

Magnetic Float Switch

M 1 (K) Alarm Contactor

M 1 for AS 0, 2, 4, 5, AS W4, AS W8

M 1 K for AS 1-M and washing machine interrupter
GEWAS 191 AN GL

Installation/Operating Manual



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Installation/Operating Manual M 1 (K) Alarm Contactor

Original operating manual

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Glossary

Above-floor installation

Floor mounting

Alarm contactor

Magnetic float switch that triggers a switching signal via a reed contact when the liquid level rises.

Alarm switchgear / washing machine interrupter AS W4, ASW8

Switchgear with intermediate connectors for connecting up to 4 or 8 washing machines. Automatic interruption of washing machines when the water level in the collecting tank is impermissibly high. Incl. alarm buzzer, indicator lamps for operational availability and high water, luminous switch for alarm On/Off, and alarm contactor.

Alarm switchgear types AS 0, AS 1-M, AS 2, AS 4, AS 5

Monitoring unit that outputs an acoustic signal in conjunction with a contactor. Depending on the design variant, further functions may be available, such as volt-free contact and battery buffer.

Collecting tank

Component of a waste water lifting unit in which the incoming waste water is stored in unpressurised condition prior to automatic lifting.

GEWAS washing machine interruptor

Control unit with connector housing and outlet for connecting a washing machine. Including alarm buzzer and plug connection for an alarm contactor for automatically de-energising the washing machine if the water level in the collecting tank is too high.

Underfloor installation

Installation in substructures or foundations

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

Document	Contents
Operating manual(s) for the pump(s)	Proper and safe use of the pump in all phases of operation
Operating manual(s) for the monitoring and control units	Proper and safe use of the monitoring and control units in all phases of operation
Wiring diagram	Electrical connection






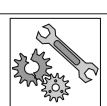
1.4 Symbols

Table 2: Symbols used in this manual

Symbol	Description
✓	Conditions which need to be fulfilled before proceeding with the step-by-step instructions
▷	Safety instructions
⇒	Result of an action
⇨	Cross-references
1. 2.	Step-by-step instructions
	Note Recommendations and important information on how to handle the product

1.5 Key to safety symbols/markings

Table 3: Definition of safety symbols/markings

Symbol	Description
 DANGER	DANGER This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
 WARNING	WARNING This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.
 CAUTION	CAUTION This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.
	General hazard In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.
	Electrical hazard In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.
	Machine damage In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.



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

2.3 Personnel qualification and personnel training

All personnel involved must be fully qualified to transport, install, operate, maintain and inspect the machinery 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.

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

	<div style="background-color: #FFD700; padding: 5px;">CAUTION</div> <p>Improper transport Damage to the alarm contactor!</p> <ul style="list-style-type: none"> ▷ Transport the alarm contactor properly and, if possible, in its original packaging. ▷ Observe the transport instructions on the original packaging.
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1. Transport the alarm contactor properly and in its original packaging (if possible) to the place of installation
2. Carefully place down the alarm contactor at the place of installation.


3.3 Storage / preservation

	<div style="background-color: #FFD700; padding: 5px;">CAUTION</div> <p>Damage during storage due to humidity, dirt or vermin Corrosion / contamination of the float switch!</p> <ul style="list-style-type: none"> ▷ Store the alarm contactor under dry and vibration-free conditions, if possible in its original packaging. ▷ Store the alarm contactor in a dry room where the level of atmospheric humidity is as constant as possible.
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If commissioning is to take place some time after delivery, we recommend that the following measures be taken:

Store the alarm contactor in a dry, protected room with a constant atmospheric humidity.

3.4 Disposal

	<div style="background-color: #0070C0; color: white; padding: 5px;">NOTE</div> <p>Once decommissioned, the device must be properly disposed of in accordance with local regulations.</p>
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1. Dismantle the alarm contactor.
Collect greases and other lubricants during dismantling.
2. Separate and sort the materials, e.g. by:
 - Metals
 - Plastics
 - Electronic waste
 - Greases and other lubricants
3. Dispose of materials in accordance with local regulations or in another controlled manner.

4 Description

4.1 General description

- The alarm contactor, designed to be combined with an alarm switchgear, triggers an alarm when the water level in the collecting tank exceeds the permissible limit.
- Contactless magnetic switch

4.2 Designation

Example: M 1 K alarm contactor

Table 4: Designation key

Code	Description
Alarm contactor	Type series
M	Magnetic float switch
1	Code
K	Contact plug (for washing machine interrupter only)

4.3 Name plate



Fig. 1: Name plate (example)

1	Make	4	Serial number
2	Type series	5	Switching capacity
3	Nominal voltage	6	Start-up current

4.4 Technical data

**NOTE**

Observe the contact protection for inductive loads.

Table 5: Technical data

Characteristic	Value
Switching voltage	12 V DC
Start-up current	≤ 0.5 A
Switching capacity	10 V A
Temperature range	≤ +60 °C
Enclosure	IP 67
Electric cable	Length: 5 m, 2 × 0.34 mm ²
Immersion depth	2 m
Flooding period	7 days
Initial function	Circuit closed in upper float position (NO contact)
Category of use	AC-21A and DC-21A to DIN VDE 0660 T 107, IEC 947-3-1, EN 60947-3-1

4.5 Configuration and function

Design The alarm contactor comprises a magnetic switch (ring magnet) working according to the non-contacting principle, a sensor tube with reed contact and a float.







Function As the water level in the collecting tank rises, the float with the incorporated magnet switch triggers a switching signal within the switching range of the reed contact. The signal is automatically transmitted to the alarm switchgear.
When the water level drops, the reed contact will return to its original position.

Depending on the design variant, the alarm contactor can be used with the following alarm switchgears:

- M 1 alarm contactor
 - AS 0, AS 2, AS 4, AS 5, AS W4 or AS W8
- M 1 K alarm contactor
 - GEWAS 191 AN GL washing machine interruptor

5 Installation at Site

5.1 Safety regulations

	<div data-bbox="507 315 683 360">  DANGER </div> <p>Electrical connection work by unqualified personnel Danger of death from electric shock!</p> <ul style="list-style-type: none"> ▸ Always have the electrical connections installed by a trained and qualified electrician. ▸ Observe regulations IEC 60364 .
	<div data-bbox="507 584 683 629">  DANGER </div> <p>Power supply not disconnected Danger to life!</p> <ul style="list-style-type: none"> ▸ Pull the mains plug or disconnect all electrical connections and secure against unintentional start-up.
	<div data-bbox="507 826 683 871">  DANGER </div> <p>Flooding of control unit Danger of death from electric shock!</p> <ul style="list-style-type: none"> ▸ Operate the control unit in flood-proof rooms only.

5.2 Installing the alarm contactor in AmaDrainer-Box Mini

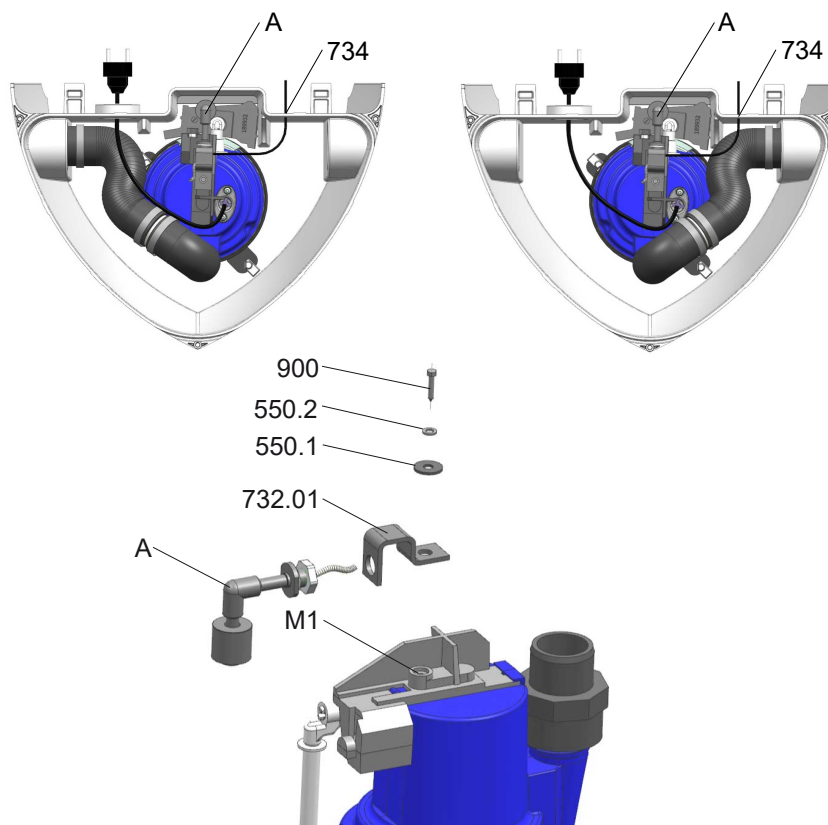


Fig. 2: Installation drawing

A	Alarm contactor	655	Pump
M1	Hole, diameter 2.8 mm	732.01	Bracket
550.01	Disc, diameter 21/7 mm	734	M16 cable gland
550.02	Disc, diameter 19/8.5 mm	900	Screw

1. Fit the alarm contactor (A) in bracket 732.01. Tighten the connection hand-tight with a suitable tool (e.g. spanner).
2. Screw bracket 732.01 with the fitted alarm contactor (A) into hole M1 with screw 900 incl. disc 550.1/2. Tighten screw 900 hand-tight.
3. Drill hole M2 (diameter 16 mm) into the back wall of the collecting tank. See illustration.
4. Debur the hole.
5. Fit cable gland 734 (included in the scope of supply) in the hole.
6. Guide the electric cable of the alarm contactor (A) through the hole. Keep the electric cable length inside the collecting tank as short as possible.

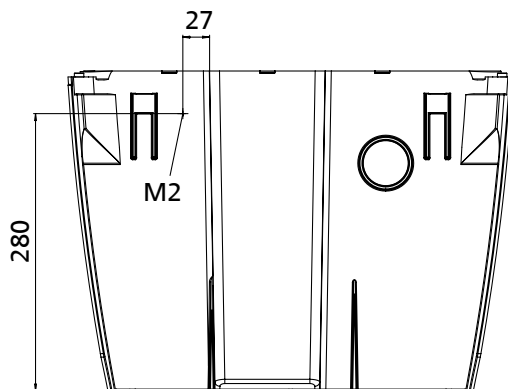


Fig. 3: Position for drilling the hole M2 [mm]

5.3 Installing the alarm contactor in Ama-Drainer-Box 1U/1B



NOTE

The functionality of the alarm contactor is not impaired by an inclined installation position ($\leq 30^\circ$ off the vertical) of bracket 732.02.

Installing the alarm contactor

AmaDrainer 301

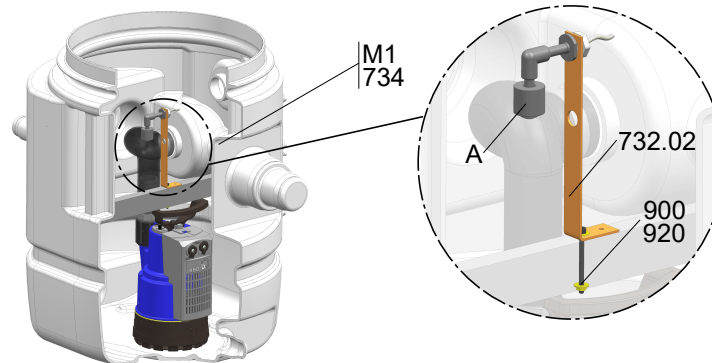


Fig. 4: Installation drawing, AmaDrainer 301

A	Alarm contactor	734	M16 cable gland
M1	Hole, diameter 16 mm	900	Screw
550	Disc	920	Nut
732.02	Bracket		

1. Fit the alarm contactor in bracket 732.02. Tighten the connection hand-tight with a suitable tool (e.g. spanner).
2. Fasten bracket 732.02 with the alarm contactor (A) to the profile with hexagon socket head cap screw 900, nut 920 and disc 550. Tighten nut 920 hand-tight.

AmaDrainer 303, 322, 354

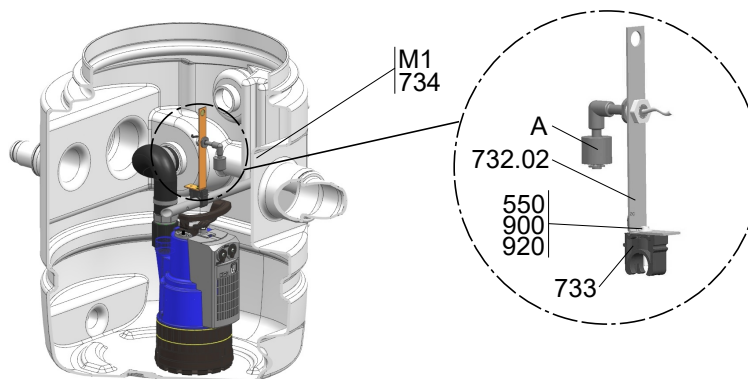


Fig. 5: Installation drawing, AmaDrainer 303, 322, 354

A	Alarm contactor	733	Pipe clamp
M1	Hole, diameter 16 mm	734	M16 cable gland
550	Disc	900	Screw
720.02	Fitting	920	Nut
732.02	Bracket		

1. Fasten pipe clamp 733 to bracket 732.02 with screw 900, nut 920 and disc 550. Tighten screw 900 hand-tight.
2. Fit the alarm contactor (A) in bracket 732.01. Tighten the connection hand-tight with a suitable tool (e.g. spanner).
3. Connect bracket 732.02 with the alarm contactor fitted to fitting 720.02. Check that it is securely connected to the fitting.

Routing cables

Underfloor installation

1. Guide the power cable of the alarm contactor to the power supply through the vent line or a separate conduit using a draw wire (fish tape). Keep the electric cable length inside the collecting tank as short as possible.

Above-floor installation

1. Drill hole M1 (diameter 16 mm). See illustration.
2. Debur the hole.
3. Fit cable gland 734 (included in the scope of supply).
4. Guide the electric cable of the alarm contactor through the hole. Keep the electric cable length inside the collecting tank as short as possible.

5.4 Installing the alarm contactor in Ama-Drainer-Box Z2 U / Z2 B

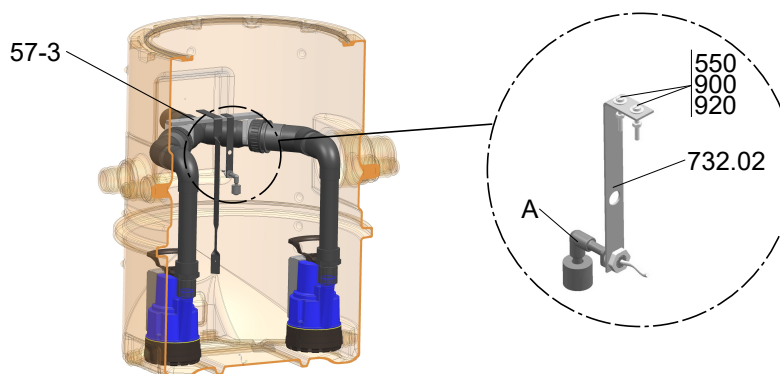


Fig. 6: Installation drawing

A	Alarm contactor	734	M16 cable gland
550	2 × disc	900	2 × screw
57-3	Cross-beam	920	2 × nut
732.02	Bracket		

Installing the alarm contactor

1. Fasten the alarm contactor (A) in bracket 732.02 with a suitable tool (e.g. spanner). Tighten the connection hand-tight.
2. Fasten bracket 732.02 with the fitted alarm contactor (A) to cross-beam 57-3 with screw 900, disc 550 and nut 920. Tighten nut 920 hand-tight.

Routing cables


Underfloor installation

1. Guide the power cable of the alarm contactor to the power supply through the vent line or a separate conduit using a draw wire (fish tape). Keep the electric cable length inside the collecting tank as short as possible.


Above-floor installation

1. Drill a hole (diameter 16 mm) into the flat area on the side of the collecting tank.
2. Debur the hole.
3. Fit cable gland 734 (included in the scope of supply).
4. Guide the electric cable of the alarm contactor (A) out of the tank connector panel through the cable glands. Keep the electric cable length inside the collecting tank as short as possible.

5.5 Electrical connection

	⚠ DANGER
	<p>Electrical connection work by unqualified personnel Danger of death from electric shock!</p> <ul style="list-style-type: none"> ▷ Always have the electrical connections installed by a trained and qualified electrician. ▷ Observe regulations IEC 60364 .


M 1 alarm contactor

	NOTE
	<p>Only alarm switchgears AS 0, AS 2, AS 4, or AS 5 may be connected to this design variant of the alarm contactor.</p>

✓ The wiring diagram is available. (⇒ Section 9.1, Page 21)

1. Wire the equipment in accordance with the wiring diagram.
2. Check that the reed contact is open when the float is not in its upper float position. See marking (black dot) on the float.
3. Lift the float. Check that the reed contact closes.

M 1 K alarm contactor

	NOTE
	<p>Only the AS 1-M alarm switchgear and the KSB washing machine interrupter may be connected to this design variant of the alarm contactor.</p>

1. Connect the alarm contactor to the connector on the underside of the control unit.
 ⇒ The alarm contactor is now ready for use.
2. Check that the reed contact is open when the float is not in its upper float position. See marking (black dot) on the float.
3. Lift the float. Check that the reed contact closes.

6 Commissioning/Start-up

6.1 Prerequisites for commissioning/start-up

Before commissioning/starting up the alarm contactor, ensure that the following conditions are met:

- The information provided in the operating manual for alarm switchgear AS 0, AS 1-M, AS 2, AS 4, AS 5, and the washing machine interrupter is complied with.
- M 1 alarm contactor and alarm switchgear AS 0, AS 2, AS 4, AS 5, AS W4 or AS W8 have been connected in accordance with the wiring diagrams.

6.2 Commissioning / Start-up



- ✓ The operating manual of the grey water lifting unit is available.
 1. Start up the grey water lifting unit in accordance with the operating manual.

7 Maintenance

Table 6: Overview of maintenance work

Maintenance interval	Maintenance work
At least every three months	Check the alarm contactor for proper functioning.
	Check the alarm contactor for any deposits. Clean it if necessary.

8 Trouble-shooting

	<div style="background-color: #f4a460; padding: 5px; border: 1px solid black; margin-bottom: 5px;">  WARNING </div> <p>Improper work to remedy faults</p> <p>Risk of injury!</p> <ul style="list-style-type: none"> ▸ For any work performed to remedy faults, observe the relevant information given in this operating manual and/or in the product literature provided by the accessories manufacturer.
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If problems occur that are not described in the following table, consultation with the KSB service is required.

- A** Alarm is not activated
- B** Alarm is not deactivated

Table 7: Trouble-shooting

A	B	Possible cause	Remedy
X	-	No voltage	Check the electrical connections.
X	-	Reed contact defective	Carry out a continuity check of the alarm contactor with an ohmmeter. Contact KSB service if required.
X	X	Dirt or fibres blocking the float	Clean the float and sensor tube.

9 Related Documents

9.1 Wiring diagrams

Wiring the M 1 alarm contactor to alarm switchgears AS 0, AS 2, AS 4, AS W4, AS W8

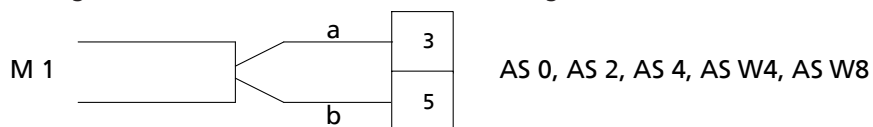


Fig. 7: Wiring diagram for wiring the M 1 alarm contactor to alarm switchgears AS 0, AS 2, AS 4, AS W4, AS W8

a	White (WH)	b	Brown (BN)
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Wiring the M 1 alarm contactor to alarm switchgear AS 5

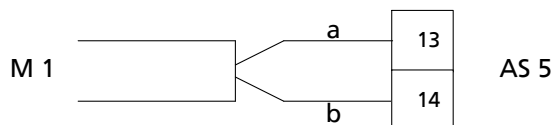


Fig. 8: Wiring diagram for wiring the M 1 alarm contactor to alarm switchgear AS 5

a	White (WH)	b	Brown (BN)
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