sauermann®

LR 110

Light transmitter

- Range from 0 to 10,000 lux
- 4-20 mA output, passive loop, power supply from 16 to 30 Vdc (2 wires)
- ABS V0 IP65 housing, with or without display

- "¼ turn" system mounting with wall-mount plat
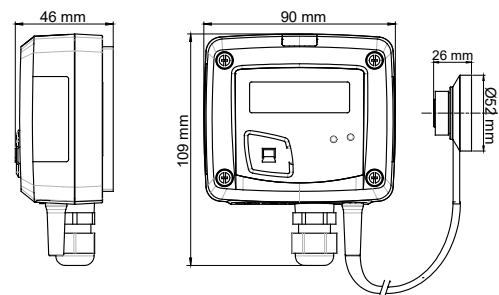- Housing with simplified mounting system

Main features

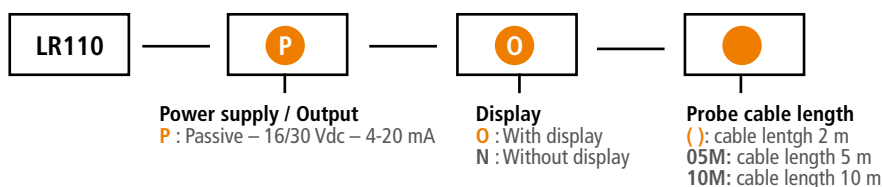|	
Measurement units	lux, fc
Measuring range	From 0 to 10,000 lux/From 0 to 929 fc
Accuracy*	±2% of reading or ±2 lux
Resolution	1 lux/0.01 fc
Type of fluid	Air and neutral gases
Conditions of use (°C/%RH/m)	From 0 to +50 °C. In non-condensing condition. From 0 to 2000 m.
Storage temperature	From -10 to 70 °C
Spectral range (f1)**	As per standard photopic curve V (λ) NF C 42-710 class C
Directional sensitivity (f2)**	< 2%
Linearity (f3)**	< 2%

* All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.
** The f1, f2 and f3 coefficient are defined according to the French NF C 42-710 standard.

Features of the housing

Material	ABS V0 as per UL94
Protection	IP65
Display	LCD 10 digits. Size: 50 x 17 mm
Height of digits	Values: 10 mm; Units: 5 mm
Remote probe	Cable of 2 m length in PVC
Cable gland	For cables Ø 8 mm maximum
Weight	140 g

Part number

LR110	—	P	—	O	—	●

Power supply / Output
P : Passive – 16/30 Vdc – 4-20 mA

Display
O : With display
N : Without display

Probe cable length
( ): cable lentgh 2 m
05M: cable length 5 m
10M: cable length 10 m

Example: LR110-PO
Light transmitter, 4-20 mA passive transmitter with display, probe cable length 2 m.

Technical specifications

|	
Output / Power supply	Passive loop 4-20 mA (power supply 16/30 Vdc), 2 wires Common mode voltage <30 VAC Maximal load: 500 Ω (4-20 mA) / minimum load: 1 kΩ (0-10 V)
Consumption	0.6 VA (4-20 mA)
European directives	2014/30/EU EMC; 2014/35/EU Low Voltage; 2011/65/EU RoHS II; 2012/19/EU WEEE
Electrical connection	Screw terminal block for cables from 0.05 to 2.5 mm^2 or from 30 to 14 AWG. Executed following the good practices guidelines.
PC communication	USB-mini DIN cable
Environment	Air and neutral gases

Simplified calibration

Electronic board and measuring element fixed to the front panel of the sensor, allowing you to leave your installation intact to configure or calibrate your instruments.
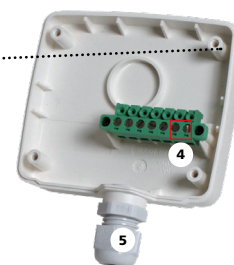
Connections

1. Active switch
2. Inactive switch
3. LCC-S software connection
4. Output and power supply terminal block
5. Cable gland
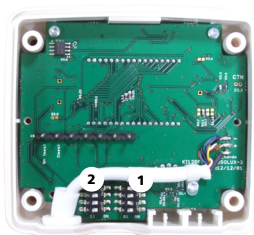
Inside the front housing   Removable front face   Fixed back housing

Symbols

For your safety and in order to avoid any damage of the device, please follow the procedure described in this document and read carefully the notes preceded by the following symbol:
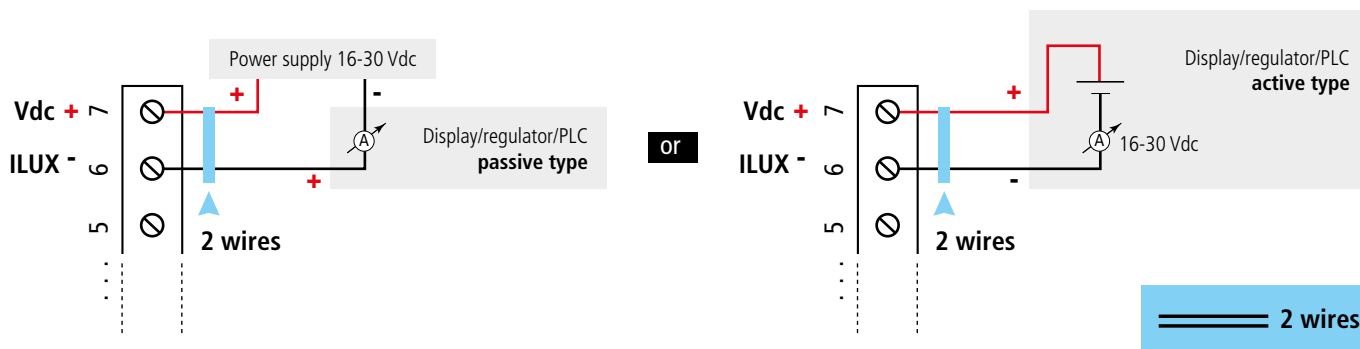
The following symbol will also be used in this document, please read carefully the information notes indicated after this symbol:

Electrical connections – as per NFC15-100 standard

**This connection must be made by a qualified and trained technician.
To make the connection, the transmitter must not be energized.**

Power supply 16-30 Vdc

Vdc + 7

ILUX - 6

5

2 wires

Display/regulator/PLC
passive type

or

Display/regulator/PLC
active type

Vdc + 7

ILUX - 6

16-30 Vdc

5

2 wires

2 wires

Settings and use of the transmitter

Configuration

To configure the transmitter, unscrew the 4 screws of the housing then open it. DIP switches allowing the different settings are accessible.

On-off switch

1
2
3
4

Off   On

Setting of the measuring unit
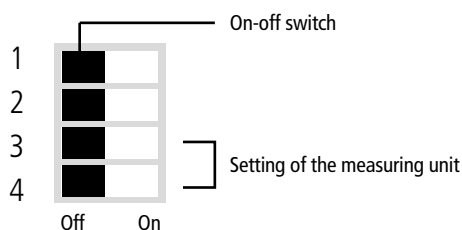
To configure the transmitter, it must not be energized. Then you can make the required settings thanks to the DIP switches as shown on the drawing below. When the transmitter is configured, you can power it up.

Measuring unit setting – Active switch

To set the unit of measurement, put the on-off switches 3 and 4 as shown in the table:

Configurations	lux	fc
Combinations	1 2 3 4	1 2 3 4

Configuration via LCC-S software (optional)

An easy and friendly configuration with the software!

⚠ **Caution: The configuration of the parameters can be done either by DIP switch, or by software (you cannot combine both solutions).**

To access to the configuration via software:
- Set the switch as shown below.
- Connect the cable of the LCC-S to the connection of the transmitter

### Configuration via PC

1
2
3
4

Switch 1

To configure the transmitter, please refer to the LCC-S user manual.

Mounting

To mount the transmitter, mount the ABS plate on the wall (drilling: Ø 6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.

75 mm
37.5 mm
40 mm
23.75 mm
Ø 8 mm
Ø 14 mm
Ø 4.5 mm
50 mm
68 mm
7.5 mm
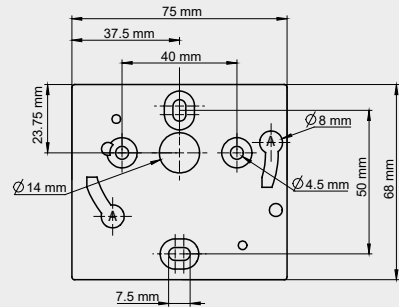
Factor value according to the light sources

The following table indicates the factor value corresponding to different light sources with their examples.
The device is adjusted with an incandescent standard white light source owning its own spectral response. The following lighting sources have a different spectral response. Therefore, the presented coefficients in the following table enable to correct the measurement according to these different sources

The correction is carried out by multiplying the measured value by the F factor: Corrected value = F x measured value.

Sources	F Factor	Illustration
Fluorescent tube with three bands	1.055	
High pressure mercury lamp	1.085	
Sodium vapour lamp	1.073	
Metal halide lamp with three additives	1.011	
Rare-earth metal halide lamp	0.947	
White led: neutral colour	0.950	
Halogen quartz lamp / tungsten (standard source)	1	

Order of magnitude of lux according to applications

Here are a few examples of order of magnitude according to different current situations.

Environment	Lux
Outside with open air	500 to 25 000
Outside with direct sunlight	50 000 to 100 000
Full moon night	1
Overnight lit street	20 to 70
Apartment well lit	200 to 400

Environment	Lux
Factory: electronic assembling	1500 to 3000
Hotel reception hall	200 to 500
Shop	750 to 1500
Hospital operating room	750 to 1500
Classroom	200 to 750

Maintenance:
- Avoid any aggressive solvent.
- Protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

Precautions for use: always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Accessories

Ref.	Description
KIAL-100A	Power supply class 2, 230 Vac input, 24 Vac output
KIAL-100C	Power supply class 2, 230 Vac input, 24 Vdc output
LCC-S	Configuration software with USB cable

ⓘ Only the accessories supplied with the device must be used.

Warranty
Instruments have 1-year guarantee for any manufacturing defect.

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