

# **SL30/SL31**

## **Original Operating Instructions**



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# **1 Foreword**

## **1.1 Updating the instructions**

CAPTRON reserves the right to make changes to the contents of this manual as needed. At any time, the most current version can be found on our website: [www.captron.com](http://www.captron.com)

## **1.2 Legal notice**

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## 2 General information

These operating instructions were written for fitters and operators and must be retained for subsequent use. Read these operating instructions carefully and ensure that you have fully understood the contents before installing or working on the SL30/ SL31.

### 2.1 Symbols and references used

Warning information relating to personal injury / material damage is set out based on the “SAFE” principle. This means that it contains information on the type and source of the hazard, potential consequences, and how to avoid and avert the danger. The following hazard classifications apply to the safety information:

#### DANGER



The signal word DANGER indicates a dangerous situation. If it is not avoided, it will result in fatal or severe injuries. The symbol in front of the warning information graphically represents the type and source of the danger.

#### WARNING



The signal word WARNING indicates a potentially dangerous situation. If it is not avoided, it can result in serious injuries or have life-threatening consequences. The symbol in front of the warning information graphically represents the type and source of the danger.

#### CAUTION



The signal word CAUTION indicates a potentially dangerous situation. If it is not avoided, it can result in minor injuries. The symbol in front of the warning information graphically represents the type and source of the danger.

#### NOTICE

The signal word INFORMATION indicates a situation, which, if disregarded, can cause material damage and cause the product to malfunction as a result.

#### TIP

The tips and hints contain additional useful information about handling the product.

Symbol	Meaning
▶	Avoiding and adverting the danger in the warning information
1. 2. ...	Instruction All instructions in a sequence of instructions are always listed in chronological order.
▪	List

## **3 Safety**

### **3.1 General safety**

Make sure that all work on electrical or operating equipment is only performed by a specialist electrician in accordance with the applicable rules and regulations of electrical engineering.

The safety of the system into which the SENSORswitch is integrated is the responsibility of the operating organization.

### **3.2 Intended use**

The SENSORswitch is intended for use in accordance with the items listed here and the values from the function overview (see section ["Functional overview"](#) and ["Technical data"](#)):

- Only connect the SL30/SL31 SENSORswitch to an energy-limited source as per IEC 61010 or to an NEC Class 2 power supply.
- The source current may not exceed 4 A at maximum operating voltage.

The SL30/SL31 SENSORswitch is not a device certified according to the Machinery Directive 2006/42/EC.

- A risk assessment is required for two-handed operation.
- The safety function must be designed and evaluated accordingly by the user.

#### **3.2.1 Personnel qualifications**

A qualified electrician is a person with suitable technical training, expertise and experience. This person has knowledge of relevant standards and can correctly assess the tasks assigned to them and recognize potential dangers.

#### **3.2.2 Reasonably foreseeable misuse**

The switch is not suitable for:

- Use as a foot switch.
- Use in potentially explosive areas.
- Use with inductive loads without a free wheeling diode.
- Use as a safety component as per Directive 2006/42/EC.

## 4 Functional overview

### Actuation detection:

- The sensor switch detects actuation via powerless contact.
- The potential-free changer switches as long as the actuation continues.

### LED displays:

- Green LEDs: Indicates readiness for operation when the switch is not actuated.
- Red LEDs: Lights up when switch is actuated.

## 5 Technical data

Operating voltage	--- 24 VDC (16.8...32 V)
Output	Potential-free PhotoMos changer (SPDT: NO/NC)
Power dissipation	≤300 mW at switch contact
Load current	≤300 mA per switch contact
Switching voltage	≤60V AC/DC
Switching frequency	≤2 Hz
Switching behavior	Static, continual switching when actuated
On state resistance (on state)	< 2.5 Ω
Connection	M12, 5pin
Reverse polarity protection	Yes
Short circuit protection	No
Power consumption at 24 V	≤25 mA
Operating temperature	-20 °C (-4 °F) ... +60 °C (140 °F)
Degree of protection IP	Front face IP69K, plug IP65 with fixed cable
Maximum altitude	2000 m above NN
Relative air humidity	95 %, non-condensing
Display LED 1	8 green LEDs
Display LED 2	8 red LEDs
Type of actuation	Capacitive
Actuation force	No actuation force required

Switch-off delay	Max. 100 ms
Switch-on delay	Max. 50 ms
MTBF	380 years
DC	0 %

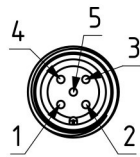
**TIP**

Metric and imperial measurements are used in drawings. Imperial measurements are marked with [ ].

## 5.1 Connection options

### Plug

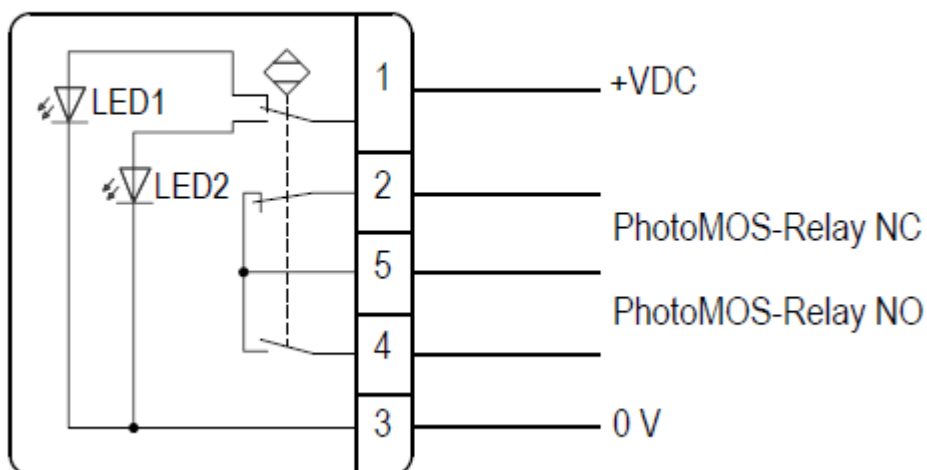
Plug M12, 5-pin



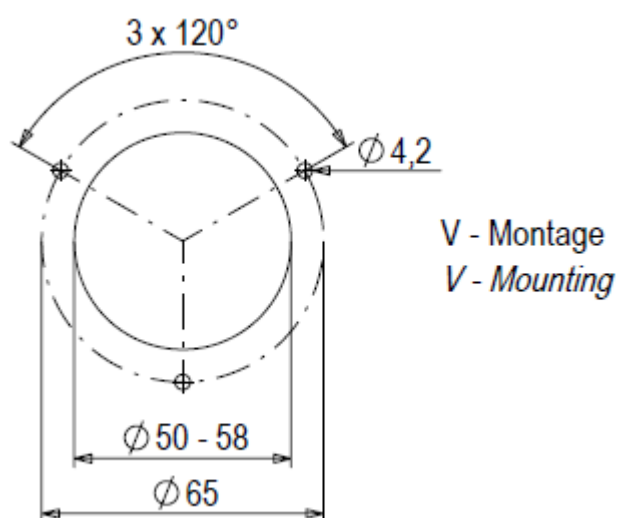
## 5.2 Wiring diagram

Circuit diagram

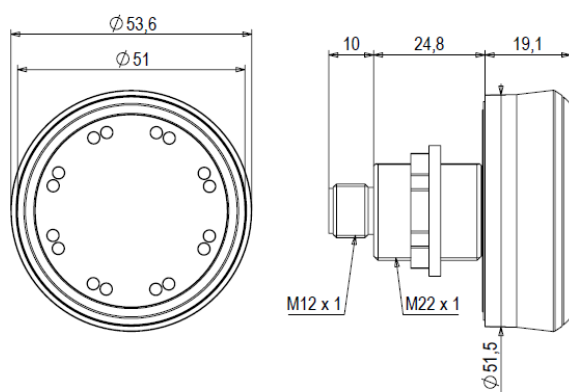
SL30/SL31 M12 5-Pol



## 5.3 Drilling pattern SL31

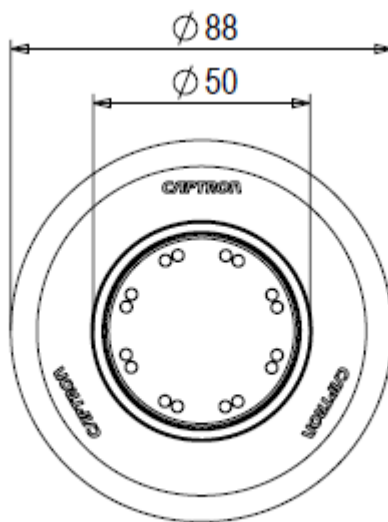
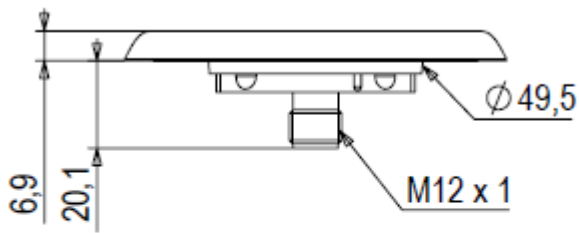


## 5.4 Dimensional drawing SL30





## 5.5 Dimensional drawing SL31



## 6 Installation

### ⚠ WARNING

#### Improperly performed work on electrical equipment:

An electric shock can be life-threatening or even fatal for humans.

- Before working on electrical equipment make it voltage-free and secure it against being switched on again.
- All work on electrical systems may only be carried out by qualified personnel.
- The work must be performed in accordance with the national electrical specifications and related local regulations.



## NOTICE

**Mineral greases and oils can attack the plastic of the switch!**

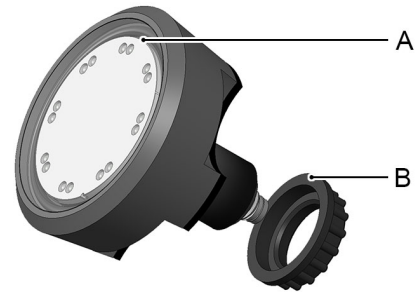
- ▶ Do not use any greases or oils for pressing the colored cover ring (A) into place.

## 6.1 SL30 SENSORswitch installation

Before starting installation, make sure that the mounting surface is even and clean. Then proceed as follows:

1. Make the system free of voltage, and secure it against being switched on again.
2. Clean the surface under the switch.
3. Unscrew knurled nut (B) from the switch (A).
4. Insert the switch into the prepared  $\varnothing 22.5$  mm drilling, and screw the knurled nut back on.
5. Align the SL30 and screw the knurled nut tight.

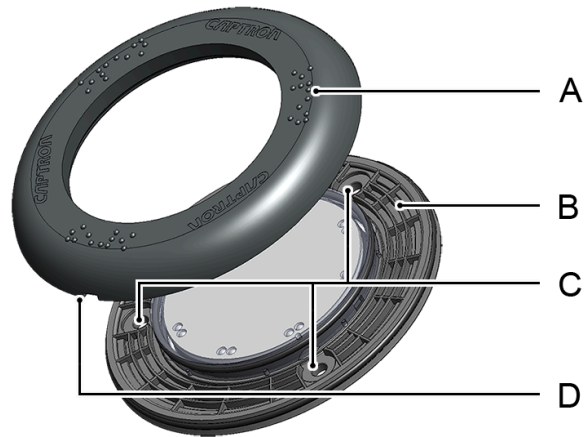
Cabling outside the enveloped installation areas is to be protected against mechanical damage (including e.g. vibration or bending).



## 6.2 SL31 SENSORswitch installation

Before starting installation, make sure that the mounting surface is even and clean. Then proceed as follows:

1. Make the system free of voltage, and secure it against being switched on again.
2. Position the SENSORswitch (B) in the V-fitting, center and align it vertically, and mark holes (C).
3. Select the diameter of the holes according to the recommended screw type, and drill the holes.
4. Connect the SENSORswitch (B) electrically as per the wiring diagram.
5. Fasten the SENSORswitch (B) using the recommended screws.
  - ▶ The screw head must not deform the mounting flange (B).
6. Put on the colored cover ring (A) with the slot (D) downwards, and press it on close to the surface of the switch.
  - ▶ The colored cover ring must lie flush with the complete switch surface.



## 7 Maintenance

### 7.1 Maintenance activities

#### NOTICE

**Solvents contained in cleaning agents can attack the plastic of the button!**

- Clean the surface of the button with a neutral cleaning agent or a damp microfiber cloth.

Before cleaning, switch off the SL30/SL31 SENSORswitch to prevent unintended actuation. Perform regular maintenance activities at the specified intervals.

Maintenance activity	as required	annually
Clean surface of switch	X	
Check the integrity and firm seating of cables		X
Test screwed connections for firm seating		X

## 8 Removal

### 8.1 SL30 SENSORswitch removal

Perform the following steps to remove the SL30 SENSORswitch:

1. Make the system free of voltage, and secure it against being switched on again.
2. Disconnect the electrical supply and remove the knurled nut.

### 8.2 SL31 SENSORswitch removal

Perform the following steps to remove the SL31 SENSORswitch:

1. Make the system free of voltage, and secure it against being switched on again.
2. Insert a flat head screwdriver into the slot on the colored cover ring (A) (see figure SL31 SENSORswitch installation), and remove it by levering with the screwdriver.
3. Remove screwed connections and disconnect the electrical supply.

## 9 Disposal

Different types of electrical and electronic components must be sorted and recycled.  
Comply with all applicable local, state and federal laws and regulations in full without exception.

## 10 Legal information

These operating instructions were written and published by

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## **11     Product description**

