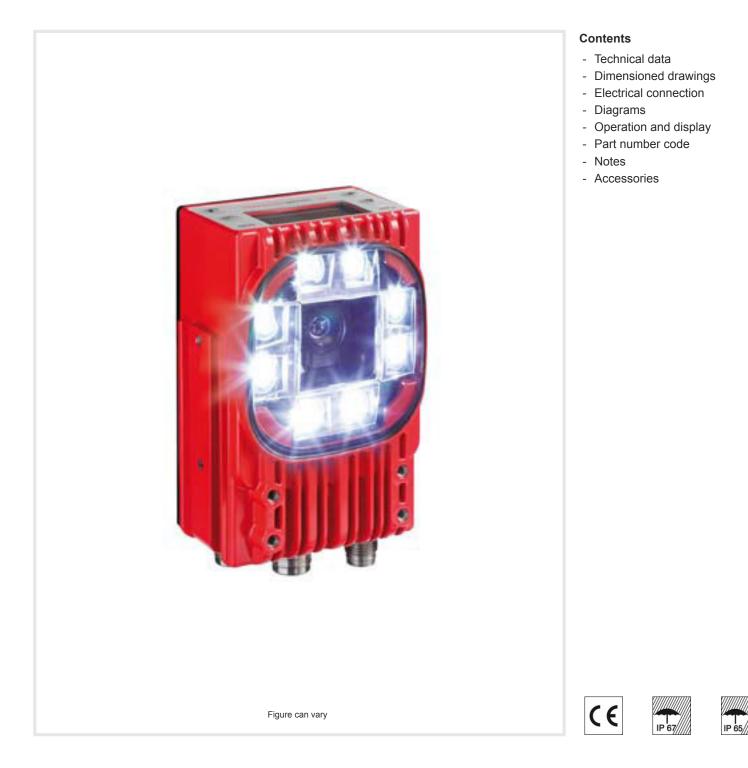


Technical data sheet Smart camera Part no.: 50131439

LSIS 472i M43-I1-H



The Sensor People In der Braike 1, 73277 Owen

Leuze electronic GmbH + Co. KG info@leuze.com • www.leuze.com Phone: +49 7021 573-0 • Fax: +49 7021 573-199

Technical data

Leuze

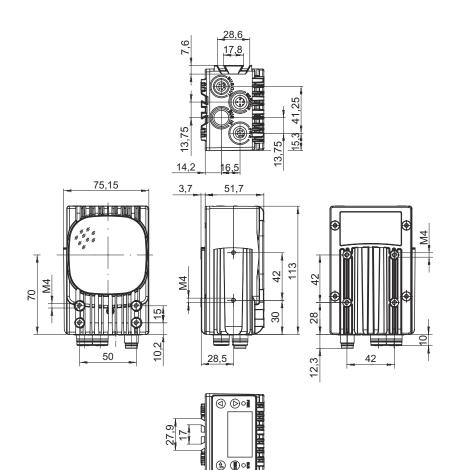
| Basic data | | |
|--------------------------------------|------------------------------|--|
| Series | LSIS 472i | |
| Chip | CMOS | |
| Special design | | |
| | | |
| Special design | Heating | |
| Functions | | |
| Software functions | Compartment fine positioning | |
| | Focus adjustment | |
| | | |
| 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 _B | 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 _в / 0 V | |
| Voltage type, inputs | DC | |
| Switching voltage, inputs | Typ. U _B / 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 | | | |
| Signal OUTType of connectionConnectorDesignation on deviceBUS OUTThread sizeM12Mechanical dataDimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and displayType of configurationVia web browserEnvironmental dataAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsUs patentsUs 8,288,706 BClassificationCustoms tariff number90318020eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0ECO02550 | Function | Data interface | | |
| Type of connection Designation on deviceConnectorDesignation on deviceBUS OUTThread sizeM12Mechanical dataMetalDimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and displayVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Degree of protectionIP 65US patentsUS 8,288,706 BClassification90318020ecloges 8.027310201ecloges 9.027310201ecloges 9.027310201ETIM 5.0Eco02550 | | Signal IN | | |
| Designation on deviceBUS OUTThread sizeM12Mechanical dataMetalDimension (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 65ID spatentsUS 8,288,706 BClassification90318020Customs tariff number90318020eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0EC002550 | | Signal OUT | | |
| Thread 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 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 | Type of connection | Connector | | |
| Mechanical dataDimension (W x H x L)75 mm x 55 mm x 113 mmHousing materialMetalLens cover materialGlassNet weight500 gOperation and display500 gOperation and displayVia web browserType of configurationVia web browserEnvironmental data-35 45 °CAmbient temperature, operation-35 45 °CAmbient temperature, storage-20 70 °CCertificationsIP 65Ip 67US s,288,706 BClassificationUS 8,288,706 BClassification27310201eCl@ss 8.027310201eCl@ss 9.027310201ETIM 5.0EC002550 | Designation on device | BUS OUT | | |
| 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 | | | |
| 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 9.0 27310201 eCl@ss 9.0 EC002550 | Environmental data | | | |
| Ambient temperature, storage-20 70 °CCertificationsIP 65 IP 67US patentsUS 8,288,706 BClassification90318020 27310201eCl@ss 8.027310201 ECl@ss 9.0eCl@ss 9.027310201 EC002550 | Ambient temperature, operation | -35 45 °C | | |
| 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 | | |
| Classification Customs tariff number 90318020 eCl@ss 8.0 27310201 eCl@ss 9.0 27310201 ETIM 5.0 EC002550 | . . | IP 67 | | |
| Customs tariff number 90318020 eCl@ss 8.0 27310201 eCl@ss 9.0 27310201 ETIM 5.0 EC002550 | US patents | US 8,288,706 B | | |
| eCl@ss 8.0 27310201 eCl@ss 9.0 27310201 ETIM 5.0 EC002550 | Classification | | | |
| eCl@ss 9.0 27310201 ETIM 5.0 EC002550 | Customs tariff number | 90318020 | | |
| ETIM 5.0 EC002550 | eCl@ss 8.0 | 27310201 | | |
| | eCl@ss 9.0 | 27310201 | | |
| ETIM 6.0 EC002550 | ETIM 5.0 | EC002550 | | |
| | ETIM 6.0 | EC002550 | | |

Dimensioned drawings

All dimensions in millimeters

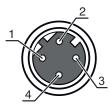


Electrical connection

| 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 | | |

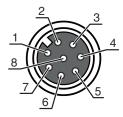
BUS OUT

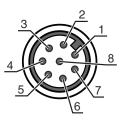
Connection 3

| 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 |



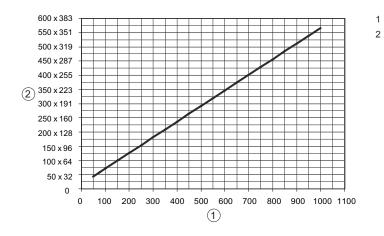


PWR

Diagrams

Leuze

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! |
|--|
| ^t This product is not a safety sensor and is not intended as personnel protection. ^t The product may only be put into operation by competent persons. ^t Only use the product in accordance with its intended use. |

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





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