Operating Instructions
AkkuGuard – A
AkkuGuard – U

Item numbers: 30015 + 30017

Imprint:

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1 Introduction

The AkkuGuard is for monitoring the vehicle voltage of vehicle batteries and sets itself automatically to 12 V or 24 V.

If a specific voltage limit (which you can set yourself) is fallen short of, the AkkuGuard either issues an alarm or disconnects auxiliary equipment like torches or radios, for example, depending on the device type.

The very low current consumption (<3 mA) reduces additional loading of the vehicle battery to a minimum.

The AkkuGuard disconnects the auxiliary equipment in the case of a voltage dip with a short delay. In this way, the system does not interrupt the charging cycle of the auxiliary equipment if there is a brief voltage dip (e.g. when the vehicle starts up); the service life of the auxiliary equipment's rechargeable batteries is also extended.

1.1 Liability and warranty

The manufacturer warranties the AkkuGuard within the scope of the conditions of sale and delivery that apply in each case.

The manufacturer accepts no liability for damage due to ignoring the information in these operating instructions as well as to incorrectly assembling, operating or servicing the battery monitor.

1.2 Customer service

If you need technical information or have any queries or need to order spare parts, please contact your local dealer or e-mail our customer service: office@poelz.at

To ensure that your inquiry is processed quickly, please state the following information:

- Device type
- Item number
- Serial number

You will find the device type on the type plate on your AkkuGuard (see also Chapter 3.2 TYPE PLATE). You can find the device type on the label attached to the top of your AkkuGuard (see also Chapter 3.3 DEVICE OVERVIEW). For information on the item number, see also Chapter 8.1 TECHNICAL DATA.

2 Safety Information

The AkkuGuard made by Industrieelektronik Pölz GmbH has been manufactured and inspected in accordance with valid standards and guidelines and recognized technical regulations. However, incorrect use can lead to physical harm to users or damage to the AkkuGuard or other material assets.

Always comply to the letter with the safety information and warnings given in these installation instructions.

3 Description of the Device

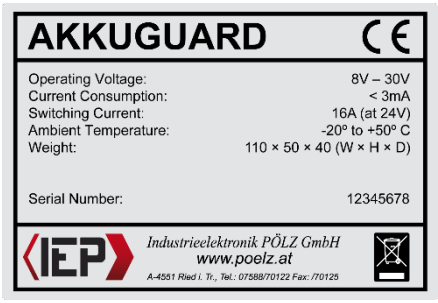
3.1 Device types

In these installation instructions, we will describe the following AkkuGuards:

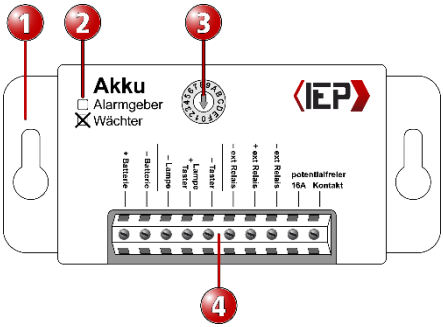
- Alarm
  (see also Chapter 5.1 ALARM)
- Battery monitor
  (see also Chapter 5.2 BATTERY MONITOR)

Please note the device-specific description and equipment of your AkkuGuard. You can find the device type on the label attached to the top of your AkkuGuard.

3.2 Type plate



3.3 Device overview



① Installation fixture
② Designation of the device type
③ Rotary switch for setting the alarm or cut-off voltage
④ Connecting terminals for the main battery, the auxiliary equipment, the buttons, the signal lamp and an optional external relay

4 Installation

Danger!

Installation work must only be carried out by qualified people who have been tasked with this work.

Danger electrical hazard!

Only ever carry out installation work when the device is de-energised.

4.1 Unpacking the AkkuGuard

Remove the packaging material.

Check that the contents of the package and the AkkuGuard are complete and inspect for possible damage. If any components are missing or are damaged, contact our customer service immediately (see also Chapter 1.2 CUSTOMER SERVICE).

4.2 Setting the AkkuGuard

The AkkuGuard detects the connected terminal voltage of the battery system (12 V or 24 V) and adapts automatically. If a terminal voltage <16 V is connected, 12 V operation is assumed. If a terminal voltage >16 V is connected, 24 V operation is assumed.

At the factory, the AkkuGuard's alarm or cut-off voltage is set to 10.5 V to 12 V (rotary switch at "0").

Use a screwdriver to set the desired alarm or cut-off voltage on the rotary switch on the top of the AkkuGuard (see also Chapter 8.2 AKKUGUARD THRESHOLD voltage).

4.3 Installing the AkkuGuard

Caution!

Use only original Industrie-elektronik Pölz GmbH spare parts.

If you use third-party spare parts there is no guarantee that they have been designed optimized for application or for safety.

Screw the AkkuGuard on the Installation fixture tight close to the battery or directly in the battery box.

4.4 Connecting the AkkuGuard

Caution!

The wires should be strain-relieved.

Protect all the positive poles with their own fuses.

1. Set the desired alarm or cut-off voltage on the AkkuGuard (see also Chapter 4.2 SETTING THE AKKUGUARD).
2. Connect the AkkuGuard to the vehicle battery (see also Chapter 4.5 CONNECTION DIAGRAM).

Caution!

When connecting the AkkuGuard to the battery, note that the negative connection must not be routed via the chassis; otherwise, measuring errors can occur.

3. Connect the auxiliary equipment to the potential-free output (see also Chapter 4.6 CONNECTING AUXILIARY EQUIPMENT OR SIGNAL TRANSMITTERS).

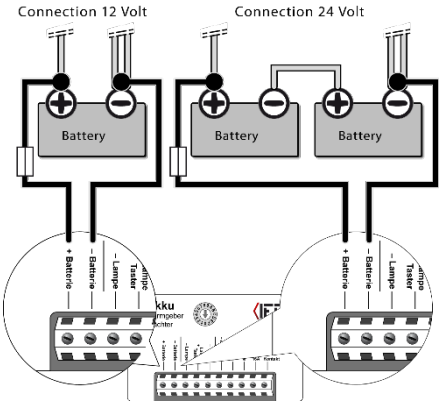
4. **Optional:** Connect a button for acknowledging the alarm and/or a signal lamp for monitoring to the appropriate connecting terminals (see also Chapters 4.7 CONNECTING TERMINALS, 5.3 BUTTON FOR ALARM ACKNOWLEDGEMENT, 5.4 LAMP FOR MONITORING).

5. **Optional:** Connect an external relay (e.g. for a controller in the vehicle) to the corresponding connecting terminals (see also Chapters 4.7 CONNECTING TERMINALS, 5.5 EXTERNAL RELAY).

4.5 Connection diagram

Connect the connecting terminals of the measuring connection of the AkkuGuard to the associated connections on the batteries.

When making the connection to a 24V battery system, make sure to connect the **+ Battery** connecting terminal in-series with the positive pole of the first battery and to connect the **- Battery** connecting terminal in-series with the negative pole of the second battery (see also the graphic below).



4.6 Connecting auxiliary equipment or signal transmitters

The AkkuGuard loops through the voltage connection (positive pole) of the auxiliary equipment via the potential-free output.

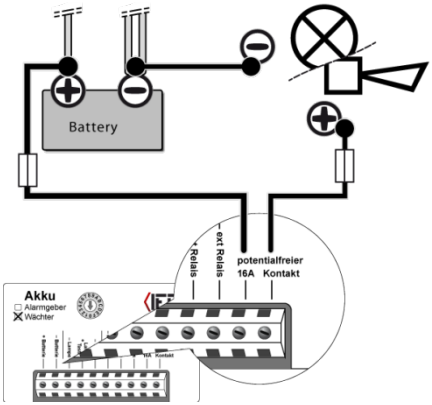
1. Connect the positive pole of the vehicle's battery system (with a 24 V battery system, this is the positive pole of the first battery in the series) to the AkkuGuard's first potential-free output.

2. Connect the positive pole of the auxiliary equipment or the signal transmitter to the AkkuGuard's second potential-free output.

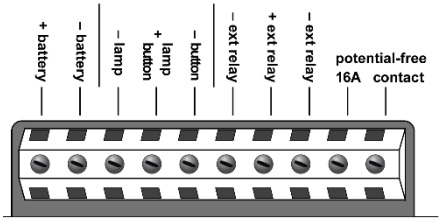
Note!

To protect the charging cable, you must put a 16 A intermediate fuse in both connections.

3. Connect the negative pole of the auxiliary equipment or the signal transmitter to the battery's negative pole.



4.7 Connecting terminals



+ Battery: Measuring connection to the battery system's positive pole

- Battery: Measuring connection to the battery system's negative pole

- Lamp: Connection of a signal lamp's negative pole for monitoring (optional)

+ Lamp/button: Connection of a signal lamp's positive pole and/or of a button for acknowledging an alarm (optional)

- Button: Connection of a button's negative pole for acknowledging an alarm (optional)

- ext relay: Negative pole of an external relay (e.g. for a controller in the vehicle) (optional)

+ ext relay: Positive pole of an external relay (e.g. for a controller in the vehicle) (optional)

- ext relay: Negative pole of an external relay (e.g. for a controller in the vehicle)

(optional) **Potential-free outputs:** Connection of the battery system's positive pole and of the auxiliary equipment or the signal transmitter

5 Operation

The AkkuGuard monitors the vehicle voltage of vehicle batteries. Depending on the device type, if the battery voltage drops below the set value the system interrupts the voltage on the potential-free output (no more charging of auxiliary equipment) or switches on the voltage on a pulse-by-pulse basis (an LED display flashes or there is an interrupted hooter signal).

Note!
If the 9 V or 18 V vehicle voltage is fallen short of, the system switches off completely.

5.1 Alarm

If the set voltage limit is fallen short of, an alarm (e.g. a hooter signal or an LED display) is issued after a brief delay (see also Chapter 8.2.1 THRESHOLD VOLTAGE OF AKKUGUARD ALARM). The contact of the potential-free output is closed on a pulse-by-pulse basis (an LED display flashes or an interrupted hooter signal is issued).

5.2 Battery monitor

If the set voltage limit is fallen short of, the battery monitor disconnects auxiliary equipment from the battery with a brief delay (see also Chapter 8.2.2 THRESHOLD VOLTAGE OF AKKUGUARD BATTERY MONITOR). In this way, the system does not interrupt the charging cycle of the auxiliary equipment if there is a brief voltage dip (e.g. when the vehicle starts up); the service life of the auxiliary equipment's rechargeable batteries is also extended.

As soon as the battery voltage exceeds the setpoint value, the power supply is reconnected.

5.3 Button for alarm acknowledgement

Optional: You can connect a button to the AkkuGuard (**+/- button,** see also Chapter 4.7 CONNECTING TERMINALS) that you can use to acknowledge an alarm. Acknowledging the alarm does not eliminate its cause (low battery voltage).

Ongoing monitoring of the battery voltage is interrupted. The battery voltage can drop to a critical level.

The AkkuGuard continues monitoring of the battery voltage when the battery system's voltage reaches the normal operating level again.

5.4 Lamp for monitoring

Optional: You can connect a signal lamp (**+/- lamp,** see also Chapter 4.7 CONNECTING TERMINALS), that indicates when the auxiliary equipment is switched off.

The signal lamp lights up if the power supply to the auxiliary equipment is interrupted due to low voltage in the battery system.

5.5 External relay

Optional: You can connect an external relay for any controller in the vehicle you like **+/- Ext relay,** see also Chapter 4.7 CONNECTING TERMINALS).

6 Dismounting

There are no special regulations for dismounting the battery monitor.

7 Service

Danger!

Servicing work must only be carried out by qualified people who have been tasked with this work.

7.1 Maintenance

Note!

The battery monitor is maintenance-free.

7.2 Cleaning

Always keep the connecting terminals clean.

7.3 Repairs

Danger!

Only the manufacturer or a qualified service engineer are allowed to carry out repairs on the battery monitor.

8 Appendix

8.1 Technical data

8.1.1 Technical data of AkkuGuard alarm

Operating voltage	8 - 30 V
Current consumption	< 3 mA
Switching current	16 A (at 24 V)
Standards compliance	DIN 14507-3
Ambient temperature	-20 °C - +50 °C
Dimensions (W x H x D)	150 × 40 × 50 mm
Weight	0.153 g approx.
Item number	30017

8.1.2 Technical data of AkkuGuard monitor

Operating voltage	8 - 30 V
Current consumption	< 3 mA
Switching current	16 A (at 24 V)
Standards compliance	DIN 14507-3
Ambient temperature	-20 °C - +50 °C
Dimensions (W × H × D)	150 × 40 × 50 mm
Weight	0.153 kg approx.
Item number	30015

8.2 AkkuGuard threshold voltage

8.2.1 Threshold voltage of AkkuGuard alarm (potential-free contact)

12 V operation		
Voltage U1 / V	Voltage U2 / V	Switch position
11.0	11.5	0
11.1	11.6	1
11.2	11.7	2
11.3	11.8	3
11.4	11.9	4
11.5	12.0	5
11.6	12.1	6
11.7	12.2	7
11.8	12.3	8
11.9	12.4	9
12.0	12.5	A
12.1	12.6	B
12.2	12.7	C
12.3	12.8	D
12.4	12.9	E
12.5	13.0	F

24 V operation		
Voltage U1 / V	Voltage U2 / V	Switch position
22.0	23.0	0
22.2	23.2	1
22.4	23.4	2
22.6	23.6	3
22.8	23.8	4
23.0	24.0	5
23.2	24.2	6
23.4	24.4	7
23.6	24.6	8
23.8	24.8	9
24.0	25.0	A
24.2	25.2	B
24.4	25.4	C
24.6	25.6	D
24.8	25.8	E
25.0	26.0	F

8.2.2 Threshold voltage of AkkuGuard battery monitor (potential-free contact)

12 V operation		
Voltage U1 / V	Voltage U2 / V	Switch position
11.0	13.5	0
11.1	13.5	1
11.2	13.5	2
11.3	13.5	3
11.4	13.5	4
11.5	13.5	5
11.6	13.5	6
11.7	13.5	7
11.8	13.5	8
11.9	13.5	9
12.0	13.5	A
12.1	13.5	B
12.2	13.5	C
12.3	13.5	D
12.4	13.5	E
12.5	13.5	F

24 V operation		
Voltage U1 / V	Voltage U2 / V	Switch position
22.0	27.0	0
22.2	27.0	1
22.4	27.0	2
22.6	27.0	3
22.8	27.0	4
23.0	27.0	5
23.2	27.0	6
23.4	27.0	7
23.6	27.0	8
23.8	27.0	9
24.0	27.0	A
24.2	27.0	B
24.4	27.0	C
24.6	27.0	D
24.8	27.0	E
25.0	27.0	F

8.3 Relay voltage of AkkuGuard alarm

External relay 1				
12 V operation voltage		Switch position	24 V operation voltage	
Off	On		Off	On
11.5	11.5	0	23.0	23.0
11.6	11.6	1	23.2	23.2
11.7	11.7	2	23.4	23.4
11.8	11.8	3	23.6	23.6
11.9	11.9	4	23.8	23.8
12.0	12.0	5	24.0	24.0
12.1	12.1	6	24.2	24.2
12.2	12.2	7	24.4	24.4
12.3	12.3	8	24.6	24.6
12.4	12.4	9	24.8	24.8
12.5	12.5	A	25.0	25.0
12.6	12.6	B	25.2	25.2
12.7	12.7	C	25.4	25.4
12.8	12.8	D	25.6	25.6
12.9	12.9	E	25.8	25.8
13.0	13.0	F	26.0	26.0

External relay 2				
12 V operation voltage		Switch position	24 V operation voltage	
Off	On		Off	On
11.0	11.5	0	22.0	23.0
11.1	11.6	1	22.2	23.2
11.2	11.7	2	22.4	23.4
11.3	11.8	3	22.6	23.6
11.4	11.9	4	22.8	23.8
11.5	12.0	5	23.0	24.0
11.6	12.1	6	23.2	24.2
11.7	12.2	7	23.4	24.4
11.8	12.3	8	23.6	24.6
11.9	12.4	9	23.8	24.8
12.0	12.5	A	24.0	25.0
12.1	12.6	B	24.2	25.2
12.2	12.7	C	24.4	25.4
12.3	12.8	D	24.6	25.6
12.4	12.9	E	24.8	25.8
12.5	13.0	F	25.0	26.0

8.4 Relay voltage of AkkuGuard battery monitor

External relay 1				
12 V operation voltage		Switch position	24 V operation voltage	
Off	On		Off	On
11.5	11.5	0	23.0	23.0
11.6	11.6	1	23.2	23.2
11.7	11.7	2	23.4	23.4
11.8	11.8	3	23.6	23.6
11.9	11.9	4	23.8	23.8
12.0	12.0	5	24.0	24.0
12.1	12.1	6	24.2	24.2
12.2	12.2	7	24.4	24.4
12.3	12.3	8	24.6	24.6
12.4	12.4	9	24.8	24.8
12.5	12.5	A	25.0	25.0
12.6	12.6	B	25.2	25.2
12.7	12.7	C	25.4	25.4
12.8	12.8	D	25.6	25.6
12.9	12.9	E	25.8	25.8
13.0	13.0	F	26.0	26.0

External relay 2				
12 V operation voltage		Switch position	24 V operation voltage	
Off	On		Off	On
11.0	13.5	0	22.0	27.0
11.1	13.5	1	22.2	27.0
11.2	13.5	2	22.4	27.0
11.3	13.5	3	22.6	27.0
11.4	13.5	4	22.8	27.0
11.5	13.5	5	23.0	27.0
11.6	13.5	6	23.2	27.0
11.7	13.5	7	23.4	27.0
11.8	13.5	8	23.6	27.0
11.9	13.5	9	23.8	27.0
12.0	13.5	A	24.0	27.0
12.1	13.5	B	24.2	27.0
12.2	13.5	C	24.4	27.0
12.3	13.5	D	24.6	27.0
12.4	13.5	E	24.8	27.0
12.5	13.5	F	25.0	27.0

8.5 Disposal

AkkuGuard

At the end of its useful life, never throw away the AkkuGuard in domestic refuse under any circumstances. Consult your local council about the options available for correct environmentally friendly disposal.

Packaging



Observe locally applicable regulations for correct recycling.

8.6 Declaration of conformity (DoC)

CE

The CE mark confirms conformity of the device with relevant EU directives.

To obtain the complete declaration of conformity, please contact our customer service: office@poelz.at

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