

Residual current monitor RCM420

Residual current monitor
for TN and TT systems
(AC and pulsed DC currents)



RCM420

Device features

- AC and pulsed DC sensitive residual current monitor Type A according to IEC 62020
- r.m.s. value measurement (AC)
- Two separately adjustable response values
- Frequency range 42...2000 Hz
- Starting delay, response delay and delay on release
- Restart function
- Measured value display via LC display
- Measured value memory for operating value
- CT connection monitoring
- Power On LED, LED Alarm 1 / 2
- TEST / RESET button, internal / external
- Two separate alarm relays (one changeover contact each)
- N/O or N/C operation and fault memory behaviour selectable
- Password protection for device setting
- Device self monitoring
- Sealable transparent cover
- Two-module enclosure (36 mm)
- RoHS conform

Approvals



Product description

The AC and pulsed DC sensitive residual current monitor RCM420-D (Type A) is designed for fault and residual current monitoring in earthed power supply systems (TN and TT systems) where an alarm is to be activated in the event of a fault, but disconnection must be prevented. In addition, the device can be used to monitor single conductors, such as PE conductors, N-PE connections and PE-PAS connections.

The prewarning stage (50...100% of the set response value $I_{\Delta n2}$) allow to distinguish between prewarning and alarm. Since the values are measured with measuring current transformers, the device is nearly independent of the load current and the nominal voltage of the system.

Applications

- Residual current monitoring in earthed two, three or four conductor systems.
- Current monitoring of single conductors de-energized under normal conditions.
- Socket-outlet circuits for devices which are operated unattended for a long time and which may not fail.
- Alarm systems, safety devices
- Air conditioning systems, EDP systems
- Cooling equipment with valuable frozen goods
- Canteen kitchen
- Monitoring of earthed power supplies for stray currents
- Loads of N conductors
- Trace heating systems

Function

Once the supply voltage U_S is applied, the starting delay "t" is activated. Measured values exceeded during this time do not influence the switching state of the alarm relays.

Residual current monitoring takes place via an external measuring current transformer. The currently measured value is shown on the LC display. In this way any changes, for example when circuits are connected to the system, can be recognized easily.

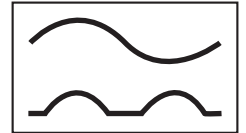
If the measured value exceeds one or both response values, the response delay $t_{on1/2}$ starts running. After the expiry of the response delay $t_{on1/2}$, the selected alarm relays switch and the alarm LEDs light. If the release value is not reached before the expiry of "t_{on}", the alarm LEDs "AL1 / AL2" do not light and the alarm relays do not switch. The set release time "t_{off}" starts running when the measured value again falls below the release value (response value plus hysteresis) after the switching of the alarm relays. After the expiry of "t_{off}", the alarm relays switch back to their initial position. If the fault memory is enabled, the alarm relays remain in the alarm state until the reset button R is pressed or until the supply voltage is interrupted. The device function can be tested using the TEST button. The parameterization of the device can be carried out via the LC display and the function keys integrated in the front plate and can be password-protected.

Connection monitoring

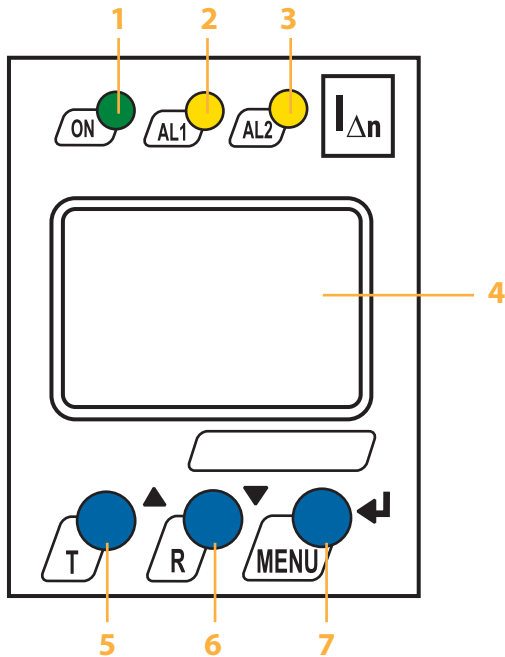
The CT connections are continuously monitored. In the event of a fault, the alarm relays K1 / K2 switch without delay, the alarm LEDs AL1 / AL2 / ON flash. After eliminating the fault, the alarm relays return to their initial position either automatically or by pressing the reset button (fault memory behaviour).

Restart function

If an alarm is pending after resetting the alarm relay and restarting the system being monitored, this reset process is repeated until the preset number of restart cycles is completed. As soon as the preset number of restart cycles is completed, the fault memory is set to ON.

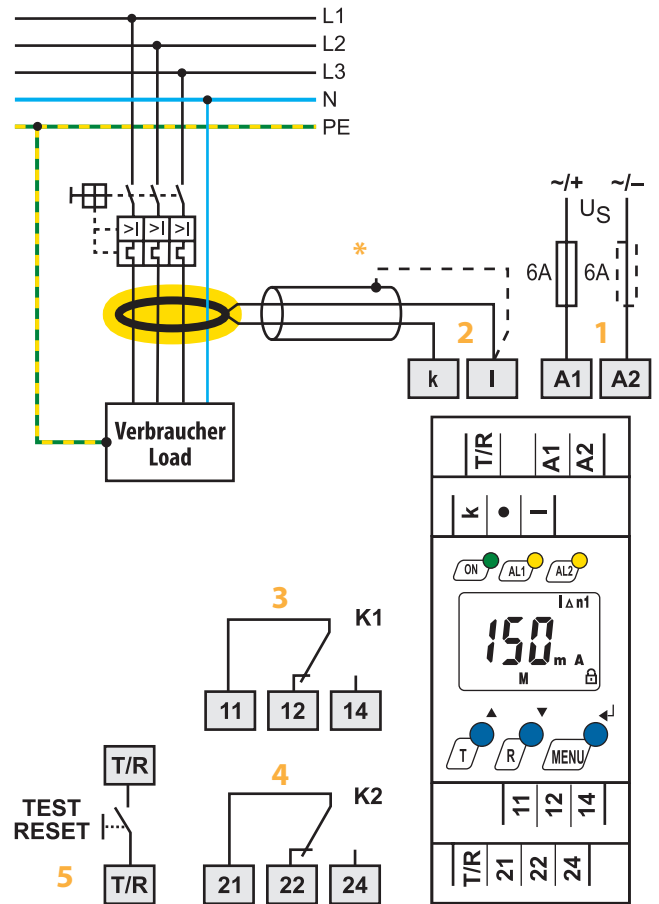


Operating and display elements



- 1 - Power "ON" LED (green); lights after connecting the device to the supply voltage and flashes in the event of system fault alarm respectively in the event of CT malfunction.
- 2 - Alarm LED "AL1" (yellow), prewarning, lights when the set response value $I_{\Delta n1}$ has been exceeded or flashes in the event of system fault alarm respectively in the event of CT malfunction.
- 3 - Alarm LED "AL2" (yellow), alarm, lights when the set response value $I_{\Delta n2}$ has been exceeded and flashes in the event of system fault alarm and in the event of CT malfunction.
- 4 - Multi-functional LC display.
- 5 - TEST button: to call up the self test.
Arrow up key: parameter change, to move up in the menu.
- 6 - RESET button: to delete saved alarms.
Down key: Arrow down key: parameter change, to move down in the menu.
- 7 - MENU key: to call up the menu system.
Enter key: to confirm parameter change.
Press ESC: key > 1.5 s.

Wiring diagram



- 1 - Supply voltage U_S (see ordering information), a 6 A fuse recommended for line protection.
- 2 - Connection of the external measuring current transformer
- 3 - Alarm relay K1: programmable for $I_{\Delta n1}$ / $I_{\Delta n2}$ / TEST / ERROR
- 4 - Alarm relay K2: programmable for $I_{\Delta n1}$ / $I_{\Delta n2}$ / TEST / ERROR
- 5 - Combined TEST and RESET button, short-time pressing (< 1.5 s) = Reset, long-time pressing (> 1.5 s) = Test
- * - when a shielded cable is used.

Do not route the PE conductor through the measuring current transformer!

Technical data

Insulation coordination acc. to IEC 60664-1 / IEC 60664-3	
Rated insulation voltage	250 V
Rated impulse voltage / pollution degree	2.5 kV / III
Protective separation (reinforced insulation) between (A1, A2) - (k / I, T / R) - (11, 12, 14) - (21, 22, 24)	
Voltage test according to IEC 61010-1	2.21 kV
Supply voltage	
Supply voltage U_S	see ordering details
Power consumption	≤ 3 VA
Measuring circuit	
External measuring current transformer	W..., WR..., WS... series
Load	68 Ω
Rated insulation voltage (measuring current transformer)	800 V
Operating characteristic acc. to IEC 62020	Type A
Rated frequency	42...2000 Hz
Measuring range	3 mA...16 A
Relative percentage error	0...-20 %
Display accuracy	± 15 %
Response values	
Rated residual operating current $I_{\Delta n1}$ (prewarning)	50...100 % $\times I_{\Delta n2}$ (50 %)*
Rated residual operating current $I_{\Delta n2}$ (alarm)	10 mA...10 A (30 mA)*
Hysteresis	10...25 % (15 %)*
Specified time	
Starting delay t	0...10 s (0,5 s)*
Response delay t_{on2} (alarm)	0...10 s (0 s)*
Response delay t_{on1} (prewarning)	0...10 s (1 s)*
Delay on release t_{off}	0...99 s (1 s)*
Operating time t_{ae} at $I_{\Delta n} = 1 \times I_{\Delta n1/2}$	≤ 180 ms
Operating time t_{ae} at $I_{\Delta n} = 5 \times I_{\Delta n1/2}$	≤ 30 ms
Response time t_{an}	$t_{an} = t_{ae} + t_{on1/2}$
Recovery time t_b	≤ 300 ms
Number of restart cycles	0...100 (0)*
Cable lengths for measuring current transformers	
Single wire ≥ 0.75 mm ²	0...1 m
Single wire, twisted ≥ 0.75 mm ²	0...10 m
Shielded cable ≥ 0.5 mm ²	0...40 m
Recommended cable (shielded, shield on one side connected to terminal I of the RCM420, not connected to earth)	J-Y(ST)Y min. 2 x 0.8
Connection	screw terminals
Displays, memory	
Display range, measuring value	3 mA...16 A
Relative percentage error	0...-30 % / ± 2 digit
Measured-value memory for alarm value	data record measured values
Password	off / 0...999 (off)*
Fault memory behaviour	ON / OFF (ON)*

Inputs / outputs

Cable length for external test / reset button	0...10 m
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Switching elements

Number of switching elements	2 x 1 changeover contact				
Operating principle	N / C operation or N / O operation (N / O operation)*				
Electrical service life under rated operating conditions	10.000 switching operations				
Contact data acc. to IEC 60947-5-1					
Utilization category	AC-13	AC-14	DC-12	DC-12	DC-12
Rated operational voltage	230 V	230 V	24 V	110 V	220 V
Rated operational current	5 A	3 A	1 A	0.2 A	0.1 A
Minimum contact load	1 mA at AC / DC ≥ 10 V				

Environment / EMC

EMC	IEC 62020: 2003-11	
Operating temperature	-25 °C...+55 °C	
Climatic class acc. to IEC 60721		
Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)	
Transport (IEC 60721-3-2)	2K3 (except condensation and formation of ice)	
Long-time storage (IEC 60721-3-1)	1K4 (except condensation and formation of ice)	
Classification of mechanical conditions IEC 60721		
Stationary use (IEC 60721-3-3)	3M4	
Transport (IEC 60721-3-2)	2M2	
Long-time storage (IEC 60721-3-1)	1M3	

Connection

Connection	screw terminals
rigid / flexible / conductor sizes	0.2...4 / 0.2...2.5 mm ² / 24...12 AWG
Multi-conductor connection (2 conductors with the same cross section)	
rigid / flexible	0.2...1.5 / 0.2...1.5 mm ²
Stripping length	8...9 mm
Tightening torque	0.5...0.6 Nm

Other

Operating mode	continuous operation
Position of normal use	any
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Enclosure material	polycarbonate
Flammability class	UL94V-0
DIN rail mounting acc. to	IEC 60715
Screw mounting	2 x M4 with mounting clip
Standards	IEC 62020
Instruction leaflet	TGH1410
Weight	≤ 150 g

() * factory setting

Ordering information

Type	Response range $I_{\Delta n}$	Frequency range	Measuring current transformers	Supply voltage U_S *	Art. No.
RCM420-D-1	10 mA...10 A	42...2000 Hz	W..., WR..., WS...	DC 9.6...94 V / AC 42...460 Hz 16...72 V	B 9401 4001
RCM420-D-2	10 mA...10 A	42...2000 Hz	W..., WR..., WS...	DC 70...300 V / AC 42...460 Hz 70...300 V	B 9401 4002

* absolute values

External measuring current transformers

Type	Inside diameter (mm)	Art. No.
W20	∅ 20	B 9808 0003
W35	∅ 35	B 9808 0010
W60	∅ 60	B 9808 0018
W120	∅ 120	B 9808 0028
W210	∅ 210	B 9808 0034
WR70x175	70 x 175	B 9808 0609
WR115x305	115 x 305	B 9808 0610
WS20x30	20 x 30	B 9808 0601
WS50x80	50 x 80	B 9808 0603
WS80x120	80 x 120	B 9808 0606

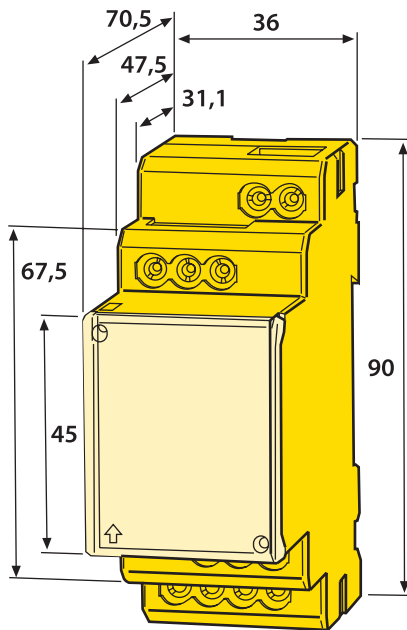
Other measuring current transformer types on request.

Accessories

Type	Art. No.
Mounting clip for enclosure XM420 (1 piece per device)	B 9806 0008
Snap-on mounting for W20.../W35...	B 9808 0501
Snap-on mounting for W60...	B 9808 0502

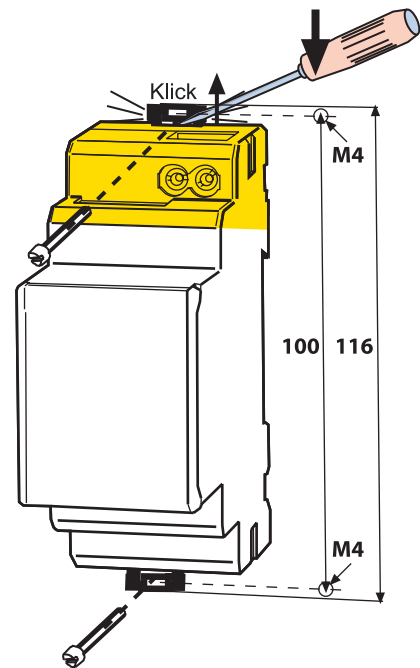
Dimension diagram XM420

Dimensions in mm
Open the front plate cover in direction of arrow!



Screw mounting

Note: The upper mounting clip must be ordered separately (see ordering information).



Measuring current transformers of the W... series

Measuring current transformers of the W...-8000 series



Measuring current transformers W60 – W60-8000



W20 – W20-8000 mounted on DIN rail

Features

Measuring current transformers W...

- for residual current monitoring systems of the RCMS460 / 490 series
- for residual current monitors of the RCM420, RCM460 and RCM470 series
- for insulation fault location systems of the EDS460 / 490 series

Measuring current transformers W...-8000

- for insulation fault evaluators of the EDS473(E)-12, EDS474(E)-12, EDS461 and EDS491 series

Product description

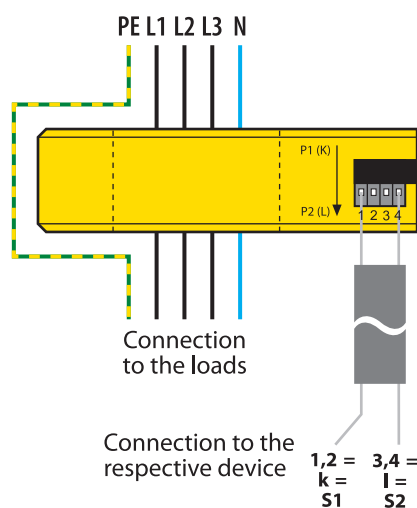
Measuring current transformers of the W... and W...-8000 series are highly sensitive measuring current transformers which measure AC currents and convert them into evaluable measurement signals, in combination with residual current monitors and evaluators of the RCM resp. RCMS series.

In addition, the measuring current transformers are suitable for use in IT systems (EDS) in combination with insulation fault location systems and to measure the test current generated by a PGH insulation fault test device or an A-ISOMETER® IRDH. In combination with insulation fault evaluators of the EDS series, the test current is converted into evaluable signals. Connection to the respective devices is via a two-wire cable.

Installation instructions

- Make sure that all live conductors are routed through the measuring current transformer.
- Do not route shielded conductors through the measuring current transformer.
- Never route a PE conductor through the measuring current transformer!

Wiring diagram



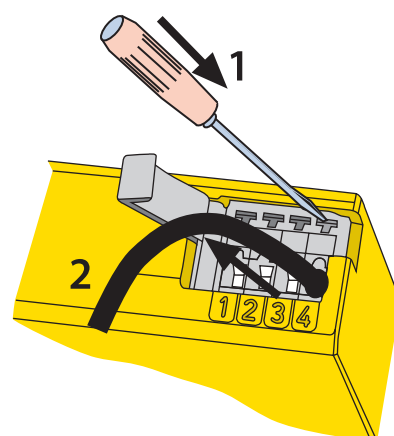
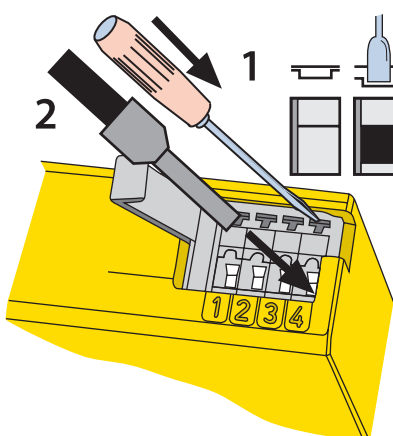
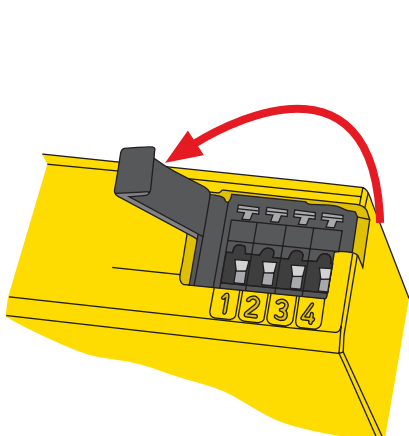
Measuring current transformer W...

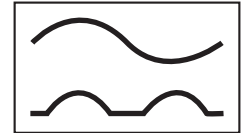
Connection to the respective residual current monitoring system of the RCMS series, residual current monitor of the RCM series or to an insulation fault location system of the EDS series.

Measuring current transformers W...-8000

Connection to the respective insulation fault evaluators EDS473(E)-12, EDS474(E)-12, EDS461 and EDS491.

Approvals





Technical data

Insulation coordination acc. to IEC 60664-1 / IEC 60664-3

Rated insulation voltage	800 V
Rated impulse voltage / pollution degree	8 kV / III

CT circuit W...

Rated primary residual current	10 mA...10 A
Rated secondary residual current	0.0167 A
Rated transformation ratio K_N	10 / 0.0167 A
Rated burden	max. 180 Ω^*
Nominal power	0.05 VA
Frequency range	42 Hz...3 kHz
Rated continuous thermal current I_{cth}	40 A
Rated short-time thermal current I_{th}	60 x I_{cth} = 2.4 kA / 1 s
Rated dynamic current I_{dyn}	2.5 x I_{th} = 6.0 kA / 40 ms

CT circuit W...-8000

Rated primary residual current	1 A
Rated secondary residual current	0.125 mA
Rated transformation ratio K_N	1 A / 0.125 mA
Rated burden	2400 Ω
Nominal power	0.0375 VA
Frequency range	42 Hz...3 kHz
Rated continuous thermal current I_{cth}	6 A
Rated short-time thermal current I_{th}	60 x I_{cth} = 0.36 kA / 1 s
Rated dynamic current I_{dyn}	2.5 x I_{th} = 0.9 kA / 40 ms

Environmental conditions

Operating temperature	-25 °C...+70 °C
Climatic class acc. to IEC 60721	
Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K5 (except condensation and formation of ice)
Long-time storage (IEC 60721-3-1)	1K5 (except condensation and formation of ice)
Classification of mechanical conditions IEC 60721	
Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Long-time storage (IEC 60721-3-1)	1M3

Connection

Type of connection	cage clamp spring terminal
rigid / flexible / conductor sizes	0.08...2.5 / 0.08...2.5 mm ² / 28...12 AWG
Stripping length	8...9 mm

Connection EDS, RCM(S) measuring current transformers

Single wire ≥ 0.75 mm ²	0...1 m
Single wire, twisted ≥ 0.75 mm ²	0...10 m
Shielded cable ≥ 0.5 mm ²	0...40 m

Recommended cable	
(shielded, shield on one side connected to line conductor, not connected to PE)	J-Y(ST)Y min. 2 x 0.8

Other

Degree of protection, internal components (IEC 60529)	IP40
Degree of protection, terminals (IEC 60529)	IP20
Screw mounting	M5 with mounting brackets
Flammability class	UL94V-0
Standards	IEC 60044-1
Instruction leaflet W...	BP409013
Instruction leaflet W...-8000	BP108018
Approvals	UL under consideration, GOST

* The rated burden may vary depending on the respective device data sheet.

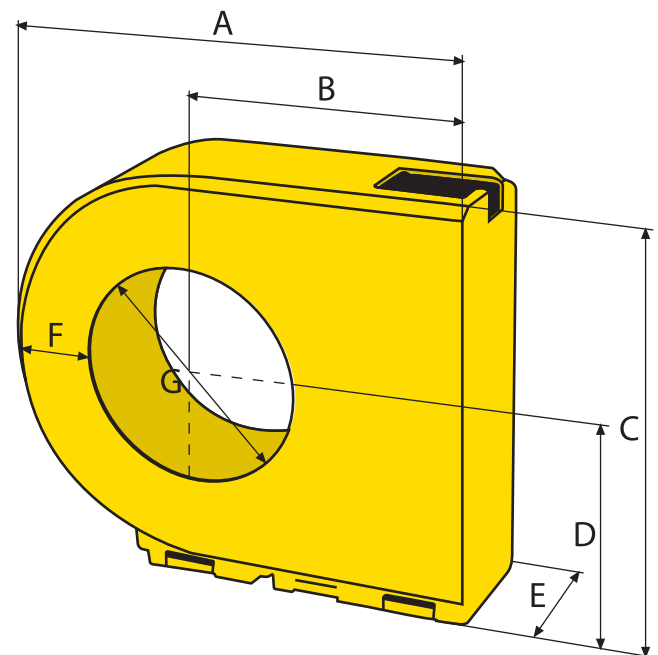
Ordering information

Type	Inside diameter	DIN rail	Fixing Mounting brackets	Art. No.
W20	20 mm	×	×	B 9808 0003
W35	35 mm	×	×	B 9808 0010
W60	60 mm	×	×	B 9808 0018
W120	120 mm	--	×	B 9808 0028
W210	210 mm	--	×	B 9808 0034
W20-8000*	20 mm	×	×	B 9808 0009
W35-8000*	35 mm	×	×	B 9808 0017
W60-8000*	60 mm	×	×	B 9808 0027

Accessories

Type	Width	Art. No.
Snap-on mounting for W20-W35, W20-W35-8000*	43.5 mm	B 9808 0501
Snap-on mounting for W60, W60-8000*	50 mm	B 9808 0502

Dimension diagram



Dimensions

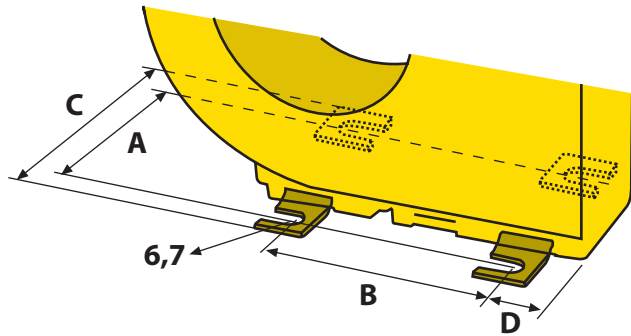
Type	A	B	C	D	E	F	G	Weight
W20	76.4	50	56.3	29.8	30	16.4	∅ 20	0.13 kg
W35	99.5	62	79.2	41.7	30	20	∅ 35	0.175 kg
W60	135	79	116.4	60.4	37	24	∅ 60	0.315 kg
W120	210	116.5	191.5	98	37	33.5	∅ 120	0.96 kg
W210	323	173	304.5	154.5	45	45	∅ 210	2.9 kg
W20-8000*	76.4	50	59	29.8	30	16.4	∅ 20	0.15 kg
W35-8000*	99.5	62	85	41.7	30	20	∅ 35	0.205 kg
W60-8000*	135	79	119	60.4	37	24	∅ 60	0.355 kg

Dimensions in mm

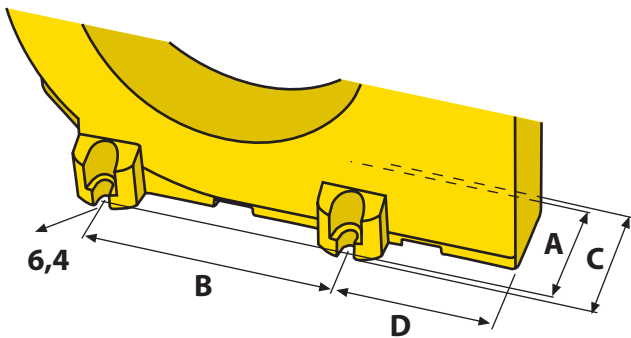
* For insulation fault location systems of the EDS461 / 491 and EDS473 / 474 series.

Mounting details

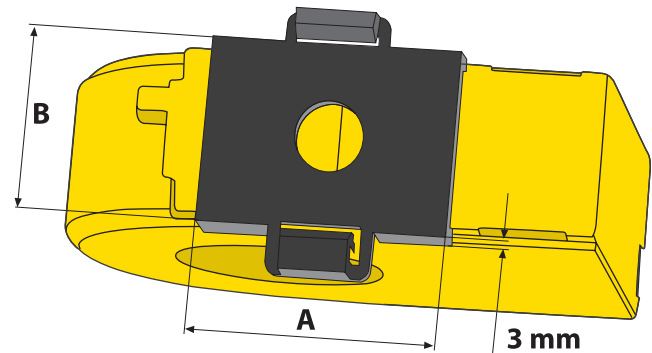
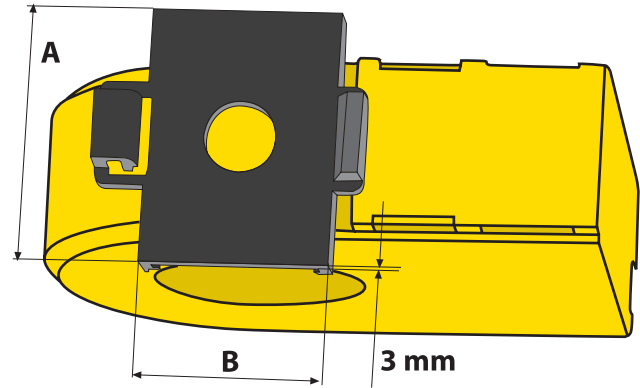
Screw mounting with mounting brackets: W20, W35, W60 and W20-8000, W35-8000, W60-8000



Screw mounting: W120, W210



Snap-on mounting on DIN rail: for vertical or horizontal mounting: W20, W35, W60 und W20-8000, W35-8000, W60-8000



Dimensions screw mounting

Type	A	B	C	D
W20 / W20-8000 (fixing with two mounting brackets, diagonally)	47	31.4	63	18.6
W35 / W35-8000 (fixing with two mounting brackets, diagonally)	47	49.8	63	12.1
W60 / W60-8000 (fixing with four mounting brackets)	54	66	70	17.7
W120 screw mounting	51	103	60.6	65
W210 screw mounting	59	180	68.6	83

Dimensions in mm

Dimensions snap-on mounting

Type	A	B
W20 / W20-8000	43.5	32
W35 / W35-8000	43.5	32
W60 / W60-8000	50	39

Dimensions in mm

Selection list

Type	RCM420	RCM470	RCMS460 / 490	EDS460 / 490	EDS461 / 491	EDS470	EDS473	EDS474
W20	×	×	×	×	--	×	--	--
W35	×	×	×	×	--	×	--	--
W60	×	×	×	×	--	×	--	--
W120	×	×	×	×	--	×	--	--
W210	×	×	×	×	--	×	--	--
W20-8000	--	--	--	--	×	--	×	×
W35-8000	--	--	--	--	×	--	×	×
W60-8000	--	--	--	--	×	--	×	×

Measuring current transformers of the WR... series



Measuring current transformer WR115x305

Device features

- for residual current monitoring systems of the RCMS460 / 490 series
- for residual current monitors of the RCM420, RCM460 and RCM470 series
- for insulation fault location systems of the EDS460 / 490 and EDS470 series

Approvals



Product description

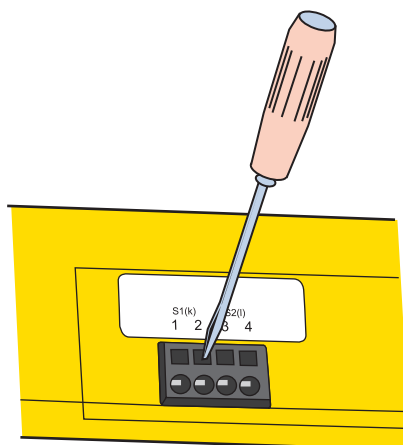
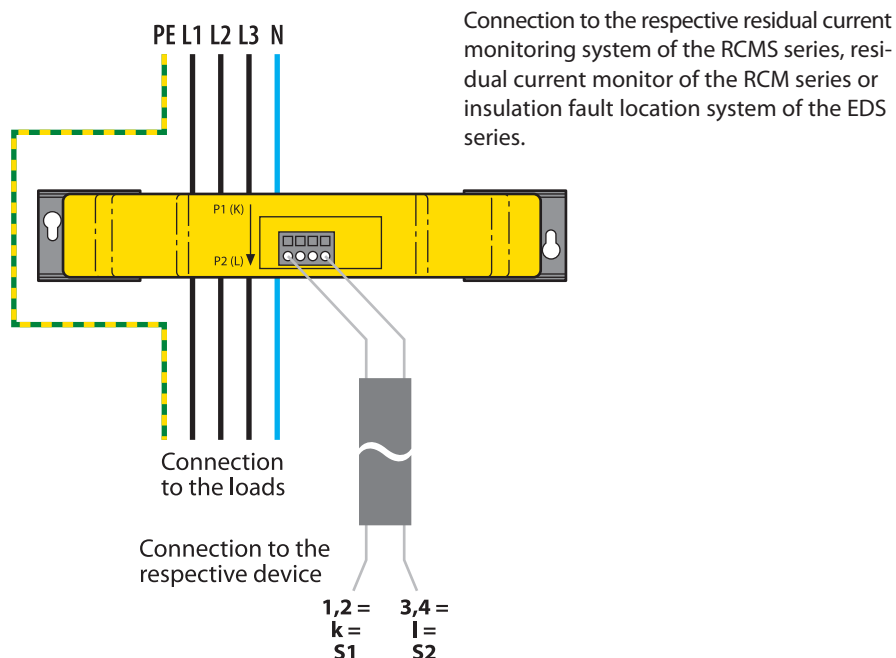
The measuring current transformers of the WR... series are highly sensitive measuring current transformers of rectangular type which in combination with residual current monitors and evaluators of the RCM and RCMS series convert AC currents into evaluable measurement signals. In addition, the measuring current transformers are suitable for use in IT systems (EDS). The CTs measure the test current generated by a PGH insulation fault test device or an A-ISOMETER® IRDH. In combination with insulation fault evaluators of the EDS series, the test current is converted into evaluable signals.

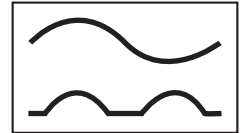
Connection to the respective devices is via a two-wire cable.

Installation instructions

- Make sure that all live conductors are routed through the measuring current transformer.
- Do not route shielded conductors through the measuring current transformer.
- Never route a PE conductor through the measuring current transformer!

Wiring diagram





Technical data

Isolationskoordination nach IEC 60664-1 / IEC 60664-3

Rated insulation voltage	800 V
Rated impulse voltage / pollution degree	8 kV / III

CT circuit

Rated primary residual current	30 mA...10 A
Rated secondary residual current	0.0167 A
Rated transformation ratio K_n	10 / 0.0167 A
Rated burden	max. 180 Ω^*
Nominal power	0.05 VA
Frequency range	42 Hz...3 kHz
Rated continuous thermal current I_{cth}	40 A
Rated short-time thermal current I_{tth}	60 x I_{cth} = 2.4 kA / 1 s
Rated dynamic current I_{dyn}	2.5 x I_{tth} = 6.0 kA / 40 ms

Environmental conditions

Operating temperature	-25 °C...+70 °C
Climatic class acc. to IEC 60721	
Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K5 (except condensation and formation of ice)
Long-time storage (IEC 60721-3-1)	1K5 (except condensation and formation of ice)
Classification of mechanical conditions IEC 60721	
Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Long-time storage (IEC 60721-3-1)	1M3

Connection

Type of connection	cage clamp spring terminal
rigid / flexible / conductor sizes	0.08...2.5 / 0.08...2.5 mm ² / 28...12 AWG
Stripping length	8...9 mm

Connection EDS, RCM(S) measuring current transformers

Single wire ≥ 0.75 mm ²	0...1 m
Single wire, twisted ≥ 0.75 mm ²	0...10 m
Shielded cable ≥ 0.5 mm ²	0...40 m
Recommended cable	
(shielded, shield on one side connected to line conductor, not connected to PE)	J-Y(ST)Y min. 2 x 0.8

Other

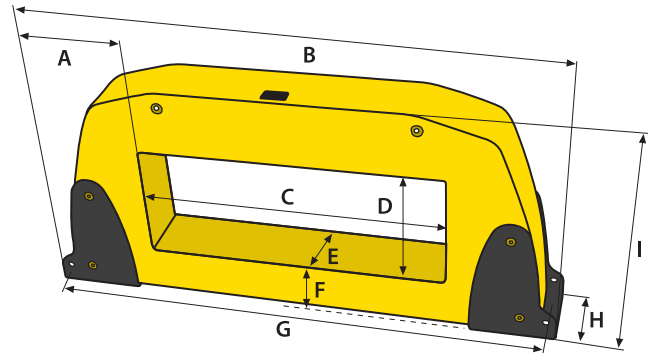
Degree of protection, internal components (IEC 60529)	IP40
Degree of protection, terminals (IEC 60529)	IP20
Screw mounting	M5 with mounting brackets
Flammability class	UL94V-0
Standards	IEC 60044-1
Instruction leaflet	BP409014
Approval	UL under consideration, GOST

* The rated burden may vary depending on the respective device data sheet.

Ordering information

Type	Inside diameter	Fixing Mounting bracket	Art. No.
WR70x175	70 x 175 mm	×	B 9808 0609
WR115x305	115 x 305 mm	×	B 9808 0610

Dimension diagram

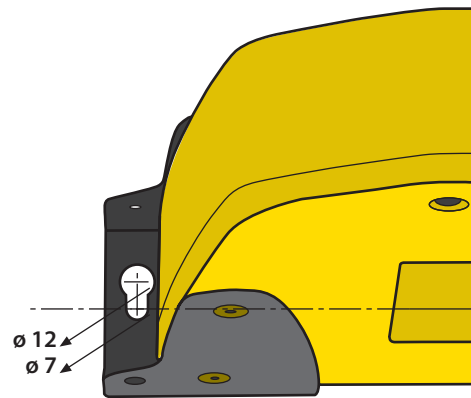


Dimensions

Type	A	B	C	D	E	F	G	H	I	Weight
WR70x175	90.75	357.5	176	71	56.5	51.5	337.5	61	190	2.96 kg
WR115x305	110	526	306	116	67	53	506	72.5	242.5	5.56 kg

Dimensions in mm

Mounting

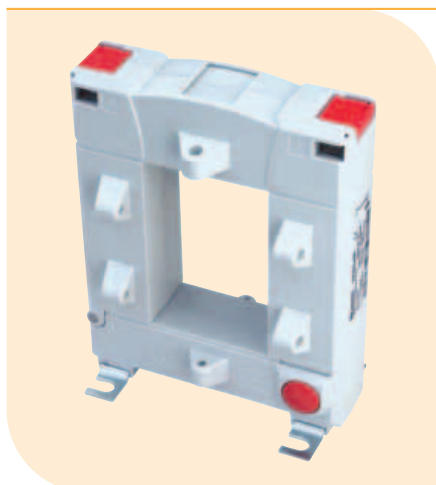


Selection list

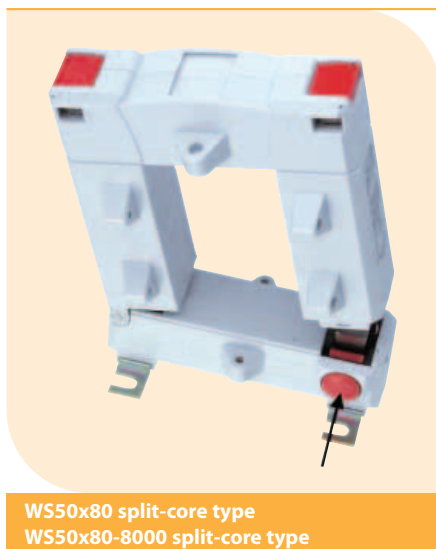
Typ	RCM420	RCM470	RCMS460 RCMS490	EDS460 EDS490	EDS470
WR70x175	×	×	×	×	×
WR115x305	×	×	×	×	×

Measuring current transformers of the WS... series

Measuring current transformers of the WS...-8000 series



Measuring current transformer WS50x80
Measuring current transformer WS50x80-8000



WS50x80 split-core type
WS50x80-8000 split-core type

Device features

Measuring current transformer WS...

- for residual current monitoring systems of the RCMS460 / 490 series
- for residual current monitors of the RCM420, RCM460 and RCM470 series
- for insulation fault location systems of the EDS460 / 490 series

Measuring current transformer WS...-8000

- for insulation fault evaluators of the EDS473(E)-12, EDS474(E)-12, EDS461 and EDS491 series

Approvals



Product description

Split-core type measuring current transformers of the WS... and WS...-8000 series can be opened using the interlock knob to enclose the conductors to be monitored. That allows easy retrofitting in existing installations.

Measuring current transformers of the WS... and WS...-8000 are highly sensitive measuring current transformers of split-core type which in combination with residual current monitors and evaluators of the RCM and RCMS series convert AC currents into evaluable measurement signals.

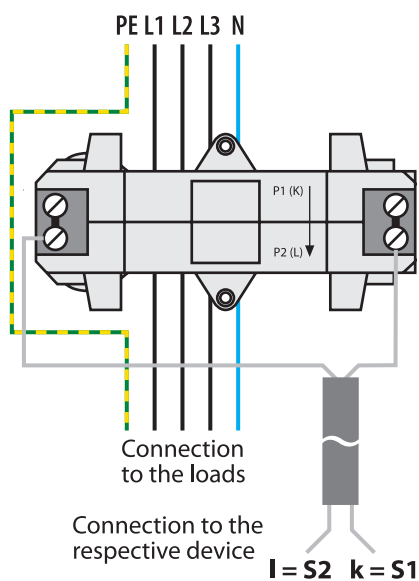
In addition, the measuring current transformers are suitable for use in combination with insulation fault location systems (EDS). The CTs measure the test current generated by a PGH insulation fault test device or an A-ISOMETER® IRDH. In combination with insulation fault evaluators of the EDS series, the test current is converted into evaluable signals.

Connection to the respective devices is via a two-wire cable.

Installation instructions

- Make sure that all live conductors are routed through the measuring current transformer.
- Do not route shielded conductors through the measuring current transformer.
- Never route a PE conductor through the measuring current transformer!

Wiring diagram

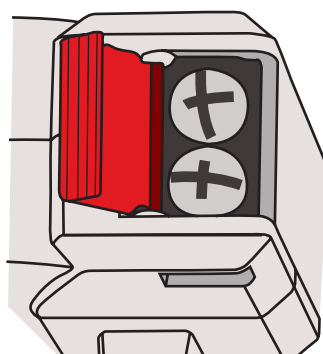


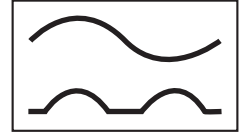
Measuring current transformer WS...

Connection to the respective residual current monitoring system of the RCMS series, residual current monitors of the RCM series or insulation fault location system of the EDS series.

Measuring current transformer WS...-8000

Connection to the respective insulation fault evaluators EDS473(E)-12, EDS474(E)-12, EDS461 and EDS491.





Technical data

Insulation coordination acc. to IEC 60664-1 / IEC 60664-3

Rated insulation voltage	800 V
Rated impulse voltage / pollution degree	8 kV / III

CT circuit WS...

Rated primary residual current	30 mA...10 A
Rated secondary residual current	0.0167 A
Rated transformation ratio K_N	10 / 0.0167 A
Rated burden	max. 180 Ω^*
Nominal power	0.05 VA
Frequency range	42 Hz...3 kHz
Rated continuous thermal current I_{cth}	40 A
Rated short-time thermal current I_{th}	60 x I_{cth} = 2.4 kA / 1 s
Rated dynamic current I_{dyn}	2.5 x I_{th} = 6.0 kA / 40 ms

CT circuit WS...-8000

Rated primary residual current	30 mA...1 A
Rated secondary residual current	0.000125 A
Rated transformation ratio K_N	10 / 0.000125 A
Rated burden	2400 Ω
Nominal power	0.0375 VA
Frequency range	42 Hz...3 kHz
Rated continuous thermal current I_{cth}	6 A
Rated short-time thermal current I_{th}	60 x I_{cth} = 0.36 kA / 1 s
Rated dynamic current I_{dyn}	2.5 x I_{th} = 0.9 kA / 40 ms

Environmental conditions

Operating temperature	-25 °C...+70 °C
Climatic class acc. to IEC 60721	
Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K5 (except condensation and formation of ice)
Long-time storage (IEC 60721-3-1)	1K5 (except condensation and formation of ice)
Classification of mechanical conditions IEC 60721	
Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Long-time storage (IEC 60721-3-1)	1M3

Connection

Type of connection	screw terminals
rigid / flexible / conductor sizes	0.08...2.5 / 0.08...2.5 mm ² / 28...12 AWG
Stripping length	8...9 mm

Connection EDS, RCM(S) measuring current transformers

Single wire ≥ 0.75 mm ²	0...1 m
Single wire, twisted ≥ 0.75 mm ²	0...10 m
Shielded cable ≥ 0.5 mm ²	0...40 m

Recommended cable	
(shielded, shield on one side connected to line conductor, not connected to PE)	J-Y(ST)Y min. 2 x 0.8

Other

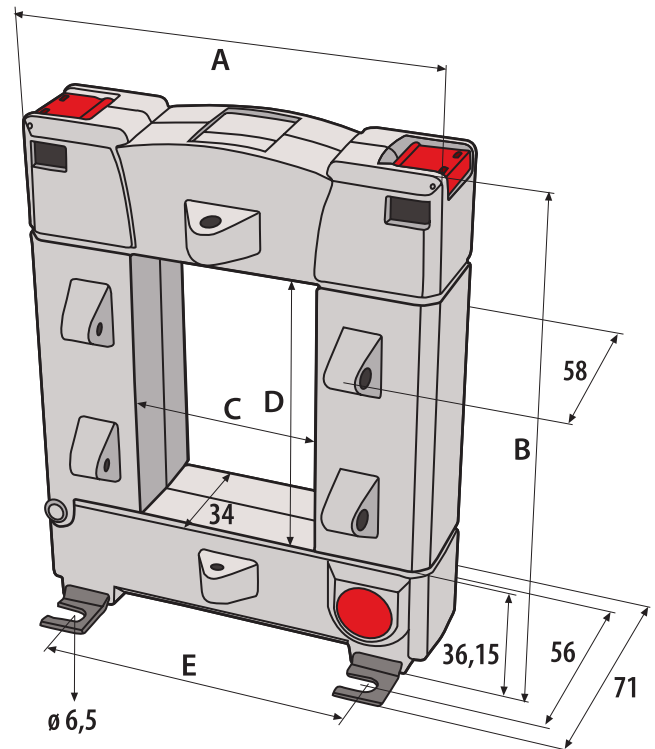
Degree of protection, internal components (IEC 60529)	IP40
Degree of protection, terminals (IEC 60529)	IP20
Screw mounting	M5 with mounting brackets
Flammability class	UL94V-0
Standards	IEC 60044-1
Instruction leaflet WS...	BP409015
Instruction leaflet WS...-8000	BP108018
Approval	UL under consideration, GOST

* The rated burden may vary depending on the respective device data sheet.

Ordering information

Type	Inside dimensions	Fixing Mounting bracket	Art. No.
WS20x30	20 x 30 mm	×	B 9808 0601
WS50x80	50 x 80 mm	×	B 9808 0603
WS80x120	80 x 120 mm	×	B 9808 0606
WS20x30-8000*	20 x 30 mm	×	B 9808 0602
WS50x80-8000*	50 x 80 mm	×	B 9808 0604

Dimension diagram



Dimensions

Type	A	B	C	D	E	Weight
WS20x30	93	106.15	23	33	64	0.6 kg
WS50x80	125	158.15	55	85	96	1.04 kg
WS80x120	155	198.15	85	125	126	1.4 kg
WS20x30-8000*	93	106.15	23	33	64	0.63 kg
WS50x80-8000*	125	158.15	55	85	96	1.08 kg

Dimensions in mm

Selection list

Type	RCM420	RCM470	RCMS460	RCMS470	EDS460	EDS461	EDS470	EDS473	EDS474
			RCMS490		EDS490	EDS491			
WS20x30	×	×	×	×	×	--	×	--	--
WS50x80	×	×	×	×	×	--	×	--	--
WS20x30-8000*	--	--	--	--	--	×	--	×	×
WS50x80-8000*	--	--	--	--	--	×	--	×	×

* For insulation fault location systems of the EDS461 / 491 and EDS473 / 474 series.