

DPX³ 1600 S10 electronic (display version) circuit breakers

Cat.Nos :

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



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1. USE

DPX³ HP range 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 1600 S10

Icu	36 kA		50 kA	
In (A)	3P	4P	3P	4P
500	4 229 00	4 229 01	4 229 02	4 229 03
630	4 229 20	4 229 25	4 229 30	4 229 35
800	4 229 21	4 229 26	4 229 31	4 229 36
1000	4 229 22	4 229 27	4 229 32	4 229 37
1250	4 229 23	4 229 28	4 229 33	4 229 38
1600	4 229 24	4 229 29	4 229 34	4 229 39

Icu	70 kA		100 kA	
In (A)	3P	4P	3P	4P
500	4 229 04	4 229 05	4 229 06	4 229 07
630	4 229 40	4 229 45	4 229 50	4 229 55
800	4 229 41	4 229 46	4 229 51	4 229 56
1000	4 229 42	4 229 47	4 229 52	4 229 57
1250	4 229 43	4 229 48	4 229 53	4 229 58
1600	4 229 44	4 229 49	-	-

■ 2.2 DPX³ 1600 S10 with measurement function

Icu	36 kA		50 kA	
In (A)	3P	4P	3P	4P
500	4 229 08	4 229 09	4 229 10	4 229 11
630	4 229 60	4 229 65	4 229 70	4 229 75
800	4 229 61	4 229 66	4 229 71	4 229 76
1000	4 229 62	4 229 67	4 229 72	4 229 77
1250	4 229 63	4 229 68	4 229 73	4 229 78
1600	4 229 64	4 229 69	4 229 74	4 229 79

Icu	70 kA		100 kA	
In (A)	3P	4P	3P	4P
500	4 229 12	4 229 13	4 229 14	4 229 15
630	4 229 80	4 229 85	4 229 90	4 229 95
800	4 229 81	4 229 86	4 229 91	4 229 96
1000	4 229 82	4 229 87	4 229 92	4 229 97
1250	4 229 83	4 229 88	4 229 93	4 229 98
1600	4 229 84	4 229 89	-	-

■ 2.3 Composition

DPX³ 1600 S10 are 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)

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3. TECHNICAL CHARACTERISTICS

■ 3.1 Electrical characteristics

Rated current	500 A, 630 A, 800 A, 1000 A, 1250 A, 1600 A
Poles	3P - 4P
Pole pitch	70 mm
Rated insulation voltage at 50/60Hz (Ui)	1000 V
Rated operating voltage (50/60Hz) (Ue)	690 V
Rated impulse withstand current (Iimp)	8 kV
Rated frequency	50 - 60 Hz
Operating temperature	25 °C - 70 °C
Electrical endurance at In (cycles)	4000
Electrical endurance at 0.5 In (cycles)	8000
Utilization category	B
Suitable for isolation	Yes
Reverse feed	Yes

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

Breaking capacity (3P and 4P)

IEC 60947-2	Breaking capacity (kA) & Ics				
	Ue	Icu			
		36 kA	50 kA	70 kA	100 kA
	220/240 V~	70	100	105	150
	380/415 V~	36	50	70	100
	440/460 V~	30	45	65	80
	480/500 V~	25	35	45	55
	480/550 V~	20	24	28	30
	600 V~	20	24	28	25
	690 V~	14	20	22	30
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

Phases limit trip current				
Thermal (I _r)			Magnetic (I _i)	
In (A)	0.2 x In	1 x In	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
1600	-			

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

■ 3.2 Mechanical characteristics

Mechanical endurance (cycles): 10000

Mechanical endurance with motor control (cycles): 5000

Load operations

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

■ 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 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.

■ 3.4 Power losses per pole under In (W)

In (A)	500	630	800	1000	1250	1600
Lugs	11.6	18.5	29.8	47.6	74.4	65.3
Cage terminals	12.6	20.0	32.3	49.8	77.8	70.8
High capacity cage terminals	12.8	20.3	32.7	50.2	78.4	71.8
Spreaders	12.8	20.3	32.7	50.2	78.4	71.8
Rear terminals	12.8	20.3	32.7	50.2	78.4	71.8
Draw-out version	15.6	24.8	40.0	63.6	99.4	106.2

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.

3. TECHNICAL CHARACTERISTICS (continued)

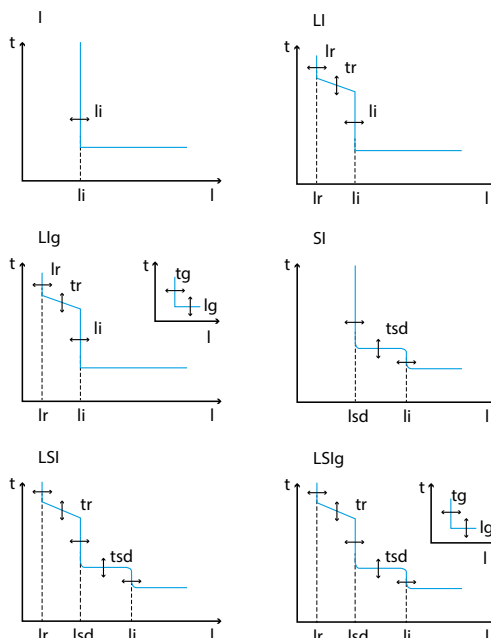
■ 3.5 Electronic protection S10 characteristics

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=5kA
Earth leakage trip $I\Delta n$ [A]	0.03-0.3-1-3/0.2 to 1 (steps 0.1 In)
Earth leakage trip $t\Delta$ [s]	0-0.3-1-3/0.08 to 1 (steps 40 ms)
Minimum release single pole	1 Isd
Instantaneous electronic adjustment li	2÷15 (steps 1A) & Isf=15kA (@In<=1250A) and sf=20kA (@In<=1600A)
Earth leakage trip type	Internal
Ability to enable earth leakage trip	On/Off

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. 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
li	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	0.2 to 1 x In - OFF, in steps of 1 A
tr	3, 5, 10, 15, 20, 25, 30s. @6Ir	from 40 ms to 30s with steps of 40ms @6Ir
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 x Ir to 10 x In - OFF, in steps of 1 A*
tsd (t=k, I²t=k @12Ir)	40 to 480ms (7 steps)	40 to 480ms, in steps of 40ms
li (t=k)	OFF	2 to 15 x In - OFF, in steps of 1 A**
Ig	0.2 to 1 x In - OFF, in steps of 0.1 x In	0.2 to 1 x In - OFF, in steps of 0.1 x In
tg (t=k, I²t=k @12Ir)	80 to 480ms (5 steps) and 1s	80 to 480ms (steps of 40 ms) and 1s
Neutral protection for 4P (%Ith of phase pole)	OFF-50-100-150-200 50% not possible if Ir < 040% In or Ir = OFF; 150% not possible if Ir > 66,7% In or Ir = OFF; 200% not possible if Ir > 50% In or Ir = OFF;	

* Isd = xIn if Ir=OFF (see instruction sheet for detail).

**Fixed delay 40ms.

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.

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

3. TECHNICAL CHARACTERISTICS *(continued)*

■ 3.5 Electronic protection S10 characteristics *(continued)*

Settings on S10 electronic protection *(continued)*

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
I1	A	I1 realtime measured value
I2	A	I2 realtime measured value
I3	A	I3 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
V1N V2N V3N (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	Performance class	Measurement range					Other complementary characteristics				
		DPX ³ 1600 A					I _{max} PMD				
I _n		630 A	800 A	1000 A	1250 A	1600A	630 A	800 A	1000 A	1250 A	1600A
P	2	0.5 kW	0.5 kW	0.5 kW	0.5 kW	0.5 kW	750 A	960 A	1200 A	1500 A	1920 A
		900 kW	1.15 MW	1.4 MW	1.8 MW	2.3 MW	I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
QV	2	0.5 kvAr	0.5 kvAr	0.5 kvAr	0.5 kvAr	0.5 kvAr	750 A	960 A	1200 A	1500 A	1920 A
		900 kW	1.15 MW	1.4 MW	1.8 MW	2.3 MW	I _b = 250 A, U _n = 400 V, f _n = 50 Hz				
Ea	2	0...999 GW/h					750 A	960 A	1200 A	1500 A	1920 A
							I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
ErV	2	0...999 GW/h					750 A	960 A	1200 A	1500 A	1920 A
							I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
f	0.02	50...60 Hz					-				
I	2	20 A	20 A	20 A	20 A	20 A	750 A	960 A	1200 A	1500 A	1920 A
		750 A	950 A	1200 A	1500 A	1950 A	I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
I _n	2	20 A	20 A	20 A	20 A	20 A	750 A	960 A	1200 A	1500 A	1920 A
		750 A	950 A	1200 A	1500 A	1950 A	I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
U(3P) V (4P)	0.05	88...690 V					-				

3. TECHNICAL CHARACTERISTICS *(continued)*

■ 3.5 Electronic protection S10 characteristics *(continued)*

Function performance class according to IEC 61557-12 *(continued)*

Function symbol	Performance class	Measurement range					Other complementary characteristics				
		DPX ³ 1600 A					I _{max} PMD				
PFA	0.05	-					750 A	960 A	1200 A	1500 A	1920 A
							I _b = 400 A, U _n = 400 V, f _n = 50 Hz				
THDu (3P) THDv (4P)	5	110...690 V					-				
THDi	5	400 A	400 A	400 A	400 A	400 A	-				
		630 A	800 A	1000 A	1250 A	1600 A					

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 (Cat.No 4 210 75) /EMS (Cat.No 4 238 90) communication interface.

Device	Maximum power consumption [mA]
Interface EMS/DPX ³	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 DC power bank, Dongle BLE or PC.

4. INSTALLATION RULES

According to IEC/EN 60947-1.

■ 4.1 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)			
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
1600	1600	1600	1360

For derating temperature with other configurations, see table below.

Derating temperature and configurations

For further technical information, please contact Legrand technical support.

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

Altitude derating for DPX³ and DPX³-I

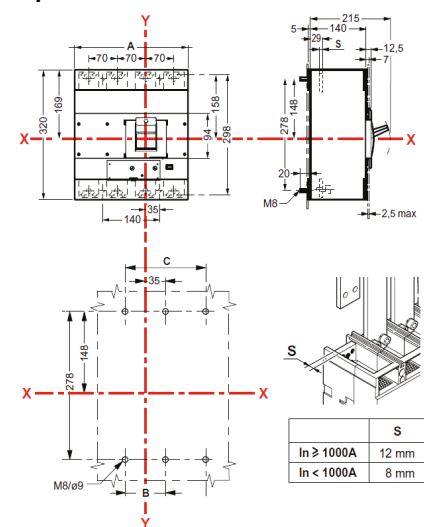
Altitude (m)	2000	3000	4000	5000
Ue (V)	690	590	520	460
ln (A) (Ta = 40°C/50°C)	1 x ln	0.98 x ln	0.93 x ln	0.90 x ln

■ 5.1 Dimensions

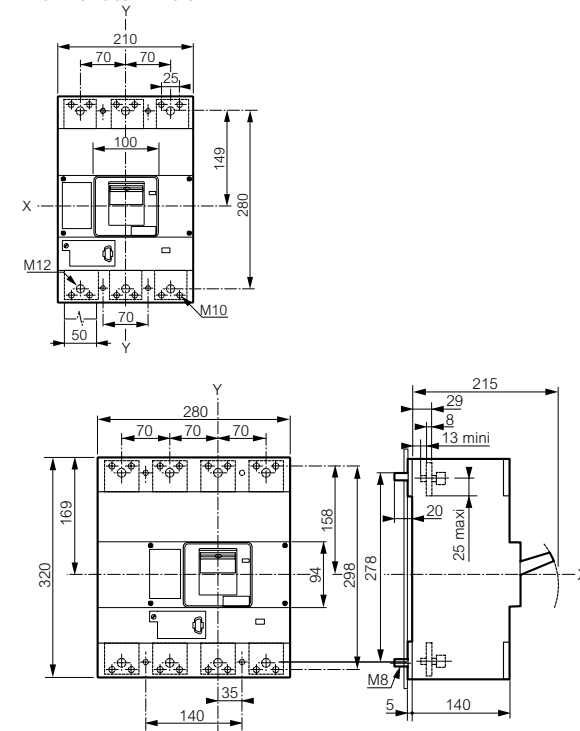
3P (W x H x D): 210 x 320 x 140

4P (W x H x D): 280 x 320 x 140

Implantation



Fixed version
- with front terminals



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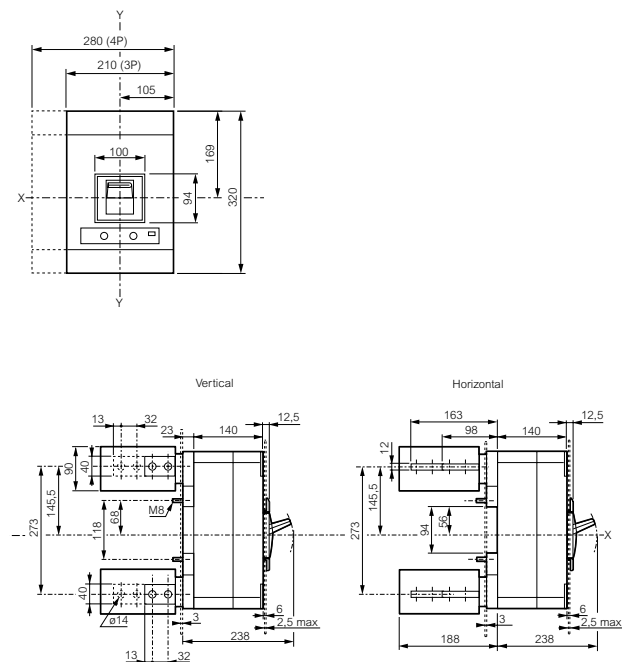
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5. DIMENSIONS AND WEIGHT (continued)

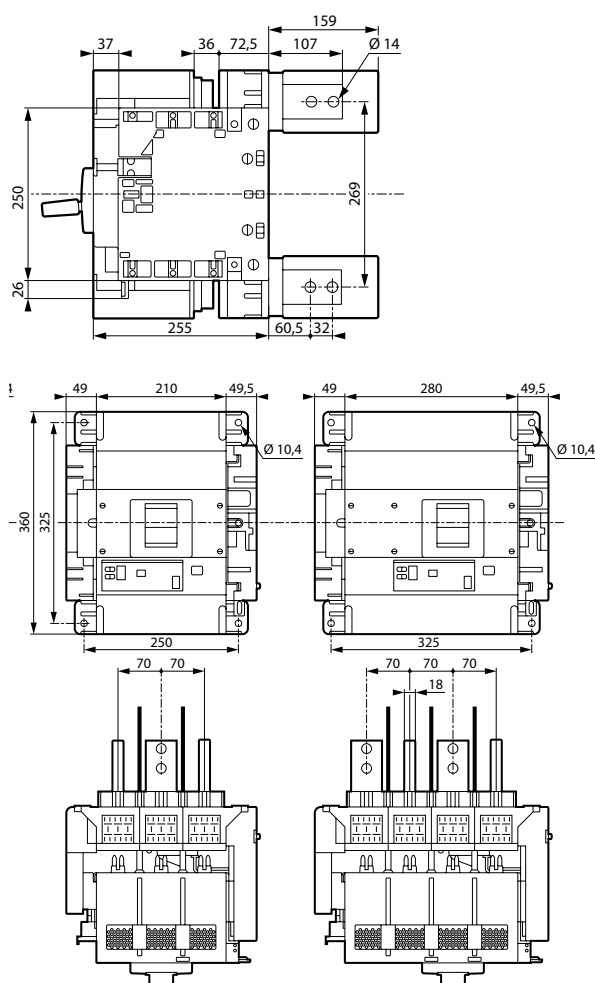
Fixed version (continued)

- with flat rear terminals

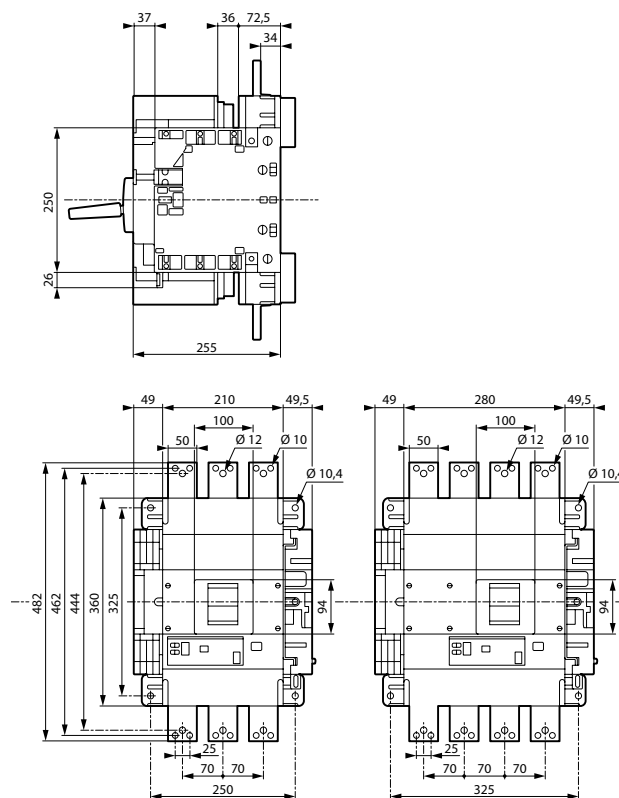


Draw-out version

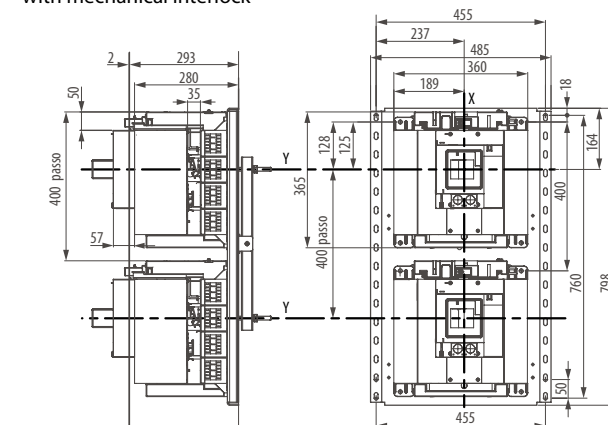
- with flat rear terminals



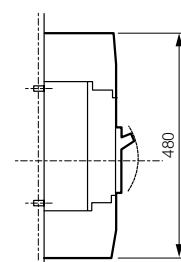
- with front terminals



- with mechanical interlock



Device with terminal cover

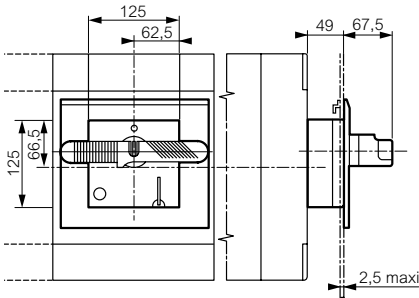


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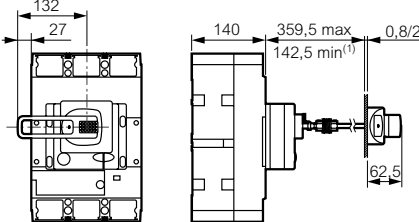
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5. DIMENSIONS AND WEIGHT (continued)

Device with direct rotary handle



Device with vary depth rotary handle



(1) : 75 mm without the mechanical system

5.2 Weights

In	3P		4P	
	≤1250A	1600A	≤1250A	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

6. CONNECTIONS

To ensure the circuit breaker's connection, it is possible to use:

- busbars;
- cable lugs;
- spreaders Cat.No 0 262 73 (3P) / Cat.No 0 262 74 (4P);
- cage terminals;
- cables

For detailed mounting procedures, see instruction sheet.

7. EQUIPMENTS AND ACCESSORIES

7.1 Earth leakage modules

There are two types of leakage modules:

Standard

In ≤ 400A 3P Cat.No 0 260 60
 4P Cat.No 0 260 61

In = 500A-630A 3P Cat.No 0 260 64
 4P Cat.No 0 260 65

LED version

In ≤ 400A 4P Cat.No 0 260 63
In = 500A-630A 4P Cat.No 0 260 67

	Standard	With LED
Type	A - S	A - S
Uninterrupted nominal current I _n (A)	Up to 630	Up to 630
Rated isolated voltage U _i (V AC)	500	500
Rated operating voltage U _e (V AC) (50-60Hz)	500	500
Operating voltage (V AC) (50-60Hz)	230 to 500	110 to 500
Nominal frequency (Hz)	50 - 60	50 - 60
Operating temperature (°C)	-25 to 70	-25 to 70
Trip	Electronic	Electronic
Earth leakage time adjustments (s)	0 - 0.3 - 1 - 3	0 - 0.3 - 1 - 3
Earth leakage breaking capacity I _{dm} (% I _{cu})	60	60
Earth leakage protection adjustments I _{Δn} (A)	0.03 to 3	0.03 to 3
Side-by-side mounting	No	No
Underneath mounting	Yes	Yes
50% Earth fault detection contact I _{Δn}	No	Yes
Clip on rail DIN 35	No	No
Dimensions (W x H x D) (mm) for 4P	183 x 152 x 105	183 x 152 x 106

7.2 Releases

The releases are suited for DPX³ 630 / DPX³ 1600.

There are 3 types of releases:

Shunt releases with voltage

24 V~ / =	Cat.No 4 222 39
48 V~ / =	Cat.No 4 222 40
110 to 130 V~ / =	Cat.No 4 222 41
220 to 250 V~ / =	Cat.No 4 222 42
380 to 440 V~ / =	Cat.No 4 222 43

Rated voltage (U _c)	Both ~ / = : 24 V / 48 V / 110 to 130 V / 220 to 250 V / 380 to 440 V
Voltage range (%U _c)	70 to 110
Intervention time (ms)	≤ 50
Power consumption (W/VA)	300
Minimum opening time (ms)	50
Insulation voltage (kV)	2.5

Undervoltage releases with voltage:

24 V=	Cat.No 4 222 44
24 V~	Cat.No 4 222 45
48 V=	Cat.No 4 222 46
110 to 125 V~	Cat.No 4 222 47
220 to 240 V~	Cat.No 4 222 48
380 to 415 V~	Cat.No 4 222 49

Rated voltage (U _c)	~ : 24 V / 110 to 125 V / 220 to 240 V 380 to 415 V = : 24 V / 48 V
Voltage range (%U _c)	85 to 110
Intervention time (ms)	≤ 50
Power consumption (W/VA)	1.6 / 5
Minimum opening time (ms)	50
Insulation voltage (kV)	2.5

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7. EQUIPMENTS AND ACCESSORIES (continued)

■ 7.2 Releases (continued)

Time-lag undervoltage releases (800 ms)

Time-lag modules with voltage:

230 V~	Cat.No 0 261 90
400 V~	Cat.No 0 261 91

Universal Release Cat.No 4 226 23
(to be equipped with a time-lag module Cat.Nos 0 261 90/91)

■ 7.3 Auxiliary contacts

The auxiliary contacts are suited for DPX³ 630 / DPX³ 1600.

Changeover switch 3A – 250 V~ Cat.No 4 210 11

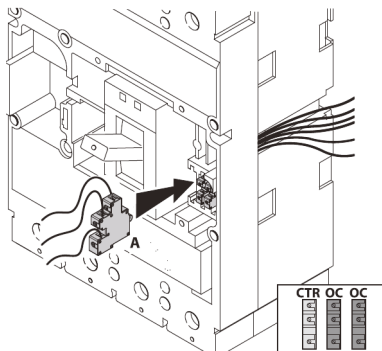
It shows the state of the contacts or opens the DPX³/DPX³-I in case of a fault, using:

- an auxiliary contact (standard): OC
- a fault signal: CTR

Rated voltage (Vn)	Intensity (A)
24 V=	5
48 V=	1.7
110 V=	0.5
230 V=	0.25
110 V~	4
230/250 V~	3

Configurations

DPX³ 1600 → 2 auxiliary contacts + 1 fault signal + 1 release



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

■ 7.4 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 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

■ 7.5 Rotary handles

There are four types of suited rotary handles:

Direct on DPX³ (with auxiliary option)

- Standard (black) Cat.No 0 262 61

Vary depth handle IP55 (with auxiliary option)

- Standard (black) Cat.No 0 262 83
 - For emergency use (red / yellow) Cat.No 0 262 84
- adapting on standard handle

They can be locked with:

Locking accessories (for vary depth handle with auxiliary option)

Key lock accessory for vary depth rotary handle Cat.No 4 228 07

It must be used with universal keylocks to get the complete locking kit for rotary handle.

■ 7.6 Motor operators (front operated)

Factory assembled

230 V~ Cat.No 0 261 54

Customer assembled

Voltage	Intensity	Cat.Nos
24 V~/=	In ≤ 1250 A	0 261 24
48 V~/=		0 261 25
110 V~/=		0 261 26
220 V~/=		0 261 23
24 V~/=	In = 1600 A	0 261 19
48 V~/=		0 261 28
110 V~/=		0 261 29
220 V~/=		0 261 27

Direct Transmission		
Voltage	Input Power	
	Start	Steady state
24V dc	460	160
48V dc		
24V ac		
48V ac		
110V ac		
230V ac		

Energy Storage		
Voltage	Input Power	
	Start	Steady state
24 ac/dc	460	110
48 ac/dc		
110 ac/dc		
230 ac/dc		

Locking accessories

Key lock accessory for motor operator Cat.No 4 228 06

It must be used with universal keylocks to get the complete locking kit for motor operator

DPX³ 1600 S10 electronic (display version) circuit breakers

Cat.Nos :
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

7. EQUIPMENTS AND ACCESSORIES (continued)

■ 7.7 Mechanical accessories

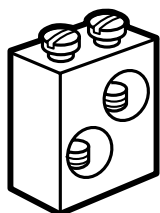
There are many types of mechanical accessories:

- Padlock (for locking in "OPEN" position) Cat.No 0 262 60
- Set of 3 insulated shields (phase insulators) Cat.No 0 262 66
- Sealable terminal shields:
- Set of 2 (for 3P) Cat.No 0 262 64
- Set of 2 (for 4P) Cat.No 0 262 65
- Terminal covers to guarantee IP20:
- Set of 2 (for 3P) Cat.No 4 225 90
- Set of 2 (for 4P) Cat.No 4 225 91
- External neutral Cat.No 4 225 92

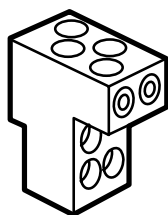
■ 7.8 Connection accessories

Cage terminals

- Set of 4 standard terminals for cables Cat.No 0 262 69
- 2 x 240 mm² max (rigid) or 2 x 185 mm² max (flexible) Cu/Al



- Set of 4 high-capacity terminals for cables Cat.No 0 262 70
- 4 x 240 mm² max (rigid) or 4 x 185 mm² max (flexible) Cu/Al



Type of cage terminal	Cable standard suggested cross section (mm ²)*		
	In(A)	Copper	Aluminium
Standard Cat.No 0 262 69	500	2 x 150 mm ²	2 x 240 mm ²
	630	2 x 185 mm ²	
	800	2 x 240 mm ²	
	1000	-	-
	1250		
	1600		
High capacity Cat.No 0 262 70	500	2 x 150 mm ²	2 x 240 mm ²
	630	2 x 185 mm ²	3 x 240 mm ²
	800	2 x 240 mm ²	3 x 240 mm ²
	1000	4 x 150 mm ²	4 x 240 mm ²
	1250	4 x 185 mm ²	-
	1600	4 x 240 mm ²	-

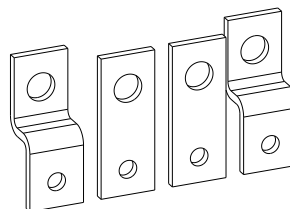
* The suggested cross section are in compliance with standard IEC60947-1 (ed.6 2020/04) and IEC60947-2 (ed.5.1 2019/07)

Type of cage terminal	Dimensions limits of cable for cage terminals			
	Minimum (mm ²)		Maximum (mm ²)	
	Flexible	Rigid	Flexible	Rigid
Standard Cat.No 0 262 69	95	70	185	240
High capacity Cat.No 0 262 70				

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.

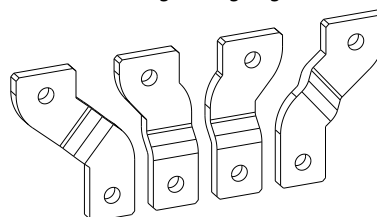
Extended front terminals

- Short terminals for 500 - 1250 A Cat.No 0 262 67
- (2 bars max. per pole)
- Long terminals for 1600 A (3 bars max. per pole) Cat.No 0 262 68



Spreaders (incoming or outgoing):

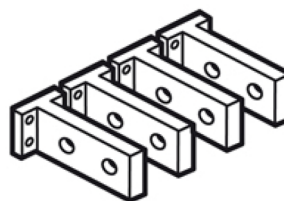
- Set of 3 (incoming or outgoing 3P) Cat.No 0 262 73
- Set of 4 (incoming or outgoing 4P) Cat.No 0 262 74



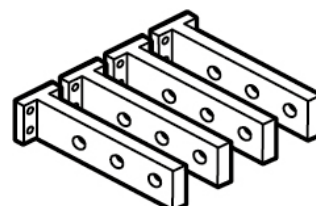
Rear terminals (incoming or outgoing):

They are used to convert the fixed version with front terminals into the fixed version with rear terminals:

- Set of swivel terminals, incoming or outgoing (3P) Cat.No 0 263 80
- Set of swivel terminals, incoming or outgoing (4P) Cat.No 0 263 82



- Set of flat rear terminals, incoming or outgoing (3P) Cat.No 0 263 81
- Set of flat rear terminals, incoming or outgoing (4P) Cat.No 0 263 83



7. EQUIPMENTS AND ACCESSORIES (continued)

■ 7.9 Draw-out version

A DPX³ draw-out version is a plug-in DPX³ fitted with a "Debro-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)	Cat.No 4 225 86
- Front terminals (4P)	Cat.No 4 225 87
- Rear terminals (3P)	Cat.No 4 225 88
- Rear terminals (4P)	Cat.No 4 225 89

"Debro-lift" mechanism

To be fitted on a DPX³ 1600 fixed version in order to obtain the movable part of a draw-out circuit breaker.

Mobile part for draw-out version available:

- For 3P	Cat.No 4 225 93
- For 4P	Cat.No 4 225 94

Keylock for "Debro-lift" mechanism

- Mechanical support for locking 1 DPX ³ only	Cat.No 4 228 10
- Mechanical support for locking motor driven DPX ³ or DPX ³ equipped with rotary handle	Cat.No 4 228 09

Cat.Nos 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 "Debro-lift" mechanism

- Signalling contact (plugged-in / draw-out)	Cat.No 0 265 74
- Handle for drawing - out	Cat.No 0 265 75
- Set of connectors (8 contacts)	Cat.No 0 263 99
- Set of connectors (6 contacts)	Cat.No 0 263 19
- Support plate for draw-out version	Cat.No 4 225 95
- Automatic auxiliary contacts (12 pin) for draw-out version	Cat.No. 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	Cat.No 0 264 10
- Plate for breaker or trip-free switch plug-in and draw-out version.	Cat.No 0 264 05

■ 7.10 Specific accessories for electronic version

Auxiliary power supply

For supplying electronic units Cat.No 4 210 83

Is used to supply DPX³ electronic circuit breakers S10 with or without earth leakage module and with or 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: 24 V~/= (+/- 10%)

Dimension: 2 DIN modules

Output: Up to 250mA (to supply many circuit breakers according to the table below)

Cat.No 4 210 83 I_{out} 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.

MODBUS communication

MODBUS communication works with:
MODBUS interface

Cat.No 4 210 75

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

Technical characteristics:

- USB local laptop connection
- Input voltage: 24V~/DC (+/- 10%)
- Dimension: 1 DIN module
- MODBUS address configuration / transmission mode / transmission speed by physic configurators
- Output relay (220 V – 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 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 by 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 Cat.No 4 238 90.

Bluetooth communication key

Cat.No 0 283 10

USB key for BLE communication with electronic DPX³ 1600 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.

DPX³ 1600 S10 electronic (display version) circuit breakers

Cat.Nos :

from 4 229 00 to 4 229 15

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

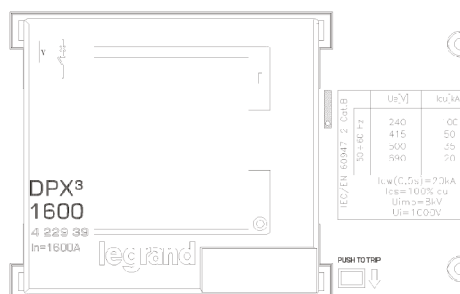
from 4 229 60 to 4 229 93 - from 4 229 95 to 4 229 98

8. MARKING

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

Product laser label on front

- Manufacturer
- Denomination, type product, code
- Standard conformity
- Standard characteristics declared
- Coloured identification of Icu at 415V



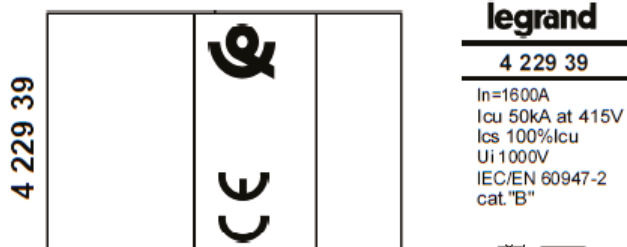
Product sticker label on side

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



Mark sticker label on side

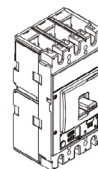
- Product code
- Mark/Licence (if any)
- Country deviation, if any



Packaging sticker label

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

1 DPX³ 4 228 34



Made in Italy

Design and Quality by LEGRAND (France)

LEGRAND - Pro and Consumer Service - BP 30076

87002 LIMOGES CEDEX FRANCE - www.legrand.com



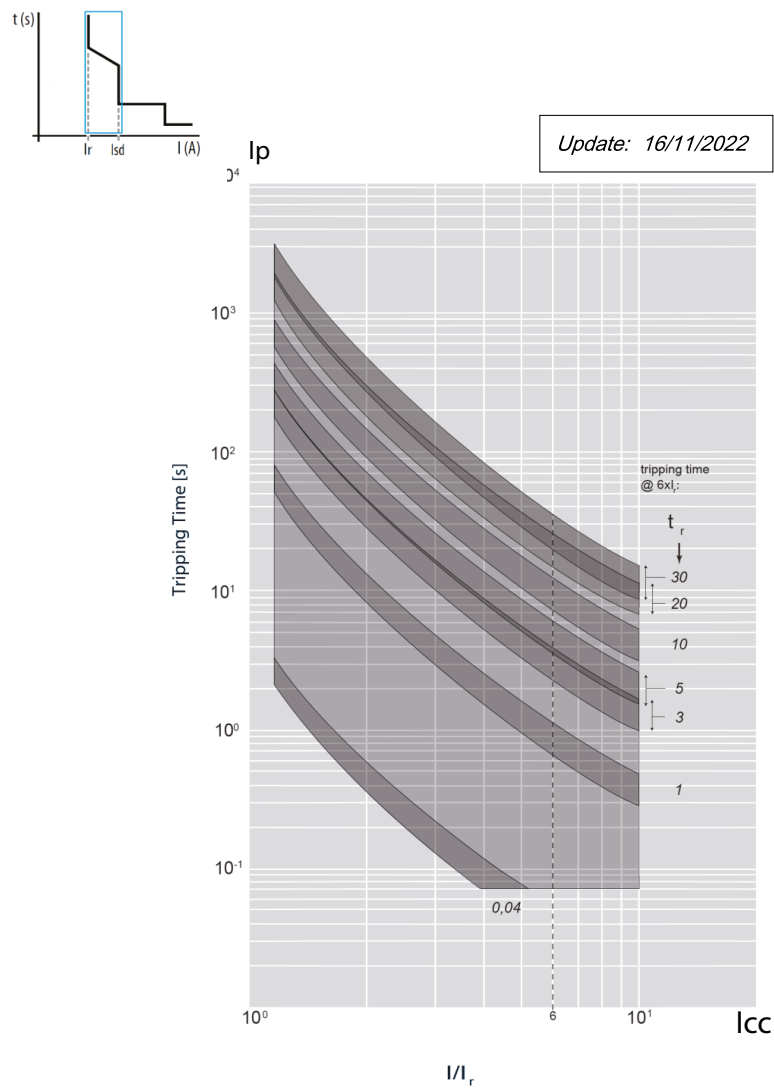
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22W17

- Disj. électronique S10
 - Electronic breaker S10
 - Inter. electrónico S10
 - элект. Переж S10
 - 电子开关 S10
 - قواطع الإلكترونية S10
- In=630A 3P Icu 50kA
IEC/EN 60947-2

9. CURVES

9.1 Tripping curve (1/3)

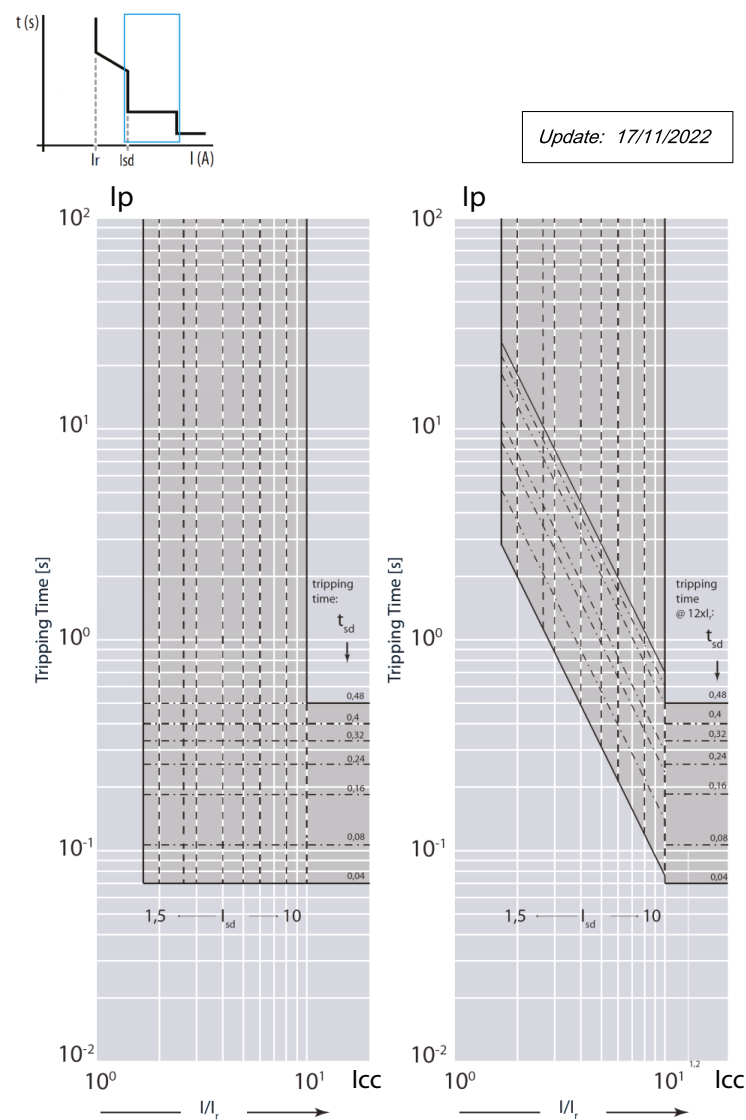


I_{cu} = 36-50-70-100 kA I_{max} = 1600 A 3-4 P U_e = 415 V~ (IEC/EN 60947-2)

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 ² 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 _{sd} ; 20% up to I _i

9. CURVES (continued)

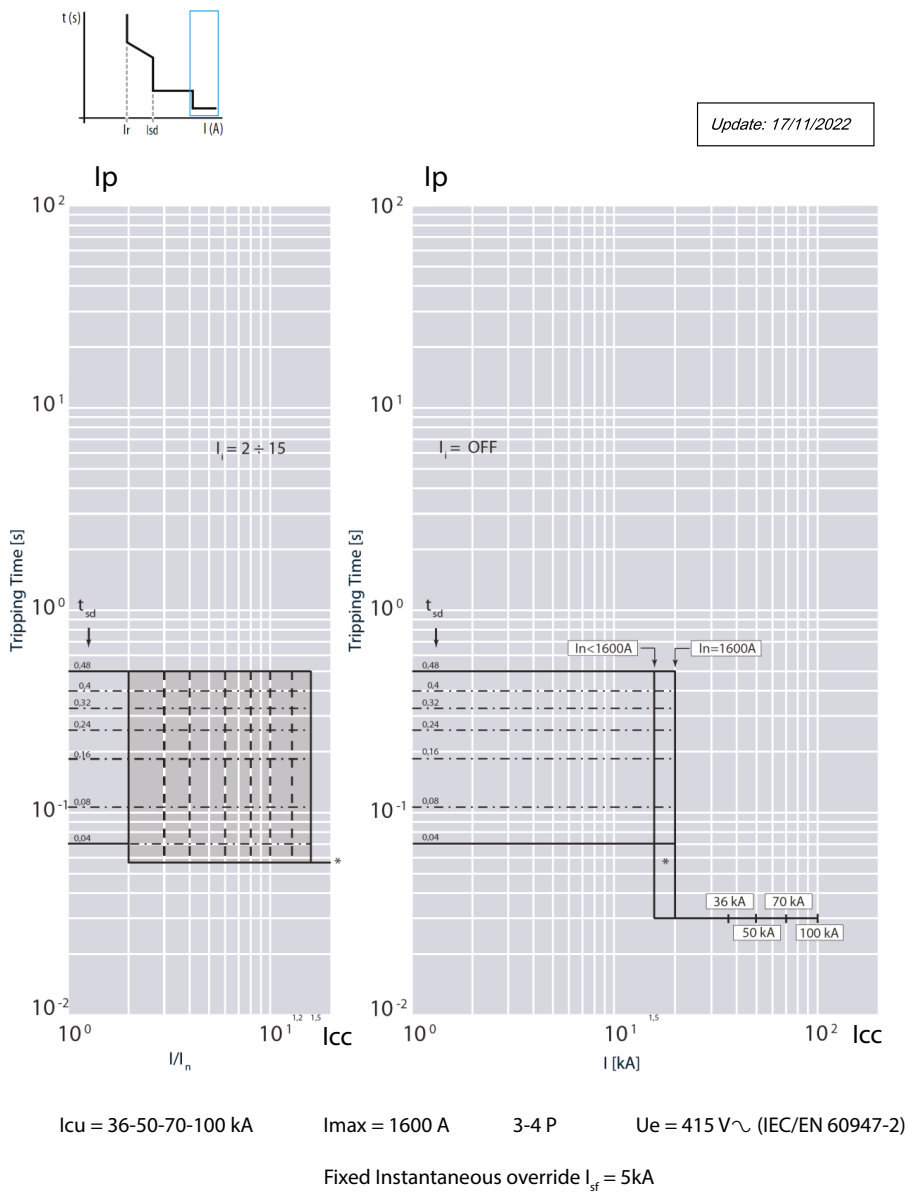
■ 9.2 Tripping curve (2/3)



Icu = 36-50-70-100 kA	I _{max} = 1600 A	3-4 P	U _e = 415 V~ (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 ² 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 _{sd} ; 20% up to I _i		

9. CURVES (continued)

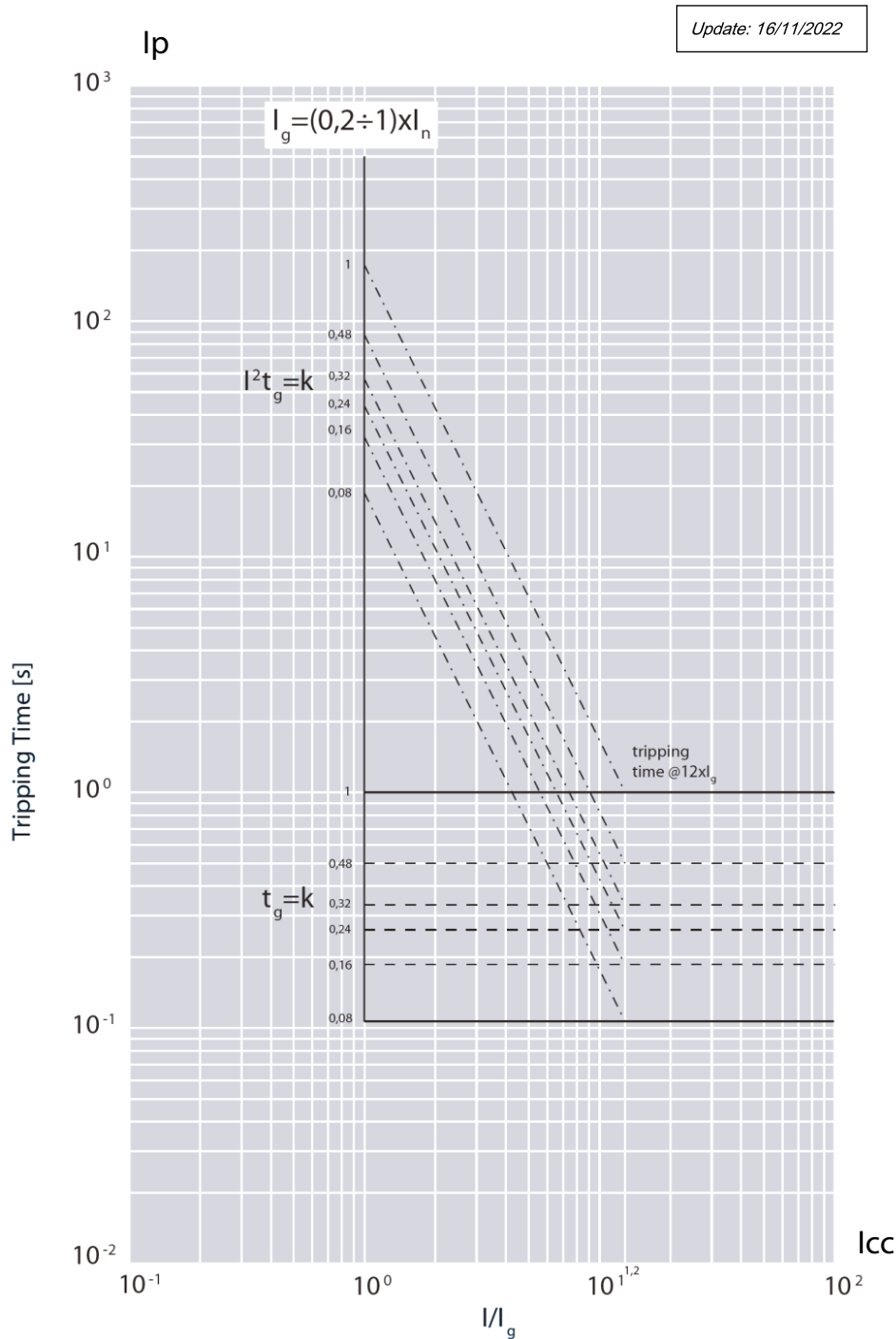
9.3 Tripping curve (3/3)



Value	Description
t	Time
I	Current
I_r	Long time setting current
tr	Long time delay
Isd	Short time setting current
tsd	Short time delay
I_i	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



Icu = 36-50-70-100 kA

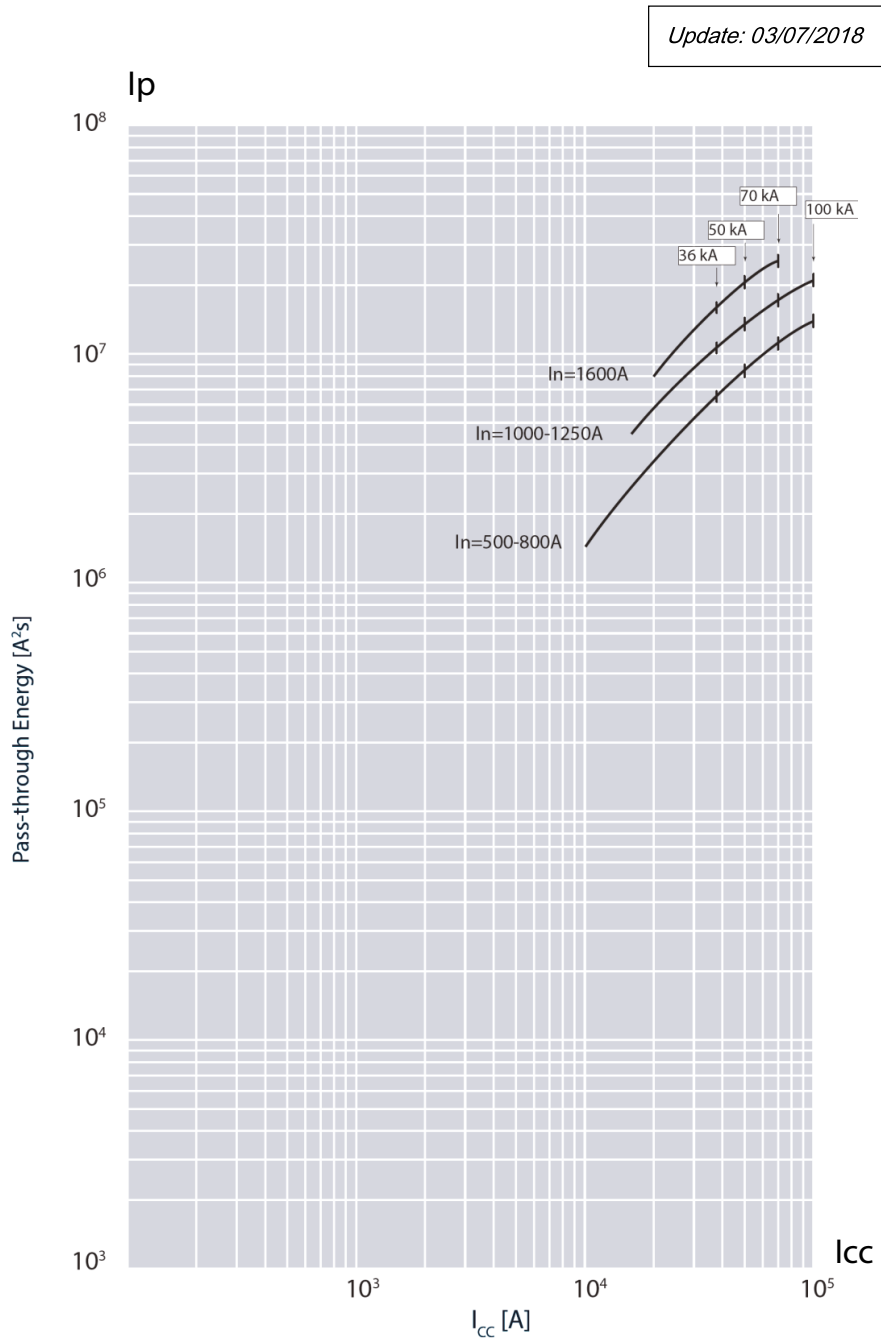
I_{max} = 1600 A

3-4P

Ue = 415 V~ (IEC/EN 60947-2)

9. CURVES (continued)

9.5 Pass-through specific energy characteristic curve

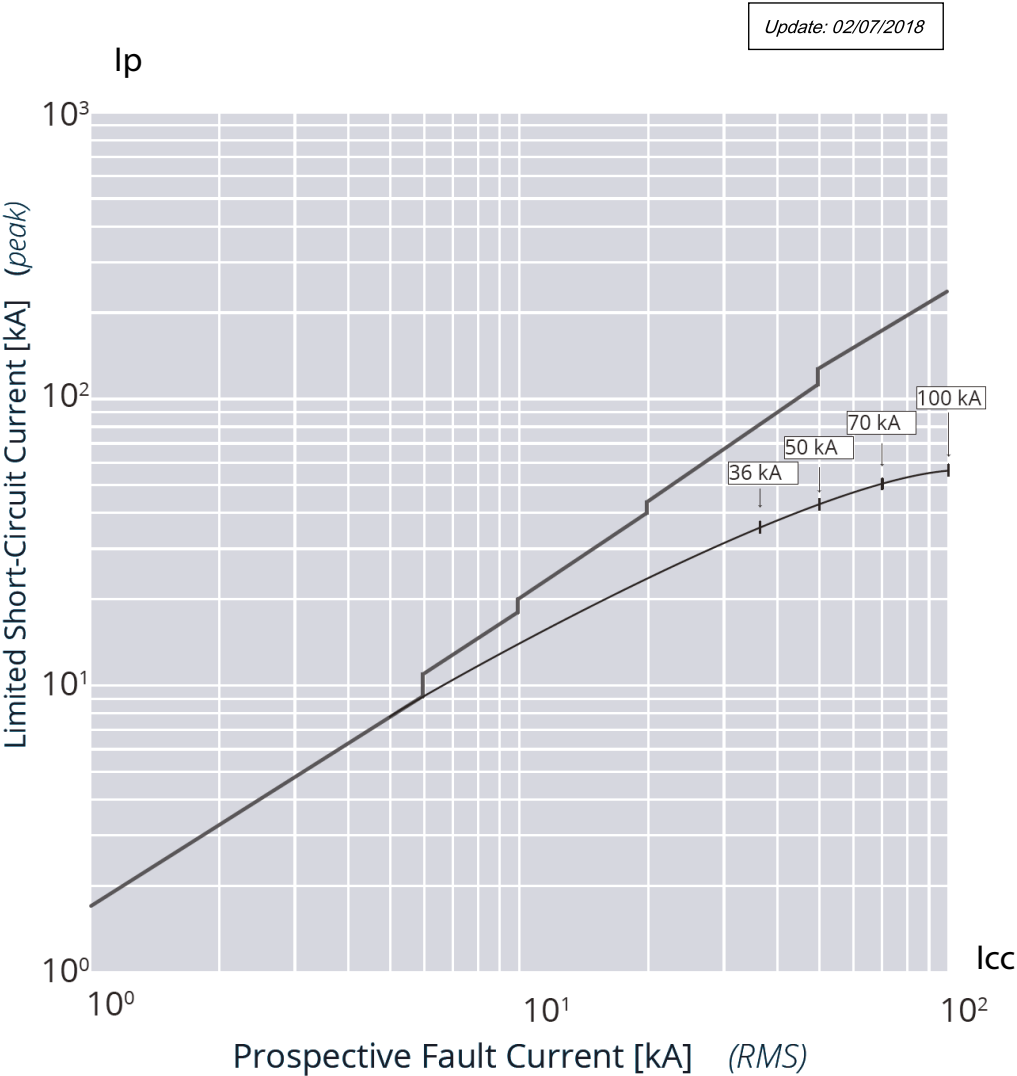


Icu = 36-50-70-100 kA
I_{max} = 1600 A
3-4P
Ue = 415 V~ (IEC/EN 60947-2)

Value	Description
I _{cc}	Short circuit current
I²t (A²s)	Pass-through specific energy

9. CURVES (continued)

■ 9.6 Cut-off peak current characteristic curve (kA)



Icu = 36-50-70-100 kA Imax = 1600 A 3-4P 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 range of product concerning circuit-breakers exceed compliance with the IEC/EN standard 60947-2.

Certification by IECEE CB-scheme or LOVAG Compliance scheme, marks as CCC (China), EAC (Eurasian Federation) or different local certification are available.

DPX³ are in conformity with the Lloyds Shipping Register, RINA and Bureau Veritas Marine.

They respect the European Directives :

RoHS: Compliance with the 2011/65/EU Directive (RoHS), as modified by the 2015/863/EU Delegated Directive, 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 Regulation (1907/2006), if present in the products at a concentration above 0.1% weight by weight, are declared inside the European SCIP database. At the date of publication of this document none of the substance 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 environmental 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.

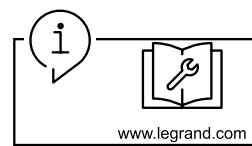
For specific information, please contact Legrand support.

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 and backup / Legrand Selectivity and 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: all mounting information, 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.