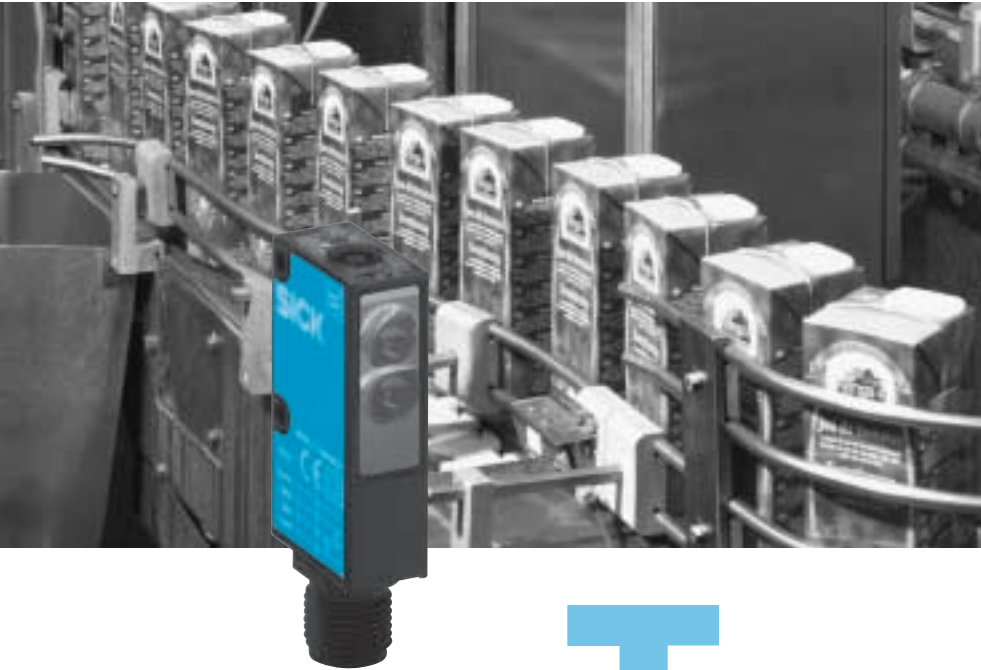


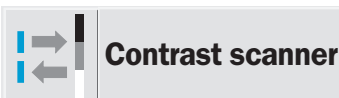
# KT 3: On your mark, get set, go!




Features such as the integrated switching threshold adjustment with very shiny scanning material, the static two-point Teach-in or the dynamic Teach-in make the KT 3 user-friendly both in operation startup and in everyday use. And thanks to the miniature design, the KT 3 is especially well suited for cramped quarters.

Contrasts do not need expensive technology, but instead simply the KT 3.

**T**he new KT 3 contrast scanner is small in price and design, but big in detecting contrasts in standard applications. With scanning ranges to 12.5 mm and switching sequences up to 10,000/s, the mark sensor is predestined for use in packaging machines, for example.

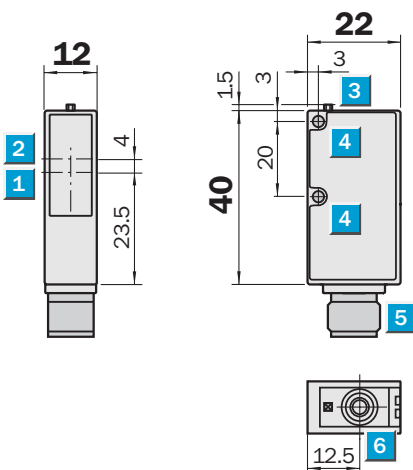



**Scanning distance**  
**12.5 mm**

Contrast scanners

- Light source green or red, green, blue
- Integrated switching threshold adjustment for detection of extremely shiny objects
- Static two point Teach-in to mark and background via control cable or control panel on unit
- Switching frequency 10,000/s

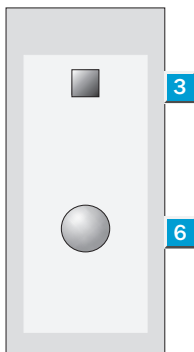
Dimensional drawing



Adjustments possible

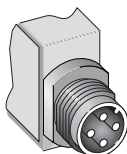
- KT 3W-P 1116
- KT 3W-N 1116
- KT 3G-P 1116
- KT 3G-N 1116

- 1 Axis of the sender optics
- 2 Axis of the receiver optics
- 3 LED signal strength indicator
- 4 Mounting hole
- 5 Plug M 12, 4-pin
- 6 Operating components

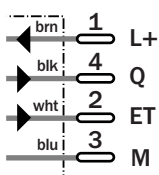


Connection type

- KT 3W-P 1116
- KT 3W-N 1116
- KT 3G-P 1116
- KT 3G-N 1116



4-pin, M 12



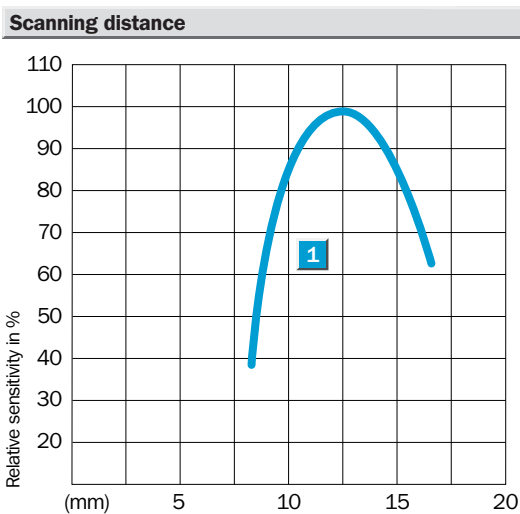
Accessories
Connectors
Mounting systems

Technical data		KT 3	W-P 1116	W-N 1116	G-P 1116	G-N 1116						
<b>Scanning distance</b>	12.5 mm											
from front edge of lens												
Scanning distance tolerance	± 2 mm											
<b>Light spot dimensions</b>	1.5 x 6.5 mm											
	1.5 x 3.5 mm											
<b>Light source<sup>1)</sup>, light type</b>	Red, green, blue											
	Green											
<b>Supply voltage V<sub>S</sub></b>	24 V DC ± 20 %											
Ripple <sup>2)</sup>	< 5 V <sub>PP</sub>											
Current consumption <sup>3)</sup>	< 35 mA											
<b>Switching outputs</b>	NPN: HIGH = V <sub>S</sub> / LOW = < 2 V											
	PNP: HIGH = V <sub>S</sub> - < 2 V / LOW = approx. 0 V											
Output current I <sub>A</sub> max.	100 mA											
Response time <sup>4)</sup>	50 μs											
Switching frequency <sup>5)</sup>	To 10 000/s											
Time delay optional	20 ms											
<b>Teach-in input ET</b>	PNP: Teach > 10 V... < V <sub>S</sub>											
	NPN: Teach 0 V											
<b>Static two point Teach-in</b>												
<b>Connection type</b>	Plug 4-pin, M 12											
<b>VDE protection class<sup>6)</sup></b>	□											
<b>Enclosure rating</b>	IP 67											
<b>Circuit protection<sup>7)</sup></b>	A, B, C											
<b>Ambient temperature</b>	Operation - 10 ... + 55 °C											
	Storage - 20 ... + 75 °C											
<b>Shock load</b>	To IEC 68											
<b>Weight</b>	Approx. 80 g											
<b>Housing material</b>	ABS											

<sup>1)</sup> Average service life 100,000 h at T<sub>A</sub> = + 25 °C  
<sup>2)</sup> May not exceeded or fall short of V<sub>S</sub> tolerances

<sup>3)</sup> Without load  
<sup>4)</sup> Signal transit time with resistive load  
<sup>5)</sup> With light/dark ratio 1:1  
<sup>6)</sup> Reference voltage 50 V DC

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected  
 B = Outputs short-circuit protected  
 C = Interference pulse suppression



**1** Scanning distance 12.5 mm


Static Teach-in		Order information	
<b>Static Teach-in KT 3 via control panel:</b>			
1.	Place mark in light spot.	<b>Type</b>	<b>Part no.</b>
2.	Press the Teach-in button on the equipment for longer than 1 s, and then trigger the first Teach-in procedure.	KT 3W-P 1116	1 019 338
3.	Place the light spot on the background, and then trigger the second Teach-in procedure.	KT 3W-N 1116	1 019 337
		KT 3G-P 1116	1 019 446
		KT 3G-N 1116	1 019 445

- Teach-in via control wire:**
1. Place mark in light spot.
  2. Trigger the first Teach-in procedure via the control wire.
  3. Place the light spot on the background, and then trigger the second Teach-in procedure via the control wire.

The KT 3W selects transmission light from among red, blue and green automatically.

**Confirmation:**  
 After the first Teach-in procedure, the red transmitter light blinks with the KT 3W and the green with the KT 3G, and the status indicator blinks slowly and signals that a second Teach-in procedure must be triggered.

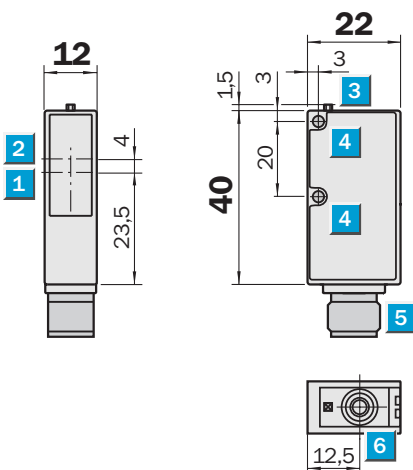
LED and status indicator blink rapidly = contrast insufficient.  
 LED and status indicator do not blink = Teach-in procedure completed.


**Scanning distance**  
**12.5 mm**

Contrast scanners

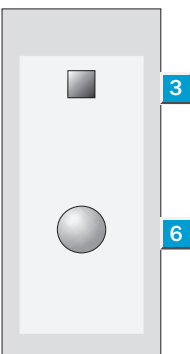
- Light source green or red, green, blue
- Integrated switching threshold adjustment for detection of extremely shiny objects
- Dynamic Teach-in via control panel or control wire while machine is running
- Switching frequency 10,000/s

Dimensional drawing



Adjustments possible

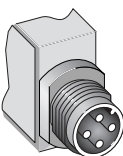
- KT 3W-P 1115
- KT 3W-N 1115



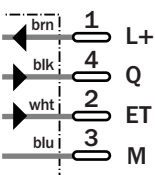
- 1 Axis of the sender optics
- 2 Axis of the receiver optics
- 3 LED signal strength indicator
- 4 Mounting hole
- 5 Plug M 12, 4-pin
- 6 Operating components

Connection type

- KT 3W-P 1115
- KT 3W-N 1115



4-pin, M 12



- Accessories
- Connectors
  - Mounting systems



Technical data		KT 3	W-P 1115	W-N 1115								
<b>Scanning distance</b>	12.5 mm											
from front edge of lens												
Scanning distance tolerance	± 2 mm											
<b>Light spot dimensions</b>	1.5 x 6.5 mm											
	1.5 x 3.5 mm											
<b>Light source<sup>1)</sup>, light type</b>	Red, green, blue											
	Green											
<b>Supply voltage V<sub>S</sub></b>	24 V DC ± 20 %											
Ripple <sup>2)</sup>	< 5 V <sub>PP</sub>											
Current consumption <sup>3)</sup>	< 35 mA											
<b>Switching outputs</b>	NPN: HIGH = V <sub>S</sub> / LOW = < 2 V											
	PNP: HIGH = V <sub>S</sub> - < 2 V / LOW = approx. 0 V											
Output current I <sub>A</sub> max.	100 mA											
Response time <sup>4)</sup>	50 μs											
Switching frequency <sup>5)</sup>	To 10 000/s											
Time delay optional	20 ms											
<b>Teach-in input ET</b>	PNP: Teach > 10 V... < V <sub>S</sub>											
	NPN: Teach 0 V											
<b>Dynamic Teach-in</b>												
<b>Connection type</b>	Plug 4-pin, M 12											
<b>VDE protection class<sup>6)</sup></b>	□											
<b>Enclosure rating</b>	IP 67											
<b>Circuit protection<sup>7)</sup></b>	A, B, C											
<b>Ambient temperature</b>	Operation - 10 ... + 55 °C											
	Storage - 20 ... + 75 °C											
<b>Shock load</b>	To IEC 68											
<b>Weight</b>	Approx. 80 g											
<b>Housing material</b>	ABS											

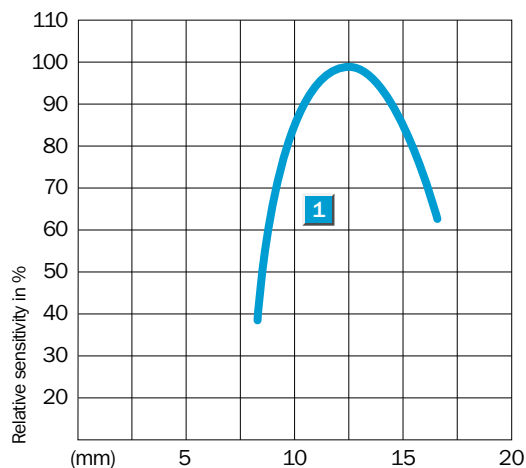
<sup>1)</sup> Average service life 100,000 h at T<sub>A</sub> = + 25 °C  
<sup>2)</sup> May not exceeded or fall short of V<sub>S</sub> tolerances

<sup>3)</sup> Without load  
<sup>4)</sup> Signal transit time with resistive load  
<sup>5)</sup> With light/dark ratio 1:1  
<sup>6)</sup> Reference voltage 50 V DC

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected  
 B = Outputs short-circuit protected  
 C = Interference pulse suppression

Order information	
Type	Part no.
KT 3W-P 1115	1 025 326
KT 3W-N 1115	1 025 325

**Scanning distance**



**1** Scanning distance 12.5 mm

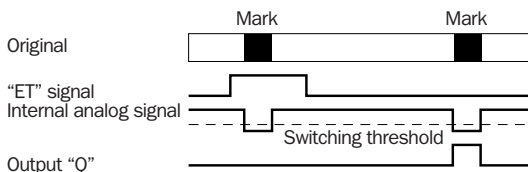
**Dynamic Teach-in**

The switching threshold is set by a "Teach-in" procedure for this contrast scanner. This can be done via the "ET" line or by the teach button on the device.

**Procedure**

1. Depict the light spot on the original shortly before the mark.
2. Activate the teach signal via the teach button or the "ET" line and keep it activated.
3. Move the original with the print mark at the scanning distance through the light spot.
4. Deactivate the teach signal.
5. The switching threshold is in the middle between the reception signals from the background and mark and is stored permanently. The optimum transmission light was selected automatically.

**Example**



**Notes**

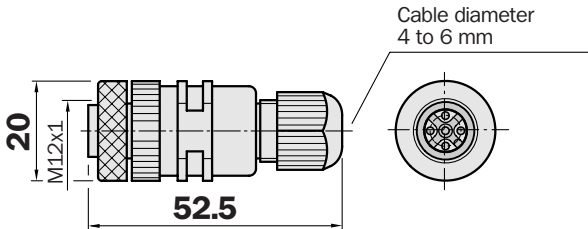
1. The material speed during the Teach-in procedure must be slower than 10 m/minute when there are smaller marks.
2. Only Teach-in one mark if possible.
3. If the Teach-in procedure was unsuccessful, the indicator blinks at 3.5/s. The output switches at 3.5/s for special devices. The reception signal was too weak, too strong (possibly due to shiny reflectance) or the contrast difference was too small.

Dimensional drawings and order information

SENSICK screw-in system M 12, 4-pin, enclosure rating IP 67

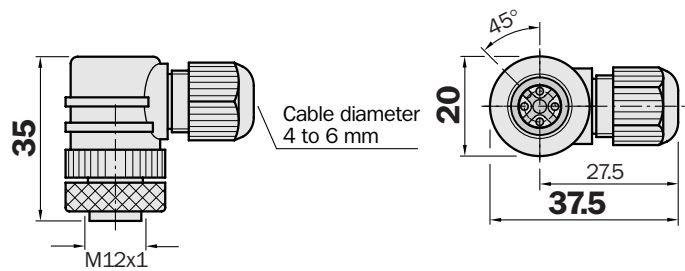
Female connector M 12, 4-pin, straight

Type	Part no.	Contacts	Can be self-made for cables Ø 4.5 to 6.5 mm
DOS-1204-G	6 007 302	4	



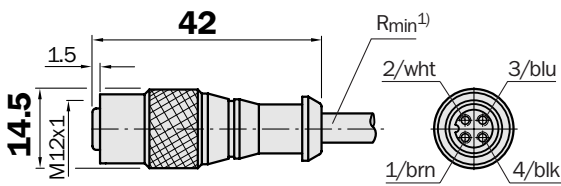
Female connector M 12, 4-pin, right angle

Type	Part no.	Contacts	Can be self-made for cables Ø 4.5 to 6.5 mm
DOS-1204-W	6 007 303	4	



Female connector M 12, 4-pin, straight

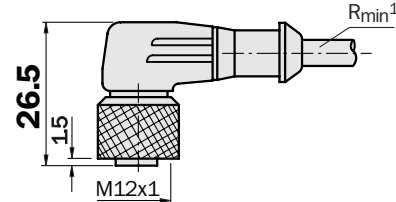
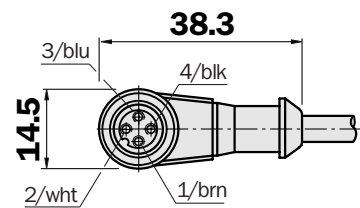
Cable diameter 5 mm, 4 x 0.25 mm <sup>2</sup> , sheath PVC			
Type	Part no.	Contacts	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m



<sup>1)</sup> Minimum bend radius in dynamic use  
R<sub>min</sub> = 20 x cable diameter

Female connector M 12, 4-pin, right angle

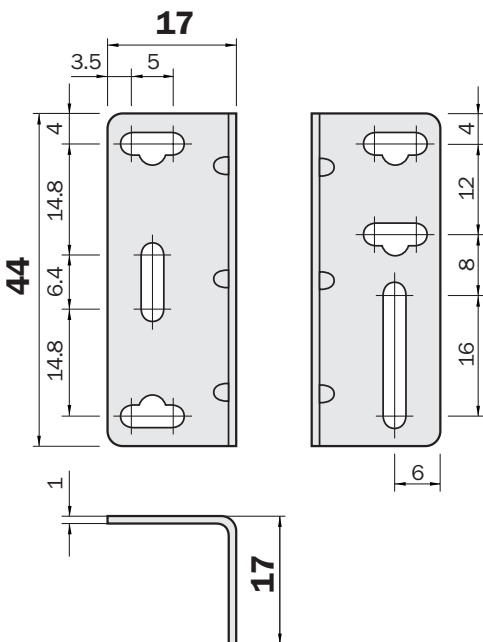
Cable diameter 5 mm, 4 x 0.25 mm <sup>2</sup> , sheath PVC			
Type	Part no.	Contacts	Cable length
DOL-1204-W02M	6 009 383	4	2 m
DOL-1204-W05M	6 009 867	4	5 m
DOL-1204-W10M	6 010 541	4	10 m



<sup>1)</sup> Minimum bend radius in dynamic use  
R<sub>min</sub> = 20 x cable diameter

Mounting bracket

Type	Part no.
BEF-WN-W9-2	2 022 855



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