



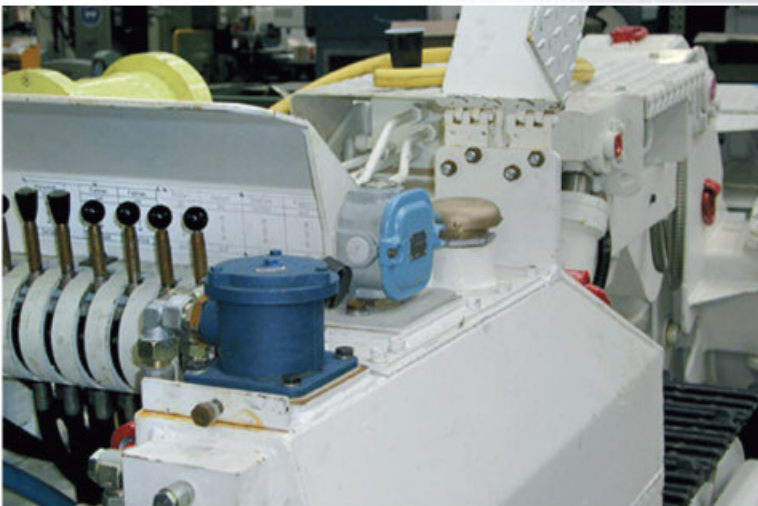
Level and temperature switch **iTNA01** **iTNA02**

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

iTNA01 - with smoothing pipe
to prevent incorrect measurements
in the event of turbulences;
length of immersion pipe
up to 2.000 mm

iTNA02 - without smoothing pipe;
length of immersion pipe
up to 5.000 mm

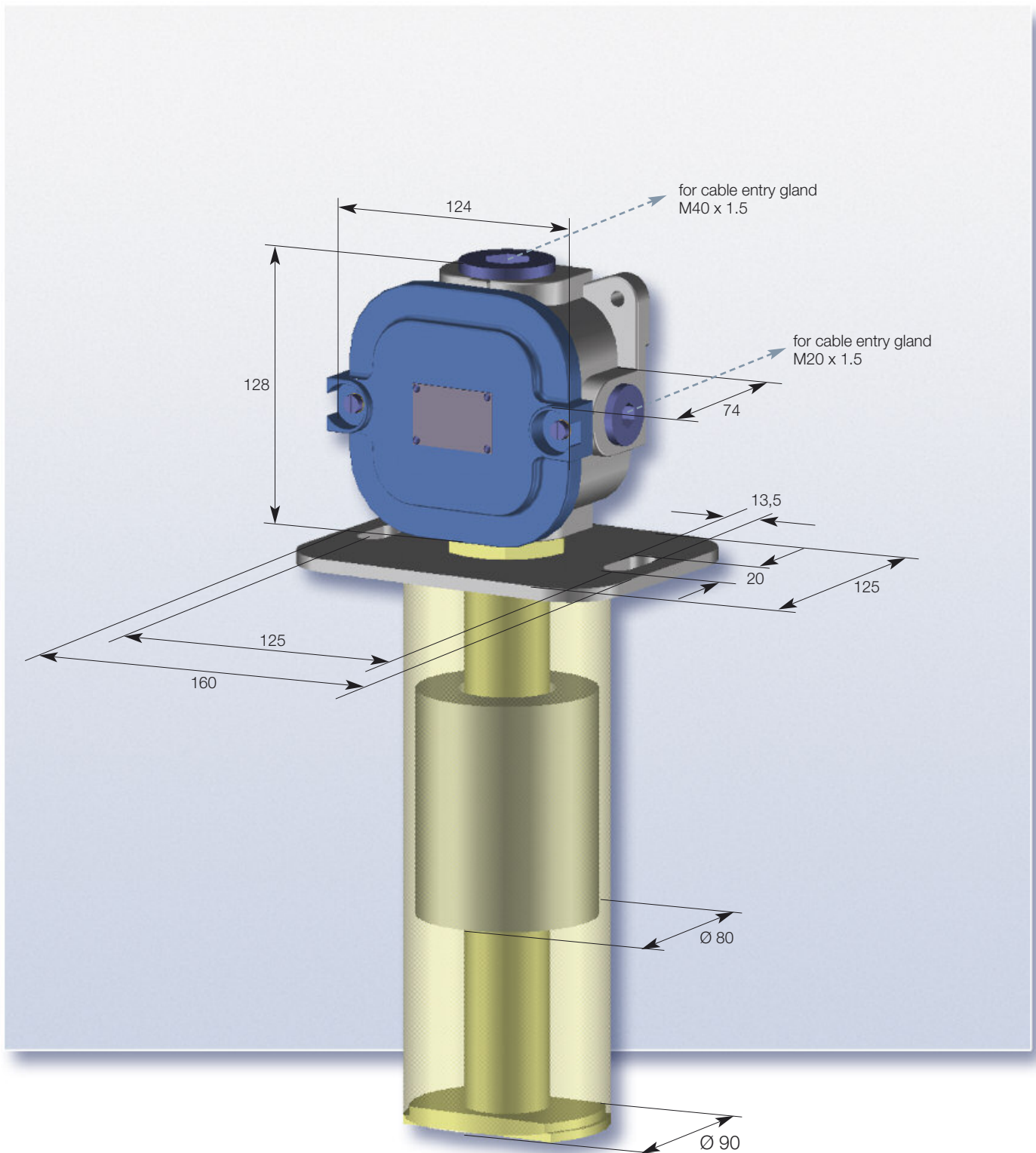
- Largely unaffected
by external influences
- Resistant to aggressive fluids
- Maintenance free as contacts are operated by magnets
- Type of protection: IP 54 according to EN 60529/IEC 529
- Ex-approval: I M2 EEx ia I intrinsically safe
according to Directive 94/9/EC (ATEX)



**Level and temperature switch iTNA01
used for monitoring the hydraulic fluid
in a loader car**



iTNA01/02





iTNA01/02

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 „pre-tensioned“ 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. 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. Type iTNA01 has this switching magnet shielded by a smoothing pipe against turbulences which might occur in the fluid. Type iTNA02 is always supplied without smoothing pipe.

Application

- The level and temperature switch of type 01 with smoothing pipe is available for immersion pipe lengths of up to 2.000 mm as standard. Type 02 without smoothing pipe is available for immersion pipe lengths of up to 5.000 mm. If longer versions are required an inquiry should be sent. The switch is installed by means of a rectangular flange plate. 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.
- If other features are required which includes the possibility of more than two switching functions for level or temperature monitoring, an inquiry should be sent.



iTNA01/02

TECHNICAL DATA

Length of immersion	pipetype 01 ▶ L = 180 mm to 2.000 mm; type 02 ▶ L = 180 mm to 5.000 mm
Level contacts	latching type - normally open, normally closed, change-over contact
Contact connection	diode or resistor combinations for line monitoring upon request
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

* TNA **** ** / ** ** - ** ** L	Length of immersion pipe ▶ with thermal contact: max. measuring length+120 mm ▶ without thermal contact: max. measuring length+80 mm
	Response temperature [°C]
	Contact type code: 10 ▶ normally open 20 ▶ normally closed 30 ▶ PT100
	Response temperature [°C]
	Contact type code: 10 ▶ normally open 20 ▶ normally closed 30 ▶ PT100
	Number of reed contacts
	Switching options: without number ▶ standard 5 ▶ Namur diode options upon request
	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 ▶ connector
	Variants: 01A ▶ with smoothing pipe / length of immersion pipe up to 2 m 02B ▶ without smoothing pipe / length of immersion pipe up to 5 m
	Design acc. to ATEX
	Levelswitch
i	▶ intrinsically safe
w	▶ non-explosionproofed version

TYPICAL EXAMPLE

iTNA02BK42/1063-2085L=3000 mm	■ Intrinsically safe levelswitch without smoothing pipe acc. to ATEX	■ Upper contact: NO with response temperature at 63°C
	■ Connection via terminal	■ Lower contact: NC with response temperature at 85°C
	■ Latching type contact NO/NC 80 mm	■ Length of immersion pipe 3000 mm
	■ 2 Reed contacts	

Subject to technical alterations · Version 08/12