

# VE Series



## Smart Camera

- Robust metal housing
- Intuitive programming software
- Powerful inspection and ID capabilities





VE Series

# Compact, Durable, Versatile

The VE Smart Camera is built to stand up to industrial environments and can solve many vision applications.

## Durable Design



Robust, aluminum housing for harsh environments

C-mount lens for a variety of applications

## Status and Troubleshooting



Bright LED indicators to easily view camera status

Two-line, eight-character display and push buttons for troubleshooting and viewing camera status

- Perform product change or trigger
- Troubleshoot and clear errors
- Change or view IP address, MAC address, or Ethernet speed
- View firmware, focus number or status

## Connections



Ethernet connector with Gigabit Ethernet communication speed

Discrete communication to external devices using five user-configurable optically isolated I/O

Power Banner Vision lights directly from the camera

Compact size



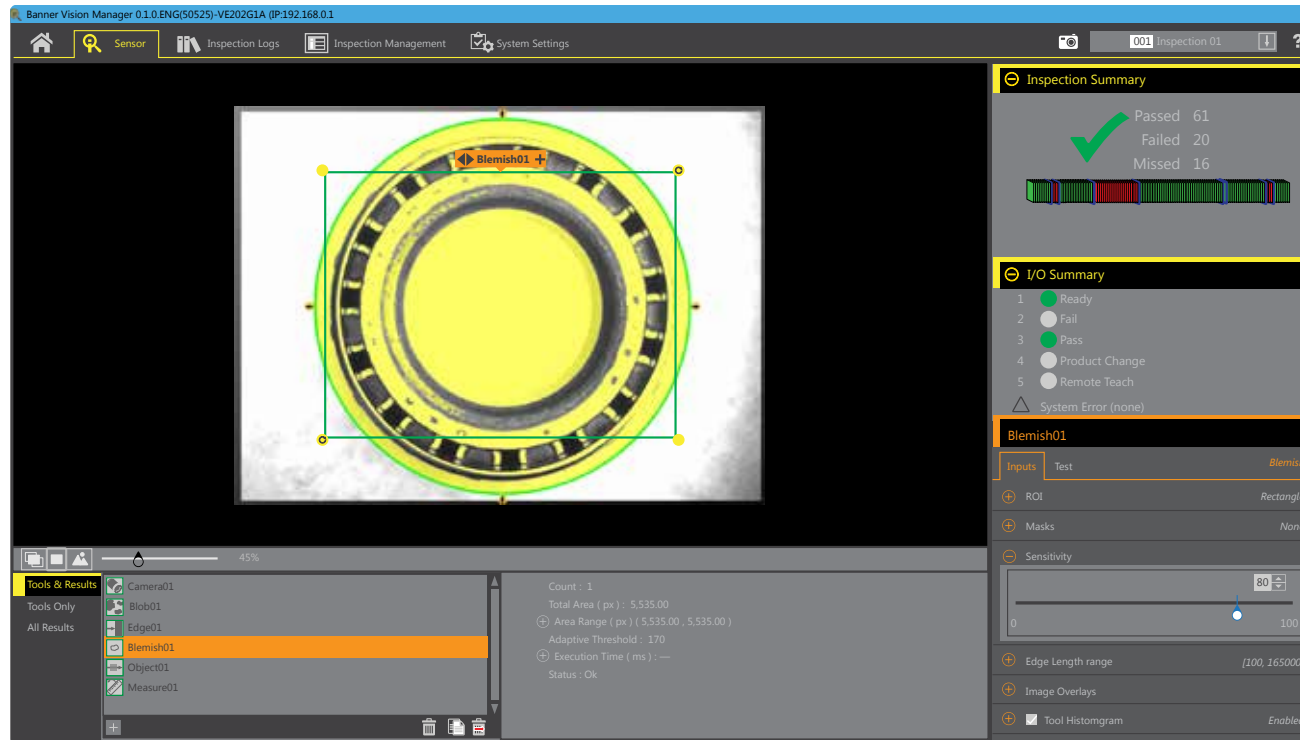
Optional IP67 lens cover for washdown environments



Variety of lights available to accommodate any application

# Intuitive Software

VE Vision Manager software: Easy configuration, powerful functions.

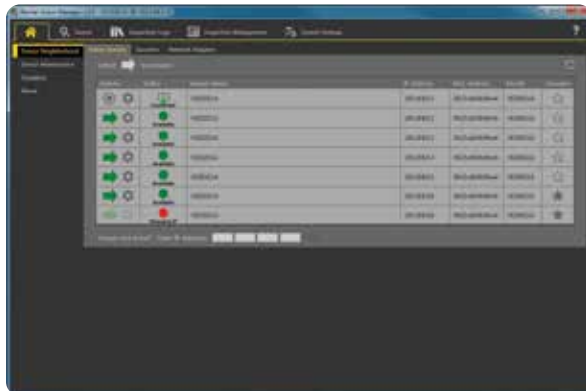


## Runtime Editing

Easy-to-use configuration software with full runtime editing allows for changes to be made quickly with no costly downtime from stopping and starting inspections. Start using today by downloading at [www.bannerengineering.com/vision-manager](http://www.bannerengineering.com/vision-manager).

## Full Software Emulator

Connect to live cameras or full software emulator for building inspections offline



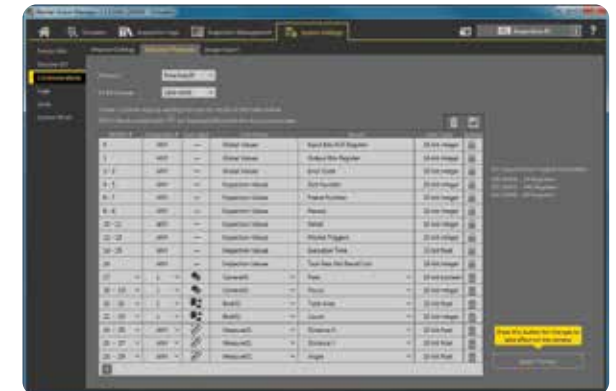
## Inspection Analysis

Review past inspection results, view system logs, and quickly configure inputs and outputs



## Factory Communications

Seamlessly interface with the factory floor using **EtherNet/IP, Modbus/TCP, PROFINET, and Serial** communications





VE Series

## Solutions for:

### Presence/Absence

- Count vials in a tray
- Verify correct labeling

### Orientation/Position

- Verify the orientation of an IC chip
- Send part location to a pick-and-place robot

### Flaw Detection

- Calculate the eccentricity of pizza crust
- Identify burn marks on a nonwoven web

### Measuring

- Measure critical dimensions of a stamped part
- Measure bottle cap height

### Identification

- Track and Trace as parts transition through the supply chain
- Package verification for tracking, sorting and inventory management

## Door Panel Adhesive Inspection

### Challenge

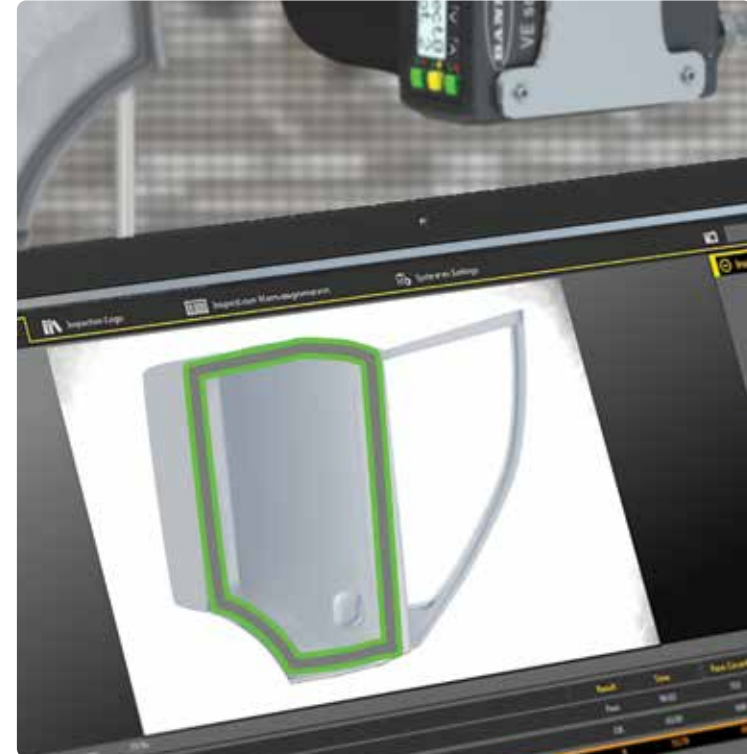
During vehicle assembly, a track of adhesive is applied along the perimeter of a door. Excessive adhesive can burst through the seams requiring cleanup, while an insufficient amount of adhesive will not seal the panel correctly.

### Solution

The Bead Tool can inspect each door panel for the presence and amount of adhesive, and provide real time feedback of improper bead application.



Bead  
Tool



## Cell Phone Inspection

### Challenge

Cell phones are comprised of many small electric parts and connectors. Manually inspecting to ensure the components are present and correctly installed is difficult and impractical. In addition, traceability of the production process is critical as parts transition through each phase.

### Solution

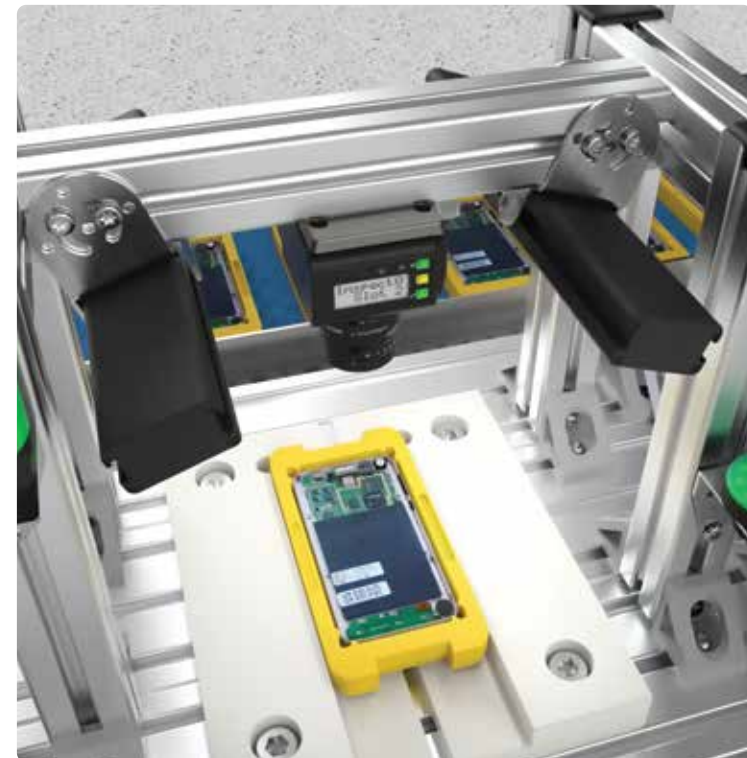
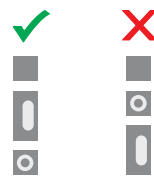
The 5MP VE Series Smart Camera allows for a higher resolution inspection and identification. With vision tools the camera can detect the presence and position of components, and by combining with barcode reading the assembly can be tracked through the entire production process with the use of one device.



Barcode  
Tool



Match  
Tool







## Packaging Inspection

### Challenge

During packaging, tubes of toothpaste need to be placed into cartons. A logo on the tube indicates the specific type of toothpaste inside the box. Frequent product changeover, printing mistakes, human error and other factors can result in packaging errors.

### Solution

A VE Series Smart Camera reads the barcode to check and see if matches the correct product data for the toothpaste tubes being filled. It then uses a Match Tool to inspect and verify the product logo on each box before the corresponding tube of toothpaste is inserted.



Match  
Tool



Barcode  
Tool



## Blister Pack Inspection

### Challenge

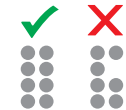
Pharmaceutical companies package medications into blister packs. Before being sealed, each cell must be inspected to verify that the tablet has been correctly placed and that the tablet is whole.

### Solution

Using the Blob Tool the VE counts and measures multiple rows of tablets in a single inspection.



Blob  
Tool



## Sortation Conveyor Inspection

### Challenge

Each tray is inspected to verify it is empty before a package is placed on the tray. The package can be any color, shape, and size and can be located anywhere on the tray.

### Solution

The VE Series Smart Camera with the 5mp imager uses the Blemish Tool to inspect the entire tray to detect if the smallest package was still on the tray before loading.



Blemish  
Tool





VE Series

Family

**VE**

Resolution

**202**

Imager

**G1**

Device Type\*

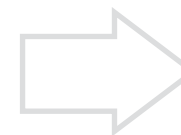
**A**

**200** = WVGA, 752 x 480 pixels  
**201** = 1.3 MP, 1280 x 1024 pixels  
**202** = 2 MP, 1600 x 1200 pixels  
**205** = 5 MP, 2592 x 2048 pixels

**G1** = Grayscale

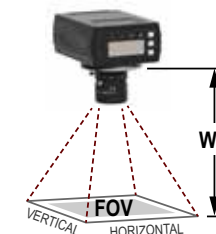
**A** = Vision  
**B** = ID  
**C** = Vision + ID

\* Vision models offer full suite of vision inspection capabilities, Identification (ID) models offer barcode reading capability. Vision + ID models offer full inspection and identification capabilities. See product specifications for full tool listing.



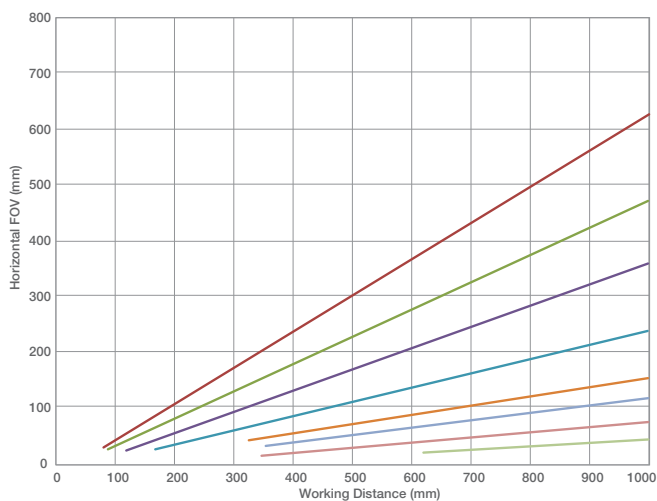
Choose lens based on Field of View (FOV) and Working Distance (WD)

Select a camera resolution

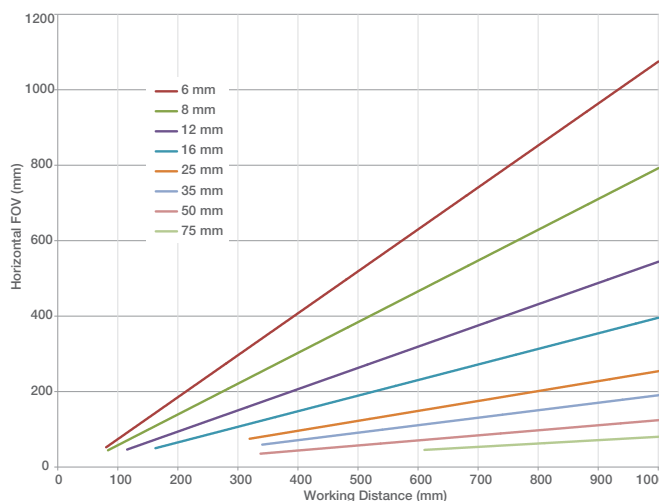


## Lens Charts

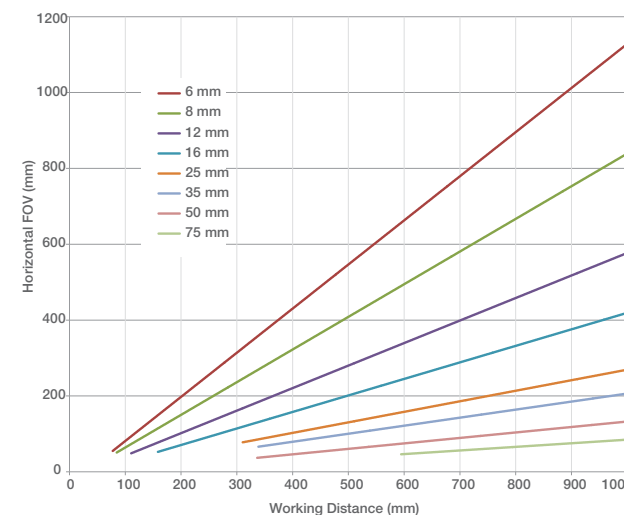
WVGA, 752 x 480 pixels



1.3 MP, 1280 x 1024 pixels



2 MP, 1600 x 1200 Pixels

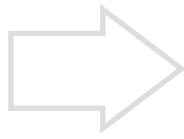


## Megapixel C-mount Lenses for use with WVGA, 1.3 MP, or 2 MP cameras

Focal Length	Model	Focal Length	Model	Focal Length	Model
6 mm	LCF06LEVMP	16 mm	LCF16LEVMP	50 mm	LCF50LEVMP
8 mm	LCF08LEVMP	25 mm	LCF25LEVMP	75 mm	LCF75LEVMP
12 mm	LCF12LEVMP	35 mm	LCF35LEVMP		

Contact factory or visit [www.bannerengineering.com](http://www.bannerengineering.com) for additional lens information and a comprehensive product offering.

Order  
Now



Optional filters create additional contrast

IP67 lens covers or ring lights available for additional protection

## Bandpass Filters

for use with Megapixel C-mount Lenses\*

Type	Model
Blue	FLTB470-27
Green	FLTG525-27
Infrared	FLTI850-27
Red	FLTR635-27
Dark Red	FLTR660-27
Linear Polarizer	FLTPR032-27

\* For use with 8 to 35 mm focal lengths.  
Contact the factory for additional options.



## Power Cordsets

Type	Length	Model
12-Pin M12/Euro-Style with Open Shield	1.83 m (6 ft)	MQDC2S-1206
	4.57 m (15 ft)	MQDC2S-1215
	9.14 m (30 ft)	MQDC2S-1230
	15.2 m (50 ft)	MQDC2S-1250
	22.9 m (75 ft)	MQDC2S-1275

For right-angle models add **RA** to the model number  
(example, **MQDC2S-1250RA**)



## Communication Cordsets

Type	Length	Model
RJ45 Ethernet to 8-Pin Threaded M12/Euro-Style (Cat5e Shielded)	1.83 m (6 ft)	STP-M12-806
	4.57 m (15 ft)	STP-M12-815
	9.14 m (30 ft)	STP-M12-830

## Sealed Ring Lights

IP67 lights that are powered and controlled by camera  
(work with most lenses)

	Borosilicate Glass Window	Polycarbonate Window
Blue	LEDBRV75BM	LEDBRV75PM
Green	LEDGRV75BM	LEDGRV75PM
Infrared	LEDIRV75BM	LEDIRV75PM
Red	LEDRRV75BM	LEDRRV75PM
White	LEDWRV75BM	LEDWRV75PM

## Sealed Lens Covers

painted aluminum covers for IP67 rating  
(work with most lenses)

	Borosilicate Glass Window	Polycarbonate Window
60 mm	VELC60-BG	VELC60-PC
85 mm	VELC85-BG	VELC85-PC

## Brackets

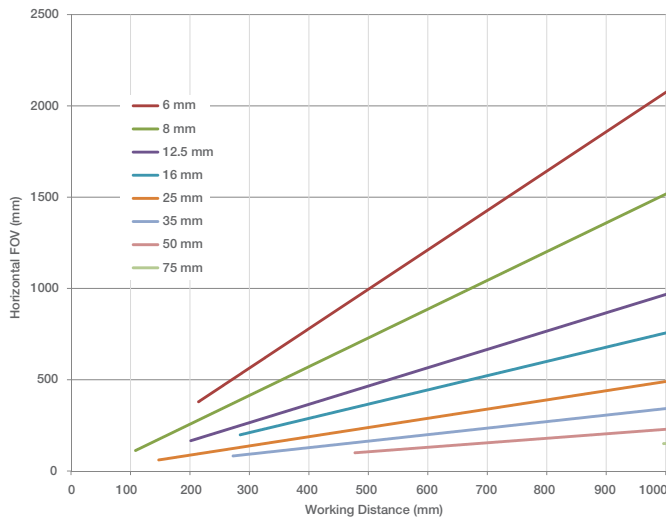


**SMBVERA**  
Right-angle bracket



**SMBVEMP**  
Mounting plate with M8x1.25, 10-32, and 1/2-20 adapter holes

5 MP, 2592 x 2048 Pixels



## 1" Format C-Mount Lenses for use with 5 MP cameras

Focal Length	Model	Focal Length	Model
6 mm	LCF06LK1F	25 mm	LCF25LK1F
8 mm	LCF08LK1F	35 mm	LCF35LK1F
12 mm	LCF12LK1F	50 mm	LCF50LK1F
16 mm	LCF16LK1F	75 mm	LCF75LK1F




## VE Series



<b>Power</b>	12 to 30 V dc
<b>Discrete I/O</b>	1 Trigger IN 5 programmable I/O
<b>Output Configuration</b>	Optically isolated
<b>Lens</b>	C-mount
<b>Communication</b>	10/100/1000 Mbps Ethernet
<b>Communication Protocols</b>	Ethernet/IP, Modbus/TCP, PCCC, PROFINET, TCP/IP, FTP, HTTP web server, and RS-232
<b>Acquisition</b>	256 grayscale levels Image Size / Frames Per Second (fps)*: 752 x 480 pixels / 60 fps 1280 x 1024 pixels / 60 fps 1600 x 1200 pixels / 50 fps 2592 x 2048 pixels / 22 fps

\* Frames per Second: maximum listed, depends on inspection settings

<b>Construction</b>	Housing: Aluminum Display Label: Polyester
<b>Connections</b>	Communications: M12, 8-pin Euro-style male Light Connector: M8, 3-pin Pico-style female Power, Discrete I/O: M12, 12-pin Euro-style female
<b>Environmental Rating</b>	IEC IP67 with optional lens cover
<b>Software Tools</b>	Vision Models: Average Gray, Bead, Blemish, Blob, Line Detect, Circle Detect, Edge, Locate, Logic, Match, Math, Measure, Object ID Models: Barcode, Locate, Logic, Math Vision+ID Models: All Tools listed above
<b>Certifications</b>	

## Vision Lighting

Lighting is the key to creating all-important contrast between the feature of interest and its background. Contact Banner for more information about our wide Vision Lighting product offering.



## Status Indicators

Monitor system status by integrating a wide selection of indicator lights into camera outputs.



## Trigger Sensors

Large selection of sensors are available to use as trigger inputs to the camera.



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This product includes software developed by the University of California, Berkeley and its contributors

1-888-373-6767

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