



LUTS/LUTX

Luminescence sensors with intensity display and intuitive operation

SICK
Sensor Intelligence.

Advantages



Luminescence sensors for non-visible marks – reliable detection, easy to operate

Luminescence sensors detect marks that light up under UV light. SICK extends this principle with high-performance optics that enable reliable detection, high repeatability and stable processes – even under demanding conditions. The process data is clearly visible on the integrated display and can be transmitted via IO-Link. The display and interface also ensure quick sensor adjustment and operation.



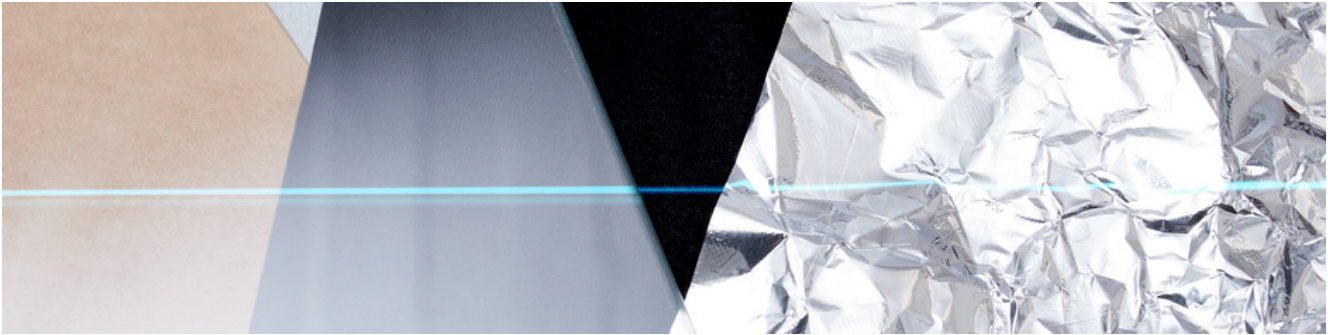
Luminescence sensors from SICK reliably detect non-visible luminescent marks even at high process speeds. The sensors have outstanding optics with uniform surface illumination, which ensures a fast signal evaluation and stable processes.



LUTS/LUTX provide direct process feedback via IO-Link or the integrated display. They also enable quick and precise sensor adjustment.

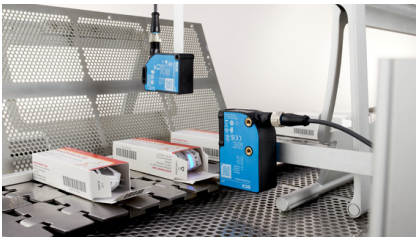


Luminescence sensors from SICK enable fast and reliable detection of luminescent marks. The powerful UV optics ensure a uniform signal reception. The display and IO-Link also ensure efficient commissioning and reliable process monitoring.



Reliable luminescence detection for numerous applications

Luminescence sensors from SICK detect luminescent marks regardless of surface properties – even on contaminated, shiny, transparent or very shiny materials. The broad offering includes sensor variants with different light spot geometries, sensing distances and UV or blue light emission. Together with the scalable digital output, the product variants offer suitable solutions for different types of materials and marks as well as for different process environments.



With three sensing distances and three light spot geometries, LUTS/LUTX offer a suitable variant for the respective applications. The appropriate light spot shape ensures reliable luminescence detection and increases process stability.



Materials such as wood show a naturally blue intrinsic luminescence. This makes it particularly challenging to detect luminescent marks applied to such materials. Sensor variants with blue light block this blue luminescence and thus reliably detect red fluorescent marks.



LUTS/LUTX allow the displayed intensity value to be scaled up or down. Low luminescence intensities can thereby be detected with higher resolution. This allows the sensor to be adapted to the specific application requirements. In addition, the switching frequency is configurable up to 16 kHz, which ensures reliable detection even in fast processes.



Luminescence sensors ensure reliable luminescence detection. SICK offers variants for particularly demanding applications. Thanks to high switching speeds, scalable intensity values and powerful optics, the sensors ensure high process stability in many different detection processes.



Technical data overview

Housing design	Middle, large (depends on variant)
Sensing distance	10 mm ... 150 mm (depends on variant)
Light source	LED, Ultraviolet light ¹⁾ LED, visible blue light ¹⁾
Connection type	Plug, M12, 5-pin / male connector M12, 4-pin (depends on variant)

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

Product description

LUTS/LUTX luminescence sensors from SICK reliably detect visible and non-visible luminescent marks. Variants with UV or blue emitted light are available, each in three sensing distances and light spot geometries. LUTS is suitable for tight installation situations, while the larger LUTX offers more mounting flexibility. The integrated display shows intensity values, thereby facilitating sensor adjustment and process monitoring. With a switching frequency of up to 16 kHz and a scalable digital output, the sensors are ideal for applications with high speeds or low luminescent marks. Additional diagnostic functions can be set using IO-Link. LUTS/LUTX are used in the packaging industry, pharmaceutical industry and wood processing, among others.

At a glance

- Display with luminescence intensity values in the range of 0 to 999
- Choice of three light spot geometries and sensing distances; wide working ranges
- High signal stability
- Variants with UV LED (375 nm) or blue light LED (470 nm)
- Two different sizes
- Scalable digital output with factor 0.5 to 4
- IO-Link function

Your benefits

- Provides a quick process overview and precise sensor adjustment
- Variants that are tailored to the installation situation and marking geometry make installation easier
- Reliable detection of luminescent markings
- Suitable LEDs for specific applications: The blue LED for excitation of red luminophores, UV LED for blue, green and yellow marks.
- High process reliability, even with low luminescence intensity
- Additional diagnostics and visualization options as well as quick and easy format changes thanks to the IO-Link function

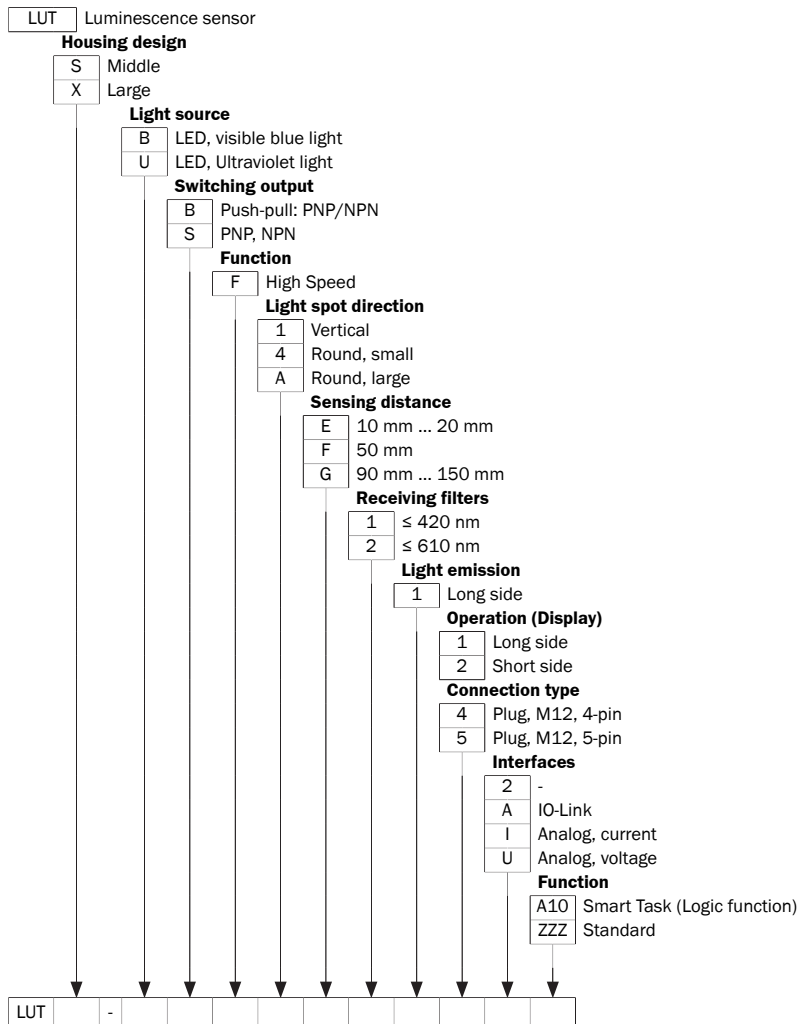
Fields of application

- Detects luminescent marks on packaging and materials
- Detection of white package inserts
- Testing adhesive areas and coatings
- Wood processing: Detection of knotholes
- Brand recognition in the pharmaceutical and consumer goods industry
- Detection of luminescent marks for positioning and triggering

Type code

Other models and accessories → www.sick.com/LUTS_LUTX

Type code



Technical data - Features

FEATURES	
Housing design	
Middle	→ LUTS-xxxxxxxxxxxx
Big	→ LUTX-xxxxxxxxxxxx
Dimensions (W x H x D)	
26 mm x 62 mm x 47.5 mm	→ LUTS-xxxExxxxxxx
26 mm x 62 mm x 52.4 mm	→ LUTS-xxxFxxxxxxx
26 mm x 62 mm x 67 mm	→ LUTS-xxxGxxxxxxx
30 mm x 78.5 mm x 53 mm	→ LUTX-xxxExxxxxxx
30 mm x 78.5 mm x 57.9 mm	→ LUTX-xxxFxxxxxxx
30 mm x 78.5 mm x 72.5 mm	→ LUTX-xxxGxxxxxxx
Light source	
LED, Ultraviolet light	→ LUTX-Uxxxxxxxxxx
LED, Ultraviolet light	→ LUTX-Bxxxxxxxxxx
Light emission	

FEATURES	
long side	
Light spot size (sensing distance)	
3.6 mm x 5.7 mm (10 mm) / 2.4 mm x 6.5 mm (20 mm)	→ LUTx-Uxx1Exxxxxxx
Ø 3.7 mm (10 mm) / Ø 3.1 mm (20 mm)	→ LUTx-Uxx4Exxxxxxx
5.1 mm x 15.6 mm (50 mm)	→ LUTx-Uxx1Fxxxxxxx
4.5 mm x 13.7 mm (50 mm)	→ LUTx-Bxx1Fxxxxxxx
Ø 7 mm (50 mm)	→ LUTx-Uxx4Fxxxxxxx
Ø 15.1 mm (50 mm)	→ LUTx-UxxAFxxxxxxx
10 mm x 14 mm (90 mm) / 5.8 mm x 15.3 mm (150 mm)	→ LUTx-Uxx1Gxxxxxxx
4.7 mm x 11.2 mm (90 mm) / 4.6 mm x 13.6 mm (150 mm)	→ LUTx-Bxx1Gxxxxxxx
Ø 13.5 mm (90 mm) / Ø 14.5 mm (150 mm)	→ LUTx-UxxAGxxxxxxx
Light spot direction	
Längs	→ LUTx-xxx1xxxxxxx
Rund. klein	→ LUTx-xxx4xxxxxxx
Rund. groß	→ LUTx-xxxAXxxxxxxx
Receiving filters	
≤ 420 nm	→ LUTx-xxxx1xxxxxxx
≤ 610 nm	→ LUTx-xxxx2xxxxxxx
Wave length	
365 nm	→ LUTx-Uxxxxxxxxxxx
460 nm	→ LUTx-Bxxxxxxxxxxx
LED risk group marking	
1	→ LUTx-Uxxxxxxxxxxx
2	→ LUTx-Bxxxxxxxxxxx
Working range	
5 mm ... 30 mm	→ LUTx-xxxExxxxxxxx
25 mm ... 100 mm	→ LUTx-xxxFxxxxxxx
75 mm ... 250 mm	→ LUTx-xxxGxxxxxxx
Sensing distance	
10 mm ... 20 mm	→ LUTx-xxxExxxxxxxx
50 mm	→ LUTx-xxxFxxxxxxx
90 mm ... 150 mm	→ LUTx-xxxGxxxxxxx
Adjustment	
Teach-in button, external Teach-in, cable IO-Link	→ LUTx-xxxxxxx5Axxx
Teach-in button	→ LUTx-xxxxxxx42xxx
Teach-in button	→ LUTx-xxxxxxx5Uxxx / LUTx-xxxxxxx5Ixxx
Teach-in mode	
Single value teach-in, Two Value Teach-in	
Scalable	
0.5 / 1 / 2 / 4	
Output function	
Light switching (factory setting) / Dark switching	
Threshold	
Continuous: 1 ... 999	

Technical data - Interfaces

INTERFACES	
Communication interface	
IO-Link	→ LUTx-xxxxxxx5Axxx
Analog, current	→ LUTx-xxxxxxx5Ixxx
Analog, voltage	→ LUTx-xxxxxxx5Uxxx
-	→ LUTx-xxxxxxx42xxx
Analog output	

INTERFACES	
0 mA ... 20 mA. 400 Ω (max. load resistance)	→ LUTx-xxxxxxx5lxxx
0 V ... 10 V. 1.000 Ω (max. load resistance)	→ LUTx-xxxxxxx5Uxxx
Digital output	
Q1. Q2	→ LUTx-xxxxxxx5Axxx
Q1. Q2	→ LUTx-xxxxxxx5lxxx
Q1. Q2	→ LUTx-xxxxxxx5Uxxx
Q1. Q2	→ LUTx-xxxxxxx42xxx
Digital input	
In1	→ LUTx-xxxxxxx5Axxx
-	→ LUTx-xxxxxxx5lxxx
-	→ LUTx-xxxxxxx5Uxxx
-	→ LUTx-xxxxxxx42xxx

Technical data - Electronics

ELECTRONICS	
Supply voltage	
10.8 V DC ... 30 V DC	
Ripple	
$\leq 5 V_{pp}$	
Current consumption	
< 110 mA	
Power consumption	
< 1.2 W	
Switching frequency	
16 kHz / 8 kHz / 2.5 kHz / 0.5 kHz / 0.25 kHz / adjustable (IO-Link)	
Response time	
31 μs / 62 μs / 200 μs / 1000 μs / 2000 μs / adjustable (Display)	
Jitter	
15 μs / 31 μs / 100 μs / 500 μs / 1000 μs	
Switching output	
Push-pull: PNP/NPN	→ LUTx-xBxxxxxxxxxx
PNP, NPN	→ LUTx-xSxxxxxxxxxx
Switching output (voltage)	
Push-pull: PNP/NPN HIGH = $V_S - 3 V$ / LOW $\leq 3 V$	→ LUTx-xBxxxxxxxxxx
PNP: HIGH = $V_S - 3 V$ / LOW = 0 V	→ LUTx-xSxxxxxxxxxx
NPN: HIGH = V_S / LOW $\leq 3 V$	
Output current I_{max}.	
100 mA	
Input, teach-in (ET)	
$U_V \geq 18 V$, Teach-in: $15 V \leq U_{IN} \leq U_V$, Run: $U_{IN} \leq 5 V$	→ LUTx-xxxxxxx5Axxx
$U_V < 18 V$, Teach-in: $U_{IN} > 0.83 * U_V$, Run: $U_{IN} \leq 0.28 V$	
Input, blanking input (AT)	
$U_V \geq 18 V$, blanked: $15 V \leq U_{IN} \leq U_V$, free-running: $U_{IN} \leq 5 V$	→ LUTx-xxxxxxx5Axxx
$U_V < 18 V$, blanked: $U_{IN} > 0.83 * U_V$, free-running: $U_{IN} \leq 0.28 V$	
Time delay	
Deactivation delay, 0 ms ... 999 ms	
Switch-off delay, 520 ms (via IO-Link)	→ LUTx-xxxxxxx5Axxx
Protection class	
III	
Circuit protection	
UV connections, reverse polarity protected	
Output Q short-circuit protected	

ELECTRONICS		
Interference pulse suppression		
Connection type		
Plug, M12, 4-pin	→	LUTx-xxxxxxx4 xxx
Plug, M12, 5-pin	→	LUTx-xxxxxxx5 xxx

Technical data - Mechanics

MECHANICS	
Housing material	
VISTAL®	
Optics material	
Glass	
Weight	
Approx. 68 g	

Technical data - Ambient data

AMBIENT DATA		
Ambient operating temperature		
-20 °C ... +60 °C	→	LUTx-xxxxxxx5Axxx
-20 °C ... +55 °C	→	LUTx-xxxxxxx5Ixxx
-20 °C ... +60 °C	→	LUTx-xxxxxxx5Uxxx
-20 °C ... +60 °C	→	LUTx-xxxxxxx42xxx
Ambient temperature, storage		
-25 °C ... +75 °C		
Shock load		
Shock load According to IEC 60068-2-27 (30 g/11 ms)		
Enclosure rating		
IP67		
UL File No.		
E181493		

Ordering information

Other models and accessories → www.sick.com/LUTS_LUTX

- **Light source:** LED
- **Type of light:** Ultraviolet light
- **Communication interface:** IO-Link

Sensing distance	Housing design	Switching output	Light spot direction	Light spot size	Connection type Detail	Type	Part no.
10 mm ... 20 mm	Large	Push-pull: PNP/NPN	Vertical	3.6 mm x 5.7 mm	Plug, M12, 5-pin	LUTX-UBF1E1125AA10	1144381
	Middle	Push-pull: PNP/NPN	Round	Ø 3.7 mm	Plug, M12, 5-pin	LUTS-UBF4E1115AA10	1144385
			Vertical	3.6 mm x 5.7 mm	Plug, M12, 5-pin	LUTS-UBF1E1115AA10	1144384
50 mm	Large	Push-pull: PNP/NPN	Vertical	5.1 mm x 15.6 mm	Plug, M12, 5-pin	LUTX-UBF1F1125AA10	1144382
	Middle	Push-pull: PNP/NPN	Round	Ø 7 mm	Plug, M12, 5-pin	LUTS-UBF4F1115AA10	1144387
			Round, large	Ø 15.1 mm	Plug, M12, 5-pin	LUTS-UBFAF1115AA10	1144388
			Vertical	5.1 mm x 15.6 mm	Plug, M12, 5-pin	LUTS-UBF1F1115AA10	1144386
90 mm ... 150 mm	Middle	Push-pull: PNP/NPN	Round, large	Ø 13.5 mm	Plug, M12, 5-pin	LUTS-UBFAG1115AA10	1144390
			Vertical	10 mm x 14 mm	Plug, M12, 5-pin	LUTS-UBF1G1115AA10	1144389

- **Light source:** LED
- **Type of light:** Ultraviolet light
- **Communication interface:** -

Sensing distance	Housing design	Switching output	Light spot direction	Light spot size	Connection type Detail	Type	Part no.
10 mm ... 20 mm	Large	PNP, NPN	Round	Ø 3.7 mm	Plug, M12, 5-pin	LUTX-USF4E1125UZZZ	1144383
			Vertical	3.6 mm x 5.7 mm	Plug, M12, 5-pin	LUTX-USF1E1125IZZZ	1144251
						LUTX-USF1E1125UZZZ	1147873
						LUTX-USF1E2125IZZZ	1144379
	Male connec- tor M12, 4-pin	LUTX-USF1E11242ZZZ	1144377				
	Middle	PNP, NPN	Round	Ø 3.7 mm	Plug, M12, 5-pin	LUTS-USF4E1115UZZZ	1147871
			Vertical	3.6 mm x 5.7 mm	Plug, M12, 5-pin	LUTS-USF1E1115UZZZ	1147872
50 mm	Large	PNP, NPN	Round	Ø 7 mm	Plug, M12, 5-pin	LUTX-USF4F1125IZZZ	1144259
			Vertical	5.1 mm x 15.6 mm	Plug, M12, 5-pin	LUTX-USF1F1125IZZZ	1144258
						LUTX-USF1F2125IZZZ	1144380
Male connec- tor M12, 4-pin	LUTX-USF1F11242ZZZ	1144378					

Sensing distance	Housing design	Switching output	Light spot direction	Light spot size	Connection type Detail	Type	Part no.
90 mm ... 150 mm	Large	PNP, NPN	Round, large	Ø 13.5 mm	Plug, M12, 5-pin	LUTX-USFAG1125IZZZ	1144376
			Vertical	10 mm x 14 mm	Plug, M12, 5-pin	LUTX-USF1G1125IZZZ	1144375
	Middle	PNP, NPN	Round, large	Ø 13.5 mm	Male connector M12, 4-pin	LUTS-USFAG11142ZZZ	1144391

- **Light source:** LED
- **Type of light:** visible blue light
- **Communication interface:** -

Sensing distance	Housing design	Switching output	Light spot direction	Light spot size	Connection type Detail	Type	Part no.
50 mm	Middle	PNP, NPN	Vertical	4.5 mm x 13.7 mm	Male connector M12, 4-pin	LUTS-BSF1F21142ZZZ	1144398
90 mm ... 150 mm	Large	PNP, NPN	Vertical	4.7 mm x 11.2 mm	Plug, M12, 5-pin	LUTX-BSF1G2125IZZZ	1144392

- **Light source:** LED
- **Type of light:** visible blue light
- **Communication interface:** IO-Link

Sensing distance	Housing design	Switching output	Light spot direction	Light spot size	Connection type Detail	Type	Part no.
50 mm	Middle	Push-pull: PNP/NPN	Vertical	4.5 mm x 13.7 mm	Plug, M12, 5-pin	LUTS-BBF1F2115AA10	1144393
90 mm ... 150 mm	Middle	Push-pull: PNP/NPN	Vertical	4.7 mm x 11.2 mm	Plug, M12, 5-pin	LUTS-BBF1G2115AA10	1144394

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com