VISOR® Allround
Advanced vision sensor for complex inspection tasks.

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 – 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

<table>
<thead>
<tr>
<th>VISOR® Allround</th>
<th>Firmware Option</th>
<th>Resolution</th>
<th>Focal Length</th>
<th>Integrated illumination</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-ALL-A2-xxx</td>
<td>Advanced</td>
<td>1280 x 1024 pixels</td>
<td>12 mm</td>
<td>White, red or infrared</td>
<td>68</td>
</tr>
<tr>
<td>V20-ALL-A2-xxx</td>
<td>Advanced</td>
<td>1280 x 1024 pixels</td>
<td>C-mount</td>
<td>None</td>
<td>70</td>
</tr>
<tr>
<td>V20C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>1280 x 1024 pixels</td>
<td>12 mm</td>
<td>White</td>
<td>72</td>
</tr>
<tr>
<td>V20C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>1280 x 1024 pixels</td>
<td>C-mount</td>
<td>None</td>
<td>74</td>
</tr>
<tr>
<td>VT10-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>6 mm</td>
<td>White, red or infrared</td>
<td>76</td>
</tr>
<tr>
<td>V10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>12 mm</td>
<td>White, red or infrared</td>
<td>78</td>
</tr>
<tr>
<td>VT10-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>25 mm</td>
<td>White, red or infrared</td>
<td>80</td>
</tr>
<tr>
<td>V10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>C-mount</td>
<td>None</td>
<td>82</td>
</tr>
<tr>
<td>VT10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>6 mm</td>
<td>White</td>
<td>84</td>
</tr>
<tr>
<td>V10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>12 mm</td>
<td>White</td>
<td>86</td>
</tr>
<tr>
<td>V10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>25 mm</td>
<td>White</td>
<td>88</td>
</tr>
<tr>
<td>V10C-ALL-A2-xxx</td>
<td>Advanced</td>
<td>736 x 480 pixels</td>
<td>C-mount</td>
<td>None</td>
<td>90</td>
</tr>
</tbody>
</table>
VISOR® V20 Allround
Advanced vision sensor for complex inspection tasks, 12 mm

PRODUCT HIGHLIGHTS

- All evaluations ("Detectors") of object, sensor and code reader unit 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 grades, user rights and online help

Optical data

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1280 x 1024 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td>1/1.8&quot;, monochrome</td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>12 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>30 mm to infinity</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>White, red, infrared LEDs</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>16 x 13 mm</td>
</tr>
</tbody>
</table>

Electrical data

<table>
<thead>
<tr>
<th>Operating voltage, (+U_{B})</th>
<th>18 … 26.4 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption (U_{B})</td>
<td>(\leq 120,mA)</td>
</tr>
<tr>
<td>Current consumption (I_{O})</td>
<td>(\leq 200,mA)</td>
</tr>
<tr>
<td>Protective circuits</td>
<td>Reverse-polarity protection, (U_{B}) / short-circuit protection of all outputs</td>
</tr>
<tr>
<td>Power On Delay</td>
<td>Ca. 13 s after Power-on</td>
</tr>
<tr>
<td>Outputs</td>
<td>PNP / NPN (switchable)</td>
</tr>
<tr>
<td>Max. output current (I_{O})</td>
<td>100 mA, 100 mA (pin 12)</td>
</tr>
<tr>
<td>Inputs</td>
<td>NPN / NPN (I_{G}): (I_{G}) (&gt; 10,mA), (U_{G}): (&lt; 3,V)</td>
</tr>
<tr>
<td>Encoder input</td>
<td>(I_{G}): (&gt; 4,V)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>Ethernet (LAN), RS422, RS232, EtherCAT IP</td>
</tr>
<tr>
<td>Input / outputs</td>
<td>2 inputs, 4 outputs</td>
</tr>
</tbody>
</table>

Mechanical data

| Dimensions | 45 x 45 x 45 mm (without plug) |
| Enclosure rating | IP 67 |
| Material, housing | Aluminum, plastic |
| Ambient temperature operation | 0 … +50° C |
| Ambient temperature storage | -20 … +60° C |
| Weight | Ca. 140 g |
| Plug connections | Supply and I/O M12, 12-pin |
| EN 60947-5-2 | |

Illumination

- White: V20-ALL-A2-W12 Article number: 536-91032
- Red: V20-ALL-A2-R12 Article number: 536-91033
- Infrared: V20-ALL-A2-I12 Article number: 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**

**PRODUCT HIGHLIGHTS**

- All evaluations (“Detectors”) of object, sensor and code reader united in one device
- Highly accurate evaluation via 1.3 megapixelschip
- Powerful part-finding and tracking
- Precise position determination: XY-position and orientation
- Can be used for all common 2D-codes (ECC 200-Datamatrix) and common 1D-bar codes
- Userfriendly configuration and viewer software with grading, user rights and online help

### Optical Parameters

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1280 x 1024 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td>1/1.8&quot;, monochrome</td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>C-Mount</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>Dependent on lens</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>None</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>Dependent on lens</td>
</tr>
</tbody>
</table>

**Detectors**

- Contour: pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, Bar code, OCR
- Properties: Position finding, XY and orientation, pattern comparison / contour, teach-in and detection of patterns and contours, calliper, distance between edges, BLOB, grey threshold, brightness evaluation of brightness, contract evaluation of contract, bar code reading, 1D bar codes, ECAN, UPC, EAN, 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**

- max. 255 / max. 255
- Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, Bar code, OCR

**Electrical Parameters**

- Operating voltage: +U<sub>DC</sub>
- 18 - 26.4 V DC
- Current consumption: ≤ 120 mA
- Current consumption (without illumination and VSS): ≤ 200 mA
- Protective circuits: Reverse-polarity protection, Ul, short-circuit protection of all outputs
- Power On Delay: Ca. 12 ms after power on
- Outputs:
  - NPN/ NPN (switchable)
  - 50 mA, 100 mA (pin 12)
  - MAXIMUM: HIGH = +U<sub>DC</sub>  LOW = 0 V
  - Input resistance: > 20 kOhm
  - Encoder input: > 4 V
- Interfaces:
  - Ethernet (LAN), RS422, RS232, EtherCAT, PROFINET
  - Inputs/outputs: 2 inputs, 4 outputs, 4 selectable inputs/outputs

**Mechanical Parameters**

- Dimensions: 65 x 45 x 45 mm (without plug)
- Enclosure rating: IP 65
- Material housing: Aluminium, plastic
- Material from screen: Plastic
- Ambient temperature operation: 0 °C ... +50 °C
- Ambient temperature storage: -20 °C ... +60 °C
- Weight: Ca. 160 g
- Plug connections: Supply and I/O, Ethernet: 12-pin, Ethernet: 8-pin, Data/M12, 5-pin
- EN 60947-5-2

**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

**Part number**

<table>
<thead>
<tr>
<th>LO C 8</th>
<th>LO C 12</th>
<th>LO C 16</th>
<th>LO C 25</th>
<th>LO C 35</th>
<th>LO C 50</th>
<th>LO C 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>526-51513</td>
<td>526-51514</td>
<td>526-51515</td>
<td>526-51516</td>
<td>526-51525</td>
<td>526-51113</td>
<td>526-51116</td>
</tr>
</tbody>
</table>

**Focal length**

<table>
<thead>
<tr>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-ALL-A2-C</td>
</tr>
<tr>
<td>536-91035</td>
</tr>
</tbody>
</table>
VISOR® V20 Allround Color

Advanced vision sensor for complex inspection tasks, 12 mm

**PRODUCT HIGHLIGHTS**

- All evaluations ("Detectors") of object sensor and code reader unified in one device
- Highly accurate evaluation via 1.3 mega-pixel colour chip
- Powerful part-finding and tracking
- Precise position determination: XY 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 grades, 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 mm²

**Electrical data**

- **Operating voltage, +Ug**: 18 ... 26.4 V DC
- **Current consumption (without illumination and I/O)**: ≤ 200 mA
- **Current consumption (without I/O)**: ≤ 720 mA
- **Protective circuits**: Reverse polarity protection, 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**: 8 inputs, 1 high, > 15 V, 1 low, < 3 V
- **Input resistance**: > 20 kOhm
- **Encoder input**: High, ≤ 4 V
- **Interfaces**: Ethernet (LAN), RS422, RS232, EtherCAT, PROFINET
- **Inputs/outputs**: 2 inputs, 4 outputs, 4 selectable inputs/outputs

**Mechanical data**

- **Dimensions**: 65 x 45 x 45 mm (without plug)
- **Enclosure rating**: IP67
- **Material housing**: Aluminium, plastic
- **Material front screen**: Plastic
- **Ambient temperature operation**: 0 ... +50° C
- **Ambient temperature storage**: -20 ... +60° C
- **Weight**: Ca. 160 g
- **Vibration and impact resistance**: EN 60947-5-2

**Illumination**

- **Part number**: V20C-ALL-A2-W12
- **Article number**: 536-91036

**Field of view**

- **Focal length**: 12 mm
- **Typical cycle times**:
  - Type: 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

**Depth of focus**

- **Focal length**: 12 mm
- **Typical cycle times**

---

**Accessories**

- **Connection cables**
- **Illumination**
- **Brackets**
- **Interface accessories**
VISOR® V20 Allround Color
Advanced vision sensor for complex inspection tasks, C-mount

**Optical data**
- Resolution: 1280 x 1024 pixels
- CMOS sensor
- Integrated lens, focal length: dependent on lens
- Adjustment range: dependent on lens
- Minimum field of view: X x Y

**Functions**
- Number of pixels/detectors: max. 255 / max. 255
- Properties:
  - Position tracking: X/Y and orientation
  - Pattern comparison
  - Calliper: distance between edges
  - BLOB: grey threshold value
  - Contour: evaluation of brightness
  - Color: output of color values
  - Color area: two-dimensional color inspection
  - Color list: detecting the most similar colors
  - Bar code: reading 1D codes
  - Data code: reading 2D codes
  - OCR: typ. 20 ms pattern comparison, typ. 30 ms contour, typ. 8 ms calliper, typ. 30 ms BLOB, typ. 2 ms brightness, typ. 2 ms contrast, typ. 2 ms grey threshold, typ. 2 ms color list, typ. 25 ms per character OCR

**Electrical data**
- Operating voltage, +UB: 18 … 26.4 V DC
- Current consumption (without illumination and I/O): max. 120 mA
- Protective circuits: reverse-polarity protection, UB / short-circuit protection of all outputs
- Power On Delay: ca. 13 s after Power on
- Max. output current (per output): 50 mA, 100 mA (pin 12)
- Input resistance: > 20 kOhm
- Encoder input: high > 4 V
- Interfaces: Ethernet (LAN), RS422, RS232, EtherCAT®, PROFINET
- Dimensions: 65 x 45 x 45 mm (without plug)

**Mechanical data**
- Endurance rating: IP67
- Material: housing - aluminium, plastic
- Material, front screen: plastic
- Ambient temperature: operation: 0 … +50 °C
- Ambient temperature: storage: -20 … +60 °C
- Weight: ca. 160 g
- Vibration and impact resistance: EN 60068-2-32

**Focal length**
- LO C 8: 8 mm
- LO C 12: 12 mm
- LO C 16: 16 mm
- LO C 25: 25 mm
- LO C 35: 35 mm
- LO C 50: 50 mm
- LO C 75: 75 mm

**Part 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

---

1. Max. ripple < 5 VSS
2. With VGA resolution (640 x 480 Pixels)
3. With LPI 45 C-mount protective casing
4. 80% air humidity, non-condensing

Version 07/2015. Subject to changes; diagrams similar.
### Optical Data Functions

<table>
<thead>
<tr>
<th>Resolution</th>
<th>736 x 480 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td>1/3'', monochrome</td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>6 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>6 mm to infinity</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>White, red, infrared LEDs</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>5 x 4 mm²</td>
</tr>
</tbody>
</table>

- **Number of jobs / detectors**: max. 255 / max. 255
- **Detectors**: contour, pattern comparison, caliper, 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; caliper: 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 39, code 93, code 128, GS1 pharma code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417, CODE39
- **Typical cycle times**:
  - Pattern comparison: Typ. 20 ms
  - Contour: Typ. 30 ms
  - Calliper: Typ. 8 ms
  - BLOB: Typ. 30 ms
  - Grey level: Typ. 2 ms
  - Bar code: Typ. 25 ms
  - Data code: Typ. 40 ms
  - OCR: Typ. 15 ms per character

### Electrical Data

- **Operating voltage, \(+U_{B}\)**: 18 … 26.4 V DC
- **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)**: 10 mA, 100 mA (pin 12)
- **Inputs**: NPN/NPN, High = \(+U_{B}\)/Low ≤ 3 V
- **Input resistance**: > 20 kOhm
- **Encoder input**: High = 4 V
- **Interfaces**: Ethernet (LAN), RS422, RS232, EtherCAT, 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**: Aluminum, plastic
- **Material, front screen**: Plastic
- **Ambient temperature operation**: 0 … +50 °C
- **Ambient temperature storage**: -30 … +60 °C
- **Weight**: Ca. 100 g
- **Plug connections**: Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
- **Vibration and impact resistance**: EN 60068-2-52

---

**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-Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help
**VISOR® V10 Allround**

Allround vision sensor for complex inspection tasks, 12 mm

### Optical data

- **Resolution**: 736 x 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 x Y**: 8 x 6 mm²

### Functions

- **Number of pixels / detectors**: max. 255 / max. 255
- **Detectors**: Contour pattern comparison, caliper, BLOB, contrast, brightness, grey level, data code, OCR
- **Properties**: Position tracking: X/Y and orientation; teach-in and detection of patterns and contours; caliper: distance between edges; BLOB: grey threshold, brightness; evaluation of brightness; contrast: evaluation of contrast; bar code reading: 1D bar codes, EAN-LAN-ROG.0, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code reading: 3D codes: ECC200, QR code, PDF 417; OCR

### Electrical data

- **Operating voltage, +U₀**: 18…24 V DC
- **Current consumption (without illumination and I/O)**: ≤ 250 mA
- **Current consumption (without I/O)**: ≤ 200 mA
- **Protective circuits**: Reverse-polarity protection, 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)
- **Polarity**: NP/NPN, High = U₀, Low = 0 V
- **Input resistance**: ≥ 20 kΩ/lin
- **Encoder input**: High = 4 V
- **Interfaces**: Ethernet (LAN), RS422, RS232, EtherCAT/PROFIBUS
- **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…+60°C
- **Ambient temperature storage**: -20…+60°C
- **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

### Field of view

- **Typical cycle times**:
  - Typ. 20 ms pattern comparison
  - Typ. 30 ms contour
  - Typ. 8 ms caliper
  - 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

### Depth of field

- **Typical cycle times**:
  - Typ. 25 ms pattern comparison
  - Typ. 30 ms contour
  - Typ. 8 ms caliper
  - 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

### Accessories

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

---

VISOR® vision sensor

![VISOR® vision sensor diagram](image)

**VISOR® vision sensor**

- **Focal length**: 12 mm
- **Dimensions**: 65 x 45 x 45 mm (without plug)
- **Enclosure rating**: IP 67
- **Material housing**: Aluminium, plastic
- **Material front screen**: Plastic
- **Ambient temperature**: 0…+60°C
- **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

**VISOR® vision sensor**

- **Field of view**
  - **Typical cycle times**:
    - Typ. 20 ms pattern comparison
    - Typ. 30 ms contour
    - Typ. 8 ms caliper
    - 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

**VISOR® vision sensor**

- **Depth of field**
  - **Typical cycle times**:
    - Typ. 20 ms pattern comparison
    - Typ. 30 ms contour
    - Typ. 8 ms caliper
    - 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

---

**VISOR® V10 Allround**

Allround vision sensor for complex inspection tasks, 12 mm

- **Optical data**
  - Resolution: 736 x 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 x Y: 8 x 6 mm²

- **Functions**
  - Number of pixels / detectors: max. 255 / max. 255
  - Detectors: Contour pattern comparison, caliper, BLOB, contrast, brightness, grey level, data code, OCR
  - Properties: Position tracking: X/Y and orientation; teach-in and detection of patterns and contours; caliper: distance between edges; BLOB: grey threshold, brightness; evaluation of brightness; contrast: evaluation of contrast; bar code reading: 1D bar codes, EAN-LAN-ROG.0, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code reading: 3D codes: ECC200, QR code, PDF 417; OCR

- **Typical cycle times**:
  - Typ. 20 ms pattern comparison
  - Typ. 30 ms contour
  - Typ. 8 ms caliper
  - 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

---

**VISOR® vision sensor**

- **Focal length**: 12 mm
- **Dimensions**: 65 x 45 x 45 mm (without plug)
- **Enclosure rating**: IP 67
- **Material housing**: Aluminium, plastic
- **Material front screen**: Plastic
- **Ambient temperature**: 0…+60°C
- **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

---

**VISOR® vision sensor**

- **Field of view**
  - **Typical cycle times**:
    - Typ. 20 ms pattern comparison
    - Typ. 30 ms contour
    - Typ. 8 ms caliper
    - 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

---

**VISOR® vision sensor**

- **Depth of field**
  - **Typical cycle times**:
    - Typ. 20 ms pattern comparison
    - Typ. 30 ms contour
    - Typ. 8 ms caliper
    - 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

---

**VISOR® vision sensor**

- **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 Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with grading, user rights and online help

### Optical data

<table>
<thead>
<tr>
<th>Resolution</th>
<th>736 x 480 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td>1/3&quot;, monochrome</td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>25 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>140 mm to infinity</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>White, red, infrared LEDs</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>18 x 14 mm²</td>
</tr>
</tbody>
</table>

### Functions

- Number of poles / detectors: max. 255 / max. 255
- Detectors: Contour, pattern comparison, calliper, BLOB, contrast, brightness, grey level, data code, bar code, OCR
- Position tracking: X/Y and orientation
- Pattern comparison / contour: teaching 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, 2D, Interleaved, 2D Industrial, code 32, code 39, code 93, code 128, GS1, pharm code, codabar; data code: reading 2D codes ECC200, QR code, PDF 417, OCR

### Electrical data

<table>
<thead>
<tr>
<th>Operating voltage, +U₀</th>
<th>18 … 26.4 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>≤ 120 mA</td>
</tr>
<tr>
<td>Protective circuits</td>
<td>Reverse-polarity protection, Uᵦ / short-circuit protection of all outputs</td>
</tr>
<tr>
<td>Power On Delay</td>
<td>Ca. 13 s after Power on</td>
</tr>
<tr>
<td>Outputs</td>
<td>PNP / NPN (switchable)</td>
</tr>
<tr>
<td>Max. output current (per output)</td>
<td>50 mA, 100 mA (pin 12)</td>
</tr>
<tr>
<td>Inputs</td>
<td>iNP / iPN, Hig &gt; Uᵦ, T偏 Lane &lt; 3 V</td>
</tr>
<tr>
<td>Input resistance</td>
<td>&gt; 100 kOhm</td>
</tr>
<tr>
<td>Interfaces</td>
<td>Ethernet (LAN), RS422, RS232, Ethernet/IP, PROFIBUS</td>
</tr>
<tr>
<td>Inputs/outputs</td>
<td>2 inputs, 4 outputs, 4 selectable inputs/outputs</td>
</tr>
</tbody>
</table>

### Mechanical data

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>45 x 45 x 45 mm (without plug)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure rating</td>
<td>IP 67</td>
</tr>
<tr>
<td>Material housing</td>
<td>Aluminium, plastic</td>
</tr>
<tr>
<td>Material front screen</td>
<td>Plastic</td>
</tr>
<tr>
<td>Ambient temperature operation</td>
<td>≤ -50 °C</td>
</tr>
<tr>
<td>Ambient temperature storage</td>
<td>-20 … +60 °C</td>
</tr>
<tr>
<td>Weight</td>
<td>Ca. 160 g</td>
</tr>
<tr>
<td>Plug connections</td>
<td>Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin</td>
</tr>
<tr>
<td>Vibration and impact resistance</td>
<td>Sn 60/40/7/2</td>
</tr>
</tbody>
</table>

### Illumination

<table>
<thead>
<tr>
<th>Illumination</th>
<th>Part number</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>V10-ALL-A2-W25</td>
<td>535-91094</td>
</tr>
<tr>
<td>Red</td>
<td>V10-ALL-A2-R25</td>
<td>535-91097</td>
</tr>
<tr>
<td>Infrared</td>
<td>V10-ALL-A2-I25</td>
<td>535-91100</td>
</tr>
</tbody>
</table>

### 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 Data-matrix) 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
- C-Mount, monochrome
- Adjustment range: Dependent on lens
- 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
- 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, pharma code, codabar; data code: reading 2D codes: ECC200, QR code, PDF 417, OCR

Electrical data

- Operating voltage, +Uo: 18 ... 26.4 V DC
- Current consumption (without illumination and I/O): ≤ 120 mA
- Power On Delay: Ca. 13 s after Power on
- Protective circuits: Reverse-polarity protection, Uo / short-circuit protection of all outputs
- Nominal input: PNP / NPN (switchable)
- Max. output current (per output): 50 mA, 100 mA (pin 12)
- Max. output current (per output): > 20 kOhm
- Encoder input: +Uo, -Uo
- Interfaces: Ethernet (LAN), RS422, RS232, EtherCAT, PROFINET
- Inputs / outputs: 2 inputs, 4 outputs, 4 selectable inputs / outputs

Dimensions

- Dimensions: 65 x 45 x 45 mm (without plug)
- Enclosure rating: IP 65
- Material: aluminium, plastic
- Ambient temperature: operation: 0 ... +50 °C
- Ambient temperature: storage: -20 ... +60 °C
- Weight: Ca. 160 g
- Vibration and impact resistance: EN 60947-5-2

Part number

- V10-ALL-A2-C
- 535-91101

Accessories

- Connection cables: From Page A-38
- Plastic: 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 Data-Matrix) and common 1D-bar codes
- User-friendly configuration and viewer software withgraded user rights and online help

Optical data

<table>
<thead>
<tr>
<th>Resolution</th>
<th>736 x 480 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td></td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>6 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>6 mm to infinity</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>White LEDs</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>3 x 4 mm²</td>
</tr>
</tbody>
</table>

Functions

- Number of jobs / detectors: max. 255 / max. 255
- Detection: 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 contrasts; colour-value: output of colour values; colour area: two-dimensional colour inspection with adjustable tolerance; colour list: detecting the most similar colour/colour code: reading 1D bar codes, EAN, UPC, RSS, 2/5 Interleaved, 2/5 Industrial, code 32, code 39, code 93, code 128, GS1, aramark code, code 32 bytes: 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: 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, +U0: 18 ... 26.4 V DC
- Current consumption (without illumination and I/O): ≤ 120 mA
- Protective circuits: Reverse-polarity protection, U0 / short-circuit protection of all outputs
- Outputs: PNP / NPN (selectable)
- Max. output current (per output): 50 mA, 100 mA (pin 12)
- Input resistance: > 10 kOhm
- Encoder input: "I/O > 4V"
- Interfaces: Ethernet (LAN), RS422, RS232, EtherCAT/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: -20 ... +50 °C
- Ambient temperature storage: -20 ... +60 °C
- 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 60068-2-2

Illumination

<table>
<thead>
<tr>
<th>Part number</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10C-ALL-A2-W6</td>
<td>515-91102</td>
</tr>
</tbody>
</table>

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, 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 (ECCE, Data-matrix) and common 1D-bar codes
- User-friendly configuration and viewer software with graded user rights and online help

---

### Optical data

<table>
<thead>
<tr>
<th>Functions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>736 x 480 pixels</td>
</tr>
<tr>
<td>CMOS</td>
<td>1/3”, colour</td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>12 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>30 mm to infinity</td>
</tr>
<tr>
<td>Integrated illumination</td>
<td>White LEDs</td>
</tr>
<tr>
<td>Minimum field of view, X x Y</td>
<td>8 x 6 mm</td>
</tr>
</tbody>
</table>

---

### Mechanical data

| Dimensions | 65 x 45 x 45 mm (without plug) |
| Material, housing | Aluminium, plastic |
| Material, front screen | Plastic |
| Ambient temperature, operation | 0 … +50°C |
| Ambient temperature, storage | -30 … +60°C |
| Weight | Ca. 160 g |
| Input resistance | > 20 kOhm |
| Encoder input | NPN, > 4 V |
| Interfaces | Ethernet (LAN), RS422, RS423, EtherCAT, PROFINET |
| Power On Delay | Ca. 13 s after Power on |
| Max. output current (per output) | 50 mA, 100 mA (pin 12) |
| Power On Delay | IP 67 |
| Protective circuits | Reverse polarity protection, Uz / short-circuit protection of all outputs |
| Protective circuits | PINP / NPN (switchable) |
| Protective circuits | Ca. 13 s after Power on |
| Protective circuits | White LEDs |
| Protective circuits | 8 x 6 mm |

---

### Electrical data

| Operational voltage | 18 … 26.4 V DC |
| Current consumption | ≤ 120 mA |
| Current consumption | ≤ 200 mA |
| Protective circuits | Reverse polarity protection, Uz / short-circuit protection of all outputs |
| Protective circuits | PINP / NPN (switchable) |
| Protective circuits | Ca. 13 s after Power on |
| Protective circuits | White LEDs |
| Protective circuits | 8 x 6 mm |

---

### Field of view

- Focal length: 12 mm
- Dimensions: 30.3 x 20.65
- Optical axis: 45
- Focal length: 12 mm
- Depth of field: Normal

---

### Illumination

- Part number: V10C-ALL-A2-W12
- Article number: 535-91103

---

### Accessories

- Connection cables
- From Page A-38
- Brackets
- From Page A-41
- Interface accessories
- From Page A-41
**VISOR® V10 Allround Color**  
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

<table>
<thead>
<tr>
<th>Resolution</th>
<th>736 x 480 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOS</td>
<td></td>
</tr>
<tr>
<td>Integrated lens, focal length</td>
<td>25 mm, adjustable focal position</td>
</tr>
<tr>
<td>Adjustment range</td>
<td>140 mm to infinity</td>
</tr>
<tr>
<td>Illumination</td>
<td>White LEDs</td>
</tr>
<tr>
<td>Minimum field of view X x Y</td>
<td>18 x 14 mm²</td>
</tr>
</tbody>
</table>

### Electrical data

- Operating voltage, \( +U_{\text{L}} \): 18 ... 26.4 V DC
- Current consumption (without illumination and I/O): \( \leq 220 \text{ mA} \)
- Current consumption (without I/O): \( \leq 200 \text{ mA} \)
- Protective circuits: Reverse polarity protection \( U_{\text{L}} \) in 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)
- Input: \( \geq 20 \text{ kOhm} \)
- Encoder input: \( \geq 4 \text{ V} \)
- Interfaces: Ethernet (LAN), RS232, RS422, EtherCAT®, PROFIBUS
- Inputs: 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
- Ambient temperature storage: -20 ... +60 °C
- Weight: Ca. 160 g
- Plug connections: Supply and I/O: M12, 12-pin EtherCAT®, M12, 4-pin Data M12, 5-pin
- Vibration and impact resistance: EN 60947-5-2

### Illumination

- Illumination Part number Article number
  - White V10C-ALL-A2-W25 515-91104

### Connections

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

---

**FROM PAGE A-38**

**FROM PAGE A-29**

**FROM PAGE A-4**

**FROM PAGE A-41**
**VISOR® V10 Allround Color**

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 XY-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:**
- **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 pole / detectors:** max. 255 / max. 255
- **Detectors:** Contour|pattern comparison, calliper | BLGRB contrast, brightness, grey level data, code, bar code, OCR, colour list, colour area, colour value
- **Properties:** Position tracking XY and orientation: pattern comparison / contour touch-in and detection of patterns and contours, calliper distance between edges, BLGRB grey threshold, brightness, evaluation of brightness, contrast evaluation of contrast, colour value output of colour values: colour area, two-dimensional colour inspection with adaptable 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, pharr code, consistent data code reading 2D codes: ECC200, QR code, PDF 417, OCR

### Typical cycle times

- **Type 20 ms pattern comparison:** typ. 30 ms contour: typ. 8 ms calliper: typ. 2 ms BLOB: typ. 2 ms brightness: typ. 2 ms contrast: typ. 2 ms grey threshold: typ. 2 ms colour value: typ. 2 ms colour area: typ. 30 ms colour list: typ. 30 ms bar code: typ. 2 ms data code: typ. 15 ms per character OCR

### Electrical data

- **Operating voltage, \( +U_{\text{B}} \):** 18 ... 26.4 V DC
- **Current consumption:**
  - Without Illumination and I/O: \( \leq 120 \) mA
  - Without Illumination and I/O: \( \leq 200 \) mA
- **Protective circuits:** Reverse-polarity protection, \( U_{\text{L}} \) / short-circuit protection of all outputs
- **Power On Delay:** Ca. 9 s after Power on
- **Max. output current (per output):** 50 mA, 100 mA (pin 12)
- **Enclosure rating:** IP 65
- **Material:** Aluminium, plastic
- **Ambient temperature operation:** -20 °C to +60 °C
- **Ambient temperature storage:** -30 °C to +85 °C
- **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 60068-2-2

---

### Mechanical data

- **Dimensions:** 45 x 45 x 45 mm (without plug)

---

### Accessory

- **Connection cables:** From Page A-38
- **Illumination:** From Page A-29
- **Lens:** From Page A-35
- **Brackets:** From Page A-41
- **Interface accessories:** From Page A-41

---

**Part number**

- **Article number:** V10C-ALL-A2-C
- **35-P1105**

---

**Dimensions**

- **Focal length**
  - **LO C 8:** 8 mm
  - **LO C 12:** 12 mm
  - **LO C 16:** 16 mm
  - **LO C 25:** 25 mm
  - **LO C 35:** 35 mm
  - **LO C 50:** 50 mm
  - **LO C 75:** 75 mm

---

<table>
<thead>
<tr>
<th>Focal length</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO C 8</td>
<td>526-51513</td>
</tr>
<tr>
<td>LO C 12</td>
<td>526-51514</td>
</tr>
<tr>
<td>LO C 16</td>
<td>526-51515</td>
</tr>
<tr>
<td>LO C 25</td>
<td>526-51516</td>
</tr>
<tr>
<td>LO C 35</td>
<td>526-51525</td>
</tr>
<tr>
<td>LO C 50</td>
<td>526-51113</td>
</tr>
<tr>
<td>LO C 75</td>
<td>526-51116</td>
</tr>
</tbody>
</table>

---

**Accessories**

- **Connection cables:** From Page A-38
- **Illumination:** From Page A-29
- **Lens:** From Page A-35
- **Brackets:** From Page A-41
- **Interface accessories:** From Page A-41

---

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