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

DPX³ 1600 S10 electronic (display version) circuit breakers

Reference(s) :

from 4 229 00 to 4 229 15;

from 4 229 20 to 4 229 53; from 4 229 55 to 4 229 58;

from 4 229 60 to 4 229 93; from 4 229 95 to 4 229 98

CONTENTS

1. USE

DPX³ platform, for premium segment, is able to cover extended ranges in terms of breaking capacities and rated currents, make protection suitable for different levels of power involved in installations.

DPX³ platform provide easy assembly procedures during the phase of installation and mounting of accessories, suitable for professional use.

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

2. RANGE

DPX3 1600 S10

	DPX³ 1600 S10			
	36kA		50kA	
I_n (A)	3P	4P	3P	4P
500	422900	422901	422902	422903
630	422920	422925	422930	422935
800	422921	422926	422931	422936
1000	422922	422927	422932	422937
1250	422923	422928	422933	422938
1600	422924	422929	422934	422939
	70kA		100kA	
I_n (A)	3P	4P	3P	4P
500	422904	422905	422906	422907
630	422940	422945	422950	422955
800	422941	422946	422951	422956
1000	422942	422947	422952	422957
1250	422943	422948	422953	422958
1600	422944	422949	-	-

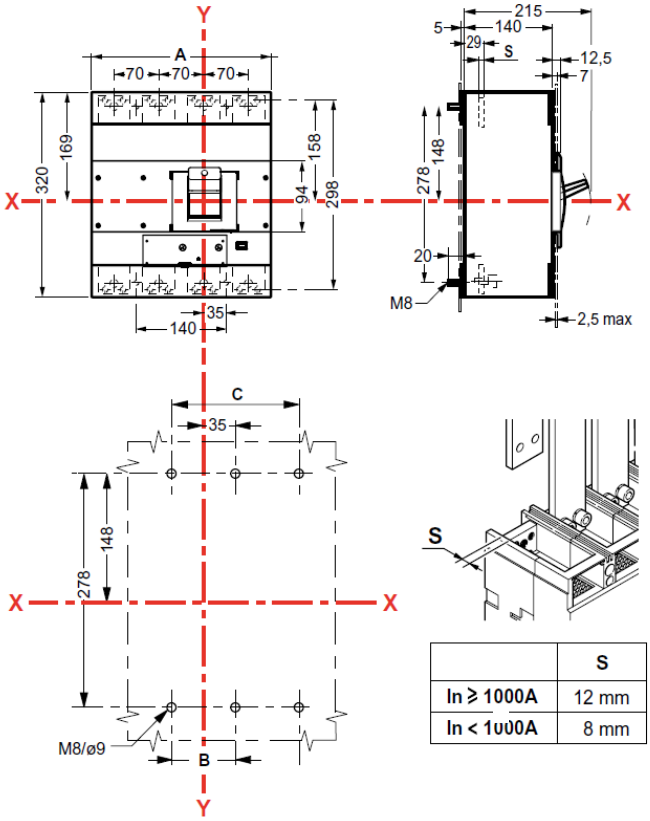
DPX3 1600 S10 with measurement function

	DPX³ 1600 S10 +measurement function			
	36kA		50kA	
I_n (A)	3P	4P	3P	4P
500	422908	422909	422910	422911
630	422960	422965	422970	422975
800	422961	422966	422971	422976
1000	422962	422967	422972	422977
1250	422963	422968	422973	422978
1600	422964	422969	422974	422979
	70kA		100kA	
I_n (A)	3P	4P	3P	4P
500	422912	422913	422914	422915
630	422980	422985	422990	422995
800	422981	422986	422991	422996
1000	422982	422987	422992	422997
1250	422983	422988	422993	422998
1600	422984	422989	-	-

3. DIMENSIONS AND WEIGHTS

3.1 Dimensions

Implantation



	S
In ≥ 1000A	12 mm
In < 1000A	8 mm

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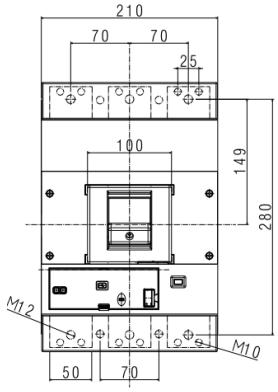
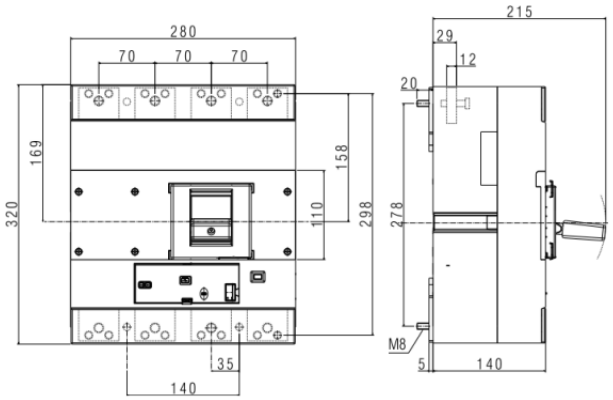
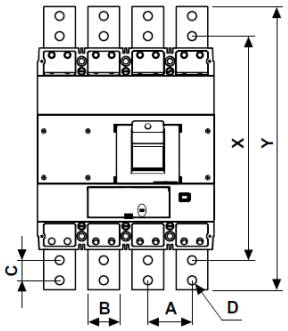
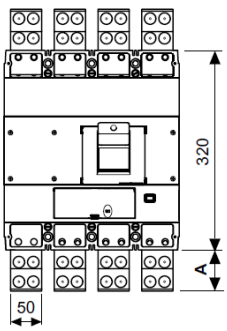
Front terminals, fixed version







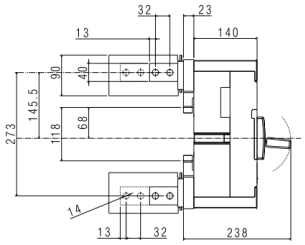


	A	B	C	D	X	Y
	70	50	32	14	358	452
	125	100	25	14,5	544	624

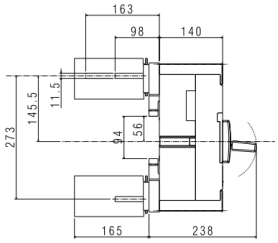
A	1,5	63

Side view, flat rear terminals

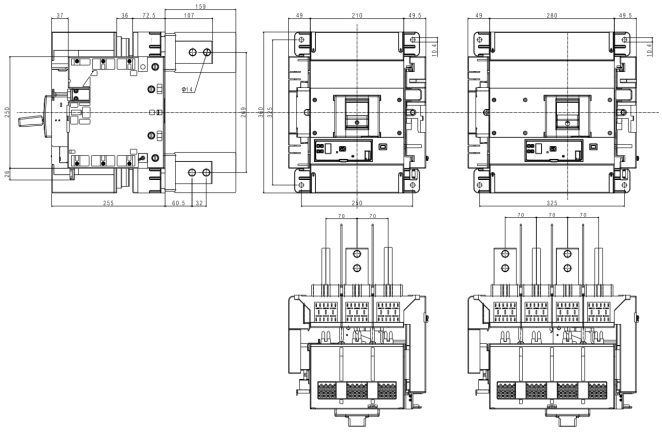
Vertical



Horizontal



Draw-out version, rear terminals



3.2 Weights

Configuration	Weights (Kg)			
	3P		4P	
	$I_n \leq 1250A$	$I_n = 1600A$	$I_n \leq 1250A$	$I_n = 1600A$
Circuit breaker (fixed version)	16	17	20	21.5
Draw-out base (with front terminals)*	18	18	22	22
Draw-out base (with rear terminals)*	21.7	21.7	26.2	26.2
Draw-out debro-lift mechanism *	9.9	9.9	11.2	11.2
** to add to fixed version*				

4. OVERVIEW

4.1 Supplied with:

- fixing screws (4 for 3P and 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 invertor type

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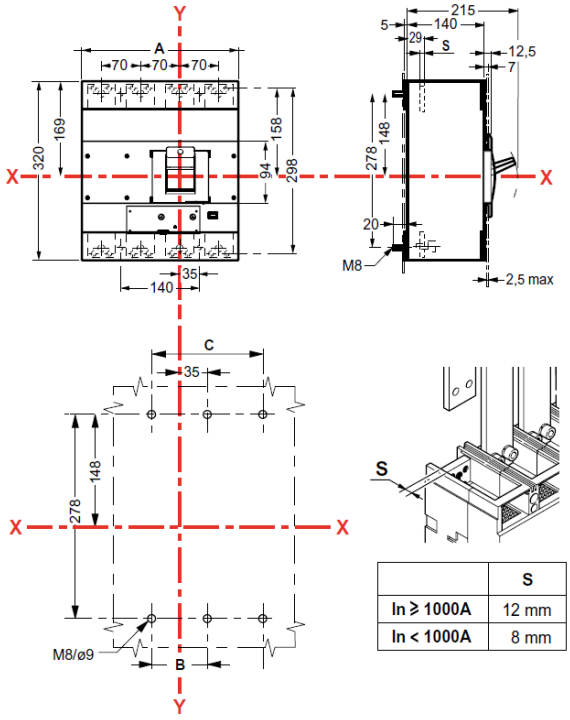
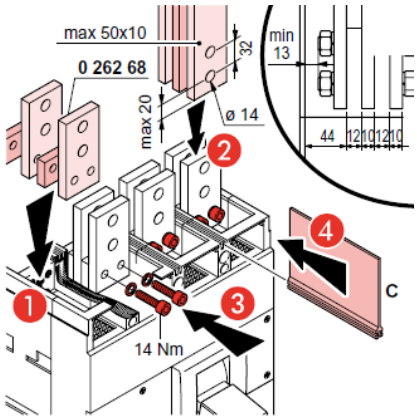
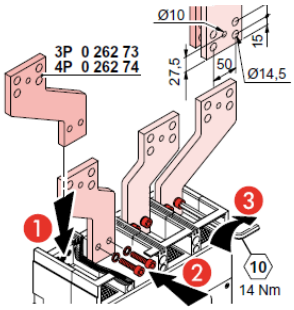
5.2 Mounting

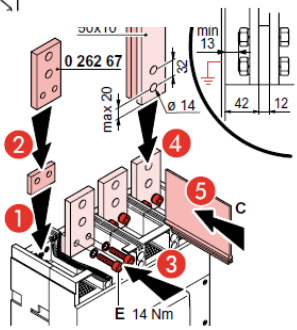
(see instruction sheet for detailed mounting procedures)



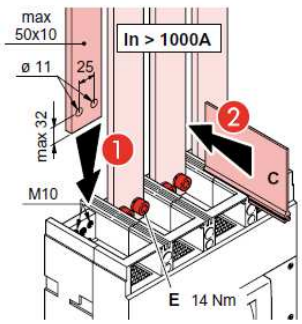
	S
In ⩾ 1000A	12 mm
In < 1000A	8 mm

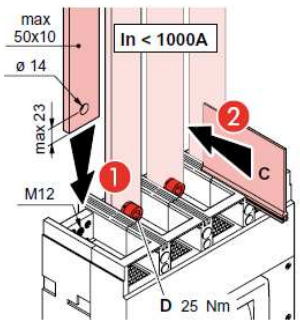


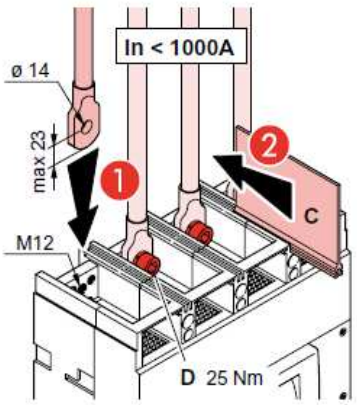


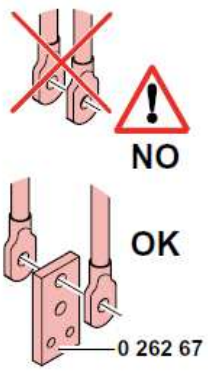


Busbars/cable lugs:

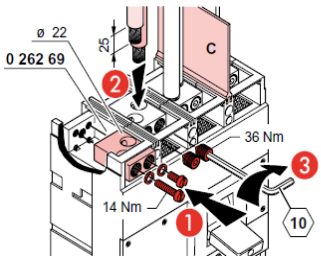


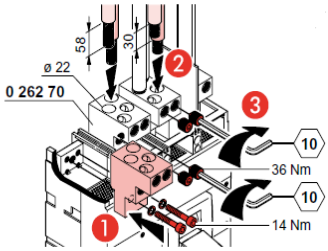






Cables:





Flexible Conductors		2x95mm² 4x95mm²	MIN	2x185mm² 4x185mm²	MAX
Rigid Conductors		2x120mm² 4x120mm²	MIN	2x240mm² 4x240mm²	MAX

6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit Breaker	DPX³ 1600 S10 F/N/H/L (36kA, 50kA, 70kA, 100kA)
Rated current (A)	500, 630, 800, 1000, 1250, 1600
Poles	3 - 4
Pole pitch (mm)	10-mar
Rated insulation voltage (50/60Hz) U_i (V)	1000
Rated operating voltage (50/60Hz) U_e (V)	690
Rated impulse withstand current U_{imp}	8
Rated frequency (Hz)	50 - 60
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	10000
Mechanical endurance with motor control	5000
Electrical endurance at I_n (cycles)	4000
Electrical endurance at 0.5 I_n (cycles)	8000
Utilization category	B
Suitable for isolation	Yes
Type of protection	Electronic (with display)
Thermal type protection	Adjustable (Mem On/Off)
Ability to enable thermal protection	On/Off
Thermal adjustment I_r [x I_n]	0,2÷1 (steps 1A)
Thermal adjustment t_r [s]	0,04÷30 (steps 40ms, @6Ir)
Thermal time tripping at 2xIn (single pole) [s]	0,44s±20% if tr = 0,04s@6Ir
Magnetic type protection	Adjustable
Ability to enable magnetic protection	On/Off
Magnetic adjustment I_{sd} [x I_r]	1,5÷10 (steps 1A)
Time adjustement t_{sd} (t=k o I²t=k) [s]	40÷480 (steps 40ms)
Minimum release single pole	1 I_{sd}
Istantaneous electronic adjustment I_i	2÷15 (steps 1A) & Isf=15kA (@In<=1250A) and sf=20kA (@In<=1600A)
Neutral protection for 4P (%I_{th} of phase pole)	0FF-50-100-150-200
Earth leakage trip type	Internal
Ability to enable earth leakage trip	On/Off
Earth leakage trip IΔn /I_g [A /x In]	- / 0,2 ÷ 1 (steps 0,1In)
Earth leakage trip Δt / t_g (t=k o I²t=k) [s]	- / 0,08 ÷ 1 (steps 40ms)
Dimensions (W x H x D) (mm)	140 x 260 x 105 (3P)
	183 x 260 x 105 (4P)

6.1 Breaking capacity (kA)

		Breaking capacity (kA) & I_{cs}			
		3P-4P			
IEC 60947-2	U_e/I_{cu} (I_{cu} letter)	36kA (F)	50kA (N)	70kA (H)	100kA (L)
	220/240 V AC	70	100	105	150
	380/415 V AC	36	50	70	100
	440/460 V AC	30	45	65	80
	480/500 V AC	25	35	45	55
	480/550 V AC	20	24	28	30
	600 V AC	20	24	28	30
	690V AC	14	20	22	25
	I_{cs}(% I_{cu})	100	100	100	70
	Rated making capacity under short circuit I_{cm}				
	I_{cm} (kA) at 415V	76.5	105	154	220
NEMA AB-1	220/240 V AC	70	100	105	150
	480/500 V AC	25	35	45	55
	690 V AC	14	20	22	25

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

	Phases limit trip current			
	thermal (I_r)		magnetic (I_i)	
I_n (A)	0.2 x I_n	1 x I_n	1.5 x I_r	10 x I_r
500	100	500	750	5000
630	126	630	945	6300
800	160	800	1200	8000
1000	200	1000	1500	10000
1250	250	1250	1875	12500

** For neutral adjustment, as explained in technical sheet, please consider the values ratios 100% on set currents.*

6.3 Load operations

Force on handle	In ≤ 400A	In ≥ 500A
Opening operation (N)	80	130
Closing operation (N)	180	210
Restore operation (N)	145	200

6.4 Electrodynamic forces

The table below shows an indication of suggested distances to keep between the breaker and the first fixing point of the conductor and bars in order to reduce the effects of the electrodynamic stresses that may be created during a short circuit. In the realization of anchorage system it is recommend the use of isolators suitable for the type of conductor used and the operating voltage.

I_{cc} (kA)	Maximum Distance (mm)
36	350
50	300
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 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

	Power losses (W)					
	I_n (A)					
	500	630	800	1000	1250	1600
Front terminals, fixed version	11.6	18.5	29.8	47.6	74.4	65.3
Rear terminals, fixed version	11.5	18.3	29.4	47.0	73.4	58.9
Front terminals, draw-out version	20.0	31.8	51.2	82.0	128.1	112.6
Rear terminals, draw-out version	15.0	23.8	38.4	60.0	93.8	97.3

Note: power loss 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

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.

	Temperature Ta (°C)		
I_n (A)	**up to 50**	**60**	**70**
500	500	500	500
630	630	630	630
800	800	800	720
1000	1000	1000	900
1250	1250	1250	938

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.

Electromagnetic disturbances (EMC)

for DPX³ 1600 circuit breakers, according to IEC/EN 60947-2 Annex F

Pollution degree

for DPX³ 1600 circuit breakers, degree 3, according to IEC/EN 60947-2

6.6.3 Altitude

Altitude derating for DPX³ and DPX³–I

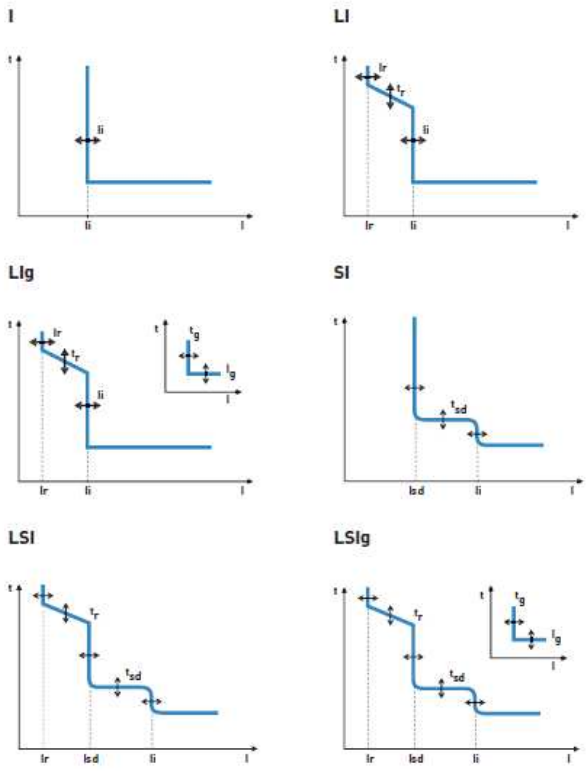
Altitude (m)	**2000**	**3000**	**4000**	**5000**
U_e (V)	690	590	520	460
I_n (A) (T_a = 40°C/50°C)	1 x I_n	0.98 x I_n	0.93 x I_n	0.9 x I_n

7.ELECTRONIC PROTECTION S10

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

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

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



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

See relative instruction sheet for details

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

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

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

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

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

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

Together with above protections, activated in case of electric faults, the trip unit also integrates self-protection for:

- Over temperature : in case the internal temperature of protection unit exceed 95°C;
- Auto diagnostics: in case embedded watchdog circuit detects internal malfunctions, which could compromise the correct working of microcontroller.

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

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

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

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

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

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

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

Measured	UNIT	DESCRIPTION
I_1	A	L1 realtime measured value
I_2	A	L2 realtime measured value
I_3	A	L3 realtime measured value
I_N (4P)	A	N realtime measured value
I_G	A	G realtime measured value
U_{12} U_{23} U_{31} (3P)	V	Phase to Phase Voltage
V_{12} V_{23} V_{31} (4P)	V	Voltage
Freq.	Hz	Frequency
P_{Tot}	kW	Active Power
Q_{Tot}	kvar	Reactive Power
PF		Power Factor
$E_p \downarrow$	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				
		DPX³ 1600A					I_{max} PMD				
I_n		**630A**	**800A**	**1000A**	**1250A**	**1600A**	**630A**	**800A**	**1000A**	**1250A**	**1600A**
P	1	0.5kW	0.5kW	0.5kW	0.5kW	0.5kW	750A	960A	1200A	1500A	1920A
		900kW	1.15MW	1.4MW	1.8MW	2.3MW	I_b=400A, U_n=400V, f_n=50Hz				
Q_v	2	0.5kvar	0.5kvar	0.5kvar	0.5kvar	0.5kvar	750A	960A	1200A	1500A	1920A
		900kW	1.15MW	1.4MW	1.8MW	2.3MW	I_b=250A, U_n=400V, f_n=50Hz				
E_a	1	0...999 GW/h					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
E_{rV}	2	0...999 GW/h					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
f	0.02	50...60 Hz					-				
I	1	20A	20A	20A	20A	20A	750A	960A	1200A	1500A	1920A
		750A	950A	1200A	1500A	1950A	I_b=400A, U_n=400V, f_n=50Hz				
I_N	1	20A	20A	20A	20A	20A	750A	960A	1200A	1500A	1920A
		750A	950A	1200A	1500A	1950A	I_b=400A, U_n=400V, f_n=50Hz				
U(3P), V (4P)	0.5	88...690V					-				
P_{FA}	0.5	-					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
THDu (3P), THDv (4P)	5	110...690V					-				
THD_I	5	400A	400A	400A	400A	400A	-				
		630A	800A	1000A	1250A	1600A					

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 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.

DPX³ 1600 S10 electronic (display version) circuit breakers

Reference(s) :

from 4 229 00 to 4 229 15;

from 4 229 20 to 4 229 53; from 4 229 55 to 4 229 58;

from 4 229 60 to 4 229 93; from 4 229 95 to 4 229 98

8. CONFORMITY

DPX³ 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.

Marks as CCC (China), EAC (Eurasian Federation) or different local certification are available.

DMX³ are in conformity with the Lloyds Shipping Register, RINA and Bureau Veritas Marine.

DMX³ respect the European Directives REACh, RoHS, RAEE and Product Environment Product (PEP Ecopassport) are available.

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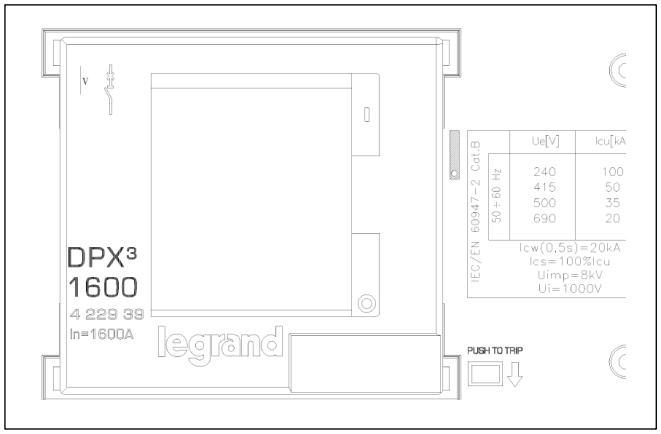
For specific information, please contact Legrand support.

8.1 Marking

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

Product laser label on front

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

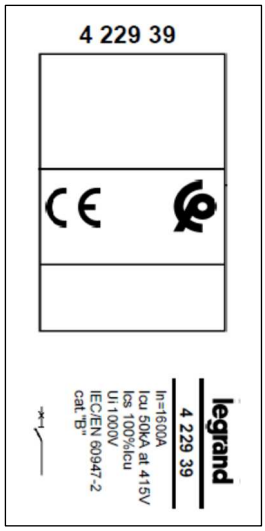


Product sticker label on side

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

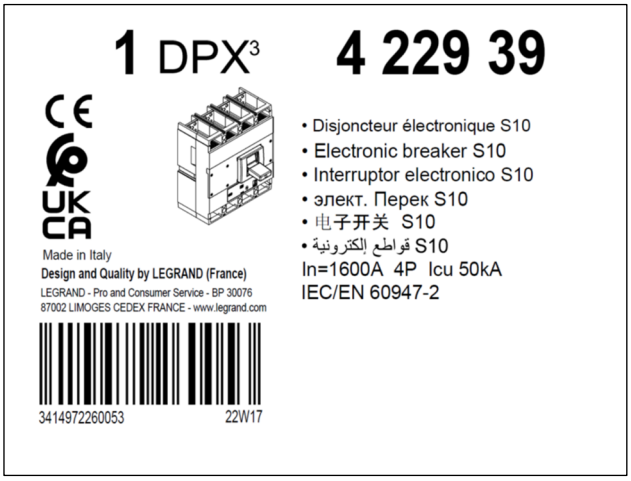
Mark sticker label on side

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



Packaging sticker label

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



9. EQUIPMENTS AND ACCESSORIES

9.1 Releases (for DPX³ 630 / DPX³ 1600)

- shunt releases with voltage:

24 Vac and dc	*ref. 4 222 39*
48 Vac and dc	*ref. 4 222 40*
110÷130 Vac and dc	*ref. 4 222 41*
220÷250 Vac and dc	*ref. 4 222 42*
380÷440 Vac and dc	*ref. 4 222 43*

Shunt releases electrical characteristics	
Rated voltage (U_c)	**Both ac and dc: 24V/48V/110÷130V/220÷250V/380÷440V**
Voltage range (%U_c)	**70 ÷ 110**
Intervention time (ms)	**≤ 50**
Power consumption (W/VA)	**300**
Minimum opening time (ms)	**50 ms**
Insulation voltage (kV)	**2,5**

- undervoltage releases with voltage:

24 V dc	*ref. 4 222 44*
24 V ac	*ref. 4 222 45*
48 V dc	*ref. 4 222 46*
110 - 125 V ac	*ref. 4 222 47*
220 - 240 V ac	*ref. 4 222 48*
380 - 415 V ac	*ref. 4 222 49*

Undervoltage relases electrical characteristics	
Rated voltage (U_c)	**ac: 24V/110÷125V/220÷240V/380÷415V dc: 24V/48V**
Voltage range (%U_c)	**85 ÷ 110**
Minimum opening time (ms)	**50**
Power consumption (W/VA)	**1.6 / 5**

- time-lag undervoltage releases (800 ms)

Time-lag modules with voltage:

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

Universal Release *ref. 4 226 23*
(to be equipped with a time-lag module 0 261 90/91)

9.2 Auxiliary contacts (for DPX³ 630 / DPX³ 1600)

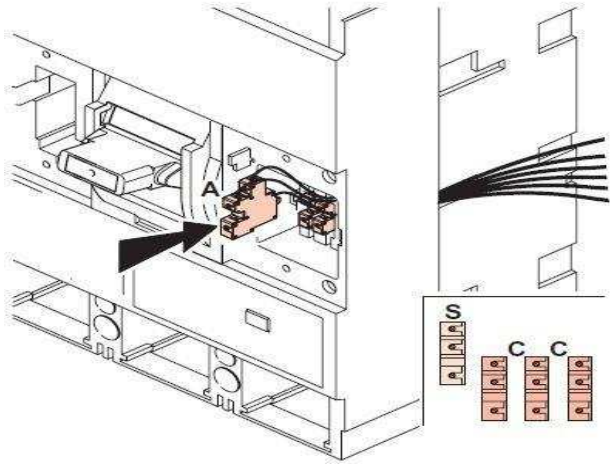
Changeover switch 3A – 250 VAC *ref. 4 210 11*

To show the state of the contacts or opening of the DPX³/DPX³ -I on a fault:

- Auxiliary contact (standard) **OC**
- Fault signal **CTR**

Auxiliary contact electrica characteristics		
Rated voltage (V_n)	**V (ac or dc)**	24 to 250
Intensity (A)	**24 V dc**	5
	48 V dc	1.7
	110 V dc	0.5
	230 V dc	0.25
	110 V ac	4
	230/250 V ac	3

Configurations:
DPX³ 1600 → 3 auxiliary contacts + 1 fault signal + 1 release



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

9.3 Universal keylocks

These keylocks must be used for all the accessories that can be locked:

- rotary handle
- motor operator
- plug-in mechanism
- draw-out mechanism

For each of these, a specific accessory (indicated in the specific section of this datasheet) must be added in order to get the complete locking kits for the specific application.

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

9.4 Rotary handles

Direct on DPX³ (with auxiliary option)

- Standard (black) — *ref. 0 262 61*

Vari-depth handle IP55 (with auxiliary option)

- Standard (black) — *ref. 0 262 83*
- For emergency use (red / yellow) adapting on standard handle — *ref. 0 262 84*

Locking accessories (for vary-depth handle with auxiliary option)

- Key lock accessory for vari-depth rotary handle — *ref. 4 228 07*

Ref. 4 238 07 must be used with universal keylocks to get the complete locking kit for rotary handle

9.5 Motor-driven handles

Factory assembled

Front operated

• Voltage	230 V AC	ref. 0 261 54

Customer assembled

Front operated

• Voltage	24 V AC and DC ($I_n \leq 1250A$)	ref. 0 261 24
• Voltage	48 V AC and DC ($I_n \leq 1250A$)	ref. 0 261 25
• Voltage	110 V AC and DC ($I_n \leq 1250A$)	ref. 0 261 26
• Voltage	220 V AC and DC ($I_n \leq 1250A$)	ref. 0 261 23
• Voltage	24 V AC and DC ($I_n = 1600A$)	ref. 0 261 19
• Voltage	48 V AC and DC ($I_n = 1600A$)	ref. 0 261 28
• Voltage	110 V AC and DC ($I_n = 1600A$))	ref. 0 261 29
• Voltage	220 V AC and DC ($I_n = 1600A$))	ref. 0 261 27

Locking accessories

- Key lock accessory for motor operator — ref. 4 228 06

Ref. 4 228 06 must be used with universal keylocks to get the complete locking kit for motor operator

9.6 Mechanical accessories

Phase insulators

- Set of 3 — ref. 0 262 66

Sealable terminal shields

- Set of 2 3P — ref. 0 262 64
- Set of 2 4P — ref. 0 262 65

Padlock

- Accessories to lock in open position — ref. 0 262 60

Terminal covers to guarantee IP20

- Set of 2 3P — ref. 4 225 90
- Set of 2 4P — ref. 4 225 91

- External neutral — ref. 4 225 92

9.7 Connection accessories

Cage terminals

- Set of 4 terminals for cables 2x240mm² max (rigid) or 2x185mm² max (flexible) (Cu/Al) — ref. 0 262 69
- Set of 4 terminals for cables 4x240mm² max (rigid) or 4x185mm² max (flexible) (Cu/Al) — ref. 0 262 70

Extended front terminals

- Short terminals for 500 - 1250A (2 bars max. per pole) — ref. 0 262 67
- Long terminals for 1600A (3 bars max. per pole) — ref. 0 262 68

Spreaders

- Set of 3 (incoming or outgoing 3P) — ref. 0 262 73
- Set of 4 (incoming or outgoing 4P) — ref. 0 262 74

Rear terminals

(use to connect fixed version with front terminals into fixed version with rear terminal)

- Set of swivel terminals, incoming or outgoing
  - 3P — ref. 0 263 80
  - 4P — ref. 0 263 82
- Set of flat rear terminals, incoming or outgoing
  - 3P — ref. 0 263 81
  - 4P — ref. 0 263 83

9.8 Draw-out version

(A DPX³ draw-out version is a plug-in DPX³ fitted with a "Débro-lift" mechanism which can be used to withdraw the DPX³ while keeping it on its base)

Draw-out base

Base for DPX³ 1600 equipped with "Débro-lift" mechanism

- Front terminals
  - 3P — ref. 4 225 86
  - 4P — ref. 4 225 87
- Rear terminals
  - 3P — ref. 4 225 88
  - 4P — ref. 4 225 89

"Débro-lift" mechanism

To be fitted on a DPX³ 1600 fixed version in order to obtain the movable part of a drawout circuit breaker

- Mobile part for draw-out version
  - 3P — ref. 4 225 93
  - 4P — ref. 4 225 94

Key lock for "Débro-lift" mechanism

- One key for DPX³ only

(enable locking in draw - out position)

- Key lock accessory for draw-out (frontal masks for motor operator or rotary handle) — *ref. 4 228 09*
- Key lock accessory for draw-out — *ref. 4 228 10*

Ref. 4 228 09 and 4 228 10 must be used with universal keylocks to get the complete locking kit for draw-out version

Accessories for "Débro-lift" mechanism

- Isolated handle for drawing-out — ref 0 265 75
- Signal contact (plugged-in / drawn-out) — ref 0 265 74
- Set of connectors (8 contacts) — ref 0 263 99
- Set of connectors (6 contacts) — ref 0 263 19
- Support plate for draw-out version — ref 4 225 95
- Automatic auxiliary contacts (12 pin) D/O version — ref.4 222 30

Plate for transfer switches (factory assembled)
(A transfer switch plate is composed of one plate with interlock for 2 devices)

- Plate for breaker or trip-free switch fixed version *ref. 0 264 10*
- Plate for breaker or trip-free switch plug-in and draw-out version *ref. 0 264 05*

9.9 Specific accessories for electronic version

Auxiliary power supply

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

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

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

4 210 83	DPX³ 250 / 630 / 1600	[mA]
I_{out} 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 DPX³ electronic circuit breakers S2/Sg with / without earth leakage module and with / without energy metering central unit.

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

Consumption: 90mA

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

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

DPX³ electronic interface - EMS CX³

- For connecting electronic DPX³ S10 (250HP, 630,1600) to an EMS communication network. All the informations managed by circuit breaker's electronic card will be shared on the EMS network
  Dimension: 1 module
  Power supply: with EMS CX³ power supply module 4 149 45
  Address can be modified and set locally by DIP switches or remotely with the help of the EMS configurator software

ref. 4 238 90

Bluetooth communication key

USB key for BLE communication with electronic DPX³ S10 (250 HP, 630, 1600) to confi gure, monitor and manage it remotely through App Connection port USB on front of the circuit breaker

ref. 0 283 10

EnerUp + Project App for smartphone and tablet available on Apple Store and Google Play Configuration, monitoring and management software (PCS) available for download via e-catalogue (does not require the use of Bluetooth communication key Ref.0 283 10)

Modular power supply

- 230 V± - 27 V= - 0.6 A (2 modules) ref. BT-E49

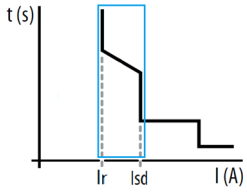
Touch screen

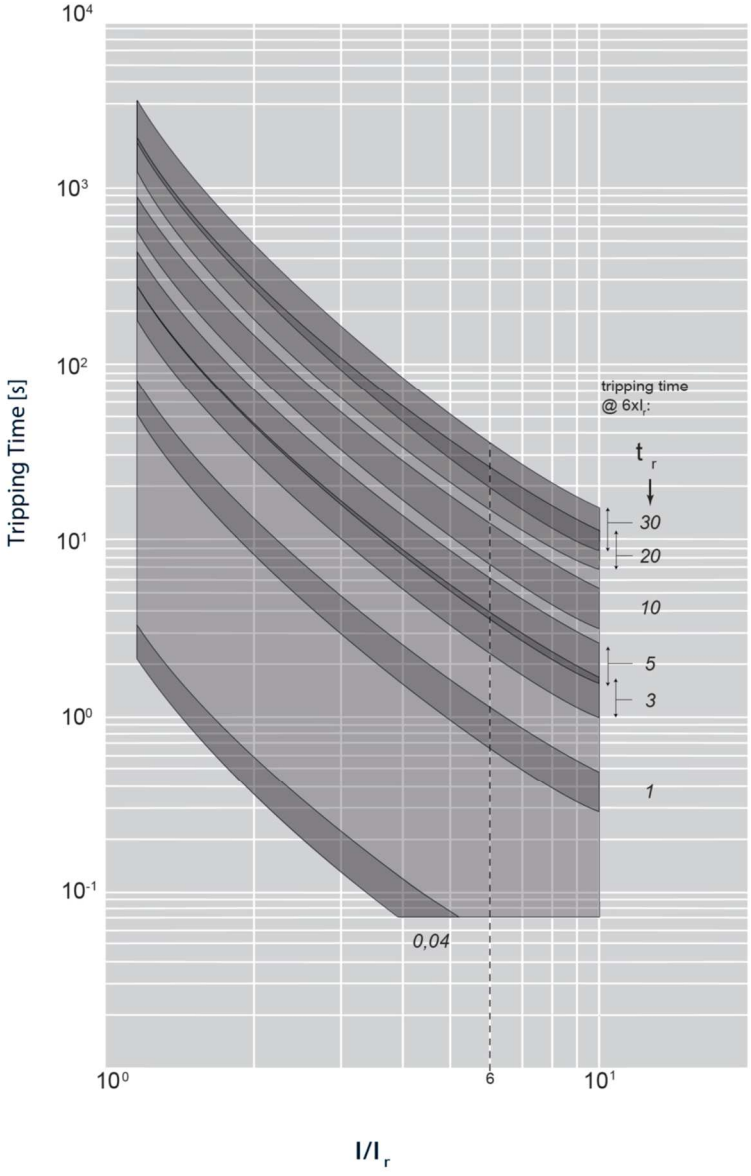
- To show data collected by DX³, DPX³, DMX³, EMDX³. It can manage up to 8 devices *ref. 0 261 56*

10. CURVES

Update: 16/11/2022

10.1.1 Tripping curve [1/3]



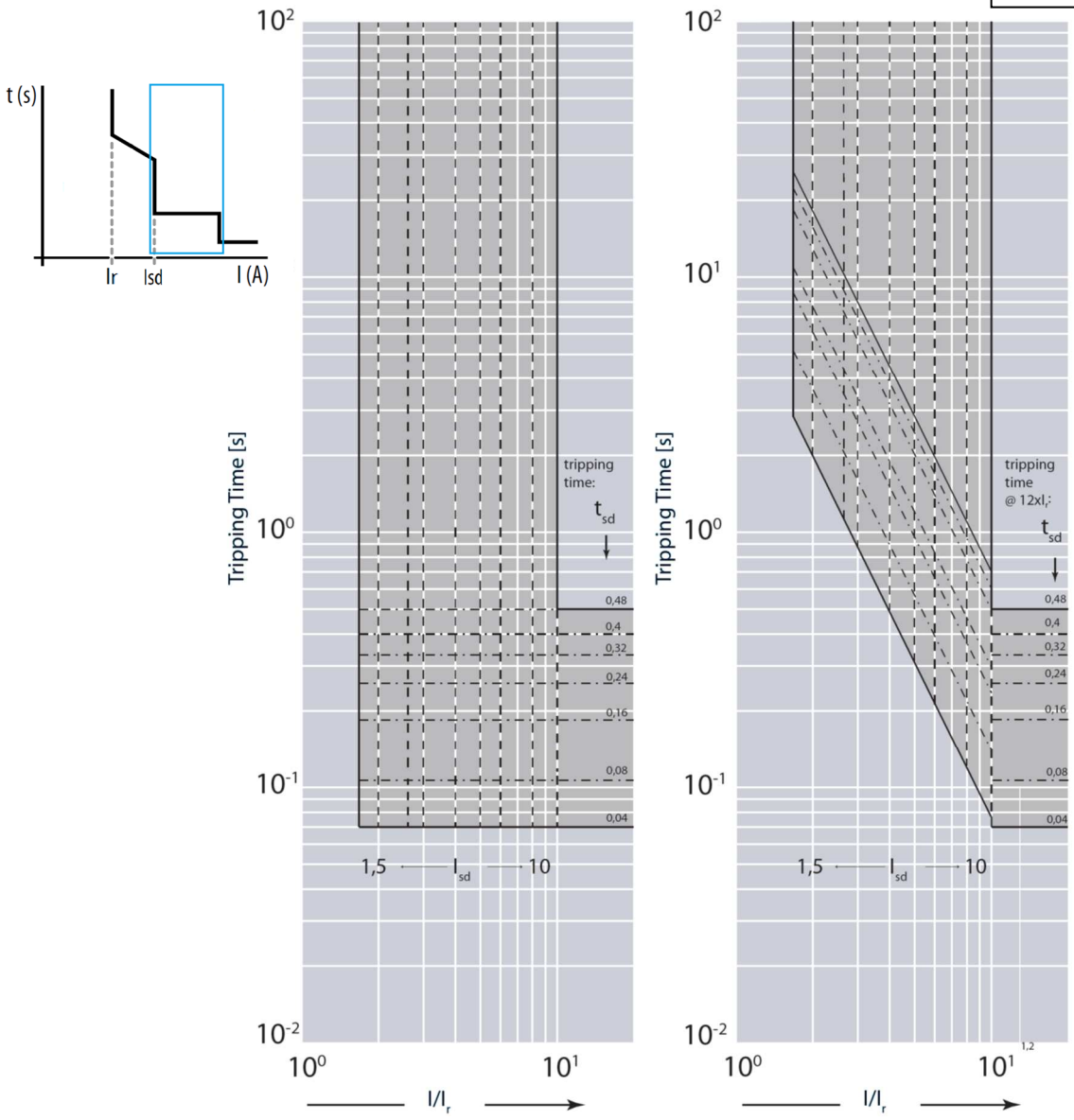


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

Update: 17/11/2022

10.1.2 Tripping curve [2/3]

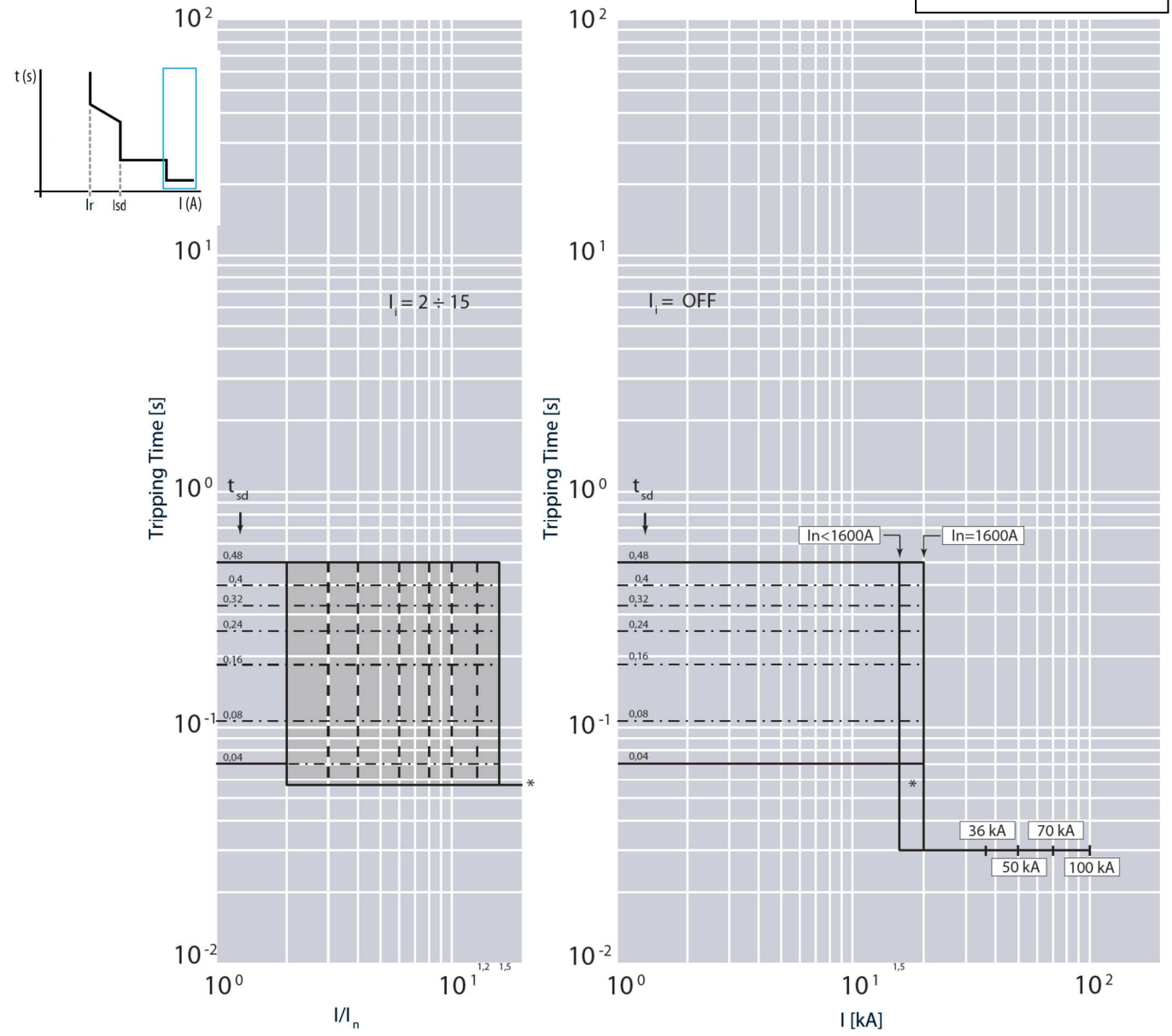


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

Update: 17/11/2022

10.1.3 Tripping curve [3/3]

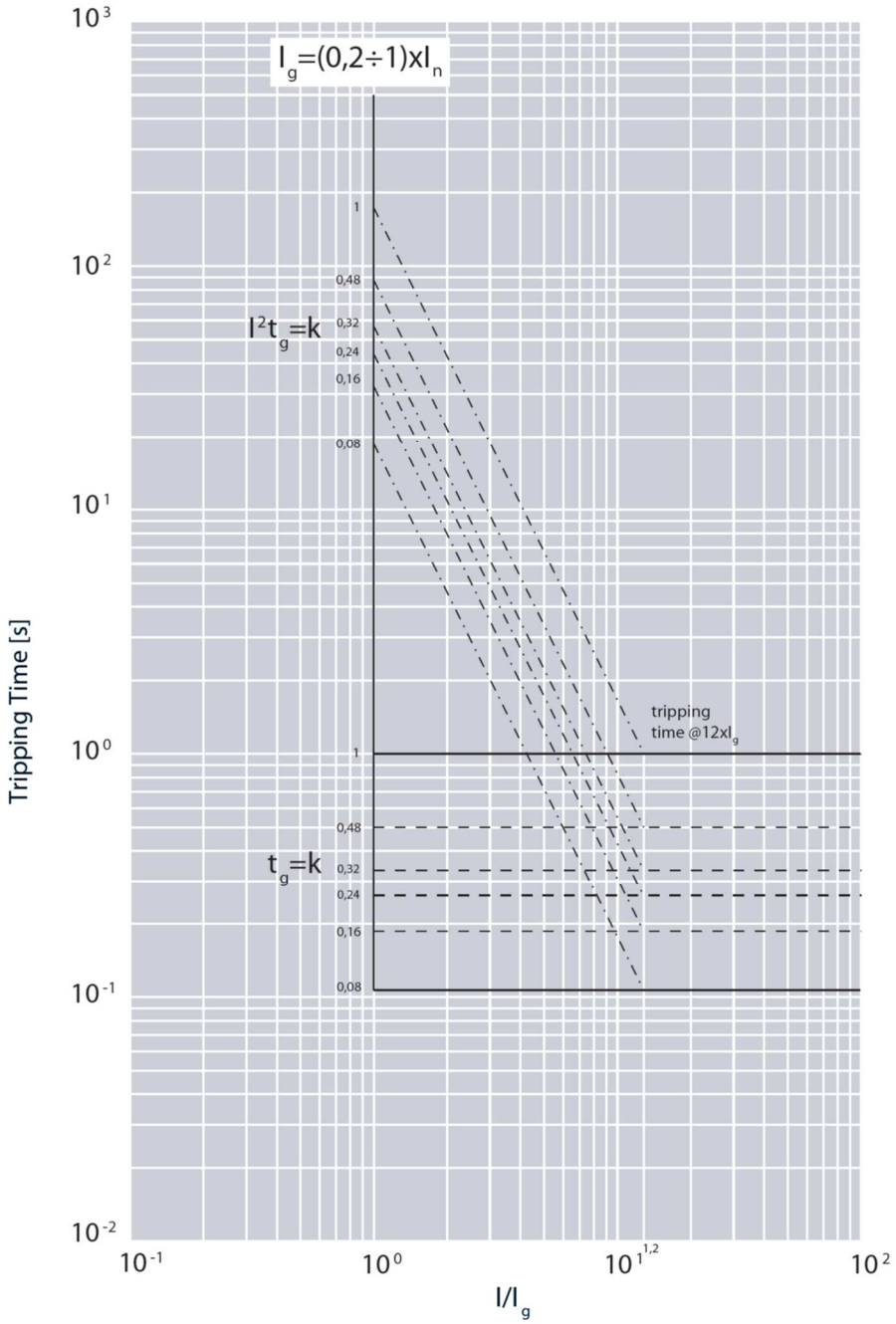


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.2 Ground Fault curve

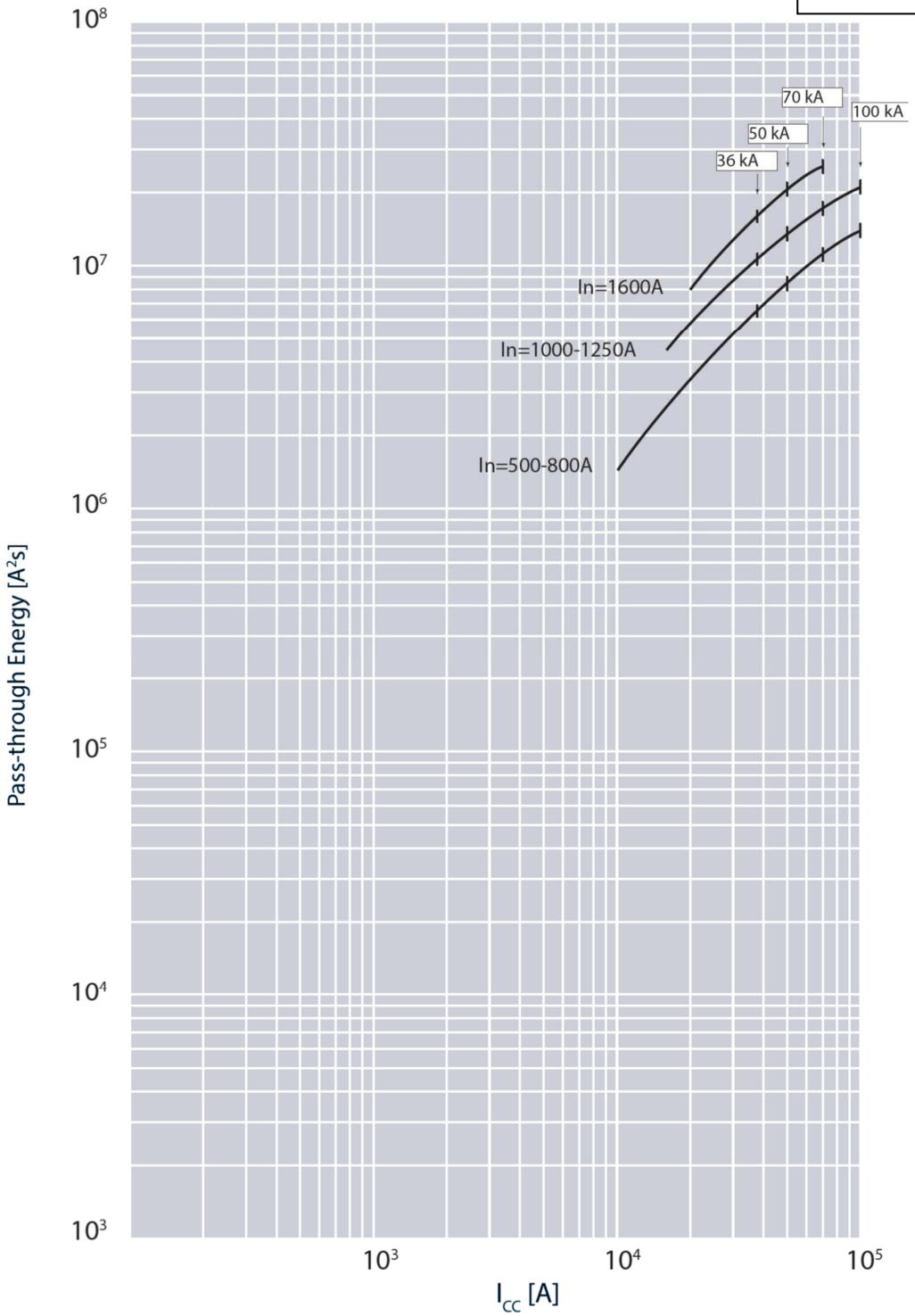
Update: 16/11/2022



I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

10.3 Pass-through specific energy characteristic curve

Update: 03/07/2018

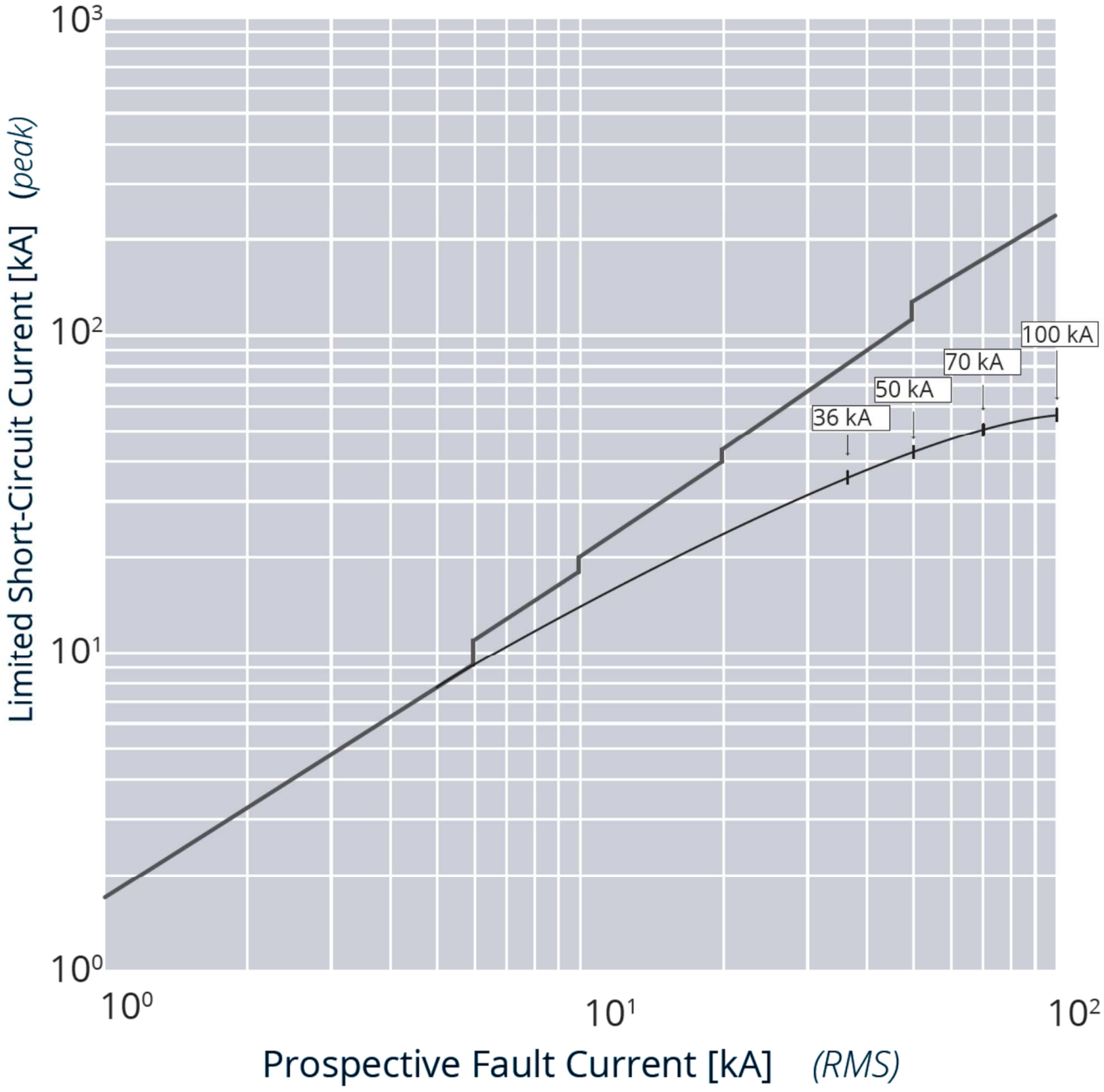


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.4 Cut-off peak current characteristic curve (kA)

Update: 02/07/2018



I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

Value	Description
I_{cc}	estimated short circuit symmetrical current (RMS value)
I_p	maximum short circuit peak current
	maximum prospective short circuit peak current corresponding at the power factor
	maximum real peak short circuit current

DPX³ 1600 S10 electronic (display version) circuit breakers

Reference(s) :
from 4 229 00 to 4 229 15;
from 4 229 20 to 4 229 53; from 4 229 55 to 4 229 58;
from 4 229 60 to 4 229 93; from 4 229 95 to 4 229 98

A) Derating Temperature and configurations

	Ambient temperature									
	30 °C		40 °C		50 °C		60 °C		70 °C	
Fixed version	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n
Spreaders, flexible cable	1600	1	1600	1	1600	1	1360	0.85	1200	0.75
Spreaders, rigid cable	1600	1	1600	1	1600	1	1360	0.85	1200	0.75
Spreaders, bars 2x50x10 Cu	1600	1	1600	1	1600	1	1520	0.95	1360	0.85
Rear flat terminals, bars 4x50x5 Cu, horizontal	1600	1	1600	1	1600	1	1600	1	1440	0.9
Rear flat staggered terminals, bars 4x50x5 Cu, horizontal	1600	1	1600	1	1600	1	1600	1	1440	0.9
Draw-out version	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n	I_{max} (A)	I_r / I_n
Spreaders, flexible cable	1600	1	1600	1	1600	1	1280	0.8	1120	0.7
Spreaders, rigid cable	1600	1	1600	1	1600	1	1280	0.8	1120	0.7
Spreaders, bars 2x50x10 Cu	1440	0.9	1440	0.9	1440	0.9	1120	0.7	960	0.6
Rear flat terminals, bars 2x100x5 Cu, vertical	1440	0.9	1440	0.9	1440	0.9	1120	0.7	960	0.6
Rear flat staggered terminals, bars 2x100x5 Cu, vertical	1440	0.9	1440	0.9	1440	0.9	1120	0.7	960	0.6
Rear flat terminals, bars 4x50x5 Cu, horizontal	1600	1	1600	1	1600	1	1440	0.9	1120	0.7
Rear flat staggered terminals, bars 4x50x5 Cu, horizontal	1600	1	1600	1	1600	1	1440	0.9	1120	0.7

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.