Clegrand[®]

DPX³ 250 HP thermal magnetic with earth leakage circuit breakers DPX³-I 250 HP switch disconnectors with earth leakage



87045 LIMOGES Cedex

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Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

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PAGES

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

	DPX ³ 250 HP + earth leakage						
	36 kA 50 kA						
I _n (A)	4	Р					
16	423045	423105					
20	423046	423106					
25	423047	423107					
32	423048	423108					
40	423049 423109						
50	423050	423110					
63	423051	423111					
80	423052	423112					
100	423053	423113					
125	423054	423114					
160	423055 423115						
200	423056	423116					
250	423057	423117					

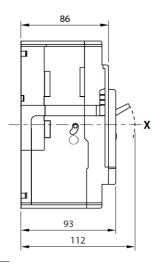
Switch disconnectors

DPX ³ -I 250 HP + earth leakage					
I _n (A)	4P				
250	423183				

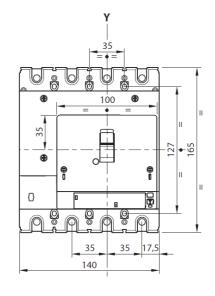
3. DIMENSIONS AND WEIGHTS

3.1 Dimensions

Lateral view

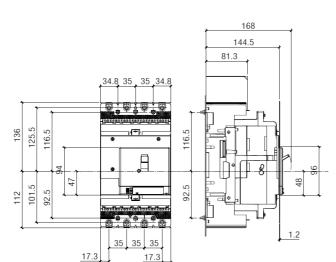


Frontal view

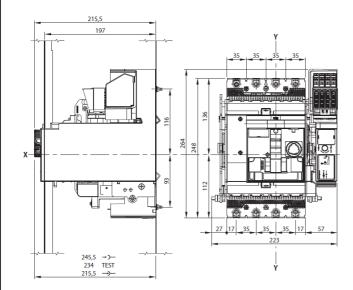


Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;



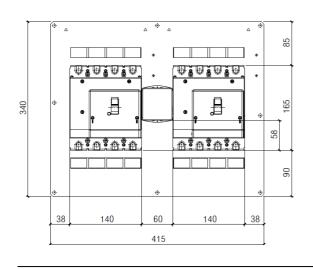


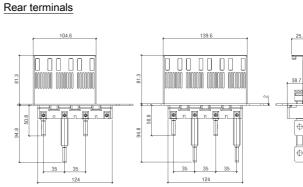
Draw-out version



Interlock

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

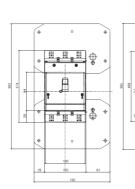


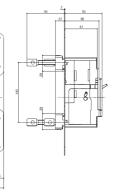


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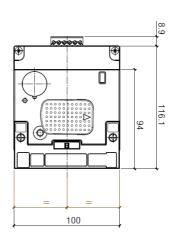
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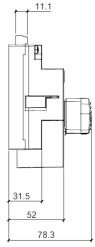
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Direct rotary handle





Technical sheet: F03043EN/02

Update: 14/11/2023

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Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

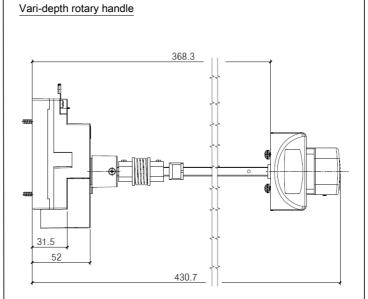
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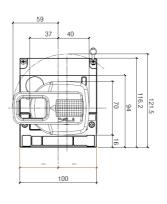
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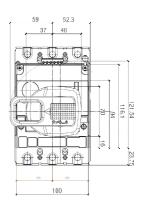
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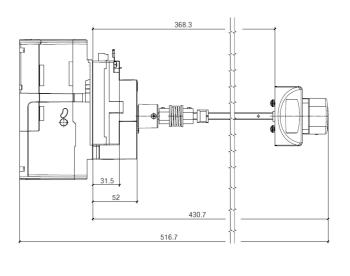
52

78.3



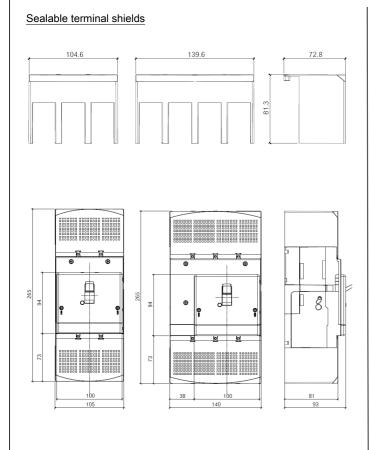


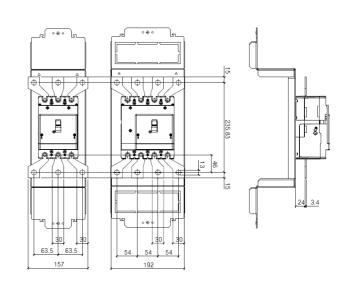




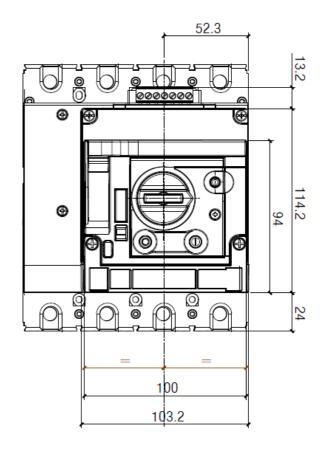
Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

Spreaders

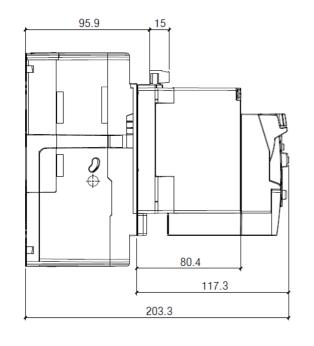


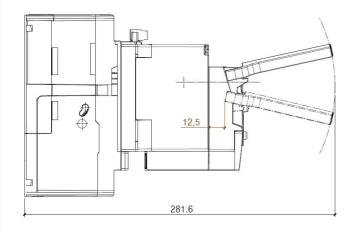


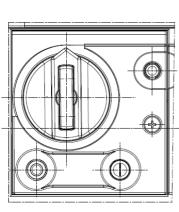
Motor operator

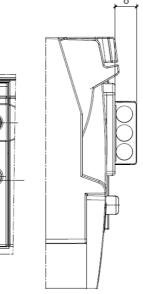


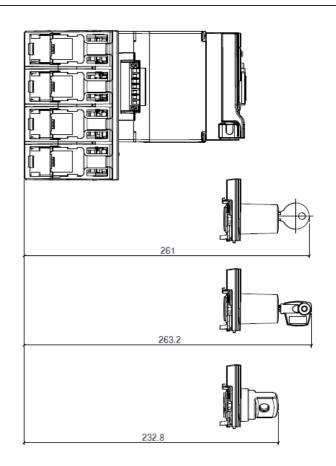
Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;











3.2 Weights

	Weights (Kg)
Configuration	4P
Circuit breaker/switch disconnector	2.6
Plug-in*	3.5
Draw-out**	2.5
Interlock*	0.35
Rear interlock (for plug-in/draw-out version)*	5
Motor operator*	1
* to add to device weight	
* to add to device and plug-in weights	

4. OVERVIEW

4.1 Supplied with:

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

5. ELECTRICAL CONNECTIONS

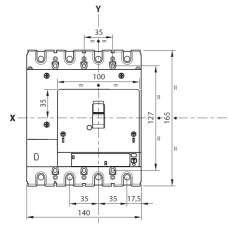
5.1 Mounting possibilities

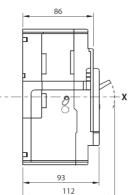
- On plate:
 - Vertical
- Horizontal
- Supply invertor type

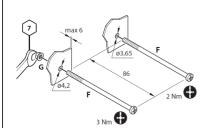
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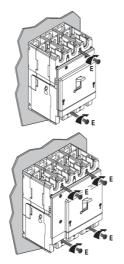
5.2 Mounting

(see instruction sheet for detailed mounting procedures)

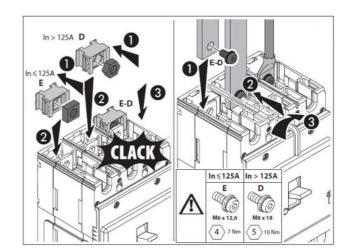


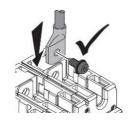






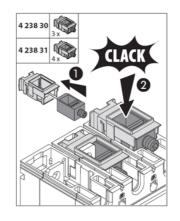
Busbars/cable lugs:

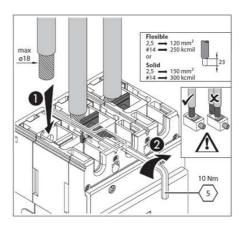






Cables:





Technical sheet: F03043EN/02

Update: 14/11/2023

6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

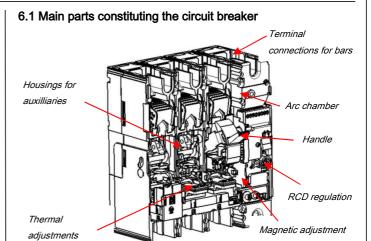
Circuit breaker

Circuit Breaker	DPX ³ 250 HP + RCD F/N (36kA, 50kA)
Rated current (A)	16-20-25-32-40-50-63-80-100-125-160-200-250
Poles	4
Pole pitch (mm)	35
Rated insulation voltage (50/60Hz) U ₁ (V)	500
Rated operating voltage (50/60Hz) U. (V)	500
Rated Impulse withstand current Uims (kV)	6
Rated frequency (Hz)	50 - 60
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 In (cycles)	6000
Electrical endurance at 0.5 ln (cycles)	6000
Utilization category	A
Suitable for isolation	Yes
Type of protection	Thermal-magnetic
Thermal adjustment I	0,8 - 0,9 - 1 x l _n
· ·	400 A up to In=40A (not adjustable);
Magnetic adjustment I _I (A)	6,5-10-13 x l _n for In=50A;
,	5-7,5-10 x In up to =250A;
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)	140 x 165 x 86 (4P)

Switch disconnectors

Switch	DPX ³ -I 250 HP				
Uninterrupted nominal current I. (A)	250				
Short-time resistive current Iow(kA) for 1s	3				
Rated short-circuit making capacity Iom (kA)	4.3				
Rated insulation voltage U _I (V AC)	500				
Maximum rated operating voltage U _e (V AC)	500 (@ AC22A) - 415 (@ AC23A)				
Rated impulse withstand voltage U _{imp} (kV)	8				
Utilisation category	AC22A (I _n =250A)				
Suitable for isolation	Yes				
Nominal frequency (Hz)	50-60				
Operating temperature (°C)	-25 + 70				
Mechanical endurance (cycles)	12000				
Mechanical endurance with motor control (cycles)	12000				
Electrical endurance at In (cycles)	6000				
Electrical endurance at 0.5 ln (cycles)	6000				
Dimensions (W x H x D) (mm)	140 x 165 x 86 (4P)				

Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;



6.2 Breaking capacity (kA)

		Breaking capa	city (kA) & I _{cs}		
		4P			
	U _e /I _{cu} (I _{cu} letter)	36kA (F)	50kA (N)		
	220/240 V AC	70	90		
	380/415 V AC	36	50		
IEC 60947-2	440/460 V AC	25	30		
TEC 00947-2	480/500 V AC	16	18		
	I _{cs} (% I _{cu})	100	100		
	Rated making	capacity under sl	hort circuit I _{cm}		
	I _{cm} (kA) at 415V	76.5	105		
NEMA AB-1	220/240 V AC	70	90		
NEIVIA AB-1	480/500 V AC	16	18		

6.3 Rated current (In) at 40°C / 50°C

	Phases limit trip current							
	therm	nal (I _r)	magn	etic (I _i)				
In (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	325	650				
63	51	63	315	630				
80	64	80	400	800				
100	80	100	500	1000				
125	100	125	625	1250				
160	128	160	800	1600				
200	160	200	1000	2000				
250	200	250	1250	2500				

6.3 Load operations

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

6.4 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.

6.5 Power losses per pole under In

Circuit breaker

		Power losses per pole (W)											
In (A)	16	20	25	32	40	50	63	80	100	125	160	200	250
Cage terminals	3.29	4.91	5.87	5.49	8.44	6.33	10.39	7.94	8.55	14,00	12.98	16.38	23.33
Lugs	3.01	4.49	7.01	5.02	7.71	5.78	9.49	7.25	7.81	12.79	11.86	14.96	21.31
Spreaders	2.53	3.78	4.52	4.22	6.49	4.87	7.99	6.11	6.58	10.77	9.98	12.6	17.95
Rear terminals	3.1	4.63	5.54	5.17	7.95	5.97	9.79	7.48	8.06	13.19	12.23	15.43	21.99

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)
	250
Cage terminals	14.84
Lugs	13.55
Spreaders	11.41
Rear terminals	13.98

Note: power losses 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.

Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

6.6 DERATINGS

according to IEC/EN 60947-1

6.6.1 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.

In (A)	0	10	20	30	40	50	60	70	
16	18	17	17	16	16	16	15	14	
20	22	22	21	20	20	20	19	17	
25	28	27	26	26	25	25	23	21	
32	35	35	35	33	32	32	30	27	
40	44	43	42	41	40	40	37	34	
50	55	54	53	51	50	50	47	43	
63	69	68	67	64	63	63	59	54	
80	88	86	86	82	80	80	74	68	
100	110	108	105	102	100	100	93	85	
125	138	135	131	128	125	125	116	106	
160	176	173	168	163	160	160	149	136	
200	258	244	230	215	200	200	180	170	
250	322	305	287	269	250	250	225	213	

For derating temperature with other configurations, see table A.

6.6.2 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 250 HP circuit breakers, degree 3, according to IEC/EN 60947-2

6.6.3 Altitude

Altitude derating for DPX³ and DPX³-I with RCD

Altitude (m)	2000	3000	4000	5000
U _e (V)	500	430	380	330
$I_n(A)(T_a = 40^{\circ}C/50^{\circ}C)$	1 x I _n	0.98 x I _n	0.93 x I _n	0.9 x I _n

7. CONFORMITY

DPX³ HP range of product concerning circuit-breakers and switchdisconnectors 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.

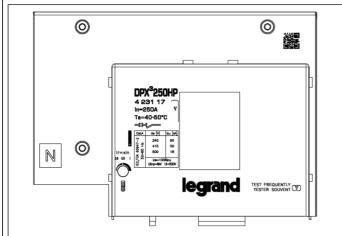
For specific information, please contact Legrand support.

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

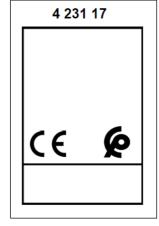


Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

Mark sticker label on side

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

-Product code



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 DPX³ 125/250 HP and DPX³ 160/250) shunt releases with voltage

 Shuhi teleases 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

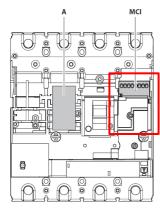
UVR releases can be used on DPX3 125/250 HP starting from batch 19W15

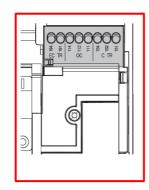
 time-lag undervoltage releases (800 ms) <i>Time-lag modules with voltage:</i> 	
230 V ac	ref. 0 261 90
400 V ac	ref. 0 261 91
Release (to be equipped with a time-lag module 0 261 90/91)	ref. 4 210 98

8.2 Auxiliary contacts

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

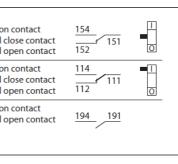
Here a connection scheme to get auxiliary functionality:

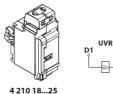




151 Common contact 154 TRIP STATUS 152 Normal close contact 152 154 Normal open contact 111 Common contact 114 **OPEN/CLOSE STATUS** 112 Normal close contact 112 114 Normal open contact 191 Common contact 194 TRIP RCD 194 Normal open contact

D2





UVE

4 210 98

Reference(s) :

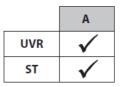
4 231 83;

from 4 230 45 to 4 230 57;

from 4 231 05 to 4 231 17;



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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
- 1 lock + 1 flat key with fixed mapping (EL43525) ref. 4 238 81
- ref. 4 238 82 1 lock + 1 flat key with fixed mapping (EL43363) ٠ ref. 4 238 83
- 1 lock + 1 star key with random mapping
 - Creation: 28/10/2019

10/18

ref. 4 238 80

8.3 Rotary handles

Direct on DPX ³ (with auxiliary option)	
 Standard (black) 	ref. 4 238 00
For emergency use (red / yellow)	ref. 4 238 01
Vari-depth handle IP55 (with auxiliary option)	
 Standard (black) 	ref. 4 238 02
 For emergency use (red / yellow) 	ref. 4 238 03
Locking accessories (for rotary bandle with auxilia	ny option)

Locking accessories (for rotary handle with auxiliary option)

Key lock accessory for direct rotary handle ref. 4 238 04
 Key lock accessory for vari-depth rotary handle (ref. 4 238 05 is compatible with DPX³ 125 HP also)

Ref. 4 238 04 and 4 238 05 must be used with universal keylocks to get the complete locking kit for rotary handle

8.4 Motor operators

For synchronized operations (energy storage type):

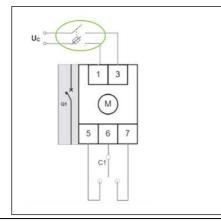
٠	24 Vac and dc	ref. 4 238 40
•	48 Vac and dc	ref. 4 238 41
٠	110 Vac	ref. 4 238 42
•	230 Vac	ref. 4 238 43

Technical parameters:

Valtaga	Bronorty	A	C	DC		
Voltage	Property	Opening	Closing	Opening	Closing	
	Maximum inrush power (VA)	75	430	55	320	
24V ac/dc	Rated power (VA)	45	-	20	-	
24V aC/UC	Absorption time (s)	2.8	0.01	3.3	0.01	
	Operating current time (s)	1.1	0.03	1.2	Closing 320	
	Maximum inrush power (VA)	85	1000	70	690	
48V ac/dc	Rated power (VA)	65	1	15	1	
46V ac/uc	Absorption time (s)	3.3	0.006	3.8	0.006	
	Operating current time (s)	1.1	0.02	1.3	0.02	
	Maximum inrush power (VA)	95	600	-	-	
110V ac	Rated power (VA)	60	-	-	-	
	Absorption time (s)	3	0.02	-	-	
	Operating current time (s)	1.0	0.03	-	-	
	Maximum inrush power (VA)	125	460	-	-	
2201/ ***	Rated power (VA)	70	-	-	-	
230V ac	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:



Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

Locking accessory (for motor operator)

Padlock (for motor operator locking) ref. 4 238 46
Key lock accessory for motor operator ref. 4 238 45

Ref. 4 238 45 must be used with universal keylocks to get the complete locking kit for motor operator

8.6 Mechanical accessories

٠	Padlock (for locking in "OPEN" position)	ref. 4 210 49
(1	ref. 4 210 49 is compatible with DPX³ 125 HP and	DPX3 160/250)

•	Sealable term o	ninal shields: Set of 3 (for 4P)	ref. 4 238 24
•	Insulated shie	lds.	

• Set of 3 (for 4P) ref. 4 238 35

(ref. 4 238 34/35 are compatible with DPX³ 125 HP also)

8.7 Connection accessories

Cage terminals

• Set of 4 terminals for cables 150 mm² max (rigid) *ref. 4 238 31* or 120 mm² max (flexible) Cu/Al

Spreaders (incoming or outcoming):Set of 4 (for 4P)

Rear terminals (incoming or outcoming):

Set of 4 (for 4P) ref. 4 238 22

Technical sheet: F03043EN/02

Creation: 28/10/2019

ref. 6 250 18

DPX ³ 250 HP thermal magnetic with earth
leakage circuit breakers
DPX ³ -I 250 HP switch disconnectors with
earth leakage

(A plug-in is a DPX³ 250 HP fitted with special terminals and mounted

(for plug-in and draw-out versions for DPX³ 250 HP and DPX³-I 250 HP)

Ref. 4 238 63 must be used with universal keylocks to get the complete

8.8 Plug-in version

Plug-in/draw-out base for 3P

Plug-in/draw-out base for 4P

Plug-in/draw-out mobile part kit for 3P Plug-in/draw-out mobile part kit for 4P

on a plug-in base)

Plug-in accessories

Locking accessory (for plug-in)

locking kit for plug-in version

Key lock accessory for plug-in

Bases

٠

from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17;

4 231 83;

8.9 Draw-out version

Reference(s) :

(A DPX 3 250 HP draw-out version is a plug-in DPX 3 250 HP fitted with a "Debro-lift" mechanism which can be used to withdraw the breaker while keeping it on its base)

"Debro-lift" mechanism

ref 4 238 50

ref. 4 238 51 ref. 4 238 52

ref. 4 238 53

ref. 4 238 63

(supplied with a rigid slide and handle for drawing-out)

transformation kit for 4P ref. 4 238 61

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. 4 238 55* (if neither motor operator nor rotary handle are mounted)
- Frontal mask for motor operator (3P and 4P) ref. 4 238 56

Locking accessory (for draw-out)

- Padlock for draw-out position
 ref. 4 238 64
 - Key lock accessory for draw-out ref. 4 238 62

Ref. 4 238 62 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. 4 222 30
- 6 contact connector (under sliding contacts) ref. 0 098 19

(Ref. 0 098 19 can be used with both plug-in and draw-out version)

8.10 Interlock mechanism

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

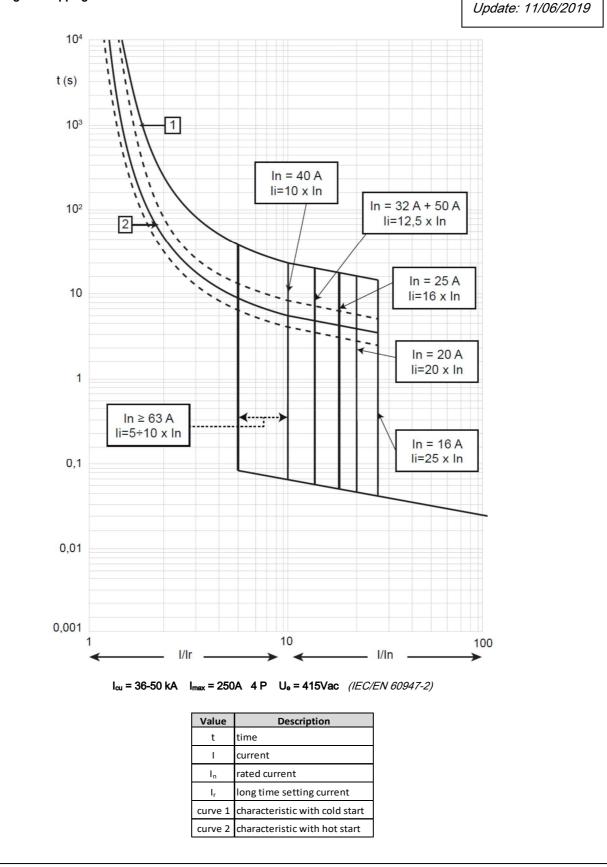
No frame mixing in interlock mechanism

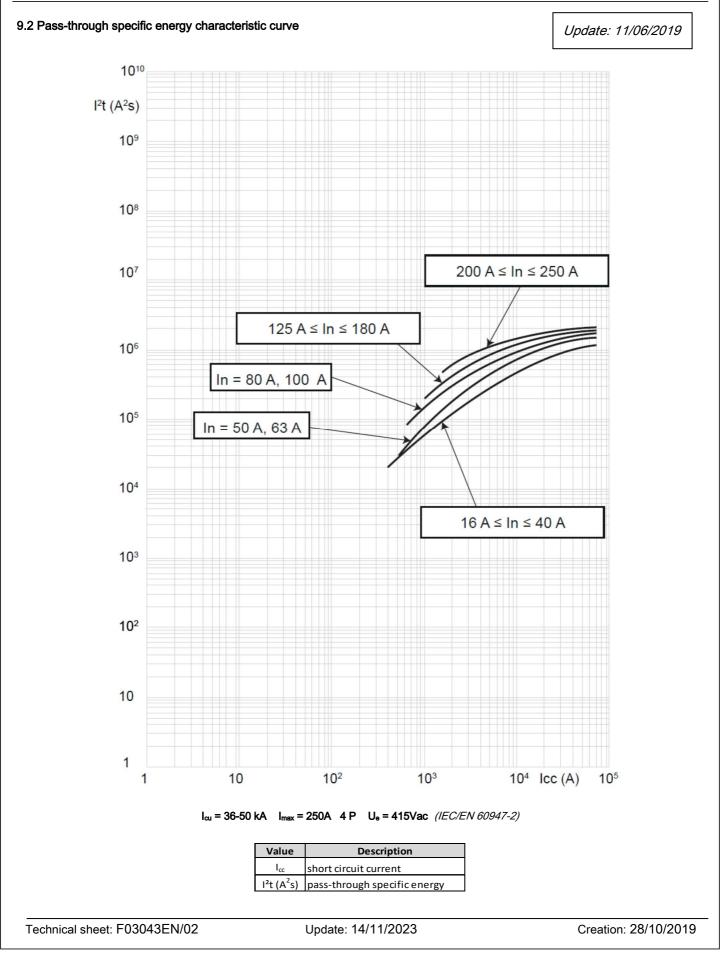
- Interlock mechanism standard version ref. 4 238 27 (for fixed version DPX³ 125 HP and DPX³ 250 HP)
 Interlock mechanism – for electronic module (for fixed version DPX³ 125 HP and DPX³ 250 HP)
- Interlock plate for DPX³ 250 HP ref. 4 238 26
- Rear interlock mechanism
 ref. 4 238 29
 (for DPX³ 250 HP plug-in and/or draw-out version)
 If used ref. 0 098 19, maximum 1 set

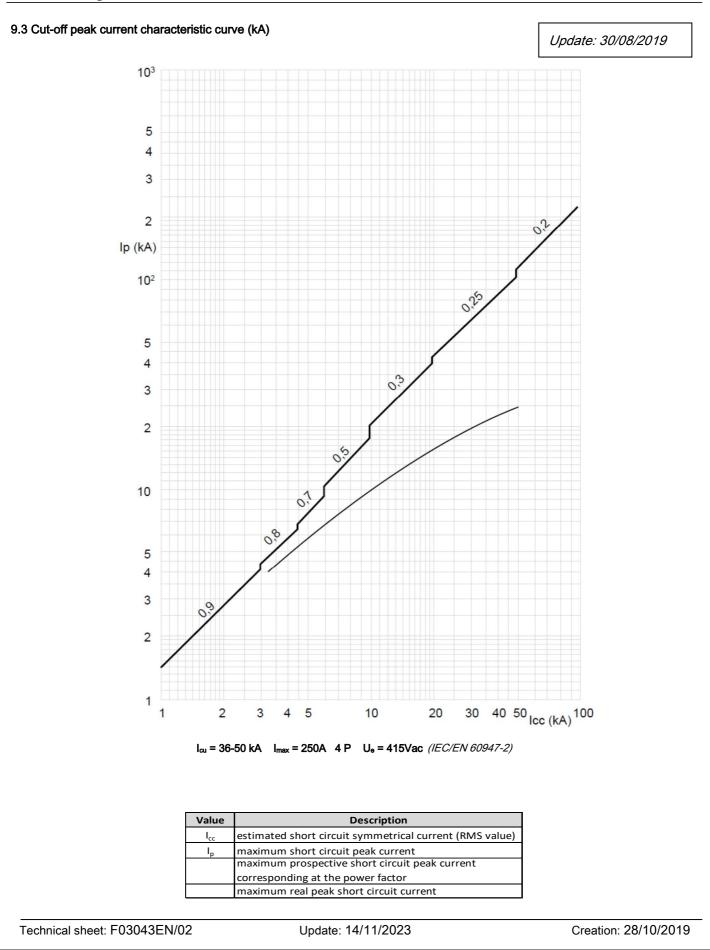
Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

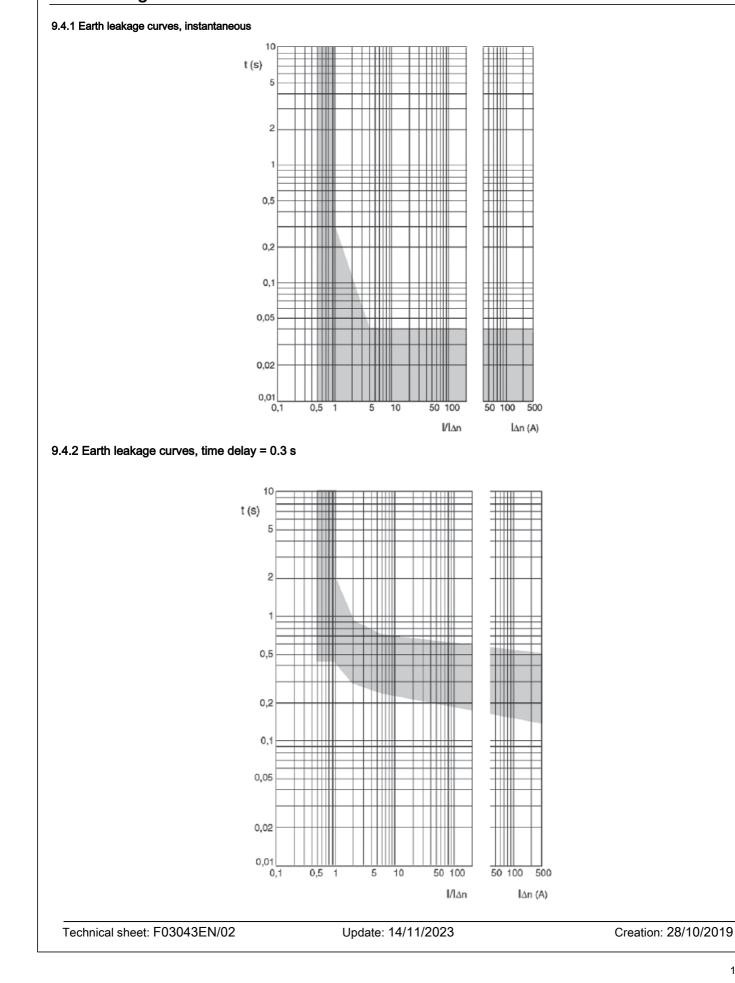
9. CURVES

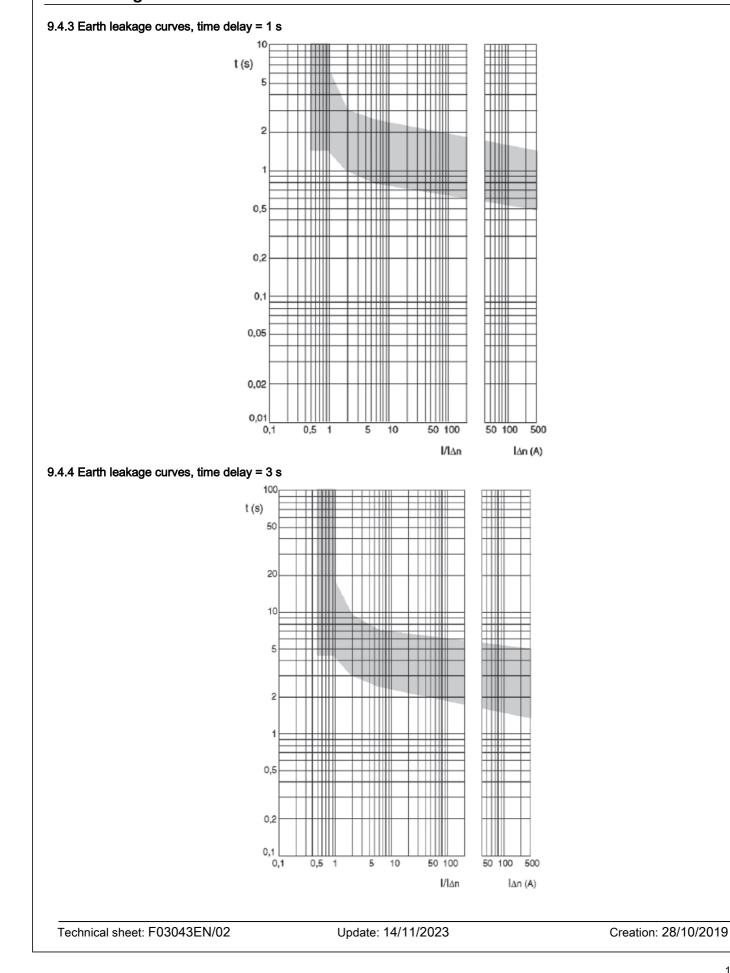
9.1 Thermal magnetic tripping curve











Reference(s) : from 4 230 45 to 4 230 57; from 4 231 05 to 4 231 17; 4 231 83;

A) Derating Temperature and configurations

		Ambient temperature								
		°C	40	°C	50 °C		60 °C		70 °C	
Fixed version	I _{max} (A)	Ir / In	I _{max} (A)	Ir / In	I _{max} (A)	Ir / In	I _{max} (A)	Ir / In	I _{max} (A)	Ir / In
Cage terminals, flexible cable	250	1	250	1	250	1	255	0.90	213	0.85
Lugs, flexible cable	250	1	250	1	250	1	238	0.95	255	0.90
Spreaders, flexible cable	250	1	250	1	250	1	238	0.95	255	0.90
Draw-out version	I _{max} (A)	lr / In	I _{max} (A)	Ir / In	I _{max} (A)	lr / In	Imax (A)	lr / In	I _{max} (A)	lr / In
Cage terminals, flexible cable	250	1	255	0.90	255	0.90	213	0.85	188	0.75

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