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Control Systems GmbH

Level and temperature switch

iTNA16

monitors level and temperature of fluids in open or closed unpressurized containers

- Length of immersion pipe: 120 mm to 1.200 mm
- Continuous level monitoring possible
- With smoothing pipe to prevent incorrect measurements in the event of turbulences
- Optionally available without smoothing pipe
- Largely unaffected by external influences
- Resistant to aggressive fluids
- Maintenance free as contacts are operated by magnets
- Type of protection: IP 54 according to EN 60529/IEC 529
- Ex-approval: I M2 EEx ia I intrinsically safe according to Directive 94/9/EC

Level and temperature switch iTNA16 used for monitoring the contents of a drill carriage tank

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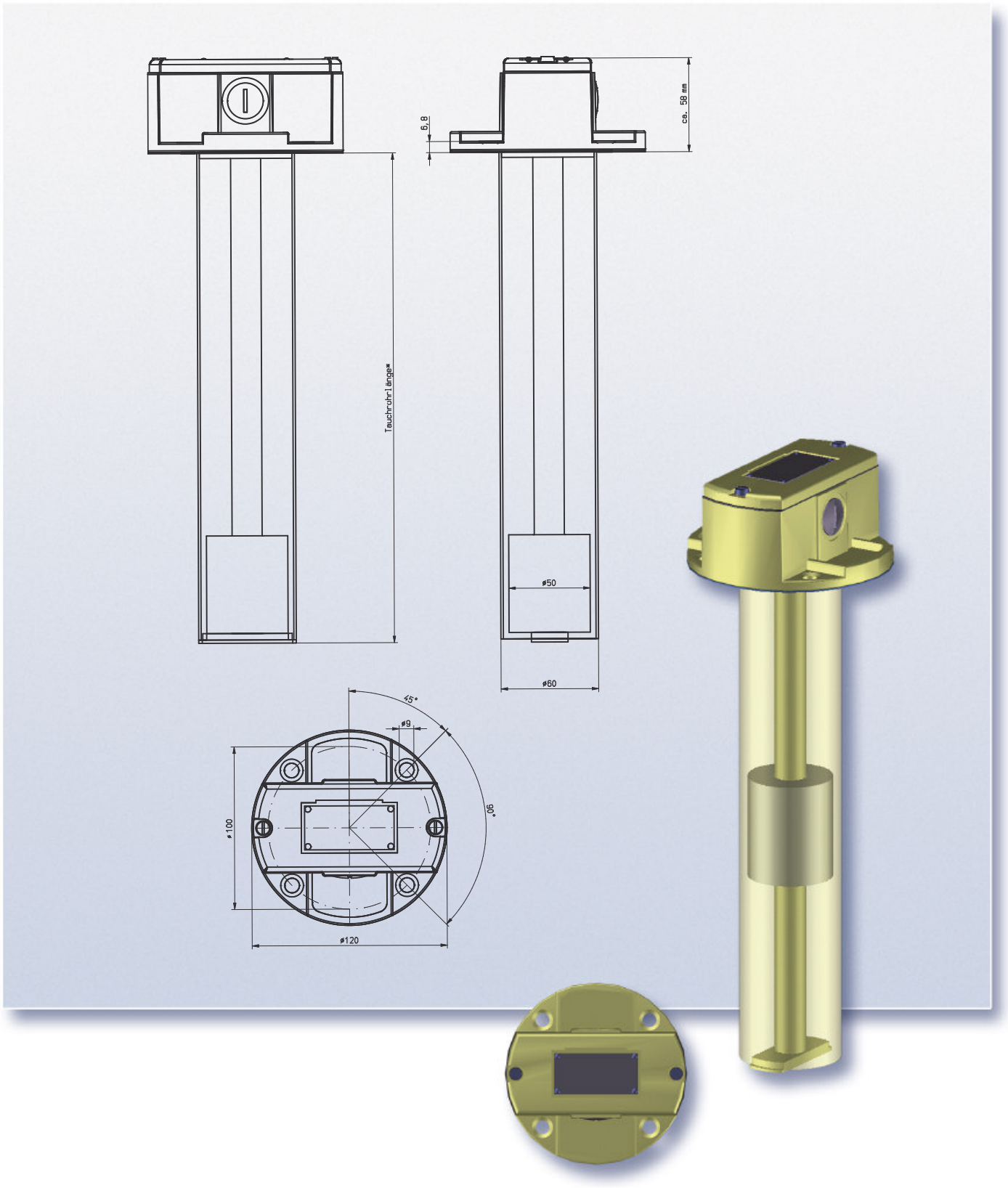

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FUNCTION AND DESIGN

In combination with one or a number of thermal contact cartridges, the level and temperature switch includes the following two functions:

- Measuring the level of a fluid in a container
- Monitoring the temperature of the fluid

The level is measured on the basis of the magnet switch principle. One or a number of reed contacts are arranged on a mounting rail. A permanent magnet passes and causes the contact to open or close. The level switch is normally equipped with two latching type contacts, with the upper contact designed as normally open contact for the alert function and the lower contact as normally closed contact for the stop function.

The latching-type contact has storage characteristics. To this end, the reed contact is magnetically „pretensioned“ in the two switching positions by two holding magnets. By means of the stronger switching magnet the switch can be set or reset.

It is also possible to use pulse switches for level monitoring. The contacts can further be connected with diode or resistor combinations for line monitoring. When continuous level monitoring is required, the level and temperature switch can be equipped with a chain of reed contacts with a spacing of 4mm or 2mm. The output signal would be provided by a voltage, current or frequency interface. These special cases will be available upon request.

For temperature monitoring one or a number of thermal contact cartridges can be attached to the mounting rail at the lower end of the immersion pipe. These are normally open or normally closed contacts. It is also possible to use a PT100 element for continuous temperature measurements.

The mounting rail with the level contacts and the thermal contact cartridges is housed in an immersion pipe which is enclosed by a float in the form of an annular magnet. This switching magnet is shielded against turbulences which might occur in the fluid by a smoothing pipe. Upon request, the level and temperature switch can also be supplied without smoothing pipe.

Application

- The level and temperature switch of type 16 is available for immersion pipe lengths of up to 1,200 mm as standard. If longer versions are required an inquiry should be sent. The switch is installed by means of a round flange plate attached underneath the connection box. The level and temperature switch can be used in all applications where a secure fluid supply is required to ensure trouble free operation.
- An example for such an application would be monitoring the hydraulic fluid in a tank.
- For monitoring the fluid level latching type switches are normally used with the normally open contact performing the alert function and the normally closed contact the stop function.
- The same procedure can also be applied in temperature monitoring. Here, the thermal contacts can also be designed as normally open or normally closed contacts.

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TECHNICAL DATA

Length of immersion pipe	L = 120 mm to 1.200 mm, other lengths upon request
Level contacts	latching type – normally open, normally closed, change-over contact, other contacts upon request
Contact connection	diode or resistor combinations for line monitoring upon request
Continuous measurement	with reed contacts, 2 mm or 4 mm contact spacing
Reproducibility	± 0.2 mm
Operating life	> 10^9 switching operations
Temperature Range	-20 °C to 85 °C
Temperature contact	normally closed or normally open
Switching temperature	50 °C to 85 °C, other values upon request
Fitting position	vertical
Type of connection	terminal housing, other types of connection upon request
Type of protection	IP 54 according to EN 60529/IEC 529
Ex-approval	I M2 EEx ia I acc. to Directive 94/9/EC
Certificate number	BVS 03 ATEX E 312

TYPE CODE AND ORDERING INFORMATION

***TN A 16 * * * * / ** *** - ** *** L**

- Length of immersion pipe ➤ with thermal contact: max. measuring length+100 mm ➤ without thermal contact: max. measuring length+60 mm
- Response temperature [°C]
- Contact type code: 10 ➤ normally open; 20 ➤ normally closed
- Response temperature [°C]
- Contact type code: 10 ➤ normally open; 20 ➤ normally closed
- Number of reed contacts
- Contact type code: 4 ➤ latching type contact NO/NC 80 mm; 5 ➤ latching type change-over contact 80 mm; other contacts upon request
- Types of connection: K ➤ terminal; S ➤ plug connector; L ➤ cable (max. 10 m)
- Variants: A ➤ with smoothing pipe; B ➤ without smoothing pipe
- Series
- Design acc. to ATEX
- Levelswitch
- i ➤ intrinsically safe; w ➤ non-explosionproofed version

TYPICAL EXAMPLE

iTNA16AK42/1055-2080L=400mm

- Intrinsically safe levelswitch with smoothing pipe acc. to ATEX
- Connection via terminal
- Latching type contact NO/NC 80 mm
- 2 Reed contacts
- 1. Contact: NO with response temperature at 55°C
- 2. Contact: NC with response temperature at 80°C
- Length of immersion pipe 400 mm

Subject to technical alterations · Version 08/12

We give impulses >>>

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