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# Megatiker M3 electronic (no display) with earth leakage circuit breakers

Reference(s) :
**T734F40EBD; T734F100EBD; T734F160EBD; T734F250EBD; T734N40EBD; T734N100EBD; T734N160EBD; T734N250EBD;**


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## 1. USE

Megatiker M3 platform has been developed to give a new solution of protection devices for a more precise approach in power installations in order to offer the correct answer for different project needs.
Megatiker M3 platform provide a complete project approach in premium market segment, offering a range completely suitable for high power application with high performance breakers in compact dimensions and  at a competitive costs.

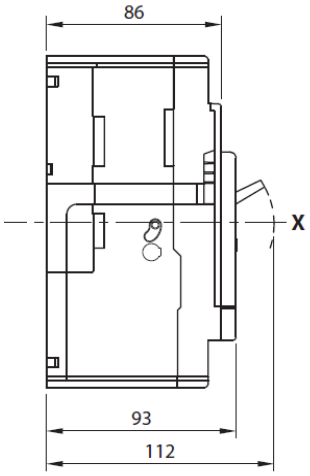
## 2. RANGE

| | Megatiker M3 electronic (no display ) + earth leakage version | |
|---|---|---|
| | 36 kA | 50 kA |
| In (A) | 4P | |
| 40 | T734F40EBD | T734N40EBD |
| 100 | T734F100EBD | T734N100EBD |
| 160 | T734F160EBD | T734N160EBD |
| 250 | T734F250EBD | T734N250EBD |

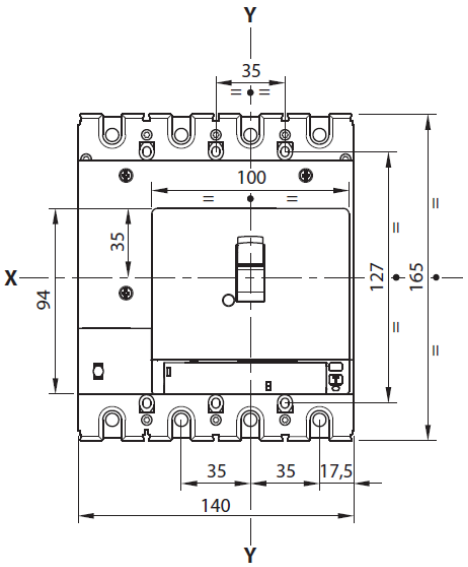
## 3. DIMENSIONS AND WEIGHTS

### 3.1 Dimensions

Lateral view




Frontal view



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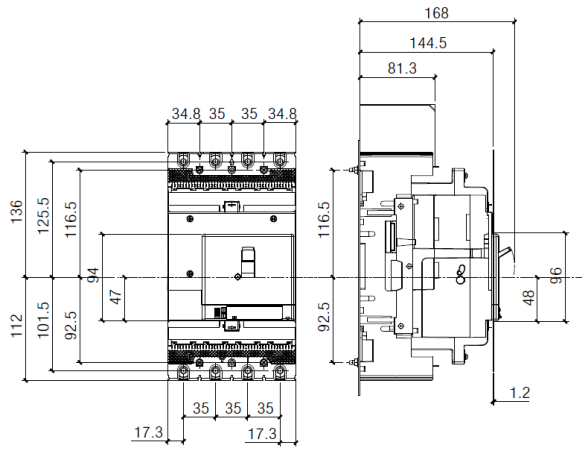
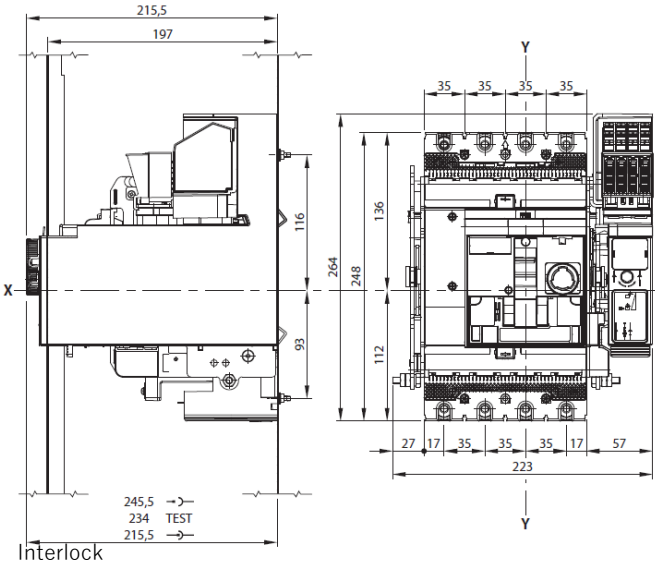
Plug-in version

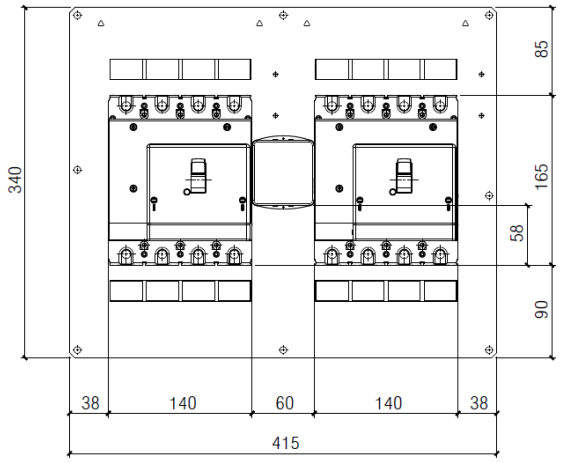



Draw-out version

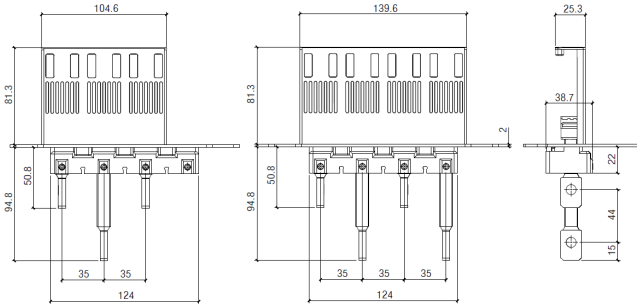


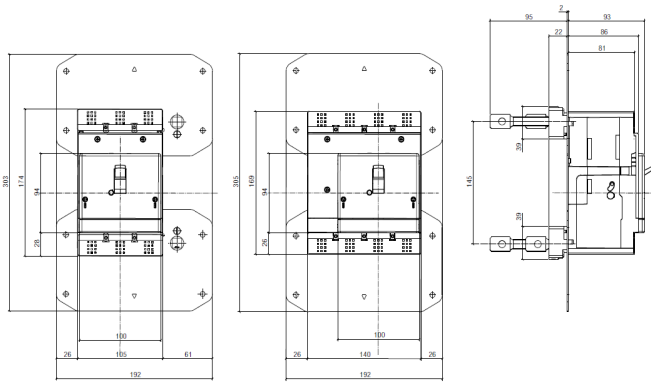

Interlock

(for rear plate interlock dimension, see relative instruction sheet)

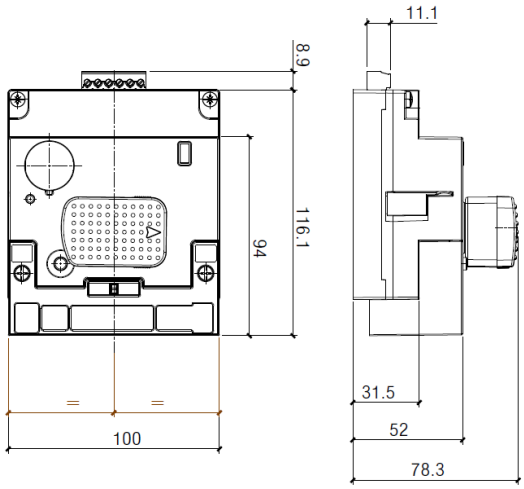



Rear terminals



Direct rotary handle



# Megatiker M3 electronic (no display) with earth leakage circuit breakers

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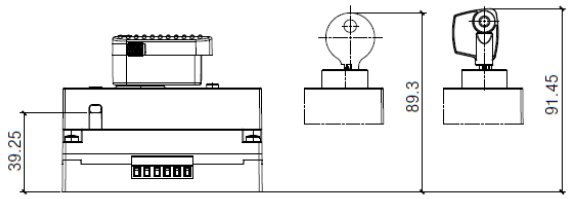
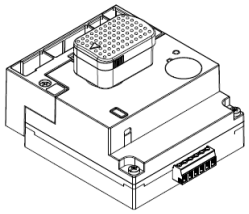
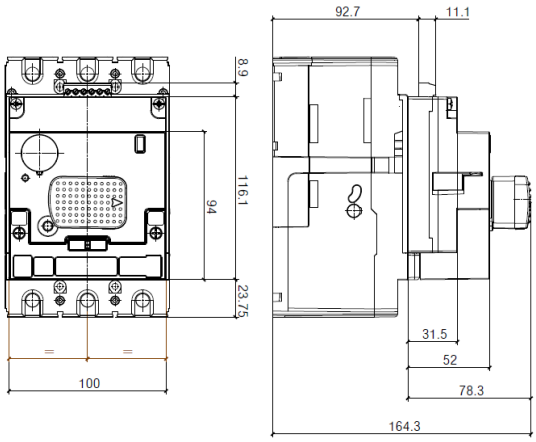
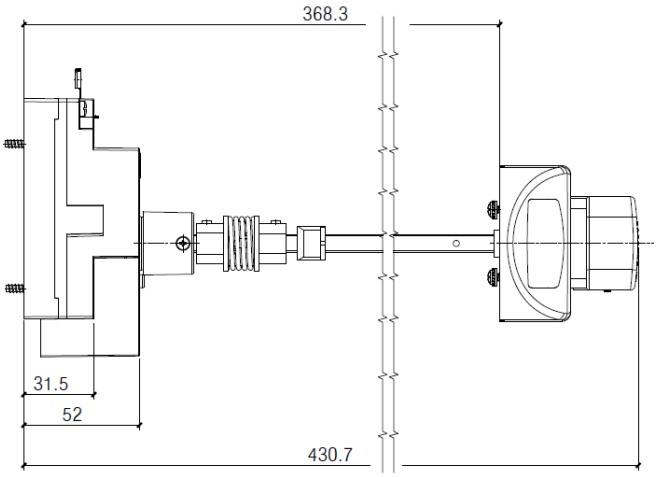
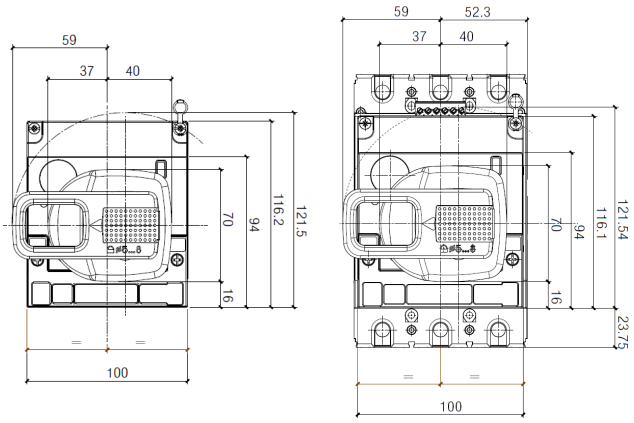


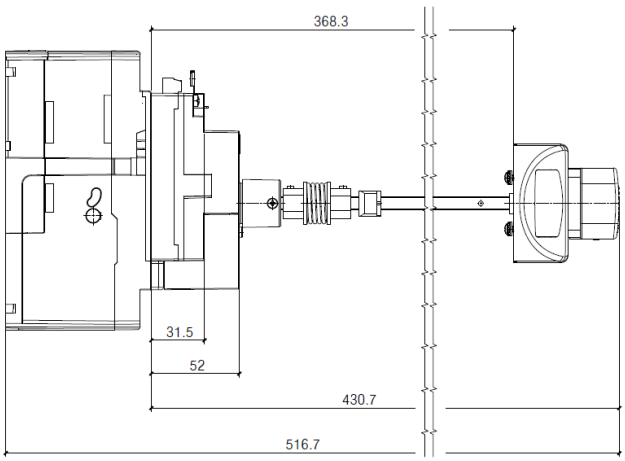






Vari-depth rotary handle



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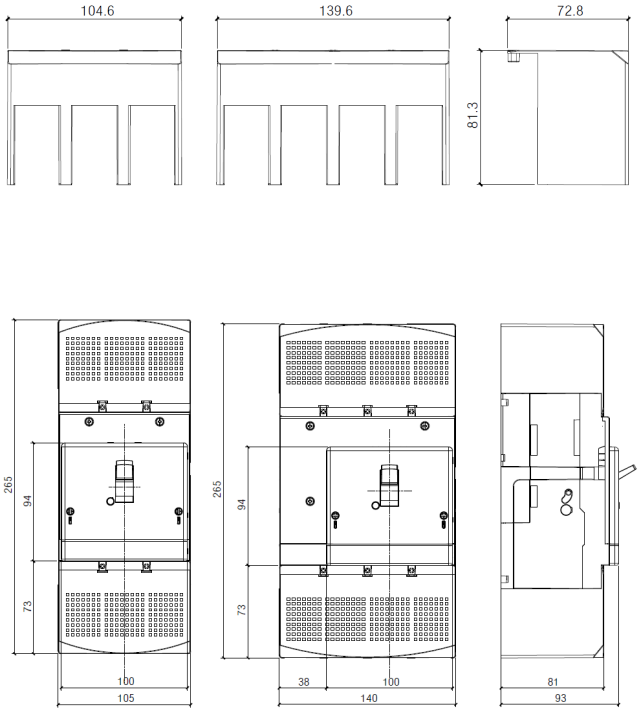
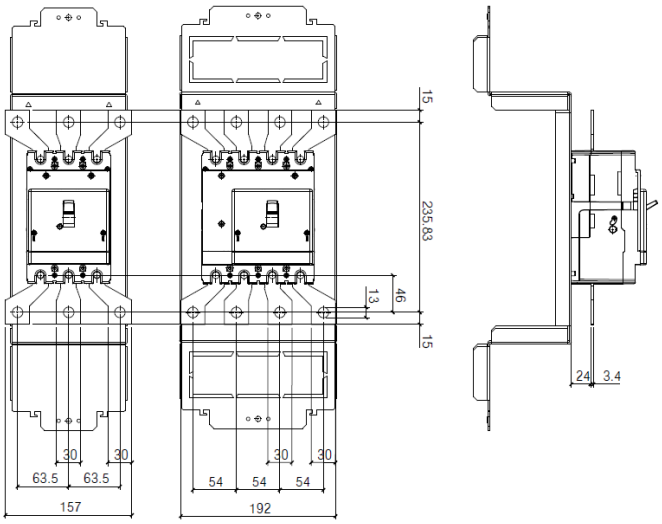
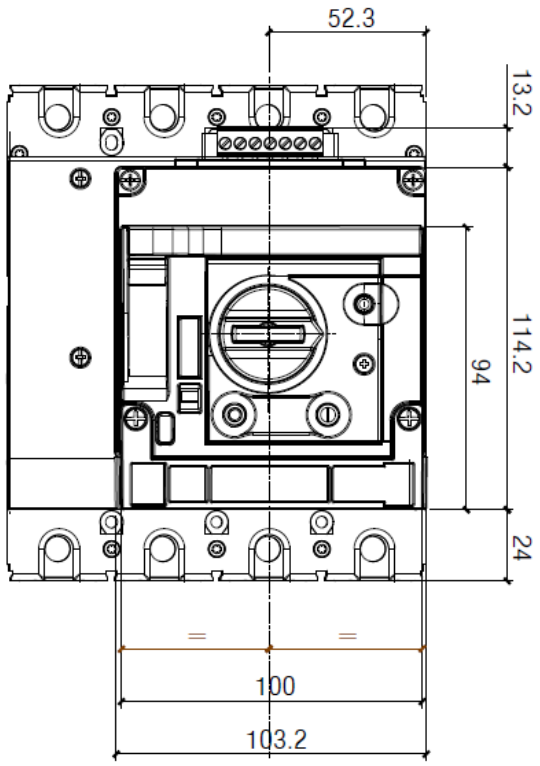
## Sealable terminal shields

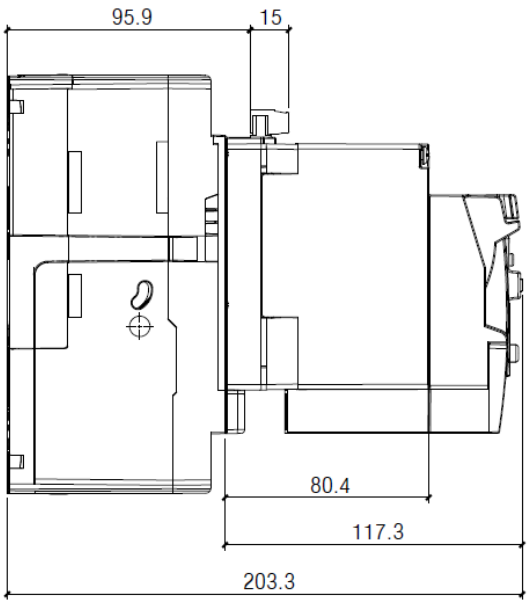


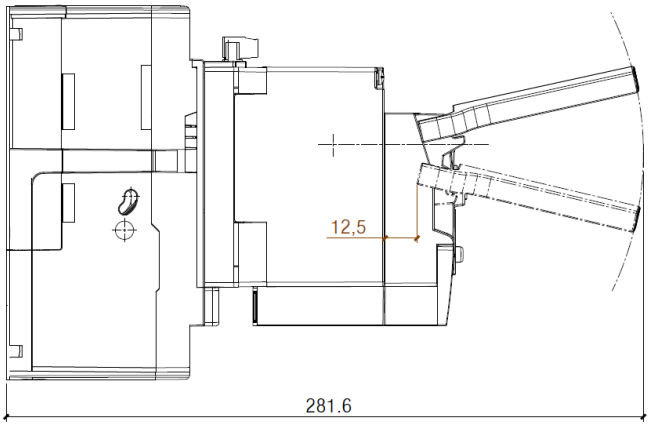

## Spreaders

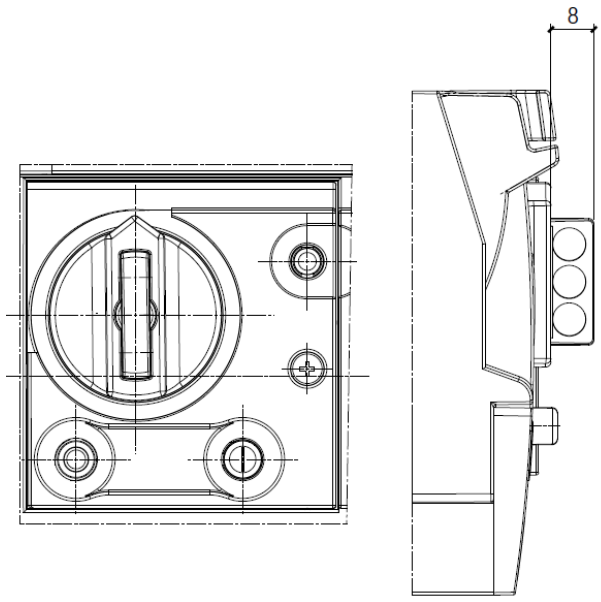


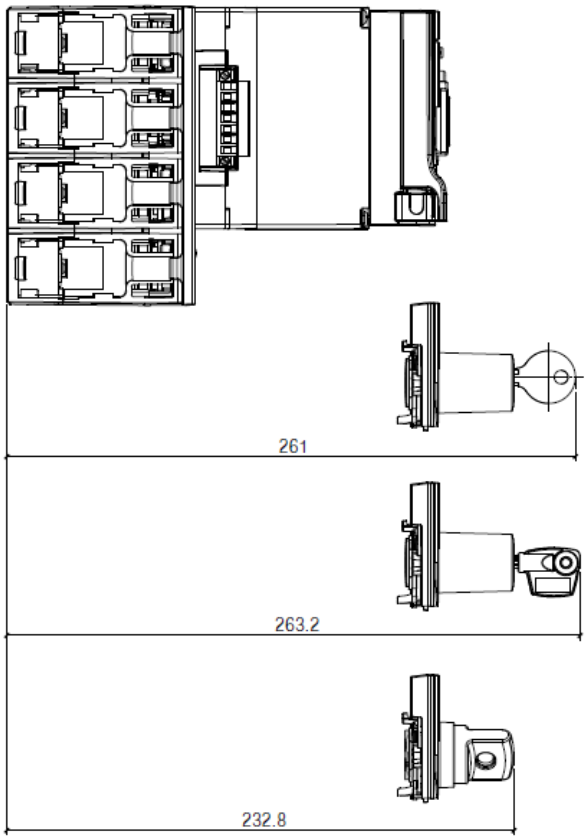

## Motor operator






### 3.2 Weights

| Configuration | Weights (Kg) 4P |
|---|---|
| Circuit breaker | 2.5 |
| Plug-in* | 4.5 |
| Draw-out** | 2.5 |
| Interlock* | 0.35 |
| Rear interlock (for plug-in/draw-out version)* | 5 |
| Motor operator* | 1 |
| ** to add to deveice weight* | |
| ** to add to deveice and plug-in weights* | |

## 4. OVERVIEW

### 4.1 Supplied with:

- 4 fixing screws
- 8 screws for connections
- 3 phase insulators

## 5. ELECTRICAL CONNECTIONS

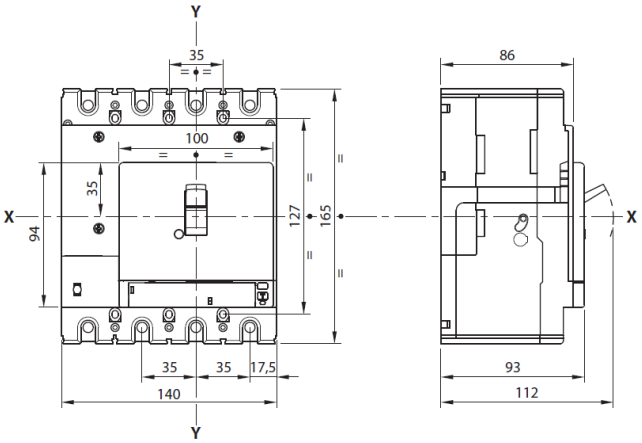
### 5.1 Mounting possibilities

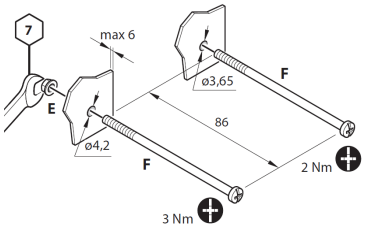
On plate:

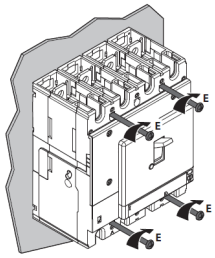
- Vertical
- Horizontal
- Supply invertor type

## 5.2 Mounting

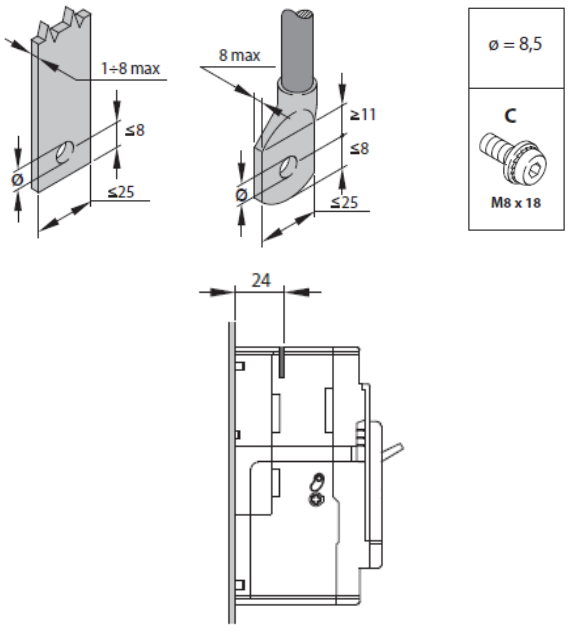
(see instruction sheet for detailed mounting procedures)

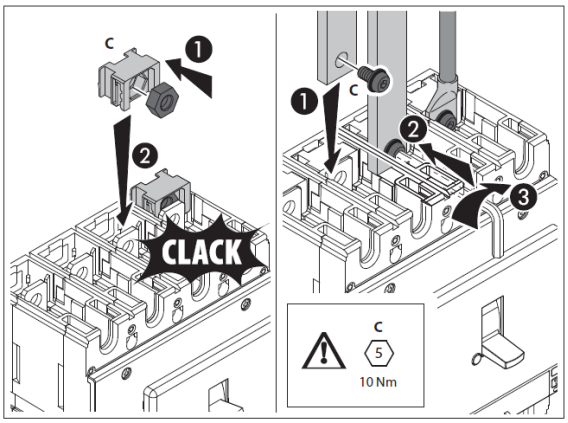


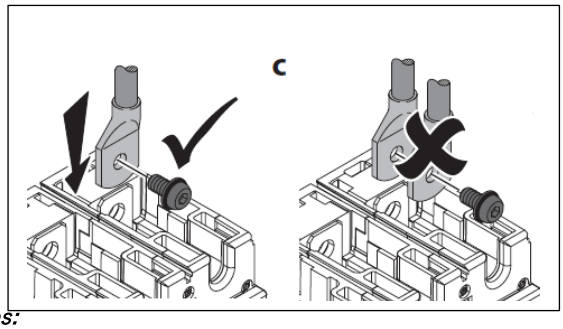



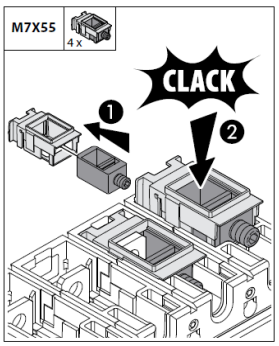

*Busbars/cable lugs:*

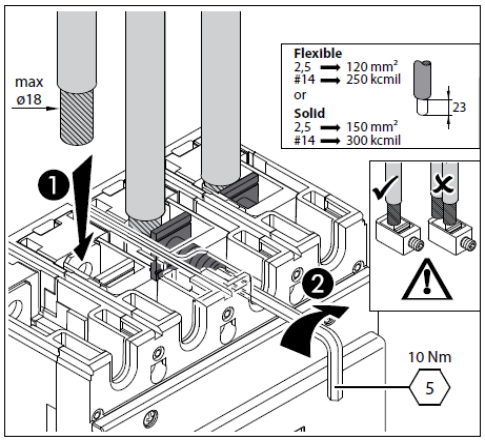



*Cables:*



## 6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

| Circuit Breaker | Megatiker M3 + RCD F/N (36kA, 50kA) |
|---|---|
| Rated current (A) | 40-100-160-250 |
| Poles | 4 |
| Pole pitch (mm) | 35 |
| Rated insulation voltage (50/60Hz) $U_i$ (V) | 500 |
| Rated operating voltage (50/60Hz) $U_e$ (V) | 500 |
| Rated impulse withstand current $U_{imp}$ (kV) | 6 |
| Reference ambient temperature(°C) | 40 - 50 |
| Operating temperature (°C) | -25 ÷ 70 |
| Mechanical endurance (cycles) | 12000 |
| Mechanical endurance with motor control (cycles) | 12000 |
| Electrical endurance at $I_n$ (cycles) | 6000 |
| Electrical endurance at 0.5 $I_n$ (cycles) | 6000 |
| Utilization category | A |
| Suitable for isolation | Yes |
| Type of protection | Electronic (with knobs) |
| Thermal adjustment $I_r$ | (0.4÷1) x $I_n$ |
| Magnetic adjustment $I_{sd}$ (**) | (1,5÷10) x $I_r$ |
| Neutral protection for 4P (%$I_{th}$ of phase pole) | OFF-50(*)-100 |
| Dimensions (W x H x D) (mm) | 140 x 165 x 86 (4P) |
| Earth leakage type | A - integrated |
| Adjustable sensitivity (A) | 0.03 - 0.3 - 1 - 3 |
| Adjustable tripping (s) | 0 - 0.3 - 1 - 3 (with 0.03 possible only 0s) |
| Dimensions (W x H x D) (mm) | 140 x 165 x 86 (4P) |

(*) if $I_n$=40A, then 50% regulation is allowed only if $I_r \geq 0,8$

(**) Regulations not adjustable:

- *$t_r$=5s*
- *$t_{sd}$=0.1s*
- *Ii=3250A*

*When $I_r < 0.8$, knob setting marked with 50% equals to a 100% value.*

Protection against overloads:

- Ir adjustable from 0.4 to 1 x In
- tr adjustable from 3 to 15s

Protection against short circuits:

- Isd adjustable from 1.5 to 10 x Ir
- tsd adjustable from 0 to 0.5s

*Equipped with earth leakage module with knobs*
*Adjustable sensitivity: 0.03 - 0.3 - 1 - 3 A*
*Adjustable tripping: 0 - 0.3 - 1 - 3s (with 0.03 A possible only 0s)*

*The maximum admissible (absolute) temperature is 125° C (for detail, see IEC 60947-1 and 60947-2)*

*DPX³ product line has the possibility to supply both in "direct" and "reverse" feed.*
*If "direct", the word "LINE" needs to be marked on supply terminals (normally the top ones), as well as "LOAD" has to be written on the output terminals to be connected to the load (normally the bottom ones).*
*If "reverse", any indications about LINE / LOAD are NOT expected on the product.*

General remarks on protection unit

The protection units S1 are normally supplied by the internal current transformers (CTs).

When the current flowing through the circuit breaker is lower than 12% of the maximum power (20% of In for single phase load), the internal voltage supply ensures the following basic functions of protection unit: RCD protection, LED status and RCD diagnostic trip test (T button).

Instead, over the 12% of the maximum power (20% of In for single phase load), the additional power provided by current transformers ensures the complete functions of the protection unit, like diagnostic functions (e.g. trip test).

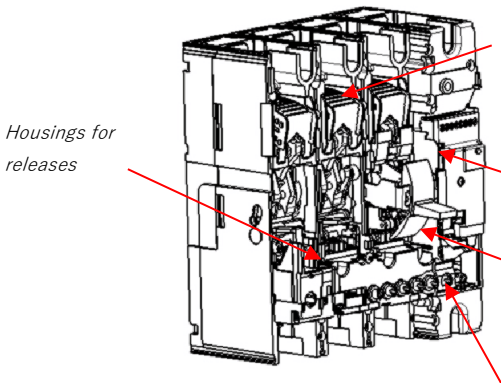
To ensure the same performance when the load is less than 12% of the maximum power (20% of In for single phase load) to grant complete functions, the following optional power supply can be used:

- power supply temporarily connected to frontal Service port, connected to specific adapter for PC (Legrand use only).

Together with above protections, activated in case of electric faults, the trip unit also integrates self-protection for:

- Over temperature : in case the internal temperature of protection unit exceed 95° C;
- Auto diagnostics: in case embedded watchdog circuit detects internal malfunctions, which could compromise the correct working of microcontroller.
-
- Auto diagnostics: in case embedded watchdog circuit detects internal malfunctions, which could compromise the correct working of microcontroller.

### 6.1 Main parts constituting the circuit breaker



## 6.2 Breaking capacity (kA)

| | | Breaking capacity (kA) & $I_{cs}$ | |
|---|---|---|---|
| | | 4P | |
| IEC 60947-2 | $U_e/I_{cu}$ ($I_{cu}$ letter) | 36kA (F) | 50kA (N) |
| | 220/240 V AC | 70 | 90 |
| | 380/415 V AC | 36 | 50 |
| | 440/460 V AC | 25 | 30 |
| | 480/500 V AC | 16 | 18 |
| | $I_{cs}$(% $I_{cu}$) | 100 | 100 |
| | Rated making capacity under short circuit $I_{cm}$ | | |
| | $I_{cm}$ (kA) at 415V | 76.5 | 105 |
| NEMA AB-1 | 220/240 V AC | 70 | 90 |
| | 480/500 V AC | 16 | 18 |

## 6.3 Rated current ($I_n$)

| | Phases limit trip current | | | |
|---|---|---|---|---|
| | thermal ($I_r$) | | magnetic ($I_{sd}$) | |
| $I_n$ (A) | 0.4 x $I_n$ | 1 x $I_n$ | min | max |
| 40 | 16 | 40 | 60 | 400 |
| 100 | 40 | 100 | 150 | 1000 |
| 160 | 64 | 160 | 240 | 1600 |
| 250 | 100 | 250 | 375 | 2500 |

## 6.4 Load operations

| Force on handle | N |
|---|---|
| Opening operation | 63,5 |
| Closing operation | 66 |
| Restore operation | 86,5 |

## 6.5 Electrodynamic forces

The table below shows an indication of suggested distances to keep between the breaker and the first fixing point of the conductor and bars in order to reduce the effects of the electrodynamic stresses that may be created during a short circuit. In the realization of anchorage system it is recommend the use of isolators suitable for the type of conductor used and the operating voltage.

| $I_{cc}$ (kA) | Maximum Distance (mm) |
|---|---|
| 36 | 350 |
| 50 | 300 |

*According to conductor type and bar system (except Legrand bar kits), the choice of the distance to keep is to be calibrated by the installer.*

*Also installer must take into account the weight of the conductors so that this does not affect the electrical junction between the conductor itself and the connection point.*

## 6.6 Power losses per pole under $I_n$

Circuit breaker

| | Power losses per pole (W) | | | |
|---|---|---|---|---|
| In (A) | 40 | 100 | 160 | 250 |
| Cage terminals | 0.54 | 3.37 | 8.63 | 21.07 |
| Lugs | 0.49 | 3.08 | 7.88 | 19.25 |
| Spreaders | 0.41 | 2.59 | 6.64 | 16.21 |
| Rear terminals | 0.51 | 3.18 | 8.13 | 19.86 |

*Note: power losses in the table above are referred and measured as described in the standard IEC 60947-2 (Annex G) for circuit-breakers. Values in the table are referred to a single phase.*

## 6.7 DERATINGS

according to IEC/EN 60947-1

### 6.7.1 Temperature

Rated current and his adjustment has to be considered relating to a rise or fall of ambient temperature and to a different version or installation conditions. The table below indicates the maximum long-time (LT) protection setting depending on the ambient temperature.

| | Temperature Ta (°C) | | | |
|---|---|---|---|---|
| $I_n$ (A) | 40 | 50 | 60 | 70 |
| **40** | 40 | 40 | 40 | 40 |
| **100** | 100 | 100 | 100 | 95 |
| **160** | 160 | 160 | 160 | 155 |
| **250** | 250 | 250 | 210 | 190 |

For derating temperature with other configurations, see table A.

### 6.7.2 Specific condition use

*Climatic conditions*

according to IEC/EN 60947-1 Annex Q, Cat. F subject to temperature, humidity, vibration, shock and salt mist.

*Pollution degree*

for Megatiker M3 circuit breakers,degree 3,according to IEC/EN 60947-2

### 6.7.3 Altitude

Altitude derating for Megatiker M3

| Altitude (m) | 2000 | 3000 | 4000 | 5000 |
|---|---|---|---|---|
| $U_e$ (V) | 500 | 430 | 380 | 330 |
| $I_n$ (A) | 1 x $I_n$ | 0.98 x $I_n$ | 0.93 x $I_n$ | 0.9 x $I_n$ |

# Megatiker M3 electronic (no display) with earth leakage circuit breakers

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## 7. CONFORMITY

Megatiker M3 range of product concerning circuit-breakers and switch-disconnectors exceed compliance with the IEC/EN standard 60947-2 and 60947-3 respectively. Certification available by IECEE CB-scheme or LOVAG Compliance scheme.
Megatiker M3 respect the European Directives REACh, RoHS, RAEE.

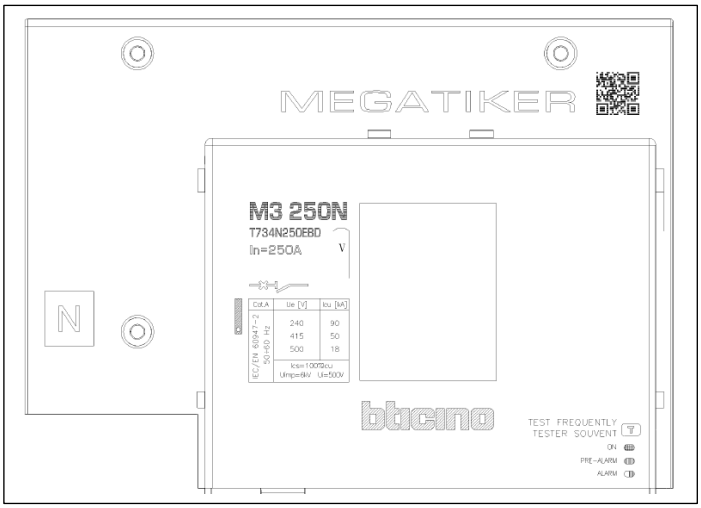
*For specific information, please contact Legrand support.*

### 7.1 Marking

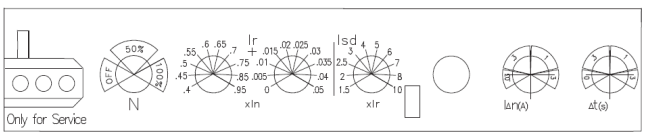
Product (circuit breakers) are provided with labelling in full conformity to the referred standard and directives requirements by laser or sticker labels (for illustrative purposes only) as:

**Product laser label on front**

- -Manufacturer responsible
- -Denomination, type product, code
- -Standard conformity
- -Standard characteristics declared
- -Coloured identification of $I_{cu}$ at 415V

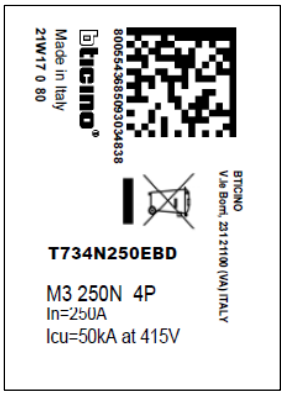



**Electronic release label**



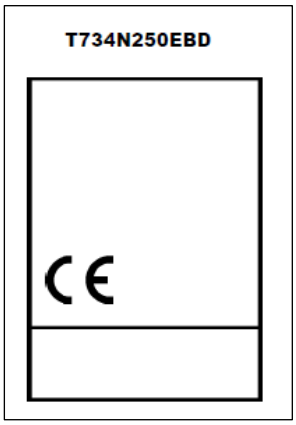

**Product sticker label on side**

- -Manufacturer responsible
- -Denomination and type product
- -Standard conformity
- -Mark/Licence (if any)
- -Directive requirements
- -Bar code identification product
- -Manufacturing Country



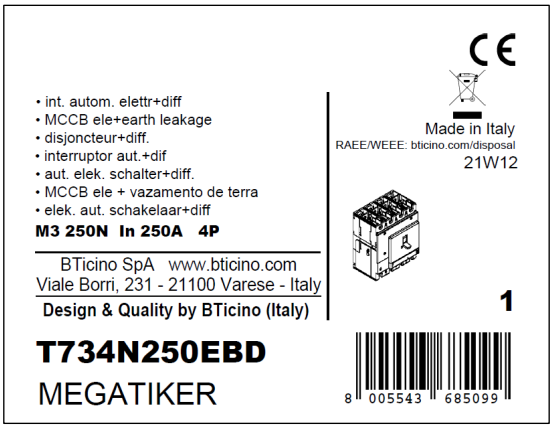

**Mark sticker label on side**

- -Product code
- -Mark/Licence (if any)
- -Country deviation, if any




**Packaging sticker label**

- -Manufacturer responsible
- -Denomination and type product
- -Mark/Licence (if any)
- -Directive requirements
- -Bar code identification product



## 8. EQUIPMENTS AND ACCESSORIES

### 8.1 Releases (for Megatiker M3 125/250, M1 and M2)

- shunt releases with voltage:

| | |
|---|---|
| 12 Vac and dc | *ref. M7S012* |
| 24 Vac and dc | *ref. M7S024* |
| 48 Vac and dc | *ref. M7S048* |
| 110 ÷ 130 Vac | *ref. M7S110* |
| 220 ÷ 277 Vac | *ref. M7S230* |
| 380 ÷ 480 Vac | *ref. M7S415* |

Maximum power = 400 VA / W

- undervoltage releases with voltage:

| | |
|---|---|
| 12 Vac and dc | *ref. M7U012* |
| 24 Vac and dc | *ref. M7U024* |
| 48 Vac and dc | *ref. M7U048* |
| 110 ÷ 130 Vac and dc | *ref. M7U110* |
| 220 ÷ 240 Vac | *ref. M7U230* |
| 277 Vac | *ref. M7U277* |
| 380 ÷ 415 Vac | *ref. M7U415* |
| 440 ÷ 480 Vac | *ref. M7U480* |

Maximum power = 4 VA
Circuit breaker opening time < 50 ms

UVR releases can be used on Megatiker M3 125/250 starting from batch 19W15

- time-lag undervoltage releases (800 ms)

*Time-lag modules with voltage:*

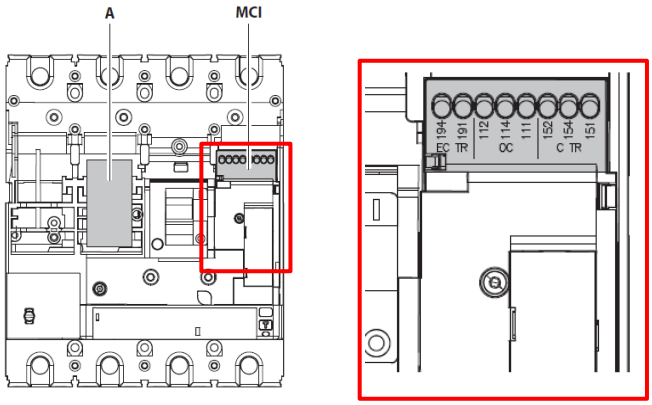
| | |
|---|---|
| 230 V ac | *ref. M7000MR/230* |
| 400 V ac | *ref. M7000MR/400* |

Release *ref. M7UEM*
(to be equipped with a time-lag module *M7000MR/230 and M7000MR/400)*

### 8.2 Auxiliary contacts

For version of DPX³ 250 HP electronic version, with earth leakage module, auxiliary contacts are integrated inside module M.C.I (see instruction sheet for details).

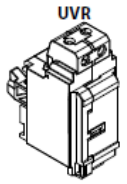
Here a connection scheme to get auxiliary functionality:



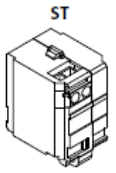

| | | |
|---|---|---|
| TRIP STATUS (CTR) | 151 Common contact<br>152 Normal close contact<br>154 Normal open contact | 154 / 151 / 152 |
| OPEN/CLOSE STATUS (OC) | 111 Common contact<br>112 Normal close contact<br>114 Normal open contact | 114 / 111 / 112 |
| TRIP RCD (EC TR) | 191 Common contact<br>194 Normal open contact | 194 / 191 |

| CTR | 152-151 | 154-151 |
|---|---|---|
| OFF | ⌐ | ⌐ |
| TRIP | ⌐ | ⌐ |
| ON | ⌐ | ⌐ |

| OC | 112-111 | 114-111 |
|---|---|---|
| OFF | ⌐ | ⌐ |
| TRIP | ⌐ | ⌐ |
| ON | ⌐ | ⌐ |




M7U012...M7U480
M7UEM




M7S012...M7S415



| | A |
|---|---|
| UVR | ✓ (max 1) |
| ST | |

*To get more information on auxiliary mounting procedures, please refer to product instruction sheet.*

### 8.3 Universal keylocks

These keylocks must be used for all the accessories that can be locked:

- rotary handle
- motor operator
- plug-in mechanism
- draw-out mechanism

For each of these, a specific accessory (indicated in the specific section of this datasheet) must be added in order to get the complete locking kits for the specific application.

- 1 lock + 1 flat key with random mapping *ref. M7R24*
- 1 lock + 1 flat key with fixed mapping (EL43525) *ref. M7R25*
- 1 lock + 1 flat key with fixed mapping (EL43363) *ref. M7R26*
- 1 lock + 1 star key with random mapping *ref. M7R27*

### 8.4 Rotary handles

*Direct on DPX³ (with auxiliary option)*
- Standard (black) *ref. M7R24*
- For emergency use (red / yellow) *ref. M7R25*

*Vari-depth handle IP55 (with auxiliary option)*
- Standard (black) *ref. M7R26*
- For emergency use (red / yellow) *ref. M7R27*

*Locking accessories (for rotary handle with auxiliary option)*
- Key lock accessory for direct rotary handle *ref. M7R30*
- Key lock accessory for vari-depth rotary handle *ref. M7R31*
  *(ref. M7R31 is compatible with Megatiker M3 125 also)*

*Ref. M7R30 and M7R31 must be used with universal keylocks to get the complete locking kit for rotary handle*

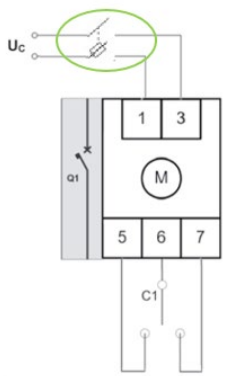
### 8.5 Motor operators

*For synchronized operations (energy storage type):*
- 24 Vac and dc *ref. M7M024*
- 48 Vac and dc *ref. M7M048*
- 110 Vac *ref. M7M110*
- 230 Vac *ref. M7M230*

*Technical parameters:*

| Voltage | Property | AC | | DC | |
|---|---|---|---|---|---|
| | | Opening | Closing | Opening | Closing |
| 24V ac/dc | Maximum inrush power (VA) | 75 | 430 | 55 | 320 |
| | Rated power (VA) | 45 | - | 20 | - |
| | Absorption time (s) | 2.8 | 0.01 | 3.3 | 0.01 |
| | Operating current time (s) | 1.1 | 0.03 | 1.2 | 0.03 |
| 48V ac/dc | Maximum inrush power (VA) | 85 | 1000 | 70 | 690 |
| | Rated power (VA) | 65 | - | 15 | - |
| | Absorption time (s) | 3.3 | 0.006 | 3.8 | 0.006 |
| | Operating current time (s) | 1.1 | 0.02 | 1.3 | 0.02 |
| 110V ac | Maximum inrush power (VA) | 95 | 600 | - | - |
| | Rated power (VA) | 60 | - | - | - |
| | Absorption time (s) | 3 | 0.02 | - | - |
| | Operating current time (s) | 1.0 | 0.03 | - | - |
| 230V ac | Maximum inrush power (VA) | 125 | 460 | - | - |
| | Rated power (VA) | 70 | - | - | - |
| | Absorption time (s) | 2.5 | 0.08 | - | - |
| | Operating current time (s) | 0.9 | 0.03 | - | - |

*It is necessary to foresee a protection device (e.g. fuse) along the motor operator power line. The correct size of the fuse depends on the motor version and on the number of users.*
*Here a schematic example:*




*Locking accessory (for motor operator)*
- Padlock (for motor operator locking) *ref. M7M61*
- Key lock accessory for motor operator *ref. M7M60*

*Ref. M7M60 must be used with universal keylocks to get the complete locking kit for motor operator*

### 8.6 Mechanical accessories

- Padlock (for locking in "OPEN" position) *ref. M7X02*
  *(ref. M7X02 is compatible with Megatiker M3 125 / M1 / M2)*
- Sealable terminal shields:
  - Set of 3 (for 4P) *ref. M7C23*
- Insulated shields:
  - Set of 3 (for 4P) *ref. M7F02*

  *(ref. M7F02 are compatible with Megatiekr M3 125 also)*

### 8.7 Connection accessories

***Cage terminals***
- Set of 4 terminals for cables 150 mm² max (rigid) *ref. M7X55*
  or 120 mm² max (flexible) Cu/Al

***Spreaders*** *(incoming or outcoming):*
- Set of 4 (for 4P) *ref. M7A53*

***Rear terminals*** *(incoming or outcoming):*
- Set of 4 (for 4P) *ref. M7A57*

## *Cage terminal use specifications*

| **Megatiker M3 250** | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Type of cage terminal*** | ***Cable standard suggested cross section (mm²)**** | | | ***Dimensions limits of cable for cage terminals*** | | | |
| | In (A) | Cu | Al | MIN cross section (mm²) | | MAX cross section (mm²) | |
| | | | | Flexible | Rigid | Flexible | Rigid |
| ***Standard*** | 16 | 2,5 | 4 | 2,5 | 2,5 | 120 | 150 |
| | 20 | 2,5 | 4 | | | | |
| | 25 | 4 | 6 | | | | |
| | 32 | 6 | 10 | | | | |
| | 40 | 10 | 16 | | | | |
| | 50 | 10 | 16 | | | | |
| | 63 | 16 | 25 | | | | |
| | 80 | 25 | 35 | | | | |
| | 100 | 35 | 50 | | | | |
| | 125 | 50 | 70 | | | | |
| | 160 | 70 | \ | | | | |
| | 200 | 95 | \ | | | | |
| | 250 | 120 | \ | | | | |

* The suggested cross section are in compliance with standard IEC60947-1 (ed.6 2020/04) and IEC60947-2 (ed.5.1 2019/07)

## 8.8 Plug-in version

(A plug-in is a Megatiker M3 250 fitted with special terminals and mounted on a plug-in base)

*Bases*
*(for plug-in and draw-out versions for Megatiker M3 250 and MS3 250)*

- Plug-in/draw-out base for 4P *ref. M7B51*
- Plug-in/draw-out mobile part kit for 4P *ref. M7B53*

*Plug-in accessories*

*Locking accessory (for plug-in)*
- Key lock accessory for plug-in *ref. M7B64*

*Ref. M7B64 must be used with universal keylocks to get the complete locking kit for plug-in version*

## 8.9 Draw-out version

(A Megatiker M3 250 draw-out version is a plug-in Megatiker M3 250 fitted with a "Debro-lift" mechanism which can be used to withdraw the breaker while keeping it on its base)

*"Debro-lift" mechanism*
*(supplied with a rigid slide and handle for drawing-out)*

- transformation kit for 4P *ref. M7B55*

*Fontal masks for draw-out version*
*(to provide in addition to debro-lift mechanism according to accessory mounted)*

- Frontal module, with frontal mask (3P and 4P) *ref. M7B60*
  (if neither motor operator nor rotary handle are mounted)
- Frontal mask for motor operator (3P and 4P) *ref. M7B61*

*Locking accessory (for draw-out)*

- Padlock for draw-out position *ref. M7B65*
- Key lock accessory for draw-out *ref. M7B63*

*Ref. M7B63 must be used with universal keylocks to get the complete locking kit for draw-out version*

*Auxiliary contacts*
- Automatic auxiliary contacts for draw-out version *ref. M7B05*
- 6 contact connector (under sliding contacts) *ref. F15/7500P6*

(Ref. *F15/7500P6 can be used with both plug-in and draw-out version)*

## 8.10 Interlock mechanism

(for interlocking 2 Megatiker M3 125 HP or 2 Megatiker M3 250)

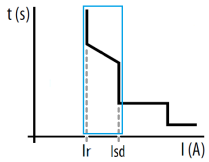
No frame mixing in interlock mechanism

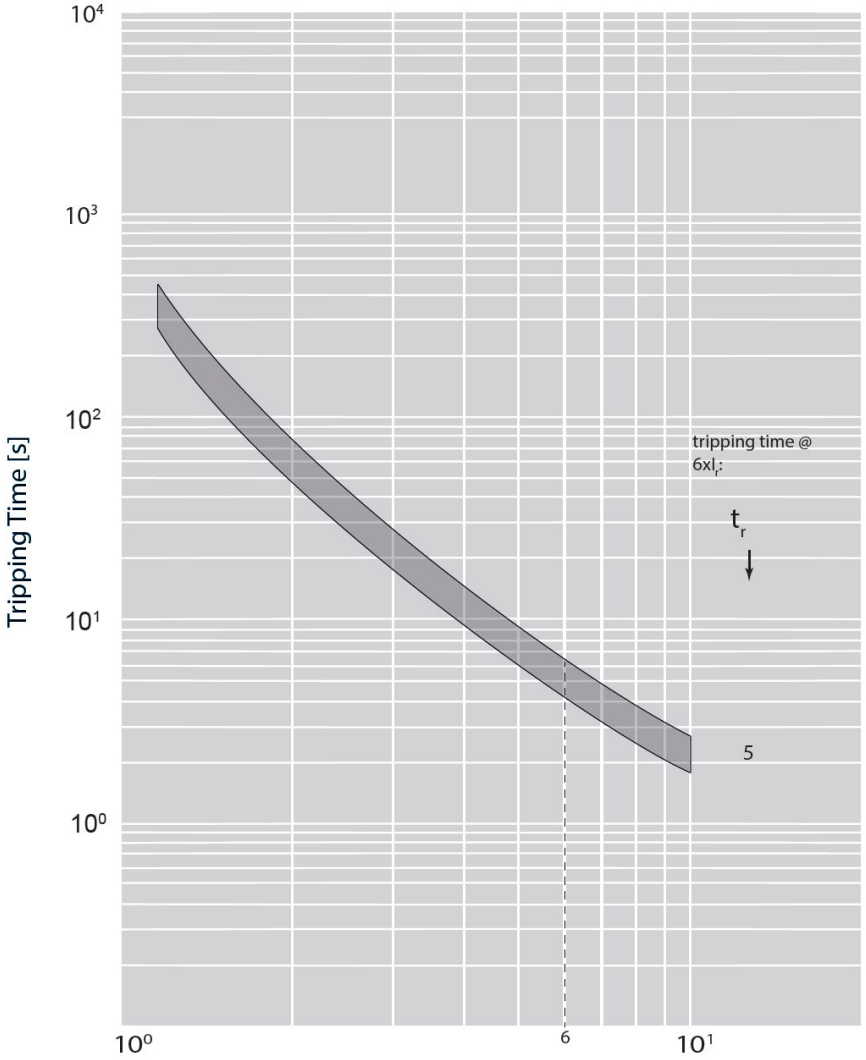
- Interlock mechanism – standard version *ref. M7I01*
  (for fixed version Megatiker M3 125 and 250)
- Interlock mechanism – for electronic module *ref. M7I02*
  (for fixed version Megatiker M3 125 and 250)
- Interlock plate for Megatiker M3 250 *ref. M7I05*
- Rear interlock mechanism *ref. M7I03*
  (for Megatiker M3 250 plug-in and/or draw-out version)
  If used ref. F15/7500P6, maximum 1 set

## 9. CURVES

### 9.1.1 Tripping curve [ 1/3 ]

*Update:*



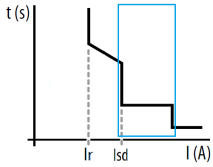

$I/I_r$

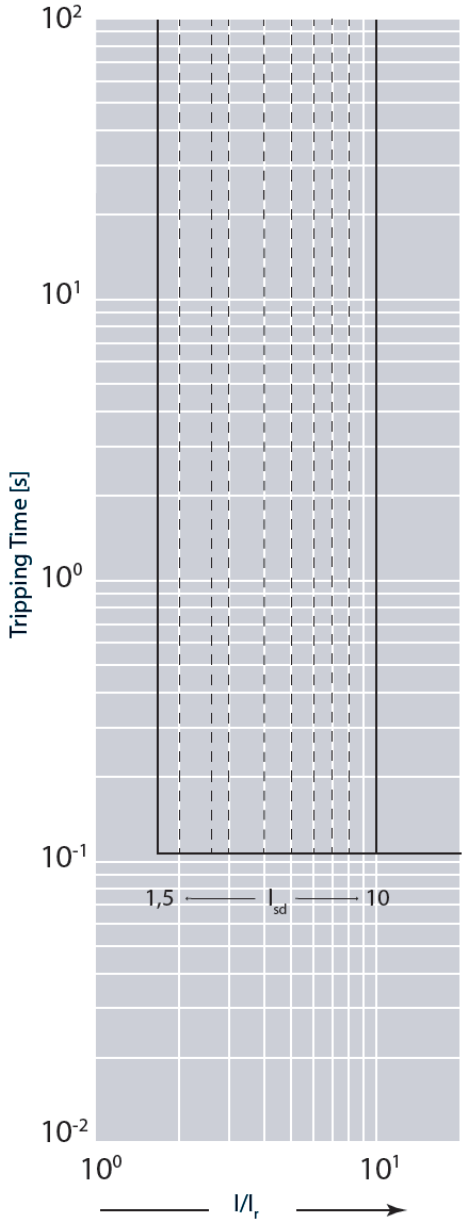
$I_{cu}$ = 36-50 kA $I_{max}$ = 250A 4 P $U_e$ = 415Vac *(IEC/EN 60947-2)*

| Value | Description |
|---|---|
| t | time |
| I | current |
| $I_r$ | long time setting current |
| $t_r$ | long time delay |
| Isd | short time setting current |
| tsd | short time delay |
| Ii | instantaneous release |
| Icu | rated ultimate short-circuit breaking capacity |
| $I^2t = K$ | constant pass-through energy setting |
| t = K | constant tripping time setting |
| ———— | long time trip curve |
| ---------- | short time trip curve |
| Current tolerance | 10% up to $I_{sd}$; 20% up to $I_i$ |

### 9.1.2 Tripping curve [ 2/3 ]

*Update:*



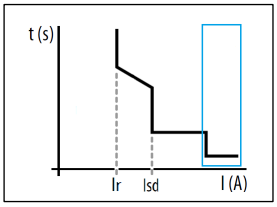



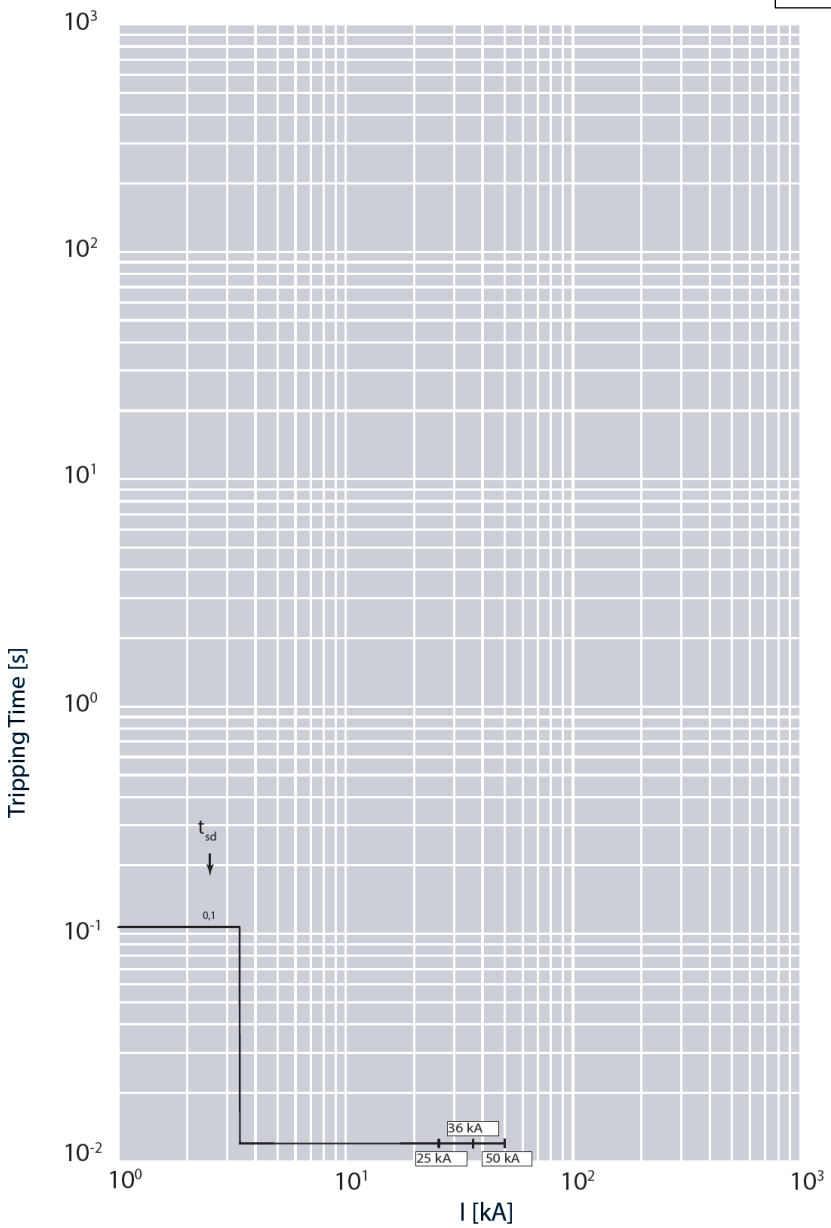

**$I_{cu}$ = 36-50 kA  $I_{max}$ = 250A  4 P  $U_e$ = 415Vac** *(IEC/EN 60947-2)*

| Value | Description |
|---|---|
| t | time |
| I | current |
| $I_r$ | long time setting current |
| $t_r$ | long time delay |
| Isd | short time setting current |
| tsd | short time delay |
| Ii | instantaneous release |
| Icu | rated ultimate short-circuit breaking capacity |
| $I^2t$ = K | constant pass-through energy setting |
| t = K | constant tripping time setting |
| ----------- | long time trip curve |
| ----------- | short time trip curve |
| Current tolerance | 10% up to $I_{sd}$; 20% up to $I_i$ |

### 9.1.3 Tripping curve [ 3/3 ]

*Update: 11/06/2019*



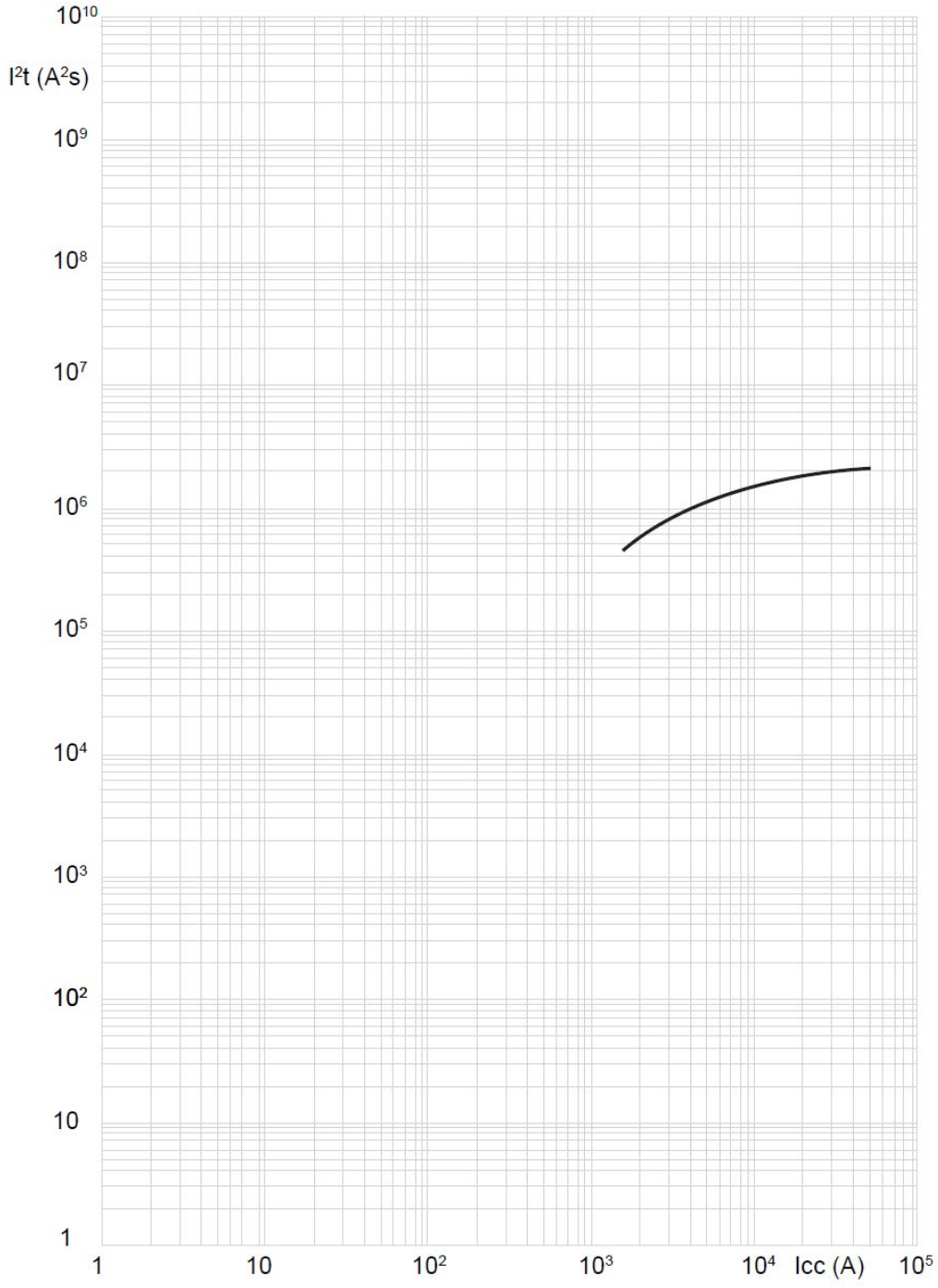

**$I_{cu}$ = 36-50 kA  $I_{max}$ = 250A  4 P  $U_e$ = 415Vac** *(IEC/EN 60947-2)*

*Fixed Instantaneous override $I_{sf}$ = 3.25kA*

| Value | Description |
|---|---|
| t | time |
| I | current |
| $I_r$ | long time setting current |
| $t_r$ | long time delay |
| Isd | short time setting current |
| tsd | short time delay |
| Ii | instantaneous release |
| Icu | rated ultimate short-circuit breaking capacity |
| $I^2t$ = K | constant pass-through energy setting |
| t = K | constant tripping time setting |
| ———— | long time trip curve |
| ---------- | short time trip curve |
| Current tolerance | 10% up to $I_{sd}$; 20% up to $I_i$ |

### 9.2 Pass-through specific energy characteristic curve

*Update: 30/08/2019*

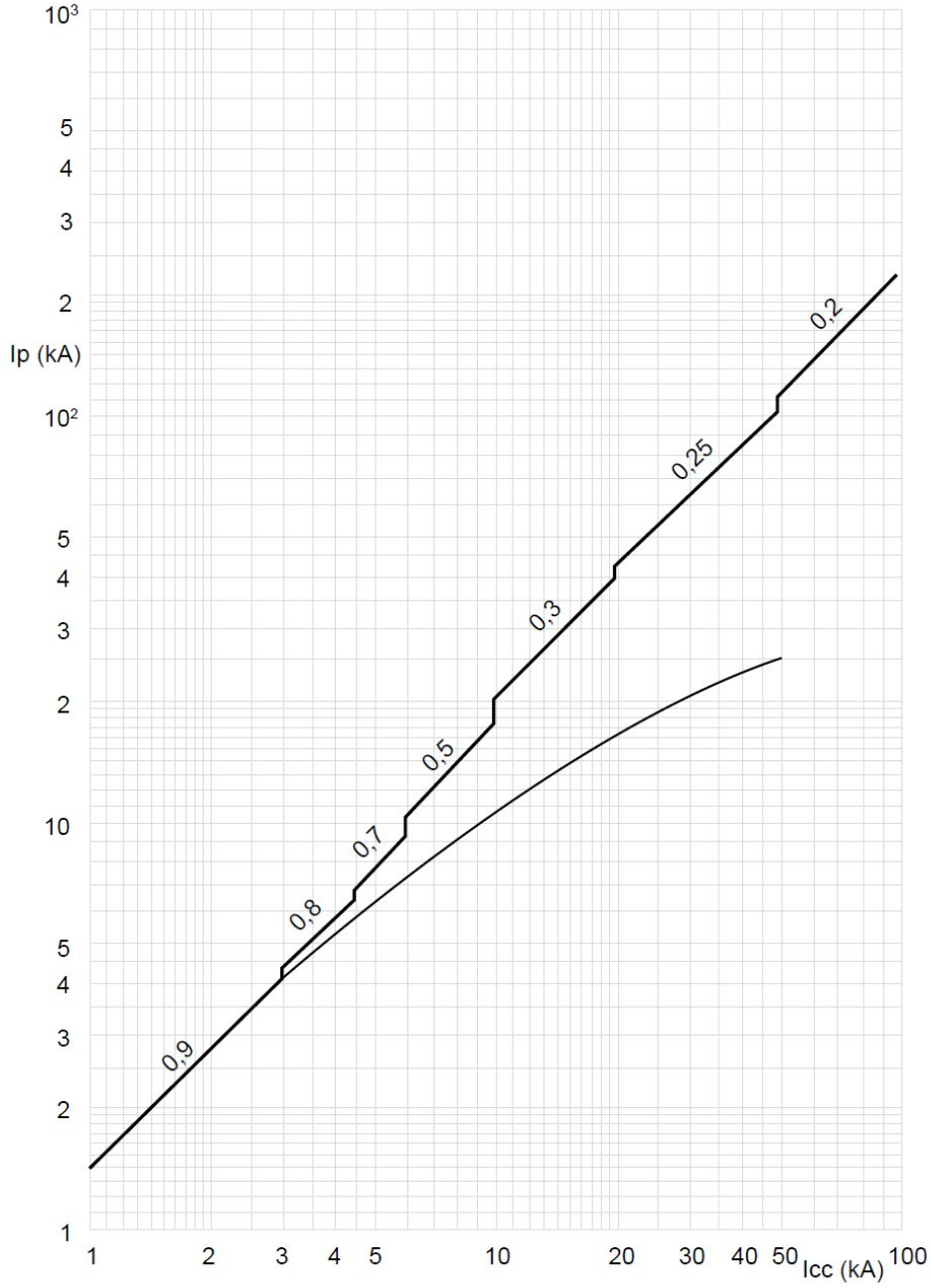



**$I_{cu}$ = 36-50 kA  $I_{max}$ = 250A  4 P  $U_e$ = 415Vac** *(IEC/EN 60947-2)*

| Value | Description |
|---|---|
| $I_{cc}$ | short circuit current |
| $I^2t$ ($A^2s$) | pass-through specific energy |

### 9.3 Cut-off peak current characteristic curve

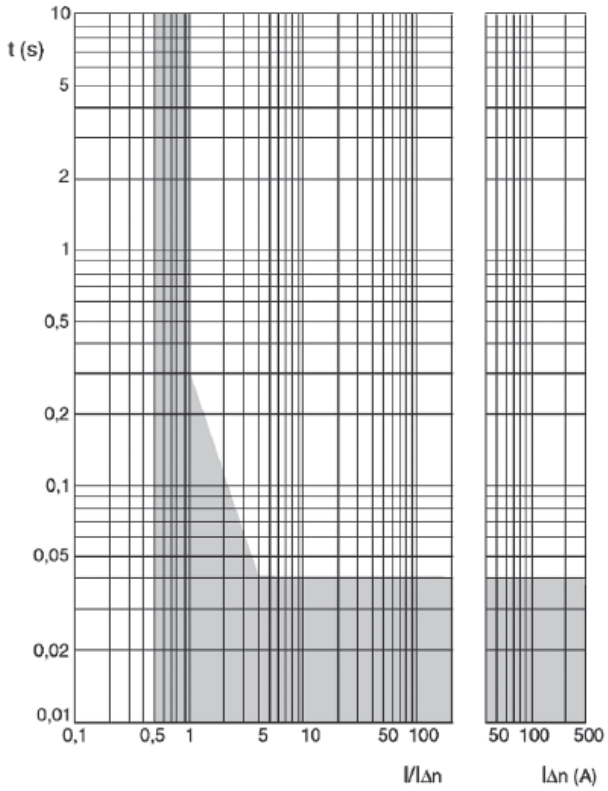
*Update: 30/08/2019*



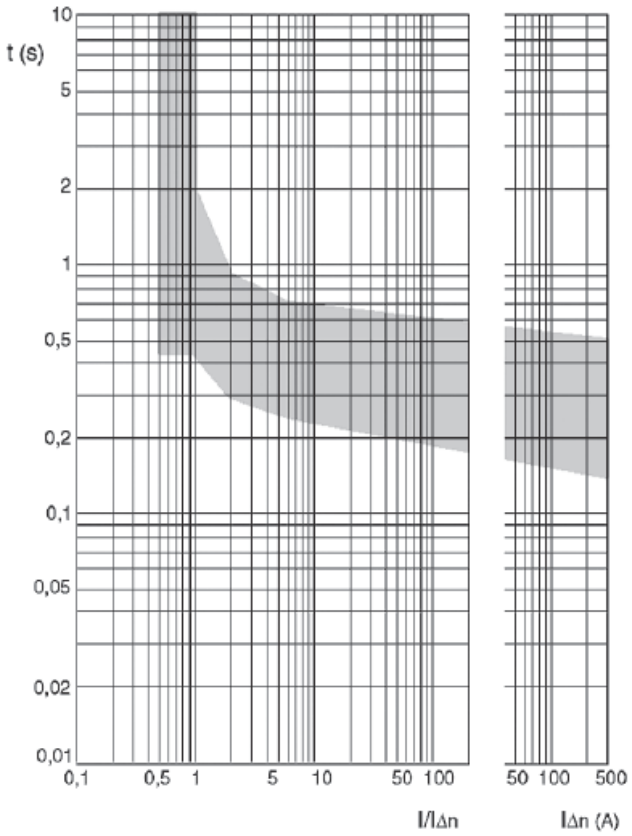

**$I_{cu}$ = 36-50 kA  $I_{max}$ = 250A  4 P  $U_e$ = 415Vac** *(IEC/EN 60947-2)*

| Value | Description |
|---|---|
| $I_{cc}$ | estimated short circuit symmetrical current (RMS value) |
| $I_p$ | maximum short circuit peak current |
| ——— | maximum prospective short circuit peak current corresponding at the power factor |
| ——— | maximum real peak short circuit current |

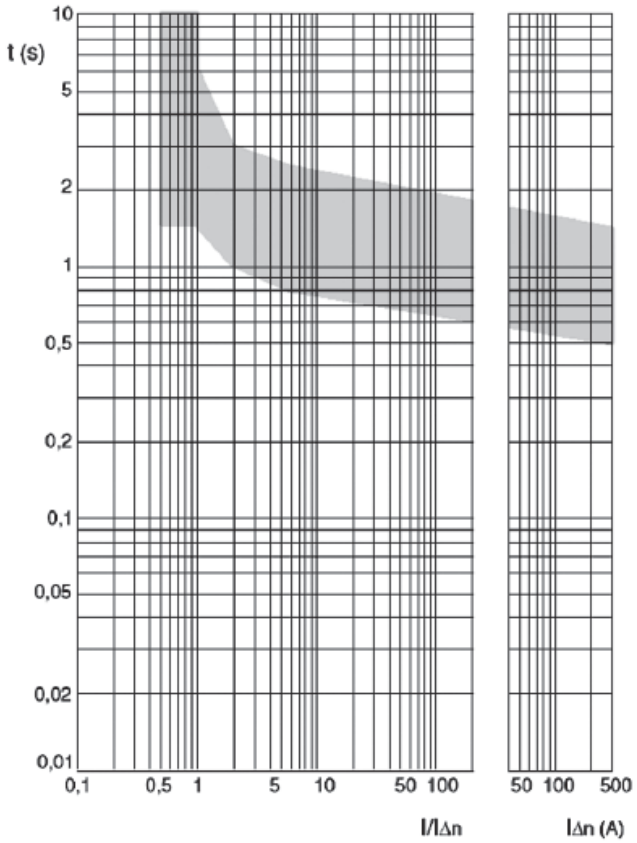
### 9.4.1 Earth leakage curves, instantaneous



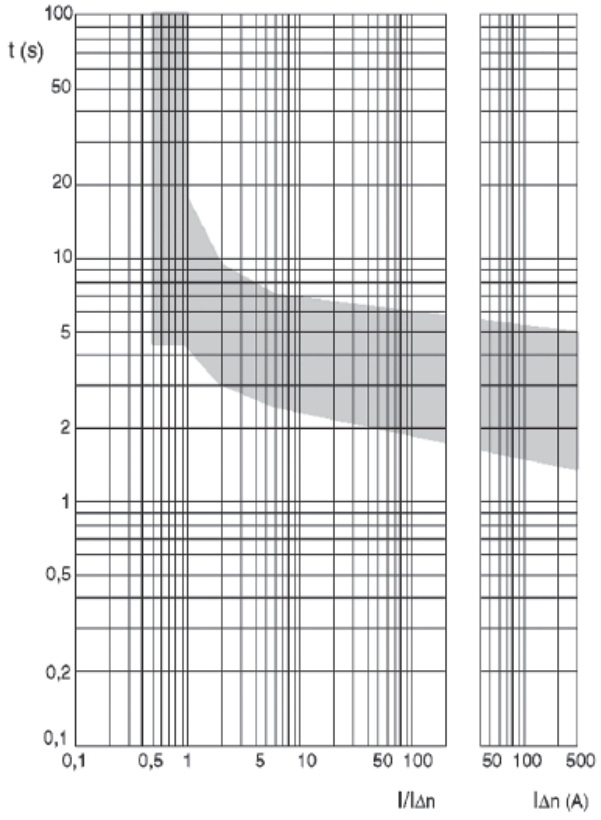

### 9.4.2 Earth leakage curves, time delay = 0.3 s



### 9.4.3 Earth leakage curves, time delay = 1 s




### 9.4.4 Earth leakage curves, time delay = 3 s



**A) Derating Temperature and configurations**

| | Ambient temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 30 °C | | 40 °C | | 50 °C | | 60 °C | | 70 °C | |
| **Fixed version** | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ |
| Cage terminals, flexible cable | 238 | 0.95 | 225 | 0.90 | 200 | 0.80 | 175 | 0.70 | 163 | 0.65 |
| Cage terminals, flexible cable + sealable terminal shields | 238 | 0.95 | 225 | 0.90 | 200 | 0.80 | 175 | 0.70 | 163 | 0.65 |
| Spreaders, flexible cable | 250 | 1 | 213 | 0.85 | 200 | 0.80 | 175 | 0.70 | 163 | 0.65 |
| Rear terminals, flexible cable | 238 | 0.95 | 200 | 0.80 | 188 | 0.75 | 163 | 0.65 | 150 | 0.60 |
| **Plug-in/draw-out version** | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ | $I_{max}$ (A) | $I_r / I_n$ |
| Cage terminals, flexible cable | 250 | 1 | 238 | 0.95 | 238 | 0.95 | 233 | 0.93 | 225 | 0.90 |

*For further technical information, please contact Legrand technical support.*

*Data indicated in this document refers exclusively to test conditions according to product standards, unless otherwise indicated in the documentation.*
*For the different conditions of use of the product, inside electrical equipment or in any case inserted in the installation context, refer to the regulatory requirements of the equipment, local regulations and design specifications of the system*