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Installation/Operating Manual AS5

Original operating manual

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1 General

1.1 Principles
This operating manual is valid for the type series and variants indicated on the front cover.

The operating manual describes the proper and safe use of this equipment in all phases of operation.

The name plate indicates the type series, the main operating data and the serial number. The serial number uniquely describes the product and is used as identification in all further business processes.

In the event of damage, immediately contact your nearest KSB service facility to maintain the right to claim under warranty.

1.2 Target group
This operating manual is aimed at the target group of trained and qualified specialist technical personnel.

1.3 Other applicable documents

Table 1: Overview of other applicable documents

<table>
<thead>
<tr>
<th>Document</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-supplier product literature</td>
<td>Operating manual</td>
</tr>
</tbody>
</table>

For accessories and/or integrated machinery components, observe the relevant manufacturer’s product literature.

1.4 Symbols

Table 2: Symbols used in this manual

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Conditions which need to be fulfilled before proceeding with the step-by-step instructions</td>
</tr>
<tr>
<td>⊳</td>
<td>Safety instructions</td>
</tr>
<tr>
<td>⇨</td>
<td>Result of an action</td>
</tr>
<tr>
<td>⇪</td>
<td>Cross-references</td>
</tr>
<tr>
<td>1.</td>
<td>Step-by-step instructions</td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>![Exclamation mark]</td>
<td>Note Recommendations and important information on how to handle the product</td>
</tr>
</tbody>
</table>
1.5 Key to safety symbols/markings

Table 3: Definition of safety symbols/markings

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="DANGER" /></td>
<td><strong>DANGER</strong>&lt;br&gt;This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="WARNING" /></td>
<td><strong>WARNING</strong>&lt;br&gt;This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="CAUTION" /></td>
<td><strong>CAUTION</strong>&lt;br&gt;This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.</td>
</tr>
<tr>
<td><img src="image" alt="General hazard" /></td>
<td><strong>General hazard</strong>&lt;br&gt;In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="Electrical hazard" /></td>
<td><strong>Electrical hazard</strong>&lt;br&gt;In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.</td>
</tr>
<tr>
<td><img src="image" alt="Machine damage" /></td>
<td><strong>Machine damage</strong>&lt;br&gt;In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.</td>
</tr>
</tbody>
</table>
2 Safety

All the information contained in this section refers to hazardous situations. In addition to the present general safety information the action-related safety information given in the other sections must be observed.

2.1 General

- This operating manual contains general installation, operating and maintenance instructions that must be observed to ensure safe operation of the system and prevent personal injury and damage to property.
- Comply with all the safety instructions given in the individual sections of this operating manual.
- The operating manual must be read and understood by the responsible specialist personnel/operators prior to installation and commissioning.
- The contents of this operating manual must be available to the specialist personnel at the site at all times.
- Information and markings attached directly to the product must always be complied with and kept in a perfectly legible condition at all times. This applies to, for example:
  - Markings for connections
  - Name plate
- The operator is responsible for ensuring compliance with all local regulations not taken into account.

2.2 Intended use

The values specified in the technical product literature for the mains voltage, mains frequency, ambient temperature and motor current must not be exceeded. The control unit must only be operated in accordance with the instructions provided in the operating manual and other applicable documents.

2.3 Personnel qualification and personnel training

All personnel involved must be fully qualified to install, operate, maintain and inspect the equipment this manual refers to. The responsibilities, competence and supervision of all personnel involved in installation, operation, maintenance and inspection must be clearly defined by the operator.

Deficits in knowledge must be rectified by means of training and instruction provided by sufficiently trained specialist personnel. If required, the operator can commission the manufacturer/supplier to train the personnel.

Training on the control unit must always be supervised by specialist technical personnel.

2.4 Consequences and risks caused by non-compliance with this manual

- Non-compliance with these operating instructions will lead to forfeiture of warranty cover and of any and all rights to claims for damages.
- Non-compliance can, for example, have the following consequences:
  - Hazards to persons due to electrical, thermal, mechanical and chemical effects and explosions
  - Failure of important product functions
  - Failure of prescribed maintenance and servicing practices
  - Hazard to the environment due to leakage of hazardous substances
2.5 Safety awareness

In addition to the safety information contained in this operating manual and the intended use, the following safety regulations shall be complied with:

- Accident prevention, health regulations and safety regulations
- Explosion protection regulations
- Safety regulations for handling hazardous substances
- Applicable standards, directives and laws
3 Transport/Storage/Disposal

3.1 Checking the condition upon delivery
1. On transfer of goods, check each packaging unit for damage.
2. In the event of in-transit damage, assess the exact damage, document it and notify KSB or the supplying dealer and the insurer about the damage in writing immediately.

3.2 Transport

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper transport</td>
</tr>
<tr>
<td>Damage to the device!</td>
</tr>
<tr>
<td>▶ Always transport the device properly and in its original packaging.</td>
</tr>
<tr>
<td>▶ For transport, observe the transport instructions on the original packaging.</td>
</tr>
<tr>
<td>▶ Do not throw device.</td>
</tr>
</tbody>
</table>

1. Upon receipt, unpack the device and check for in-transit damage.
2. Report any in-transit damage to the manufacturer immediately.
3. Dispose of packaging material in accordance with local regulations.

3.3 Storage

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damage during storage due to humidity, dirt or vermin</td>
</tr>
<tr>
<td>Corrosion/contamination of the control unit!</td>
</tr>
<tr>
<td>▶ For outdoor storage cover the (packed or unpacked) control unit and accessories with water-proof material.</td>
</tr>
</tbody>
</table>

If the ambient conditions for storage are met, the function of the control unit is safeguarded even after a prolonged period of storage. If properly stored indoors, the equipment is protected for a maximum of 12 months.

▪ Store the control unit in dry, vibration-free conditions and, if possible, in its original packaging.
▪ Store the control unit in a dry room at constant atmospheric humidity.
▪ Prevent excessive fluctuations in atmospheric humidity.

Table 4: Ambient conditions for storage

<table>
<thead>
<tr>
<th>Ambient condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative humidity</td>
<td>Max. 85 % (no condensation)</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-10 °C to + 70 °C</td>
</tr>
</tbody>
</table>
3.4 Disposal

Electrical or electronic equipment marked with the adjacent symbol must not be disposed of in household waste at the end of its service life.

Contact your local waste disposal partner for returns.

If the used electrical or electronic equipment contains personal data, the operator is responsible for deleting it before the equipment is returned.

NOTE

Due to certain components it contains, the device is classified as special waste and meets RoHs 2011/65/EC requirements.

Once decommissioned, the device must be properly disposed of in accordance with local regulations.
4 Description

4.1 General description
- Alarm switchgear for signalling limit values

4.2 Product information as per Regulation No. 1907/2006 (REACH)

4.3 Designation

Example: AS5

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS</td>
<td>Type series</td>
</tr>
<tr>
<td>5</td>
<td>Code number</td>
</tr>
</tbody>
</table>

Table 5: Designation key

4.4 Name plate

![Fig. 1: Name plate (example)](image)

<table>
<thead>
<tr>
<th>1</th>
<th>Type series, code number</th>
<th>4</th>
<th>Material number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Nominal voltage, frequency</td>
<td>5</td>
<td>Year of production</td>
</tr>
<tr>
<td>3</td>
<td>Control voltage</td>
<td>6</td>
<td>Enclosure</td>
</tr>
</tbody>
</table>
4.5 Design details

Design
- Alarm switchgear for signalling limit values
- Plastic housing for wall mounting

Signalling functions and display functions
- Colour-coded LED display
- Signalling output for connecting external alarm equipment (e.g. horn, alarm strobe light, alarm combination)
- Volt-free fault signalling contact for transmitting fault messages (e.g. to a control station)

Electrical connection
- 1.8 m power cable with shockproof plug
- 1–230 V AC, 50 Hz
- Enclosure: IP41

4.6 Technical data

Table 6: Technical data

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm switchgear</td>
<td></td>
</tr>
<tr>
<td>Nominal operating voltage</td>
<td>V [V AC] 1–230</td>
</tr>
<tr>
<td>Mains frequency</td>
<td>F [Hz] 50</td>
</tr>
<tr>
<td>Insulation voltage</td>
<td>V [V AC] 630</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP41</td>
</tr>
<tr>
<td>Safety class</td>
<td>II to VDE 0106</td>
</tr>
<tr>
<td>Mains type</td>
<td>TN</td>
</tr>
<tr>
<td>Material</td>
<td>Plastic</td>
</tr>
<tr>
<td></td>
<td>Colour: RAL 7035, light grey</td>
</tr>
<tr>
<td>Rechargeable battery</td>
<td></td>
</tr>
<tr>
<td>Battery voltage</td>
<td>U [V DC] 12</td>
</tr>
<tr>
<td>Stand-by mode in the event of a power failure</td>
<td>6 months</td>
</tr>
<tr>
<td>Alarm duration in the event of a power failure</td>
<td>10 hours</td>
</tr>
</tbody>
</table>
4.7 Configuration and function

Fig. 2: Description of the alarm switchgear

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acknowledgement button</td>
<td>4</td>
<td>Power supply</td>
</tr>
<tr>
<td>2</td>
<td>“In operation” indicator (green LED)</td>
<td>5</td>
<td>Contactor connection</td>
</tr>
<tr>
<td>3</td>
<td>Fault indicator (red LED)</td>
<td>6</td>
<td>Connection for external alarm equipment / volt-free fault signalling contact</td>
</tr>
</tbody>
</table>

**Design**
The alarm switchgear is designed with a compact plastic housing for wall mounting. The alarm switchgear serves to signal limit values in combination with a contactor (e.g. float switch).

**Function**
Limit values are signalled by colour-coded LEDs, external alarm equipment (e.g. horn, alarm strobe light, alarm combination) or via a volt-free fault signalling contact (e.g. message to a control station).
The fault indicator (3) signals an active alarm. The “in operation” indicator (2) signals that the device is mains powered. In the event of a power failure, a maintenance-free lead gel rechargeable battery provides the alarm switchgear with an emergency back-up power supply for 10 hours.

4.8 Dimensions and weights

**Table 7: Dimensions and weights**

<table>
<thead>
<tr>
<th>Dimensions H × W × D [mm]</th>
<th>[kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>170 × 190 × 75</td>
<td>1,85</td>
</tr>
</tbody>
</table>

4.9 Accessories
- Float switch, circuit open in upper float position
- Float switch, circuit closed in upper float position
- M1 contactor
- Horn
- Alarm strobe light
- Alarm combination
5 Installation at Site

5.1 Safety regulations

**DANGER**

Incorrect installation
Danger to life!
▷ The control unit must be installed in a flood-proof location.
▷ Never install the control unit in potentially explosive atmospheres.
▷ Integration in external control system: observe the directives for low-voltage switchgear and controlgear assemblies.

**DANGER**

Electrical connection work by unqualified personnel
Danger of death from electric shock!
▷ Always have the electrical connections installed by a trained and qualified electrician.
▷ Observe regulations IEC 60364.

**DANGER**

Unsuitable electrical installation
Danger to life!
▷ Make sure the electrical installation meets the VDE 0100 and IEC 60364 installation rules (i.e. sockets with earthing terminals).
▷ Make sure the electric mains is equipped with a residual current device of maximum 30 mA.
▷ If in doubt, contact a specialist electrical company.

5.2 Checks to be carried out prior to installation

Before beginning with the installation check the following:

- The alarm switchgear is suitable for operation on the power supply network according to the data on the name plate. (☞ Section 4.4, Page 11)
- The place of installation is dry.
- The place of installation is frost-free.
- The place of installation is protected against flooding.
- The place of installation is well-ventilated.
- The place of installation is not potentially explosive.
5.3 Mounting the alarm switchgear

Fig. 3: Mounting the alarm switchgear

Fig. 4: Inserting the fuse protecting the rechargeable battery

- The installation conditions are taken into account and complied with. (⇒ Section 5.2, Page 14)
- A tool for marking the wall is available.
- Assembly tools are available.

1. Undo the three screws (1) with a suitable tool and keep them in a safe place.
2. Remove the cover (2).
3. Position the alarm switchgear in a suitable area on the wall.
4. Mark the position of the three mounting holes on the wall.
5. Drill the mounting holes.
6. Mount the alarm switchgear.
7. Insert the supplied fuse (type F1A, 5×20 mm) for the rechargeable battery (A) into the fuse holder on the right-hand side of the charge controller (B).
8. Fit the cover (2) and fasten it with three screws.
5.4 Electrical connection

**DANGER**

Electrical connection work by unqualified personnel
Risk of fatal injury due to electric shock!
- Always have the electrical connections installed by a trained and qualified electrician.
- Observe the IEC 60364 regulations as well as any regional regulations.

**WARNING**

Incorrect connection to the mains
Damage to the mains network, short circuit!
- Observe the technical specifications of the local energy supply companies.

**NOTE**

Only use the contactors (float switch or M1 contactor) available as accessories.

**NOTE**

The power cable must have an insulation voltage of at least 500 V AC and a conductor cross-section of 0.75 to 2.5 mm². If a power cable with earth conductor is used, connect the earth conductor to the earthing terminal.

---

**Fig. 5:** Preparing the alarm switchgear for the electrical connection

1. Undo the two screws (1) with a suitable tool and keep them in a safe place.
2. Remove the cover (2).
3. Use a suitable tool to knock out the knock-out openings of the cable entries to be used at the bottom of the alarm switchgear.
4. Fit the cable gland.

---

**Fig. 6:** Connecting the cables

- The mains voltage at the site has been verified against the data on the name plate. (☞ Section 4.4, Page 11)
- The wiring diagram is available. (☞ Section 10.1, Page 25)
5. Guide a power cable 1–230 V AC, 50 Hz through the cable gland and connect it to the mains terminals (A).

6. Make sure that the sealing elements are properly positioned. Tighten the cable glands (strain relief).

7. Guide the contactor cable of the float switch or M1 contactor through the cable gland and connect it to terminals (B).

8. Make sure that the sealing elements are properly positioned. Tighten the cable glands (strain relief).

9. If applicable, guide the cable of the external alarm equipment (12 V DC, maximum 1.2 VA) through the cable gland and connect it to terminals (C). Observe the polarity as required.

10. If available, guide the cable of a signalling unit or control station (maximum load 230 V AC / 1 A) through the cable gland and connect it to terminals (D).

11. Make sure that the sealing elements are properly positioned. Tighten the cable glands (strain relief).

12. Fit the cover (2) and fasten it with two screws.

13. Plug in the plug of the power cable.

14. Carry out a functional test. (☞ Section 6.1.1, Page 18)
6 Commissioning/Start-up/Shutdown

6.1 Commissioning/Start-up

6.1.1 Start-up

DANGER

Operation with open covers
Danger of death from electric shock!
▷ Only operate the alarm switchgear with properly mounted covers.

1. Plug the mains plug into the electric mains.
   ◦ The “in operation” indicator (green LED) lights up.
2. Close the contactor and check the alarm signal.
   ◦ The fault indicator (red LED) flashes. The connection for external alarm equipment is supplied with 12 V. The volt-free fault signalling NO (normally open) contacts close and the NC (normally closed) contacts open.
3. Unplug the mains plug. Close the contactor. Check the alarm signal with emergency back-up power supply (rechargeable battery).
   ◦ The “in operation” indicator (green LED) extinguishes; the alarm signal remains lit.
4. Press the acknowledgement button.
   ◦ Alarm signalling via the external alarm equipment and volt-free fault signalling contacts is stopped. The fault indicator (red LED) keeps flashing.
   ◦ When the contactor is no longer active, the fault indicator (red LED) extinguishes.

NOTE

Before the rechargeable battery is fully functional, it has to be charged on mains power for at least 10 hours while installed in the device.
6.2 Operating limits

**CAUTION**

Non-compliance with operating limits
Reduced service life / failure of the rechargeable battery!
▷ Observe the permissible ambient temperature.
▷ Perform an annual functional test of the required minimum alarm duration.

6.2.1 Ambient temperature

**CAUTION**

Operation outside the permissible ambient temperature
Damage to the alarm switchgear!
▷ Observe the specified limits for permissible ambient temperatures.

Observe the following parameters and values during operation:

**Table 8: Permissible ambient temperatures**

<table>
<thead>
<tr>
<th>Permissible ambient temperature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>+40 °C</td>
</tr>
<tr>
<td>Minimum</td>
<td>0 °C</td>
</tr>
</tbody>
</table>
6.3 Shutdown

6.3.1 Shutdown
1. Pull the mains plug out of the socket.

6.3.2 Measures to be taken for shutdown

**DANGER**

Unintentional contact with live parts
Danger of death from electric shock!

▷ De-energise the mains connection.
▷ Take steps to ensure that the mains connection cannot be re-energised unintentionally.

---

Fig. 7: Preparing the alarm switchgear for removing the fuse

A

B

Fig. 8: Removing the fuse protecting the rechargeable battery

✓ The alarm switchgear has been switched off. (☞ Section 6.3.1, Page 20)

1. Undo the three screws (1) with a suitable tool and keep them in a safe place.
2. Remove the cover (2).
3. Remove the fuse (type F1A, 5x20 mm) for the rechargeable battery (A) from the fuse holder on the right-hand side of the charge controller (B).

**NOTE**

Removing the fuse prevents total discharge of the rechargeable battery.

4. Fit the cover (2) and fasten it with three screws.
7 Operation

7.1 Control panel

Fig. 9: Control panel

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acknowledgement button</td>
</tr>
<tr>
<td>2</td>
<td>“In operation” indicator (green LED)</td>
</tr>
<tr>
<td>3</td>
<td>Fault indicator (red LED)</td>
</tr>
</tbody>
</table>

7.2 Acknowledging displayed faults

The LEDs signal “in operation” (green) and fault (red). Faults can be cleared via the acknowledgement button.

Table 9: Acknowledging displayed faults

<table>
<thead>
<tr>
<th></th>
<th>Step 1: Remedying the fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>The fault indicator (red LED) flashes.</td>
</tr>
<tr>
<td></td>
<td>1. Remedy the cause of the fault. (☞ Section 9, Page 24)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Step 2: Acknowledging the fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>The displayed fault has been remedied.</td>
</tr>
<tr>
<td></td>
<td>1. Press the acknowledgement button.</td>
</tr>
<tr>
<td>☞</td>
<td>Alarm signalling via the external alarm equipment and volt-free fault signalling contacts is stopped. The fault indicator (red LED) keeps flashing.</td>
</tr>
<tr>
<td>☞</td>
<td>When the contactor is no longer active, the fault indicator (red LED) extinguishes.</td>
</tr>
</tbody>
</table>
8 Servicing/Maintenance

8.1 Servicing/Inspection

8.1.1 Maintenance schedule

KSB recommends the following regular servicing schedule:

<table>
<thead>
<tr>
<th>Maintenance interval</th>
<th>Servicing/maintenance work</th>
</tr>
</thead>
<tbody>
<tr>
<td>4× per year</td>
<td>Check the contactor for any deposits. If necessary, clean it.</td>
</tr>
<tr>
<td>1× per year</td>
<td>Check the functions using the required minimum alarm duration.</td>
</tr>
<tr>
<td></td>
<td>(☞ Section 6.1.1, Page 18)</td>
</tr>
<tr>
<td>Every 5 years</td>
<td>Replace the rechargeable battery.</td>
</tr>
<tr>
<td></td>
<td>(☞ Section 8.1.2, Page 22)</td>
</tr>
</tbody>
</table>

8.1.2 Replacing the rechargeable battery

**DANGER**

Electrical connection work by unqualified personnel

Risk of fatal injury due to electric shock!

☞ Always have the electrical connections installed by a trained and qualified electrician.

☞ Observe the IEC 60364 regulations as well as any regional regulations.

**DANGER**

Unintentional contact with live parts

Danger of death from electric shock!

☞ De-energise the mains connection.

☞ Take steps to ensure that the mains connection cannot be re-energised unintentionally.

**NOTE**

The rechargeable batteries must be replaced every five years to ensure that the device operates reliably in battery mode.

Use original KSB spare parts only.

---

Fig. 10: Preparing the alarm switchgear for replacing the rechargeable battery
Fig. 11: Replacing the rechargeable battery

✓ The mains plug has been pulled out of the socket.
1. Undo the three screws (1) with a suitable tool and keep them in a safe place.
2. Remove the cover (2).
3. Remove the rechargeable battery and dispose of it in accordance with the local environmental regulations.
4. Fit a new rechargeable battery with the vent openings and pole terminals facing up. Make sure the poles (red + / blue -) are in their correct positions.
5. Plug the mains plug into the electric mains.

⚠ The “in operation” indicator (green LED) lights up.

**NOTE**

Before the rechargeable battery is fully functional, it has to be charged on mains power for at least 10 hours while installed in the device.
9 Trouble-shooting

## NOTE
After a fault has been remedied, press the acknowledgement button.

If problems occur that are not described in the following table, consultation with KSB Service is required.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Alarm is not activated</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Alarm is not deactivated</td>
<td></td>
</tr>
</tbody>
</table>

### Table 11: Trouble-shooting

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
<td>Possible cause</td>
</tr>
<tr>
<td></td>
<td>✘</td>
<td>No voltage</td>
</tr>
<tr>
<td>✘</td>
<td></td>
<td>Defective contactor</td>
</tr>
<tr>
<td>✘</td>
<td>✘</td>
<td>Dirt, fibre, etc. blocking the float</td>
</tr>
<tr>
<td></td>
<td>✘</td>
<td>Incorrect working principle (NC function)</td>
</tr>
<tr>
<td>✘</td>
<td></td>
<td>In the event of a power failure and a defective rechargeable battery and/or defective fuse of the rechargeable battery</td>
</tr>
<tr>
<td>✘</td>
<td></td>
<td>Mains plug not in socket</td>
</tr>
</tbody>
</table>
10 Related Documents

10.1 Wiring diagram

Fig. 12: Wiring diagram

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply 1~ 230 V AC 50 Hz</td>
</tr>
<tr>
<td>2</td>
<td>Contactor connection</td>
</tr>
<tr>
<td>3</td>
<td>Signalling output for connecting external alarm equipment $I_{\text{max}} = 200 , \text{mA}$</td>
</tr>
<tr>
<td>4</td>
<td>Volt-free fault signalling contact (changeover contact)</td>
</tr>
<tr>
<td>13</td>
<td>Float switch: blue</td>
</tr>
<tr>
<td></td>
<td>M1 contactor: white</td>
</tr>
<tr>
<td>14</td>
<td>Float switch: brown</td>
</tr>
<tr>
<td></td>
<td>M1 contactor: brown</td>
</tr>
</tbody>
</table>

10.1.1 Wiring diagram of the M1 contactor

Fig. 13: Wiring diagram of the M1 contactor

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
</tr>
<tr>
<td>AS5</td>
<td>Alarm switchgear</td>
</tr>
<tr>
<td>M1</td>
<td>M1 contactor</td>
</tr>
</tbody>
</table>
11 EU Declaration of Conformity

Manufacturer: KSB SE & Co. KGaA
Johann-Klein-Straße 9
67227 Frankenthal (Germany)

This EU Declaration of Conformity is issued under the sole responsibility of the manufacturer.
The manufacturer herewith declares that the product:

**AS5 Alarm Switchgear**

**Serial number range:** 2020 to 2022

- is in conformity with the provisions of the following Directives as amended from time to time:
  - 2011/65/EU: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)
  - 2014/30/EU: Electromagnetic Compatibility (EMC)
  - 2014/35/EU: Electrical Equipment Designed for Use within Specific Voltage Limits (Low Voltage)

The manufacturer also declares that
- the following harmonised international standards have been applied:
  - EN 60439-1
  - EN 61000-6-2, EN 61000-6-3

The EU Declaration of Conformity was issued in/on:
Frankenthal, 1 February 2020

Jochen Schaab
Head of Product Development Pump Systems and Drives
KSB SE & Co. KGaA
Johann-Klein-Straße 9
67227 Frankenthal
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