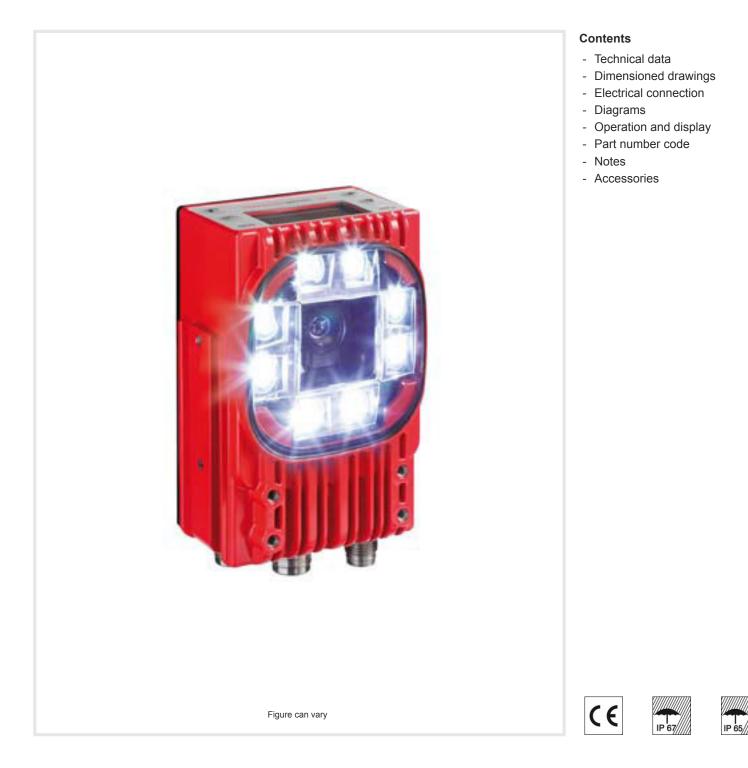


# **Technical data sheet Smart camera** Part no.: 50131439

LSIS 472i M43-I1-H



The Sensor People In der Braike 1, 73277 Owen

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# **Technical data**

# Leuze

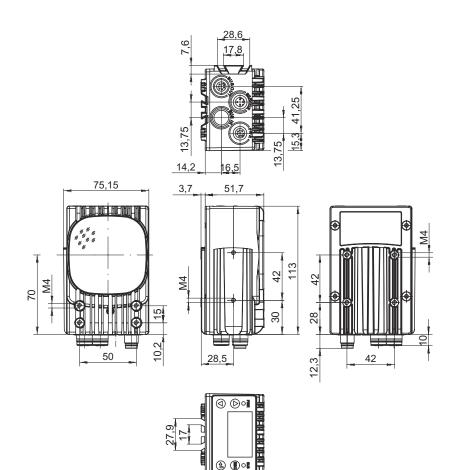
Basic data		
Series	LSIS 472i	
Chip	CMOS	
Special design		
Special design	Heating	
Functions		
Software functions	Compartment fine positioning	
	Focus adjustment	
Optical data		
Working range	50 10,000 mm	
Light source	LED, Infrared	
Camera resolution, horizontal	752 px	
Camera resolution, vertical	480 px	
Focal length	8 mm	
Chip size	1/3 in	
Frame rate (images per second), max.	50 pieces per second	
Electronic shutter speed	0.054 20 ms	
Camera type	Monochrome	
Electrical data		
Performance data		
Supply voltage U <sub>B</sub>	18 30 V, DC	
Power consumption, max.	8 W	
Inputs/outputs selectable		
Number of inputs/outputs selectable	8 Piece(s)	
Voltage type, outputs	DC	
Switching voltage, outputs	Тур. U <sub>в</sub> / 0 V	
Voltage type, inputs	DC	
Switching voltage, inputs	Typ. U <sub>B</sub> / 0 V	
Interface		
Туре	RS 232, Ethernet	
RS 232		
Function	Process	
Ethernet	_	
Function	Process	
	Service	
Connection		
Connection 1 Function	Configuration interface	
runction	Computation intenace	

Function	Configuration interface
	Data interface
	Service interface
Type of connection	Connector
Designation on device	SERVICE
Thread size	M12

Connection 2FunctionSignal IN Signal OUT Voltage supplyType of connectionConnectorDesignation on devicePWRThread sizeM12Connection 3Signal IN Signal OUTFunctionData interface Signal IN Signal OUTType of connectionConnectorDesignation on deviceBUS OUTThread sizeM12Mechanical dataBUS OUTThread sizeM12Mechanical dataGlassDimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialGlassLens cover materialGlassNet weight500 gOperation and displayVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsUS 8,288,706 BClassificationSignal Signal ColClassification27310201Class for Gamma-27310201eCl@ss 8.027310201eCl@ss 9.027310201eCl@ss 9.027310201ETIM 5.0EC002550ETIM 6.0EC002550				
Signal OUT         Voltage supply         Type of connection       Connector         Designation on device       PWR         Thread size       M12         Connection 3       Enction         Function       Data interface         Signal OUT       Signal OUT         Type of connection 0       Connector         Designation on device       BUS OUT         Type of connection       Connector         Designation on device       BUS OUT         Thread size       M12         Mechanical data       M12         Dimension (W x H x L)       75 mm x 55 mm x 113 mm         Housing material       Metal         Lens cover material       Glass         Net weight       500 g         Operation and display       Via web browser         Environmental data       Via web browser         Environmental data       -20 70 °C         Certifications       US 8,288,706 B         Us patents       US 8,288,706 B         Classification       27310201         eClass 8.0       27310201         eClass 9.0       27310201	Connection 2			
Voltage supplyType of connectionConnectorDesignation on devicePWRThread sizeM12Connection 3Data interfaceFunctionData interfaceSignal INSignal OUTType of connectionConnectorDesignation on deviceBUS OUTThread sizeM12Mechanical dataMetalDimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and displayType of configuration-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65 IP 67US patentsUS 8,288,706 BClassification27310201ecl@ss 8.027310201ecl@ss 9.027310201ecl@ss 9.027310201ETIM 5.0Eco02550	Function	Signal IN		
Type of connectionConnectorDesignation on devicePWRThread sizeM12Connection 3EnctionFunctionData interfaceSignal OUTSignal OUTType of connectionConnectorDesignation on deviceBUS OUTThread sizeM12Mechanical dataM12Dimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and displayVia web browserType of configuration-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsUS 8,288,706 BClassificationUS 8,288,706 BClassification27310201etQess 8.027310201etQess 9.027310201etIM 5.0EC002550		Signal OUT		
Designation on device         PWR           Thread size         M12           Connection 3         Eunction           Function         Data interface           Signal N         Signal OUT           Type of connection         Connector           Designation on device         BUS OUT           Thread size         M12           Mechanical data         M12           Dimension (W x H x L)         75 mm x 55 mm x 113 mm           Housing material         Metal           Lens cover material         Glass           Net weight         500 g           Operation and display         Via web browser           Environmental data         -35 45 °C           Ambient temperature, operation         -35 45 °C           Ambient temperature, storage         -20 70 °C           Certifications         US satents           US patents         US 8,288,706 B           Classification         27310201           eul@ss 8.0         27310201           ecl@ss 8.0         27310201           ecl@ss 9.0         27310201		Voltage supply		
Thread size       M12         Connection 3       Data interface         Function       Data interface         Signal IN       Signal OUT         Type of connection       Connector         Designation on device       BUS OUT         Thread size       M12         Mechanical data       M12         Dimension (W x H x L)       75 mm x 55 mm x 113 mm         Housing material       Metal         Lens cover material       Glass         Net weight       500 g         Operation and display       Via web browser         Type of configuration       Via web browser         Environmental data       -20 70 °C         Certifications       US 8,288,706 B         Us patents       US 8,288,706 B         Classification       27310201         ecl@ss 8.0       27310201         ecl@ss 9.0       27310201         ecl@ss 9.0       27310201         ecl@ss 9.0       27310201         eclimes       Econ2550	Type of connection	Connector		
Connection 3       Data interface         Function       Data interface         Signal IN       Signal OUT         Type of connection       Connector         Designation on device       BUS OUT         Thread size       M12         Mechanical data       Metal         Dimension (W x H x L)       75 mm x 55 mm x 113 mm         Housing material       Metal         Lens cover material       Glass         Net weight       500 g         Operation and display       Type of configuration         Type of configuration       Via web browser         Environmental data       -20 70 °C         Certifications       US 8,288,706 B         Digrate of protection       IP 65         IP 67       US 8,288,706 B         Classification       27310201         ecl@ss 8.0       27310201         ecl@ss 9.0       27310201         eTIM 5.0       Eco02550	Designation on device	PWR		
Function       Data interface         Signal IN       Signal OUT         Type of connection       Connector         Designation on device       BUS OUT         Thread size       M12         Mechanical data       Metal         Dimension (W x H x L)       75 mm x 55 mm x 113 mm         Housing material       Metal         Lens cover material       Glass         Net weight       500 g         Operation and display       Via web browser         Environmental data       -20 70 °C         Certifications       IP 65         Degree of protection       IP 65         IP 67       US 8,288,706 B         Classification       27310201         Customs tariff number       90318020         eCl@ss 8.0       27310201         eCl@ss 9.0       27310201         ETIM 5.0       EC002550	Thread size	M12		
Signal IN         Signal OUT         Type of connection       Connector         Designation on device       BUS OUT         Thread size       M12         Mechanical data       M12         Dimension (W x H x L)       75 mm x 55 mm x 113 mm         Housing material       Metal         Lens cover material       Glass         Net weight       500 g         Operation and display       Via web browser         Type of configuration       Via web browser         Environmental data       -20 70 °C         Certifications       IP 65         Degree of protection       IP 65         IP 67       US 8,288,706 B         Classification       27310201         Customs tariff number       90318020         eCl@ss 8.0       27310201         eCl@ss 9.0       27310201         ETIM 5.0       EC002550	Connection 3			
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Dimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and displayVia web browserType of configurationVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65IP 67US 8,288,706 BClassification27310201ecl@ss 8.027310201ecl@ss 9.027310201ETIM 5.0EC002550	Thread size	M12		
Housing materialMetalLens cover materialGlassNet weight500 gOperation and displayVia web browserType of configurationVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65US patentsUS 8,288,706 BClassification27310201eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0EC002550	Mechanical data			
Lens cover materialGlassNet weight500 gOperation and display500 gType of configurationVia web browserEnvironmental data	Dimension (W x H x L)	75 mm x 55 mm x 113 mm		
Net weight500 gOperation and display500 gType of configurationVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65US patentsUS 8,288,706 BClassification27310201ecl@ss 8.027310201ecl@ss 9.027310201ETIM 5.0EC002550	Housing material	Metal		
Operation and displayType of configurationVia web browserEnvironmental dataAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65IP 67US 8,288,706 BClassificationUS 8,288,706 BClassification27310201eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0EC002550	Lens cover material	Glass		
Type of configurationVia web browserEnvironmental dataVia web browserAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65IP 67US 8,288,706 BClassification90318020Customs tariff number90318020eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0EC002550	Net weight	500 g		
Environmental dataAmbient temperature, operation Ambient temperature, storage-35 45 °C -20 70 °CCertifications-20 70 °CDegree of protection IP 65 IP 67IP 65 IP 67US patentsUS 8,288,706 BClassification90318020 27310201eCl@ss 8.0 eCl@ss 9.027310201 EC002550	Operation and display			
Ambient temperature, operation         -35 45 °C           Ambient temperature, storage         -20 70 °C           Certifications         IP 65           Degree of protection         IP 67           US patents         US 8,288,706 B           Classification         27310201           eCl@ss 8.0         27310201           eCl@ss 9.0         27310201           ETIM 5.0         EC002550	Type of configuration Via web browser			
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Certifications         IP 65           Degree of protection         IP 67           US patents         US 8,288,706 B           Classification         US 8,288,706 D           Customs tariff number         90318020           eCl@ss 8.0         27310201           eCl@ss 9.0         27310201           ETIM 5.0         EC002550		-20 70 °C		
IP 67           US patents         US 8,288,706 B           Classification         90318020           Customs tariff number         90318020           eCl@ss 8.0         27310201           eCl@ss 9.0         27310201           ETIM 5.0         EC002550				
IP 67           US patents         US 8,288,706 B           Classification         00318020           Customs tariff number         90318020           eCl@ss 8.0         27310201           eCl@ss 9.0         27310201           ETIM 5.0         EC002550	Degree of protection	IP 65		
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	eCl@ss 9.0	27310201		
ETIM 6.0 EC002550	ETIM 5.0	EC002550		
	ETIM 6.0	EC002550		

# **Dimensioned drawings**

All dimensions in millimeters

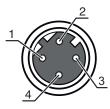


# **Electrical connection**

Connection 1	SERVICE
Function	Configuration interface
	Data interface
	Service interface
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded

# Pin Pin assignment

2	RD+
3	TD-
4	RD-



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# **Electrical connection**

### **Connection 2**

Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Туре	Male
Material	Metal
No. of pins	8 -pin
Encoding	A-coded

#### Pin Pin assignment

1	VIN		
2	IO1		
3	GND		
4	102		
5	IO3		
6	104		
7	n.c.		
8	FE		

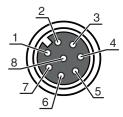
**BUS OUT** 

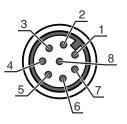
#### **Connection 3**

Function	Data interface
	Signal IN
	Signal OUT
Type of connection	Connector
Thread size	M12
Туре	Female
Material	Metal
No. of pins	8 -pin
Encoding	A-coded

#### Pin Pin assignment 1 105

•	100
2	106
3	GND
4	107
5	108
6	RS 232-RX
7	RS 232-TX
8	FE



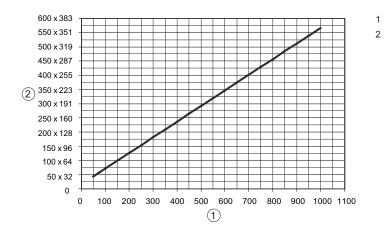


### **PWR**

# Diagrams

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### Relationship between working distance and field of view size



# **Operation and display**

LED		Display	Meaning
1 PV	1 PWR	Off	No supply voltage
		Green, flashing	Device ok, initialization phase
		Green, continuous light	Device OK
		Orange, continuous light	Service operation
		Red, flashing	Device OK, warning set
		Red, continuous light	Device error
2 BL	2 BUS	Off	No supply voltage
		Green, flashing	BUS initialization
		Green, continuous light	BUS OK
		Red, flashing	Bus error

Distance [mm]

Field of view: width x height [mm]

# Part number code

Part designation: LSIS AABB CCD-EF-GG

LSIS	Operating principle Smart camera
AA	Functions 41: BLOB analysis 42: Code reading 46: BLOB analysis, code reading, measuring tool 47: Compartment fine positioning
ВВ	Interface 2: RS 232 / Ethernet + digital I/Os
сс	Camera chip / resolution range M4: Monochrome / 752 x 480px
D	Lens 3: 8 mm 5: 16 mm 9: depending on the used interchangeable lens
E	Illumination I: infrared light M: RGBW W: white X: external illumination

# Part number code



F	Illumination type 1: diffuse front illumination 9: none
GG	Design 01: plastic n/a: glass H: with heating
1	Note
6	♣ A list with all available device types can be found on the Leuze website at www.leuze.com.

# Notes

Observe intended use!
<ul> <li><sup>t</sup> This product is not a safety sensor and is not intended as personnel protection.</li> <li><sup>t</sup> The product may only be put into operation by competent persons.</li> <li><sup>t</sup> Only use the product in accordance with its intended use.</li> </ul>

# Accessories

# Connection technology - Connection cables

	Part no.	Designation	Article	Description
ľ	50135128	KD S-M12-8A-P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50135139	KS S-M12-8A-P1-050	Connection cable	Connection 1: Connector, M12, Axial, Male, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

# Connection technology - Interconnection cables

 Part no.	Designation	Article	Description
50135074	KS ET-M12-4A-P7- 050	Connection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

## Accessories

# Leuze

# Mounting technology - Rod mounts

 Part no.	Designation	Article	Description
50027375	BT 56	Mounting device	Functions: Static applications Design of mounting device: Mounting system Fastening, at system: For 16 mm rod, For 18 mm rod, For 20 mm rod Mounting bracket, at device: Clampable Material: Metal Tightening torque of the clamping jaws: 8 N·m

# Standard reflectors

	Part no.	Designation	Article	Description
0	50130343	MTKZ 13-30 SET	Reflector	Design: Round Reflection surface diameter: 15 mm Material: Plastic Base material: Plastic Chemical designation of the material: PA Fastening: Clip Suitable for bore hole diameter: 12.5 13.5 mm Suitable for material thickness: 0.8 5 mm Processing temperature: 5 45 °C
0	50129092	MTKZ 15-30 SET	Reflector	Design: Round Reflection surface diameter: 15 mm Material: Plastic Base material: Plastic Chemical designation of the material: PA Fastening: Clip Suitable for bore hole diameter: 14.5 15.5 mm Suitable for material thickness: 0.8 5 mm Processing temperature: 5 45 °C
0	50140183	MTKZ 7-30 SET	Reflector	Design: Round Reflection surface diameter: 15 mm Material: Plastic Base material: Plastic Chemical designation of the material: PA Fastening: Clip Suitable for bore hole diameter: 6 7 mm Suitable for material thickness: 0.8 5 mm Processing temperature: 5 45 °C

### Services

	Part no.	Designation	Article	Description
y, U	S981014	CS30-S-110	Start-up support	Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.
	S981019	CS30-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.

# Accessories





<sup>t</sup>♦ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.