

# OPERATION MANUAL



## Light probe for sensor switching module SENSW-LIF

### Description



### Characteristic features

- Weather proof light probe
- With stray lens and diffuser

### Typical areas of application

- Twilight switch
- Building instrumentation
- Industrial applications

### Application areas

Universal light probe for general applications. As twilight switch, the probe, in combination with switching electronics, controls the outside illumination or operates rolling shutters or blinds in winter gardens. Further areas of application come up in alarm systems or to monitor the lighting arrangement. The projected probe is robust and resistant against environmental effects.

In combination with Universal sensor switching module SENSW-MOD12V, SENSW-MOD24V, SENSW-GEH230V, this light probe results into a twilight switch for universal applications.

### Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.

### Resistance table

The LDR-probe is suitable for many applications in which the switching action is dependent on light intensity. An LDR is fitted as the sensor-element. The resistance value of probe is directly dependent on the light intensity. The high slope of resistance curve enables simple evaluation circuit. With the integrated parallel resistance, the resistance curve is pre-linearised.

The following table further gives the relationship of probe resistance with respect to light intensity (with linearised resistance). The tolerance in resistance value lies in the range of approx.  $\pm 20\%$ .

Light intensity	Resistance
0 Lux	10 k $\Omega$
200 Lux	6,9 k $\Omega$
1000 Lux	4,9 k $\Omega$
10000 Lux	1,5 k $\Omega$
20000 Lux	200 $\Omega$

### Technical Data

Light intensity measurement	
Measuring range	0 ... 20000 Lux
Sensor element	Perkin Elmer VT93N2
Resistance range	0,2 k $\Omega$ ... 10 k $\Omega$
Tolerance	$\pm 20\%$ of resistance value
Linearisation	With integrated parallel resistance (10k)
General	
Dimensions	Probe $\varnothing$ 12 x 60 mm
Probe material	PVC/POM
Cable material	PVC
Connection	RJ12-plug, 6-pin
Cable gland	M16
Cable length	1,5 m
Guarantee	24 months
Scope of supply	Measuring probe with documentation
CE-conformance	2014/30/EU
EMV-noise emission	EN 61000-6-3:2011
EMV-noise withstanding	EN 61000-6-1:2007
Art.-No.	SENSW-LIF



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### Application notes

The preferred direction of radiation sensitivity is axial path with an opening angle of approximately 120°. The adjustment range in this particular model is right from around 0 to 20000 lux and the setting can be done through a potentiometer in the switching electronics. By shading with an additional shield or a filter, the switching range can be widened up, as desired. Instructions for outdoor applications: The probe should be installed in a rain-protected area. In cold condition under -10 °C, the cables should not be moved (danger of breaking). For special applications or unsuccessful areas of application, the suitability of materials of sensor (housing and cable) should be checked by the user before mounting.

### RJ12-plug connector

The sensor is connected between Pin 4 and 5, and is potential free. In Universal Sensor switching module, Pin 5 is connected to the device body and Pin 4 is input to the measuring amplifiers. Pin 1,2,3 and 6 are not occupied in case of measuring probe.



Pin	Function	Description
1	not connected	
2	not connected	
3	not connected	
4	SENS	LDR sensor connection 2 (input)
5	GND	LDR sensor connection 1 (GND)
6	not connected	

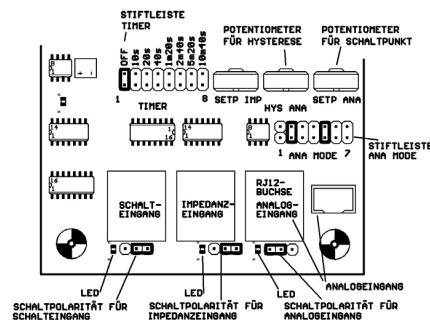
### Connections for Universal Sensor-Switching module

(SENSW-MOD12V, SENSW-MOD24V, SENSW-GEH230V)  
The applicable safety regulations should be followed! Connection and mounting operation should be carried out by only trained personnel, after switching off the voltage supply. The RJ12-plug connector is meant for direct connection to the sensorswitching module. The plug connector is brought out through the hole in the housing and properly secured through cable gland. The plug connector of the probe is inserted at the right RJ12 socket

„ANALOG INPUT“ (see sketch).

### Configuration of jumpers

The operating mode for the light probe is adjusted at the pin strip „ANA MODE“. The shorting jumpers are between position 2 and 5 of the pin strip. The switching behaviour of the device is decided by the jumper connections below the analog input socket: In the right position, the relay switches ON if the value of light intensity exceeds the adjusted limiting value. In the left position, as shown in sketch, the switching behaviour is reversed, i.e. the relay switches ON if the light intensity level goes below the adjusted limiting value. The switching behaviour of the device can be observed at the light emitting diode (LED). In active condition (= relay closed), the LED glows. Since the three inputs of the module are „OR“ connected, the jumper connections „Switching polarity“ of the two other unused inputs must be kept in inactive position (see sketch). The associated LEDs below the input socket may not glow. If this is not ensured, the relay shall be always in 0



### Adjustment of switching point

The adjustment of switching point for analog input is done by a trim potentiometer „SETP ANA“ which is on the right edge of the PCB. The adjustment is done through comparative measurement at the desired switching point. The adjustment range is right from 0 Lux (nearly left end position of the potentiometer, i.e. anticlockwise direction) up to approx. 20000 Lux (almost right end position). The middle position of the potentiometers is at approx. 3000 Lux. The hysteresis (difference between ON and OFF switching point) can be adjusted by the trim potentiometer „HYS ANA“. The setting is to be done with a suitable screwdriver. At left end position (i.e. anticlockwise direction), the switching difference is maximum.

### Adjustment of time delay

Finally, adjustment of time delay is carried out by placing the jumper connection of the pin strip „TIMER“ at the desired position. With this, the configuration is complete and the device is ready for use.

