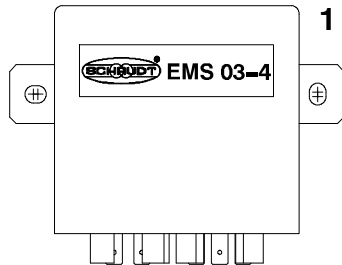


# Installation instructions



**Modules**

## 1 Application and Function

The step control EMS 03-4 is used to control electric motors used in step controls. The use of the step control EMS 03-4 requires very little current for the operating buttons and the control leads. This means that thin cables and standard button types can be used. It is possible to switch several buttons in parallel. This allows operating in various parts of the vehicle.

The step control has the following:

- Button-control
- Current monitoring
- Time control

### Necessary control

At least one button with changer function and middle setting "0" must be connected to the step control and the battery voltage must also be connected.

### How it works

The step control controls the motor in the following way:

- Driving the step control in an out by briefly tipping pressing the button at the entrance; the motor is switched off when the step control reaches the stop.
- The motor stops if the step control meets an obstacle, is jammed or frozen.
- The control can be accessed via an (optional) second switch at the driver's seat.



### ▲ DANGER!

Operating the step control without seeing it!

Risk of injury:

- Ensure that when operating the step control (e.g. from the driver's seat) nobody is near the operated step control.

### Operation

- ▶ Briefly activate the button in the "drive out" setting.
  - Step control moves out.
- ▶ Briefly activate the button in the "drive in" setting.
  - Step control moves in.

## 2 Design

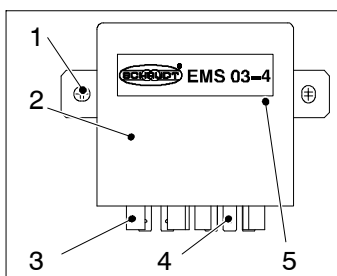


Fig. 1 Step control EMS 03-4

- 1 Drill holes for securing
- 2 Housing
- 3 Plug ST2 (motor, battery)
- 4 Plug ST1 (push button)
- 5 Adhesive label
- 7

### 3 Mechanical installation

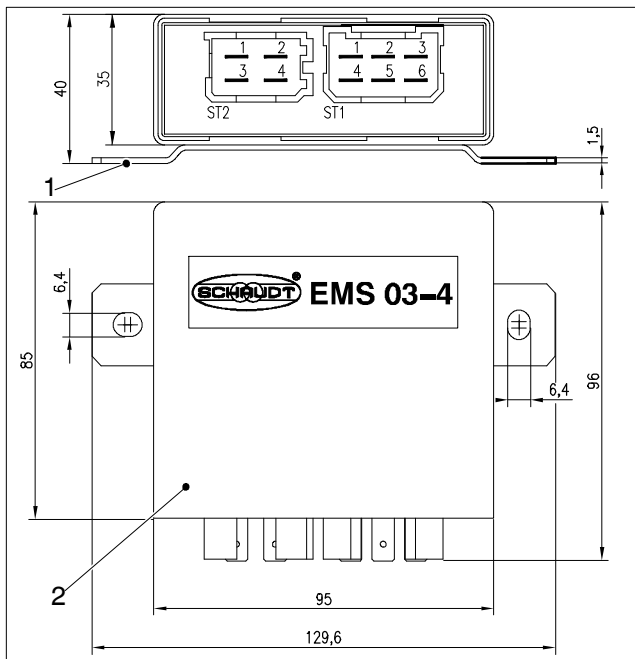


Fig. 1 Dimension illustration EMS 03-4 (measurements in mm)

- 1 Assembly bracket (galvanised)  
2 Housing PA

Das Gerät ist für die Wandmontage mit den Anschlüssen nach unten oder Bodenmontage vorgesehen. The device is designed for wall mounting with the connections facing down or for floor mounting.

- ▶ Install in a dry area.
- ▶ Ensure that there is a minimum clearance to the surrounding equipment:
  - Ensure that there is at least 1 cm clearance on all sides – except the mounting side.
  - During operation the surrounding temperature should not exceed +70 °C (measured at 2.5 cm clearance to the sides of the device).
- ▶ Screw the step control with two screws (screw diameter 6 mm) in the designated drill holes.

## 4 Electrical connection



**▲ WARNING!**

### Protection against reverse polarity

Damaging the electrical equipment of the basic vehicle:

- Ensure that the necessary voltage levels for the control voltages correspond with the necessary values.
- Only make connections if the system is not connected to a power supply.



**▲ ATTENTION!**

## Short circuits

Damage to the step control or cable burn:

- To protect the wire transmissions, insert fuses directly at the battery plus pole.

Select cable thickness 1 or 2 in accordance with EN 1648. The maximum current must not exceed 90% of the safety value.

### Connection-sequence

Connect the step control in the following sequence (also see the block diagram):

1. All connections to the buttons
2. Motor
3. Battery voltage

## Disconnection

Disconnect in the reverse order.



- ▲ Individual blade receptacles AMP 6.3 can be used for the connection. Alternatively, suitable wire harness can be used for ST1 and ST2.

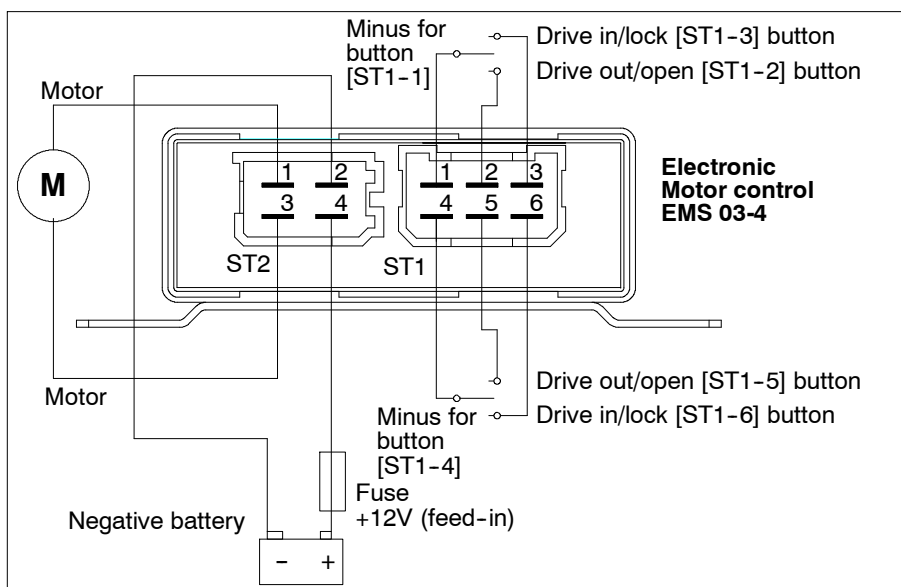


Fig. 2 Block diagram connection EMS 03-4

The polarity of the connections "motor" is as follows:

Button in position	Connection ST2 - 1	Connection ST2 - 3
Drive in/lock	+	-
Drive out/open	-	+

## 5 Initial start up

### 5.1 Testing before initial start up

**Before starting up** ► Ensure that the battery for the basic vehicle is properly connected.

### 5.2 Starting up

The step control is plug and play.

## 6 Technical data

### 6.1 Technical data

<b>Dimensions</b>	96 x 130 x 40 (D x W x H in mm), with plug and assembly bracket
<b>Weight</b>	180 g
<b>Housing</b>	Black plastic, assembly bracket: Steel plate, 1.5mm galvanised

### 6.2 Electrical data

<b>Operating voltage</b>	for 12 V DC systems (10 to 14.5 V)
<b>Current consumption</b>	Stand-by current lower than 2,5 mA
<b>Motor current</b>	EMS 03-4 can be used for step with following currents: Operating current step: approx. 3 A Motor lock current step: approx. 11 A Switch off current EMS 03-4 : 7.5 A $\pm$ 10 %

If the motor is not switch off within 5 s via the current, it is automatically switched off by the time control function.

### **6.3 Environmental data**

<b>Storage temperature</b>	-20 °C to +70 °C
<b>Operating temperature</b>	-20 °C to +70 °C

## **7 Storage - Packaging - Transport**

The adapter should only be transported and stored in suitable packaging and in a dry environment.

## **Appendix**

### **A EC Declaration of Conformity**

Schaudt GmbH hereby confirms that the design of the step control EMS 03-4 meets the relevant conditions.

The original EC Declaration of Conformity is available for reference at any time.

<b>Manufacturer</b>	Schaudt GmbH, Elektrotechnik & Apparatebau
<b>Address</b>	Planckstrasse 8 88677 Markdorf Germany

### **B Customer service**

<b>Customer service address</b>	Schaudt GmbH, Elektrotechnik & Apparatebau Planckstrasse 8 D-88677 Markdorf  Tel.: +49 7544 9577-16 Email: kundendienst@schaudt-gmbh.de
<b>Office hours</b>	Mon to Thurs 08.00 – 12.00, 13.00 – 16.00 Fri 08.00 – 12.00

<b>Send in the device</b>	Returning a defective device: <ul style="list-style-type: none"><li>▶ Always use well padded packaging.</li><li>▶ Fill in and enclose the fault report.</li><li>▶ Send it to the addressee (free of charge).</li></ul>
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