

VISOR® Color

Vision sensor for the most precise object detection



 made in Germany



The same or not the same?

The VISOR® Color detects even the smallest of color nuances more reliably than the human eye. This allows, for example, the detection of color deviations or the sorting of parts by color.



Incorrect occupancy ruled out:

The VISOR® Color combines color and object detection in a single device and can therefore simultaneously inspect occupancy of the blister for completeness and for occupancy with the correct color.



All LEDs in the right place?

A unique performance feature of vision color sensors is the detection of active (self-illuminating) colors. For example, displays in the automotive industry or electronic components can be inspected for correct placement with the VISOR® Color.

HIGHLIGHTS OF THE VISOR® COLOR

- Improved object detection through additional color information
- Powerful color detection, even with the smallest of color nuances or self-illuminating components
- Powerful part finding and tracking
- Highly accurate evaluation via 1.3 megapixel color chip
- Up to 6 digital switching outputs (another 32 with IO box)
- User-friendly configuration and viewer software with graded user rights and online help

Color is an important feature for detecting and differentiating between objects during the production process. Whether colored marks in quality assurance, colored printing or labels, LEDs or display elements, the occupancy of cable harnesses, or the browning level of baked goods – industry is much more colorful than is generally assumed.

Classic color sensors are limited to the detection of passive colors, i.e. of object colors or colored marks – they have to give up when confronted with self-illuminating objects. The VISOR® Color vision color sensor from SensoPart knows no such restrictions – it not only “sees” objects of any shape and color, but also provides additional information on color intensity and the position of the particular object. It can also represent an alternative to conventional contrast sensors for

determining grey values and contrast differences when other object features are to be evaluated simultaneously.

The comprehensive calibration functions range from a simple scaling factor via the correction of image and lens distortions at a mouse click through to a point pair list for robot applications.

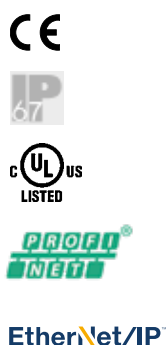
The upgrade to color is easy

The new generation of VISOR® Color vision color sensors not only supports color detection but also all the performance features of the VISOR® object sensor. The operating concept of the two vision sensors is identical – there are just three additional detectors for color detection with corresponding configuration possibilities. The introductory effort for those switching from the VISOR® object sensor is thus minimal – when will you put more colors into your applications?

VISOR® Color – product overview					
	Product variant	Resolution	Focal length	Integrated illumination	Page
V20C-CO-A2-xx	Advanced	1280 × 1024 pixels	12 mm	White	168
V20C-CO-A2-xx	Advanced	1280 × 1024 pixels	C-mount	None	170
V10C-CO-S2-xx	Standard	736 × 480 pixels	6 mm	White	172
V10C-CO-S2-xx	Standard	736 × 480 pixels	12 mm	White	174
V10C-CO-A2-xx	Advanced	736 × 480 pixels	6 mm	White	176
V10C-CO-A2-xx	Advanced	736 × 480 pixels	12 mm	White	178
V10C-CO-A2-xx	Advanced	736 × 480 pixels	25 mm	White	180
V10C-CO-A2-xx	Advanced	736 × 480 pixels	C-mount	None	182

VISOR® V20 Color

Advanced vision sensor for object detection, color, 12 mm



PRODUCT HIGHLIGHTS

- Object detection in color with 1.3 mega pixel resolution
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	1280 × 1024 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/1.8", color	Detectors	Contour; pattern comparison; calliper; BLOB; contrast; brightness; grey level; color value; color area; color list
Integrated lens, focal length	12 mm, adjustable focal position	Properties	Position tracking: X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold; brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adjustable tolerance; color list: finding the most similar colors
Adjustment range	30 mm to infinity	Typical cycle times ²	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Integrated illumination	White LEDs		
Minimum field of view, X × Y	16 × 13 mm ²		
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4 V DC ¹	Dimensions	65 × 45 × 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50° C ³
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60° C ³
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4 V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

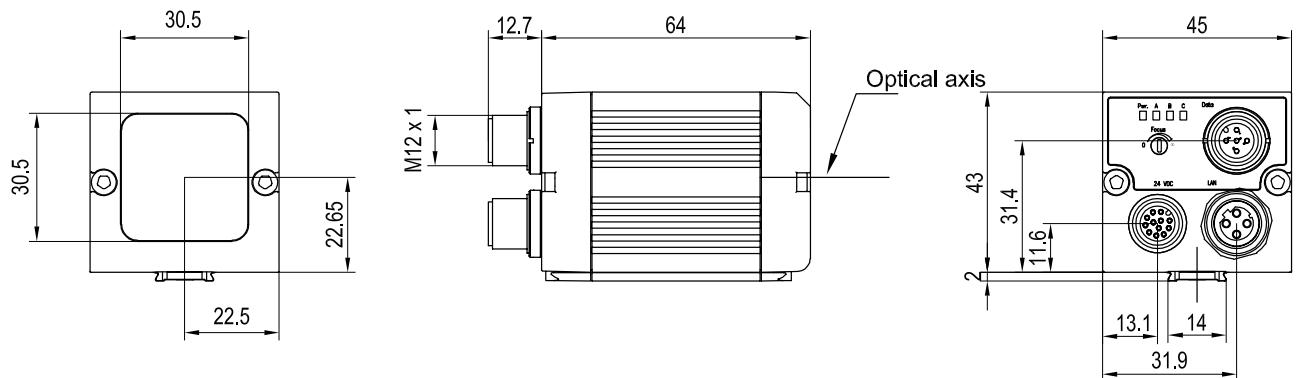
¹ Max. ripple < 5 V_{SS}

² with VGA-resolution (640 × 480 pixels)

³ 80 % air humidity, non-condensing

Illumination	Part number	Article number
White	V20C-CO-A2-W12	536-91020

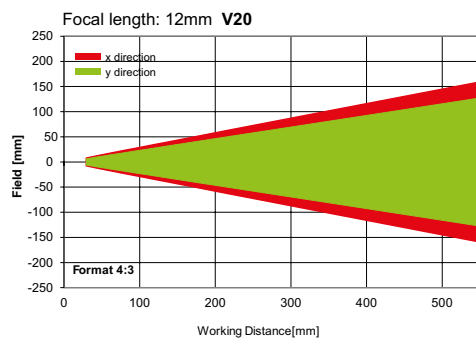
VISOR® vision sensor



153-00911

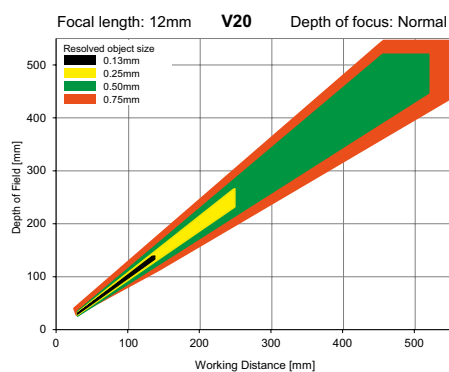
3

Field of view



155-01637

Depth of field: normal



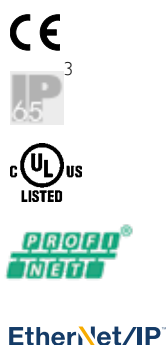
155-01636

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V20 Color

Advanced vision sensor for object detection, color, C-mount



PRODUCT HIGHLIGHTS

- Object detection in color with 1.3 megapixel resolution
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	1280 x 1024 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/1.8", color	Detectors	Contour; pattern comparison, calliper; BLOB, contrast, brightness, grey level, color value, color area, color list
Integrated lens, focal length	C-Mount	Properties	Position tracking: X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold, brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adjustable tolerance; color list: finding the most similar colors
Adjustment range	Dependent on lens		
Integrated illumination	None		
Minimum field of view, X x Y	Dependent on lens	Typical cycle times ²	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 65 ³
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ⁴
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ⁴
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4 V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

¹ Max. ripple < 5 V_{SS}

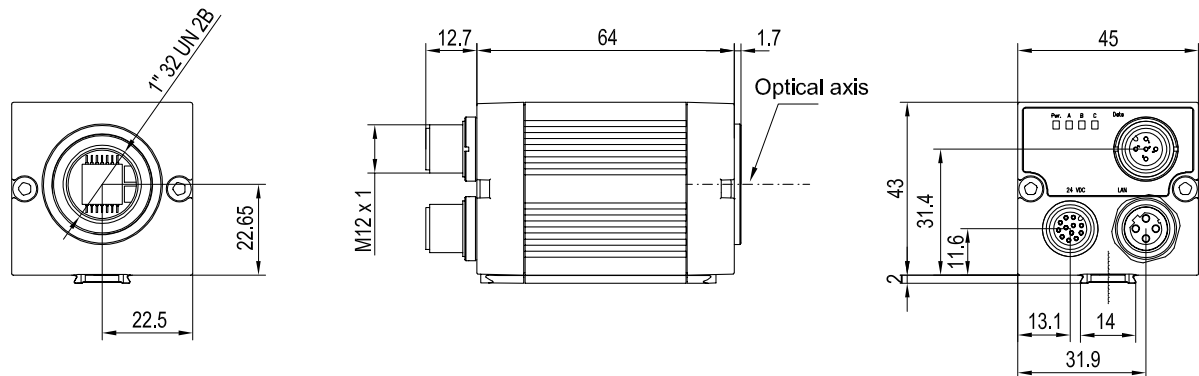
² With VGA-resolution (640 x 480 Pixel)

³ With LPT45 C-mount protective casing

⁴ 80 % air humidity, non-condensing

Part number	Article number
V20C-CO-A2-C	536-91021

VISOR® vision sensor



153-00912

3

Lens



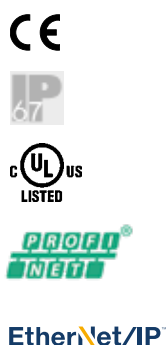
	LO C 8	LO C 12	LO C 16	LO C 25	LO C 35	LO C 50	LO C 75
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51513	526-51514	526-51515	526-51516	526-51525	526-51113	526-51116

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Lenses	From Page A-28
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Standard vision sensor for object detection, color, 6 mm



PRODUCT HIGHLIGHTS

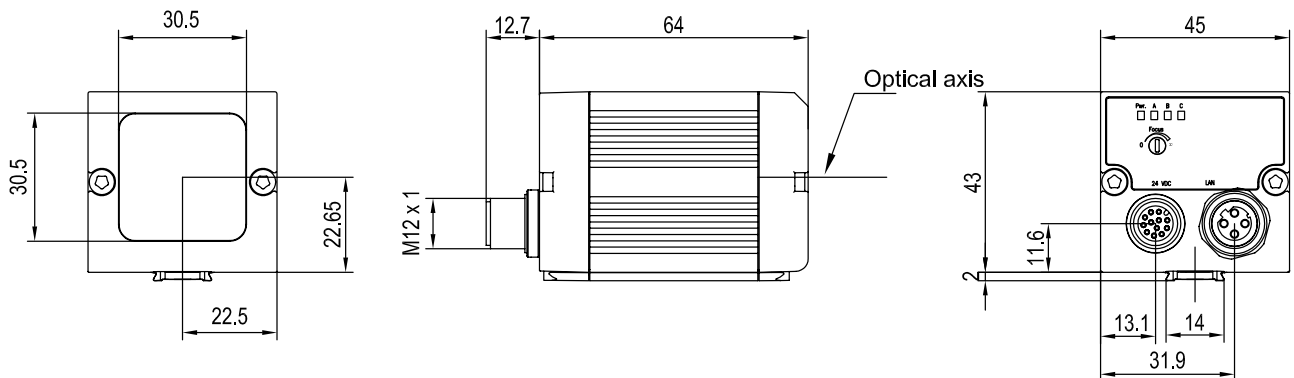
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	8 / 32
CMOS	1/3", color	Detectors	Position tracking X/Y and orientation via contour inspection; color area
Integrated lens, focal length	6 mm, adjustable focal position	Properties	Position tracking X/Y and orientation; contour: teach-in and detection of contours; color area: two-dimensional color inspection with adjustable tolerance
Adjustment range	6 mm to infinity		
Integrated illumination	White LEDs	Typical cycle times	Typ. 30 ms position tracking Typ. 30 ms color area
Minimum field of view, X x Y	5 x 4 mm ²		
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 2 selectable inputs/outputs		

¹ Max. ripple < 5 V_{SS} ² 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10C-CO-S2-W6	535-91071

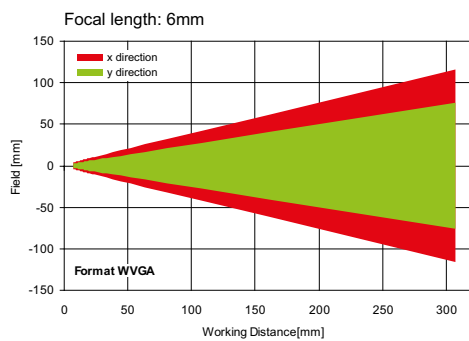
VISOR® vision sensor



153-01030

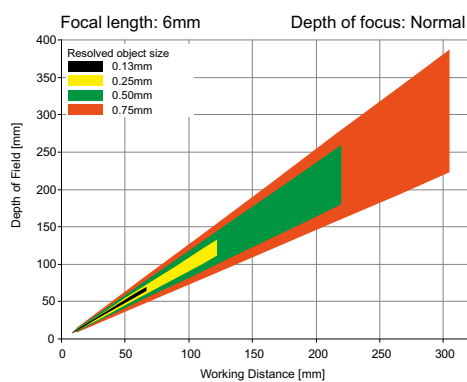
3

Field of view



155-01422

Depth of field: normal



155-01409

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Standard vision sensor for object detection, color, 12 mm



EtherNet/IP™

PRODUCT HIGHLIGHTS

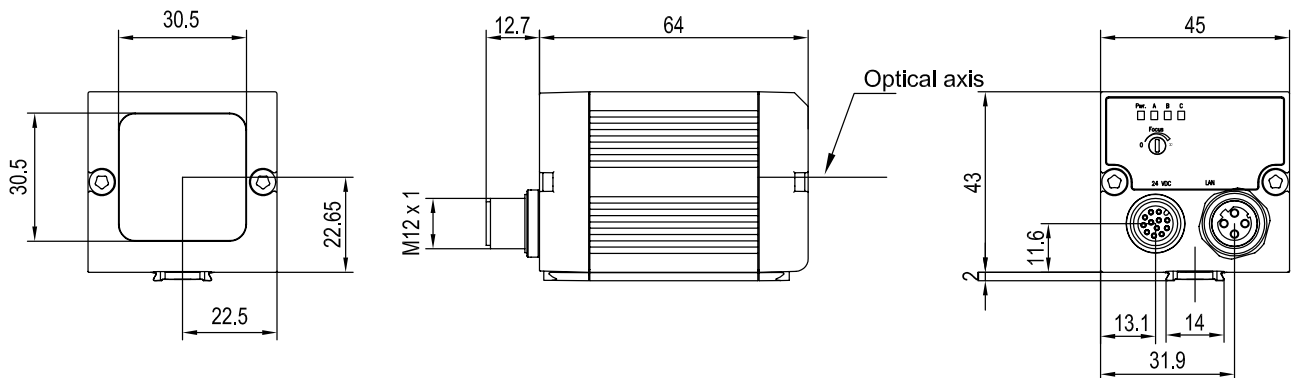
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	8 / 32
CMOS	1/3", color	Detectors	Position tracking X/Y and orientation via contour inspection; color area
Integrated lens, focal length	12 mm, adjustable focal position	Properties	Position tracking X/Y and orientation; contour: teach-in and detection of contours; color area: two-dimensional color inspection with adjustable tolerance
Adjustment range	30 mm to infinity		
Integrated illumination	White LEDs	Typical cycle times	Typ. 30 ms position tracking Typ. 30 ms color area
Minimum field of view, X x Y	8 x 6 mm ²		
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4 V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 2 selectable inputs/outputs		

¹ Max. ripple < 5 V_{ss} ² 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10C-CO-S2-W12	535-91072

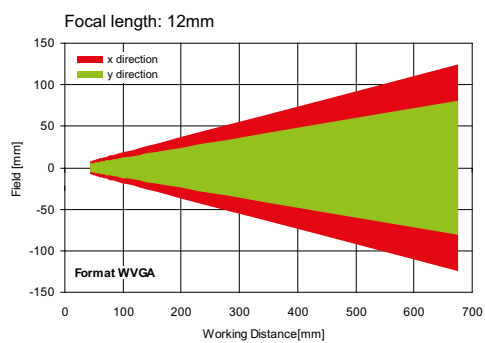
VISOR® vision sensor



153-01030

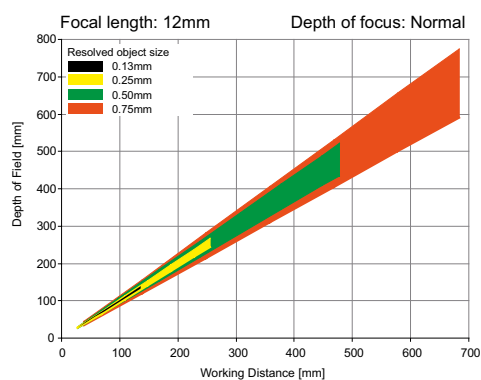
3

Field of view



155-01423

Depth of field: normal



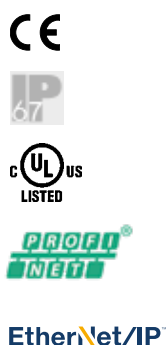
155-01410

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Advanced vision sensor for object detection, color, 6 mm



PRODUCT HIGHLIGHTS

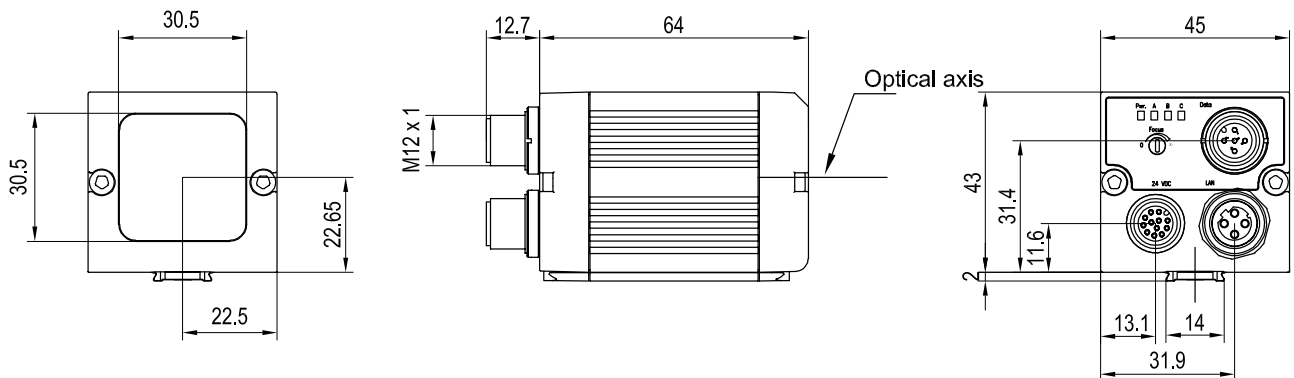
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/3", color	Detectors	Contour; pattern comparison, calliper; BLOB; contrast, brightness, grey level, color value, color area, color list
Integrated lens, focal length	6 mm, adjustable focal position	Properties	Position tracking: X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold, brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adustable tolerance; color list: finding the most similar colors
Adjustment range	6 mm to infinity		
Integrated illumination	White LEDs		
Minimum field of view, X x Y	5 x 4 mm²	Typical cycle times	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4 V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4 V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

¹ Max. ripple < 5V_{ss} ² 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10C-CO-A2-W6	535-91073

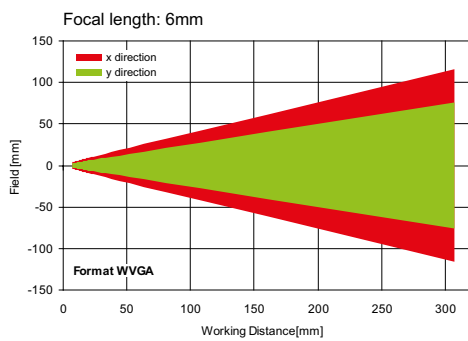
VISOR® vision sensor



153-00911

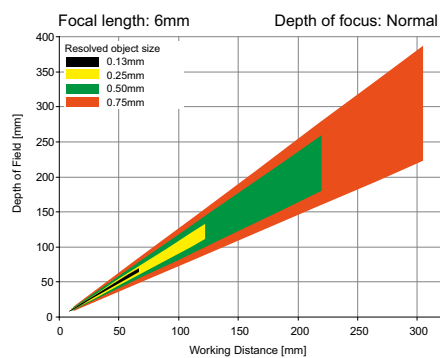
3

Field of view



155-01422

Depth of field: normal



155-01409

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Advanced vision sensor for object detection, color, 12 mm



EtherNet/IP™

PRODUCT HIGHLIGHTS

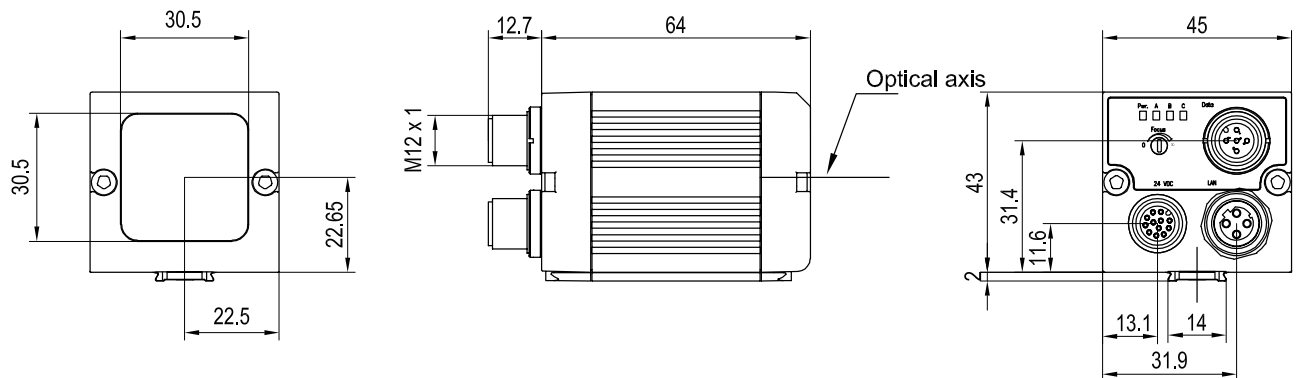
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/3", color	Detectors	Contour; pattern comparison, calliper; BLOB, contrast, brightness, grey level, color value, color area, color list
Integrated lens, focal length	12 mm, adjustable focal position		
Adjustment range	30 mm to infinity	Properties	Position tracking: X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold, brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adustable tolerance; color list: finding the most similar colors
Integrated illumination	White LEDs		
Minimum field of view, X x Y	8 x 6 mm²		
		Typical cycle times	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50° C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60° C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

¹ Max. ripple < 5 V_{SS} ² 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10C-CO-A2-W12	535-91074

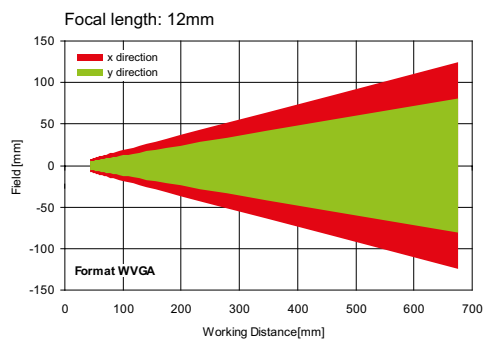
VISOR® vision sensor



153-00911

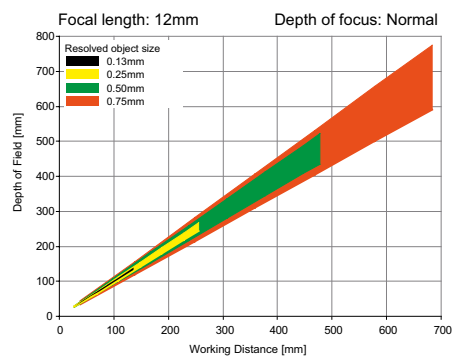
3

Field of view



155-01423

Depth of field: normal



155-01410

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Advanced vision sensor for object detection, color, 25 mm



EtherNet/IP™

PRODUCT HIGHLIGHTS

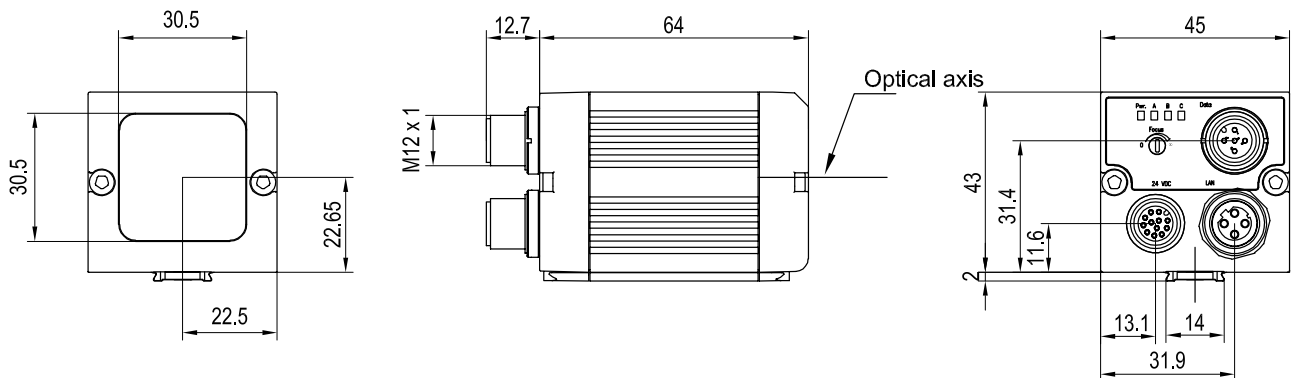
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/3", color	Detectors	Contour; pattern comparison, calliper; BLOB, contrast, brightness, grey level, color value, color area, color list
Integrated lens, focal length	25 mm, adjustable focal position		
Adjustment range	140 mm to infinity	Properties	Position tracking: X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold, brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adustable tolerance; color list: finding the most similar colors
Integrated illumination	White LEDs		
Minimum field of view, X x Y	18 x 14 mm²		
		Typical cycle times	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

¹ Max. ripple < 5 V_{SS} ² 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10C-CO-A2-W25	535-91075

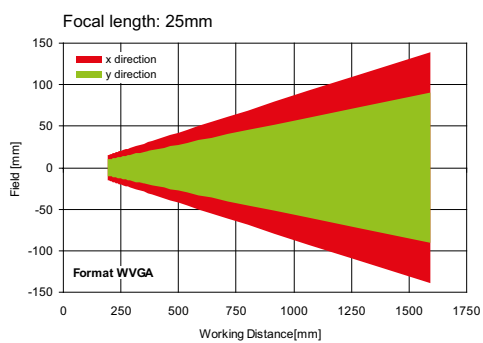
VISOR® vision sensor



153-00911

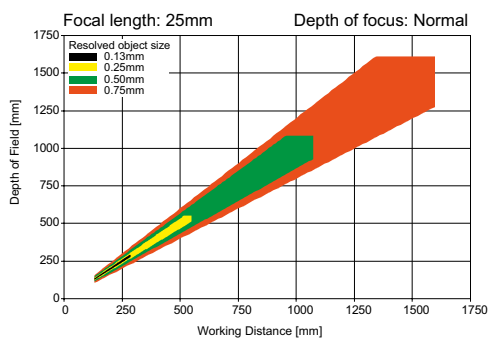
3

Field of view



155-01424

Depth of field: normal



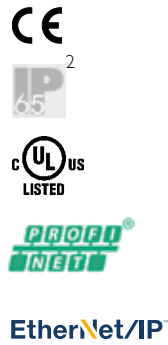
155-01412

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Brackets	From Page A-4
Interface accessories	From Page A-53

VISOR® V10 Color

Advanced vision sensor for object detection, color, C-mount



PRODUCT HIGHLIGHTS

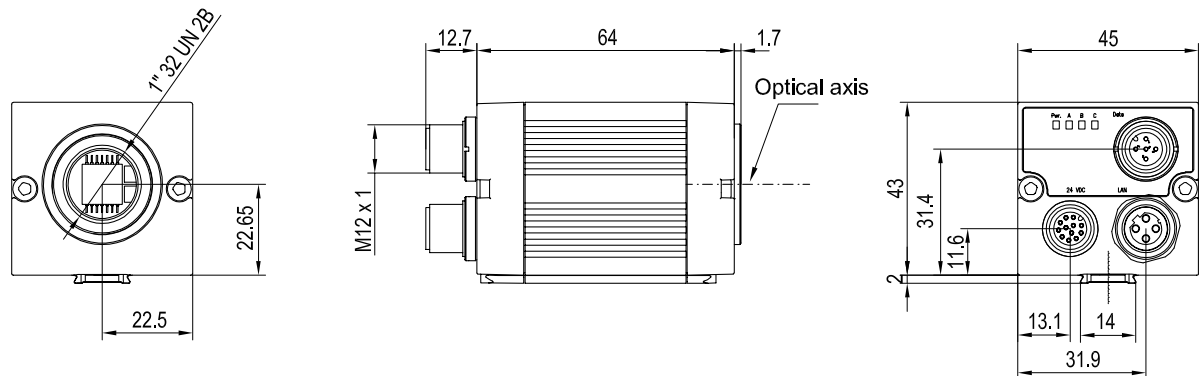
- Object detection in color
- Reliable detection of very slight color nuances or self-illuminating components
- Powerful part finding and tracking
- User-friendly configuration and viewer software with hierarchical user rights
- Real-world engineering units and robot coordinates at a mouse click
- Encoder input

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/3", color	Detectors	Contour; pattern comparison, calliper; BLOB; contrast; brightness; grey level; color value; color area; color list
Integrated lens, focal length	C-Mount	Properties	Position tracking; X/Y and orientation; pattern comparison / contour: teach-in and detection of patterns and contours; calliper: distance between edges; BLOB; grey threshold, brightness: evaluation of brightness; contrast: evaluation of contrast; color area: two-dimensional color inspection with adjustable tolerance; color list: finding the most similar colors
Adjustment range	Dependent on lens		
Integrated illumination	None		
Minimum field of view, X x Y	Dependent on lens	Typical cycle times	Typ. 20 ms pattern comparison; typ. 30 ms contour; Typ. 8 ms calliper; typ. 30 ms BLOB; typ. 2 ms brightness; typ. 2 ms contrast; typ. 2 ms grey threshold; typ. 2 ms color value; typ. 30 ms color area; typ. 2 ms color list
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 65 ²
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Approx. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ³
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ³
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Approx. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

¹ Max. ripple < 5 V_{SS} ² With LPT45 C-mount protective casing ³ 80 % air humidity, non-condensing

Part number	Article number
V10C-CO-A2-C	535-91076

VISOR® vision sensor



153-00912

3

Lens



	LO C 8	LO C 12	LO C 16	LO C 25	LO C 35	LO C 50	LO C 75
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51513	526-51514	526-51515	526-51516	526-51525	526-51113	526-51116

Accessories

Connection cables	From Page A-46
Illumination	From Page A-33
Lenses	From Page A-28
Brackets	From Page A-4
Interface accessories	From Page A-53