

# Connected Components Building Blocks

Error Proofing: MultiSight Inspection Solution



*Connected Component Building Blocks provide the overhead so you can concentrate on making your machine the best in the market*



## Connected Components Building Blocks

Connected Components Building Blocks (CCBB) from Rockwell Automation® provide you with the information you need to quickly and easily implement common control tasks in your machine design.

Take advantage of best practice based examples with:

- Lists of compatible materials
- Panel and wiring drawings
- Status and diagnostic control programs and HMI screens
- Quick start guide
- All available on DVD, CC-QR001\_-MU-C

## Error Proofing: MultiSight Inspection Solution

The Rockwell Automation inspection solution provides a complete system for error proofing your manufacturing applications using the Allen-Bradley MultiSight™ Vision Sensor. The MultiSight is an optical multi-pixel sensor with a pass/fail PNP output. The MultiSight uses four different methods of evaluation (pattern matching, contrast, brightness, and contour matching) to detect or differentiate objects by means of previously defined optical characteristics, e.g. for separating “good” and “bad” parts. Applications include confirmation of component placement and verification of the printing of a date code.

This Connected Component Building Block (CCBB) utilizes the EtherNet/IP capability of the MultiSight to bring additional information about inspection into the control system. For example, a single MultiSight can be used to confirm that three different components have been installed on a part; if one is missing, not only will the inspection fail the part, but it will also indicate which individual component was missing. Building Blocks allow you to build a stand alone cost-effective component solution without having to write extensive PLC code or develop HMI screens.

## Solution Specific Advantages

- Utilize a MultiSight Vision Sensor with a MicroLogix™ controller for simple inspection tasks and an easy-to-use alternative to traditional vision systems
- Communication through EtherNet/IP
- Additional inspection data beyond pass/fail
- Individual virtual detectors can be logically linked or grouped for evaluation of different objects with several inspection characteristics
- Short evaluation time:
  - Brightness and Contrast (50-65 ms)
  - Pattern Matching (70-100 ms)
  - Contour Matching (150-500 ms)
- PC based configuration software included with hardware for simple set-up
- Easily view inspection results on a PanelView™ Component operator display

LISTEN.  
THINK.  
SOLVE.®

# Connected Components for Error Proofing: MultiSight Inspection Solution

## SENSING

### 42EF RightSight™ Retroreflective Photoelectric Sensor

- General purpose sensor designed for light to medium level industrial use
- Patented housing design with 1200 psi washdown ratings
- 360° visible indicators



### 48MS MultiSight Vision Sensors

- Optical multi-pixel sensor with a pass/fail PNP output
- Compact, sturdy industrial housing with IP67 rating
- Integrated lighting
- Optional EtherNet/IP communication

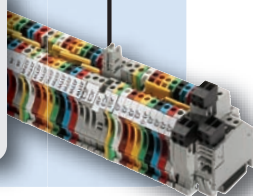


EtherNet / IP

## CONNECTIVITY

### Terminal Block (1492-J)

- Self-locking screw clamp allows tight connection
- Superior jumpering capability
- Four-sided funnel wire guides for easy wire installation
- Designed for DIN rail mounting with a full range of accessories and specialty blocks



### Stratix 2000 Unmanaged Switch (1783)

- Industrial-grade unmanaged switches require no configuration
- Ideal for small, isolated networks
- Multiple port count and fiber options available



EtherNet / IP

We offer products suited for applications around the world. Below are some options:

### IEC Miniature Circuit Breaker (1492-SP)

- Rated 0.5 A ... 63 A and 240/415 VAC and 48 VDC
- 1 pole, 2 pole, 3 pole, 1 pole + N and 3 pole + N versions
- Bus bars available, 1 phase, 2 phase, 3 phase, and 4 phase
- Auxiliary contact and shunt trip modules available
- VDE certification

### UL489 Listed Miniature Circuit Breaker (1489)

- Rated 0.5 A ... 40 A and 480Y/277 VAC, 240 VAC, 48 VDC
- 1 pole, 2 pole, 3 pole versions
- Bus bars available, 1 phase, 2 phase, 3 phase
- Auxiliary contact and shunt trip modules available



### Power Supply (1606-XL)

- 15W-960W output (@24V DC)
- 1, 2 or 3 phase voltage input
- Quick-connect spring clamp or screw terminals
- Built-in reserve power up of 150% of nominal current



## POWER

We offer products suited for applications around the world. Below are some options:

### Circuit Breakers (140U)

- Compact size, 30% reduction in panel
- Field installable accessories while maintaining UL 489
- Dual ratings – UL 489, IEC 60947-2

### Disconnect (194R)

- Panel space savings – smaller footprint
- High fault withstanding rating – up to 200kA with UL Class J and CC fuses
- Superior short circuit protection – Type 2 coordination

### Molded Case Circuit Breakers (140UE)

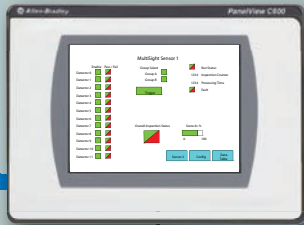
- Field installable accessories while maintaining IEC 60947-2
- KEMA-KEUR approval
- Multiple levels of interrupting capacity available

### Load Switches (194E)

- 16...100A
- 3 or 6 pole switch configurations for OFF-ON or Change-over applications
- Front/Door or Base/DIN rail mounting
- Wide choice of actuators, all with IP66 protection degree

### Power Distribution Blocks (1492-PDE)

- UL recognized, CSA certified, CE compliant
- IP20 from the front
- Multi-pole assembly possible with easily gangable units
- High fault SCCR up to 100 kA



#### PanelView Component (2711C)

- Monitor and setup equipment parameters
- Alarm, recipe and security improve diagnostics, reduce errors and protect against unauthorized changes
- Web-browser editor reduces number of software tools
- Displays ranging from 2" monochrome to 10" color
- Serial communication included, Ethernet 10/100 Mbps on 6" and 10"



#### MicroLogix (1763)

- Available communication options include DeviceNet, Ethernet and Serial protocols
- High-speed embedded I/O with the flexibility of expansion I/O
- Online editing, embedded display and built-in 10/100 Mbps EtherNet/IP on 1100nd 1400



#### 50 mm Control Tower™ Lights (855E)

- UL Type 4/4X/13, IP65
- Stacking configurations 1...5 modules high
- "No Tools" lens assembly
- Surface, vertical, or pole mounting
- Top-mounted terminal blocks on all bases

### SAFETY (if required by risk assessment)



#### Emergency Stop (800FP-MT)

- Trigger action with key release
- Push-pull or twist-to-release styles
- Illuminated or non-illuminated
- Plastic or metal operators available
- NC self monitoring contact block

### OPERATOR INTERFACE

### LOGIC CONTROL



#### MSR127 Safety Relay (440R-N23)

- Category 4 per EN 954-1
- Stop category 0
- 3 safety contacts 1 auxiliary contact
- Cross fault monitoring
- Monitored or automatic reset
- Removable terminals
- Light curtain, E-stop or safety gate applications

#### Safety Contactor (100S-C/104S-C)

Bulletin 100S-C/104S-C safety contactors provide mechanically linked positively guided contacts, required in feedback circuits of modern safety applications

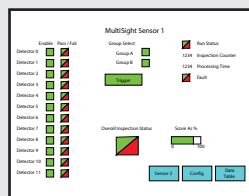


### Description of Operation

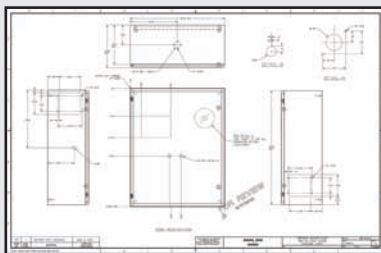
The MicroLogix controller polls multiple MultiSight Vision Sensors on an EtherNet/IP network. The MultiSight sensors return data on part inspections, which can be used by the controller to make production/acceptance/reject decisions. The PanelView Component operator display is used to display the inspection results.

*Above is a typical representation of the components used in this system solution. Your requirements could vary based on your specific machine needs.*

## Building Block Components



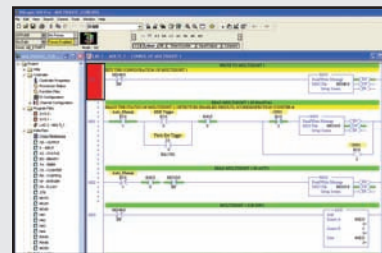
HMI Screen



CAD Drawing



Quick Start for CCB



Ladder Logic Code

## Applications

- Assembly
  - Component placement verification
  - Component inspection
  - Position verification
- Packaging
  - Date code print confirmation
  - Mark detection
  - Package inspection
  - Label verification
- General
  - Web inspection – detect holes and tears
  - Product orientation

## Connected Components Solution

The following sample bill of materials lists core products. For a complete solution bill of materials (includes power circuit components, control circuit components, sensors and pushbuttons) order the Connected Components Building Blocks DVD, CC-QR001\_-MU-C.

| CCBB Error Proofing: Inspection Solution Basic Products           |                 |   |
|---|-----------------|---|
| Quantity  | Catalog Number  | Description   |
| 1   | 1763-L16BBB     | MicroLogix 1100, 24V DC power, (10) 24V DC digital inputs, (2) 10V analog inputs, (2) relay outputs, (4) 24V DC FET outputs |
| 1   | 2711C-T6C       | PanelView Component 6" color touchscreen terminal   |
| 2   | 48MS-SN1PF2-M2  | MultiSight Vision Sensor 12 mm focal length   |
| 1   | 1606-XLP90E-2   | AC/DC DINrail mount compact power supply, standard module 90 W, 2 phase, 480V AC input voltage                              |
| 2   | 1585D-M4TBJM-2  | Ethernet Patch Cord M12 D-code to RJ45 – 2 m  |
| 2   | 889D-F8AB-2     | Power and I/O cordset – M12 8 Pin (female) – 2 m  |
| 2   | 1585J-M8PBJM-2  | Ethernet patch cord – 2 m   |
| 1   | 42CA-B2LPBE-D4  | Trigger sensor – Cylindrical M18 with Micro QD, Background Suppression – 100 mm / 4 in. sensing range                       |
| 1   | 889D-F4AC-2     | DC Micro QD cordset – 2 m   |
| 1   | 1783-US05T      | Stratix 5 Port Switch   |
| 2   | 48MS-BKTANG     | MultiSight Angle Bracket  |
| 2   | 48MS-BKTROD     | MultiSight Rod Bracket  |
| 2   | 48MS-ROD200     | MultiSight Mounting Rod, 200 mm / 8 in.   |
| 2   | 48MS-RODLINK    | Optional MultiSight Rod Link  |
| CCBB Error Proofing: Inspection Solution Products for Programming |                 |   |
| Quantity  | Catalog Number  | Description   |
| 1   | 9324-RLM0100ENE | RSLogix™ Micro Starter (English) CD-ROM   |

For additional information, please visit [www.rockwellautomation.com/go/connected](http://www.rockwellautomation.com/go/connected)

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