

## Technical data sheet

### Vision sensor

Part no.: 50147797

IVS 1048i ADJ-8F4-102-M1-TMEC



For illustration purposes only

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## Technical data

### Basic data

|        |                     |
|--------|---------------------|
| Series | IVS 1048i           |
| Imager | Sony global shutter |

### Functions

|                    |                                                                    |
|--------------------|--------------------------------------------------------------------|
| Software functions | Counting: surfaces, edges, forms                                   |
|                    | Locate: surface, edge, form                                        |
|                    | Measuring: angle, circle, distance, point-to-point, point-to-line  |
|                    | Parts detection: brightness, contrast, surface pixels, edge pixels |

### Optical data

|                               |                                         |
|-------------------------------|-----------------------------------------|
| Reading distance              | 50 ... 2,000 mm                         |
| Light source                  | LED, red / white, internally switchable |
| Transmitted-signal shape      | Pulsed                                  |
| Camera resolution, horizontal | 736 px                                  |
| Camera resolution, vertical   | 480 px                                  |
| Focal length                  | 8 mm                                    |
| Electronic shutter speed      | 0.025 ... 2 ms                          |
| Camera type                   | Monochrome                              |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | Short circuit protected      |

### Performance data

|                         |                  |
|-------------------------|------------------|
| Supply voltage $U_B$    | 18 ... 30 V, DC  |
| Power consumption, max. | 24 W, at 24 V DC |

### Inputs

|                                    |            |
|------------------------------------|------------|
| Number of digital switching inputs | 3 Piece(s) |
|------------------------------------|------------|

### Switching inputs

|              |    |
|--------------|----|
| Voltage type | DC |
|--------------|----|

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 5 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |                        |
|-------------------------|------------------------|
| Voltage type            | DC                     |
| Switching current, max. | 100 mA                 |
| Switching voltage       | high: $\geq(U_B - 2V)$ |
|                         | low: $\leq 2 V$        |

### Switching output 1

|                     |                      |
|---------------------|----------------------|
| Switching element   | MOSFET semiconductor |
| Switching principle | Push-pull            |

### Switching output 2

|                     |                      |
|---------------------|----------------------|
| Switching element   | MOSFET semiconductor |
| Switching principle | Push-pull            |

### Switching output 3

|                     |                      |
|---------------------|----------------------|
| Switching element   | MOSFET semiconductor |
| Switching principle | Push-pull            |

### Switching output 4

|                     |                      |
|---------------------|----------------------|
| Switching element   | MOSFET semiconductor |
| Switching principle | Push-pull            |

### Interface

|      |                    |
|------|--------------------|
| Type | Ethernet, PROFINET |
|------|--------------------|

### Ethernet

|                       |                                         |
|-----------------------|-----------------------------------------|
| Architecture          | Client                                  |
|                       | Server                                  |
| Address assignment    | DHCP                                    |
|                       | Manual address assignment               |
| Transmission speed    | 10 / 100 Mbit/s                         |
| Function              | Process                                 |
| Switch functionality  | None                                    |
| Transmission protocol | TCP/IP, UDP, Telnet, FTP/SFTP, PROFINET |

### PROFINET

|                    |             |
|--------------------|-------------|
| Function           | Process     |
| Conformance class  | B           |
| Protocol           | PROFINET RT |
| Transmission speed | 100 Mbit/s  |

### Service interface

### Ethernet

|          |         |
|----------|---------|
| Function | Service |
|----------|---------|

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
|-----------------------|------------|

### Connection 1

|                    |                |
|--------------------|----------------|
| Function           | Signal IN      |
|                    | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M12            |
| Type               | Male           |
| Material           | Metal          |
| No. of pins        | 12 -pin        |
| Encoding           | A-coded        |

### Connection 2

|                    |                 |
|--------------------|-----------------|
| Function           | Data interface  |
|                    | Ethernet, input |
| Type of connection | Connector       |
| Thread size        | M12             |
| Type               | Female          |
| Material           | Metal           |
| No. of pins        | 8 -pin          |
| Encoding           | X-coded         |

## Technical data

### Mechanical data

|                       |                              |
|-----------------------|------------------------------|
| Design                | Cubic                        |
| Dimension (W x H x L) | 45 mm x 85 mm x 35 mm        |
| Housing material      | Metal                        |
| Metal housing         | Diecast zinc                 |
| Lens cover material   | Plastic / PMMA               |
| Net weight            | 265 g                        |
| Housing color         | Silver                       |
| Type of fastening     | Mounting thread              |
|                       | Via optional mounting device |

### Operation and display

|                       |                        |
|-----------------------|------------------------|
| Number of LEDs        | 3 Piece(s)             |
| Type of configuration | Vision Studio software |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | 0 ... 50 °C   |
| Ambient temperature, storage       | -20 ... 70 °C |
| Relative humidity (non-condensing) | 90 %          |

### Certifications

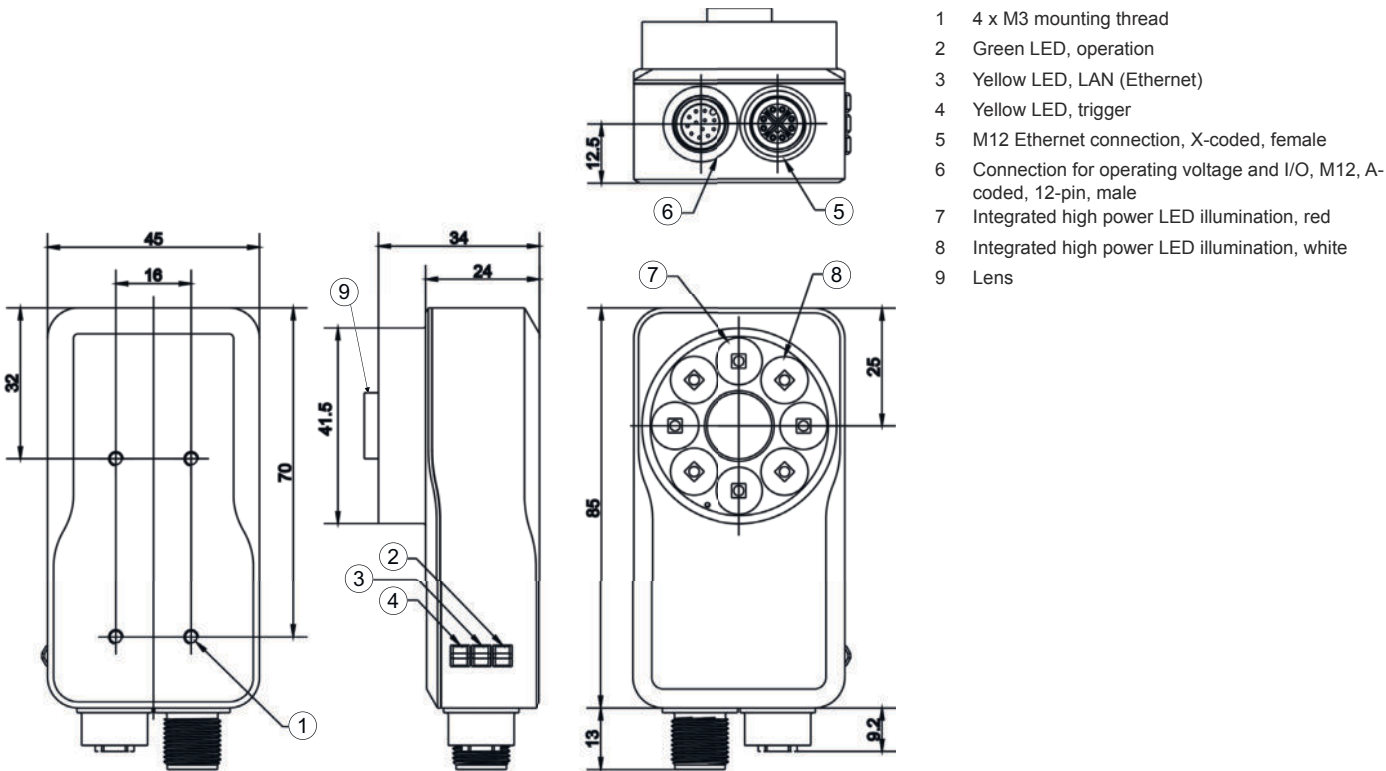
|                                                                 |                                                            |
|-----------------------------------------------------------------|------------------------------------------------------------|
| Degree of protection                                            | IP 67, EN 60529 with various connectors or screwed-on caps |
| Protection class                                                | III                                                        |
| Certifications                                                  | c UL US                                                    |
| Test procedure for EMC in accordance with standard              | EN 61000-6-2                                               |
|                                                                 | EN 61000-6-3                                               |
| Test procedure for continuous shock in accordance with standard | IEC 60068-2-27, test Ea                                    |
| Test procedure for vibration in accordance with standard        | IEC 60068-2-6, test Fc                                     |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 90318020 |
| ECLASS 5.1.4          | 27310101 |
| ECLASS 8.0            | 27310101 |
| ECLASS 9.0            | 27310201 |
| ECLASS 10.0           | 27310101 |
| ECLASS 11.0           | 27310101 |
| ECLASS 12.0           | 27310101 |
| ECLASS 13.0           | 27310101 |
| ETIM 5.0              | EC002550 |
| ETIM 6.0              | EC002550 |
| ETIM 7.0              | EC002550 |
| ETIM 8.0              | EC002550 |

Dimensioned drawings

All dimensions in millimeters

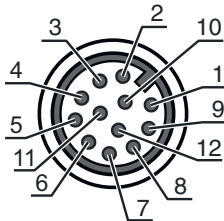


Electrical connection

Connection 1

|                    |                |
|--------------------|----------------|
| Function           | Signal IN      |
|                    | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M12            |
| Type               | Male           |
| Material           | Metal          |
| No. of pins        | 12 -pin        |
| Encoding           | A-coded        |

| Pin | Pin assignment   | Conductor color |
|-----|------------------|-----------------|
| 1   | SWIN 1           | Brown           |
| 2   | SWIN 2           | Blue            |
| 3   | SWIO 3           | White           |
| 4   | SWIO 4           | Green           |
| 5   | READY            | Pink            |
| 6   | COMMON INTERFACE | Yellow          |
| 7   | VIN              | Black           |



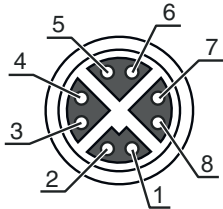
Electrical connection

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 8   | GND            | Gray            |
| 9   | n.c.           | Red             |
| 10  | Trigger IN     | Violet          |
| 11  | SWIO 1         | gray / pink     |
| 12  | SWIO 2         | red / blue      |

Connection 2

|                    |                 |
|--------------------|-----------------|
| Function           | Data interface  |
|                    | Ethernet, input |
| Type of connection | Connector       |
| Thread size        | M12             |
| Type               | Female          |
| Material           | Metal           |
| No. of pins        | 8 -pin          |
| Encoding           | X-coded         |

| Pin | Pin assignment |
|-----|----------------|
| 1   | LAN A+         |
| 2   | LAN A-         |
| 3   | LAN B+         |
| 4   | LAN B-         |
| 5   | LAN D+         |
| 6   | LAN D-         |
| 7   | LAN C-         |
| 8   | LAN C+         |



Part number code

Part designation: IVS XXXXX YYY AAA BBB C D EFFF

|       |                                                                                                          |
|-------|----------------------------------------------------------------------------------------------------------|
| IVS   | <b>Operating principle</b><br>IVS: Vision Sensor for inspection tasks                                    |
| XXXXX | <b>Series/interface (integrated fieldbus technology)</b><br>1048i: PROFINET, Ethernet TCP/IP + FTP, SFTP |
| YYY   | <b>Focus position</b><br>ADJ: adjustable (manually)                                                      |
| AAA   | <b>Optics model</b><br>8: focal length 8 mm<br>F4: diaphragm f/4.0                                       |
| BBB   | <b>Beam exit</b><br>102: front                                                                           |
| C     | <b>Illumination</b><br>M: multicolor                                                                     |
| D     | <b>Resolution range</b><br>4: 1440 x 1080 pixels<br>1: 736 x 480 pixels                                  |
| E     | T: toolset                                                                                               |

|     |                                                                                                                                                                                                                                                           |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FFF | <b>Version</b><br>n/a: 1D/2D-code reading<br>DPM: 1D-, 2D-code reading + DPM (directly marked codes)<br>PRD: presence detection<br>MEC: presence detection, measuring, counting<br>ALL: presence detection, measuring, counting, 1D/2D-code reading + DPM |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

Notes

 **Observe intended use!**



- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

Further information

- The specified core colors apply when using connection cables from Leuze.

Accessories

Connection technology - Connection cables

|                                                                                     | Part no. | Designation        | Article          | Description                                                                                                                                                                         |
|-------------------------------------------------------------------------------------|----------|--------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130282 | KD S-M12-CA-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 12 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 5.000 mm<br>Sheathing material: PUR |

Connection technology - Interconnection cables

|                                                                                    | Part no. | Designation                 | Article               | Description                                                                                                                                                                                |
|------------------------------------------------------------------------------------|----------|-----------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50133387 | KSS ET-M12-8A-RJ45-A-P7-050 | Interconnection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Axial, Male, X-coded, 8 -pin<br>Connection 2: RJ45<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Accessories

|                                                                                  | Part no. | Designation                 | Article               | Description                                                                                                                                                                                 |
|----------------------------------------------------------------------------------|----------|-----------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50136188 | KSS GB-M12-8W-RJ45-A-P7-050 | Interconnection cable | Suitable for interface: Ethernet<br>Connection 1: Connector, M12, Angled, Male, X-coded, 8 -pin<br>Connection 2: RJ45<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Mounting technology - Mounting brackets

|                                                                                   | Part no. | Designation | Article         | Description                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|----------|-------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50121433 | BT 300 W    | Mounting device | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Adjustable<br>Material: Metal |

## Mounting technology - Swivel mounts

|  | Part no. | Designation  | Article         | Description                                                                                           |
|--|----------|--------------|-----------------|-------------------------------------------------------------------------------------------------------|
|  | 50149698 | BTK IVS 1048 | Mounting device | Fastening, at system: Screw type<br>Mounting bracket, at device: Spherical head<br>Material: Aluminum |

## Lenses

|                                                                                    | Part no. | Designation    | Article | Description                                                                                                                      |
|------------------------------------------------------------------------------------|----------|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------|
|  | 50148541 | Lens S-M12-4F4 | Lens    | Working range: 65 ... 150 mm<br>Focal length: 3.6 mm<br>F-stop (F): 4<br>Resolution: 5 megapixel<br>Design, housing: Cylindrical |

## Illuminations

|                                                                                    | Part no. | Designation              | Article      | Description                                                                      |
|------------------------------------------------------------------------------------|----------|--------------------------|--------------|----------------------------------------------------------------------------------|
|  | 50148123 | IL BA 012/130 RD 301 L D | Illumination | Special version: Protective cover, lenticular<br>Functions: Continuous operation |
|  | 50148131 | IL SP 021/014 300        | Illumination | Functions: Triggered operation, Integrated power control                         |

### Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.