QCM50 High Performance Color Sensors

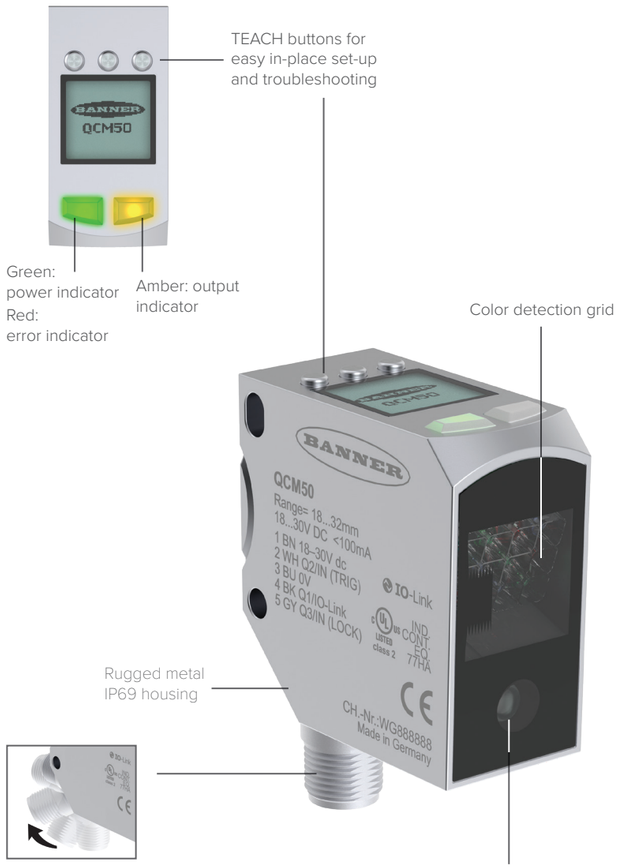
High-Performance Color Sensor with IO-Link

- Reliable color detection across the entire range of the sensor
- Up to twelve colors can be detected with one sensor, which saves inventory costs, enables faster changeover, and increases quality control
- Anti-glare model is available to reliably detect reflective targets
- Intuitive configuration with integrated digital display and on-board buttons
- IO-Link communication for remote configuration and intensity data visualizations

BANNER®
more sensors, more solutions

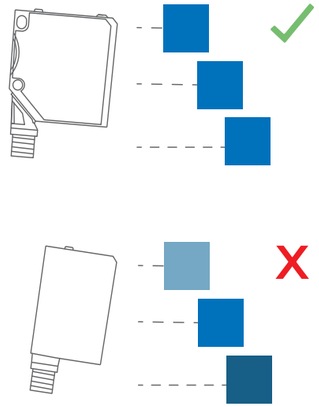
Reliable Detection of Up to Twelve Colors

Reduce sensor inventory costs, enable faster changeover, and increase quality control.



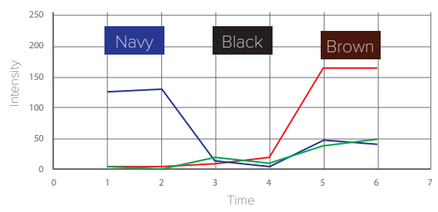
Consistent Color Inspection Regardless of Distance

The QCM50 uses advanced technology to provide a consistent color value



Competitive sensors will return a different color value for the same object at a slightly closer or greater distance

RGB Parameter Data of Similar Color Targets



Access Red, Blue, Green, and Intensity Values Over IO-Link

- Differentiate between similar colors based on these values
- Replicate the best of both teach modes by using Best Fit Mode and utilizing custom color tolerances in Parameter Data (similar to color mode)

Circles represent taught colors, and circle size represents tolerance setting. The smaller the circle, the tighter the tolerance.

Color Mode: Color Validation

Sensor detects and evaluates colors within a specified tolerance. Simply teach a color and select a tolerance from 1-9. Parts that are outside of the tolerance range will not trigger an output.

Color mode is ideal for applications:

- When “bad” colors are not known
- To verify part color falls within a specified tolerance

Each section represents a taught color. The sensor will select whichever is closest – section 1, 2, or 3

Best Fit Mode: Sorting of Known Colors

Sensor matches the target to the closest of two or more taught colors. To prevent unwanted switching, teaching the background color is recommended.

Best fit mode is ideal for applications:

- When “bad” colors are known
- To differentiate between very similar known colors

Blister Pack Challenge

Challenge

- A solution is needed that can see through the reflective plastic of the blister pack to verify the presence and color of the tablets
- In pharmaceutical packaging, each pocket of a blister pack must contain a tablet, and each tablet must be the correct color

Solution

- Anti-glare models of the QCM50 color sensor see through the shiny packaging to reliably confirm tablet presence and color
- Used in color mode, the sensor verifies the taught color and detects incorrect color tablets
- The QCM50 also differentiates between the tablet color and the background color to detect a missing tablet

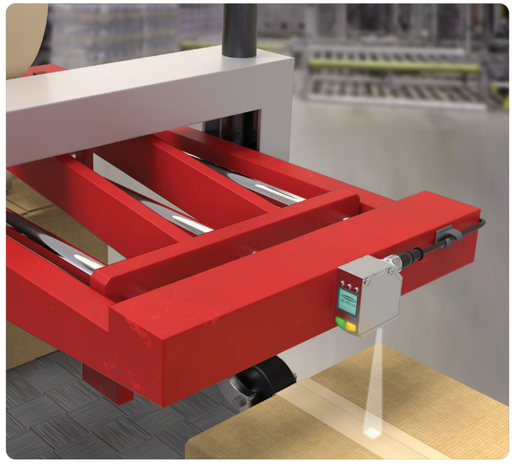
Correct Part Verification

Challenge

- Automotive trim packages can vary with each vehicle on the line, and many interior trim pieces are interchangeable and available in multiple, similar colors
- Individual trim pieces must be inspected at each stage of assembly to ensure the correct trim piece is applied to the correct vehicle
- As assembly progresses, correcting problems becomes more difficult, so an error-proofing solution is critical

Solution

- Small spot models of the QCM50 color sensor feature reliable detection of specific colors by limiting color transitions
- The QCM50 can store up to 12 different colors to verify a wide range of trim colors with a single device
- Utilizing IO-Link, users can visualize Red, Green, Blue and intensity values, enabling extremely fine color differentiation



Tape Detection

Challenge

- Before shipment, a sensor must verify that the tape is present to ensure the box will not open and contents will not fall out of the box in transit
- The limited contrast between the color of the tape and the color of the box can be challenging for traditional sensors to reliably detect
- Mounting several inches above the target is challenging for traditional color sensors

Solution

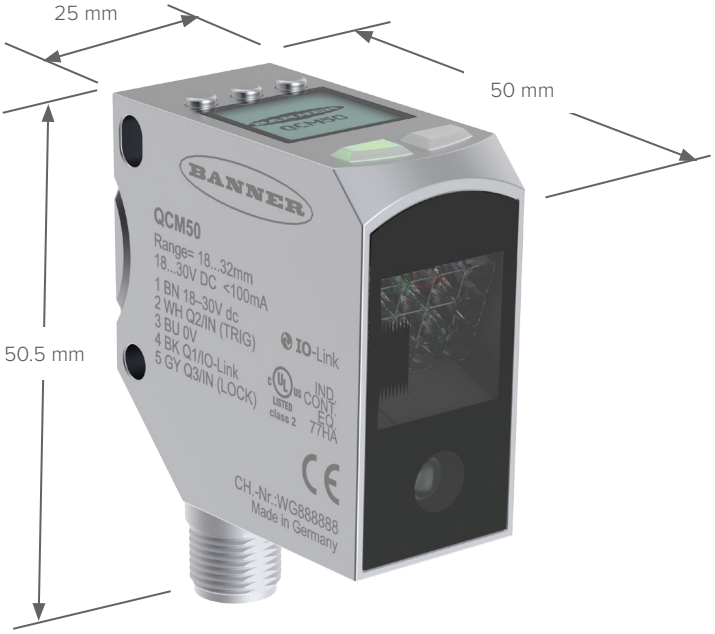
- Long Range models enables flexible mounting up to 150 mm above the application
- The QCM50 color sensor easily differentiates between very similar shades of color to reliably detect brown tape on a brown box and identify when the tape is missing so the issue can be corrected before shipment

QCM50 Series Color Sensor

Feature	Teach Mode	Range (mm)	Spot Size (mm)	Outputs	Stored Colors	Connection	Models
Anti-Glare	Color, Best Fit	18 to 32	6 × 6 at 25	3 Discrete	7	Integral 5-pin M12 quick disconnect	**QCM50-K3D25-Q8-5**
Small Spot	Color	18 to 60	4 × 4 at 40	1 Discrete	1	Integral 4-pin M12 quick disconnect	**QCM50-K1D40-Q8-4***
	Color, Best Fit			3 Discrete	7	Integral 5-pin M12 quick disconnect	**QCM50-K3D40-Q8-5**
				5 Discrete	12	Integral 8-pin M12 quick disconnect	**QCM50-K5D40-Q8-8**
Long Range	Color	20 to 150	8 × 8 at 60	1 Discrete	1	Integral 4-pin M12 quick disconnect	**QCM50-K1D60-Q8-4***
	Color, Best Fit			3 Discrete	7	Integral 5-pin M12 quick disconnect	**QCM50-K3D60-Q8-5**
				5 Discrete	12	Integral 8-pin M12 quick disconnect	**QCM50-K5D60-Q8-8**

*Remote teach mode available

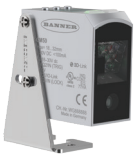
Specifications



Supply Voltage and Current	18 to 30 V dc Less than 60 mA, exclusive of load
Vibration and Mechanical shock	EN 60947-5-2
Light Used	White LED
Output Response Time	33 ms (user adjustable)
LED Class	LED risk group 2 (EN 62471:2008)
Construction	Materials: Zinc die-cast, matte chrome housing; PMMA front screen and display
Environmental Conditions	Operating: –20 to +55 °C (–4 to +131°F) Storage: –20 to +80 °C (–4 to +176 °F)
Environmental Rating	IEC IP67, IEC IP69
Certifications	

Accessories

SMBQCM50DT
(rod not included)



SMBQCM50L

SMBQCM50FA

M12 Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDEC2-406RA)

4-Pin	5-Pin	8-Pin*
MQDEC2-406 2 m (6.5') **MQDEC2-415** 5 m (15') **MQDEC2-430** 9 m (30')	**MQDEC2-506** 2 m (6.5') **MQDEC2-515** 5 m (15') **MQDEC2-530** 9 m (30') **MQDEC2-550** 15 m (50')	**MQ-QCM50-806** 2 m (6.5') **MQ-QCM50-815** 5 m (15') *No right-angle available

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