## BENDER Residual current monitors for AC currents and pulsating DC currents

Device type	RCM4701 Y/RCM4751 Y	RCM460Y/RCM465Y	RCD140
Insulation coordination according to IEC 60664-1:	Nom 17 de l'Altom 17 de l		RODITO
Rated insulation voltage	AC 250 V	AC 250 V	AC 250 V
Rated impulse withstand voltage / contamination level	4 kV/3	4 kV/3	4 kV/3
Voltage ranges			
Nominal voltage range U.	-	-	-
Supply voltage Us	see name plate	see name plate	see name plate
Operating range of U <sub>c</sub>	0.85 1.1 x Us	0.85 1.1 x Us	0.8 1.2 x U <sub>c</sub>
Max. power consumption	3 VA	2.6/1.5 VA	2.5 VA
Response values			
Response value I Ap1	10 mA 10 A * <sup>3)</sup> /100 mA 100 A	30 mA 300 mA * <sup>3)</sup>	10 mA 10 A * <sup>3)</sup>
Response value I Ana	-	-	-
Time delay	0 to 10 s	0 to 1 s	0 to 10 s
Outputs			
Current output for measuring instrument	yes	-	-
Contact circuit	,		
Switching components	2 changeover contacts	1 changeover contact	2 changeover contacts
Contact class according to DIN IEC 60255 Teil 0-20	IIB	ĬIB	IIB
Rated contact voltage	AC 250 V / DC 300 V	AC 250 V / DC 300 V	AC 250 V / DC 300 V
Admissible number of operations	12000 cycles	12000 cycles	12000 cycles
Making capacity	UC 5 Å	UC 5 Å	UC 5 A
Breaking capacity			
AC 230 V and $\cos phi = 0.4$	2 A	2 A	2 A
DC 220 V and $L/R = 0.04$ s	0.2 A	0.2 A	0.2 A
Tests of the Electromagnetic Compatibility -EMC-			
acc. to EC directives, test data see "Annex"	yes	yes	yes
General data			-
Ambient temperature, during operation	-10℃ to +55℃	-10℃ to +55℃	-5°C bis +60°C
Storage temperature range	-40℃ to +70℃	-40℃ to +70℃	-40℃ bis +70℃
Climatic class acc. to IEC 60721	3K5	3K5	3K5
(except condensation and formation of ice)			
Operating mode	continuous operation	continuous operation	continuous operation
Mounting	any position	any position	any position
Connection	modular terminals	modular terminals	screw terminals
Cross sectional area of connecting cable, single wire	0.24 mm <sup>2</sup>	0.24 mm <sup>2</sup>	2x (11.5 mm <sup>2</sup> )
Cross sectional area of connecting cable, flexible	0.22.5 mm <sup>2</sup>	0.22.5 mm <sup>2</sup>	2x (0.751.5 mm <sup>2</sup> )
Protection class acc. to DIN EN 60529			
Built-in components	IP 30	IP 30	IP 30
Terminals/with terminal covers	IP 20	IP 20	IP 10 / IP 20
Type of casing / dimension diagram	X470 / X 475	X460 / X465	X140
Screw fixing	M4	M4	with mounting plate
DIN rail mounting	DIN EN 50022	DIN EN 50022	DIN EN 50022
Flammability class	UL94V-0	UL94V-0	UL94V-0
Data sheet No.	401003	401001	401002
Weight max.	350 g	190 g	250 g



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Device type	RCM470YM2/RCM475YM2
Insulation coordination acc. to IEC 60664-1:	
Rated insulation voltage	AC 250 V
Rated impulse withstand voltage/contamination level	4 kV/3
Voltage ranges	
Nominal voltage range Un	-
Supply voltage U <sub>s</sub>	AC up to 230 V *1)
Operating range of U <sub>S</sub>	0.85 1.1 x U <sub>S</sub>
Max. power consumption	3 VA
Response values	
Response value I An1	30 mA/10%80% von I <sub>An 2</sub> * <sup>3)</sup>
Response value $I_{An2}$	10 mA 10 A *3)
Time delay	$I_{An1} \le 200 \text{ ms}; I_{An2} = 0 \text{ to } 10 \text{ s}$
Outputs	
Current output for measuring instrument	yes
Contact circuit	
Switching components	2 x 1 changeover contact
Contact class acc. to DIN IEC 60255 Teil 0-20	IIB
Rated contact voltage	AC 250 V / DC 300 V
Admissible number of operations	12000 cycles
Making capacity	UC 5 Å
Breaking capacity	
AC 230 V and $\cos phi = 0.4$	2 A
DC 220 V and L/R = 0.04 s	0.2 A
Tests of the Electromagnetic Compatibility -EMC-	
acc. to EC directives, test data see chapter "Annex"	yes
General data	
Ambient temperature, during operation	-10°C to +55°C
Storage temperature range	-40°C to +70°C
Climatic class acc. to IEC 60721	
(except condensation and formation of ice)	3K5
Operating mode	continuous operation
Mounting	any position
Connection	modular terminals
Cross sectional area of connecting cable, single wire	0.24 mm <sup>2</sup>
Cross sectional area of connecting cable, flexible	0.22.5 mm <sup>2</sup>
Protection class acc. to DIN EN 60529	
Built-in components	IP 30
Terminals / with terminal covers	IP 20
Type of casing / dimension diagram	X470 / X475
Screw fixing	M4
DIN rail mounting	DIN EN 50022
Flammability class	UL94V-0
Data sheet No.	401005
Weight max.	350 g

\*1) see device description "ordering details \*2) see device description "measuring circuit"

\*3)see device description "response values"

Chapter 4.1

### BENDER 4/2 RCD140

#### Residual current monitors for TN and TT systems AC systems and pulsating DC voltages



#### Product description

RCD140 are residual current monitors which continuously monitor and indicate the residual current (AC, DC pulsating) in earthed two, three or four-wire systems (TN/TT systems). They can also be used for current monitoring of single conductors, which in normal operation carry no current, such as N or PE conductors.

Thanks to the fixed response value they are used to monitor individual consumers or single conductors. Measuring current transformers of the W, WR and WS series can be used. The measuring values are detected via measuring current transformers, therefore the devices are nearly independent of nominal voltage and load current of the system to be monitored. In combination with an external measuring current transformer they are also suitable

#### **Essential features**

- Fixed response value
- Adjustable response delay 0...10s
- Alarm relay with two changeover contacts
- N/O / N/C operation, selectable (internal)
- Fault memory, selectable (internal)
- Test/reset button, internal/external

#### for busbar systems.

Device features

- Power On LED, alarm LED
- · CT connection monitoring
- Enclosure for assembly onto support rail or for screw mounting
- Supply voltage from an external power source

#### Standards

Residual current monitors of the RCD140 series comply with the standards DIN EN 62020 / VDE 0663, IEC 62020.

For details about thes standards refer to "Annex".

When installing the device, particular attention shall be paid to the safety instructions enclosed with the device.

#### Ordering details

Туре	Response range $I_{\Delta n}$	Frequency range	Delay time	Current transformer	Indication	Fault memory	Supply voltage U <sub>S</sub>	Art. No.
RCD140	10 mA	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 230 V	B 915 159 <sup>2)</sup>
RCD140	30 mA	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 230 V	B 915 168 <sup>2)</sup>
RCD140	100 mA	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 230 V	B 915 160 <sup>2)</sup>
RCD140	1 A	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 230 V	B 915 161 <sup>2)</sup>
RCD140	10 A	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 230 V	B 915 162 <sup>2)</sup>
D0D140	10 4	50 (01)	0 10				40 110 1/	D 015 010 <sup>3</sup>
RCD 140	IU MA	50 60 HZ	0 10 sec.	W, WR, WS	no	adjustable	AC I IU V	B 915 213 <sup>2)</sup>
RCD140	100 mA	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 110 V	B 915 214 <sup>2)</sup>
RCD140	1 A	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 110 V	B 915 215 <sup>2)</sup>
RCD140	10 A	50 60 Hz	0 10 sec.	W, WR, WS	no	adjustable	AC 110 V	B 915 216 <sup>2)</sup>

Other supply voltages on request

<sup>1)</sup> Only for use in the industrial sector

<sup>2)</sup> For use in the household and industrial sector



#### Wiring diagram



#### Accessories

### External measuring current transformers

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Туре	Internal	Art. No.
	diameter (mm)	
W0-S15	ø 14.5	B 911 753
W1-S35	ø 35	B 911 731
W2-S70	ø 70	B 911 732
W3-S105	ø 105	B 911 733
W4-S140	ø 140	B 911 734
W5-S210	ø 210	B 911 735
WR70x175S	70 x 175	B 911 738
WR115x305S	115 x 305	B 911 739
WR150x350S	150 x 350	B 911 740
WS50x80S	50 x 80	B 911 741
WS80x80S	80 x 80	B 911 742
WS80x120S	80 x 120	B 911 743
WS80x160S	80 x 160	B 911 755