Hundreds of solutions
for your application needs.

The following pages feature a small selection of applications, with hundreds more available online.
Photoelectric Applications

**Low-Profile Object Detection**
- Objective: To detect the presence of integrated circuit chips in a confined space.

**Reflective Object Counting**
- Objective: To reliably count metal rings passing on a conveyor.

**Part Presence**
- Objective: To verify the presence of colored caps on bottles of children’s medicine.

**Precise Counting**
- Objective: To count the narrow barrels of syringes.

**Sorting**
- Objective: To sort letters from packages, based on height.

**Liquid Leak Detection**
- Objective: To detect a hazardous fluid leaking from pipes inside a valve box.

**Clear Bottle Detection**
- Objective: To reliably count clear bottles moving on a high-speed conveyor line.

**Tilt Tray Inspection**
- Objective: To detect items in a tray for sorting.

**Outsert Detection**
- Objective: To ensure that a coupon is present before applying to a bottle cap.

**Thread Hole Inspection**
- Objective: To verify, from a distance, that threads have been cut into holes in a manifold.

**Bottle Counting**
- Objective: To count bottles on a conveyor, regardless of color.

**Lumber Inspection**
- Objective: To check lumber for warping.

**Vehicle Detection**
- Objective: To verify that a vehicle is in position in a car wash.

**Liquid Detection**
- Objective: To detect water or liquid containing water, regardless of bottle color.

**Long-distance Feature Detection**
- Objective: To detect a small flange from a long distance.

**Product Flow Control**
- Objective: To signal the machine control when cans are absent, using a time delay to filter out gaps between the cans.

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APPLICATIONS

Measurement & Inspection Applications

Range of Motion

Objective: To confirm that each bottle of water is capped completely before it is packaged.

Dry Fill Level

Objective: To accurately determine the level of dry bulk material in a bin hopper, despite the material’s uneven surface.

Extremely Long-Range Sensing

Objective: To instantly measure the location of an automated storage and retrieval shuttle, to track its position.

Long-Range Sensing

Objective: To detect the presence and position of a car seat on an automotive assembly line.

Roll Diameter

Objective: To monitor the changing diameter of a roll of material.

Glue Bead Continuity

Objective: To detect gaps in a row of glue that a robot applied to a panel.

Board Warping

Objective: To detect boards warped beyond a specified tolerance.

Dry Fill Level

Objective: To ensure that a dry food package is not overfilled or underfilled.

Liquid Level Monitoring

Objective: To monitor the level of liquid in a tank by sending a continuous signal that represents the current depth.

Roll Size

Objective: To monitor the decreasing size of a roll of material, so it can be replaced when empty.

Pallet Load

Objective: To detect that a pallet with packages stacked at different heights is loaded and ready for wrapping.

Loop Control

Objective: To control the amount of play in a loop of clear plastic within a set range.

Liquid Level Detection

Objective: To accurately determine the level of liquid in a narrow tube.

Bottle Counting

Objective: To count tinted glass bottles on a conveyor in a soft drink bottling operation.

Liquid Level Detection

Objective: To monitor the level of soap in a reservoir in a car wash.

Inverted Object Detection

Objective: To detect a product that has flipped over by measuring small differences in height.
Measurement & Inspection Applications

**Height Measurement**
- **Objective:** To verify that a stack of boards has the correct number of boards, by measuring the stack's height.

**Ink Level**
- **Objective:** To monitor the ink level in a printer tray.

**Web Thickness**
- **Objective:** To measure the thickness of webbing.

**Empty Rack Verification**
- **Objective:** To verify that all glass hard disks are removed from the holding rack after the disks are missed.

**Carton Sizing**
- **Objective:** To measure height, length and width of cartons for storage or palletizing.

**Plastic Bottle Detection**
- **Objective:** To ensure that clear bottles are properly placed on a conveyor.

**Carpet Web Detection**
- **Objective:** To determine the location of two edge transitions on carpet web: air to selvage and selvage to tufting.

**Vehicle Separation**
- **Objective:** To detect vehicle separation in an Automated Vehicle Classification (AVC) system.

**Edge Monitoring**
- **Objective:** To track the edge of a web as it rolls, to make sure it stays aligned.

**Hot Glue Detection**
- **Objective:** To identify food packages missing hot sealing glue, before the flaps are closed.

**Hot Part Detection**
- **Objective:** To make sure that a waffle maker is hot before batter is poured into it.

**Small Part Detection**
- **Objective:** To detect extremely small parts as they fall through a web of sensing beams.

**Small Object Detection**
- **Objective:** To accurately detect flat objects passing on a conveyor.

**Train and Tram Detection**
- **Objective:** To detect and locate a train or tram in a tunnel.

**Cargo Positioning**
- **Objective:** To detect and position cargo on a truck bed.

**Truck Detection**
- **Objective:** To detect a truck at a loading dock.
Vision Applications

**Vial Fill Level and Cap Seal Inspection**
Objective: To rapidly verify that vials are filled to the correct level and that the vial caps are correctly aligned.

**Food Assembly Verification**
Objective: To make sure that packets of frosting are included with each frozen pastry before the pastries are boxed.

**Rivet Inspection**
Objective: To verify that rivets are present and correctly placed in an automotive steering wheel component.

**Stamped Metal Pin Inspection**
Objective: To check for correct count, straightness and pitch of connector pins on a stamped metal subassembly.

**Candy Color Inspection**
Objective: To inspect boxes of candy to make sure that they contain the correct chocolates, based on color.

**Color Inspection and Verification**
Objective: To inspect pour spouts for correct insertion and color.

**Automotive Fuse Box Inspection**
Objective: To verify that fuses of the specified amperage are in the correct location in a fuse box.

**Capping and Fill Inspection**
Objective: To confirm that each soda bottle in a wet environment has a label in the correct position.

**2D Stamped Bar Code Verification**
Objective: To track manufacturing lots for quality assurance, using a bar code reader.

**Verification of Two Bar Codes on a Part**
Objective: To read and verify 1D and 2D bar codes on a part.

**Die Protection**
Objective: To protect the dies in tire presses from damage by directing green tires to the correct press.

**Product ID and Lot Control**
Objective: To track a batch of a pharmaceutical product.

**Gum Wedge Inspection**
Objective: To inspect the gum wedge of continuously extruded rubber.

**Comprehensive Blister Pack Inspection**
Objective: To verify that all blisters in a pack have been filled with the correct, tablets.

**Miniature Bar Code Verification**
Objective: To verify the 2-dimensional bar code on a cell phone component.

**Label Inspection in a Wet Environment**
Objective: To confirm that each soda bottle in a wet environment has a label in the correct position.
Wireless Applications

Preventative Maintenance

Objective: Gather I/O data such as temperature & vibration on a mobile Automated Storage and Retrieval System (AS/RS) crane motor.

Warehouse Door

Objective: To control the routing of an Automated Guided Vehicle (AGV) through a facility a FlexNode is positioned at each door.

Motor Temperature

Objective: To create a portable preventative maintenance solution to capture temperature data from the motor.

Camera Controls

Objective: To control the X, Y and Z axis on a camera steering panel with the analog inputs on a Node.

Platform Fill Level

Objective: To monitor tank level, pressure and flow rates from a difficult to access platform.

Barn Temperature/Humidity

Objective: To maintain a healthy temperature and humidity level in a crowded livestock barn.

Parking Lot

Objective: To manage parking at a facility an M-GAGE™ Node is used to detect a vehicle entering.

Pick-to-Light

Objective: To deploy a wireless pick-to-light system a FlexNode equipped with low-power EZ Lights are used.

Cold Storage

Objective: To ensure an optimal temperature is maintained in a large cold storage system.

People Count

Objective: To understand traffic flow and consumer habits in a retail environment.

Waste Water

Objective: To monitor level, pH, conductivity and flow using a single SureCross™ device with four analog inputs.

Car Wash

Objective: To detect the presence of a vehicle entering an automated car wash system.

Robotics Retrofit

Objective: To eliminate the need for slip rings a FlexNode is used to capture data onboard a moving robot.

HVAC Control

Objective: To manage energy by monitoring the HVAC system and identifying areas where improved efficiency is possible.

Tank Level Pressure

Objective: To maintain tank levels using a submersible pressure sensor and a FlexNode.

Call for service

Objective: To create a portable call for service system with Nodes at each work station.
Indicator Applications

Call for Parts (Put-to-Light)
- Objective: Signal the destination for requested parts by pushing a button.

Incorrect Pick Signal
- Objective: To indicate whether the operator is picking from the correct bin or wrong bin.

Wide Bin Confirmation
- Objective: To provide compact part-pick confirmation for a shelf with a wide opening.

Call for Service
- Objective: To signal and indicate that service is required using a hanging indicator and push button.

Part Pick Indicator
- Objective: To signal to the assembler the next part to pick from a rack with small bins.

Order Fulfillment
- Objective: To clearly show, from a distance what part to pick next.

Order Fulfillment
- Objective: To indicate the shelf from which to pick a map for shipment to a customer.

Order Fulfillment
- Objective: To guide a book packer to the next title in an order and to confirm the pick.

Pick Sequence
- Objective: To show an assembler the pick order and verify that the correct part was picked.

Order Fulfillment
- Objective: To signal the assembler the next part to pick from a rack with small bins.

Long Bin Pick-to-Light
- Objective: To provide pick-to-light sensing for bins that extend beyond the rack.

Part Pick Verification
- Objective: To indicate which part to pick for an assembly and to verify the pick is done.

Line Problem Call
- Objective: To trigger an audible alarm and on-board display to signal a problem on the line.

Part Loaded Indicator
- Objective: To signal to an operator that a part is placed correctly, without leaving the station.

Part Kitting
- Objective: To indicate on which illuminated spindle to place a shim.

Process Inspection Indicator
- Objective: To allow an inspector to monitor the pass/fail reading of several sensors at the same time.

Operator Indication
- Objective: To provide elevated viewing of operator indicator light using EMT tubing.

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