

**Btdin RCD Add-on modules 63/125A, with
metering/measuring unit, for MCBs 1,5
modules per pole**

Cat N° (s):

G47XM63 - G47XCM63 - G47XM125 - G47XCM125



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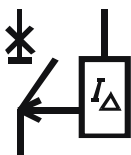
1. DESCRIPTION:

. RCD add-on modules with metering/measuring unit for MCBs Btdin \leq 125A, 1,5 modules per pole width, breaking capacity 16kA, 25kA or 50kA.

Assure the protection of people against direct and indirect electric shocks and protection of installations against insulation faults.

They enable, in addition, the measurement of the main electrical quantities (depending on the version: voltage, current, residual current, power, energy, frequency, power factor, THD, the historical of causes of recent trips).

Symbol:



Technology:

. Electronic residual current operating.

2. RANGE

Number of poles:

. Four pole (4P).

Width:

. Four poles – 7,5 modules (7,5 x 17,8 mm = 133,5 mm).

Rated Currents, In:

. In 63A (cat. nos G47XM63 and G47XCM63)

. In 125 A (cat. nos G47XM125 and G47XCM125)

Types :

. A-Hpi: sinusoidal AC fault currents with or without DC component and immunity against unwanted tripping (Hpi type are also A types).

Sensitivities and Tripping time:

. 30 mA instantaneous.

. Adjustable sensitivity: 300ma, 1A or 3A with instantaneous or delayed tripping of 300ms, 1s or 3s.

Rated Voltage / Frequency:

. 230 / 400 V~, 50 Hz standard tolerances.

. 240 / 415 V~, 50 Hz standard tolerances.

Maximum operating voltage:

. 440 V ~, 50 Hz with standard tolerances.

Minimum operating voltage:

. 170 V ~, 50 Hz with standard tolerances.

2. RANGE (continued)

Features:

. Basic functions common to all devices:
Remote report of the data

. Specific functions of the add-on module with metering unit (cat. nos G47XM63 and G47XM125):

Currents L1 L2 L3 N (in A)

Residual current (in mA or A)

Instantaneous total active power L1 L2 L3 (in W or kW)

Total energy consumption (in kWh)

. Specific functions of the add-on module with measuring unit (cat. nos G47XCM63 and G47XCM125):

Currents L1 L2 L3 N (in A)

Residual current (in mA or A)

Voltages

Powers

Energies

Frequency

THD

Power factor (cos φ)

Cause of last trip

**Btdin RCD Add-on modules 63/125A,
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1,5 modules per pole

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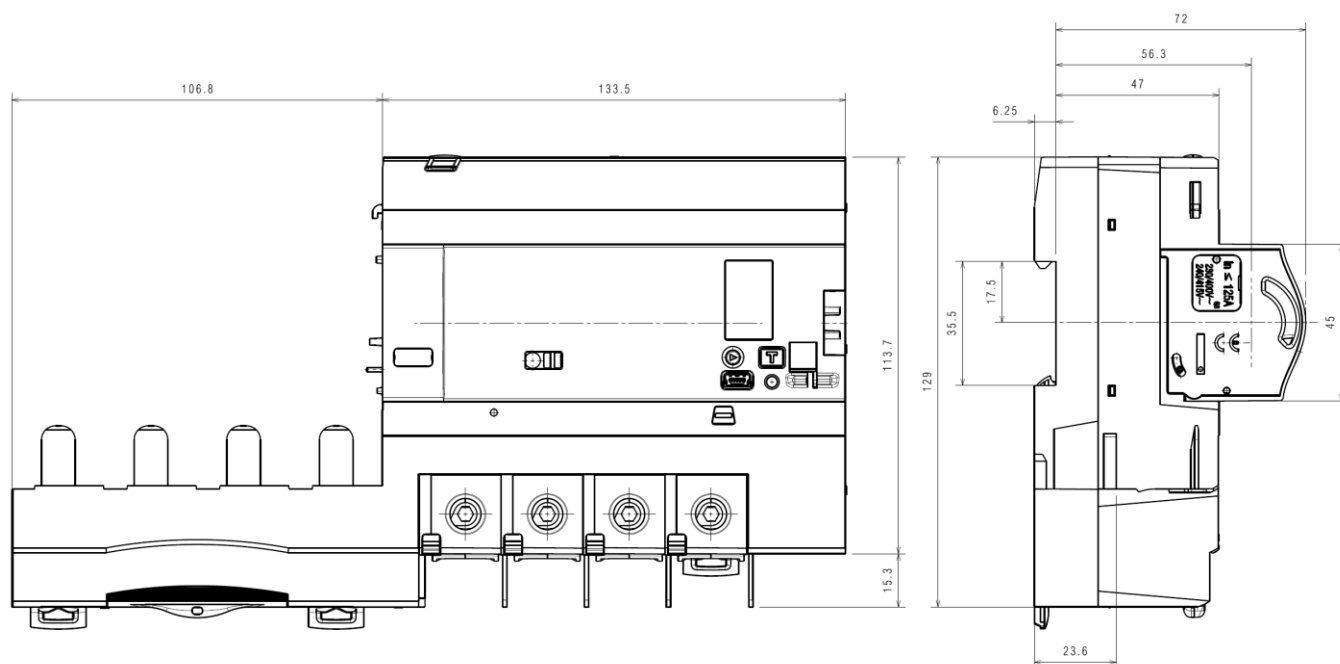
G47XM63 - G47XCM63 - G47XM125 - G47XCM125

2. RANGE *(continued)*

Compatibility with MCBs Btdin:

	Breaking Capacity	Curve	G47XM63 / G47XCM63	G47XM125 / G47XCM125
Btdin	16kA	C, D	--	$80A \leq I_n \leq 125A$
	25kA	C	$32A \leq I_n \leq 63A$	$32A \leq I_n \leq 125A$
	25kA SM	12-14In	$12,5A \leq I_n \leq 63A$	$12,5A \leq I_n \leq 63A$
	50kA	C	$10A \leq I_n \leq 63A$	$10A \leq I_n \leq 63A$

3. OVERALL DIMENSIONS



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4. FIXING - CONNECTION

Assembling:

. On the right side of the MCBs. Btdin, 1.5 modules per pole width, breaking capacity 16kA, 25kA or 50kA.. Associated to the circuit breaker by plastic clamps and tightening of connections in the downstream terminals of the MCB.

Can be mounted on the right of the MCBs 1.5 modules per pole up to 63A breaking capacity 16kA, 25 kA and 50 kA, in this case the rated current of the add-on module is 63 A.

Mounting:

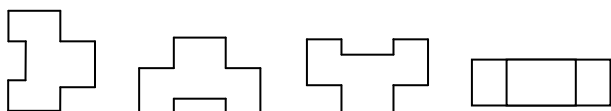
. On symmetrical IEC/EN 60715 rail or DIN 35 rail.

Power supply:

. From the top trough the associated MCB or from the bottom directly on the add-on module.

Operating position:

. Vertical Horizontal Upside down On the side



Upstream connection :

- . To the terminals of the associated MCB
- . Cage terminals, with release and captive screw
- . Terminal depth: 19 mm.
- . MCB upstream terminals separated by integrated insulating shields (IP20).

Downstream connection :

- . By the terminals of differential block.
- . Cage terminals, with release and captive screw
- . Terminal depth: 19 mm.
- . Stripping length : 17 mm
- . Downstream terminals separated by integrated insulating shields (IP20).

Screw head :

- . 63A: Mixed, slotted and Pozidriv n°2
- . 125A: Allen screw 4 mm.

Recommended tightening torque:

- . 63A: 3Nm
- . 125A: 5,5Nm

Connectable section:

63A

. In the power terminals

	Copper cable	
	Without ferrule	With ferrule
Rigid cable	1 x 50 mm ²	-
Flexible cable	1 x 35 mm ²	1 x 35 mm ²

4. FIXING – CONNECTION (continued)

125A

. In the power terminals

	Copper cable	
	Without ferrule	With ferrule
Rigid cable	1 x 70 mm ²	-
Flexible cable	1 x 50 mm ²	1 x 50 mm ²

. In the automatic terminals

	Copper cable	
	Without ferrule	With ferrule
Rigid cable	0,75 mm ² + 2,5 mm ²	-
Flexible cable	0,75 mm ² + 2,5 mm ²	0,75 mm ² + 1,5 mm ²

Recommended tools:

- . For fixing on the DIN rail: flat screwdriver 5.5 mm (from 4 to 6 mm).
- . For the terminals 63A: Pozidriv n°2 screwdriver or flat screwdriver 5,5 mm (6,5 mm maxi).
- . For the terminals 125A: Allen wrench 4 mm.

Manual actuation of the Add-on module:

- . By the 2-positions ergonomic handle of the associated MCB
 - I / ON : Closed circuit.
 - O / OFF : Open circuit.

Display of contacts status:

- . By marking of the associated MCB handle:
 - "O-Off" white on a green background = contacts opened.
 - "I-On" white on a red background = contacts closed.

Report of the contacts position:

- . The MCB contacts position is available through the communication.
Possible positions : Closed / Open / Trip caused by a residual current fault

Display of differential-fault:

- . Yellow mechanical signaller on front-side marking zone.

Signalling the state of the device:

- . Signalling by bi-colour LED:
 - Green fixed: normal operation.
 - Green flashing: internal problem / settings in progress.
 - Red fixed: value of the residual current (I_Δ) exceeds 45% of the set value.
 - Red flashing: value of the residual current (I_Δ) exceeds 60% of the set value.
 - Red / Green alternate flashing: Self-protection due to overheating.

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4. FIXING – CONNECTION *(continued)*

Labelling:

. Circuit identification by insertion of a label in the label holder of the associated MCB.

Battery type:

. Lithium CR1616. Qty:2

Battery voltage:

. 3 V d.c.

Battery capacity:

. 50 mAh.

5. GENERAL CHARACTERISTICS

Front side marking :

- . By permanent ink pad printing showing:
- . Cat No: G47XCM125.
- . Trade name: ground fault interrupter
- . Differential rated current.
- . Electrical diagram.
- . Bticino mark.

Code structure:

G	4	7
---	---	---

. Initial code root composed of three elements:

- Letter "G" shows the device type:
Add-on module (BDA).
- Numbers of poles :
"2" = Two.
"3" = Three.
"4" = Four.
- Sensitivity, $I_{\Delta n}$ (mA):
N "3" = 30mA.
N "4" = 300mA.
N "7" = adjustable.

X	CM
---	----

. Central part composed by two elements:

- Letter "X" is the modularity (1,5 moduls for pole).
- Indication of the type:
"M" = type integrated Energy meter.
"CM" = type integrated central measured.

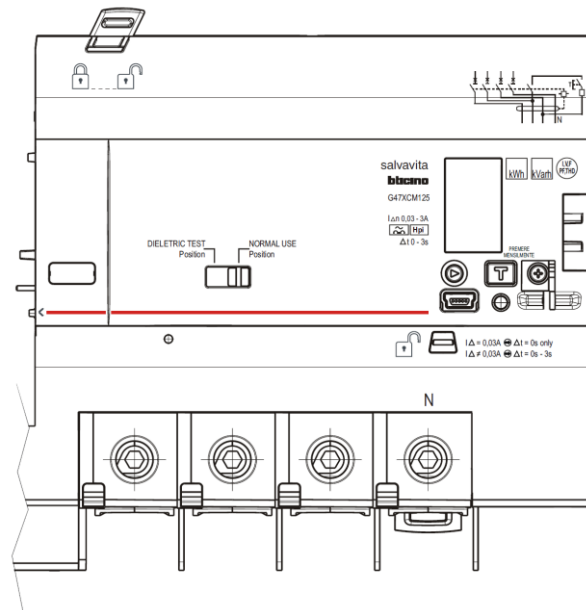
125

. Numerical part composed of one element:

- Rated current of RCD., I_n (A).

5. GENERAL CHARACTERISTICS *(continued)*

. Marking example :



"Test" key operating voltages:

U min	170 V ~
U max	440 V ~

Neutral system:

. IT – TT – TN.

Residual breaking capacity $I_{\Delta m}$:

. In accordance with standard IEC/EN 61009-1 and IEC/EN 60947-2 ($I_{\Delta m}$: short-circuit to ground)
 $I_{\Delta m} = 60\%$ of I_{cu} of the associated MCB.

Insulation rated voltage:

. $U_i = 500$ V according to IEC/EN 61009-1 and IEC/EN 60947-2.

Pollution degree:

. 3.

Dielectric strength:

. 2500 V.

Pulse rated voltage:

. $U_{imp} = 6$ kV (wave 1.2 / 50 μ s).

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5. GENERAL CHARACTERISTICS (continued)

Operation at different frequencies respect to the rated frequency:

. The only operating frequency is the rated frequency.

Protection against unwanted tripping:

. Damped recurrent wave – 0.5 µs/100kHz : 200A for all sensitivity.

. Wavv 8/20 µs:

Sensitivity	30 mA	300 mA	1 A	3 A
Corrent	3000 A	5000 A	5000 A	5000 A

Protection class :

. Protection index of terminals against solid and liquid bodies: IP 20 (in accordance with standards IEC/EN 60529 et NF C 20-010).

. Protection index of the box against solid and liquid bodies: IP 40 (in accordance with standards, IEC/ EN 60529 et NF C 20-010).

. Class II compared to conductive parts.

. Protection index against mechanical shocks:

IK 01 (in accordance with standards EN 50102 et NF C 20-015).

Mechanical endurance: (with MCB associated) :

. 20000 operations without load.

. 10000 operations with load.

. 1000 differential tripping operations by the Test key.

. 1000 differential tripping operations for fault current.

Power dissipated and impedance per pole at In:

In≤63A

In	Four-Pole	
	Z(mΩ)	P(W)
6	0.55	0.02
10	0.55	0.06
16	0.55	0.14
20	0.55	0.22
25	0.55	0.34
32	0.55	0.56
40	0.55	0.88
50	0.55	1.38
63	0.55	2.18

In≤125A

In	Four-Pole	
	Z(mΩ)	P(W)
80 A	0.245	1.57
100 A	0.245	2.45
125 A	0.245	3.83

Note: to obtain total power dissipated by the assembly Add-on module + MCB, these powers should be added to those of the associated MCB.

5. GENERAL CHARACTERISTICS (continued)

Consumption:

. Max. 1 VA.

Enclosure material:

. Parts of polycarbonate.

. Characteristics of this material: self extinguishing, heat and fire resistant in accordance with standard IEC/EN 61009-1, glow-wire test at 960°C for external parts made of insulating material necessary to retain in position current-carrying parts and parts of protective circuit (650°C for all other external parts made of insulating material).

Calorific value:

	Four-pole
MJ	8,53

Average weight per device:

. Four pole 63A: 0,7 kg

. Four pole 125A: 1 kg

Volume and quantity when packed:

. Four pole 4,6 dm³

Ambient operating temperature::

. Min. = -25°C – Max. = +60°C

Ambient storage temperature:

. Min. = -40°C – Max. = +70°C

Specific use:

. Appropriate to be used in humid environment and polluted by chlorine (pool-type)

Derating according ambient temperature:

. Reference temperature: 40 °C in accordance with standard IEC/EN 60947-2.

. No derating of the differential block depending on the ambient temperature between - 25 °C and +40 °C.

. Derating between + 40 °C to + 70 °C:

Temperature	40 °C	50 °C	60 °C
% In	100 %	95 %	90 %

Resistance to sinusoidal vibrations:

. According to IEC 60068-2-35.

. Axis : x, y, z.

. Frequency range: 5÷100 Hz ; duration 90 minutes

. Displacement (5÷13,2 Hz) : 1mm.

. Acceleration (13,2÷100 Hz) : 0,7g (g=9,81 m/s²)

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5. GENERAL CHARACTERISTICS (continued)

Influence of the altitude :

	2000 m	3000 m	4000 m	5000 m
Dielectric strength	3000 V	2500 V	2000 V	1500 V
Max operating voltage	400 V	400 V	400 V	400 V
Derating at 40°C	none	none	none	none

Measured quantities and measurement accuracy class:

- . Currents (accuracy class 1) :
phase: I_1, I_2, I_3 ;
neutral: I_N .
- . Voltage (accuracy class 0,5) :
phase/phase: U_{12}, U_{23}, U_{31} ;
phase/neutral: V_{1N}, V_{2N}, V_{3N} .
- . Frequency (accuracy 0,1%)
- . Power:
instantaneous total active power;
instantaneous total reactive power.
- . Power factor ($\cos \varphi$).
- . Energy :
total active energy, positive and negative (accuracy class 1);
total reactive energy, positive and negative (accuracy class 2).
- . THD :
THD of Voltages: V_1, V_2, V_3 ;
THD of currents: I_1, I_2, I_3, I_N .

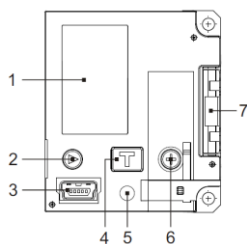
Historical:

- . Historical of causes of recent trips :
trip due to residual current fault (value of the residual current)
overheating (temperature value)
trip by test key

Display card:

. The display is the user interface. It consist of:

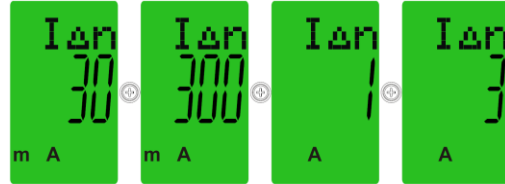
1. Backlight LCD display;
2. Navigation key;
3. USB Port;
4. RCD Test key;
5. Bi-colour LED;
6. Setting key;
7. Battery compartment



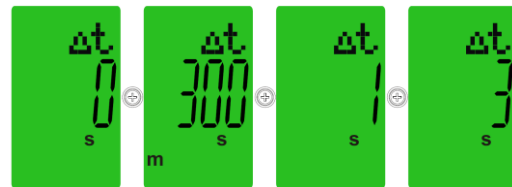
5. GENERAL CHARACTERISTICS (continued)

Programming pages:

- . The settings are implemented by pressing the key
- . The adjustable parameters are the values of the residual current and the tripping time:
- . Rated residual current (possible settings 30mA, 300mA, 1A, 3A):



Tripping time (possible settings 0s, 300ms, 1s, 3s) :

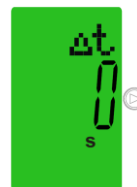


Display pages:

- . The display of the pages is realised via the navigation button
- (According to the version "metering unit" or "measuring unit" some pages are not available).
- . Display of set parameters:
Rated residual current (set value)



Tripping time (set value)



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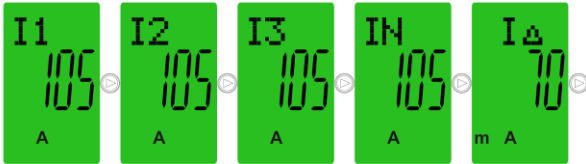
G47XM63 - G47XCM63 - G47XM125 - G47XCM125

5. GENERAL CHARACTERISTICS *(continued)*

Display pages - Measured quantities:

. Display of measured quantities:

Current (phases / neutral / residual current)



Phase Voltages



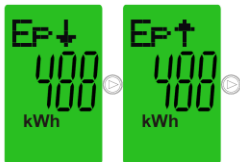
Power (active and reactive) and Power Factor



Frequency

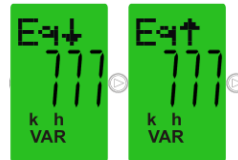


Active energy (positive and negative)

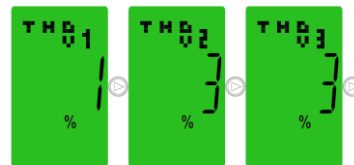


5. GENERAL CHARACTERISTICS *(continued)*

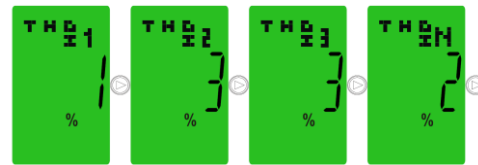
Reactive energy (positive and negative)



THD of the Phase Voltages



THD of Currents (phase and neutral)



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5. GENERAL CHARACTERISTICS *(continued)*

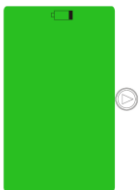
Display pages - Measured quantities *(continued)*:

. Historical of causes of recent trips :

- no tripping
- trip due to residual current fault (value of the residual current)
- trip by test key
- overheating (temperature value)



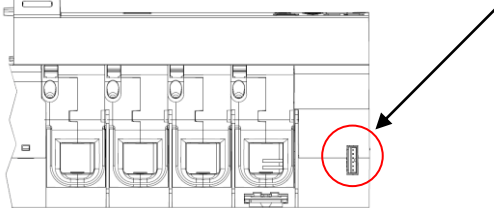
. Exhausted batteries (the symbol  appears on all pages):



Note: batteries are used only to set the parameters $I\Delta n$ and Δt when the device is not powered. Backup batteries are not!

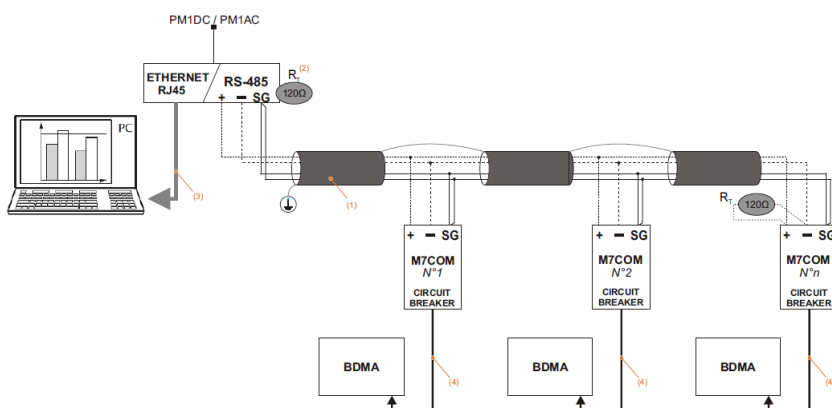
Integration of the add-on module in the remote display and monitoring system:

. The communication port is located on the lower side of the device.



The port enables the integration of the device in the monitoring system via the RS485 communication interface (ref 4 210 75) and the Gateway RS485/IP.

Wiring diagram:



(1)RS485:

Prescribed use of Cable Belden 9842 (or equivalent) for a maximum bus length of 1000m or category 6 Cable (FTP or UTP) for a maximum length of 50m;

(2)Termination Resistor R_T integrated.

(3)Ethernet:

Category 6 Cable (FTP or UTP).

(4)Cable supplied with the module M7COM.

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6. COMPLIANCE AND APPROVALS

In accordance with standards:

- . IEC/EN 61009-1.
- . IEC/EN 60947-2.
- . IEC 60051
- . IEC 61557-12.
- . IEC 62053
- . Compliance with Directives 2014/35/UE (LVC), subsequent modifications and additions.
- . Compliance with Directives 2014/30/UE (EMC), subsequent modifications and additions.

Environment respect – Compliance with CEE directives:

- . Compliance with Directive 2011/65/UE called "RoHS" provides the banishment of hazardous substances, subsequent modifications and additions.
- . Compliance with Directives 91/338/CEE of 18/06/91 and decree 94-647, subsequent modifications and additions.

Plastic materials :

- . Halogen-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

Packaging:

- . Design and manufacture of packaging in accordance with decree 98-638 and Directive 94/62/EC, subsequent modifications and additions.

Compliance with IEC 61557-12

PMD Characteristics		
Type of characteristic	Type of characteristic	Type of characteristic
Power quality assessment function	-	-
Classification of PMD	DD	-
Temperature	K55	-
Humidity + Altitude	Conditions standards	-
Active power or active energy function performance class	1	-

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6. COMPLIANCE AND APPROVALS *(continued)*

Compliance with IEC 61557-12

Symbol for functions	Measurement range	Function performance class according to IEC 61557-12	Other complementary characteristics
	63 A 125 A		63 A 125 A
P	0,0125...75 kW 0,025...150 kW	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
Q_A, Q_V	0,0125...75 kvar 0,025...150 kvar	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
S_A, S_V	-	-	-
E_a	0...9999 MWh	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
E_{rA}, E_{rV}	0...9999 Mvarh	1	Ib=20A, I _{max} =75A Ib=40A, I _{max} =150A UN=400V, f _N =50Hz
E_{apA}, E_{apV}	-	-	-
f	45...65 Hz	0.1	-
I	1,25...75 A 2,5...150 A	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
I_N, I_{Nc}	1,25...75 A 2,5...150 A	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
U	88...550 V	0.5	-
P_{Fa}, P_{Fv}	-	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A UN=400 V, f _N =50 Hz
P_{st}, P_{ft}	-	-	-
U_{dip}	-	-	-
U_{swl}	-	-	-
U_{tr}	-	-	-
U_{int}	-	-	-
U_{nba}	-	-	-
U_{nb}	-	-	-
U_h	-	-	-
THD_u	-	-	-
THD-R_u	88...550 V	0.5	-
I_h	-	-	-
THD_i	1,25...75 A 2,5...150 A	1	Ib=20 A, I _{max} =75 A Ib=40 A, I _{max} =150 A
THD-R_i	-	-	-
Msv	-	-	-

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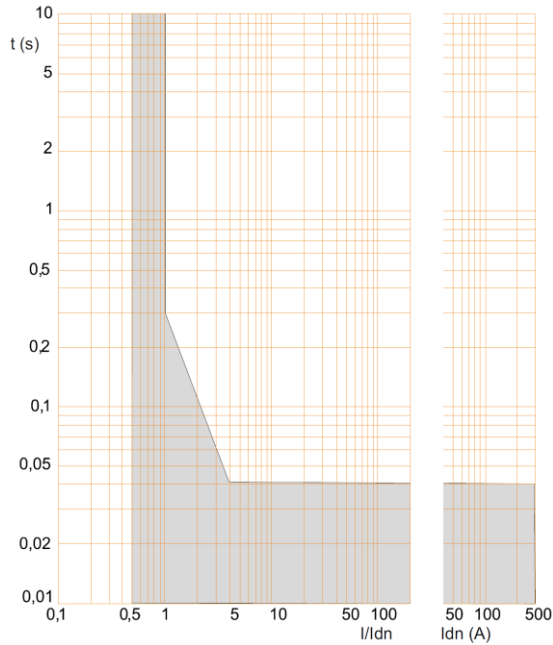
G47XM63 - G47XCM63 - G47XM125 - G47XCM125

8. CURVES

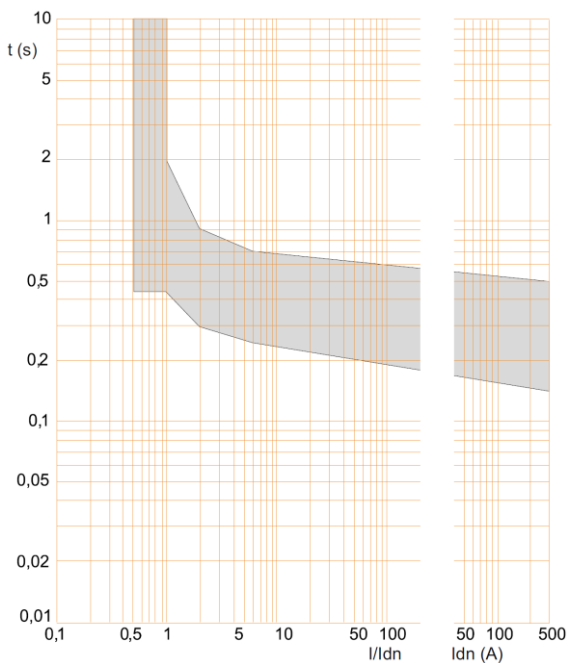
Residual current operating characteristic

. Average tripping time depending on the intensity of the fault current.

. Sensitivities 30mA, 300mA, 1000mA and 3000mA instantaneous

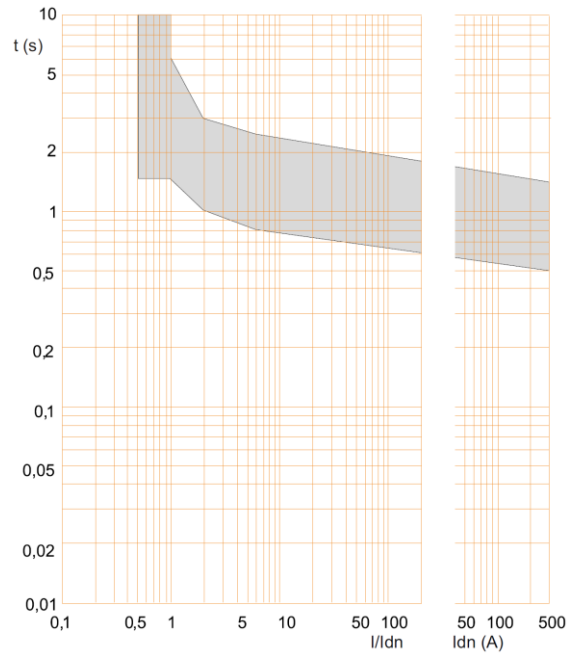


. Sensitivities 300mA, 1000mA and 3000mA with a time delay of 300ms.

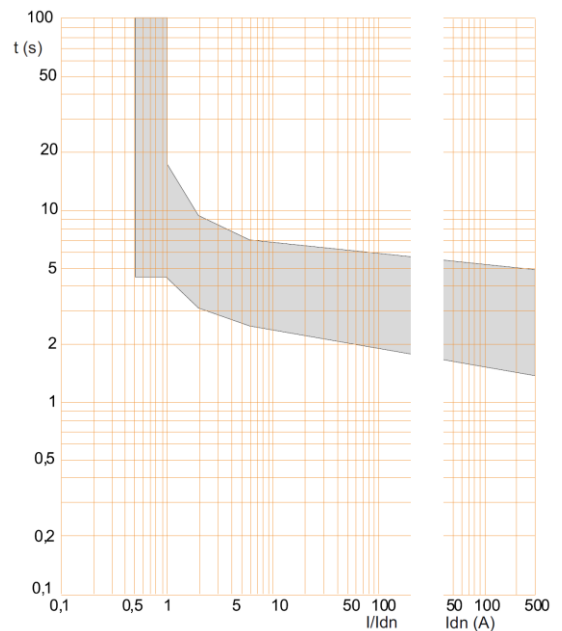


7. CURVES (continued)

. Sensitivities 300mA, 1000mA and 3000mA with a time delay of 1s.



. Sensitivities 300mA, 1000mA and 3000mA with a time delay of 3s.



8. AUXILIARIES AND ACCESSORIES

Installation software:

. TiQuadri

Wiring accessories:

. Terminal for Aluminium cable 95mm²(F80ALU).
 . Terminal for Aluminium cable 50mm²(F80ALU63).