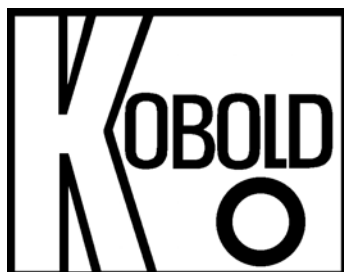


**Operating Instructions**  
**for**  
**Float Flow Meter / Monitor**

**Model: SWK**



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### Manufactured and sold by:

Kobold Messring GmbH  
Nordring 22-24  
D-65719 Hofheim  
Tel.: +49(0)6192-2990  
Fax: +49(0)6192-23398  
E-Mail: info.de@kobold.com  
Internet: www.kobold.com

## **2. Note**

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Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EWG-machine guidelines.

### **as per PED 97/23/EG**

In acc. with Article 3 Paragraph (3), "Sound Engineering Practice", of the PED 97/23/EC no CE mark.

Diagram 8, Pipe, Group 1 dangerous fluids

## **3. Instrument Inspection**

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Instruments are inspected before shipping and sent out in perfect condition.

Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

### **Scope of delivery:**

The standard delivery includes:

- Float Flow Meter / Monitor      Model: SWK
- Operating Instructions

## 4. Regulation Use

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These units of type SWK are used with a view to measure and monitor the liquid flow. Only clean, low-viscous and homogeneous liquids may be measured which do not chemically attack the materials used in the construction of these units. An attempt to measure high-viscous liquids may lead to considerable measurement errors.

Large dirt-particles can cause the blockage of float and subsequently turn on error indications. Also, ferrite particles, which deposit on float(with embedded magnets), can generate the same effect (we recommend a magnet-filter).

These units are configured in the following manner:

- Housing made of Brass, St. Steel or PVC
- Screwed reed contact N/O with 1m PVC cable (Brass version)
- Screwed reed contact N/O with 2m PVC cable (PVC/VA version)
- Screwed and aligned pointer display (option)

## 5. Operating Principle

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KOBOLD Flow Meter/Monitor of type SWK according to the well known float principle, however without making use of generally employed extended measuring tube. Inside a cylindrical lead-pipe a float with aperture moves in the direction of the flow against the recoiling force of a spring. Within the float, a pair of magnets is located which trigger a potential-free protective-gas reed contact. The reed contact is mounted on the exterior of flow-housing and drives a pointer display. This arrangement allows the unit to be operated without consideration to mounting position and keeps the installation measures to a minimum. Flow monitors of type SWK generally find application where small volume flow needs to be measured in a fail-safe manner.

## **6. Mechanical Connection**

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### **Before installation:**

- Make sure that the permitted max. operating pressure and the operating temperature of the device are not exceeded.
- Make sure that the electrical supply of the devices corresponds with the operational data of the device.
- Make sure that no remains of packing material exist within the device.
- The devices should not be installed within an inductive field.
- If possible, it should be checked after the mechanical installation whether the connection joints/ piping is properly sealed.

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**Attention! A displacement of switching range occurs if the flow takes place from top to bottom.**

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## **7. Electrical Connection**

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**Attention! Make sure that the voltage values of your system correspond with the voltage values of the measuring unit, mentioned on type-label.**

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- Make sure that the supply wires are de-energized.
- The connection of bistable reed contact succeeds through the cable on contact housing. The potential-free contact closes on rising level above the adjusted flow value.

## 8. Operation / Configuration / Adjustments

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The commissioning of these units is prohibited in machines (as long as the guidelines 89/392/EWG remain enforced), which do not comply with these guidelines.

The unit is supplied in 'ready for operation' condition. The switching point is adjusted on the lowest scale value.

### 8.1. Adjustment of Limit-Value (SWK-1...)

- Loosen the knurled nut on reed contact.
- Adjust the marking on the contact for the desired value on the scale. In this position the knurled nut should be tightly screwed.

### 8.2. Adjustment of Limit-Value (SWK-2...)

- Loosen the knurled nut on reed contact.
- Connect a suitable continuity-tester on cable ends.
- **Case 1: On an installed unit**
- Open the supply line, and let the flow-medium enter slowly, till the pointer display shows the desired flow value, at which the rising flow should operate the switch(The value for the decreasing flow lies below due to the hysteresis).
- **Case 2: On an upgraded unit** the adjustment may be performed by lifting the float with a suitable tool.
- Switch-housing is dislocated from top to bottom, till the reed contact just closes (electrical continuity). In this position, align the contact by rotating the knurled nut.

The unit is now adjusted and ready for operation.

On correct adjustment, the limit-value contact performs bistable action. That means, even on crossing the adjusted limit-values, the contact remains closed.

#### **Hysteresis**

Hysteresis is an indication of difference between switch-on and switch-off points of a contact. The average hysteresis corresponds to a float-centre movement of about 3 mm.

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## 9. Technical Information

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Housing/Float:	SWK-x1...: Brass (Ni-plated), Ms 58 SWK-x2...: St. Steel, 1.4301 SWK-13...: PVC
Connection:	G 1/2 female
Spring:	St. Steel 1.4310
Magnets:	Ceramic
Stop rings:	SWK-x1...: Brass, Ms 58 SWK-x2...: St. Steel, 1.4301 SWK-13...: PVC
Max. temperature:	SWK-x1..., SWK-x2: 100 °C SWK-13...: 60 °C
Max. pressure:	SWK-x1..., SWK-x2: 250 bar SWK-13...: 6 bar
Mounting position:	arbitrary
Switching point:	bistable reed contact N/O on increasing flow
Switching power:	max. 230 V <sub>AC</sub> ; max. 3 A, max. 60 VA/Watt
Elect. connection:	1 m PVC-cable
Switching hysteresis:	3 mm on scale (mean value)
Repeatability:	< 2.5 % (contact) ± 4% measuring value (display)
Weight:	~ 350 g
Protection cat.:	IP 65

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## 10. Maintenance

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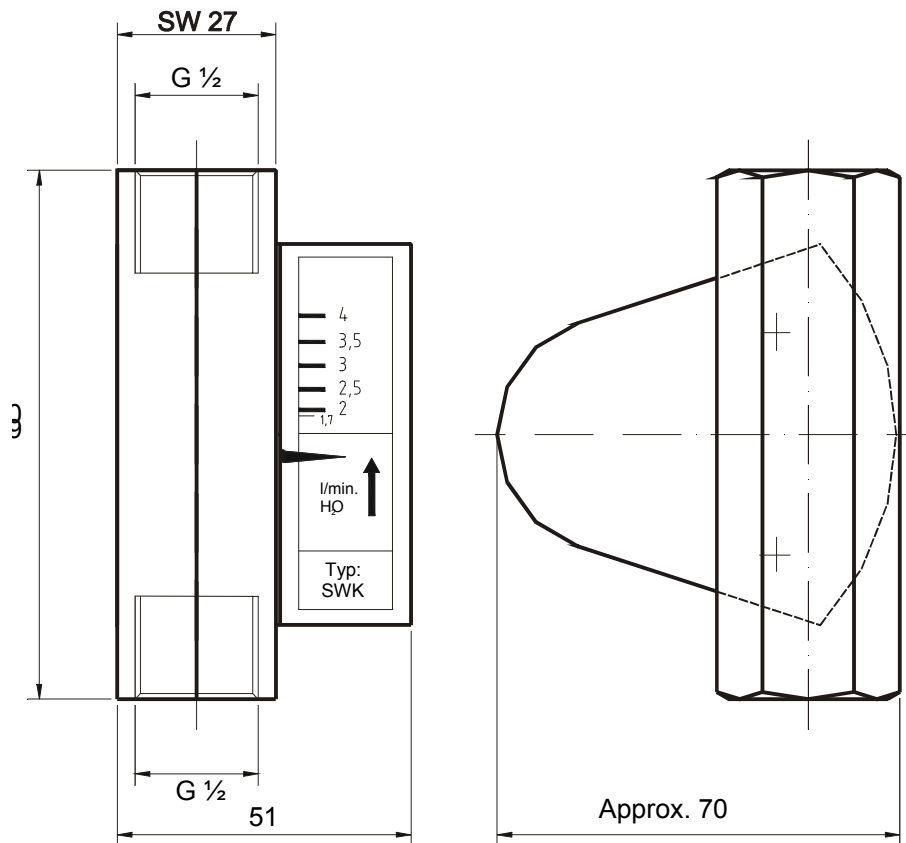
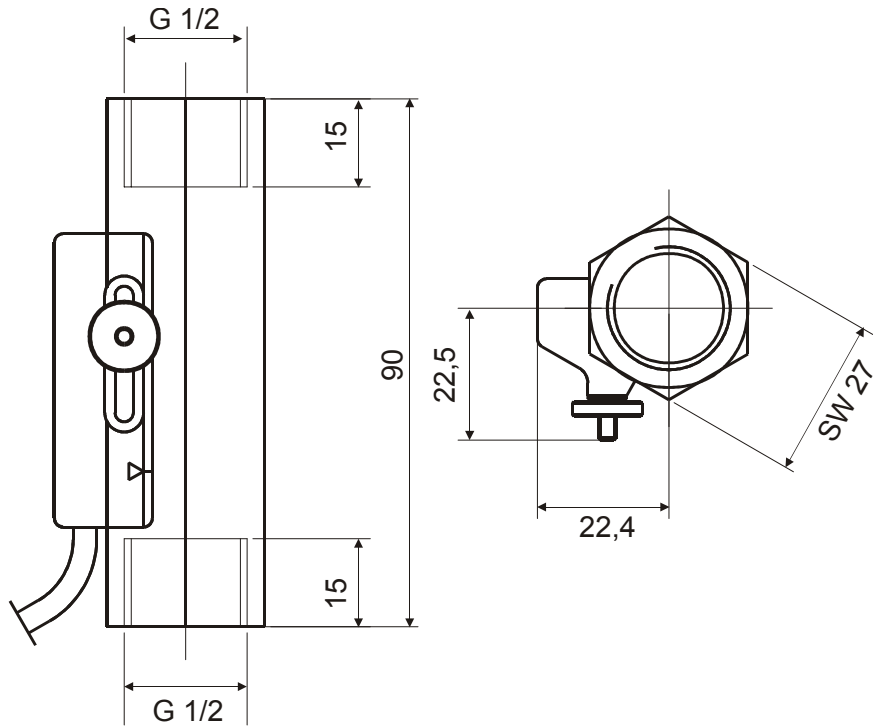
In case the medium to be measured is not contaminated, the device SWK is almost maintenance-free. With lime or such depositions within inner sections the device should be cleaned regularly.

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**Attention! Before the commencement of maintenance work, make sure that the supply wires are de-energized.**

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## 11. Dimensions





## 12. Declaration of Conformance

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We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

**Float Flow Meter / Monitor                      Model: SWK...**

to which this declaration relates is in conformity with the standards noted below:

**DIN EN 61010-1                      1994-03**  
Safety requirements for electrical equipment for measurement, control and laboratory use

**IEC529, DIN VDE 0470-1      1992-11**  
Protection through housing (IP-Code)

Also, the following EWG guidelines are satisfied:

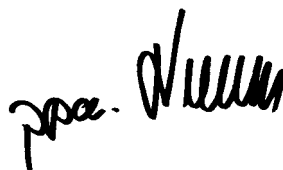
**73/23 EWG**

**97/23/EG                      PED**  
Diagram 8, Pipes, Liquids,  
Group 1 dangerous fluids  
Module D, mark CE0098  
notified body: Germanischer Lloyd Germany

Signed:



H. Peters



M. Wenzel

date: 26.09.03