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DPX³ 250 HP S10 electronic (display version) circuit breakers

Cat.Nos:
from 4 234 00 to 4 234 03; from 4 234 05 to 4 234 08; from 4 234 20 to 4 234 23; from 4 234 25 to 4 234 28; from 4 234 40 to 4 234 43; from 4 234 45 to 4 234 48; from 4 234 50 to 4 234 53; from 4 234 55 to 4 234 58; from 4 234 60 to 4 234 63; from 4 234 65 to 4 234 68; from 4 234 80 to 4 234 83; from 4 234 85 to 4 234 88; from 4 235 00 to 4 235 03; from 4 235 05 to 4 235 08; from 4 235 10 to 4 235 13; from 4 235 15 to 4 235 18


CONTENT **Page**

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

2.1 DPX³ 250 HP S10 electronic (display version)

Icu	36 kA		50 kA	
In (A)	3P	4P	3P	4P
40	4 234 00	4 234 05	4 234 20	4 234 25
100	4 234 01	4 234 06	4 234 21	4 234 26
160	4 234 02	4 234 07	4 234 22	4 234 27
250	4 234 03	4 234 08	4 234 23	4 234 28

Icu	70 kA		100 kA	
In (A)	3P	4P	3P	4P
40	4 234 40	4 234 45	4 234 50	4 234 55
100	4 234 41	4 234 46	4 234 51	4 234 56
160	4 234 42	4 234 47	4 234 52	4 234 57
250	4 234 43	4 234 48	4 234 53	4 234 58

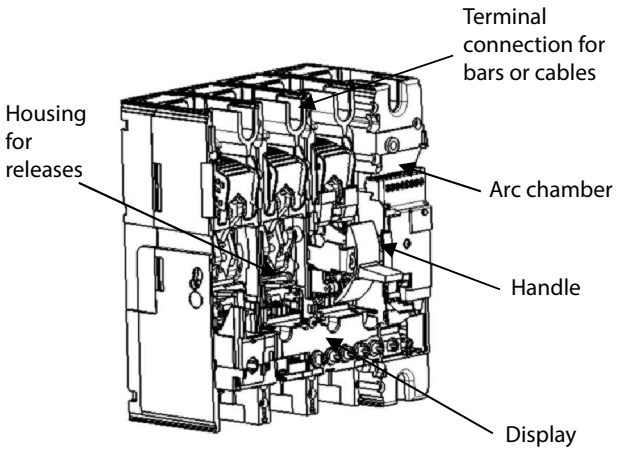
2.2 DPX³ 250 HP S10 electronic (display version) with measurement function

Icu	36 kA		50 kA	
In (A)	3P	4P	3P	4P
40	4 234 60	4 234 65	4 234 80	4 234 85
100	4 234 61	4 234 66	4 234 81	4 234 86
160	4 234 62	4 234 67	4 234 82	4 234 87
250	4 234 63	4 234 68	4 234 83	4 234 88

Icu	70 kA		100 kA	
In (A)	3P	4P	3P	4P
40	4 235 00	4 235 05	4 235 10	4 235 15
100	4 235 01	4 235 06	4 235 11	4 235 16
160	4 235 02	4 235 07	4 235 12	4 235 17
250	4 235 03	4 235 08	4 235 13	4 235 18

2.3 Composition

DPX³ 250 HP S10 is supplied with:
- fixing screws (2 for 3P, and 4 for 4P)
- screws for connections (6 for 3P, and 8 for 4P)
- phase insulators (2 for 3P, and 3 for 4P)



3. TECHNICAL CHARACTERISTICS

■ 3.1 Electrical characteristics

Rated current	40 A - 100 A - 160 A - 250 A
Poles	3P - 4P
Pole pitch	35 mm
Rated insulation voltage (50/60Hz) Ui	800 V
Rated operating voltage (50/60Hz) Ue	690 V
Rated impulse withstand current Uimp	8 kV
Rated frequency	50 Hz - 60 Hz
Operating temperature	-25 °C to 70 °C
Electrical endurance at In (cycles)	6000
Electrical endurance at 0.5 In (cycles)	6000
Utilization category	A
Suitable for isolation	Yes
Reverse feed	Yes

The maximum temperature allowed on power terminals is 125 °C (absolute). For details, see IEC 60947-1 and 60947-2.

Breaking capacity (3P and 4P)

	Breaking capacity (kA) & Ics				
	Ue	Icu			
		36 kA	50 kA	70 kA	100 kA
IEC 60947-2	220/240 V~	70	90	100	150
	380/415 V~	36	50	70	100
	440/460 V~	25	30	40	50
	480/500 V~	16	18	30	35
	550 V~	10	12	22	25
	690 V~	7	8	10	12
	Ics (% Icu)	100			
	Rated making capacity under short circuit Icm				
	Icm (kA) at 415 V	76.5	105	154	220

Rated current (In) at 40 °C / 50 °C

	Phase limit trip current			
	Thermal (Ir)		**Magnetic (Isd)**	
In (A)	**0.2 x In**	**1 x In**	**MIN**	**MAX**
40	8	40	60	400
100	20	100	150	1000
160	32	160	240	1600
250	50	250	375	2500

For neutral adjustment, please consider the values ratios 100% on set currents.

■ 3.2 Mechanical characteristics

Mechanical endurance (cycles): 12000
Mechanical endurance with motor control (cycles): 12000

Load operations

	Force on handle (N)
Opening operation	63.5
Closing operation	66
Restore operation	86.5

■ 3.3 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.

Icc (kA)	**Maximum distance (mm)**
36	350
50	300
70	250
100	200

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

■ 3.4 Power losses per pole under In (W)

In (A)	**40**	**100**	**160**	**250**
Lugs	0.42	2.60	6.66	16.25
Cage terminals	0.45	2.82	7.22	17.63
Spreaders	0.46	2.86	7.32	17.88
Rear terminals	0.46	2.86	7.32	17.88
Plug-in version	0.93	5.80	14.85	36.25

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.

■ 3.5 Electonic protection S10 characteristics

Type of protection	Electronic (with display)
Thermal type protection	Adjustable (Mem On/Off)
Ability to enable thermal protection	On/Off
Magnetic type protection	Adjustable
Ability to enable magnetic protection	On/Off
Fixed instantaneous override	Isf = 3250 A
Earth leakage trip type	Integrated
Earth leakage trip IΔn [A]	- / 0,2 to 1 (steps 0,1In)
Earth leakage trip Δt [s]	0 - 0,3 - 1 - 3

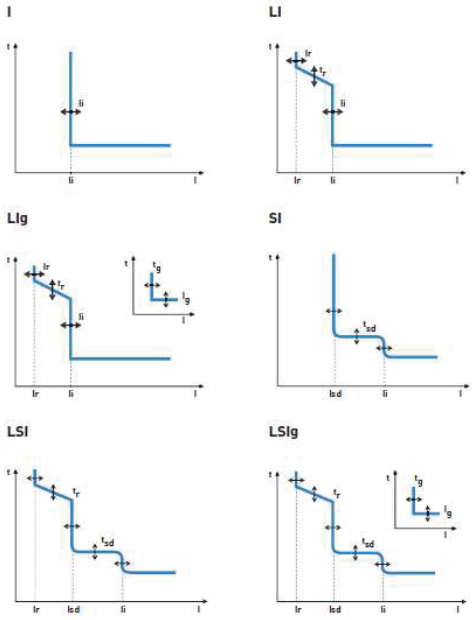
Electronic DPX³ circuit breakers equipped with S10 protection units are fully configurable. They can be used to adapt settings as closely as possible to the requirements of your installation, either by enabling/disabling the different protection devices (tripping time delays and currents), or by altering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

3. TECHNICAL CHARACTERISTICS *(continued)*

■ 3.5 Electonic protection S10 characteristics *(continued)*

Thanks to the internal battery, the protection unit can be set even if the circuit breaker is de-energised. Parameters and fault histories can be consulted directly via the LCD screens.

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



Ir Long time protection against overloads
tr Long time protection delay
Isd Short time protection against short circuits
tsd Short time protection delay
Ii Instantaneous protection against high-intensity short- circuits
Ig Earth fault current
tg Earth fault current protection delay
IN Neutral protection
See relative instruction sheet for details.

Settings on S10 electronic protection
There are 2 options for configuring setting: locally on the circuit breaker or on a PC, smartphone or tablet:

Settings	Locally on the device	By software or app
Ir	0.2 to 1 x In, in steps of 1 A (case In > 40A); 0.4 to 1 x In, in steps of 1 A (case In = 40A)	0.2 to 1 x In - OFF, in steps of 1 A
tr	3 - 5 - 10 - 15 s	from 40ms to 15s, in steps of 40 ms
Isd	1.5 to 3 x Ir, in steps of 0.5 x Ir; 3 to 10 x Ir, in steps of Ir	1.5 to 10 x Ir - OFF, in steps of 1 A
tsd (t=k, I^2t=k)	40 to 480 ms (7 steps)	40 to 480 ms, in steps of 40 ms
Ii (t=k)	OFF	2 to 15 x In - OFF, in steps of 1 A
Ig	0.2 to 1 x In, in steps of 0.1 x In (case In > 40A); 0.4 to 1 x In, in steps of 0.1 x In (case In = 40A)	0.2 to 1 x In - OFF, in steps of 0.1 x In
tg (t=k, I^2t=k)	80 to 480 ms (5 steps) and 1 s	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. It is possible to modify the energy and power direction (top / bottom).
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*
- update the protection unit firmware**
- generate reports based on the data stored and read by the protection unit*
- run diagnostic tests
- upload data linked to your profile and installation to the Cloud (with the EnerUp + Project app only)

*With the Power Control Station software only
**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.

By electronic DPX³ 250 HP 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 scheduled on some parameters, including minimum and maximum voltage, phase unbalance, and minimum and maximum frequency.

3. TECHNICAL CHARACTERISTICS *(continued)*

■ 3.5 Electonic protection S10 characteristics *(continued)*

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:

Measure	Unit	Description
L1	A	L1 realtime measured value
L2	A	L2 realtime measured value
L3	A	L3 realtime measured value
IN (4P)	A	IN realtime measured value
IG	A	IG realtime measured value
U12 U23 U31 (3P)	V	Phase to phase voltage
V12 V23 V31 (4P)	V	Phase voltage
Freq.	Hz	Frequency
PTot	kW	Active Power
QTot	kVAr	Reactive Power
PF		Power Factor
Ep ↓	kWh	Incoming active energy
Ep ↑	kWh	Outgoing active energy
Eq ↓	kVAr h	Incoming reactive energy
Eq↑	kVAr h	Outgoing reactive energy
THDU12/THDU23/THDU31 (3P)	%	Chained Voltage THD
THDV1N/THDV2N/THDV3N (4P)	%	Voltage THD
THDI1/THDI2/THDI3/THDIN	%	Current THD
MEM	A - °C	Cause of the last intervention and its value

Function performance class according to IEC 61557-12

Function symbol	Perfomance class	Measured range				Other complementary characteristics			
		DPX³ 250A				Imax PMD			
In		**40 A**	**100 A**	**160 A**	**250 A**	**40 A**	**100 A**	**160 A**	**250 A**
P	2	0.5 kW	0.05 kW	0.05 kW	0.05 kW	48 A	120 A	192 A	300 A
		58 kW	144 kW	230 kW	360 kW	Ib = 40 A, Un = 400 V, fn = 50 Hz			
Qa, Qv	2	0.1 k V Ar	0.1 k V Ar	0.1 k V Ar	0.1 k V Ar	48 A	120 A	192 A	300 A
		58 kW	144 kW	230 kW	360 kW	Ib = 40 A, Un = 400 V, fn = 50 Hz			
Ea	2	0…9999 GWh				48 A	120 A	192 A	300 A
						Ib = 250 A, Un = 400 V, fn = 50 Hz			
ErA, ErV	2	0…9999 GWh				48 A	120 A	192 A	300 A
						Ib = 40 A, Un = 400 V, fn = 50 Hz			
f	0.1	50…60 Hz				-			
I	1	2 A	2 A	2 A	2 A	48 A	120 A	192 A	300 A
		48 A	120 A	192 A	300 A	Ib = 250 A, Un = 400 V, fn = 50 Hz			
IN	1	2 A	2 A	2 A	2 A	48 A	120 A	192 A	300 A
		48 A	120 A	192 A	300 A	Ib = 250 A, Un = 400 V, fn = 50 Hz			
U	0.5	88…690 V				-			
PFV	0.5	-				48 A	120 A	192 A	300 A
						Ib = 250 A, Un = 400 V, fn = 50 Hz			
THDu	5	110…690 V				-			
THDi	5	40 A	40 A	40 A	40 A	-			
		40 A	100 A	160 A	250 A				

3. TECHNICAL CHARACTERISTICS *(continued)*

■ 3.5 Electonic protection S10 characteristics *(continued)*

General remarks on protection unit

The protection units S10 are normally supplied by the internal current transformers (CTs).
When the current flowing through the circuit breaker is greater than 12% of the maximum power (20% of In for single phase load), the internal current supply ensures all operation of the protection unit, included LED status, display indications and 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.

Device	Maximum power consumption [mA]
Interface EMS/DPX³	50
ELE, ELE + RCD	125
ELE + PMD, ELE + PMD + RCD	150

ELE : Electronic trip unit
RCD : Residual Current Device
PMD : Power Metering Device

- power supply temporarily connected to frontal USB socket, connected to a 5 V⎓ power bank, Dongle BLE or PC.

4. INSTALLATION RULES

According to IEC/EN 60947-1.

Temperature deratings
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)			
In (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 below.

Derating temperature and configurations

Ambient temperature	30 °C		40 °C		50 °C		60 °C		70 °C	
	Imax (A)	Ir / In	Imax (A)	Ir / In	Imax (A)	Ir / In	Imax (A)	Ir / In	Imax (A)	Ir / In
DPX³ 250 HP fixed										
Cage terminals, flexible/rigid cable	250	1	250	1	240	0.96	225	0.90	210	0.84
Lugs, flexible/rigid cable	250	1	250	1	240	0.96	225	0.90	210	0.84
Lugs, flexible/rigid cable and terminal shields	250	1	240	0.96	225	0.90	210	0.84	200	0.80
Spreaders, flexible/rigid cable	250	1	250	1	240	0.96	225	0.90	210	0.84
Rear terminals, flexible/rigid cable	250	1	240	0.96	225	0.90	210	0.84	200	0.80
DPX³ 250 HP plug-in/draw-out version										
Cage terminals, flexible/rigid cable	250	1	235	0.94	226	0.90	210	0.84	195	0.78
Lugs, flexible/rigid cable	250	1	235	0.94	225	0.90	210	0.84	195	0.78
Lugs, flexible/rigid cable and terminal shields	250	1	225	0.90	210	0.84	195	0.78	188	0.75
Spreaders, flexible/rigid cable	250	1	235	0.94	225	0.90	210	0.84	195	0.78
Rear terminals, flexible/rigid cable	250	1	225	0.90	210	0.84	195	0.78	188	0.75

For further technical information, please contact Legrand technical support.

4. INSTALLATION RULES *(continued)*

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

Electromagnetic disturbances (EMC): for Megatiker DPX3 250HP circuit breakers, according to IEC/EN 60947-2 Annex F

Altitude
Altitude derating for DPX³ and DPX³-I

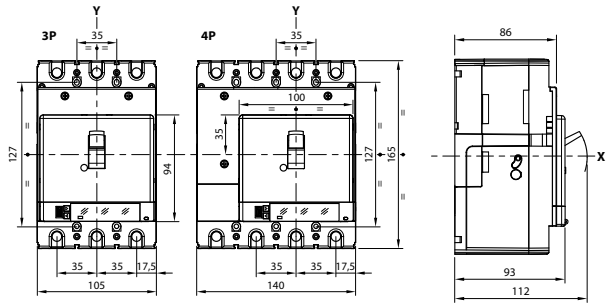
Altitude (m)	2000	3000	4000	5000
Ue (V)	690	590	520	460
In (A) (Ta = 40°C/50°C)	1 x In	0.98 x In	0.93 x In	0.9 x In

5. DIMENSIONS AND WEIGHT

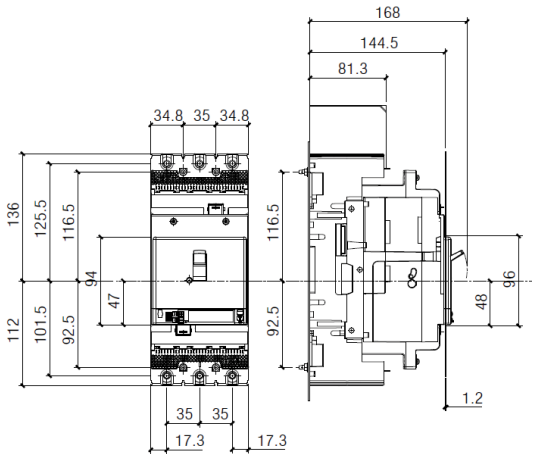
■ 5.1 Dimensions (mm)

3P (W x H x D): 105 x 165 x 86
4P (W x H x D): 140 x 165 x 86

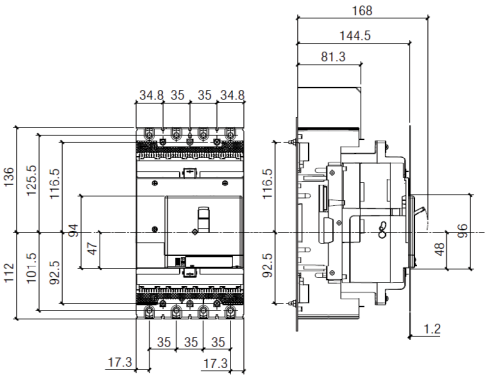
Device with accessories
Fixed version



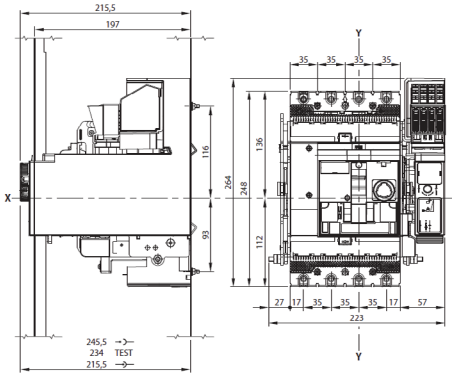
Plug-in version
3P



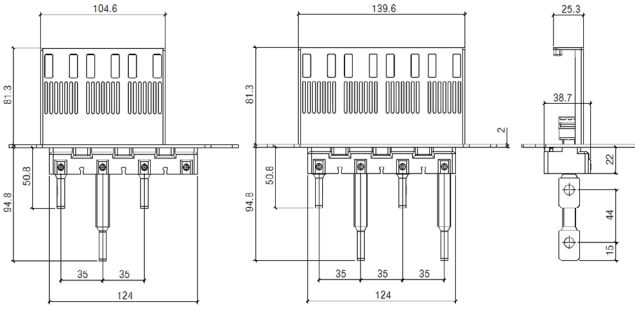
4P

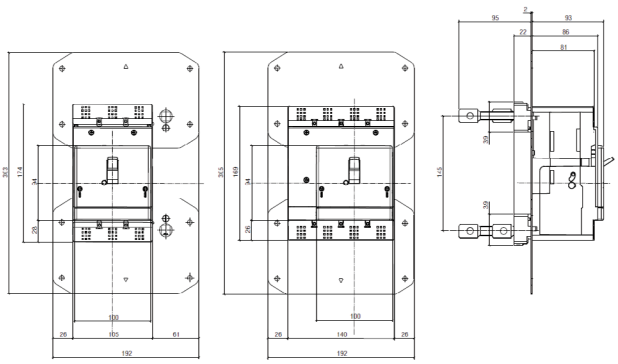


Draw-out version
4P



With rear terminals

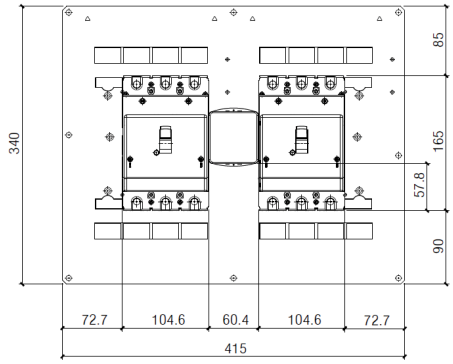




5. DIMENSIONS AND WEIGHT *(continued)*

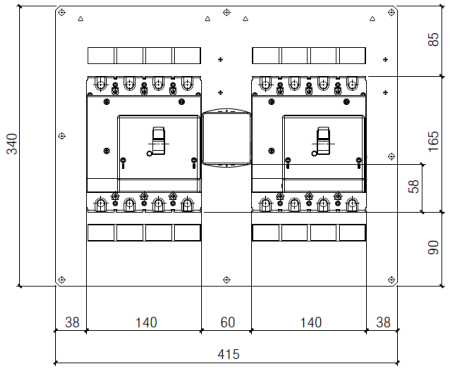
5.1 Dimensions (mm) *(continued)*

With interlock
3P



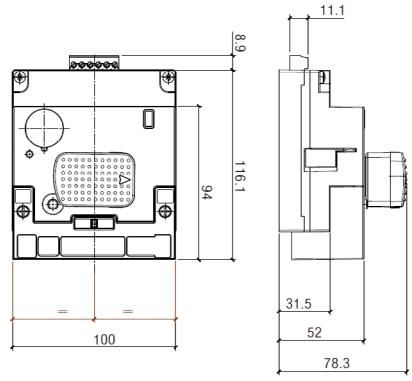
For rear plate interlock dimension, see relative instruction sheet.

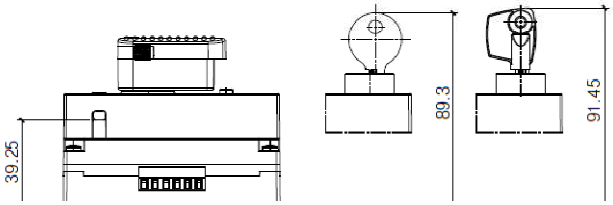
With interlock
4P

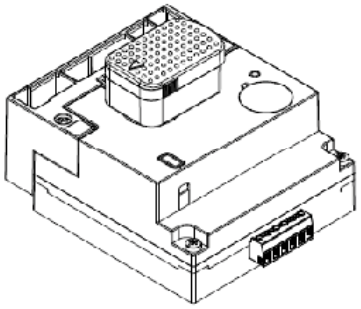


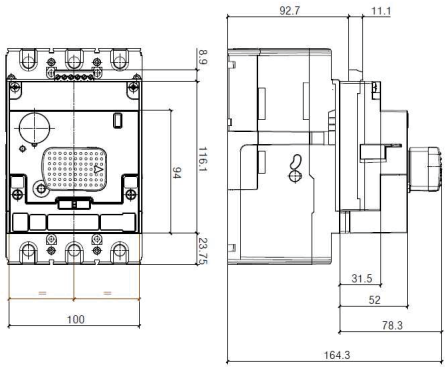
For rear plate interlock dimension, see relative instruction sheet.

With direct rotary handle

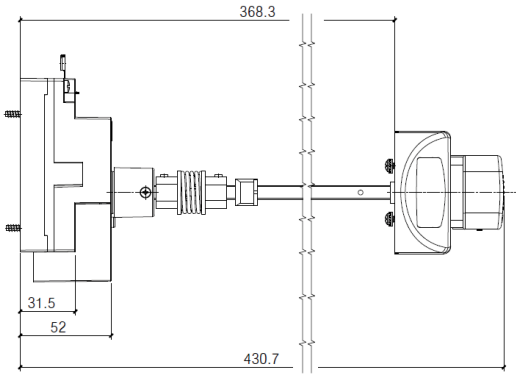


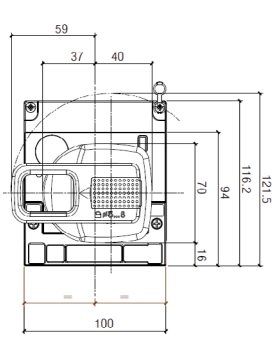


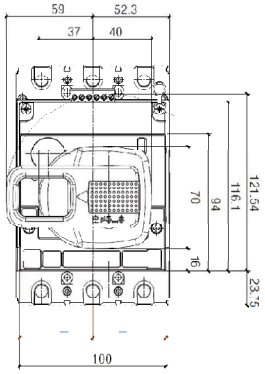




With vary depth rotary handle



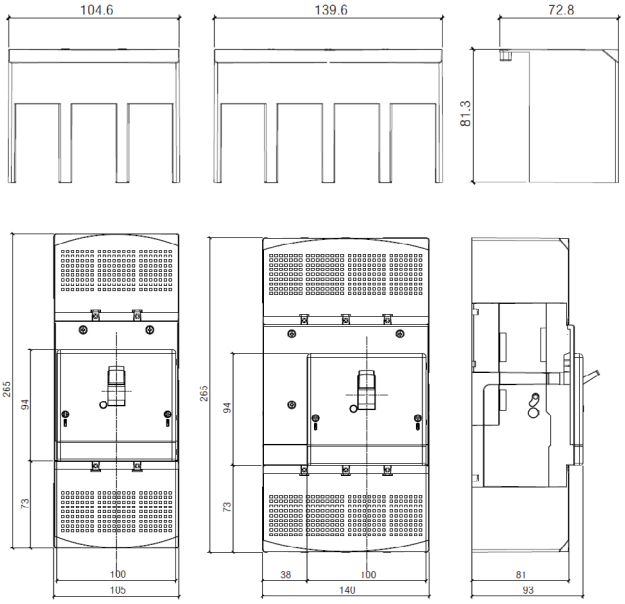


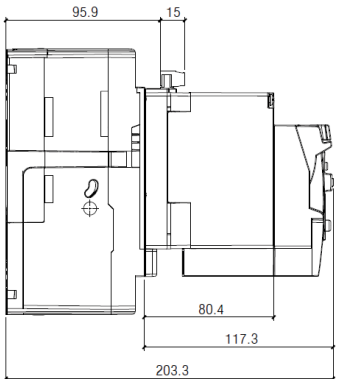


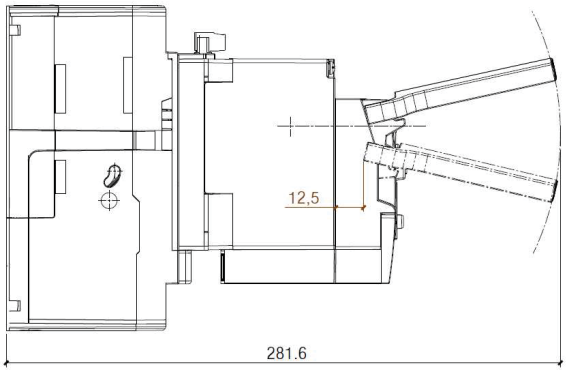
5. DIMENSIONS AND WEIGHT *(continued)*

■ 5.1 Dimensions (mm) *(continued)*

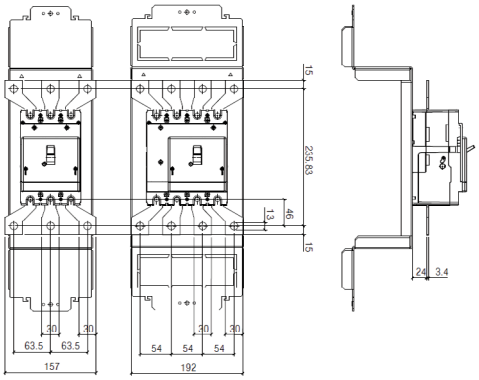
With sealable terminal shields

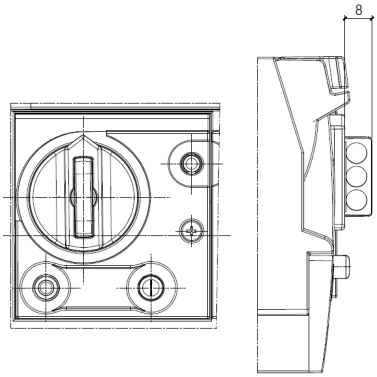




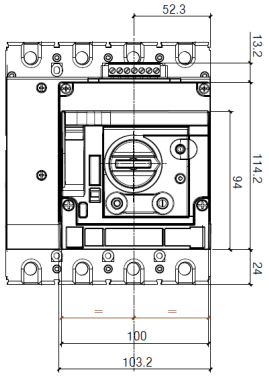


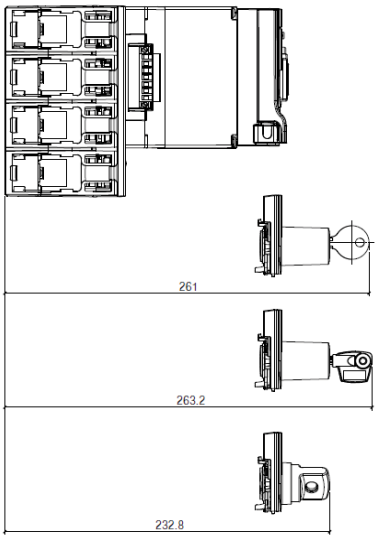
With spreaders





With motor operator





5. DIMENSIONS AND WEIGHT *(continued)*

■ 5.2 Weights

Weights (kg)		
Configuration	**3P**	**4P**
Circuit breaker	1.6	2.5
Plug-in*	3.5	4.5
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

6. CONNECTIONS

To unsure the circuit breaker's connection, it is possible to use:
- busbars;
- cable lugs;
- spreaders;
- cage terminals;
- cables

For detailed mounting procedures, see instruction sheet.

7. EQUIPMENTS AND ACCESSORIES

■ 7.1 Releases

There are 3 types of releases (suitable for DPX³ 125/160/250 HP and DPX³ 160/250):

Shunt releases with voltage (ST)

12 V~/⎓	Cat.No 4 210 12
24 V~/⎓	Cat.No 4 210 13
48 V~/⎓	Cat.No 4 210 14
110 to 130 V~	Cat.No 4 210 15
220 to 277 V~	Cat.No 4 210 16
380 to 480 V~	Cat.No 4 210 17

Maximum power = 400 VA/W

Undervoltage releases with voltage (UVR)

12 V~/⎓	Cat.No 4 210 18
24 V~/⎓	Cat.No 4 210 19
48 V~/⎓	Cat.No 4 210 20
110 to 130 V~/⎓	Cat.No 4 210 21
220 to 240 V~	Cat.No 4 210 22
277 V~	Cat.No 4 210 23
380 to 415 V~	Cat.No 4 210 24
440 to 480 V~	Cat.No 4 210 25

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

Undervoltage releases can be used on DPX³ 125/160/250 HP starting from batch 19W15.

Time-lag undervoltage releases (800 ms)

- Release	Cat.No 4 210 98
to be equipped with a time-lag module :	
- 230 V~	Cat.No 0 261 90
- 400 V~	Cat.No 0 261 91

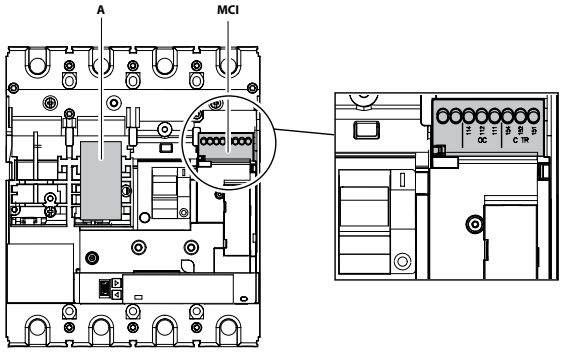
■ 7.2 Auxiliary contacts

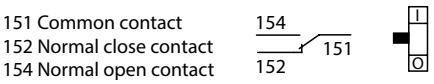
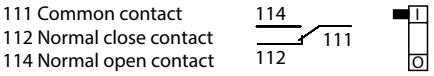
For versions of DPX³ 250 HP electronic version, auxiliary contacts are integrated inside module M.C.I. (Insulation Control Module) (see instruction sheet for details).

Auxiliary contacts assembly		
Voltage (Uc)	**AC/DC**	**Current (A)**
24	DC	5
48	DC	1.7
110	DC	0.5
110	AC	4
230	DC	0.25
230 to 250	AC	3

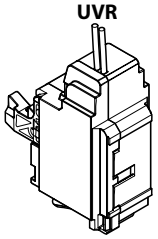
Integrated auxiliary contacts		
Voltage (Uc)	**AC/DC**	**Current (A)**
12	DC	5
24	DC	1
110	AC	5
230	AC	5

Wiring diagrams to get to the auxiliary functionality:



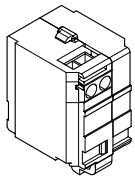
TRIP STATUS	151 Common contact 152 Normal close contact 154 Normal open contact	
OPEN/CLOSE STATUS	111 Common contact 112 Normal close contact 114 Normal open contact	

UVR



4 210 18...25
4 210 98

ST



4 210 12...17

In the space A, it is possible to insert 1 shunt release, or alternatively 1 undervoltage release. To get more information on auxiliary mounting procedures, please refer to product instruction sheet.

■ 7.3 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 data sheet) must be added in order to get the complete locking kits for the specific application.

- 1 lock + 1 flat key with random mapping	Cat.No 4 238 80
- 1 lock + 1 flat key with fixed mapping (EL43525)	Cat.No 4 238 81
- 1 lock + 1 flat key with fixed mapping (EL43363)	Cat.No 4 238 82
- 1 lock + 1 star key with random mapping	Cat.No 4 238 83

7. EQUIPMENTS AND ACCESSORIES *(continued)*

■ 7.4 Rotary handles

There are four types of suited rotary handles:

Direct on DPX³ (with auxiliary option and compatible XL³)
- Standard (black) Cat.No 4 238 00
- For emergency use (red / yellow) Cat.No 4 238 01

Vary depth handle IP55 (with auxiliary option and compatible XL³)
- Standard (black) Cat.No 4 238 02
- For emergency use (red / yellow) Cat.No 4 238 03

Direct on DPX3 (general purpose)
- Standard (black) Cat.No 4 238 14
- For emergency use (red/yellow) Cat.No 4 238 15

Vary depth handle IP55 (general purpose)
- Standard (black) Cat.No 4 238 16
- For emergency use (red/yellow) Cat.No 4 238 17

Locking accessories (for rotary handle with auxiliary option)
- Key lock accessory for direct rotary handle Cat.No 4 238 04
- Key lock accessory for vary depth rotary handle, also compatible with DPX³ 125 HP Cat.No 4 238 05

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

■ 7.5 Motor operators

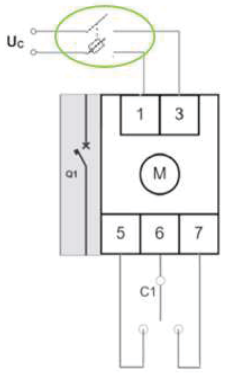
For synchronized operations (energy storage type):
- 24 V~/⎓ Cat.No 4 238 40
- 48 V~/⎓ Cat.No 4 238 41
- 110 V~ Cat.No 4 238 42
- 230 V~ Cat.No 4 238 43

Technical parameters:

Voltage	Property	Alternative current		Direct current	
		Opening	Closing	Opening	Closing
24 V~/⎓	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
48 V~/⎓	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
110 V~	Maximum inrush power (VA)	95	600	-	-
	Rated power (VA)	60	-	-	-
	Absorption time (s)	3	0.02	-	-
	Operating current time (s)	0.1	0.03	-	-
230 V~	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 (for example fuse) on the motor operator power line. Fuse characteristics depend on the motor version and on the number of users.

Schematic example:



Locking accessory (for motor operator)
- Padlock (for motor operator locking) Cat.No 4 238 46
- Key lock accessory for motor operator Cat.No 4 238 45

Cat.No 4 238 45 must be used with universal keylocks to get the complete locking kit for motor operator.

■ 7.6 Mechanical accessories

Padlock (for locking in "OPEN" position) Cat.No 4 210 49
Cat.No 4 210 49 is compatible with DPX³ 125/160 HP and DPX³ 160/250.

Sealable terminal shields
- Set of 2 (for 3P) Cat.No 4 238 23
- Set of 3 (for 4P) Cat.No 4 238 24

Insulated shields
- Set of 2 (for 3P) Cat.No 4 238 34
- Set of 3 (for 4P) Cat.No 4 238 35

Cat.No 4 238 34/35 are also compatible with DPX³ 125/160 HP.

■ 7.7 Connection accessories

Possible way of assembly on plate:
- vertical
- horizontal

It is possible to use:
- busbars;
- cables lugs;
- spreaders;
- cage terminals;

to unsure the circuit breaker's connection.

For detailed mounting procedures, see instruction sheet.

7. EQUIPMENTS AND ACCESSORIES *(continued)*

■ 7.7 Connection accessories *(continued)*

Cage terminals

- Set of 3 terminals for 150 mm² max (rigid) or 120 mm² max (flexible) Cu/Al cables — Cat.No 4 238 30
- Set of 4 terminals for 150 mm² max (rigid) or 120 mm² max (flexible) Cu/Al cables — Cat.No 4 238 31

Cage terminal use specifications

Cable standard suggested cross section (mm²)*			
	In (A)	Cu	Al
Cage terminals Cat.Nos 4 238 30/ 4 238 31	16	2.5	4
	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)

Dimensions limits of cable for cage terminals				
Cage terminals Cat.Nos 4 238 30 4 238 31	Min cross section (mm²)		Max cross section (mm²)	
	Flexible	Rigid	Flexible	Rigid
	2.5	4	120	150

Note : when the cross-section exceeds the maximum value specified for the material in the table, the allowable current is limited to the indicated value.

Spreaders (incoming or outcoming)

- Set of 3 (for 3P) — Cat.No 6 250 14
- Set of 4 (for 4P) — Cat.No 6 250 18

Rear terminals (incoming or outcoming)

- Set of 3 (for 3P) — Cat.No 4 238 21
- Set of 4 (for 4P) — Cat.No 4 238 22

■ 7.8 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 3P — Cat.No 4 238 50
- Plug-in/draw-out base for 4P — Cat.No 4 238 51
- Plug-in/draw-out mobile part kit for 3P — Cat.No 4 238 52
- Plug-in/draw-out mobile part kit for 4P — Cat.No 4 238 53

Plug-in accessories

Locking accessory (for plug-in)

- Key lock accessory for plug-in — Cat.No 4 238 63

Cat.No 4 238 63 must be used with universal keylocks to get the complete locking kit for plug-in version.

■ 7.9 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 3P — Cat.No 4 238 60
- Transformation kit for 4P — Cat.No 4 238 61

Frontal masks for draw-out version

When using a "Debro-lift" mechanism, add the correct frontal mask according to the accessories associated with the "Debro-lift".

- Frontal module, with frontal mask (3P and 4P) (if motor operator or rotary handle is not fitted) — Cat.No 4 238 55
- Frontal mask for motor operator (3P and 4P) — Cat.No 4 238 56

Locking accessory (for draw-out)

- Padlock for draw-out position — Cat.No 4 238 64
- Key lock accessory for draw-out — Cat.No 4 238 62

Cat.No 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 — Cat.No 4 222 30
- 6 contact connectors (under sliding contacts) — Cat.No 0 098 19

Cat.No 0 098 19 can be used with both plug-in and draw-out version.

■ 7.10 Interlock mechanism

It is used for interlocking 2 DPX³ 250 HP circuit breakers.
It is not possible to use other accessories than those recommended below for interlocking 2 DPX³ 250 HP.

Interlock mechanism – standard version (for fixed version DPX³ 250 HP) — Cat.No 4 238 27

Interlock mechanism – for electronic module (for fixed version DPX³ 250 HP) — Cat.No 4 238 28

Interlock plate for DPX³ 250 HP — Cat.No 4 238 26

Rear interlock mechanism for DPX³ 250 HP plug-in and/or draw-out version — Cat.No 4 238 29

When using a rear interlocking mechanism, use a maximum of 1 set of contact connectors Cat.No 0 098 19.

■ 7.11 Specific accessories for electronic version

Auxiliary power supply — Cat.No 4 210 83

It allows the supplying of electronic units.
It is used to supply DPX³ electronic circuit breakers S10 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.

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

Cat.No 4 210 83 Iout MAX = 250 mA	Electronic/Electronic + RCD (S10)	70 mA
	Electronic/Electronic + RCD with power metering (S10)	83 mA

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

7. EQUIPMENTS AND ACCESSORIES *(continued)*

■ 7.11 Specific accessories for electronic version *(continued)*

MODBUS communication
RS485 MODBUS communication interface Cat.No 4 210 75

It is used for sharing on MODBUS network all information managed by DPX³ electronic circuit breakers S10 with/without earth leakage module and with/without energy metering central unit.

Technical characteristics:
- USB local PC connection
- Input voltage: 24 V⏦/⎓ (+/- 10%)
- Dimension: 1 DIN module
- MODBUS address configuration / transmission mode / transmission speed by physic configurators
- Output relay (220 V – 0,2 A): to signal tripped position
- Consumption: 90 mA

It is possible to connect only one breaker to the interface.
If using the MODBUS interface Cat.No 4 210 75, the external power supply module Cat.No 4 210 83 is not necessary because the external power is already provided by the MODBUS module.

Electronic interface - EMS CX³
DPX³ electronic interface EMS CX³ Cat.No 4 238 90

It is used for connecting electronic DPX³ S10 to an EMS communication network. All the information managed bu the circuit breaker's electronic card will be shared on the EMS network.

Dimension: 1 module
Power supply: with EMS CX³ power supply module Cat.No 4 149 45.

The address can be modified and set locally by DIP switches or remotely with the EMS configurator software.

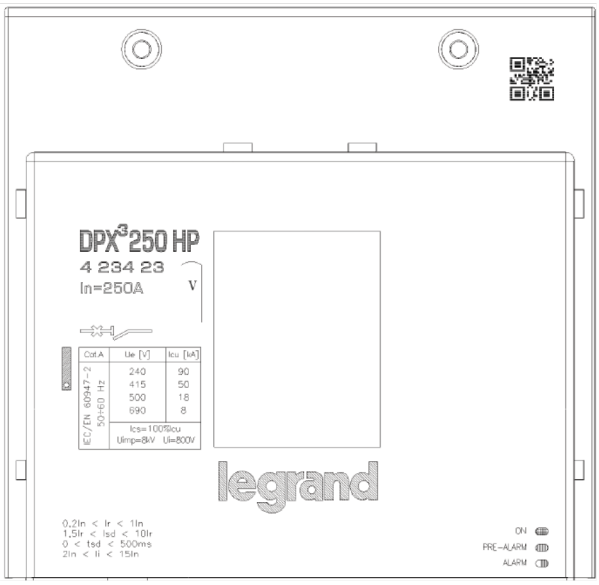
Bluetooth communication key Cat.No 0 283 10
USB key for BLE communication with electronic DPX³ 250 HP S10 allows to configure, monitor and manage the circuit breaker remotely through an App.
Connection port USB on front of the circuit breaker.

EnerUp + Project App for smartphone and tablet is available on Apple Store and Google Play.
Configuration, monitoring and management software (PCS) is available for download via the e-catalog and does not require the use of Bluetooth communication key Cat.No 0 283 10.

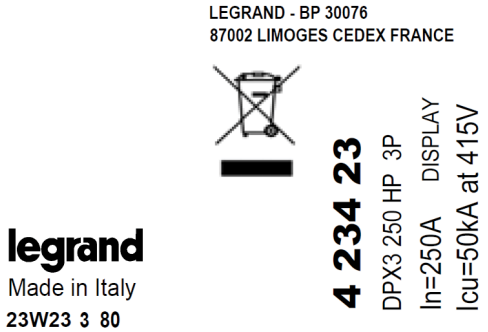
8. MARKING

Legrand DPX³ 250 HP S10 electronic (display version) circuit breakers are provided with labelling in full conformity to the referred standard and directives requirements. There are two types of label: laser or sticker (for illustrative purposes only):

Product laser label on front
- Manufacturer responsible
- Denomination, type product, code
- Standard conformity
- Standard characteristics declared
- Coloured identification of Icu at 415 V

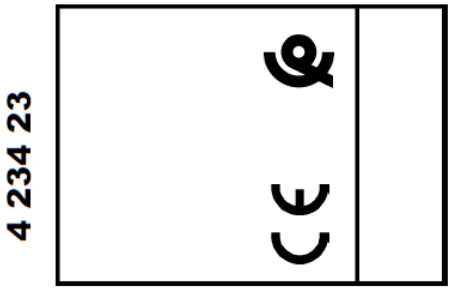


Product sticker label on side
- Manufacturer responsible
- Denomination and type product
- Mark/Licence (if any)
- Directive requirements
- Bar code identification product
- Manufacturing Country

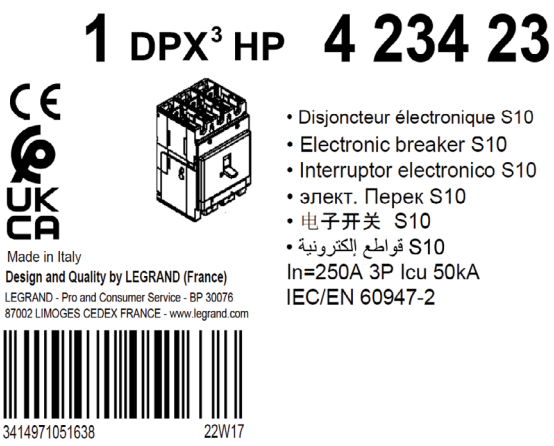


8. MARKING *(continued)*

Mark sticker label on side
- Product code
- Mark/Licence (if any)
- Country deviation, if any



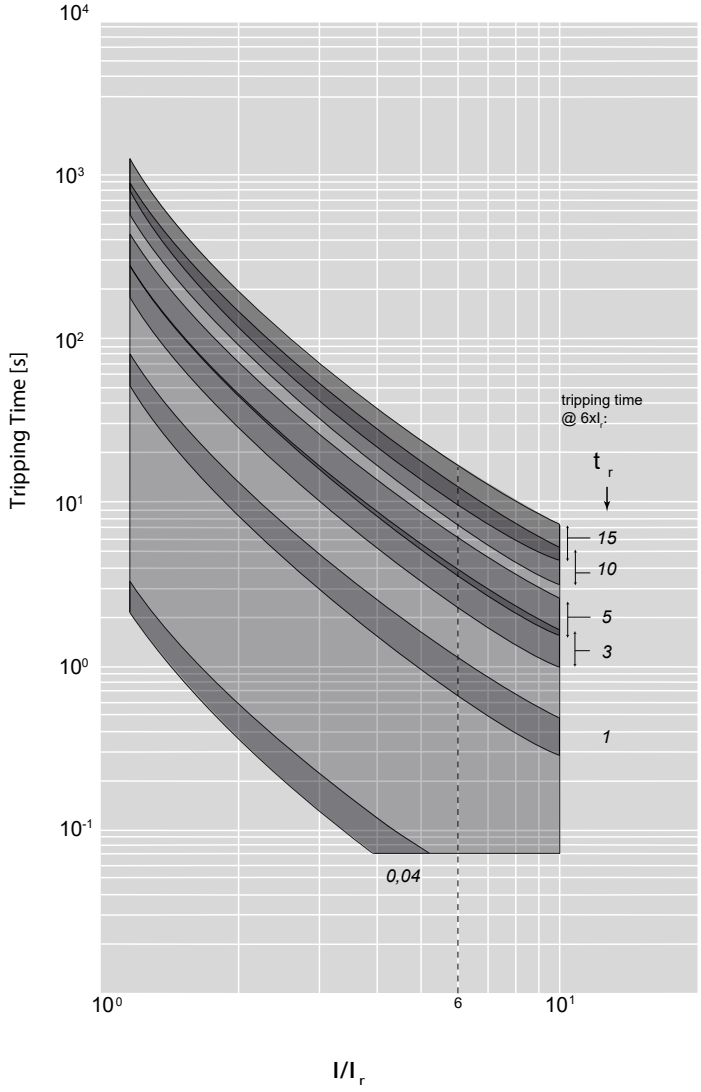
Packaging sticker label
- Manufacturer responsible
- Denomination and type product
- Standard conformity
- Mark/Licence (if any)
- Directive requirements
- Bar code identification product



9. CURVES

9.1 Tripping curve (1/3)

Update: 16/11/2022



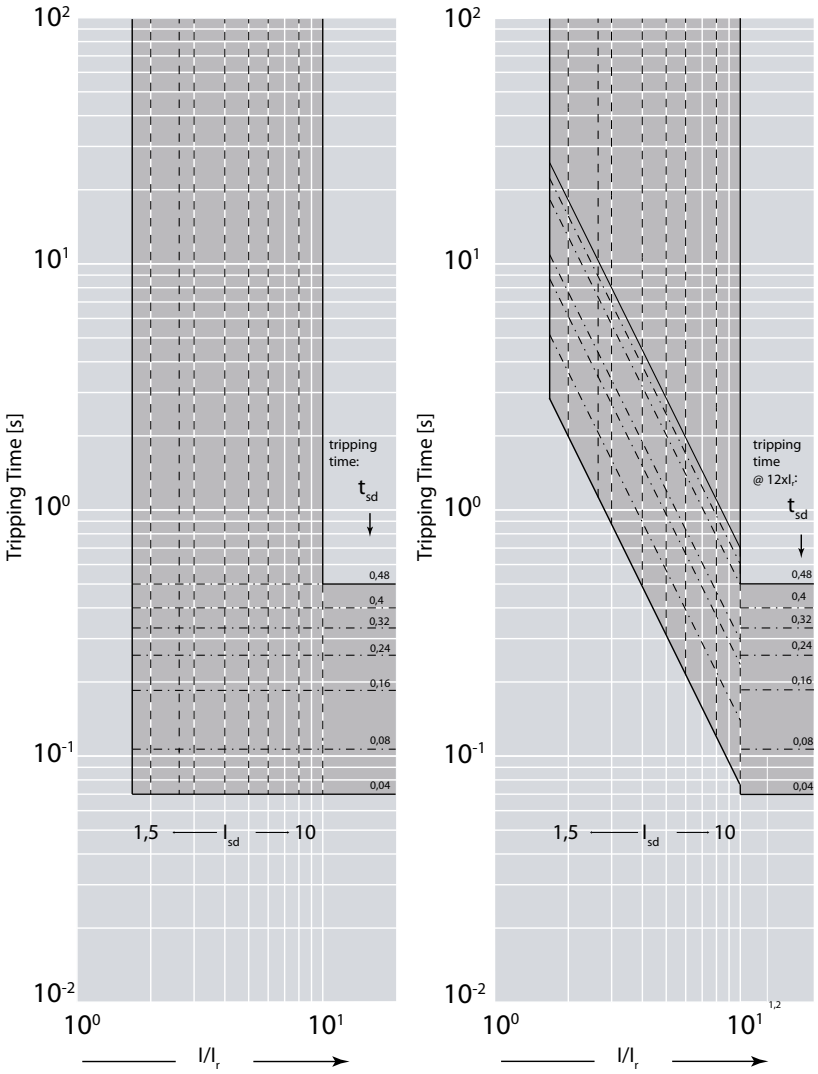
Icu = 36-50-70-100 kA | Imax = 250 A | 3P-4P | Ue = 415 V~ (IEC/EN 60947-2)

Value	Description
t	time
I	current
Ir	long time setting current
tr	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 Isd; 20% up to Ii

9. CURVES *(continued)*

9.2 Tripping curve (2/3)

Update: 17/11/2022

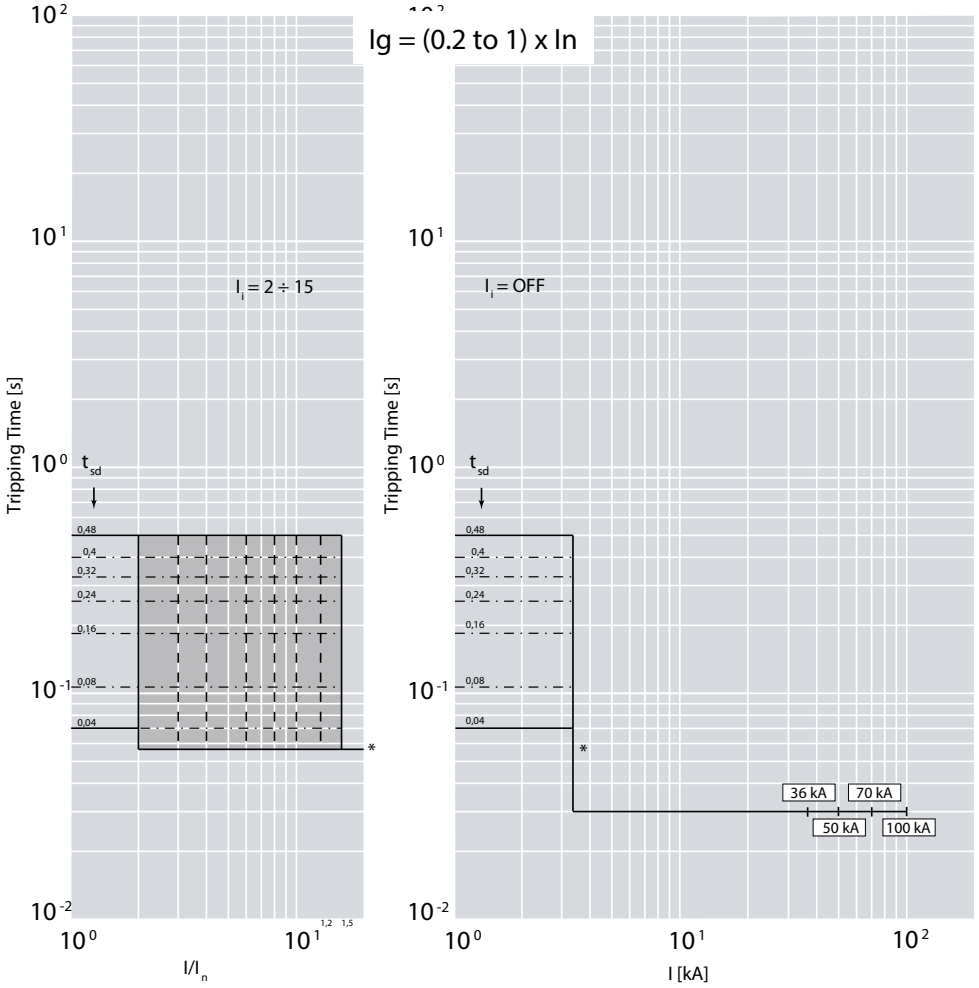


Icu = 36-50-70-100 kA | Imax = 250 A | 3P-4P | Ue = 415 V~ (IEC/EN 60947-2)

Value	Description
t	time
I	current
Ir	long time setting current
tr	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 Isd; 20% up to Ii

9. CURVES *(continued)*

9.3 Tripping curve (3/3)



Icu = 36-50-70-100 kA Imax = 250 A 3P-4P Ue = 415 V~ (IEC/EN 60947-2)

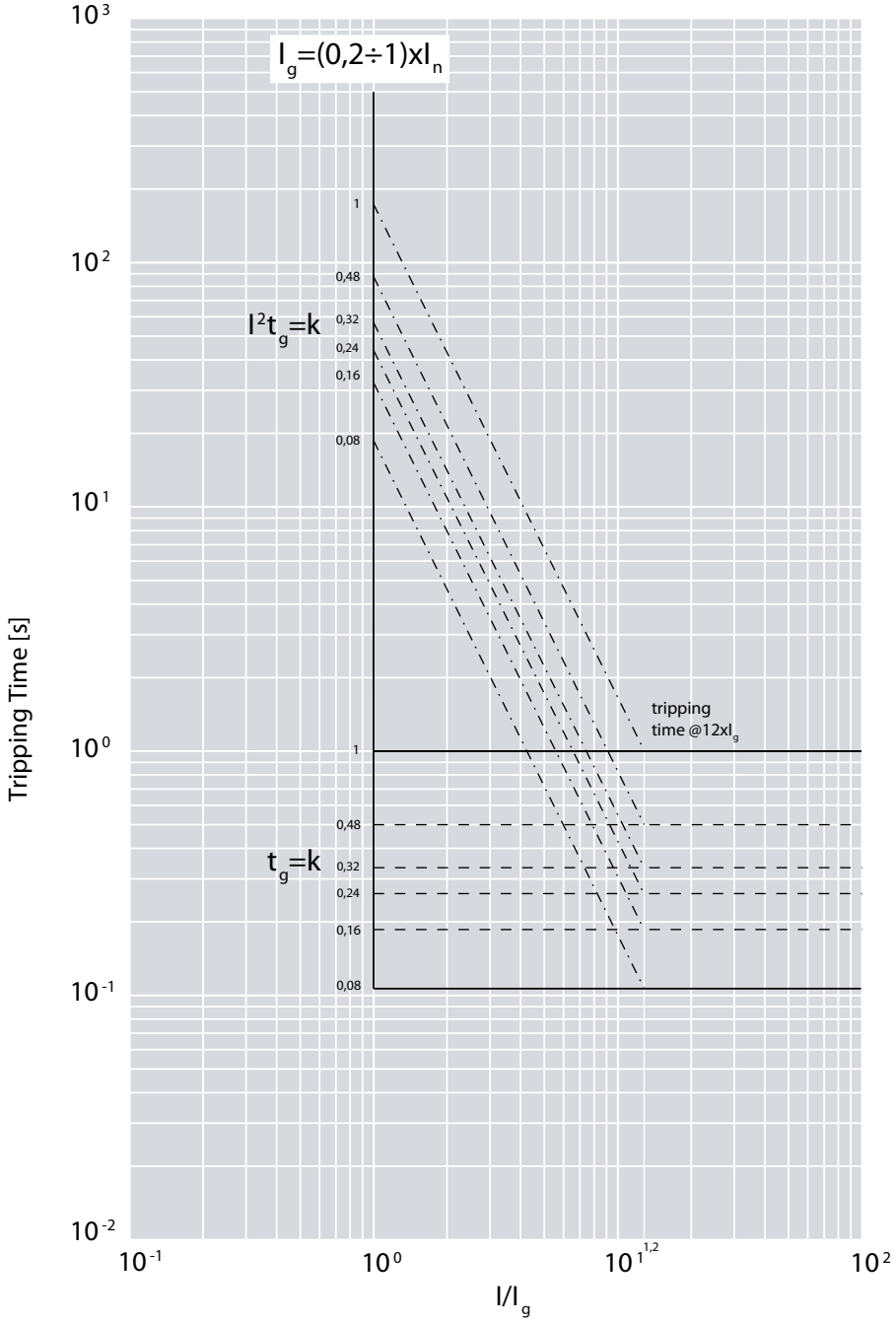
Fixed Instantaneous override Isf = 3.25 kA

Value	Description
t	time
I	current
Ir	long time setting current
tr	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 Isd; 20% up to Ii

9. CURVES *(continued)*

9.4 Ground fault curve

Update: 16/11/2022

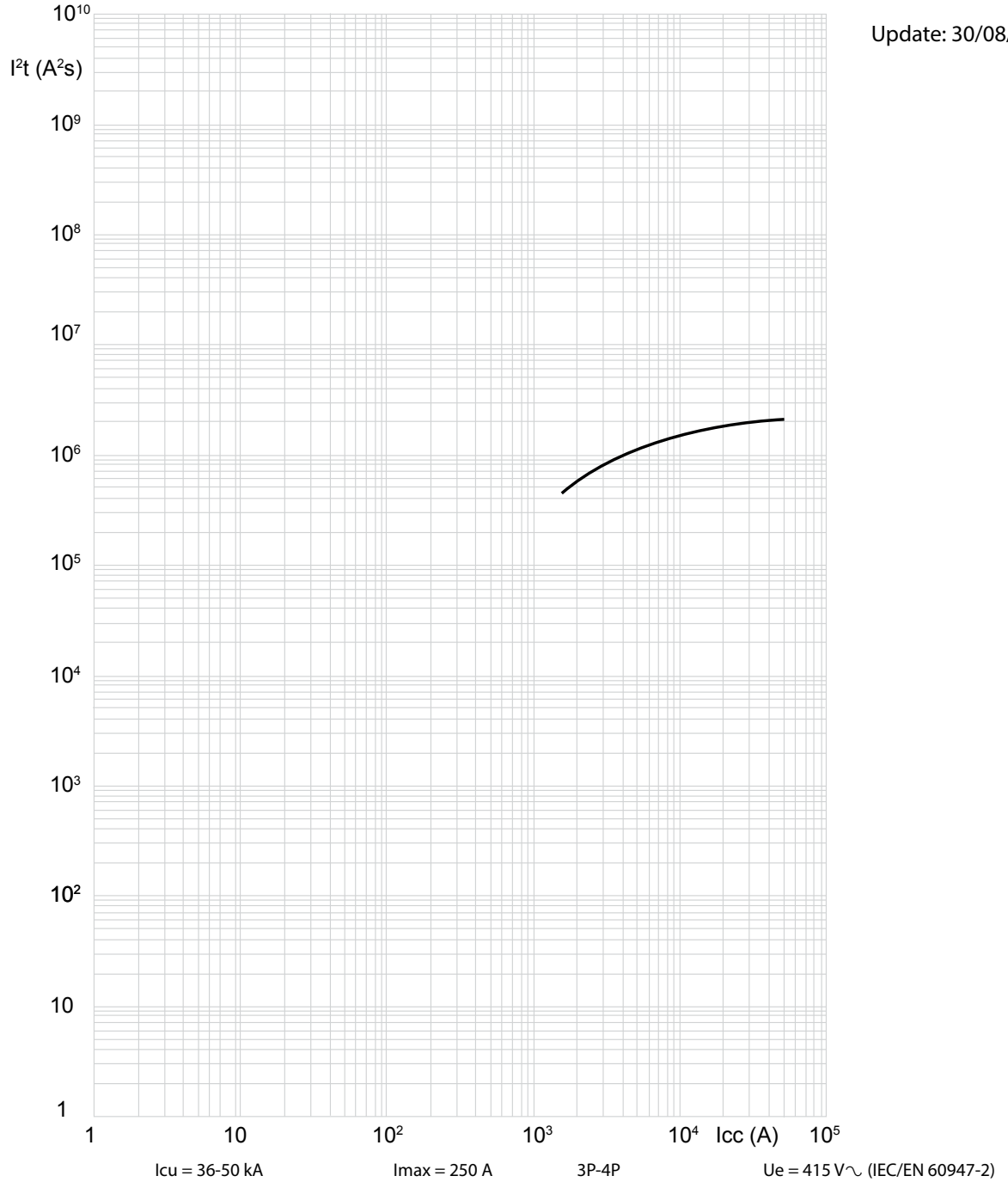


Icu = 36-50-70-100 kA | Imax = 250 A | 3P-4P | Ue = 415 V~ (IEC/EN 60947-2)

9. CURVES *(continued)*

9.5 Pass-through specific energy characteristic curve (breaking capacity Icu ≤ 50 kA)

Update: 30/08/2019



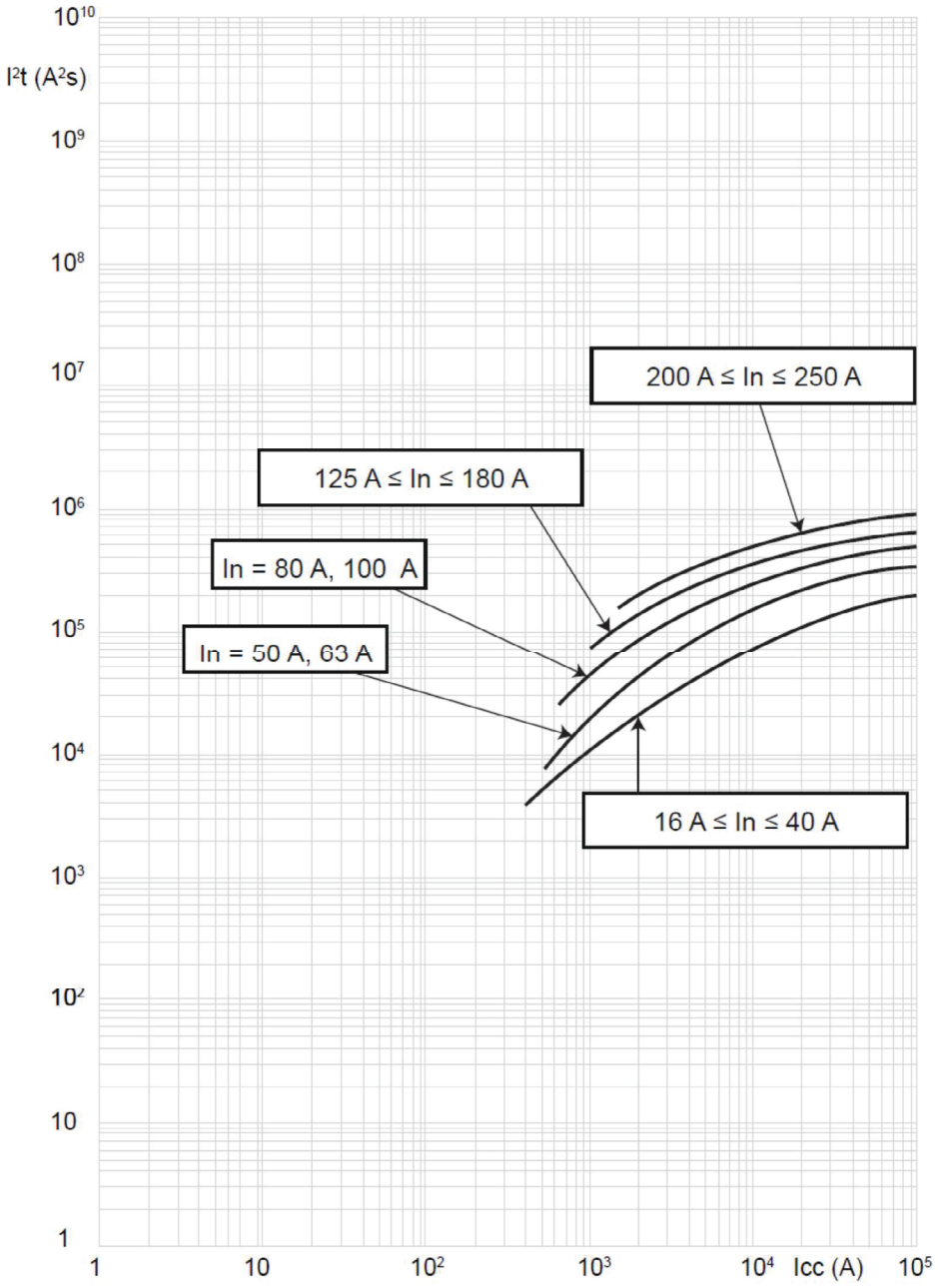
Icu = 36-50 kA Imax = 250 A 3P-4P Ue = 415 V∿ (IEC/EN 60947-2)

Value	Description
Icc	short circuit current
I^2t (A^2s)	pass-through specific energy

9. CURVES *(continued)*

9.6 Pass-through specific energy characteristic curve (breaking capacity Icu > 50 kA)

Update: 20/11/2020



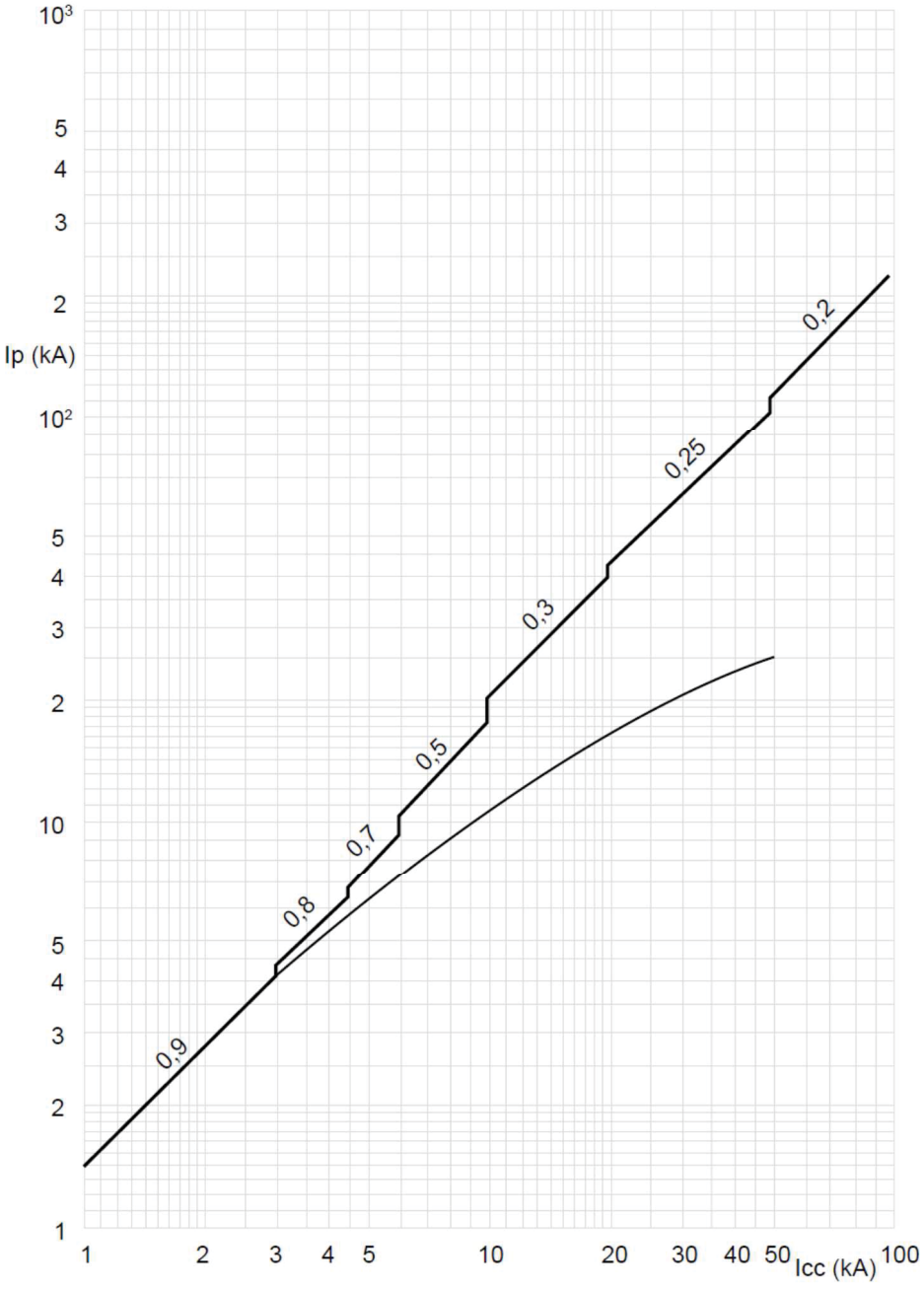
Icu = 70-100 kA | Imax = 250 A | 3P-4P | Ue = 415 V∿ (IEC/EN 60947-2)

Value	Description
Icc	short circuit current
I^2t (A^2s)	pass-through specific energy

9. CURVES *(continued)*

9.7 Cut-off peak current characteristic curve (breaking capacity Icu ≤ 50 kA)

Update: 30/08/2019



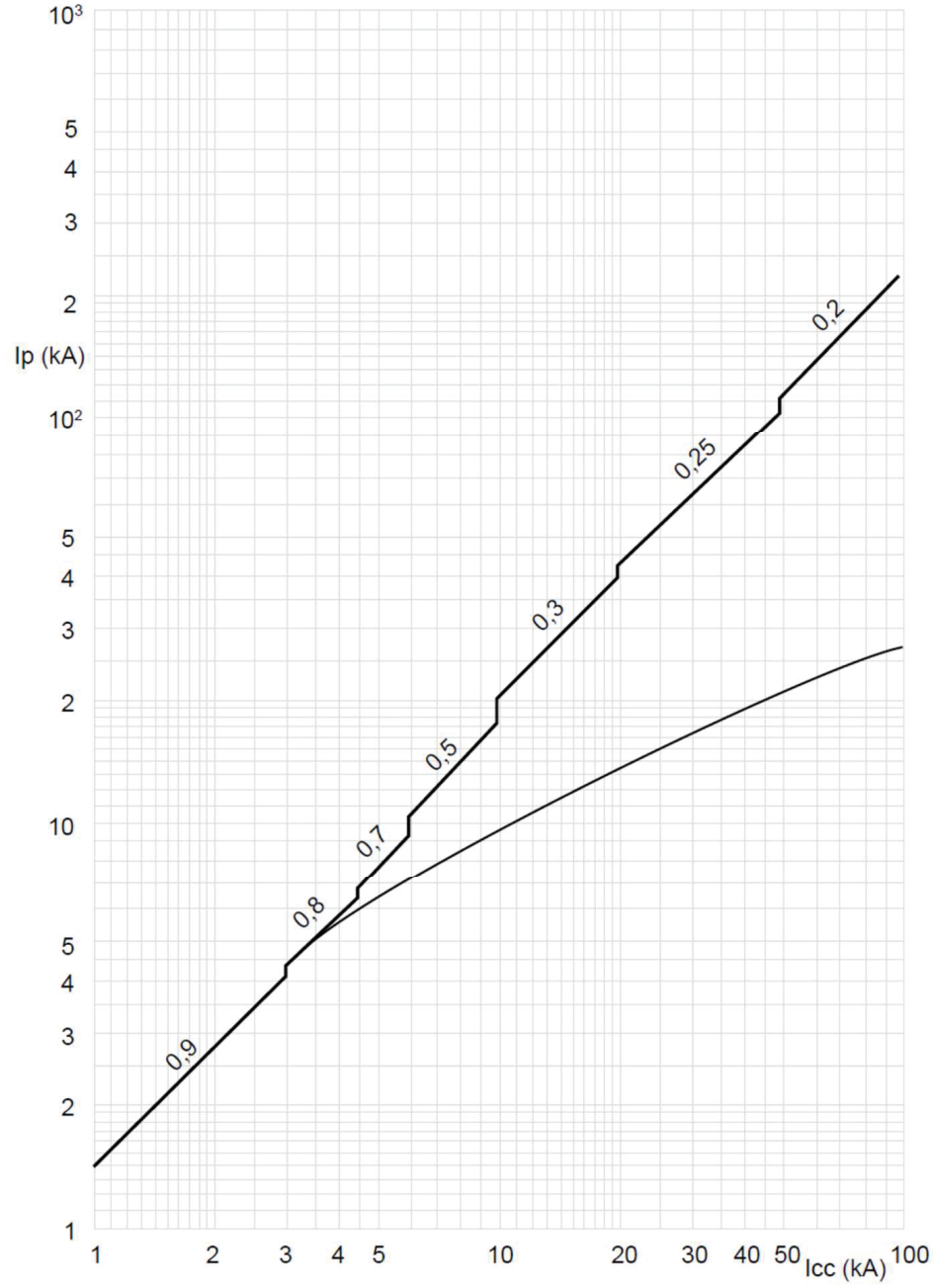
Icu = 36-50 kA | Imax = 250 A | 3P-4P | Ue = 415 V~ (IEC/EN 60947-2)

Value	Description
Icc	estimated short circuit symmetrical current (RMS value)
Ip	maximum short circuit peak current

9. CURVES *(continued)*

9.8 Cut-off peak current characteristic curve (breaking capacity Icu > 50 kA)

Update: 20/11/2020



Icu = 70-100 kA | Imax = 250 A | 3P-4P | Ue = 415 V~ (IEC/EN 60947-2)

Value	Description
Icc	estimated short circuit symmetrical current (RMS value)
Ip	maximum short circuit peak current

10. STANDARDS AND REGULATIONS

DPX³ 250 HP S10 range of product concerning circuit-breakers exceed compliance with:
- IEC/EN standard 60947-2.
- Certification available by IECEE CB-scheme or LOVAG Compliance scheme.

They respect the European Directives :

RoHS: Compliance with the 2011/65/EU Directive (RoHS), as modified by the 2015/863/EU Delegated Di-rective, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

REACH: The substances identified as SVHC (Substances of Very High Concern) according to the REACH Regula-tion (1907/2006), if present in the products at a concentration above 0.1% weight by weight, are de-clared inside the European SCIP database. At the date of publication of this document none of the sub-stance listed in the annex XIV is found in this product.

WEEE: WEEE Directive (2012/19/EU): the sale of this product includes a contribution to the appointed envi-ronmental bodies of each European country in charge of handling, at the end of their life, the products falling within the scope of the EU Directive on Electrical and Electronic Equipment Waste

Packaging: Design and manufacture of packaging compliant with European Directive 94/62/CE.

Batteries: Design and manufacture of packaging compliant with European Directive 94/62/CE.

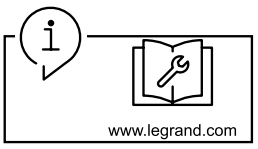
For specific information, please contact Legrand support.

11. OTHER INFORMATION

XLPro³ Calcul: Calculation notes creation software, addressed to installers, design office and maintenance operators. Definition of the electrical characteristics of a low voltage installation in compliance with the applicable standards

XLPro³ Tool Selectivity Backup: Software dedicated to installers, panelbuilders and design offices. Definition of the selectivity and backup values of an association of electrical devices and obtention of the tripping curves of the selected products.

XLPro³ Panels: Distribution panel design software, addressed to panelbuilders and electrical panel designers. Design of the electrical distribution of the panel, production of electrical diagrams, establishment of products and overall costing of the project.



Workshop book: mounting informations, equipments, accessories and spare parts available on e-catalog.

Instruction sheet: detailed mounting procedures, available on e-catalog.

PEP: available on e-catalog.

For further technical information, please contact Legrand technical support.

Unless otherwise indicated, data reported in this document refers exclusively to test conditions according to product standards.

For different conditions of use of the product, inside electrical equipment or in any different installation context, refer to the regulatory requirements of the equipment, local regulations and design specifications of the system.