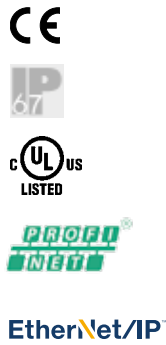


VISOR® V10 Solar sensor

Advanced vision sensor for wafer and cell inspection, 12 mm



PRODUCT HIGHLIGHTS

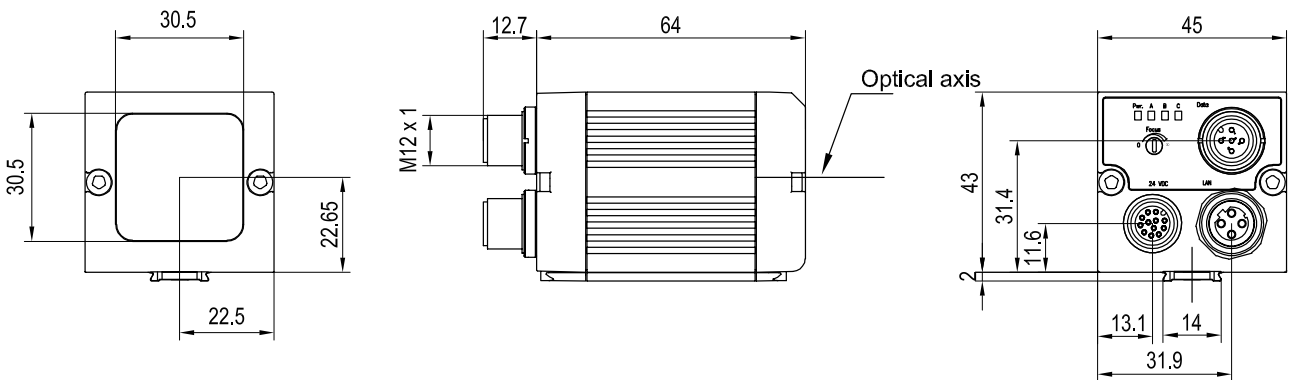
- Automatic detection of wafer and cell geometry
- Suitable for frontlit and backlit applications
- Simple sensor optimisation regarding evaluation speed and test precision (sub-pixel process)
- Detection of holes/cracks and breakouts
- Distortion correction
- Examination and position detection of busbars

Optical data		Functions	
Resolution	736 x 480 pixels	Number of jobs / detectors	max. 255 / max. 255
CMOS	1/3", monochrome	Detectors	Wafers, busbars, pattern comparison, contrast, brightness, grey level, calliper
Integrated lens, focal length	12 mm, adjustable focal position	Properties	Position tracking Wafers incl. busbars: localisation of wafers or busbars and examination of wafers; Calliper: distance between edges; Pattern comparison: teach-in and detection of patterns; Grey threshold, brightness: evaluation of brightness Contrast: evaluation of contrast
Adjustment range	30 mm to infinity	Typical cycle times	Typ. 100 ms wafer Typ. 8 ms calliper Typ. 20 ms pattern comparison Typ. 2 ms brightness Typ. 2 ms contrast Typ. 2 ms grey threshold
Integrated illumination	White, infrared LEDs		
Minimum field of view, X x Y	8 x 6 mm ²		
Electrical data		Mechanical data	
Operating voltage, +U _B	18 ... 26.4 V DC ¹	Dimensions	65 x 45 x 45 mm (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection of all outputs	Material, front screen	Plastic
Power On Delay	Ca. 13 s after Power on	Ambient temperature: operation	0 ... +50 °C ²
Outputs	PNP / NPN (switchable)	Ambient temperature: storage	-20 ... +60 °C ²
Max. output current (per output)	50 mA, 100 mA (pin 12)	Weight	Ca. 160 g
Inputs	PNP/NPN High > U _B -1 V, Low < 3 V	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm	Vibration and impact resistance	EN 60947-5-2
Encoder input	High > 4 V		
Interfaces	Ethernet (LAN), RS422, RS232, EtherNet/IP, PROFINET, SensoWeb		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

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

Illumination	Depth of field	Part number	Article number
White	Normal	V10-SO-A1-W12	535-91052
Infrared	Normal	V10-SO-A1-I12	535-91054

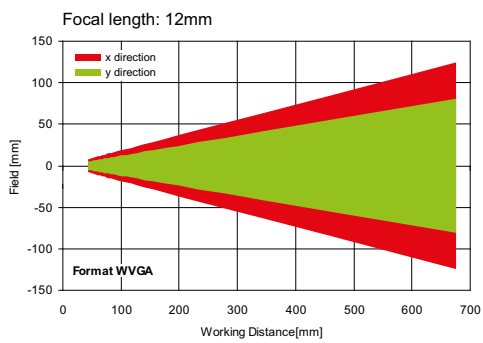
VISOR® vision sensor



153-00911

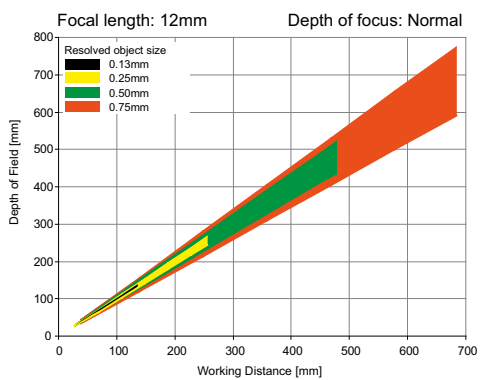
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Field of view



155-01423

Depth of field: normal



155-01410

Accessories

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