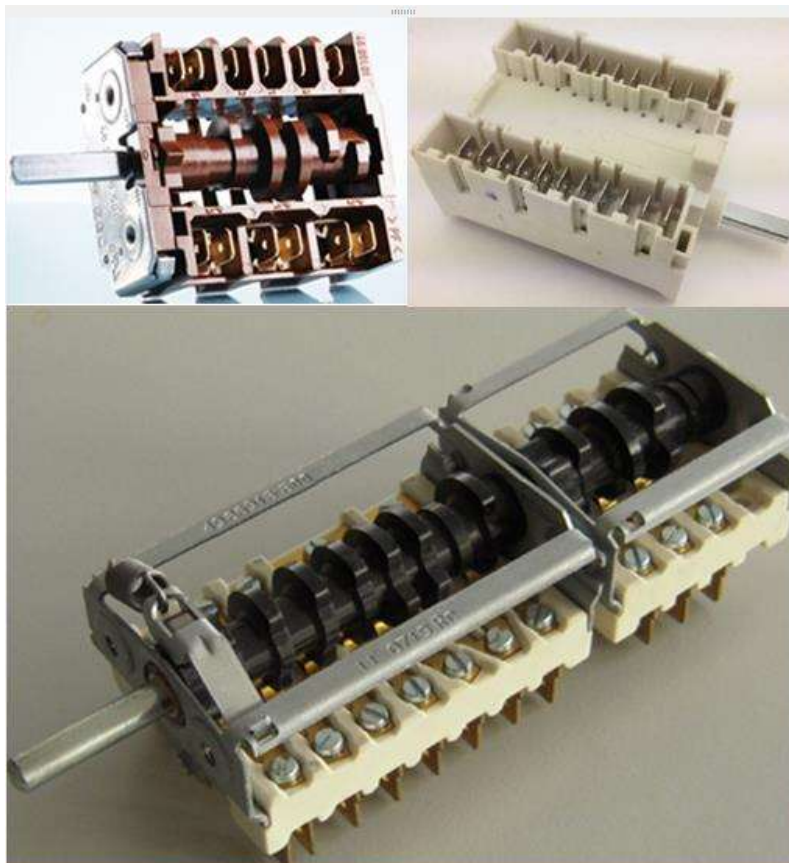

Operating Instructions



Switches 41/42/43/46/49.X

90.60159.069-001-02-A

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1 About these operating instructions

1.1 Validity

These operating instructions are for the following material number range of switches:

- 41.xxxxx.xxx
- 42.xxxxx.xxx
- 43.xxxxx.xxx
- 46.xxxxx.xxx
- 49.xxxxx.xxx

1.2 Handling of these operating instructions

These operating instructions are part of the product and describe the intended use of the product.

- ▶ Read these operating instructions, especially the safety instructions, carefully before use.
- ▶ Observe all other applicable documents.
- ▶ Keep these operating instructions during the product lifetime.
- ▶ Make sure that these operating instructions are available completely and legibly at all times.
- ▶ Pass these operating instructions to each subsequent owner or user of the product.

1.3 Revisions





Date	Version	What is new?
16.08.2021	01	Initial version
01:09:2022	02	DIN EN 60335-1 added

Tab. 1: Revisions

1.4 Other applicable documents

- Type drawing
- Approved technical data

1.5 Symbols and markings

Symbols	Meaning
✓	Requirement of an action
▶	One-step action
▷	Measure to avoid a hazard in a warning
1.	<ul style="list-style-type: none">Step withing a multi-step action listKeep order
↪	Final result of an action
	Tip for easier work
 DANGER!	Hazardous situation that will lead to death or serious injuries, if the safety measures are not followed.
 WARNING!	Hazardous situation that can lead to death or serious injuries, if the safety measures are not followed.
 CAUTION!	Hazardous situation that can lead to minor injuries, if the safety measures are not followed.
NOTICE!	Hazardous situation that can lead to property damage if the safety measures are not followed.

Tab. 2: Symbols and markings

2 Safety

2.1 Intended use

EGO Switches are used to control heating elements in hobs in domestic and commercial appliances. EGO Switches are also used as function selector switches in ovens for household and commercial use. Any other use requires the written consent of E.G.O.. Intended use also includes the following points:

- Compliance with the permissible operating conditions according to the type drawing.
- Follow these operating instructions.

2.2 Staff qualification

These operating instructions are intended for following staff / staff groups:

Staff	Required qualification
Production staff of the electrical appliance manufacturer	Has received instruction for the required activity from the electrical appliance manufacturer.
Qualified electrician	<ul style="list-style-type: none">• Knows the relevant standards and regulations for electrical installation.• Has experience in using the relevant tools and aids for electrical installation.• Has knowledge of electrical appliances.• Has received training from the electrical appliance manufacturer.

Tab. 3: staff qualification

2.3 Residual risks

2.3.1 Installation with voltage applied

If voltage is applied to the switch during installation, there is a risk of electric shock within the installation.

- ▶ The switch may only be installed or replaced by qualified staff.
The power supply to the cooking appliance must be completely switched off before any installation or replacement work is carried out on a switch.

2.3.2 Insufficient Grounding

Inadequate grounding can cause electric shock to people.

- ▶ The switch must be correctly connected and integrated into the grounding of the application (e.g., via the device housing).
- ▶ Observe the regional regulations.

2.3.3 Wrong connection

Inadequate electrical contacts can cause excessive heating. This can lead to a fire. Inadequate electrical contacts are caused, among others, by the following causes:

- Confusion of the insertion of the connecting cable.
- Unsuitable sockets or wire material.

- ▶ Observe the regional regulations.
- ▶ The switch must be connected in accordance with the operating instructions and its type drawing.
- ▶ All information in these operating instructions on cables, sockets and wire end sleeves must be observed.

2.3.4 Incorrect cable routing

Improper cable routing, e.g., directly behind the connections of the switch, can damage the cable insulation.

Open wires can cause electric shock.

- ▶ Never lay cables directly behind the connections of the switch.

2.3.5 Moisture / Parts inside

Switches are not waterproof and do not have an IP protection class (IP00). There is a risk of an electric shock if liquid enters.

Dirt and penetrating foreign bodies can lead to malfunctions.

- ▶ Make sure, that the switch cannot meet liquids.
- ▶ Switches in the cooking device must be installed in such a way that they are protected from dust, moisture and accessibility of the electrical connections.
- ▶ Observe the regional regulations.

2.3.6 Insufficient air and creepage distances

Insufficient long air and creepage distances to conductive housing parts when connecting the switch can cause electric shock to people.

- ▶ Maintain minimum air and creepage distances when connecting the switch.
- ▶ Observe the applicable standards and regional regulations.

2.3.7 Sharp edges

Packaging material and switch parts such as housings or assembly parts can have sharp edges. People can cut their hands or fingers.

- ▶ Wear safety gloves during transport and installation.

2.3.8 Use of the switch outside of the intended area of use

Using the switch outside of the cooking and baking area poses a risk of burns and electric shocks. Misuse creates the risk of fire.

Changes to the switch by customers or third parties can lead to malfunctions.

- ▶ Use the switch only in accordance with these operating instructions.
- ▶ E.G.O. is not liable for the risks caused by improperly modified switches.

2.3.9 Use of damaged switches

If switches are damaged (e.g., corrosion, housing damage, cracks), live parts can be made accessible. This creates a risk of electric shock if you touch it.

- ▶ Do not use a damaged switch.

2.3.10 Live parts

Live parts suddenly become accessible due to mechanical damage. There is a risk of electric shock due to the sudden access to live parts.

- ▶ Do not use any switches that are damaged.

2.3.11 Deformation

Mechanical deformations can lead to malfunctions or even destruction of the switch, e.g., when using fastening screws that are too long. If there is a deformation during assembly, e.g., bending of the contact springs, the switch must be sorted out.

- ▶ Note the maximum screw-in depth of the fastening screws.
- ▶ Please note the DIN EN 61210 regulation.
- ▶ Do not use any switches that are defective.

2.3.12 Too much force when attaching or removing the knob

Excessive force when attaching or removing the knob can damage the switch and cause malfunctions. The use of knobs that do not correspond to the specifications in the type drawing can result in the base-insulated metal spindle axis being exposed. This creates the risk of electric shock.

- ▶ Use knobs made of insulating material with a maximum push-on force of 100 N and a pull-off force of
 - ≥ 50 N for metal axles and
 - ≥ 30 N for plastic axles.
- ▶ Please note the type drawing and the DIN EN 61210 regulation.

2.3.13 Overheating

Overheating can cause a fire. The following factors can lead to overheating:

- ▶ Unsuitable plugs and screw connectors, conductor material or cross-section, wire end sleeves.
- ▶ Bad contact points. The contact points are to be examined in a type test for excessive heating and, if necessary, corrective measures are to be initiated.
- ▶ Increased contact resistance at the plug connection.
- ▶ Only use cables and connection material in accordance with DIN EN 61210 and make the connections properly. When inserting sleeves again, observe the manufacturer's specifications.
- ▶ Observe the applicable national guidelines.

2.3.14 Evaporation

Plastic parts and screw locking varnish (for the switch series 43 & 49) can produce toxic fumes if the permissible temperatures are exceeded.

- ▶ Risk of poisoning from evaporation.
- ▶ Do not heat plastic parts above the specified maximum temperatures. These can be found in the approved technical data.

2.3.15 Electrochemical corrosion

Electrochemical corrosion due to different material pairings or aggressive media (acids, bases, etc.) can lead to malfunctions and even destruction of the switch.

- ▶ Please therefore note the electrochemical voltage series of the materials used when selecting fastening parts.

2.3.16 Exceeding the maximum switching capacity

Exceeding the maximum switching capacity can lead to overheating of components and thus to the risk of fire.

- ▶ The switching capacities of the respective switch series specified in the approved technical data must be not exceeded.

2.3.17 Falling below the minimum switching power

Falling below the minimum switching power can lead to malfunctions in the switching function.

- ▶ Make sure that the switching capacities that are specified in the technical data for the respective switch series are not exceeded.

2.3.18 Exceeding the maximum number of switching cycles

Exceeding the maximum number of switching cycles can lead to malfunctions.

- ▶ Make sure that the number of switching cycles specified in the technical data for the respective switch series is not exceeded.

2.3.19 Temperatures too high

Exceeding the maximum permissible ambient temperature both at the switch and in the area of the housing can lead to malfunctions and even destruction of the switch.

- ▶ When designing the application observe and adhere to the maximum ambient temperature specified in the type drawing and the approved technical data.
- ▶ Observe the corresponding required constructions.

2.3.20 Temperatures too low

Falling below the minimum permissible ambient temperature can lead to malfunctions and even destruction of the switch.

- ▶ When designing the application, observe and adhere to the minimum permissible ambient temperature specified in the type drawing.

2.3.21 Blocking of the switching mechanism

Blocking the switching mechanism can lead to malfunctions.

- ▶ Never change the switching mechanism.
- ▶ Make sure that the moving parts of the switch are not blocked by surrounding components or foreign bodies.

3 Transport and storage

3.1 Transport

- ▶ Use suitable packaging to prevent damage to the product.
- ▶ Do not stack pallets.
- ▶ Maintain a temperature range of -40 °C - $+70\text{ °C}$.
- ▶ Observe the regulations for transport testing for unpacked (IEC 68-2-31) and packed components (IEC 68-2-32) as well as the vibration test for unpacked components (IEC 68-2-6) and regional guidelines.

3.2 Storage

- ▶ Observe the following storage conditions:
 - Temperature from 5 °C – 70 °C
 - Dry storage in a closed room (hygroscopic insulation material).
 - Protection against corrosion and pollution.
 - For block storage: Stack a maximum of 2 switch pallets on top of one another. The switches can only be loaded with their own weight.

4 Installation and commissioning

4.1 Mechanical installation

The switches must be installed in accordance with the specific instructions of the device manufacturer. The installation may only be carried out by qualified personnel. Use suitable screws during installation, considering the maximum length of the screw.

- ▷ Do not overtighten the screw.

4.1.1 Actuating forces / torques

Before the torque test, the switch must be actuated 2-3 times over its possible range of rotation.

1. Torque series 41.3

10 – 40 Ncm

2. Torque series 41.4 / Tact switch / Rotary angle switch

2-6 lanes 10 – 30 Ncm,
8-12 lanes 15 – 40 Ncm
16 lanes 20 – 55 Ncm

3. Torque series 42. / 46. Tact switch

2 lanes 8 – 30 Ncm
4 lanes 10 – 40 Ncm
6 lanes 10 – 40 Ncm
8 lanes 10 – 45 Ncm
12 lanes 15 – 60 Ncm
16 lanes 15 – 65 Ncm

4. Torque series 42 / Rotary angle switch

2 lanes 8 – 30 Ncm
4 lanes 15 – 45 Ncm
8 lanes 15 – 50 Ncm
12 lanes 20 – 65 Ncm
16 lanes 20 – 70 Ncm

5. Torque series 46 Rotary angle switch

0 at the next level (30 WG if available) 10 – 40 Ncm
270 to 300 WG 15 – 40 Ncm
The sleeve moves from 300 to 330 WG 30 – 50 Ncm

6. Torque series 43

30 – 85 Ncm

7. Torque series 49

- Angle of rotation 20 to 60 Ncm
- 4 stroke 20 – 60 Ncm
- 5 stroke 20 – 55 Ncm
- 6 stroke 25 – 55 Ncm
- 7 stroke 30 – 65 Ncm
- > 7 cycles 30 – 55 Ncm
- Double switch 30 – 70 Ncm

4.1.2 Ambient temperature

The ambient temperature is limited to ensure the functionality of the switches in the system. The design of the application must ensure that the ambient temperature permitted for the respective switch is not exceeded.

For all data see type drawing and document “Approved technical data”.

- ▷ Make sure that the ambient temperature is not exceeded under any circumstances.

4.1.3 Installation of the knobs

To protect the switch from damage, the forces for the knobs must be limited.

- ▷ The compressive forces for installing a knob in the axle must not exceed 100 N.

4.1.4 Uninstalling the knob

The knob is firmly mounted on the axis of the switch and must not be removed.

To ensure permanent installation of the knob on the axis, the corresponding pull-off forces are defined as follows:

- ▷ For switches with a metal axis, the pull-off force must be ≥ 50 N.
- ▷ For switches with a plastic axis, the pull-off force must be ≥ 30 N.

4.2 Electrical connection

4.2.1 Basic information on the electrical connection

- ▶ Observe the corresponding type drawing.
- ▶ Observe the cross section, insulation material and circuit diagram according to the type drawing.
- ▶ Observe national standard information on electrical connection, e.g., DIN EN 60730; DIN EN 60335-1.
- ▶ Make sure that the shape and position of the electrical connection are not changed.
- ▶ Ensure a permanent connection with low resistance.
- ▶ Maintain a sufficient air and creepage distance to conductive housing parts.
- ▶ Make sure that the switch is properly and permanently connected to the earth potential (if necessary).
- ▶ Observe the applicable national guidelines.
Do not exceed the allowed maximum forces on the blade terminal:
Radial: 20 N
Axial: 100 N

4.2.2 Note on the various connection types

Observe the following instructions for electrical connection and earthing of the switch:

- ▶ Screw connection: Pay attention to the tightening torque and the tight fit of the cable.
- ▶ Plug connection:
 - Ensure that the flat receptacle on the flat plug is firmly seated.
 - Do not bend the connection when plugging it in.

4.2.3 Ground the switch

1. Depending on the application, assess whether and which components need to be integrated into the grounding concept.
2. Establish electrical connection.
3. Observe the applicable national guidelines.

5 Maintenance

EGO switches cannot be repaired.

- ▶ A damaged switch must be replaced by a completely new switch.

6 Disposal

- ▶ Do not dispose of the switch in household waste.
- ▶ Dispose of the switch in accordance with the locally applicable regulations.

7 Technical data

Further details can be found in the type drawing and in our document “Approved technical data”.

8 Contact

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