

Description

SWBT-2G flow monitors monitor liquid media in pipelines. In combination with switching amplifiers with intrinsically safe circuits, the sensors can be used in potentially explosive areas of zones 1 and 2.

The device is maintenance-free.

ATEX-compliant for zone 1 and 2 according to ATEX Directive 2014/34/EU.



(Fig. similar)

Delivery program

Type	Product No.	Material screw-on flange
SWBT-2G-IP65	057.1350	Brass
SWBT-2G-IP65-VA	057.1355	Stainless steel (V4A)

Intrinsic

Simple electrical equipment according to IEC/EN 60079-11, Section 5.7, suitable for zone 1 and 2. Only for connection to intrinsically safe circuits.

The specified values at the terminals must not be exceeded.

$U_o \leq U_i$	$9.6 \text{ V} \leq 30 \text{ V}$
$I_o \leq I_i$	$10 \text{ mA} \leq 50 \text{ mA}$
$P_o \leq P_i$	$24 \text{ mW} \leq 100 \text{ mW}$
$C_o \geq C_i + C_{\text{Cable}}$	$C_i = 0 \text{ } \mu\text{F}$
$L_o \geq L_i + L_{\text{Cable}}$	$L_i = 0 \text{ } \mu\text{H}$
$C_{\text{Cable}}, L_{\text{Cable}}$: see the specifications of the cable manufacturer	
C_o, L_o : see the documentation for the switching amplifier according to the gas group	

Technical data

Contact	Single-pole, potential-free changeover switch
Workspace	Max. 11 bars
Pressure loss	Approx. 0.01 ... 0.03 bar
Ambient	-20...+60 °C
Storage temperature	-40...+80 °C
Measuring medium	Liquid
Medium temperature	max. 120 °C

Housing	Plastic, PA glass fibre reinforced
Housing protection type	IP65 (EN60529)
Safety class	Simple electrical equipment according to EN 60079-0/EN 60079-11
Dimensions (L×W×D)	108 x 70 x 73.5 mm (without paddle)
Weight	742 g
Included	1 flow monitor 4 paddles with length from 1" to 8"

Installation and operation

Safety instructions

All relevant national and international standards and regulations for hazardous areas must be observed. Equipment must be installed in accordance with the manufacturer's instructions. If the device is used in a manner different from that specified by the manufacturer, the safety level of the device may be reduced. EN/IEC 60079-14 can be used for the design, selection and construction of electrical systems.

- Intrinsically safe circuits are designed in such a way that the energy content is below the minimum level that would be required to cause ignition of an explosive atmosphere in the event of a spark occurring.
- Intrinsically safe circuits are shown in light blue and are to be laid separately from non-intrinsically safe circuits.
- The intrinsically safe sensor is passive, potential-free and approved for zones 1 and 2.
- Observe the maximum connection values during instrumentation.
- Clean with damp cloth only. Avoid electrostatic charging. Remove dust deposits.
- Select the medium temperature so that the permissible ambient temperature is not exceeded.
- Observe separate documentation:
 - Switching amplifiers

Assembly and installation

A distance of $\min 5 \times D$ (= pipe/duct diameter) must be maintained in front of and behind the installation location of valves, shut-off valves as well as near bends and cross-sectional changes.

1. Screw a T-piece according to DIN 2959 with a 1" connection with sealing tape onto the flange. Pay attention to the direction of flow.
2. If necessary, screw in a longer paddle and adjust it to the pipe/duct diameter. Do not remove the shorter paddles from the device for better stability.

Use with minimum switch-off value

- Install a safety device on the lower part of the device to activate a signal.

Use as a flow limiter according to standard TRB 604

- Provide a shut-off valve in front of and behind the installation location in order to be able to carry out maintenance work and check the device.

Recommended switching amplifier

- Ex-i switching amplifier from Company Stahl type EXL-IR-9170-11-12-11s
- When using the sensor together with a switching amplifier recommended by us, the intrinsic safety for simple circuits is proven
- Manufacturer's certificate for zone 1, 2

Operation

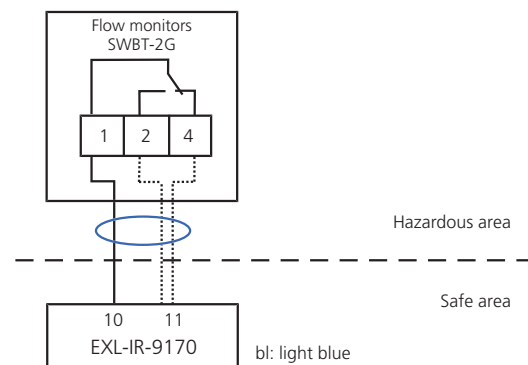
The device is set to the minimum switch-off value at the factory.

1. Turn the range screw to the right to set a higher cut-off value.
2. Turn the range screw to the left to set a lower cut-off value.

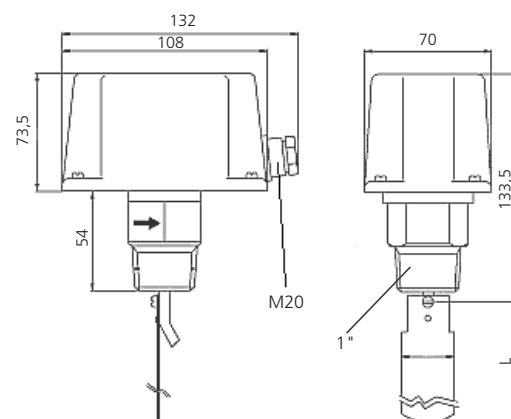
The cut-off value must be greater than or equal to the minimum value.

Electrical connection

The electrical connection is made according to the operating instructions of the switching amplifier.




Dimensions



(all measurements in mm)

Spare

Product No.	Description
057.1351	Spare paddle SWBT

We, the
Schischek GmbH Mühlsteig 45 Business Park South 5 90579 Langenzenn GERMANY
declare under sole responsibility in accordance with the provisions of the guidelines:
2014/34/EU
that the product
SWBT-2G
to which this declaration refers, complies with the following norms or normative documents:
EN 60079-11:2012 EN IEC 60079-0:2018+AC:2020-02
Marking:
CE Zone 1, Zone 2 Simple resources
Managing:
 (Dr. Sven Ludwig)
90579 Langenzenn, 2024-09-01

Manufacturer's declaration for sensors for use in hazardous areas

Item	Flow monitor with contact outlet	Manufacturer	Schischek GmbH
Type	SWBT-2G	Property	Passive, potential-free
Installation in	Zone 1, 2	Associated equipment	EXL-IR-9170

Test goal

The flow monitor has been tested for suitability for installation and operation in hazardous areas of zones 1 and 2. The test is based on Directive 2014/34/EU (ATEX). The standards applied are EN 60079-0 and EN 60079-11. The current monitor is a simple electrical device within the meaning of EN 60079-11 Section 5.7 and must be operated via an intrinsically safe circuit. The switching amplifier EXL-IR-9170 from Company Stahl is suitable. The switching amplifier may only be installed and operated in non-hazardous areas.

Proof of intrinsic safety for simple circuits in use with EXL-IR-9170

$U_o \leq U_i$	$9.6 \text{ V} \leq 30 \text{ V}$
$I_o \leq I_i$	$10 \text{ mA} \leq 50 \text{ mA}$
$P_o \leq P_i$	$24 \text{ mW} \leq 100 \text{ mW}$
$C_o \geq C_i + C_{\text{Cable}}$	$C_i = 0 \text{ }\mu\text{F}$
$L_o \geq L_i + L_{\text{Cable}}$	$L_i = 0 \text{ }\mu\text{H}$
$C_{\text{Cable}}, L_{\text{Cable}}$: see the specifications of the cable manufacturer	
C_o, L_o : see the documentation for the switching amplifier according to the gas group	

Test	Result
IP protection	The device meets at least IP65
Inspection of metallic housing parts	Magnesium, titanium and zirconium content < 7.5%
Checking plastic	Suitable in the used ambient temperature range -20 °C ... +60 °C
Electrostatics	Can be used without restriction in groups IIA and IIB, for group IIC the warning "Wipe only with a damp cloth" applies
Locks and latches	Not to comply with special conditions, not relevant
Grounding (potential equalisation)	Equipotential bonding via screw thread with pipeline
Cable and cable entries	The cables must be protected from mechanical and thermal stress, after installation, min. IP65 must be fulfilled
Temperature testing	No temperature increase >5K; the sensor is suitable for -20 °C to +60 °C and temperature class T6

Overall rating/additional comments

The SWBT-2G flow monitor can be used in conjunction with the EXL-IR-9170 switching amplifier from Company Stahl in zones 1 and 2. The information in the data sheet or the operating instructions must be observed. The warnings regarding electrostatic charging must also be observed. The potential equalisation must be ensured via the pipeline in which the flow monitor is installed. After installation, at least the protection class IP65 must be guaranteed.



Langenzenn, 01. Sept. 2024
Wen Liu
Explosion Protection Officer

SCHISCHEK
A ROTORK Brand

Contact us now

mail@rotork.com
www.rotork.com

rotork®

PUB113-420-00
Issue 03/25