

# ALTOQUICK (AQ)

Dimmers (0-10V) up to a load capacity of 2 KW for DIN rail systems

# ALTOQUICK-S (AQ-S)

Dimmers (1-10V) for electronic ballasts and transformers with 1-10V interface for DIN rail systems



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# The AQ-Lighting control system operates:

In the **phase-control** mode (leading edge):

- Incandescent lamps
- High voltage halogen lamps
- Low voltage halogen lamps with wire-wound transformers
- Neon lamps with high-voltage transformers



Leading edge dimmers AQ-2 kW/kVA

In the **phase-interval control mode** (lagging edge):

- Low voltage halogen lamps with electronic transformers
- Incandescent lamps
- High voltage halogen lamps



Lagging edge dimmers AQ-0 1,4 kW/kVA

As **universal-dimmer** (with automatic load identification):

- Incandescent lamps
- High voltage halogen lamps
- Low voltage halogen lamp with wire-wound transformers
- Low voltage halogen lamps with electronic transformers
- Neon lamps



Universal dimmer AQ 1500-MFU 1500 W/VA

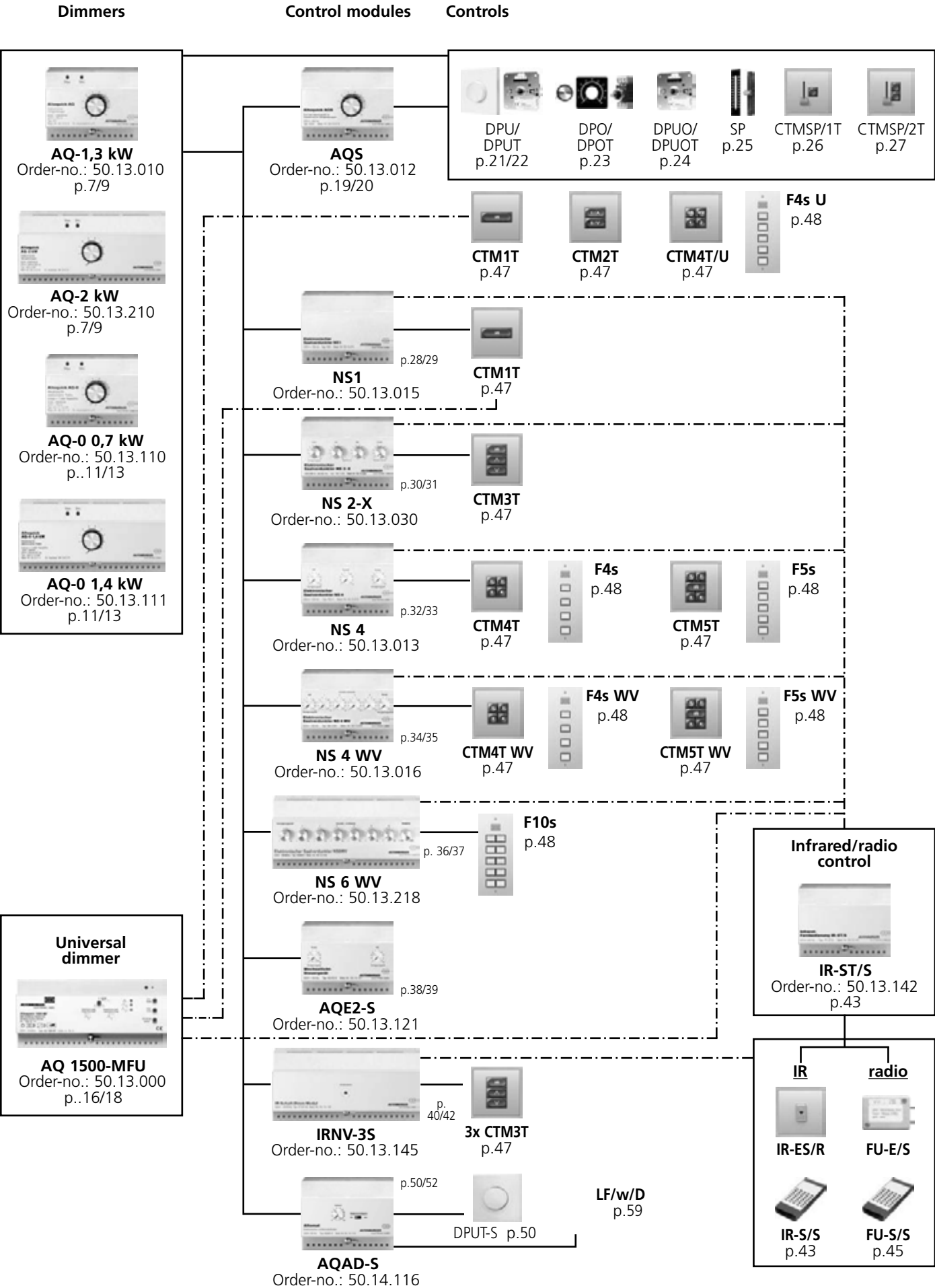
## AQ-dimmers

### Technical details for AQ-1,3 and AQ 2,0 KW dimmers

1. The dimmers are mounted to the C-profile on DIN rail systems.
2. The function module is plugged onto a mounting plate with terminal blocks, allowing a pre-assembly – without the function module.
3. Interference suppression according to VDE 0875/N
4. Protection through MCB's (to be mounted separately):  
AQ 1,3 KW 6A (K/L/B/C/G)  
AQ 2,0 KW 10A (K/L/B/C/G)
5. Power dissipation < 1,5 % of the respectively connected load.
6. Max. ambient temperature = +45°C
7. Integrated rotary potentiometer with left hand ON/OFF switching. On demand the potentiometer can be separated and mounted up to a distance of 100 m.
8. Up to 3 AQ dimmers commonly can be controlled with 1 potentiometer without any additional component.
9. Control voltage = 0-10 VDC
10. Into the panel face of each AQ-dimmer 2 trimmer potentiometers are inserted: 1 for the adjustment of the minimum brightness being required, the other one for the adjustment of the maximum brightness.
11. Overload protection reducing the dimmer output in case of inadmissible high temperatures.
12. 14-pole terminal block (AQ-1,3 KW) or 24 pole terminal block (AQ 2,0 KW). Range of wire sections = 0,5 mm<sup>2</sup> - 4,0 mm<sup>2</sup>.
13. The function module is plugged onto the base with the terminals and secured with a sealed screw.
14. Protected blade contacts are connecting the dimmer base with the function module.
15. AQ-dimmers with different load capacities can be distributed to different phases.
16. All AQ dimmers and control modules are compatible to all other ALTENBURGER Dimmers up to an individual load capacity of 3x8KW/KVA.
17. With the combination of different control modules the AQ-dimmers are applicable for nearly any light configuration (master function, scenes, multi-sensor-controls etc.)
18. If many AQ-dimmers are mounted to DIN rail cabinets, please care for sufficient slots or holes for air-convection, placing the dimmers in a sufficient distance to each other.

# System Survey

## ALTOQUICK (AQ)-dimmers (0-10V interface) for DIN rail systems



# System Survey

## ALTOQUICK-S (AQ-S) – control modules with 1-10V interface

For the control of dimmable electronic ballasts for fluorescent lamps and electronic transformers for low-voltage halogen lamps with 1-10 V interface

### Control modules

### Controls

Ballasts for compact fluorescent lamps



Ballasts for single fluorescent lamps



Ballasts for twin fluorescent lamps



Transformers for low-voltage halogen lamps



**AQS-S**  
Order-no.: 50.13.112  
p.60/61

**NS1-S**  
Order-no.: 50.13.115  
p.62/63

**NS 2-SX**  
Order-no.: 50.13.130  
p.64/65

**NS 4-S**  
Order-no.: 50.13.113  
p.66/67

**NS 4 WV-S**  
Order-no.: 50.13.116  
p.68/69

**NS 6 WV**  
Order-no.: 50.13.218  
p.36/37

**AQE2-S**  
Order-no.: 50.13.121  
p.38/39

**IRNV-3S**  
Order-no.: 50.13.145  
p.40/42

**AQAD-S**  
Order-no.: 50.14.116

DPU/DPUT p.21/22   DPO/DPOT p.23   DPUO/DPUOT p.24   SP p.25   CTMSP/1T p.26   CTMSP/2T p.27

**CTM1T**  
p.47

**CTM3T**  
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**CTM4T**  
p.47

**CTM4T WV**  
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**F10s**  
p.48

**3x CTM3T**  
p.47

**DPUT-S**  
p.50

**LF/w/D**  
p.59

**F4s**  
p.48

**F4s WV**  
p.48

**CTM5T**  
p.47

**CTM5T WV**  
p.47

**F5s**  
p.48

**F5s WV**  
p.48

**Infrared/radio control**



**IR-ST/S**  
Order-no.: 50.13.142  
p.43

**IR**

**radio**



**IR-ES/R**



**FU-E/S**



**IR-S/S**  
p.43



**FU-S/S**  
p.45

# DIN RAIL CABINETS WITH AQ-DIMMERS



Wall-mounted 2-door-cabinet



Wall-mounted cabinet with smoke-tinted glass and snap-door.



Wall-recessed housing (without door).



Wall-mounted housing (without door)



Wall-mounted housing (with open door)



Wall-recessed housing (with glass door)

**Please observe that DIN rail cabinets with AQ-dimmers have slots or holes for a natural air-convection and that the dimmers should not be mounted directly one above the other.**



# ALTOQUICK (AQ-dimmers) operating in the phase-controlled mode (leading edge) for DIN rails

**Types: AQ 1,3 KW and AQ 2,0 KW**



The dimmers are operating in the phase-controlled (leading edge) mode. They have a harmonics filter and an interference protection better than grade ,N' according to VDE 0875.

They are suitable for the control of incandescent lamps, high-voltage halogen lamps, low-voltage halogen lamps (with wire-wound transformers) and neon lamps (with high-voltage transformers). They have an autonomous current supply with separated minimum and max. adjustments with trimmer potentiometers at their panel face. An external control with 0-10V D/C makes them suitable for numerous external controls.

## Operation with the internal potentiometer

The internal rotary potentiometer has a left hand switch. It is turned on and dimmed brighter to the right and dimmed darker and switched OFF to the left.

## Operation with an external potentiometer

An external rotary potentiometer can be mounted up to a distance of 100 m. It has the same functions as the internal potentiometer. It can be operated only if the internal potentiometer is switched ON. Consequently there is no galvanic separation from the power supply. This separation always should be made with the switch at the internal potentiometer. The switch contact at the external potentiometer can be used for the operation of contactors. If a latching relay is connected a rotary potentiometer with integrated pushbutton is to be used. If a sliding potentiometer (slider) without switch is used the ON/OFF operation has to be made by a separate switch.

## Load amplification

For the amplification of the total load up to 3 Dimmers AQ-1,3 KW or AQ 2,0 KW can be combined. In this case the potentiometers at 2 dimmers are without function. All 3 AQ's are to be operated with the potentiometer of one dimmer. Please observe that the switches of all potentiometers are switched ON. Any phase relation is possible. With the master control dimmer type AQS (page 19/20) up to 40 AQ-dimmers commonly can be controlled. Each dimmer can be operated with any load within its load capacity.

External potentiometers see pages 21-25.

For external control modules for different applications please refer to the list of contents ( page 2).

# Phase-controlled dimmer (leading edge) **AQ 1,3 KW**

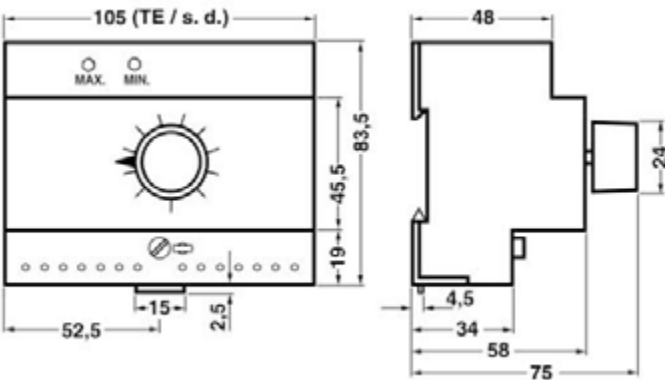
## Technical data:

Characterization	AQ 1,3kW
Type	: AQ 1,3 KW
Order-No.	: 50.13.010
Power supply	: 230V~, 50 Hz
Nominal load	: 1,3 KW
Max.output current	: 5,7 A
Protection	: external MCB 6 A
Min. load	: incandescent lamps 60 W Inductive load 25 W
Ambient temperature	: max. 45 °C, natural air-convection at vertical mounting position
Terminals	: 0,5 -2,5 mm², solid wire or litz wires with sleeve
Wire length	: max. 100 m
Own consumption	: < 1,5 % of the respectively connected load
Control voltage	: 0-10V (0-20V) galvanic separation <b>No protective extra low potential</b> (basic isolation acc. to IEC 664,10/92)
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 105 x 83,5 x 75 mm
Weight	: approx. 500 gr
Noise level	: < 40 dB(A) at nominal load in a distance of 1 m
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Requirements	: EMC met according to EN 61547 4/96 Low-voltage requirements met according to IEC 669-2-1 11/94

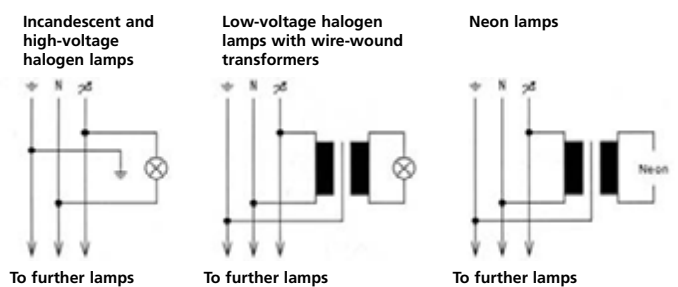
In case of audio-systems being used the following has to be observed:

- Separate safety earth for audio and dimming systems are mandatory.
- No parallel wiring between both systems (please refer to the manual).

## Dimensional drawing



## Wiring diagrams



Wiring diagrams: see also pages 14/15



# Phase-controlled dimmer (leading edge) **AQ 2 KW**

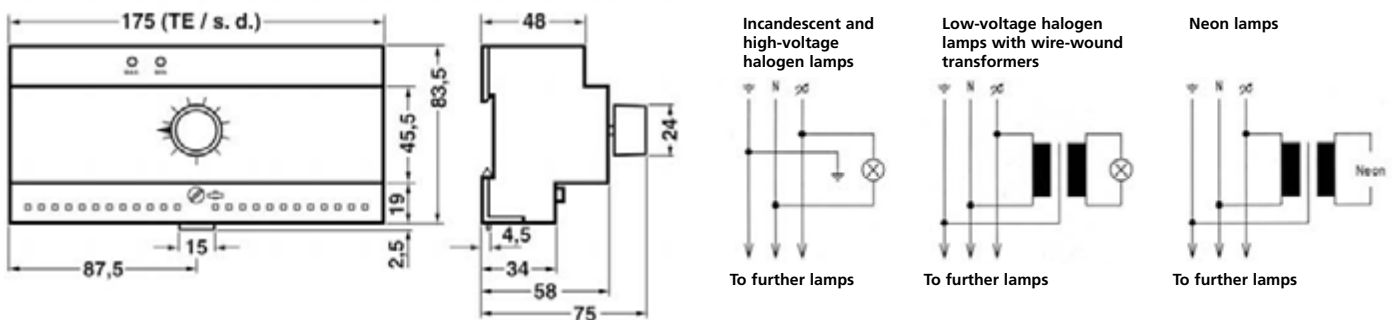
## Technical data:

Characterization	AQ 2 kW
Type	: AQ 2,0 KW
Order-No.	: 50.13.210
Power supply	: 230V~, 50 Hz
Nominal load	: 2 KW
Max.output current	: 8,7 A
Protection	: external MCB 10 A
Min. load	: incandescent lamps 60 W Inductive load 25 W
Ambient temperature	: max. 45 °C, natural air-convection at vertical mounting position
Terminals	: 0,5 -2,5 mm², solid wire or litz wires with sleeve
Wire length	: max. 100 m
Own consumption	: < 1,5 % of the respectively connected load
Control voltage	: 0-10V (0-20V) galvanic separation <b>No protective extra low potential</b> (basic isolation acc. to IEC 664,10/92)
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 175 x 83,5 x 75 mm
Weight	: approx. 600 gr
Noise level	: < 40 dB(A) at nominal load in a distance of 1 m
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Requirements	: EMC met according to EN 61547 4/96 Low-voltage requirements met according to IEC 669-2-1 11/94

In case of audio-systems being used the following has to be observed

- Separate safety earth for audio and dimming systems are mandatory.
- No parallel wiring between both systems (please refer to the manual).

## Wiring diagrams



Wiring diagrams: see also pages 14/15

## AQ-0 dimmers

### Technical details for Phase-interval controlled (lagging edge) AQ-dimmers, Types AQ-0 0,7 KW and AQ-0 1,4 KW

1. The function module is plugged onto a mounting plate with terminal blocks, allowing a preassembly without the function module.
2. Interference protection according to VDE 0875/N.
3. Protection through MCB's (to be mounted separately) for:  
AQ-0 0,7 KW 6 A (K/L/B/C/G)  
AQ-0 1,4 KW 10 A (K/L/B/C/G)
4. Power dissipation < 2,5 % of the respectively connected load.
5. Max. ambient temperature: + 45 °C
6. Integrated rotary potentiometer with left hand ON/OFF switching. On demand the potentiometer can be separated and mounted up to a distance of 100m.
7. Up to 3 AQ-0 dimmers commonly can be controlled with 1 potentiometer without any additional component.
8. At the panel face of each AQ-0 dimmer two trimmer potentiometers are inserted: one for the adjustment of the minimum brightness being required, the other for the adjustment of the max.brightness.
9. Control voltage = 0 - 10V VDC
10. 14 pole terminal blocks (AQ-0 0,7 KW) or 24 pole terminal blocks (AQ-0 1,4 KW).Range of wire sections = 0,5 mm<sup>2</sup> - 4 mm<sup>2</sup>.
11. The function module is plugged onto the base with the terminals and secured with the sealed screw.
12. Protected blade contacts are connecting the dimmer base with the function module.
13. AQ-0 dimmers with different load capacities can be distributed to different phases.
14. The distance between the AQ-0 dimmers and the AQ-control modules can be up to 100m.
15. All AQ-0 dimmers and control modules are compatible with other ALTENBURGER phase-interval controlled dimmers (load capacities: single phase = 2 KW, 3 phase = 3x2 KW, types: TH 2KW-0 and TH3x2KW-0.
16. With the combination of different control modules the AQ-0 dimmers are applicable for nearly any light configuration (master function, scenes, multi-sensor-controls etc.).
17. If many AQ dimmers are mounted to DIN rail cabinets. Please care for sufficient slots or holes for air-convection, placing the dimmers in a sufficient vertical distance to each other.

# ALTOQUICK (AQ-0) operating in the phase-interval controlled mode (lagging edge) for DIN rails

Types: AQ-0 0,7kW and 1,4kW



The dimmers are operating in the phase-interval (lagging edge) controlled mode.

They are suitable for incandescent lamps, high-voltage halogen lamps and low-voltage halogen lamps with electronic transformers.

The load exit is protected through:

- Electronic switch ON current limitation
- Electronic current limitation in case of a short circuit
- Load limitation in case of overloads
- Load reduction if the maximal permissible temperature is exceeded
- Switch Off at non-permissible voltage peaks (inductive load). The module is to be activated after switching OFF and ON again.

The dimmers are suitable for DIN rails. They have an autonomous power supply with separate minimum / maximum adjustments through trimmer potentiometers to be operated at the panel face. The control of the dimmers is made with an internal rotary potentiometer with integrated ON/OFF switch (also to be mounted outside the dimmer in a distance up to 100m). In order to enable a variety of functions all external controls can be made with 0-10V / 0-20V D/C interface.

## Operation with the internal potentiometer

The internal rotary potentiometer has a left hand switch. It is turned on and dimmed brighter to the right and dimmed darker and switched OFF to the left.

## Operation with the external potentiometer

An external rotary potentiometer can be mounted up to a distance of 100 m. It has the same functions as the internal potentiometer. It can be operated only if the internal potentiometer is switched ON. Consequently there is no galvanic separation from the power supply. This separation always should be made with the switch at the internal potentiometer. The switch contact at the external potentiometer can be used for the operation of contactors. If a latching relay is connected a rotary potentiometer with pushbutton can be used. If a sliding potentiometer (slider) without switch control is connected the ON/OFF operation has to be made by a separate switch or pushbutton.

## Load amplification

For the amplification of the total load up to 3 Dimmers AQ-0 0,7 KW or AQ 1,4 KW can be combined. In this case the potentiometers at 2 dimmers are without function. All 3 AQ's are to be operated with the potentiometer of one dimmer. Please observe that the switches of all potentiometers are switched ON. Any phase relation is possible. With the master control dimmer type AQS (page 19) up to 40 AQ-dimmers commonly can be controlled. Each dimmer can be operated with any load within its capacity.

External potentiometers see pages 21-25

# Phase-interval controlled (lagging edge) dimmer **AQ-0 0,7 KW**

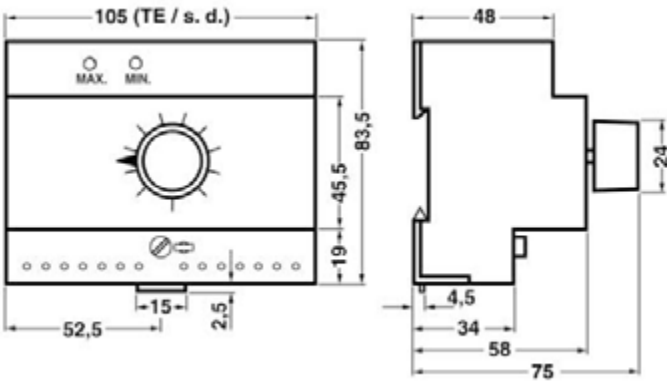
## Technical data:

Characterization	AQ-0 0,7kW
Type	: AQ-0 0,7 KW
Order-No.	: 50.13.110
Power supply	: 230V~, 50 Hz
Nominal load	: 0,7 KW
Max.output current	: 3A
Protection	: external MCB 6 A
Min. load	: incandescent lamps 60 W
Ambient temperature	: max. 45 °C, natural air-convection at vertical mounting position
Terminals	: 0,5 -2,5 mm², solid wire or litz wires with sleeve
Wire length	: max. 100 m
Own consumption	: < 2,5 % of the respectively connected load
Control voltage	: 0-10V (0-20V) galvanic separation <b>No protective extra low potential</b> (basic isolation acc. to IEC 664,10/92)
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 105 x 83,5 x 75 mm
Weight	: approx. 520 gr
Noise level	: < 40 dB(A) at nominal load in a distance of 1 m
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Requirements	: EMC met according to EN 61547 4/96 Low-voltage requirements met according to IEC 669-2-1 11/94

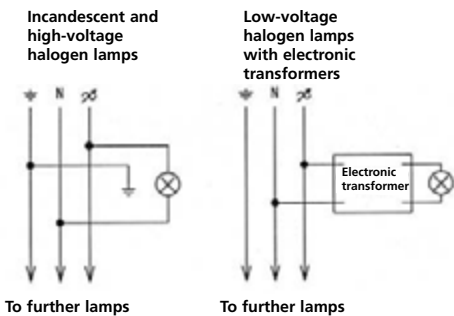
In case of audio-systems being used the following has to be observed:

- Separate safety earth for audio and dimming systems are mandatory
- No parallel wiring between both systems (please refer to the manual)

## Dimensional drawing



## Wiring diagrams



Wiring diagrams: see also pages 14/15

## Phase-interval controlled (lagging edge) dimmer **AQ-0 1,4kW**

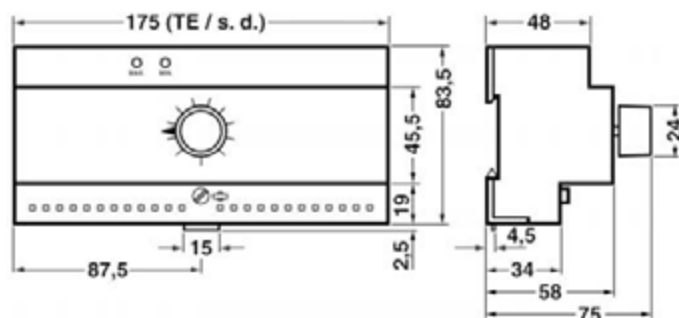
### Technical data:

Characterization	AQ-0 1,4kW
Type	: AQ-0 1,4 KW
Order-No.	: 50.13.111
Power supply	: 230V~, 50 Hz
Nominal load	: 1,4 KW/KVA
Max.output current	: 6,1 A
Protection	: external MCB 6 A
Min. load	: 25 WVA
Ambient temperature	: max. 45 °C, natural air-convection at vertical mounting position
Terminals	: 0,5 -2,5 mm², solid wire or litz wires with sleeve
Wire length	: max. 100 m
Own consumption	: < 2,5 % of the respectively connected load
Control voltage	: 0-10V (0-20V) galvanic separation <b>No protective extra low potential</b> (basic isolation acc. to IEC 664,10/92)
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 175 x 83,5 x 75 mm
Weight	: approx. 600 gr
Noise level	: < 25 dB(A) at nominal load in a distance of 1 m
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Requirements	: EMC met according to EN 61547 4/96 Low-voltage requirements met according to IEC 669-2-1 11/94

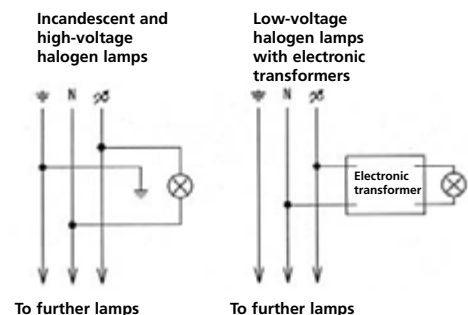
In case of audio-systems being used the following has to be observed;

- Separate safety earth for audio and dimming systems are mandatory
- No parallel wiring between both systems (please refer to the manual)

## Dimensional drawing



## Wiring diagrams

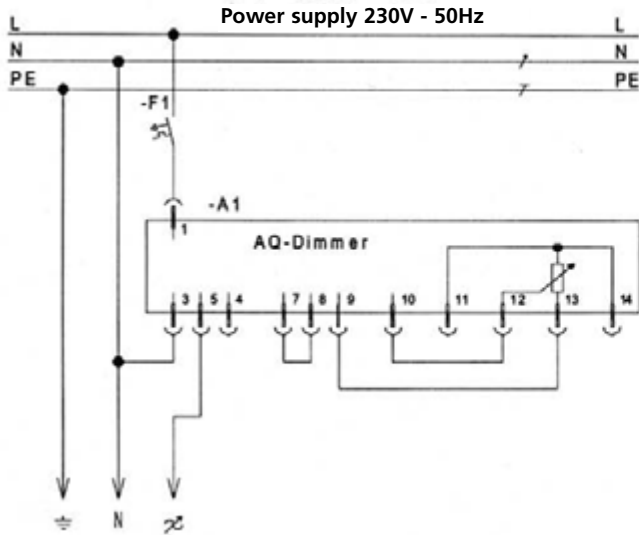


**Wiring diagrams: see pages 14/15**

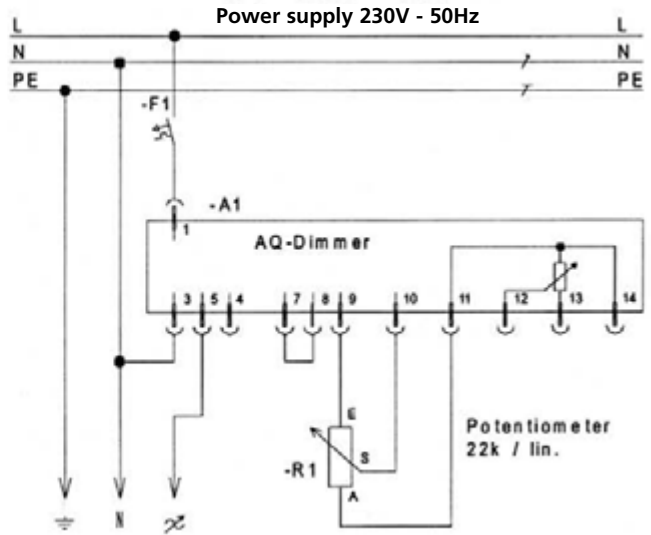
# Wiring diagrams

for phase-controlled (leading edge) dimmers AQ 1,3 kW and AQ 2 kW  
and phase-interval controlled (lagging edge) dimmers AQ-0 0,7 kW and AQ-0 1,4 kW

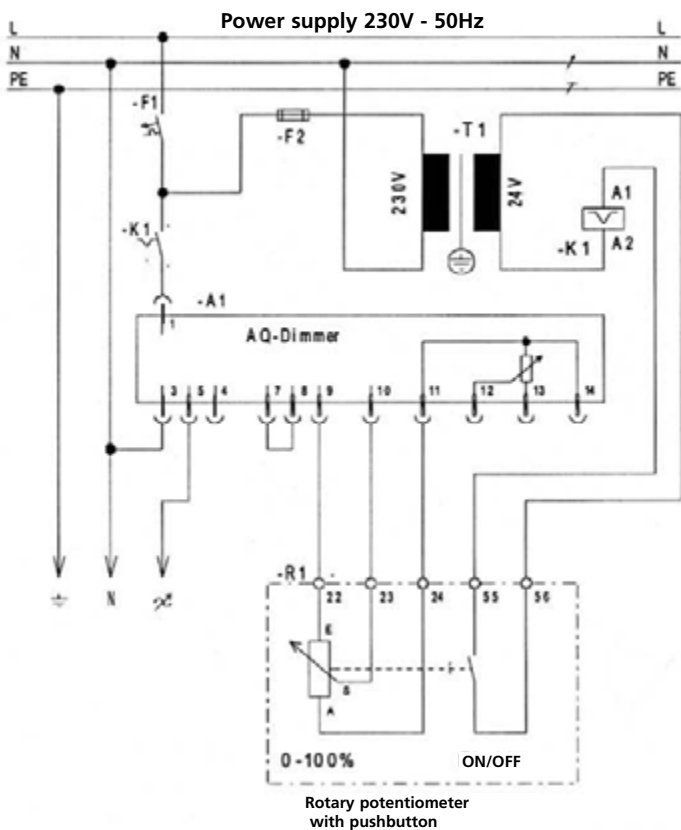
**AQ with internal potentiometer**



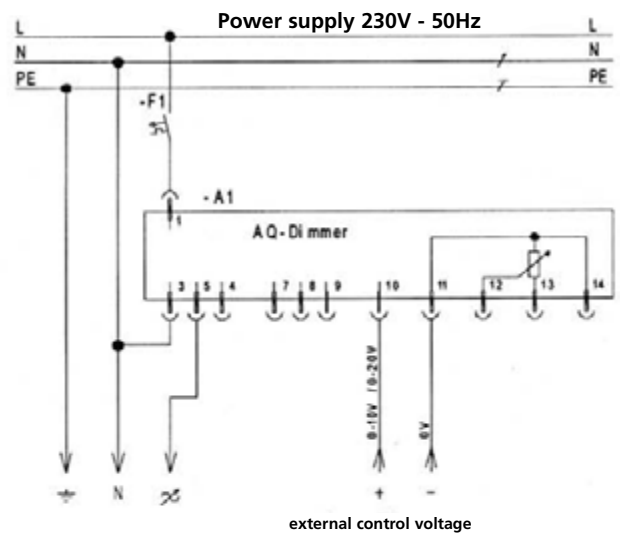
**AQ with external potentiometer**



**AQ with external potentiometer and ON/OFF function**



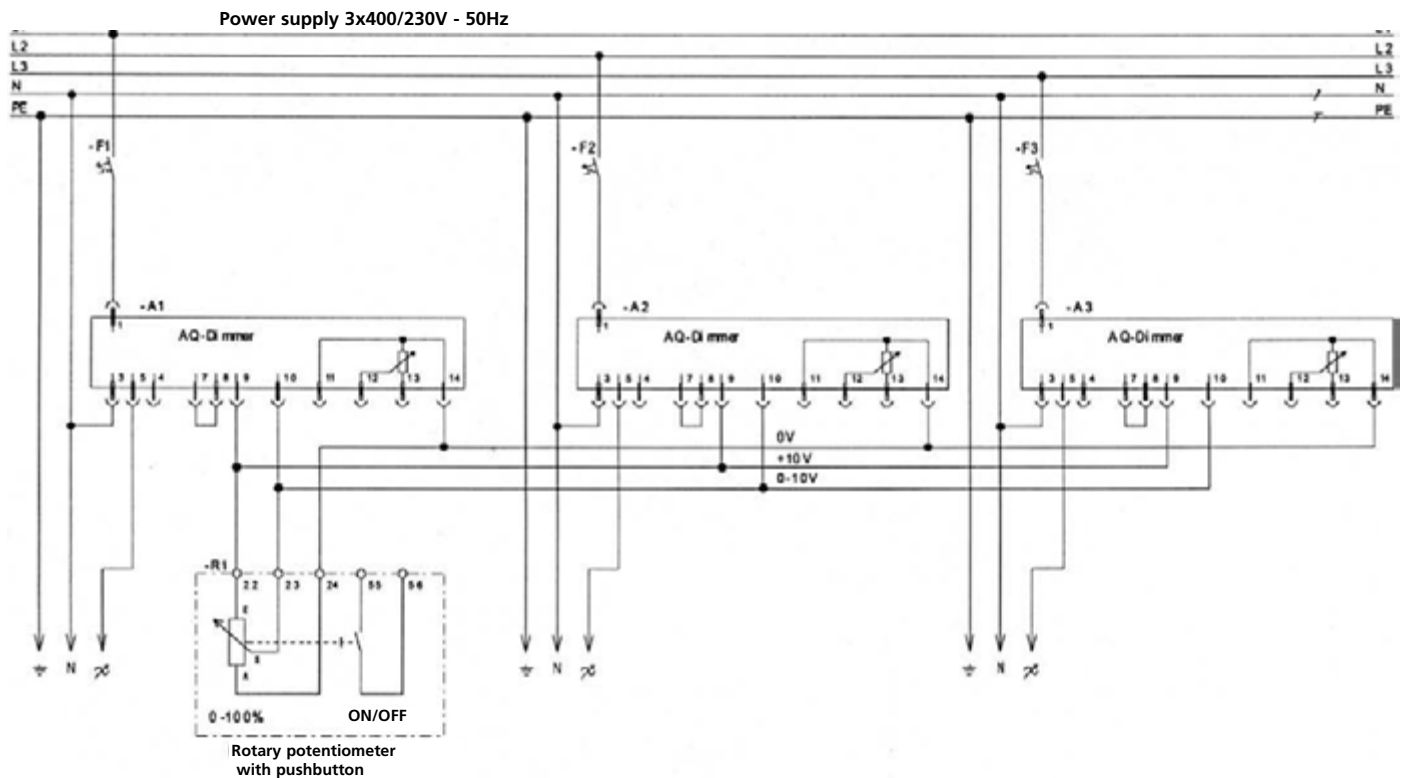
**AQ with external control voltage 0-10V/0-20V**



# Wiring diagrams

for phase-controlled (leading edge) dimmers AQ 1,3 kW and AQ 2 kW  
and phase-interval controlled (lagging edge) dimmers AQ-0 0,7 kW and AQ-0 1,4 kW

## Load amplification with max. 3 ALTOQUICK-dimmers





# AQ-Multi-Function Universal-Dimmer, **type AQ 1500-MFU**

with automatic load identification

Order-no.: 50.13.000

**The AQ 1500-MFU is suitable for ohmic, inductive and capacitive loads up to a capacity of 1500 W/VA.**

With the selector switch at the module the automatic operation or one of the possible modes of manual selections can be made. In the automatic mode the dimmer performs after its connection to a power supply a short load identification. It such selects the dimming mode according to the connected load. For incandescent lamps and high-voltage halogen lamps (ohmic loads) the phase-control mode (leading edge) is selected. For low-voltage halogen lamps with electronic transformers the phase-interval control mode (lagging edge) is selected. A mixture of capacity and inductive loads or a function without load is not permissible:



The load output provides:

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

At load recognition in the automatic mode at power ON a short flashing of the connected lamps is possible (depends on the kind of load).

**In the ALTOQUICK 1500 MFU the following control functions are integrated:**

- **1-pushbutton dim-function**

with a short touch (50-400 ms) lighting is switched ON and OFF. Longer pressing the button (> 400ms) 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 secs. with a potentiometer at the face plate of the dimmer.

- **2-pushbutton dim-function**

1 pushbutton for ON/BRIGHTER, the second one for DARKER/OFF. With a short touch (50-400 ms) 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 secs. 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 additional buttons (preset) for 5 secs. The lighting blinks after the light level is stored. The same is made with a second preset button.

Maximum or minimum light levels not to be exceeded can be set at the maximum / minimum trimmer potentiometers at the front plate of the dimmer.

**Control plates see page 47**

# AQ-Universal-Dimmer, type AQ 1500-MFU

for DIN rail systems

Order-no.: 50.13.000

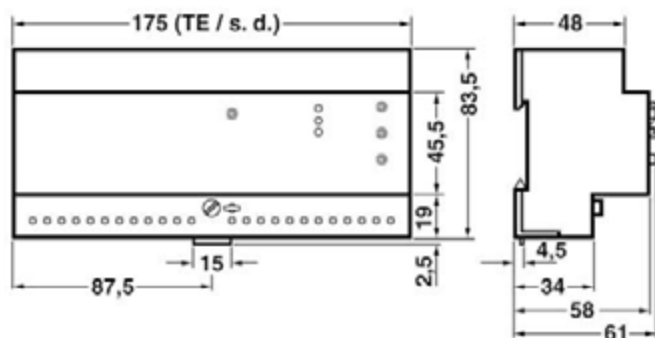
## Technical data:

Characterization	AQ-Universal-Dimmer 1500-MFU
Type	: AQ 1500 MFU
Order-No.	: 50.13.000
Power supply	: 230V~, 50/60 Hz, DC not permitted
Protection	: external MCB 10A
Ambient temperature	: 0° - max. 45 °C, natural air-convection at vertical mounting position
Max. load	: 1500 W/VA
Min. load	: 60 W/VA
Output current	: max. 6,5 A~
Protective class	: II
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Own consumption	: < 2,0 % of the respectively connected load
Noise level	: < 25 dB(A) at nominal load in a distance of 1 m
Load exit	: electronic current limitation (switch ON-, overload, and short circuit current) - switch OFF if the max. permissible temperature is exceeded - switch ON after the module has cooled down (just the function has been switched OFF)
Terminals	: 0,5 -2,5 mm <sup>2</sup> , solid wire or litz wires with sleeve
Wire length	: max. 100 m, load-power terminals min. 1,5 mm <sup>2</sup> (terminals 1,3,5)
5 pushbutton inputs	: for the control of the module (normally open contacts)
Selector switch	: for the type of load (inductive load, automatic, capacitive load)
3 Trimmer potentiometers	: for the adjustment of the min. or max. level and the fade time
3 LED's	: for the indication of the state of operation
Housing	: isolated plastic housing for DIN rails
Dimensions	: WxHxD = 175 x 83,5 x 61 mm
Weight	: approx. 520 gr
Designation	: CE
Wiring	: according to wiring diagrams or print on the controls

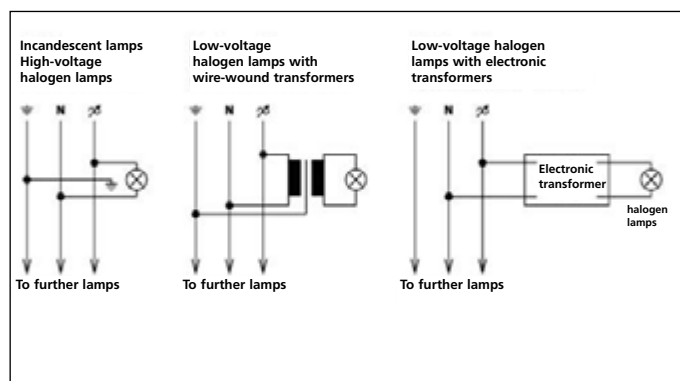
Capacitive and inductive loads may not be mixed up.

**In case of wrong wiring, malfunction and destruction is possible !!**

## Dimensional drawing



## Wiring diagrams

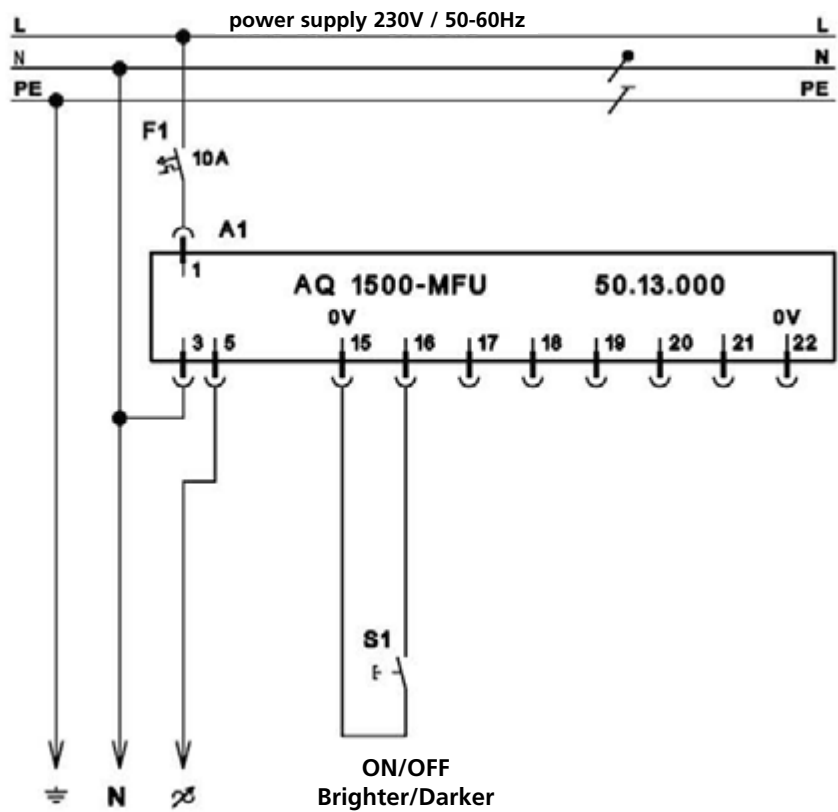


# Wiring diagrams

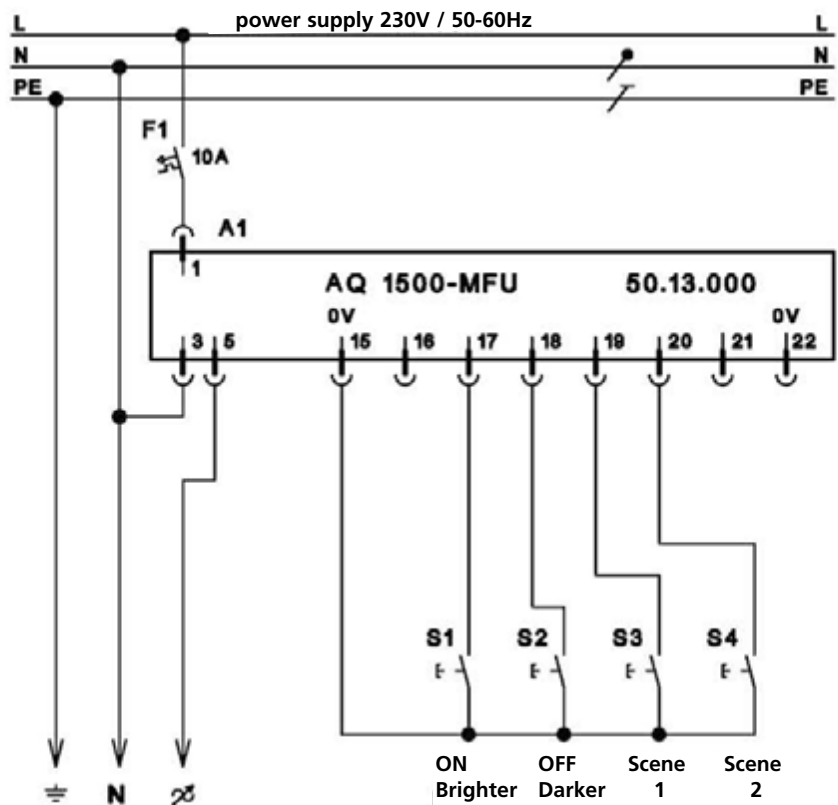
AQ-Universal dimmer, type AQ 1500-MFU with automatic load identification

Order-No.: 50.13.000

## AQ 1500-MFU with 1-pushbutton dim-function



## AQ 1500-MFU with 2-pushbutton dim-function and scene setting



The master control, type AQS is suitable for the common control of up to 40 ALTENBURGER-dimmers and is operated with an internal rotary potentiometer. An external potentiometer or 1-10 V control modules can be connected (see pages 62 f.).

- Operation of the module with an integrated or an external potentiometer
- Master control of up to 40 dimmers (0-10V) for a load amplification
- Master control of up to 24 dimmers with 1-10 V interface.
- Operation from 2 places through potentiometers ,take'



The master control has an autonomous current supply. External controls are performed with 0-20 V D/C or potentiometers.

## 1. Control mode (option 1)

All connected AQ-dimmers commonly can be controlled with 1 internal or external potentiometer between minimum and maximum. The potentiometer of any connected dimmer however must be in the switch ON state.

## 2. Control mode (option 2)

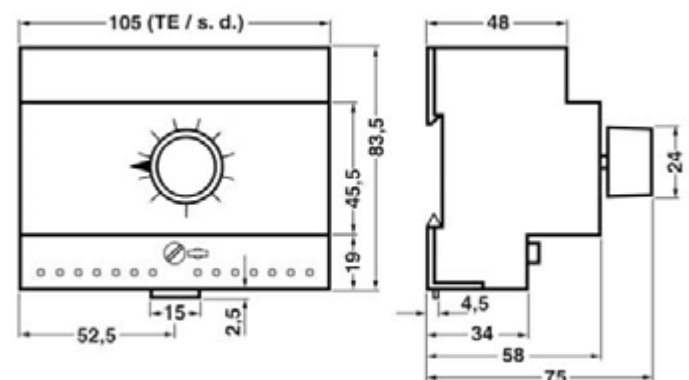
Each connected dimmer individually can be controlled with its potentiometer. All dimmers commonly however can be operated in the master control mode with 1 master control AQS. In this case the potentiometer of each dimmer can be set to any level between, dark (0)' and ,bright'. Control is made for each dimmer between ,0' and the set light level. The wire length between dimmers and master control can be up to 100m.

**Suitable dimmers see page 7-13 and 62-69, potentiometers from page 21 on**

## Technical data:

Characterization	Master control AQS
Type	: AQS
Order-No.	: 50.13.012
Power supply	: 230V, 50 Hz
Output voltage	: 0 - + 20 V
Max.output current	: approx. 40 mA
Protection	: external 6 A
Ambient temperature	: max. 45 °C, natural air-convection at vertical mounting position
Terminals	: 0,5 -2,5 mm <sup>2</sup> , solid wire or litz wires with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Control voltage	: 0-10V (0-20V) galvanic separation <b>No protective extra low potential</b> (basic isolation acc. to IEC 664,10/92)
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 105 x 83,5 x 75 mm
Weight	: approx. 400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive, according to IEC 664,10/92)
Requirements	: EMC met according to EN 61547 4/96 Low-voltage requirements met according to IEC 669-2-1 11/94

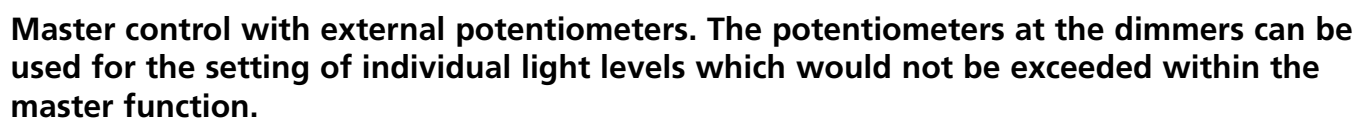
## Dimensional Drawing AQS



**control plates: see pages 21-27**

Master control AQS

**Master control AQS with external potentiometers for the common control of a max. of 40 AQ dimmers (no individual light level setting at the dimmers).**



# Rotary potentiometers, **type DPU/DPUT**

Order-No.:51.01.021 / 51.01.022

Rotary potentiometer with coverplate and knob  
for the control of all AQ-dimmer types and AQS master control.

Two types are available:

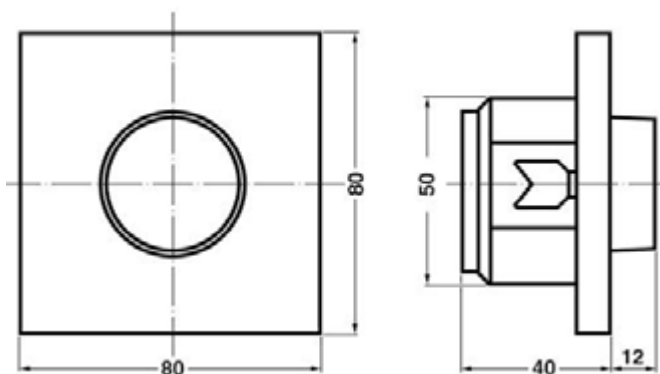
1. Rotary potentiometer with rotary ON/OFF switch  
Type DPU, order-no. 51.01.021
2. Rotary potentiometer with pushbutton type DPUT,  
order-no 51.01.022



## Technical data:

Characterization	Rotary potentiometer DPU, DPUT
Type	: DPU, DPUT
Order-no.	: 51.01.021, 51.01.022
Max. contact load	: 230V/2A
Ambient temperature	: max. 45°C
Terminals	: 0,5 – 2,5 mm <sup>2</sup> solid wire or litz wire with sleeve
Wire length	: 100 m
Housing	: plastic with metall front plate, including coverplate and knob
Dimensions	: WxHxD =80x80x40 mm
Diameter of the shaft	: 6 mm
Weight	: approx. 85 gr
Protective type	: IP 00
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94
Value of resistance	: 22/25 kV/lin.

## Dimensional drawing DPU/DPUT

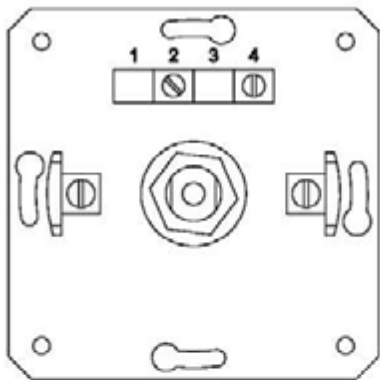


# Wiring diagrams

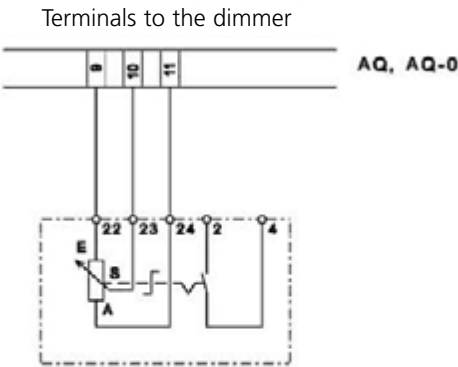
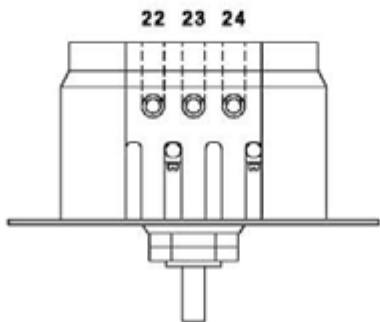
Rotary potentiometers, type DPU/DPUT

Order-No.:51.01.021 / 51.01.022

## Rotary potentiometer DPU

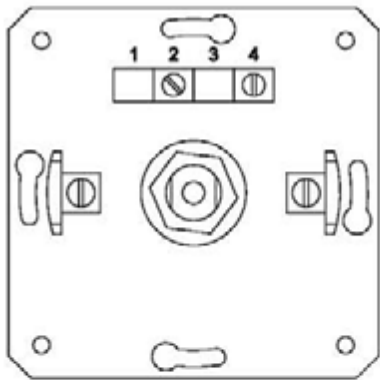


Terminals 22, 23 and 24 also can be wired to the back plate

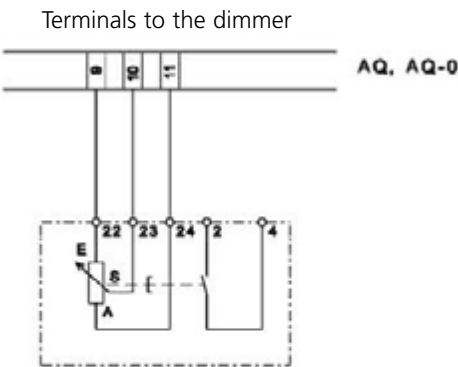
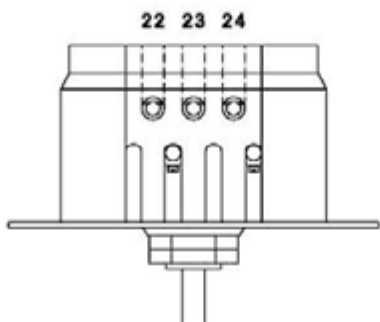


rotary potentiometer with rotary  
ON/OFF switch  
Order-no.: 51.01.021

## Rotary potentiometer DPUT



Terminals 22, 23 and 24 also can be wired to the back plate



rotary potentiometer with  
ON/OFF pushbutton  
Order-no.: 51.01.022



# Rotary potentiometers, **type DPO/DPOT**

Order-No.: 51.01.019 / 51.01.020

Rotary potentiometer with knob and scale for the (remote) control of all AQ-dimmer types and AQS master control

Two types are available:

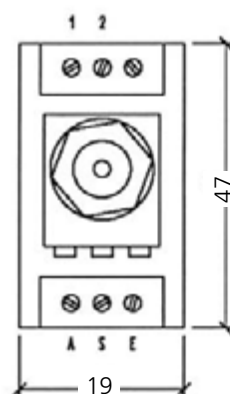
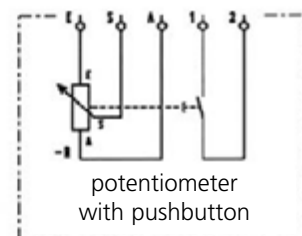
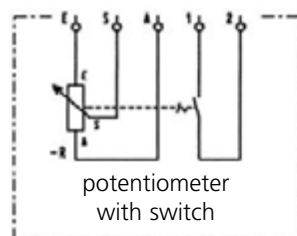
1. Rotary potentiometer with rotary ON/OFF switch  
Type DPO, order-no. 51.01.019
2. Rotary potentiometer with pushbutton,  
type DPOT, order-no. 51.01.020



## Technical data:

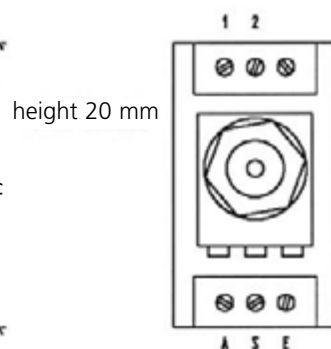
Characterization	Rotary potentiometer DPO, DPOT
Type	: DPO, DPOT
Order-no.	: 51.01.019, 51.01.020
Max. contact load	: 230V/2A
Ambient temperature	: max. 45°C
Terminals	: 0,5 – 2,5 mm <sup>2</sup> , solid wire or litz wire with sleeve
Wire length	: max. 100 m
Dimensions	: WxHxD = 19x47x20 mm
Weight	: approx. 30 gr
Protective type	: IP 00
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. To EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94
Value of resistance	: 22/25 k $\Omega$ /lin

## Wiring diagrams and dimensional drawings DPO/DPOT



**DPO**

Order-No.: 51.01.019



**DPOT**

Order-No.: 51.01.020

# Rotary potentiometers, **type DPUO/DPUTO**

Order-No.: 51.02.021 / 51.02.022

Rotary potentiometer, recessed type without coverplate and knob for the control of all AQ-dimmer types and AQS master control

Two types are available:

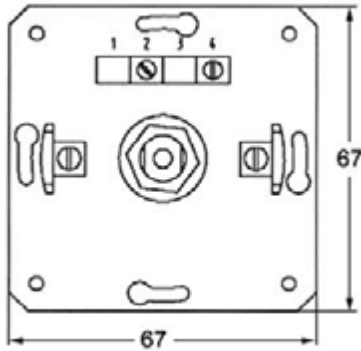
- 1. Rotary potentiometer with rotary ON/OFF switch  
Type DPUO, order-no. 51.02.021
- 2. Rotary potentiometer with pushbutton type DPUOT,  
order-no 51.02.022



## Technical data:

Characterization	Rotary potentiometer DPUO, DPUTO
Type	: DPUO, DPUTO
Order-no.	: 51.02.021, 51.02.022
Max. contact load	: 230V/2A
Ambient temperature	: max. 45°C
Terminals	: 0,5 – 2,5 mm² single wire or litz wire with sleeve
Wire length	: 100 m
Housing	: plastic, with metal front plate
Diameter of the shaft	: 4mm
Dimensions	: WxHxD =67x67x33 mm
Weight	: approx. 50 gr
Protective type	: IP 00
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. To EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94
Value of resistance	: 22/25 kV/lin

## Dimensional drawings DPUO/DPUTO



Access to terminals 22, 23 and 24 from the back of the module

Wiring diagrams see page 22

# Sliding potentiometer (slider), **type SP**

Order-No.: 51.01.027

The SP with knob and scale is suitable for the control of all AQ-dimmers.

It comprises:

- 1. The slider type SP itself
- 2. A scale, black anodized
- 3. Slider knob

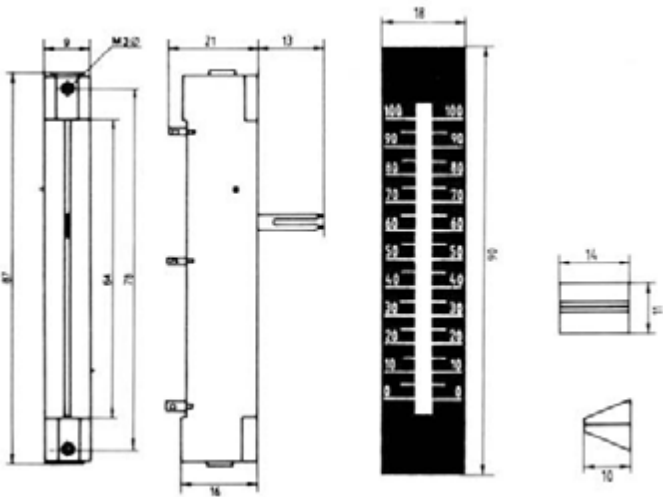
Type: SP Order-No.: 51.01.027



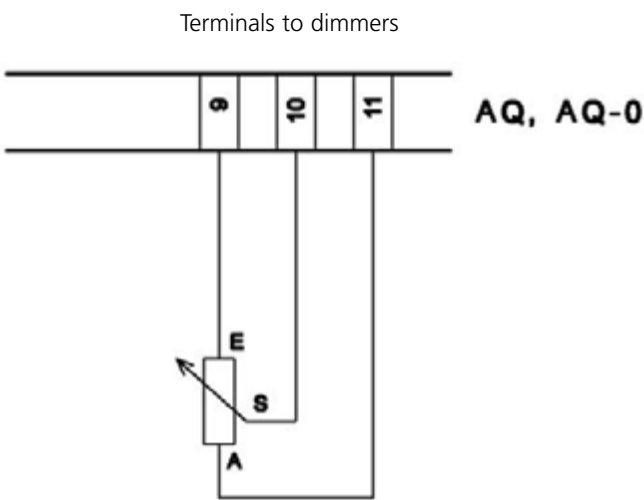
## Technical data:

Characterization	Sliding potentiometer SP
Type	: SP
Order-no.	: 51.01.027
Ambient temperature	: max. 45°C
Wiring	: to soldering lug terminals
Wire length	: max. 100 m
Housing	: open
Dimensions	: WxHxD = 18x90x21 mm
Weight	: approx. 30 gr
Protective type	: IP 00
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94
Value of resistance	: 22/25 kv/lin.

## Dimensional drawing SP



## wiring diagram



# Control Panel, type CTMSP/1T

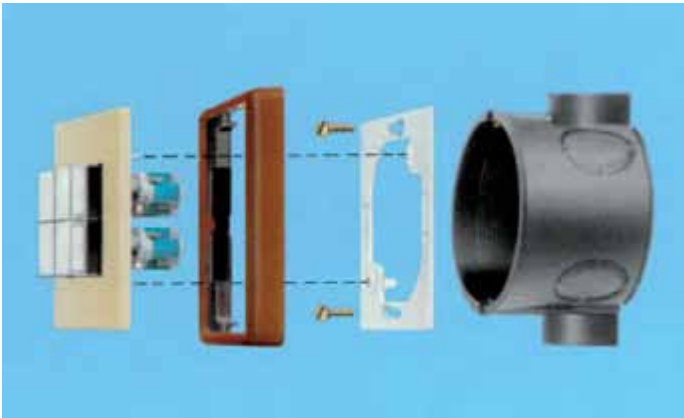
With frame, for wall-recessed housings  
(55mmØ) VDE boxes or BS 1-gang boxes

Order-No.: 51.01.311

Slider with additional pushbutton for the control of AQ dimmers or AQ-Controls. The pushbutton can be used as ON/OFF button or as ‚Take‘ button for a second place of control (optional with LED indication, 24 V AC/DC).

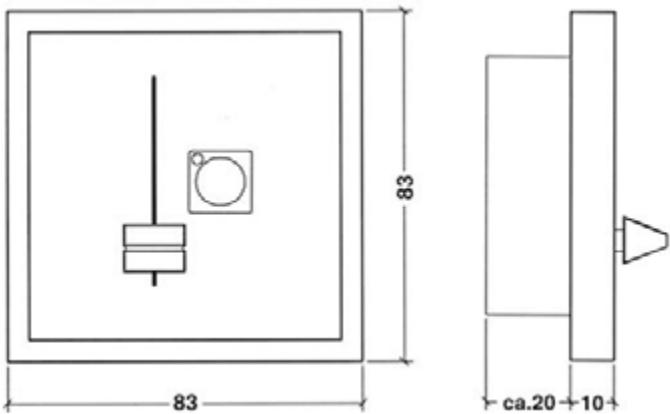
All connections wired on screw terminals.

With frame and aluminium anodized plate.



Coverplates and frames plug-on type, without screws according to the drawing above.

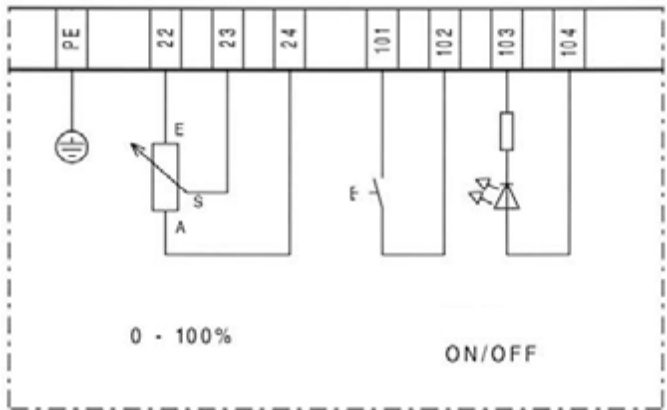
Dimensional drawing CTMSP/1T



## Technical data:

Characterization	Control panel CTMSP/1T
Type	: CTMSP/1T
Order-no.	: 51.01.311
Max. contact	: 28V AC/DC / 100 mA
Ambient temperature	: max. 45°C at natural air-convection
Terminals	: 0,5-1,5mm² solid wire or litz wire with sleeve
Wire length	: max. 100 m
Slider resistance	: 22 kv/lin.
Design	: panel face and frame aluminium anodized
Dimensions	: (WxHxD) 83x83x40 mm
Weight	: approx.100 gr
Protective type	: IP 00
Contamination degree	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94
Value of resistance	: 22/25 kv/lin

## Wiring diagram



# Control Panel, **type CTMSP/2T**

With frame, for wall-recessed housings  
(55mm Ø) VDE boxes or BS 1-gang boxes

Order-No.: 51.01.312

Slider with 2 pushbutton for the control of  
AQ dimmers or AQ-Controls. The pushbuttons can  
be used for ON/OFF switching or a 'Take' control  
from two places (optional with LED indication, 24 V

All connections wired on screw terminals.

Coverplates and frames plug-on type, without screws  
(see page 26).

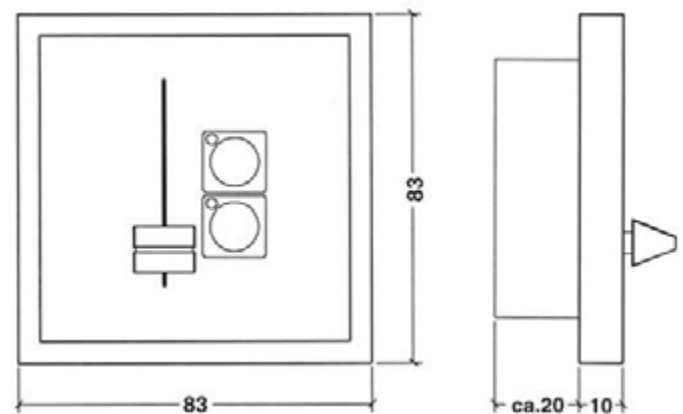
With frame and aluminium anodized plate.



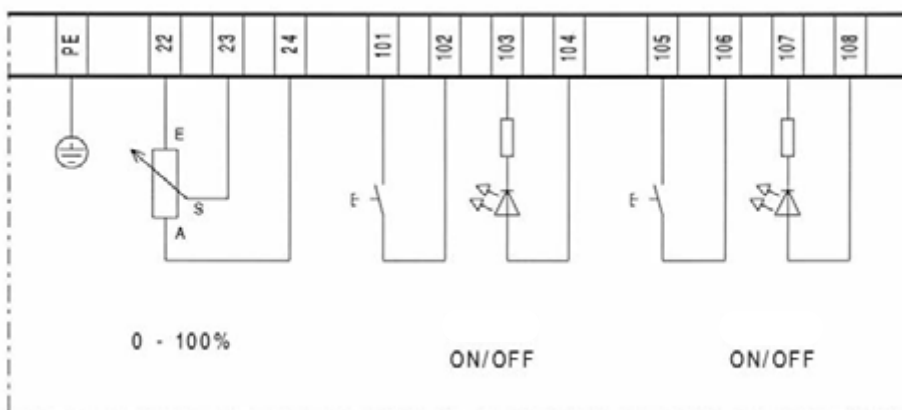
## Technical data:

Characterization	Control panel CTMSP/2T
Type	: CTMSP/2T
Order-no.	: 51.01.312
Max. contact	: 28V AC/DC / 100 mA
Ambient temperature	: max. 45°C, natural air-convection
Terminals	: 0,5-1,5mm <sup>2</sup> solid wire or litz wire with sleeve
Wire length	: max. 100 m
Slider resistance	: 22 k $\Omega$ /lin.
Design	: panel face and frame aluminium anodized
Dimensions	: (WxHxD) 83x83x40 mm
Weight	: approx. 100 gr
Protective type	: IP 00
Contamination degree	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional drawing CTMSP/2T



## Wiring diagram



# AQ-Control module, type NS 1

For AQ dimmers with 1-pushbutton function

Order-No.: 50.13.015

The NS 1 is suitable for the common control of up to 40 individual ALTENBURGER dimmers.

Functions:

**Dimming**

When continuously pressing the button lighting goes up and down. When releasing the button lighting stops at the selected level. The cycle time (0...100%...0) is 20 sec.

Pressing the button short: lighting goes off

Pressing the button short again: lighting goes into the last set light level

.



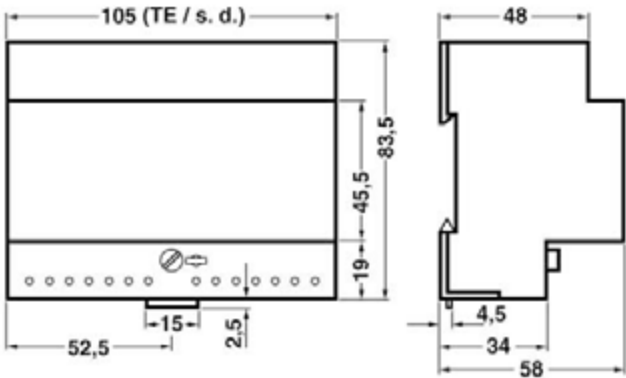
**ON/OFF-switching with external switch devices**

With a short touch of the button a relay with voltage-free contact (max. 250V/10A) directly switches the lighting ON/OFF or it can be used for switching a contactor.

## Technical data:

Characterization	Auditorium dimming control NS 1
Type	: NS 1
Order-no.	: 50.13.015
Power supply	: 230V, 50/60 Hz
Output voltage	: 0 - + 20V
Max. output current	: ca. 40 mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 1,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Control voltage	: (0-20 V) – galvanic separated
	<b>No protective low-voltage</b> (Basic isolation according to IEC 664, 10/92)
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD = 105x83,5x58 mm
Weight	: approx. 400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional drawing Auditorium Dimming Control type NS1



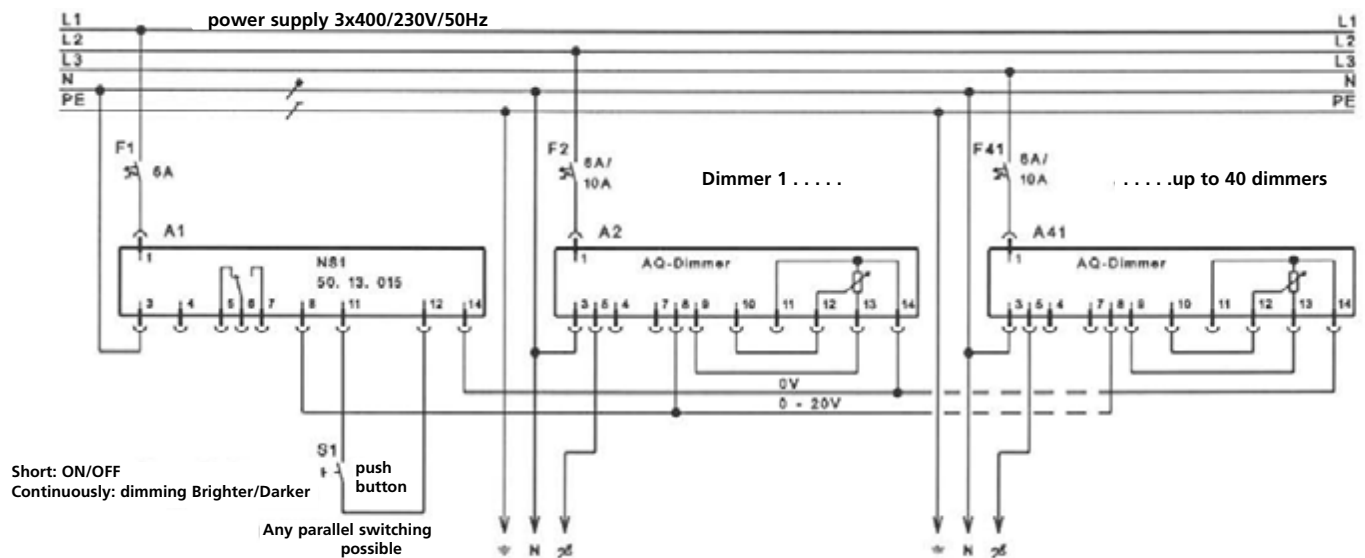
control plates see page 47

# Wiring diagrams

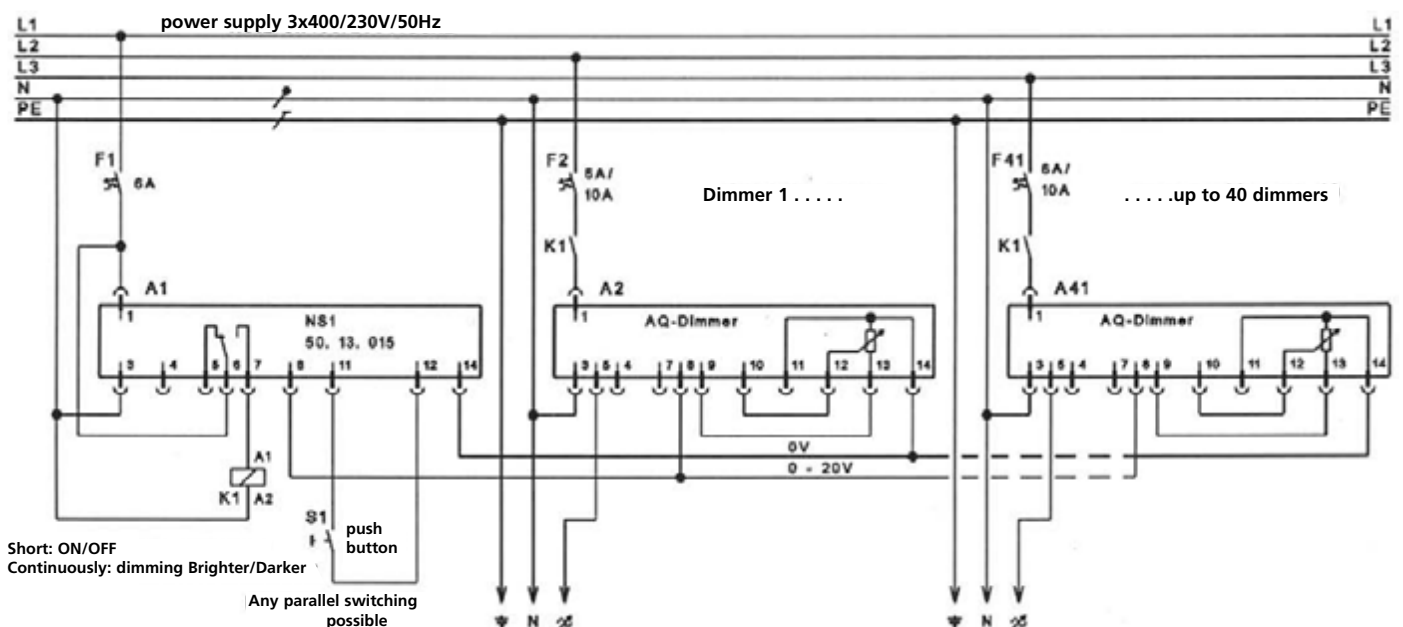
NS 1 control for AQ dimmers with 1-pushbutton function

Order-No.: 50.13.015

## NS 1 control for max. 40 AQ dimmers



## NS 1 control for max. 40 AQ dimmers with ON/OFF function through contactors





# AQ-Control , type NS 2-X

Auditorium control with direct switching ON/OFF

Order-No.:50.13.030

The NS 2-X is suitable for the common control of up to 40 AQ-dimmers with the following functions:  
1 x BRIGHTER (lighting goes into its brightest level)  
1 x DARKER (lighting goes to 0)  
1 x ON/OFF (details see below)

After release of the pushbutton Brighter or Darker the respective light level is stored. It is achieved again after switching ON.  
The output voltage can be adjusted between minimum and maximum with 2 potentiometers at the module, such allowing a limitation of the maximum- and minimum light levels.



The 4 rotary potentiometers at the module have the following functions:  
1 x setting of the maximum brightness not to be exceeded  
1 x setting of the minimum brightness  
1 x Fade time ,BRIGHT' (3 - 60 secs between the darkest and brightest level)  
1 x Fade time ,DARK' (3 - 60 secs between the brightest and darkest level)

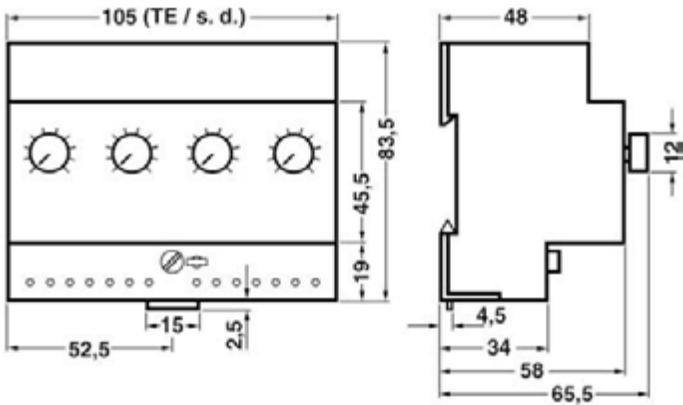
## ON/OFF switch

A latching relay with voltage-free normally open contact being integrated in the dimmer switches a maximum of 10 A/250V. For higher loads external contactors or relays have to be connected. Lighting is switched ON at the last set light level. If during the ,OFF' state the buttons ,BRIGHTER' or ,DARKER' are pressed, the light level changes after the switch ON accordingly.

## Technical data:

Characterization	Auditorium dimming control NS 2-X
Type	: NS 2-X
Order-no.	: 50.13.030
Power supply	: 230V, 50 Hz
Output voltage	: (0-20 V) <b>No protective low-voltage</b> (Basic isolation according to IEC 664, 10/92)
Max. output current	: approx. 40 mA
Switch contact	: integrated latching relay max 10 A/250V
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection in vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD = 105x83,5x65,5 mm
Weight	: approx.400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional Drawing Control type NS2-X



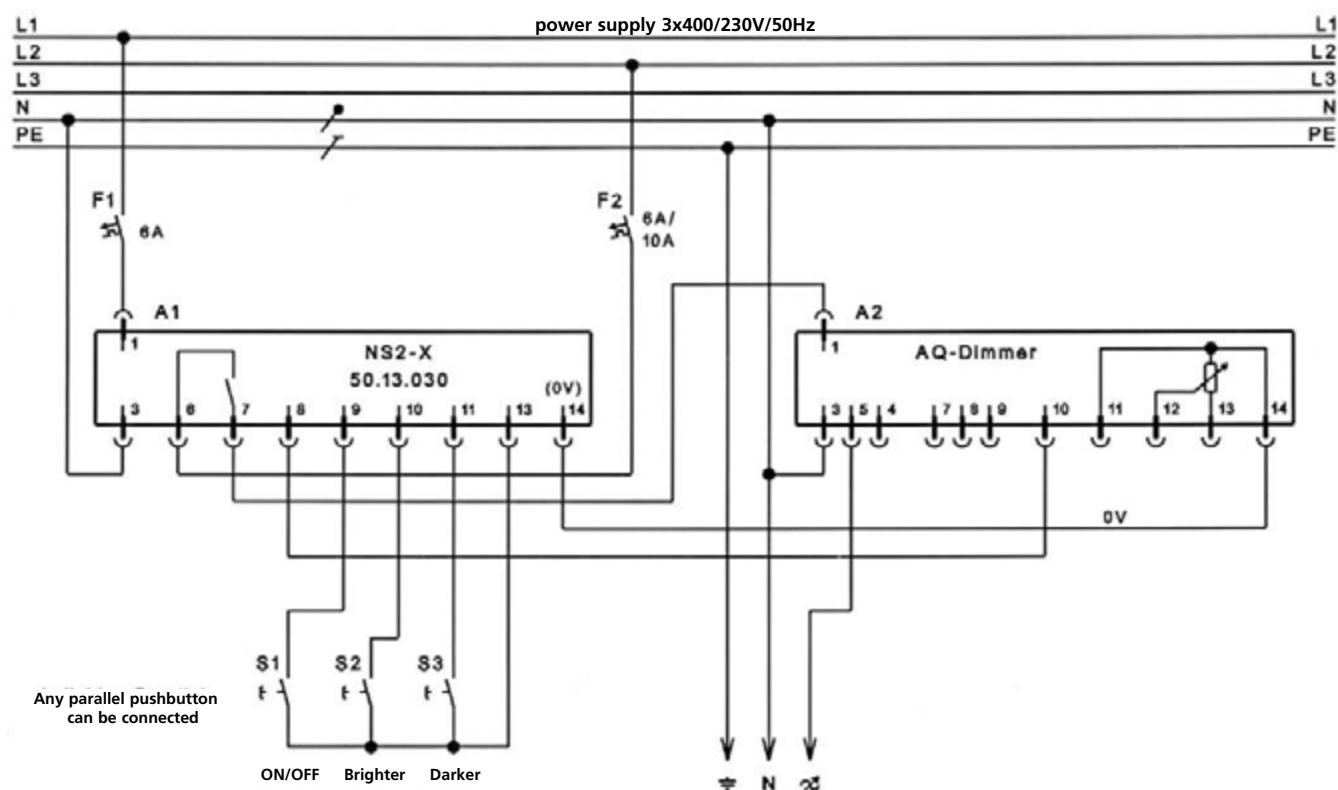
control plates: see page 47

# Wiring diagrams

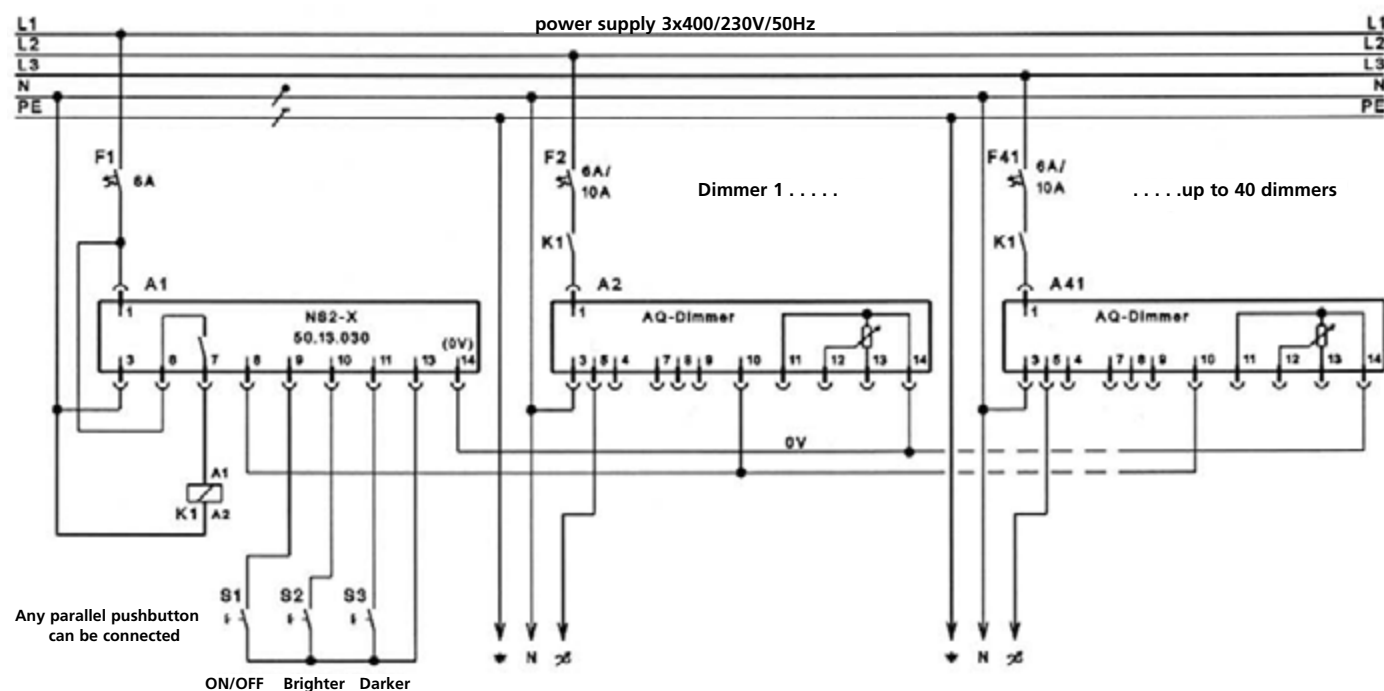
Auditorium Dimming Control type NS 2-X with direct switching ON/OFF

Order-no.: 50.13.030

## NS 2-X in connection with 1 AQ dimmer



## Control type NS 2-X in connection with max. 40 AQ dimmers



# AQ-Control module, type NS 4

with 4-pushbutton functions

Order-No.: 50.13.013

The NS 4 type is suitable for the common control of up to 40 AQ dimmers. The connected load can be controlled with 4 pushbuttons with the following functions:

- Pushbutton 1: Lighting goes into its brightest level
- Pushbutton 2: Lighting goes into the dark position
- Pushbutton 3: Lighting stops during the transfer into brighter or darker
- Pushbutton 4: Lighting goes into a level to be set with a potentiometer at the control



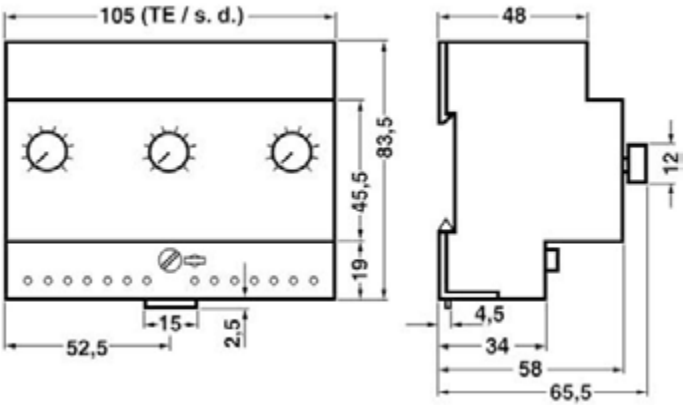
## Preset and fade time setting

A preset level can be set with one potentiometer at the NS 4 control. The other 2 potentiometers are used for setting the fade time into ‚Brighter’ or ‚Darker’ within 3 and 60 secs.

## Technical data:

Characterization	Auditorium dimming control NS 4
Type	: NS 4
Order-no.	: 50.13.013
Power supply	: 230V, 50/60 Hz
Output voltage	: 0 - + 20V
Max. output current	: ca. 40 mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Control voltage	: (0-20 V) – galvanic separated
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD = 105x83,5x65,5 mm
Weight	: approx. 400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional Drawing NS 4



control plates see pages 47/48

Order-no: 50.13.013

## 33

# AQ-Control module, type NS 4WV

with 4-preset functions

Order-no: 50.13.016

The NS 4 WV type is suitable for the common control of 40 AQ dimmers.

It has an autonomous power supply. In connection with dimmers 4 different light levels can be selected with pushbuttons.

## Setting of light levels

4 different light levels can be set with the respective potentiometers at the NS4 WV control between 0 and 100 %. The light level selection is made at a pushbutton panel or with individual push-buttons.

The selected light level can be indicated with an indicator lamp.



## Fade time setting

With the potentiometers ‚Brighter‘ or ‚Darker‘ at the panel face of the NS 4-WV the fade times to ‚Brighter‘ or ‚Darker‘ can be set between 3 and 60 secs.

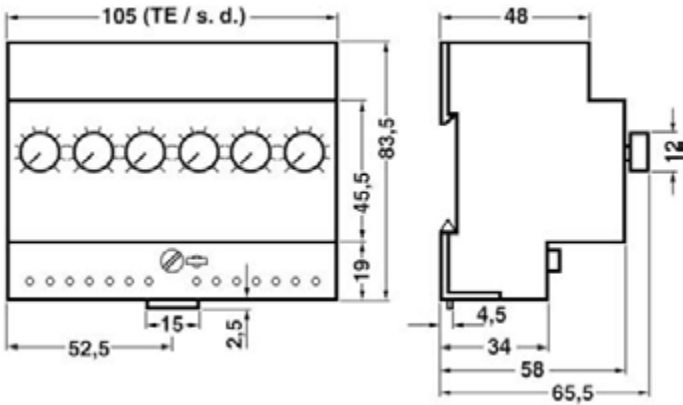
ON/OFF-functions can be made with customary relays or contactors.  
(Control panels: see pages 47/48)

## Technical data:

Characterization	Auditorium dimming control NS 4-WV
------------------	------------------------------------

Type	: NS 4 WV
Order-no.	: 50.13.016
Power supply	: 230V, 50 Hz
Output voltage	: 0 - + 20V
Max. output current	: ca. 40 mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Control voltage	: (0-20 V) – galvanic separated
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx.400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional drawing for the NS4WV



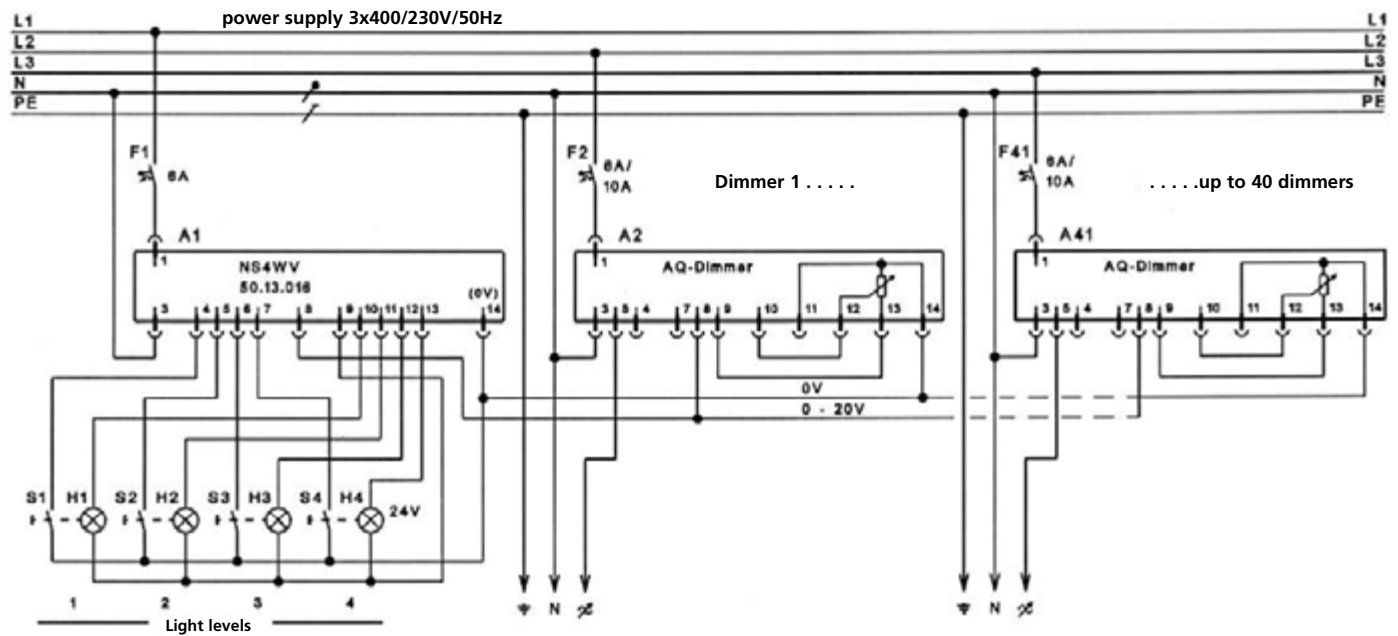
control plates: see pages 47/48

# Wiring diagrams

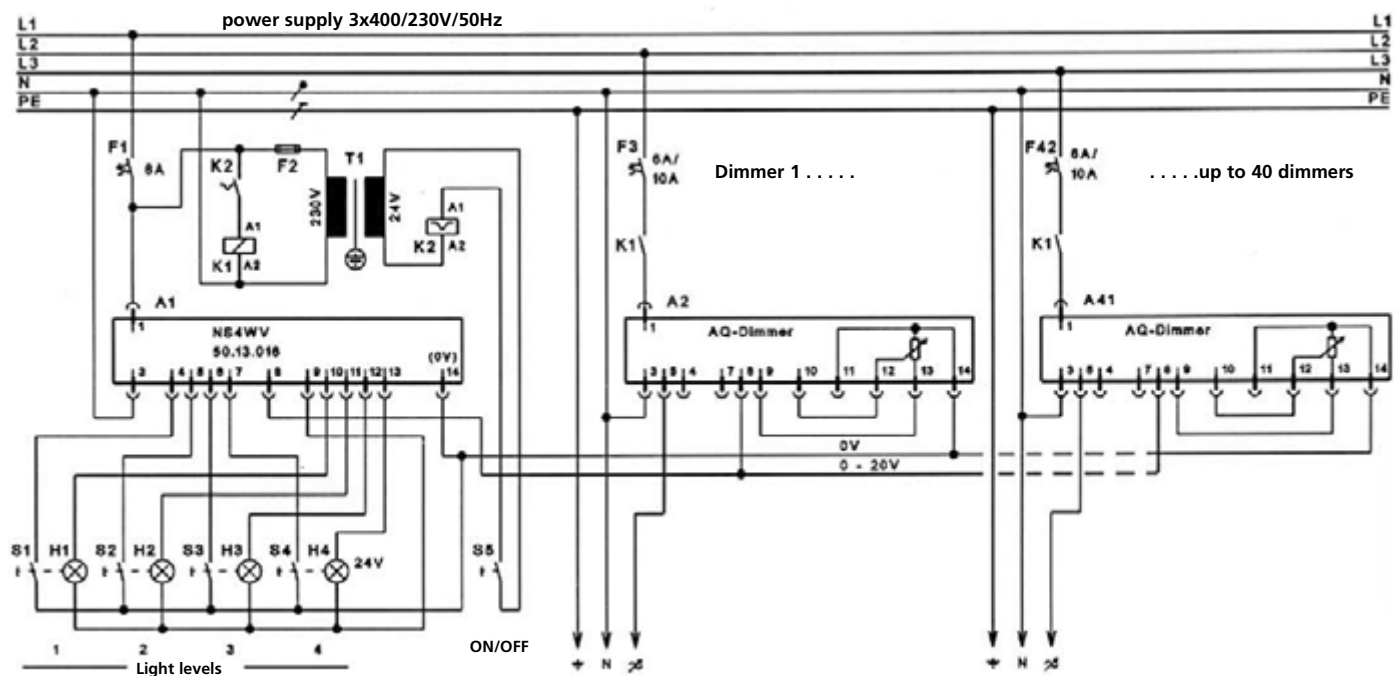
for NS 4WV controls with 4-preset pushbutton functions

Order-no: 50.13.016

## NS 4 WV-controls for a max. of 40 AQ-dimmers



## NS 4 WV type for the control of max. 40 AQ-dimmers with ON/OFF function



# AQ-Auditorium Dimming Control module, type NS 6 WV

Order-No.: 50.13.218

The NS 6 WV is suitable for the common control of max. 20 AQ dimmers. Additionally it can control up to 300 fluorescent lamps with electronic ballasts with 1-10V interface or low-voltage halogen lamps with electronic transformers with 1-10V interface as well.

Both interfaces (0-20V or 1-10V) can be selected with a rotary switch at the panel face of the control.

With the NS6WV the following pushbutton functions can be realized:

- 6xlight level selection
- 1xBrighter
- 1xDarker
- 1xON
- 1xOFF



## Setting of light levels

6 different light levels can be set with potentiometers at the NS6 WV. On demand the 6th light level can be set with an external potentiometer. The selection of light levels is made at a pushbutton panel or with individual pushbuttons.

## Fade time adjustment

With the potentiometers ‚Fade time‘ at the panel face of the NS 6WV the transfer time from ‚Dark‘ to ‚Bright‘ and from ‚Bright‘ to ‚Dark‘ individually can be set between 3 and 60 secs.

## ON/OFF switching

The NS6WV includes a relay with voltage-free contact with the switching potential of max. 10A/250 V. Higher loads are to be switched with an external relay or contactor. Lighting switches ON at the last set light level. The internal relay can be operated with a pushbutton ON/OFF at the selector panel (latching relay function) as well as external pushbuttons.

## BRIGHTER/DARKER-function

The 2 pushbuttons Brighter and Darker are suitable for the following functions:

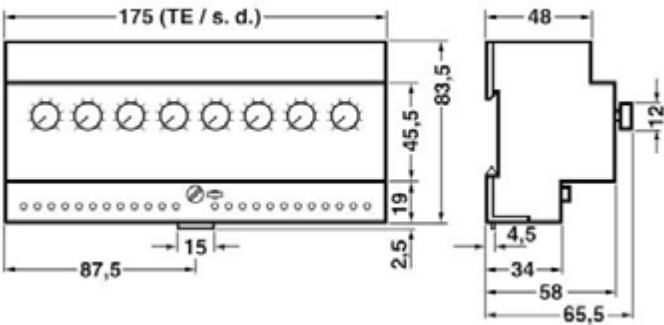
- Brighter: Lighting goes within the set fade time into its brightest level as long as the pushbutton is pressed. The last left light level is stored.
- Darker: Lighting goes within the set fade time into its darkest level as long as the pushbutton is pressed. The last left light level is stored

## Technical data:

Characterization	Auditorium Dimming Control NS 6 WV
------------------	------------------------------------

Type	: NS 6WV
Order-no.	: 50.13.218
Power supply	: 230V, 50/60 Hz
Output voltage	: 0 - + 20V / 1-10V galvanic separated <b>No protective low-voltage</b> (Basic isolation according to IEC 664, 10/92)
Max. output current	
0-20V	: max. 20 mA (20 ALTENBURGER dimmers)
1-10V	: max. 200 mA for 300 electr. ballasts or transformers with 1-10V interface
Switch contact	: 10 A 250 V~
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =175x83,5x65,5 mm
Weight	: approx. 500 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional drawing for the NS6WV



control plates: see page 48

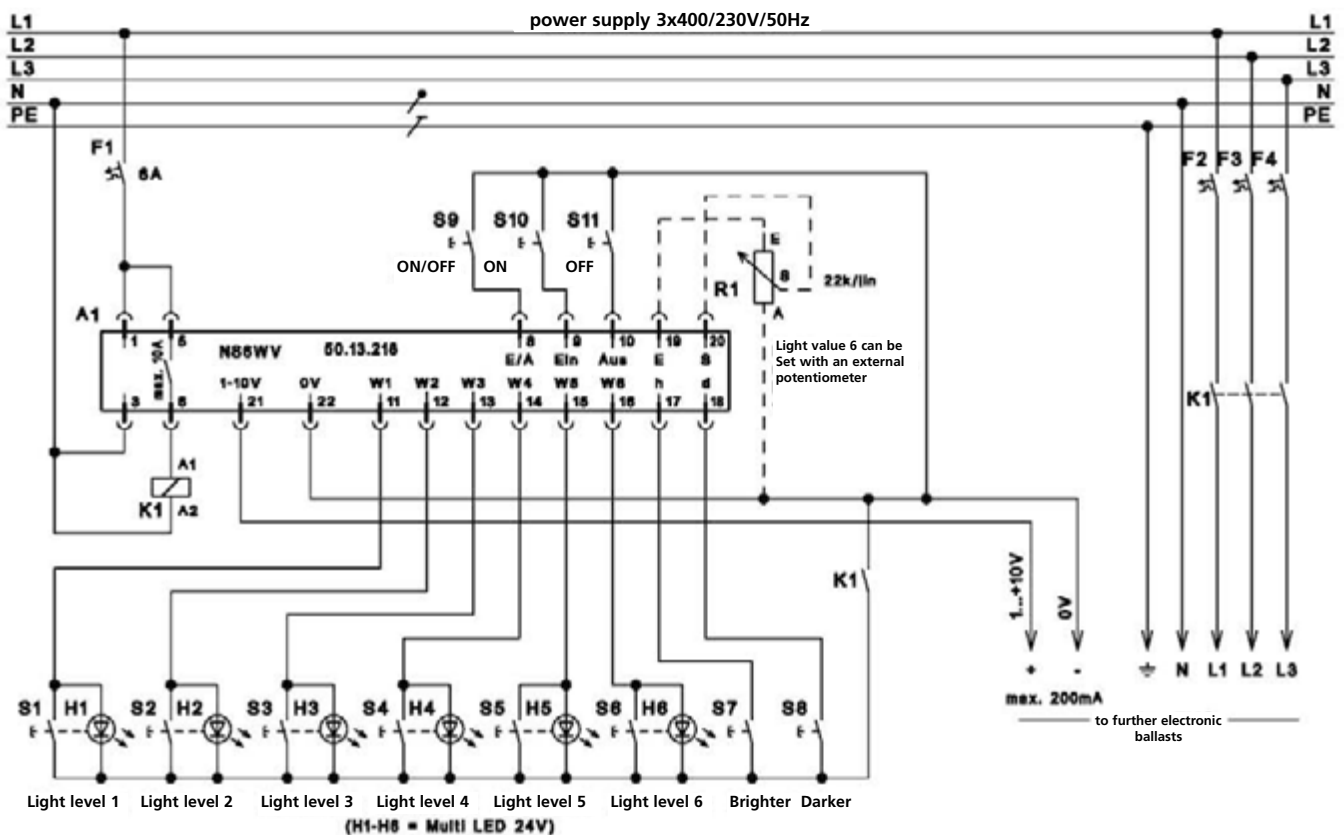


# Wiring diagrams

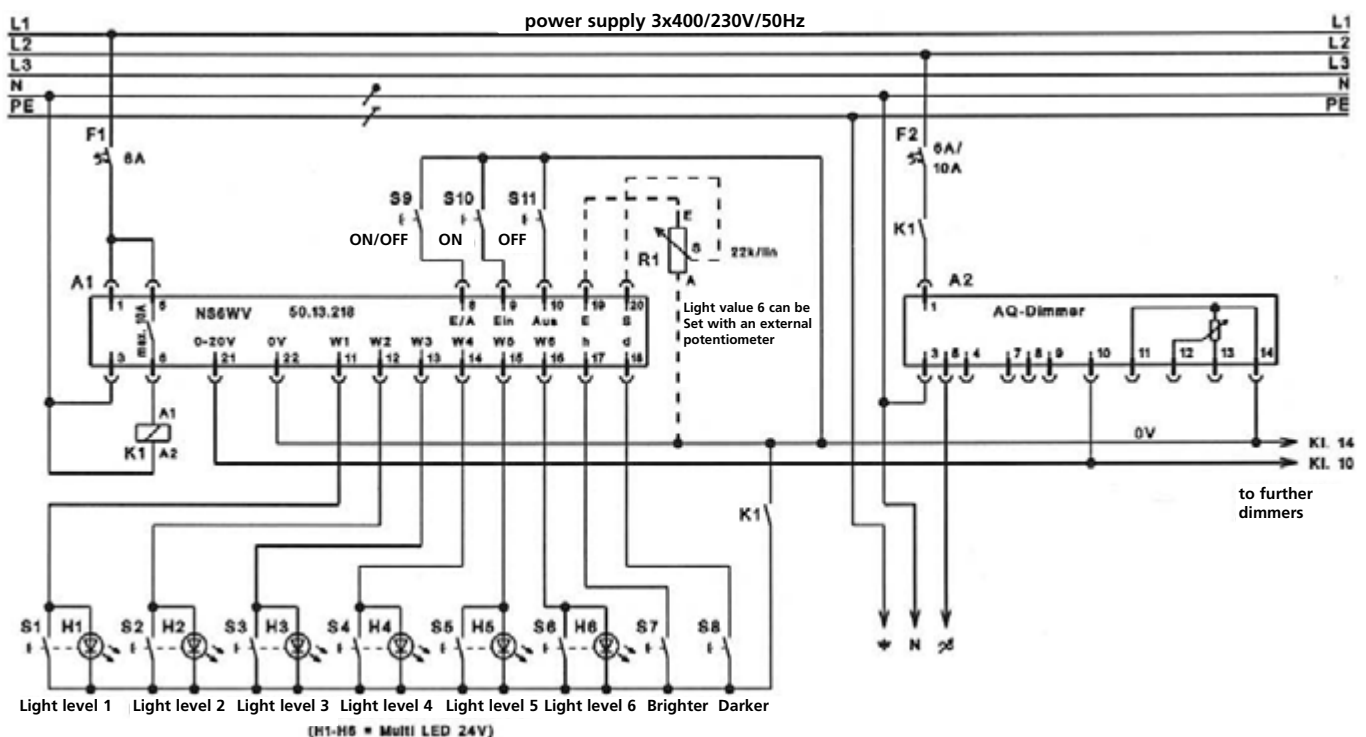
Control type NS6WV

Order-no: 50.13.218

## Auditorium dimming control type NS 6 WV in connection with electronic ballasts with interfaces 1-10 V and ON/OFF



## Auditorium dimming control type NS 6 WV in connection with max. 40 AQ dimmers and external contactors



# Double wave lighting control , type AQE2-S

Order-No.: 50.13.121

The AQE2-S is suitable for the control of 2 individual lighting groups. Each one dims up and down. While group 1 is in its brightest level group 2 arrives at its darkest level (and vice versa).

The dimmer controls up to 40 AQ dimmers with 0-10V interface or up to 200 ballasts or electronic transformers with 1-10V interface.



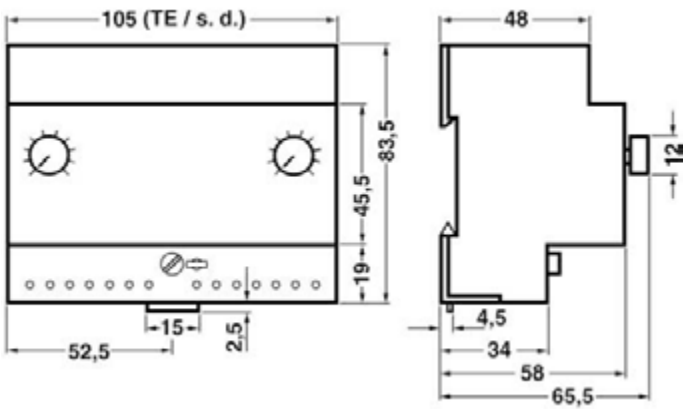
## Cycle time setting

The cycle time from 'Brighter' or 'Darker' (and vice versa) can individually be set between 3 and 60 secs. with the rotary potentiometers at the control.

## Technical data:

Characterization	Double wave lighting control AQE2-S
Type	: AQ E2-S
Order-no.	: 50.13.121
Power supply	: 230V, 50/60 Hz
Output voltage	: 1-10V / 10-1 V
Max. output current	: approx. 2x200 mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 5VA
Control voltage	: (1-10 V) – galvanic separated
	<b>No protective low-voltage</b> (Basic isolation according to IEC 664, 10/92)
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

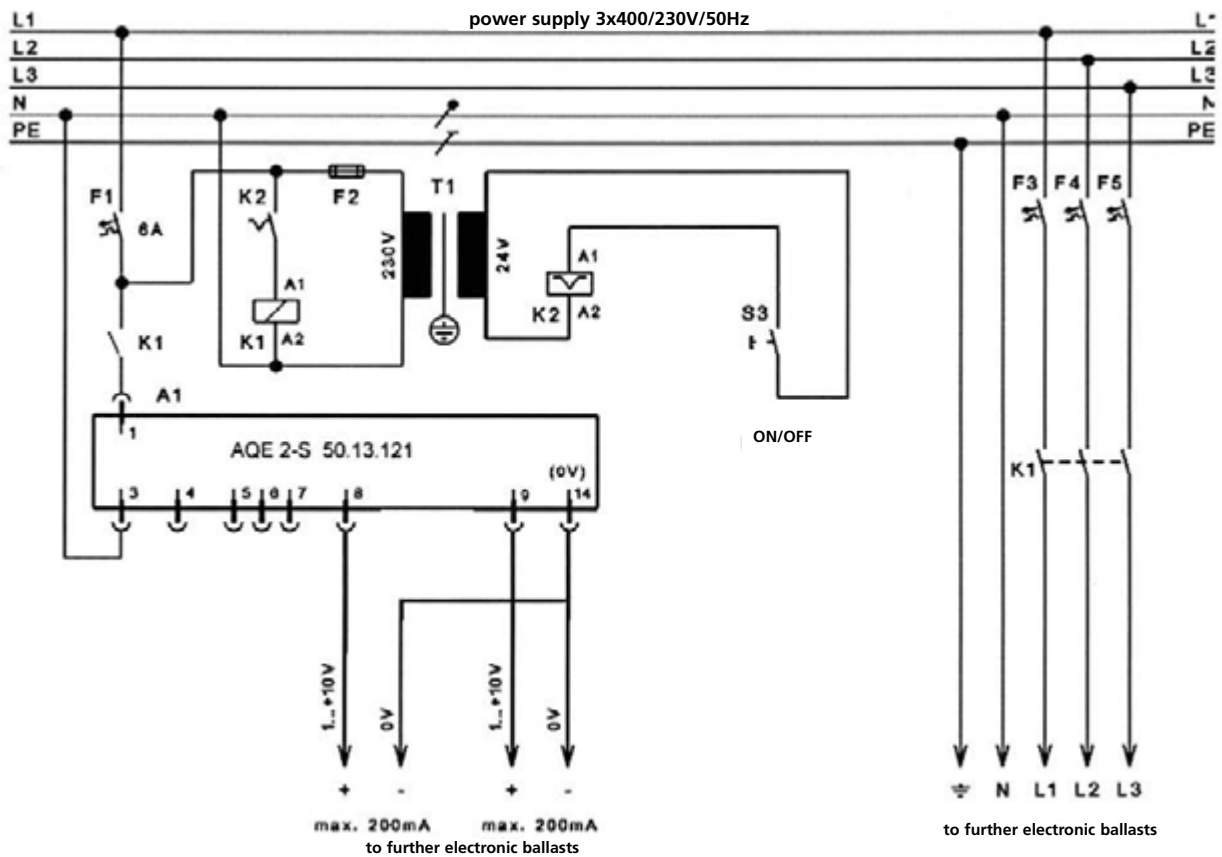
## Dimensional drawing AQ E2-S



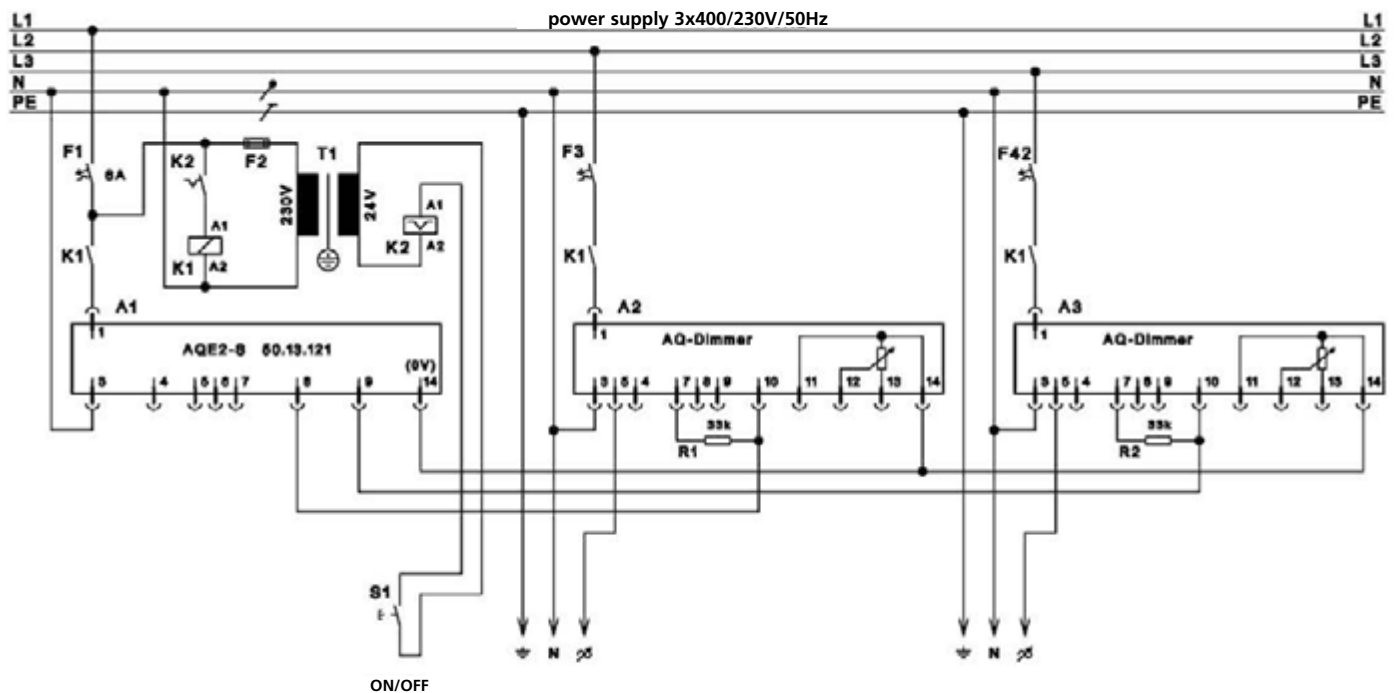
# Wiring diagrams

Order-No.: 50.13.121

**Double wave lighting control type AQE2-S with direct control of max. 200 electronic ballasts or transformers with 1-10V interface with ON/OFF function**



**Double wave lighting control type AQE2-S in connection with up to 40 AQ dimmers with ON/OFF function**



# Switch dim module, type IRNV-3S

suitable for IR- and radio controls

Order-No.: 50.13.145

The IRNV-3S module is suitable for the control of 3 light circuits with the functions ON/OFF/BRIGHTER/DARKER.  
Per circuit a maximum of 15 electronic ballasts or low-voltage halogen lamps with transformers with 1-10V interface can be controlled.  
Additionally all ALTENBURGER dimmers with their control panels and their respective number of pushbuttons or with IR- or radio transmitters can be controlled.  
Maximal 4 individual modules can be combined. With the modules 1-3 9 light circuits can be controlled. The 4. module controls an additional circuit (circuit 10). With the IR /radio-control a master function as well as brighter-darker functions can be realized.



## Brightness control

With the keys BRIGHTER or DARKER at a handheld transmitter or at pushbutton panels the light level is changed continuously. After the key has been released the set light level is stored. After a power failure this level remains unchanged and can be achieved again after power is restored.

## Fade time

The fade time from minimum to maximum and from maximum to minimum is 5 secs. respectively.

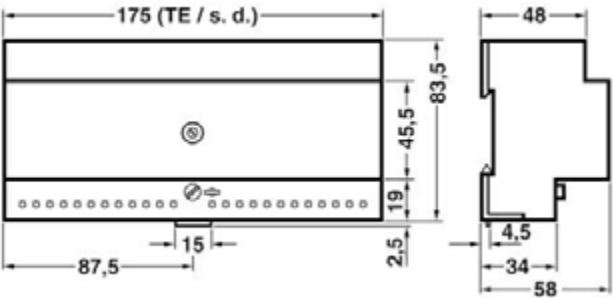
## ON/OFF switching

The IRNV-3S has an integrated latching relay for each circuit. It either switches the power directly with its switch capacity of 5 A or via a relay or contactor.  
Through pushing the button ON/OFF the latching relay is activated/deactivated. After switching ON the last set light level is achieved again. It only changes if the light level has been changed during the off state by pressing the key/ bottom.

## Technical data:

Characterization	Switch dim module IRNV-3S
Type	: IRNV-3S
Order-no.	: 50.13.145
Power supply	: 230V, 50/60 Hz
Output voltage	: 0 - + 20V / 1-10V - galvanic separated <b>No protective low-voltage</b> (Basic isolation according to IEC 664, 10/92)
Max. output current	: max. 10 mA (max. 3 ALTENBURGER dimmers)
0-20V	: max. 10 mA for 15 electr. ballasts or transformers with 1-10V interface
1-10V	: max. 10 mA for 15 electr. ballasts or transformers with 1-10V interface
Switch contact	: 5A 240 V~
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD = 175x83,5x58 mm
Weight	: approx. 500 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94

## Dimensional drawing IRNV-3S



Control plates: see page 47

IR-transmitter : page 43  
IR-receiver : page 43

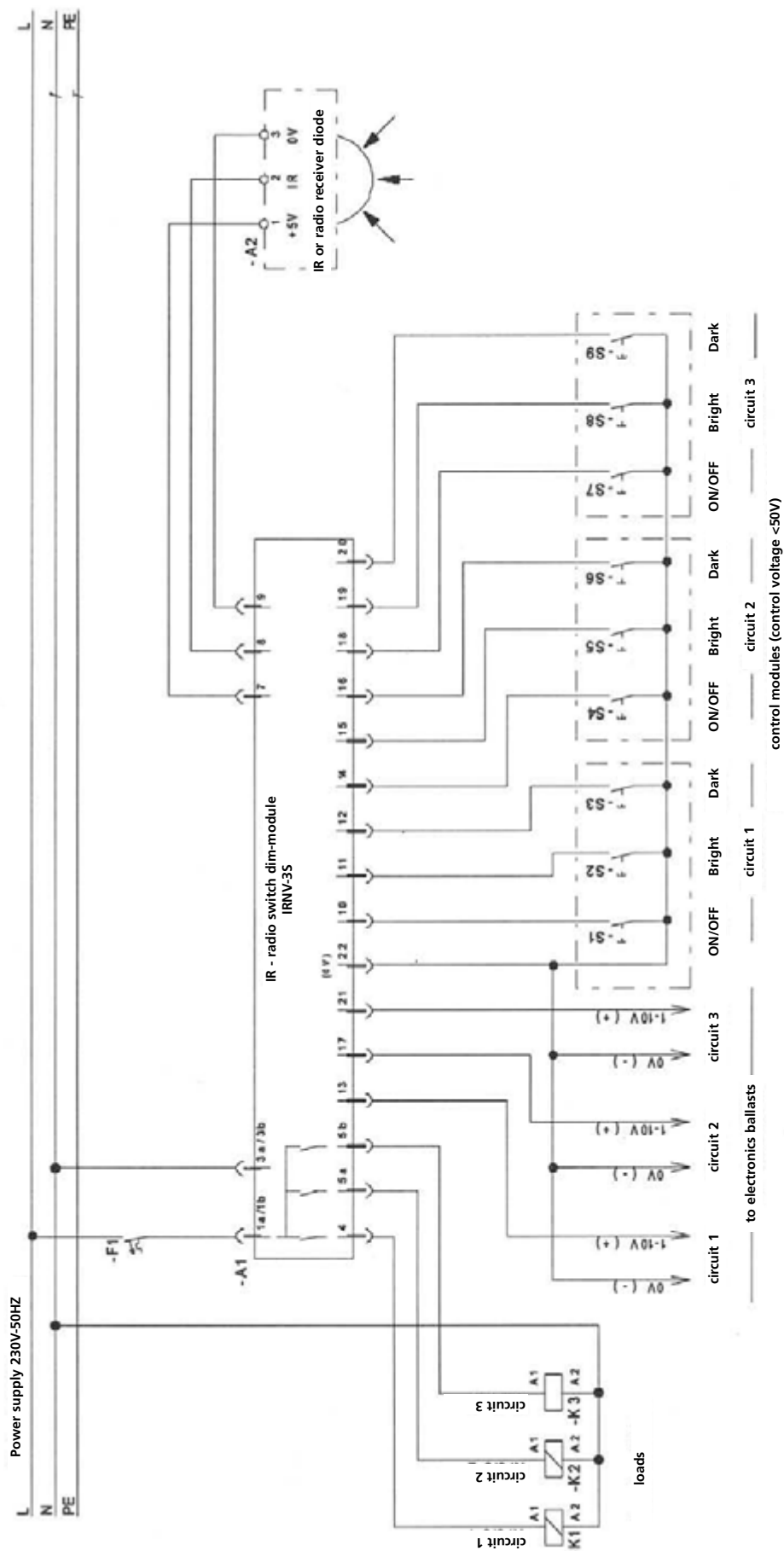
Radio-transmitter : page 45  
radio-receiver : page 45

# Wiring diagram

Switch dim-module IRNV-3S for the IR- and radio control of electronic ballasts with 1-10V interface

Order-no.: 50.13.145

## 1 Module, 3 circuits, individually dimmable

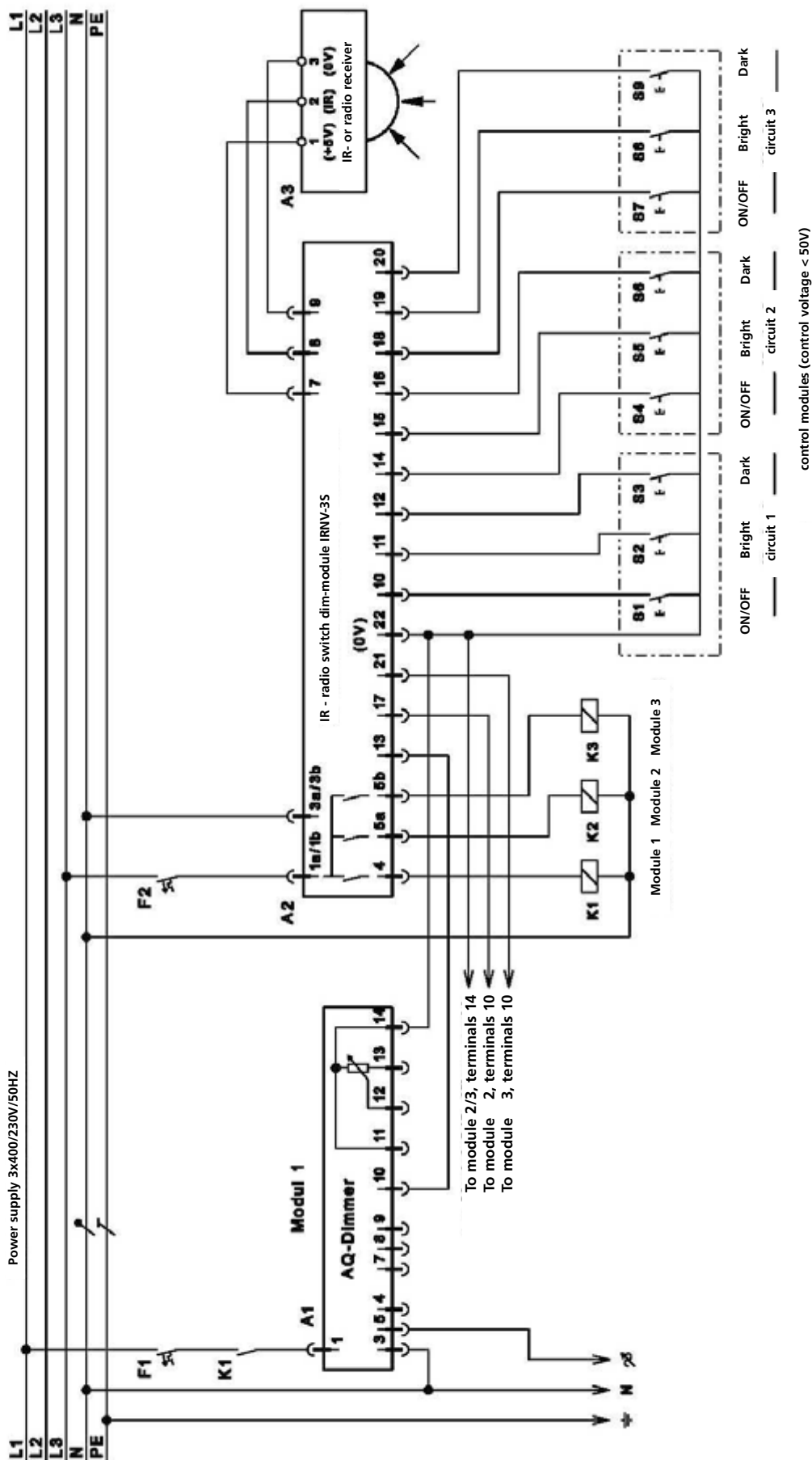


## Wiring diagram

Switch dim-module IRNV-3S for the IR- and radio control of dimmers with 0 -10V interface

Order-no.: 50.13.145

**3 modules, 3 circuits to be controlled individually or commonly (master function)**



**The master function is in the IR- or radio transmitters**

# IR-remote control , type NSIR

The NSIR is suitable for 5 IR-commands. It comprises 3 components:

1. IR- and radio control type IR-ST/S, order-no.: 50.13.142
2. IR-Sensor, type IR-ES/R, order-no.: 50.13.043
3. IR-Transmitter, type IR-S/S, order-no.: 50.13.060

The transmitter has a minimum number of 5 keys, a maximum of 35 keys. Manyfold functions can be performed. For example:

- **5 lighting circuits** can respectively be controlled with the **NS1** or the **NS1-S** function (Brighter-Darker-ON/OFF) - electronic.
- **1 circuit** can be controlled with the function of the **NS2-X** or **NS 2-SX** (Brighter-Darker-ON/OFF) - with integrated relay.
- **1 circuit** with the function of the **NS4** or **NS4-S, NS4WV** or **NS4WV-S** (Brighter-Darker-Stop-Preset or 4 x preset).

## For each room just one IR system can be installed.

An extension of the min. of 5 channels to a max. of 35 channels is possible. For the max. of 35 channels however 7 IR-control modules would be required. The channel selection is made with a selector switch at the outside of the module (see wiring diagram page 44).

The distance between IR-transmitter and IR-sensor can be max. 40 m. Up to 3 sensors can be connected for an extension of the recognized distance.

## Technical data:

Characterization	IR-control module, type IR-ST/S
Type	: IR-ST/S
Order-no.	: 50.13.142
Power supply	: 230V, 50/60 Hz
Output	: 1 voltage-free normally open contact 4 normally open contacts with one common voltage-free potential max. 230V /1A
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection at vertical mounting position
Terminals	: 0,5 – 2,5 mm <sup>2</sup> , solid wire or litz wire with sleeve
Wire length	: max. 100 m (between control module and IR-sensor)
Own consumption	: approx. 3VA
Housing	: plastic housing for DIN rail systems
Dimensions	: WxHxD =105x83,5x58 mm
Weight	: approx. 400 gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664, 10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met according to IEC 669-2-1 11/94



IR- and radio control module type IR-ST/S, order-no. 50.13.142

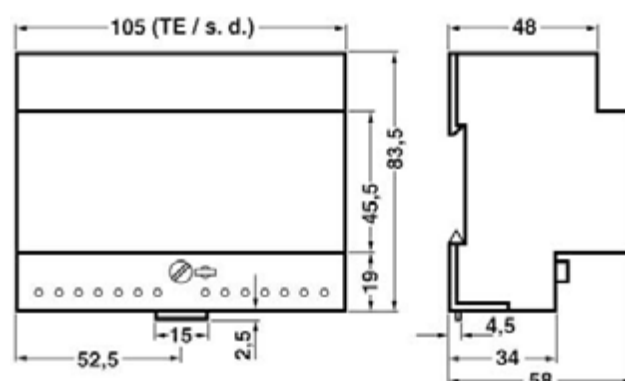


IR-transmitter type IR-S/S  
Order-no.: 50.13.060  
with 35 channels



IR-sensor-type IR-ES/R, order-no.: 50.13.043

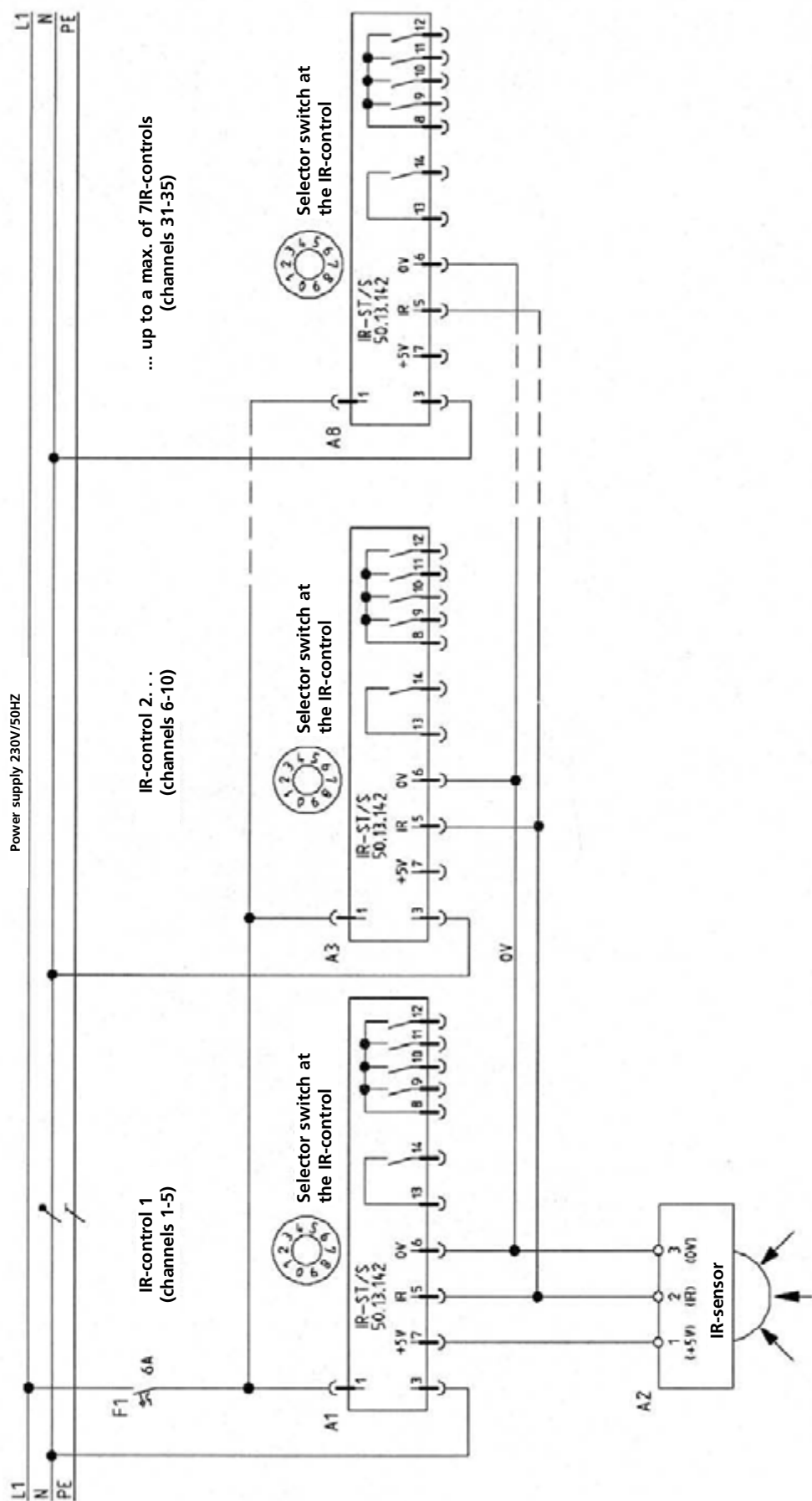
## Dimensional diagram IR-ST/S



# Wiring diagram

for the IR-and radio remote control type NSIR

## IR-control for up to 35 channels





# Radio remote control , type NSFU

The radio remote control NSFU is suitable for 5 radio-commands (channels). It comprises 3 components:

1. IR-and radio control type IR-ST/S, order-no.: 50.13.142 (the IR and radio controls are identical)
2. Radio-receiver, type FU-E/S, order-no.: 52.10.000
3. Radio-transmitter, type FU-S/S, order-no.: 52.00.000

The transmitter has a minimum number of 5 keys a maximum of 35 keys. Manyfold functions can be performed, for example:

- **5 lighting circuits** can respectively be controlled with the **NS1** or the **NS1-S** function (Brighter-Darker-ON/OFF) -electronic.
- **1 circuit** can be controlled with the function of the **NS2-X** or **NS 2-SX** (Brighter-Darker-ON/OFF) - with integrated relay.
- **1 circuit** with the function of the **NS4** or **NS4-S**, **NS4WV** or **NS4WV-S** (Brighter-Darker-Stop-Preset or 4 x preset).

## For different radio systems different channels have to be used.

If the number of channels shall be increased up to 35 up to 7 radio-controls are required. The selection of channels is made with a selector switch at the module (see wiring diagram page 46).

The distance between radio-transmitter and radio receiver can be max. 40 m. Up to 6 receivers can be connected for the extension of the recognized distance.



IR-and radio control module type IR-ST/S, order-no. 50.13.142



radio-transmitter type FU-S/S with 35 keys/channels. Number of keys an designation acc. to specification.  
Order-no.: 52.00.000

## Technical data IR-ST/S see page 43

### Technical data:

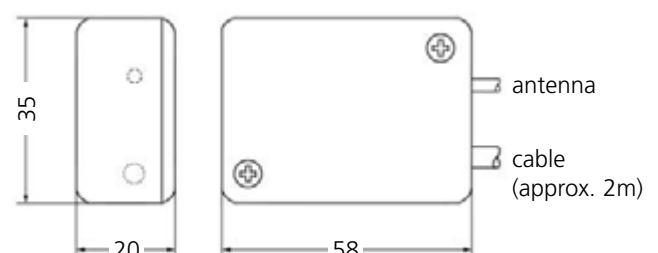
Characterization	radio-receiver, type FU E/S
Type	: FU-E/S
Order-no.	: 52.10.000
Power supply	: 5-12VDC (AC not permitted)
Own consumption	: approx. 10 mA (at 5V Vcc)
Ambient temperature	: 0°C ...+ 45°C
Protective class/type	: II (protective isolation) / IP 30
Receiver frequency	: 868,3 MHz
Modulation type	: AM Modulation OOK
Wiring	: wire length = max. 100 m / Wire section min. 0,5 mm <sup>2</sup>
Dimensions	: WxHxD =35x58x20 mm
Weight	: approx. 35 gr
Designation	: CE 0678 permitted in connection with the FU transmitter (order-no. 50.00.000)



Radio receiver type FU-E/S, order-no.: 52.10.000

## Dimensional diagram IR-ST/S see page 43

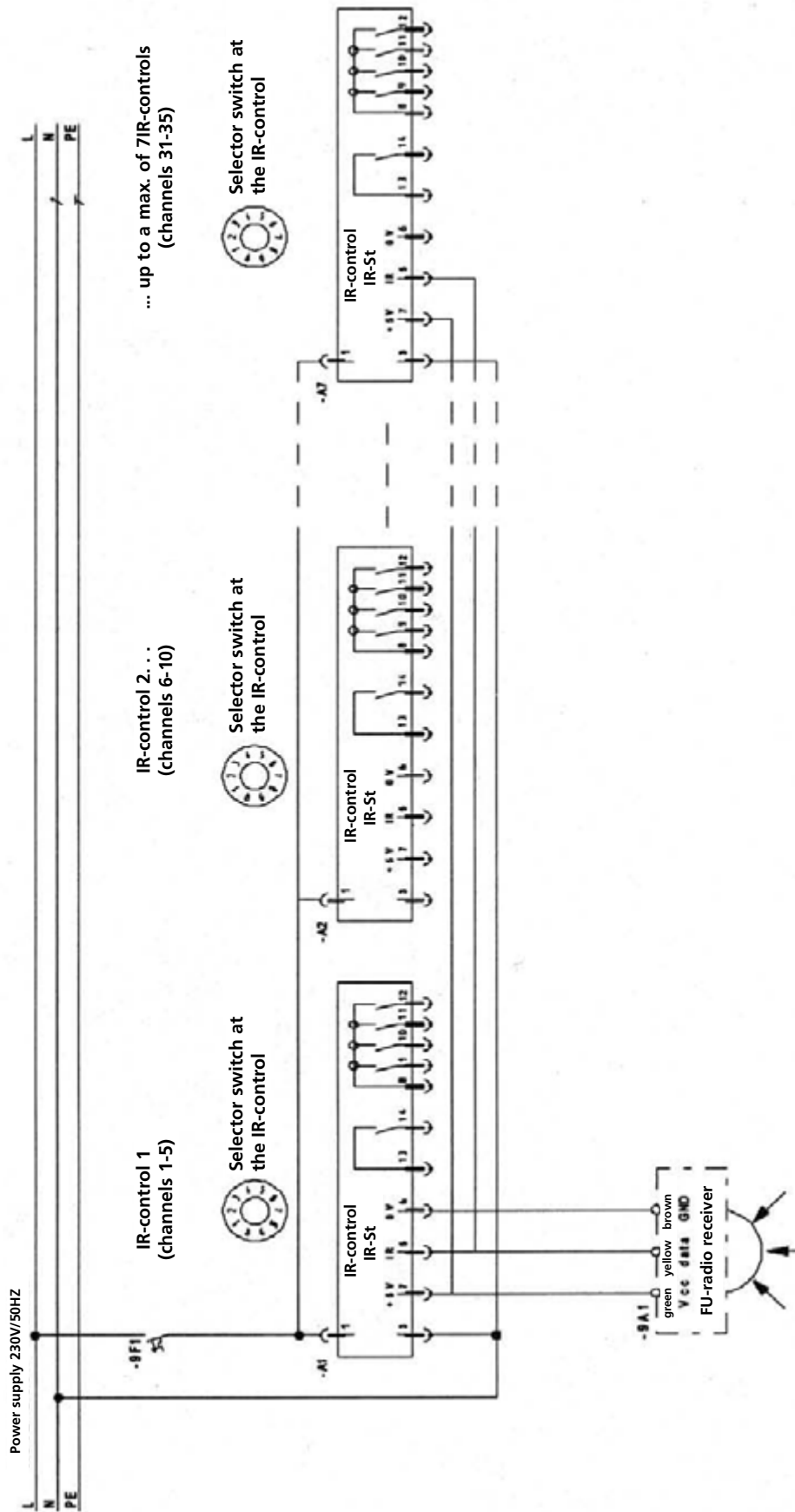
## Dimensional drawing FU-E/S



## Wiring diagram

## Remote radio and IR control type NSFU

## Radio control with max. 35 channels



# Control Panels

For dimmers and their control modules (0-10V) and control modules with 1-10V interface

Plates and frames are silver coloured anodized. They are suitable for wall-recessed VDE boxes (55 mm Ø) or BS 1-gang boxes or larger control panels.

## Different colours and pushbuttons according to specification.



1-pushbutton function (suitable for the controls type NS1, NS1-S and universal dimmer type AQ 1500-MFU).

Type: CTM1T

Order-no.: 51.01.320



2-pushbutton function (suitable for the universal dimmer type AQ-1500-MFU).

Type: CTM2T

Order-no.: 51.01.321



3-pushbutton function (suitable for the controls type NS2X and NS2-SX).

Type: CTM3T

Order-no.: 51.01.322



4-pushbutton function (suitable for the controls type NS4-WV and NS4 WV-S).

Type: CTM4T WV

Order-no: 51.01.324



4-pushbutton function (suitable for the controls type NS4 and NS4-S).

Type: CTM4T

Order-no: 51.01.323



4-pushbutton function (suitable for the universal dimmer type AQ 1500-MFU)

Type: CTM4T/U

Order-no: 51.01.354



5-pushbutton function (suitable for the controls type NS4-WV and NS4 WV-S with external ON/OFF switch).

Type: CTM5T WV

Order-no: 51.01.325



5-pushbutton function (suitable for the controls type NS4 and NS4-S with external ON/OFF switch).

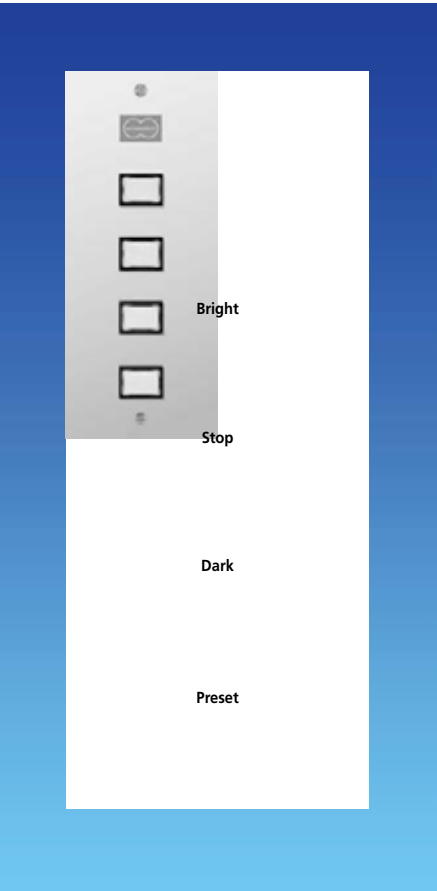
Type: CTM5T

Order-no: 51.01.326

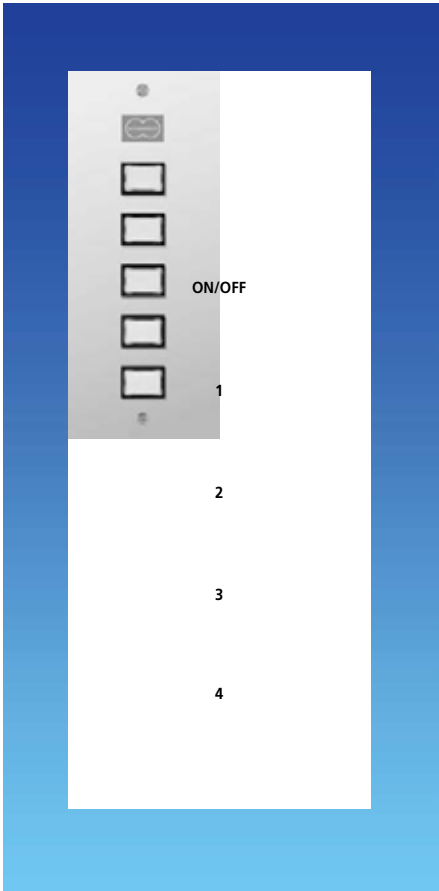
**Dimensional drawing see page 26**

# Remote Control Pushbutton Panels

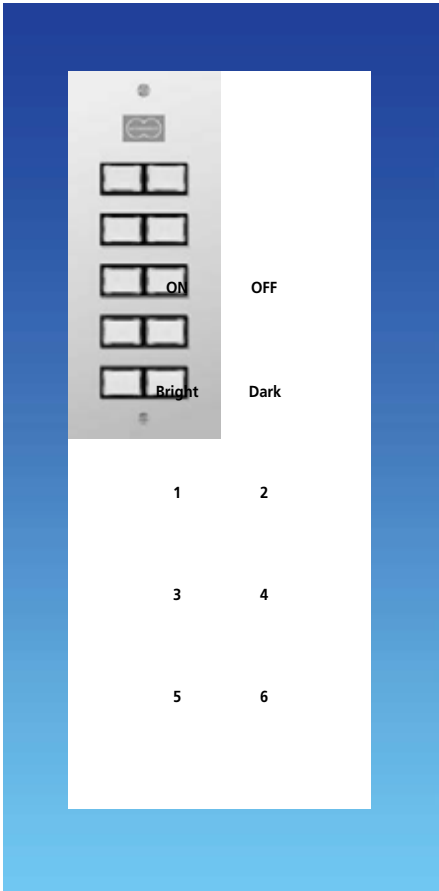
With aluminium anodized panel face, optional made of stainless steel, brass polished or plastic



4-pushbutton function suitable for the control modules type NS4, NS4 WV, NS4-S and NS4-WV-S and for the universal dimmer type AQ 1500-MFU.  
With wall recessed housing  
Dimension of the panel face (85x205mm)  
Type F4s/UP            Order-No.: 51.01.004  
Type F4s WV/UP       Order-No.: 51.01.050  
Type F4s U/UP        Order-No.: 51.01.054  
(details: see price list)

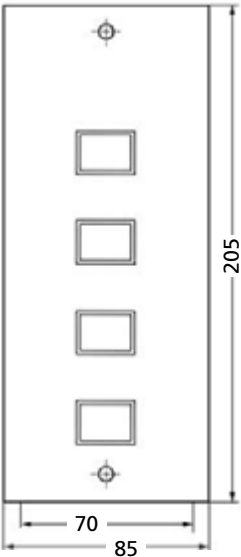


5-pushbutton function suitable for the control modules type NS4, NS4 WV, NS4-S and NS4-WV-S with additional ON/OFF pushbutton. With wall recessed housing  
Dimension of the panel face (85x205mm)  
Type F5s/UP            Order-No.: 51.01.005  
Type F5s WV/UP       Order-No.: 51.01.051  
(details: see price list)

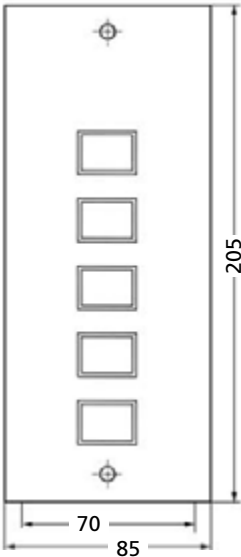


10-pushbutton function suitable for the control module type NS6WV (for the control of dimmers with an interface of 0-10V) and for the direct control of electronic ballasts and transformers with 1-10V interface. With wall recessed housing  
Dimension of the panel face (85x205mm)  
Type F10s/UP           Order-No.: 51.01.150  
(details: see price list)

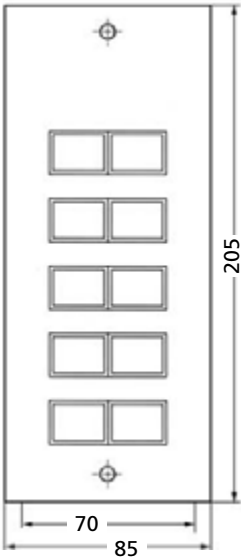
## Dimensional drawings for the a.m. control panels



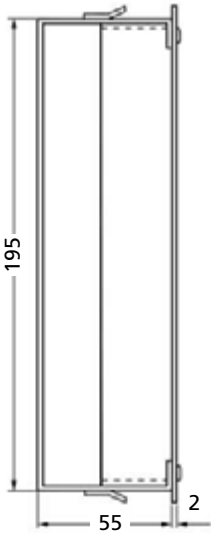
Panel face



Panel face



Panel face



wall-recessed housing, side view

# Remote control panels



Panel face brass polished with 10 pushbuttons (for e.g. 1 control module type NS2X and 1 module type NS2-SX for AQ dimmers and for electronic ballasts or transformers with 1-10V interface, additionally with 1 pushbutton 'UP' and 'DOWN' for screens or curtains).

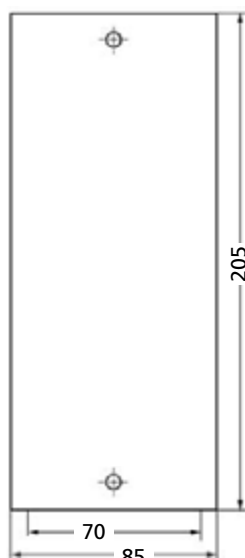


Control module with stainless steel panel face, with slider and pushbutton ON/OFF, pushbutton 'TAKE' for 'manual/automatic' (daylight dependent constant light control).

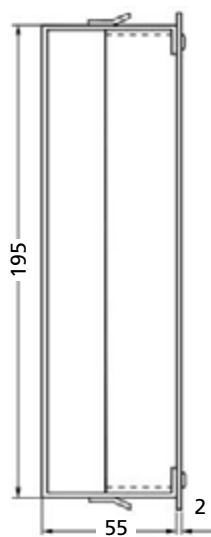
Typ F2/Sp/ES/UP

Order-No.: 51.01.999

## Dimensional drawing for the a.m. types



Panel face



wall-recessed housing, side view

# Constant Light control, type AQAD-S

For electronic ballasts and transformers with 1-10 V interface as well as for a maximum of 3 dimmers with 0-10 V interface with smooth adjustment of the artificial light to the daylight (with ON/OFF switch)

Order-No.: 50.14.116

This DIN rail module has an autonomous current supply. It adjusts the artificial light smoothly to the daylight: At the same volume as daylight decreases, artificial light increases (and vice versa).

A light sensor (see page 59) acquires a mixed light level of artificial and daylight at a reference place and continuously transmits it to the AQAD-S control. It is recommended to mount the sensor at a side wall in a height of approximately 3 m, turned downwards. In sports halls the sensor should be protected by a basket.

The light level to be kept constant alternatively can be set with a potentiometer at the AQAD-S or with a remote potentiometer (type DPUT-S).



The control transmits its values after a delay time of 10 – 60 secs. (dependent on the control difference) to the electronic ballasts. Exceeds the daylight portion the set light level at the reference place of the sensor the AQAD-S control switches the lighting OFF after a delay time of 2 – 4 min (again in dependence of the control difference), directly via a 10 A switch relay or (at higher loads) via a voltage free contact with a separate contactor or relay. It switches ON again as soon as the daylight falls below the set light level. The delay time is fixed at works.

## Switch ON interlock

The automatic switch ON can be prevented by operating the ,switch interlock ON' at the AQAD-S control. In this case lighting can be controlled just manually.

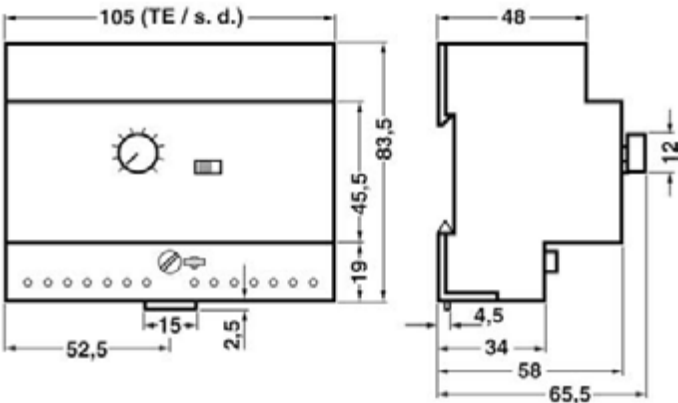
## External setting of light levels to be kept constant with the potentiometer type DPUT-S

The light level to be kept constant can also be set at an external potentiometer by selecting a maximum limit value. The same potentiometer also can be used for the manual dimming between maximum and minimum. It has an integrated ON/OFF pushbutton.

## Technical data:

Characterization	Constant light control Type AQAD-S
Type	: AQAD-S
Order-no.	: 50.14.116
Power supply	: 230V, 50/60 Hz
Output voltage	: 1 -10V galvanic separated <b>No protective low-voltage</b> (Basic isolation according to IEC 664,10/92)
max. output current	: 200mA
Switch capacity	: 10 A
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 5VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met acc. to IEC 669-2-1 11/94
Accessory	: 1 light sensor (see page 59)
Option	: external rotary potentiometer with integrated ON/OFF pushbutton for setting the light level to be kept constant and for a manual light operation with an interface of 1-10V.

## Dimensional drawing AQAD-S

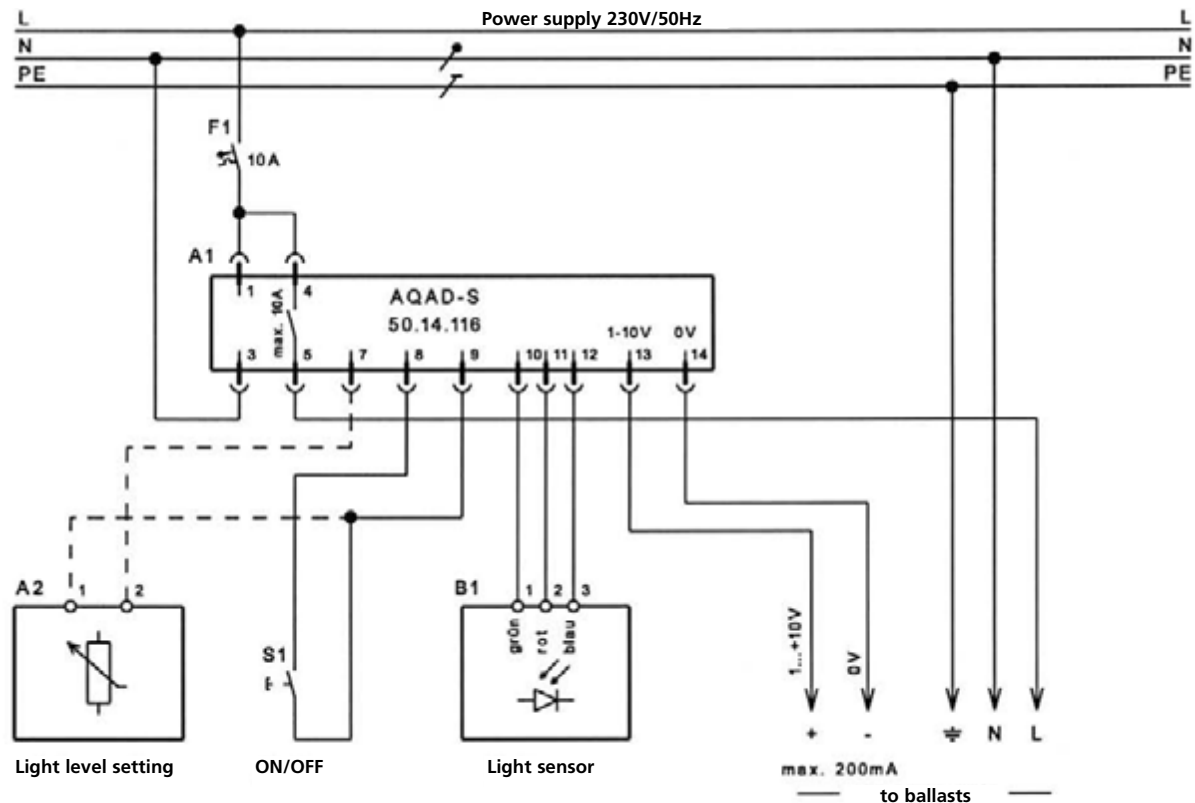


# Wiring diagrams

Constant light control, AQAD-S

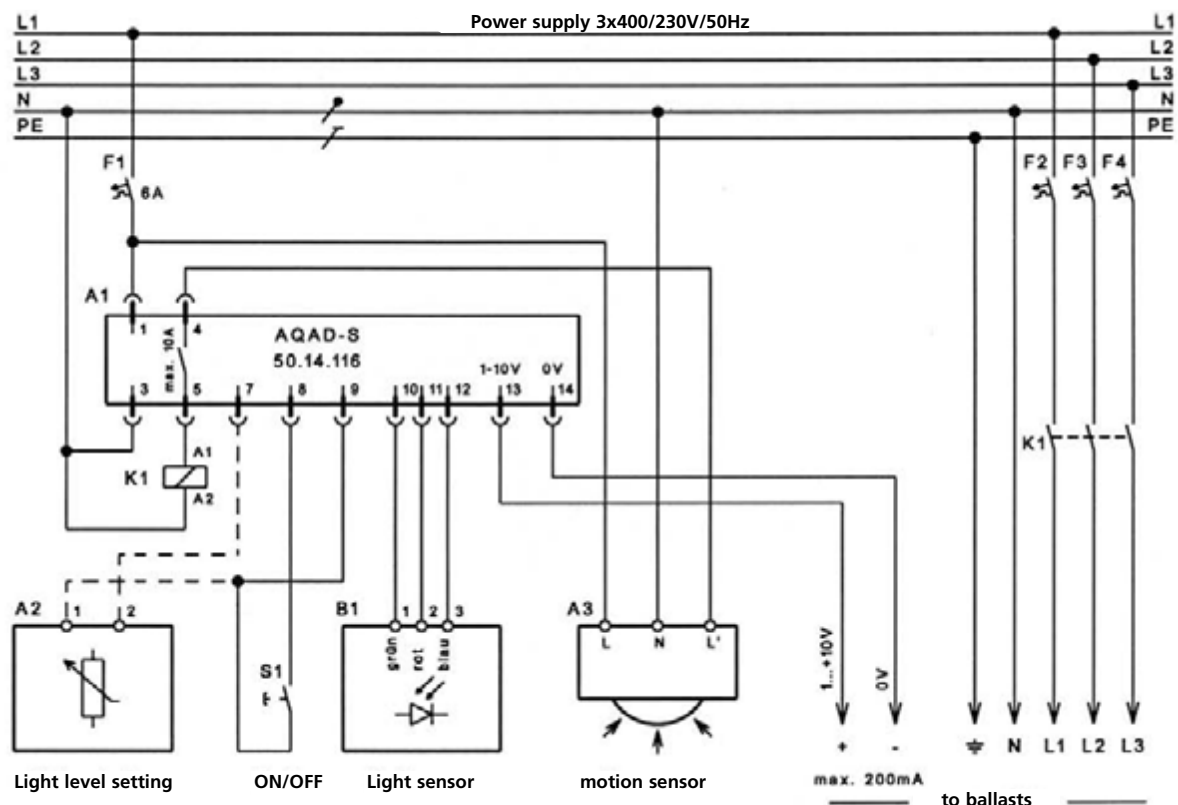
Order-No.:50.14.116

## Constant light control, type AQAD-S



e.g. Type DPUT-S

## Constant light control, type AQAD-S with motion sensor and contactor for a higher switch capacity



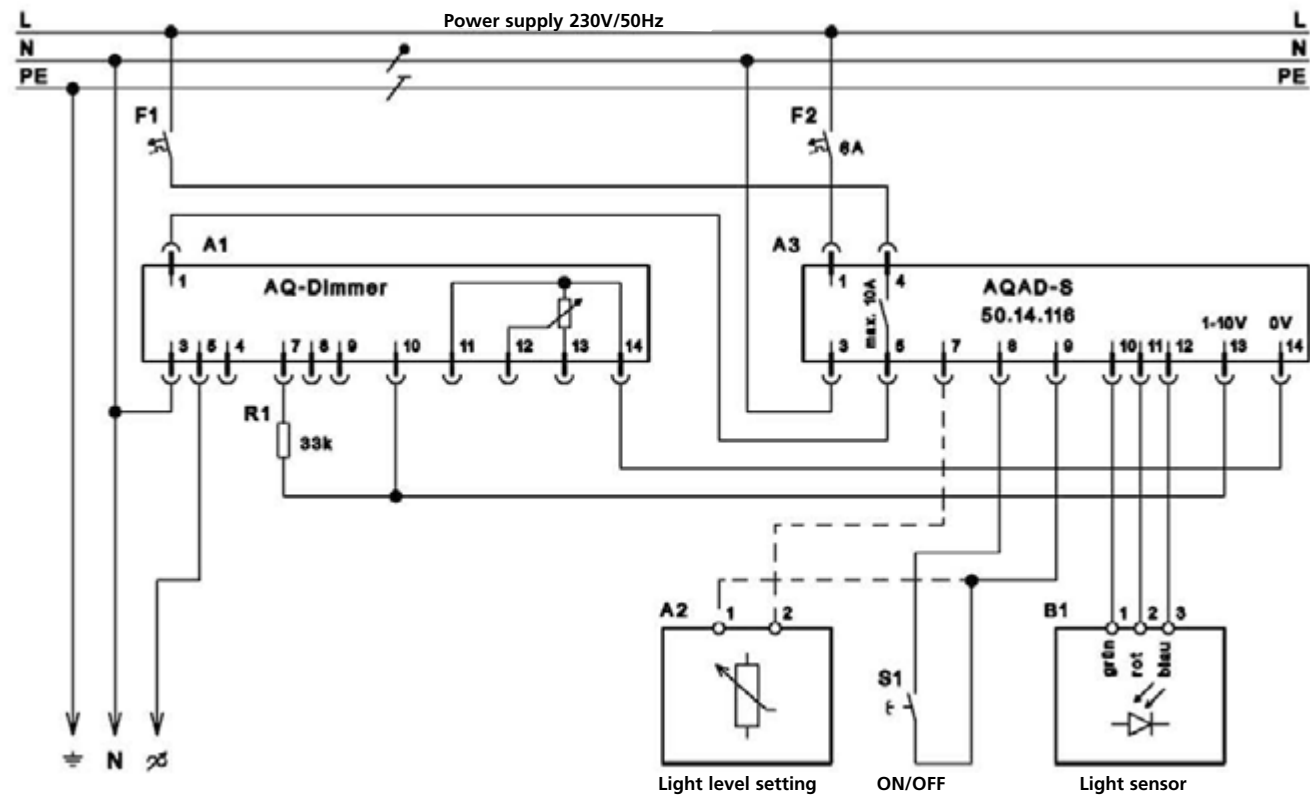
e.g. Type DPUT-S

# Wiring diagrams

Constant light control, AQAD-S

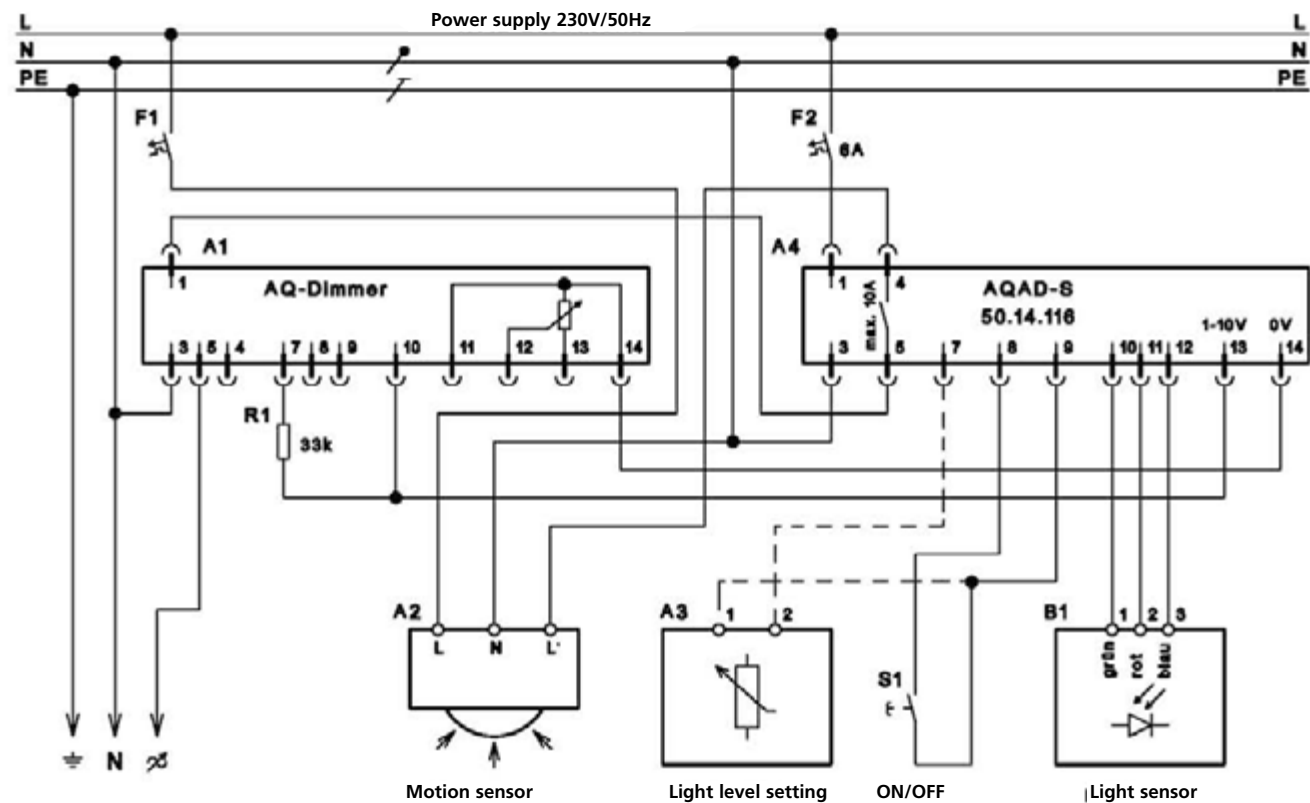
Order-No. 50.14.116

## Constant light control, type AQAD-S in combination with AQ-dimmers



e.g.Type DPUT-S

## Constant light control, type AQAD-S in combination with AQ-dimmers and motion sensor



e.g.Type DPUT-S



# Light-value control switch for 1 circuit, type LWS1

Light-sensor-controlled light value control switch for all kind of lamps

Order-No.: 50.14.011

The LWS 1 switches all connected lamps in dependence of the daylight.

It has an autonomous current supply.

The sensor acquires the daylight and transmits it as control voltage to the LWS 1 which switches the lighting according to the set value. The light sensor acquires only daylight. It is of the protective type IP 55 and consequently can be mounted outside or inside a building. Inside a room it should be mounted close to a window or the best possible acquisition of daylight.

## Working range

with the slide switch the required working range can be set at the module between lux x 1 or lux x 20 (one range between 10 and 1000 lux, the other one between 200 and 20000 lux).

## Light level setting

With the rotary potentiometer 'switch OFF value' the light level is set at which lighting shall be switched OFF. With the potentiometer 'switch ON value' the percentage of the switch OFF value is set, at which lighting shall be switched ON again (between 50 and 95 % of the switch OFF value). If for instance the switch OFF value is set to 500 lux and the switch ON value is set to 80 %, lighting switches ON as soon as daylight level falls below 400 lux.

## Indication of the switch state

An LED at the LWS 1 indicates the expected switch state. An LED indicates if the lighting is switched ON or will be switched ON after the set delay time.

## Delay times

Can be set between 5 secs and 20 min. individually for switch ON and for switch OFF.

## Switch ON interlock

A slide switch (ON/OFF) activates or deactivates the automatic operation of the LWS1. If it is activated an external pushbutton manually operates the lighting (this however is only possible if the daylight does not exceed the set light level). With the same pushbutton lighting can be switched OFF manually.

## Load capacity

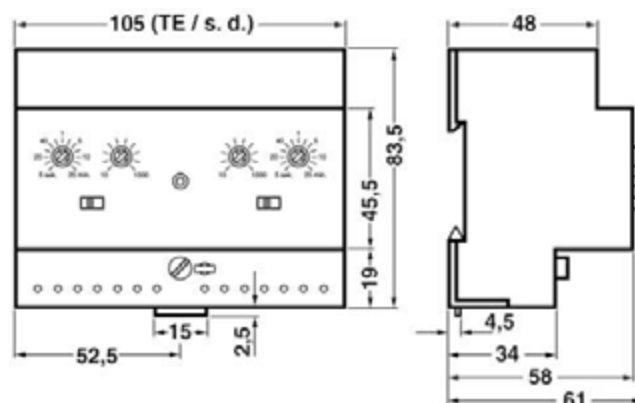
The LWS 1 has an own switch capacity of 10A/250V~. With its voltage-free contact external relays or contactors can be switched.



## Technical data:

Characterization	light-value control switch LWS1
Type	: LWS 1
Order-no.	: 50.14.011
Power supply	: 230V, 50/60 Hz
Max. contact load	: 10A/250V~ or 10A/30 V~
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm <sup>2</sup> , solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 2VA
control voltage	: (0..5V) light sensor, pushbutton galvanic separated <b>No protective low-voltage</b> (Basic isolation according to IEC 664,10/92)
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD = 105x83,5x61mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met acc. to IEC 669-2-1 11/94
Accessory	: 1 light sensor (see page 59)

## Dimensional drawing LWS 1

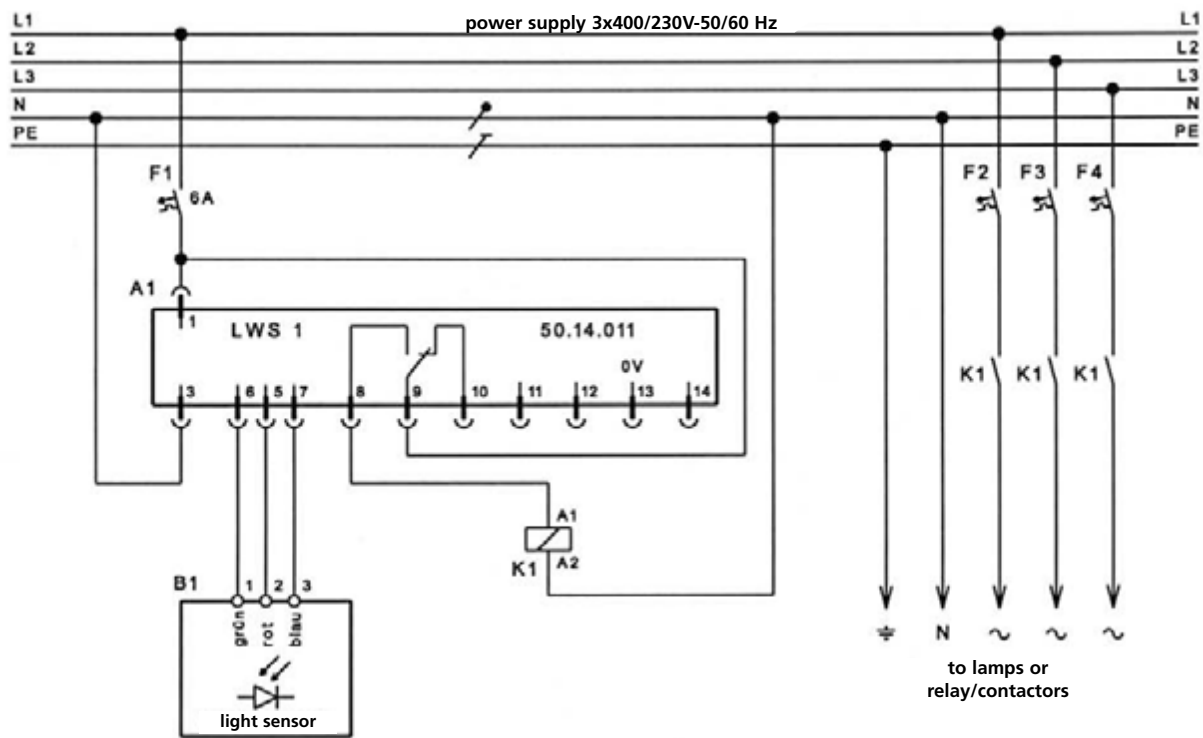


# Wiring diagrams

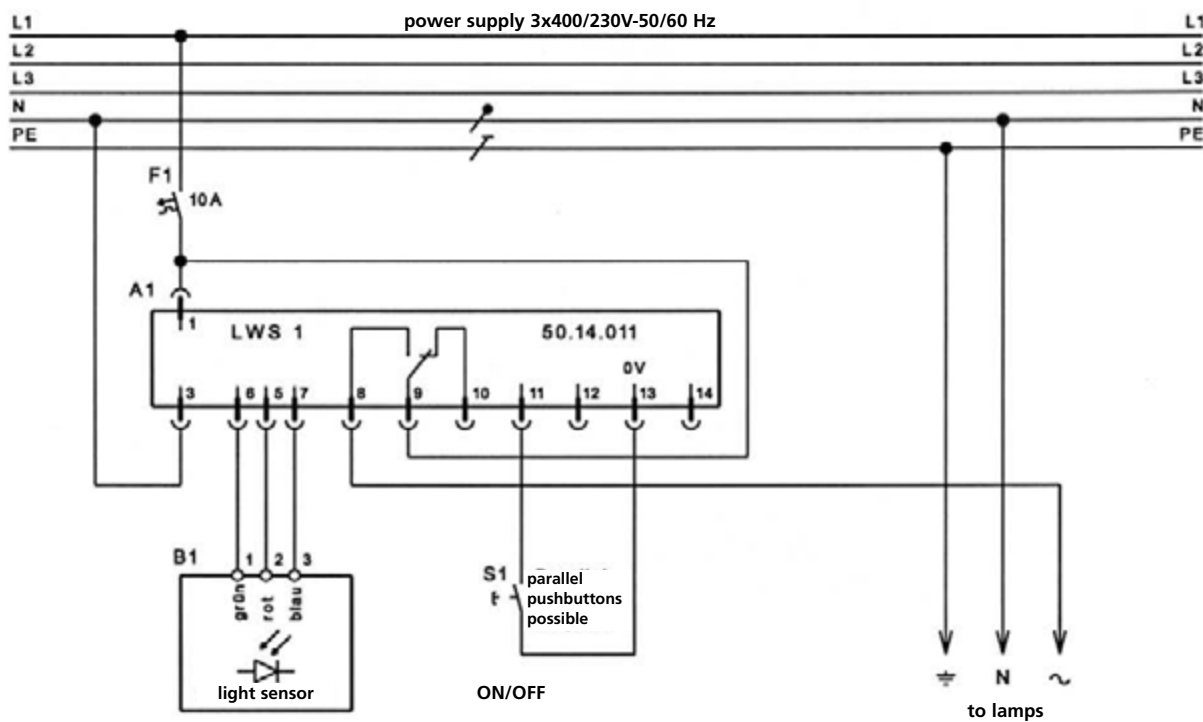
Light value control switch LWS 1

Order-No.: 50.14.011

## Light value control switch LWS 1 with external relay for the amplification of the switch capacity



## Light value control switch LWS 1 with an external pushbutton ON/OFF, to be operated after the activation of the slide switch ,interlock'. The load is directly switched.



# Light-value control switch for 3 circuits, type LWS3

Light-sensor-controlled light value control switch for all kind of lamps

Order-No.: 50.14.016

The LWS 3 switches all connected lamps in dependence of the daylight.

It has an autonomous current supply.

The sensor acquires the daylight and transmits it as control voltage to the LWS 3 which switches the lighting according to the set value. The light sensor acquires only daylight. It is of the protective type IP 55 and consequently can be mounted outside or inside a building. Inside a room it should be mounted close to a window or the best possible acquisition of daylight.

## Working range

with the slide switch the required working range can be set between lux x 1 or lux x 20 (one range between 10 and 1000 lux, the other one between 200 and 20000 lux).

## Light level setting

With the 3 rotary potentiometers the 'switch OFF value' for each circuit are being set. The hysteresis for the switch ON level is 10%. If the daylight falls 10 % below the set light level, lighting for the respective circuits switches ON again.

## Indication of the switch state

3 LED's at the LWS 3 indicate the expected switch state. As soon as a LED lights the lighting is switched ON or will be switched ON after the set delay time.

## Delay times

Can be set between 5 secs and 20 min. individually for the switch ON as well as for the switch OFF.

## Switch ON interlock

A slide switch (ON/OFF) activates or deactivates the automatic operation of the LWS3. If it is activated an external pushbutton manually operates the lighting (this however is only possible if the daylight does not exceed the set light level). With the same push-button lighting can be switched OFF manually.

## Load capacity

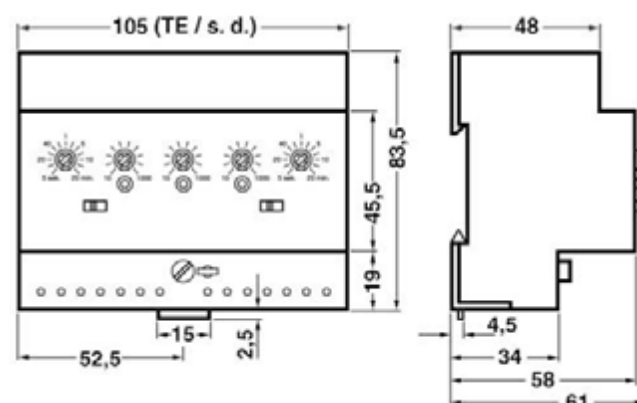
The LWS 3 has an own switch capacity of max. 3x10A/250V~. With its voltage-free contact external relays or contactors can be switched.



## Technical data:

Characterization	light-value control switch LWS3
Type	: LWS 3
Order-no.	: 50.14.016
Power supply	: 230V, 50/60 Hz
Max. contact load	: 10A/250V~ or 10A/30 V~
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm <sup>2</sup> , solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
control voltage	: 0..5V light sensor, pushbutton galvanic separated <b>No protective low-voltage</b> (Basic isolation according to IEC 664,10/92)
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD = 105x83,5x61 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met acc. to IEC 669-2-1 11/94
Accessory	: 3 light sensors (see page 59)

## Dimensional drawing LWS3

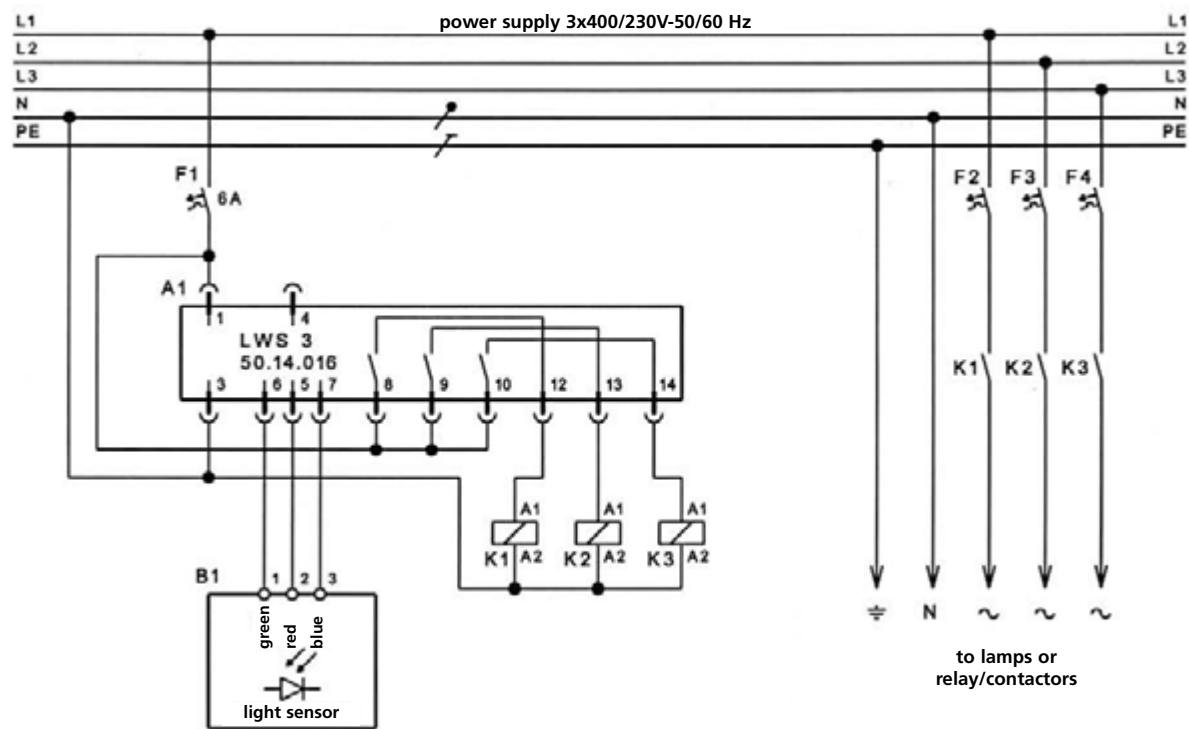


# Wiring diagrams

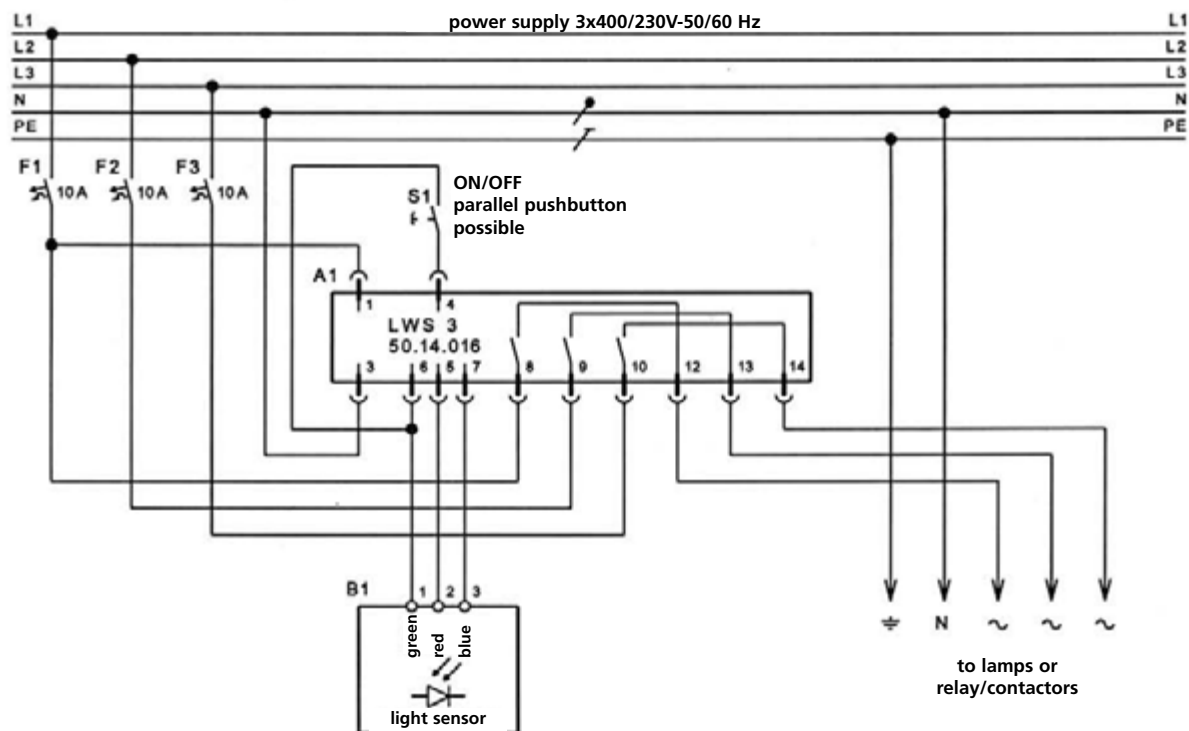
Light value control switch LWS 3

Order-No.: 50.14.016

## Light value control switch LWS 3 with external relay for the amplification of the switch capacity



## Light value control switch LWS 3 with an external pushbutton ON/OFF, to be operated after the activation of the slide switch ,interlock'



# Electronic Lux-Instrument transformer for 3-channels, type LM 3,

Order-No.: 50.14.102

The LM 3 acquires for each circuit from a light sensor the brightness and transforms it into a linear D/C in parallel to the brightness. To each circuit an individual light sensitivity (measuring range) can be assigned. Ex works a working range of 0-20000 lux has been set. The light levels are being transformed into a voltage of 0-10V.

## Setting of measuring ranges

If the settings (ex works) shall be changed first of all the housing has to be removed from the base of the control by twisting off the screw at the bottom of the housing and taking it off from the base plate with the terminals.

**Important: before taking the housing off from the base plate the control must be voltage-free.**

## Modes of operation

The Lux instrument transformer type LM3 can be operated in 2 modes:

### Mode A:

Each control circuit is operated individually, each voltage input has a voltage output. To each circuit one of the 4 Lux-value ranges can be assigned.

### Mode B:

In this case all circuits are getting the same light level setting. The voltage outputs are interconnected. The circuit which acquires the highest light level is responsible for all circuits (see wiring diagrams).



## Setting of the Dip-Switches

0 - 1000 Lux = 0 - 10V



0 - 10000 Lux = 0 - 10V



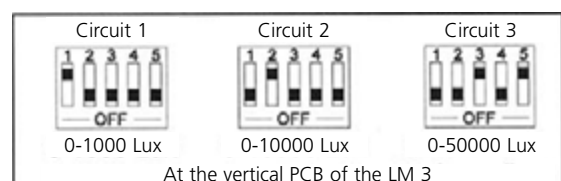
0 - 20000 Lux = 0 - 10V



0 - 50000 Lux = 0 - 10V



## Example for light level settings:



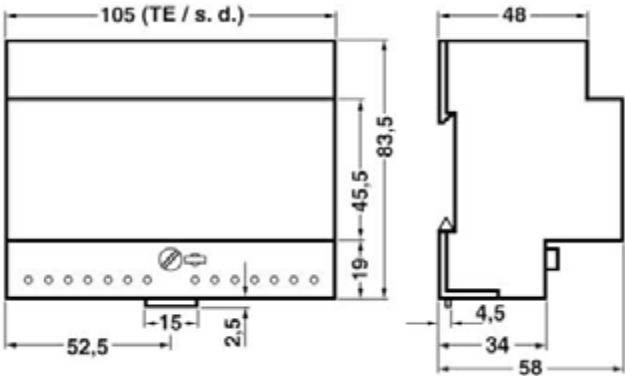
# Electronic Lux-Instrument transformer for 3-channels, type LM 3

Order-No.: 50.14.102

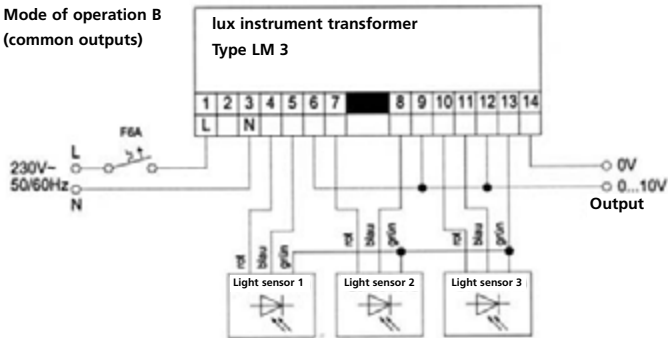
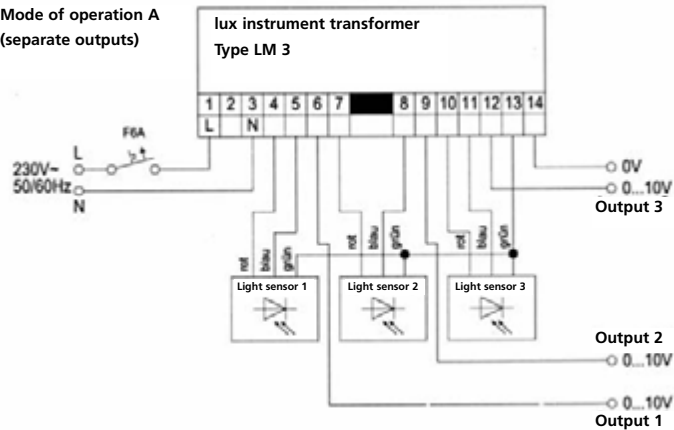
Technical data:

Characterization	Lux instrument transformer type LM3
Type	: LM 3
Order-no.	: 50.14.102
Operational voltage	: 230V, 50/60 Hz
output voltage	: 0...10V, linear for the brightness at the sensor
	<b>No protective low-voltage</b> (Basic isolation according to IEC 664,10/92)
Output current	: max. 3mA
Protection	: with an external MCB max. 6 A
Own consumption	: approx. 2W
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x58 mm
Mounting of sensors	: depending on the required places for the daylight or mixed light level acquisition
Weight	: approx. 380gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 50082-1(03/93) Low-voltage met acc. to IEC 669-2-1 11/94
Accessory	: 3 x light sensor, wall-mounted, swivelling, protective type IP 55 Type LF/w/D, order-No.: 51.21.010 or 3 x light sensors wall-recessed, suitable for DIN or BS-boxes, type LF/c/D order-no.: 51.21.009

Dimensional drawing LM 3



Wiring diagrams LM 3



# Light Sensor, wall-mounted, swivelling, type LF/w/D

Order-No.: 51.21.010

The LF/w/D is wired in combination with the daylight dependent controls type AQAD-S, LWS1, LWS3 and LM 3.

## Mounting instructions

### For LWS 1, LWS 3 and LM3 modules:

In combination with the LWS 1 and LWS 3 preferably the sensor should be mounted outside of a building or inside a room close to a window. It may not be exposed to an artificial light source.

### For the AQAD-S module:

In combination with the AQAD-S the sensor can be mounted at the wall or ceiling close to the lamps to be controlled. It may not directly be exposed to the daylight or an artificial light source. Optionally it can be mounted (in rooms with a height above 3,5 m) on walls if the sensor is directed upwards. In sportshalls it should be protected by a basket.



Light sensor, type LF/w/D  
Order-No.: 51.21.010



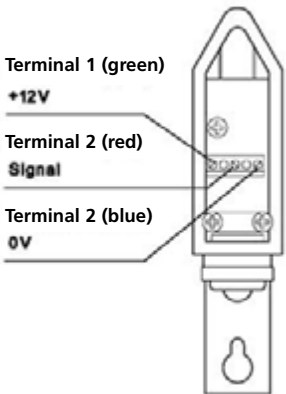
Light sensor, type LF/w/D  
Order-No.: 51.21.010  
with basket, type SK  
Order-No.: 51.21.090

## Technical data:

Characterization	Light Sensor, type LF/w/D
Type	: LF/w/D
Order-no.	: 51.21.010
Operational voltage	: max. 24 V DC (from the respective control modules)
Own consumption	: approx. 5mW
Ambient temperature	: 0- +50°C
Working range	: approx. 50-20000 lux
Wiring	: see wiring diagrams (basic isolation according to IEC 664,10/92)
	<b>No protective low-voltage</b>
Protective type	: IP 55
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Wire length	: max. 100 m
Housing	: plastic for 1- whole mounting (inside and outside buildings)
Dimensions	: see dimensional drawing
Weight	: approx. 100 gr
Requirements	: EMC met accord. to EN 50082-1 (03/93) Low-voltage met acc. to IEC 669-2-1 11/94

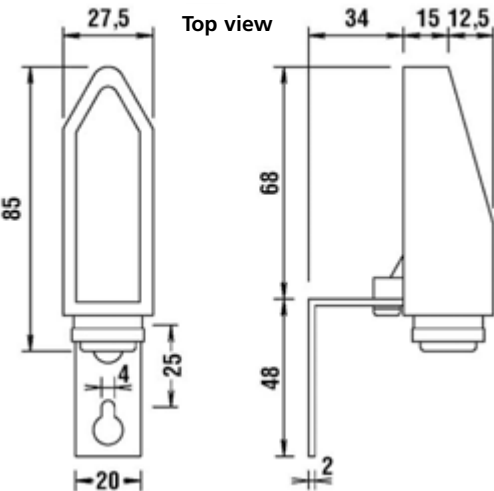
Suitable for the following controls operating in dependence of the daylight : AQAD-S, LWS1, LWS3, LM 3

## Wiring diagrams



Light sensor IP 54  
(please observe mounting position)

## Dimensional drawing for the LF/w/D





Dimmer for the control of electronic ballasts  
or transformers with 1-10V interface, **type AQS-S**

Order-No.: 50.13.112

The DIN rail control AQS-S is suitable for the control of electronic ballasts and transformers with an interface of 1-10V. It has an autonomous current supply.

Dimming is made with 0-20/0-10 V DC via an internal or external rotary potentiometer with integrated ON/OFF switch. The AQS-S is suitable for the control of up to 200 electronic ballasts or transformers with 1-10V interface.



Control with the internal potentiometer

The rotary potentiometer at the AQS-S controls the brightness and switches ON/OFF at the left hand stop. Its switching capacity is 6 A/250V ~.

Operation with an external potentiometer

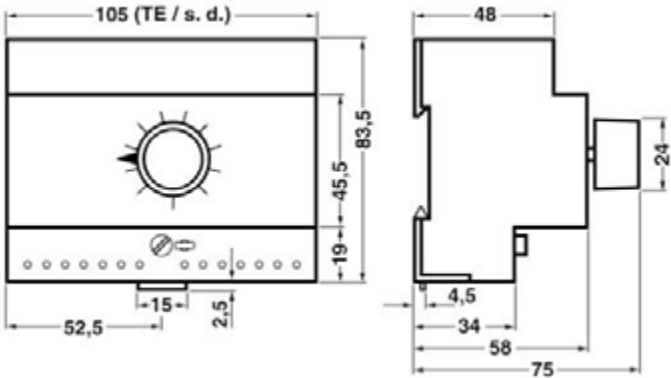
If an external potentiometer (to be mounted up to a distance of 100m) is used the potentiometer at the control always must be kept in the switch ON state. The dimmer as well as the lamps are not separated from the power supply. It therefore is recommended to switch the potentiometer at the control OFF if a dim function no longer is required.

The switch contact of the external potentiometer can be used for the control of a contactor. If a latching relay shall be operated a potentiometer with pushbutton has to be used. If a sliding potentiometer without switch is connected the switching has to be made with a separate pushbutton.

Technical data:

Characterization	AQS-S 1-10V control
Type	: AQS-S
Order-no.	: 50.13.112
Power supply	: 230V, 50/60 Hz
Output voltage	: 1-10V
	<b>No protective low-voltage</b> (Basic isolation according to IEC 664,10/92)
Max. output current	: approx. 200 mA
Switch capacity of the integrated potentiometer	: max. 6A/250 V~
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x75 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 4/96 Low-voltage met acc. to IEC 669-2-1 11/94

Dimensional drawing: AQS-S



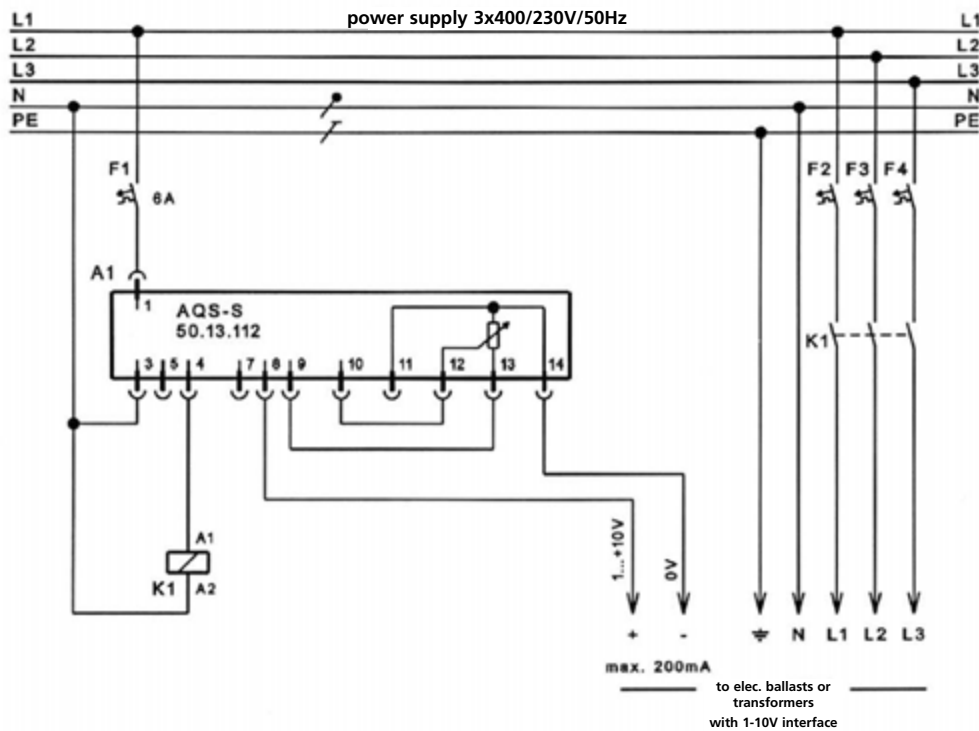
Control plates: see pages 21-27



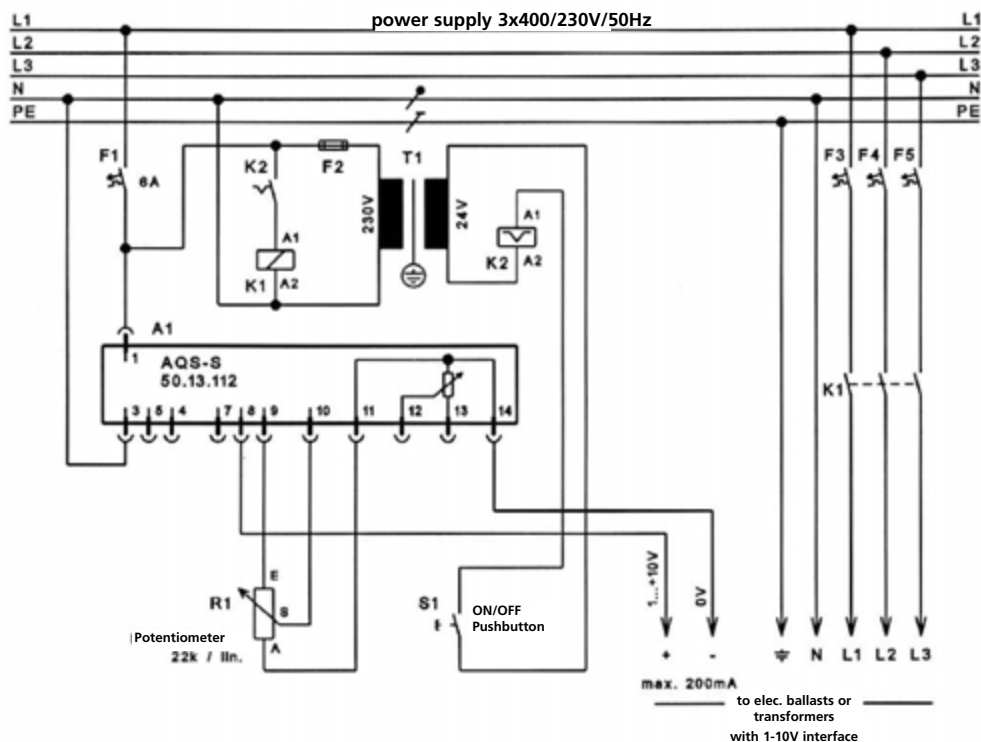
Dimmer for the control of electronic ballasts  
or transformers with 1-10V interface, type AQS-S

Order-No.: 50.13.112

### individual control with internal potentiometer



### individual control with ON/OFF and external potentiometer



# AQ-Control with 1-pushbutton-function, type NS1-S

for electronic ballasts and transformers with 1-10V interface

Order-No.: 50.13.115

This DIN rail dimmer has an autonomous power supply. It is operated with just one (customary) pushbutton.

**ON/OFF switching**

By short pressing the pushbutton the internal relay with voltage free contact (max. 10A/220V) is switched ON/OFF. For higher loads the relay switches a contactor.

**Dimmer function**

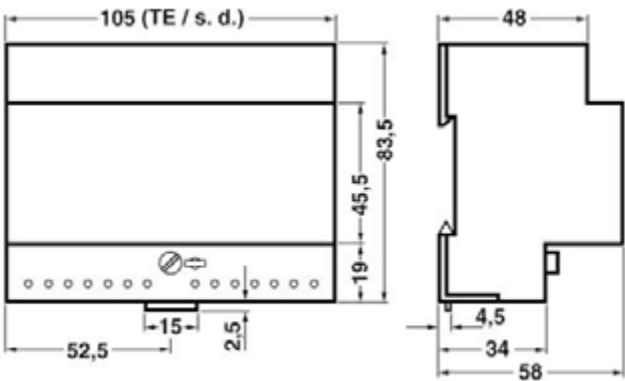
By continuously pressing the pushbutton the output voltage is changed and lighting is dimmed up and down within a cycle time (0...100%...0) of 20 secs. When releasing the button the respectively achieved brightness remains unchanged. A short push switches the lighting off. After switching it on the last set light level will be achieved again.



**Technical data:**

Characterization	Auditorium dimming control type NS1-S
Type	: NS1-S
Order-no.	: 50.13.115
Operational voltage	: 230V, 50/60 Hz
output voltage	: 0...10V, galvanic disconnection <b>No protective low-voltage</b> (Basic isolation acc. to IEC 664,10/92)
Output current	: max. 200mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x58 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 (04/96) Low-voltage met acc. to IEC 669-2-1 11/94

**Dimensional Drawing NS 1-S**



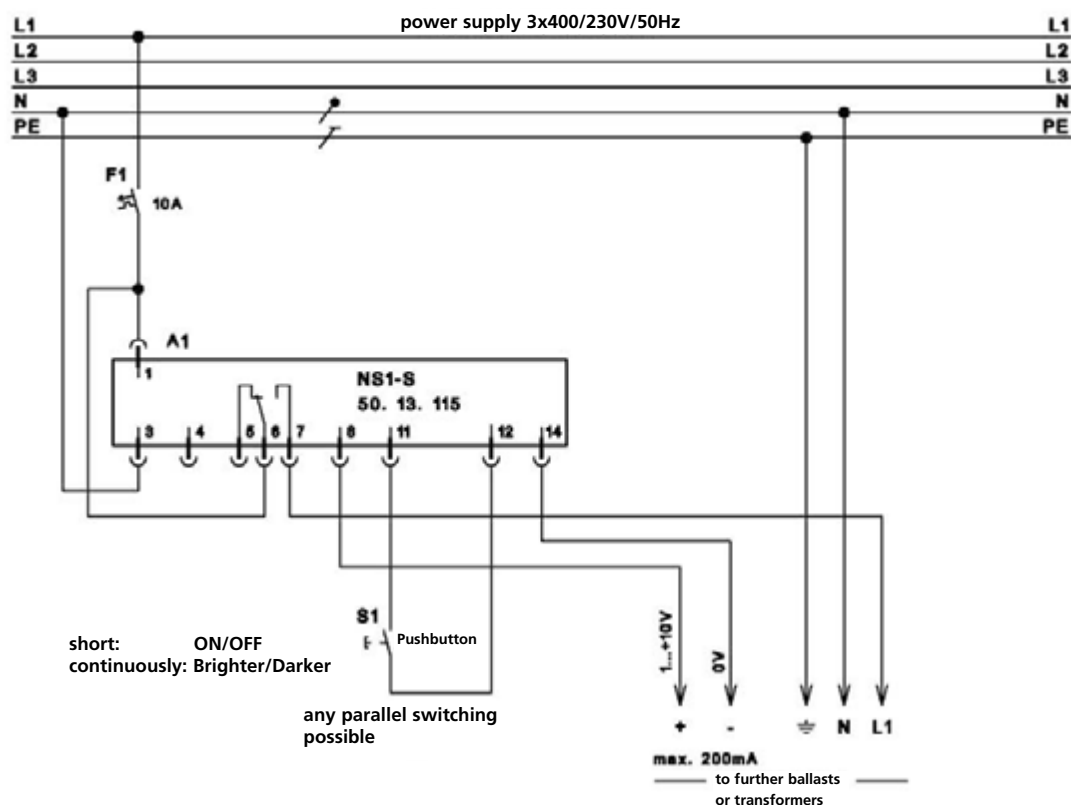
Control plates: see page 47

# AQ-Control with 1-pushbutton-function, type NS1-S

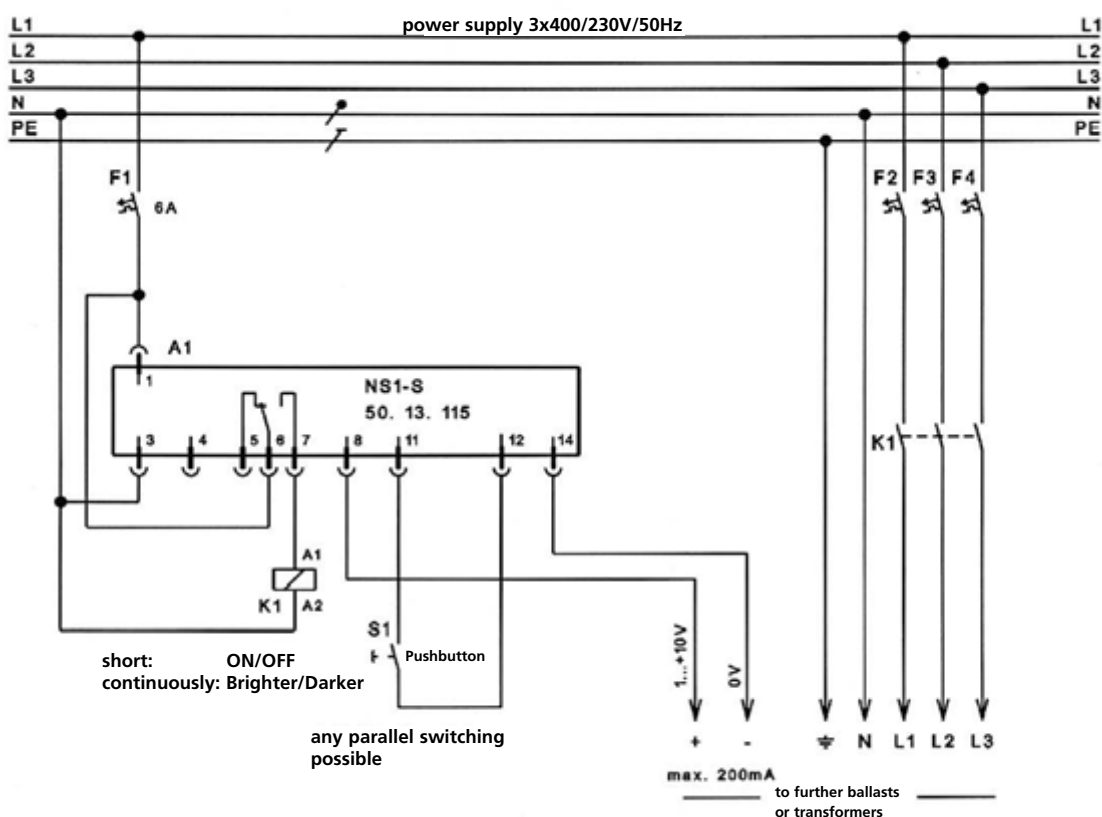
for electronic ballasts and transformers with 1-10V interface

Order-No.: 50.13.115

## Auditorium dimming control, type NS 1-S with ON/OFF Function



## Auditorium dimming control, type NS 1-S with ON/OFF function with external contactor



# AQ-Control, type NS2-SX

Auditorium control with direct switching ON/OFF

Order-No.: 50.13.130

The auditorium control type NS2-SX is suitable for the common control of up to 200 electronic ballasts or transformers with 1-10V interface with the following functions:

- 1 x BRIGHTER (lighting goes into its brightest level)
- 1 x DARKER (lighting goes to 0)
- 1 x ON/OFF (details see below)

After release of the pushbutton Brighter or Darker the respective light level is stored. It is achieved again after switching ON. The output voltage can be adjusted between minimum and maximum with 2 potentiometers at the module, such allowing a limitation of the maximum- and minimum light levels.

The 4 rotary potentiometers at the module have the following functions:

- 1 x setting of the maximum brightness not to be exceeded
- 1 x setting of the minimum brightness
- 1 x Fade time ‚BRIGHT‘ (3 - 60 secs between the darkest and brightest level)
- 1 x Fade time ‚DARK‘ (3 - 60 secs between the brightest and darkest level)



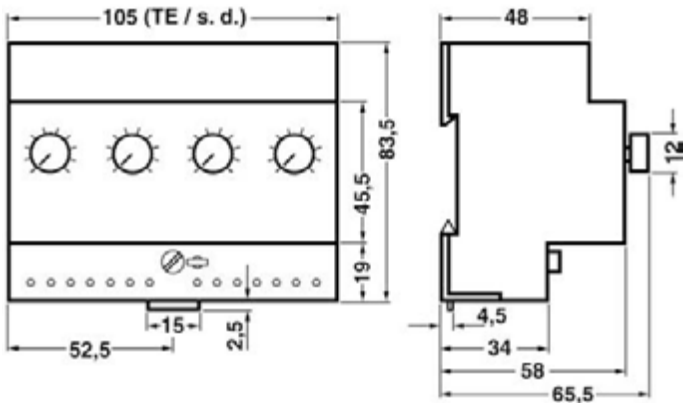
## ON/OFF switch

A latching relay with voltage-free normally open contact being integrated in the dimmer switches a maximum of 10 A/250V. For higher loads external contactors or relays have to be connected. Lighting is switched ON at the last set light level. If during the ‚OFF‘ state the buttons ‚BRIGHTER‘ or ‚DARKER‘ are pressed, the light level changes after the switch ON accordingly.

## Technical data:

Characterization	Auditorium dimming control type NS2-SX
Type	: NS2-SX
Order-no.	: 50.13.130
Operational voltage	: 230V, 50/60 Hz
output voltage	: 0...10V, galvanic disconnection <b>No protective low-voltage</b> (Basic isolation acc. to IEC 664,10/92)
max. Output current	: max. 200mA
switching contact	: with integrated latching relay max.10A/250V
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm <sup>2</sup> , solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 (04/96) Low-voltage met acc. to IEC 669-2-1 11/94

## Dimensional Drawing NS2-SX



Control plates: see page 47

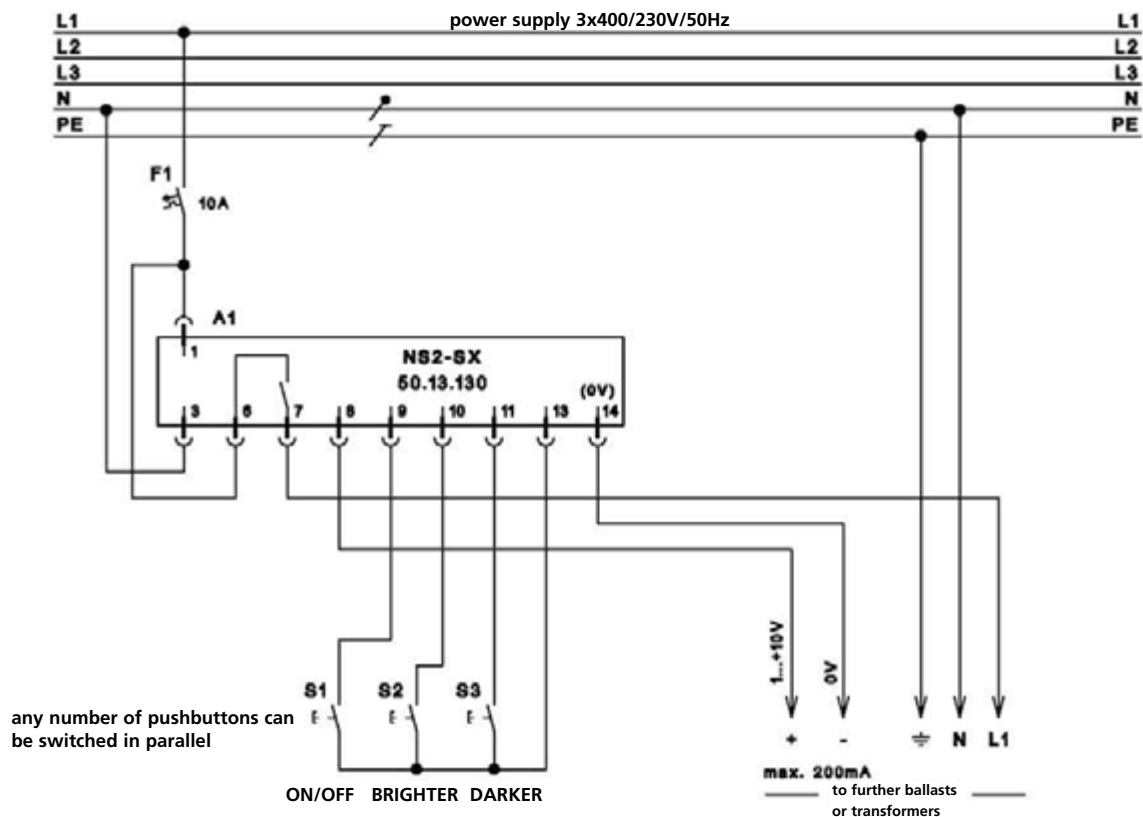
# Wiring diagrams

AQ-Control with 2-pushbutton-function and direct switching

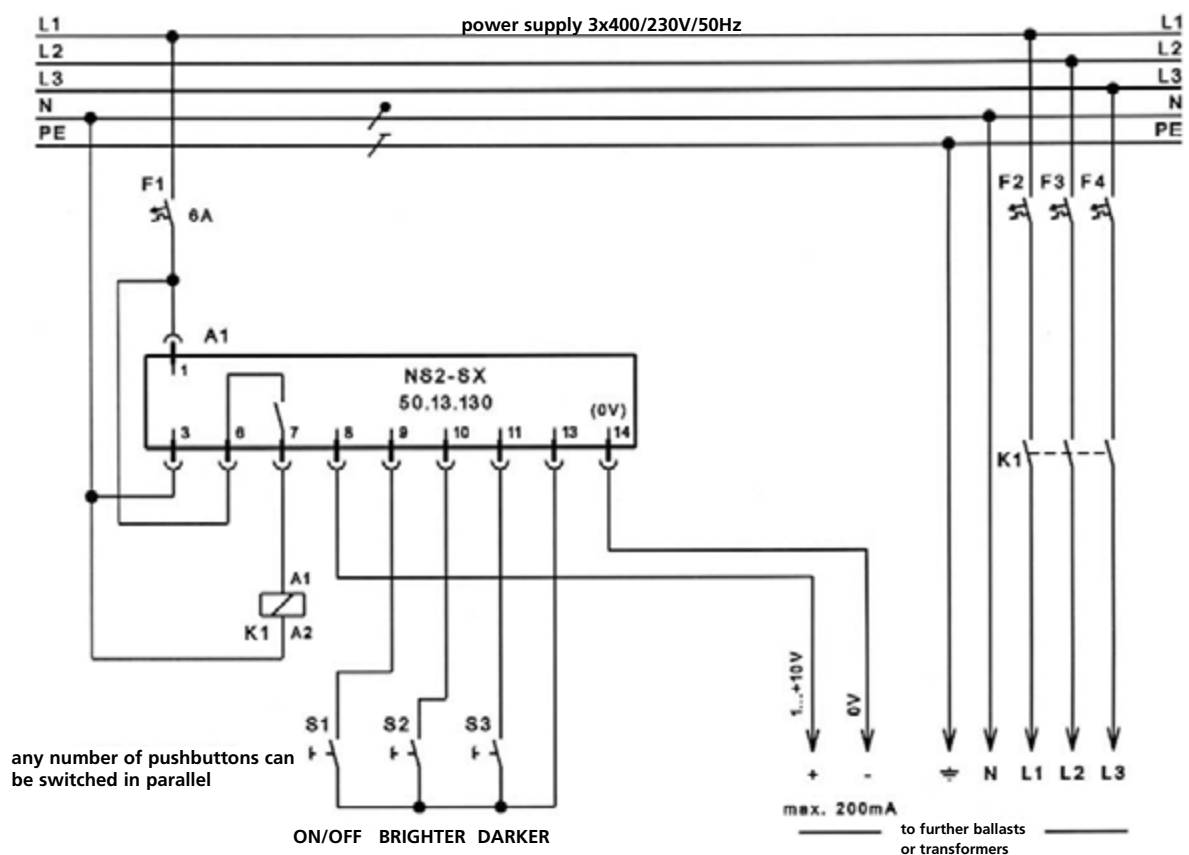
Order-no.: 50.13.130

ON/OFF, type NS2-SX for electronic ballasts and transformers with 1-10V interface

## Auditorium dimming control, type NS 2-SX with ON/OFF function



## Auditorium dimming control, type NS 2-SX with ON/OFF function through an external contactor



# AQ-Control, type NS4-S

Auditorium control with 4 pushbutton functions

Order-No.: 50.13.113

The NS 4-S is suitable for the common control of up to 200 electronic ballasts or transformers with 1-10 V interface.

- The 4 pushbuttons have the following functions:
- Brighter - Lighting goes within the set fade time into its brightest level
  - Darker - Lighting goes within the set fade time into its lowest level.
  - Stop - Lighting stops during the fade time into bright or dark.
  - Preset - Lighting goes into the set light level. This light level can be set with a preset potentiometer at the panel face of the dimmer. This level is achieved within the set fade time.



## Fade time setting

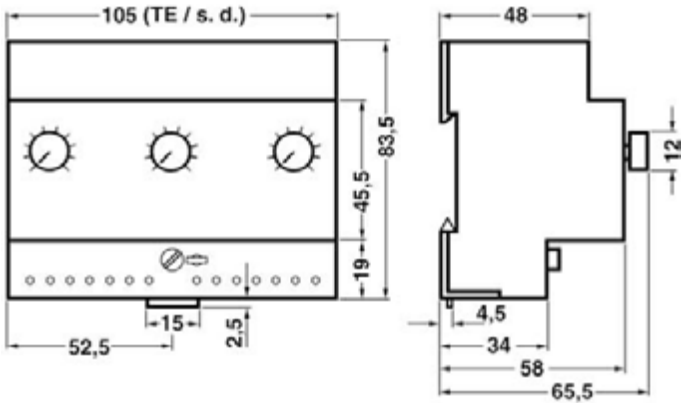
With 2 potentiometers ‚BRIGHTER‘ or ‚DARKER‘ at the panel face of the NS4-S the time from the darkest to the brightest level and vice versa can be set within 3 and 60 secs. respectively.

ON/OFF switching can be made with external relays or contactors.

## Technical data:

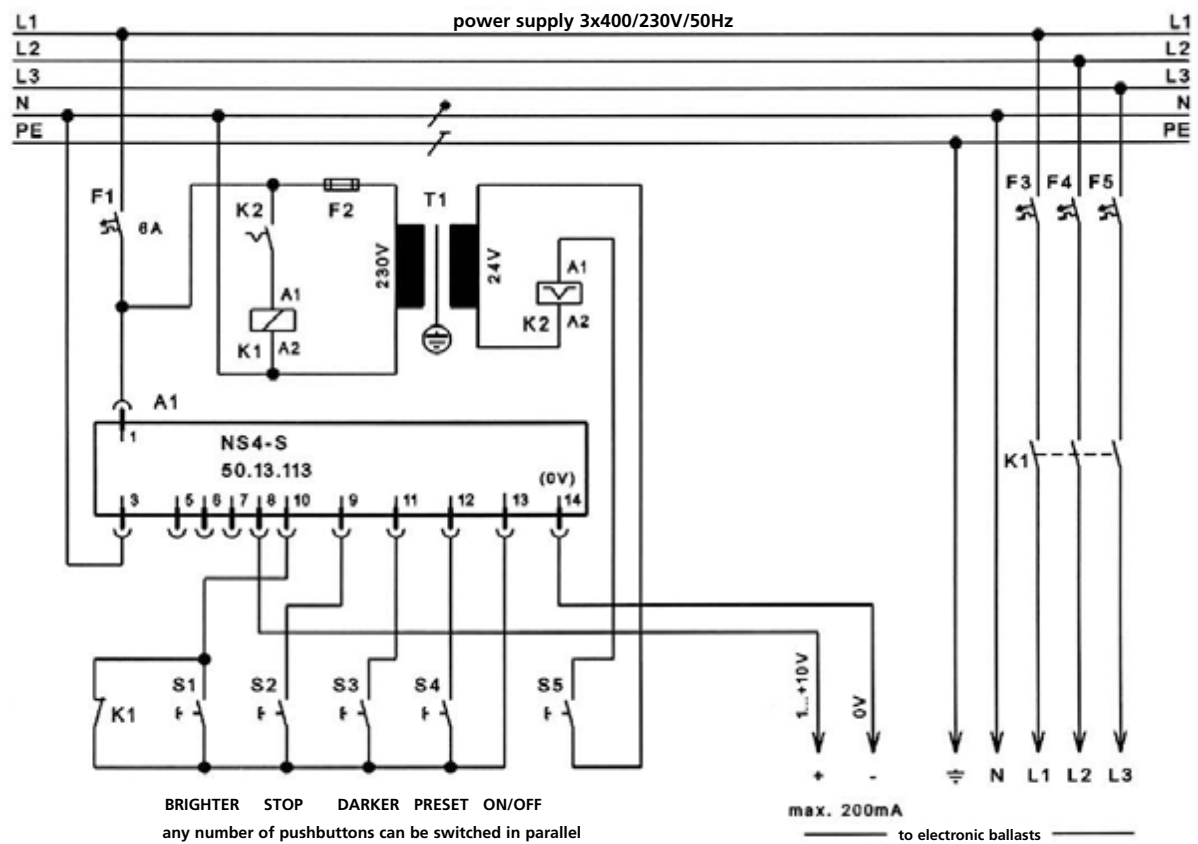
Characterization	Auditorium dimming control type NS4-S
Type	: NS4-S
Order-no.	: 50.13.113
Operational voltage	: 230V, 50/60 Hz
output voltage	: 1...10V
	<b>No protective low-voltage</b> (Basic isolation acc. to IEC 664,10/92)
max. Output current	: approx. 200mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 (04/96) Low-voltage met acc. to IEC 669-2-1 11/94

## Dimensional Drawing NS4-S



Control plates : see pages 47/48

**Auditorium dimming control, type NS 4-S with direct switching ON/OFF function**



AQ-Control with 4 light level settings, **type NS4 WV-S**  
for electronic ballasts and transformers with 1-10V interface

Order-No.: 50.13.116

The NS 4 WV-S controls up to 200 electronic ballasts or transformers with 1-10V interface. It has an autonomous power supply and is suitable for the control of 4 pushbuttons for the selection of 4 light levels and (optional) with 1 pushbutton ON/OFF with an external relay or contactor.

Setting of light levels

With 4 rotary potentiometers at the NS4WV-S 4 different light levels can be set. They are selected at a pushbutton panel with 4 or 5 pushbuttons (see pages 47/48)



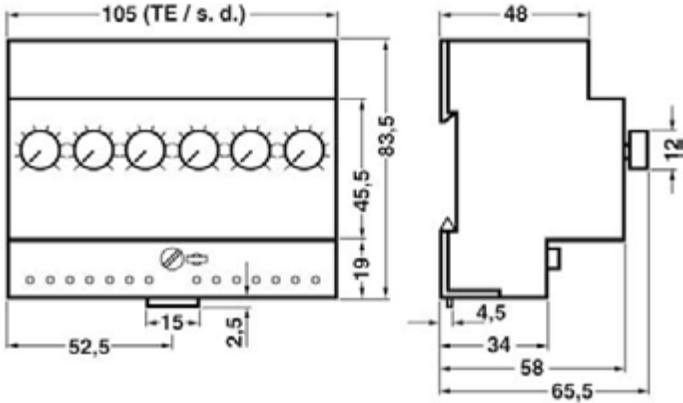
Fade time adjustment

With the potentiometers ‚BRIGHTER‘ or ‚DARKER‘ at the NS4WV-S the fade times are being set between 3 and 60 secs.

Technical data:

Characterization	Auditorium dimming control type NS4WV-S
Type	: NS4WV-S
Order-no.	: 50.13.116
Operational voltage	: 230V, 50/60 Hz
output voltage	: 1...10V
	<b>No protective low-voltage</b> (Basic isolation acc. to IEC 664,10/92)
max. Output current	: approx. 200mA
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 3VA
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 (04/96) Low-voltage met acc. to IEC 669-2-1 11/94

Dimensional Drawing NS4WV-S



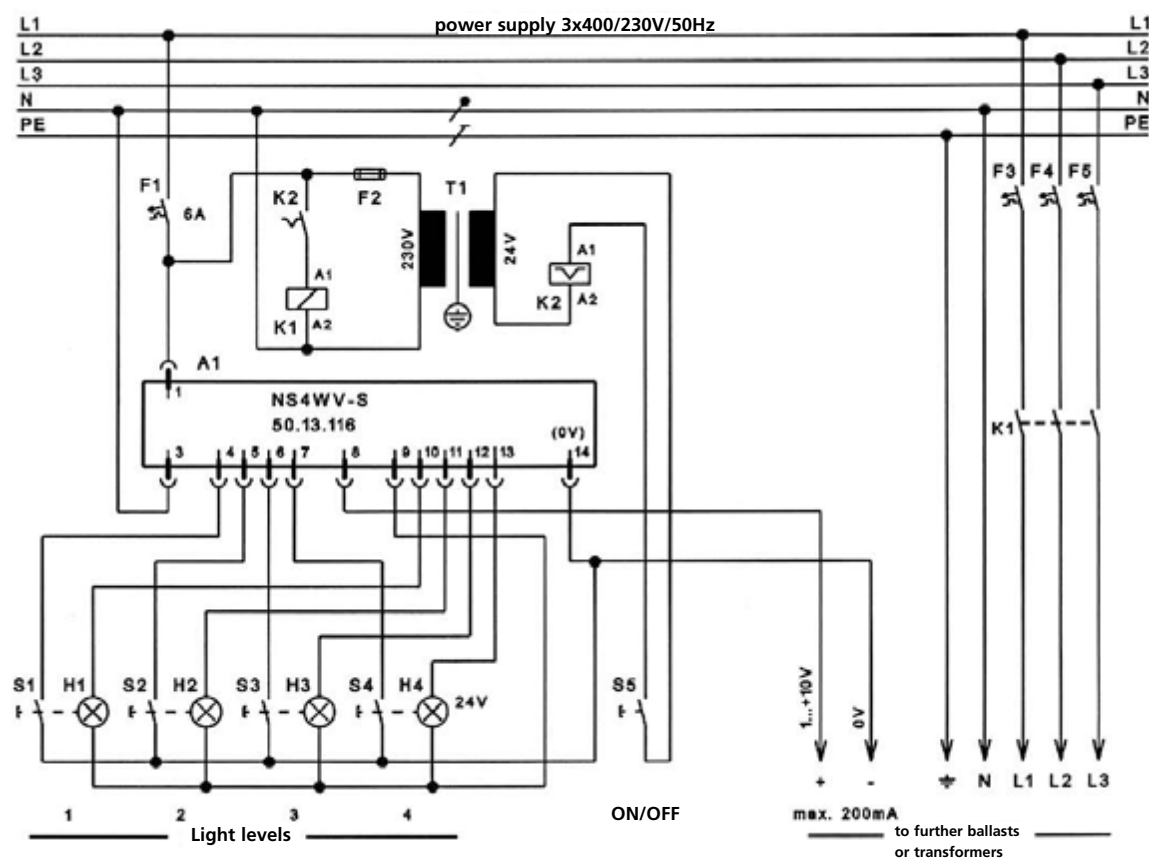
Control plates: see pages 47/48



# Wiring diagram

AQ-Control with 4 light level settings, type NS4WV-S  
for electronic ballasts and transformers with 1-10V interface

Order-No.: 50.13.116



Electronic Over- and Under Voltage Relay, type SW

Order-No.: 50.14.010

The SW switches electrical devices in dependence of the technical data mentioned below automatically ON and OFF.

The control has two inputs which can be used alternatively:

- Voltage input 1: phase control
- Voltage input 2: d.c. voltage

A light emitting diode displays the actual switching state of the relay.

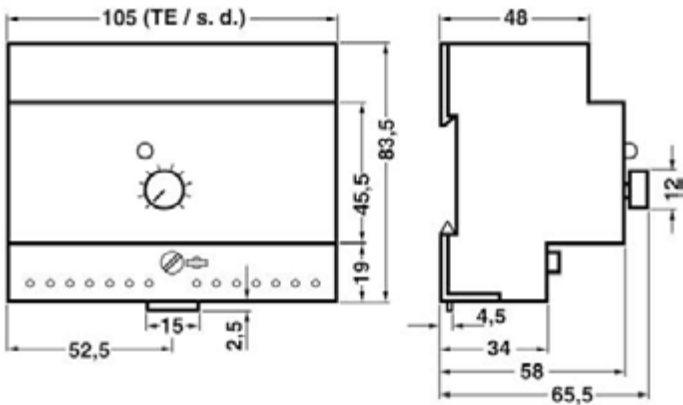


Electronic over and under voltage relay SW

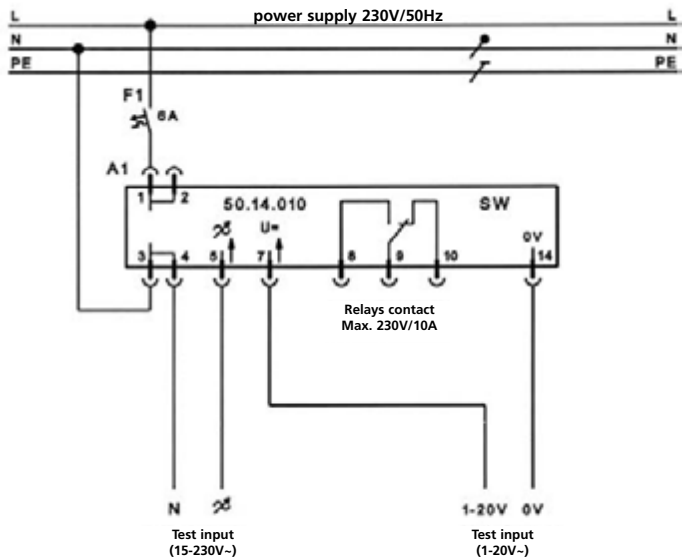
Technical data:

Characterization	Over and under voltage relay, type SW
Type	: SW
Order-no.	: 50.14.010
Power supply	: 230V, 50/60 Hz
Output	: two-way contact
Protection	: external 6 A
Ambient temperature	: max. 45°C with natural air-convection (at vertical mounting position)
Terminals	: 0,5 – 2,5 mm², solid wire or litz wire with sleeve
Wire length	: max. 100 m
Own consumption	: approx. 5VA
Inputs	: 1. Phase control (adjustment range: 15 -205 V eff) 2. d.c. control voltage (adjustment range: 1 - 20V =)
Housing	: plastic for DIN rail systems
Dimensions	: WxHxD =105x83,5x65,5 mm
Weight	: approx. 400gr
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according IEC 664,10/92)
Requirements	: EMC met accord. to EN 61547 (04/96) Low-voltage met acc. to IEC 669-2-1 11/94

Dimensional Drawing SW



Wiring diagram



# Signal amplifier, type KSV-S

Order-no.: 50.13.300

The KSV-S is a current amplifier for the dimming control of a great number of electronic ballasts or electronic transformers with 1-10V interface. It reduces the loading of a preceeded dimmer for a better utilizing of the dimmer capacity. The signal amplifier has the same input specification as the electronic ballasts and consequently also can be combined with dimmers for these ballasts or transformers. The maximum output loading of the KSV-S is 200mA (for approximately 200 electronic ballasts).

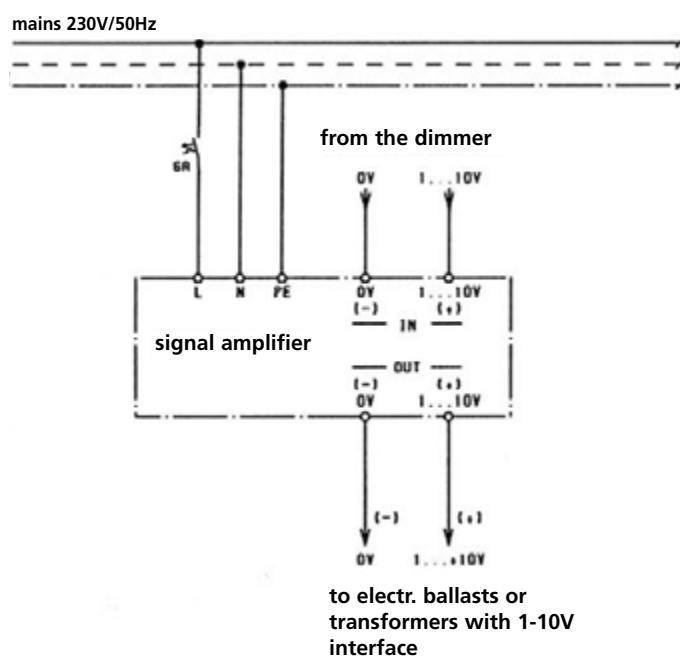


## Technical data:

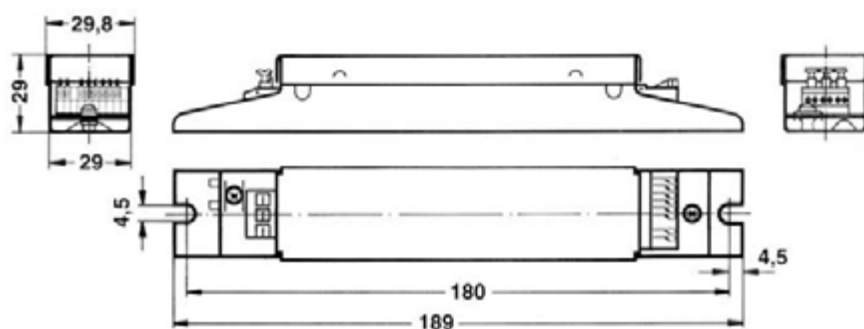
Characterization	Signal amplifier KSV-S
------------------	------------------------

Type	: KSV-S
Order-no.	: 50.13.300
Power supply	: 220V/240V, 50/60 Hz
Output voltage	: 1-10V DC
Max. current load of the low-voltage interface	: 200 mA
Dimensions	: WxHxD =30x29x189mm
Own consumption	: approx. 2VA
Control input	: 1-10V DC, max. 1,5 mA, low-voltage interface

## Wiring diagram



## Dimensional drawing KSV-S



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