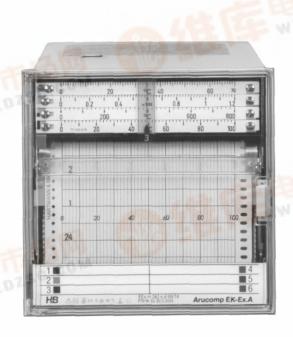
Data Sheet 40-1.10 EN

Multipoint Recorder Arucomp EK-Ex. A



- Multipoint potentiometric recorder for 6 measuring points
- 1 to 6 measuring ranges for standard signals and direct sensor connection Roll or fanfold chart

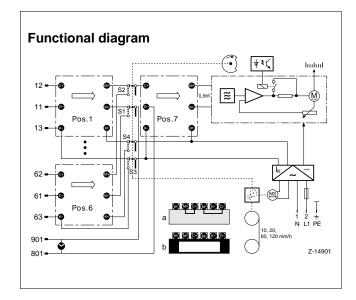
- Format 144 mm x 144 mm
- Installed depth 305 mm
- Instrinsic safety for signal circuit protection
- Mounting within or outside the hazardous



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Technical data



Measuring section

Error limit

Accuracy class 0.5 according to DIN 43782/IEC 484 for basic unit 0...5 mV Meßabweichung

Measuring ranges

Via range box type Arucomp 4900/EK-Ex at rear of unit

Incremental error

without zero shift 0.2 % of span with zero shift 0.3 / of span

zero shift > 1 mA

including temperature effect 0.2 % / 10 K

 R_{e} = 20 k $\!\Omega/\!V$ at leat 20 k $\!\Omega$ Thermometer current $I_{th} \leq 1 \text{ mA}$

Lead balancing for mV in range $0...40 \Omega$ unnecessary

For Ω in 3-wire circuit necessary

For Ω in two-wire circuit of 10 Ω ; 0.1 % external

Reference junction

Optionally external or built into range box.

Caution!

Note temperature difference between terminals and range

Measuring range limit data

Current measurement $I_{e~max.} \pm 50~mA;~I_{e~min.} \pm 0.1~mA$ min. 0.1 mA; max. 100 mA Span

 $\frac{1}{\mathsf{I}(\mathsf{mA})} [\Omega]$

–25 V DC...+25 V DC Voltage measurement

min. 5 mV DC; max. 25 V DC Span

 R_e 20 k Ω /V; jedoch min. 20 k Ω

Zero shift with constant current source

 $\pm\,600$ % of selected span (max. 6/7 of upper range value)

Resistance measurement

Scale span min. 8 Ω ; max. 500 Ω

Circuit designation

Direct voltage and thermocouples with external reference iunction

without zero shift circuit measuring circuit W 21 with zero elevation W 22 K with zero suppression W 23 K Resistance measurement

Resistance thermometer in 2-wire circuit W 24 K in 3-wire circuit W 25 K Resistance teletransmitter in 3-wire circuit W 26 K Current measurement without zero shift W 28 with zero elevation W 27 K W 28 K with zero suppression

Continuous overload capacity of signal inputs

electrical motor current switched off at -0.5 % and 100.5 %

Recording section

interchangeable for all measuring ranges with either 1...6 graduated scales or single scale strips with one graduated scale each

Scale type

No. of

graduated scales	1	2	3	4	5	6	single scale
Digit size (mm)	6	5	3	2.5	2	2	3
Size of main graduations	8	6	4	3	2.5	1.8	3

Colour sequence

Violet, red, black, green, blue, brown (DIN 43 838)

Last point visible form front

ink supply for 5×10^5 dots per colour

Common synchronous motor for chart drive, measuring

point selector switch and print head

Dotting rate

5/10/20 s selectable

Chart drive

10/20/60/120 mm/h selectable

Recording width

100 mm (chart width 120 mm) to DIN 16 230

Chart length

Roll chart 32 m (approx 66 days at 20 mm/h) Fanfold chart 16 m (approx 33 days at 20 mm/h)

Chart feed-in

Automatic (roll chart)

Power supply

24 V or 115 V or 230 V; 50 Hz or 60 Hz Tolerated temperature deviation +10 %, -15 % Typical power consumption approx. 8 VA

General and safety data

Environmental capabilities

Ambient temperature 0...25...50 °C

Transport and storage temperature

–25...+70 °C

Climatic category

KWE to DIN 40 040

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Technical data

Relative humidity

≤ 75 % annual average; avoid condensation; max. relative humidity ≤ 80 % in operation; pay attention to influence of humidity on chart paper to DIN 16234

Electrical safety tested to DIN VDE 0411 Part 1 / IEC 348

Class of protection I

Measuring circuits; functional extra-low voltage with safe isolation to VDE 0110 Part 410

Test voltage

1.5 kV power supply to case

4 kV measuring circuit to power supply

0.5 kV measuring circuits to case

0.5 kV measuring circuits to measuring circuits

Degree of contamination 3 } to DIN VDE 0110 Part 101

Electromagnetic compatibility

The safety requirements stated in the EMC directive 89/336/ EWG, May 1989 shall be fulfilled with respect to immunity to electromagnetic interference to drafted EN 50082.2

Radio interference suppression

Suppression class N to VDE 0875 or EN 55014

Connection, case and mounting

Electrical connections

Type of protection IP 20

Tab connector A 6.3×0.8 or A 2.8×0.8 or

MTP 2.4×0.8 or as accessory

Screw terminal for $2 \times 1.5 \text{ mm}^2$ wire

Power supply

Type of protection IP 54

Screw terminals for 1.5 mm² wire

Sheet metal for panel or mosaic panel field mounting

Colour RAL 7032, Protection IP 54,

Door made of polycarbonate

Operating orientation

vertical ± 45

Monting distance

horizontal or vertical 0 mm,

case door must be open also at 100 $^{\circ}\,$

Weight

approx. 5.5 kg

Labelling facilities

On the measuring point designation plate in the door, 31 characters per measuring point

Parts supplied with the first unit

1 Operating manual

2 Fastening elements to DIN 43834

2 Roll or fanfold charts

1 Ink holder (print star)

Explosion protection

Manufacturer's code 49/40-23 Ex

Certificate of conformity PTB No. Ex-92.C.2082 Type of protection

EEx m (ib) e d IIB T4

Mounting

within the hazardous zone 1

Measuring circuits

(Terminals 11, 12, 13; 21, 22, 23; 31, 32, 33; 41,

42, 43; 51, 52, 53; 61, 62, 63; 801, 901)

in type of protection intrinsically safe EEx ib IIB or EEx ib IIC

1. Measuring circuits for current, voltage and resistance with range box Arucomp 4900/EK-Ex

-Ex W21, -Ex W21KV, -Ex W22KV, -Ex W22K, -Ex W23 KV,

-Ex W23K, -Ex W24K, -Ex W24K2, -Ex W25K, -Ex W25K2,

-Ex W26K, -Ex W27K, -Ex W28, -Ex W28K

Max. values per measuring circuit:

U = 10 V

 $I_K = 65 \text{ mA}$

 $P = 400 \, \text{mW}$

The effective internal inductance is negligibly low.

The effective internal capacitanc is 12 nF.

Max. permitted values of the connected intrinsically safe

1.1. Connection to passive intrinsically safe circuits

Group IIC Group IIB

20 mH Max. external inductance La 5 mH

Max. external inductance Ca. 30 μF 4 µF

1.2 Connection to certified active intrinsically safe circuits Max values per circuit

U = 25 V

P = 600 mW

The maximum internal inductanceLa and capacitance Ca depending on the respective max. values of the connected intrinsically safe circuit can be taken from tables 1,2 and 3 of the certificate of conformity.

2. Measuring circuits for current

with range box Arucomp 4900/EK-Ex

-Ex W28, -Ex W27K, -Ex W28K with input resistance Re $\leq 7 \Omega$

Max. values per circuit

U = 0.5 V

 $I_K = 65 \text{ mA}$

 $P = 8 \, \text{mW}$

The effective internal inductance is negligibly low.

The effective internal capacitanc is 12 nF.

Max. permitted values of the connected intrinsically safe

Max values per circuit

U = 20 V

I = 170 mA

The maximum internal inductance La and capacitance Ca depending on the respective max. values of the connected intrinsically safe circuit can be taken from tables 4 and 5 of the certificate of conformity.

The six measuring circuits are electrically isolated. The respective measuring circuit in operation and the circuit for the external reference junction are electrically coupled.

Note:

The values mentioned above do not apply to a plug connection. Those values can be taken from the annex to the certificate of conformity.

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Ordering information				
Multipoint recorder Arucomp	EK-Ex. A	Catalogue No.	41011 - 0 -	
Basic unit ¹⁾	asuring range) .			
115 V 50 Hz				
Recording On roll chart				
		Catalogue No.	4 1 0 1 1 - 0	0 0 1

For ordering the Catalogue No. suffices. If necessary suffix supplementary Nos. to the catalogue numbers.

Consumables					
		Catalogue No.			
Ink holder		41081-4-0859569			
Chart paper Roll chart (supplied in packs of	with hourly time imprint for 20 mm/h	40920-0-3000505			
Forfold short (asymptod in pools	without hour imprint, with baselines	40920-0-3000150			
Fanfold chart (supplied in packs	with hourly time imprint for 20 mm/h without hour imprint, with baselines	40926-0-3000502 40926-0-3000003			

Other charts paper see Data Sheet 49-9.10 EN.

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 $^{^{\}rm 1)}$ Measuring basis 0...5 mV, without range box and scales

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Additional ordering information	
At least one specification is necess. for every measuring range and group	Suppl. No.
Specification for measuring range 1 Specification for measuring range 2 Specification for measuring range 3 Specification for measuring range 4 Specification for measuring range 5 Specification for measuring range 6	1 2 3 4 5 6
The following specification applies to measuring point(s) e.g. 2 and 5)	4 0 1)
Measuring circuit designation depending on the measuring tasks Measuring circuit W2. or W2.K Measuring circuit W2.KV (built-in reference junction correction)	5 1)
Measuring range Code according to Data Sheet 40-1.00 EN As specified Code for external reference junction temperature	1 () 2
With test resistor in dismantled form for °C Pt 100 IEC	4 8 1)
Scale specifications Scale on wide scale plate (for large digits with 1 or 2 graduations or max. 6 graduations)	506
1st graduation 2nd graduation 3rd graduation 4th graduation 5th graduation 6th graduation (only applies in connection with Suppl. No. 506) 6th graduation (only applies in connection with Suppl. No. 506)	1 2 3 4 5 6
Without graduation, scale start and end marked (for 1st graduation only) Graduation 0100 (for 1st graduation only) Graduation as specified (enter only clear text) Graduation according to Data Sheet 40-1.00 EN (enter code No.)	1
With ruler for graduation	5 8
Labelling of the measuring point designation plate Inscription for measuring point 1 Inscription for measuring point 2 Inscription for measuring point 3 Inscription for measuring point 4 Inscription for measuring point 5 Inscription for measuring point 6	580 582 584 586 588 590
With dismantled dust-proof bracket for top of door with packs of 10 blade sleeves with packs of 10 clip-on screw terminals with four dismantled mounting brackets for rack mounting	621 603 604 (pcs.) 605
Operating Manual (state how many) ²⁾ German (no specification required for 1 copy) English (always state Suppl. No.) French (always state Suppl. No.)	Z2D (cps.) Z2E (cps.) Z2F (cps.)
At this symbol add clear text to the Sunni No	

At this symbol add clear text to the Suppl. No. (. . .) At this symbol add a code No. to this Suppl. No.

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At least one Suppl. No. per scale and group
 1 copy at no extra charge

Dimensional drawings and connection diagrams

