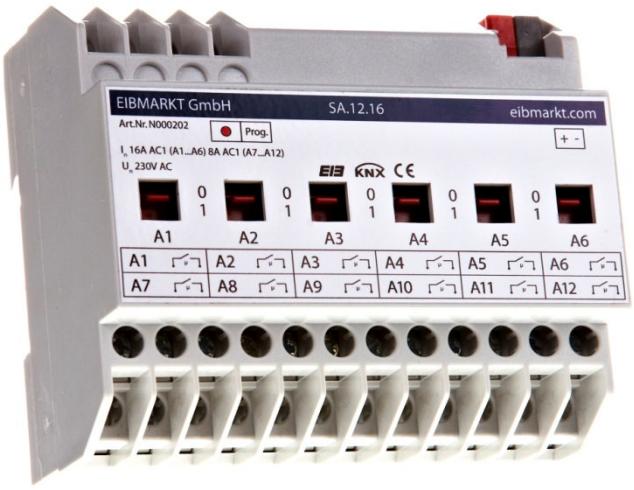


(Source: © EIBMARKT GmbH)

KNX Switch Actuator 12f.

SA.12.16 - EIBMARKT GmbH

6f. 16A, 6f. 8A (230V AC1)

Article No.: SA.12.16

Ref.No.: N000202

Power supply for this device is via bus, no other power supply is required. The switch actuator SA.12.16 receives data frames via EIB and, with its potential-free, independent relay contacts, switches up to 12 groups of electric devices. Different outer conductors can be connected to the outputs A1-A12. The SA.12.16 is a high-quality and compact device with only 6 horizontal pitches to be fixed on a 35mm DIN-rail and for installation into electric distribution systems.

High-quality relays were used for the outputs A1-A6: relays polarized latching, bistable, for capacitive load of up to 140 µF and lamp load of up to 2500 W depending on load and switching cycles. The life time of the contacts in each relay depends on the contact coating, the connected load and the frequency of operation (switching cycles). The technical data of the relay (see following text) shows examples for different loads (e.g. 2500W lamp load = 30000 switching cycles possible, with a reduction to 1250W 100000 switching cycles become possible).

Using the H-armature principle the polarised latching, bistable relays are noted for their high resistance to shock and vibrations. They are always in a defined switching position and therefore there is no loss of information in case of power failure. Turn on pulses of a few milliseconds are sufficient to ensure a secure switchover, coil heating can be neglected. The contacts can be switched manually.

The relays meet the international standards IEC and DIN EN 61810 part 1 / VDE 0435 part 201 as well as the requirements for short-term overload and short circuit acc. to IEC and DIN EN 61036 / 61037.

In connection with the ETS4-database and the application software (application) „switching, universal“, the actuator serves to switch up to 12 independent electric devices with always different functions set for each output. Different adjustments of the software permit the use of logic interconnections, switch on and switch off delays, and staircase lighting functions with adjustable switch-off warning etc. Besides the option to switch the connected devices in a defined way in case of a bus malfunction, it is possible to define the switch status even after bus recovery.
In addition to the 12 switch outputs, the device software disposes of 5 independent logic modules with 4

inputs each and 5 independent timer elements to realize time delays in order to send frames in a delayed way, or to send to other group addresses. The integrated logic functions and timer elements permit an easy sequence control without the use of specific and expensive control devices. The connection to the bus (EIB, KNX TP1) is ensured by the bus terminal which is included in the delivery. The connection to the devices is provided by integrated screw-type terminals.

Due to potential-free contacts, the outputs A1 to A6 are able to switch loads with a current of up to 16A AC1. Using the switch position displays of the outputs A1 to A6 it is also possible to switch the connected load circuits manually– **even in case of bus failure**. The outputs A7 to A12 switch loads with a current of max. 8A AC1.

Technical data:

· Energy supply/control/programming: 29V DC, bus terminal
· Control and display elements: LED red and key for programming the physical address
· Number of contacts: 12 potential-free contacts (single-pole relays)
· Outputs A1...A6 (load): 1 NO contact each with manual operation
· Outputs A7...A12 (Last): 1 NO contact each without manual operation
· Contact life time, mechanic: 1,000,000
· Contact life time, electric: 100,000/30,000 depending on stress
· Load circuits via screw-type terminals: min. Ø 0.1mm / max. 2x 2.5mm²
· Nominal voltage, load: 230V AC, 400V AC
· Max. current A1...A6 230V AC: 16A AC1, 10A AC3
· Max. current A1...A6 400V AC: 10A AC1, 6A AC3
· Max. current A7...A12 230V AC: 8A AC1, 3,5A AC3
· Repeated switching with consecutive switching processes:
  1 contact (1 relay) max. 1 sec., 12 contacts (12 relays) max. 5 sec
· Approbation/label: EMC and low voltage norm, CE, KNX, EN 50090-2-2
· Electrical safety, protection type: IP20, acc. to EN60 529
· Assembly: DIN-rail mounted, 6 HP, mounting rail 35mm, DIN EN50 022
· Dimensions: 105 x 90 x 60 (W x H x D)
· Weight: 0.4 kg
· Ambient temperature, operation: -5°C...45°C
· Ambient temperature, storage: -25°C...55°C
· Ambient temperature, transport: -25°C...70°C
· Product database ETS: Switching/Universal
· Application software: Time/Logic/Scene/Preset/Safety/Heating/Logic function/Timer element

Contact life time: 100,000 switching cycles 70µF
Electric, with the following loads
(only A1 .. A6)

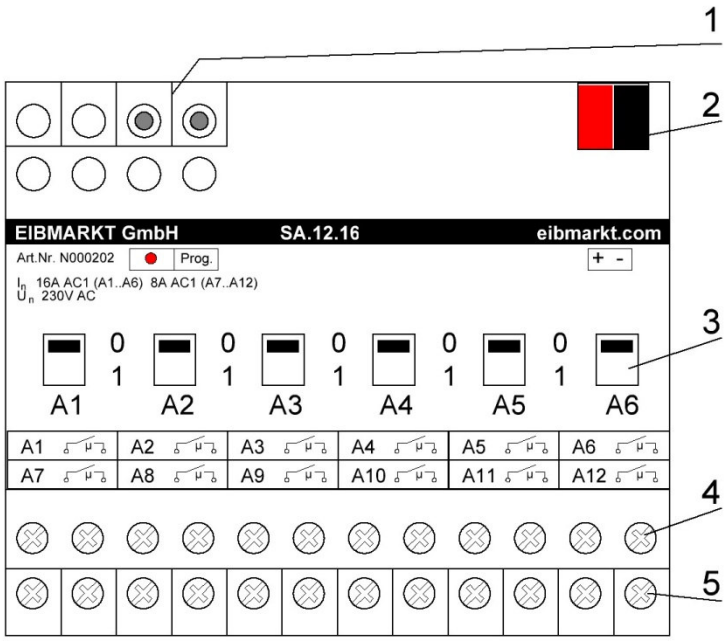
Light bulbs: 1250W
Fluorescent tubes, without compensation: 1200 W
Fluorescent tubes, with parallel compensation: 650 W (70µF)
Halogen bulb 230V AC: 1200 W
Halogen bulb with conventional transformer: 500 VA
Mercury vapour lamp or sodium-vapour lamp without compensation: 1000W
Mercury vapour lamp or sodium-vapour lamp with parallel compensation: 1000W (70µF)
Dulux lamp without compensation: 800 W
Dulux lamp with parallel compensation: 560W (70µF)

Contact life time: 30,000 switching cycles 140µF
Electric, with the following loads
(only A1 .. A6)

Light bulb: 2500W
Fluorescent tubes, without compensation: 2500 W
Fluorescent tubes, with parallel compensation: 1300 W (140µF)
Halogen bulb 230V AC: 2500 W
Halogen bulb with conventional transformer: 500 VA
Mercury vapour lamp or sodium-vapour lamp without compensation: 2000 W
Mercury vapour lamp or sodium-vapour lamp with parallel compensation: 2000 W (140µF)
Dulux lamp without compensation: 1600 W
Dulux lamp with parallel compensation: 1100 W (140µF)

Contact life time: 100,000 switching cycles
Electric, with the following loads
(only A7 .. A12)

AC1: 8A, 230VAC
AC3: (cosϕ=0.4) 3,5A, 230VAC



Connection diagram:

1. Key and LED for programming the physical address
2. Bus connection (+/-) EIB, KNX TP1)
3. Switch position display and manual operation of the outputs A1-A6
4. Screw-type terminals for connection of the load circuits A1-A6 (16A AC1)
5. Screw-type terminals for connection of the load circuits A7-A12 (8A AC1)

Application description

Selection in the ETS:

Manufacturer	„EIBMARKT GmbH“
Product category	„Output“
Product type	„Switch actuator 12-fold“
Program name	„Switching universal“

By means of the ETS4 a series of parameters and functions can be set for each output. Depending on the selection made, different adjustment options and objects are visible or invisible.

A detailed explanation of the existing functions and parameters can be found in the online Help for the ETS.

Operating Mode: Switch Actuator

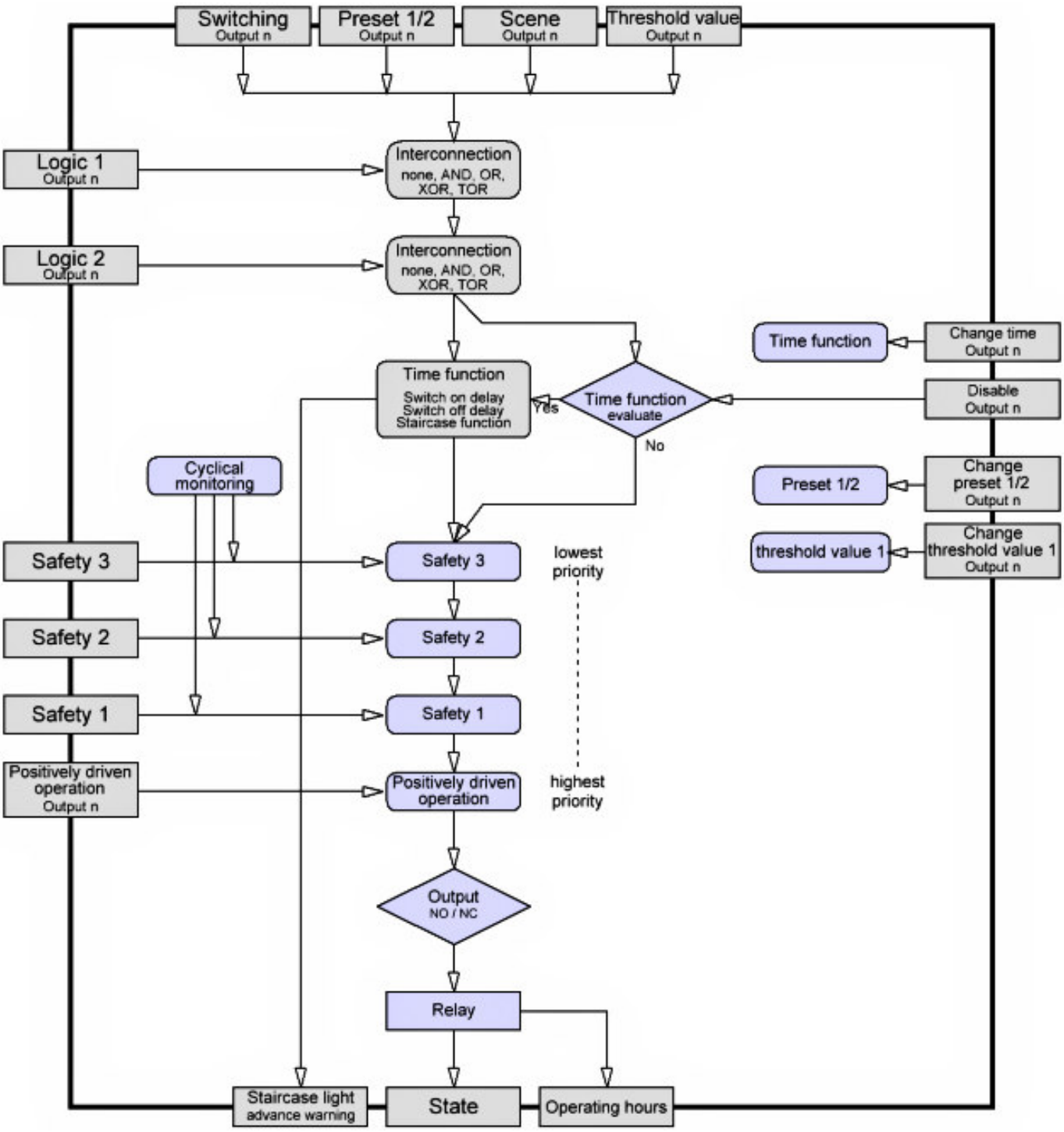
Besides the many parameters, this actuator has per channel an integrated staircase light function with switch off warning. Before the time in the actuator has elapsed you have the option to send this via a communication object to the bus. You can also choose a visual message in form of a short switch on and off feature. This function prevents that you find yourself suddenly in the dark. The time for the staircase function can be changed as preset in the actuator or via a communication object. For example, you can modify these times by means of an LCD/LED mini tableau or visualization. In addition to this function the actuator provides the usual switch on and switch off delay. Furthermore, every channel can be parameterized with operating hour counter.

For each channel two preset values can be defined that can be called up per channel through a communication object „Preset ½“. Doing so, a „0“frame calls up the respective „Preset-1 value“and a „1“frame calls up the respective „Preset-2 value“. Communication object „Change Preset ½“ serves to learn preset values via the EIB KNX Bus, insofar as this function has been activated by means of ETS parameters. Therefore, the values per channel are defined via ETS parameters. The setting can also be influenced by means of the bus using the 1bit communication object with the name „Set Preset ½“. You adjust the outputs as desired and can store and call them up by means of push button, key, visualization or touch. In addition to the preset values up to six different light scenes can be assigned to each channel. You fix the respective standard default value in the parameters and can then influence them via bus. To call up and store light scenes there is always one 1 byte object „Scene“ per channel at your disposal. Depending on the value you write into the object a light scene is released or stored in the actuator.

Every channel has the capacity for two logic gates with 4 inputs each. For these logic gates the functions AND, OR, XOR or TOR can be parameterized. The state the respective output of the gate has to assume after bus tension return can be parameterized.

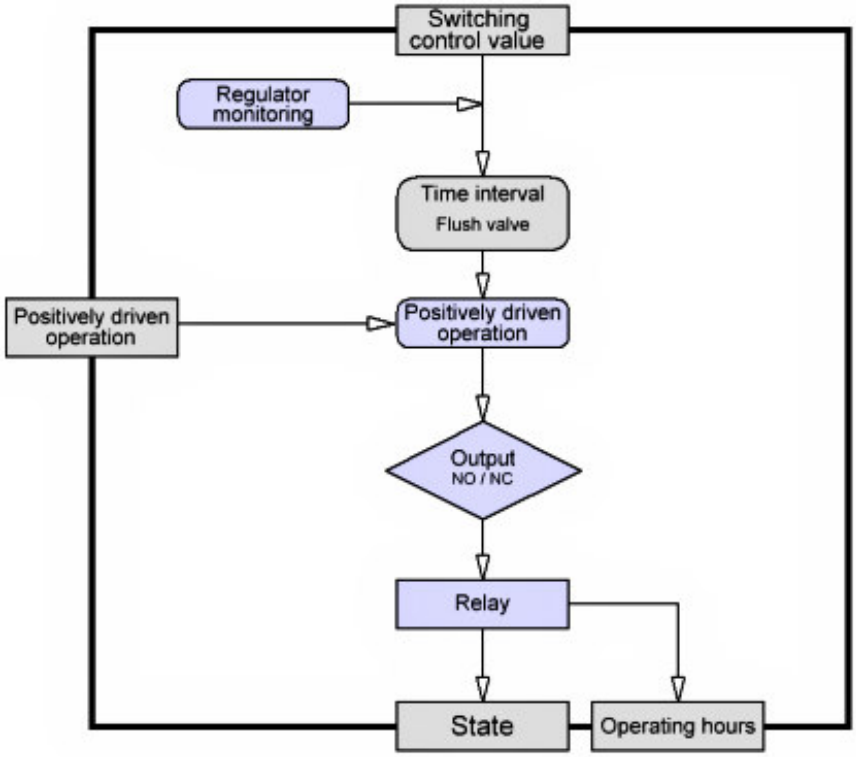
The actuator also provides a safety function consisting of three different safety priorities for special applications. The function is the same as the safety function in the blind actuators. If one frame fails, each channel can be switched individually into a defined state. A positively driven operation can also be set for each channel.

Additionally, there is a threshold value function which can be used for numerical values in 1byte/2byte format from the bus. The actuator responds to this 1 byte or 2 byte frame and switches into the desired condition. This permits to parameterize monitoring functions or to switch outside lights depending on the natural light conditions. The standard default threshold value, i.e. when and in which way the actuator has to respond, is defined by the parameters. This value can also be changed externally via bus. Object status feedback is also included.


Switching
Output n
Preset 1/2
Output n
Scene
Output n
Threshold value
Output n
Logic 1
Output n
Logic 2
Output n
Interconnection
none, AND, OR, XOR, TOR
Interconnection
none, AND, OR, XOR, TOR
Time function
Switch on delay
Switch off delay
Staircase function
Time function
evaluate
Yes
No
Time function
Change time
Output n
Disable
Output n
Cyclical monitoring
Preset 1/2
Change preset 1/2
Output n
threshold value 1
Change threshold value 1
Output n
Safety 3
Safety 2
Safety 1
Positively driven operation
Output n
lowest priority
highest priority
Output
NO / NC
Relay
Staircase light
advance warning
State
Operating hours

Operating Mode: Heating Actuator

The actuator can also be applied as heating actuator. All common heating valves can be connected and you can parameterize whether the respective valve is closed or open in power-off condition. Actuating the valves can be achieved via one bit or 1 byte. A feedback for „Heating“and the current switch condition is also integrated. The cycle times for permanent regulation can be set individually as parameters. The control signal of the external regulator (temperature sensor) can be monitored so that a failure of the control signal leads to a parameterized valve position. A positively driven operation of the control valve via a communication object is also integrated as is the function of automatic rinsing and the operating hour counter.



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