VISOR® Allround
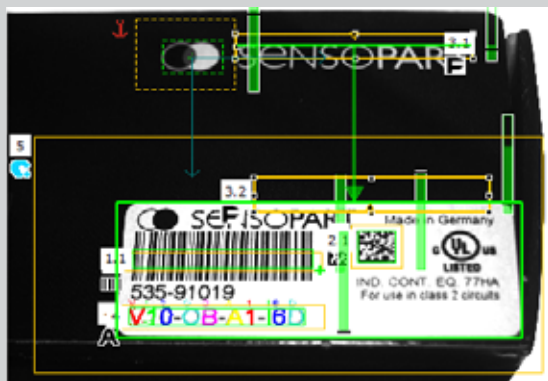
Advanced vision sensor for complex inspection tasks.

■■■ made in Germany

VISOR® Allround – Object detection in colour plus identifi-cation united in one device.
The VISOR® Allround is the latest member in the VISOR family and a real multi-talent among vision sensors. In the new allround version, the device unites the functions of the object sensor (i.a. pattern matching, contour, calliper, BLOB) with the powerful tools of the code reader (bar code, datamatrix and optical character recognition).

HIGHLIGHTS OF VISOR® ALLORUND

- All evaluations ("Detectors") of object sensor and code reader united in one device

- Highly accurate evaluation via 1.3 mega- pixel chip

- Powerful part-finding and tracking

- Precise determination of X/Y position, orientation and tracking

- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes

- User-friendly configuration and viewer software with graded user rights and online help

The one with a BLOB:
With the new BLOB detector (Binary Large Object), the VISOR® detects even small differences between objects, counts parts or detects whether a part is face up or face down.

VISOR® Allround – Object detection in colour plus identification united in one device.

The VISOR® Allround is the latest member in the VISOR family and a real multi-talent among vision sensors. In the new allround version, the device unites the functions of the object sensor (i.a. pattern matching, contour, calliper, BLOB) with the powerful tools of the code reader (bar code, datamatrix and optical character recognition). When feeding parts in correct alignment or positioning components, additional datamatrix codes for example can now also be read. With a resolution of up to 1.3 megapixel even the smallest details are reliably detected and evaluated.

In addition to the monochrome version, the VISOR® Allround is also available as a colour version with up to 1.3 megapixel. Thus additional "Detectors" are available for colour evaluation. Even the subtlest nuances in shade can be reliably detected. The relevant object colours, for example, can be taught-in quite simply by push of a button or - thanks to the intuitive colour histogram - set graphically for each channel in the colour space. The authorised colour tolerances can be defined by the user.

VISOR® Allround – Product Overview					
	Firmware Option	Resolution	Focal Length	Integrated illumination	Page
V20-ALL-A2-xxx	Advanced	1280 × 1024 pixels	12 mm	White, red or infrared	68
V20-ALL-A2-xxx	Advanced	1280 × 1024 pixels	C-mount	None	70
V20C-ALL-A2-xxx	Advanced	1280 × 1024 pixels	12 mm	White	72
V20C-ALL-A2-xxx	Advanced	1280 × 1024 pixels	C-mount	None	74
V10-ALL-A2-xxx	Advanced	736 × 480 pixels	6 mm	White, red or infrared	76
V10-ALL-A2-xxx	Advanced	736 × 480 pixels	12 mm	White, red or infrared	78
V10-ALL-A2-xxx	Advanced	736 × 480 pixels	25 mm	White, red or infrared	80
V10-ALL-A2-xxx	Advanced	736 × 480 pixels	C-mount	None	82
V10C-ALL-A2-xxx	Advanced	736 × 480 pixels	6 mm	White	84
V10C-ALL-A2-xxx	Advanced	736 × 480 pixels	12 mm	White	86
V10C-ALL-A2-xxx	Advanced	736 × 480 pixels	25 mm	White	88
V10C-ALL-A2-xxx	Advanced	736 × 480 pixels	C-mount	None	90

VISOR® V20 Allround

Advanced vision sensor for complex inspection tasks, 12 mm
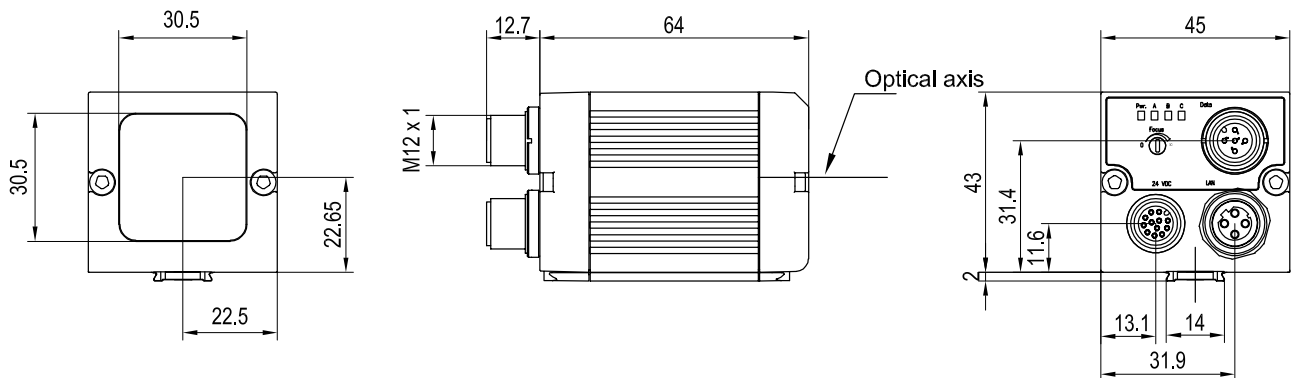
CE
IP 67
c UL us LISTED
PROFINET®

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Highly accurate evaluation via 1.3 mega- pixel chip
- Powerful part-finding and tracking
- Precise determination of X/Y position, orientation and tracking
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	1280 × 1024 pixels
CMOS	1/1.8'', monochrome
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	30 mm to infinity
Integrated illumination	White, red, infrared LEDs
Minimum field of view, X × Y	16 × 13 mm²

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, Data code, Bar code, OCR
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; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms bar code typ. 40 ms data code typ. 15 ms per character OCR

Electrical data	
Operating voltage, $+U_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50° C[3]
Ambient temperature: storage	-20 … +60° C[3]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{ss} [2] with VGA-resolution (640 × 480 pixels) [3] 80 % air humidity, non-condensing
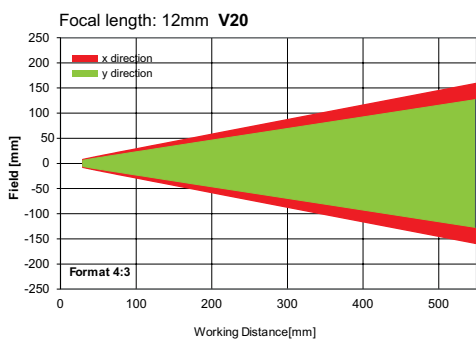
Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

153-00911

30.5

30.5

22.65

22.5

12.7

64

M12 x 1

Optical axis

45

43

31.4

11.6

2

13.1

14

31.9

Par. A B C Data

Focus

24 VDC LAN

Field of view

155-01637

Focal length: 12mm **V20**

x direction
y direction

Field [mm]

Format 4:3

Working Distance[mm]

Depth of field: normal

155-01636

Focal length: 12mm **V20**   Depth of focus: Normal

Resolved object size
0.13mm
0.25mm
0.50mm
0.75mm

Depth of Field [mm]

Working Distance [mm]
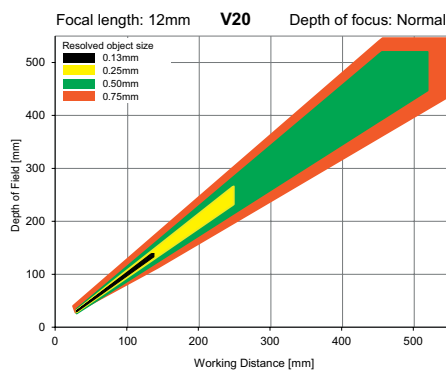
Illumination	Part number	Article number
White	V20-ALL -A2-W12	536-91032
Red	V20-ALL-A2-R12	536-91033
Infrared	V20-ALL-A2-I12	536-91034

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V20 Allround

Advanced vision sensor for complex inspection tasks, C-mount
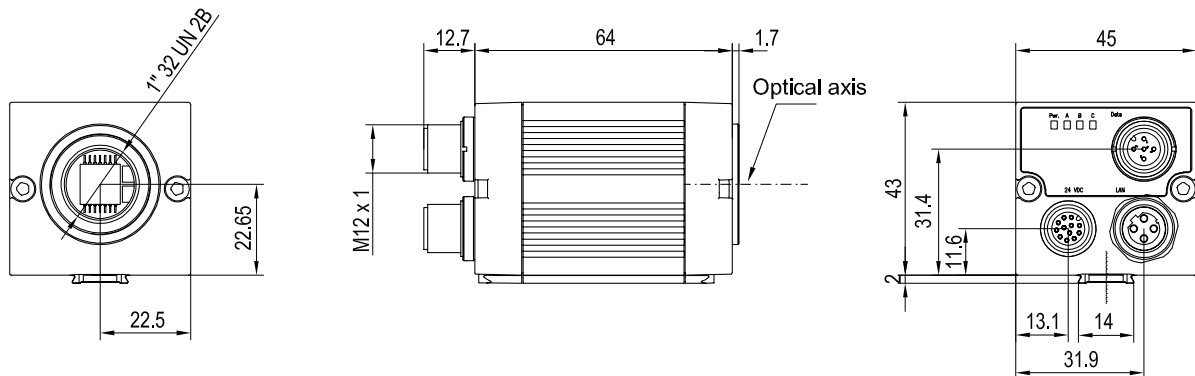
CE

IP 65 [3]

c UL us LISTED

PROFI NET®

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Highly accurate evaluation via 1.3 mega- pixel chip
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	1280 × 1024 pixels
CMOS	1/1.8'', monochrome
Integrated lens, focal length	C-Mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X × Y	Dependent on lens

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, Data code, Bar code, OCR
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: eva-luation of contrast; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms Bar code typ. 40 ms Data code typ. 15 ms per character OCR

Electrical data

Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 65[3]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{SS} [2] With VGA-resolution (640 × 480 Pixel)   [3] With LPT45 C-mount protective casing   [4] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

Optical axis

1" 32 UN 2B
22.65
22.5
M12 x 1
12.7 · 64 · 1.7
45
43
31.4
11.6
2
13.1 · 14
31.9

153-00912

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

Part number	Article number
V20-ALL-A2-C	536-91035

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Lenses	From Page A-25
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V20 Allround Color

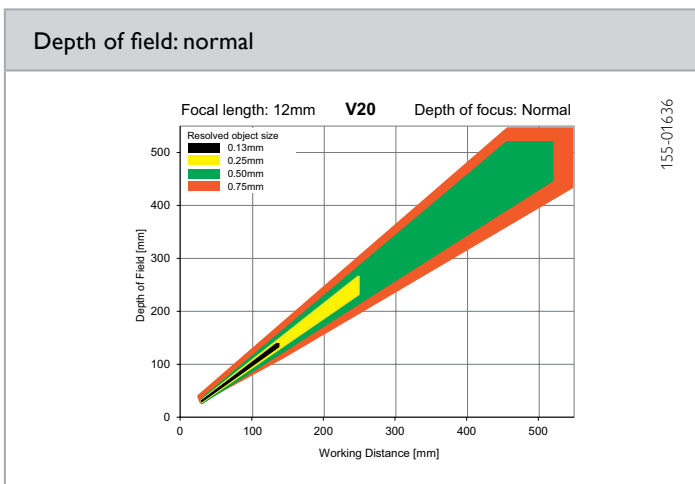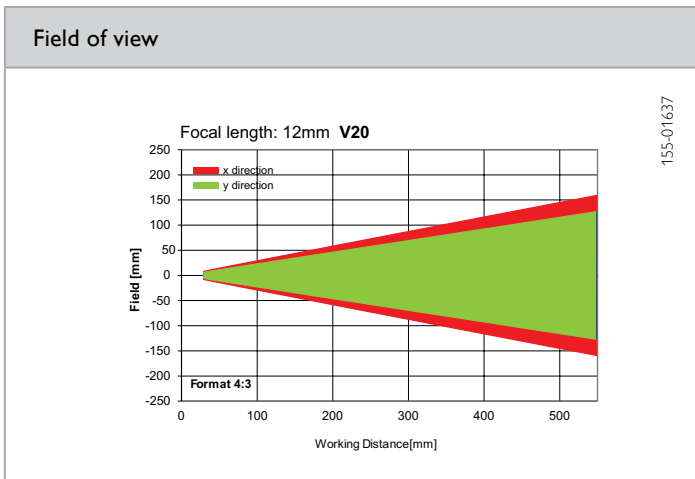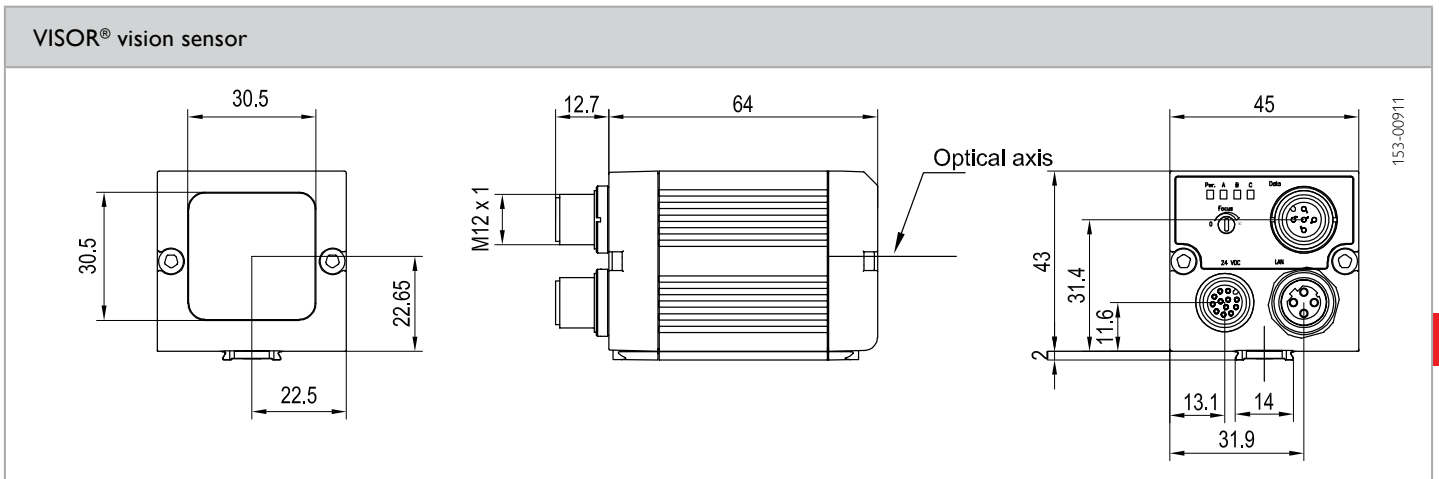Advanced vision sensor for complex inspection tasks, 12 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device

- Highly accurate evaluation via 1.3 mega- pixel colour chip

- Powerful part-finding and tracking

- Precise position determination: X/Y-position and orientation

- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes

- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	1280 x 1024 pixels
CMOS	1/1.8'', colour
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	30 mm to infinity
Integrated illumination	White LEDs
Minimum field of view, X x Y	16 x 13 mm^2

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tole-rance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data

Operating voltage, +U$_B$	18 … 26.4 V DC^1
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 x 45 x 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50° C^3
Ambient temperature: storage	-20 … +60° C^3
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

^{1} Max. ripple < 5 V$_{SS}$ ^{2} with VGA-resolution (640 x 480 pixels) ^{3} 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

153-00911

30.5
30.5
22.65
22.5

12.7   64

M12 x 1

Optical axis

45
43
31.4
11.6
2
13.1   14
31.9

Par. A B C   Data
Focus
24 VDC   LAN

4

Field of view

155-01637

Focal length: 12mm **V20**

- x direction
- y direction

Field [mm]

250
200
150
100
50
0
-50
-100
-150
-200
-250

Format 4:3

0   100   200   300   400   500

Working Distance[mm]

Depth of field: normal

155-01636

Focal length: 12mm **V20**   Depth of focus: Normal

Resolved object size
- 0.13mm
- 0.25mm
- 0.50mm
- 0.75mm

Depth of Field [mm]

500

400

300

200

100

0

0   100   200   300   400   500

Working Distance [mm]

Illumination	Part number	Article number
White	V20C-ALL -A2-W12	536-91036

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V20 Allround Color

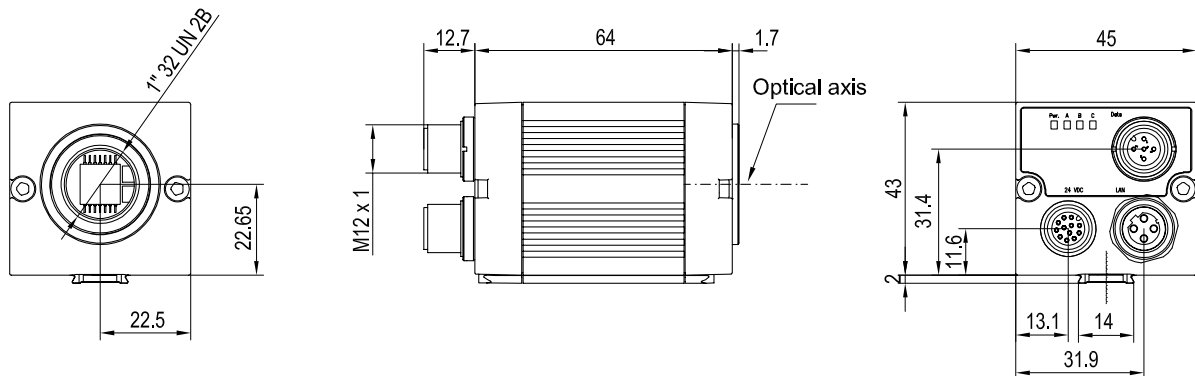Advanced vision sensor for complex inspection tasks, C-mount

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Highly accurate evaluation via 1.3 mega- pixel colour chip
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	1280 × 1024 pixels
CMOS	1/1.8'', colour
Integrated lens, focal length	C-Mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X × Y	Dependent on lens

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tole-rance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data

Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 65[3]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[4]
Ambient temperature: storage	-20 … +60 °C[4]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{SS} [2] With VGA-resolution (640 × 480 Pixel)   [3] With LPT45 C-mount protective casing   [4] 80 % air humidity, non-condensing
74   www.sensopart.com
Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

153-00912

4

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

Part number	Article number
V20C-ALL -A2-C	536-91037

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Lenses	From Page A-25
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround

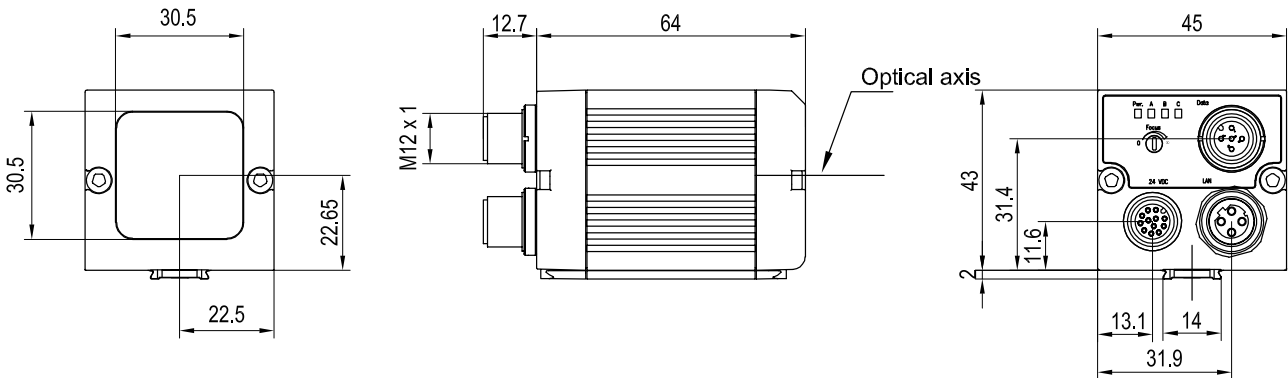Allround vision sensor for complex inspection tasks, 6 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Datamatrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	736 x 480 pixels
CMOS	1/3'', monochrome
Integrated lens, focal length	6 mm, adjustable focal position
Adjustment range	6 mm to infinity
Integrated illumination	White, red, infrared LEDs
Minimum field of view, X x Y	5 x 4 mm^2

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR
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; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms bar code Typ. 40 ms data code Typ. 15 ms per character OCR

Electrical data	
Operating voltage, +U$_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 x 45 x 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +60 °C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V$_{SS}$ [2] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

30.5
30.5
22.65
22.5

12.7
64
M12 x 1
Optical axis

45
43
31.4
11.6
2
13.1
14
31.9

Per. A B C Data
Focus
24 VDC LAN

153-00911

Field of view

Focal length: 6mm

- x direction
- y direction

Format WVGA

Field [mm]
Working Distance[mm]

155-01422

Depth of field: normal

Focal length: 6mm   Depth of focus: Normal

Resolved object size
- 0.13mm
- 0.25mm
- 0.50mm
- 0.75mm

Depth of Field [mm]
Working Distance [mm]
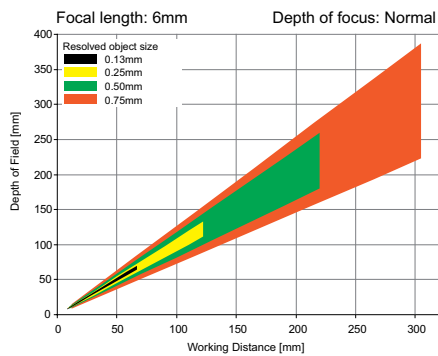
155-01409

Illumination	Part number	Article number
White	V10-ALL-A2-W6	535-91092
Red	V10-ALL-A2-R6	535-91095
Infrared	V10-ALL-A2-I6	535-91098

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

4

VISOR® V10 Allround

Allround vision sensor for complex inspection tasks, 12 mm
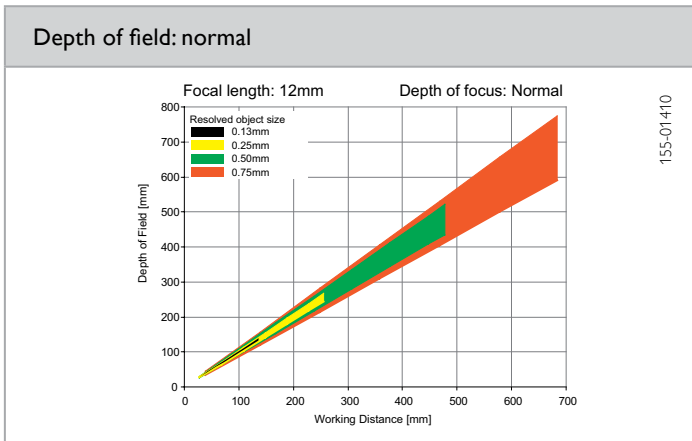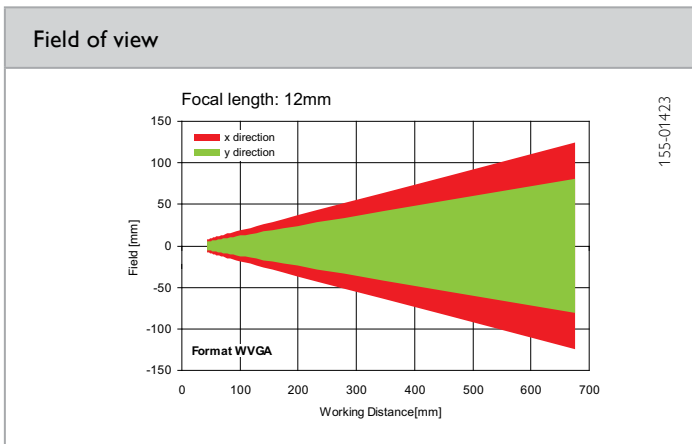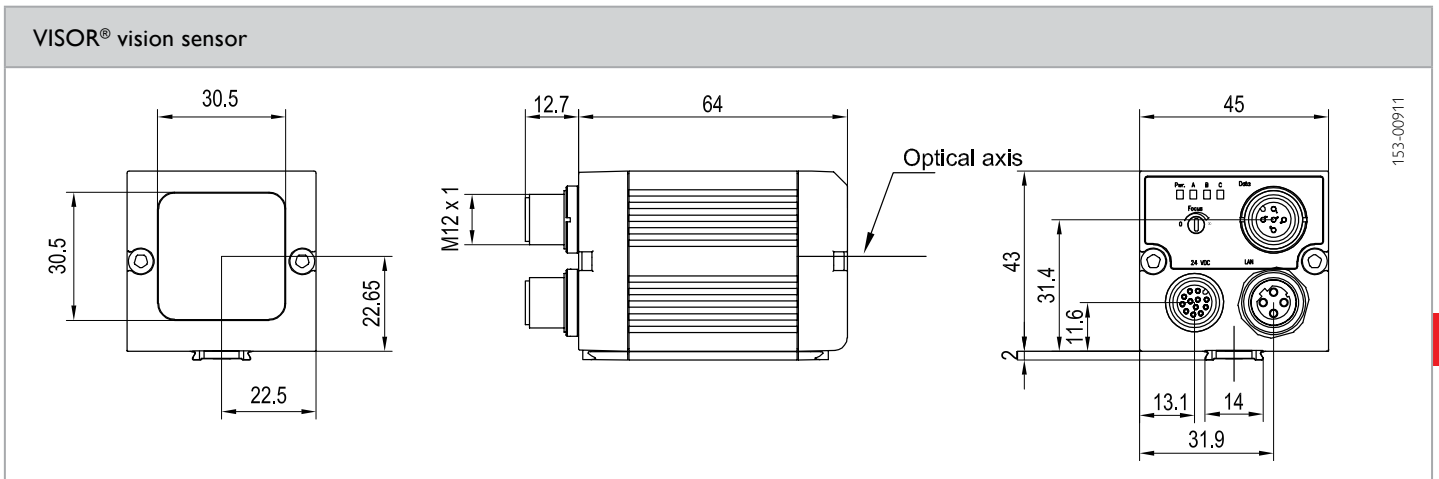

CE
IP 67
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PROFI NET®

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	736 × 480 pixels
CMOS	1/3'', monochrome
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	30 mm to infinity
Integrated illumination	White, red, infrared LEDs
Minimum field of view, X × Y	8 × 6 mm²

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR
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; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms bar code Typ. 40 ms data code Typ. 15 ms per character OCR

Electrical data

Operating voltage, +U$_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50° C[2]
Ambient temperature: storage	-20 … +60° C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V$_{SS}$ [2] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

30.5

30.5

22.65

22.5

12.7 64

M12 x 1

Optical axis

45

43

31.4

11.6

2

13.1 14

31.9

153-00911

Par. A B C Data

Focus

24 VDC LAN

Field of view

Focal length: 12mm

| | x direction |
| | y direction |

Field [mm]

150

100

50

0

-50

-100

-150

Format WVGA

0 100 200 300 400 500 600 700

Working Distance[mm]

155-01423

Depth of field: normal

Focal length: 12mm   Depth of focus: Normal

Resolved object size

■	0.13mm
■	0.25mm
■	0.50mm
■	0.75mm

Depth of Field [mm]

800

700

600

500

400

300

200

100

0

0 100 200 300 400 500 600 700

Working Distance [mm]

155-01410

Illumination	Part number	Article number
White	V10-ALL-A2-W12	535-91093
Red	V10-ALL-A2-R12	535-91096
Infrared	V10-ALL-A2-I12	535-91099

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround

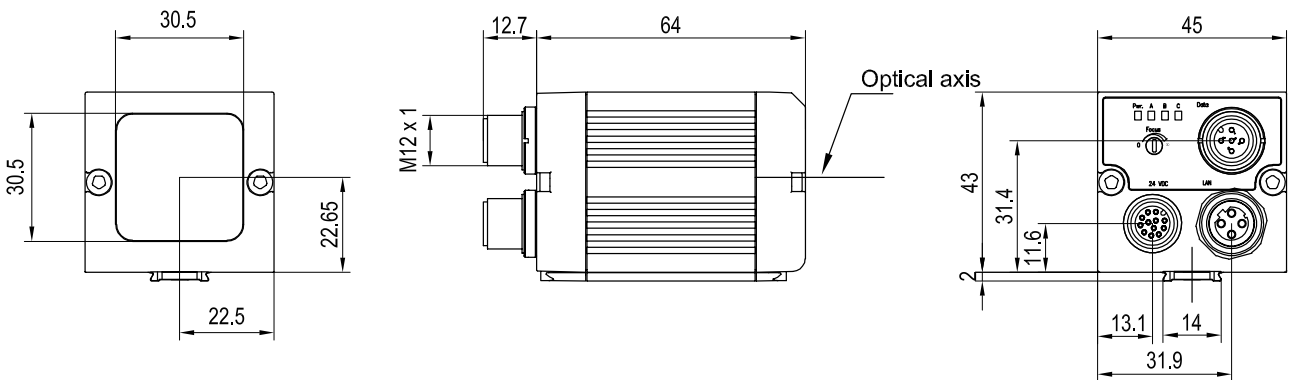Allround vision sensor for complex inspection tasks, 25 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Datamatrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	736 × 480 pixels
CMOS	1/3", monochrome
Integrated lens, focal length	25 mm, adjustable focal position
Adjustment range	140 mm to infinity
Integrated illumination	White, red, infrared LEDs
Minimum field of view, X × Y	18 × 14 mm^2

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR
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; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms bar code Typ. 40 ms data code Typ. 15 ms per character OCR

Electrical data	
Operating voltage, +U$_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +60 °C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V$_{SS}$ [2] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

153-00911

Field of view

Focal length: 25mm

155-01424

- x direction
- y direction

Format WVGA

Field [mm] / Working Distance[mm]

Depth of field: normal

Focal length: 25mm   Depth of focus: Normal

155-01412

Resolved object size
- 0.13mm
- 0.25mm
- 0.50mm
- 0.75mm

Depth of Field [mm] / Working Distance [mm]

Illumination	Part number	Article number
White	V10-ALL-A2-W25	535-91094
Red	V10-ALL-A2-R25	535-91097
Infrared	V10-ALL-A2-I25	535-91100

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround

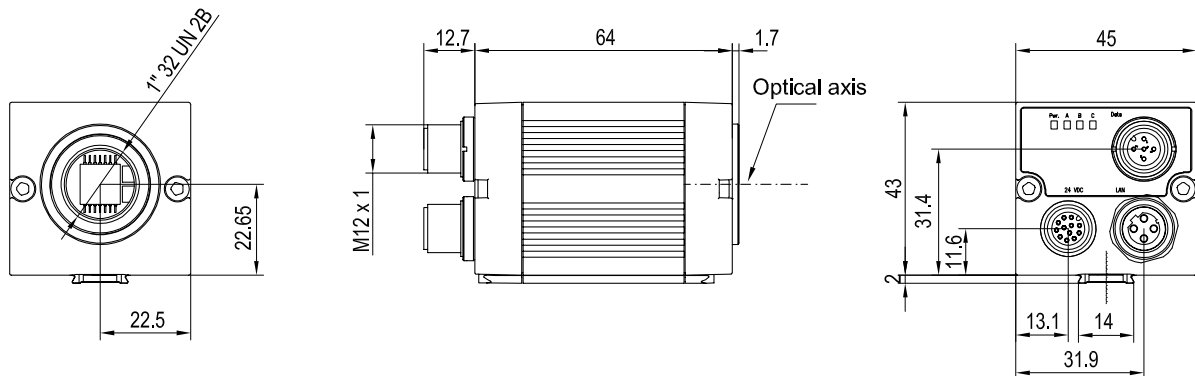Allround vision sensor for complex inspection tasks, C-mount

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Datamatrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	736 × 480 pixels
CMOS	1/3'', monochrome
Integrated lens, focal length	C-Mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X × Y	Dependent on lens

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR
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; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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. 30 ms bar code Typ. 40 ms data code Typ. 15 ms per character OCR

Electrical data	
Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 65[2]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[3]
Ambient temperature: storage	-20 … +60 °C[3]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

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

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

1" 32 UN 2B

22.65

22.5

12.7 64 1.7

M12 x 1

Optical axis

45

43 31.4 11.6 2

13.1 14

31.9

153-00912

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

Part number	Article number
V10-ALL-A2-C	535-91101

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Lenses	From Page A-25
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround Color

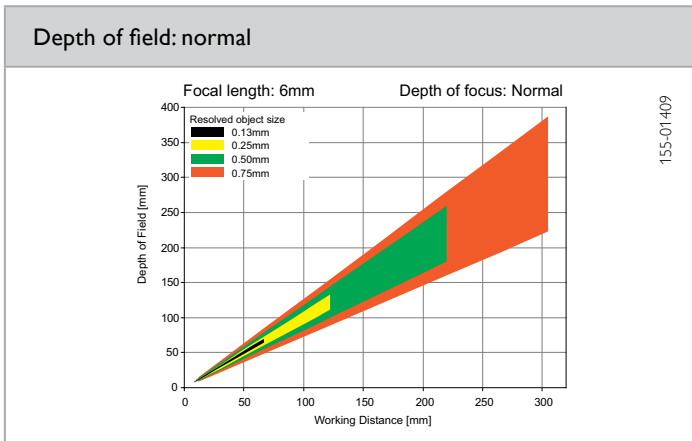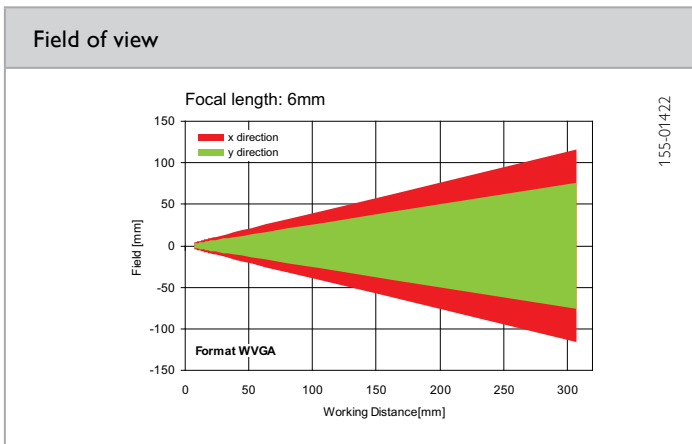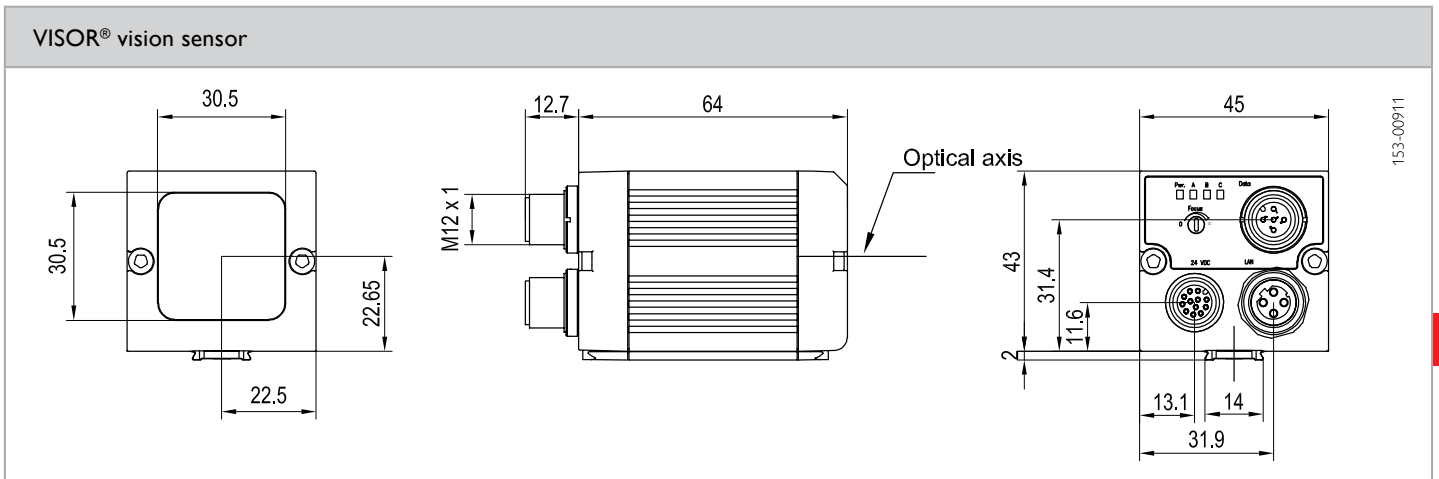Allround vision sensor for complex inspection tasks, 6 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Datamatrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	736 × 480 pixels
CMOS	1/3'', colour
Integrated lens, focal length	6 mm, adjustable focal position
Adjustment range	6 mm to infinity
Integrated illumination	White LEDs
Minimum field of view, X × Y	5 × 4 mm^2

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors'	Contour, pattern comparison, calliper; BLOB, contrast, brightness, grey level, data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tolerance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data

Operating voltage, +U$_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +60 °C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V$_{SS}$ [2] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

30.5

30.5

22.65

22.5

12.7

64

M12 x 1

Optical axis

45

43

31.4

11.6

2

13.1

14

31.9

Par. A B C Data
Focus
24 VDC LAN

153-00911

Field of view

Focal length: 6mm

155-01422

■ x direction
■ y direction

Field [mm]

150
100
50
0
-50
-100
-150

Format WVGA

0   50   100 150 200 250 300

Working Distance[mm]

Depth of field: normal

Focal length: 6mm   Depth of focus: Normal

155-01409

Resolved object size
■ 0.13mm
■ 0.25mm
■ 0.50mm
■ 0.75mm

Depth of Field [mm]

400
350
300
250
200
150
100
50
0

0   50   100 150 200 250 300

Working Distance [mm]

Illumination	Part number	Article number
White	V10C-ALL-A2-W6	535-91102

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

4

VISOR® V10 Allround Color

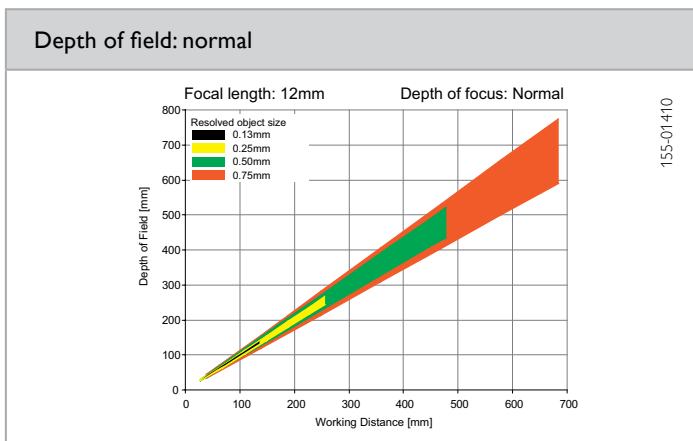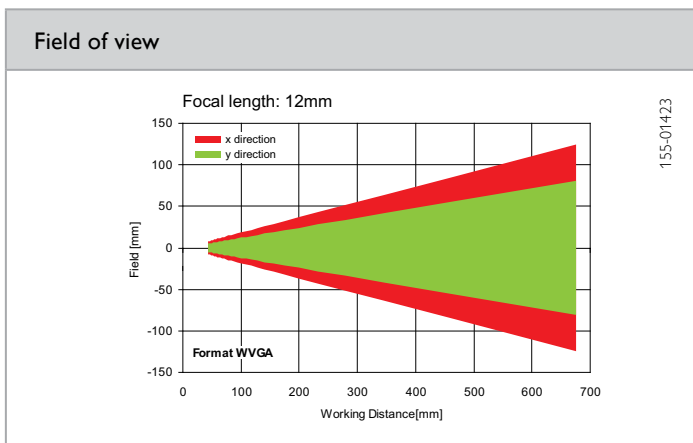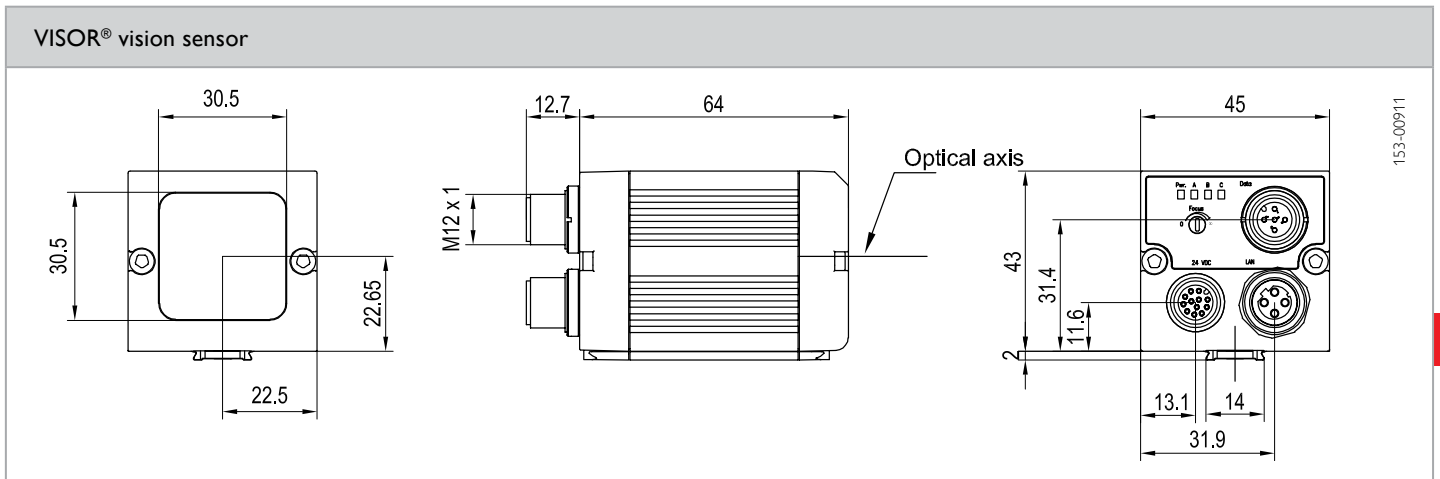Allround vision sensor for complex inspection tasks, 12 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	736 × 480 pixels
CMOS	1/3", colour
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	30 mm to infinity
Integrated illumination	White LEDs
Minimum field of view, X × Y	8 × 6 mm²

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level-data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tolerance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data	
Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50° C²
Ambient temperature: storage	-20 … +60° C²
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

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

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

Optical axis

153-00911

Field of view

Focal length: 12mm

- x direction
- y direction

Field [mm]

Format WVGA

Working Distance[mm]

155-01423

Depth of field: normal

Focal length: 12mm   Depth of focus: Normal

Resolved object size
- 0.13mm
- 0.25mm
- 0.50mm
- 0.75mm

Depth of Field [mm]

Working Distance [mm]

155-01410

Illumination	Part number	Article number
White	V10C-ALL-A2-W12	535-91103

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround Color

Allround vision sensor for complex inspection tasks, 25 mm
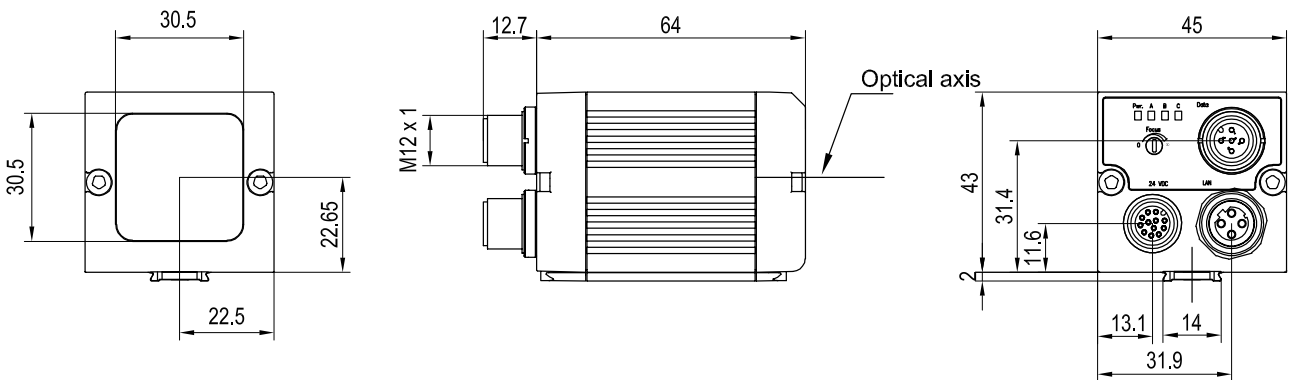
CE
IP 67
c(UL)us LISTED
PROFINET®

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data

Resolution	736 × 480 pixels
CMOS	1/3'', colour
Integrated lens, focal length	25 mm, adjustable focal position
Adjustment range	140 mm to infinity
Integrated illumination	White LEDs
Minimum field of view, X × Y	18 × 14 mm^2

Functions

Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tolerance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data

Operating voltage, +U$_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U$_B$ / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U$_B$-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data

Dimensions	65 × 45 × 45 mm (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +60 °C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V$_{SS}$ [2] 80 % air humidity, non-condensing

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

Optical axis

M12 x 1

30.5
30.5
22.65
22.5

12.7
64

45
43
31.4
11.6
2
13.1
14
31.9

Par. A B C Data
Focus
24 VDC LAN

153-00911

Field of view

Focal length: 25mm

- x direction
- y direction

Format WVGA

Field [mm] — (150, 100, 50, 0, -50, -100, -150)
Working Distance[mm] — (0, 250, 500, 750, 1000, 1250, 1500, 1750)

155-01424

Depth of field: normal

Focal length: 25mm   Depth of focus: Normal

Resolved object size
- 0.13mm
- 0.25mm
- 0.50mm
- 0.75mm

Depth of Field [mm] — (0, 250, 500, 750, 1000, 1250, 1500, 1750)
Working Distance [mm] — (0, 250, 500, 750, 1000, 1250, 1500, 1750)
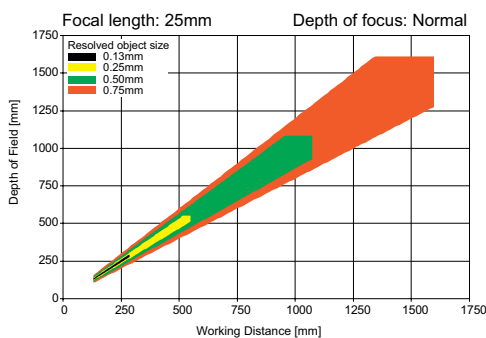
155-01412

Illumination	Part number	Article number
White	V10C-ALL-A2-W25	535-91104

Accessories

Connection cables	From Page A-38
Illumination	From Page A-29
Brackets	From Page A-4
Interface accessories	From Page A-41

VISOR® V10 Allround Color

Allround vision sensor for complex inspection tasks, C-mount
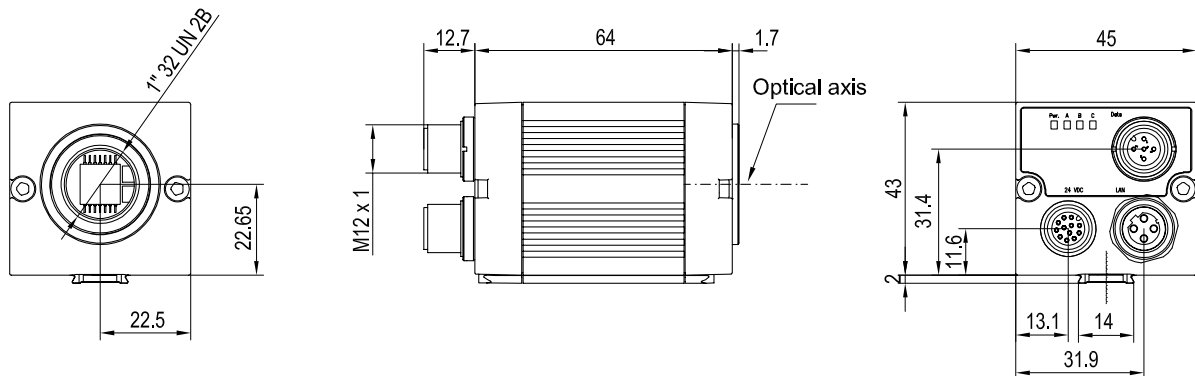
CE
IP 65 [2]
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PROFI NET®

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object sensor and code reader united in one device
- Powerful part-finding and tracking
- Precise position determination: X/Y-position and orientation
- Can be used for all common 2D-Codes (ECC 200-Datamatrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

Optical data	
Resolution	736 x 480 pixels
CMOS	1/3'', colour
Integrated lens, focal length	C-Mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens

Functions	
Number of jobs / detectors	max. 255 / max. 255
Detectors	Contour, pattern comparison, calliper; BLOB, contrast, brightness, grey level; data code, bar code, OCR, colour list, colour area, colour value
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; colour value: output of colour values; colour area: two-dimensional colour inspection with adustable tolerance; colour list: detecting the most similar colours; bar code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417; OCR
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 colour value; typ. 30 ms colour area; typ. 2 ms colour list; typ. 30 ms bar code; typ. 40 ms data code; typ. 15 ms per character OCR

Electrical data	
Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Power On Delay	Ca. 13 s after Power on
Outputs	PNP / NPN (switchable)
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 x 45 x 45 mm (without plug)
Enclosure rating	IP 65[2]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[3]
Ambient temperature: storage	-20 … +60 °C[3]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

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

Version: 07/2015. Subject to changes; diagrams similar

VISOR® vision sensor

153-00912

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

Part number	Article number
V10C-ALL-A2-C	535-91105

Accessories	
Connection cables	From Page A-38
Illumination	From Page A-29
Lenses	From Page A-25
Brackets	From Page A-4
Interface accessories	From Page A-41