Integrated Vision with Omron TM Collaborative Robots

A Simplified Vision Solution

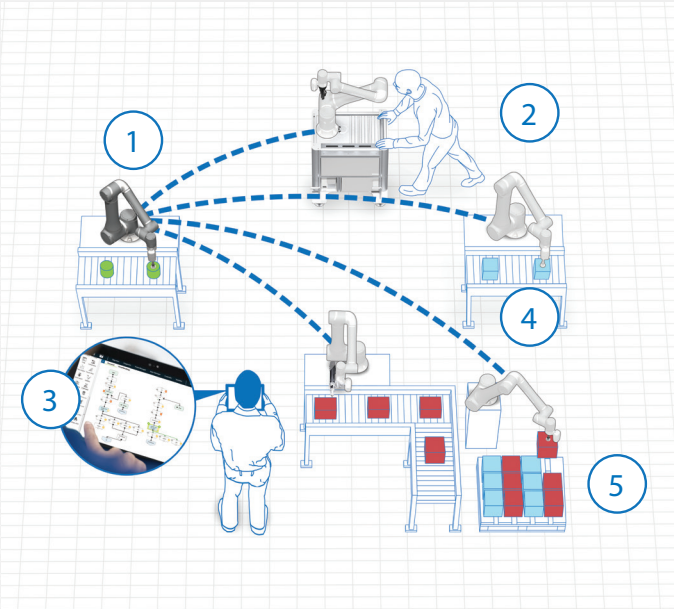
Creating robotic vision solutions can be challenging, both from a hardware configuration and software development perspective. As the only collaborative robot on the market with a built-in camera and light, the Omron TM Collaborative Robot simplifies this process. These integrated vision tools allow users to dive directly into building projects without the headache of sourcing and configuring 3rd party, external cameras for your cobot.

Programming cobot vision tasks has been simplified thanks to TMFlow, a free graphical programming environment that requires no prior programming experience. A dedicated vision button on the wrist can be used to teach vision tasks while performing hand-guided motion programming. Pre-written vision instructions can be effortlessly added and configured manually in TMFlow to accomplish tasks including pattern matching, bar code reading, color classification, and more.

The integrated camera and TMFlow enable the Omron TM Collaborative Robot to be easily redeployed to different tasks and applications,

making production as flexible as needed. Omron TM Collaborative Robots come with landmarks, physical objects that can be recognized by the integrated camera and act as a reference point for the cobot. By utilizing landmarks, the Omron TM Collaborative Robot can be relocated between tasks and workspaces with minimal downtime to empower high mix, low-volume production requiring quick changeovers.

For even greater utility, users can choose to add up to two optional external cameras to best suit their application needs. Additional TMFlow licenses are available to enable external vision and to expand TMFlow's suite of vision features.



Above: **1.** Omron TM cobots can be quickly repurposed to a number of applications. **2.** Omron TM cobots can be easily moved on the Mobile Workstation (accessory). **3.** Graphical programming allows quick deployment and changeovers without prior coding experience. **4.** The built-in vision system uses Landmarks that help the cobot navigate without the need for fixed jigs. **5.** Omron TM Collaborative Robots can fit into small spaces, even inverted or at any angle, making them adaptable to almost any factory environment.

Standard and Optional Vision Packages Features

Standard Vision Package

- Contrast enhancement
- Color Plane Extraction
- Smoothing
- Thresholding
- Morphology
- Flip
- Pattern Matching (Shape)
- Pattern Matching (Image)
- Blob Finder
- Anchor
- Fiducial Mark Matching
- Barcode & QR Code
- Color Classifier
- String Match

Optional Vision Package

- Pose Variation (Shape)
- Pose Variation (Image)
- Specific Color Area Size
- Subtract Reference Image
- Counting (Blobs)
- Counting (Shape)
- Counting (Image)
- Counting (Edges)
- Line Burr
- Circle Burr
- OCR (Letter)
- OCR (Number)
- Gauge (Distance & Angle