dimensions	**53 x 99.5 x 38mm**	
camera sensor	operating distance	**variable**

✓ **for C-mount lenses**

✓ **integrated flash controller**

✓ **short set-up times because of up to 255 check programs with up to 32 feature checks 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**

✓ **high ambient light shield**

✓ **process interface**
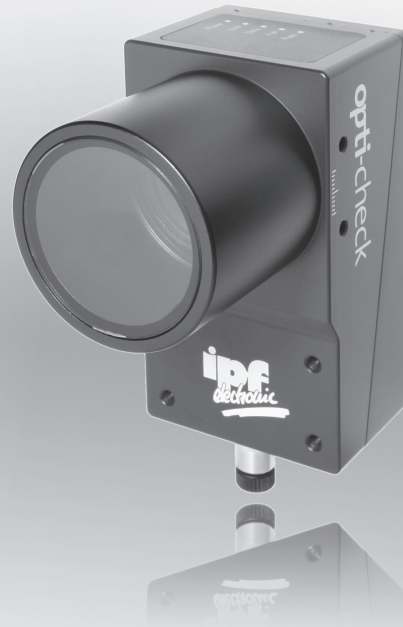
fully integrated camera system contour-based recognition

PC | DC | PNP | Ethernet
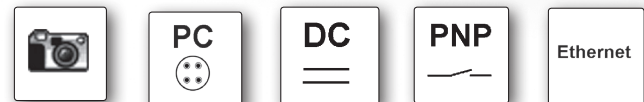
description

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).

For tasks that require a variable operating distance or various dimensions and illumination of the lens coverage, we offer the **OC53** with a C-mount lens mount.

Through the numerous choices for a lens matched to the application and appropriate illumination (not integrated), this camera sensor is always the first choice when great flexibility is required.

Thanks to the integrated flash controller, external illumination is supplied via the **OC53**. This makes external flash controllers a thing of the past.

Using the simple user interface, it only takes a few steps to configure the sensor.

From various functional groups (part location, geometry, feature comparison, identification) the user can select and combine inspection tasks.
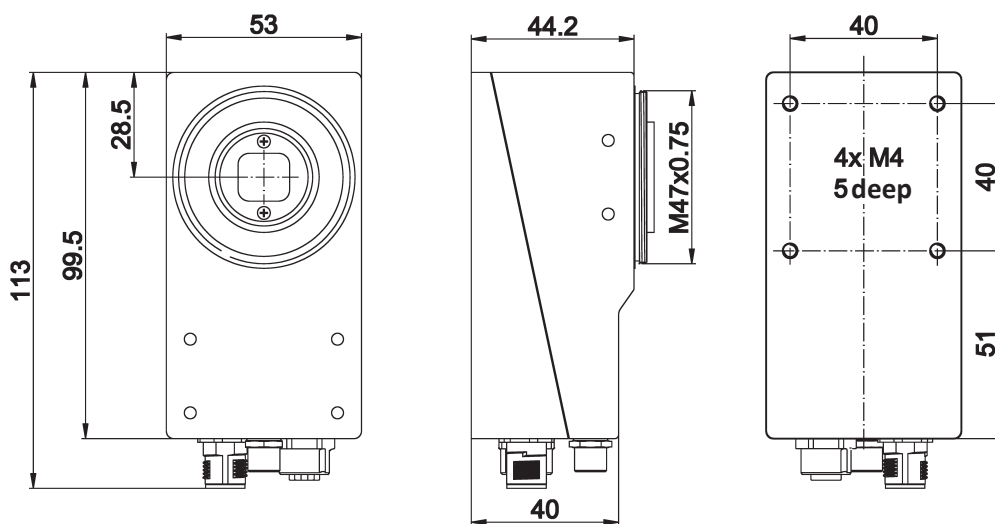
During the manufacturing process, the integrated web interface can be accessed by means of the web browser in order, for example, to carry out subsequent parameterization.

Application areas

▶ 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 of mounted assemblies
▶ 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)
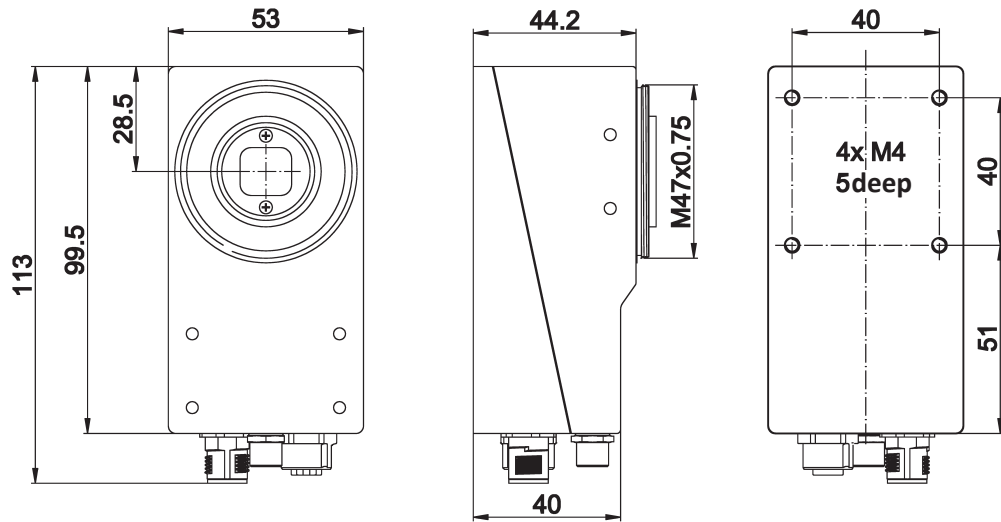▶ reading of barcodes and their quality
▶ OCR recognition of texts

4

CAMERA SENSORS

1070 IPF OPTI-CHECK

IPF ELECTRONIC

article no.	OC539620	OC539720
resolution	640 x 480px	640 x 480px
image sensor	1/4" CCD	1/4" CCD
measuring time (High Res./ High Speed)	50fps/100fps	50fps/100fps

TECHNICAL DATA

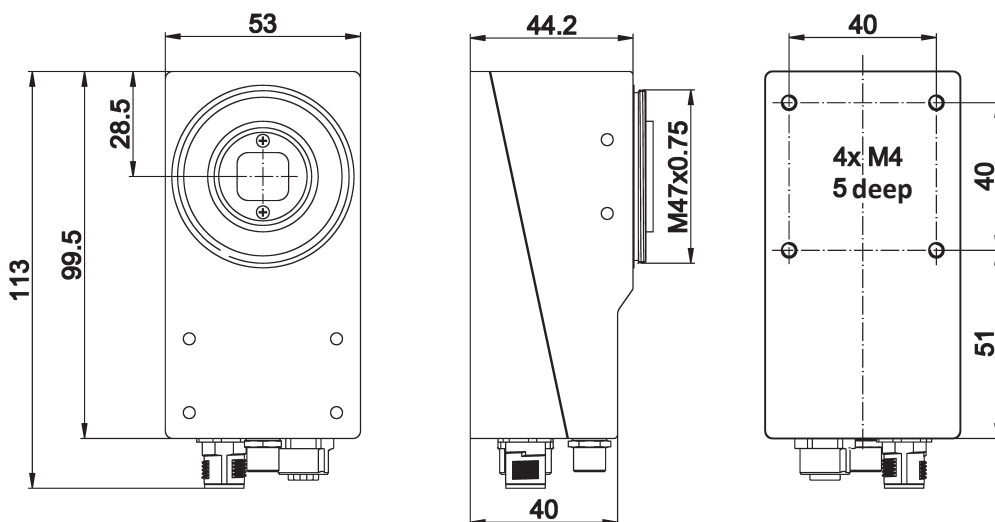|	
resolution	640 x 480px
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output (process)	pass / fail 1 ... 5, flash sync, alarm, camera ready, output enable
output current (max. load)	100mA per output
input	trigger, job selection, external teach-in, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
setting	via software (included in the scope of delivery)
output (flash controller)	flash controller: 12 or 24V DC permanently, I=800mA 24V or 48V DC pulsed, I=4A flash time: 1ms (duty cycle max. 1:10)
status display	5 x LED
short-circuit protection	+
reverse polarity protection	+
dimensions	53 x 99.5 x 38mm
material (housing)	aluminum
material (optics)	PMMA
temperature (operating)	+5 ... +50°C
humidity (operating)	0 ... 90% non-condensing
degree of protection (EN 60529)	IP67 (with protective lens housing)
vibration resistance	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	supply/signals: M12-connector, 12-pin, flash controller: M8-socket, 4-pin
interface	Ethernet: M12-socket, 4-pin
connection accessories	e.g. **VK205C25** (supply/signals) / e.g. **VK208F25** (Ethernet)
accessories	protective lens housing: **AO000398** (included in the scope of delivery), lens e.g. **AO000544**, protective lens extension: **AO000399,** illumination e.g. **ES350120**

article no.	OC539621	OC539721
resolution	1280 x 960px	1280 x 960px
image sensor	1/3" CCD	1/3" CCD
measuring time (High Res./ High Speed)	12fps/25fps	12fps/25fps

TECHNICAL DATA

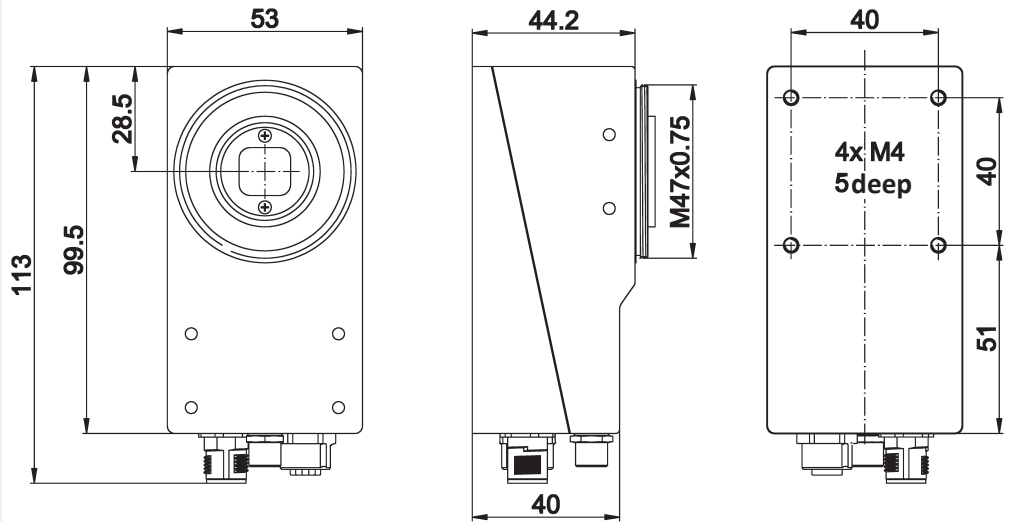|	
resolution	1280 x 960px
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output (process)	pass / fail 1 ... 5, flash sync, alarm, camera ready, output enable
output current (max. load)	100mA per output
input	trigger, job selection, external teach-in, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
setting	via software (included in the scope of delivery)
output (flash controller)	flash controller: 12 or 24V DC permanently, I=800mA 24V or 48V DC pulsed, I=4A flash time: 1ms (duty cycle max. 1:10)
status display	5 x LED
short-circuit protection	+
reverse polarity protection	+
dimensions	53 x 99.5 x 38mm
material (housing)	aluminum
material (optics)	PMMA
temperature (operating)	+5 ... +50°C
humidity (operating)	0 ... 90% non-condensing
degree of protection (EN 60529)	IP67 (with protective lens housing)
vibration resistance	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	supply/signals: M12-connector, 12-pin, flash controller: M8-socket, 4-pin
interface	Ethernet: M12-socket, 4-pin
connection accessories	e.g. **VK205C25** (supply/signals) / e.g. **VK208F25** (Ethernet)
accessories	protective lens housing: **AO000398** (included in the scope of delivery), lens e.g. **AO000544**, protective lens extension: **AO000399,** illumination e.g. **ES350120**

article no.	OC539622	OC539722
resolution	1600 x 1200px	1600 x 1200px
image sensor	1/1.8" CCD	1/1.8" CCD
measuring time (High Res./ High Speed)	7fps/15fps	7fps/15fps

TECHNICAL DATA

resolution	1600x 1200px
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output (process)	pass / fail 1 ... 5, flash sync, alarm, camera ready, output enable
output current (max. load)	100mA pro Ausgang
input	trigger, job selection, external teach-in, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
setting	via software (included in the scope of delivery)
output (flash controller)	flash controller: 12 or 24V DC permanently, I=800mA 24V or 48V DC pulsed, I=4A flash time: 1ms (duty cycle max. 1:10)
status display	5 x LED
short-circuit protection	+
reverse polarity protection	+
dimensions	53 x 99.5 x 38mm
material (housing)	aluminum
material (optics)	PMMA
temperature (operating)	+5 ... +50°C
humidity (operating)	0 ... 90% non-condensing
degree of protection (EN 60529)	IP67 (with protective lens housing)
vibration resistance	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	supply/signals: M12-connector, 12-pin, **flash controller: M8-socket, 4-pin**
interface	Ethernet: M12-socket, 4-pin
connection accessories	e.g. **VK205C25** (supply/signals) / e.g. **VK208F25** (Ethernet)
accessories	protective lens housing: **AO000398** (included in the scope of delivery), lens e.g. **AO000544**, protective lens extension: **AO000399,** illumination e.g. **ES350120**

article no.	OC539F20	OC539F21	OC539F22
resolution	640 x 480px	1280 x 960px	1600 x 1200px
image sensor	CCD (1/4")	CCD (1/3")	CCD (1/1.8")
focal length	variable	variable	variable
measuring time (High Res./ High Speed)	116fps/144fps	31fps/54fps	21fps/35fps

TECHNICAL DATA

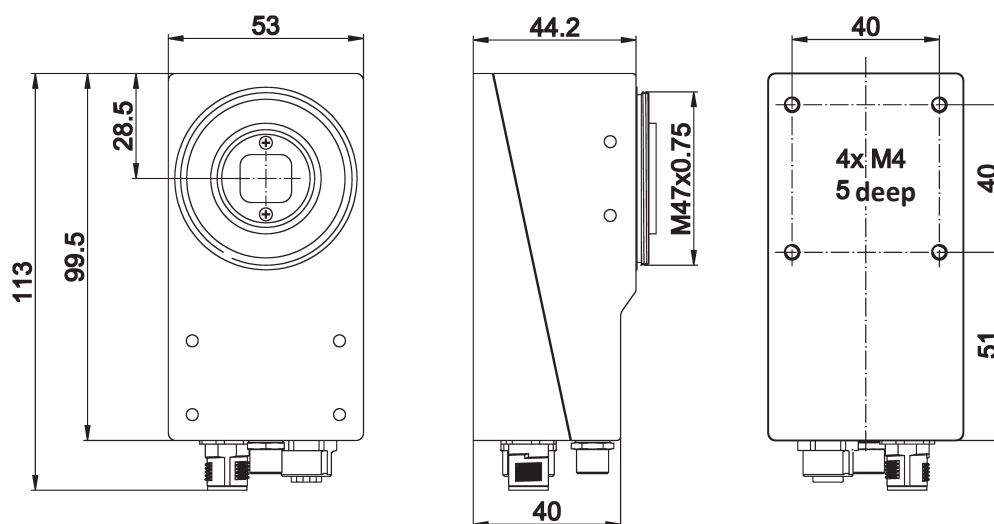|	
resolution	640 x 480px/ 1280 x 960px/ 1600 x 1200px
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output (process)	pass / fail 1 ... 5, flash sync, alarm, camera ready, output enable
output current (max. load)	100mA per output
input	trigger, job selection, external teach-in, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
setting	via software (included in the scope of delivery)
output (flash controller)	flash controller: 12 or 24V DC permanently, I=800mA 24V or 48V DC pulsed, I=4A flash time: 1ms (duty cycle max. 1:10)
status display	5 x LED
short-circuit protection	+
reverse polarity protection	+
dimensions	53 x 99.5 x 38mm
material (housing)	aluminum
material (optics)	PMMA
temperature (operating)	+5 ... +50°C
humidity (operating)	0 ... 90% non-condensing
degree of protection (EN 60529)	IP67 (with protective lens housing)
vibration resistance	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	supply/signals: M12-connector, 12-pin, flash controller: M8-socket, 4-pin
interface	Ethernet/Profinet: M12-socket, 4-pin
connection accessories	e.g. VK205C25 (supply/signals) / e.g. VK208F25 (Ethernet/Profinet)
accessories	protective lens housing: AO000398 (included in the scope of delivery), lens e.g. AO000544, protective lens extension: AO000399, illumination e.g. ES350120

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CAMERA SENSORS

1070 IPF OPTI-CHECK

IPF ELECTRONIC

| article no.	OC539G20	OC539G21	OC539G22
resolution	640 x 480px	1280 x 960px	1600 x 1200px
image sensor	CCD (1/4")	CCD (1/3")	CCD (1/1.8")
focal length	variable	variable	variable
measuring time (High Res./ High Speed)	116fps/144fps	31fps/54fps	21fps/35 ps

TECHNICAL DATA

|	
resolution	640 x 480px/ 1280 x 960px/ 1600 x 1200px
operating voltage	18 ... 30V DC
power consumption	typ. 5W
output (process)	pass / fail 1 ... 5, flash sync, alarm, camera ready, output enable
output current (max. load)	100mA per output
input	trigger, job selection, external teach-in, encoder (CH-A, CH-B) 500kHz
input voltage	8 ... 30V DC
setting	via software (included in the scope of delivery)
output (flash controller)	flash controller: 12 or 24V DC permanently, I=800mA 24V or 48V DC pulsed, I=4A flash time: 1ms (duty cycle max. 1:10)
status display	5 x LED
short-circuit protection	+
reverse polarity protection	+
dimensions	53 x 99.5 x 38mm
material (housing)	aluminum
material (optics)	PMMA
temperature (operating)	+5 ... +50°C
humidity (operating)	0 ... 90% non-condensing
degree of protection (EN 60529)	IP67 (with protective lens housing)
vibration resistance	IEC 60068-2-6, IEC 60068-2-64
shock resistance	EN 60068-2-27
connection	supply/signals: M12-connector, 12-pin, flash controller: M8-socket, 4-pin
interface	Ethernet/Profinet: M12-socket, 4-pin
connection accessories	e.g. **VK205C25** (supply/signals) / e.g. **VK208F25** (Ethernet/Profinet)
accessories	protective lens housing: **AO000398** (included in the scope of delivery), lens e.g. **AO000544**, protective lens extension: **AO000399,** illumination e.g. **ES350120**

article no.	OC539620	OC539621	OC539622	OC539720	OC539721	OC539722
resolution	640x480px	1280x960px	1600x1200px	640x480px	1280x960px	1600x1200px
process interface						
TCP/IP (Ethernet)	x	x	x	x	x	x
Profinet						
RS485						
identification						
matrix code				x	x	x
barcode				x	x	x
text				x	x	x
position tracking on						
contours	x	x	x	x	x	x
edges	x	x	x	x	x	x
circles	x	x	x	x	x	x
lines of text	x	x	x	x	x	x
geometry						
distance	x	x	x	x	x	x
circle	x	x	x	x	x	x
angle	x	x	x	x	x	x
count edges	x	x	x	x	x	x
point position	x	x	x	x	x	x
edge contour	x	x	x	x	x	x
feature comparison						
count contour points	x	x	x	x	x	x
comparison of contours	x	x	x	x	x	x
brightness	x	x	x	x	x	x
contrast	x	x	x	x	x	x
area size	x	x	x	x	x	x
count areas	x	x	x	x	x	x
pattern comparison	x	x	x	x	x	x

article no.	OC539F20	OC539F21	OC539F22	OC539G20	OC539G21	OC539G22
resolution	640x480px	1280x960px	1600x1200px	640x480px	1280x960px	1600x1200px
process interface						
TCP/IP (Ethernet)	x	x	x	x	x	x
profinet	x	x	x	x	x	x
identification						
matrix code				x	x	x
barcode				x	x	x
text				x	x	x
position tracking on						
contours	x	x	x	x	x	x
edges	x	x	x	x	x	x
circles	x	x	x	x	x	x
lines of text	x	x	x	x	x	x
geometry						
distance	x	x	x	x	x	x
circle	x	x	x	x	x	x
angle	x	x	x	x	x	x
count edges	x	x	x	x	x	x
point position	x	x	x	x	x	x
edge contour	x	x	x	x	x	x
feature comparison						
count contour points	x	x	x	x	x	x
comparison of contours	x	x	x	x	x	x
brightness	x	x	x	x	x	x
contrast	x	x	x	x	x	x
area size	x	x	x	x	x	x
count areas	x	x	x	x	x	x
pattern comparison	x	x	x	x	x	x

AO000398   protective lens housing
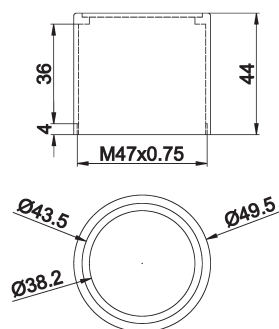
AO000399   protective lens extension
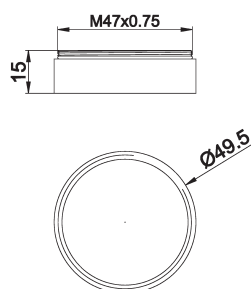
ACCESSORIES

| article no.	description
AO000371	adapter plate for installation on tripods
AO000388	mounting plate
AO000389	mounting bracket
AO000398	protective lens housing (included in the scope of delivery)
AO000399	protective lens extension
AO000522	mounting bracket 53 with heat sink for Profinet devices

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: Never use these devices in applications where the safety of a person depends on their functionality.
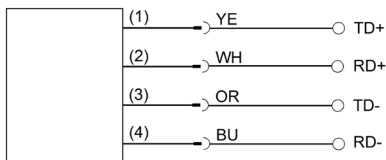
connection

M12-connector, 12-pin, process
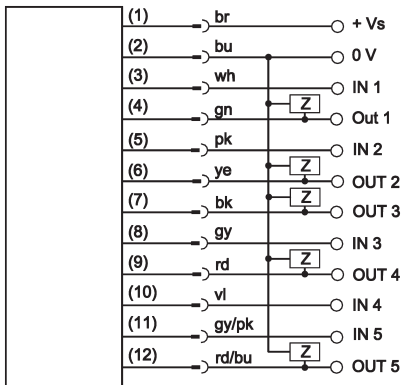
assignment

PIN	color	assignment	open cable end
1	brown	PWR	18 ... 30V DC
2	blue	Ground	0V
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	digitaler output 3
8	gray	IN 3	digital input 3
9	red	OUT 4	digital output 4
10	violet	IN 4	digital input 4
11	gray/rosa	IN 5	digital input 5
12	rot/blau	OUT 5	digital output 5

M12-socket, 4-pin, Ethernet

assignment

PIN	color	assignment
1	yellow	TD +
2	white	RD +
3	orange	TD -
4	bue	RD -

M8-socket, 4-pin, flash controller
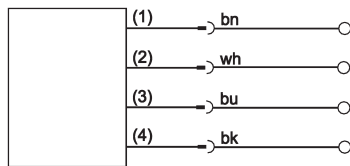
assignment

PIN	color	assignment
1	brown	24 bzw. 48V DC (pulsed)
2	white	12 bzw. 24V DC (permanent)
3	blue	ground
4	black	flash sync.

Note: Voltage outputs can be configured via software

connections
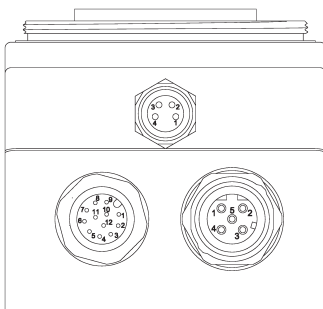
LED status display Ethernet
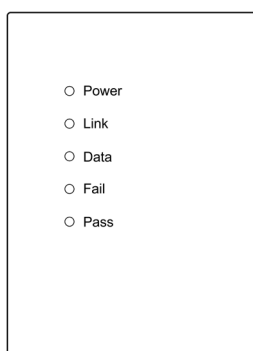
LED status display Profinet

Power	LED yellow	operation
Link/ACT	LED yellow	network
Data/NET RUN	LED orange	data
Fail	LED red	no test
Pass	LED green	test passed

4

NOTES