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

DPX³ 250 HP S10 electronic (display version) with earth leakage circuit breakers

Reference(s) :

from 4 234 15 to 4 234 18; from 4 234 35 to 4 234 38;
from 4 234 75 to 4 234 78; from 4 234 95 to 4 234 98;

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.

DPX³ S10 is a modern approach for electronic protection units that magnifies all flexibility allowed by technology.

2. RANGE

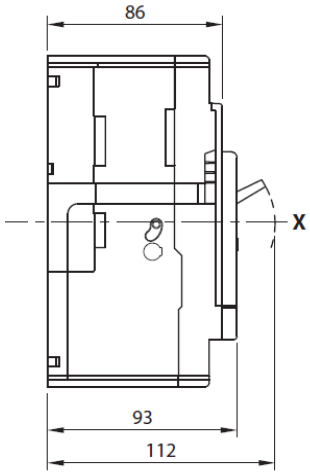
	DPX³ 250 HP S10 electronic (display version) + earth leakage version	
	36 kA	50 kA
In (A)	4P	
40	423415	423435
100	423416	423436
160	423417	423437
250	423418	423438

	DPX³ 250 HP S10 electronic (display version) + earth leakage version with measurement function	
	36 kA	50 kA
In (A)	4P	
40	423475	423495
100	423476	423496
160	423477	423497
250	423478	423498

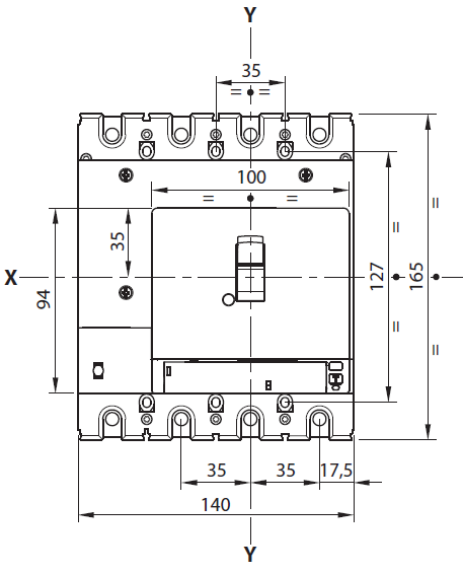
3. DIMENSIONS AND WEIGHTS

3.1 Dimensions

Lateral view



Frontal view



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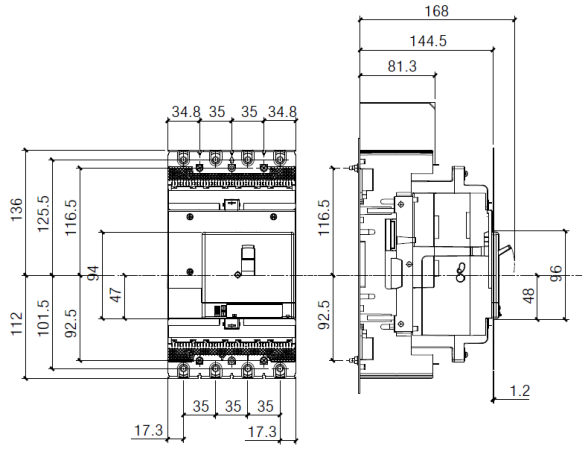
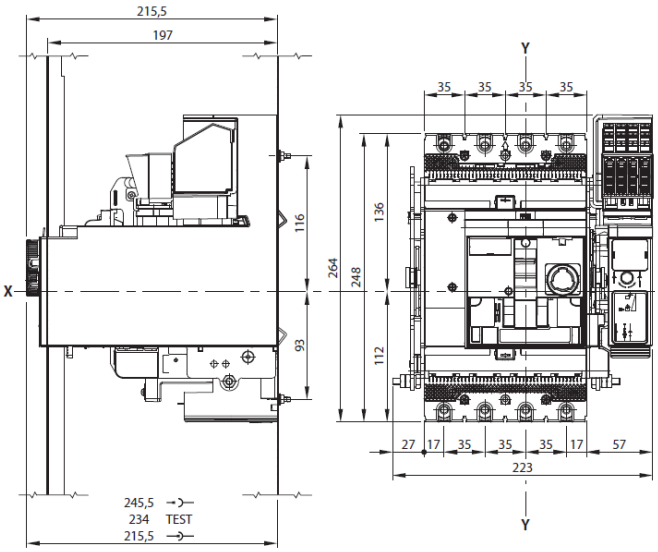
Plug-in version

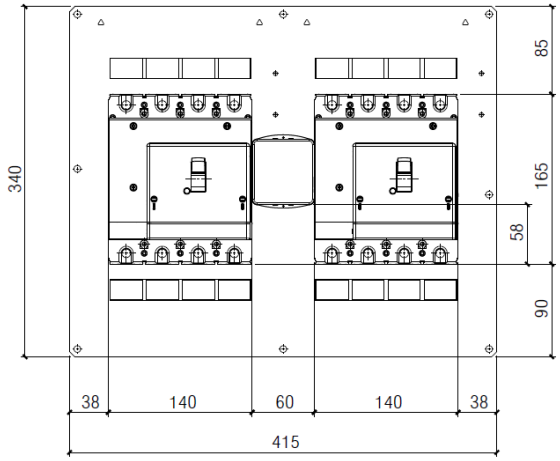


Draw-out version

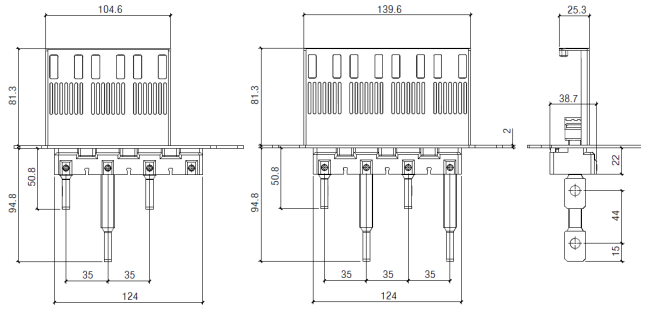


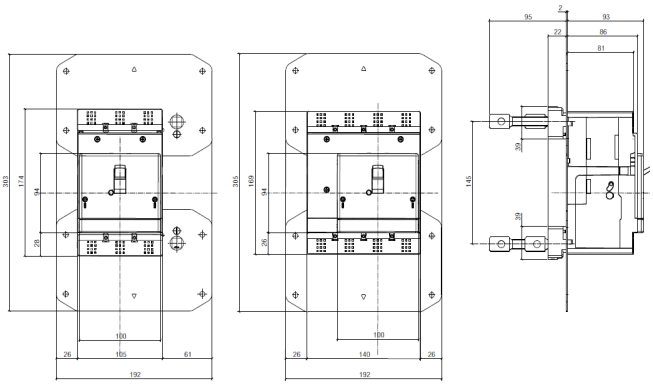
Interlock

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

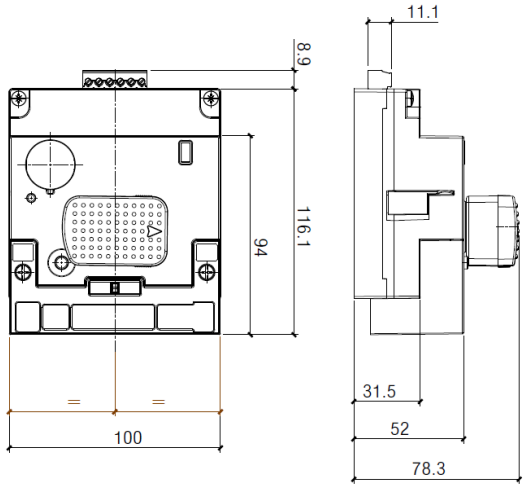


Rear terminals





Direct rotary handle



DPX³ 250 HP S10 electronic (display version) with earth leakage circuit breakers

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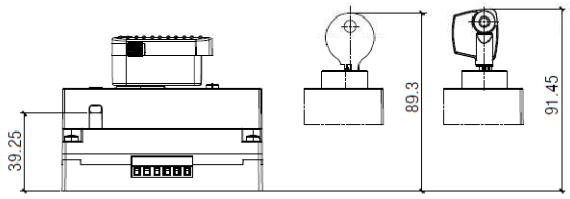
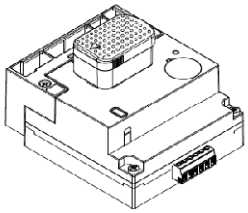
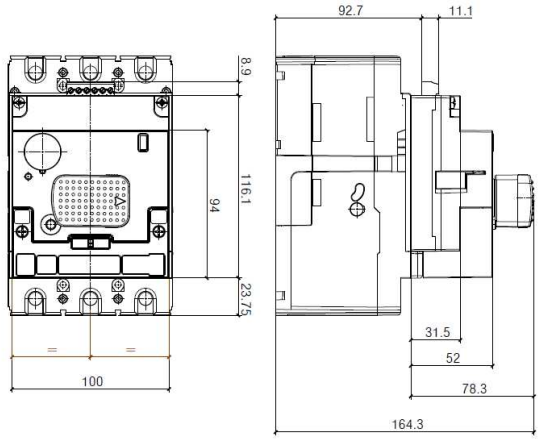
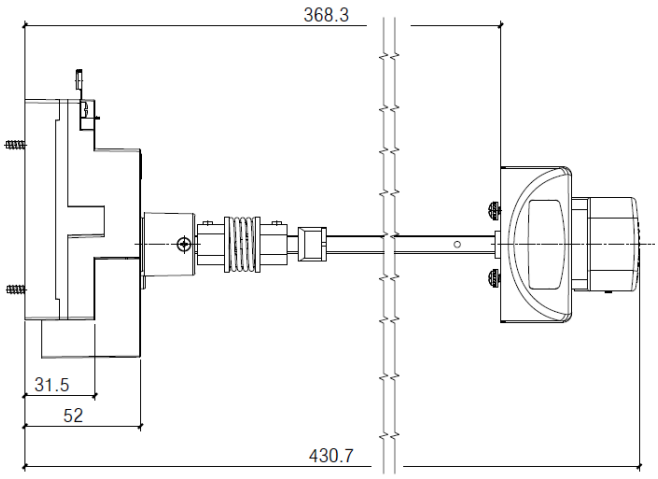
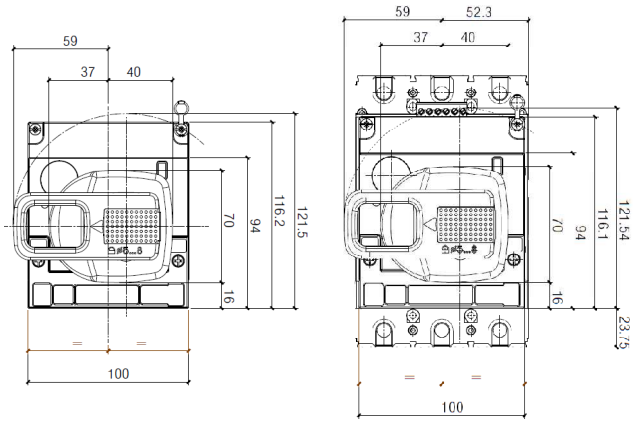


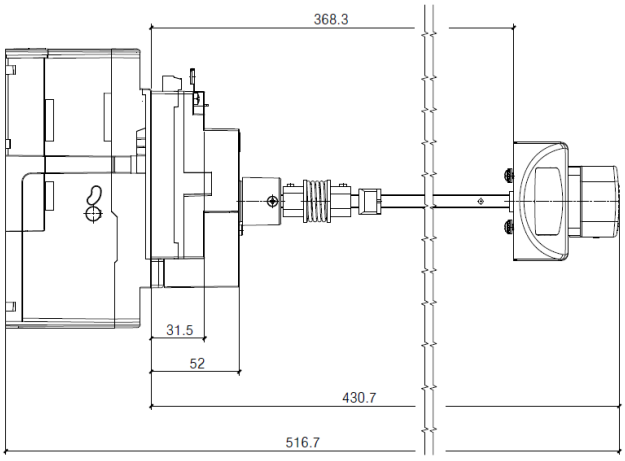




Vari-depth rotary handle







DPX³ 250 HP S10 electronic (display version) with earth leakage circuit breakers

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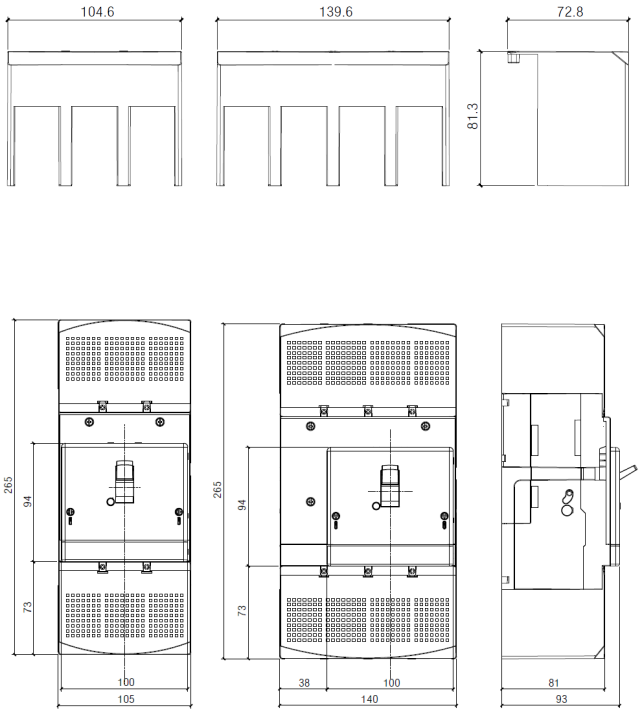
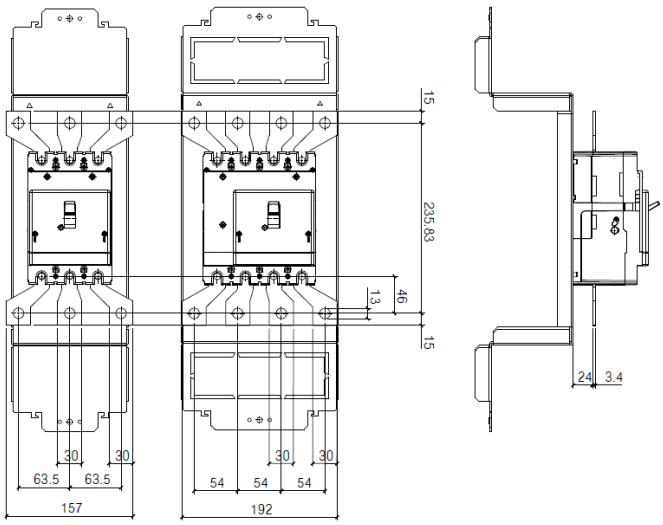
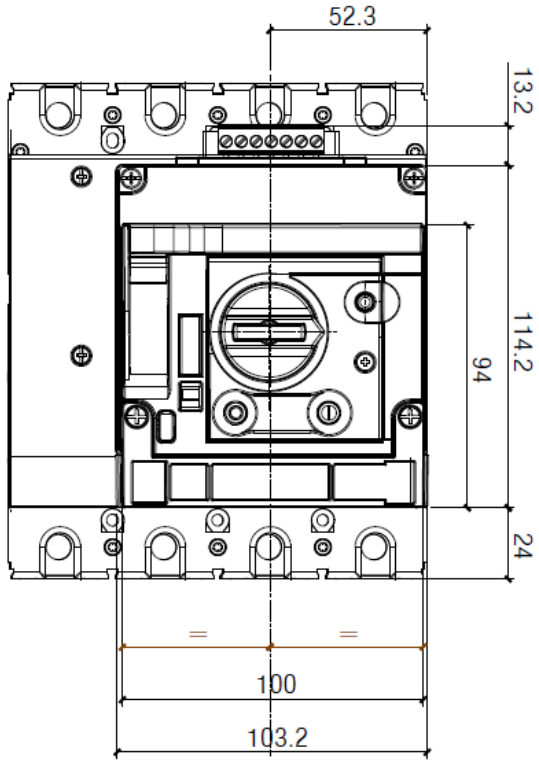
Sealable terminal shields



Spreaders



Motor operator



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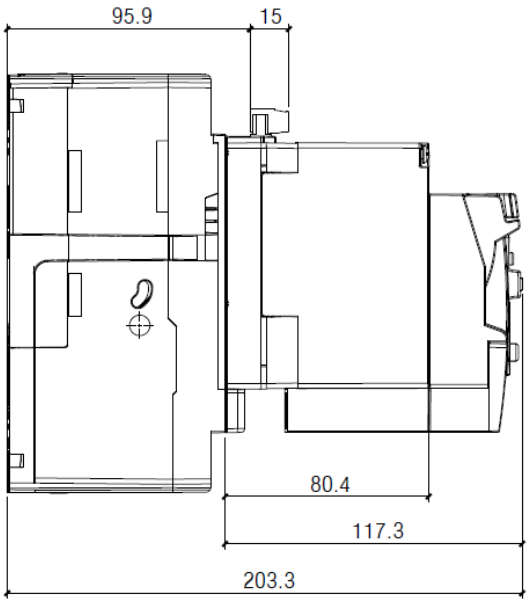

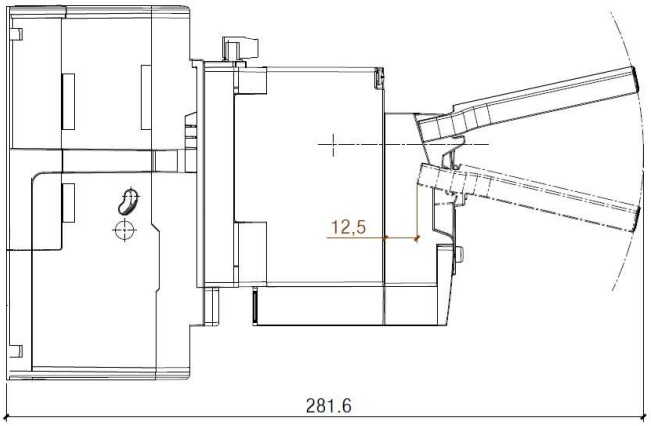

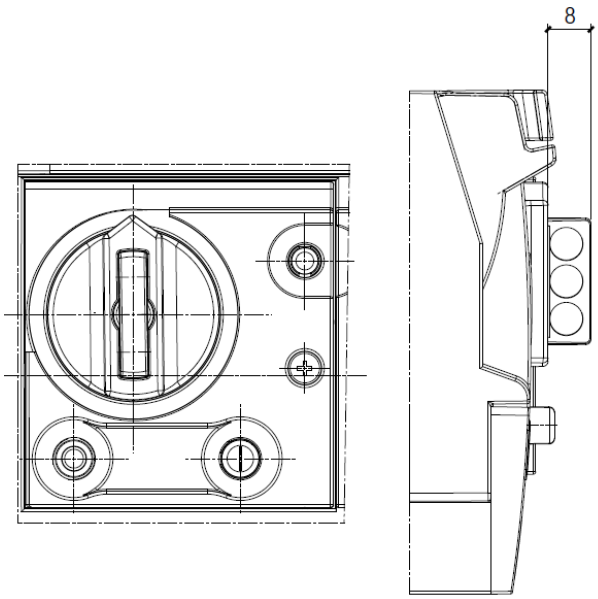

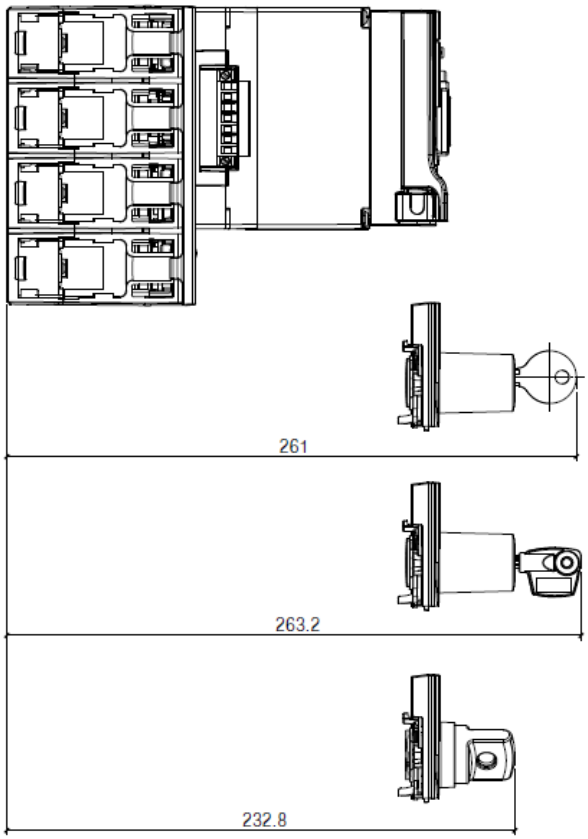

3.2 Weights

	Weights (Kg)
Configuration	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

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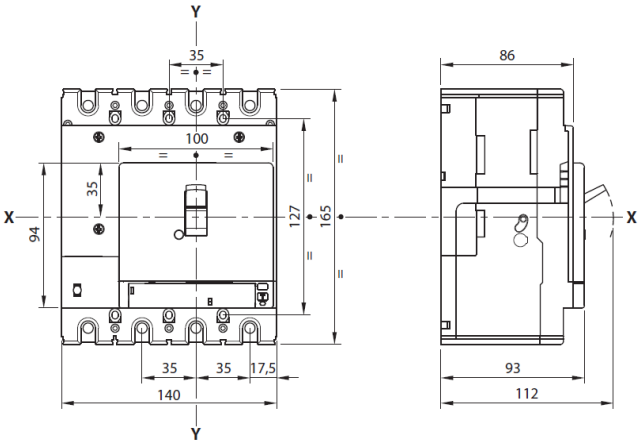
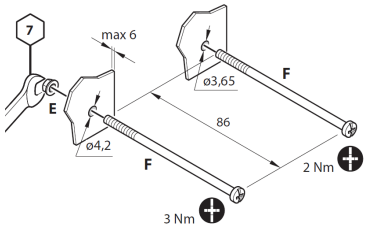
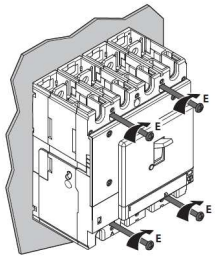
5.2 Mounting

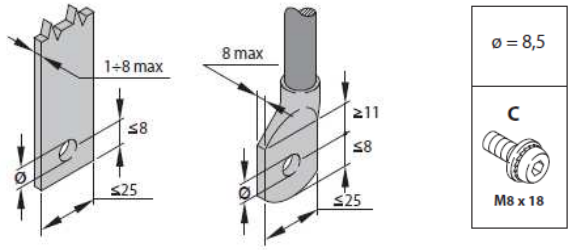
(see instruction sheet for detailed mounting procedures)

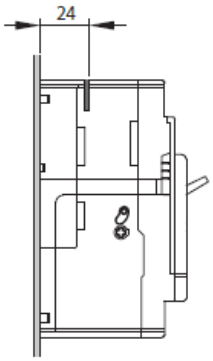


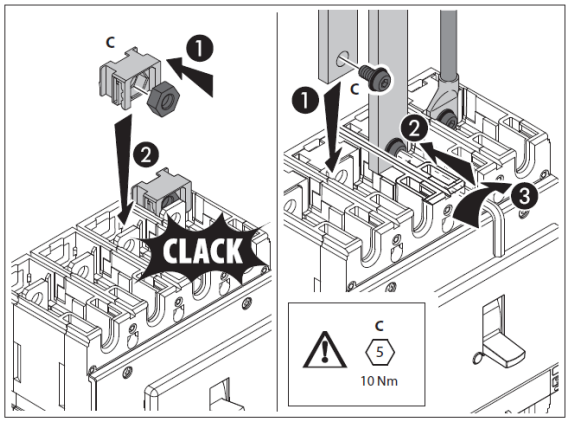


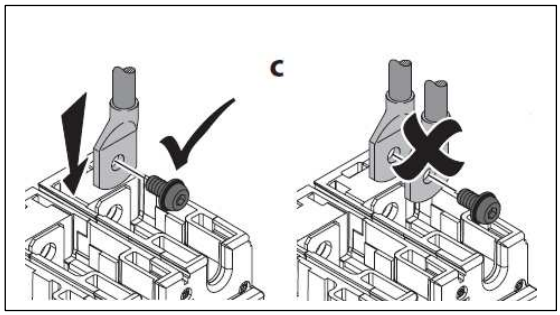


Busbars/cable lugs:

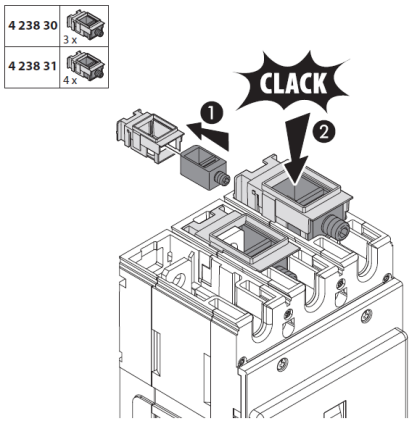


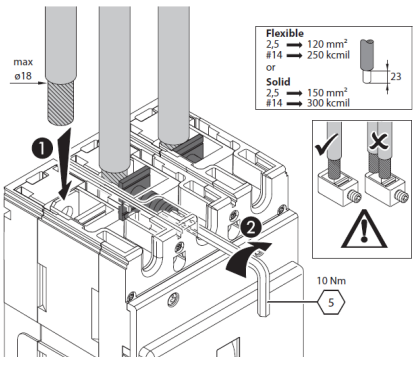






Cables:





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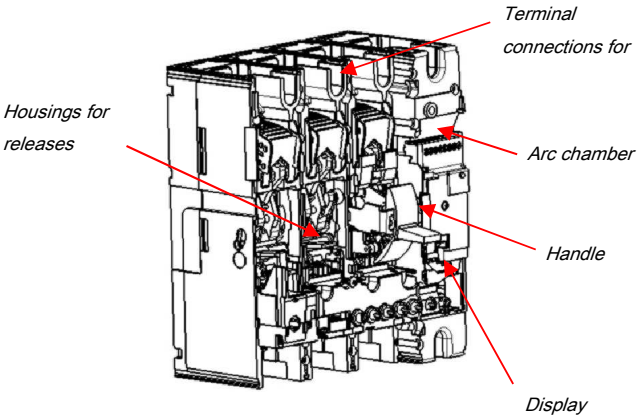
6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit Breaker	DPX³ 250 HP S10 F/N + RCD (36kA, 50kA)
Rated current (A)	40-100-160-250
Poles	3 - 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
Rated frequency (Hz)	50 - 60
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 display)
Thermal type protection	Adjustable (Mem On/Off)
Ability to enable thermal protection	On/Off
Thermal adjustment I_r [x I_n]	0,2÷1 (steps 1A)
Thermal adjustment t_r [s]	0,04÷15 (steps 40ms, @6Ir)
Thermal time tripping at 2xIn (single pole) [s]	0,44s±20% if tr = 0,04s@6Ir
Magnetic type protection	Adjustable
Ability to enable magnetic protection	On/Off
Magnetic adjustment I_{sd} [x I_r]	1,5÷10 (steps 1A)
Time adjustement t_{sd} (t=k o I^2t=k) [s]	40÷480 (steps 40ms)
Minimum release single pole	1 I_{sd}
Istantaneous electronic adjustment I_i	2÷15 (steps 1A) & Isf=3250 A
Neutral protection for 4P (%I_{th} of phase pole)	0FF-50-100-150-200
Earth leakage trip type	Integrated
Ability to enable earth leakage trip	-
Earth leakage trip IΔn /I_g [A /x In]	0,03 - 0,3 - 1 - 3 / -
Earth leakage trip Δt / t_g (t=k o I^2t=k) [s]	0 - 0,3 - 1 - 3 / -
Dimensions (W x H x D) (mm)	140 x 165 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	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)	0.2 x I_n	1 x I_n	min	max
40	8	40	60	400
100	20	100	150	1000
160	32	160	240	1600
250	50	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 DPX³ 250 HP circuit breakers, degree 3, according to IEC/EN 60947-2

6.7.3 Altitude

Altitude derating for DPX³

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

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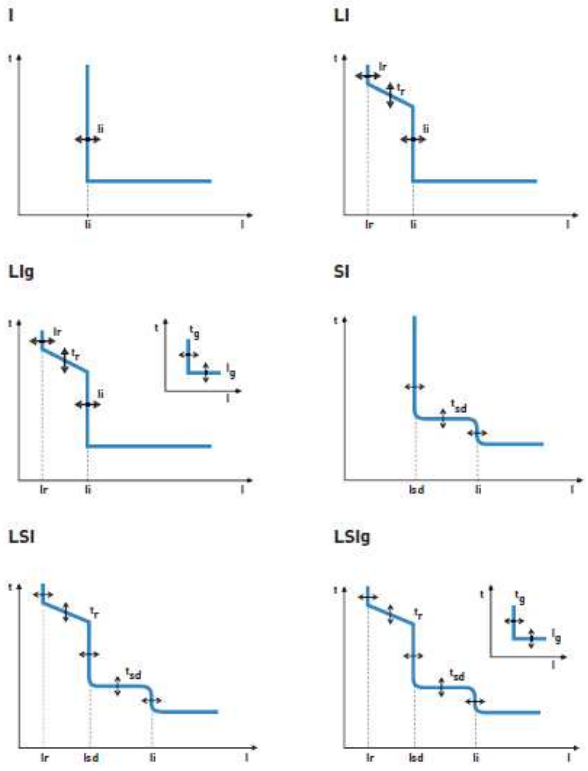
7.ELECTRONIC PROTECTION S10

Electronic DPX³ circuit breakers equipped with S10 protection units are fully configurable. They can be used to adapt settings as closely as possible to the requirements of your installation, either by enabling/disabling the different protection devices (tripping time delays and currents), or by altering the different trip thresholds.
The tripping curve is therefore fully customised to suit the real-life conditions of each project.

Thanks to the internal battery, the protection unit can be set even if the circuit breaker is de-energised. Tests and troubleshooting can be done directly via the circuit breaker LCD screens.

A single circuit breaker can operate according to different tripping curves depending on the settings, as explained in the following images:



- I_r Long time protection against overloads
- t_r Long time protection delay
- I_{sd} Short time protection against short circuits
- t_{sd} Short time protection delay
- I_i Instantaneous protection against high-intensity short-Circuits
- I_g Earth fault current
- t_g Earth fault current protection delay
- IN Neutral protection

See relative instruction sheet for details

Settings on DPX³ 250 HP, DPX³ 630 and DPX³ 1600 S10 electronic protection

There are 2 options for configuring setting: locally on the circuit breaker or on a PC, smartphone or tablet:

Settings	DPX³ 250 HP, DPX³ 630 and DPX³ 1600 with S10 electronic protection	
	Locally on the device	By software or app
I_r	0.2 to 1 x I_n, in steps of 1 A	0.2 to 1 x I_n - OFF, in steps of 1 A
t_d	DPX³ 250 HP: 3 - 5 - 10 - 15 s DPX³ 630 and 1600: 3 to 30 s (7 steps)	DPX³ 250 HP: 3 to 15 s, in steps of 40 ms DPX³ 630 and 1600: 3 to 30 s in steps of 40 ms
I_{sd}	1.5 to 3 x I_r, in steps of 0.5 x I_r 3 to 10 x I_r, in steps of I_r	1.5 x I_r to 10 x I_n - OFF, in steps of 1 A
t_{sd} (t=k, I2t=k)	40 to 480 ms (7 steps)	40 to 480 ms, in steps of 40 ms
I_i (t=k)	-	2 to 15 x I_n - OFF, in steps of 1 A
I_g	0.2 to 1 x I_n, in steps of 0.1 x I_n	0.2 to 1 x I_n - OFF, in steps of 0.1 x I_n
t_g (t=k, I2t=k)	80 to 480 ms and 1 s (6 steps)	80 ms to 1 s, in steps of 40 ms

There are several ways to configure the various settings: directly on the protection units (using the +/- and >/< buttons on the front face), on a PC with Power Control Station software installed, or on a tablet or smartphone via the EnerUp+ Project app.
Power Control Station software for PC and the EnerUp+ Project app for smartphone/tablet can be used to exchange data with the DPX³ S10 protection unit.
The software and app can be used to:

- monitor the status of the circuit breaker
- display information (firmware and device versions, alarms, measurements, parameters, fault log, settings)
- configure the different protection devices [1]
- update the protection unit firmware [2]
- generate reports based on the data stored and read by the protection unit [1]
- run diagnostic tests
- upload data linked to your profile and installation to the Cloud (with the EnerUp + Project app only)

[1] With the Power Control Station software only
[2] For Legrand technical support via the Power Control Station software 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.

DPX³ 250 HP S10 electronic (display version) with earth leakage circuit breakers

Reference(s) :

from 4 234 15 to 4 234 18; from 4 234 35 to 4 234 38;
from 4 234 75 to 4 234 78; from 4 234 95 to 4 234 98;

With electronic DPX³ 250 HP, 630 and 1600 S10 with integrated measurement, it is very easy to monitor the parameters and consumption of the different circuits in the installation.

Electronic DPX³ circuit breakers equipped with S10 protection units with integrated measurement can be used to display the current, voltage, active and reactive power, frequency and power factor values, as well as the energy consumption.

Alarms can be programmed on some parameters, including minimum and maximum voltage, phase unbalance, and minimum and maximum frequency.

The measured values are displayed directly on the LCD screen on the front of the equipment.

The measurement data can also be displayed on a PC equipped with Power Control Station software or remotely on a smartphone or tablet via the EnerUp+ Project app.

In the electronic unit protection, an energy metering central unit is integrated.

The possible parameters that can be measured are listed in the following table:

Measured	UNIT	DESCRIPTION
I_1	A	L1 realtime measured value
I_2	A	L2 realtime measured value
I_3	A	L3 realtime measured value
I_N (4P)	A	N realtime measured value
I_G	A	G realtime measured value
U_{12} U_{23} U_{31} (3P)	V	Phase to Phase Voltage
V_{12} V_{23} V_{31} (4P)	V	Voltage
Freq.	Hz	Frequency
P_{Tot}	kW	Active Power
Q_{Tot}	kvar	Reactive Power
PF		Power Factor
E_p ↓	kWh	Consumed active energy
E_p ↑	kWh	Returned active energy
E_q ↓	kvar h	Consumed reactive energy
E_q ↑	Kvar h	Returned reactive energy
$THDU_{12}$/$THDU_{23}$/$THDU_{31}$ (3P)	%	Chained Voltage THD
$THDV_{1N}$/$THDV_{2N}$/$THDV_{3N}$ (4P)	%	Voltage THD
$THDI_1$/$THDI_2$/$THDI_3$/$THDI_N$	%	Current THD
MEM	A - °C	Cause of the last intervention and its value

Function performance class according to IEC 61557-12

Function symbol	Performance class	Measurement range				Other complementary characteristics			
		DPX³ 250A				I_{max} PMD			
I_n		40A	100A	160A	250A	40A	100A	160A	250A
P	2	0.05kW	0.05kW	0.05kW	0.05kW	48A	120A	192A	300A
		58kW	144kW	230kW	360kW	I_b=40A, U_n=400V, f_n=50Hz			
Qa, Q_v	2	0.1kvar	0.1kvar	0.1kvar	0.1kvar	48A	120A	192A	300A
		58kW	144kW	230kW	360kW	I_b=40A, U_n=400V, f_n=50Hz			
E_a	2	0...9999 GWh				48A	120A	192A	300A
						I_b=250A, U_n=400V, f_n=50Hz			
ErA, E_{rV}	2	0...9999 GW/h				48A	120A	192A	300A
						I_b=40A, U_n=400V, f_n=50Hz			
f	0.1	50...60 Hz				-			
I	1	2A	2A	2A	2A	48A	120A	192A	300A
		48A	120A	192A	300A	I_b=250A, U_n=400V, f_n=50Hz			
I_N	1	2A	2A	2A	2A	48A	120A	192A	300A
		48A	120A	192A	300A	I_b=250A, U_n=400V, f_n=50Hz			
U	0.5	88...690V				-			
P_{FV}	0.5	-				48A	120A	192A	300A
						I_b=250A, U_n=400V, f_n=50Hz			
THDu	5	110...690V				-			
THD_i	5	40A	40A	40A	40A	-			
		40A	100A	160A	250A				

General remarks on protection unit

The protection units S2/Sg are normally supplied by the current transformers (CTs) and the internal voltage supply.

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 assures the following basic functions of protection unit: RCD protection, LED status, display indication (without backlight) 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, included diagnostic functions (e.g. trip test). Display backlight and integrated measure (if available) are instead guaranteed starting from 20% of the maximum power (35% of In for single phase load), in absence of any other supply. In any case the external power supply is strongly recommended for the correct working of measurement, as well as RS485 communication.

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, one of the following optional power supplies can be used:

- external Auxiliary power supplier or, alternatively, Modbus/EMS communication interface;
- power supply temporarily connected to frontal USB socket, connected to a 5V DC power bank, Dongle BLE or PC.

DPX³ 250 HP S10 electronic (display version) with earth leakage circuit breakers

Reference(s) :

from 4 234 15 to 4 234 18; from 4 234 35 to 4 234 38;
from 4 234 75 to 4 234 78; from 4 234 95 to 4 234 98;

8. CONFORMITY

DPX³ HP range of product concerning circuit-breakers exceed compliance with the IEC/EN standard 60947-2.

Certification available by IECEE CB-scheme or LOVAG Compliance scheme.

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

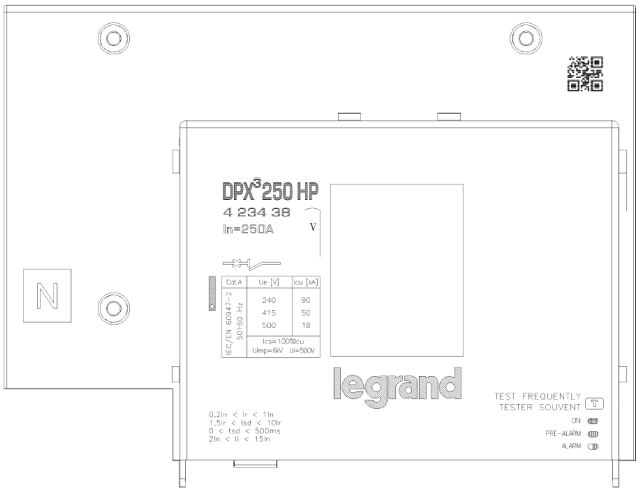
For specific information, please contact Legrand support.

8.1 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:

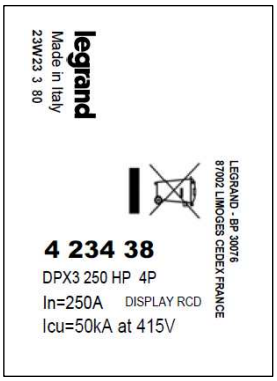
Product laser label on front

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



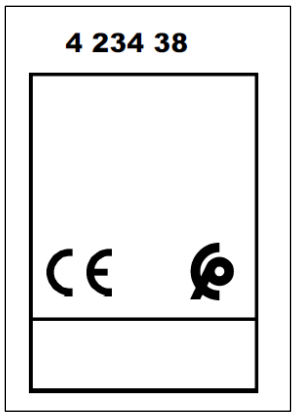
Product sticker label on side

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



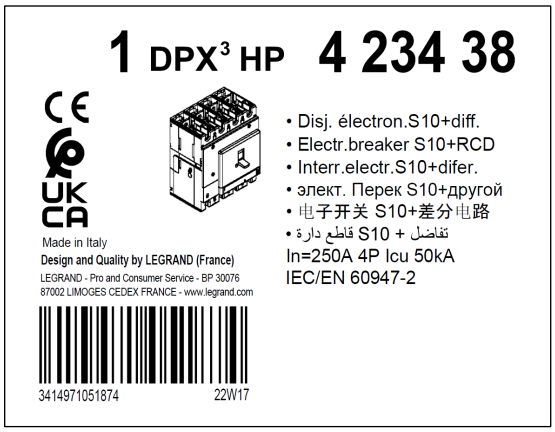
Mark sticker label on side

- -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 250 HP S10 electronic (display version) with earth leakage circuit breakers

Reference(s) :

from 4 234 15 to 4 234 18; from 4 234 35 to 4 234 38;
from 4 234 75 to 4 234 78; from 4 234 95 to 4 234 98;

9. EQUIPMENTS AND ACCESSORIES

9.1 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:

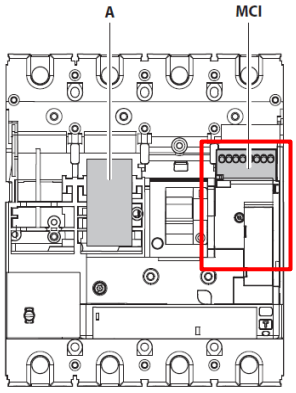
230 V ac	*ref. 0 261 90*
400 V ac	*ref. 0 261 91*

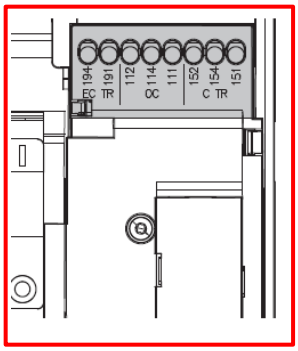
Release (to be equipped with a time-lag module 0 261 90/91)	*ref. 4 210 98*

9.2 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:

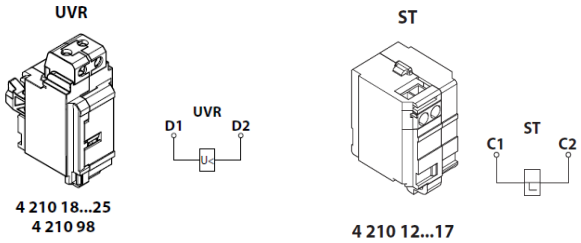




TRIP STATUS (CTR)	151 Common contact 152 Normal close contact 154 Normal open contact	154 / 151 / 152
OPEN/CLOSE STATUS (OC)	111 Common contact 112 Normal close contact 114 Normal open contact	114 / 111 / 112
TRIP RCD (EC TR)	191 Common contact 194 Normal open contact	194 / 191

CTR	152-151	154-151
OFF		
TRIP		
ON		

OC	112-111	114-111
OFF		
TRIP		
ON		



	A
UVR	✓ (max 1)
ST	

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

9.3 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. 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*

9.4 Rotary handles

Direct on DPX³ (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 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*
  (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

9.5 Motor operators

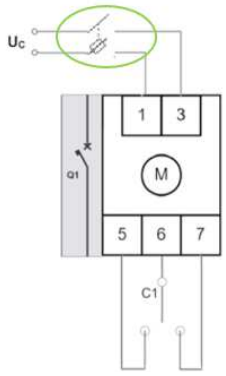
For synchronized operations (energy storage type):

- 24 Vac and dc *ref. 4 238 40*
- 48 Vac and dc *ref. 4 238 41*
- 110 Vac *ref. 4 238 42*
- 230 Vac *ref. 4 238 43*

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. 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

9.6 Mechanical accessories

- Padlock (for locking in "OPEN" position) *ref. 4 210 49*
  (ref. 4 210 49 is compatible with DPX³ 125 HP and DPX³ 160/250)
- Sealable terminal shields:
  - Set of 3 (for 4P) *ref. 4 238 24*
- Insulated shields:
  - Set of 3 (for 4P) *ref. 4 238 35*

  (ref. 4 238 35 is compatible with DPX³ 125 HP also)

9.7 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) *ref. 6 250 18*

Rear terminals *(incoming or outcoming):*

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

Cage terminal use specifications

DPX³ 250HP							
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)

9.8 Plug-in version

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

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

- Plug-in/draw-out base for 4P *ref. 4 238 51*
- Plug-in/draw-out mobile part kit for 4P *ref. 4 238 53*

Plug-in accessories

Locking accessory (for plug-in)
- Key lock accessory for plug-in *ref. 4 238 63*

Ref. 4 238 63 must be used with universal keylocks to get the complete locking kit for plug-in version

9.9 Draw-out version

(A DPX³ 250 HP draw-out version is a plug-in DPX³ 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
(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)*

9.10 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 *ref. 4 238 28*
  (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

9.11 Specific accessories for electronic version

Auxiliary power supply

- For supplying electronic units *ref. 4 210 83*

Is used to supply DPX³ electronic circuit breakers S2/Sg with / without earth leakage module and with / without energy metering central unit.
It is mandatory in case of electronic breakers with integrated measure and not interconnected in a supervision system (MODBUS network not requested) to correctly manage the measure functions

Technical characteristics:
- Input voltage: 24V ad/dc (+/- 10%)
- Enclosure: 2 DIN modules
- Output: up to 250mA (to supply many circuit breakers according to the following table):
-

4 210 83	DPX³ 250 / 250HP / 630 / 1600	[mA]
I_{out} MAX = 250 mA	Electronic/Electronic + RCD (S2/Sg)	50
	Electronic/Electronic + RCD with power metering (S2/Sg)	62.5
	Electronic/Electronic + RCD (S10)	70
	Electronic/Electronic + RCD with power metering (S10)	83

According to single absorptions, it can be possible to connect more than one breaker

MODBUS communication

- RS485 MODBUS communication interface *ref. 4 210 75*

Is used for sharing on MODBUS network all information managed by DPX³ electronic circuit breakers S2/Sg with / without earth leakage module and with / without energy metering central unit.

Technical characteristics:
- USB local PC connection
- Input voltage: 24V ad/dc (+/- 10%)
- Enclosure: 1 DIN modules
- MODBUS address configuration / transmission mode / transmission speed by physic configurators
- Output relay (220V – 0,2A): to signal tripped position

Consumption: 90mA

It is possible to connect only one breaker to the interface.

In case of use of MODBUS interface 4 210 75, the external power supply module 4 210 83 is not necessary because the external power is already provided by the MODBUS module

Web server

- For remote viewing of values collected on electricity meters and multi-function measuring units
  32 metering points *ref. 0 261 78*
  Unlimited metering points *ref. 0 261 79*

Software

- To display values collected on electricity meters and multi-function measuring units on a PC connected to the network
  32 metering points *ref. 0 261 88*
  Unlimited metering points *ref. 0 261 89*

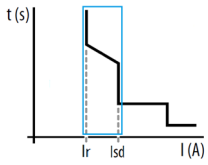
Touch screen

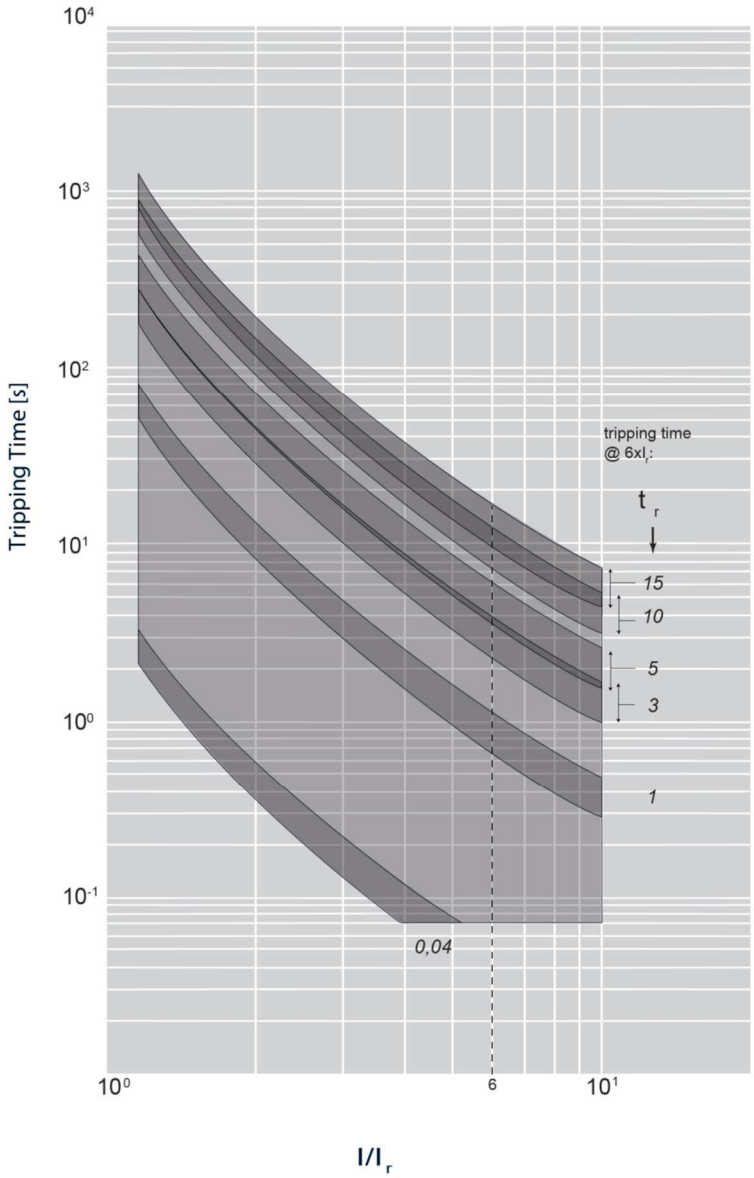
- To show data collected by DX³, DPX³, DMX³, EMDX³. It can manage up to 8 devices *ref. 0 261 56*

10. CURVES

10.1.1 Tripping curve [1/3]

Update: 16/11/2022



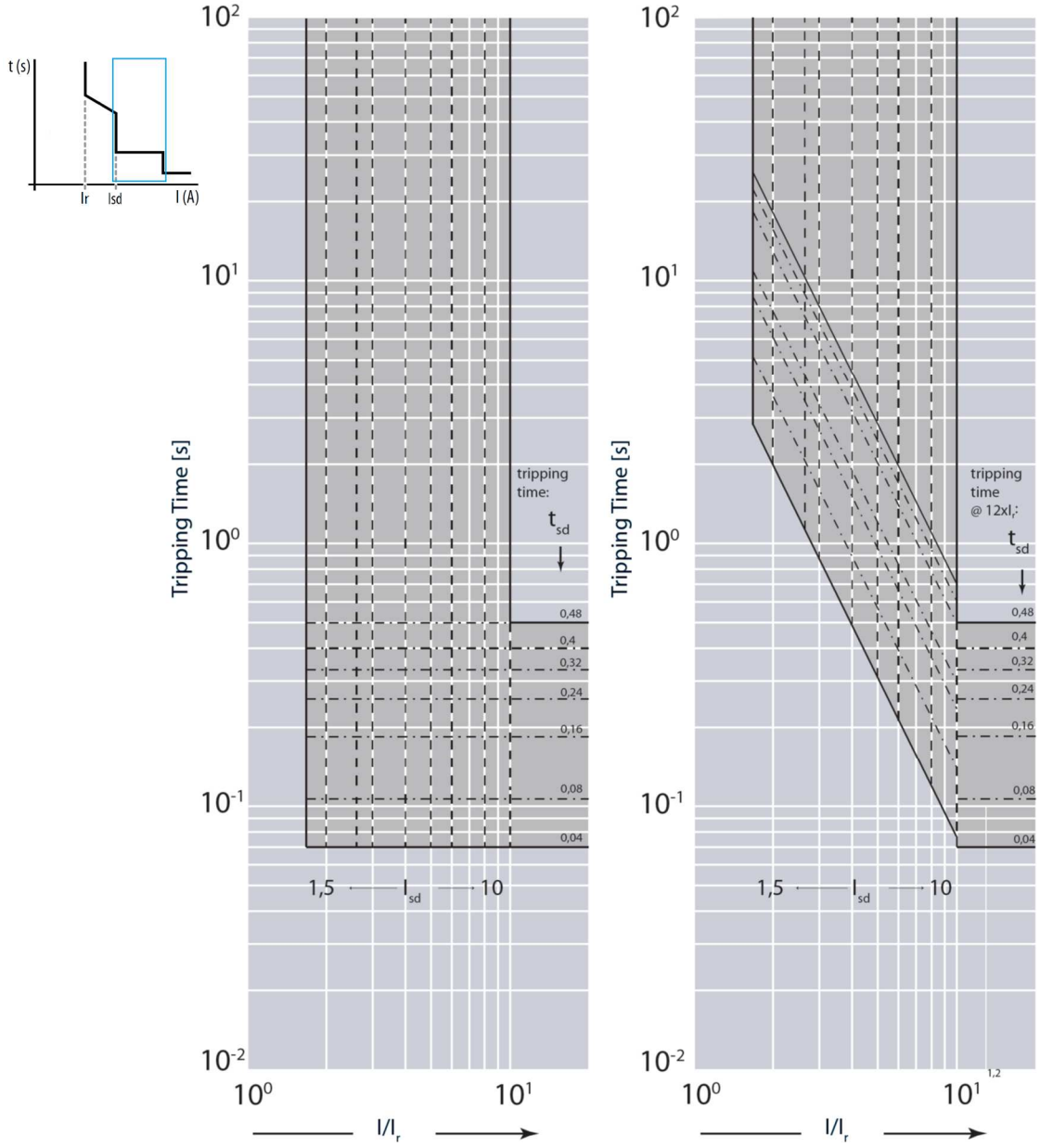


I_{cu} = 36-50 kA I_{max} = 250A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.1.2 Tripping curve [2/3]

Update: 17/11/2022

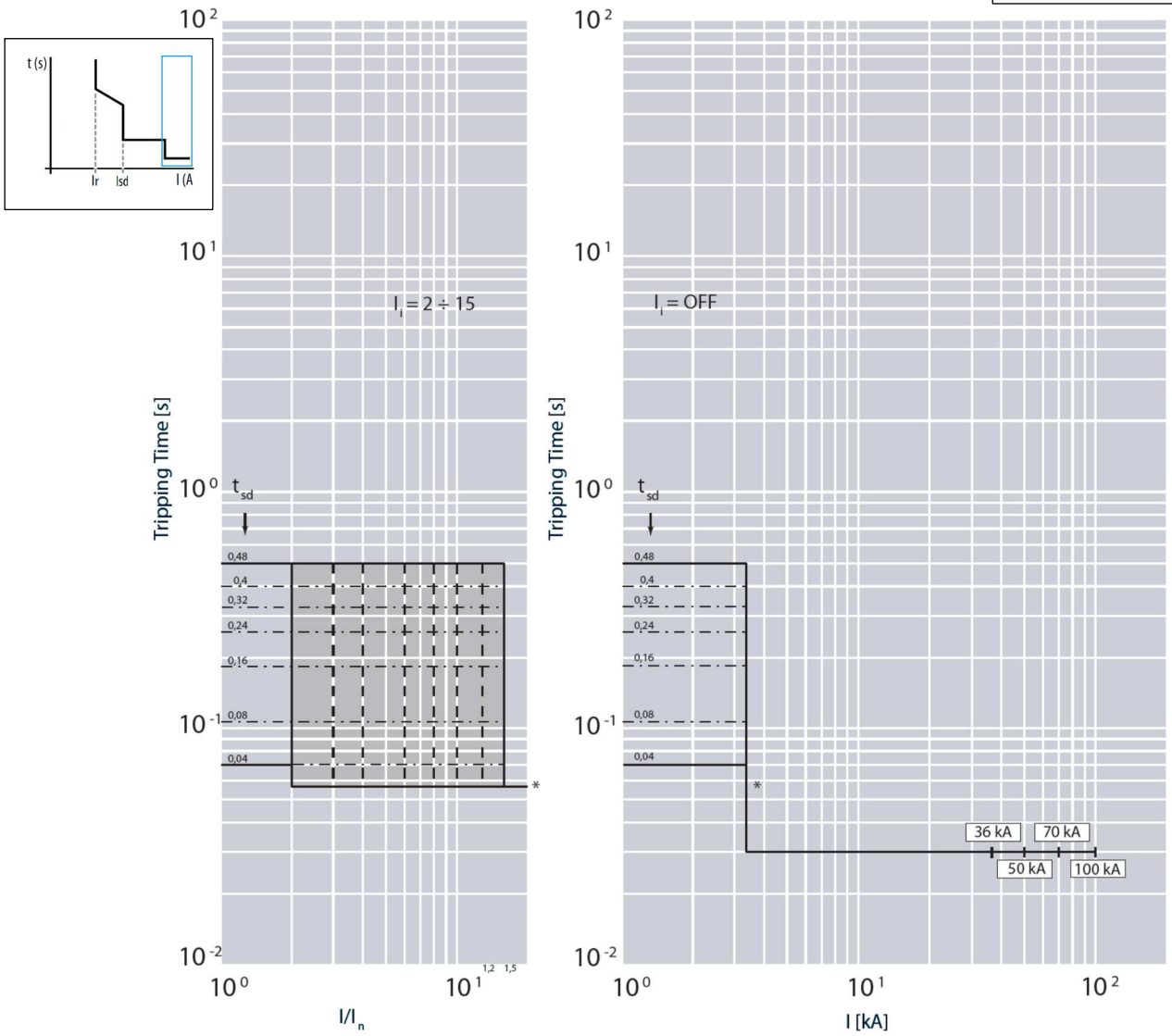


I_{cu} = 36-50 kA I_{max} = 250A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.1.3 Tripping curve [3/3]

Update: 17/11/2022



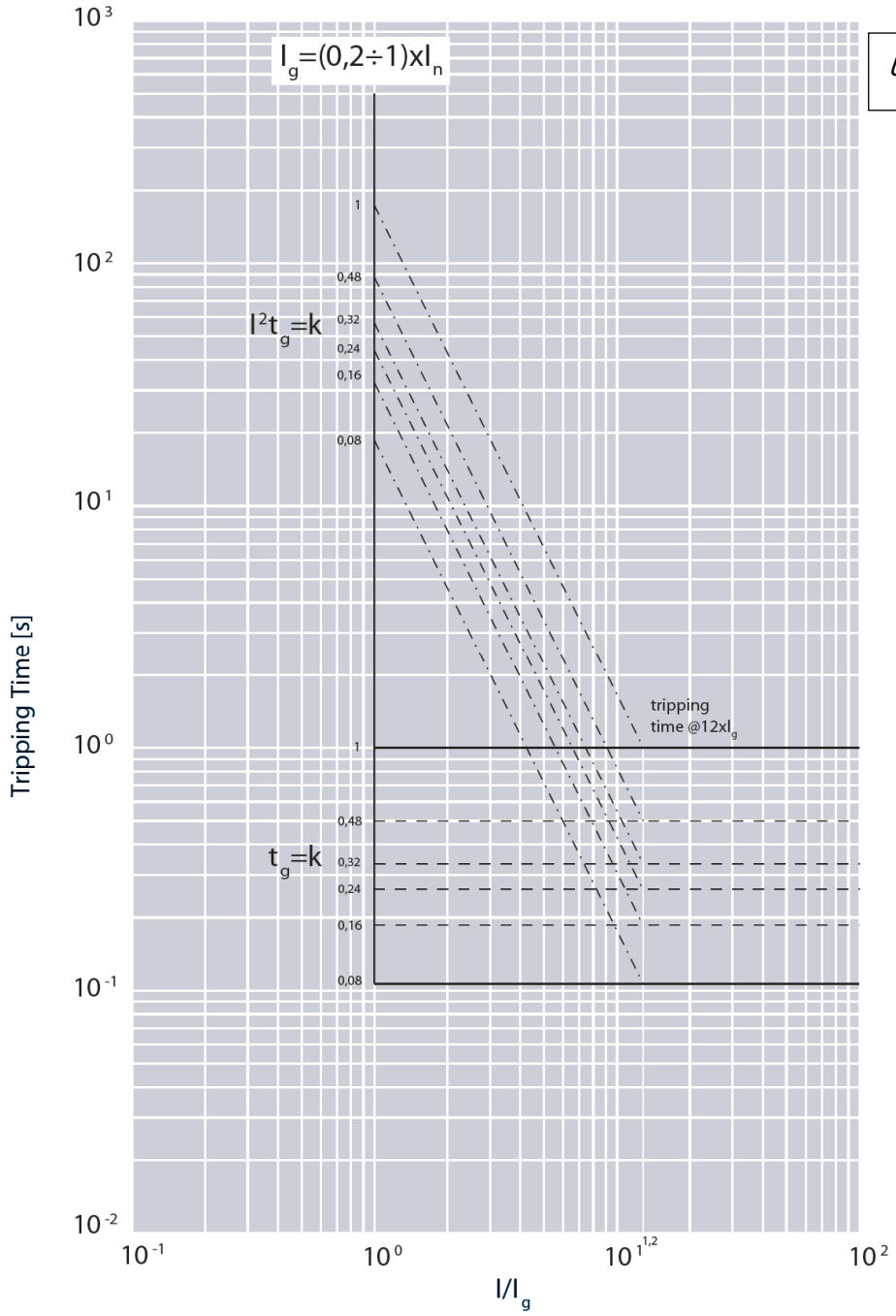
I_{cu} = 36-50 kA I_{max} = 250A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.2 Ground Fault curve

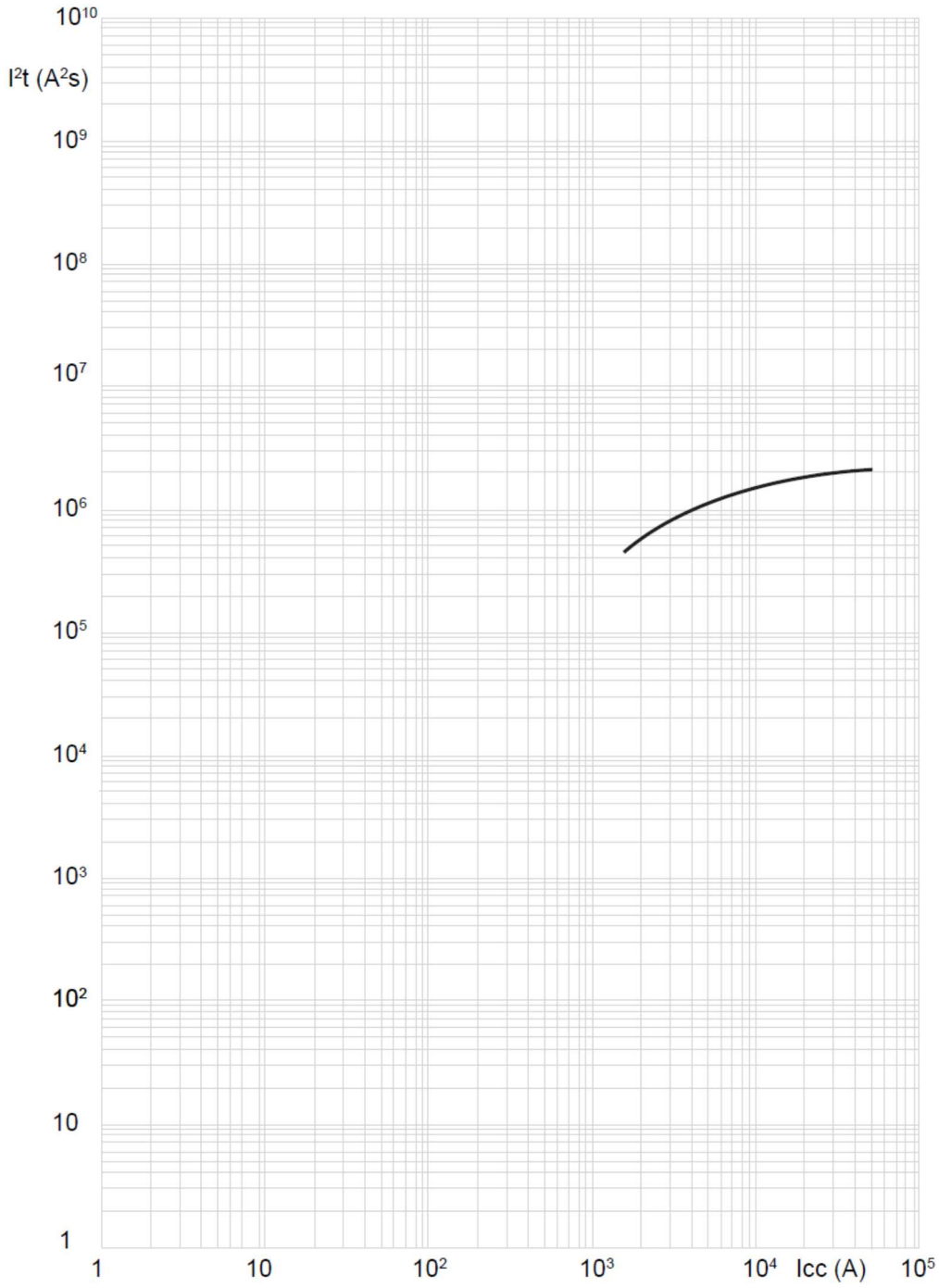
Update: 16/11/2022



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

10.3 Pass-through specific energy characteristic curve

Update: 30/08/2019

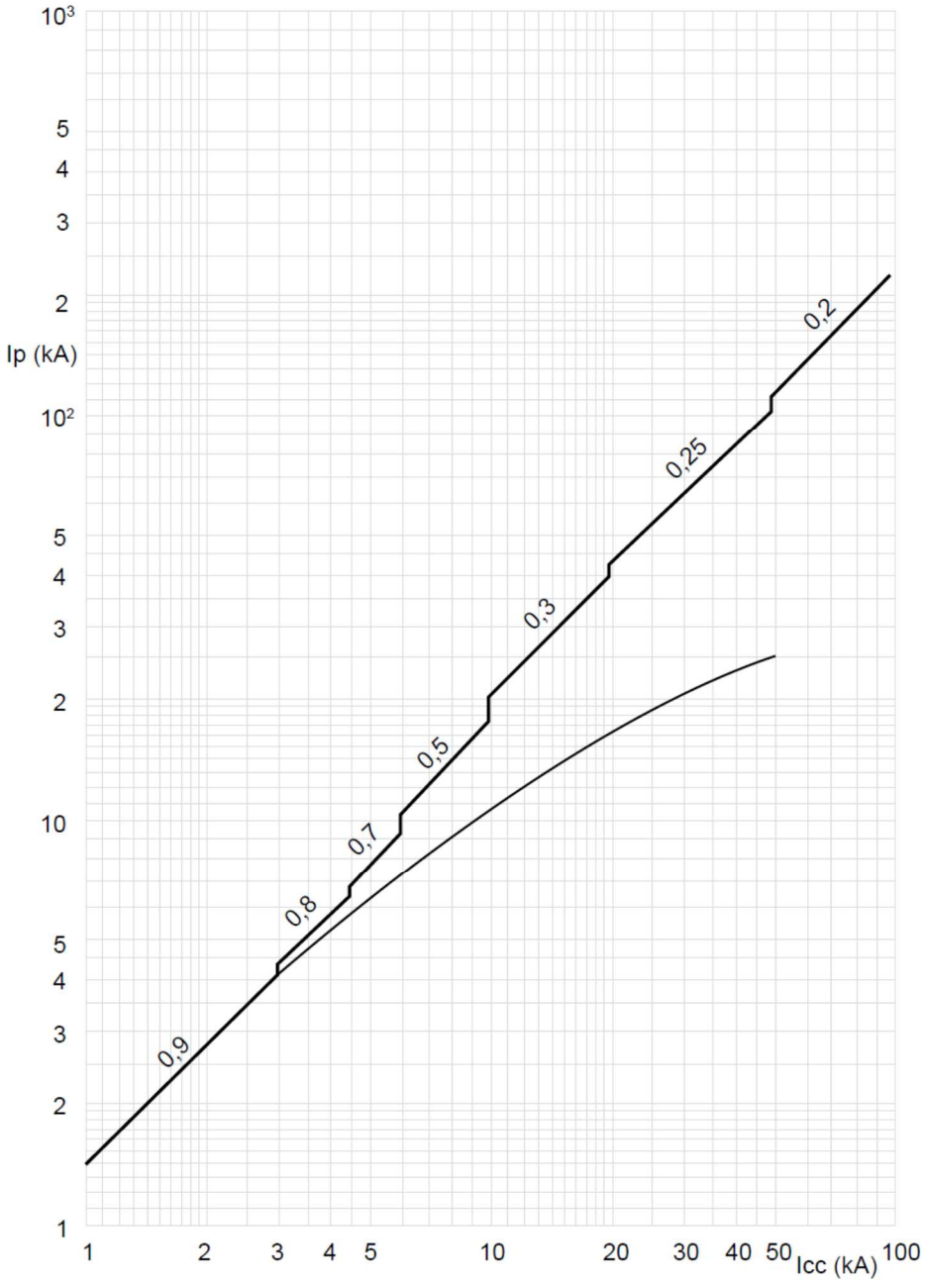


I_{cu} = 36-50 kA I_{max} = 250A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.4 Cut-off peak current characteristic curve

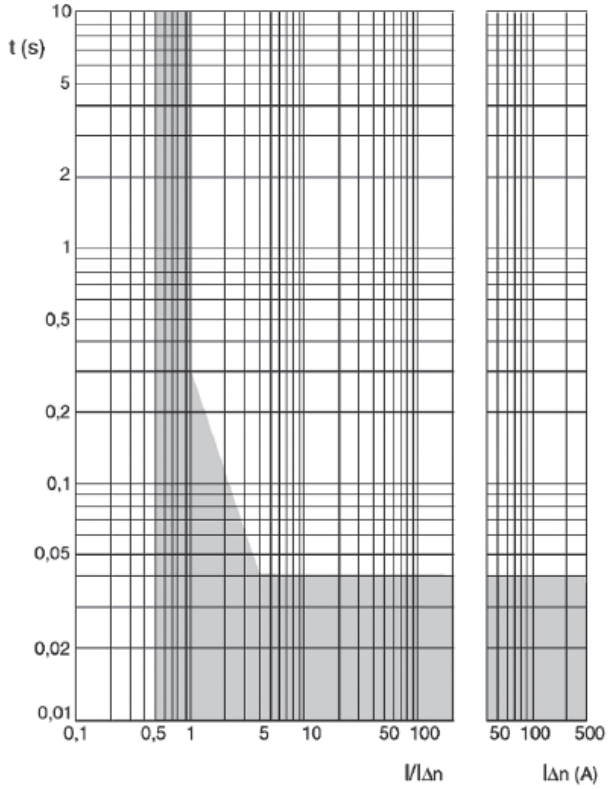
Update: 30/08/2019



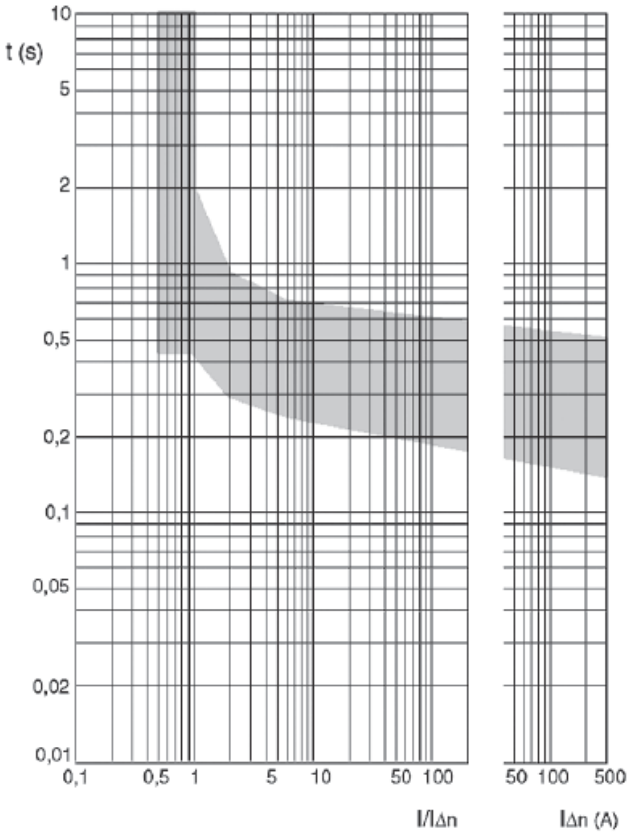
I_{cu} = 36-50 kA I_{max} = 250A 4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

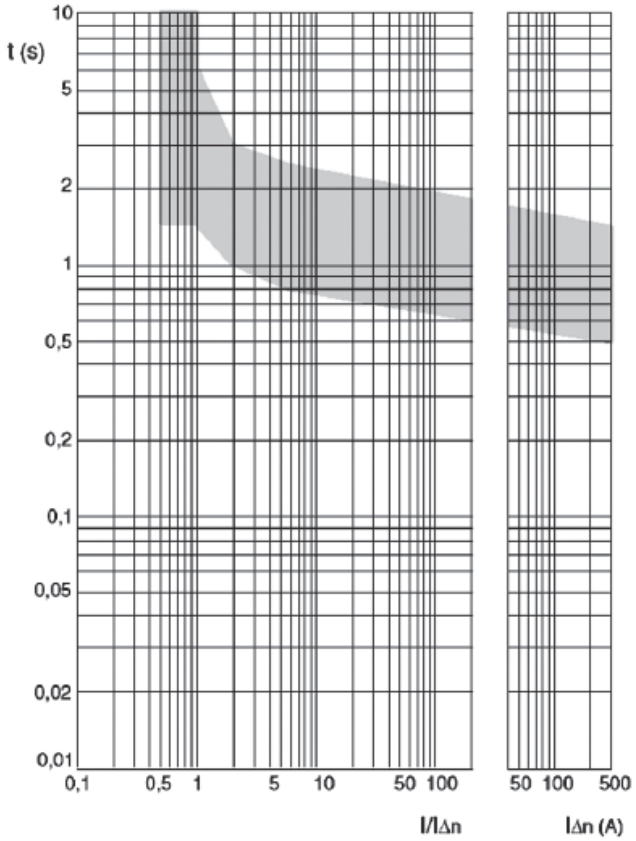
10.5.1 Earth leakage curves, instantaneous



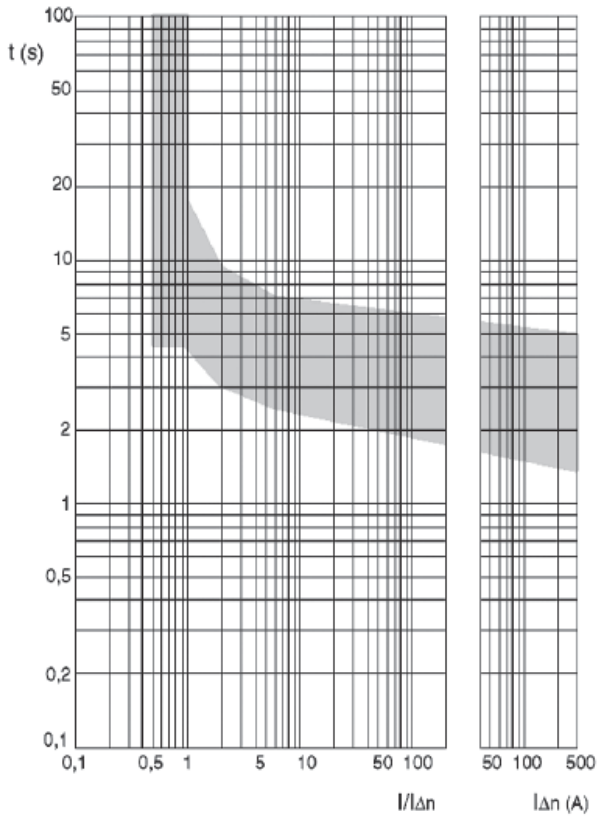
10.5.2 Earth leakage curves, time delay = 0.3 s



10.5.3 Earth leakage curves, time delay = 1 s



10.5.4 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.