

**Alarmschaltgeräte AS 0, AS 2 und AS 4**  
**Alarm Switchgears AS 0, AS 2 and AS 4**  
**Coffrets d'alarme AS 0, AS 2 et AS 4**  
**Alarmschakelkasten AS 0, AS 2 en AS 4**  
**Apparecchi di allarme AS 0, AS 2 e AS 4**



### **Betriebsanleitung**

Diese Betriebsanleitung enthält wichtige Hinweise und Warnvermerke. Bitte vor Einbau, elektrischem Anschluss und Inbetriebnahme unbedingt lesen. Weitere Betriebsanleitungen, die Komponenten dieses Aggregates betreffen, sind zusätzlich zu berücksichtigen.



### **Operating Instructions**

These operating instructions contain fundamental information and precautionary notes. Please read the manual thoroughly prior to installation of unit, connection to power supply and commissioning. It is imperative to comply with all other operating instructions referring to components of this unit.



### **Notice de service**

Cette notice de service contient toutes les informations et directives fondamentales. Avant toute mise en place, raccordement électrique et mise en service, lire impérativement ce document. De plus, les notices de service concernant les composants de ce coffret d'alarme sont également à observer.



### **Bedrijfsvoorschrift**

Dit bedrijfsvoorschrift bevat belangrijke aanwijzingen en waarschuwingen. Wij vragen u dringend dit bedrijfsvoorschrift voor het inbouwen, de elektrische aansluiting en het in bedrijf nemen te lezen. Er dient bovendien rekening te worden gehouden met de overige bedrijfsvoorschriften, welke betrekking hebben op de componenten van dit aggregaat.



### **Istruzioni di funzionamento**

Queste istruzioni per l'esercizio racchiudono importanti indicazioni ed avvertimenti. Preghiamo di leggerle prima del montaggio, del collegamento elettrico e della messa in funzione. Si deve inoltre tener conto delle altre istruzioni riguardanti le parti componenti del gruppo.

**Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité /  
Verklaring van overeenstemming / Dichiarazione di conformità****D**

Hiermit erklären wir, dass das elektrische/elektronische Produkt  
Herewith we declare that the alarm switchgear  
Par la présente, nous déclarons que le dispositif électrique/électronique  
Hiermee verklaren wij, dat het elektrische/elektronische product  
Si dichiara che il prodotto elettrico/elettronico

**GB****AS 0, AS 2, AS 4**

folgenden einschlägigen Bestimmungen in der jeweils gültigen Fassung entspricht:  
complies with the following provisions as applicable in their current version:  
correspondent aux dispositions pertinentes suivantes dans la version respective en vigueur :  
voldoet aan de huidige versie van de volgende bepalingen:  
è conforme alle seguenti disposizioni pertinenti nella versione valida al momento:

**F**

EC electromagnetic compatibility directive 89/336/EEC, Annex I  
and EC directive on low-voltage equipment 73/23/EEC, Annex III B

Richtlinie 89/336/EWG "Elektromagnetische Verträglichkeit", Anhang I  
und der Richtlinie 73/23/EWG "Niederspannungsrichtlinie", Anhang III B

**NL**

Directive "CE" relative à la compatibilité électromagnétique 89/336/CEE, Annexe I  
Directive "CE" relative à la basse tension 73/23/CEE, annexe III B

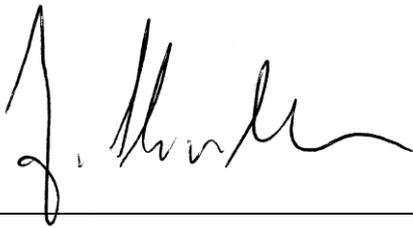
de richtlijn 89/336/EEG "Elektromagnetische compatibiliteit", Bijlage I  
en de "laagspanningsrichtlijn" 73/23/EEG, Bijlage III B

direttiva 89/336/CEE riguardo a "Compatibilità elettromagnetica", appendice I  
e direttiva 73/23/CEE relativa a "Bassa tensione", appendice III B

**I**

Angewendete harmonisierte Normen, insbesondere  
Applied harmonised standards, in particular  
Normes harmonisées utilisées, notamment  
Gebruikte geharmoniseerde normen, in het bijzonder  
Norme armonizzate applicate, in particolare

EN 50 081-1, EN 50 081-2, EN 50 082-1, EN 50 082-2, EN 60 439-1



KSB Aktiengesellschaft 26.06.2006  
Dr. Joachim Schullerer  
Leiter Produktentwicklung Automation

KSB Aktiengesellschaft, Bahnhofplatz 1, D-91257 Pegnitz

<b>Inhaltsverzeichnis</b>		<b>Seite</b>	<b>INHOUDSOPGAVE</b>		<b>Pag.</b>
1	Allgemeines	4	1.	Algemeen	16
2	Sicherheit	4	2.	Veiligheid	16
3	Transport und Zwischenlagerung	5	3.	Transport en tussentijdse opslag	17
4	Beschreibung	5	4.	Beschrijving	17
5	Einbau	5	5.	Inbouw	17
6	Inbetriebnahme	5	6	In bedrijf nemen	17
7	Wartung	6	7.	Onderhoud	18
8	Störungen/Ursache und Beseitigung	6	8.	Storingen/oorzaken en opheffen	18
9	Anschlusspläne	7	9	Aansluitschemas	19

**D**
**GB**

<b>Contents</b>		<b>Page</b>	<b>Indice</b>		<b>Pagina</b>
1	General	8	1	Generalità	20
2	Safety	8	2	Sicurezza	20
3	Transport and Interim Storage	9	3	Trasporto ed immagazzinamento	21
4	Description of the Product	9	4	Descrizione	21
5	Installation at Site	9	5	Installazione	21
6	Commissioning/Start-up	9	6	Messa in marcia	21
7	Maintenance	10	7	Manutenzione	22
8	Trouble-shooting	10	8	Disturbi/Cause e rimedi	22
9	Wiring Diagrams	11	9	Schemi di collegamento	23

**F**
**NL**

<b>Sommaire</b>		<b>Page</b>
1	Généralités	12
2	Sécurité	12
3	Transport, stockage temporaire	13
4	Description du produit et des accessoires	13
5	Installation / Montage	13
6	Mise en service	14
7	Entretien et maintenance	14
8	Incidents / Causes et remèdes	14
9	Plans électriques	15

**I**

**GB**

**1 General**

This unit has been developed in accordance with state-of-the-art technology; it is manufactured with utmost care and subject to continuous quality control.

These operating instructions are intended to facilitate familiarisation with the unit and its designated use.

The manual contains important information for reliable, proper and efficient operation. Compliance with the operating instructions is of vital importance to ensure reliability and a long service life of the unit and to avoid any risks.

These operating instructions do not take into account local regulations; the operator must ensure that such regulations are strictly observed by all, including the personnel called in for installation.

This unit must not be operated beyond the limit values specified in the technical documentation for the operating voltage, rated mains frequency, ambient temperature, switching capacity. Make sure that operation is in accordance with the instructions laid down in this manual or in the contract documentation.

Please indicate the type series in all queries and repeat orders.

If you need any additional information or instructions exceeding the scope of this manual or in case of damage please contact KSB's nearest customer service centre.

**2 Safety**

These operating instructions contain fundamental information which must be complied with during installation, operation and maintenance. Therefore this operating manual must be read and understood both by the installing personnel and the responsible trained personnel / operators prior to installation and commissioning, and it must always be kept close to the location of operation of the unit for easy access.

Not only must the general safety instructions laid down in this chapter on "Safety" be complied with, but also the safety instructions outlined under specific headings.

**2.1 Marking of Instructions in the Manual**

The safety instructions contained in this manual whose non-observance might cause hazards to persons are specially marked with the general hazard sign, namely



safety sign in accordance with ISO 7000 - 0434.

The electrical danger warning sign is



safety sign in accordance with IEC 417 - 5036.

The word

**Caution**

is used to introduce safety instructions whose non-observance may lead to damage to the unit and its functions.

**2.2 Personnel Qualification and Training**

All personnel involved in the operation, maintenance, inspection and installation of the unit must be fully qualified to carry out the work involved. Personnel responsibilities, competence and supervision must be clearly defined by the operator. If the personnel in question is not already in possession of the requisite know-how, appropriate training and instruction must be provided. If required, the operator may commission the manufacturer / supplier to take care of such training. In addition, the operator is responsible for ensuring that the contents of the operating instructions are fully understood by the responsible personnel.

**2.3 Non-compliance with Safety Instructions**

Non-compliance with safety instructions can jeopardise the safety of personnel, the environment and the unit itself. Non-compliance with these safety instructions will also lead to forfeiture of any and all rights to claims for damages.

In particular, non-compliance can, for example, result in:

- failure of important unit functions
- failure of prescribed monitoring practices
- hazard to persons by electrical, mechanical and chemical effects.

**2.4 Safety Awareness**

It is imperative to comply with the safety instructions contained in this manual, the relevant national health and safety regulations and the operator's own internal work, operation and safety regulations.

**2.5 Safety Instructions for the Operator / User**

Electrical hazards must be eliminated. (In this respect refer to the relevant safety regulations applicable to different countries and/or the local energy supply companies.)

**2.6 Safety Instructions for Maintenance, Inspection and Installation Work**

The operator is responsible for ensuring that all maintenance, inspection and installation work be performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual.

Work on the unit must be carried out only after it has been disconnected from the power supply.

Immediately following completion of the work, all safety-relevant and protective devices must be re-installed and/or re-activated.

Please observe all instructions set out in the chapter on "Commissioning" before returning the unit to service.

## 2.7 Unauthorised Modification and Manufacture of Spare Parts

Modifications or alterations of the unit are only permitted after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.

## 2.8 Unauthorised Modes of Operation

The warranty relating to the operating reliability and safety of the unit supplied is only valid if it is used in accordance with its designated use as described in the following sections. The limits stated in the documentation must not be exceeded under any circumstances.

## 3 Transport and Interim Storage

During transport please avoid impacts on the AS alarm switchgear and make sure that it cannot drop down. The alarm switchgear must be stored in a dry, frost-proof room not exposed to direct sunlight.

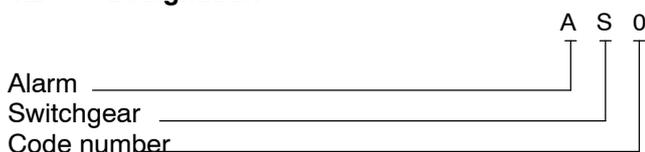
## 4 Description of the Product

### 4.1 Technical Specification

#### Caution

The switchgear can be used for all pump sets equipped with an alarm contact for which alarm signalling is required.

### 4.2 Designation



### 4.3 Design Details

KSB alarm switchgears AS 0, AS 2 and AS 4 are monitoring devices with acoustic alarm transmitter. The piezoceramic signal transmitter has a noise level of 85 dB(A) at a distance of 1 m; its tone pitch has a frequency of 4.1 kHz. AS 2 and AS 4 are equipped with an additional volt-free change-over contact for transmitting the alarm signal to a control room or similar. AS 4 is equipped with a maintenance-free self-charging power pack (accumulator) for 5 hours' operation in case of a mains failure.

### 4.4 Technical Data

Rated operating voltage to IEC 38	1/N AC 230 V / 50 Hz
Control voltage	DC 12 V
Rated insulation voltage	AC 690 V
Type of enclosure	IP 20
Mains type	TN-C-S mains
Dimensions HxWxD	140 x 80 x 57 mm
Weight	0.5 kg

## 5 Installation at Site

### 5.1 Safety Regulations

**Your electrical installation must be in accordance with VDE 0100/IEC 362 standards; for example, the sockets must have earthing terminals.**

**The operation and the use of the alarm switchgear is governed by EN 50 110-1 standards.**

**Caution! Disconnect all components (pump and alarm switchgear) from the electric mains prior to each assembly and disassembly or other work on the equipment.**

**Make sure that all electrical equipment such as socket and alarm switchgear are installed in a dry, flood-proof location.**



GB



### 5.2 Assembly

- Clear the corresponding number of cable inputs at the housing front or at the lower part of the housing.
- Insert cable entries and cut slots.
- Fasten housing by means of three screws (drilled holes in the lower housing part).
- Lead cables into the housing through the cable entries.
- Wire up in accordance with the relevant wiring diagram.

### 5.3 Connection to the Power Supply

**Connection to the power supply must be effected by a trained electrician only.**

**Only KSB alarm transmitters (float switches, humidity sensor F 1 and alarm contactor M 1) may be connected.**

**After having carried out this work, check proper functioning.**



## 6 Commissioning/Start-up

The green equipment-on lamp signals that the pump unit is ready for operation. The acoustic alarm signal indicates a malfunction of the connected pump unit. When the On/Off switch is pressed, the equipment-on lamp goes out and the acoustic alarm signal is stopped. The connected pump unit's malfunction continues to apply.

- **AS 0** For connection see wiring diagram.
- **AS 2** is equipped with an additional volt-free change-over contact for hook-up to a control room, for example to transmit the alarm message or signal a mains failure. For connection see wiring diagram.
- **AS 4** is equipped with a self-charging power pack for 5 hours' operation in case of a mains failure and a volt-free change-over contact for hook-up to a control room, for example to transmit the alarm message. A mains failure will only be signalled once the power pack has run down.

**Important!** The self-charging power pack (accumulator) must be connected to the power supply for at least 10 hours before it is fully functional.

**Note!** If the accumulator is defective and needs to be replaced, please make sure that the old accumulator is treated as special waste and disposed of accordingly, or that it is recycled.

**7 Maintenance**

Reliability is increased if the contactor is checked regularly for proper functioning.  
 Please check from time to time that there are no deposits on the transmitter. If necessary, please clean.

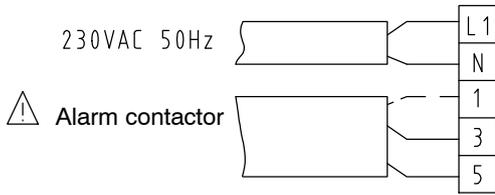
**8 Trouble-shooting**

**Disconnect the unit from the power supply.**



Alarm is not activated	Alarm is not deactivated	Cause	Remedy
●		No voltage.	Check the electrical equipment.
●		Alarm contactor defective.	Carry out a contactor continuity check using an ohmmeter; if required inform KSB Service.
●	●	Dirt, fibres or fluff block the float.	Clean float and sensor tube.
	●	Wrong working principle (NC function).	Turn float by 180 °
●		<b>Only for AS 4</b> No alarm in case of mains failure.	Accumulator defective.
●		Mains switch set to "Off".	Set mains switch to "On".

**9** Wiring Diagrams  
**9.1** Wiring Diagram AS 0



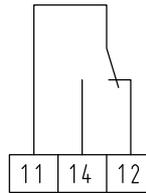
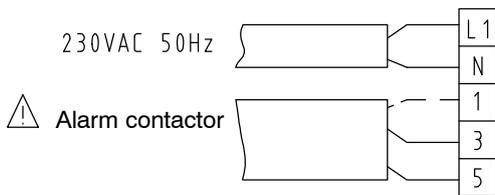
Float switch                    5 blue    3 brown

Humidity sensor F 1        1 Wire 1    3 Wire 3    5 Wire 2

Alarm contactor M 1        3 white    5 brown



**9.2** Wiring Diagrams AS 2 and 4



Please note:

Change-over contact: max. 1 A / 110 V / 30 W / 60 VA

NC or NO contact: max. 1 A / 230 V / 30 W / 60 VA

Float switch                    5 blue    3 brown

Humidity sensor F 1        1 Wire 1    3 Wire 3    5 Wire 2

Alarm contactor M 1        3 white    5 brown

**9.3** Anschlussplan Alarmkontaktgeber M 1 an Alarmschaltgerät AS 0, AS 2 und AS 4

