Honeywell

ACTUATOR

LKS 310

FOR AIR DAMPERS ON MULTI-STAGE AND MODULATING BURNERS

PRODUCT HANDBOOK

APPLICATION

The LKS 310 air damper actuator is designed to be fitted to multi-stage or modulating oil and gas burners with fully closed position.

CONTENTS

GENERAL

DESCRIPTION

A synchronous motor powers an output shaft and a backlash-free cam shaft via a gear reducer.

The cam shaft operates limit and auxiliary switches. The position at which one of the limit or auxiliary switches operates can be adjusted steplessly within the operating range using the associated cam disc. Manually adjustable lever-operated cams or spindle-driven cams, which can be adjusted with a screwdriver, are available.

FEATURES

Electric actuator up to 15 Nm

- **Drive times: 3.5 ... 30 sec.**
- **Variants: - clockwise or counter clockwise rotation**
  - with integrated electronic circuitry
  - shaft version
- **Gearing can be decoupled**
- **Position indicator**
- **Easily adjustable limit and auxiliary switches**
- **Synchronous motor**
- **Particulary stable design in aluminium housing**

TECHNICAL DATA

SPECIFICATION

Type overview

Clockwise rotation [1]

Diagram [2] Nr.	Shaft [3] Nr.	Drive time [4] s	Load torque [5] Nm	Holding torque Nm	Voltage [6] V	Type	Remarks [7]
S7	5	30	15	10	230	**LKS 310-09** A 5-30 S7	
S7.1	5	15	15	10	230	**LKS 310-13** A 5-15 S7.1	
S1	5	30	15	10	230	**LKS 310-15** A 5-30 S1	
S1.1	5	15	15	10	230	**LKS 310-19** A 5-15 S1.1	Spindle-driven cam
S12	5	30	15	10	230	**LKS 310-21** A 5-30 S12	Spindle-driven cam
S7.1	5	10	10	10	230	**LKS 310-24** A 5-10 S7.1	
S7.1	5	15	15	10	230	**LKS 310-25** A 5-10 S7.1	
S6	6	15	15	10	230	**LKS 310-29** A 6-15 S6	
S12	5	7	7	7	230	**LKS 310-33** A 5-7 S12	Spindle-driven cam

Counter-clockwise rotation [1]

Diagram [2] Nr.	Shaft [3] Nr.	Drive time [4] s	Load torque [5] Nm	Holding torque Nm	Voltage [6] V	Type	Remarks [7]
S11	5	7	7	7	230	**LKS 310-16** B 5-7 S11	
S7.1	5	7	7	7	230	**LKS 310-17** B 5-7 S7.1	
S1.1	5	15	15	10	230	**LKS 310-20** B 5-15 S1.1	Spindle-driven cam
S7.1	5	10	10	10	230	**LKS 310-23** B 5-10 S7.1	
S1.2	5	13	13	10	110	**LKS 310-30** B 5-13 S1.2	Spindle-driven cam (60 Hz)
S7.1	5	15	15	10	230	**LKS 310-31** B 5-15 S7.1	
S7.1	5	10	10	10	230	**LKS 310-32** B 5-10 S7.1	

Legend

1) when viewing from direction A (see dimensional drawing)
2) see “Circuit diagrams”
3) see “Dimensional drawing”
4) at 50 Hz for 90°
   at 60 Hz, Drive times are about 20 % shorter
5) under nominal conditions
   under extreme conditions (e.g. +60 °C, 230V -15%) the torques will be 25% lower
6) +10% -15%; 50...60Hz
   at -15%; torque reduced by approx. 20% at undervoltage
7) Standard: Lever-operated cam

Technical data

Housing

- robust aluminium housing with plastic cover

Drive motor

- reversible synchronous motor

Clutch

- red lever, separates gearing from motor

Switch point setting

- stepless cam setting, lever-operated or spindle-driven cams; if spindle-driven, with superimposed scale

Position indicator

- if desired the cover can contain a window and pointer, internally via a co-running pointer and scale

Connection system

- terminal blocks

Gearing

- spur gearing, maintenance-free

Drive shaft

- steel

Fitting and fastening

- front of gear acts as contact area. Fixing from outside via M5 or M6 screws, thread in housing

PCBs

- for all electrical functions, increased conductor thickness

Mains voltage

- 230 V -15% +10%

Mains frequency

- 50 Hz or 60 Hz

Safety class

- I VDE 0631

Power consumption

- 7...15 VA

Duty cycle

- Depending on motor, 50 to 70 % in 2 minutes

Interference suppression

- N (according to VDE 0785)

Actuating angle

- 90°, in exceptional cases also larger

Mounting position

- any

Protection

- IP54, with appropriate design of the cable entries, cover without window (DIN 40050)

Cable entries

- 2 x PG11

Cable connection

- terminal block for 0.5 mm^2 (min.) and 2.5 mm^2 (max.) wire cross-section

Direction of rotation

- see “Type overview”

Torque and holding torque

- see “Type overview”

Drive times

- 3.5 ... 30 sec for 90°

Limit and auxiliary switches

- max. 7
  operation with adjustable cam discs, cams coloured in normal way:

blue	fully closed position
orange	low load
red	high load
black	spare switches for additional functions

- switching voltage
  AC 24....230 V
- switching capacity
  with inductive loads 250 VA

Ambient temperature

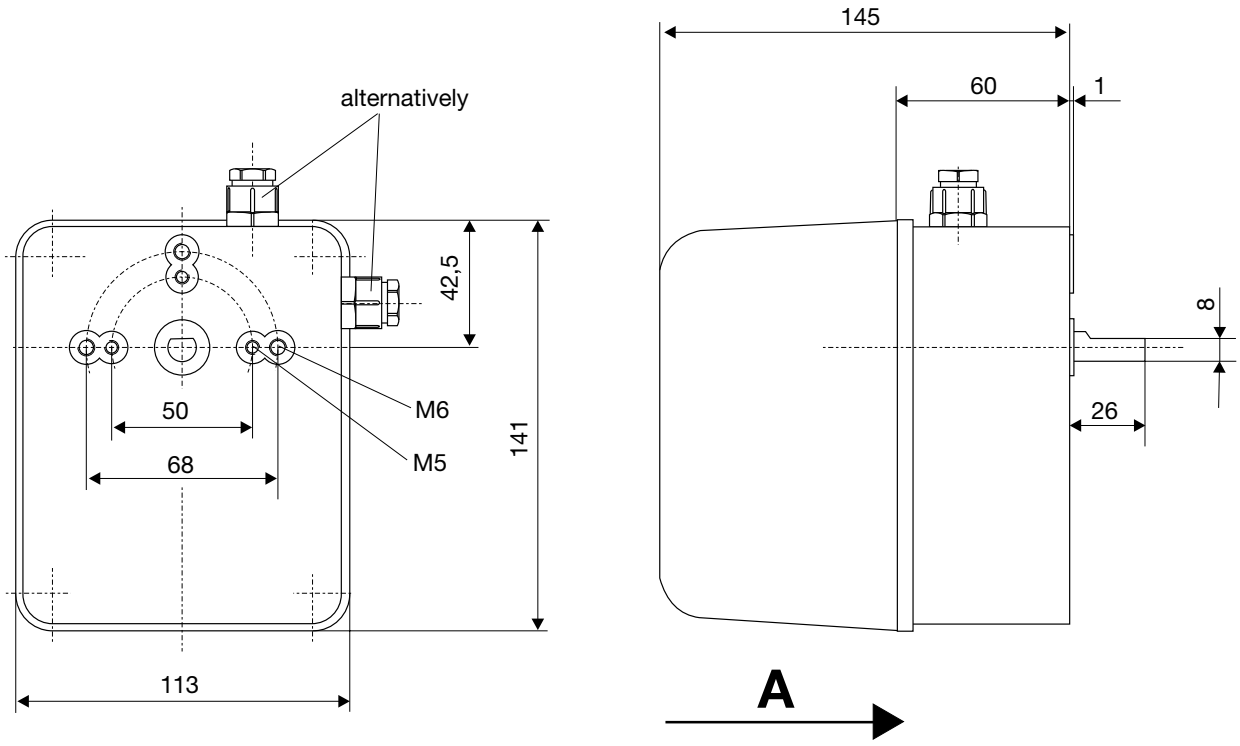
- operation 0 ... +60° C
- transport and storage -20 ... +60° C

Condensation, icing and exposure to water not permitted

Weight

- approx. 1.8 kg

DIMENSIONAL DRAWING

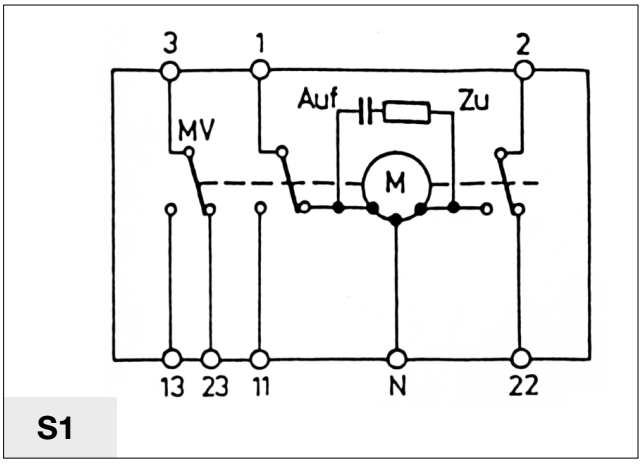


INSTALLATION AND OPERATION

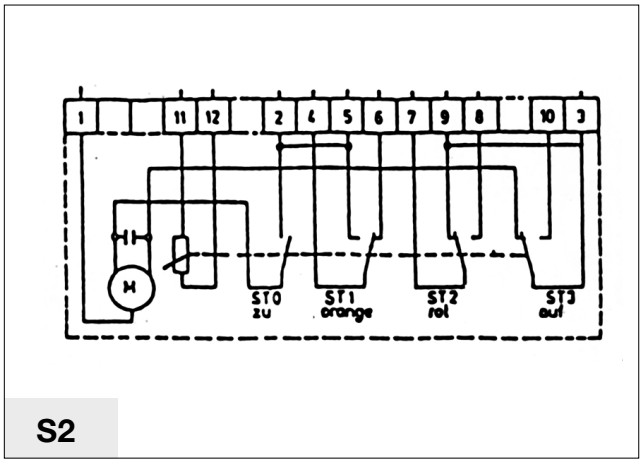
INSTALLATION AND FINAL CHECKOUT

- **The regulations and standards applicable in each particular case must be observed.**
- **Installation and commissioning must only be carried out by qualified technicians.**
- **Electrical wiring must comply with national and local regulations.**
- **Always lay the burner ignition cable separately and as remotely as possible from the device and other cables.**
- **Carefully check all cabling and wiring prior to commissioning.**
- **Disconnect the actuators completely from the power supply when working close to terminals and connections.**
- **Screw the housing cover securely in place to provide shock-hazard protection on the actuator and all electrical connections.**
- **Electromagnetic emissions must be checked on a case by case basis.**

CIRCUIT DIAGRAMS



S1



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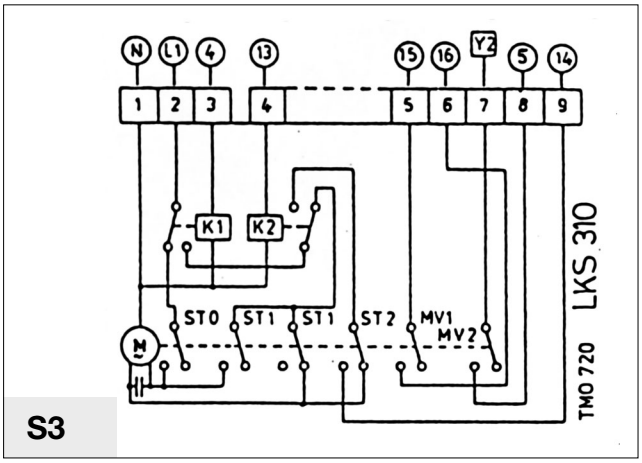

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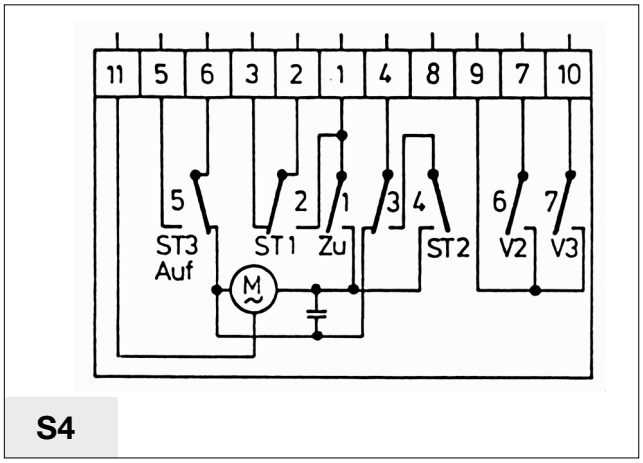

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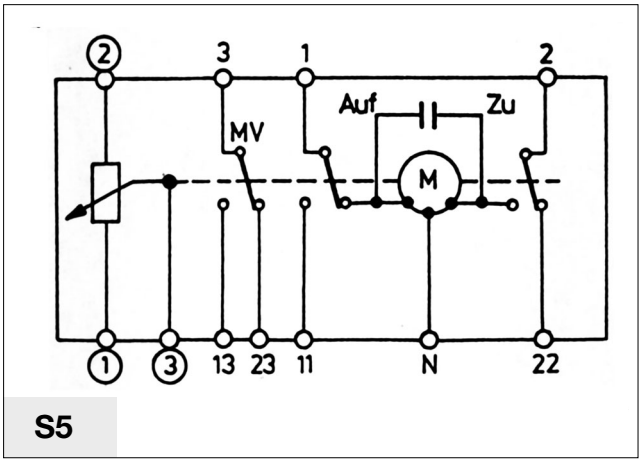

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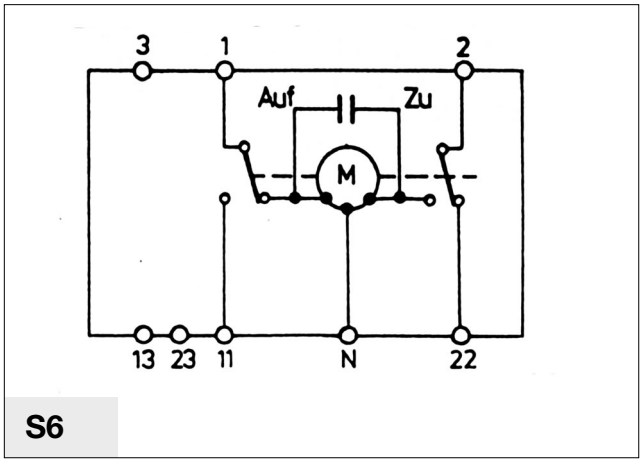

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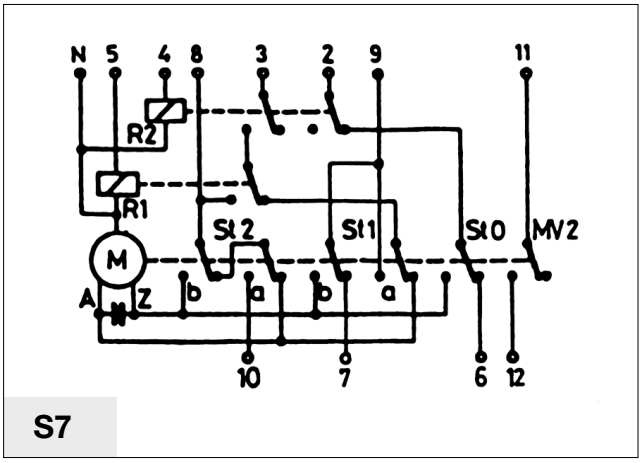

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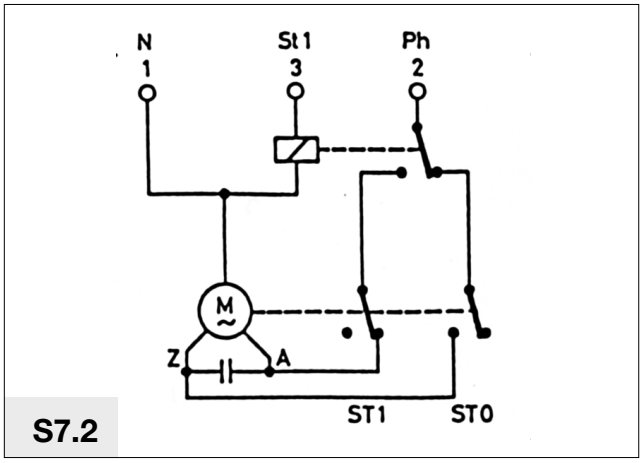
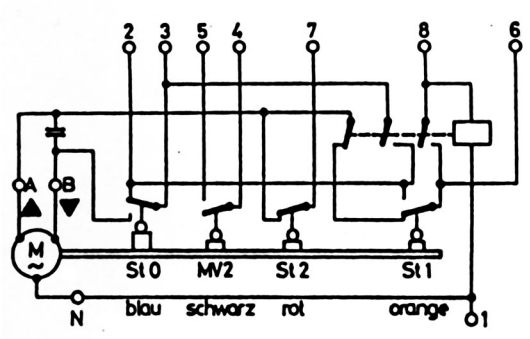


S7.2

CIRCUIT DIAGRAMS



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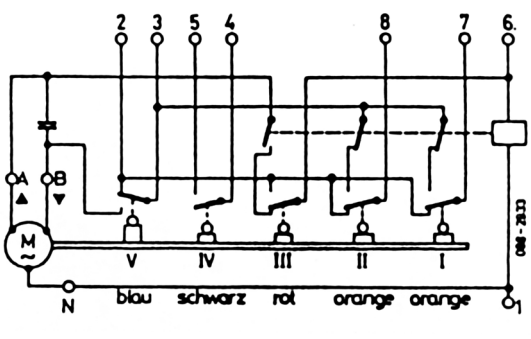

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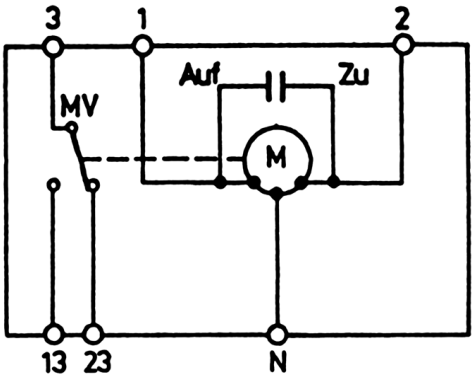

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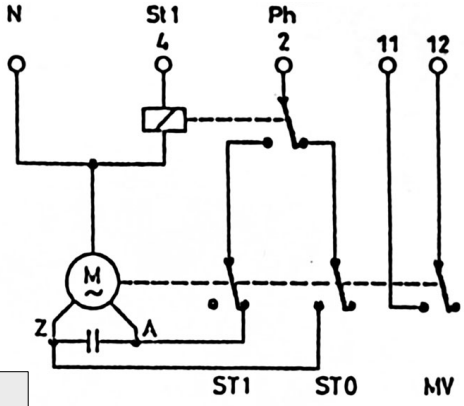

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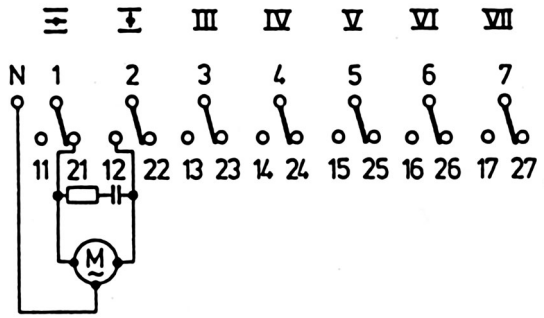

S12

VARIOUS

STANDARDS AND APPROVALS

Conformity

- In accordance with EU Directives 73/23/EU and 93/68/EU. Conforms to
  EN 60730 – 1 : 1991 A1 and A11 : 1991
  EN 60730 – 2 – 5 : 1991

ORDERING INFORMATION

Not for creation of new type

LKS 310-15 B 5 - 30 S1

Circuit version

Drive time for 90°

3,5 s	(3 Nm)	15 s	(15 Nm)
7 s	(7 Nm)	30 s	(15 Nm)
10 s	(10 Nm)		

Type of drive shaft

5 Standard shaft Ø 10, one< side bevelled to 8 mm
6 Special shaft

Direction of rotation

A clockwise
B counter-clockwise

Model

Series