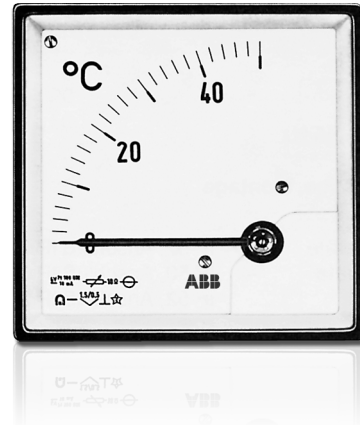


Moving Coil Indicators with direct temperature sensor input



Inputs

- Resistance thermometers, resistance-type remote sensor (thermocouples on request)

Formats

- Square indicators
72 x 72 mm, 96 x 96 mm

Class 1.5

Excellent environmental and mechanical capabilities

General data

Standards

The indicators comply with DIN EN 60051 and with the safety regulations according to DIN EN 61010-1.

In the sections below you can find a short description of the most important parts of these regulations regarding the construction and the characteristics of electrical measuring instruments.

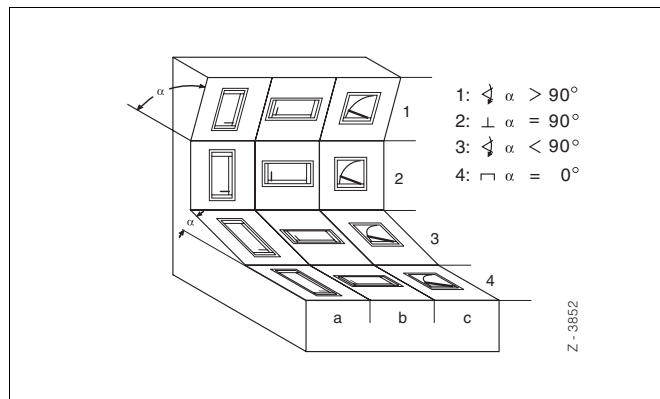
Measured error

The measured error of an indicator or its accessories is given by the limits through basic errors and effects.

The indicators comply with Class 1.5, if no other measured error rating has been given for specific types. Optionally, the indicators can also be supplied for higher class measured errors, as far as this is possible. The class involved is always stated on the scale.

Mounting orientation

Generally, the nominal position is indicated by a position symbol. For indicators without such a position identification, the reference range is any vertical or horizontal position. The nominal mounting orientation is 5° in every direction of the reference position. Note that the effect (in addition to the indicated error) must not be greater than 50 % of the respective classified error.



Temperature effect

If not otherwise stated, the reference temperature is 23 °C ± 2 K for indicators of Class 0.5 to 5. The additional error for a nominal range of ±10 K within this temperature range must not exceed the classified error.

General technical specifications

Standards

DIN EN 60051

Measuring ranges

see measuring range tables

Mounting orientation

vertical, if not otherwise stated,
2c (see the illustration)

Front panel

to DIN 43700

Front color: black RAL 9005

Environmental conditions to DIN EN 60721-2-1, 2, 5

Conditions	Permissible variables	
	normal measuring instruments → H, Y, G	relatively tropicalized instruments → H, V, F
Operating temperature	-25...+40 °C	-25...+55 °C
Relative humidity	max. 85 %, but not more than 60 days per year, otherwise 75 %, annual average 65 % (max. temperature +27 °C)	max. 95 %, but not more than 30 days per year, otherwise 85 %, annual average 75 % (max. temperature +25 °C)
Condensation	none	none

Mechanical category to DIN EN 60068

Vibration = Part 2-6

Normal version
Frequency range 5...55 Hz
Acceleration max. 2.5 g
No. of cycles 5
Runtime 1 octave per minute

Shock = Part 2-27

Normal version
Acceleration max. 15 g
Time of action 11 ms

Front dimensions	72 x 72	96 x 96
Scale length (mm)	63	84
Class	1.5	1.5
Weight (kg)	0.33	0.5
Operating voltage	according to DIN 61010	
Measuring voltage category	CAT III	CAT III
Degree of pollution	2	2
Type of protection	IP 52	IP 52
Mounting	Screwed bracket	Screwed bracket
Housing material	Sheet steel	Sheet steel

Scale and pointer design

The scales and pointers for square, circular, vertical or horizontal scales comply with DIN 43802, Parts 2 and 4.

Type of protection

If not otherwise specified, the indicators comply with DIN EN 60529

IP 52 for case
IP 00 for terminals

Measuring circuit with Ω amplifier

Input

resistance thermometer Pt100 to DIN EN 60751, Ni100 to DIN 43760 or resistance teletransmitter

Measuring range

from $\Delta R = 10 \Omega \dots 1 \text{ k}\Omega$

Thermometer current

with $\Delta R \leq 15 \Omega$ approx. 5 mA
with $\Delta R > 15 \Omega$ approx. 3 mA

Line balancing

for two-wire circuit $1 \times 10 \Omega$
for three-wire circuit $3 \times 3 \Omega$ calibrated
for balancing in the range between $0 \dots 6 \Omega$
for symmetric line resistances
(balancing and test resistors are available for an extra charge)

Reference conditions

Ambient temperature

$23 \text{ }^\circ\text{C} \pm 2 \text{ K}$

Indication

Scale graduation

rough

Pointer

Bar pointer, edged

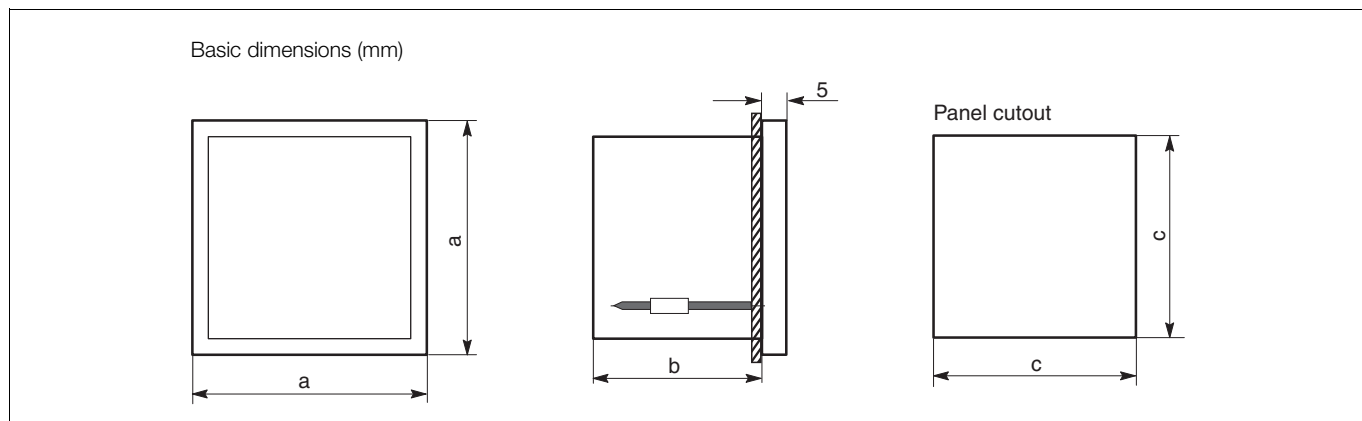
Voltage tolerances of the power supply

DC 20...24...30 V
AC 21...24...27 V
AC 103...115...127 V
AC 207...230...253 V

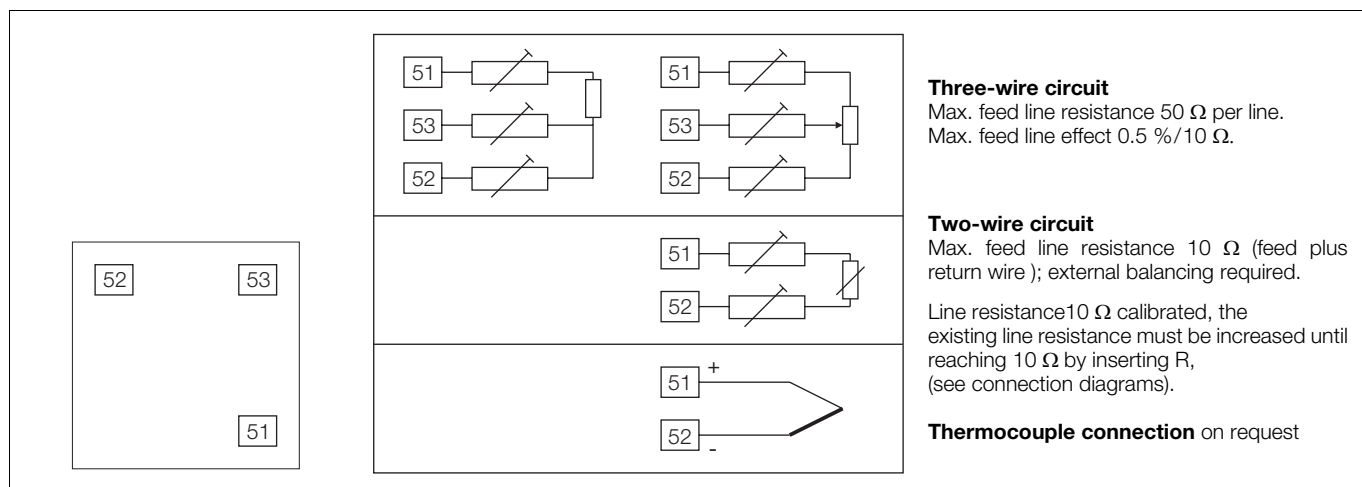
Mechanical construction

Front dim. (mm) a	h	Cutout dimensions c	Mounting depth b	Connections
72 x 72	5	$68^{+0,7} \times 68^{+0,7}$	62 mm	M4
96 x 96	5	$92^{+0,8} \times 92^{+0,8}$	62 mm	M4

Dimensional drawings



Connection diagrams



Ordering information

Moving Coil Indicator for Temperature H72-X 72 x 72 mm H96-X 96 x 96 mm	1)	Variant digit No.	1-9	Code			
		Catalog No.		V30462AV-			
				V30463AV-			
Measuring Input for Resistance Thermometers							
Pt100 IEC		please indicate range code		P__			
Ni100 DIN		please indicate range code		N__			
Teletransmitter		please indicate range code		Q__			
Different input signal		(thermocouples on request)		ZAM			
Wiring							
2-wire connection				AN1			
3-wire connection				AN2			
Scale							
Scale corresponding to range				ZSA			
Scale 0...100%				ZSP			
Scale without graduation start/end marked with symbol bar and company logo				ZSN			
Customized scale		(clear text and code No. ZEM)		ZEM			
Power Supply							
24 V DC without electrical isolation				EV1			
24 V DC with electrical isolation				EV3			
24 V AC				EV4			
115 V AC				EV5			
230 V AC				EV6			

1) other formats on request

Codes for resistance thermometers/teletransmitters

Resistance thermometer						Teletransmitter	
Range	Pt100	Ni100	Range	Pt100	Ni100	Range	Code
0... 40 °C	P20	N20	100...200 °C	P76	x	50...30...50 W	Q01
0... 60 °C	P22	N22	200...400 °C	P81	x	5...100...5 W	Q02
0...100 °C	P23	N23	300...600 °C	P83	x	10...200...10 W	Q03
0...120 °C	P24	x	-20...+20 °C	P12	N12	different	Q99
0...150 °C	P25	N25	-30...+60 °C	P10	N10		
0...200 °C	P26	x	-30...+150 °C	P11	N11		
0...300 °C	P28	x	-100...+50 °C	P06	x		
0...400 °C	P30	x	-200...+50 °C	P02	x		
0...500 °C	P32	x	different	P99	N99		
0...600 °C	P34	x					
50...150 °C	P61	x					

Additional ordering information			
		Code	
Scale sector (color)	(clear text)	ZPF	
Red mark at:	(clear text)	ZPR	
Additional numbers	(clear text)	ZZB	
Additional text	(clear text)	ZZA	
Front panel RAL 7032 (pebble gray)		ZGH	
Front panel RAL 7037 (dusty gray)		ZGG	
Mounting orientation	(clear text)	ZGE	
Low-reflection pane		ZGB	
Terminal cover IP 20		ZOK	
Case identification	(clear text)	ZGJ	
Category 2/3 (vibration-proof)		ZAA	
Climate group 2 (relatively tropicalized)		ZAK	
Marine version acc. to BV 0591		ZPM	
Design according to GL certificate		ZOM	

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