

DPX³ 250 - 1000 V~ Moulded case circuit breaker

Cat.Nos : 4 249 00 - 4 249 01 - 4 249 02 - 4 249 03
4 249 04 - 4 249 05 - 4 249 10 - 4 249 11
4 249 12 - 4 249 13 - 4 249 14 - 4 249 15



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1. USE

DPX³ 250 - 1000 V~ 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~. 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 250 - 1000 V~ are:

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

2. RANGE

Cat.Nos	I _n	Poles
4 249 00	63	3P
4 249 01	80	
4 249 02	100	
4 249 03	160	
4 249 04	200	
4 249 05	250	4P
4 249 10	63	
4 249 11	80	
4 249 12	100	
4 249 13	160	
4 249 14	200	
4 249 15	250	

3. TECHNICAL CHARACTERISTICS

■ 3.1 Electrical and mechanical characteristics

Rated current	63 A, 80 A, 100 A, 160 A, 200 A, 250 A
Poles	3P, 4P
Pole pitch	35 mm
Rated insulation voltage (50/60Hz) U _i	1000 V
Rated operating voltage (50/60Hz) U _e	1000 V
Rated impulse withstand current U _{imp}	8 kV

Rated frequency (Hz)	50 Hz - 60 Hz
Reference ambient temperature	40 °C
Operating temperature	-25 °C to 70 °C
Mechanical endurance (cycles)	20000
Electrical endurance at I _n at 800 V to 1000 V (cycles)	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)	10 x I _n (frame 63 A and 80 A) (5 to 10) x I _n from 100 A up to 250 A
Neutral protection for 4P (%th 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)
800 V~	40	75%	84
1000 V~	20	50%	40

Rated current (I_n) at 40°C

Phases limit trip current				
I _n (A)	Thermal (I _r)		Magnetic (I _i)	
	0.8 x I _n	1 x I _n	Min. (5xI _n)	Max. (10xI _n)
63	50,4	63	/	630 fixed
80	64	80	/	800 fixed
100	80	100	500	1000
160	128	160	800	1600
200	160	200	1000	2000
250	200	250	1250	2500

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3. TECHNICAL CHARACTERISTICS (continued)

3.1 Electrical and mechanical characteristics (continued)

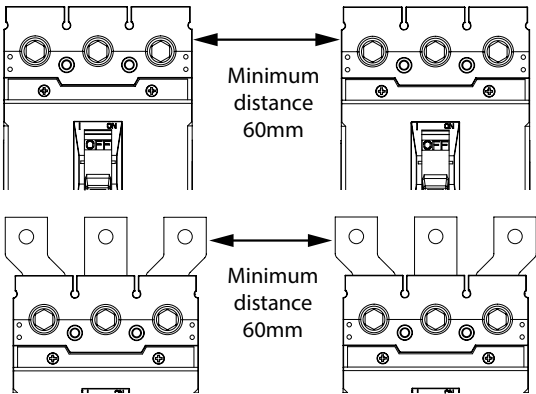
Load operation

Force on handle	N
Opening operation	53,7
Closing operation	121,4
Restore operation	96,1

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 recommend 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.



Icc (kA)	Maximum Distance (mm)
20	400
40	300

Power losses per pole (W)

In (A)	63	80	100	160	200	250
Lugs	10,8	8,2	9	14,0	17	24,4
Cage terminals	11,9	9	9,8	15,3	18,8	26,7
Spreaders	12	9,1	10	15,5	19,0	27,1

Note: power losses in the table above are referred and measured as described in the standard IEC 60947-2 (Annex G) for circuit-breakers. Values in the table are referred to a single phase.

3.2 Dimensions and weight

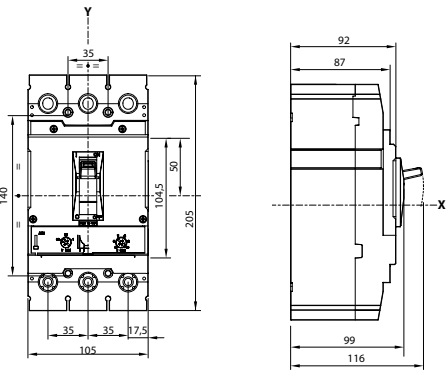
Dimensions W x H x D (mm)	105 x 205 x 92 (3P)
	140 x 205 x 92 (4P)

Weight (kg)

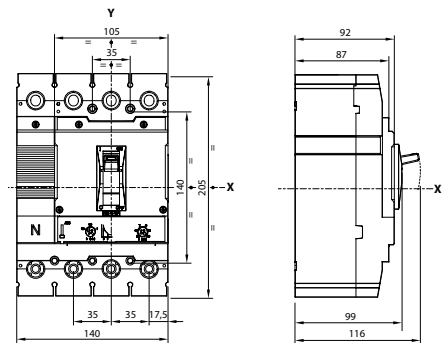
Configuration	3P	4P
Circuit breaker/switch disconnecter	2.2	2.88
Direct rotary handle*	0.34	
Vari depth rotary handle*	0.57	
Spreader*	0.16	0.21

* to add to device weight

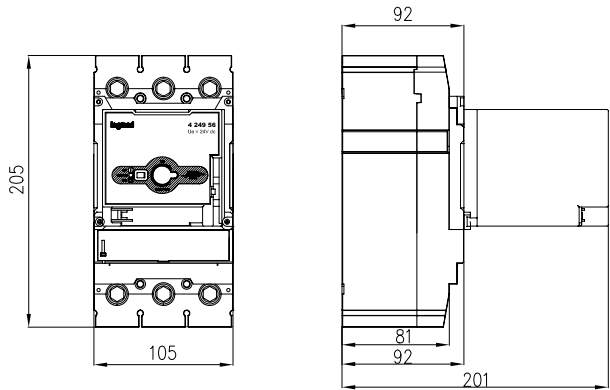
Dimensions without accessories
3P



4P



Dimensions with motor operator
3P



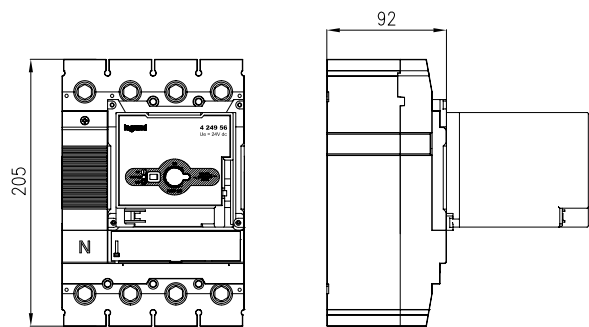
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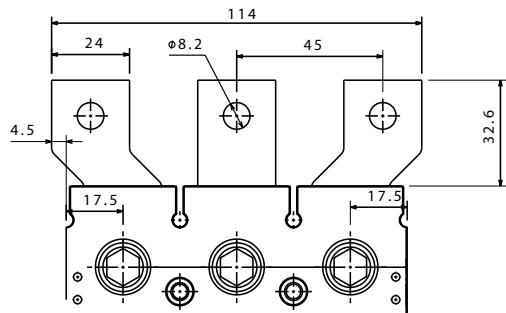
3. TECHNICAL CHARACTERISTICS (continued)

3.2 Dimensions and weight (continued)

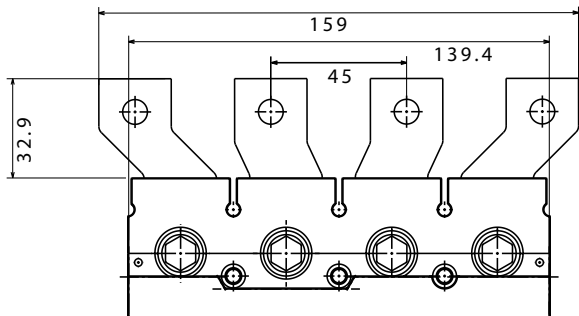
4P



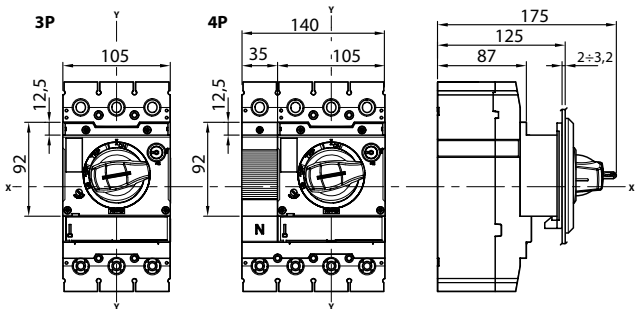
Dimensions with spreaders
3P



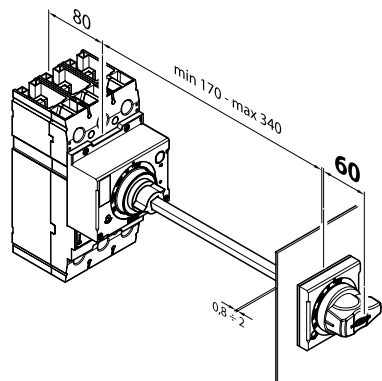
4P



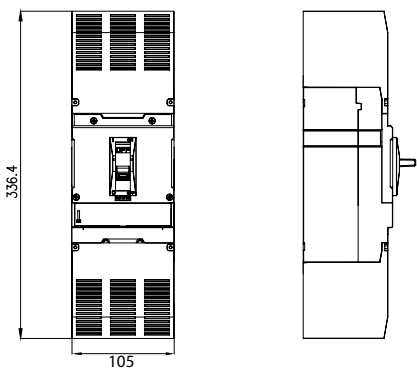
Dimensions with direct rotary handle



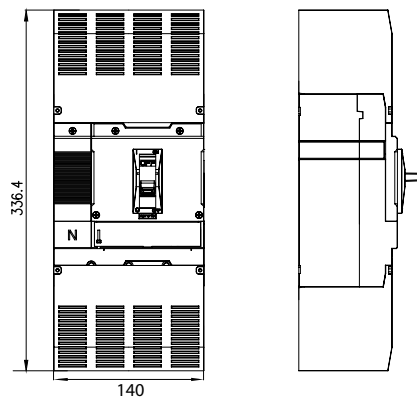
Dimensions with vary depth rotary handle



Dimension with terminal shields
3P



4P



4. INSTALLATION RULES

4.1 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	0,9 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 250 - 1000V~ circuit breakers, degree 3, according to IEC/EN 60947-2.

4. INSTALLATION RULES (continued)

■ 4.1 Deratings (continued)

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
63	90	86	81	77	72	68	63	60	57	54
80	114	109	103	98	92	86	80	76	72	68
100	143	136	129	122	115	108	100	95	90	85
160	229	218	206	195	184	173	160	152	144	136
200	286	272	258	244	230	216	200	190	180	170
250	358	340	322	305	287	270	250	238	225	213

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	270	1,08	250	1	238	0,95	225	0,90	213	0,85
Cage terminals, rigid cable	270	1,08	250	1	238	0,95	225	0,90	213	0,85
Lugs, flexible cable	270	1,08	250	1	238	0,95	225	0,90	213	0,85
Lugs, rigid cable	270	1,08	250	1	238	0,95	225	0,90	213	0,85
Lugs, flexible cable and terminal shields	255	1,02	238	0,95	225	0,90	213	0,85	200	0,80
Lugs, rigid cable and terminal shields	255	1,02	238	0,95	225	0,90	213	0,85	200	0,80
Spreaders, flexible cable	270	1,08	250	1	238	0,95	225	0,90	213	0,85
Spreaders, rigid cable	270	1,08	250	1	238	0,95	225	0,90	213	0,85

5. MOUNTING

Possible way of assembly on plate:

- Vertical
- Horizontal

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

For other mounting details please refer to breaker instruction sheet.

6. CONNECTIONS

It is possible to use :

- busbars;
 - lugs;
 - spreaders;
 - cage terminals;
- to ensure the circuit breaker's connection.

For detailed mounting procedures, see instruction sheet.

7. ACCESSORIES

■ 7.1 Auxiliary and alarm contact

Auxiliary contact (Cat.No 4 249 50)

Auxiliary Contact is compatible with all 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.

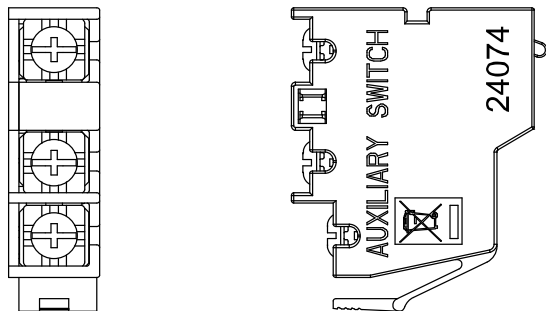
2 auxiliary contacts maximum can be installed in the DPX³ 250 - 1000 V~.

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7. ACCESSORIES (continued)

■ 7.1 Auxiliary and alarm contact (continued)



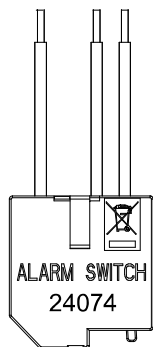
Auxiliary (OC)		
Rated Voltage (V)	Resistance (A)	Inductance (A)
24 V=	4	3
48 V=	1	1
110 V=	0,4	0,4
230 V=	0,2	0,2
110 V~	5	3
230/250 V~	3	2

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 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 250 - 1000 V~.



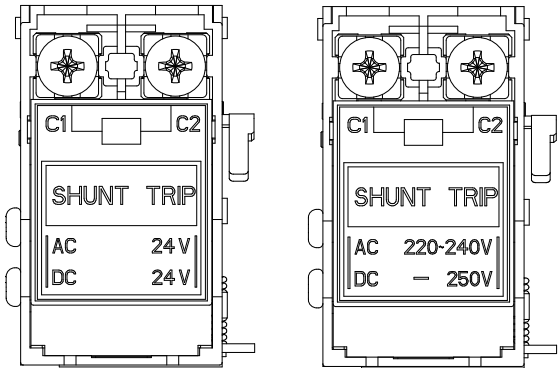
Alarm (CTR)		
Rated Voltage (V)	Resistance (A)	Inductance (A)
24 V=	1	1
48 V=	1	1
110 V=	0,4	0,4
230 V=	0,2	0,2
110 V~	1	1
230/250 V~	1	1

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

■ 7.2 Releases

Shunt trip (Cat.Nos 4 249 52/ 4 249 53)

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

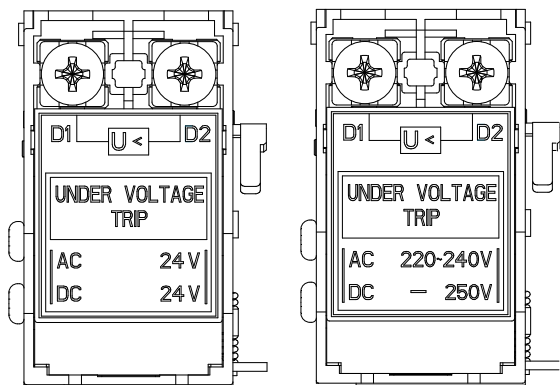


Shunt releases electrical characteristics		
Cat.Nos	4 249 52	4 249 53
Rated voltage (Uc)	24 V~/=	230 V~/=
Voltage range (%Uc)	70 to 110	70 to 110
Intervention time (ms)	≤ 50	≤ 50
Power consumption (VA/W)	0,58 VA / 0,58 W	1,8 VA / 1,88 W
Maximum opening time (ms)	50	50

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

Under Voltage Release (Cat.Nos 4 249 54/ 4 249 55)

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



Undervoltage releases 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.

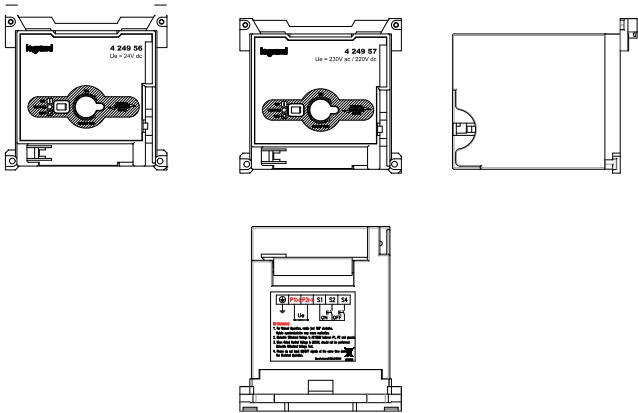
DPX³ 250 - 1000 V~
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4 249 12 - 4 249 13 - 4 249 14 - 4 249 15

7. ACCESSORIES (continued)

7.3 Motor operators (Cat.Nos 4 249 56/ 4 249 57)

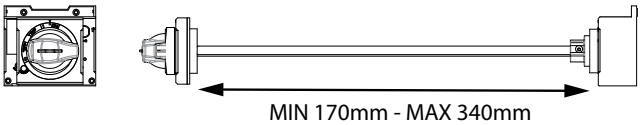
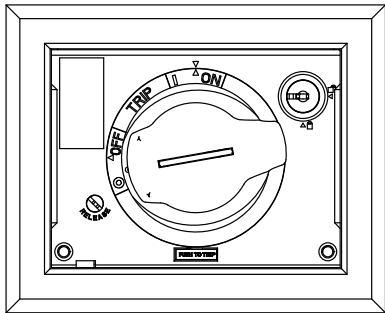
Motor Operator is compatible with all DPX³ 250 - 1000 V~ products.



Cat.Nos	4 249 56		4 249 57			
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	
	Open- ing	Clo- sing	Open- ing	Clo- sing	Open- ing	Clo- sing
Pick-up consumption (W / VA)	70	72	85	85	355	295
Hold consumption (W / VA)	20,4	21,2	33	33	53	46
Operating time / complete electric operation (ms)	240	560	220	520	220	520
Operating time / main contacts change position (ms)	210	370	190	350	190	350
Mechanical endurance (O-C cycles)	20000		20000		20000	
Cycles / minutes	2		2		2	

7.4 Rotary handles (Cat.Nos 4 249 58/4 249 59)

Direct rotary handle (with embedded flat random key keylock)
Cat.No 4 249 58 and Vary Depth Rotary handle Cat.No 4 249 59 are both compatible with all DPX³ 250 - 1000 V~ products.



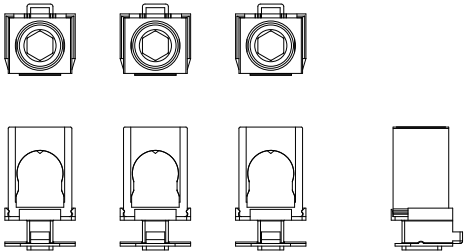
See instructions sheet for Direct Rotary handle Cat.No 4 249 58
See instructions sheet for Vary Depth Rotary handle Cat.No 4 249 59

7.5 Connection accessories

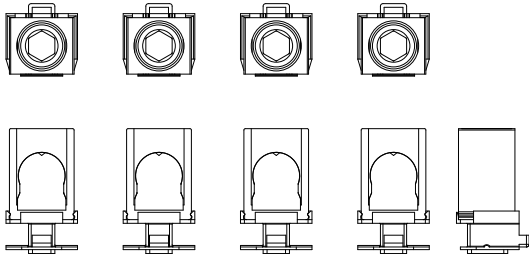
Cage terminals (Cat.Nos 4 249 61/ 4 249 66)

Cage terminals allow connection to the DPX³ 250 -1000 V~ for both Copper and Aluminium wires.
120 mm² (flexible) -150mm² (rigid) (Cu) / 150mm² (Al)

- Cat.No 4 249 61:
Cage Terminals 3P - set of 3 pcs
Compatible with all 3P DPX³ 250 - 1000 V~ products



- Cat.No 4 249 66:
Cage Terminals 4P - set of 4 pcs
Compatible with all 4P DPX³ 250 - 1000 V~ products



Type of cage terminal	Cable standard suggested cross-section (mm ²)*		
	In (A)	Cu	Al
Cage Terminals Cat.Nos 4 249 61 / 4 249 66	63	16	/
	80	25	/
	100	35	/
	160	70	120
	200	95	150
	250	120	150

Dimensions limits of cable for cage terminals	Min cross-section (mm ²)		Max cross-section (mm ²)	
	Flexible	Rigid	Flexible	Rigid
	16	95	120	150

*The suggested cross-section are in compliance with standard IEC60947-1 (ed.6 2020/04) and IEC60947-2 (ed.5.1 2019/07).
For the mounting and the tools needed, see breaker instruction sheet.

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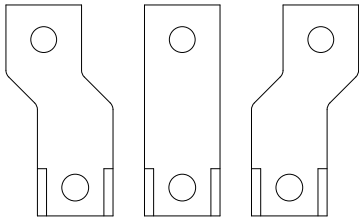
7. ACCESSORIES (continued)

7.5 Connection accessories (continued)

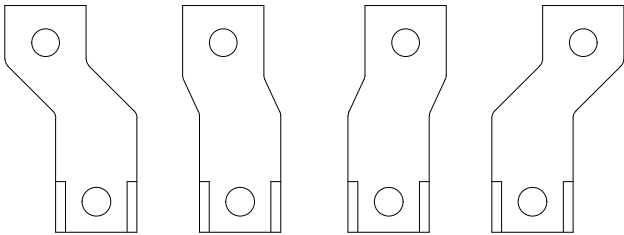
Spreader (Cat.Nos 4 249 62/4 249 63)

Spreaders for DPX³ 250 - 1000 V~ allow to increase the distance between cables.

- Cat.No 4 249 62:
Spreaders 3P
Compatible with all 3P DPX³ 250 - 1000 V~



- Cat.No 4 249 63:
Spreaders 4P
Compatible with all 4P DPX³ 250 - 1000 V~

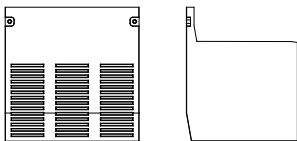


7.6 Mechanical accessories

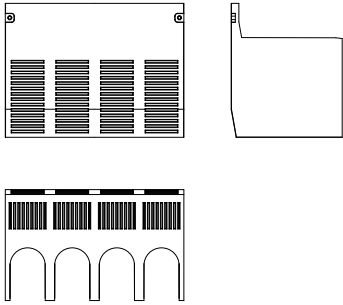
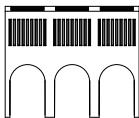
Terminal cover (Cat.Nos 4 249 64/ 4 249 65)

Terminal cover guarantees IP 30 on front once installed.
Terminal covers cannot be installed if spreaders are assembled on the breakers.

- Cat.No 4 249 64
Terminal cover compatible with all 3P DPX³ 250 - 1000 V~

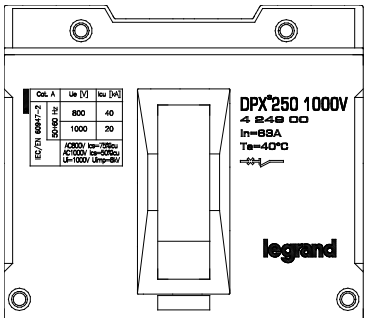


- Cat.No 4 249 65
Terminal cover compatible with all 4P DPX³ 250 - 1000 V~



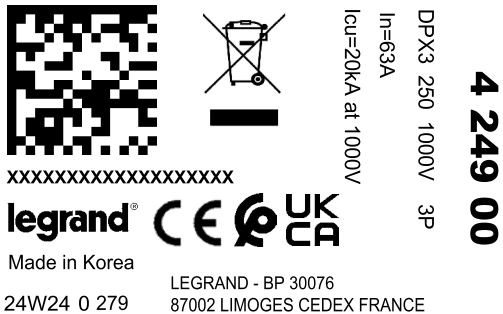
8. MARKING

- Laser marking on front cover



The marking is manufacturer responsible, it includes : product laser label on front, denomination (type product, code), standard conformity, standard characteristics declared.

- Product sticker label on side



The marking is manufacturer responsible, it includes : denomination and type product, standard conformity, mark/licence, directive requirements, QR code identification product, manufacturing country.

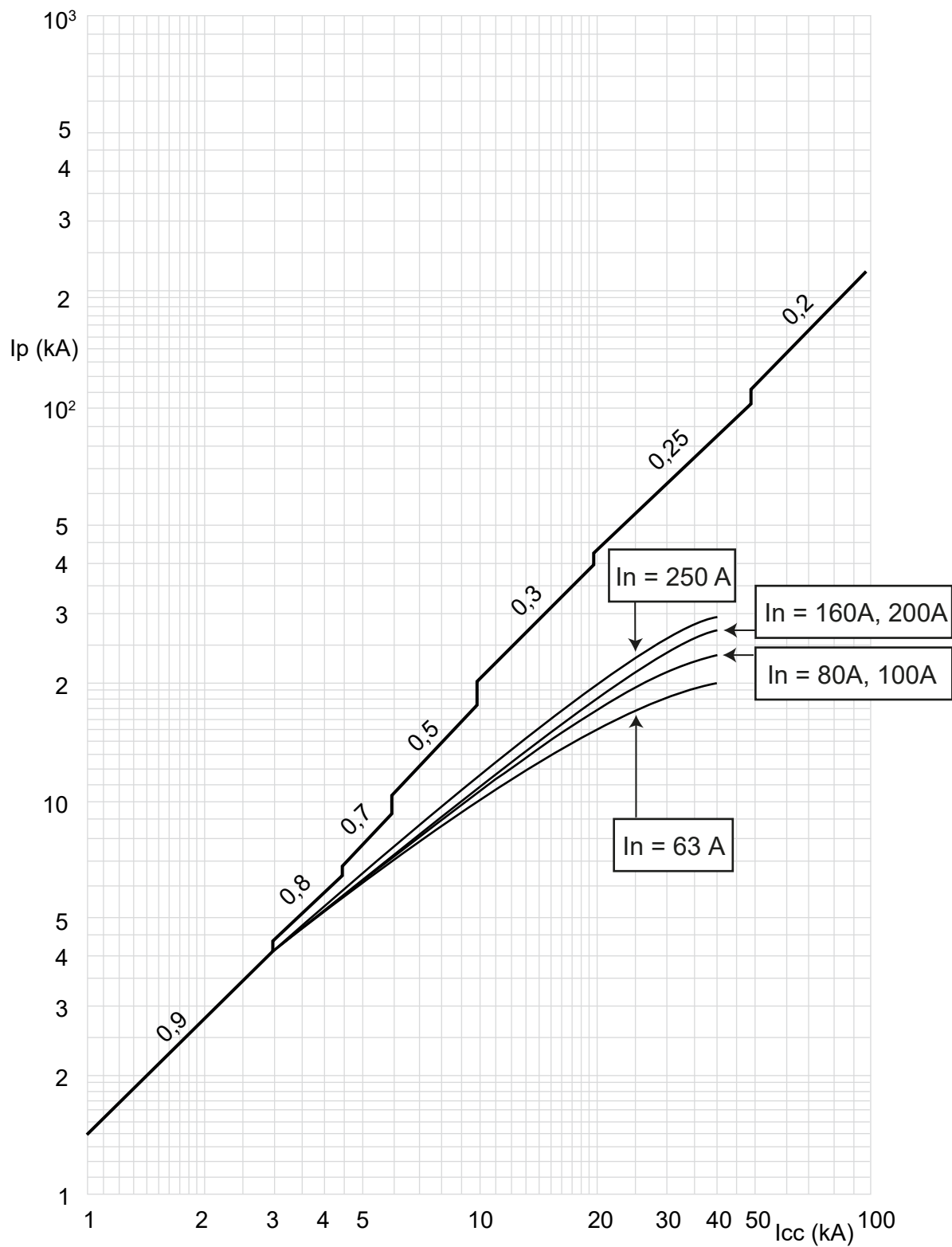
- Packaging sticker label



The marking is manufacturer responsible, it includes : denomination and type product, standard conformity, mark/licence, directive requirements, bar code identification product.

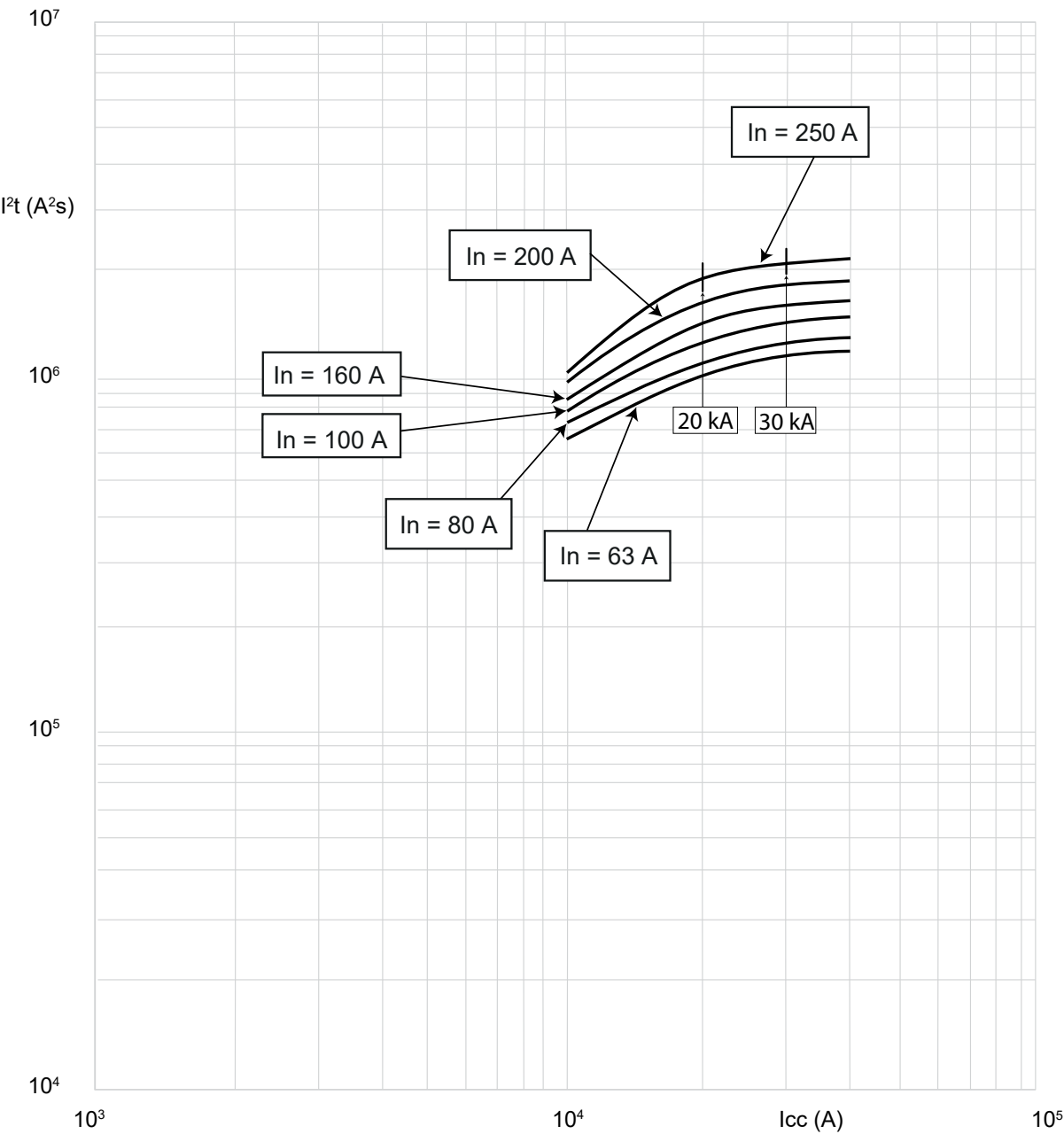
9. CURVES

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



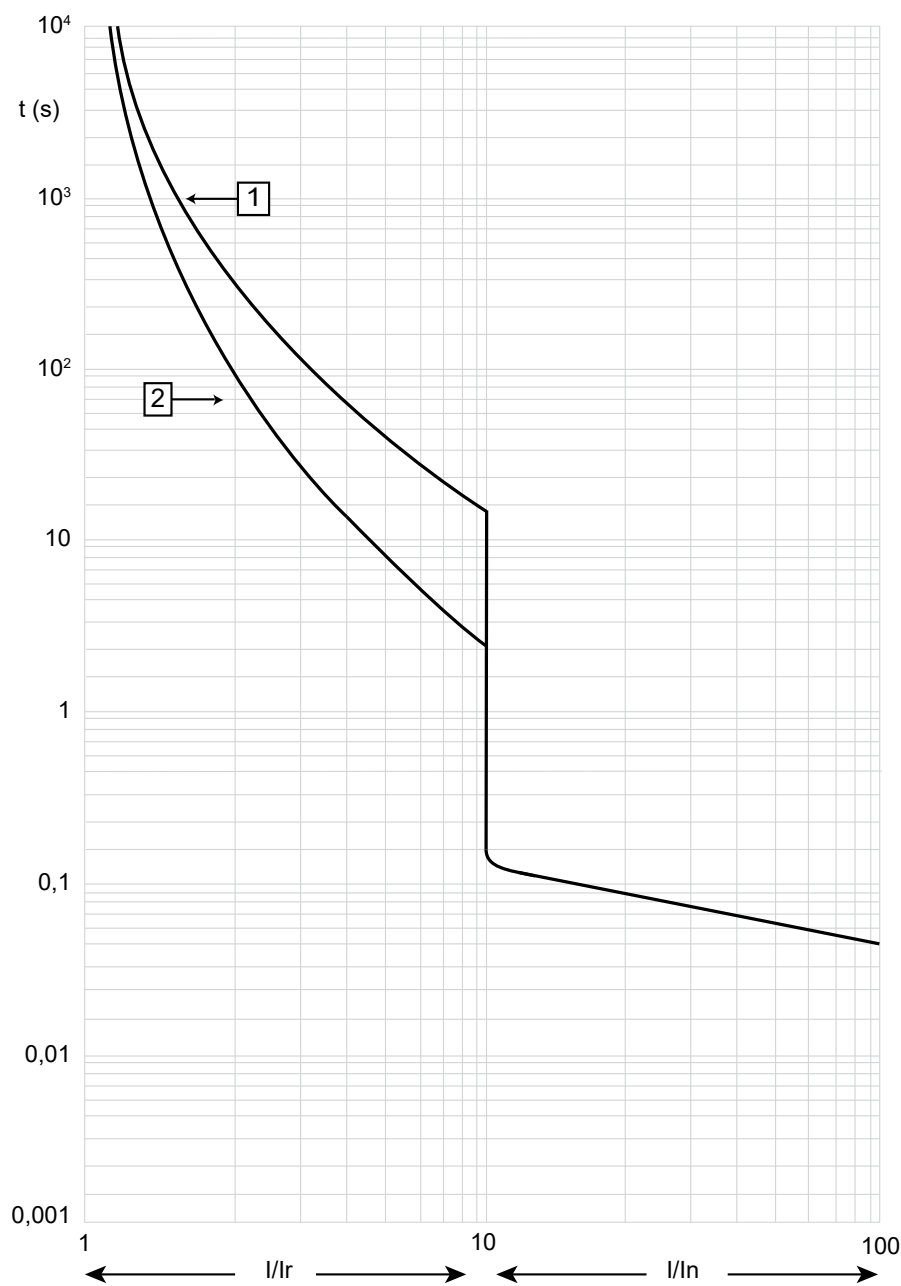
9. CURVES (continued)

■ 9.2 Pass-through specific energy characteristic curve



9. CURVES (continued)

■ 9.3 Tripping curve 63A, 80A

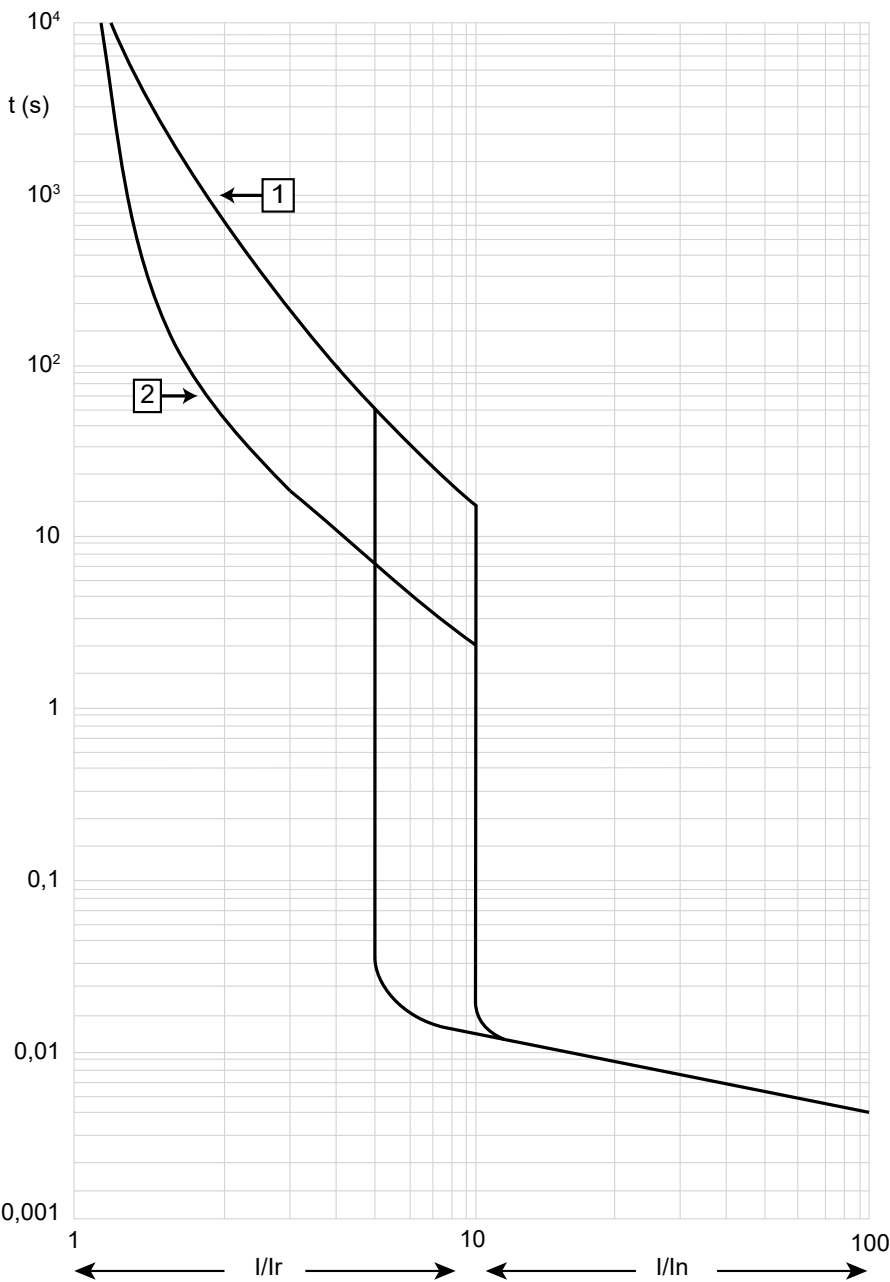


[1] : Upper tripping limits

[2] : Lower tripping limits

9. CURVES (continued)

■ 9.4 Tripping curve 100A to 250A



1 : Upper tripping limits

2 : Lower tripping limits

10. CONFORMITY

DPX³ 250 - 1000 V~ are compliant with:

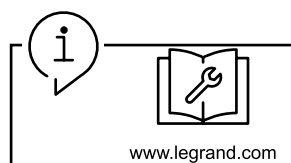
- Reach;
- RoHS;
- IEC 60947-1 and 60947-2 standards.

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.

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.