

DPX³ 400 - 1000 V \sim Moulded case circuit breaker

Cat.Nos :

4 249 30 - 4 249 31 - 4 249 35 - 4 249 36



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1. USE

DPX³ 400 - 1000 V \sim is a range of moulded case MCCBs for switching, control isolation and protection of low voltage electrical lines. It is suitable for applications that require up to 1000 V \sim . It is available in six ratings, both 3P and 4P, to be equipped with a vast range of accessories. Easy to be installed, it is suitable for professional uses.

The main application for DPX³ 400 - 1000 V \sim are:

- photovoltaic application,
- renewable energy,
- railway installation and tunnel.

2. RANGE

Cat.Nos	In (A)	Poles
4 249 30	320	3P
4 249 31	400	
4 249 35	320	4P
4 249 36	400	

3. TECHNICAL CHARACTERISTICS

■ 3.1 Electrical and mechanical characteristics

Rated current (A)	320 A, 400 A
Poles	3P, 4P
Pole pitch	46.5 mm
Individual pole short-circuit (I_{pn})	4.8 kA
Rated insulation voltage (50/60Hz) U_i	1000 V
Rated operating voltage (50/60Hz) U_e	1000 V
Rated impulse withstand current I_{imp}	8 kV
Rated frequency	50 Hz to 60 Hz
Reference ambient temperature	40 °C
Operating temperature	-25 °C to 70 °C
Mechanical endurance (cycles)	20000
Electrical endurance at I_n (cycles) at 800 V to 1000 V	1000
Utilization category	A
Suitable for isolation	Yes

Type of protection	Thermal-magnetic
Thermal adjustment I_r	(0.8 to 1) x I_n
Magnetic adjustment I_i (A)	(5 to 10) x I_n
Neutral protection for 4P (%Ith of phase pole)	100 %
Reverse feed	Yes

The maximum temperature allowed on power terminals is 125 °C (absolute).

Breaking capacity

U_e	I_{cu} (kA)	I_{cs} (% I_{cu})	I_{cm} (kA)
690 V \sim	85	100 %	187
800 V \sim	50	50 %	105
1000 V \sim	25	50 %	52.5

Rated current (I_n) at 40°C

Phases limit trip current				
Thermal (I_r)			Magnetic (I_i)	
I_n (A)	0.8 x I_n	1 x I_n	Min. (5x I_n)	Max. (10x I_n)
320	256	320	1600	3200
400	320	400	2000	4000

Load operation

Force on handle	N
Opening operation	157
Closing operation	206
Restore operation	196

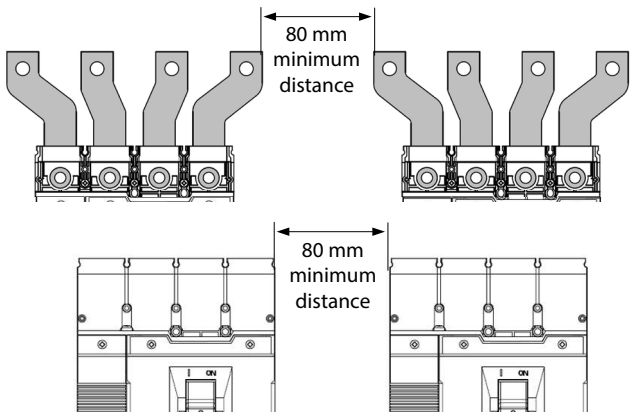
Electrodynamic force

Below table shows an indication of recommended distances to be kept between the breaker and the first fixing point of the conductor and bars, to reduce the effects of the electrodynamic stresses that may occur during short circuit. While designing the anchorage system it is recommended the use of isolators suitable for the selected type of conductor and operating voltage. For all conductor type and bar systems but Legrand's kit, it is the installer that shall define the optimised distance to be kept within below indicated limits. During desing phase, the installer shall consider the conductors' weight, that shall not affect the electrical junction between the conductor itself and the connection point.

The minimum distance to be kept between breakers, and between spreaders if there are any, during installation is 60mm.

3. TECHNICAL CHARACTERISTICS (continued)

■ 3.1 Electrical and mechanical characteristics (continued)



Icc (kA)	Maximum Distance (mm)
25	400
50	300

Power losses per pole (W)

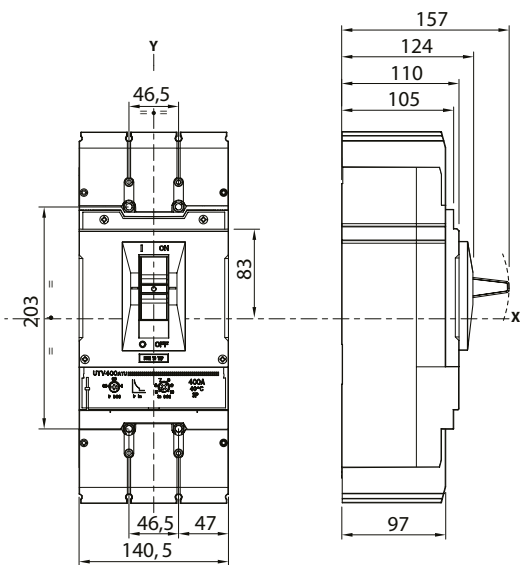
In (A)	320	400
Lugs	20.9	32.6
Cage terminals	22.9	35.7
Spreaders	23	36

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.

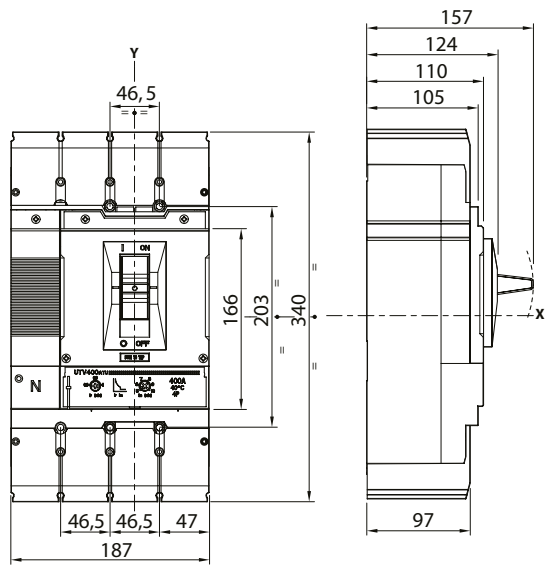
4. DIMENSIONS AND WEIGHT

Dimensions W x H x D (mm)	140 x 340 x 110 (4P)
	187 x 340 x 110 (4P)

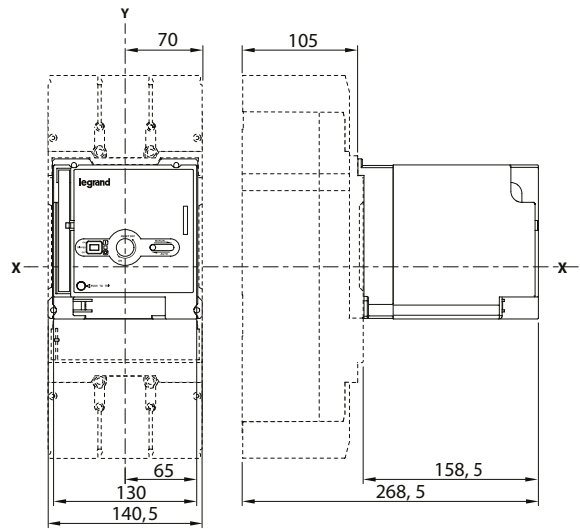
Dimensions without accessories
3P



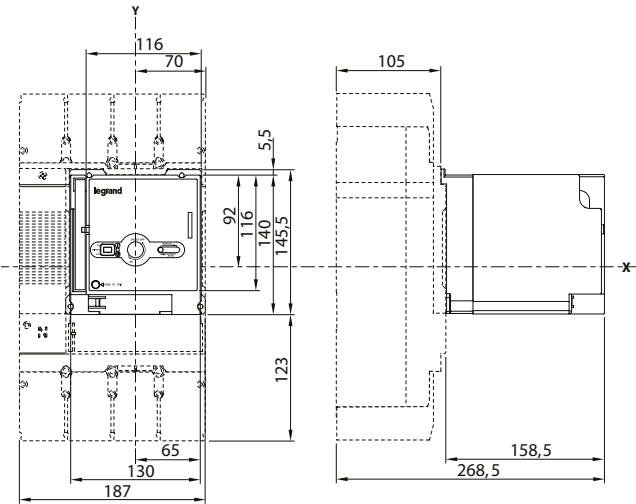
4P



Dimensions with motor operator
3P

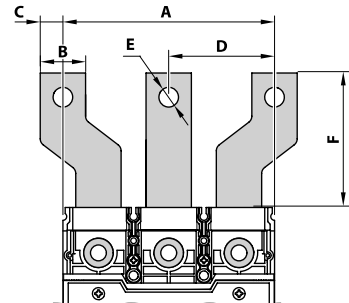


4P

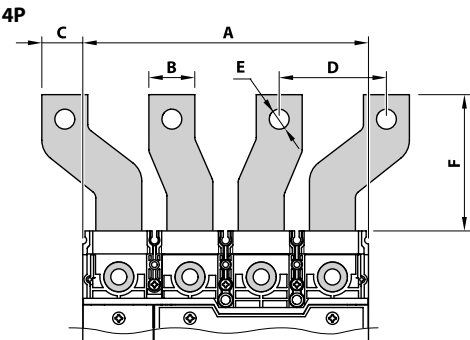


4. DIMENSIONS AND WEIGHT(continued)

Dimensions with spreaders
3P

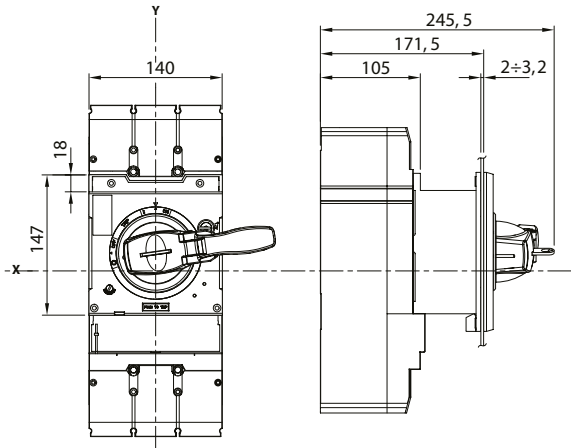


A	B	C	D	E	F
140	30	15	70	13	89

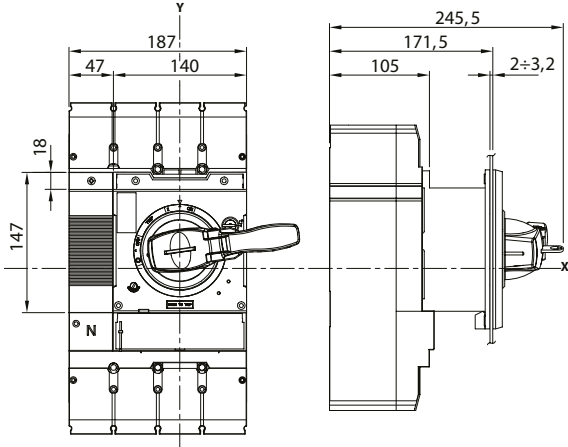


A	B	C	D	E	F
187	30	27	70	13	89

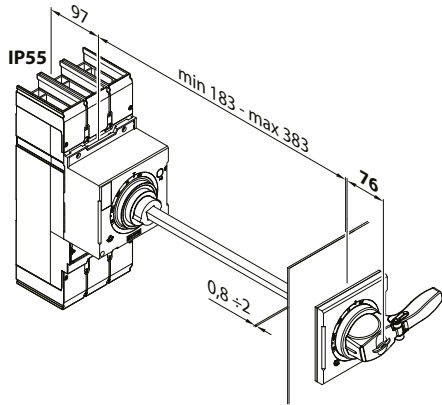
Dimensions with direct rotary handle
3P



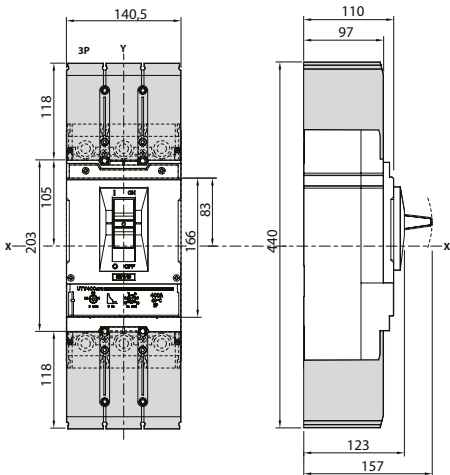
4P



Dimensions with vary depth rotary handle

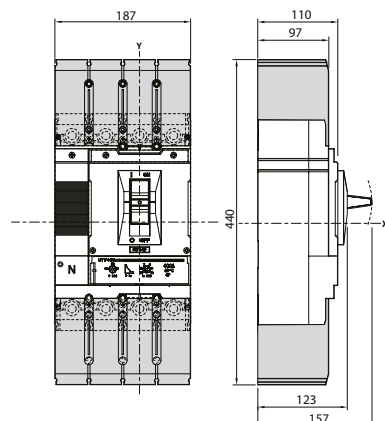


Dimension with terminal shields
3P



4. DIMENSIONS AND WEIGHT(continued)

Dimension with terminal shields (continued) 4P



Weight (kg)

Configuration	3P	4P
Circuit breaker/switch disconnecter	5.1	6.5
Direct rotary handle*	1.1	
Vari depth rotary handle*	1.8	
Spreader*	1.1	1.4

* to add to device weight

5. INSTALLATION RULES

■ 5.1 Deratings

Altitude

Deratings altitude

Altitude (m)	2000	3000	4000	5000
Ue (V)	1000	880	750	690
In (A) (Ta = 40°C)	In	0,98 x In	0,94 x In	0,90 x In

Specific condition use

- Climatic conditions according to IEC/EN 60947-1 Annex Q, Cat. F subject to temperature, humidity, vibration, shock and salt mist.
- Pollution degree for DPX³ 400 1000 V_~ circuit breakers, degree 3, according to IEC/EN 60947-2

Compensated rated current in accordance with ambient temperature (A)

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 current setting depending on the ambient temperature.

I _n (A)	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C	60 °C	70 °C
320	458	435	413	390	367	346	320	304	288	272
400	572	544	516	488	459	432	400	380	360	340

Temperatures

Ambient temperature	30 °C		40 °C		50 °C		60 °C		70 °C	
	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	432	1,08	400	1	380	0,95	360	0,90	340	0,85
Cage terminals, rigid cable	432	1,08	400	1	380	0,95	360	0,90	340	0,85
Lugs, flexible cable	432	1,08	400	1	380	0,95	360	0,90	340	0,85
Lugs, rigid cable	432	1,08	400	1	380	0,95	360	0,90	340	0,85
Lugs, flexible cable and terminal shields	408	1,02	380	0,95	360	0,90	340	0,85	320	0,8
Lugs, rigid cable and terminal shields	408	1,02	380	0,95	360	0,90	340	0,85	320	0,8
Spreaders, flexible cable	432	1,08	400	1	380	0,95	360	0,90	340	0,85
Spreaders, rigid cable	432	1,08	400	1	380	0,95	360	0,90	340	0,85

6. CONNECTION

- Included in packaging:
- Fixing screws with pre-assembled washer (quantity varies if it is 3P or 4P)
 - Phase barriers (top and bottom)
 - Screws and washer for wire/bar connection
 - plastic cover for IP20
 - extended handle

- Possible way of assembly on plate:
- Vertical
 - Horizontal

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

For detailed mounting procedures, see instruction sheet.

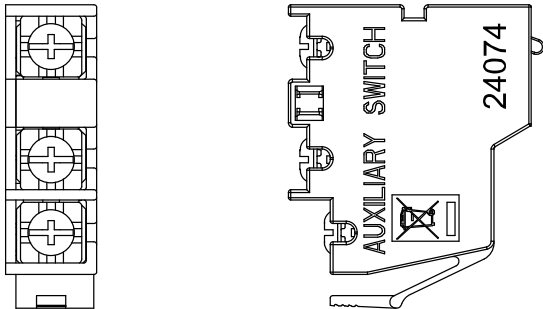
7. EQUIPMENT AND ACCESSORIES

7.1 Auxiliary and alarm contact

Auxiliary contact Cat.No 4 249 50

Auxiliary Contact is compatible with all of DPX³ 400 - 1000 V~ and DPX³ 250 - 1000 V~ products. It indicates the position of the circuit breaker contacts (Open/Closed). Auxiliary switch is for applications requiring remote "ON" and "OFF" indication.

2 auxiliary contacts maximum can be installed in the DPX³ 400 - 1000 V~.



Auxiliary (OC)

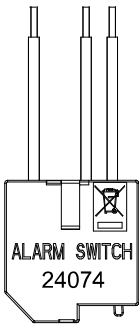
Rated Voltage (V)	Resistance (A)	Inductance (A)
24 V=	4	3
48 V=	1	1
110 V=	0,4	0,4
230 V=	0,2	0,2
110 V~	5	3
230/250 V~	3	2

For other mounting details please refer to auxiliary and alarm contacts instruction sheet.

Alarm contact Cat.No 4 249 51

The alarm contact is compatible with all DPX³ 400 - 1000 V~ and DPX³ 250 - 1000 V~ products. Alarm switches indicate that the circuit breaker has tripped due to an overload, short circuit, shunt trip, or undervoltage trip or the "push-to-trip" button.

1 alarm contact maximum can be installed in the DPX³ 400 - 1000 V~.



Alarm (CTR)

Rated Voltage (V)	Resistance (A)	Inductance (A)
24 V=	1	1
48 V=	1	1
110 V=	0,4	0,4
230 V=	0,2	0,2
110 V~	1	1
230/250 V~	1	1

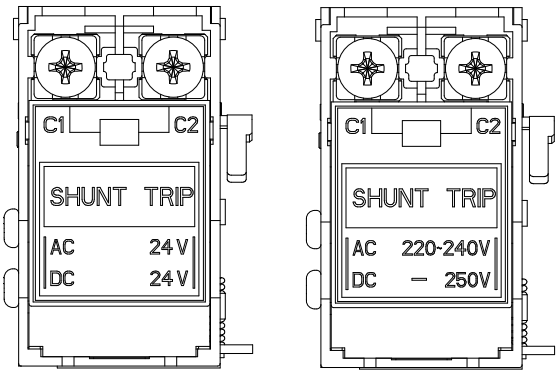
For other mounting details please refer to auxiliary and alarm contacts instruction sheet.

7.2 Releases

Shunt trip

- 24 V~/= Cat.No 4 249 52
230V~/= Cat.No 4 249 53

Both Cat.Nos of shunt trips are compatible with all DPX³ 400 - 1000 V~ and DPX³ 250 - 1000 V~ products. The shunt trip allows remote tripping of DPX³ 400 - 1000 V~, it opens the mechanism in response to an externally applied voltage signal.



Shunt releases electrical characteristics

Cat.Nos	4 249 52	4 249 53
Rated voltage (Uc)	24 V~/=	230 V~/=
Voltage range (%Uc)	70 to 110	70 to 110
Intervention time (ms)	≤ 50	≤ 50
Power consumption (VA/W)	0.58 VA / 0,58 W	1.8 VA / 1,88 W
Maximum opening time (ms)	50	50

For other mounting details please refer to shunt trip and under voltage release instruction sheet.

DPX³ 400 - 1000 V~
Moulded case circuit breaker

Cat.Nos :
4 249 30 - 4 249 31 - 4 249 35 - 4 249 36

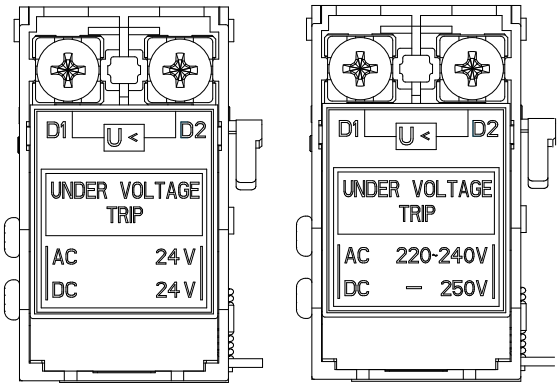
7. EQUIPMENT AND ACCESSORIES (continued)

7.2 Releases (continued)

Under Voltage Release

24 V~/= Cat.No 4 249 54
230 V~/= Cat.No 4 249 55

Under Voltage Release is compatible with all DPX³ 400 - 1000 V~ and DPX³ 250 - 1000 V~ products. It allows remote tripping of DPX³ 400 - 1000 V~, it automatically opens a circuit breaker when voltage drops to a setting value of the line voltage.



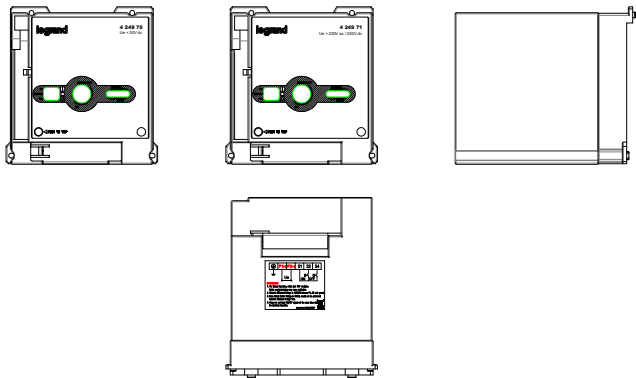
Undervoltage relases electrical characteristics		
Rated voltage (Uc)	24V ~/=	230V ~/=
Voltage range (%Uc)	35 to 70	35 to 70
Intervention time (ms)	≤ 50	≤ 50
Power consumption (VA/W)	0,64 VA / 0,65 W	1,21 VA / 1,35 W
Maximum opening time (ms)	50	50

For other mounting details please refer to shunt trip and under voltage release instruction sheet.

7.3 Motor operators

24 V~/= Cat.No 4 249 70
230 V~/= Cat.No 4 249 71

The motor drives a mechanism which switches DPX³ 400 - 1000V handle to the "ON" and "OFF/RESET" positions. Both Cat.Nos of motor operators are compatible with all DPX³ 400 - 1000 V~ products.

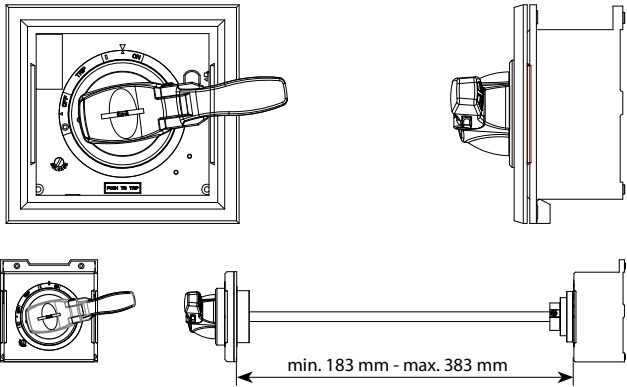


Cat.Nos	4 249 70		4 249 71			
Type	Direct drive		Direct drive			
Rated operating voltage (Ue) ~/=	24 V=		220 V=		230 V~ 50 - 60 Hz	
Voltage range (%Ue)	85 to 110		85 to 110		85 to 110	
	Ope-ning	Clo-sing	Ope-ning	Clo-sing	Ope-ning	Clo-sing
Pick-up consumption (W / VA)	246	255	113	123	455	430
Hold consumption (W / VA)	44,7	40,2	45	45	60	75
Operating time / complete electric operation (ms)	780	665	730	650	705	630
Operating time / main contacts change position (ms)	385	460	355	440	345	430
Mechanical endurance (O-C cycles)	10000		10000		10000	
Cycles / minutes	2		2		2	

7.4 Rotary handles

Direct rotary handle Cat.No 4 249 72
Vary depth rotary handle Cat.No 4 249 73

Direct rotary handle (with embedded flat random key keylock) Cat.No 4 249 72 and vary depth rotary handle Cat.No 4 249 73 are both compatible with all DPX³ 400 - 1000 V~ products.



For mounting details, see instruction sheets for Cat.No 4 249 72/73.

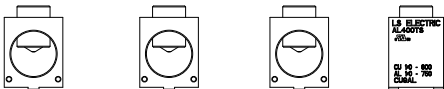
7. EQUIPMENT AND ACCESSORIES (continued)

7.5 Connection accessories

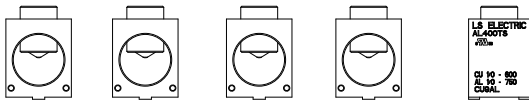
Cage terminals

Cage terminals allow connection to the DPX³ 400 -1000 V~ for both copper and aluminium wires.
240 mm² (flexible) - 300mm² (rigid) (Cu) / 300mm² (Al)

Set of 3 pcs (for 3P) Cat.Nos 4 249 74
Compatible with all 3P DPX³ 400 - 1000 V~ products.



Set of 4 pcs (for 4P) Cat.Nos 4 249 75
Compatible with all 4P DPX³ 400 - 1000 V~ products.



Type of cage terminal	Cable standard suggested cross-section (mm ²)*		
	In (A)	Cu	Al
Cage Terminals Cat.Nos 4 249 74 / 4 249 75	320	185	240
	400	240	300

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

Dimensions limits of cable for cage terminals	Min cross-section (mm ²)		Max cross-section (mm ²)	
	Flexible	Rigid	Flexible	Rigid
	50	50	240	300

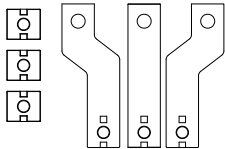
Note : when the cross-section exceeds the maximum value specified for the material in the table, the allowable current is limited to the indicated value.

For the mounting and the tools needed, see instruction sheet.

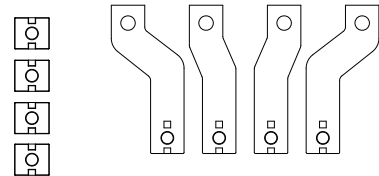
Spreader

Spreaders for DPX³ 400 - 1000 V~ allow to increase the distance between cables.

Spreaders for 3P Cat.No 4 249 76
Compatible with all 3P DPX³ 400 - 1000 V~



Spreaders for 4P Cat.No 4 249 77
Compatible with all 4P DPX³ 400 - 1000 V~

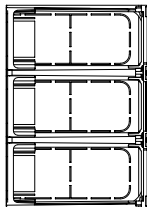
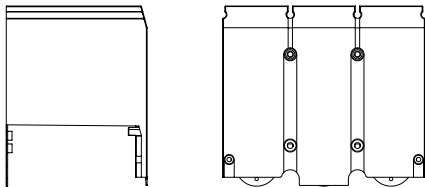


7.6 Mechanical accessories

Terminal cover

Terminal cover guarantees IP 40 on front once installed.
Terminal covers cannot be installed if spreaders are assembled on the breakers.

Terminal covers for 3P Cat.No 4 249 78
Terminal cover compatible with all 3P DPX³ 400 - 1000 V~



DPX³ 400 - 1000 V~
Moulded case circuit breaker

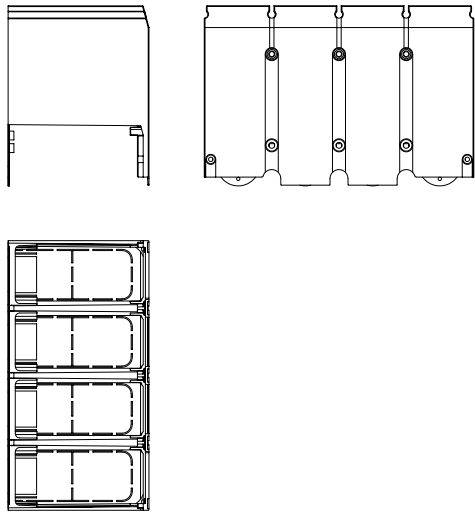
Cat.Nos :
4 249 30 - 4 249 31 - 4 249 35 - 4 249 36

7. EQUIPMENT AND ACCESSORIES (continued)

7.6 Mechanical accessories (continued)
Terminal cover (continued)

Terminal covers for 4P
Terminal cover compatible with all 4P DPX³ 400 - 1000 V~

Cat.No 4 249 79

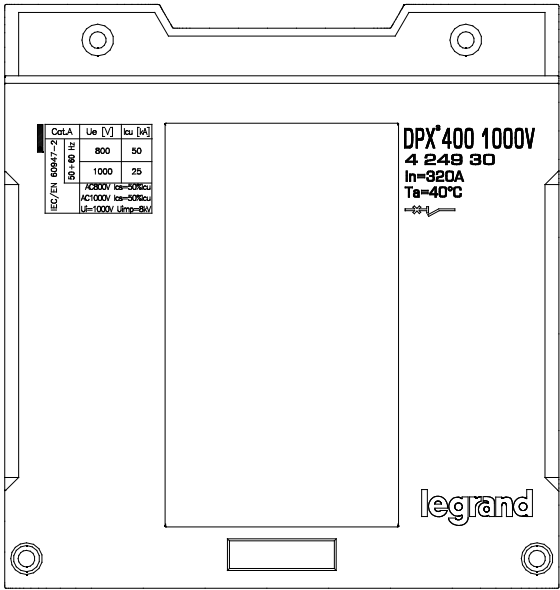


8. MARKING

Legrand DPX³ 400 - 1000 V~ circuit breakers are provided with labelling in full conformity to the referred standard and directives requirements. There are two types of label: laser or sticker (for illustrative purposes only):

Product laser label on front

- Manufacturer responsible
- Denomination, type product, code
- Standard conformity
- Standard characteristics declared

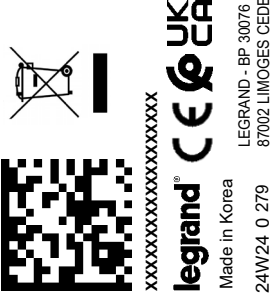


Product sticker label on side

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

4 249 30

DPX3 400 1000V 3P
In=320A
Icu=25kA at 1000V



Packaging sticker label

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

1 DPX³ 1000V



Made in Korea

LEGRAND - Pro and Consumer Service - BP 30076
87002 LIMOGES CEDEX FRANCE - www.legrand.com



3414972885065 279 25W14

4 249 30

- Disjoncteur
- MCCB
- Interruptores automáticos
- Автоматический выкл.
- 塑料外壳式断路器
- قاطع الدارة
- In=320A 3P Icu 25kA
400 1000V
IEC/EN 60947-2

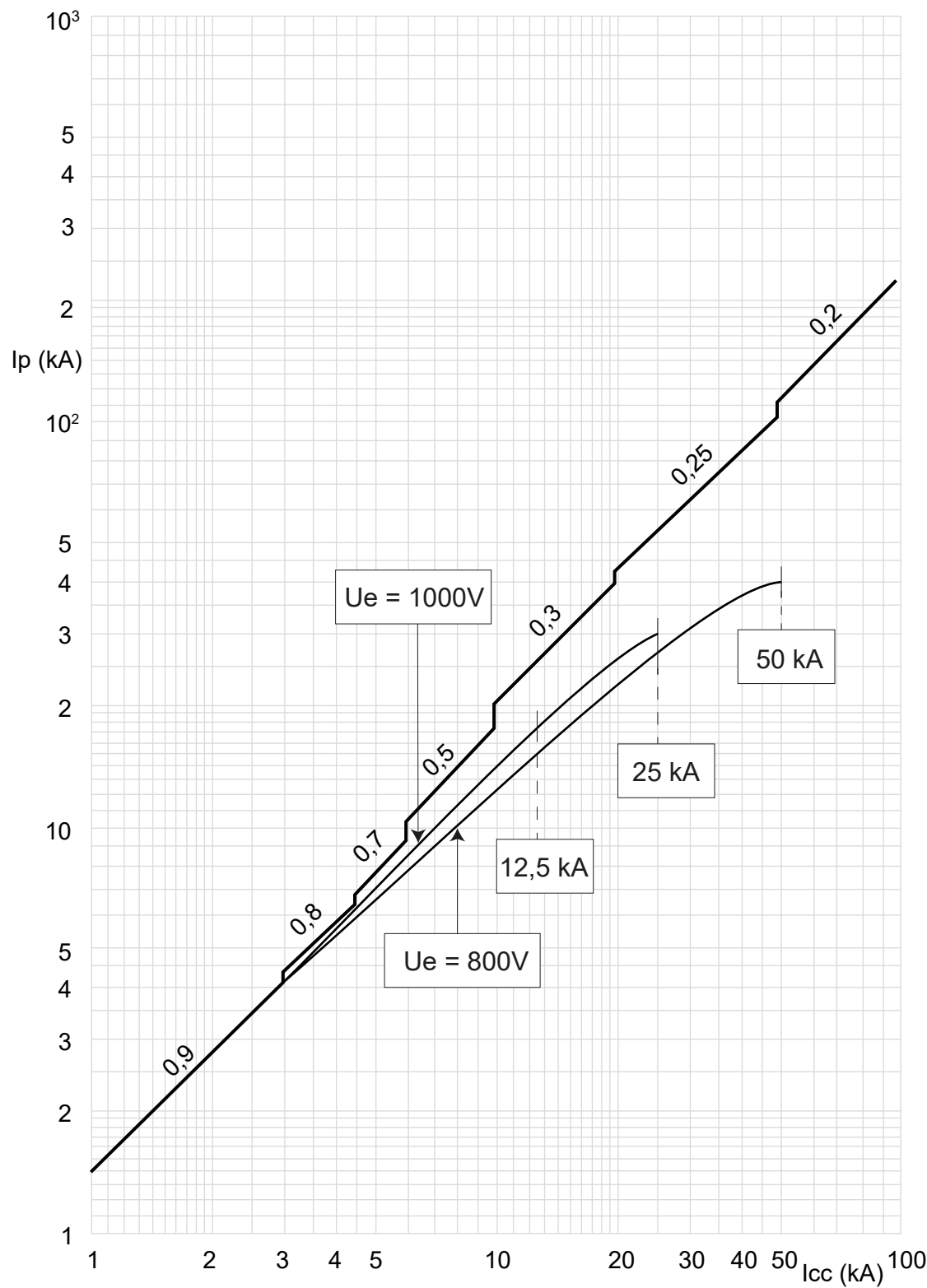


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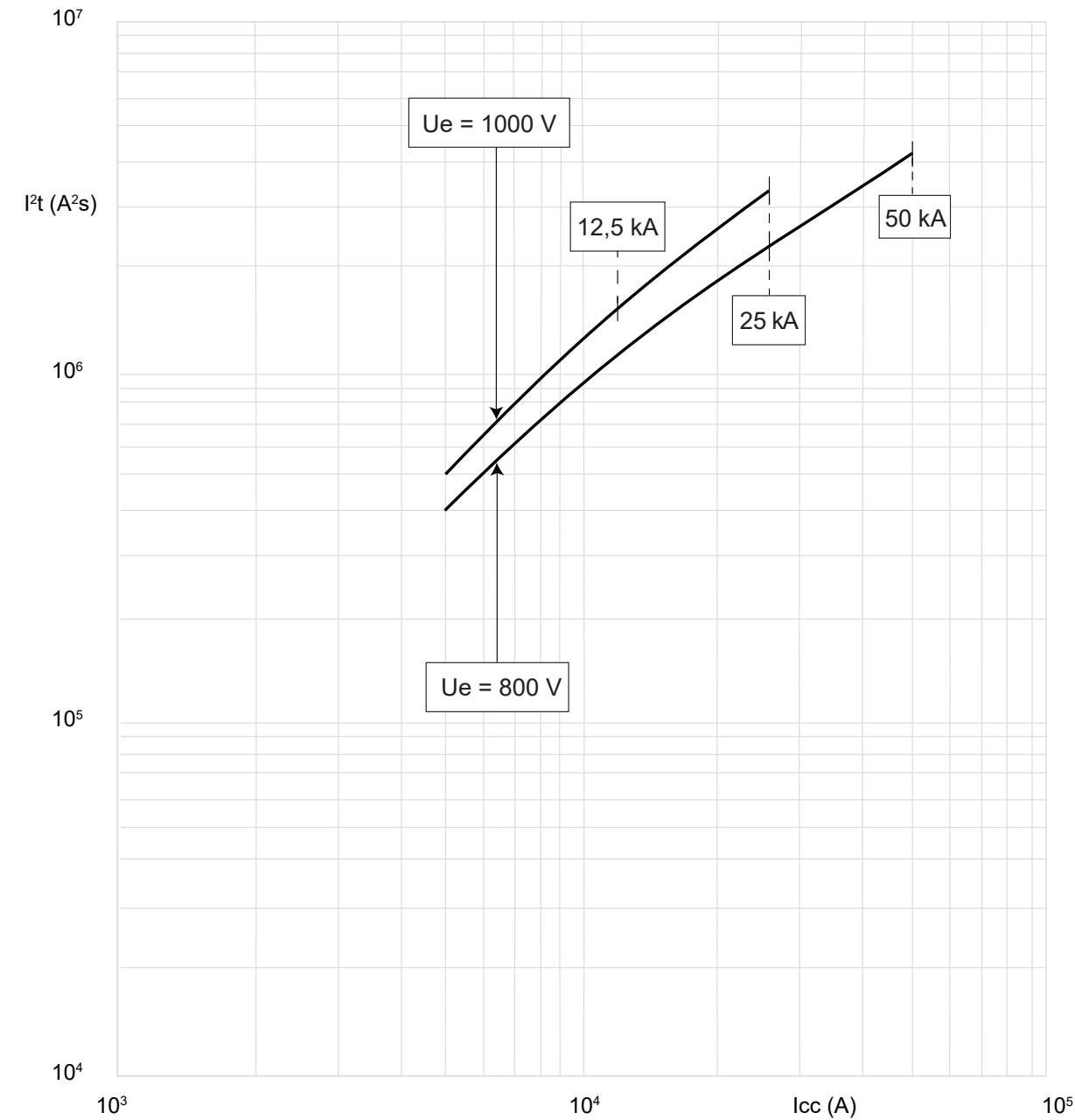
9. CURVES

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



9. CURVES (continued)

9.2 Pass-through specific energy characteristic curve

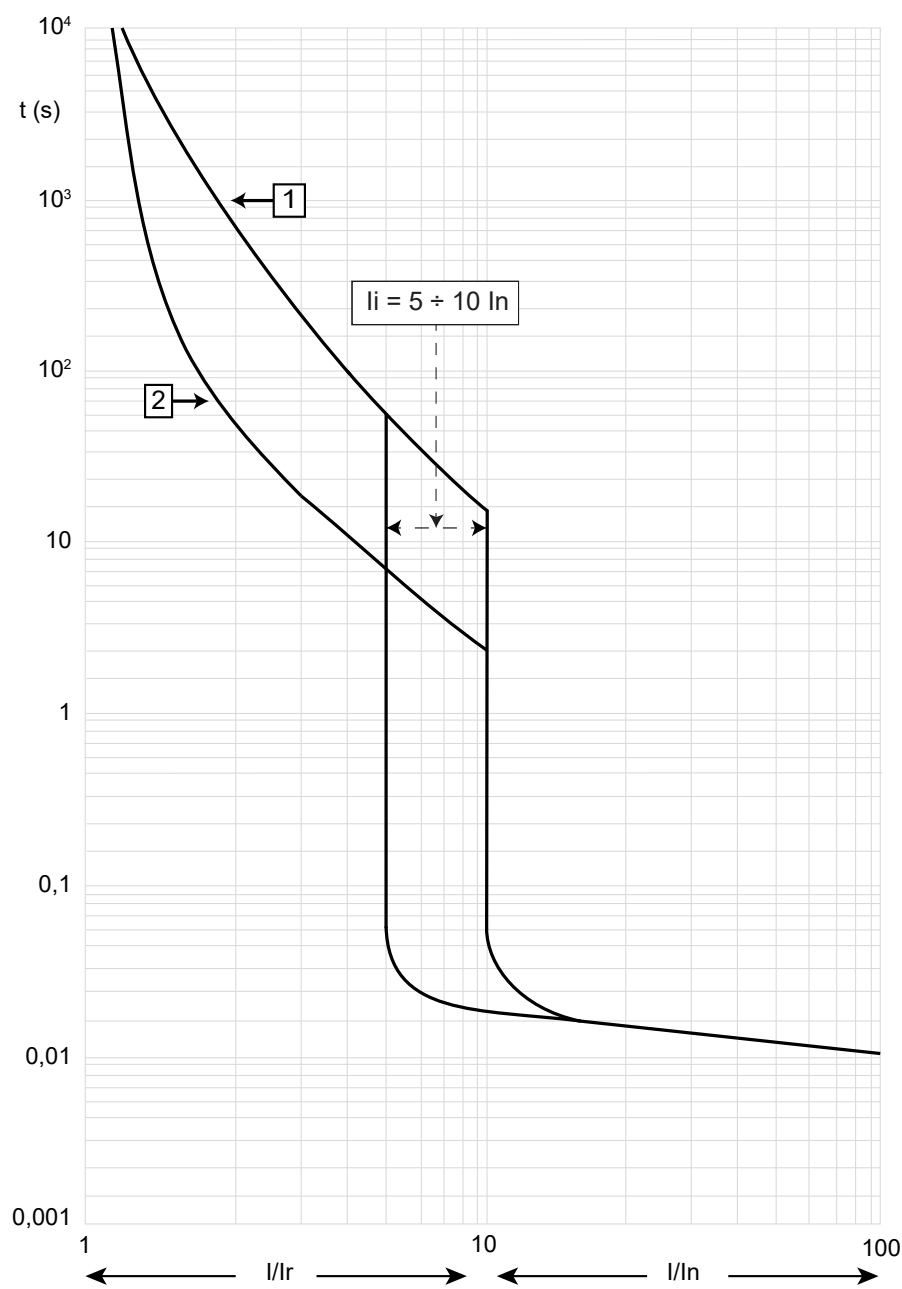


1 : Upper tripping limits

2 : Lower tripping limits

9. CURVES (continued)

9.3 Tripping curve



10. STANDARDS AND REGULATIONS

DPX³ 400 - 1000 V_~ are compliant with IEC 60947-1 and 60947-2 standards. The range respects 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.

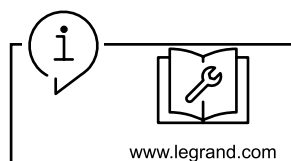
For specific information, please contact Legrand support.

11. OTHER INFORMATION

XLPro 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.

XLPro4 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.



Instruction sheets : 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.