ALTENBURGER

ELECTRONIC GMBH

Competence in lighting controls

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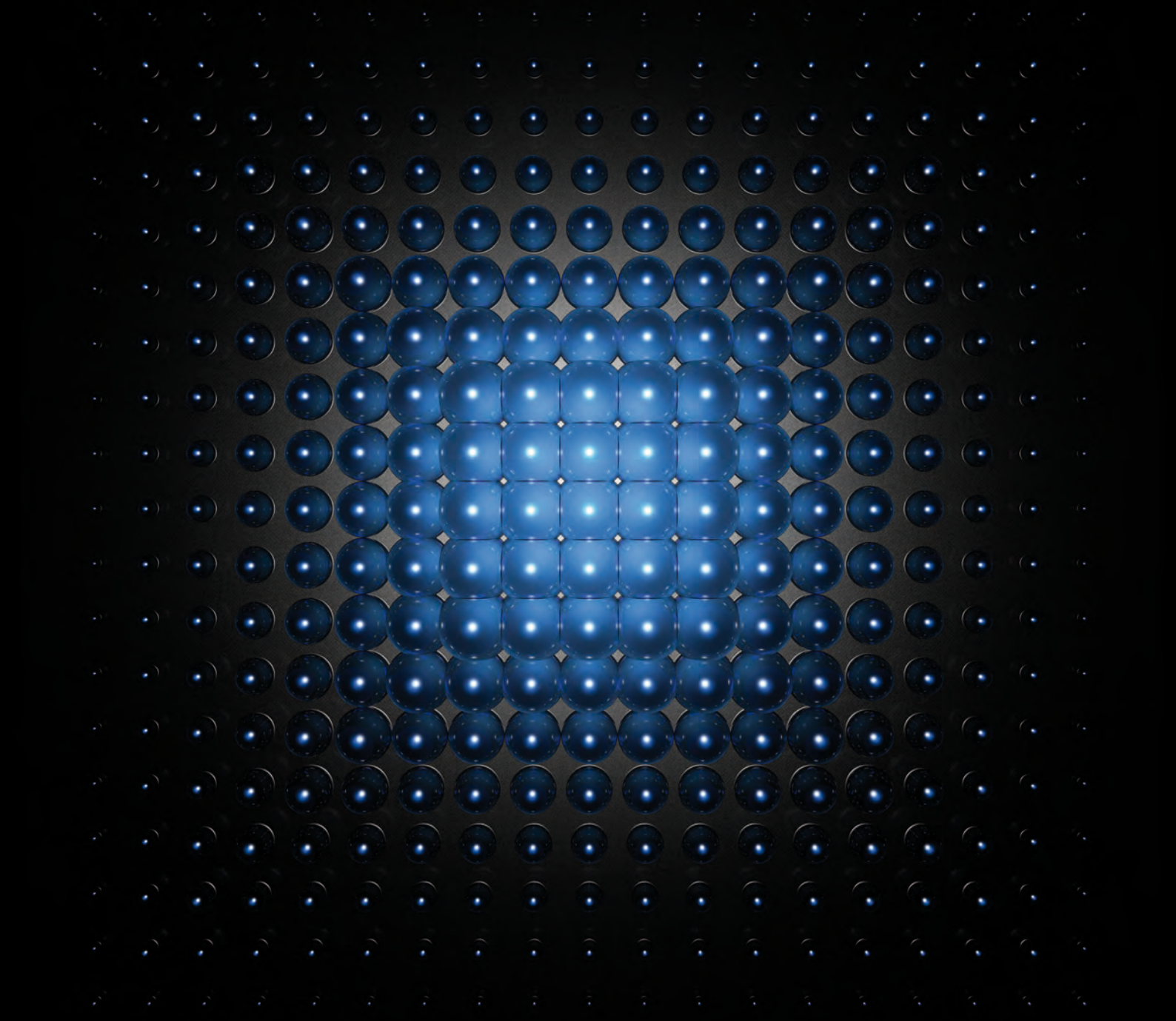
Dimmers and lighting controls for dimmable power LEDs



The lighting control of dimmable power LEDs (230V)

Along with the increasing numbers of dimmable power LEDs also the requirements for dimmers are increasing.

The types of suitable dimmers are depending on the individual characteristics of each dimmable LED, its make and type. Conformities can not be assumed. In one however all LEDs are identical: The required dimmer load capacity exceeds the rated power of the LEDs multiple.

The dimmer capacities must be in line herewith. Our smallest dimmers consequently have a load capacity of 800VA.

For higher loads DIN rail dimmers with a load capacity of up to 2 KW or dimmers for control boards (backplate mounted) with load capacities of 2,3,5 and 8 KVA are available. All dimmers in conventional or KNX design, applicable also in combination with multi-sensor dimmers, operating in dependence of the daylight and presence detection for automation in lighting.

All dimmers are suitable also for the control of individual dimmable power LEDs e.g. for office/workplace and table lamps.

The range of our dimmers covers the requirements of all dimmable power LEDs being on the market until 2011. If required we would inform which type of dimmer applies to which make and type of LED.

(The wiring of dimmable power LEDs requires great care. A not so tight contact may be excused by a bulb not so by an LED.)

Dimmers for LEDs to be controlled in the phase-controlled mode (leading edge mode) or phase-interval controlled mode (lagging or trailing edge mode) can be used likewise for incandescent lamps, high-voltage halogen lamps, low-voltage halogen lamps with wire-wound transformers or electronic transformers – where applicable.

Power LEDs may be operated according to manufacturers instructions. The dimming mode, dimming range and load capacity of dimmers depend on these instructions. An inappropriate operation can cause flickering of the lighting, as well as LED and dimmer failures.

Lighting controls for dimmable Power LEDs (230V)

Illustration	Specification	Type	Order-No.

ALTOQUICK (AQ) load dimmer DIN rail mounted for dimmable power LEDs (230V), suitable also for incandescent lamps, high-voltage halogen lamps, low-voltage halogen lamps with wire-wound or electronic transformers (please observe mode of control).

Conventional dimmers

Leading-edge mode

AQ load dimmer
10A 2KW/KVA — **AQ 2 KW** — 50.13.210

Lagging-edge mode

AQ0 load dimmer
6A 1,4 KW/KVA — **AQ0 1,4 KW** — 50.13.111

The load dimmers can be controlled with an external potentiometer, up to a distance of 100 m. The internal potentiometer in this case has no function.

Rotary potentiometer with integrated rotary ON/OFF switch for wall-recessed housings (55mmØ) with coverplate and knob. — **DPU** — 50.01.021

As before, however with pushbutton — **DPUT** — 50.01.022

Optional customary pushbuttons

Several of the aforementioned dimmers (up to 40) commonly can be controlled by a master control.

Master control — **AQS** — 50.13.012

Illustration	Specification	Type	Order-No.

AQ 1500-MFU Multi-function-Universal Dimmer

AQ load dimmer
6,5A 1,5 KW/KVA
(leading-edge and lagging-edge controlled mode)

AQ 1,5 KW 50.13.000

The AQ 1500 MFU provides:

- An electronic current limitation (in case of switch ON-/Overload- and short circuit currents).
- Load reduction if the maximum permissible temperature is exceeded. Switch ON again as soon as max. temperature is achieved again.

For LEDs the selection of the load mode (leading or trailing edge) depends on the characteristic of the LEDs. The selection is made manually at the universal dimmer.

In the AQ 1500 MFU the following pushbutton control functions are integrated:

- **1-pushbutton dim-function**
  with a short touch (50-400ms) lighting is switched ON and OFF. Longer pressing the button (>400 ms) lighting continuously dims brighter or darker. When releasing the button lighting stops at the respective level. This level can be stored with a double click. The fade time can be set between 1 and 60 sec. with a potentiometer at the face plate of the dimmer.
- **2-pushbutton dim-function**
  one pushbutton for ON/BRIGHTER, the second one for DARKER/OFF. With a short touch (50-400ms) lighting is switched ON or OFF. By continuously pressing one of the buttons lighting goes within the set fade time into its brightest or darkest level. By pressing both buttons during the fade the respective light level is stored. With the ON/BRIGHTER button the set light level after OFF is achieved again. The fade time also in this functioning mode can be set between 1 and 60 sec. with a potentiometer at the face plate of the dimmer.
- **Scene setting**
  with 2 additional pushbuttons 2 more scenes can be set. The scenes are set by pressing one of the pushbuttons BRIGHTER or DARKER, releasing the button at the required light level and pressing one of the two buttons (preset) for 5 sec. The lighting blinks after the light level is stored. The same is made with the second preset button.
  Maximum or minimum light levels not to be exceeded can be set at the maximum/minimum trimmer potentiometer at the front plate of the dimmer.

Pushbutton panels for the different control modes of the AQ 1500-MFU

1-pushbutton function
Brighter-darker ON/OFF with the setting of one light value which will be achieved again after switch OFF.

CTM1T 50.01.320

2-pushbutton function
On/brighter–darker/OFF with the setting of one light value which will be achieved again after switch OFF.

CTM2T 50.01.321

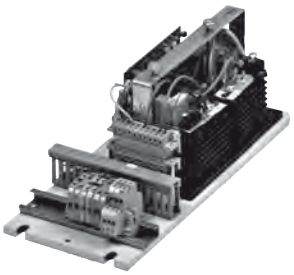
4-pushbutton function
On-Brighter-darker-off with the programming of 2 light values.

CTM4T/U 50.01.354

Illustration	Specification	Type	Order-No.

TH load dimmers for dimmable power LEDs (230V), suitable also for incandescent lamps, high-voltage halogen lamps, low-voltage halogen lamps with wire-wound or electronic transformers (where applicable).

For the backplate mounting in cabinets



Leading-edge mode

Plug-in modules with terminal plate and separate function part.	**TH 2 KW/KVA**	51.02.000
	TH 3 KW/KVA	51.02.001
	TH 5 KW/KVA	51.02.002
	TH 8 KW/KVA	51.02.003

Lagging-edge mode

Design as before	**TH 2 KW-0**	50.02.100

The load dimmers can be controlled with an external potentiometer, up to a distance of 100m.

Rotary potentiometer with integrated rotary ON/OFF switch for wall-recessed housings (55mmØ) with coverplate and knob.	**DPU**	50.01.021
As before, however with pushbutton	**DPUT**	50.01.022

Optional customary pushbuttons

Remote controls for the aforementioned load dimmers AQ and TH

The NS2-X is suitable for the common control of up to 40 dimmers of the types AQ and TH. It has 4 potentiometers for the following settings. • Adjustment of the maximum brightness, not to be exceeded. • Adjustment of the minimum brightness, not to be fallen below. • Delay time **BRIGHT** (fade time into the brightest position). • Delay time **DARK** (fade time into the darkest position).	**NS2-X**	50.13.030

Remote control panel with the functions BRIGHTER-DARKER-ON/OFF	**CTM3T**	51.01.322

Illustration	Specification	Type	Order-No.	Price/Piece (Euro)

LED/KNX dimmers

ALTODIM KNX/LED dimmers, DIN rail mounted for dimmable power LEDs (230V), suitable also for incandescent lamps, high-voltage halogen lamps, low-voltage halogen lamps with wire-wound and electronic transformers (where applicable) (leading-edge or lagging-edge mode).

Leading-edge type

ALTODIM 2000 (2000W/VA)	**IBDA 2000**	80.13.063

Lagging-edge type

ALTODIM 1400-0 (1400W/VA)	**IBDA 1400-0**	80.13.064

Universal dimmer,
for Leading-edge and lagging edge control mode

ALTODIM 1500-U (1500W/VA)	**IBDA 1500U**	80.13.070

LED Dimmers as before, however programmable with an internal memory for up to 25 scenes.

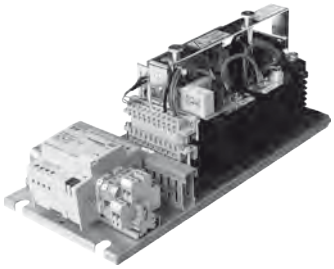
Leading-edge type

ALTODIM 2000/P (2000W/VA)	**IBDA 2000/P**	80.13.163

Lagging-edge type

ALTODIM 1400-0/P (1400W/VA)	**IBDA 1400-0/P**	80.13.164

LED-KNX dimmers for the backplate-mounting with integrated dim-actuator



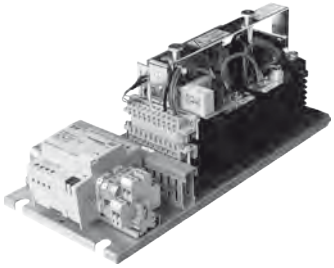
Leading-edge mode

KNX TH 2 KW/KVA	**TH KNX 2 KW**	51.02.000
KNX TH 3 KW/KVA	**TH KNX 3 KW**	51.02.001
KNX TH 5 KW/KVA	**TH KNX 5 KW**	51.02.002
KNX TH 8 KW/KVA	**TH KNX 8 KW**	51.02.003

Lagging edge mode

KNX TH 2 KW/KVA-0	**TH KNX 2 KW-0**	51.02.100

Programmable LED-KNX dimmers for the backplate-mounting with internal memory for up to 25 scenes.



Leading-edge mode

KNX/P TH 2 KW/KVA	**TH KNX/P 2 KW**	80.02.000
KNX/P TH 3 KW/KVA	**TH KNX/P 3 KW**	80.02.001
KNX/P TH 5 KW/KVA	**TH KNX/P 5 KW**	80.02.002
KNX/P TH 8 KW/KVA	**TH KNX/P 8 KW**	80.02.003

Lagging edge mode

KNX/P TH 2 KW/KVA-0	**TH KNX/P 2 KW-0**	80.02.100

Illustration	Specification	Type	Order-No.	Price/Piece (Euro)

LED wall-recessed dimmers for dimmable power LEDs for 55 mm Ø housings or for DIN rail systems. The dimmers have a load capacity of 800VA. They are also suitable for the control of incandescent lamps, high-voltage halogen lamps and low-voltage halogen lamps with wire-wound transformers where applicable.

	wall-recessed dimmer module with rotary ON/OFF switch, 800VA, without coverplate and knob in combination with customary coverplates and knobs. Shaft = 4 mm Ø		**EHR 800VA**	50.06.100
	As before, however with ALTOFLEX-coverplates Shaft of = 6 mm Ø		**EHR 800VA**	55.06.000
	Wall-recessed dimmer, 800VA with rotary potentiometer with rotary ON/OFF switch, including coverplate and knob.		**ERR 800VA**	50.06.000
	Dimmer for DIN rail systems 800VA, with rotary ON/OFF switch, including housing and knob.		**ERR 800VA/NV**	50.06.012
	Trapeze formed table dimmer with a load capacity of 400VA and rotary potentiometer with rotary ON/OFF switch.		**TD-Trapeze 400VA**	50.08.004
	Multi-Sensor-Dimmer (MSD) operating in dependence of the daylight and motion. Design: Ceiling mounted. The MSD operates the dimmable power LEDs in combination with the aforementioned load dimmers type AQ and TH.		**MSD**	50.13.500
	As before, however ceiling recessed design with flat coverplate (90 mmØ).		**MSD/R**	50.13.500 R

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