HT49C MOSFET   Diffuse reflection light scanners with background suppression
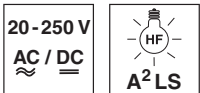
5 … 3000 mm
1200mm with
black-white error < 10%

150 Hz

20 - 250 V
AC / DC
≈ ⎓

HF
A²LS

- Scanner with adjustable background suppression in red light and infrared light version
- Reliable detection of objects with different surface structures
- Robust plastic housing, degree of protection IP 67 and IP 69K for universal, industrial application
- All-mains design 20 … 250 VAC/DC with MOSFET semiconductor switching output (potential-free)
- Large adjustment range and minimal zero distance for optimum adaptation to the application
- Light/dark switching and time module activation via teach button for time-saving integration in existing evaluation environment
- Space-saving installation thanks to front access to the connection compartment
- Extremely time-saving connection by means of spring terminals (up to 1.5mm²)
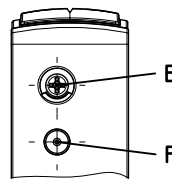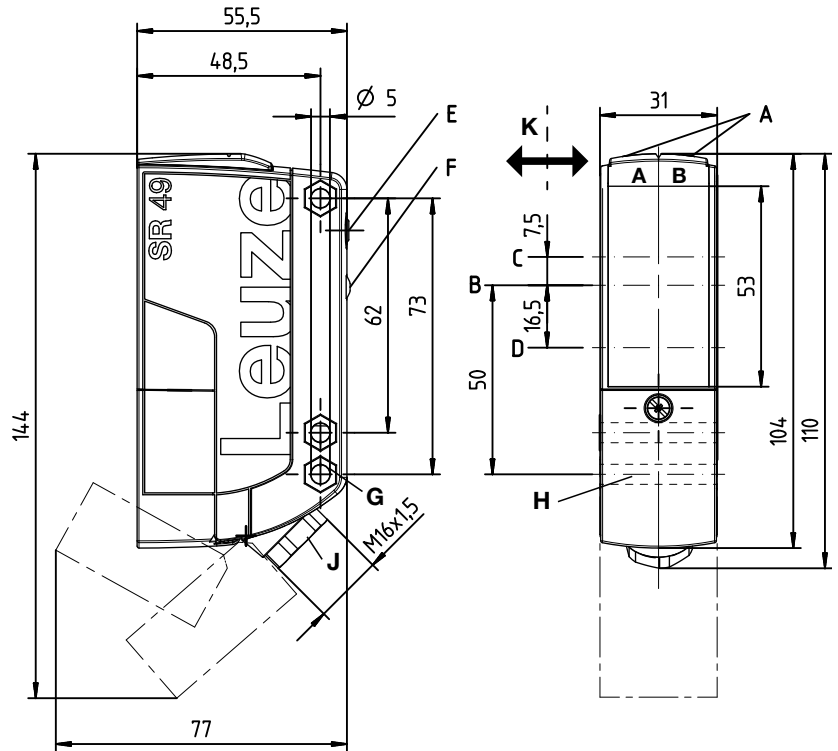- A²LS - Active Ambient Light Suppression
- Optics heating

C E

IEC 60947... IEC 60947... ▢ IP 69K IP 67

Accessories:
(available separately)

- Mounting systems
  (BTU 460, BT 96, BT 96.1, BT 450.1-96)

Dimensioned drawing

A_A	Green indicator diode
A_B	Yellow indicator diode
B	Optical axis
C	Receiver
D	Transmitter
E	Scanning range adjustment
F	Teach button for light/dark switching / time module activation
G	Countersinking for SK nut M5, 4.2 deep
H	Connection compartment with spring terminals
J	Cable entry with M16x1.5 screw fitting for Ø5 … 10mm
K	Preferred entry direction

Electrical connection

DC/AC
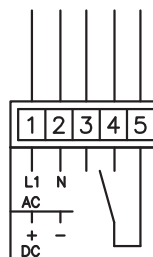
Wire color of connecting cable

Pin	Color
1	BR / BN
2	BL / BU
3	WS / WH
4	GR / GY
5	SW / BK

Pin 3 = nc (not connected)

HT49C MOSFET

Specifications

Optical data
	HT49C…	HT49CI…
Typ. scanning range limit (white 90 %) [1]	5 … 3000mm	
Scanning range [2]	see diagrams	
Black-white error	<10 % up to 1200mm	
Adjustment range	120 … 3000mm	
Light source	LED (modulated light)	
Wavelength	630nm (red light)	860nm (infrared light)

Timing
Switching frequency	150Hz
Response time	3.3ms
Delay before start-up	≤ 300ms

Electrical data
Operating voltage U_B	20 … 250VAC, 50/60Hz 20 … 250VDC
Power consumption	≤ 1.5VA
Switching output [3]	MOSFET semiconductor switching output (NO)
Function	NO contact
MOSFET switching voltage	250VAC/DC
MOSFET switching current	250VAC, 0.4A/30VDC, 0.4A
MOSFET switching power	100VA, cosφ=1
Scanning range	adjustable

Indicators
Green LED	ready
Yellow LED	reflection

Mechanical data
Housing	polycarbonate
Optics cover	plastic
Weight	150g
Connection type	spring terminals, max. wire cross section 1.5mm² cable 2000mm, 5 x 0.5mm²

Environmental data
Ambient temp. (operation/storage)	-40°C … +60°C/-40°C … +70°C
Protective circuit [4]	1, 4
VDE safety class [5]	II, all-insulated
Degree of protection	IP 67, IP 69K [6]
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2

Options
Switching function (teach level 1)	light switching (factory setting) or dark switching
Time module (teach level 2)	active: dropout delay 500ms not active:no dropout delay (factory setting)
Optics heating	on request
Current consumption	approx. 70mA at 20VDC

1) Typ. scanning range limit: max. attainable range without performance reserve
2) Scanning range: recommended range with performance reserve
3) Suitable spark extinction (snubber) must be provided with inductive or capacitive loads.
4) 1=transient protection, 4=interference blanking
5) Rating voltage 250VAC
6) IP 69K test acc. to DIN 40050 part 9 simulated, high pressure cleaning conditions without the use of additives, acids and bases are not part of the test

Remarks

Operate in accordance with intended use.
↻ This product is not a safety sensor and is not intended as personnel protection.
↻ The product may only be put into operation by competent persons.
↻ Only use the product in accordance with the intended use.

● With the set scanning range, a tolerance of the upper scanning range limit is possible depending on the reflection properties of the material surface.
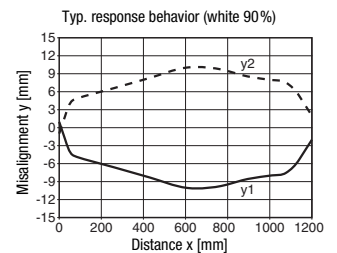
Tables

1	5	3000
2	20	2000
3	50	1500

1	white 90%
2	gray 18%
3	black 6%

☐ Scanning range [mm]

Diagrams

HT49C… with red light

Typ. response behavior (white 90%)

HT49CI… with infrared light

Typ. response behavior (white 90%)

HT49C… with red light

Typ. black/white behavior

HT49CI… with infrared light

Typ. black/white behavior
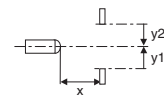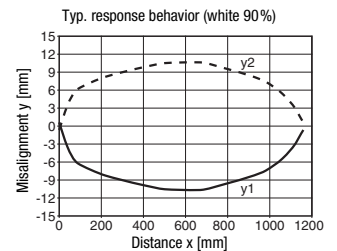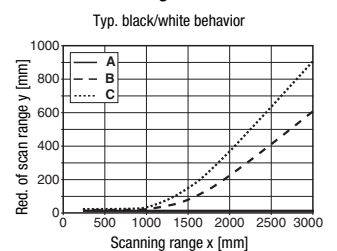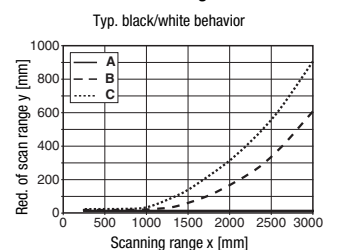
A	white 90%
B	gray 18%
C	black 6%
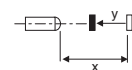
HT49C MOSFET   Diffuse reflection light scanners with background suppression

Part number code

	H	T	4	9	C	I	.	U	C	H	/	M	4	-	T	B

Operating principle

HT   Diffuse reflection light scanners with background suppression

Series

49C   49C series

Light type

I   Infrared light
free   Red light

Operating voltage

UC   20 … 250VAC/DC (all-mains design)

Equipment

H   Optics heating

Setting

free   Mechanical scanning range adjustment, teach button (light/dark switching, time module activation)

Switching output

TS   Relay, normally closed contact/normally open contact (NC/NO)
M4   Low-impedance MOSFET semiconductor switching output, normally open contact (NO)

Connection technology

TB   Terminal block - terminal compartment with spring terminals (5 x 1.5mm^2)
free   Cable 2000mm

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

All-mains designs with MOSFET semiconductor output	Designation	Part no.
Terminal compartment with spring terminals (5 x 1.5mm^2)		
Red light	HT49C.UC/M4-TB	50127431
Infrared light	HT49CI.UC/M4-TB	50127435
Cable, cable length 2m		
Red light	HT49C.UC/M4	50127432
Infrared light	HT49CI.UC/M4	50127436

HT49C MOSFET

Teach procedure for sensor

Note

Factory setting: **light switching, time module not active**

Light/dark switching

Setting the switching behavior of the MOSFET output

Teach level 1	**Press teach button** (2 to 7s) until both LEDs (green/yellow) **flash synchronously**. Release teach button – switchover is complete. The **yellow LED** then indicates the **current setting of the switching output** for **3s**: **ON =** **light switching =** output between **pin 4** and **pin 5**: **normally open contact (NO)** **OFF =** **dark switching =** output between **pin 4** and **pin 5**: **normally closed contact (NC)**

2 … 7s

Activation/deactivation of the time module

Setting a dropout delay for the MOSFET output

Teach level 2	**Press teach button** (7 to 12s) until both LEDs (green/yellow) **flash alternately**. Release teach button – activation/deactivation is complete. The **yellow LED** then indicates the **current setting of the dropout delay** for **3s**: **ON =** **time module not active =** **no dropout delay** for the MOSFET output **OFF =** **time module active =** **dropout delay** for the MOSFET output: **500ms** [1] 1) Additional models on request

7 … 12s

Dropout delay: if the object is no longer present, the output switches with a time delay.