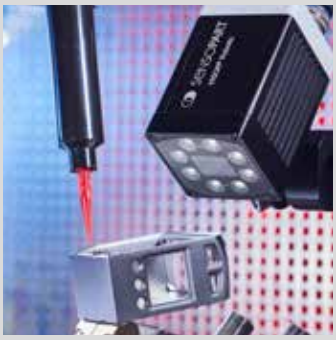
VISOR® Robotic

An eye on everything – the vision sensor for robotics applications

The VISOR® Robotic detects the position of the component in a load carrier and transmits the gripping position directly to the robot.



The VISOR® Robotic determines the exact position of the sensor housing. Offset data is used to correct the robot's trajectory.

HIGHLIGHTS OF VISOR® ROBOTIC

- Compact and lightweight housing for moving or stationary applications
- Calibration methods tailored to the application
- Target Mark technology provides 3D object poses in no time
- Simplified setup through 3D gripper point transformation
- Less robot programming when images are captured in diverse positions
- Different hardware versions up to 5 megapixels

Material feed

Feeding systems in a production line are becoming increasingly versatile – in addition to universal load carriers, components can be supplied with utmost flexibility using hopper feeders. Thanks to the VISOR® Robotic, components can be reliably located and gripped with both feed options. When loose components are supplied, the sensor not only checks their position but also inspects the free space around the gripper. The VISOR® determines both sets of information and sends them to the robot controller via one of the integrated and standardised process interfaces. The process is managed on the basis of this information – the object is gripped or the feeder is triggered.
The application can also be flexibly adapted to individual goods carriers without the need for a costly centring device. The VISOR® detects the position and the fill level of the carrier and transmits this information to the robot. If the camera is mounted in a stationary manner, this is cycle-time neutral.

Processing of components

What happens after components have been reliably collected by the gripper? The VISOR® Robotic also supplies important information for the next work steps, and demonstrates its skills in robot-controlled applications, such as the placing of screws, the mounting of clips or the application of glue. The detection of component positions is carried out effortlessly; this allows the correction of any offset and increases the quality of production. Knowledge of the exact position of a component ensures, for example, the precise insertion of a windscreen. Mechanical effort is reduced, and the production line becomes even more flexible. The VISOR® Robotic concept enables direct communication between the VISOR® and the robot, an additional instance is no longer necessary for many applications.

VISOR® Robotic – product overview

	Product variants	Resolution	Field of view	Integrated illumination	Page
V50-RO-P3-xxx	Professional	2560 x 1936 mono/color	Wide	White, red[1] or infrared[1] LEDs	139
V50-RO-P3-xxx			Medium	White, red[1] or infrared[1] LEDs	141
V50x-RO-P3-C-2			C-mount	None	143
V20x-RO-A3-xxx	Advanced	1440 x 1080 mono/color	Wide	White, red[1] or infrared[1] LEDs	145
V20x-RO-A3-xxx			Medium	White, red[1] or infrared[1] LEDs	147
V20x-RO-A3-xxx			Narrow	White, red[1] or infrared[1] LEDs	149
V20x-RO-A3-C-2			C-mount	None	151
V20x-RO-P3-xxx	Professional	1440 x 1080 mono/color	Wide	White, red[1] or infrared[1] LEDs	153
V20x-RO-P3-xxx			Medium	White, red[1] or infrared[1] LEDs	155
V20x-RO-P3-xxx			Narrow	White, red[1] or infrared[1] LEDs	157
V20x-RO-P3-C-2			C-mount	None	159
V10-RO-A3-xxx	Advanced	800 x 600 mono	Wide	White, red[1] or infrared[1] LEDs	161
V10-RO-A3-xxx			Medium	White, red[1] or infrared[1] LEDs	163
V10-RO-A3-xxx			Narrow	White, red[1] or infrared[1] LEDs	165
V10-RO-A3-C-2			C-mount	None	167

[1] Only with monochrome version

VISOR® V50 Robotic Professional, wide field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes (ECC 200 data matrix) , common 1D barcodes and OCR

Optical data	
Resolution	2560 x 1936 Pixel
Imaging chip CMOS	1/1.8", monochrome / color
Integrated lens, focal length [mm]	9.6 (wide)
Pixel size	2.8 µm x 2.8 µm
Focus	Motorized
Adjustment range	40 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	32 x 24 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

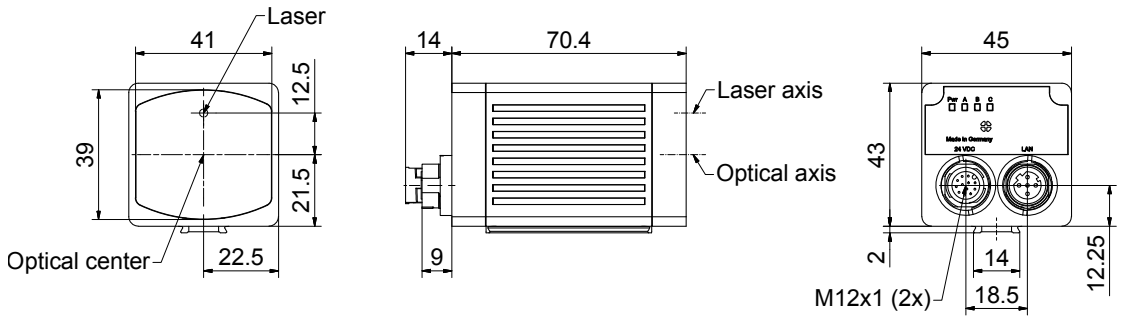
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP / NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

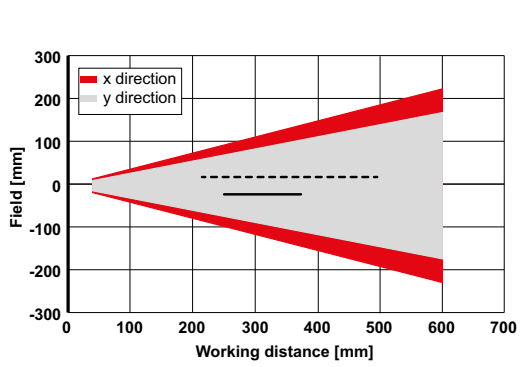
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V50, wide



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V50-RO-P3-W-W-M2-L	635-91034	Connection cables	www.sensopart.com/en/accessories
Red	V50-RO-P3-R-W-M2-L	635-91036	Illumination	
Infrared	V50-RO-P3-I-W-M2-L	635-91038	Brackets	
White	V50C-RO-P3-W-W-M2-L	635-91041	Interface accessories	
			Target Marks	

VISOR® V50 Robotic Professional, medium field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes (ECC 200 data matrix) , common 1D barcodes and OCR

Optical data	
Resolution	2560 x 1936 Pixel
Imaging chip CMOS	1/1.8", monochrome / color
Integrated lens, focal length [mm]	20 (medium)
Pixel size	2.8 µm x 2.8 µm
Focus	Motorized
Adjustment range	100 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	32 x 24 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

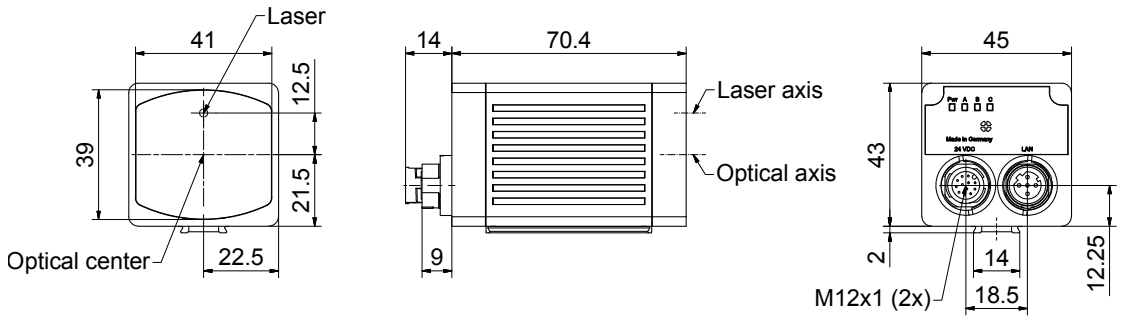
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP / NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

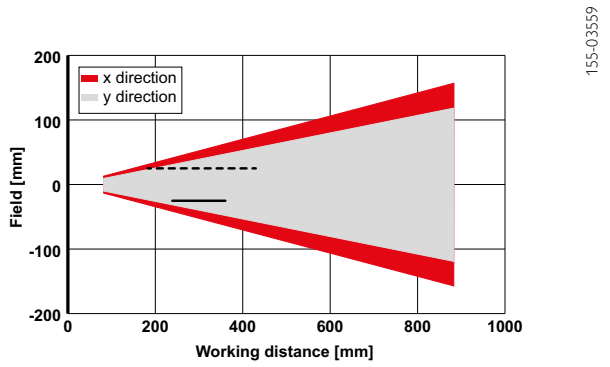
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V50, medium



- - - - - Increased depth of field
——— Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V50-RO-P3-W-M-M2-L	635-91035	Connection cables	www.sensopart.com/en/accessories
Red	V50-RO-P3-R-M-M2-L	635-91037	Illumination	
Infrared	V50-RO-P3-I-M-M2-L	635-91039	Brackets	
White	V50C-RO-P3-W-M-M2-L	635-91042	Interface accessories	
			Target Marks	

VISOR® V50 Robotic Professional, C-mount

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Detectors for position determination
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	2560 x 1936 Pixel
Imaging chip CMOS	1/1.8", monochrom / color
Integrated lens, focal length [mm]	C-mount
Pixel size	2.8 µm x 2.8 µm
Focus	Manual
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens
Target laser	No

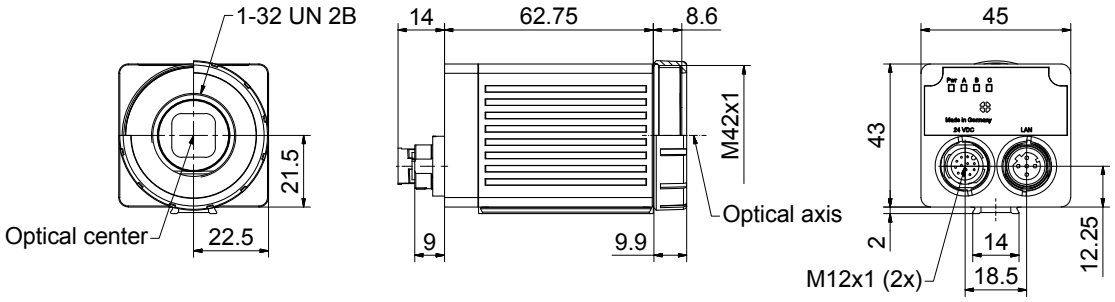
Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

Electrical data	
Operating voltage, $+U_B$	18 ... 30 V DC[2]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65[3]
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

[1] Color hardware [2] Max. ripple < 5 V_{SS} [3] Only with protective casing [4] 80 % air humidity, noncondensing

VISOR® vision sensor C-mount



153-13555

Lens	C-Mount protective casing for VISOR®
	

Part number	Article number
LPTVxx-G37.5	651-01006
LPTVxx-25.0	651-01007

	LOC-08-HD-30.5x0.5	LOC-12-HD-27x0.5	LOC-16-HD-27x0.5	LOC-25-HD-27x0.5	LOC-35-HD-27x0.5	LOC-50-HD-27x0.5	LOC-75-HD-34x0.5
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51535	526-51536	526-51537	526-51538	526-51539	526-51540	526-51541

Part number	Article number	Accessories	
V50-RO-P3-C-2	635-91040	Connection cables	www.sensopart.com/en/accessories
V50C-RO-P3-C-2	635-91043	Illumination	
		Lenses	
		Brackets	
		Interface accessories	
		Target Marks	

VISOR® V20 Robotic Advanced, wide field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	1440 x 1080 pixels
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	6.5 (wide)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	10 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	6 x 4 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

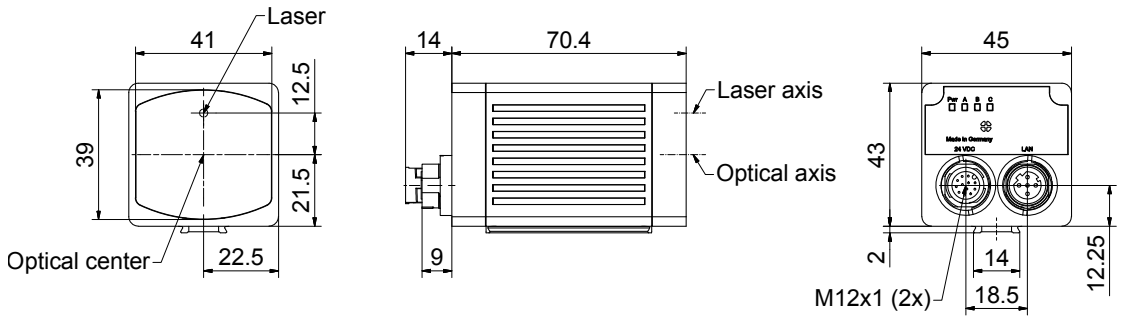
Electrical data	
Operating voltage, $+U_B$	18 ... 30 V DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

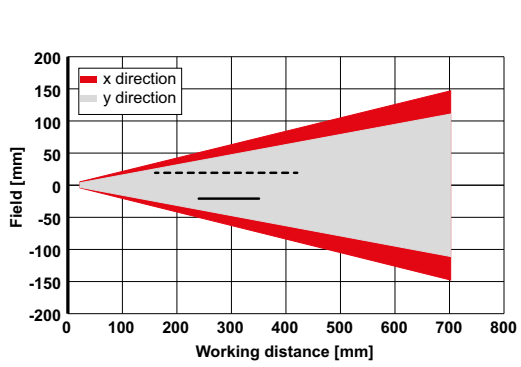
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, wide



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-A3-W-W-M2-L	632-91064	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-A3-R-W-M2-L	632-91067	Illumination	
Infrared	V20-RO-A3-I-W-M2-L	632-91070	Brackets	
White	V20C-RO-A3-W-W-M2-L	632-91074	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Advanced, medium field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	1440 x 1080 Pixel
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	12 (medium)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	25 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	10 x 8 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

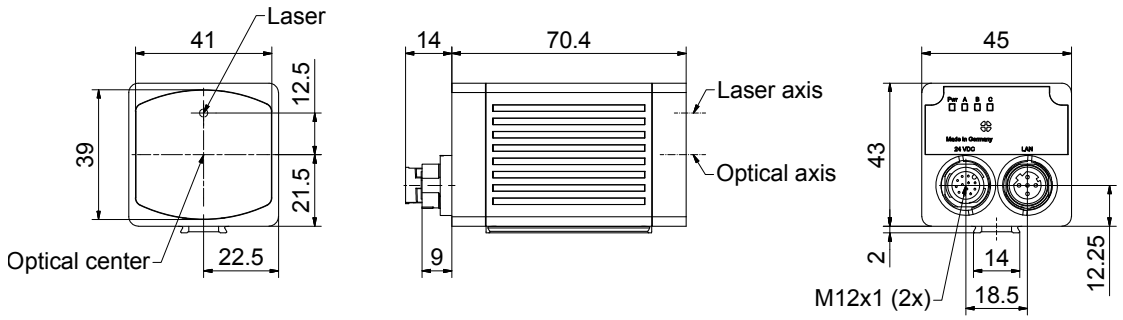
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

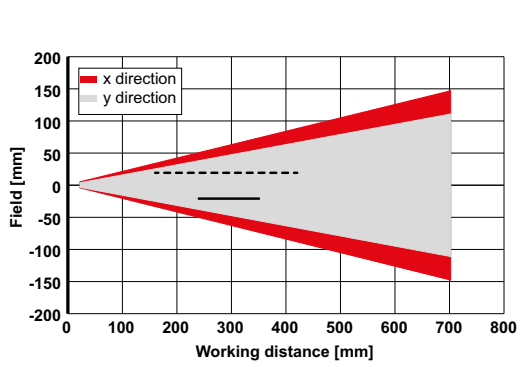
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, medium



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-A3-W-M-M2-L	632-91065	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-A3-R-M-M2-L	632-91068	Illumination	
Infrared	V20-RO-A3-I-M-M2-L	632-91071	Brackets	
White	V20C-RO-A3-W-M-M2-L	632-91075	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Advanced, narrow field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	1440 x 1080 Pixel
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	20 (narrow)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	100 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	18 x 14 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

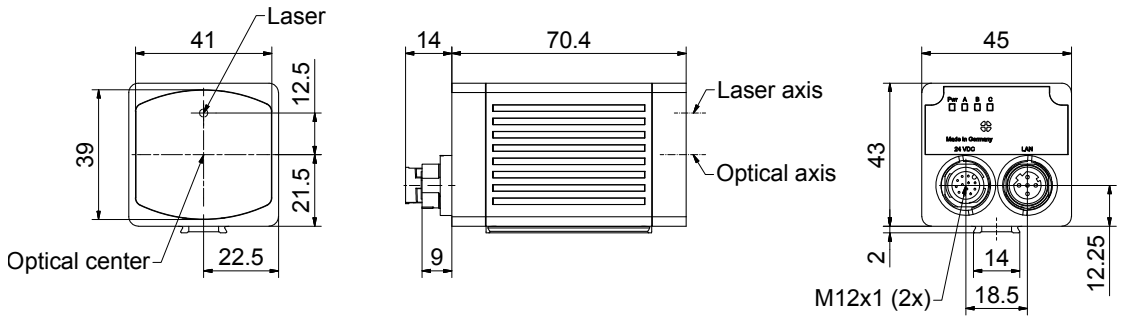
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces VISOR® V20-CR-Advanced	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

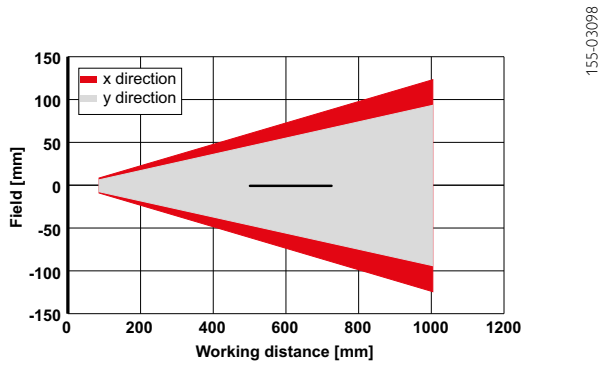
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, narrow



Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-A3-W-N-M2-L	632-91066	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-A3-R-N-M2-L	632-91069	Illumination	
Infrared	V20-RO-A3-I-N-M2-L	632-91072	Brackets	
White	V20C-RO-A3-W-N-M2-L	632-91076	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Advanced, C-mount

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	1440 x 1080 pixels
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	C-mount
Pixel size	3.45 µm x 3.45 µm
Focus	Manual
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens
Target laser	No

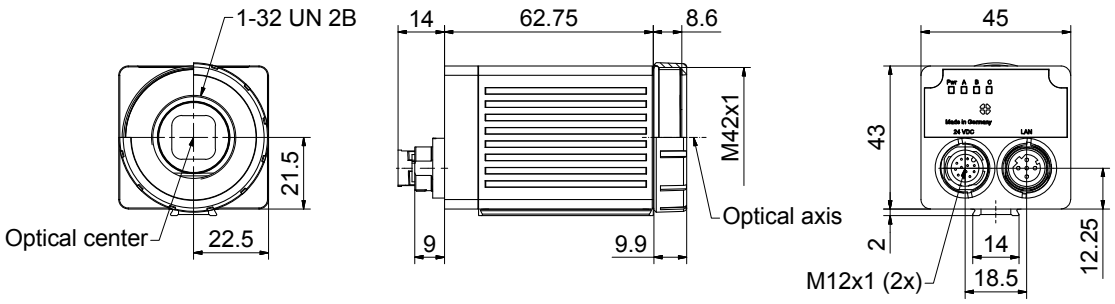
Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Color value[1]:** output of color values; **Color area[1]:** area inspection of colors, with selectable tolerance; **Color list[1]:** finding the most similar colors; **Result processing: Math:** checking and calculating with results from detectors

Electrical data	
Operating voltage, $+U_B$	18 ... 30 V DC[2]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65[3]
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

[1] Color hardware [2] Max. ripple < 5 V_{SS} [3] Only with protective casing [4] 80 % air humidity, noncondensing

VISOR® vision-sensor C-mount



153-13555

3

Lens	C-Mount protective casing for VISOR®
	

Part number	Article number
LPTVxx-G37.5	651-01006
LPTVxx-25.0	651-01007

	LOC-08-HD-30.5x0.5	LOC-12-HD-27x0.5	LOC-16-HD-27x0.5	LOC-25-HD-27x0.5	LOC-35-HD-27x0.5	LOC-50-HD-27x0.5	LOC-75-HD-34x0.5
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51535	526-51536	526-51537	526-51538	526-51539	526-51540	526-51541

Part number	Article number	Accessories	
V20-RO-A3-C-2	632-91073	Connection cables	www.sensopart.com/en/accessories
V20C-RO-A3-C-2	632-91077	Illumination	
		Lenses	
		Brackets	
		Interface accessories	
		Target Marks	

VISOR® V20 Robotic Professional, wide field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes, bar codes and OCR

Optical data	
Resolution	1440 x 1080 Pixel
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	6.5 (wide)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	10 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	6 x 4 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

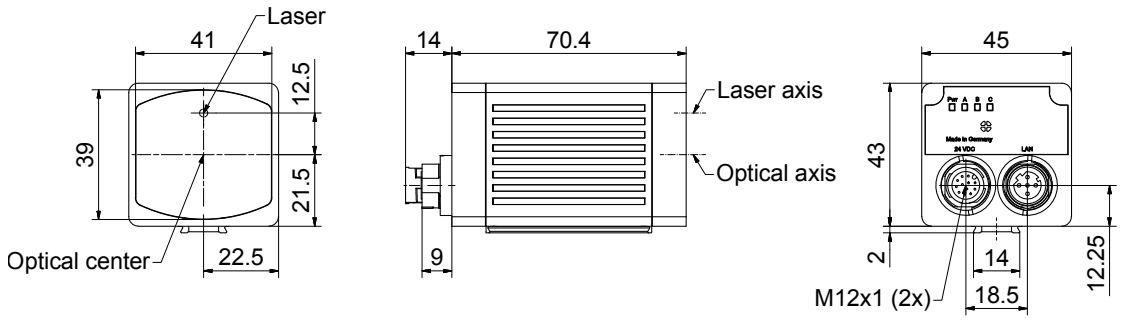
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

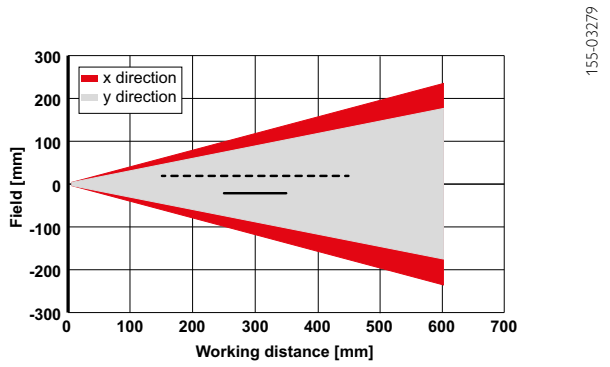
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, wide



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-P3-W-W-M2-L	632-91120	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-P3-R-W-M2-L	632-91123	Illumination	
Infrared	V20-RO-P3-I-W-M2-L	632-91126	Brackets	
White	V20C-RO-P3-W-W-M2-L	632-91130	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Professional, medium field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes, bar codes and OCR

Optical data	
Resolution	1440 x 1080 Pixel
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	12 (medium)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	25 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	10 x 8 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

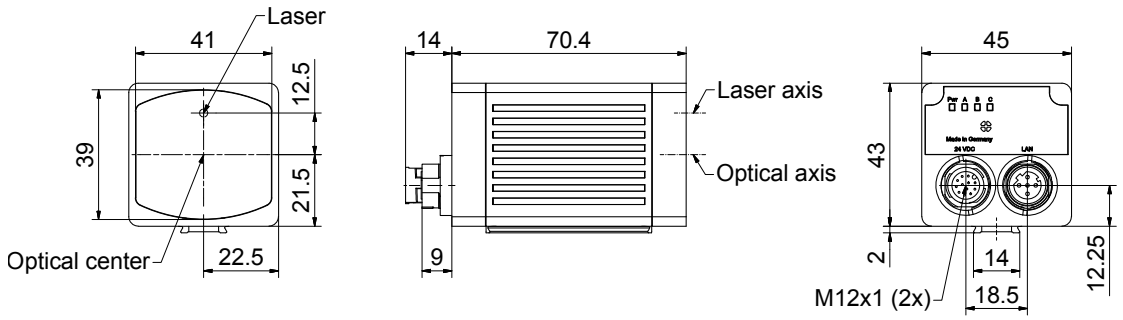
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP / NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

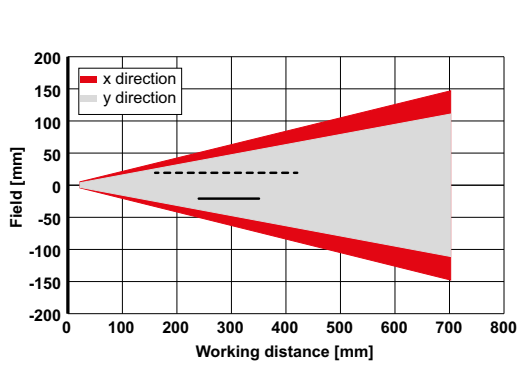
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, medium



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-P3-W-M-M2-L	632-91121	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-P3-R-M-M2-L	632-91124	Illumination	
Infrared	V20-RO-P3-I-M-M2-L	632-91127	Brackets	
White	V20C-RO-P3-W-M-M2-L	632-91131	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Professional, narrow field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes, bar codes and OCR

Optical data	
Resolution	1440 x 1080 pixels
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	20 (narrow)
Pixel size	3.45 µm x 3.45 µm
Focus	Motorized
Adjustment range	100 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	18 x 14 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

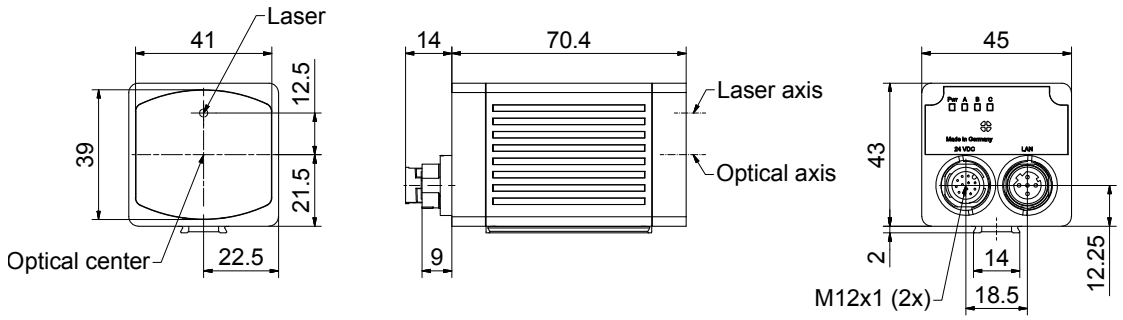
Electrical data	
Operating voltage, $+U_B$	18 ... 30 V DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

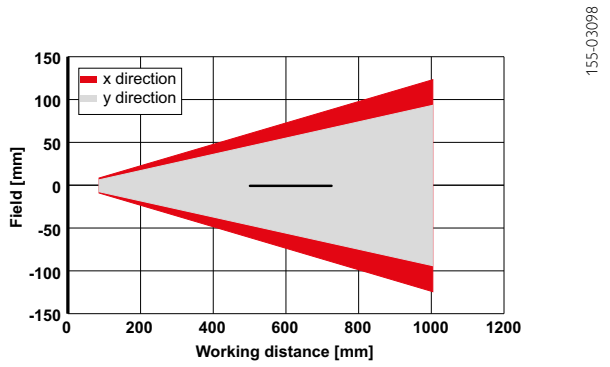
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V20, narrow



Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V20-RO-P3-W-N-M2-L	632-91122	Connection cables	www.sensopart.com/en/accessories
Red	V20-RO-P3-R-N-M2-L	632-91125	Illumination	
Infrared	V20-RO-P3-I-N-M2-L	632-91128	Brackets	
White	V20C-RO-P3-W-N-M2-L	632-91132	Interface accessories	
			Target Marks	

VISOR® V20 Robotic Professional, C-mount

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Calibration methods tailored to the application
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time
- Can be used for all common 2D codes, bar codes and OCR

Optical data	
Resolution	1440 x 1080 pixels
Imaging chip CMOS	1/2.9", monochrome / color
Integrated lens, focal length [mm]	C-mount
Pixel size	3.45 µm x 3.45 µm
Focus	Manual
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens
Target laser	No

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour, 3D contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast **Barcode:** reading 1D barcodes; EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, ECC200 GS1, pharm code, codabar; **Datacode:** reading 2D codes: ECC200 (GS1), QR code (GS1), Micro QR code, Aztec code (GS1), PDF 417; **OCR:** reading of fonts; **Result processing: Text, Math:** checking and calculating with results from detectors

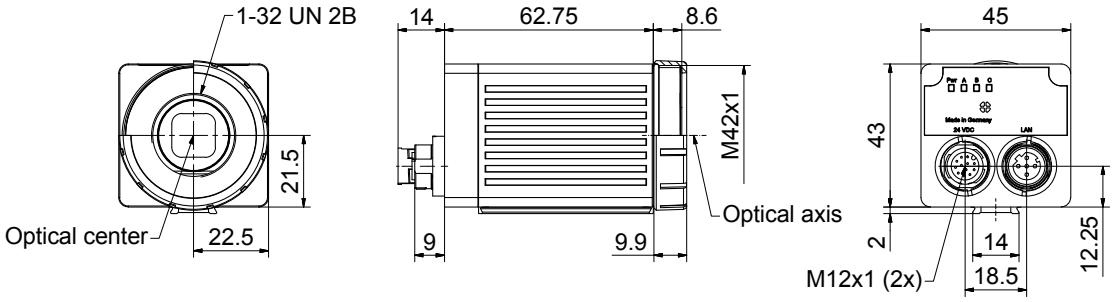
Electrical data	
Operating voltage, $+U_B$	18 ... 30 V DC[2]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65[3]
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

[1] Color hardware [2] Max. ripple < 5 V_{SS} [3] Only with protective casing [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor C-mount



153-13555

3

Lens	C-Mount protective casing for VISOR®
	

Part number	Article number
LPTVxx-G37.5	651-01006
LPTVxx-25.0	651-01007

	LOC-08-HD-30.5x0.5	LOC-12-HD-27x0.5	LOC-16-HD-27x0.5	LOC-25-HD-27x0.5	LOC-35-HD-27x0.5	LOC-50-HD-27x0.5	LOC-75-HD-34x0.5
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51535	526-51536	526-51537	526-51538	526-51539	526-51540	526-51541

Part number	Article number	Accessories	
V20-RO-P3-C-2	632-91129	Connection cables	www.sensopart.com/en/accessories
V20C-RO-P3-C-2	635-91133	Illumination	
		Lenses	
		Brackets	
		Interface accessories	
		Target Marks	

VISOR® V10 Robotic Advanced, wide field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	800 x 600 Pixel
Imaging chip CMOS	1/3.6", monochrome / color
Integrated lens, focal length [mm]	5.2 (wide)
Pixel size	4.8 µm x 4.8 µm
Focus	Motorized
Adjustment range	0 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	2 x 1 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

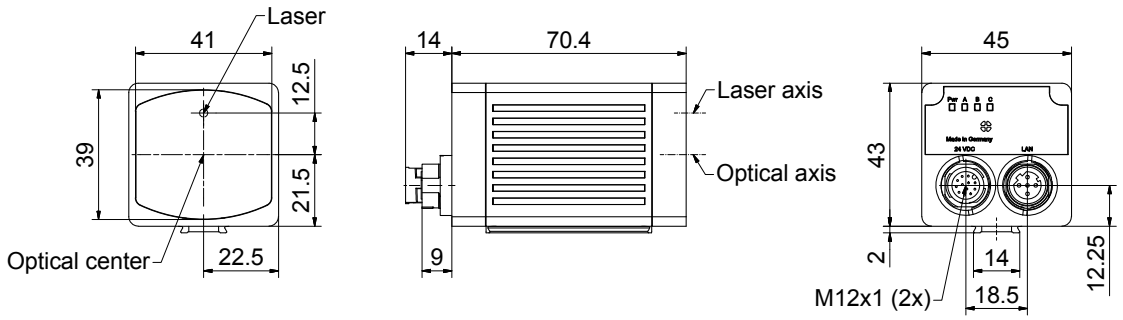
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

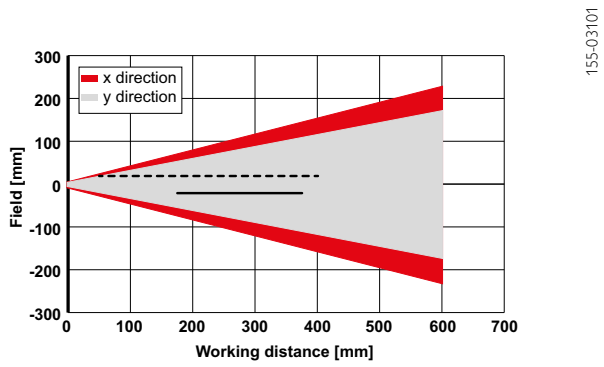
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V10, wide



Increased depth of field

Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V10-RO-A3-W-W-M2-L	631-91073	Connection cables	www.sensopart.com/en/accessories
Red	V10-RO-A3-R-W-M2-L	631-91076	Illumination	
Infrared	V10-RO-A3-I-W-M2-L	631-91079	Brackets	
			Interface accessories	
			Target Marks	

VISOR® V10 Robotic Advanced, medium field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	800 x 600 Pixel
Imaging chip CMOS	1/3.6", monochrome / color
Integrated lens, focal length [mm]	9.6 (medium)
Pixel size	4.8 µm x 4.8 µm
Focus	Motorized
Adjustment range	12 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	7 x 3 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

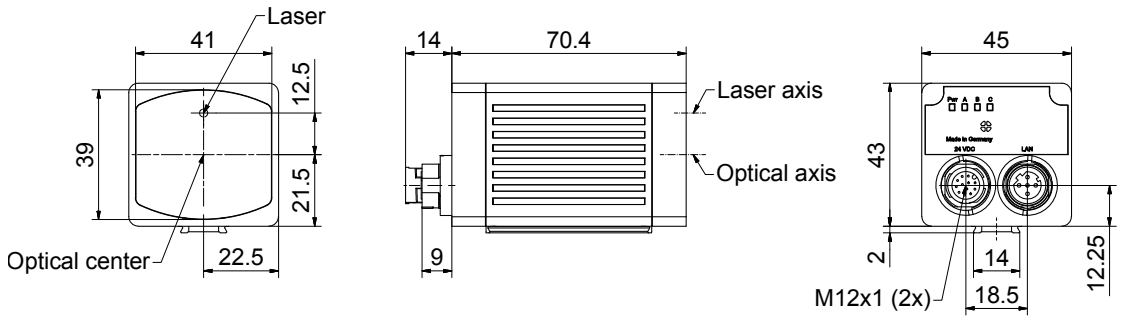
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

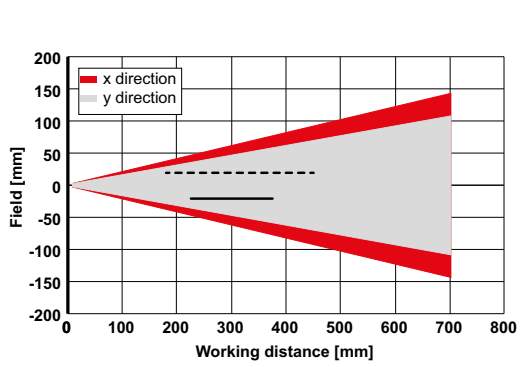
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V10, medium



- - - - - Increased depth of field
——— Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V10-RO-A3-W-M-M2-L	631-91074	Connection cables	www.sensopart.com/en/accessories
Red	V10-RO-A3-R-M-M2-L	631-91077	Illumination	
Infrared	V10-RO-A3-I-M-M2-L	631-91080	Brackets	
			Interface accessories	
			Target Marks	

VISOR® V10 Robotic Advanced, narrow field of view

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	800 x 600 Pixel
Imaging chip CMOS	1/3.6", monochrome / color
Integrated lens, focal length [mm]	20 (narrow)
Pixel size	4.8 µm x 4.8 µm
Focus	Motorized
Adjustment range	100 mm to infinity
Integrated illumination	White (4500 K), red (625 nm)[1], infrared (850 nm)[1] LEDs
Minimum field of view, X x Y	14 x 10 mm
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

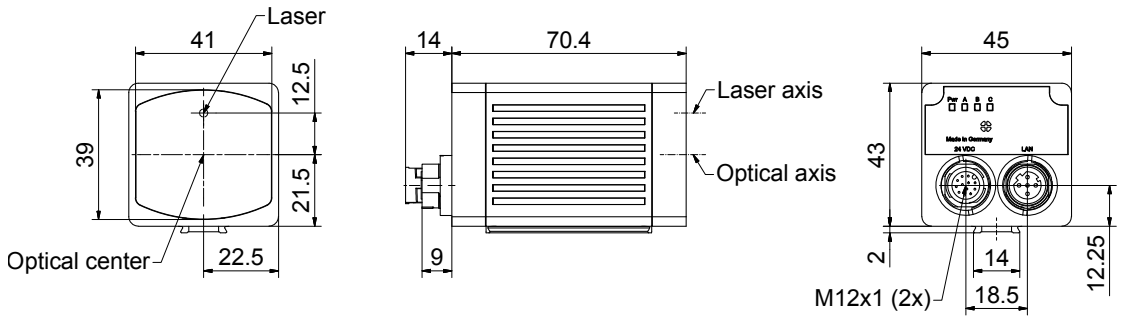
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[3]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

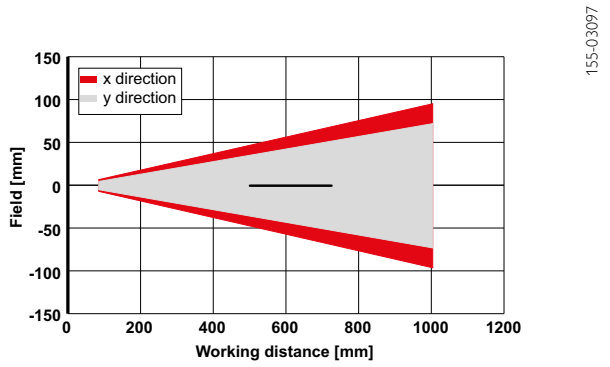
[1] Not color hardware [2] Color hardware [3] Max. ripple < 5 V_S [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor



Field of view V10, narrow



Normal depth of field

Illumination	Part number	Article number	Accessories	
White	V10-RO-A3-W-N-M2-L	631-91075	Connection cables	www.sensopart.com/en/accessories
Red	V10-RO-A3-R-N-M2-L	631-91078	Illumination	
Infrared	V10-RO-A3-I-N-M2-L	631-91081	Brackets	
			Interface accessories	
			Target Marks	

VISOR® V10 Robotic Advanced, C-mount

Vision sensor for object detection, presence check, completeness check, measurement and positioning tasks

PRODUCT HIGHLIGHTS

- Simple calibration methods for robotics applications
- Result offset 3D for direct gripper point transmission to robot
- Easy adjustment of the work plane
- Target Mark technology provides 3D object poses in no time

Optical data	
Resolution	800 x 600 Pixel
Imaging chip CMOS	1/3.6", monochrome / color
Integrated lens, focal length [mm]	C-mount
Pixel size	4.8 µm x 4.8 µm
Focus	Manual
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens
Target laser	Laser: red (655 nm) class 1 (IEC 60825-1)

Functions	
Number of jobs / detectors	Max. 255 / max. 255
Detectors	Position tracking: X/Y and orientation; **Pattern matching, contour:** teach-in and detection of patterns and contours; **Target Mark 3D:** 3D pose determination; **Calliper:** distance between edges; **BLOB, grey threshold, brightness:** evaluation of brightness; **Contrast:** evaluation of contrast; **Result processing: Math:** checking and calculating with results from detectors

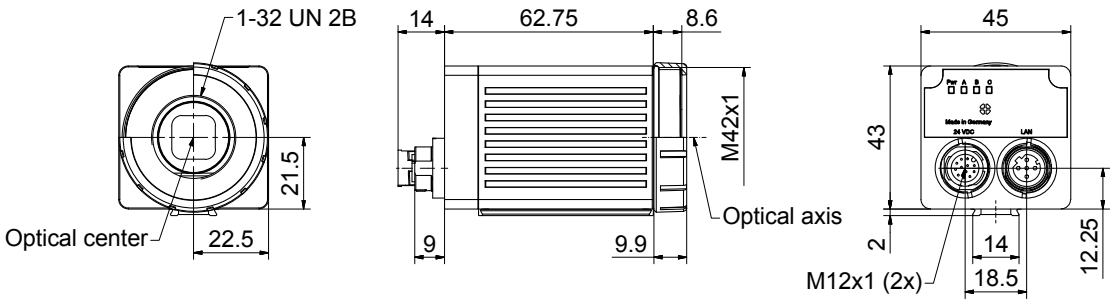
Electrical data	
Operating voltage, $+U_B$	18 ... 30 DC[2]
Current consumption (without I/O)	≤ 300 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Approx. 13 s after Power on
Outputs	PNP/NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Switching threshold inputs incl. encoder	PNP/NPN High > U_B-1 V / Low < 3 V
Input resistance	> 20 kΩ
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb, Service Port
Inputs/outputs	2 inputs, 2 outputs, 6 selectable inputs/outputs
Encoder	✓

Mechanical data	
Dimensions	70.4 x 45 x 45 mm (without plug)
Enclosure rating	IP 67 & IP 65[3]
Material, housing	Aluminium, die-cast, RoHS compliant
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Approx. 200 g
Plug connections	Supply and I/O M12, 12-pin, Ethernet M12, 4-pin
Vibration resistance	EN 60068-2-6
Shock resistance	EN 60068-2-27

[1] Color hardware [2] Max. ripple < 5 V_{SS} [3] Only with protective casing [4] 80 % air humidity, noncondensing

Version: 04/2023. Subject to changes; diagrams similar

VISOR® vision sensor C-mount



153-13555

Lens

C-Mount protective casing for VISOR®

Part number	Article number
LPTVxx-G37.5	651-01006
LPTVxx-25.0	651-01007

	LOC-08-HD-30.5x0.5	LOC-12-HD-27x0.5	LOC-16-HD-27x0.5	LOC-25-HD-27x0.5	LOC-35-HD-27x0.5	LOC-50-HD-27x0.5	LOC-75-HD-34x0.5
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm
Article number	526-51535	526-51536	526-51537	526-51538	526-51539	526-51540	526-51541

Part number	Article number	Accessories	
V10-RO-A3-C-2	631-91082	Connection cables Illumination Lenses Brackets Interface accessories Target Marks	www.sensopart.com/en/accessories