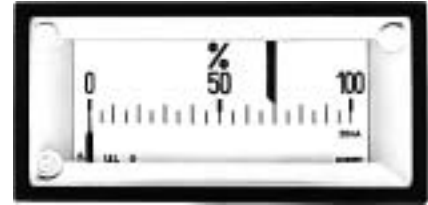


Rectangular Limit Transducers (MESSCONTACTER) for Direct Current or Direct Voltage

Technical Data

Moving-Coil Movement, Edgewise Scale,
Narrow Bezel per DIN 43 718, Dull Black

Front Dim. in mm Type	96 x 48 Pfn 96 x 48 M
Scale Length in mm	65
Accuracy Class	1.5
Weight in kg, Approx. for AC aux. voltage for DC aux. voltage	0.5 0.2
Sampling	electronic
Relative Switching Speed	1% max. error as related to scale length
Repetition Accuracy	0.1% at nom. aux. voltage and 23 °C
Number of Contact Marks	1 or 2
Min. Contact Mark Clearance	3% of scale length
Output Relay	integrated
Output Contact	1 changeover per contact mark
Switching Capacity with Ohmic Load	
Max. Switching Voltage	250 V AC / 250 V DC
Max. Switching Current	6 A AC / 6 A DC
Nominal Switching Capacity	500 VA / 50 W
Service Life at Nominal Switching Capacity	> 10 ⁶ switching cycles
Max. Switching Time	500 ms
Auxiliary Voltage (U _A)	see Order Information
Power Consumption, AC Auxiliary Voltage	4 VA
Power Consumption, DC Auxiliary Voltage	4.5 W
Safety Regulations per IEC/EN 61010-1/A2 VDE 0411-1/A1	
Safety Class	II (total insulation)
Measuring Circuit:	
Overvoltage Category	CAT III
Fouling Factor	2
Operating Voltage	300 V
Operating Voltage for Voltage Measuring Ranges >250 V...≤ 600 V	600 V
Test Voltage (to housing)	5.55 kV AC
Front Housing-Panel Protection	IP 52
Fasteners	screw spindle



Type Pfn 96 x 48 M

Internal Resistance / Voltage Drop / Power Consumption

(Values only apply with zero point at left or at bottom.)

Measuring Range	Internal Resistance / Voltage drop / Power Consumption
≤ 10 mA	≤ 100 mV
> 10 mA / ≤ 6 A	≤ 100 mV
≤ 1 V	≥ 1 MΩ
> 1 V / ≤ 50 V	≥ 100 kΩ
> 50 V / ≤ 600 V	≥ 2 kΩ/V
0/4 ... 20 mA	6 Ω ± 30 %
Connection to shunt Lead resistance 0.06 Ω	6 mA ± 20 %

Contact Assignments

Measured Quantity	-	12-
	+	11+
Auxiliary Voltage	DC	+ L+
		- L-
	AC	L L
		N N
Relay Output	Logic Output	
Limit Contact 1		
Limit Contact 2		
The output contacts are shown in the wiring diagram in the zero current condition.		+ terminals are electrically connected within the instrument.

Description

Analog Limit Transducer (MESSCONTACTER) with Moving-Coil Movement for Direct Current or Direct Voltage

Display

Scale Graduation	Coarse-fine
Pointer	Beam pointer with knife-edge for single and double graduation

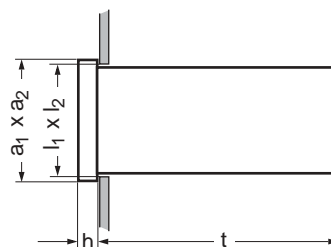
Mechanical Design

Housing Material	Polycarbonate, self-extinguishing and drip-proof per UL94V-0
Replaceable	Glass faceplate and bezel
Terminals	Tab connectors, (IP20 protection) 1 ea. 6.3 x 0.8 mm or 2 ea. 2.8 x 0.8 mm

Reference Conditions

Reference Quantities	Reference Condition
Ambient Temperature	23 °C ± 2 °C
Position of Use	control panel vertical ± 1°
Other	DIN EN 60 051

Dimensions



Front Dim. mm	Nominal Dimensions, mm		Cutout, mm l ₁ x l ₂	Installation Depth (t) Relay Output	Installation Depth (t) Logic Output
	a ₁ x a ₂	h			
96 x 48	96 x 48	5	92 ^{+0.8} x 45 ^{+0.6}	146	126

Order Information

Rectangular Limit Transducers (MESSCONTACTER)

for Direct Current or Direct Voltage

Code: B0

Order Example: MESSCONTACTER 96 x 48 mm, Landscape Format, 0 ... 100 V Direct Voltage, Working Current Model, Min.-Max., 24 V DC Auxiliary Voltage, Relay Output Order No.: 2594P AM10 DC100		Front Dim. in mm Type	96 x 48 Pfn 96 x 48 M
		Order no. → + ↓	2594P
Format	landscape portrait	HQ1 HQ2	+ +
Contacting			
Closed-Circuit Current Model	Max.	AM 3	+
	Min.	AM 4	+
	Min. - Max.	AM 5	+
	Max. - Max.	AM 6	+
	Min. - Min.	AM 7	+
Working Current Model	Max.	AM 8	+
	Min.	AM 9	+
	Min. - Max.	AM 10	+
	Max. - Max.	AM 11	+
	Min. - Min.	AM 12	+
Meas. Input – Direct Current	Connection		
Zero Point	left (landscape)		
	bottom (portrait)		
	center	BC2	+
	between bottom and middle of scale	BC21	+
	direct		
	1 mA/5 mA/10 mA	CB1/5/10	+
	20 mA	CB20	+
	1 A/1.5 A/2.5 A/4 A	CC1/1.5/2.5/4	+
	6 A	CC6	+
	electrically suppressed, landscape 0/4 ... 20 mA	BC25	+
electrically suppressed, portrait 0/4 ... 20 mA	BC27	+	
	at shunt resistor .../60 mV	BE3	+
	at shunt resistor .../150 mV	BE4	+
Meas. Input – Direct Voltage	Connection		
Zero Point	left (landscape)		
	bottom (portrait)		
	center	BC2	+
	between bottom and middle of scale	BC21	+
	direct		
	1/1.5/2.5/4/6/10 V	DC1	
	15/25/40/60 V	to	
	100/150/250/400/500/600 V	DC600	+
Auxiliary Voltage			
	24 V DC (20 ... <u>24</u> ... 30 V)	–1)	+
	24 V AC (21 ... <u>24</u> ... 27 V), 45 ... 65 Hz	IV 12	+
	100 V AC (90 ... <u>100</u> ... 110 V), 45 ... 65 Hz	IV 10	+
	110 V AC (99 ... <u>110</u> ... 121 V), 45 ... 65 Hz	IV 13	+
	115 V AC (103 ... <u>115</u> ... 127 V), 45 ... 65 Hz	IV 16	+
	220 V AC (198 ... <u>220</u> ... 242 V), 45 ... 65 Hz	IV 19	+
	230 V AC (207 ... <u>230</u> ... 253 V), 45 ... 65 Hz	IV 23	+
	240 V AC (216 ... <u>240</u> ... 264 V), 45 ... 65 Hz	IV 24	+
Output			
	relay output	–1)	+
	logic output (open collector)	AU 2	+
	H = + 24 V (electrically isolated from U _H)		
	L < + 1 V, I ≤ 50 mA for U _H DC		
	I ≤ 20 mA for U _H AC		

Scale characteristics, applications, protection, bezel, glass faceplate, identification, scale inscription, additional numberings and red marker same as type Pfn 96 x 48 (see page 43)

1) Standard model

Rectangular, Slim-Line Limit Transducers (MESSCONTACTER) for Direct Current or Direct Voltage

Technical Data

Moving-Coil Movement, Slim-Line Scale,
Narrow Bezel per DIN 43 718, Dull Black

Front Dim. in mm Type	96 x 24 Pffn 96 x 24 M
Scale Length in mm	65
Accuracy Class	1.5
Weight in kg, Approx.	0.2
Sampling	electronic
Relative Switching Speed	1% max. error as related to scale length
Repetition Accuracy	0.1% at nom. aux. voltage and 23 °C
Number of Contact Marks	1 or 2
Min. Contact Mark Clearance	3% of scale length
Output Relay	integrated
Output Contact	1 changeover per contact mark
Switching Capacity with Ohmic Load	
Max. Switching Voltage	250 V AC / 250 V DC
Max. Switching Current	6 A AC / 6 A DC
Nominal Switching Capacity	500 VA / 50 W
Service Life at Nominal Switching Capacity	>10 ⁶ switching cycles
Max. Switching Time	500 ms
Auxiliary Voltage (U _H)	24 V DC (20 ... 24 ... 30 V) ¹⁾
Current or Power Consumption	4.5 W
Safety Regulations per IEC/EN 61010-1/A2 VDE 0411-1/A1	
Safety Class	II (total insulation)
Measuring Circuit:	
Overvoltage Category	CAT III
Fouling Factor	2
Operating Voltage	300 V
Operating Voltage for Voltage Measuring Ranges >250 V...≤ 600 V	600 V
Test Voltage (to housing)	5.55 kV AC
Front Housing-Panel Protection	IP 52
Fasteners	screw spindle



Type Pffn 96 x 24 M

Internal Resistance / Voltage drop / Power Consumption

(Values only apply with zero point at left or at bottom.)

Measuring Range	Internal Resistance / Voltage Drop / Power Consumption
≤ 10 mA	≤ 100 mV
> 10 mA / ≤ 6 A	≤ 100 mV
≤ 1 V	≥ 1 MΩ
> 1 V / ≤ 50 V	≥ 100 kΩ
> 50 V / ≤ 600 V	≥ 2 kΩ/V
0/4 ... 20 mA	6 Ω ± 30 %
Connection to shunt Lead resistance 0.06 Ω	6 mA ± 20 %

Contact Assignments

Measured Quantity	-	12-
	+	11+
Auxiliary Voltage	DC	L+
	-	L-
Relay Output	Logic Output	
Limit Contact 1		
Limit Contact 2		
The output contacts are shown in the wiring diagram in the zero current condition.		+ terminals are electrically connected within the instrument.

¹⁾ With separate power pack for following voltages: 24 V AC, 100 V AC, 110 V AC, 115 V AC, 220 V AC, 230 V AC, 240 V AC, ±10%, see data sheet E 4/5

Description

Analog Limit Transducer (MESSCONTACTER) with Moving-Coil Movement for Direct Current or Direct Voltage

Display

Scale Graduation	Special graduation
Pointer	Beam pointer with knife-edge for single and double graduation

Mechanical Design

Housing Material	Polycarbonate, self-extinguishing and drip-proof per UL94V-0
Replaceable	Glass faceplate and bezel
Terminals	Tab connectors (IP20 protection) 1 ea. 6.3 x 0.8 mm or 2 ea. 2.8 x 0.8 mm

Reference Conditions

Reference Quantities	Reference Condition
Ambient Temperature	23 °C ± 2 °C
Position of Use	control panel vertical ± 1°
Other	DIN EN 60 051

Dimensions



Front Dim. mm	Nominal Dimensions, mm		Cutout, mm l ₁ x l ₂	Installation Depth (t) Relay Output	Installation Depth (t) Logic Output
	a ₁ x a ₂	h			
96 x 24	96 x 24	5	92 ^{+0.8} x 22.2 ^{+0.3}	146	126

Order Information

**Rectangular, Slim-Line Limit Transducers
(MESSCONTACTER) for Direct Current or Direct Voltage**

Code: B0

Order Example: MESSCONTACTER 96 x 24 mm, Landscape Format, 0 ... 100 V Direct Voltage, Working Current Model, Min.-Max., Relay Output Order No. 2524P AM10 DC100		Front Dim. in mm Type Order no. → + ↓	96 x 24 Pffn 96 x 24 M 2524P
Format	landscape portrait	HQ1 HQ2	+ +
Contacting			
Closed-Circuit Current Model	Max.	AM 3	+
	Min.	AM 4	+
	Min. - Max.	AM 5	+
	Max. - Max.	AM 6	+
	Min. - Min.	AM 7	+
Working Current Model	Max.	AM 8	+
	Min.	AM 9	+
	Min. - Max.	AM 10	+
	Max. - Max.	AM 11	+
	Min. - Min.	AM 12	+
Meas. Input – Direct Current		Connection	
Zero Point	left (landscape)		
	bottom (portrait)		
	center	BC2	+
	between bottom and middle of scale	BC21	+
	direct		
	1 mA/5 mA/10 mA	CB1/5/10	+
	20 mA	CB20	+
	1 A/1.5 A/2.5 A/4 A	CC1/1.5/2.5/4	+
	6 A	CC6	+
	electronically suppressed, landscape 0/4 ... 20 mA	BC25	+
	electronically suppressed, portrait 0/4 ... 20 mA	BC27	+
	at shunt resistor .../60 mV	BE3	+
at shunt resistor .../150 mV	BE4	+	
Meas. Input – Direct Voltage		Connection	
Zero Point	left (landscape)		
	bottom (portrait)		
	center	BC2	+
	between bottom and middle of scale	BC21	+
	direct		
	1/1.5/2.5/4/6/10 V	DC1	
15/25/40/60 V	to		
100/150/250/400/500/600 V	DC600	+	
Output	relay output	– ¹⁾	+
	logic output open collector)	AU 2	+
	H = + 24 V (electrically isolated from U _H)		
	L < + 1 V, I ≤ 50 mA for U _H DC		

Scale characteristics, applications, protection, bezel, glass faceplate, identification,
 scale inscription, additional numberings and red marker same as type Pffn 96 x 24 (see page 45).

1) Standard model