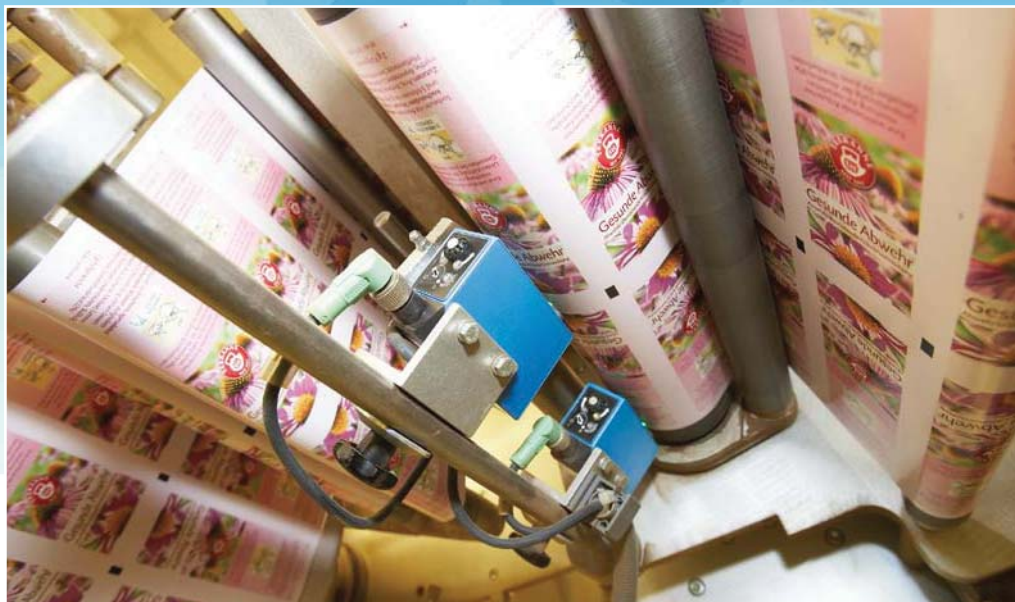


SICK registration sensors – enhancing performance through precision and speed



Registration sensors

The variety of tasks in automated production processes today, such as in packaging and printing machines, require sensors with the highest performance standards. Typical applica-

tions are the detection of visible and non-visible marks, labels and colors at high speeds as well as the detection of small parts and precise positioning. SICK offers a wide range of contrast, mark-

less, color, luminescence, fork and array sensors to solve this wide spectrum of demanding tasks.



Registration sensors

Selection guide registration sensors 250



KT3 254
High-performance contrast sensors in a compact housing



KT5 256
Contrast sensor in standard metal housing



KT10 258
The industry choice for high-speed and precision mark detection



ML20 259
Running markless for stability and design freedom



CS8 260
High-performance color sensing



LUT1 261
Compact sensor for long sensing distances



LUT8 263
For universal use with easy adjustment



LUT9 265
The new standard for high-performance luminescence sensors



UF 267
The clear choice for detecting transparent labels



WF 268
WFnext - it's next for high-speed applications



WFL 270
Get precise detection of small targets with WFL fork sensors



WFM 272
WFM fork sensors – connect and get started



WFS 274
Agile and flexible – ideal mounting for labeling applications



Ax20 275
Ax20 array sensors for edge and diameter detection solutions

Selection guide registration sensors

Contrast sensors, markless sensors, color sensors, luminescence sensors

	Contrast sensors			Markless sensors	Color sensors	Luminescence sensors		
	KT3	KT5	KT10	ML20	CS8	LUT1	LUT8	LUT9
Task								
Detection of contrast marks/contrast differences	■	■	■					
Detection of recurrent design				■				
Color detection					■			
Detection of fluorescent marks/objects						■	■	■
Light source								
LED white	■			■				
LED green	■	■						
LED red, green		■						
LED red, green, blue	■	■	■		■			
UV-LED						■	■	■
LED blue						■		■
Sensing distance (mm) ¹⁾								
10		■	■				■	■
12.5	■				■			
20		■		■			■	■
40		■						
50						■	■	■
60					■			
80						■		
90							■	■
150						■		■
Response time (μs)								
20			■					
50	■	■						
75								■
85						■		
145					■			
200							■	
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¹⁾ For advanced operating range see product information.

Selection guide registration sensors

Contrast sensors, markless sensors, color sensors, luminescence sensors

	Contrast sensors			Markless sensors	Color sensors	Luminescence sensors		
	KT3	KT5	KT10	ML20	CS8	LUT1	LUT8	LUT9
Light spot size (mm) ²⁾								
Small (0.8 x 4.0 ... 1.5 x 6.5)	■	■	■					
Medium (2 x 4 ... 13 x 13)					■	■	■	■
Large (20 x 50 ... 60 x 3)				■		■		
Special features								
Ethernet TCP/IP				■				
IO-Link								■
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²⁾ Specific data see product information.

Selection guide registration sensors

Fork sensors

	Fork sensors				
	UF	WF	WFL	WFM	WFS
Task					
Detection of transparent labels	■				
Detection of opaque labels	■	■			■
Object detection		■	■	■	
Fork width (mm)					
2		■	■		
3	■				■
5 / 15		■	■		
30 / 50 / 80 / 120		■	■	■	
Fork depth (mm)					
42		■	■	■	■
59 / 60		■	■	■	
69	■				
95		■	■		
124				■	
Response time (µs)					
50					■
100		■	■		
125				■	
250	■				
300	■				
Minimum detectable object (MDO) (mm)					
0.05			■		
0.2		■			
0.8				■	
2	■				■
Adjustment					
Teach-in		■	■		
Teach-in dynamic/static	■				■
Manual ("+" / "-" button)	■	■			■
Without				■	
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Selection guide registration sensors

Array sensors

	Array sensors		
	AT20E	AL20E	AT20D
Task			
Edge detection	■	■	
Diameter detection			■
Usage (proximity/reflector)			
Contrast difference > 10 % (with reflector)	■		■
Contrast difference > 17 % (with reflector)	■	■	■
Contrast difference > 20 % (with reflector)	■		■
Sensing distance (mm)			
25	■	■	■
100	■	■	■
Fields of application			
Measurement web edge guidance control	■	■	
Object positioning (end of travel indication)	■	■	
Line tracking	■	■	
Gap detection			■
Width measurement			■
Line diameter detection			■
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H



At a glance

- Very small housing
- RGB 3-color technology
- Laser version with long sensing distance
- Simple teach-in (when machine is stopped or during operation)
- Integrated switching threshold adjustment for high-gloss objects
- Reliable operation for jittering materials
- Switching frequency of 10 kHz

Your benefits

- Compact design fits in limited space applications
- Very good contrast resolution for detecting print marks, even where the variation between the mark and the background is minimal
- Laser version for the smallest marks and long sensing distances
- Automatic adaptation for high-gloss objects ensures high throughput
- Reliable operation for jittering materials
- Accurate positioning in rapid production processes
- Red/green/blue LEDs detect all registration marks in all applications

→ www.mysick.com/en/KT3

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/KT3

- **Sensing distance:** 12.5 mm
- **Response time:** 50 µs (Signal transit time with resistive load.)
- **Light spot direction:** vertical (In relation to long side of housing.)
- **Adjustment:** Static 2-point teach-in

Light source	Light spot size	Switching output	Model name	Part no.
LED, white ¹⁾²⁾	1.5 mm x 3.5 mm	PNP	KT3M-P1116	1044235
		NPN	KT3M-N1116	1044593
LED red, green, blue ¹⁾³⁾	1.5 mm x 6.5 mm	PNP	KT3W-P1116	1019338
		NPN	KT3W-N1116	1019337
LED green ¹⁾⁴⁾	1.5 mm x 3.5 mm	PNP	KT3G-P1116	1019446
		NPN	KT3G-N1116	1019445




¹⁾ Average service life of 100,000 h at $T_A = +25\text{ °C}$.

²⁾ Wave length: 400 nm ... 700 nm.

³⁾ Wave length: 470 nm, 525 nm, 640 nm.

⁴⁾ Wave length: 520 nm.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Mounting brackets/ plates	Mounting brackets	–	–	–	–	–	BEF-WN-W9-2	2022855
	Plug connectors and cables	Female connector	Connector M12, 4-pin	IP 67	Straight	PVC	2 m	DOL-1204-G02M	6009382
					Angled	PVC	2 m	DOL-1204-W02M	6009383



At a glance

- Best contrast resolution thanks to RGB LED technology
- Intuitive 10-segment bar display indicates the detection reliability
- Dynamic or static teach-in method or manual potentiometer
- Switching frequency of 10 kHz
- Automatic gloss adjustment for highly reflective materials
- Various sensing distances and light spot directions
- M12 plug can be rotated 90°

Your benefits

- Able to process all packaging materials (yellow mark/white background), resulting in high machine throughput
- Reliable operation, even with jittering and high gloss materials
- High positioning accuracy improves packaging quality
- Simple teach-in and highly visible light spot ensure easy setup
- A range of sensing distances, light spot directions and 180° rotatable plug enables optimal integration
- Interchangeable lenses for maximum mounting flexibility
- Application-specific teach-in processes

→ www.mysick.com/en/KT5

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/KT5

- **Response time:** 50 µs (Signal transit time with resistive load.)

Light source	Sensing distance	Adjustment	Light spot size	Light spot direction	Switching output	Model name	Part no.	
LED green ¹⁾²⁾	10 mm ³⁾	Manual adjustment, potentiometer	1.2 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5G-2P1111	1015993	
					NPN	KT5G-2N1111	1015981	
				Horizontal ⁴⁾	PNP	KT5G-2P2111	1016008	
					NPN	KT5G-2N2111	1015990	
	20 mm ³⁾		1.5 mm x 5.5 mm	Vertical ⁴⁾	PNP	KT5G-2P1211	1015999	
					NPN	KT5G-2N1211	1015985	
			40 mm ³⁾	1.1 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5G-2P1311	1016003
						NPN	KT5G-2N1311	1015988

¹⁾ Average service life of 100,000 h at T_A = +25 °C.

²⁾ Wave length: 520 nm.

³⁾ From front edge of lens.

⁴⁾ In relation to long side of housing.

⁵⁾ Wave length: 470 nm, 525 nm, 640 nm.

⁶⁾ Wave length: 525 nm, 640 nm.

Light source	Sensing distance	Adjustment	Light spot size	Light spot direction	Switching output	Model name	Part no.		
LED red, green, blue ¹⁾⁵⁾	10 mm ³⁾	Dynamic teach-in	1.2 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5W-2P1113	1016629		
		Static 2-point teach-in	1.2 mm x 4.2 mm	Vertical ⁴⁾	NPN	KT5W-2N1113	1016630		
					PNP	KT5W-2P1116	1018044		
			1.2 mm x 4.2 mm	Vertical ⁴⁾	NPN	KT5W-2N1116	1018045		
					PNP	KT5W-2P1126	1018587		
			1.5 mm x 5.5 mm	Horizontal ⁴⁾	PNP	KT5W-2P2116	1022312		
		1.2 mm x 4.2 mm	Vertical ⁴⁾	PNP/NPN	KT5W-2B1116	1043006			
	20 mm ³⁾	Dynamic teach-in	1.5 mm x 5.5 mm	Vertical ⁴⁾	PNP	KT5W-2P1213	1016715		
		Static 2-point teach-in	1.5 mm x 5.5 mm	Vertical ⁴⁾	PNP	KT5W-2P1216	1018586		
					NPN	KT5W-2N1216	1019022		
	40 mm ³⁾	Static 2-point teach-in	1.1 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5W-2P1316	1018961		
	10 mm ³⁾	Static 2-point teach-in with manual fine adjustment	1.2 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5W-2P1116D	1026538		
					NPN	KT5W-2N1116D	1026540		
				Horizontal ⁴⁾	PNP	KT5W-2P2116D	1026584		
					NPN	KT5W-2N2116D	1026583		
			Vertical ⁴⁾	PNP	KT5W-2P1126D	1026579			
				20 mm ³⁾	1.5 mm x 5.5 mm	Vertical ⁴⁾	PNP	KT5W-2P1216D	1026577
							NPN	KT5W-2N1216D	1026580
				40 mm ³⁾	1.1 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5W-2P1316D	1026578
			NPN				KT5W-2N1316D	1026581	
			LED red, green ⁶⁾	10 mm ³⁾	Static 2-point teach-in	1.2 mm x 4.2 mm	Vertical ⁴⁾	PNP	KT5RG-2P1116
KT5RG-2P1126	1027396								

¹⁾ Average service life of 100,000 h at T_A = +25 °C .

²⁾ Wave length: 520 nm.





³⁾ From front edge of lens.

⁴⁾ In relation to long side of housing.

⁵⁾ Wave length: 470 nm, 525 nm, 640 nm.

⁶⁾ Wave length: 525 nm, 640 nm.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables Illustration may differ	Female connector	Connector M12, 4-pin	IP 67	Straight	PVC	2 m	DOL-1204-G02M	6009382
					Angled	PVC	2 m	DOL-1204-W02M	6009383
		Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	2 m	DOL-1205-G02M	6008899
					Angled	PVC	2 m	DOL-1205-W02M	6008900



At a glance

- Very low jitter (< 10 µs)
- Precise light spot
- Best contrast resolution thanks to RGB LED technology
- Two interchangeable light exits
- Five storage banks for settings
- Automatic drift correction
- Fast switching frequency of 25 kHz
- Easy-to-read bar graph display

Your benefits

- Very precise detection of print marks enables optimal results for packaging and printing applications
- All contrast marks, even pale yellow on white paper, can be reliably detected thanks to RGB LED technology
- Automatic drift correction helps detect difficult to see marks, such as faded print marks, enabling higher production reliability
- Reliable operation, even with high-gloss reflective surfaces, increasing throughput
- Simple teach-in via an external signal can be performed while the material is moving, enabling shorter setup time
- Long-lasting, tough metal housing

→ www.mysick.com/en/KT10

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/KT10

- **Light source:** LED red, green, blue (Average service life of 100,000 h at TA = +25 °C. Wave length: 470 nm, 525 nm, 640 nm.)
- **Sensing distance:** 10 mm (From front edge of lens.)
- **Sensing distance tolerance:** ± 3 mm
- **Response time:** 20 µs (Signal transit time with resistive load.)
- **Light spot size:** 0.8 mm x 4 mm

Light spot direction	Switching output	Model name	Part no.
Vertical ¹⁾	PNP	KT10W-2P1115	1028232
	NPN	KT10W-2N1115	1028233
Horizontal ¹⁾	PNP	KT10W-2P2115	1029070
	NPN	KT10W-2N2115	1029071

¹⁾ In relation to long side of housing.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Artikelnr.
	Plug connectors and cables	Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	2 m	DOL-1205-G02M	6008899
					Angled	PVC	2 m	DOL-1205-W02M	6008900
					Straight	–	–	DOS-1205-G	6009719
					Angled	–	–	DOS-1205-W	6009720



At a glance

- Tough metal housing
- Scanning speed of 7 m/s
- Monitor process quality via a control panel or SOPAS, via Ethernet
- Easy sensor teach-in and alignment
- Reproducibility of 0.6 mm (2 Sigma)
- Plug can be rotated 90°

Your benefits

- Reliable detection, even with complex images reduces system downtime and waste
- Fewer machine builder restrictions mean more freedom when designing packaging
- Allows for more efficient utilization of space on the product instead of using unnecessary print marks and place markers
- Faster and easier format change by teaching of saved formats via Ethernet
- Monitor process and teach quality via a display or SOPAS, increasing reliability
- Fast and simple sensor alignment via a visible light spot and notches on the housing
- Easy sensor teach-in, directly via the control panel, external teach-in signal or using SOPAS via Ethernet

→ www.mysick.com/en/ML20

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/ML20

- **Light spot size:** 60 mm x 3 mm
- **Data interface:** Ethernet TCP/IP

Light source	Max. movement speed	Sensing distance	Repeatability	Switching output	Model name	Part no.
LED green ¹⁾	7 m/s	20 mm	0.6 mm ²⁾	PNP	ML20M-P1211	1044675

¹⁾ Average service life of 100,000 h at TA = +25 °C.

²⁾ Statistical error 2 σ.

Accessories

	Accessory category	Accessory type	Material	Model name	Part no.
	Plug connectors and cables	Connection cable (male connector-male connector)	-	Connecting cable (plug-plug)	6034415
				Connecting cable (plug-plug)	6039488
		Connecting cable (female connector-open)	-	DOL-1212-W05MAS02	6044109
				DOL1212-G05MAS02	6042754
		Connection cable (male-female connector)	-	DSL-1212-G05MAS02	6045234
	Terminal and alignment brackets	Universal terminal systems	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N04	2051610
			Steel, zinc coated	BEF-MS12G-A	4056054
				BEF-MS12L-B	4056053



At a glance

- One (CS8-1) or four (CS8-4) colors can be saved
- 12.5 mm or 60 mm sensing distance
- Fast response time up to 85 µs
- High resolution color
- Bar graph display shows the correlation of the colors
- Extremely precise light spot and high resolution
- Metal housing with two light exits (interchangeable)

Your benefits

- Identify and store up to four colors. No need to reprogram the sensor for changeovers, reducing downtime
- High resolution colors can be matched exactly for better process reliability
- Maintains the extreme precision of the light spot, enabling a consistent object detection
- A bar graph display provides information about the color quality and detection reliability, ensuring simple process monitoring
- Broad spectrum of color tolerances enables more flexible use
- Fast response times at high speeds for reliable detection
- Detection reliability is not affected by varying temperatures

→ www.mysick.com/en/CS8

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/CS8

- **Light source:** LED red, green, blue (Average service life of 100,000 h at TA = +25 °C. Wave length: 470 nm, 525 nm, 640 nm.)
- **Output (channel):** 4 colors
- **Switching frequency:** 0.5 kHz / 1 kHz / 3.5 kHz, adjustable (With light/dark ratio 1:1.)
- **Response time:** 1,000 µs, 500 µs, 145 µs (Signal transit time with resistive load.)
- **Connection type:** Connector M12, 8-pin

Sensing distance	Sensing distance tolerance	Light spot size	Light spot direction	Switching output	Model name	Part no.
12.5 mm ¹⁾	± 3 mm	2 mm x 4 mm	Vertical	PNP	CS84-P1112	1028226
				NPN	CS84-N1112	1028230
60 mm ¹⁾	± 9 mm	13 mm x 13 mm	–	PNP	CS84-P3612	1028227
				NPN	CS84-N3612	1028231

¹⁾ From front edge of lens.

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M12, 8-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-1208-G02MA	6020633
					Angled	PVC	2 m	DOL-1208-W02MA	6020992



- Infinite switching threshold adjustment using touch-sensitive keypad
- Long sensing distances up to 150 mm
- Transmitter LED UV (375 nm) or blue (470 nm)
- Fast switching speed 600 Hz or 6 kHz

- Robust metal housing is reliable and ideal for tough environment conditions
- High detection reliability ensures the process: Blue transmitter LED excites red luminophores especially well. The UV LED is well-suited for blue, green or yellow marks.
- Visible light spot of the LUT1B version makes accurate alignment easy

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.





Other models available at www.mysick.com/en/LUT1

Light source	Scanning range	Operating range	Light spot size	Response time	Switching output	Model name	Part no.
LED blue ^{1) 2)}	50 mm ⁴⁾	15 mm ... 60 mm	5 mm x 5 mm	85 µs ⁵⁾	PNP	LUT1B-11325	1024127
					PNP/NPN	LUT1B-31325	1027593
				850 µs ⁵⁾	PNP/control output	LUT1B-41225	1024125
	80 mm ⁴⁾	60 mm ... 100 mm	20 mm x 50 mm	850 µs ⁵⁾	PNP	LUT1B-12205	1027497
	150 mm ⁴⁾	60 mm ... 160 mm	6 mm x 14 mm	850 µs ⁵⁾	PNP/control output	LUT1B-41235	1024126
UV-LED ³⁾	150 mm ⁴⁾		12 mm x 12 mm	85 µs ⁵⁾	PNP	LUT1U-11331	1024128

⁵⁾ Signal transit time with resistive load.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Material	Cable length	Model name	Part no.
 Illustration may differ	Plug connectors and cables	Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	–	2 m	DOL-1205-G02M	6008899
					Angled	PVC	–	2 m	DOL-1205-W02M	6008900
	Reference materials	Chalk	–	–	–	–	Crayon	–	LUM-FT	1004460
							Writing chalk	–	LUM-KLK	1002959
	Terminal and alignment brackets	Universal terminal systems	–	–	–	–	Steel, zinc coated	–	BEF-KHS-KH1	2022726



At a glance

- Tough metal housing
- Simple sensitivity adjustment in 8 stages
- Bar graph display provides information about the luminescence intensity
- Sensing distances selectable through interchangeable lenses
- Additional optical filters suppress background luminescence
- Fiber-optic cable connection (with 20 mm lens)
- Switching and analog output

Your benefits

- An 8-step rotary switch easily adjusts to accurately determine the switching output position for different materials
- Bar graph display provides continual process control through easy visualization of the luminescence intensity
- Filters ensure that background luminescence is reliably suppressed, ensuring greater process reliability
- Interchangeable lenses for different sensing distances provide flexibility

→ www.mysick.com/en/LUT8

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information


Other models available at www.mysick.com/en/LUT8

- **Light source:** UV-LED (Average service life of 100,000 h at TA = +25 °C. Wave length: 375 nm.)
- **Response time:** 200 µs (Signal transit time with resistive load.)

Scanning range	Operating range	Light spot size	Receiving filters	Receiving range	Model name	Part no.
10 mm ¹⁾	0 mm ... 20 mm	2 mm x 6 mm	KV 418 (standard)	450 nm ... 750 nm	LUT8U-11101	1046711
20 mm ¹⁾	10 mm ... 40 mm	3 mm x 9 mm	KV 418 (standard)	450 nm ... 750 nm	LUT8U-11201	1047042
50 mm ¹⁾	20 mm ... 70 mm	5 mm x 15 mm	KV 418 (standard)	450 nm ... 750 nm	LUT8U-11301	1047043
			OG 570	570 nm ... 750 nm	LUT8U-11311	1047045
			RG 610	610 nm ... 750 nm	LUT8U-11321	1047046
			RG 665	670 nm ... 750 nm	LUT8U-11331	1047047
		Ø 6 mm	KV 418 (standard)	450 nm ... 750 nm	LUT8U-11701	1047048
90 mm ¹⁾	30 mm ... 110 mm	12 mm x 12 mm	KV 418 (standard)	450 nm ... 750 nm	LUT8U-11401	1047044

¹⁾ From front edge of lens.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Fiber length	Model name	Part no.
	Fibre-optic cables	Fibre-optic cables	–	–	–	–	–	1,000 mm	LLUV8-1000	2017099
								500 mm	LLUV8-500	2017098
	Lens and accessories	Lens, sensing distance 10 mm	–	–	–	–	–	–	OBJ-LUT3-10	2016348
		Lens, sensing distance 10 mm							OBJ-LUT3-20	2016349
		Lens, sensing distance 10 mm							OBJ-LUT3-50	2016350
 Illustration may differ	Plug connectors and cables	Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	2 m	–	DOL-1205-G02M	6008899
						–	–	–	DOS-1205-G	6009719
					Angled	–	–	–	DOS-1205-W	6009720
	Reference materials	Crayon	–	–	–	–	–	–	LUM-FT	1004460
		Writing chalk					–	–	LUM-KLK	1002959



At a glance

- Simple teach-in
- Operating range up to 250 mm
- Version with IO-Link for remote monitoring
- Bar graph display provides information about the luminescence intensity
- High speed (6.5 kHz), standard (2.5 kHz), high resolution (500 Hz) models
- Additional optical filters suppress background luminescence
- Fiber-optic cable connection (with 20 mm lens)
- Switching and analog output

Your benefits

- Simple sensitivity adjustment via teach-in for optimum adaptation to the application
- Long sensing distance tolerance leads to less mechanical height adjustments of the sensor on the machine
- Using IO-Link, the sensor can be configured and monitored by the central control system, enabling simple, cost-effective diagnostics and data collection
- Bar graph display provides continual process control through easy visualization of the luminescence intensity
- Filters ensure that background luminescence is reliably suppressed, ensuring greater process reliability
- Interchangeable lenses for different sensing distances and the second light exit provide flexibility
- High detection reliability ensures the process and reduces downtime
- Select speed or high resolution, making it ideal for any application.

→ www.mysick.com/en/LUT9

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/LUT9

- **Response time:** 1 ms, 200 µs, 75 µs (Signal transit time with resistive load.)

Sensing distance	Light spot size	Light source	Light emission	Receiving range	Switching output	Model name	Part no.
10 mm ¹⁾	2 mm x 6 mm	UV-LED ²⁾⁽³⁾	Long side	450 nm ... 750 nm	PNP/NPN	LUT9U-11106	1047049
20 mm ¹⁾	3 mm x 9 mm	UV-LED ²⁾⁽³⁾	Long side	450 nm ... 750 nm	PNP/NPN	LUT9U-11206	1047050
					PNP, IO-Link	LUT9U-P120L	1046188
					NPN, IO-Link	LUT9U-N120L	1046189
50 mm ¹⁾	5 mm x 15 mm	UV-LED ²⁾⁽³⁾	Long side	450 nm ... 750 nm	PNP/NPN	LUT9U-11306	1046712
				570 nm ... 750 nm	PNP/NPN	LUT9U-11316	1047052
				610 nm ... 750 nm	PNP/NPN	LUT9U-11326	1047053
				670 nm ... 750 nm	PNP/NPN	LUT9U-11336	1047054
				450 nm ... 750 nm	PNP, IO-Link	LUT9U-P130L	1045606
				450 nm ... 750 nm	NPN, IO-Link	LUT9U-N130L	1046190
			Long and short side, exchangeable	450 nm ... 750 nm	PNP/NPN	LUT9U-12306	1047055
90 mm ¹⁾	12 mm x 12 mm	UV-LED ²⁾⁽³⁾	Long side	450 nm ... 750 nm	PNP/NPN	LUT9U-11406	1047051
150 mm ¹⁾	5 mm x 12 mm	UV-LED ²⁾⁽³⁾	Long side	610 nm ... 750 nm	PNP/NPN	LUT9U-11606	1047414
		LED blue ²⁾⁽⁴⁾	Long side	610 nm ... 750 nm	PNP/NPN	LUT9B-11626	1047056


¹⁾ From front edge of lens.

²⁾ Average service life of 100,000 h at T_A = +25 °C.

³⁾ Wave length: 375 nm.

⁴⁾ Wave length: 470 nm.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Fiber length	Model name	Part no.
	Fibre-optic cables	Fibre-optic cables	–	–	–	–	–	1,000 mm	LLUV8-1000	2017099
								500 mm	LLUV8-500	2017098
	Lens and accessories	Lens, sensing distance 10 mm	–	–	–	–	–	–	OBJ-LUT3-10	2016348
		Lens, sensing distance 10 mm							OBJ-LUT3-20	2016349
		Lens, sensing distance 10 mm							OBJ-LUT3-50	2016350
 Illustration may differ	Plug connectors and cables	Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	2 m	–	DOL-1205-G02M	6008899
						–	–	–	DOS-1205-G	6009719
					Angled	–	–	–	DOS-1205-W	6009720
	Reference materials	Crayon	–	–	–	–	–	–	LUM-FT	1004460
		Writing chalk					–	–	LUM-KLK	1002959



At a glance

- Detection of transparent, opaque or printed labels
- Unaffected by metallic foils and labels
- Fast response time of 250 µs
- Simple and accurate adjustment via “+”/“-”-buttons or teach-in
- Rugged, IP 65 aluminum housing

Your benefits

- Reliable label detection, regardless if labels are transparent, opaque or have a printed design, ensuring greater flexibility with one sensor
- Fast response times enable precise detection – even at high web speeds
- The aluminum housing meets all requirements for use in harsh industrial conditions
- Setting the switching threshold using the +/- push buttons or teach-in
- Ultrasonic technology prevents false detection, which may be caused by ambient light or shiny surfaces

→ www.mysick.com/en/UF

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/UF

- **Fork width:** 3 mm
- **Fork depth:** 69 mm
- **MDO:** 2 mm (Minimum detectable object.)
- **Connection type:** Connector M8, 4-pin

Response time	Adjustment	Switching output	Model name	Part no.
250 µs	Dynamic teach-in	PNP	UFN3-70P415	6049679
	Static teach-in	NPN	UFN3-70N415	6049680
300 µs	Manual (“+”/“-” button)	PNP/NPN	UF3-70B413	6049678

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M8, 4-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-0804-G02M	6009870
					Angled	PVC	2 m	DOL-0804-W02M	6009871



At a glance

- Infrared light source
- Simple and accurate adjustment via teach-in or manually via “+”/“-” buttons
- Fast response time (max. 100 µs)
- PNP and NPN switching output
- Light/dark switching function
- 21 different models with different fork widths and depths
- Rugged, IP 65 aluminum housing

Your benefits

- Fast response time and fine resolution ensure reliable detection even at high speeds
- Infrared light source provides excellent ambient light immunity
- User friendly setting via teach-in or “+”/“-” button
- A wide range of different fork sizes enables flexible installation
- The aluminum housing meets all requirements for use in harsh industrial conditions

→ www.mysick.com/en/WF

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information


Other models available at www.mysick.com/en/WF

- **Response time:** 100 µs (Signal transit time with resistive load.)
- **MDO:** 0.2 mm (Minimum detectable object.)
- **Switching output:** PNP/NPN

Adjustment	Fork width	Fork depth	Model name	Part no.
Manual (“+”/“-” button)	2 mm	42 mm	WF2-40B410	6028428
		59 mm	WF2-60B410	6028436
		95 mm	WF2-95B410	6028443
	5 mm	42 mm	WF5-40B410	6028429
	15 mm	42 mm	WF15-40B410	6028430
		59 mm	WF15-60B410	6028438
	30 mm	42 mm	WF30-40B410	6028431
		59 mm	WF30-60B410	6028439
	50 mm	42 mm	WF50-40B410	6028432
		59 mm	WF50-60B410	6028440
	80 mm	42 mm	WF80-40B410	6028433
	120 mm	42 mm	WF120-40B410	6028435
		59 mm	WF120-60B410	6028442

Adjustment	Fork width	Fork depth	Model name	Part no.
Teach-in	2 mm	42 mm	WF2-40B416	6028450
		59 mm	WF2-60B416	6028457
		95 mm	WF2-95B416	6028464
	5 mm	42 mm	WF5-40B416	6028451
		59 mm	WF5-60B416	6028458
	15 mm	42 mm	WF15-40B416	6028452
		59 mm	WF15-60B416	6028459
	30 mm	42 mm	WF30-40B416	6028453
		59 mm	WF30-60B416	6028460
	50 mm	42 mm	WF50-40B416	6028454
		59 mm	WF50-60B416	6028461
	80 mm	42 mm	WF80-40B416	6028455
		59 mm	WF80-60B416	6028462
	120 mm	42 mm	WF120-40B416	6028456

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M8, 4-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-0804-G02M	6009870
					Angled	PVC	2 m	DOL-0804-W02M	6009871
							5 m	DOL-0804-W05M	6009873



At a glance

- Very precise laser beam (Class 1 laser)
- Simple and accurate adjustment via teach-in
- Fast response time (max. 100 µs)
- Minimum detectable object size of 0.05 mm
- PNP and NPN switching output
- Light/dark switching function
- 21 different models with different fork widths and depths
- Rugged, IP 65 aluminum housing

Your benefits

- A highly precise laser beam ensures consistent measurement accuracy along the entire measuring range and reliable detection of the smallest objects
- A visible laser light spot enables easy alignment and fast adjustment
- Reliable and simple setting via teach-in ensures high process reliability
- A wide range of different fork sizes increases installation flexibility
- The aluminum housing meets all requirements for use in harsh industrial conditions

→ www.mysick.com/en/WFL

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information


Other models available at www.mysick.com/en/WFL

- **Response time:** 100 µs (Signal transit time with resistive load.)
- **MDO:** 0.05 mm
- **Switching output:** PNP/NPN
- **Adjustment:** Teach-in

Fork width	Fork depth	Model name	Part no.
2 mm	59 mm	WFL2-60B416	6036828
	42 mm	WFL2-40B416	6036821
	95 mm	WFL2-95B416	6036835
5 mm	59 mm	WFL5-60B416	6036829
	42 mm	WFL5-40B416	6036822
	95 mm	WFL5-95B416	6036836
15 mm	42 mm	WFL15-40B416	6036823
	59 mm	WFL15-60B416	6036830
	95 mm	WFL15-95B416	6036837
30 mm	42 mm	WFL30-40B416	6036824
	59 mm	WFL30-60B416	6036831
	95 mm	WFL30-95B416	6036838
50 mm	42 mm	WFL50-40B416	6036825
	59 mm	WFL50-60B416	6036832
	95 mm	WFL50-95B416	6036839

Fork width	Fork depth	Model name	Part no.
80 mm	42 mm	WFL80-40B416	6036826
	59 mm	WFL80-60B416	6036833
	95 mm	WFL80-95B416	6036840
120 mm	42 mm	WFL120-40B416	6036827
	59 mm	WFL120-60B416	6036834
	95 mm	WFL120-95B416	6036841

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M8, 4-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-0804-G02M	6009870
					Angled	PVC	2 m	DOL-0804-W02M	6009871
							5 m	DOL-0804-W05M	6009873



At a glance

- Highly visible red emitted light
- No setup, out-of-the-box operation
- 360° output indicator
- 5 fork sizes: maximum depth 120 mm, maximum width 180 mm
- Rugged, IP 67 aluminum housing

Your benefits

- Fixed housings guarantee a high level of operational safety with simple commissioning
- A visible red light enables easy alignment and fast adjustment
- The 360-degree yellow output indicator makes continual process control possible
- A wide range of different fork sizes increases installation flexibility
- The aluminum housing meets all requirements for use in harsh industrial conditions

→ www.mysick.com/en/WFM

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.




Ordering information

Other models available at www.mysick.com/en/WFM

- **Response time:** 125 µs (Signal transit time with resistive load.)
- **MDO:** 0.8 mm (Minimum detectable object.)
- **Connection type:** Connector M8, 3-pin
- **Adjustment:** -

Fork width	Fork depth	Switching output	Switching function	Model name	Part no.
30 mm	42 mm	PNP	Dark switching	WFM30-40P321	6037819
			Light switching	WFM30-40P311	6037820
50 mm	60 mm	NPN	Dark switching	WFM30-40N321	6037821
			Light switching	WFM50-60P321	6037824
		PNP	Light switching	WFM50-60P311	6037825
80 mm	60 mm	NPN	Dark switching	WFM50-60N321	6037826
			Light switching	WFM80-60P321	6037828
		PNP	Light switching	WFM80-60P311	6037829
120 mm	124 mm	NPN	Dark switching	WFM80-60N321	6037830
			Light switching	WFM120-120P321	6037832
		PNP	Light switching	WFM120-120P311	6037833
		NPN	Dark switching	WFM120-120N321	6037834

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M8, 3-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-0803-G02M	6010785
					Angled	PVC	2 m	DOL-0803-W02M	6008489





At a glance

- Optimized housing with slim fork shape
- Dynamic teach-in via teach or control panel and manual fine adjustment with “+”/“-” buttons
- Light/dark switching function
- Fast response time of 50 µs
- PNP or NPN
- IP 65 plastic housing
- Switching output also during teach-in active

Your benefits

- Slim design allows flexible mounting close to the dispenser of the label which ensures higher accuracy in the process
- Compact housing ensures space-saving installation
- User friendly adjustment allows easy and quick start-up
- External teach-in allows automatic threshold adjustment via the PLC during the process which ensures reliable detection all the time
- Short and fast response times enables precise detection – even at high web speeds

→ www.mysick.com/en/WFS

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/WFS

- **Fork width:** 3 mm
- **Fork depth:** 42 mm
- **Response time:** 50 µs (Signal transit time with resistive load.)
- **MDO:** 2 mm (Minimum detectable object.)
- **Adjustment:** Teach-in dynamic/static, manual (“+”/“-” button)
- **Connection type:** Connector M8, 4-pin

Switching output	Model name	Part no.
PNP	WFS3-40P415	6043919
NPN	WFS3-40N415	6043920

Accessories

	Accessory category	Connection type	Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Plug connectors and cables	Connector M8, 4-pin	Female connector	IP 67	Straight	PVC	2 m	DOL-0804-G02M	6009870
					Angled	PVC	2 m	DOL-0804-W02M	6009871
							5 m	DOL-0804-W05M	6009873



At a glance

- Proximity contrast line sensor in a compact housing
- Application-specific sensor functions
- Detect position of edge of material
- Diameter, width and gap detection of different objects
- Very high reproducibility of 0.03 mm
- Large measurement range: 30 mm
- Visible white LED light spot to enable accurate alignment
- Simple setup, no teach-in necessary

Your benefits

- Cost-effective solution to reliably determine edge position and width measurement
- Easy-to-integrate, compact housing can be mounted over the web so less downtime is required for maintenance
- No reflector is required, reducing maintenance and providing greater product reliability. Reduces downtime. Only array sensors available in diffuse mode, making them ideal for environments where dirt and dust can interfere with other types of solutions that require a reflector.
- High reproducibility of 0.03 mm and industry-leading resolution enable greater accuracy and quality control
- Highly visible white LED light spot ensures fast and accurate alignment, reducing time-consuming fine adjustment
- No teach, program or menu activities make setup virtually hassle free

→ www.mysick.com/en/Ax20

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Ordering information

Other models available at www.mysick.com/en/Ax20






Functional principle	Sensing distance	Measurement range	Repeatability	MDO	Switching output	Model name	Part no.
Edge detection, proximity and reflector	25 mm	20 mm	0.03 mm ¹⁾	0.8 mm ²⁾	Q (PNP) ³⁾	AT20E-PM111	1044484
					Q (NPN) ³⁾	AT20E-NM111	1046458
	100 mm	30 mm	0.05 mm ¹⁾	1.6 mm ²⁾	Q (PNP) ³⁾	AT20E-PM331	1045990
					Q (NPN) ³⁾	AT20E-NM331	1046459
Edge detection, reflector	25 mm	20 mm	0.03 mm ¹⁾	0.8 mm ²⁾	Q (PNP) ³⁾	AL20E-PM111	1046463
					Q (NPN) ³⁾	AL20E-NM111	1046460
	100 mm	30 mm	0.05 mm ¹⁾	1.6 mm ²⁾	Q (PNP) ³⁾	AL20E-PM331	1046462
					Q (NPN) ³⁾	AL20E-NM331	1046461
Diameter detection, proximity and reflector	25 mm	20 mm	0.03 mm ¹⁾	0.8 mm ²⁾	Q (PNP) ³⁾	AT20D-PM111	1046464
					Q (NPN) ³⁾	AT20D-NM111	1046466
	100 mm	30 mm	0.05 mm ¹⁾	1.6 mm ²⁾	Q (PNP) ³⁾	AT20D-PM331	1046465
					Q (NPN) ³⁾	AT20D-NM331	1046467

¹⁾ With respect to sensing distance.

²⁾ Minimum detectable object.

³⁾ Active when object detected.

Accessories

	Accessory category	Accessory type	Connection type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
	Mounting brackets/ plates	Mounting brackets	-	-	-	-	-	BEF-WN-DT20	4043524
 Illustration may differ	Plug connectors and cables	Female connector	Connector M12, 5-pin	IP 67	Straight	PVC	2 m	DOL-1205-G02M	6008899
					Angled	PVC	2 m	DOL-1205-W02M	6008900
					Straight	-	-	DOS-1205-G	6009719
					Angled	-	-	DOS-1205-W	6009720
	Reflectors	Reflective tape	-	-	-	-	-	REF-AX002	2049249
								REF-AX002	2049250