87045 LIMOGES Cedex
Phone :+33 05 55 06 87 87 – Fax :+33 05 55 06 88 88

DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :
from 4 236 30 to 4 236 39;
from 4 236 70 to 4 236 79;
4 231 87;

CONTENTS

1. USE

DPX³ HP 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.
DPX³ HP 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

Circuit breakers

	DPX³ 125 HP + earth leakage	
	36 kA	50 kA
I_n (A)	4P	
16	423630	423670
20	423631	423671
25	423632	423672
32	423633	423673
40	423634	423674
50	423635	423675
63	423636	423676
80	423637	423677
100	423638	423678
125	423639	423679

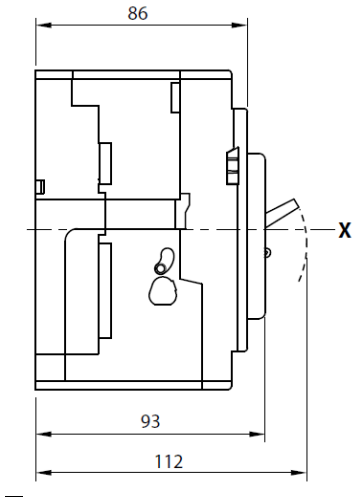
Switch disconnectors

DPX³-I 125 HP + earth leakage	
I_n (A)	4P
125	423187

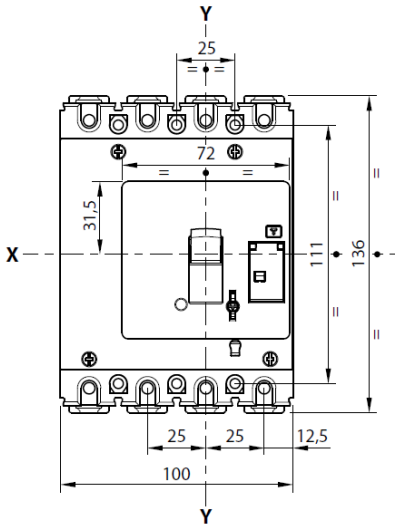
3. DIMENSIONS AND WEIGHTS

3.1 Dimensions

Lateral view



Frontal view (4 poles)



DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :

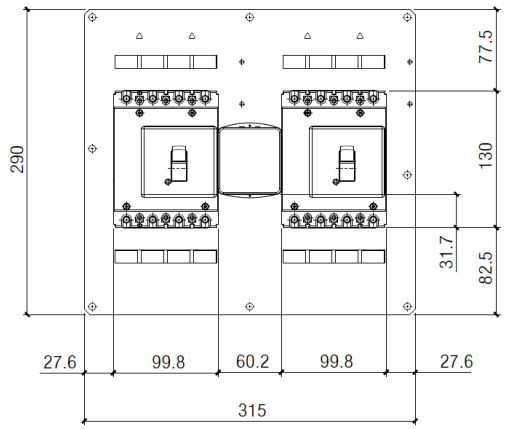
from 4 236 30 to 4 236 39;

from 4 236 70 to 4 236 79;

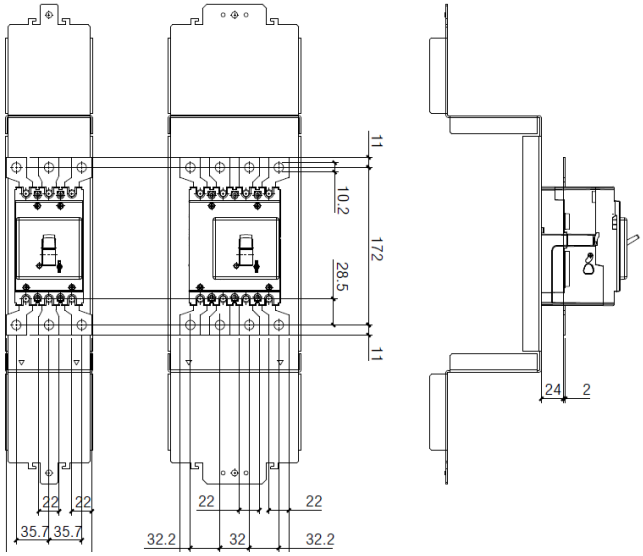
4 231 87;

Interlock

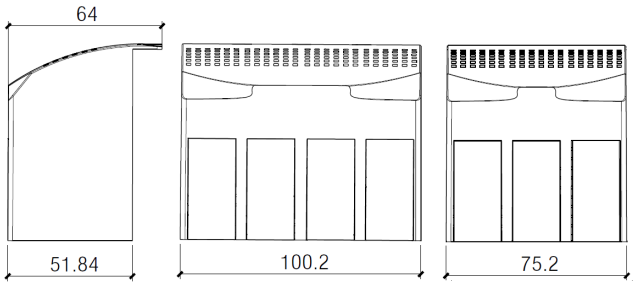
(for rear plate interlock dimension, see relative instruction sheet)

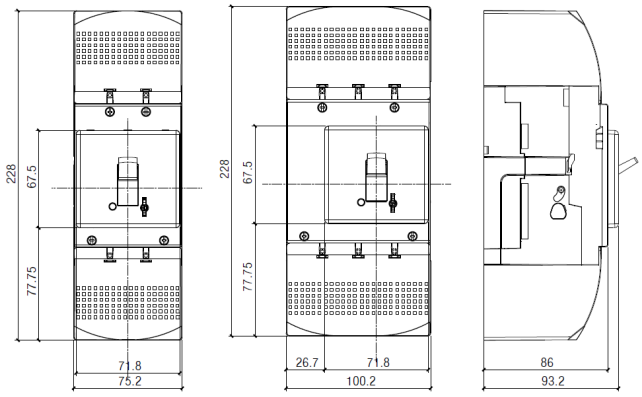


Spreaders

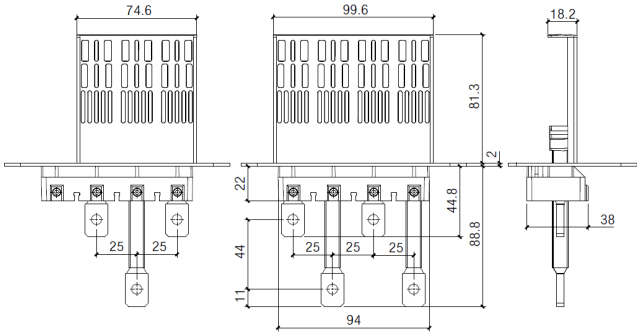


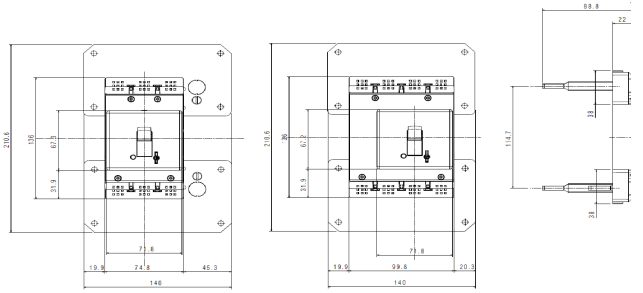
Sealable terminal shields





Rear terminals





Technical sheet: F03041EN/01 Update: 27/08/2024 Creation: 21/09/2019

DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :

from 4 236 30 to 4 236 39;

from 4 236 70 to 4 236 79;

4 231 87;

3.2 Weights

	Weights (Kg)
Configuration	**4P**
Circuit breaker/switch disconnector	1.4
Direct rotary handle*	0.18
Vari depth rotary handle*	0.55
Interlock*	0.35
Spreader*	0.175
** to add to device weight*	

4. OVERVIEW

4.1 Supplied with:

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

5. ELECTRICAL CONNECTIONS

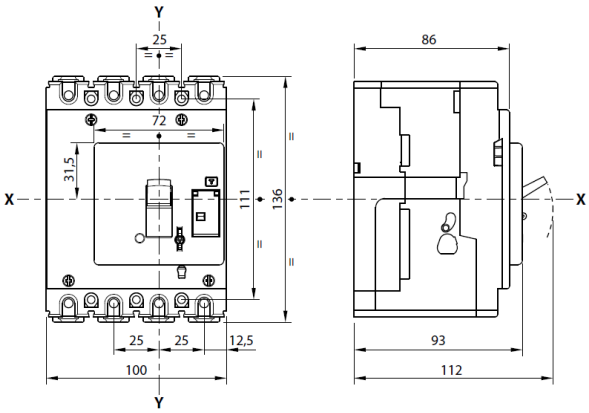
5.1 Mounting possibilities

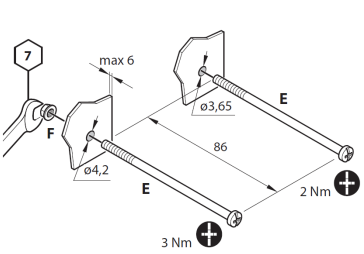
On plate:

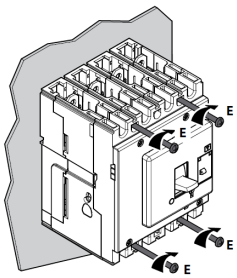
- Vertical
- Horizontal
- Supply invertor type

5.2 Mounting

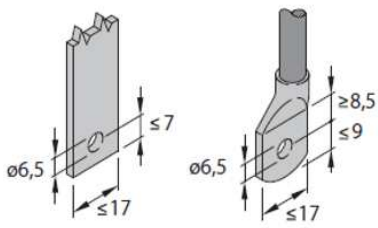
(see instruction sheet for detailed mounting procedures)

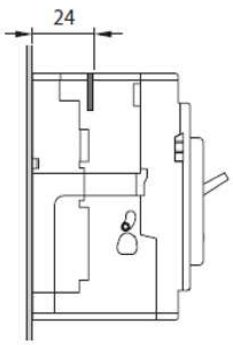






Busbars/cable lugs:





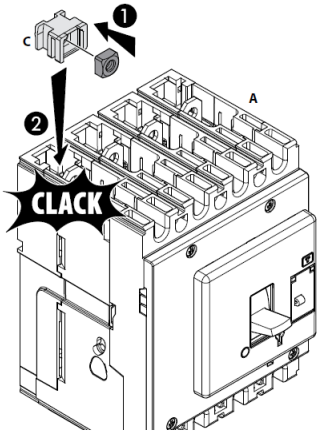
DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

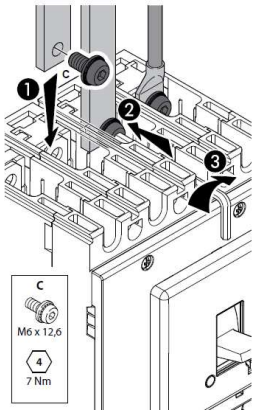
Reference(s) :

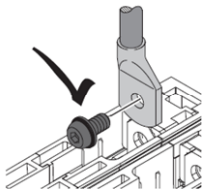
from 4 236 30 to 4 236 39;

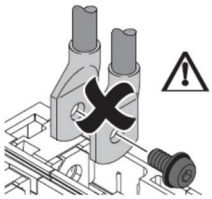
from 4 236 70 to 4 236 79;

4 231 87;

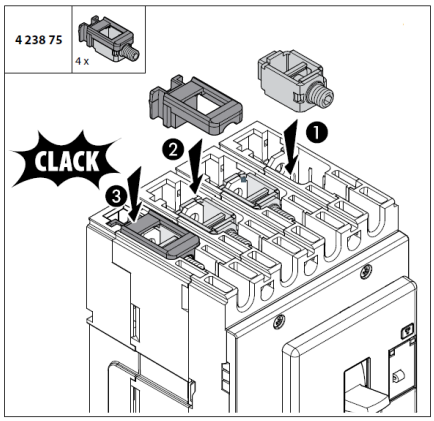


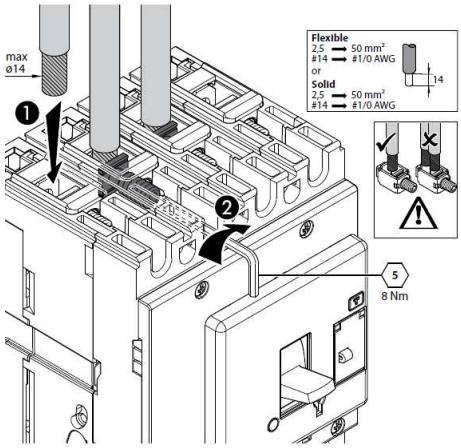






Cables:





DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :

from 4 236 30 to 4 236 39;

from 4 236 70 to 4 236 79;

4 231 87;

6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit breaker

Circuit Breaker	DPX³ 125 HP + RCD F/N (36kA, 50kA)
Rated current (A)	16-20-25-32-40-50-63-80-100-125
Poles	4
Pole pitch (mm)	25
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
Rated frequency (Hz)	50 - 60
Reference ambient temperature(°C)	40 - 50
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	20000
Electrical endurance at I_n (cycles)	8000
Utilization category	A
Suitable for isolation	Yes
Type of protection	Thermal-magnetic
Thermal adjustment I_r	0,8 - 0,9 - 1 x I_n
Magnetic adjustment I_i (A)	400 A up to In=40A (not adjustable); 10 x In up to In=125A (not adjustable);
Neutral protection for 4P (%I_{th} of phase pole)	100
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)	100 x 135 x 86 (4P)

Switch disconnectors

Switch	DPX³-I 125 HP
Uninterrupted nominal current I_e (A)	125
Short-time resistive current I_{cw}(kA) for 1s	1.5
Rated short-circuit making capacity I_{cm} (kA)	2.5
Rated insulation voltage U_i (V AC)	500
Maximum rated operating voltage U_e (V AC)	500
Rated impulse withstand voltage U_{imp} (kV)	6
Utilisation category	AC23A
Suitable for isolation	Yes
Nominal frequency (Hz)	50-60
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	20000
Electrical endurance at I_n (cycles)	8000
Dimensions (W x H x D) (mm)	100 x 135 x 86 (4P)

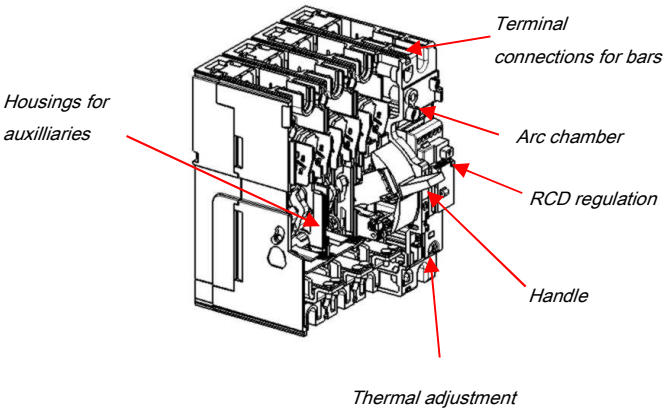
The maximum admissible (absolute) temperature is 125°C (for detail, see IEC 60947-1 and 60947-2).

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.

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	20	25
	480/500 V AC	12	16
	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	12	16

6.3 Rated current (I_n) at 40°C / 50°C

	Phases limit trip current			
	thermal (I_r)		magnetic (I_i)	
I_n (A)	0.8 x I_n	1 x I_n	min	max
16	13	16	400	400
20	16	20	400	400
25	20	25	400	400
32	26	32	400	400
40	32	40	400	400
50	40	50	500	500
63	51	63	630	630
80	64	80	800	800
100	80	100	1000	1000
125	100	125	1250	1250

6.4 Load operations

Force on handle	N
Opening operation	40
Closing operation	40
Restore operation	53

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)	16	20	25	32	40	50	63	80	100	125
Lugs	3.47	4.82	7.54	2.98	4.42	6.90	6.61	6.40	10.00	10.63
Spreaders	3.50	4.86	7.60	3.08	4.58	7.15	7.01	7.04	11.00	12.19
Rear terminals	3.56	4.96	7.76	3.34	4.98	7.78	8.00	8.64	13.50	16.09

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.

Switch disconnectors

	Power losses per pole (W)
	I_n(A)
	125
Lugs	7,81
Spreaders	9,38
Rear terminals	13.28

Note: power loss in the table above are referred and measured as described in the standard IEC 60947-3 for switches. 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)	-20	-10	-5	0	10	20	30	40	50	60	70
16	20	20	19	19	18	17	17	16	16	15	14
20	25	24	24	23	23	21	21	20	20	18	17
25	31	30	30	29	28	27	26	25	25	23	22
32	40	39	38	37	36	35	33	32	32	29	28
40	50	49	48	47	45	43	42	40	40	37	35
50	62	61	59	58	56	54	52	50	50	45	43
63	79	77	75	74	71	68	65	63	63	57	54
80	100	97	95	93	90	86	83	80	80	73	69
100	125	121	119	117	112	108	104	100	100	91	86
125	157	151	148	146	140	135	130	125	125	114	108

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 DPX³ 125 HP circuit breakers, degree 3, according to IEC/EN 60947-2

6.7.3 Altitude

Altitude derating for DPX³ and DPX³–I with RCD

Altitude (m)	2000	3000	4000	5000
U_e (V)	500	430	380	330
I_n (A) (T_a = 40°C/50°C)	1 x I_n	0.98 x I_n	0.93 x I_n	0.9 x I_n

DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :

from 4 236 30 to 4 236 39;

from 4 236 70 to 4 236 79;

4 231 87;

7. CONFORMITY

DPX³ HP 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.

DPX³ HP respect the European Directives REACh, RoHS, RAEE.

.

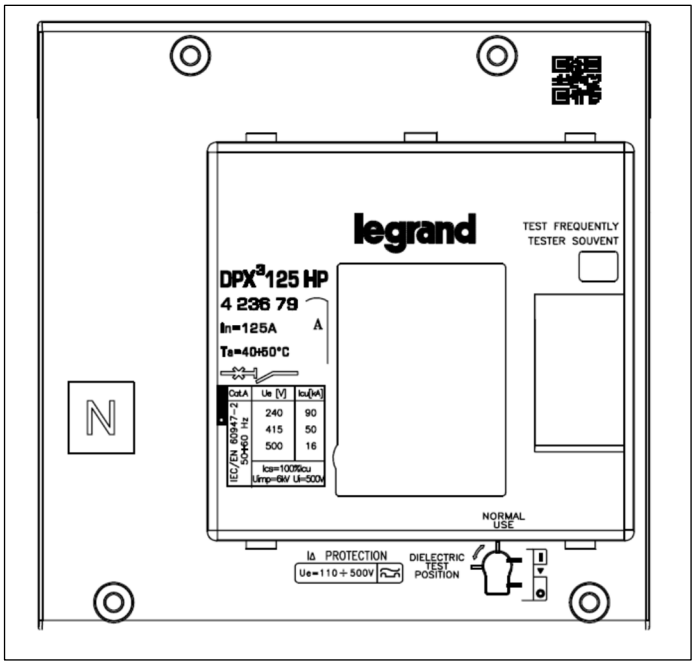
For specific information, please contact Legrand support

7.1 Marking

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

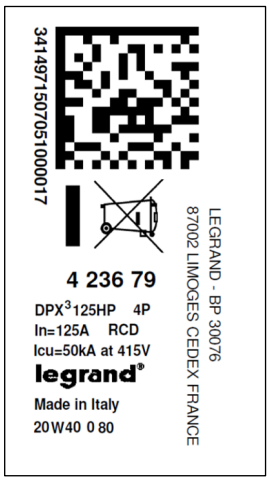
Product laser label on front

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



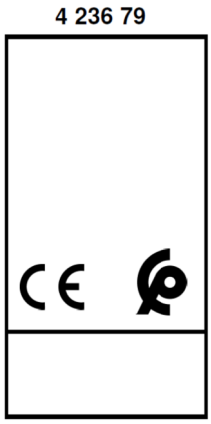
Product sticker label on side

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



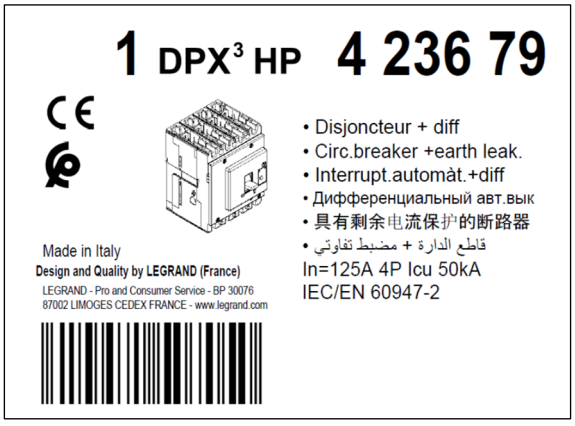
Mark sticker label on side

- -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



DPX³ 125 HP thermal magnetic with earth leakage circuit breakers
DPX³-I 125 HP switch disconnectors with earth leakage

Reference(s) :
from 4 236 30 to 4 236 39;
from 4 236 70 to 4 236 79;
4 231 87;

8. EQUIPMENTS AND ACCESSORIES

8.1 Releases (for DPX³ 125/250 HP and DPX³ 160/250)

- shunt releases with voltage:

12 Vac and dc	*ref. 4 210 12*
24 Vac and dc	*ref. 4 210 13*
48 Vac and dc	*ref. 4 210 14*
110÷130 Vac	*ref. 4 210 15*
220÷277 Vac	*ref. 4 210 16*
380÷480 Vac	*ref. 4 210 17*

Maximum power = 400 VA / W

- undervoltage releases with voltage:

12 Vac and dc	*ref. 4 210 18*
24 Vac and dc	*ref. 4 210 19*
48 Vac and dc	*ref. 4 210 20*
110÷130 Vac and dc	*ref. 4 210 21*
220÷240 Vac	*ref. 4 210 22*
277 Vac	*ref. 4 210 23*
380÷415 Vac	*ref. 4 210 24*
440÷480 Vac	*ref. 4 210 25*

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

UVR releases can be used on DPX3 125/250 HP starting from batch 19W15

- time-lag undervoltage releases (800 ms)

Time-lag modules with voltage:

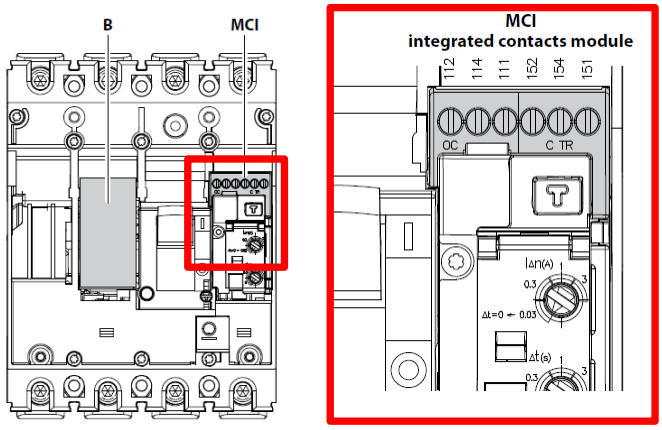
230 V ac	*ref. 0 261 90*
400 V ac	*ref. 0 261 91*

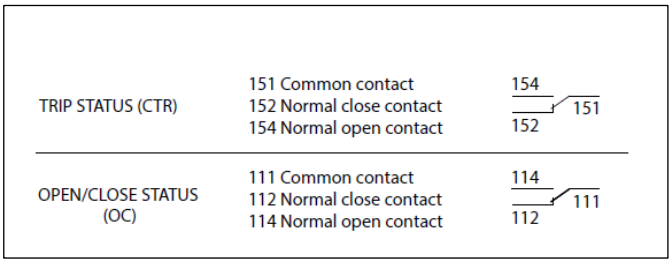
Release *ref. 4 210 98*
(to be equipped with a time-lag module 0 261 90/91)

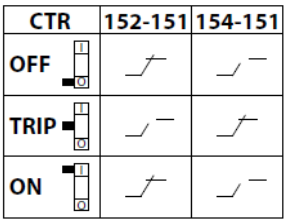
8.2 Auxiliary contacts

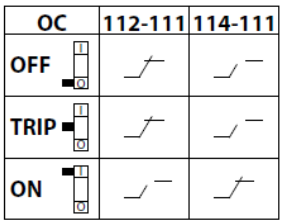
For version of DPX³ 125 HP thermal magnetic, with earth leakage module, auxiliary contacts are integrated inside module M.C.I (see instruction sheet for details).

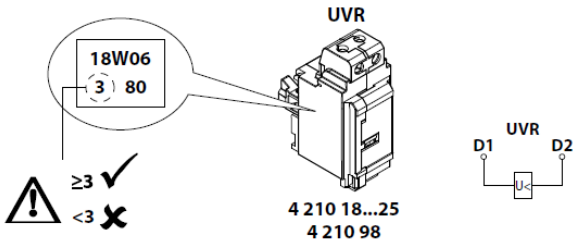
Here a connection scheme to get auxiliary functionality:

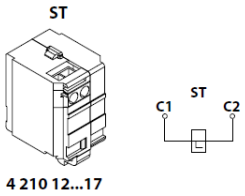












	B
UVR	✓ (max 1)
ST	
OC/CTR	✗

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

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. 4 238 80*
- 1 lock + 1 flat key with fixed mapping (EL43525) *ref. 4 238 81*
- 1 lock + 1 flat key with fixed mapping (EL43363) *ref. 4 238 82*
- 1 lock + 1 star key with random mapping *ref. 4 238 83*

8.4 Mechanical accessories

- Padlock (for locking in "OPEN" position) *ref. 4 210 49*
  (ref. 4 210 49 is compatible with DPX³ 250 HP and DPX³ 160/250)
- Sealable terminal shields:
  - Set of 3 (for 4P) *ref. 4 238 94*
- Insulated shields:
  - Set of 3 (for 4P) *ref. 4 238 35*

  (ref. 4 238 35 is compatible with DPX³ 250 HP)

8.5 Connection accessories

Cage terminals

- Set of 4 terminals for cables 50 mm² max (rigid) *ref. 4 238 85*
  or 50 mm² max (flexible) Cu/Al
- Set of 4 terminals (high capacity) *ref. 4 238 77*
  for cables 70 mm² max for Cu and 95 mm² max for Al
  Section relative to maximum current is 70 mm² (for Al)

Spreaders *(incoming or outcoming):*
- Set of 4 (for 4P) *ref. 6 238 89*

Rear terminals *(incoming or outcoming):*
- Set of 4 (for 4P) *ref. 4 238 92*

Cage terminal use specifications

DPX³ 125HP							
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	4	70	95
	20	2,5	4				
	25	4	6				
	32	6	10				
	40	10	16				
	50	10	16				
	63	16	25				
	80	25	35				
	100	35	\				
	125	50	\				
High capacity	80	25	35	35	35	95	120
	100	35	50				
	125	50	70				

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

8.6 Interlock mechanism

(for interlocking 2 DPX³ 125 HP or 2 DPX³ 250 HP breakers)

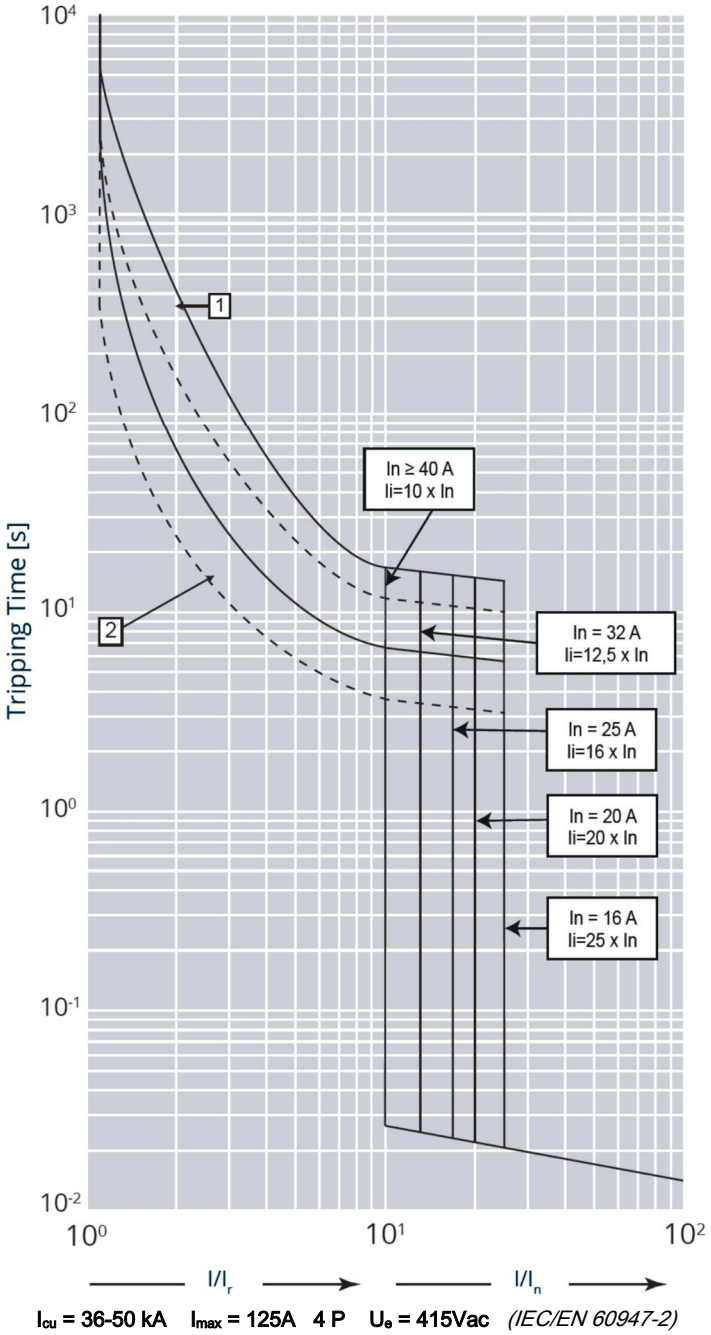
No frame mixing in interlock mechanism

- Interlock mechanism – standard version *ref. 4 238 27*
  (for fixed version DPX³ 125 HP and DPX³ 250 HP)
- Interlock mechanism – for electronic module *ref. 4 238 28*
  (for fixed version DPX³ 125 HP and DPX³ 250 HP)
- Interlock plate for DPX³ 125 HP *ref. 4 238 25*

9. CURVES

9.1.1 Thermal magnetic tripping curve (rated current I_n <= 80A)

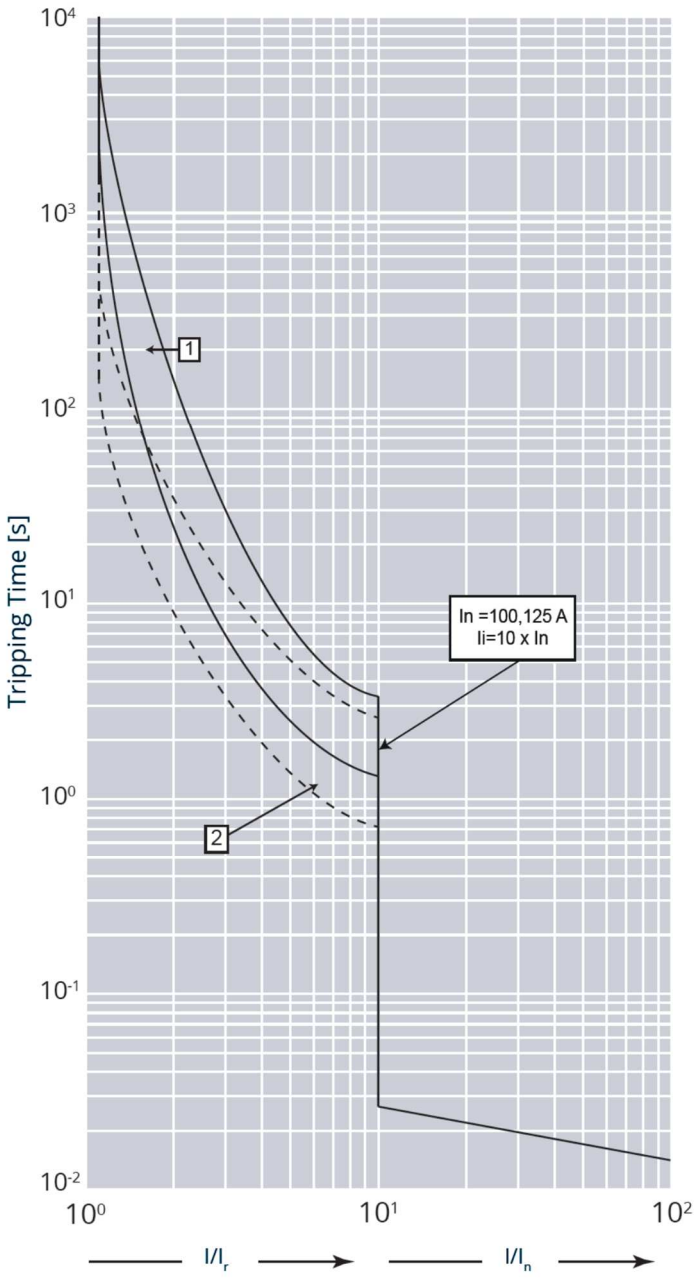
Update: 11/06/2019



I_{cu} = 36-50 kA I_{max} = 125A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

Value	Description
t	time
I	current
I_n	rated current
I_r	long time setting current
curve 1	characteristic with cold start
curve 2	characteristic with hot start

9.1.2 Thermal magnetic tripping curve (rated current I_n > 80A)

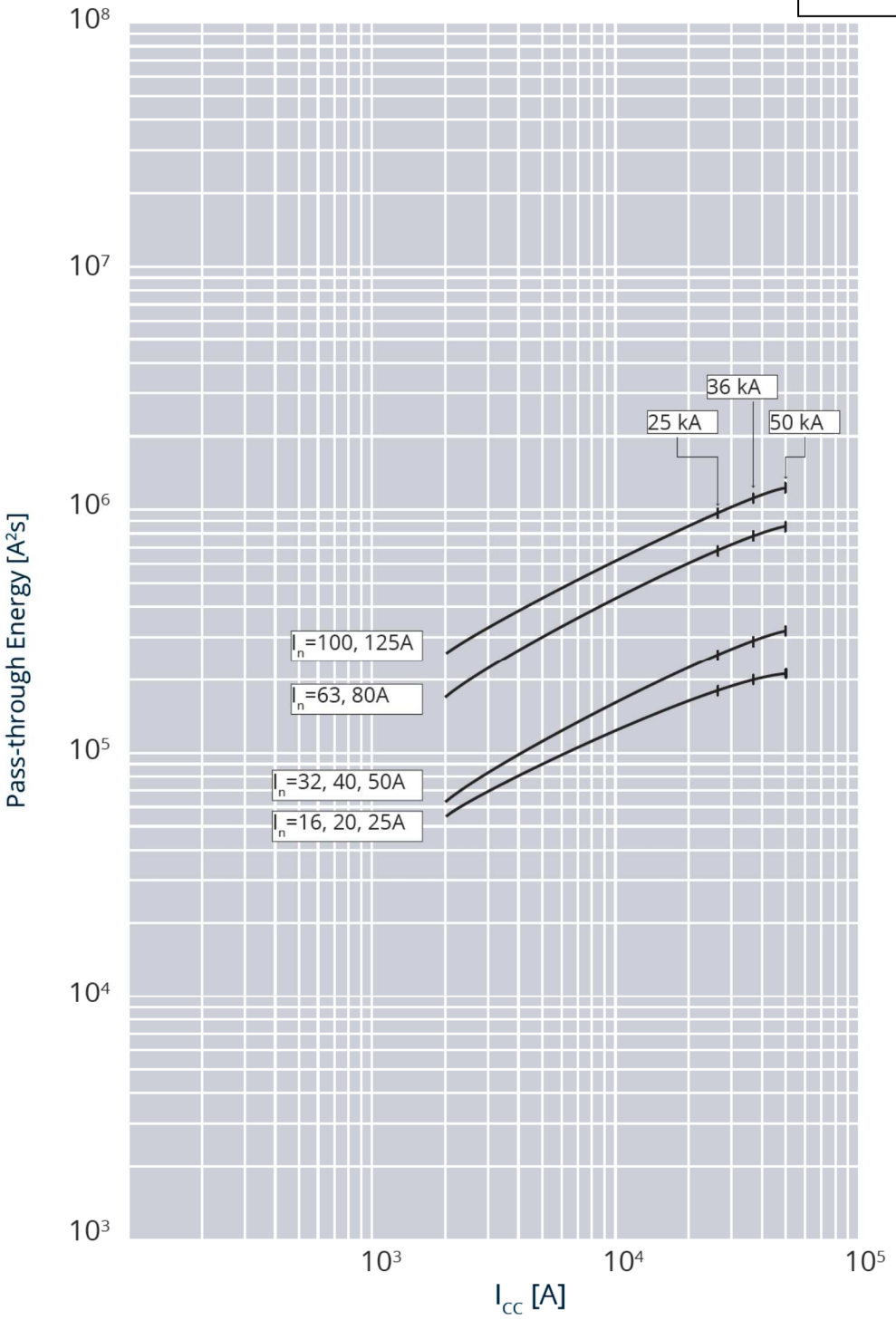


I_{cu} = 36-50 kA I_{max} = 125A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

Value	Description
t	time
I	current
I_n	rated current
I_r	long time setting current
curve 1	characteristic with cold start
curve 2	characteristic with hot start

9.2 Pass-through specific energy characteristic curve

Update: 04/09/2019

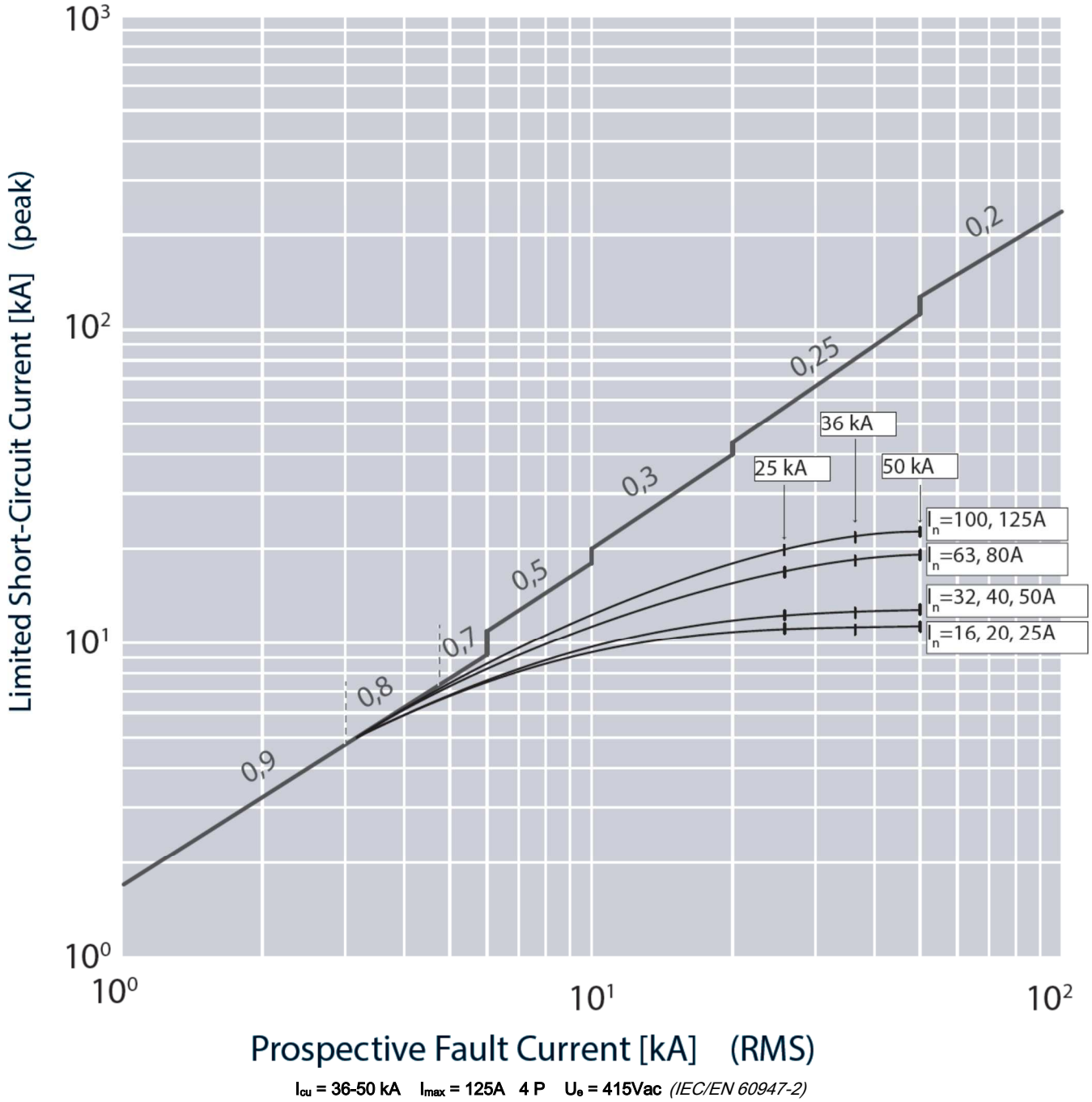


I_{cu} = 36-50 kA I_{max} = 125A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

9.3 Cut-off peak current characteristic curve (kA)

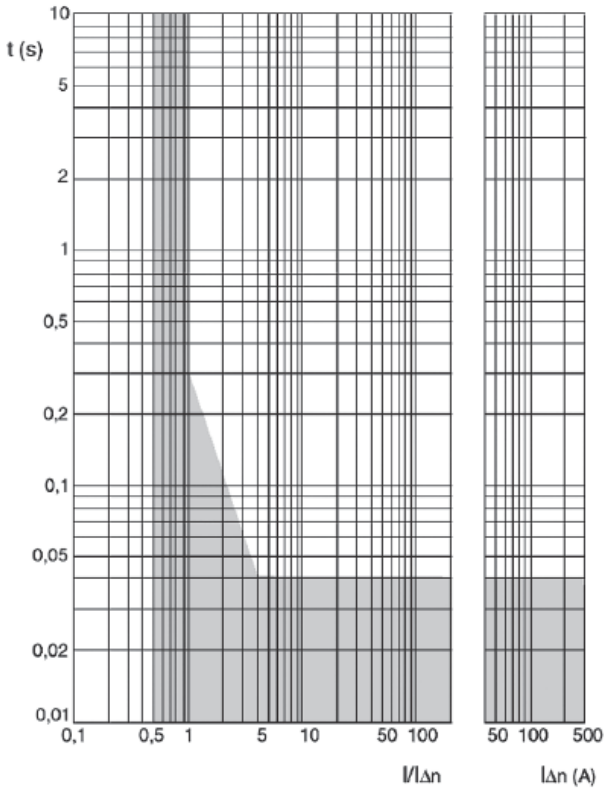
Update: 04/02/2020



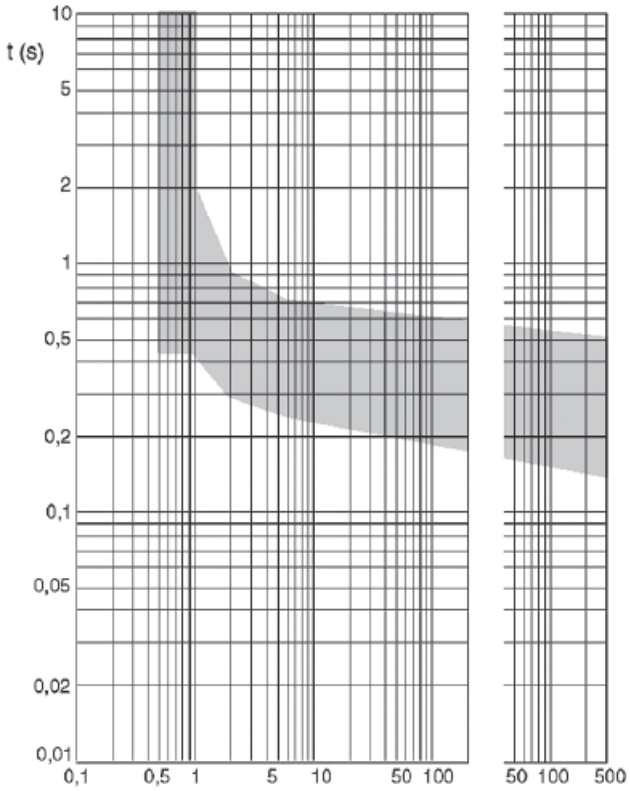
I_{cu} = 36-50 kA I_{max} = 125A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

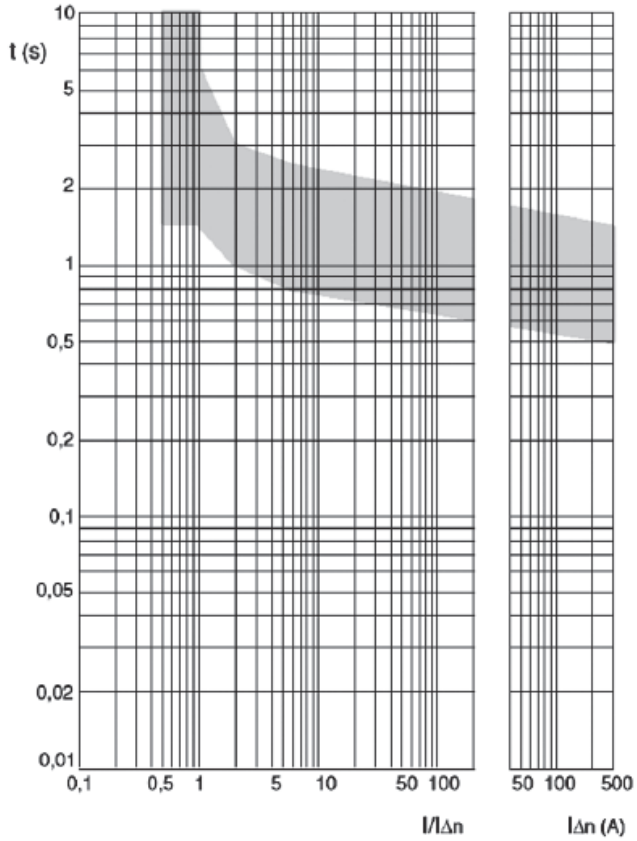
9.4.1 Earth leakage curves, instantaneous



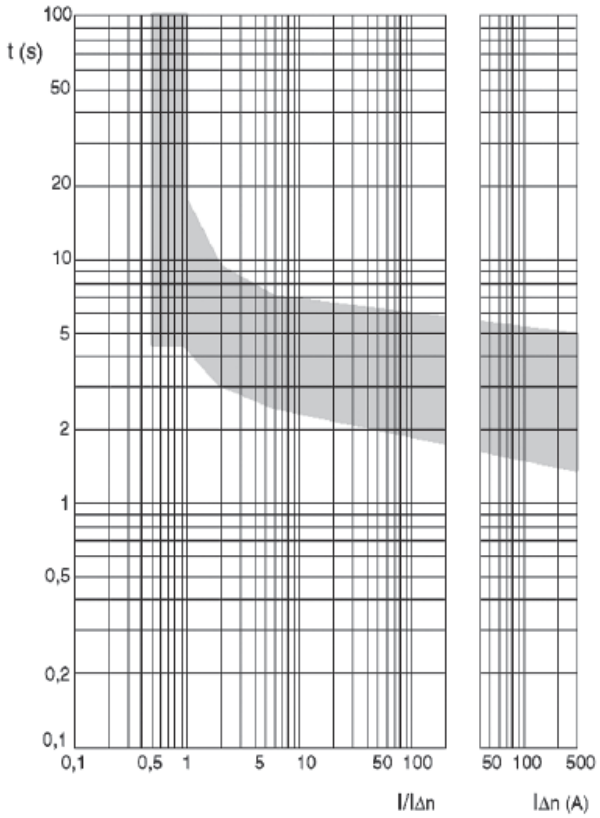
9.4.2 Earth leakage curves, time delay = 0.3 s



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	128	1.02	125	1	125	1	113	0.90	106	0.85
Cage terminals, rigid cable	128	1.02	125	1	125	1	113	0.90	106	0.85
Lugs, flexible cable	128	1.02	125	1	125	1	113	0.90	106	0.85
Lugs, rigid cable	128	1.02	125	1	125	1	113	0.90	106	0.85
Spreaders, flexible cable	128	1.02	125	1	125	1	113	0.90	106	0.85
Spreaders, rigid cable	128	1.02	125	1	125	1	113	0.90	106	0.85

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