

# S-5EC

## Potentiometer 5-step

### Operating Instructions



**Keep for reference!**

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# 1 General notes

## 1.1 Structure of the operating instructions

Before installation and start-up, read this manual carefully to ensure correct use!

We emphasize that these operating instructions apply to specific units only, and are in no way valid for the complete system!

Use these operating instructions to work safely with and on the device. They contain safety instructions that must be complied with as well as information that is required for failure-free operation of the device.

Keep these operating instructions together with the device. It must be ensured that all persons that are to work on the device can refer to the operating instructions at any time.

## 1.2 Exclusion of liability

To allow for future developments, construction methods and technical data given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided.

We accept no liability for damage caused by misuse, incorrect use, improper use or as a consequence of unauthorized repairs or modifications.

# 2 Safety instructions

- Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electrotechnical regulations (e.g. DIN EN 50110 or DIN EN 60204)!
- Persons entrusted with the planning, installation, commissioning and maintenance and servicing in connection with the device must have the corresponding qualifications and skills for these jobs. In addition, they must be knowledgeable about the safety regulations, EU directives, rules for the prevention of accidents and the corresponding national as well as regional and in-house regulations.
- The equipment is to be used solely for the purposes specified and confirmed in the order. Other uses which do not coincide with, or which exceed those specified will be deemed unauthorised unless contractually agreed. Damages resulting from such unauthorised uses will not be the liability of the manufacturer. The user will assume sole liability.
- It is strictly forbidden for work to be carried out on any components while they are connected to live voltage.
- The safe isolation from the supply must be checked using a two-pole voltage detector.
- The owner is obliged to ensure that the device is operated in perfect working order only.

- Inspect electrical equipment periodically: retighten loose connections – immediately replace damaged lines and cables.
- Never clean electrical equipment with water or similar liquids.
- A separate fault and performance monitoring-system with an alarm signal function is necessary in order to prevent personal injuries and material damages during malfunctions and in case the device fails. Substitute operation must be taken into consideration!

## 3 Product overview

### 3.1 Function

Potentiometer with 5 steps for controlling speed controllers and EC fans. The potentiometer is supplied with a voltage of 10 V DC giving a control voltage output dependent on the switch position.

The integrated LED can be used for operation or status display.



#### Information

Direct switching from step "0" to step "5" or from step "5" to step "0" is not possible!



### 3.2 Storage

- The device must be stored in its original packaging in a dry and weather-proof room.
- Avoid exposure to extreme heat and cold.
- Avoid over-long storage periods (we recommend a maximum of one year).

### 3.3 Disposal / recycling



Disposal must be carried out professionally and in an environmentally friendly way in accordance with the respective national legal stipulations.

- ▷ Separate the materials by type and in an environmentally friendly way.
- ▷ If necessary, commission a specialist company with the waste disposal.

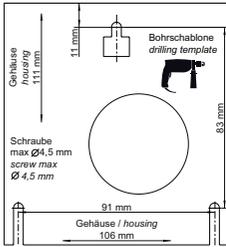
## 4 Mounting

### 4.1 General notes

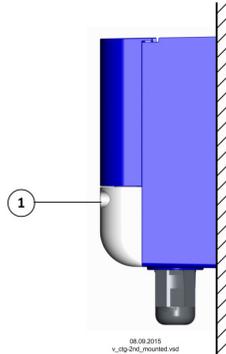
**Attention!**

- Before installation remove the device from the packing and check for any possible shipping damage!
- Do not mount equipment on vibrating base!
- When mounted onto lightweight walls, there must be no impermissibly high vibrations or shock loads. Any banging shut of doors that are integrated into these lightweight walls, can result in extremely high shock loads. Therefore, we advise you to decouple the devices from the wall.
- Do not allow drilling chips, screws and other foreign bodies to reach the device interior!
- The device should be installed in a location where it will not be disturbed, but at the same time can be easily accessed!
- Care must be taken to avoid direct radiation from the sun!
- The device is designed for vertical installation (cable inlet down). A horizontal or reclined installation is only permissible after technical release of the manufacturer!
- Remove the connection cover for mounting and connection, and subsequently close it again carefully.
- Use the templates printed on the device packing to mark the fastening bore holes.
- Assemble the device on a clean and stable base. Do not distort during assembly! Use the appropriate mounting devices for proper installation of the unit!

Drilling template on packing



Vertical mounting



1 Lid screw (tightening torque 1.1 Nm)

## 5 Electrical installation

### 5.1 EMC-compatible installation of control lines

Pay attention to maintain sufficient distance from powerlines and motor wires to prevent interferences.

When using a shielded cable the shield must be connected (as short and with as low an induction as possible!) to the PE conductor on one side at the signal input (of the evaluation unit).

### 5.2 Connection Voltage supply

Connection Voltage supply at terminals: "10 V" and "GND". Here, it must be strictly observed that the mains voltage lies within the allowable tolerance specifications (☞ Technical data and nameplate affixed to the side).



#### Danger due to electric current

Only PELV current sources which ensure safe electrical isolation of the operating voltage in accordance with IEC/DIN EN 60204-1 must be used.

There is no potential isolation between supply voltage and output signal.

### 5.3 Output voltage 0 - 10 V

Connection to terminals "A" and "GND" ( $I_{\max}$   Technical data).



#### Information

- The output voltage is directly dependent on the supply voltage!
- It is not permissible to connect outputs of several devices to each other!
- There is no potential isolation between supply voltage and output signal.

In the as-delivered state, the following output voltages are assigned to the selectable steps:

- Step 0 = 0 V
- Step 1 = 2 V
- Step 2 = 4 V
- Step 3 = 6 V
- Step 4 = 8 V
- Step 5 = 10 V

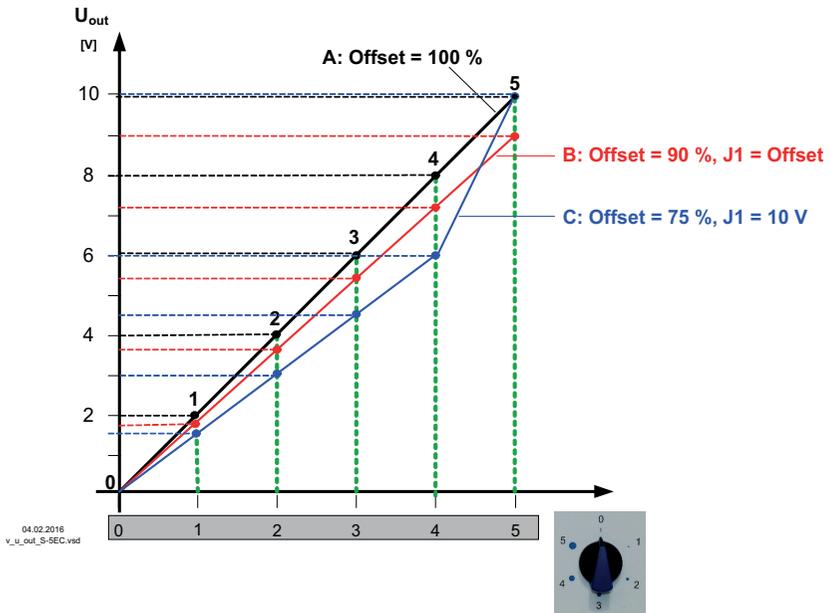
### Potentiometer "Offset"

<p><b>Offset</b></p> 	<p>The output voltage can be reduced via the internal potentiometer "Offset".</p> <ul style="list-style-type: none"> <li>• Right stop (factory setting) = no reduction.</li> <li>• Left stop = maximum reduction in output voltage of 25 %.</li> </ul>
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### Jumper "J1 Step 5"

<p>Step 5</p> <p>J1</p> 	<p>With internal jumper "J1 Step 5" it can be selected whether the setting with the potentiometer "Offset" is also meant to be effective for step 5.</p> <ul style="list-style-type: none"> <li>• Jumper "J1" in position up = "Offset" (factory setting) = "Offset" setting is effective in steps 1 - 5.</li> <li>• Jumper "J1" in position down = "10 V" = "Offset" setting is only effective in steps 1 - 4.</li> </ul>
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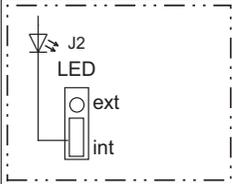
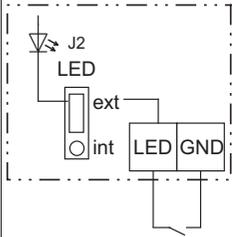
Example: Steps and possible output voltages



### 5.4 LED control

With internal jumper "J2 LED" it can be selected whether the LED registers the operation of the potentiometer or if it is controlled via an external contact.

#### Jumper "J2 LED"

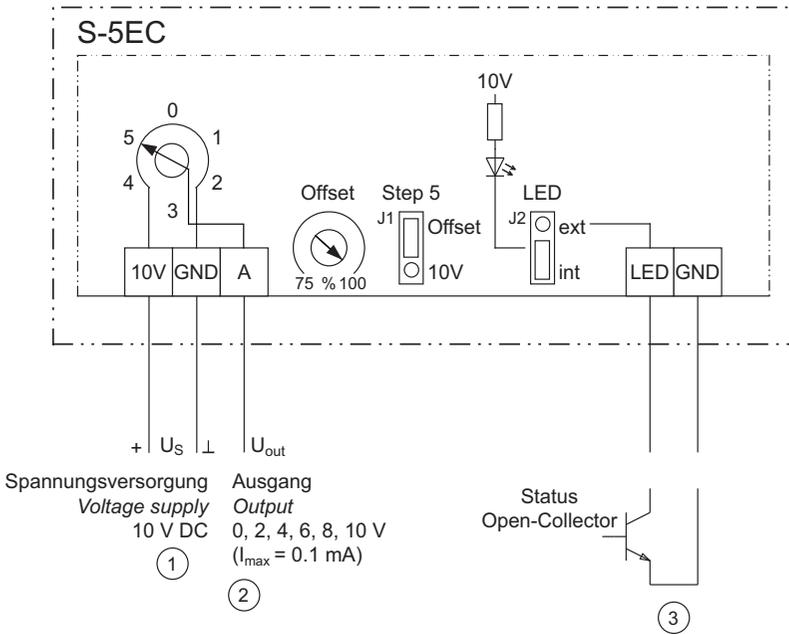
	<p><b>LED operating indication potentiometer</b></p> <p>Jumper "J2" in position down (factory setting) = "int"</p> <ul style="list-style-type: none"> <li>• Potentiometer setting 0: LED = OFF</li> <li>• Potentiometer setting 1 - 5: LED = ON</li> </ul>
	<p><b>External LED control</b></p> <p>Jumper "J2" in position up = "ext"</p> <ul style="list-style-type: none"> <li>• Contact at terminals "LED" - "GND" open: LED = OFF</li> <li>• Contact at terminals "LED" - "GND" closed: LED = ON</li> </ul> <p>With a potential-free contact or an open collector at terminals "LED" + "GND", the LED can be switched on and off.</p> <p>In the case of a connected device with status report via a digitally coded signal, the status can be displayed via the LED flashing code.</p>

## 6 Enclosure

### 6.1 Technical data

Type	<b>S-5EC</b>
Part-No.	76738 (349073-42)
Voltage supply	10 V DC (+10 %)
Max. current consumption ca.	7.5 mA
Max. load output 0...10 V	0.1 mA
Housing	PC (polycarbonate) Fire protection classification UL94V0
Use position	vertical
Protection class	IP54 according EN 60529
Weight	approx. 200 g
Permissible temperature range for operation	-25...70 °C
Permissible temperature range for storage and transport	-30...85 °C
Permissible rel. humidity	85 % no condensation
Maximum cross section of terminals	1.5 mm <sup>2</sup> / AWG16
Interference emission	according EN 61000-6-3 (domestic household applications)
Interference immunity	according EN 61000-6-2 (industrial applications)

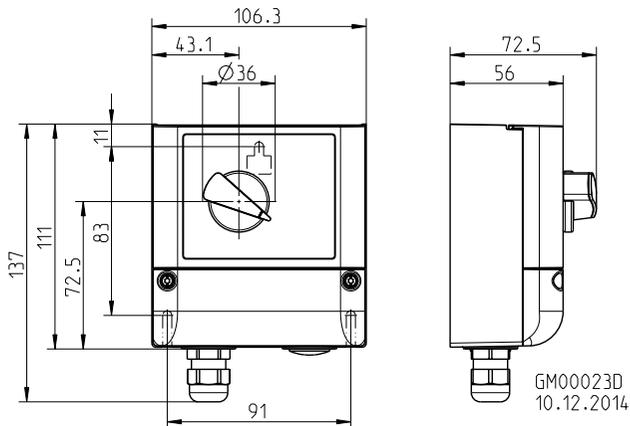
## 6.2 Connection diagram



SGSW04K1  
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- 1 Voltage supply 10 V DC
- 2 Output 0, 2, 4, 6, 8, 10 V
- 3 State Open-Collector

## 6.3 Dimensions [mm]



## 6.4 Manufacturer reference

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

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