

Thermometer with remote control line
Indication range 0 to 100 °C



AB-E 31-15
2003-04-02

Replaces: Issue 2001-02-23

1 Area of application

Thermometers to this standard are used for monitoring (model A) and controlling (model R) the temperature of hydraulic fluids within hydraulic power units and systems. With the model R (thermometer with electrical signal transmitter) electrical circuits are either opened or closed in relationship to the indicator settings.

2 Model and dimensions

2.1 Indicator unit - model A

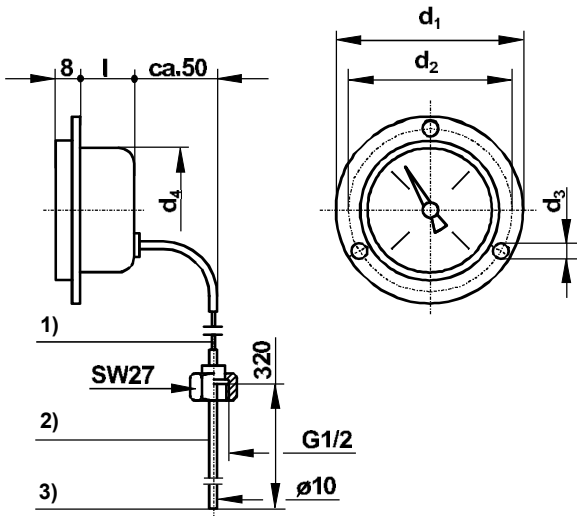
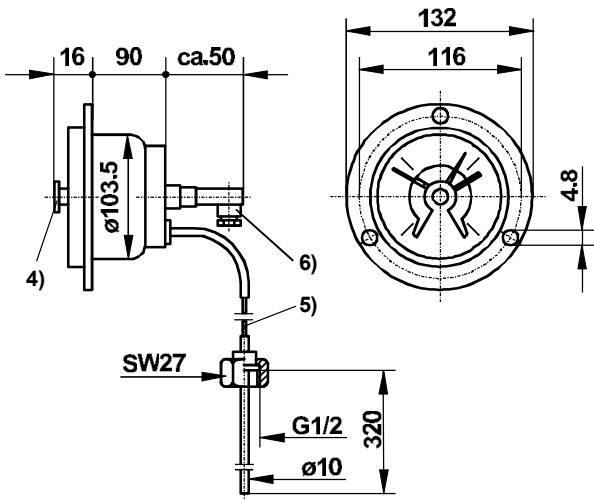


Table 1

DN	Dimensions				
	d ₁	d ₂	d ₃	d ₄	l
063	85	75	3,6	60	25
100	132	116	4,8	103,5	50

- 1) Remote control line
- 2) Draw off volume to be taken into account
- 3) Minimum immersed depth of 100 mm

2.2 Regulation unit - model R



- 4) Removable key
- 5) Remote control line
- 6) Electr. connection, plug to DIN 43650

3 Type code

Example:	Thermometer	AB31-15	/	100	-	R	2,5	-	21
AB standard									
Nominal size									
DN 63				= 063					
DN 100				= 100					
Model									
Indicator unit						= A			
Regulating unit						= R			
Remote control line length									
2,5 m							= 2,5		
5,0 m							= 5,0		
8,0 m							= 8,0		
Contact switching function (does not apply for model A)									
Code 1: Contact closes the electrical circuit when the pre-set nominal value is exceeded.									
Code 2: Contact opens the electrical circuit when the pre-set nominal value is exceeded.									
e.g. 1st contact opens									= 2
2nd contact closes									= 1

4 Ordering example/match code

Indicator unit DN 100 with remote control line 2,5 mm:
THERMOMETER AB31-15/100-A2,5 Material no. **R900024642**

5 Selection tables

5.1 Indicator units

Table 2

Nominal size DN 63		Nominal size DN 100	
Designation: Thermometer AB 31-15/...	Material no.	Designation: Thermometer AB 31-15/...	Material no.
063-A2,5	R900024642	100-A2,5	R900024643
063-A8,0	R900226425	100-A5,0	R900024644
		100-A8,0	R900024645

5.2 Regulating units

Table 3	
Nominal size DN 100	
Designation: Thermometer AB 31-15/...	Material no.
100-R2,5-11	R900028574
100-R2,5-12	R900028575
100-R2,5-21	R900024646
100-R2,5-22	R900028576
100-R5,0-11	R900028579
100-R5,0-21	R900024647
100-R8,0-21	R900024648
100-R8,0-22	R900028584

6 Technical data

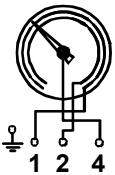
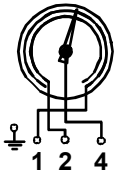
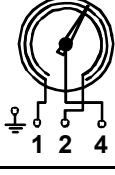
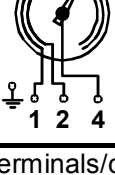
Table 4

Model	Indicator unit model A		Regulation unit model R	
	DN 63	DN 100	DN 100	
Class to DIN 16203	2	1	1	
Indication range	0 °C to +100 °C			
Measuring range	+10 °C to +90 °C			
Permissible temperatures: - ambient - medium	-10 °C to + 50 °C 0 °C to + 100 °C			
Housing material 7)	Coated or CrNi steel			
Bayonet ring 7)	Chrome plated or CrNi steel			
Sight glass	Instrument quality glass			
Scale DIN 16203	Aluminium white, black scale			
Indicator	Aluminium black			
Scale increment	2 °C	1 °C	1 °C	
Internal space of housing	Unfilled			
Mounting style	Mounting flange to DIN 16206			
Temperature probe	Build form 3 with nut G 1/2; 10 mm probe to DIN 16206			
Operating pressure	6 bar (Temperature probe)			
Adjustable switching differential			≥ 2 °C	
Contact spacing			1 °C	
Electrical connection			Plug to DIN 43650	
Contact type			Magnetic spring contact	
Isolation class			IP 54	
Switching voltage max.			DC/AC 250 V	
Switching loading max.			30 W / 50 VA	
Switching current			1,0 A (Ohmic load)	
Contact material			Silver nickel	
Cable cross section max.			2,5 mm ²	
Max. no of contacts			2	
Contact load			DC	AC
230 V			100 mA	120 mA
110 V			200 mA	240 mA
48 V			300 mA	450 mA
24 V			400 mA	600 mA
Weight	0,5 kg	0,8 kg	1,2 kg	
Suitability: (medium)				
Mineral oil	HLP	to DIN 51524	suitable	
Water emulsions	HFC	to VDMA 24317		
Phosphat ester	HFD-R			
Polyglycol	HEPG	to VDMA 24568		
Triglyceride (Rape seed oil)	HETG			
Synthetic ester	HEES			

7) Material at manufacturers option

7 Magnetic spring contact with switching function

Table 5

Single contact		
Circuits	Indicator movement in a clockwise direction	Contact type: magnetic spring contact
	Switch function	Type code for the switch function
Double contact		
	1st and 2nd contact closes when the set value is exceeded	-11
	1st contact closes 2nd contact opens when the set value is exceeded	-12
	1st contact opens 2nd contact close when the set value is exceeded	-21
	1st and 2nd contact open when the set value is exceeded	-22

The terminals/cables are designated as per the above table.
Earth is green/yellow.

The limit signal generators with more than one contact. The first contact is the one that is located nearest to the left-hand scale begin i.e. nearest to the end value. The switch function as described in the following table lies in the direction of indicator movement (actual value) i.e. clockwise: If the actual value indicator moves in an anti-clockwise direction the switching function reverses.

The limit signal generators are adjustable over the entire scale range. They are fitted under the indicator scale. The instrument indicator (actual value) can freely move over the entire scale value. The adjustment of the intended value indicator is via a removable key in the indicator glass.

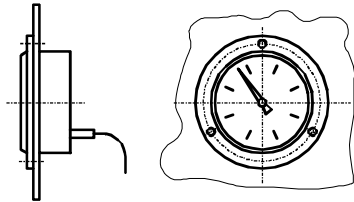
8 Accessory: Protective sleeve

In order to protect the temperature probe and to prevent loss of oil when replacing the probe, a protective sleeve AB 31-22 NBR or AB 31-22 FKM should be used. The protective sleeve has a separate position within the parts list.

9 Mounting a thermometer on a valve panel

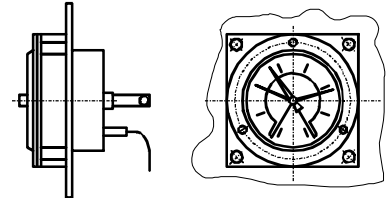
9.1 Standard cut-out DN 63 see AB 03-39.77

Standard cut-out DN 100 see AB 01-30.94



9.2 Standard cut-out for anti-vibration assembly see AB 01-30.93

Mounting a thermometer in a valve panel with an anti-vibration assembly see AB 02-01.02



10 Spare part details

Adjustment key (2 mm square bar steel):

SCHLUESSEL AB31-12/18147 Material no. **R900775233**

Note: Changing of the contacts is done by the manufacturer.

11 For other standards see

[AB-E 31-14](#) Thermostat

[AB-E 31-16](#) Thermostat

[AB-E 31-32](#) Thermostat