Manual / Mounting – and wiring instructions
ALTOQUICK AQ-0 700 W, AQ-0 1,4 KW
ALTOQUICK Master control

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Manual / Mounting – and wiring instructions for ALTOQUICK AQ-0 700 W, AQ-0 1,4 KW and ALTOQUICK Master control

ALTOQUICK AQ-0 700W, AQ-0 1,4 KW

Dimmer for DIN-rail systems

The AQ-dimmers AQ-0 700 W and AQ-0 1,4 kW are dimmer modules operating in the **phase-interval control mode** (lagging edge mode) for **electronic** transformers (not suitable for wire-wound transformers) and for incandescent lamps.

The base of each module which includes all required terminals can be plugged onto a DIN-rail without the housing (function part) and can be wired already without housing. After wiring the function part is just plugged onto the plate and locked with the housing screw (mounting and exchange only in a voltage-free condition).

The output voltage (dimming level) is to be set with the integrated rotary potentiometer. A control of the dimmer also can be performed with an external potentiometer which can be mounted up to a distance of 100 m (see wiring diagram). Up to 3 AQ-dimmers can jointly be operated with 1 potentiometer.

With an AQ-master control up to 40 individual AQ-dimmers can be controlled (functions see page 10).

Technical Data AQ-0 700W, AQ-0 1,4 kW

Type	: ALTOQUICK AQ-0 0,7 kW/VA, order no.: 50.13.110 ALTOQUICK AQ-0 1,4 kW/KVA, order-no.: 50.13.111
Power supply[1]	: 230 V~, 50 Hz
Nominal load	: AQ-0 0,7 kW – 700 W/VA AQ-0 1,4 kW – 1,4kW/KVA
Max. exit current	: AQ-0 0,7kW - 3 A, AQ-0 1,4 kW - 6,1 A
Protection	: MCB 6A (AQ-0 0,7 kW), type C or B MCB 10A (AQ-0 1,4 kW), type C or B
Min. load	:* 15 W/VA
Terminals	: 0,5 – 2,5 mm² solid wire or litz wire with sleeves
Wiring length	: max. 100 m
Own consumption	: < 2,5 % of the connected load
Control voltage	: 0...10V/0..20V DC, electrically disconnected **no protective extra low-voltage** (base isolation according to IEC 664-1 - 10/92)
Weight	: AQ-0 0,7 kW approx. 480 gr, AQ-0 1,4 kW approx. 680 gr
Dimensions	: see dimensional drawing
Ambient temperature	: max 45°C (vertical mounting, slots on top and bottom)
Noise level	: < 25 dB (A) at nominal load in a distance of 1m
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664-1, 10/92)
CE-designation	: EN 61547 04/96, EN 55015 11 / 96 IEC 669-2-1 02/97

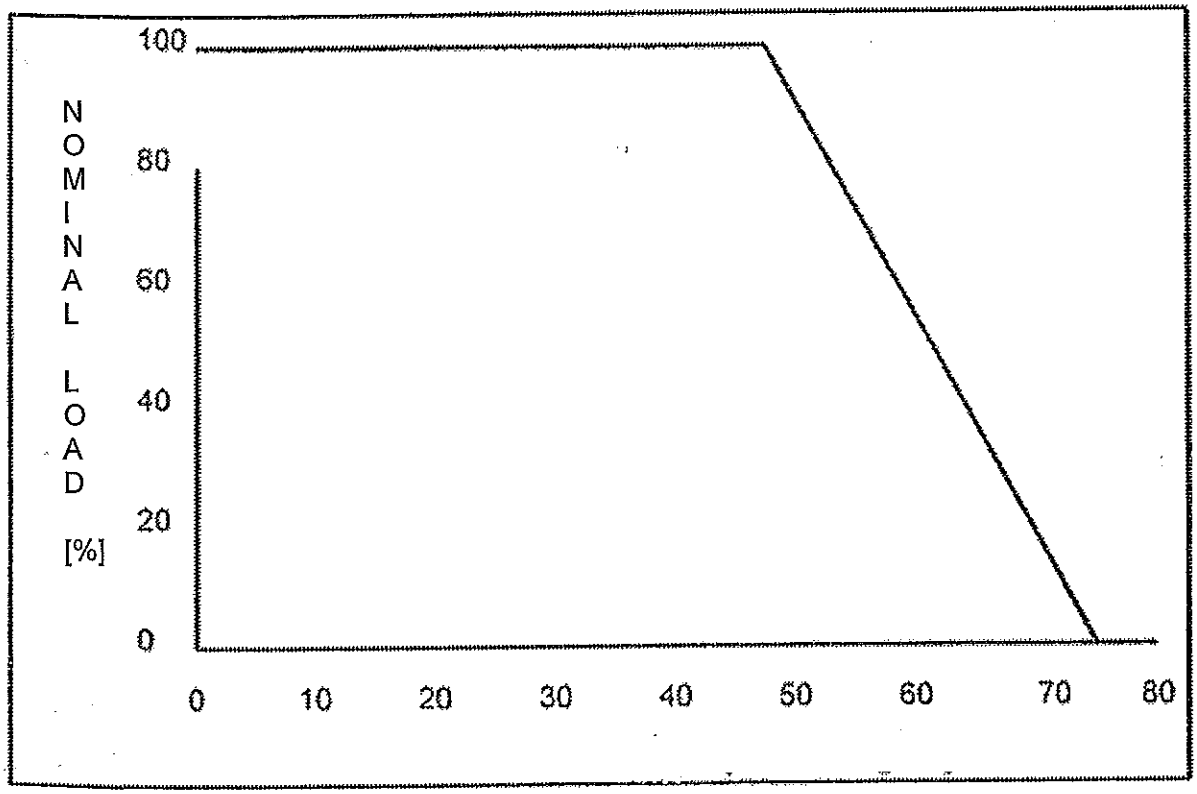
* The electronic transformers may not be operated without load

[1] The AQ's are also available for 110 V ~ or 127 V~ as well as 60 Hz

Protections of Load Exit

- electronic switch ON current limitation
- electronic current limitation in case of a short circuit
- Load limitation in case of overloads
- Load reduction in case of temperatures exceeding the maximum permissible limit
- Switch off in case of intolerable voltage peaks (inductive loads). Switching ON the module again after switch OFF of the AQ or after return of voltage supply.

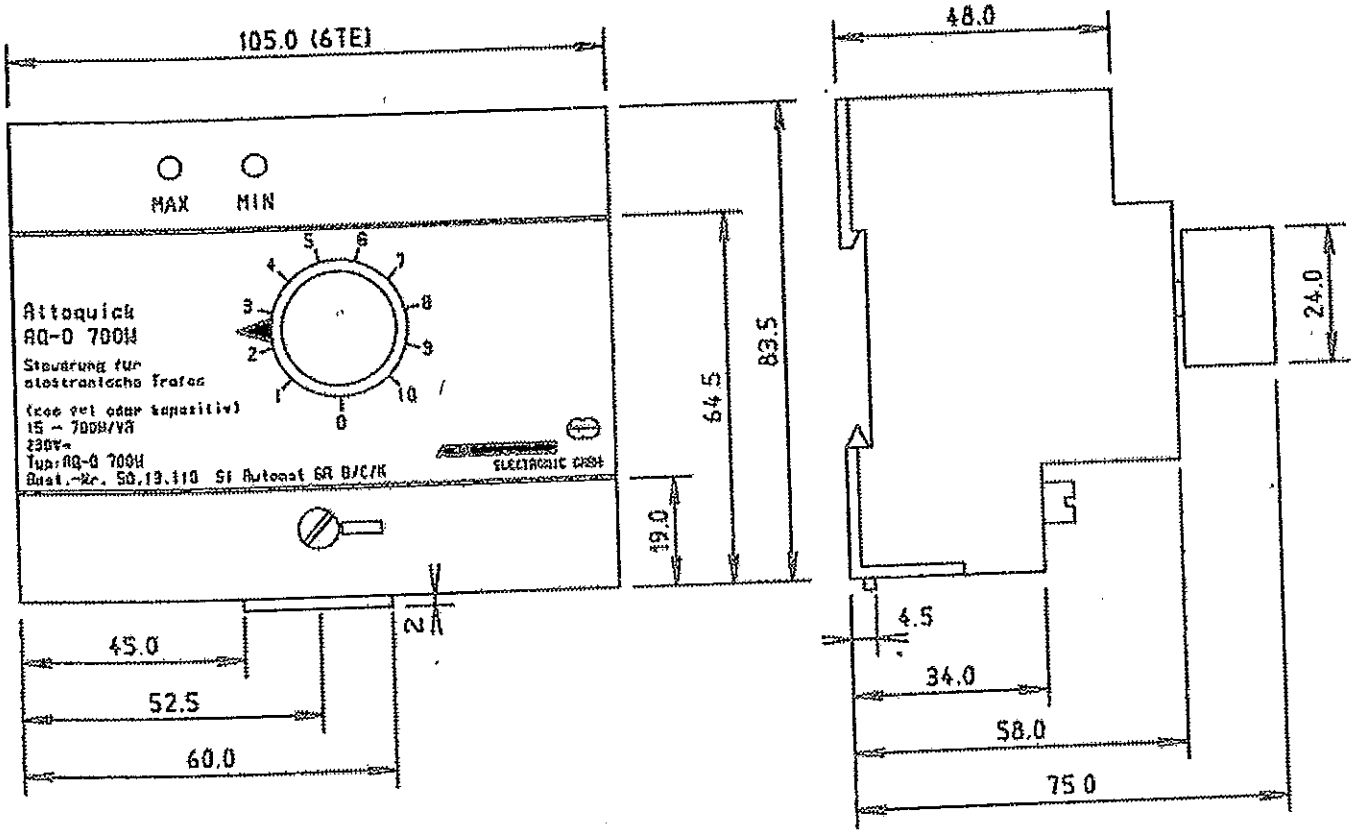
Load in dependence of the ambient temperature



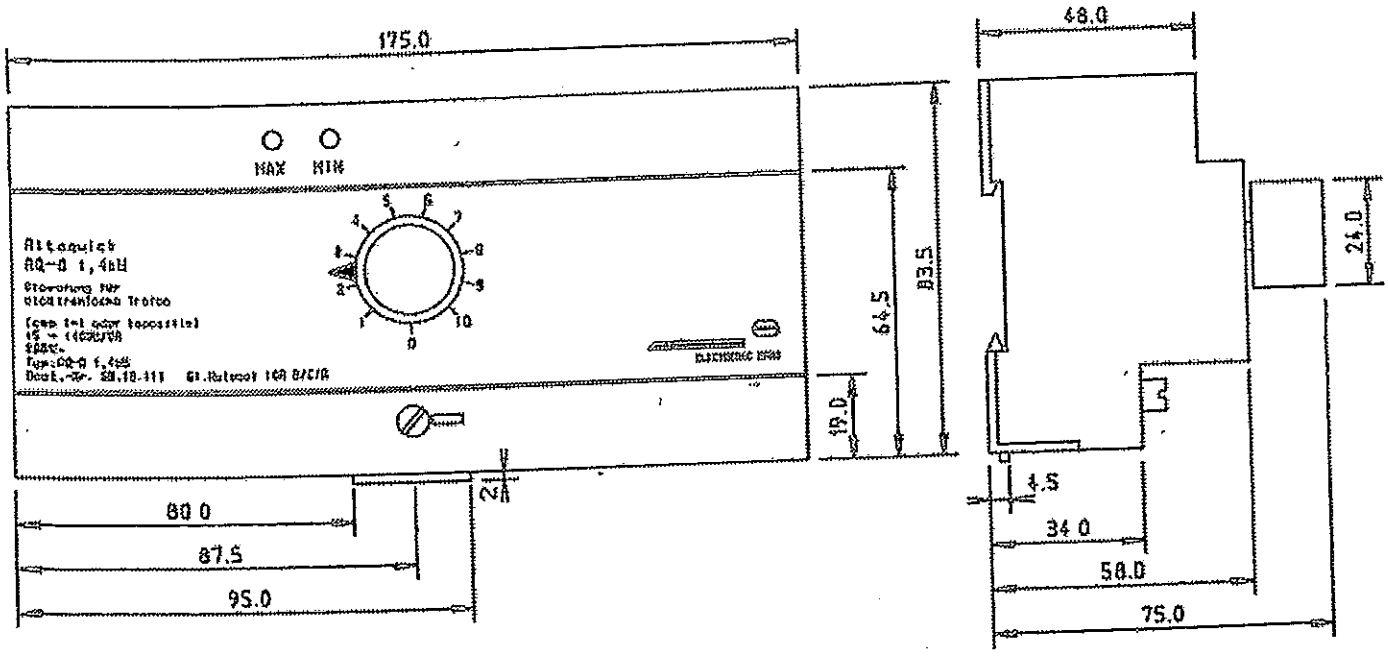
Safety and installation instructions

- The dimmers may be installed and put into operation only by skilled designated electricians.
- Applicable safety instructions and regulations for the prevention of accidents have to be observed.
- Wiring, mounting and other work may be performed only in a voltage-free state.
- Switching OFF of the dimmer means switching OFF all functions, before work at load and control cables begin the dimmer has to be separated safely from power supply
- The dimmer may only be installed in a vertical position with slots in the dimmer housing on top and bottom. A good air-circulation must be provided for.
- The dimmers may not be opened. A defective dimmer must be returned for repair to the manufacturer (Altenburger).
- Not suitable for wire-wound transformers because destruction of the dimmer is possible.
- The maximum output currents may not be exceeded.
- Kindly observe wiring diagrams.

Wiring diagram: Housing AQ-0 0,7 kW, 50.13.110



Wiring diagram: Housing AQ-0 1,4 kW, 50.13.111



Operation of the AQ's with internal potentiometer

The dimmers are operated by turning the potentiometer. The switch ON/OFF operation left hand.

Load amplification

A load amplification can be achieved by the coupling of up to 3 individual dimmers without master control. In this case 2 of the 3 potentiometers are out of function. All 3 modules are jointly controlled by the potentiometer at the first module. It has to be observed however that all 3 potentiometers are in the switch ON state. The phases can be loaded according to requirements (no limitations). In a connection to 3 phases a proportional distribution of the loads to the power supply is ensured.

Mounting requirements

- Fixation only in dry inside rooms in cabinets with slots or holes.
- Vertical mounting of the dimmers. Slots in the dimmer housing on top and bottom.

Operation with external potentiometer

By using an external potentiometer the potentiometer at the dimmer always must be switched ON (power supply) so that the dimmer and the connected load never is separated from the power supply. On this reason it is recommended to switch the power supply for the dimmer directly. The switch contact of the external potentiometer can be used for the switching of a contactor to be mounted between dimmer and power supply. If a latching relay is used it is recommended to use a rotary potentiometer with integrated pushbutton. If a sliding potentiometer is used the ON/OFF switching operation has to be made by a separate switch or pushbutton.

Master Control (AQS)

Up to 40 AQ-dimmers can jointly be controlled by one master control dimmer.

Two control modes can be performed with the master control

1. Load amplification with the master control.
   All connected AQ's are jointly controlled with the potentiometer of the master control. The potentiometers of the individual AQ's in this case have no function. The potentiometer of each AQ-dimmer switches off the individual AQ's however must be in the switch ON state if they shall be operated by the master control.

2. Master control operation.
   Each individual AQ can be controlled with its potentiometer. Additionally all AQ-dimmers jointly can be controlled with the potentiometer at the AQ-master control. In this case each individual dimmer is operated between 0 and its individually set light level.
   If e.g. the potentiometer of an AQ dimmer is set to 60 % the master dimmer controls it between 0 and 60 %. Such a complete scene can be set and operated.

In both control modes the distribution of the loads to 3 phase is possible. Also the master control dimmer can be operated with an external potentiometer which can be mounted up to a distance of 100 m from the master control.

Switch OFF

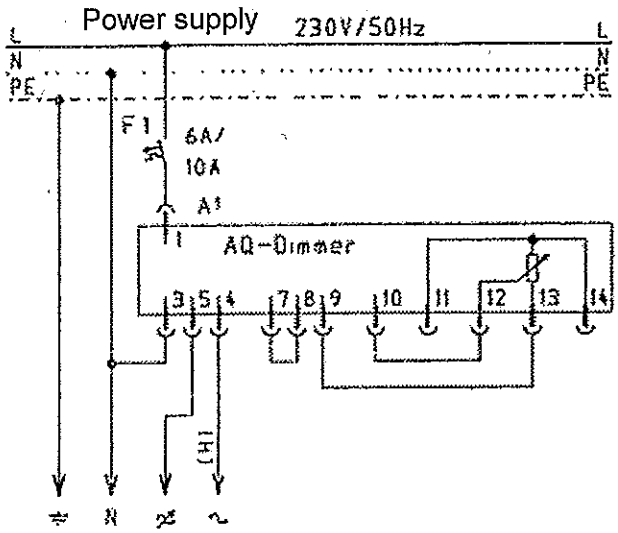
In the master control mode the individual dimmers never are completely separated from the power supply. Consequently the separation should be made for the individual dimmers with a switch, a contactor or a latching relay according to requirements. Also in this case the dimmers can be switched ON/OFF jointly or individually.

Technical Data for the master control

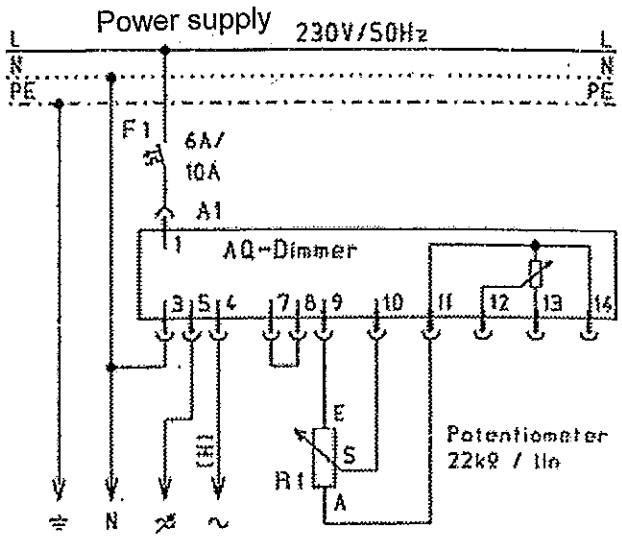
Type	: ALTOQUICK master control (AQS), order-no. 50.13.012
Power supply	: 230 V~, 50/60 Hz
Output voltage	: 0...20V DC electrically disconnected **no protective extra low-voltage** (base isolation accord. to IEC 664-1, 10/92)
Protection	: internal with 2 fuses
load	: max. 40 mA (for 40 AQ load dimmers)
Dimensions (WxHxD)	:105 x 85 x 75 mm
Terminals	: 0,5 – 2,5 mm² solid wire or litz wire with sleeves
Wiring length	: max. 100 m
Own consumption	: max. 3 W
Weight	: approx. 450 gr,
Ambient temperature	: max 45°C (vertical mounting, slots on top and bottom)
Protective type	: IP 20
Contamination grade	: 2 (dry, non-conductive according to IEC 664-1, 10/92)
CE-designation	: EN 50082-1 03/93 IEC 669-2-1 11/94

Wiring diagram for individual AQ-dimmers

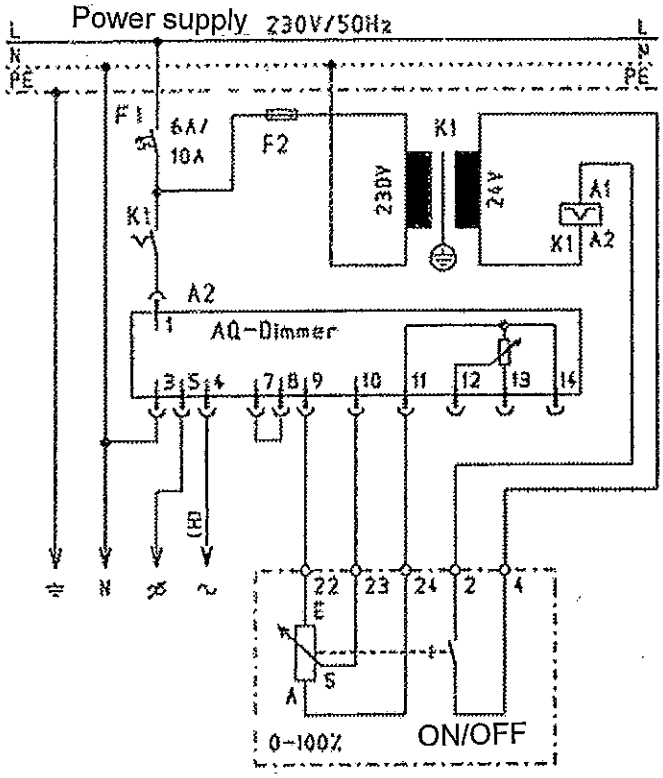
AQ with internal potentiometer



AQ with external potentiometer

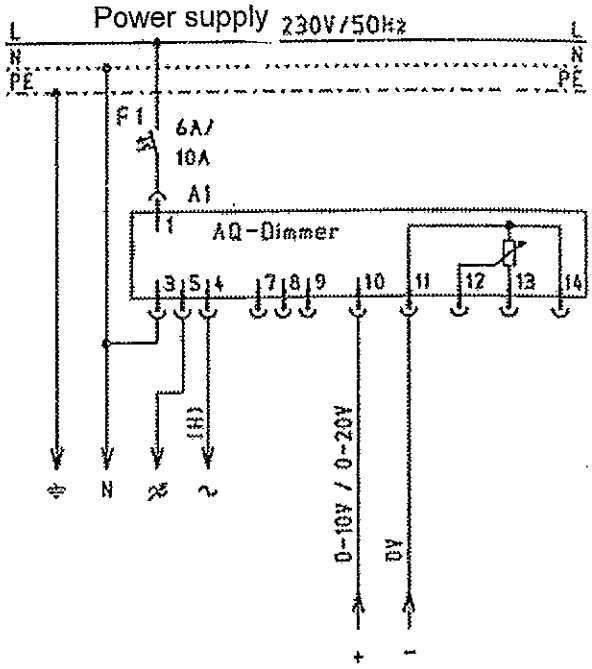


AQ with external potentiometer and ON/OFF



Rotary potentiometer with pushbutton

AQ with external control voltage
0 – 10 V / 0 – 20 V

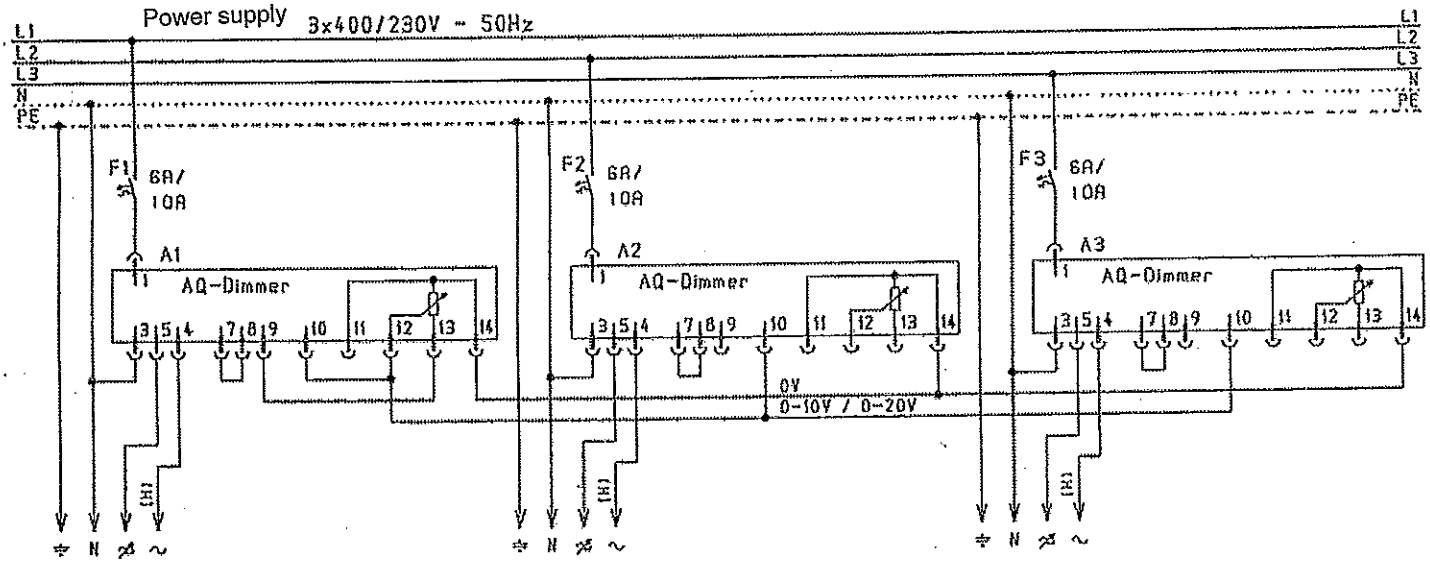


external control voltage

For the connection of AQ-0 0,7 kW and AQ-0 1,4 kW dimmers the designation at the terminals of the mounting plate had to be observed.

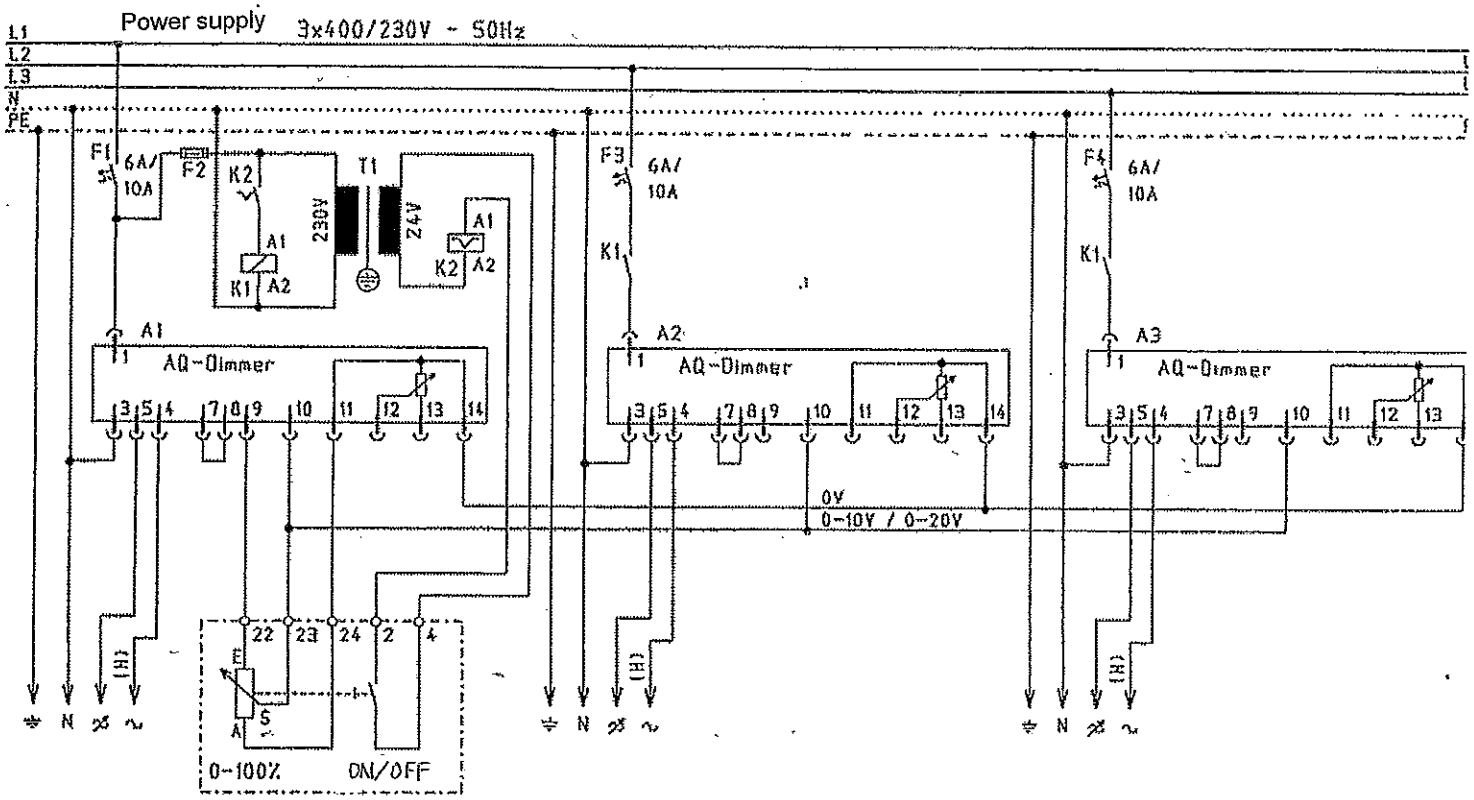
Wiring diagram for a load amplification

Load amplification with the internal potentiometer of the first AQ-dimmer and the combination of 3 AQ-dimmers



Wiring diagram for load amplification

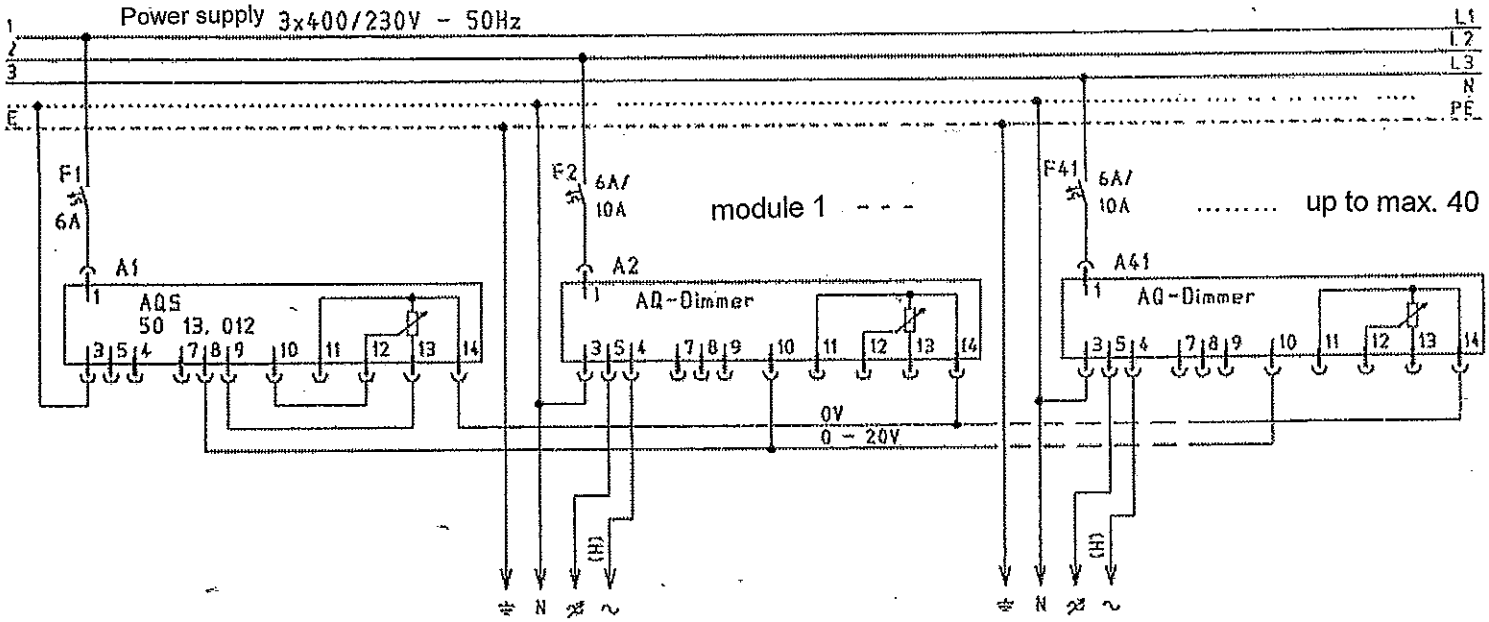
Power amplification with an external potentiometer connected to the first AQ-dimmer.
Combination of 3 AQ-dimmers



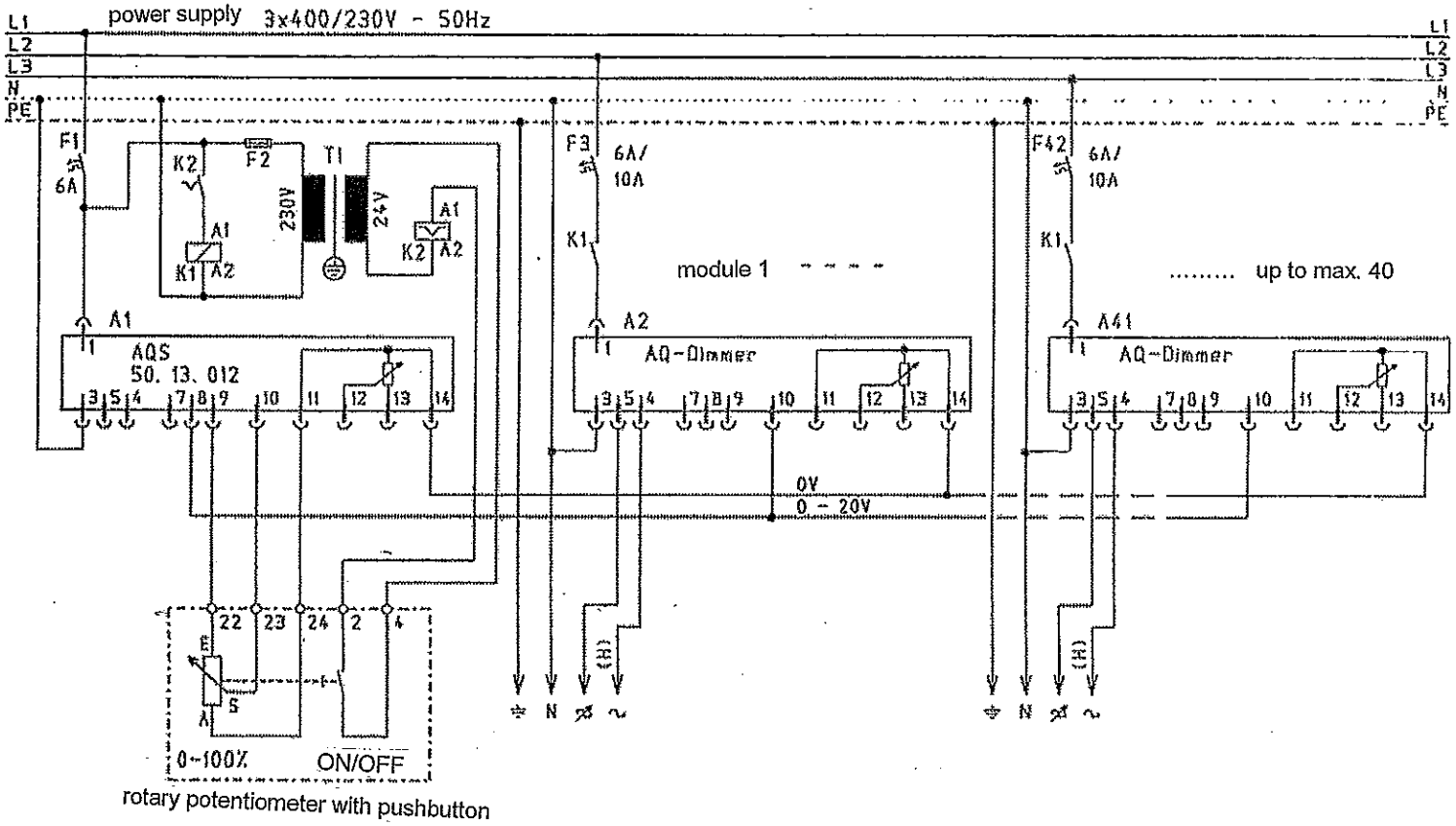
Rotary potentiometer with pushbutton

Wiring diagram for master control

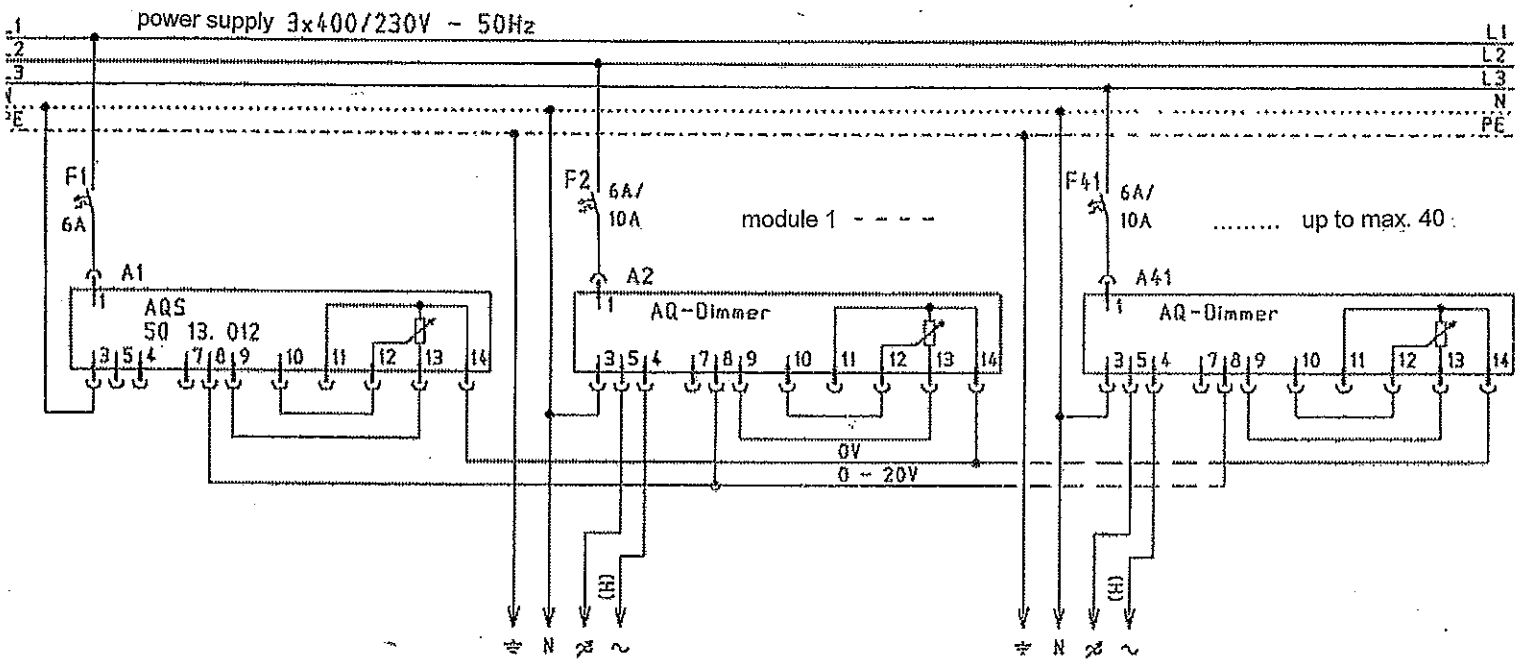
Load amplification with one master control module, to be operated with the potentiometer at the master control.



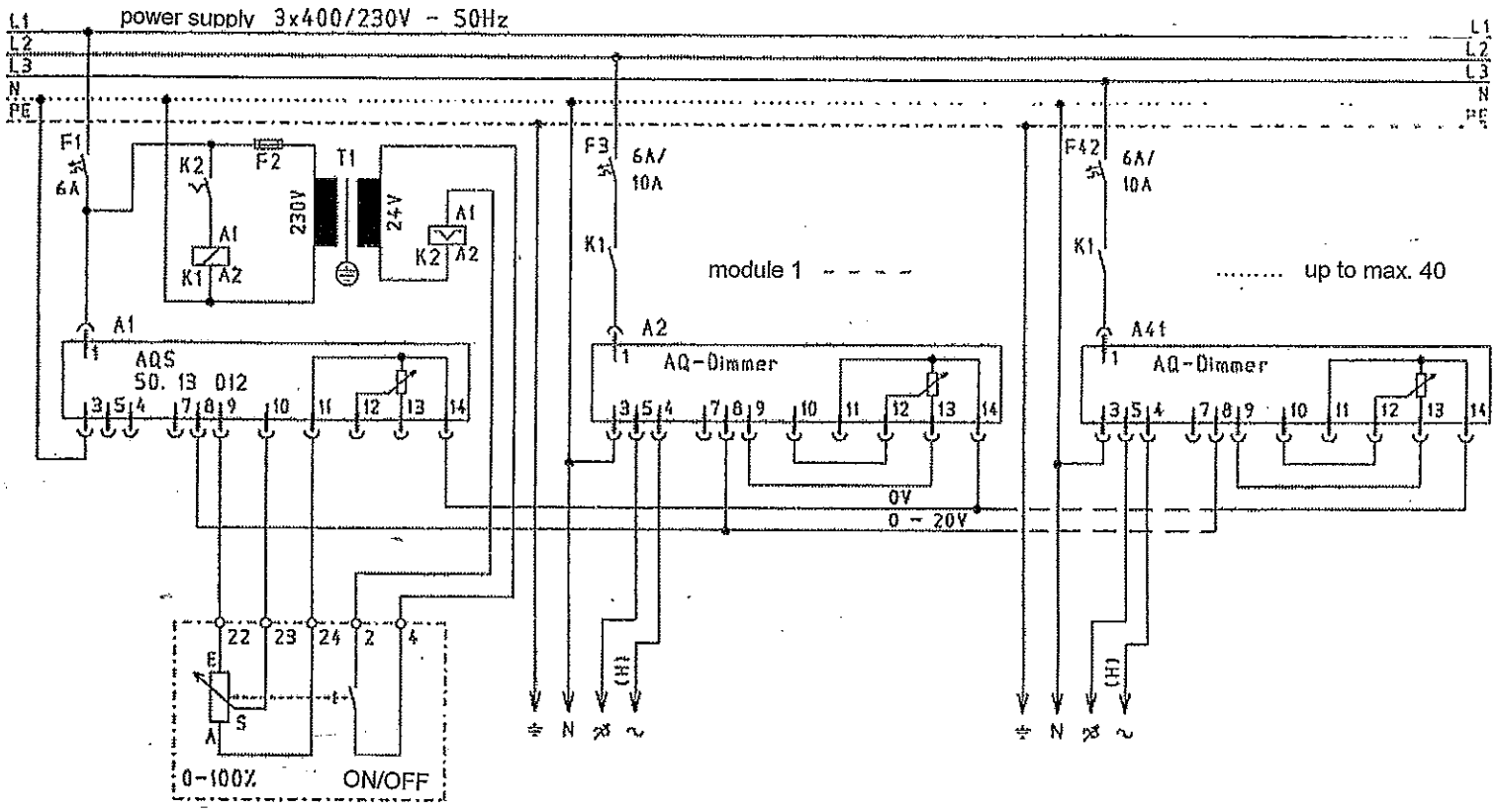
Load amplification with master control unit, operated with an external potentiometer



Master control with internal potentiometer at the master control unit: Potentiometers at the AQ-load dimmers with individual functions.



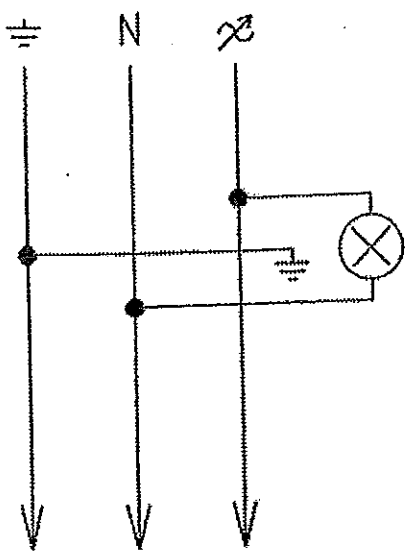
Master control with external potentiometer at the master control unit: The potentiometers at the AQ-load dimmers with individual functions.



rotary potentiometer with pushbutton

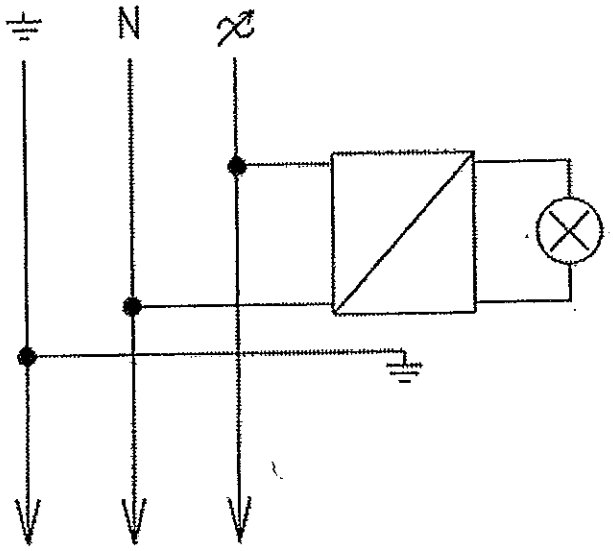
Load connections AQ-0 0,7 kW, AQ-0 1,4 kW

Incandescent lamps
Spot lights



further lamps

low-voltage halogen lamps with
electronic transformers



Further lamps

Application in rooms with sound transmissions

Close to sound transmissions the following has to be observed.

- Separate safety earthing for dimming controls and sound transmission required
- No parallel wiring between both systems (please ask for special instructions).

Adjustments and testing

Each AQ-dimmer has one trimmer potentiometer for the adjustment of the minimum voltage level and a second trimmer potentiometer for the adjustment of the maximum voltage level. Both trimmers are accessable through holes at the front of the housing. The housing has not to be opened.

The trimmer potentiometers are adjusted in the final works inspection such that the output voltage between 0 V and maximum can be set with the potentiometer at the dimmer. Is the potentiometer set to the left it can be switched OFF.

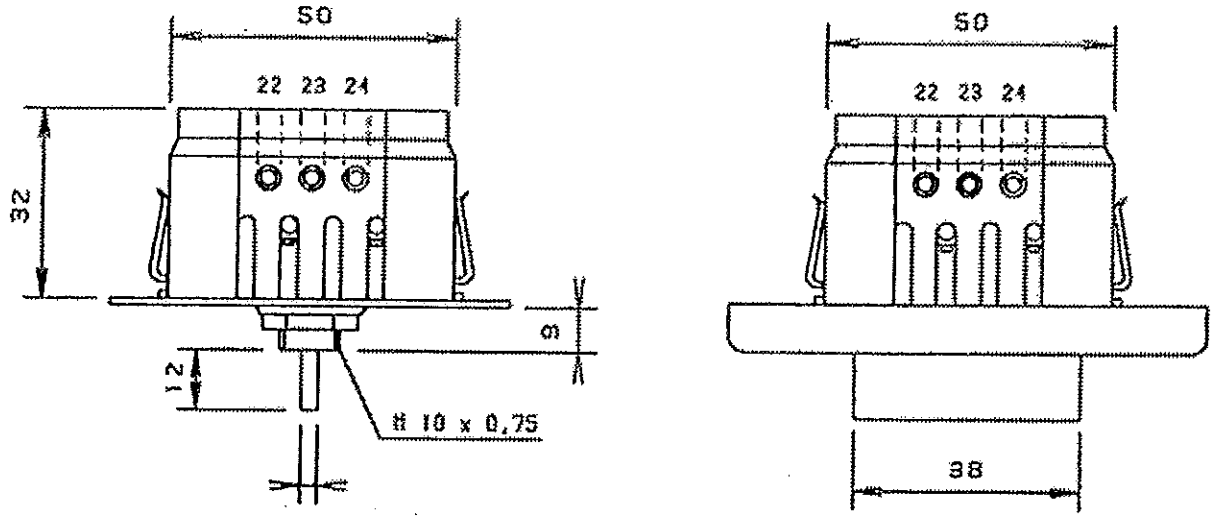
Adjustment of minimum and maximum voltage levels at an individual AQ-dimmer.

1. Switching ON the dimmer. If the trimmer potentiometers have been set into an extreme place please set them into a middle position.
2. Set the rotary potentiometer to the left, without switching OFF (level 1).
3. Adjust the minimum trimmer unless the required minimum light level is visible (setting the trimmer to the right = BRIGHTER).
4. Set the rotary potentiometer (the internal or external one) to the utmost right position.
5. Turn the maximum trimmer unless the required maximum brightness has been achieved.

With the rotary potentiometer now the brightness can be set between the adjusted minimum and maximum light levels.

Wiring diagrams potentiometer

The screws of terminals 22, 23 and 24
are accessable from the back



Adjustment of the minimum and maximum voltage levels in the joint control mode of several AQ-dimmers (load amplification or master control)

In order to achieve an exact balance between the different AQ-dimmers the individual output voltages have to be adjusted between terminals 3 and 5 with an rms reading volt meter.

Adjustment:

1. Set the individual potentiometers at the AQ-dimmers to the utmost right.
2. Set the potentiometer of the leading dimmer to the left without switching it OFF.
3. Set the trimmer potentiometer min. of the 1. AQ-dimmer to the required minimum brightness level (e.g. 40 V~).
4. Set the potentiometer of the leading dimmer to the utmost right.
5. Set the trimmer potentiometer max. of the 1. load dimmer to the required max. light level (e.g. 200V~)
6. Measure the output voltage of the 1. load dimmer and set the potentiometer of the AQ to be controlled to approx. 20 V above the adjusted minimum light level (e.g. 60 V).
7. Set the output voltage of the following AQ-dimmer with the min. trimmer to the same light level (e.g. 60V)
8. Measure the output voltage of the 1. AQ-dimmer and set the potentiometer of the leading dimmer approx. 20 V below the adjusted max. light level (e.g. 180 V)
9. Adjust the output voltage of the following AQ-dimmer with the maximum trimmer to the same light level (e.g. 180 V).

With a potentiometer of the leading dimmer now the brightness of all dimmers jointly can be adjusted between the minimum and maximum adjusted light levels (in the aforementioned example between approx. 40 and 200 V).

Accessories for ALTOQUICK dimmers

1. Control modules for an external control

Rotary potentiometer with knob and scale, without housing with

a) ON/OFF switch, type DPO	Order-No. 51.01.019
b) ON/OFF pushbutton, type DPOT	Order-No. 51.01.020
c) Change over switch, type DPOW	Order-No. 51.01.029

Rotary potentiometer for wall-recessed housings with coverplate (80x80 mm) with

a) ON/OFF switch, type DPU	Order-No. 51.01.021
b) ON/OFF pushbutton, type DPUT	Order-No. 51.01.022
c) Change over switch, type DPUW	Order-No. 51.01.030

Rotary potentiometer for wall-recessed housings with coverplate (71x71 mm) with

a) ON/OFF switch, type DPUX	Order-No. 51.01.035
b) ON/OFF pushbutton, type DPUTX	Order-No. 51.01.036
c) Change over switch, type DPUWX	Order-No. 51.01.037

Rotary potentiometer with wall-mounted housing (housing:76x76x52mm) with

a) ON/OFF switch, type DPA	Order-No. 51.01.023
b) ON/OFF pushbutton, type DPAT	Order-No. 51.01.024
c) Change over switch, type DPAW	Order-No. 51.01.031

Rotary potentiometer for DIN-rail systems with DIN-rail coverplate with

a) ON/OFF switch, type DPN	Order-No. 51.01.025
b) ON/OFF pushbutton, type DPNT	Order-No. 51.01.026
c) Change over switch, type DPNW	Order-No. 51.01.032

Sliding potentiometer (slider) with scale, type SP — Order-No. 51.01.027

Wiring diagrams for potentiometers

The screws for terminals 22, 23 and 24 are on the back of the housings

2. Control modules for AQ-dimmers

Master control AQS **Order-no. 50.13.012**
For the control of up to 40 individual dimmers with one potentiometer.

Auditorium control for 1-pushbutton function, type NS 1 **Order-no. 50.13.015**
For the control of up to 40 AQ-dimmers with 1 pushbutton with the functions BRIGHTER-DARKER-STOP-ON/OFF.

Auditorium control for a 2-pushbutton function, type NS 2 **Order-no. 50.13.014**
For the control of up to 40 AQ-dimmers with 2 pushbuttons with the functions BRIGHTER/DARKER.

Auditorium control with 3-pushbutton function, type NS 2X **Order-no. 50.13.030**
For the control of up to 40 AQ-dimmers with 3 pushbuttons with the functions BRIGHTER/DARKER/ON-OFF.

Auditorium control with 4-pushbutton function, type NS 4 **Order-no. 50.13.013**
For the control of up to 40 AQ-dimmers with 4 pushbuttons with the functions STOP/PRESET/BRIGHTER/DARKER

4-value preset control type NS4 WV **Order-no. 50.13.016**
control of up to 40 AQ-dimmers with the preset of 4 light levels between 0 and 100 %

6-value preset control type NS6 WV **Order-no. 50.13.218**
control of up to 40 AQ-dimmers with the preset of 6 light levels between 0 and 100 %. Additional functions BRIGHER or DARKER

Wave motion lighting control type AQE1 **Order-no. 50.13.020**
For a continuously bright-dark control in different cycle times

Double wave motion lighting control type AQE2 **Order-no. 50.13.021**
For the continuously control brighter-darker of 2 individual AQ-dimmers (in reverse proportion).

Constant light control AQA **Order-no. 50.13.015**
For the control of up to 40 AQ-dimmers in dependence of the daylight portion with presettable light level to be kept constant

Photosensor-controlled dimmer operating in reverse proportion to the daylight, type AQNP **Order-no. 50.14.030**
As the daylight increases, the artificial light decreases proportionally

Photosensor-controlled dimmer operating in proportion to the daylight, type AQP **Order-no. 50.13.031**
As the daylight increases, also the artificial light increases proportionally