

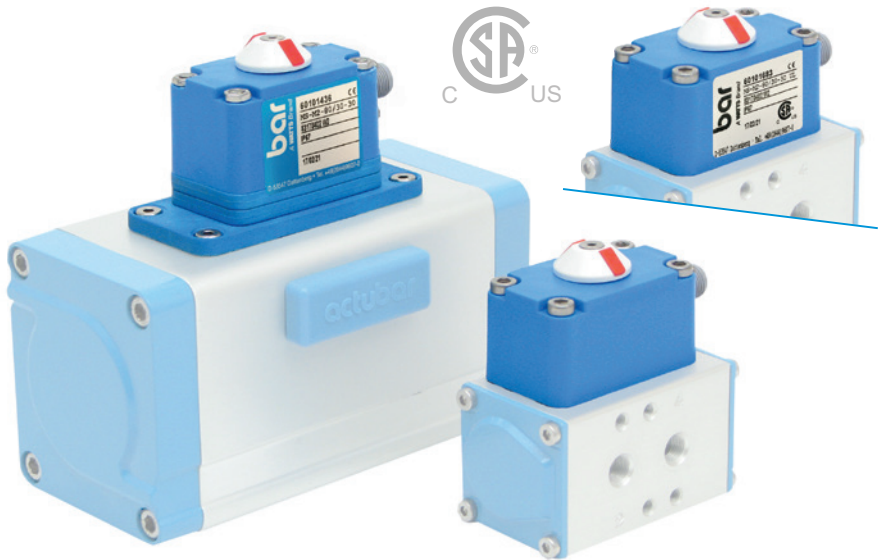
# CR-TEC Engineering

Automated Valve Solutions

## miniswitch<sup>®</sup>

With patented self-setting

### Installation and Operation Manual



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# Instructions in Safety and Warnings

Before commissioning, read these instructions through carefully and follow all advice. In this documentation we use different types of instructions for safety and warning signs:

## DANGER

... indicates a real and near danger. To ignore this sign means possible death or serious injury as consequence.

## WARNING

... indicates a threat of danger. To ignore this sign means possible serious injury or material damage as consequence.

## ATTENTION

... indicates a possible danger. To ignore this sign means possible material damage as consequence.

## NOTE

... stands for advice and tips for a better understanding of instructions or a better handling of the unit.

## Scope of Validity

The afore-mentioned operating instructions are valid for opto-electrical position indicators, here defined to be the „bar-miniswitch®“. They react according to the operator of the unit, that means the person, that works with the unit. This is not a technical handbook. For questions, arising from the contents of this documentation, please contact our customer service department.

## Copyright

The unit and this documentation are protected by copyright. Their reproduction without written permission will be contested in court. We reserve all rights to this documentation and its contents thereof, also for their reproduction and/or duplication in whatever imaginable form, e.g. through photocopies, print, on whatever data carriers or in whatever translated form. The reprinting of this documentation is only possible via the express written permission of bar GmbH.


The technical state at the time of delivery of the unit and instructions is a deciding factor, in case no other information is provided. We reserve the right to technical changes without special notice in advance. Earlier instructions lose their validity. The General Terms and Conditions for Sales and Delivery as prescribed by bar GmbH are to be adhered to.

## Exemption from Liability

We guarantee the fault-free function of our product according to our advertising, the product information and this documentation issued by us. Further product features are not promised. We undertake no liability for economy and fault-free function, when the product is used for other purposes, as described in the section „Intended Use“.

Damages are generally excluded, except in the case of criminal intent or gross negligence committed by bar is proved, or in the case of promised product features being absent.

If this product is exposed to non-prescribed environments, for which it is not suitable or does not correspond to the



Technical Standard as stipulated therein, then we cannot and will not be held responsible for the consequences.

We accept no liability for damages to systems and equipment in whatever form in the surrounding environment around the product, which result from a fault of the product or in this documentation. We are not responsible for injuries to patents and/or other third party rights outside the Federal Republic of Germany.

We cannot be held liable for damages, resulting from the incorrect operation and non-adherence to the instructions laid down in this documentation. We are not liable for losses in profit and resulting damage thereof from the non-adherence to safety instructions and warnings. We undertake no liability for damage, resulting directly or indirectly from the use of accessories and/or consumable products, which have been neither delivered nor certified by bar.

The products manufactured by bar GmbH are designed to give a long service life. They correspond to the state of the art for science and technology and are individually tested in all functions before dispatch. The electrical and mechanical construction corresponds to valid standards and guidelines. bar constantly carries out ongoing tests on the products and the marketplace, to ensure the further development and improvement of their products.

In case of faults and/or technical problems, please contact our service department. We can assure you, that immediate appropriate measures will be introduced. Valid here are the Terms of Warranty from bar GmbH, which we will send to you upon request.

## Intended Use

The Position indicator bar-miniswitch® is a device for optical display and electrical messaging of intermediary and end positions of actuators, working on industrial fittings. Just before reaching the end position an electrical signal is generated, e.g. for feedback to the process control unit.

Any other application of this device is to be considered to be outside the intended use. If you have any questions, or would like to use the unit for another purpose, please contact our customer service department. We will be pleased to help with the necessary configurations.

## Guarantee

For this device, we undertake the warranty of faultless condition for a duration of six months within the framework of our Conditions of Warranty. Parts subject to wear-and-tear are excluded from this warranty. The claim is invalidated, when tampering is carried out by persons, who are hereby not authorised by bar GmbH.

Inside the warranty period of time, we will repair damage or faults without cost, which can be provenly traced back to a factory error, insofar as this is registered by us immediately upon discovery, at the latest however inside a time span of six months following the date of delivery. The warranty cover will be made according to our estimation, through costfree repair maintenance of the faulty part(s) or exchange of those parts with faultless parts.

Send the units, for which the claim against warranty is being made, carriage-paid and with a copy of the invoice i.e. the delivery note to bar GmbH. Please get in con-

tact with our customer service department before sending the goods.

### **Obligations of the Customer**

The owner/operator of this device has to ensure, that only persons who

- know the rules about safety at work and prevention of accidents
- have been instructed in the operation of this device
- have completely read and understood these instructions

can use and operate this device.

Persons, who operate this device, are obliged:

- to observe all rules pertaining to safety at work and the prevention of accidents
- to read these instructions thoroughly.

### **Authorised Personnel**

Persons to be seen as authorised, are those with a successfully concluded professional training, technical experience, as well as knowledge of the appropriate standards and guidelines, and who are in a position, to appreciate the tasks they are delegated, and lastly to recognise and act upon possible dangers arising.

### **Operators of the Position Indicator**

Persons to be seen as authorised, are those who have been instructed in the operation of a position indicator and have read and fully understood these instructions.

### **Personnel for Installation and Care**

Persons to be seen as authorised, are those who have been instructed in the importance and consequences of position indicators and have read and fully understood these instructions.

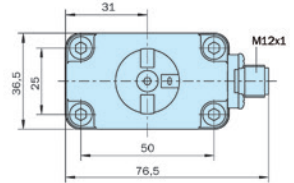
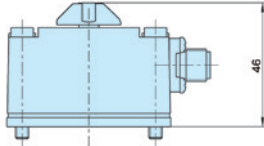
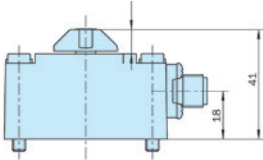
# Technical Data

Technical Data		
Description	The opto-electrical position indicator miniswitch® is self-adjusting. It was specially conceived for smaller actuators and requires a minimum of space for mounting. The electrical connections are pluggable.	
Design	Compact construction, directly mountable	
Installation dimensions	50 x 25 mm – Pinion extension 15 mm with adapter: 80 x 30 mm – Pinion extension 20 i.e. 30 mm	
Constructional features	self-adjusting – with mechanical micro-switches or inductive switches	
Mounting position	as desired	
Protection type	MS-...: IP 67 (standard-version) MS-UL-...: IP 68 10m 72h (UL/CSA-version)	
Supply voltage	<ul style="list-style-type: none"> <li>• mechanical: max. 250 V/AC, direct current max. 1 A</li> <li>• inductive: 5 to 30 V/DC, direct current max. 100 mA</li> </ul>	
Material	<ul style="list-style-type: none"> <li>• housing: plastic</li> <li>• screws: stainless steel A2</li> </ul>	
Switching function	<ul style="list-style-type: none"> <li>• mechanical: changer</li> <li>• inductive: PNP-changer</li> </ul>	
Ambient temperature	<ul style="list-style-type: none"> <li>• mechanical: -20 °C to +70 °C</li> <li>• inductive: -20 °C to +70 °C</li> </ul>	
Connection	Plug connection M12, 4-pole DIN EN 61076-2-101	
Cable	Ø 6 – 8 mm, 0,75 mm <sup>2</sup>	
Weight	80 – 130 g, depending on the different models:	
Mounting heights	There are different mounting heights H, depending on the different models:	
	Model with Pinion extension 15 mm	Model with Pinion extension 20 mm
	MS-M2-50/25-15 and MS-D2-50/25-15	MS-M2-50/25-20 and MS-D2-50/25-20
Certificate	UL CSA Nr. 80054905	

# Dimensioned Drawing

## Mounting heights

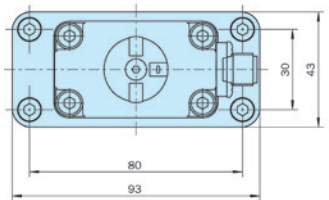
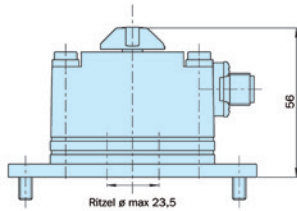
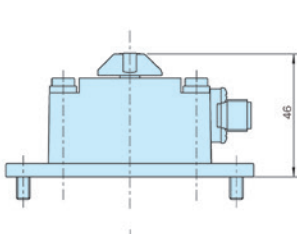
50 x 25 mm – shaft extension 15 mm



For shaft extension 15  
MS-M2-50/25-15 and  
MS-D2-50/25-15

For shaft extension 20  
MS-M2-50/25-20 and  
MS-D2-50/25-20

With adapter: 80 x 30 mm – shaft extension 20 / 30 mm



For shaft extension 20  
MS-M2-80/30-20 and  
MS-D2-80/30-20

For shaft extension 30  
MS-M2-80/30-30 and  
MS-D2-80/30-30

# Delivery and Unpacking

## Controlling the delivery

The unit is dispatched from bar and transported by selected transport companies i.e. package deliverers. At the point of arrival on your premises you should check the following:

- Are the number of packages that arrived the same as on the bar delivery note?
- Is the packaging free from visible signs of damage?
- Are the unit(s) and the accessories free from visible signs of damage?
- Are there any signs of careless handling during transport (e.g. burn marks, scratches, paint)?

To be able to present all claims against the transport companies, you should document all possible transport damage (e.g. with photographs and a written report), before you unpack the unit. bar is not responsible in any way for transport damage and can not accept responsibility or liability in any way whatsoever.

## Scope of delivery

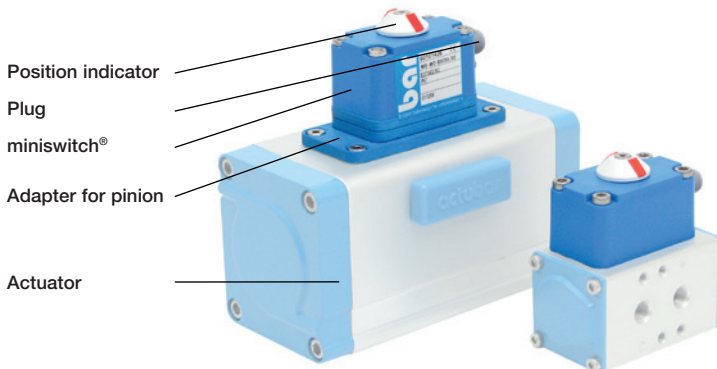
Carefully remove the transport packaging. Please observe all laws and regulations for the disposal of packaging materials. After packing everything out, you should have the following parts before you:

- Opto-electrical position indicator miniswitch®

Depending on order, the following optional extras:

- Adapter for differing pinion extension
- Position indicator with screw
- Plug
- Connecting cable

Check the scope of delivery with the delivery note and the order documentation. Any differences should be registered immediately to bar. Later complaints about incomplete or damaged deliveries cannot be accepted.





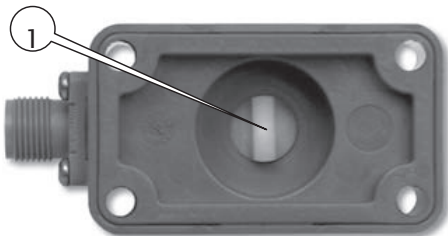
# Mounting and Commissioning

## Mounting

### **WARNING**

Mounting may only be carried out by suitably qualified skilled persons. Otherwise there is a danger of electric shock and defective installation.

1. If so required, fasten the adapter for raised pinions to the bar-miniswitch® with 4 screws from underneath.
2. Position the bar bar-miniswitch® on top of the actuator. Next insert the nose-piece of the position indicator (1) in the corresponding groove in the actuator shaft.
3. Fasten the bar-miniswitch® (i.e. the adapter) with 4 screws to the actuator.
4. Screw-on the plug (M12, 4-pole) with the correct orientation.
5. Place the optional position indicator on top. Thereby insert the nose-piece in the groove.
6. Fix in place the position indicator with a screw.



### **ATTENTION**

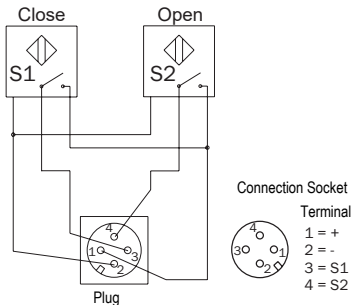
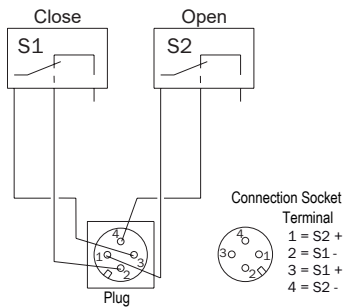
Mount the unit only according to the description in this section. Otherwise the functionality can be restricted.

## Connecting

### WARNING

The electrical installation may only be carried out by qualified skilled personnel. Otherwise there is a danger of electrical shocks.

### Circuit diagram



## Commissioning

### NOTE

The miniswitch® is designed as self-adjusting. Therefore there is no need for setting or adjustment work.

1. Let the actuator switch 2-times, so that the miniswitch® can find the zero position.

2. Check whether the position indicator agrees with the valve positioning. If not, then either the valve or the actuator is wrongly mounted.
3. Switch on the supply voltage.
4. Check, if the electrical switching signal agrees with the position indicator.
5. When all checks have been successfully carried out, then mounting and commissioning have been completed.

## Cleaning

### WARNING

Never use aggressive cleaners or materials, to clean the housing of the mini-switch®. This can lead to damage to the housing.

1. Clean the housing of the bar-miniswitch® with a clean, slightly-moistened cloth.
2. In the case of a hardened-on dirt, use a normal household cleaner according to the instructions on the packaging on the cleaner.

## Maintenance

### WARNING

Never open the housing of the bar-miniswitch®. This can lead to damage to the unit and the loss of all warranty claims.

The mini switch® works maintenance-free. In case of defects, which take place inside the warranty time, remove the bar-miniswitch®, and after telephoning us, send it to the address as shown on the rear side.





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The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding. CR-TEC Engineering, Inc. reserves the right to carry out any technical and design improvements to its products without prior notice.

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