ICS 100

Intelligent Camera Sensor

Scanning distance 70 mm

Intelligent Camera Sensor

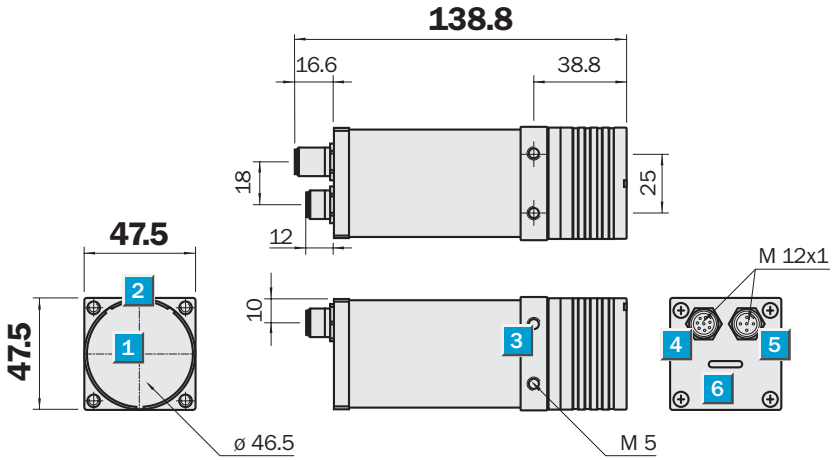
- Independent, compact unit
- Fast system architecture
- Simple integration
- Intensive and homogenous illumination
- Wide-ranging application field
- Presence monitoring
- Shape, position and dimension check
- Object detection
- Completeness check

to be used within the field of

- Process control
- Quality assurance

Dimension illustration

ICS 100

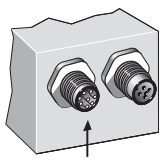


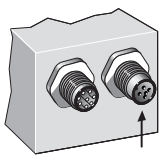
VSC 100 9

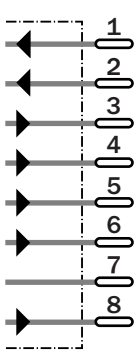
1	Lens
2	Ring light, 15x LED/green lens combination
3	Mounting hole M 5, 4-times
4	User output, 8-pin, M 12
5	Operating unit connection, 5-pin, M 12
6	Display of output switching state
7	LC Display
8	Keyboard
9	VSC 100: W x H x D = 150 x 82 x 31 mm³

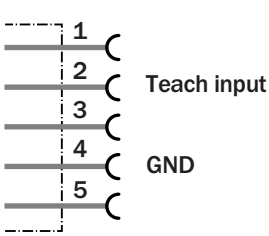
Connection type

ICS 100-B1111	8-pin, M 12 (user output)	5-pin, M 12 setup unit/teach input









Cable, 2 m with receptacles M 12, 8-pin		Cable, 2 m with plug M 12, 5-pin	
Part no.	6 020 633	**Part no.**	6 022 349

TECHNICAL INFORMATION

Technical data		ICS 100 -B1111	VSC 100
Scanning distance[1]	70 mm	■	
Field of view	20 mm x 20 mm	■	
Teach/search window	2 mm x 2 mm ... 20 mm x 20 mm, adjustable	■	
Image sensor	CMOS, 512 x 512 pixel	■	
Light source[2]	15x LED green/Lens combination	■	
Flash length	30 µs to 1 ms, normally 500 µs	■	
Number of objects	Up to 16	■	
Supply voltage U_S[3]	24 V DC	■	
Ripple[4]	< 5 V_{PP}	■	
Current consumption[5]	< 450 mA	■	
Switching outputs	4 x B (NPN/PNP)	■	
Output current I_A max.[6]	< 100 mA	■	
Response time[7], cycle time[7]	≥ 2.5 ms	■	
Switching frequency max.[8]	200/s	■	
Trigger input[9]	Falling edge, HIGH = 10 V ... U_S	■	
Trigger output for ext. lighting	5 V when sender OFF (TTL)	■	
Connection type setup unit[10]	Connectors 5-pin, M 12	■	■
Connection type user output	Plug 8-pin, M 12	■	
Operating unit display	16 gray levels		■
Protection type	IP 64	■	
	IP 40		■
Ambient temperature	Operation 0 °C ... + 50 °C	■	■
	Storage – 25 °C ... + 70 °C	■	
	Storage – 20 °C ... + 60 °C		■
Shock load	15 g, 6 directions	■	■
Weight	Approx. 350 g	■	
	Approx. 240 g		■
Housing material	Aluminium	■	
	Plastic		■

1) Range depending on object and parameters; e.g.: ± 8 mm with shape check and threshold = 95 %
2) Average service life at room temperature 50,000 h at T_U = +25 °C
3) Limit values ± 20 %
4) Must be within U_S tolerances
5) Without load
6) Amount total for all four outputs
7) With resistive load
8) With light/dark ratio 1:1
9) 1000 ms > trigger pulse ≥ 2.5 ms; trigger active when HIGH ≥ 1000 ms
10) Cable length 2 m, PVC, Ø 5 mm, do not distort cable below 0 °C

Ordering information

Type	Part no.
ICS 100-B1111	1 022 631
VSC 100	2 022 605
Mounting bracket	4 035 008
Rod mount. clamp	2 022 464

Check Mode	Procedure [1]	Typical Applications
Shape check (pattern matching)	Structures are compared translation-invariant with respect to shape	Shape, position and dimension check, object detection, presence monitoring, completeness
Multi-area-evaluation	Blobs are compared with respect to number and area	Presence monitoring, completeness monitoring
Minimum pixel sum	Checking for pixel number exceeding a limit	Presence monitoring, e.g., for transparent bodies with reflecting surfaces, completeness monitoring, especially with gloss [2]
Pixel sum	Comparison of the absolute number of white and black dots	Presence monitoring, completeness check

1) All procedures are used in the binary image. A comparison is made each time between the taught-in reference image and the image to be checked.
2) Made possible by the special resistance of the sensor against overshooting

Shape of tought-in reference image	
Rectangular	Shape of reference image = rectangle
Autoshape	Shape of reference image = shape of object in reference image (only possible for closed areas)

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