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Most reliable mode for opaque objects</li> <li>• Provides high excess gain</li> <li>• Not affected by surface reflectivity</li> <li>• Reliable for counting parts</li> <li>• High excess gain allows for dirt/dust accumulation and misalignment tolerance</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Sees through clear materials</li> <li>• Need to power two sides</li> <li>• Need to shape effective beam for small parts</li> </ul>
	<p><b>Retroreflective Mode</b> Best for use in applications where space is limited on one side.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Convenient when space is limited</li> <li>• Economical, compared to opposed mode</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Cannot easily shape effective beam for small parts or precise positioning</li> <li>• Excess gain attenuates in dirty environments</li> <li>• Sees through clear materials</li> <li>• Proxing can occur with shiny materials</li> <li>• Blind spot can occur at short range</li> <li>• Retroreflector size and type can affect performance</li> </ul>
Beam Make	<p><b>Diffuse Mode</b> Best for easy applications, or for when opposed or retroreflective sensors aren't practical.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Very convenient when space is limited</li> <li>• Can be used when opposed or retroreflective sensors aren't practical</li> <li>• One piece sensing solution</li> <li>• Economical</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Background objects may be detected if too close</li> <li>• Small parts don't offer enough reflective area</li> <li>• Loses gain rapidly as dirt accumulates on lens</li> <li>• Unreliable for accurate counting of parts</li> <li>• Less tolerant to surface reflectivity variation</li> <li>• Shiny objects must be perfectly perpendicular to light path in order to be sensed</li> </ul>
	<p><b>Divergent Mode</b> Good for sensing small objects that aren't in a repeatable position.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Reliable for clear material detection at close range</li> <li>• Good for small objects</li> <li>• Can sense surfaces that vibrate or flutter</li> <li>• Economical</li> <li>• More tolerant of surface reflectivity</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Low levels of excess gain</li> <li>• Wide field-of-view causes sensitivity to objects on sensor's periphery</li> <li>• Limited range</li> </ul>
	<p><b>Convergent Mode</b> Best for small color marks or for small object detection.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Accurate counting of radiused objects</li> <li>• Accurate positioning</li> <li>• Defined depth-of-field</li> <li>• Relatively high excess gain</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Specific focal point will not detect objects that pass at unpredictable distances</li> <li>• Surface reflectivity of object may affect sensing</li> </ul>
	<p><b>Background Suppression</b> Best for detecting targets of varying reflectivity and ignoring backgrounds.</p> 	<p><b>Pros</b></p> <ul style="list-style-type: none"> <li>• Definite range limit</li> <li>• Provides high excess gain</li> <li>• More tolerant of surface reflectivity</li> </ul>	<p><b>Cons</b></p> <ul style="list-style-type: none"> <li>• Shiny surfaces beyond the sensing range may falsely trigger sensor</li> <li>• Moving background objects may falsely trigger sensor, but can be addressed through sensor positioning or field adjustment</li> </ul>