ICS 110

Intelligent Camera Sensor

Scanning distance
70 mm

Intelligent Camera Sensor

- Testing rotated objects
- 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

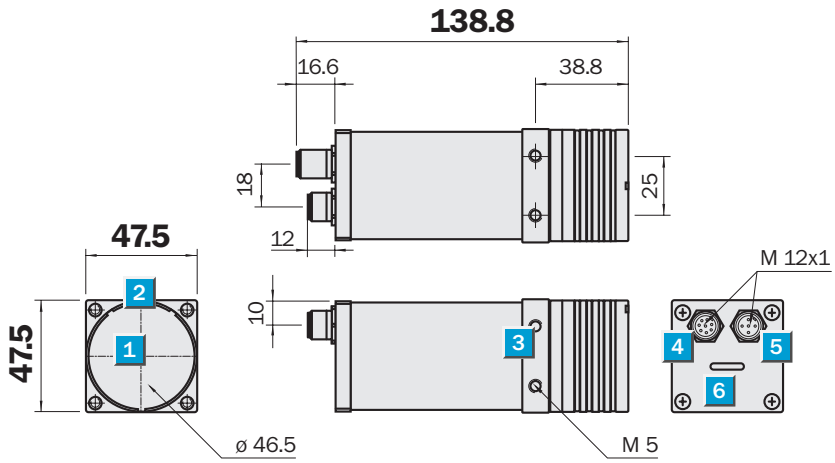
to be used within the field of

- Process control
- Quality assurance

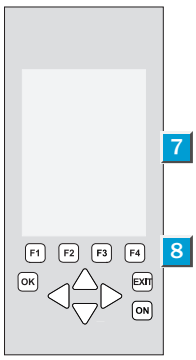
CE

Dimensional drawing

ICS 110



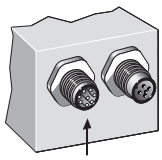
VSC 100 9

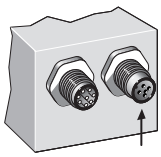


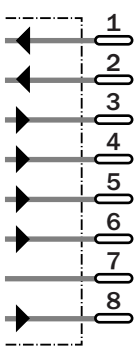
1 Lens
2 Ring light, 15x LED/focussing lenses
3 Mounting hole M 5, 4-times
4 User output, 8-pin, M 12
5 Operating unit connection, 5-pin, M 12
6 Display of output switching state
7 LC Display
8 Keyboard
9 VSC 100: W x H x D = 150 x 82 x 31 mm³

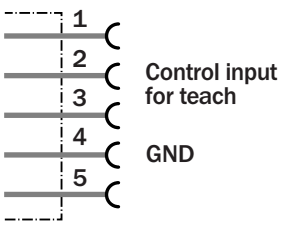
Connection type

ICS 110-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 110 -B1111	VSC 100 -1111	VSC 100 -0111
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]	15 x LED green/with focussing lenses	■		
Flash length	30 µs to 1 ms, normally 500 µs	■		
Number of storable teach windows	12 in memory + 4 in working memory	■		
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.	200/s	■		
Number of tests max.	400/s	■		
Trigger input[8]	Falling edge, HIGH = 10 V ... U_S	■		
Trigger output for ext. lighting	5 V when sender OFF (TTL)	■		
Connection type setup unit[9]	Plug 5-pin, M 12	■	■	■
Connection type user output	Plug 8-pin, M 12	■		
Operating unit display	16 gray levels		■	■
SICK logo in display			■	
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) Trigger pulse > 0.5 ms
9) Cable length 2 m, PVC, Ø 5 mm, do not distort cable below 0 °C

Order information	
Type	**Part no.**
ICS 110-B1111	1 023 983
VSC 100-1111	2 025 857
VSC 100-0111	2 027 408
Mounting bracket	4 035 008
Rod mount. clamp	2 022 464

Check Mode	Procedure [1]	Typical Applications
Rotational contour check	The contours taught are sought in the image being checked, even when rotated and/or shifted	Shape, position and dimension check, object detection, presence monitoring, completeness
Shape check (pattern matching)	The patterns taught are sought in the image being checked, even when shifted	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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