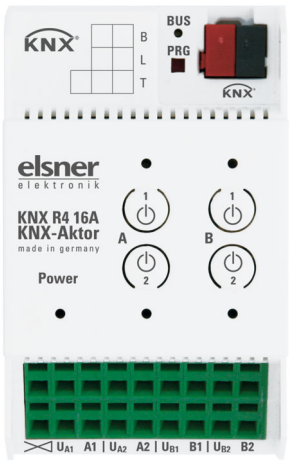
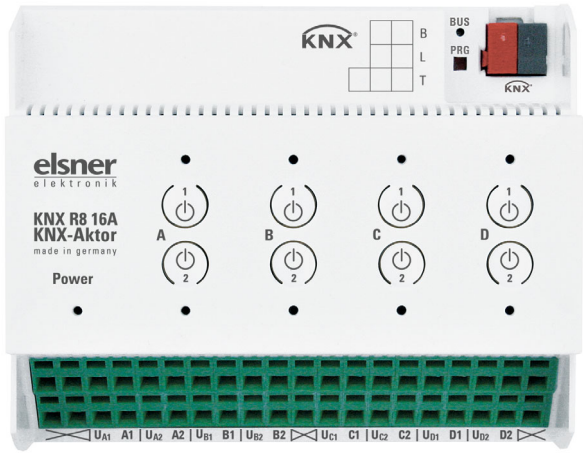
# KNX R4 16 A and KNX R8 16 A Switching Actuators

***Technical specifications and installation instructions***

Item numbers
70571 (KNX R4 16 A) 70570 (KNX R8 16 A)




## 1. Description

The potential-free outputs of the **Actuators KNX R4 16 A and KNX R8 16 A** switch consumer loads up to 16 Ampere.

Time functions such as an on/off delay or a staircase lighting function can be configured in the devices applications. Linking with AND or OR is also possible.

***Functions:***

- **Free of potential relay output** for **consumer loads** with up to 16 A.
  KNX R4 16 A: 4 individually controllable outputs.
  KNX R8 16 A: 8 individually controllable outputs.
- **Timer functions**: on and/or off delay, staircase lighting timer switch with adjustable pre-warning (light blinks prior to switch-off)

Configuration is made using the KNX software ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on **www.elsner-elektronik.de** in the “Service” menu.

### 1.0.1. Scope of delivery

- Actuator

## 1.1. Technical specification

| | |
|---|---|
| Housing | Plastic |
| Colour | White |
| Assembly | Series installation on mounting rail |
| Protection category | IP 20 |
| Ambient temperature | Operation -20…+70°C, storage -55…+90°C |
| Ambient humidity | max. 95% RH, avoid condensation |
| Operating voltage | KNX bus voltage |
| Current at the bus | operation without relay activity: 15 mA.<br>For permanent relay switching operations up to 30 mA |
| Output load capacity | • 16 A with alternating voltage, maximum 250 V AC<br>• 5 A with direct current 30 V DC<br>• UL approval up to 10 A<br>• Cable cross section 1.5 mm² to 2.5 mm² |
| Data output | KNX +/- bus connector terminal |
| BCU type | Integrated microcontroller |
| PEI type | 0 |
| Group addresses | max. 254 |
| Assignments | max. 254 |

***KNX R4 16 A (70571):***

| | |
|---|---|
| Dimensions | approx. 53 x 88 x 60 (W x H x D, mm), 3 modules |
| Weight | approx. 150 g |
| Outputs | 4 x output, free of potential,<br>each power supply U \| OUT |
| Communication objects | 37 |

***KNX R8 16 A (70570):***

| | |
|---|---|
| Dimensions | approx. 107 x 88 x 60 (W x H x D, mm), 6 modules |
| Weight | approx. 270 g |
| Outputs | 8 x output, free of potential,<br>each power supply U \| OUT |
| Communication objects | 73 |

The product is compliant with the provisions of EU guidelines.

# 2. Installation and start-up

## 2.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

**DANGER!**
**Risk to life from live voltage (mains voltage)!**
There are unprotected live components within the device.
- VDE regulations and national regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

## 2.2. Connection

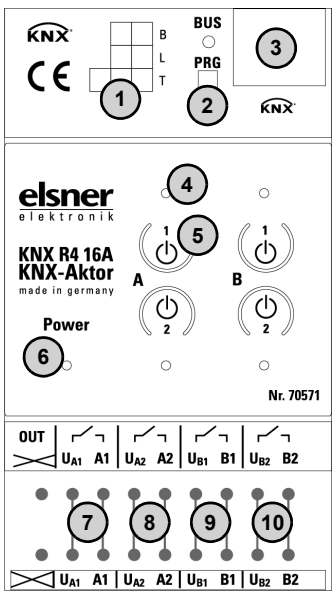



*Fig. 1 KNX R4 16 A*
*1 Labeling field*
*2 Programming LED (BUS) and programming button (PRG)*
*3 Slot Bus connector (KNX +/-)*
*4 LED output A1 (A2, B1, B2 accordingly)*
*5 Button on/off output A1 (A2, B1, B2 accordingly)*
*6 Power LED*
*7 Output A1: $U_{A1}$ (voltage) / A1 (out)*
*8 Output A2: $U_{A2}$ (voltage) / A2 (out)*
*9 Output B1: $U_{B1}$ (voltage) / B1 (out)*
*10 Output B2: $U_{B2}$ (voltage) / B2 (out)*

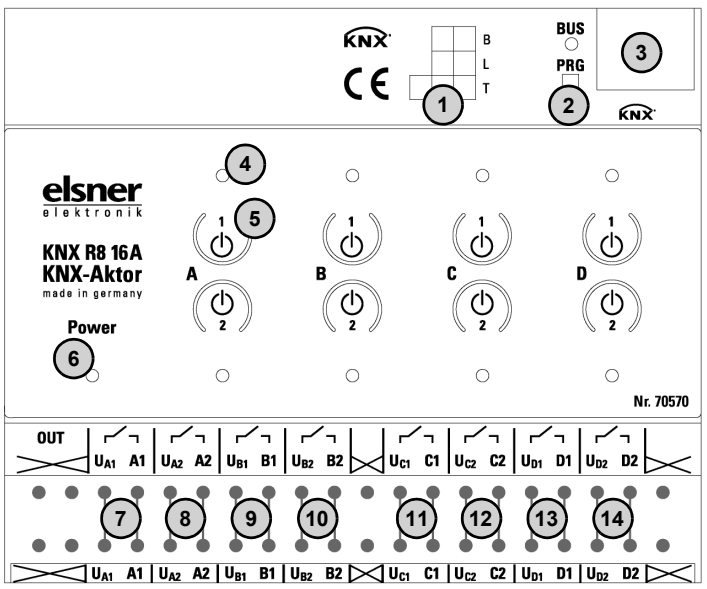



*Fig. 2 KNX R8 16 A*
*1 Labeling field*
*2 Programming LED (BUS) and programming button (PRG)*
*3 Slot Bus connector (KNX +/-)*
*4 LED output A1 (A2, B1, B2, C1, C2, D1, D2 accordingly)*
*5 Button on/off output A1 (A2, B1, B2, C1, C2, D1, D2 accordingly)*
*6 Power LED*
*7 Output A1: $U_{A1}$ (voltage) / A1 (out)*
*8 Output A2: $U_{A2}$ (voltage) / A2 (out)*
*9 Output B1: $U_{B1}$ (voltage) / B2 (out)*
*11 Output C1: $U_{C1}$ (voltage) / C1 (out)*
*12 Output C2: $U_{C2}$ (voltage) / C2 (out)*
*13 Output D1: $U_{D1}$ (voltage) / D1 (out)*
*14 Output D2: $U_{D2}$ (voltage) / D2 (out)*

The **Actuators KNX R4 16 A and KNX R8 16 A** are installed on a mounting rail (series installation). The connection is made using a KNX connector on the KNX data bus. In addition, a power supply for the connected drive or consumer is necessary (output free of potential).

**Follow the guidelines and standards for SELV electric circuits while installing and cable laying of the KNX connection and inputs!**

The physical address is assigned by the KNX software. There is a button with a control LED for this on the actuator.

### 2.2.1. Insulation properties of the clamp groups

The **Actuators KNX R4 16 A and KNX R8 16 A** are assigned to Overvoltage category III and Pollution degree 2 or 3 according to EN60664-1. According to this classification,
between 250 V power cables and FELV 4 kV surge voltage resistance and
between 250 V power cables and SELV 6 kV surge voltage resistance
must be provided. This provision must be observed during the installation.

With single insulation,
at pollution degree 2 a voltage of 400 V AC and
at pollution degree 3 a voltage of 250 V AC
is allowed between two channels.

***KNX R4 16 A:***

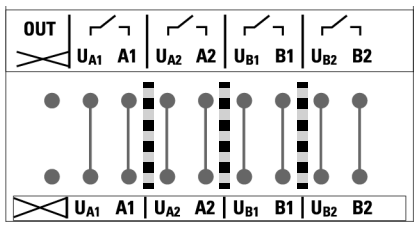



*Fig. 3 KNX R4 16 A Insulation properties of the clamp groups*
*Insulation 4 kV (single insulation)*

**Neighbouring clamp groups may not be used with mixed voltages, as there is only single insulation between them.**

Non-labelled clamps (X) may not be used, to avoid influencing the insulation properties!

***KNX R8 16 A:***

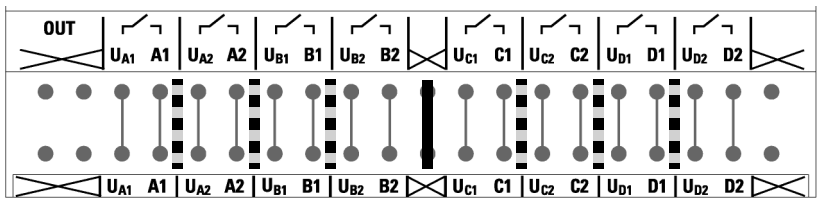
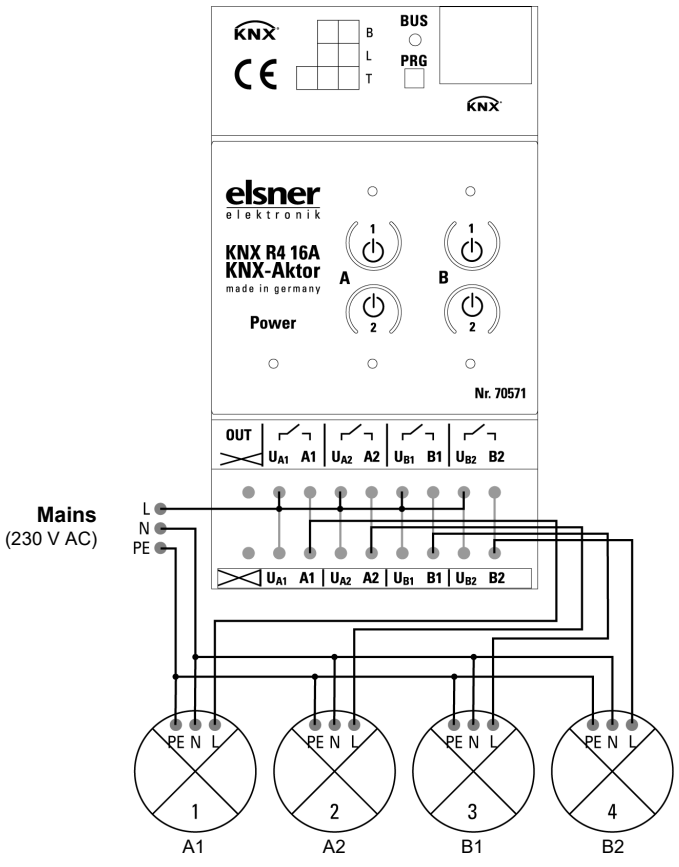



*Fig. 4 Insulation properties of the clamp groups*
*Insulation 6 kV (increased insulation)*
*Insulation 4 kV (single insulation)*

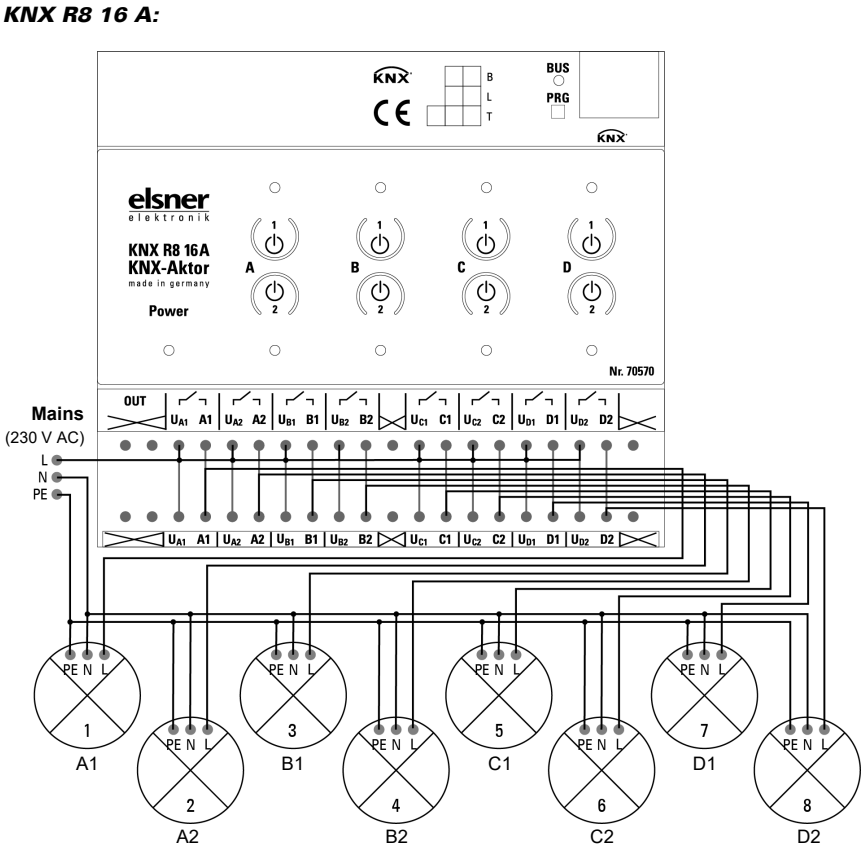
The clamp groups [A1, A2, B1, B2] and [C1, C2, D1, D2] can be used with mixed voltages, as there is increased insulation between them. Non-labelled clamps (X) may not be used, to avoid influencing the insulation properties!

### 2.2.2. Connection examples

***KNX R4 16 A:***




***KNX R8 16 A:***




## 2.3. Instructions for assembly and operational start-up.

Never expose actuators to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative air humidity of 95%. Avoid condensation.

After the auxiliary voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

## 3. Addressing of the device at the bus

The device is supplied with the bus address 15.15.255. You can program another address into the ETS by overwriting the 15.15.255 address or by teaching via the programming button.