

## Technical data sheet

### Smart camera

Part no.: 50116981

LSIS 422i M45-I1-01

#### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- Notes
- Accessories



Figure can vary



## Technical data

### Basic data

Series	LSIS 422i
Chip	CMOS

### Functions

Software functions	Reading of 1D codes
	Reading of 2D codes

### Read data

Code types, readable	2/5 Interleaved
	Codabar
	Code 128
	Code 39
	Data Matrix Code
	Directly-marked 2D-codes
	EAN 128
	EAN 8/13
	Pharma Code
	UPC

### Optical data

Working range	75 ... 10,000 mm
Light source	LED, Infrared
Transmitted-signal shape	pulsed, continuously
Camera resolution, horizontal	752 px
Camera resolution, vertical	480 px
Focal length	16 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

Protective circuit	Overtemperature protection
	Overvoltage protection
	Polarity reversal protection
	Short circuit protected
	Transient protection

### Performance data

Supply voltage $U_B$	18 ... 30 V, DC
----------------------	-----------------

### Inputs/outputs selectable

Number of inputs/outputs selectable	8 Piece(s)
Voltage type, outputs	DC
Switching voltage, outputs	Typ. $U_B$ / 0 V
Voltage type, inputs	DC
Switching voltage, inputs	Typ. $U_B$ / 0 V

### Input/output 1

Function	Freely configurable
----------	---------------------

### Input/output 2

Function	Freely configurable
----------	---------------------

### Input/output 3

Function	Freely configurable
----------	---------------------

### Input/output 4

Function	Freely configurable
----------	---------------------

### Input/output 5

Function	Freely configurable
----------	---------------------

### Input/output 6

Function	Freely configurable
----------	---------------------

### Input/output 7

Function	Freely configurable
----------	---------------------

### Input/output 8

Function	Freely configurable
----------	---------------------

### Interface

Type	RS 232, Ethernet
------	------------------

### RS 232

Function	Process
Framing protocol	BCC mode
	Software X ON / X OFF
Transmission speed	4,800 ... 115,200 Bd
Data format	Adjustable
Start bit	1
Data bit	7,8
Stop bit	1.2
Parity	Adjustable
Transmission protocol	Adjustable
Data encoding	ASCII

### Ethernet

Architecture	Client
	Server
Address assignment	DHCP
	Manual address assignment
Transmission speed	10 Mbit/s
	100 Mbit/s
Function	Process
	Service
Switch functionality	None
Transmission protocol	TCP/IP, UDP

### Connection

Number of connections	3 Piece(s)
-----------------------	------------

### Connection 1

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

## Technical data

### Connection 2

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

### Connection 3

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

### Mechanical data

Design	Cubic
Dimension (W x H x L)	75 mm x 55 mm x 113 mm
Housing material	Metal
Metal housing	Diecast aluminum
Lens cover material	Plastic
Net weight	500 g
Housing color	Black, RAL 9005
	Red, RAL 3000
Type of fastening	Dovetail grooves
	Mounting thread
	Via optional mounting device

### Operation and display

Type of display	LED
	Monochromatic graphical display, 128x64 pixel
Number of LEDs	2 Piece(s)
Type of configuration	Via web browser
Operational controls	Membrane keyboard

### Environmental data

Ambient temperature, operation	0 ... +45 °C
Ambient temperature, storage	-20 ... +70 °C
Relative humidity (non-condensing)	0 ... 90 %

### Certifications

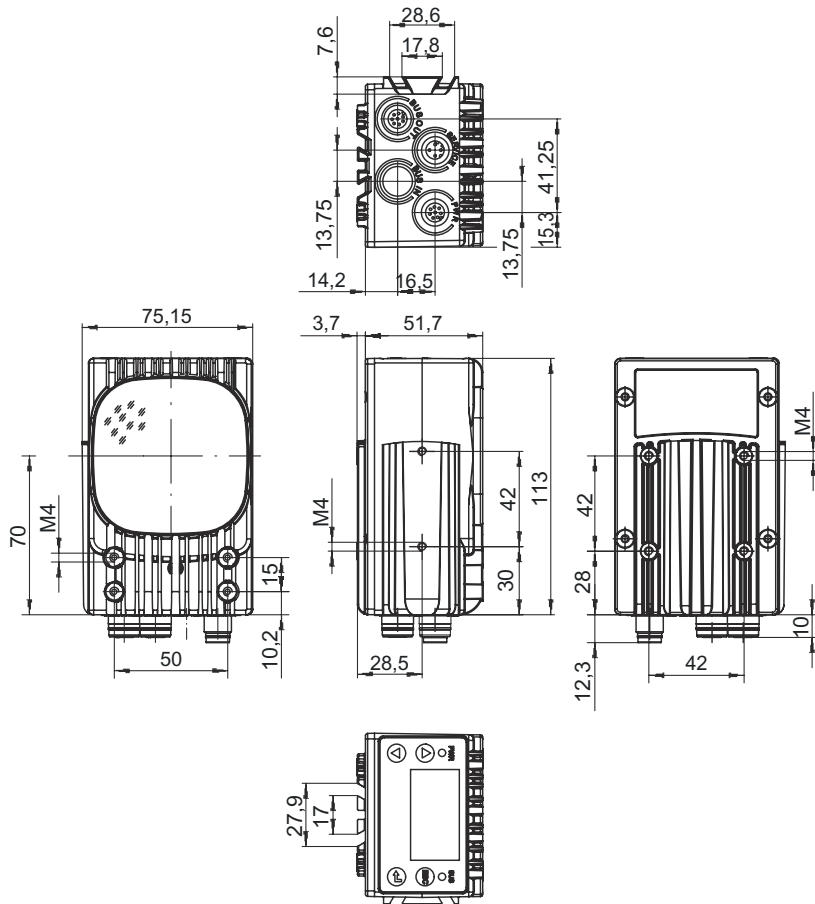
Degree of protection	IP 65
	IP 67
Protection class	III
Certifications	c UL US
Test procedure for EMC in accordance with standard	EN 61000-6-2:2005
	EN 61000-6-4:2001
Test procedure for shock in accordance with standard	IEC 60068-2-27, test Ea
Test procedure for continuous shock in accordance with standard	IEC 60068-2-29, test Eb
Test procedure for vibration in accordance with standard	IEC 60068-2-6, test Fc
US patents	US 8,288,706 B

### Classification

Customs tariff number	90318020
eCl@ss 5.1.4	27280103
eCl@ss 8.0	27280103
eCl@ss 9.0	27280103
eCl@ss 10.0	27280103
eCl@ss 11.0	27280103
ETIM 5.0	EC002550
ETIM 6.0	EC002999
ETIM 7.0	EC002999

# Dimensioned drawings

All dimensions in millimeters



## Electrical connection

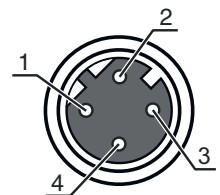
### Connection 1

### SERVICE

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

### Pin Pin assignment

1	TD+
2	RD+
3	TD-
4	RD-



# Electrical connection

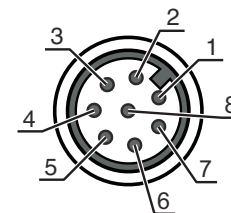
## Connection 2

## PWR

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

### Pin Pin assignment

1	VIN
2	IO1
3	GND
4	IO2
5	IO3
6	IO4
7	n.c.
8	FE



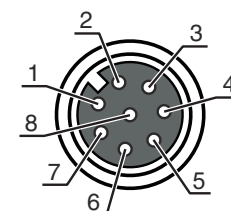
## Connection 3

## BUS OUT

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

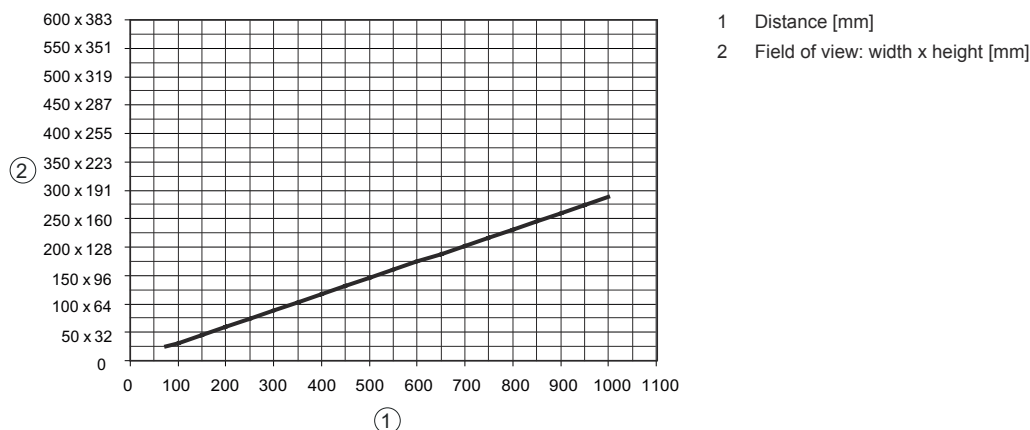
### Pin Pin assignment

1	IO5
2	IO6
3	GND
4	IO7
5	IO8
6	RS 232-RX
7	RS 232-TX
8	FE



# Diagrams

## Relationship between working distance and field of view size



## Operation and display

LED	Display	Meaning
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 BUS	Off	No supply voltage
	Green, flashing	BUS initialization
	Green, continuous light	BUS OK
	Red, flashing	Bus error

## Part number code

Part designation: **LSIS AABB CCD-EF-GG**

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

## Part number code

<b>F</b>	<b>Illumination type</b> 1: diffuse front illumination 9: none
<b>GG</b>	<b>Version</b> 01: plastic n/a: glass H: with heating
<b>Note</b>	
	↪ A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> .

## Notes

<b>Observe intended use!</b>	
	<ul style="list-style-type: none"> <li>↪ This product is not a safety sensor and is not intended as personnel protection.</li> <li>↪ The product may only be put into operation by competent persons.</li> <li>↪ Only use the product in accordance with its intended use.</li> </ul>

## Accessories

### Connection technology - Connection cables


	Part no.	Designation	Article	Description
	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
	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
	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

## Accessories

### Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
	50135081	KSS ET-M12-4A-RJ45-A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

### 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

### Services

	Part no.	Designation	Article	Description
	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.

#### Note



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