

Level and temperature switch **iTNA53**

monitors level and temperature of fluids in pressure containers up to 100 bar

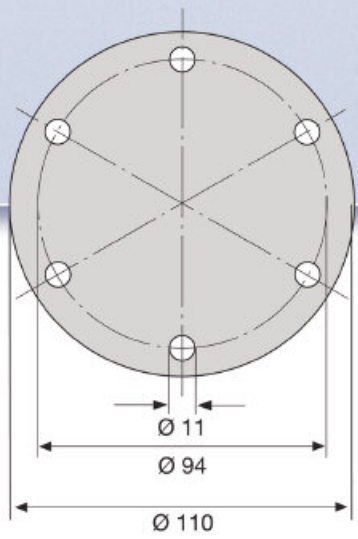
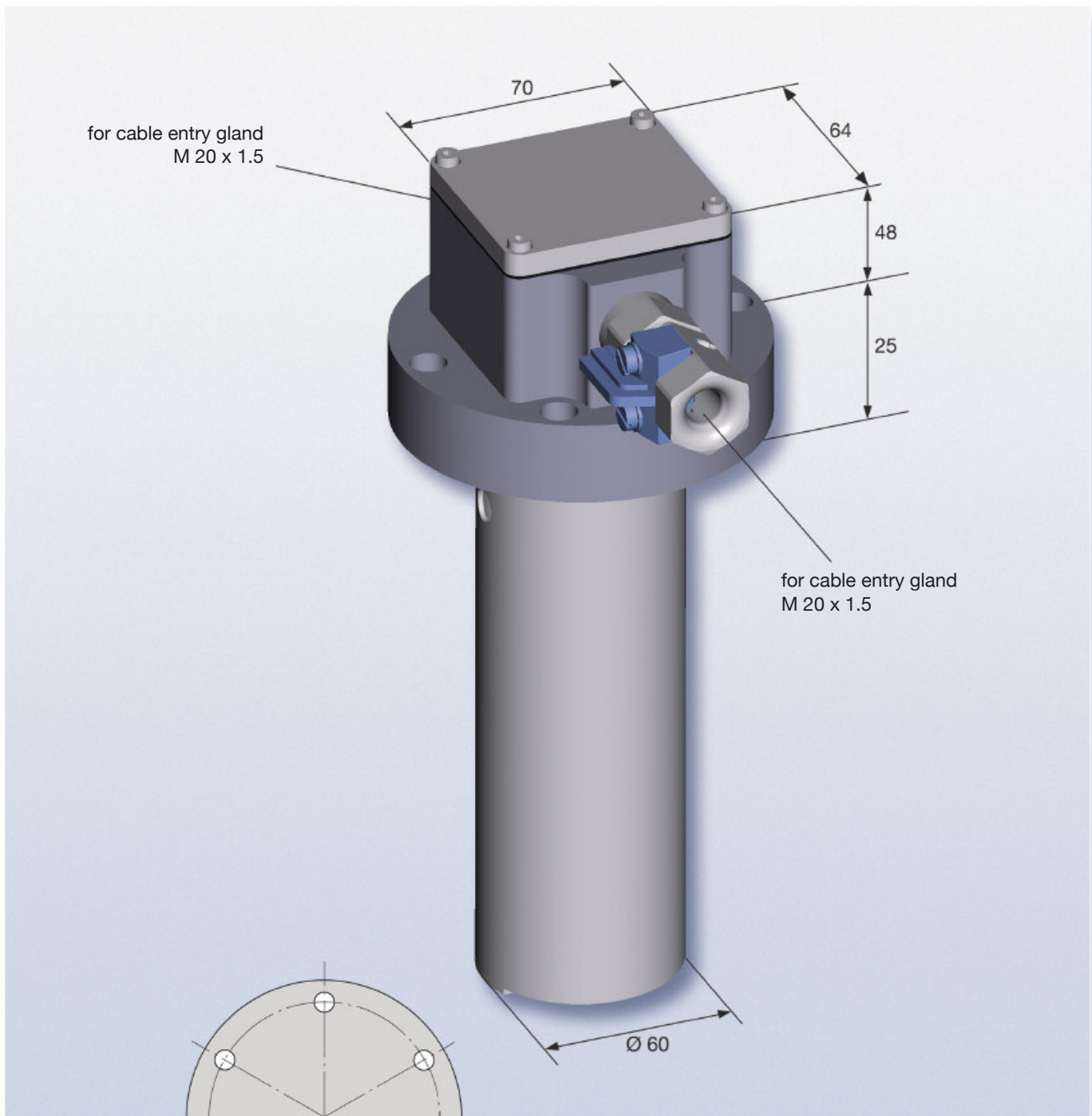
- Operative up to an overpressure of 100 bar
- Length of immersion pipe: 120 mm to 3.000 mm without smoothing pipe
- Length of immersion pipe: 120 mm to 1.200 mm with smoothing pipe
- With smoothing pipe to prevent incorrect measurements in the event of turbulences
- Largely unaffected by external influences
- 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 (ATEX)



Application in the offshore industry



iTNA53





iTNA53

FUNCTION AND DESIGN

The temperature and level switch iTNA53 has been especially designed for use in pressure containers holding fluids up to a pressure of 100 bar. This problem-solving approach has been made possible by the special design of the float with switching magnet. 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 fluid temperature

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 and temperature 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.

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. A smoothing pipe shields this switching magnet against turbulences which might occur in the fluid. Upon request, the level and temperature switch can also be supplied without smoothing pipe.

Application

- The level and temperature switch of type 53 is available for immersion pipe lengths of up to 1.200 mm as standard. When no smoothing pipe is fitted, lengths of up to 3.000 mm are possible. 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 the fluid level in high-pressure containers has to be monitored.
- 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.



iTNA53

TECHNICAL DATA

Operating pressure	up to 100 bar
Length of immersion pipe	L = 120 mm to 1.200 mm, without smoothing pipe up to 3.000 mm
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
Switching temperature	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

*TNA53	Length of immersion pipe	▶ with thermal contact: max. measuring length+100 mm ▶ without thermal contact: max. measuring length+60 mm
*K**	Response temperature [°C]	
/****	Contact type code:	10 ▶ normally open 20 ▶ normally closed
-***	Response temperature [°C]	
****	Contact type code:	10 ▶ normally open 20 ▶ normally closed
L	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
	Type of connection:	terminal
	Variants:	A ▶ with smoothing pipe B ▶ without smoothing pipe
	Series	
	Design acc. to ATEX	
	Levelswitch	
	i	▶ intrinsically safe
	w	▶ non-explosionproofed version

TYPICAL EXAMPLE

iTNA53AK42/2050-2070L=400mm	<ul style="list-style-type: none"> ■ intrinsically safe levelswitch without smoothing pipe acc. to ATEX ■ Connection via terminal ■ Latching type contact NO/NC 80 mm ■ 2 Reed contacts 	<ul style="list-style-type: none"> ■ 1. Contact: NO with response temperature at 50 °C ■ 2. Contact: NC with response temperature at 70 °C ■ Length of immersion pipe 400 mm
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Subject to technical alterations · Version 08/12