

Tronic dim actuator 1gang 500W with extension unit, Built-in (Eb) 75331005

Technical Documentation



Tronic dim actuator 1gang with extension unit Eb

Order No.
75331005

The Tronic dim actuator 1gang with extension unit for the dimming (phase control principle) and/or switching of lighting equipment. The extension unit (230 V) enables the controlling of the dim actuator and/or the sending of telegrams to other subscribers. Tronic booster units can be connected to boost the capacity.

Product family:	Illumination
Product type:	Dimmer
EIB supply:	24 V; (+6 V / -4 V)
Power consumption:	max. 150 mW
External supply:	230 V (AC)
Power consumption:	max. 4 W
Connection:	1 conductor terminal strip to 2.5 mm ²
Signal voltage inputs 1 and 2:	0 Signal: 0 - 50 V (AC) 1 Signal: 161 - 353 V (AC)
Signal current:	approx. 5 mA, to 100 mA switch on voltage.
Power consumption:	approx. 10 mW per channel
Closed contact:	max. 100 Ohm
Open contact:	min. 100 kOhm,
Length of input cable:	max. 500 m (max. 47 nF)
Nominal load of output:	20...500W With Ohmic load (resistance load) Filament bulbs HV halogen 20... 525 W LV halogen, Tronic IP 20
Protection class:	IP 20
There is both an electronic and a thermal fuse within the dim actuator to protect against overloads and overheating. Operating inductive loads is not permitted because of the phase control principle.	

Database search path

General Technical Data

Technical Information

Description of application

The dim actuator receives telegrams to dim and switch lighting equipment and can send telegrams via the extension unit. The basic brightness (lowest dimming level) can be set. A higher brightness value and a memory function can be configured for switch ON procedures. Brightness values can be received via a value object. These start dimming depending on the time or can start without a time delay. **The extension unit** can be adapted to various activation concepts and generate telegrams for switching and dimming. In the case of an overload, the actuator sends a telegram via the **Overload sensing** object.

Number of assignments:	max. 13
Number of group addresses:	max. 13

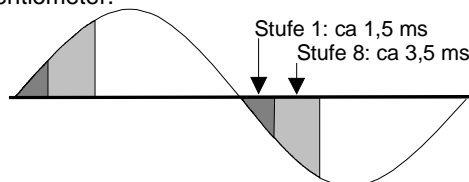
Assignments, Group addresses

	Obj	Function	Name	Type	Prio	Flag
	0	Switching	Actuator	1 bit	Auto	C W
	1	Dimming	Actuator	4 bit	Auto	C W
	2	Brightness value	Actuator	8 bit	Auto	C W
	3	Overload sensing	Actuator	1 bit	Auto	C T
	4	Switching	Extension unit	1 bit	Auto	C W T
	5	Dimming	Extension unit	4 bit	Auto	C W T

Parameters

Actuator	
Basic brightness (Dependent on the luminaire)	Levels 1, 2, 3 (Standard bulbs) , 4, 5 (Standard halogen), 6, 7, 8
Brightness at switching on: switch onto	Basic brightness, 10 %, 20 %, 30 %, 40 %, 50 %, 60 %, 70 %, 80 %, 90 %, max. brightness , last brightness value
Brightness at switching on after initialisation	Basic brightness, 10 %, 20 %, 30 %, 40 %, 50 %, 60 %, 70 %, 80 %, 90 %, max. brightness
Behaviour at receiving a value	Dim on brightness value Jump on brightness value
Time basis between 2 of 255 dim steps, base	0.5 ms , 8.0 ms, 130 ms, 2.1 s, 33 s,
Time basis between 2 of 255 dim steps, factor	3.. 33 ..255, Factor x Base = Time
Extension unit	
Extension unit configured as	Operation with one button, Operation with two buttons
Full parameter list under user level	high
Dimmig brighter by	100 % , 1/2, 1/4, 1/8, 1/16, 1/32, 1/64
Dimmig darker by	100 % , 1/2, 1/4, 1/8, 1/16, 1/32, 1/64
Telegram repetition ?	YES, NO
Time between two telegrams	Can be set at various levels between 100 msec and 2 sec
Send a stop telegram ?	YES , NO

Lighting equipment differs in their brightness responses. If mixed lighting is controlled in object areas using several dim actuators, then an even basic lighting (lowest dimming level) can be achieved. Various types of lighting equipment must each be planned for each respective dim actuator (Actuator 1 for LV Halogen only, actuator 2 for filament bulbs). After a visual examination, these can then be adapted to another by selecting the corresponding levels. Settings result in certain impulse switching times for the phase cut-off controls. Here, level 1 (approx. 1.5 msec) refers to the shortest and darkest, while level 8 (approx. 3.5 msec) refers to the longest and brightest impulse switching time. These possible settings can be compared with a software-driven potentiometer.



The parameterised status (brightness in %) starts up as soon as a switching command is received. The value is held within the RAM or updated and reset following a re-start in the parameter setting **Last brightness value**.

This parameter is only effective in connection with the setting Switch onto last brightness value!

An initialisation is performed after switching on the system voltage, following a manual reset step and after programming. All the entries in the RAM are lost then. The switch on response is then defined by the parameter settings.

When the **first switching command** (group address) is received after a reset, the lighting equipment assumes the status set in the parameters. All other switch movements are performed in the mode for the **Last brightness value**.

Behaviour at receiving a value:

Object 2 enables the receiving of brightness values via appropriately designed sensors (e.g. push buttons, IR multifunction push buttons, light scene push buttons or binary inputs). If the actuator receives a corresponding telegram, then the value is set depending on the preset parameters. **Started running** means that the value was set without a time delay. The value set for the time (e.g. **Factor 5 x 4 ms x 254 = approx. 5 seconds**) is **dimmed** by the parameter

**Basic brightness
(Depending on
luminaire)**

**Brightness at
switching on:
Switch onto**

**Brightness at
switching on
after
initialisation**



**Effectiveness of
the parameter**

**Behaviour at
receiving a value**

Time between 2 of 255 dimming levels).

Timed functions to control the operating unit are held within the EIB and are under the control of the actuators (e. g. Dimming speed, ON / OFF delays etc.).

Each dimming range (100 %) is broken down into 255 levels. The dimming speed can be set individually in the parameters ***Time between two dimming levels (Basis x Factor)***.

**Basis / factor for
dimming speed**

**Parameterisation
instructions**

The basic brightness serves to differentiate between the switching status (on/off) from the lowest dimmer setting of the lighting equipment (VDE requirement).

Basic brightness

The *transmit Flag* (Transfer flag) prepares the transmission of the switching status to the bus. If the *transmit-Flag* (Transfer flag) is set in the *Switch* object, then a telegram will be sent after switching on **or** dimming the lighting device.

The first group address of the switching object (sending) becomes active as the target address. All the bus subscribers with a corresponding address will adopt the information and switch, e.g. ON.

The actuator therefore becomes the telegram source.

Dimming OFF is not possible as the basic brightness restricts the lowest dimmable area. Switching off other bus subscribers during proper dimming operations is not possible.

Note: The transmit Flag (Transfer flag) may only be set in one dimming actuator within a group!

**Setting of flags
Transfer (T)
within object 0
Switch/Status:**

**Setting T flag
only in one
actuator!**

Description of parameters

Object 2 supports the processing of 8 Bit (1 BYTE) information. In addition to the function *Value transmitter* function (values in the range between 0 – 255 correspond to a certain brightness), the *light scene* function is connected to this object. Here one must ensure that the output address (group address of the light scene push button) is entered in the object as the **first (sending) group** address.

Furthermore, the **R-Flag (Read Flag) must be** set to support the light scene function. If several dimming actuators are gathered together at this output address, then the flag may only be set **in one** actuator.

**Object 2:
Brightness value**

**For light scenes:
- sending group
address
- T flag set at
one output**

Special Function – Overload detection:

The Tronic dimming actuator is equipped with electronic and heat-sensitive fusible links to protect against overloads. If the dimming actuator detects an overload, then automatic current restriction switches on (lighting becomes darker). If this condition remains for longer than 7 seconds, then the output is switched off.

This status change is monitored by Object 4, which generates a telegram with a value of 1. Once another minute has passed, the actuator checks the output status again and switches back on – as a result, the procedure is repeated if there is still an overload situation present.

If no further overload is registered for a period of approx. 2.5 s, then the actuator resumes normal operation and acknowledges this by sending a telegram with a value of 0 via Object 4.

Operations using the extensions are possible during the time the overload protection is active. The function can be used for message and visualisation purposes.

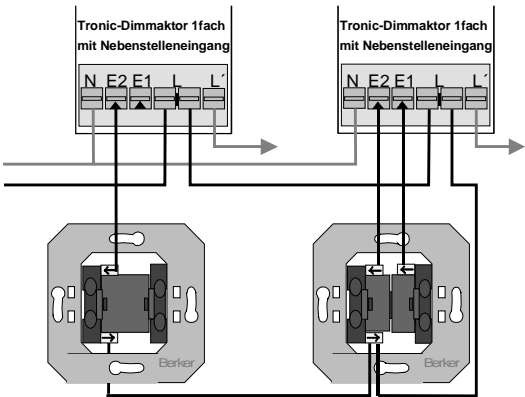
**Object 4:
Overload
detection**

Extension function

Extension inputs (E1 and E2) are used to connect conventional **push-button switches (closers)** to generate switching and/or dimming commands. An addressing difference can be made between series or simple push-buttons (closers) is possible by setting the parameters.

**Configuration as
- two area
operation,
- one area
operation.**

Application example:



Activation concept depending on operating element:

One area operation:	Two area operation
E1: blocked!	Brief activation = Switch on
	Extended activation = Increase dimming
E2: Brief activation = Switch	
Extended activation = Dim	Brief activation = Switch off
(both in switch by / dim by function)	Extended activation = Decrease dimming

Extension function

The extensions are managed by separate objects. This has the advantage that the extension function can be used both for **only internal** and **internal and external** as well as **only external**.

An **internal use** exists if actuator object 0 (switch 1 Bit) is assigned to the same group address as Object 4 (switch 1 Bit) for the extension. The same applies for objects 1 and 5 (dimming object 4 Bit actuator or extension function). **Only internal use** exists if the group address that is used is not assigned to any other system subscribers.

The dimming function can be broken down into two different operating concepts because of the parameter settings. One function resembles that of a conventional pushbutton dimmer and the other resembles an area dimming function.

The standard settings (100%) are prepared for the pushbutton dimming function. Other settings result in a dimming procedure for the preset dimming area.

These parameters should only be used in connection with area dimming.

The setting **Telegram repetition ON** in connection with the setting **Time between telegrams** results in a send repetition of the command **Dim by..** for the duration of the activation. As a result, several partial sections (e.g. 6%) of the total dimming area can be performed one after the other (See Appendix for further instructions).

In the standard setting, **Send stop telegram: ON**, a stop telegram is send after an action is initiated and the dimming process is stopped immediately.

The setting **OFF** should only be used in connection with the *Area dimming* operating concept. As a result, the current partial area (e.g. 2nd partial area 6%) is set up to the marginal value of the next area (12% limit to 3rd partial area 6%) (See Appendix for further instructions).

Actuator objects
0/1 Extension
objects 4/5

Dim brighter by
Dim darker by

Telegram
repetition/
Time between
telegrams

Send stop
telegram