

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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



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## 1. USE

DPX<sup>3</sup> 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.

DPX<sup>3</sup> 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.

DPX<sup>3</sup> S10 is a modern approach for electronic protection units that magnifies all flexibility allowed by technology.

## 2. RANGE

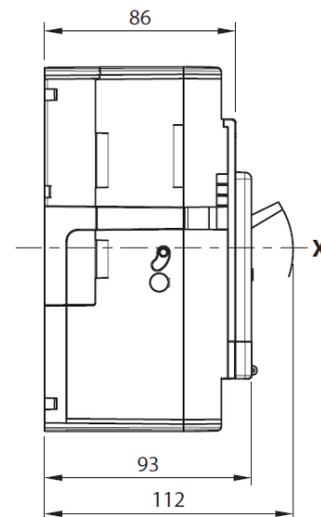
In (A)	DPX <sup>3</sup> 250 HP S10 electronic (display version)			
	36 kA		50 kA	
	3P	4P	3P	4P
40	423400	423405	423420	423425
100	423401	423406	423421	423426
160	423402	423407	423422	423427
250	423403	423408	423423	423428
	70 kA		100 kA	
	3P	4P	3P	4P
40	423440	423445	423450	423455
100	423441	423446	423451	423456
160	423442	423447	423452	423457
250	423443	423448	423453	423458

In (A)	DPX <sup>3</sup> 250 HP S10 electronic (display version) with measurement function			
	36 kA		50 kA	
	3P	4P	3P	4P
40	423460	423465	424480	424485
100	423461	423466	424481	424486
160	423462	423467	424482	424487
250	423463	423468	424483	424488
	70 kA		100 kA	
	3P	4P	3P	4P
40	423500	423505	423510	423515
100	423501	423506	423511	423516
160	423502	423507	423512	423517
250	423503	423508	423513	423518

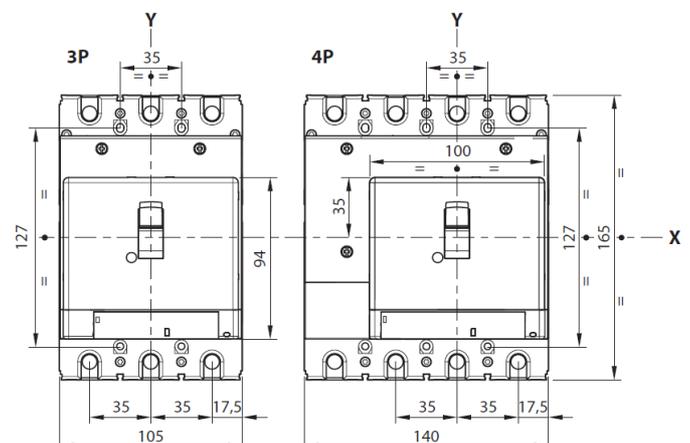
## 3. DIMENSIONS AND WEIGHTS

### 3.1 Dimensions

Lateral view



Frontal view (3 and 4 poles)

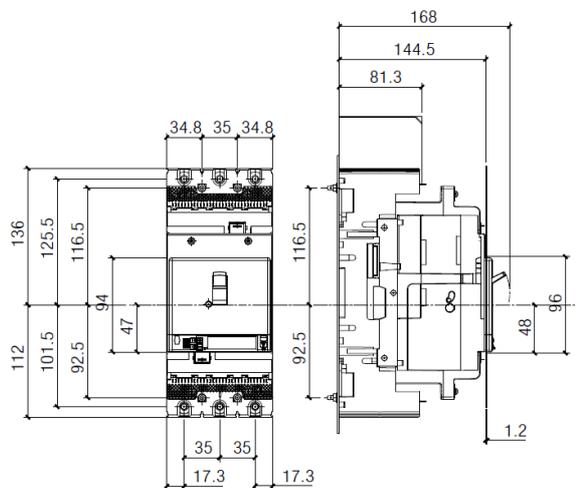


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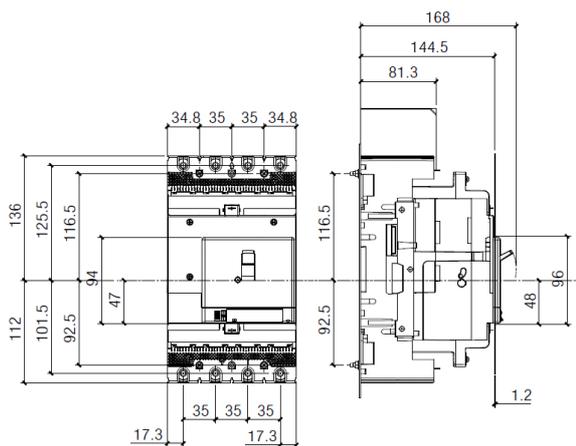
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from 4 234 00 to 4 234 03; from 4 234 05 to 4 234 08; from 4 234 20 to 4 234 23; from 4 234 25 to 4 234 28; from 4 234 40 to 4 234 43; from 4 234 45 to 4 234 48; from 4 234 50 to 4 234 53; from 4 234 55 to 4 234 58; from 4 234 60 to 4 234 63; from 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

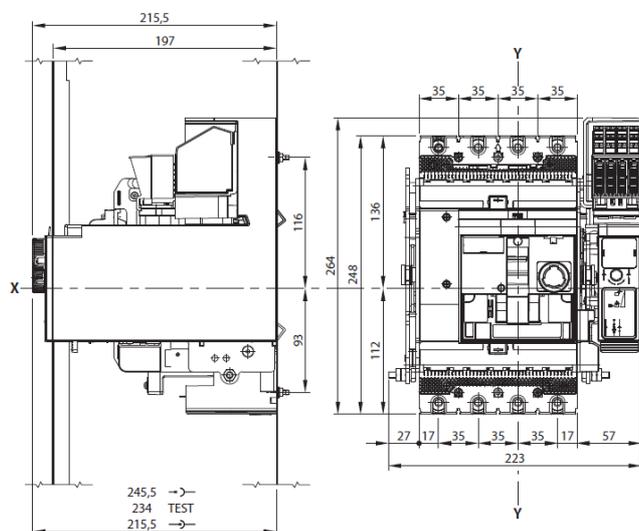
Plug-in version (3P)



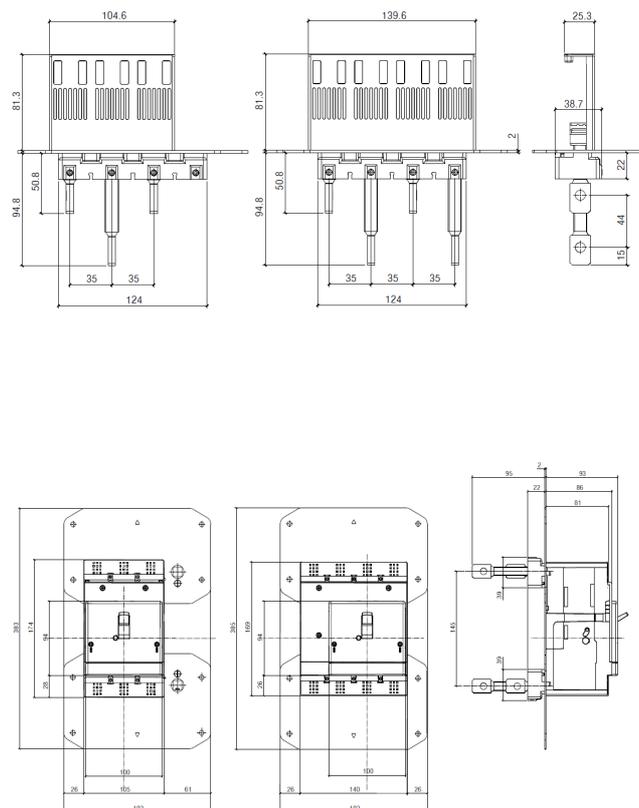
Plug-in version (4P)



Draw-out version (4P)



Rear terminals



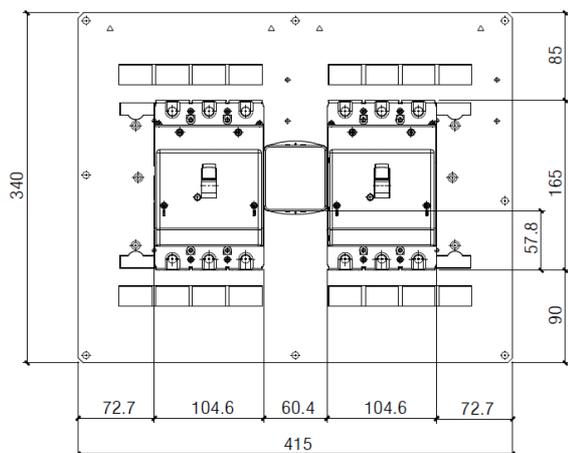
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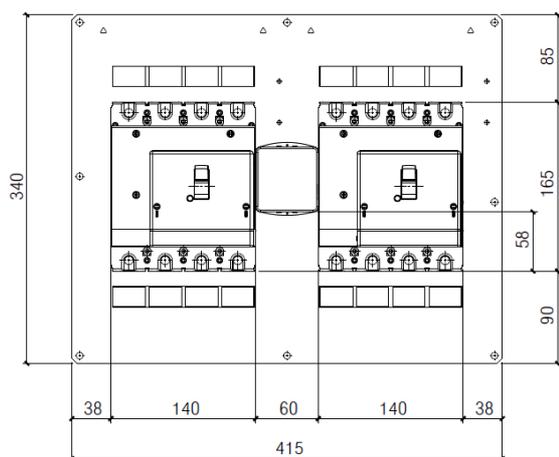
## Interlock (3P)

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

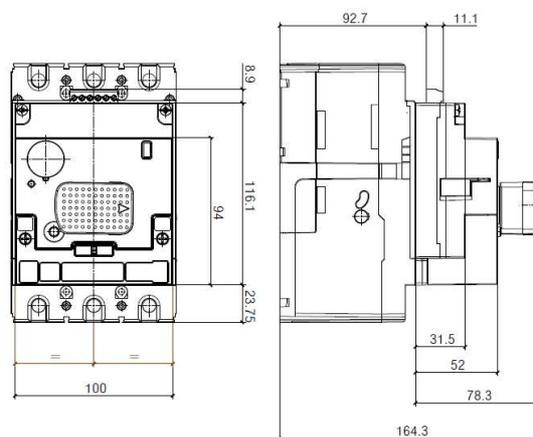
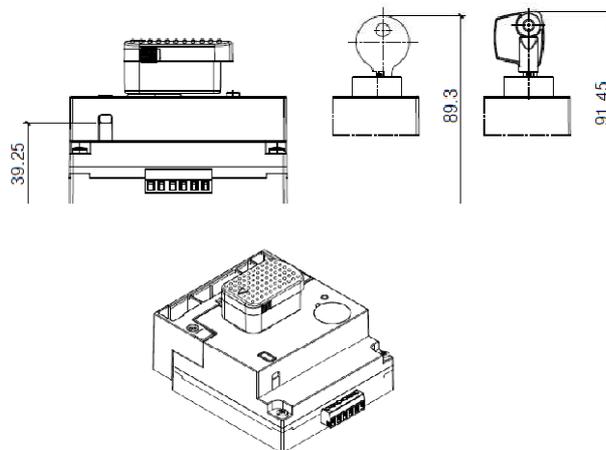
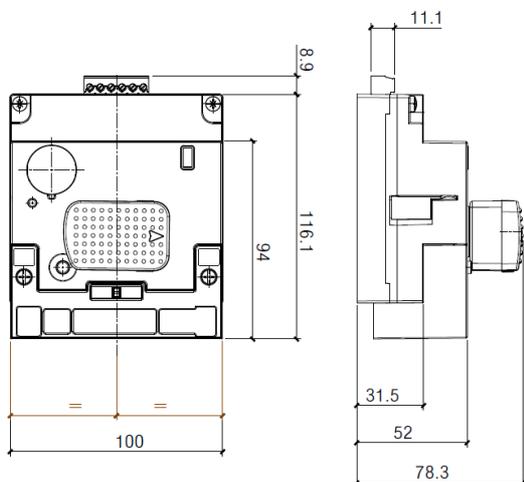


## Interlock (4P)

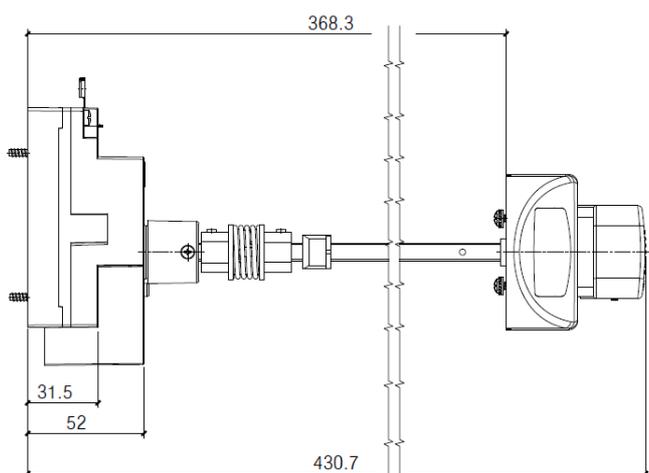
(for rear plate interlock dimension, see relative instruction sheet)



## Direct rotary handle



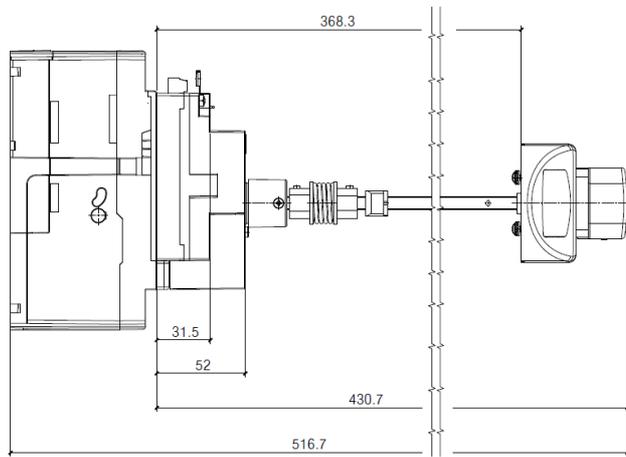
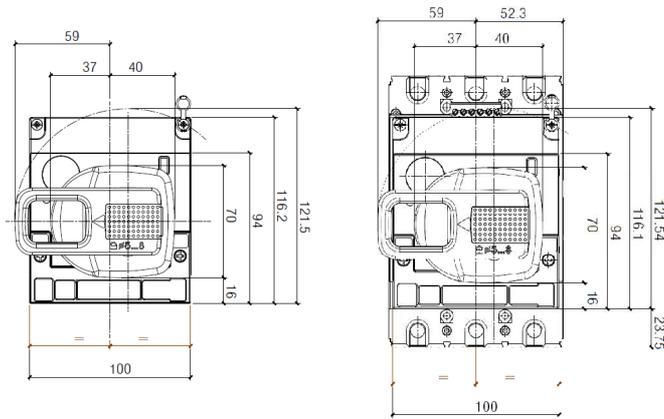
## Vari-depth rotary handle



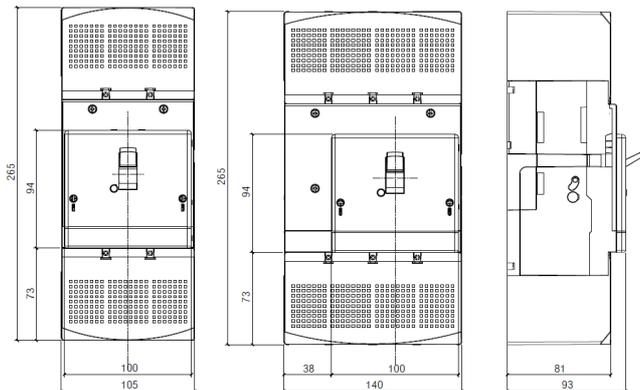
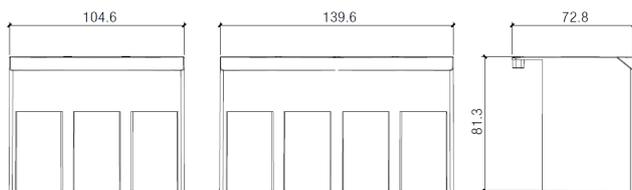
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

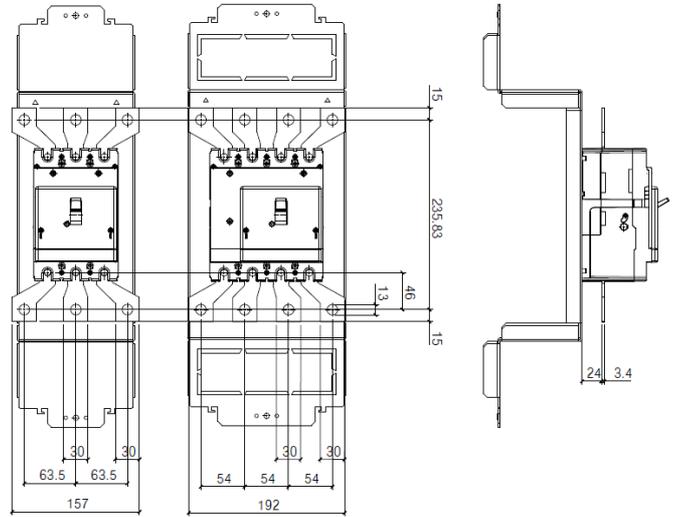
from 4 234 00 to 4 234 03; from 4 234 05 to 4 234 08; from 4 234 20 to 4 234 23; from 4 234 25 to 4 234 28; from 4 234 40 to 4 234 43; from 4 234 45 to 4 234 48; from 4 234 50 to 4 234 53; from 4 234 55 to 4 234 58; from 4 234 60 to 4 234 63; from 4 234 65 to 4 234 68; from 4 234 80 to 4 234 83; from 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



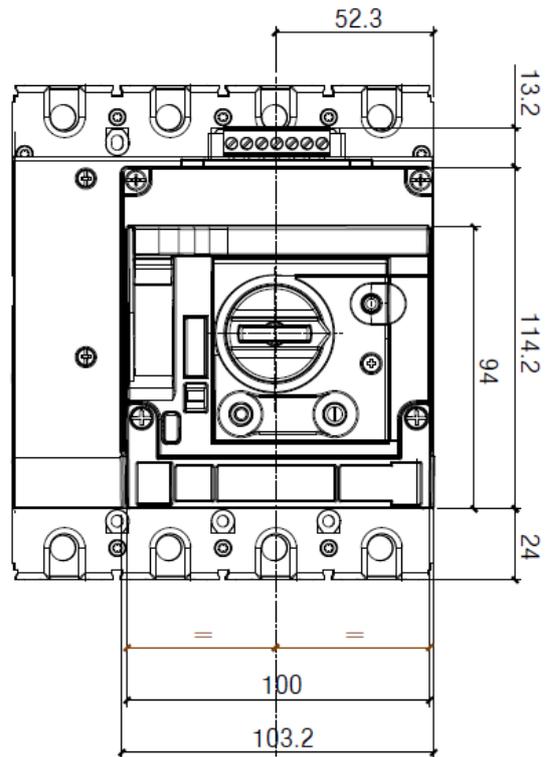
## Sealable terminal shields



## Spreaders



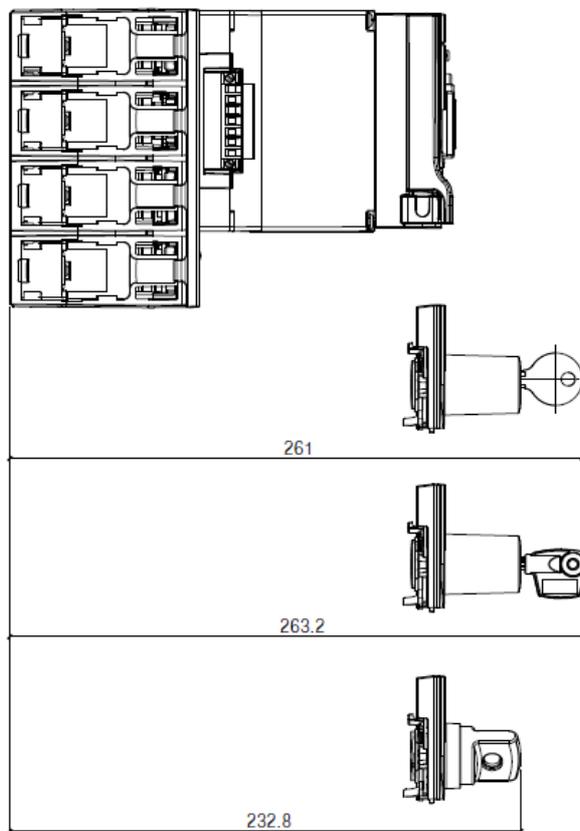
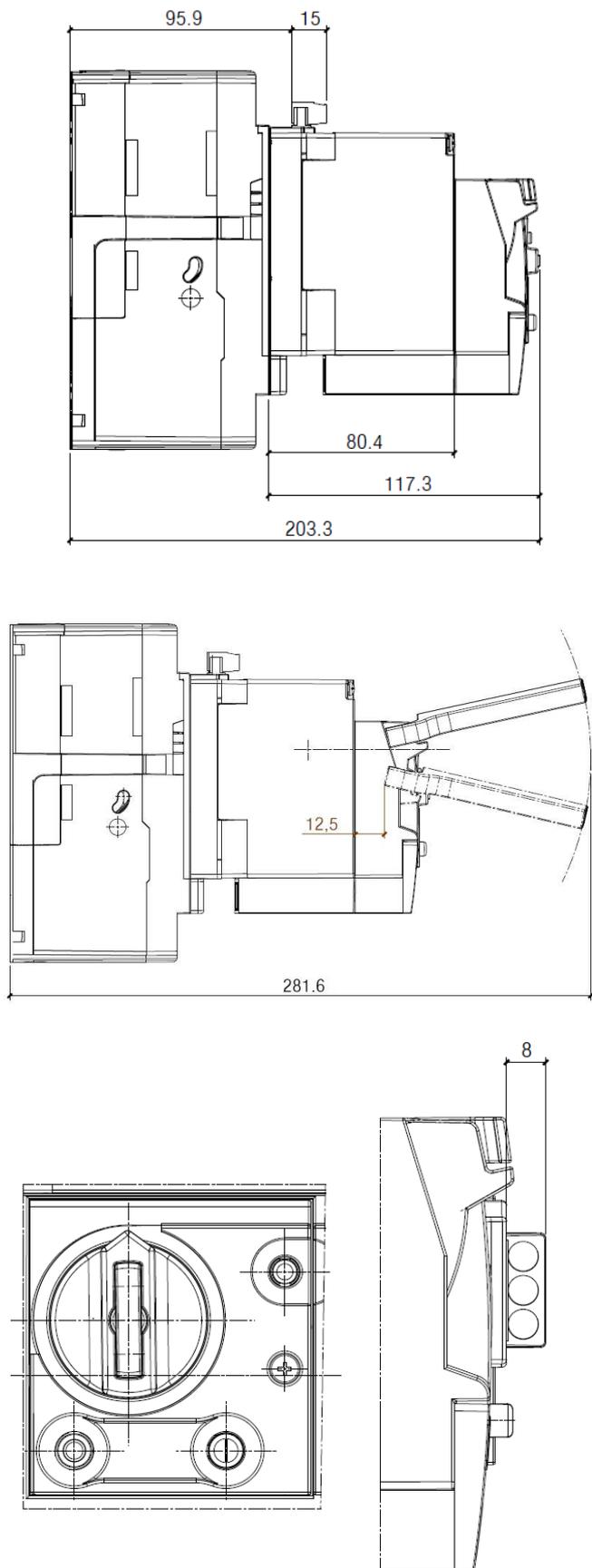
## Motor operator



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## 3.2 Weights

Configuration	Weights (Kg)	
	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		

## 4. OVERVIEW

### 4.1 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)

## 5. ELECTRICAL CONNECTIONS

### 5.1 Mounting possibilities

On plate:

- Vertical
- Horizontal
- Supply inverter type

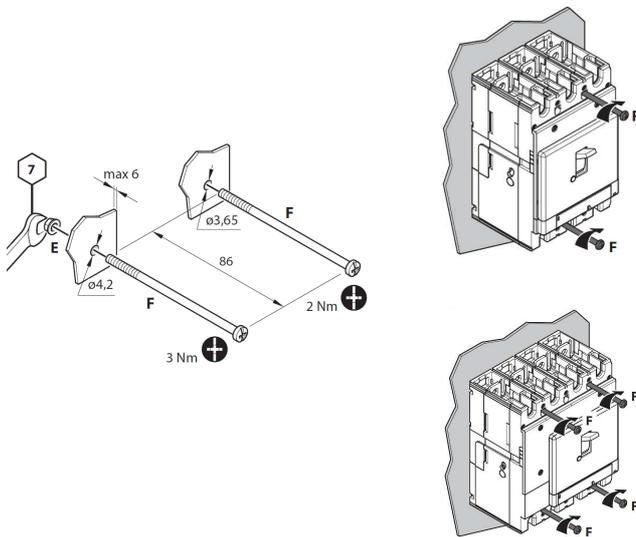
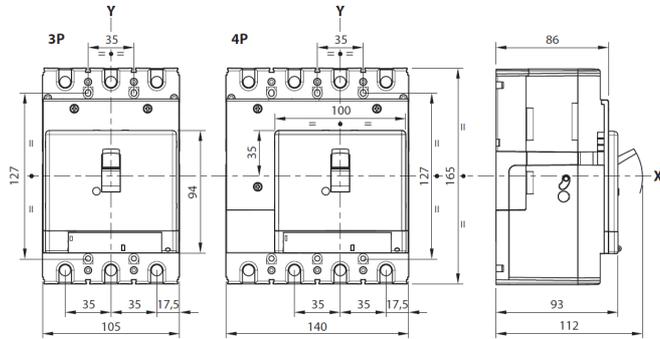
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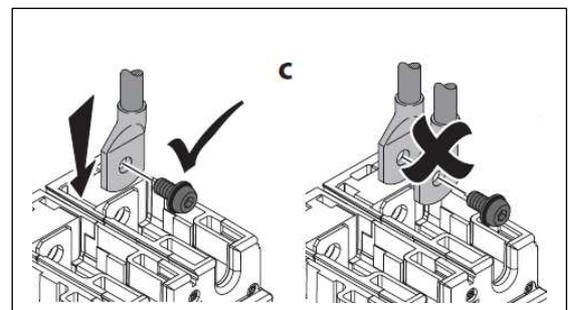
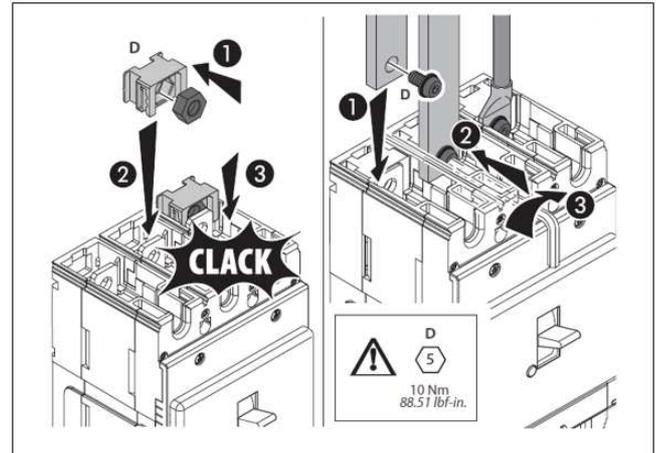
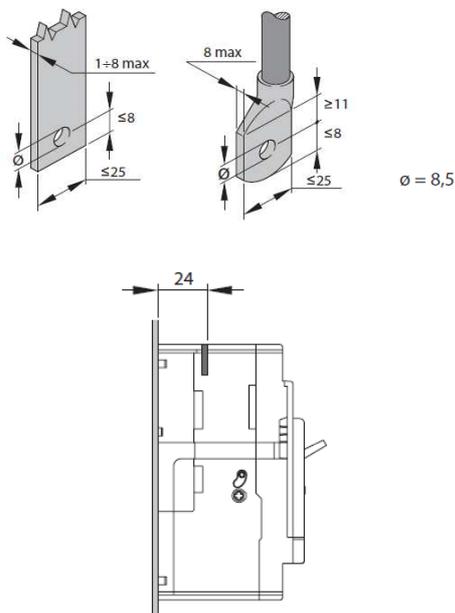
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## 5.2 Mounting

(see instruction sheet for detailed mounting procedures)

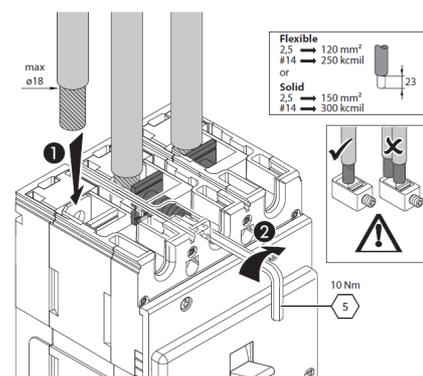
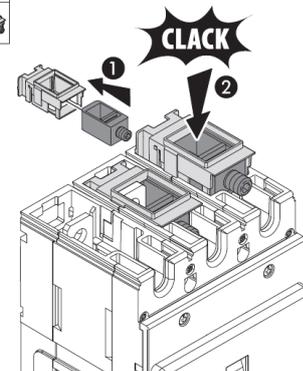


### Busbars/cable lugs:



### Cables:

4 238 30	3 x
4 238 31	4 x



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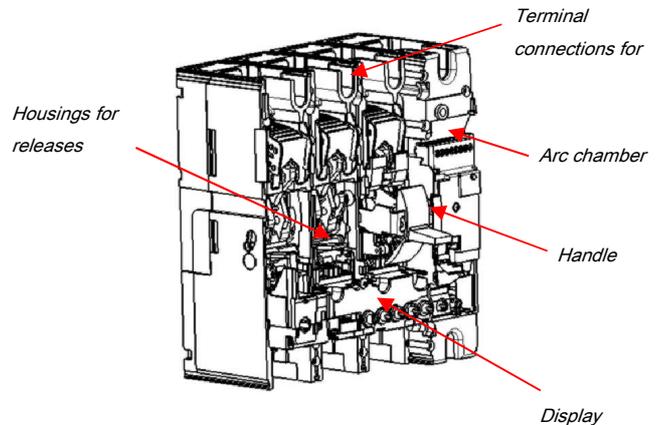
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## 6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit Breaker	DPX <sup>3</sup> 250 HP S10 F/N/H/L (36kA, 50kA, 70kA, 100kA)
Rated current (A)	40-100-160-250
Poles	3 - 4
Pole pitch (mm)	35
Rated insulation voltage (50/60Hz) U <sub>i</sub> (V)	800
Rated operating voltage (50/60Hz) U <sub>o</sub> (V)	690
Rated impulse withstand current U <sub>imp</sub> (kV)	8
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 <sub>n</sub> (cycles)	6000
Electrical endurance at 0.5 I <sub>n</sub> (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 <sub>t</sub> [x I <sub>n</sub> ]	0,2+1 (steps 1A)
Thermal adjustment t <sub>t</sub> [s]	0,04+15 (steps 40ms, @6lr)
Thermal time tripping at 2xI <sub>n</sub> (single pole) [s]	0,44s±20% if t <sub>r</sub> = 0,04s@6lr
Magnetic type protection	Adjustable
Ability to enable magnetic protection	On/Off
Magnetic adjustment I <sub>sd</sub> [x I <sub>t</sub> ]	1,5+10 (steps 1A)
Time adjustment t <sub>sd</sub> (t=k o P <sup>t</sup> =k) [s]	40+480 (steps 40ms)
Minimum release single pole	1 I <sub>sd</sub>
Instantaneous electronic adjustment I <sub>t</sub>	2+15 (steps 1A) & Isf=3250 A
Neutral protection for 4P (%I <sub>ln</sub> of phase pole)	OFF-50-100-150-200
Earth leakage trip type	Integrated
Ability to enable earth leakage trip	On/Off
Earth leakage trip I <sub>Δn</sub> / I <sub>Δ</sub> [A / x I <sub>n</sub> ]	- / 0,2 + 1 (steps 0,1I <sub>n</sub> )
Earth leakage trip Δt / t <sub>Δ</sub> (t=k o P <sup>t</sup> =k) [s]	0 - 0,3 - 1 - 3 / 0,08 + 1 (steps 40ms)
Dimensions (W x H x D) (mm)	105 x 165 x 86 (3P) 140 x 165 x 86 (4P)

## 6.1 Main parts constituting the circuit breaker



## 6.2 Breaking capacity (kA)

		Breaking capacity (kA) & I <sub>cs</sub>			
		3P-4P			
U <sub>o</sub> /I <sub>cs</sub> (I <sub>cs</sub> letter)	IEC 60947-2	36kA (F)	50kA (N)	70kA (H)	100kA (L)
		220/240 V AC	70	90	100
380/415 V AC	36	50	70	100	
440/460 V AC	25	30	40	50	
480/500 V AC	16	18	30	35	
550 V AC	10	12	22	25	
690V AC	7	8	10	12	
I <sub>cs</sub> (% I <sub>cs</sub> )	100	100	100	100	
		Rated making capacity under short circuit I <sub>cm</sub>			
I <sub>cm</sub> (kA) at 415V		76,5	105	154	220
NEMA AB-1	220/240 V AC	70	90	100	150
	480/500 V AC	16	18	30	35
	690 V AC	7	8	10	12

## 6.3 Rated current (I<sub>n</sub>)

I <sub>n</sub> (A)	Phases limit trip current			
	thermal (I <sub>t</sub> )		magnetic (I <sub>sd</sub> )	
	0.2 x I <sub>n</sub>	1 x I <sub>n</sub>	min	max
40	8	40	60	400
100	20	100	150	1000
160	32	160	240	1600
250	50	250	375	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 recommended the use of isolators suitable for the type of conductor used and the operating voltage.

I <sub>cc</sub> (kA)	Maximum Distance (mm)
36	350
50	300
70	250
100	200

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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 $I_n$

Circuit breaker

In (A)	Power losses per pole (W)			
	40	100	160	250
Cage terminals	0.49	3.07	7.85	19.20
Lugs	0.45	2.80	7.17	17.50
Spreaders	0.38	2.36	6.04	14.70
Rear terminals	0.46	2.89	7.39	18.10

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.

## 6.6 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.

I <sub>n</sub> (A)	Temperature Ta (°C)			
	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.

### 6.6.2 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 DPX<sup>3</sup> 250 HP circuit breakers, degree 3, according to IEC/EN 60947-2

### 6.6.3 Altitude

Altitude derating for DPX<sup>3</sup>

Altitude (m)	2000	3000	4000	5000
U <sub>e</sub> (V)	690	590	520	460
I <sub>n</sub> (A)	1 x I <sub>n</sub>	0.98 x I <sub>n</sub>	0.93 x I <sub>n</sub>	0.9 x I <sub>n</sub>

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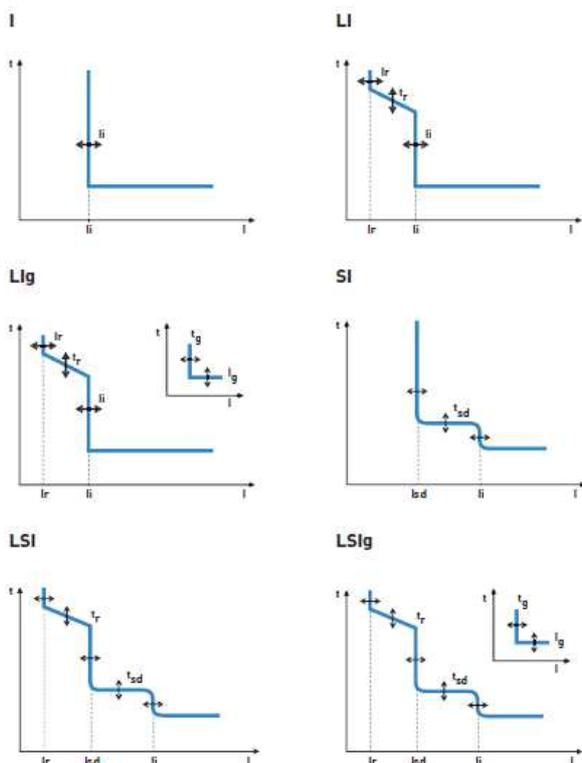
## 7. ELECTRONIC PROTECTION S10

Electronic DPX<sup>3</sup> 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 DPX<sup>3</sup> 250 HP, DPX<sup>3</sup> 630 and DPX<sup>3</sup> 1600 S10 electronic protection

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

Settings	DPX <sup>3</sup> 250 HP, DPX <sup>3</sup> 630 and DPX <sup>3</sup> 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
$t_d$	DPX <sup>3</sup> 250 HP: 3 - 5 - 10 - 15 s DPX <sup>3</sup> 630 and 1600: 3 to 30 s (7 steps)	DPX <sup>3</sup> 250 HP: 3 to 15 s, in steps of 40 ms DPX <sup>3</sup> 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
$I_l$ ( $t=k$ )	-	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 DPX<sup>3</sup> 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.

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

With electronic DPX<sup>3</sup> 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 DPX<sup>3</sup> 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
$E_p \downarrow$	kWh	Consumed active energy
$E_p \uparrow$	kWh	Returned active energy
$E_q \downarrow$	kvar h	Consumed reactive energy
$E_q \uparrow$	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			
		DPX <sup>3</sup> 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
$Q_a, Q_v$	2	0.1kvar	0.1kvar	0.1kvar	0.1kvar	$I_b=40A, U_n=400V, f_n=50Hz$			
		58kW	144kW	230kW	360kW	$I_b=40A, U_n=400V, f_n=50Hz$			
$E_a$	2	0...9999 GWh				48A	120A	192A	300A
$ErA, ErV$	2	0...9999 GW/h				$I_b=250A, U_n=400V, f_n=50Hz$			
						$I_b=40A, U_n=400V, f_n=50Hz$			
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				-			
THDi	5	40A	40A	40A	40A	-			
		40A	100A	160A	250A				

## 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  $I_n$  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  $I_n$  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  $I_n$  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.

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 8. CONFORMITY

DPX<sup>3</sup> 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.

DPX<sup>3</sup> HP respect the European Directives REACH, RoHS, RAEE.

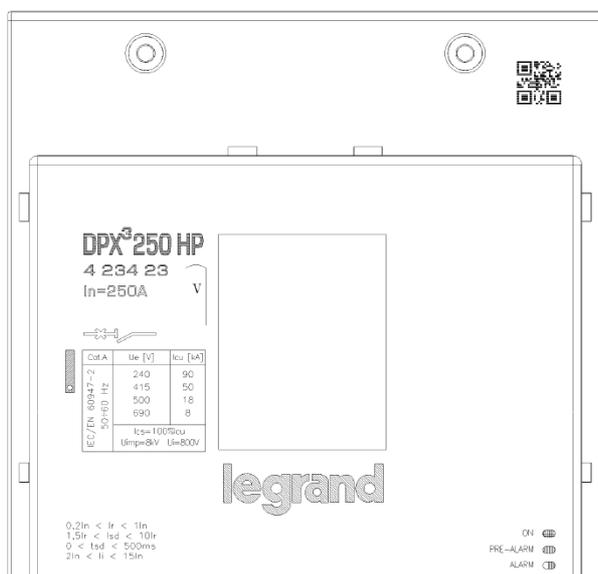
*For specific information, please contact Legrand support.*

### 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:

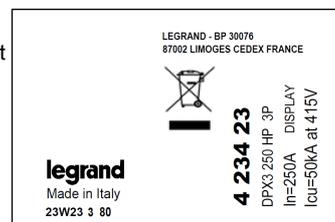
#### Product laser label on front

- Manufacturer responsible
- Denomination, type product, code
- Standard conformity
- Standard characteristics declared
- Coloured identification of I<sub>cu</sub> at 415V



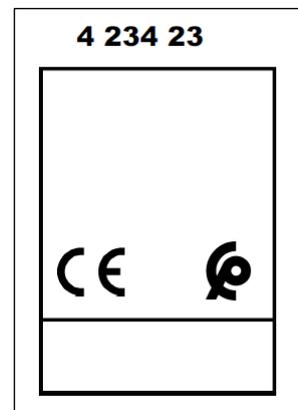
#### Product sticker label on side

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



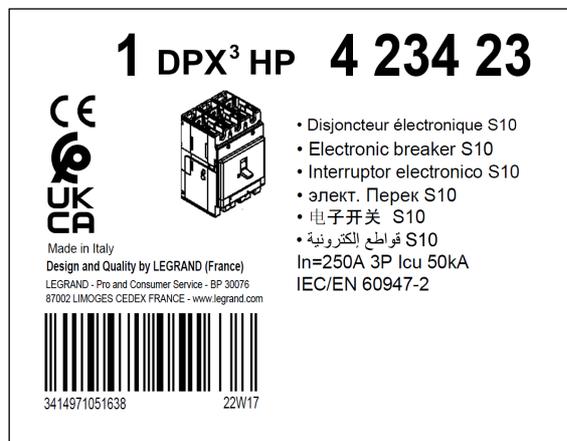
#### Mark sticker label on side

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



#### Packaging sticker label

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



# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 9. EQUIPMENTS AND ACCESSORIES

### 9.1 Releases (for DPX<sup>3</sup> 125/250 HP and DPX<sup>3</sup> 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 DPX<sup>3</sup> 125/250 HP starting from batch 19W15

- time-lag undervoltage releases (800 ms)

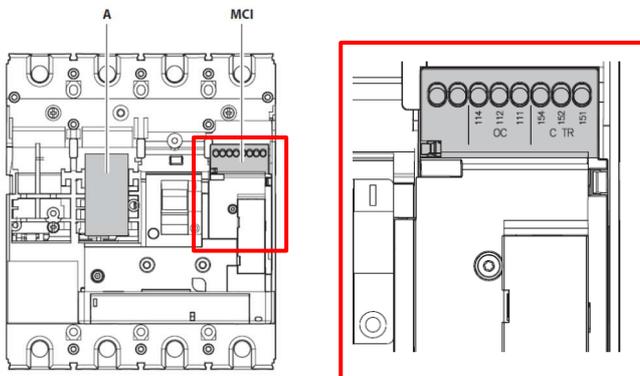
<i>Time-lag modules with voltage:</i>	
230 V ac	ref. 0 261 90
400 V ac	ref. 0 261 91

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

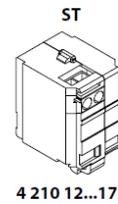
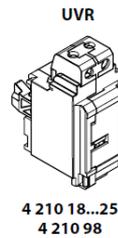
### 9.2 Auxiliary contacts

For version of DPX<sup>3</sup> 250 HP electronic version, auxiliary contacts are integrated inside module M.C.I (see instruction sheet for details).

Here a connection scheme to get auxiliary functionality:



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



	A
UVR	✓
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

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 9.4 Rotary handles

Direct on DPX<sup>3</sup> (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 DPX<sup>3</sup> 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):

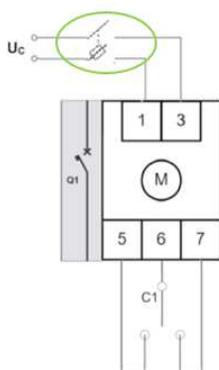
- 24 Vac and dc ref. 4 238 40
- 48 Vac and dc ref. 4 238 41
- 110 Vac ref. 4 238 42
- 230 Vac ref. 4 238 43

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 DPX<sup>3</sup> 125 HP and DPX<sup>3</sup> 160/250)

- Sealable terminal shields:
  - Set of 2 (for 3P) ref. 4 238 23
  - Set of 3 (for 4P) ref. 4 238 24

- Insulated shields:
  - Set of 2 (for 3P) ref. 4 238 34
  - Set of 3 (for 4P) ref. 4 238 35
 (ref. 4 238 34/35 are compatible with DPX<sup>3</sup> 125 HP also)

## 9.7 Connection accessories

Cage terminals

- Set of 3 terminals for cables 150 mm<sup>2</sup> max (solid) ref. 4 238 30 or 120 mm<sup>2</sup> max (flexible) Cu/Al

- Set of 4 terminals for cables 150 mm<sup>2</sup> max (rigid) ref. 4 238 31 or 120 mm<sup>2</sup> max (flexible) Cu/Al

Spreaders (incoming or outgoing):

- Set of 3 (for 3P) ref. 6 250 14
- Set of 4 (for 4P) ref. 6 250 18

Rear terminals (incoming or outgoing):

- Set of 3 (for 3P) ref. 4 238 21
- Set of 4 (for 4P) ref. 4 238 22

## 9.8 Plug-in version

(A plug-in is a DPX<sup>3</sup> 250 HP fitted with special terminals and mounted on a plug-in base)

Bases

(for plug-in and draw-out versions for DPX<sup>3</sup> 250 HP and DPX<sup>3</sup>-I 250 HP)

- Plug-in/draw-out base for 3P ref. 4 238 50
- Plug-in/draw-out base for 4P ref. 4 238 51
- Plug-in/draw-out mobile part kit for 3P ref. 4 238 52
- 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

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 9.9 Draw-out version

(A DPX<sup>3</sup> 250 HP draw-out version is a plug-in DPX<sup>3</sup> 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 *ref. 4 238 60*
- transformation kit for 4P *ref. 4 238 61*

### Frontal 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 DPX<sup>3</sup> 125 HP or 2 DPX<sup>3</sup> 250 HP breakers)

No frame mixing in interlock mechanism

- Interlock mechanism – standard version *ref. 4 238 27*  
(for fixed version DPX<sup>3</sup> 125 HP and DPX<sup>3</sup> 250 HP)
- Interlock mechanism – for electronic module *ref. 4 238 28*  
(for fixed version DPX<sup>3</sup> 125 HP and DPX<sup>3</sup> 250 HP)
- Interlock plate for DPX<sup>3</sup> 250 HP *ref. 4 238 26*
- Rear interlock mechanism *ref. 4 238 29*  
(for DPX<sup>3</sup> 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 DPX<sup>3</sup> 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	DPX <sup>3</sup> 250 / 630 / 1600	[mA]
I <sub>out</sub> MAX = 250 mA	Electronic (S2/Sg)	50
	Electronic with power metering (S2/Sg)	62.5
	Electronic with residual current protection (S2)	50
	Electronic with residual current protection and power metering (S2)	62.5

*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 DPX<sup>3</sup> 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 DX<sup>3</sup>, DPX<sup>3</sup>, DMX<sup>3</sup>, EMDX<sup>3</sup>. It can manage up to 8 devices *ref. 0 261 56*

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

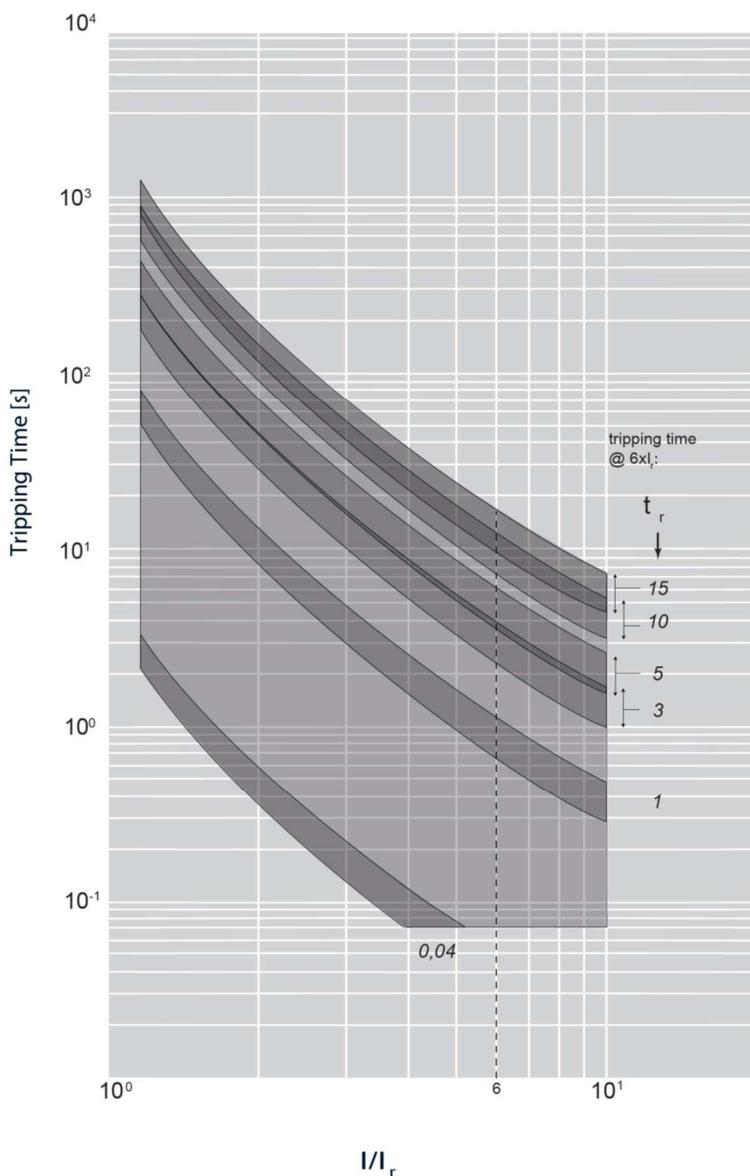
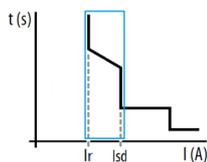
Reference(s) :

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## 10. CURVES

### 10.1.1 Tripping curve [ 1/3 ]

Update: 16/11/2022



$I_{cu} = 36-50-70-100 \text{ kA}$   $I_{max} = 250A$  3-4 P  $U_0 = 415Vac$  (IEC/EN 60947-2)

Value	Description
t	time
I	current
$I_r$	long time setting current
$t_r$	long time delay
$I_{sd}$	short time setting current
$t_{sd}$	short time delay
$I_i$	instantaneous release
$I_{cu}$	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 $I_i$

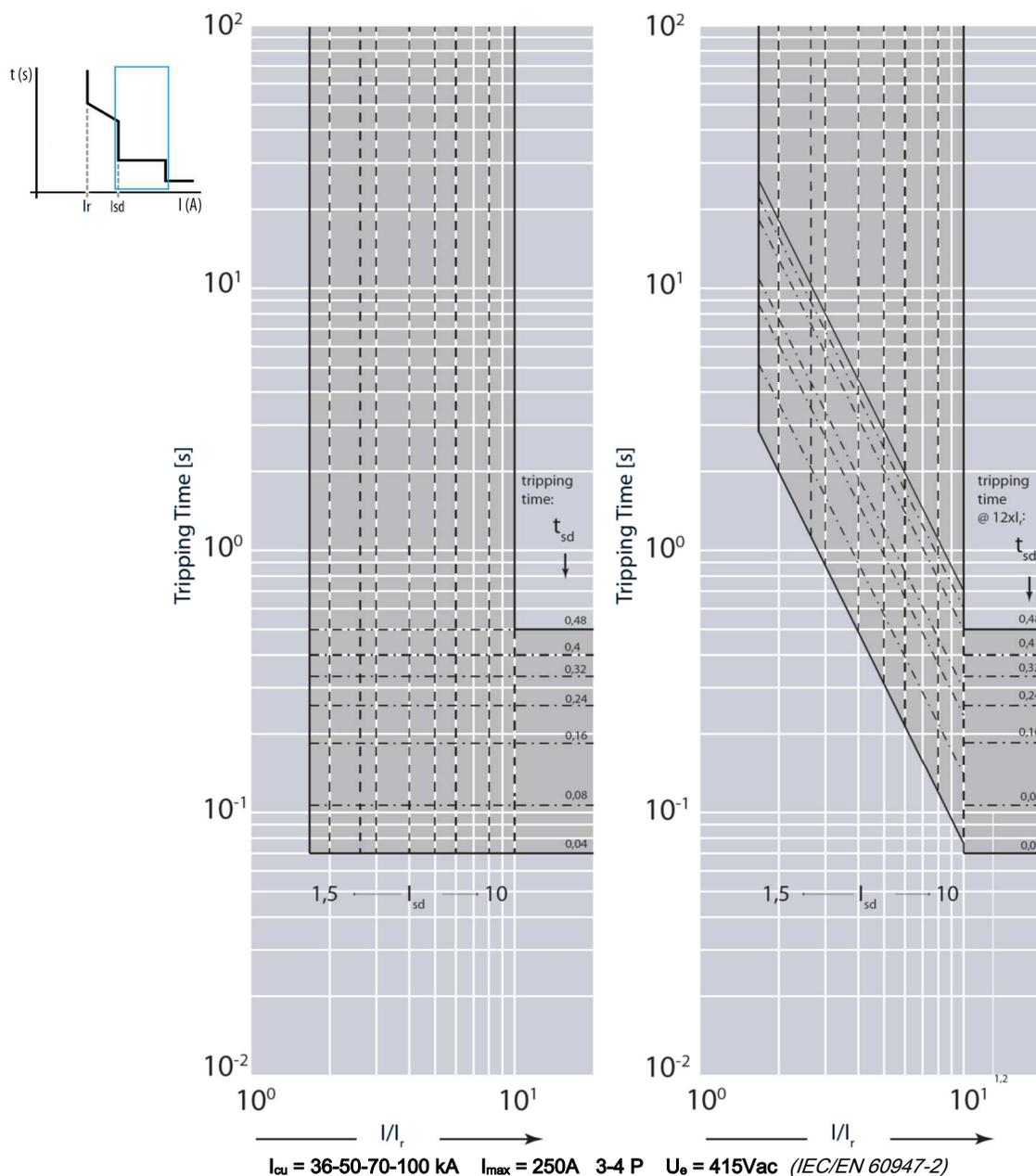
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.1.2 Tripping curve [ 2/3 ]

Update: 17/11/2022



Value	Description
t	time
I	current
I <sub>r</sub>	long time setting current
t <sub>r</sub>	long time delay
I <sub>sd</sub>	short time setting current
t <sub>sd</sub>	short time delay
I <sub>i</sub>	instantaneous release
I <sub>cu</sub>	rated ultimate short-circuit breaking capacity
I <sup>2</sup> t = 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 <sub>sd</sub> ; 20% up to I <sub>i</sub>

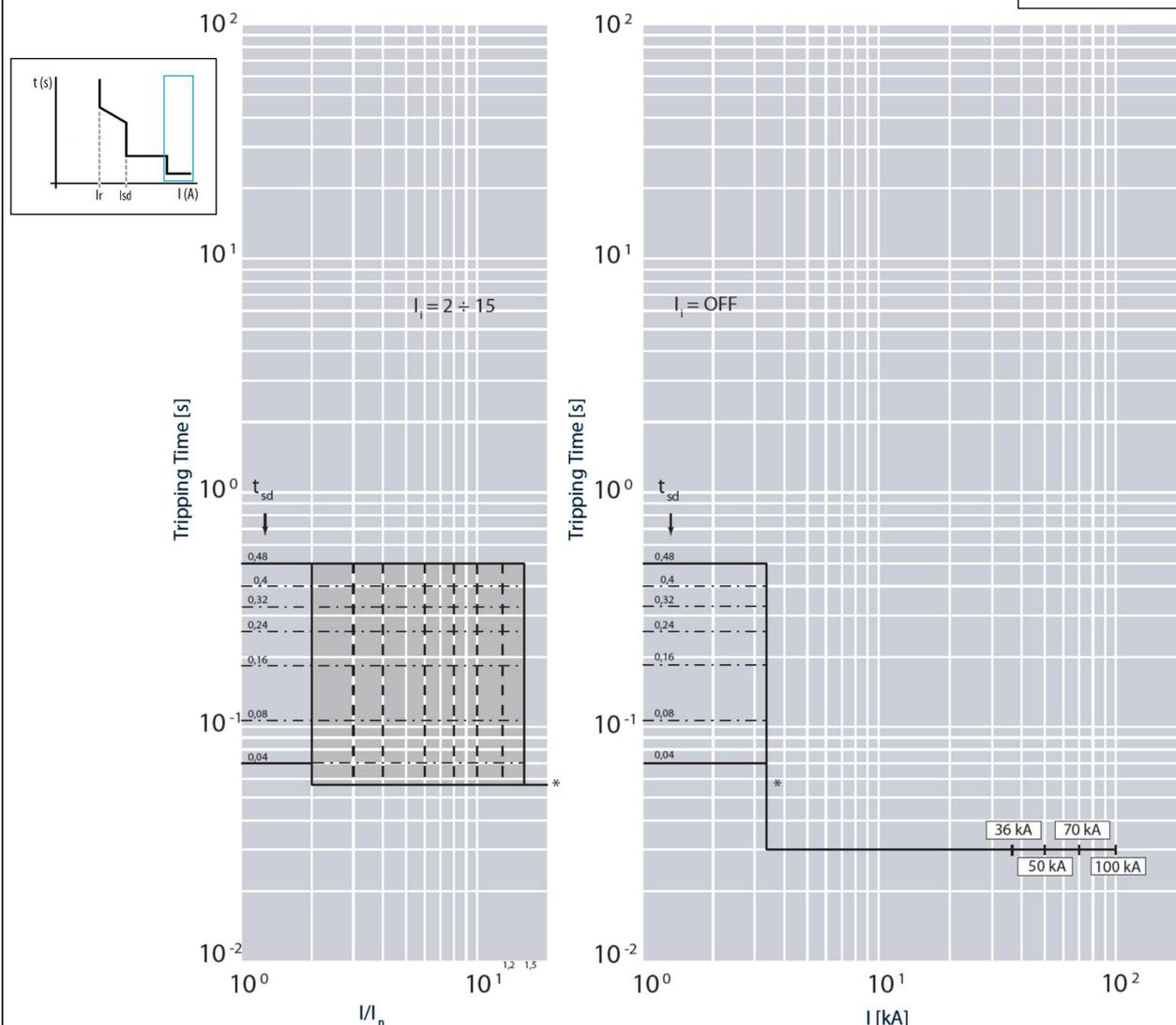
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.1.3 Tripping curve [ 3/3 ]

Update: 17/11/2022



$I_{cu} = 36-50-70-100 \text{ kA}$   $I_{max} = 250A$  3-4 P  $U_o = 415V_{ac}$  (IEC/EN 60947-2)

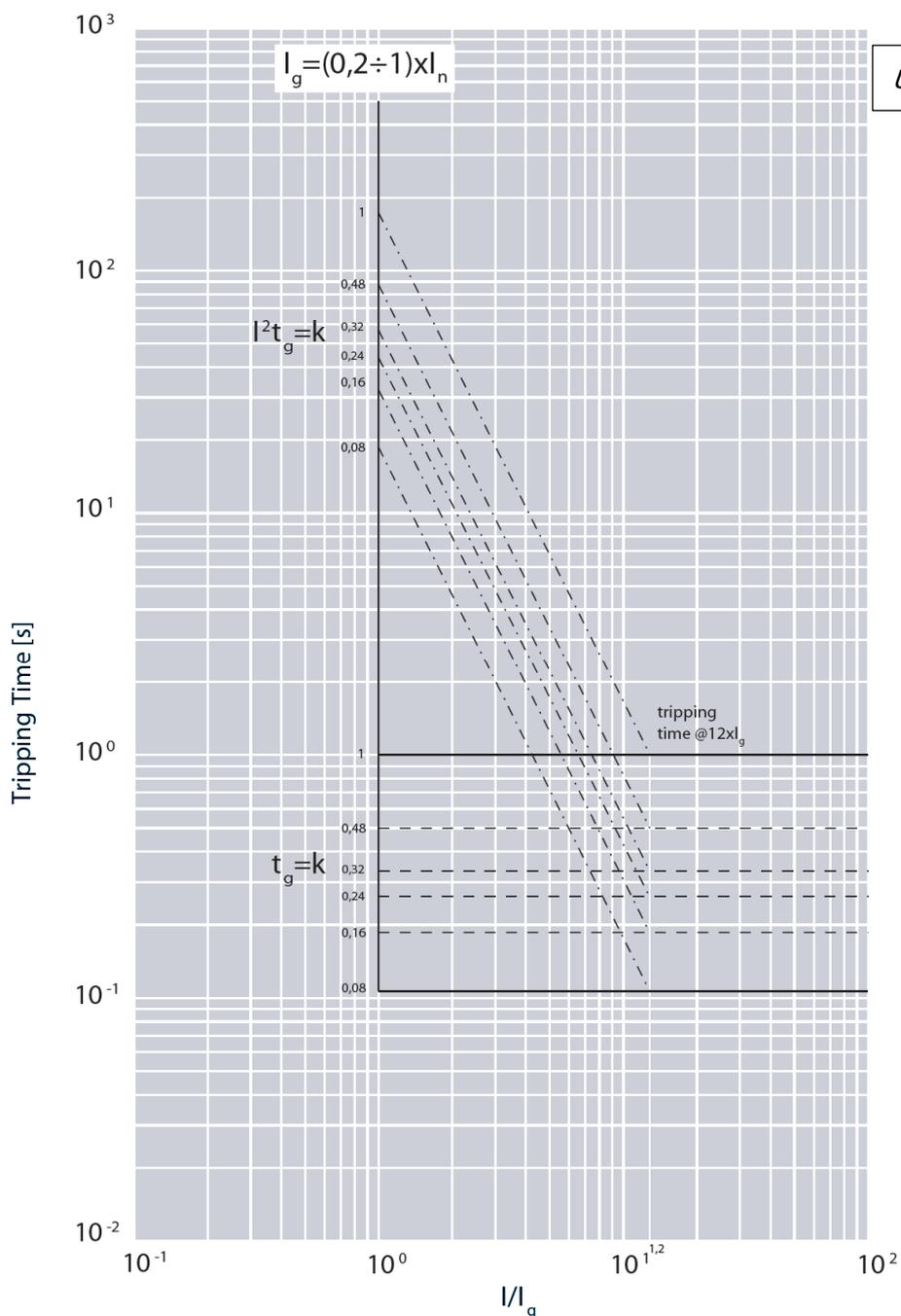
Value	Description
t	time
I	current
$I_r$	long time setting current
$t_r$	long time delay
$I_{sd}$	short time setting current
$t_{sd}$	short time delay
$I_i$	instantaneous release
$I_{cu}$	rated ultimate short-circuit breaking capacity
$I^2t = K$	constant pass-through energy setting
$t = K$	constant tripping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

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.2 Ground Fault curve



$I_{cu} = 36-50-70-100 \text{ kA}$   $I_{max} = 250A$  3-4 P  $U_o = 415Vac$  (IEC/EN 60947-2)

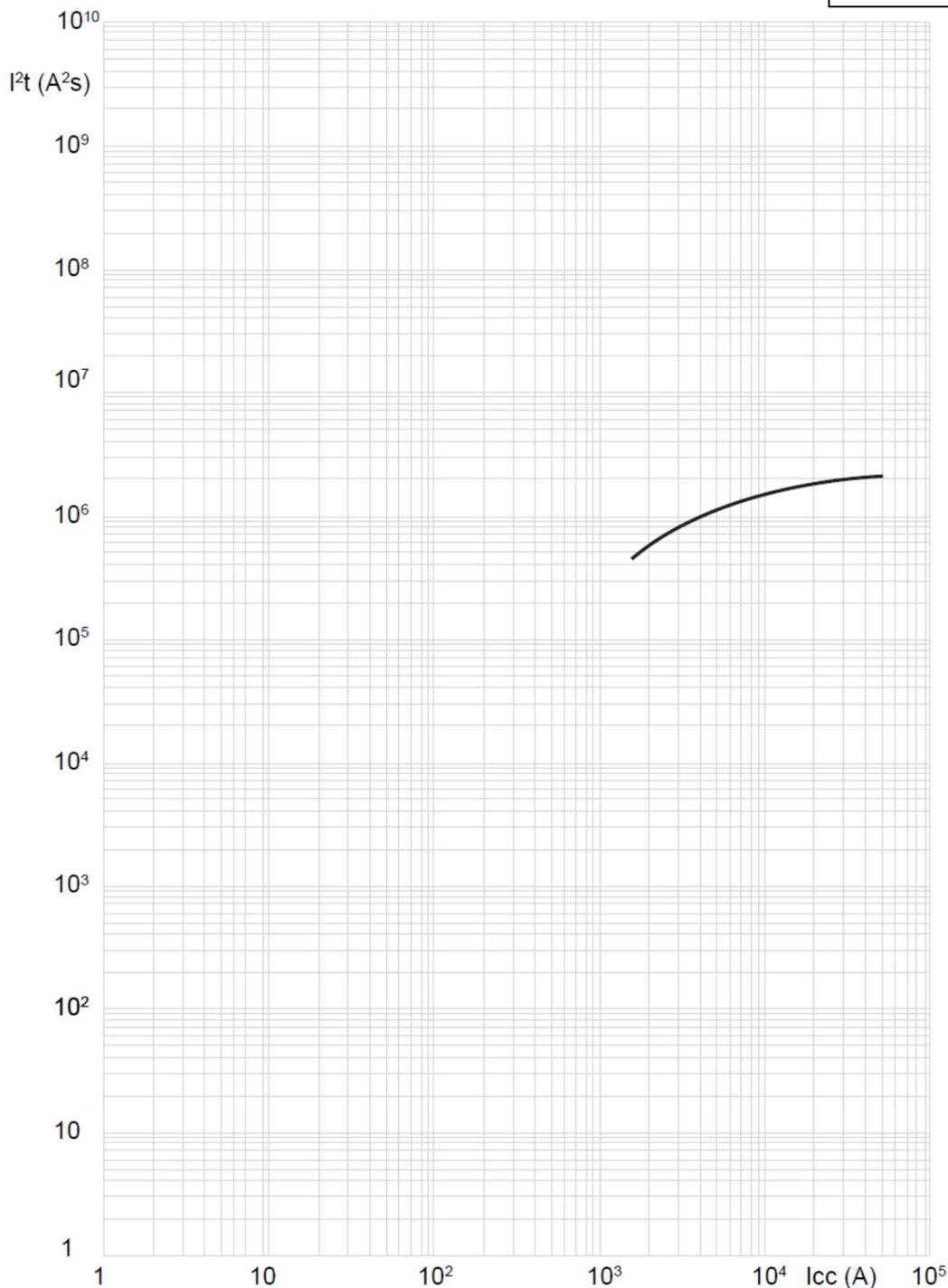
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.3.1 Pass-through specific energy characteristic curve (breaking capacity $I_{cu} \leq 50\text{kA}$ )

Update: 30/08/2019



$I_{cu} = 36-50 \text{ kA}$   $I_{max} = 250\text{A}$  3-4 P  $U_o = 415\text{Vac}$  (IEC/EN 60947-2)

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

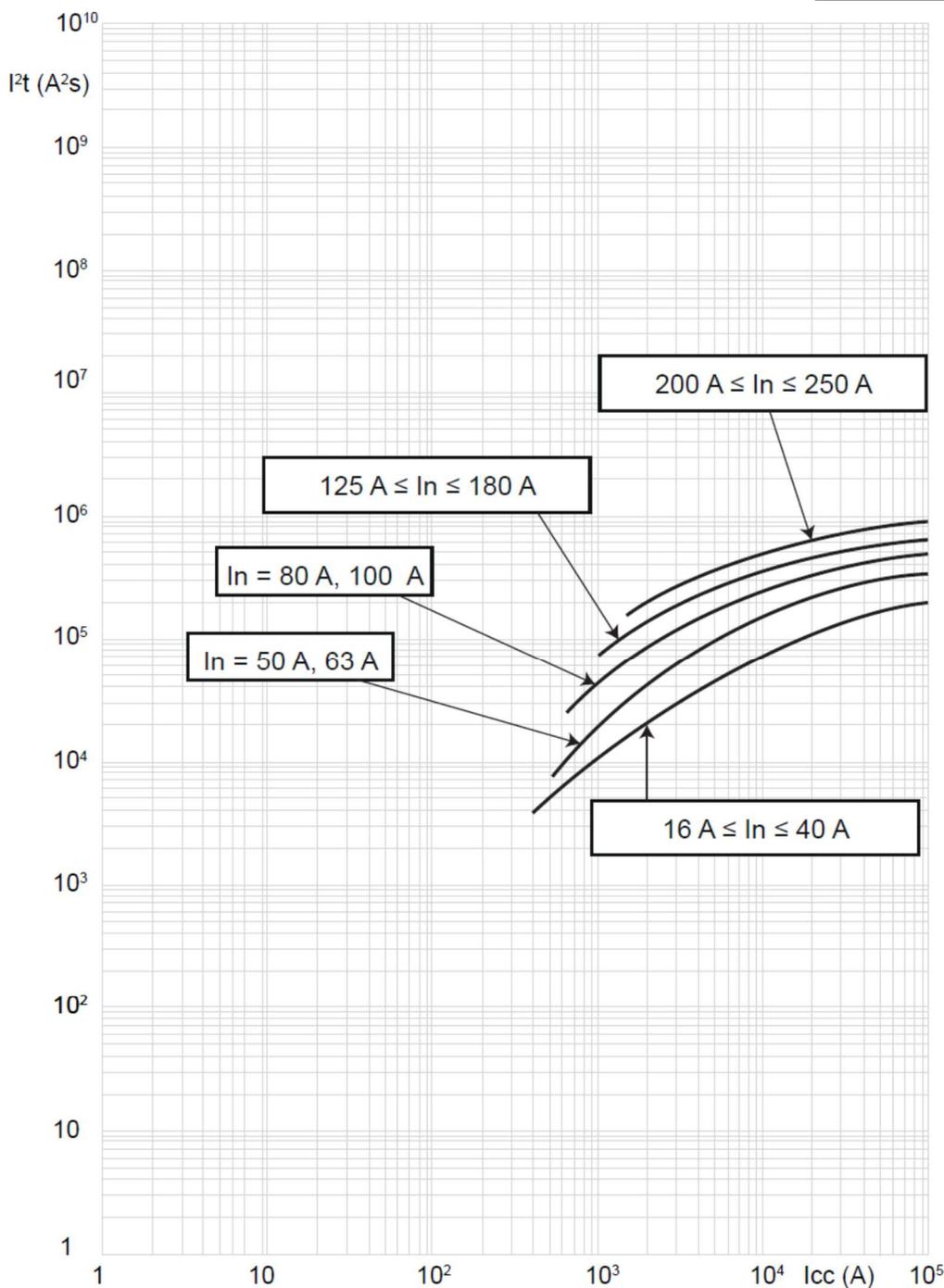
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.2.2 Pass-through specific energy characteristic curve (breaking capacity $I_{cu} > 50\text{kA}$ )

Update: 20/11/2020



$I_{cu} = 70\text{-}100\text{ kA}$   $I_{max} = 250\text{ A}$  3-4 P  $U_0 = 415\text{Vac}$  (IEC/EN 60947-2)

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

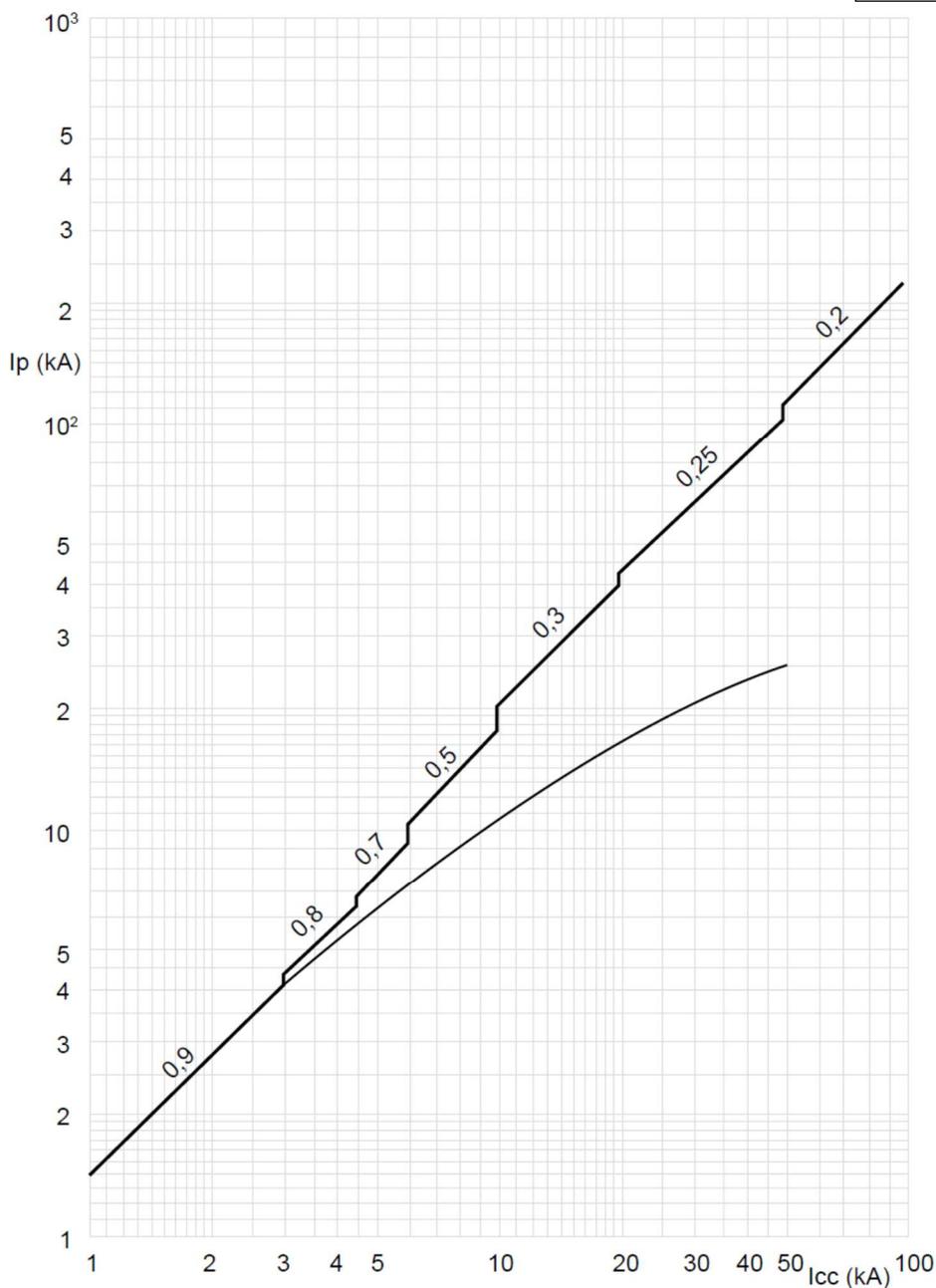
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.4.1 Cut-off peak current characteristic curve (breaking capacity $I_{cu} \leq 50\text{kA}$ )

Update: 30/08/2019



$I_{cu} = 36-50\text{ kA}$   $I_{max} = 250\text{ A}$  3-4 P  $U_o = 415\text{Vac}$  (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

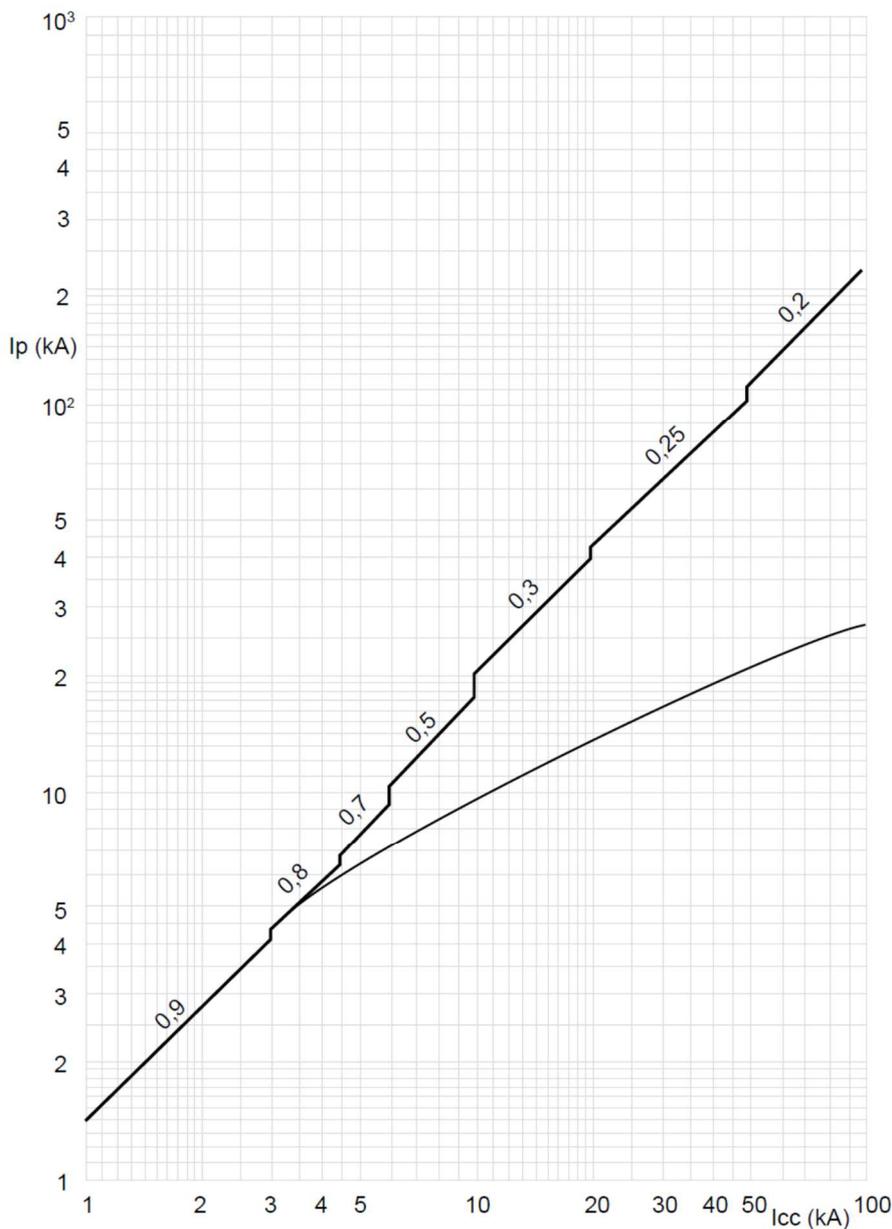
# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## 10.4.2 Cut-off peak current characteristic curve (breaking capacity $I_{cu} > 50\text{kA}$ )

Update: 20/11/2020



$I_{cu} = 70-100 \text{ kA}$   $I_{max} = 250\text{A}$  3-4 P  $U_e = 415\text{Vac}$  (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

# DPX<sup>3</sup> 250 HP S10 electronic (display version) circuit breakers

Reference(s) :

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

## A) Derating Temperature and configurations

	Ambient temperature									
	30 °C		40 °C		50 °C		60 °C		70 °C	
<b>Fixed version</b>	$I_{max}$ (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	250	1	230	0.92	210	0.84	190	0.76
Cage terminals, flexible cable + sealable terminal shields	250	1	238	0.95	200	0.80	175	0.70	175	0.70
Lugs, flexible cable	250	1	213	0.85	200	0.80	200	0.80	150	0.60
Spreaders, flexible cable	250	1	250	1	200	0.80	175	0.70	163	0.65
Rear terminals, flexible cable	250	1	213	0.85	188	0.75	163	0.65	163	0.65
<b>Plug-in/draw-out version</b>	$I_{max}$ (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.*