VISOR® V10 Solar sensor

Standard vision sensor for wafer and cell inpection, 6 mm

CE

IP 67

c(UL)us LISTED

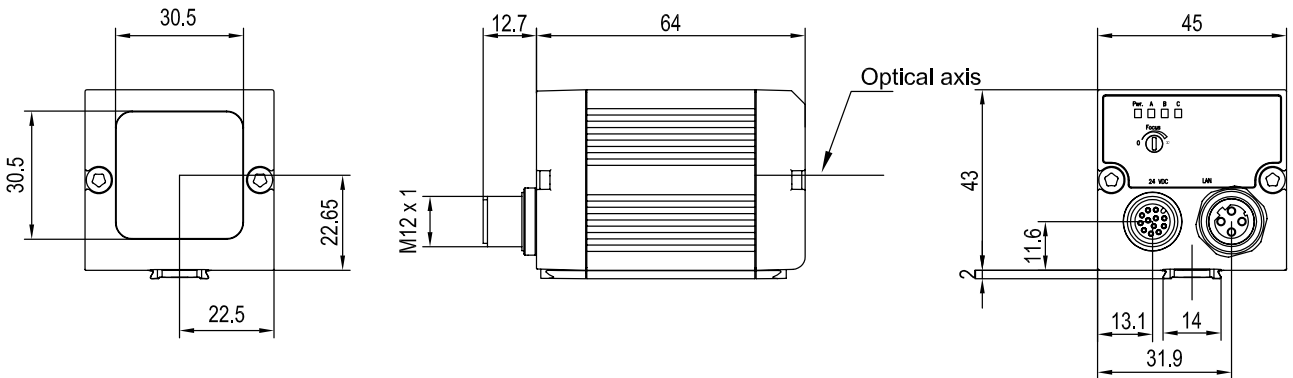PROFI NET®

EtherNet/IP™

PRODUCT HIGHLIGHTS

- Automatic detection of wafer and cell geometry
- Suitable for frontlit and backlit applications
- Simple sensor optimisation regarding evaluation speed and test precision (sub-pixel process)
- Detection of holes/cracks and breakouts
- Distortion correction

Optical data	
Resolution	736 × 480 pixels
CMOS	1/3'', monochrome
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 mm²

Functions	
Number of jobs / detectors	8 / 32
Detectors	Wafers, contrast, brightness, grey level
Properties	Wafers: localisation and examination of wafers. Grey threshold, brightness: evaluation of brightness. Contrast: evaluation of contrast
Typical cycle times	Typ. 100 ms wafer. Typ. 2 ms brightness. Typ. 2 ms contrast. Typ. 2 ms grey threshold

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
Interfaces	Ethernet (LAN), EtherNet/IP, PROFINET, SensoWeb
Inputs/outputs	2 inputs, 4 outputs, 2 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
Vibration and impact resistance	EN 60947-5-2

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

Illumination	Depth of field	Part number	Article number
White	Normal	V10-SO-S1-W6	535-91049

Version: 07/2016. Subject to changes; diagrams similar

VISOR® vision sensor

153-01030

```
30.5
30.5    22.65
22.5

12.7    64
M12 x 1
Optical axis

45
43
11.6
2
13.1    14
31.9
```

4

Field of view

155-01422

Focal length: 6mm

```
150
100
50
0
-50
-100
-150

Field [mm]

x direction
y direction

Format WVGA

0    50   100  150  200  250  300
Working Distance[mm]
```
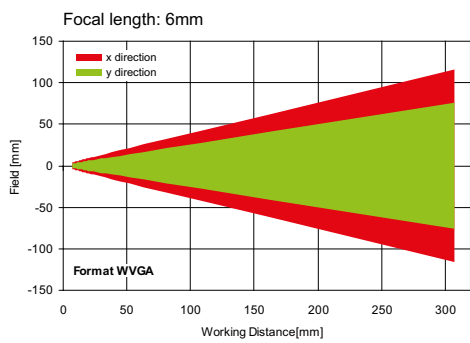
Depth of field: normal

155-01409

Focal length: 6mm   Depth of focus: Normal

```
400
350
300
250
200
150
100
50
0

Depth of Field [mm]

Resolved object size
0.13mm
0.25mm
0.50mm
0.75mm

0    50   100  150  200  250  300
Working Distance [mm]
```
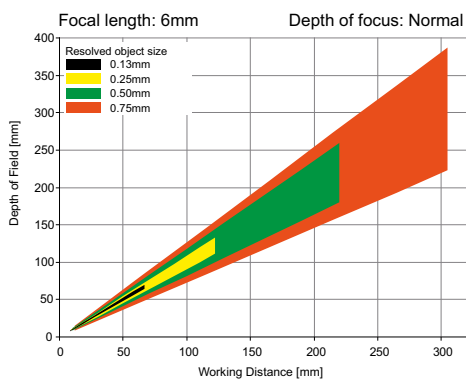
Accessories

Connection cables	From Page A-38
Illumination	From Page A-30
Brackets	From Page A-14
Interface accessories	From Page A-42