C-05 AI Solution

3D Vision System Utilizing AI to Enable Picking of Small, Transparent, and Glossy Workpieces

— Achieves bulk picking by adopting a Cambrian vision system and AI vision that enables high-precision recognition and high-speed processing of small, transparent, and glossy workpieces, which conventional 3D machine vision systems have trouble with

Stable recognition of transparent or glossy workpieces without the need for auxiliary lighting

A stereo camera enables recognition of the target object without auxiliary lighting such as structured light or infrared to provide high stability under various natural light conditions, and the recognition of transparent or glossy workpieces

High-speed and high-precision picking with the non-stop high-speed imaging enabled by an RC9 and high-speed image processing for vision

High precision CAD matching via AI

Enables high-precision recognition of workpieces smaller than 1 mm for picking of extremely small workpieces (1 mm x 1 mm)

Workpiece image processing can be achieved in approximately 0.3 seconds after imaging

By incorporating the function inside the TwinCAT of the RC9, accurate positional information can be understood while the robot arm is operating in conjunction with the shutter signal, and imaging is possible without stopping the robot.
This reduces the cycle time, as stopping time is not required.
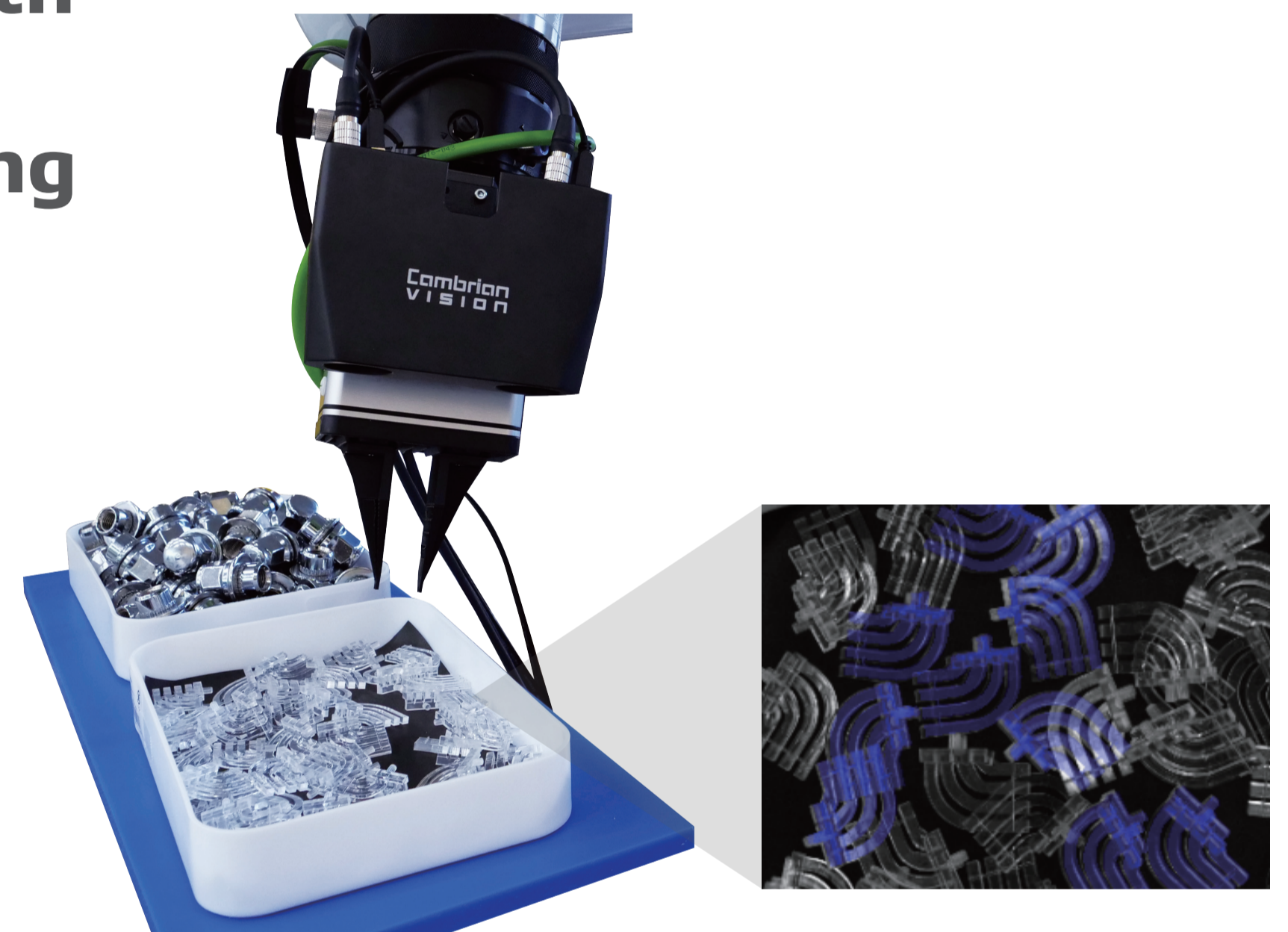
Easy setup reduces startup time

A program for communicating with the Cambrian camera is provided for communicating with the RC8 or RC9 controller and performing automatic calibration.

The camera module is compact and lightweight, weighing approximately 400 g.
The device configuration is simple and devices are easy to remove and replace.

Internal wiring eliminates external wires and reduces the risk of disconnection *Scheduled release

Specifications

Recommended operation distance (mm)	200~800
Resolution	5.04MP (camera only)
Dimensions (mm)	80L*120W*35H *Cover dimensions
Weight (g)	410

System configuration

Camera module

Internally wired connection *Scheduled release

PoE

Robot controller CRC9

Computing unit

Windows non real-time layer

ORiN

VRC ⟷ PacScript

ADS

trigger signal

positional coordinate

TC3 PLC

Robot Motion

TwinCAT Real-time layer