

dimensions	<b>53 x 99.5 x 38mm</b>	
camera sensor	operating distance	<b>min. 50mm</b>

- ✓ short set-up times because of up to 255 check programs with up to 32 inspection criteria per sensor
- ✓ simple product change via control inputs, software or web-interface
- ✓ codeable, digital outputs for up to 5 status signals
- ✓ stand-alone solution
- ✓ robust metal housing
- ✓ external light shielding
- ✓ process interface



**fully integrated camera system  
contour based**



#### description

In addition to a range of functions, the contour-based camera sensors of the 'opti-check' series are characterized by speed and a high level of external light shielding. Possible applications range from classic optical sensors (through-beam sensors and diffuse reflection sensors) through to industrial image processing (computer-supported camera systems).

With a variable working distance (min. 50mm), the camera sensors are an all-in-one image processing unit in a compact and robust housing and are also suitable for harsh environments (IP67).

The 'opti-check' is equipped with a CMOS sensor (1/3"), optics (10mm or 16mm), illumination (a powerful white light LED), electronics/software (>5000 inspections/minute) as well as Ethernet and digital interfaces (5 inputs/5 outputs).

Using the simple user interface, it only takes a few steps to reach the ready-to-use, configured sensor. From various functional groups (position tracking, geometry, comparison of features, identification) the user can select and combine

inspection characteristics.

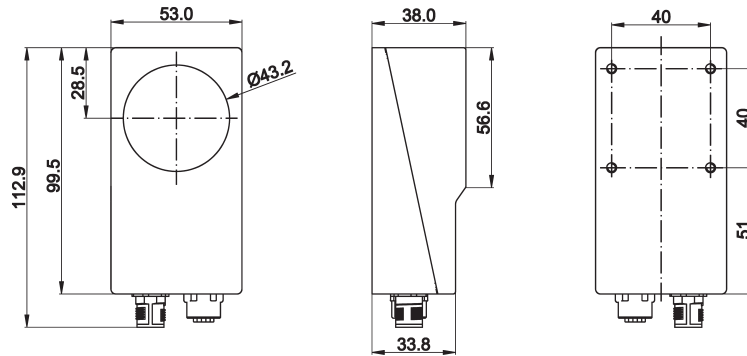
During the manufacturing process, the integrated web interface can be accessed by means of the web browser in order, for example, to carry out subsequent parameterization.

#### application examples

- ▶ checking and contour testing of mechanical components, e.g. plastic screws, nuts and metal rings
- ▶ completeness check (e.g. in the case of circuit boards)
- ▶ evaluation of installation positions related to fitted components
- ▶ querying of parts and differentiating different grades in packaging (present/incorrect/absent)
- ▶ evaluation of printing (present/quality)
- ▶ position checking of markings and imprints
- ▶ feeding of components (position correct/incorrect)
- ▶ reading of barcodes and their quality
- ▶ OCR recognition of texts

article-no.	OC539120
version	position and location check
operating range	> 50mm
focal distance	f = 10mm

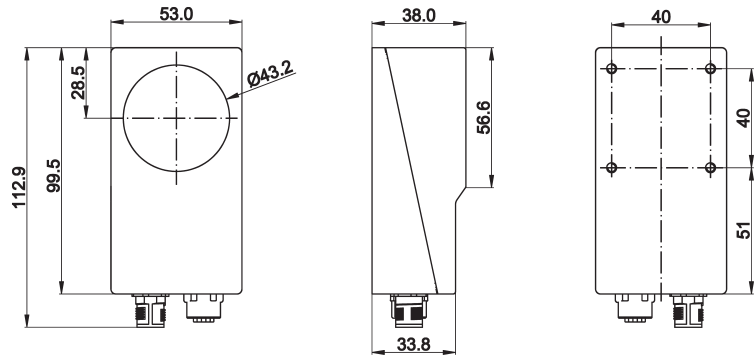
article-no.	OC539121
version	position and location check
operating range	> 70mm
focal distance	f = 16mm



**TECHNICAL DATA**

version	position and location check
focal distance	see above
resolution	752x480 pixels
measuring time	high resolution: 50 x per sec. / high speed: 100 x per sec.
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output	Pass/Fail 1 ... 5, flash sync, alarm, image trigger is allowed, valid result
output current (max. load)	100mA per output
input	trigger, job selection, external teach, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
transmitting element	White, LED class: Risk group 1 (low risk, EN 62471:2008)
setting	via software (included in the scope of delivery)
display (signal)	5 x LED (see page 8)
short-circuit protection	+
reverse polarity protection	+
dimensions	53x99.5x38mm
material (housing)	aluminium
material (optic)	PMMA
operating temperature	+5 ... +50°C
humidity (operation)	0 ... 90% non condensing
system of protection (EN 60529)	IP67
vibration strength	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	process: M12-connector 12-pin
interface	Ethernet: M12-connector 4-pin
connection accessories	e.g. <b>VK205C25</b> (process) / e.g. <b>VK208F25</b> (Ethernet)
accessories	adapter plate <b>AO000371</b>

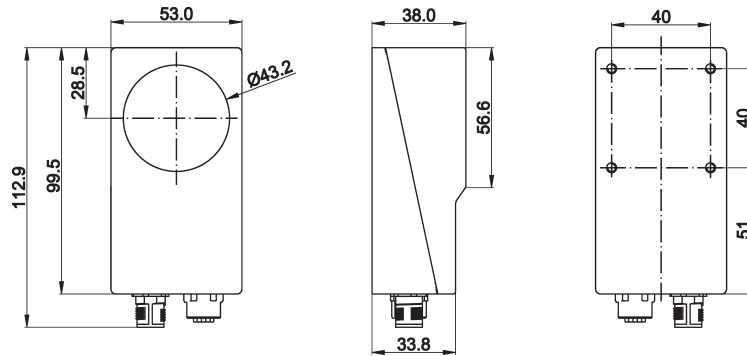
article-no.	OC539220
version	reading of matrix- and barcodes
operating range	> 50mm
focal distance	f = 10mm
article-no.	OC539221
version	reading of matrix- and barcodes
operating range	> 70mm
focal distance	f = 16mm


**TECHNICAL DATA**

Vversion	reading of matrix- and barcodes
focal distance	see above
resolution	752x480 pixels
measuring time	high resolution: 50 x per sec. / high speed: 100 x per sec.
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output	Pass/Fail 1 ... 5, flash sync, alarm, image trigger is allowed, valid result
output current (max. load)	100mA per output
input	trigger, job selection, external teach, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
transmitting element	White, LED class: Risk group 1 (low risk, EN 62471:2008)
setting	via software (included in the scope of delivery)
display (signal)	5 x LED (see page 8)
short-circuit protection	+
reverse polarity protection	+
dimensions	53x99.5x38mm
material (housing)	aluminium
material (optic)	PMMA
operating temperature	+5 ... +50°C
humidity (operation)	0 ... 90% non condensing
system of protection (EN 60529)	IP67
vibration strength	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	process: M12-connector 12-pin
interface	Ethernet: M12-connector 4-pin
connection accessories	e.g. <b>VK205C25</b> (process) / e.g. <b>VK208F25</b> (Ethernet)
accessories	adapter plate <b>A0000371</b>

1050 ipf opti-check

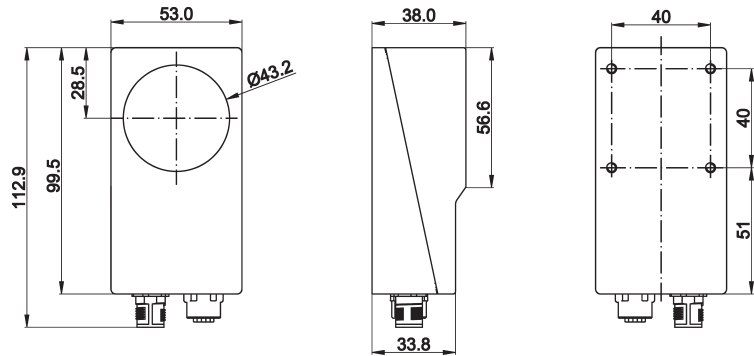
article-no.	OC539320
version	reading of matrix- and barcodes, plain writing with quality evaluation
operating range	> 50mm
focal distance	f = 10mm



TECHNICAL DATA

version	reading of matrix- and barcodes, plain writing with quality evaluation
focal distance	see above
resolution	752x480 pixels
measuring time	high resolution: 50 x per sec. / high speed: 100 x per sec.
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output	Pass/Fail 1 ... 5, flash sync, alarm, image trigger is allowed, valid result
output current (max. load)	100mA per output
input	trigger, job selection, external teach, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
transmitting element	White, LED class: Risk group 1 (low risk, EN 62471:2008)
setting	via software (included in the scope of delivery)
display (signal)	5 x LED (see page 8)
short-circuit protection	+
reverse polarity protection	+
dimensions	53x99.5x38mm
material (housing)	aluminium
material (optic)	PMMA
operating temperature	+5 ... +50°C
humidity (operation)	0 ... 90% non condensing
system of protection (EN 60529)	IP67
vibration strength	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	process: M12-connector 12-pin
interface	Ethernet: M12-connector 4-pin
connection accessories	e.g. <b>VK205C25</b> (process) / e.g. <b>VK208F25</b> (Ethernet)
accessories	adapter plate <b>AO000371</b>

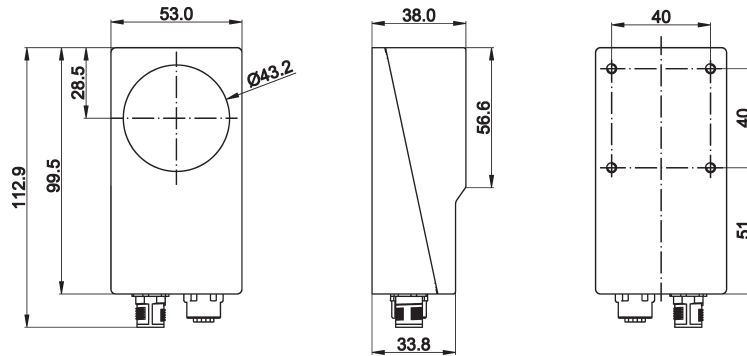
article-no.	OC539420
version	quality check and identification
operating range	> 50mm
focal distance	f = 10mm
article-no.	OC539421
version	quality check and identification
operating range	> 70mm
focal distance	f = 16mm



**TECHNICAL DATA**

version	quality check and identification
focal distance	see above
resolution	752x480 pixels
measuring time	high resolution: 50 x per sec. / high speed: 100 x per sec.
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output	Pass/Fail 1 ... 5, flash sync, alarm, image trigger is allowed, valid result
output current (max. load)	100mA per output
input	trigger, job selection, external teach, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
transmitting element	White, LED class: Risk group 1 (low risk, EN 62471:2008)
setting	via software (included in the scope of delivery)
display (signal)	5 x LED (see page 8)
short-circuit protection	+
reverse polarity protection	+
dimensions	53x99.5x38mm
material (housing)	aluminium
material (optic)	PMMA
operating temperature	+5 ... +50°C
humidity (operation)	0 ... 90% non condensing
system of protection (EN 60529)	IP67
vibration strength	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	process: M12-connector 12-pin
interface	Ethernet: M12-connector 4-pin
connection accessories	e.g. <b>VK205C25</b> (process) / e.g. <b>VK208F25</b> (Ethernet)
accessories	adapter plate <b>A0000371</b>

article-no.	OC539520
version	quality check, identification, reading of matrix -, barcodes, plain writing with quality evaluation
operating range	> 50mm
focal distance	f = 10mm
article-no.	OC539521
version	quality check, identification, reading of matrix -, barcodes, plain writing with quality evaluation
operating range	> 70mm
focal distance	f = 16mm



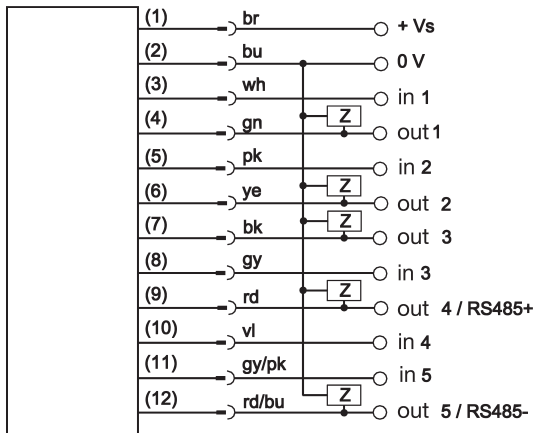
**TECHNICAL DATA**

version	quality check, identification, reading of matrix -, barcodes, plain writing with quality evaluation
focal distance	see above
resolution	752x480 pixels
measuring time	high resolution: 50 x per sec. / high speed: 100 x per sec.
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output	Pass/Fail 1 ... 5, flash sync, alarm, image trigger is allowed, valid result
output current (max. load)	100mA per output
input	trigger, job selection, external teach, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
transmitting element	White, LED class: Risk group 1 (low risk, EN 62471:2008)
setting	via software (included in the scope of delivery)
display (signal)	5 x LED (see page 8)
short-circuit protection	+
reverse polarity protection	+
dimensions	53x99.5x38mm
material (housing)	aluminium
material (optic)	PMMA
operating temperature	+5 ... +50°C
humidity (operation)	0 ... 90% non condensing
system of protection (EN 60529)	IP67
vibration strength	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	process: M12-connector 12-pin
interface	Ethernet: M12-connector 4-pin
connection accessories	e.g. <b>VK205C25</b> (process) / e.g. <b>VK208F25</b> (Ethernet)
accessories	adapter plate <b>AO000371</b>

article-no.		<b>OC539120</b>	<b>OC539121</b>	<b>OC539220</b>	<b>OC539221</b>	<b>OC539320</b>
resolution		752 x 480	752 x 480	752 x 480	752 x 480	752 x 480
lens		10 mm	16 mm	10 mm	16 mm	10 mm
process interface	TCP / IP (Ethernet)	x	x	x	x	x
	RS485			x	x	
identification	matrix code			x	x	x
	barcode			x	x	x
	text					x
part location	on contours	x	x			
	on edges					
	on circle					
	on text line					x
geometry	distance	x	x			
	circle	x	x			
	angle					
	count edges					
	point position					
feature comparison	count the contour points	x	x			
	comparison of contours	x	x			x
	brightness	x	x			
	contrast					
	area size					
	count areas					
	pattern comparison					
article-no.		<b>OC539420</b>	<b>OC539421</b>	<b>OC539520</b>	<b>OC539521</b>	
resolution		752 x 480	752 x 480	752 x 480	752 x 480	
lens		10 mm	16 mm	10 mm	16 mm	
process interface	TCP / IP (Ethernet)	x	x	x	x	
	RS485					
identification	matrix code			x	x	
	barcode			x	x	
	text			x	x	
part location	on contours	x	x	x	x	
	on edges	x	x	x	x	
	on circle	x	x	x	x	
	on text line	x	x	x	x	
geometry	distance	x	x	x	x	
	circle	x	x	x	x	
	angle	x	x	x	x	
	count edges	x	x	x	x	
	point position	x	x	x	x	
feature comparison	count the contour points	x	x	x	x	
	comparison of contours	x	x	x	x	
	brightness	x	x	x	x	
	contrast	x	x	x	x	
	area size	x	x	x	x	
	count areas	x	x	x	x	
	pattern comparison	x	x	x	x	

### connection

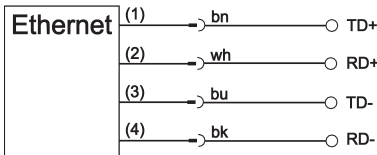
M12-connector 12-pin



assignment

pin	color	assignment	open cable tail
1	brown	PWR	18 ... 30V DC
2	blue	ground	0 V
3	white	in 1	trigger
4	green	out 1	digital output 1
5	pink	in 2	digital input 2
6	yellow	out 2	digital output 2
7	black	out 3	digital output 3
8	grey	in 3	digital input 3
9	red	out 4	digital output 4 / RS485+
10	violet	in 4	digital input 4
11	grey/pink	in 5	digital input 5
12	red/blue	out 5	digital output 5 / RS485+

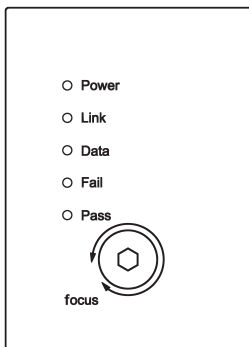
M12-connector 4-pin



assignment

pin	color	assignment	open cable tail
1	brown	TD+	
2	white	RD+	
3	blue	TD-	
4	black	TD-	

LED display



Power	yellow LED	operation
Link	yellow LED	network
Data	orange LED	data
Fail	red LED	no test
Pass	green LED	test is passed

lens coverage = 10mm

object distance	max. inspection area
50mm	26mm x 17mm
100mm	50mm x 32mm
200mm	98mm x 62mm
300mm	145mm x 93mm

lens coverage = 16mm

object distance	max. inspection area
70mm	18mm x 11mm
100mm	26mm x 17mm
200mm	55mm x 35mm
300mm	84mm x 54mm

### ACCESSORIES

article-no.	description
AO000371	adapter plate for mounting on tripods
AO000388	fixing plate
AO000389	fixing angle

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter "accessories" under "cable sockets **ipf-SENSORFLEX®**" or search our Website for "VK".

**Warning:** ever use these devices in applications where the safety of a person depends on their functionality.

You also find this data sheet, as well as contact details under [www.ipf-electronic.com](http://www.ipf-electronic.com)