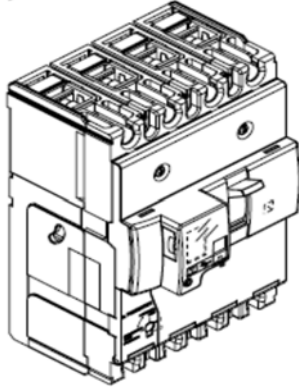


DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

 Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197


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1. USE

DPX³ "moulded case" circuit breaker offers optimal solutions to answer to protection requirements of tertiary and industrial installations.

2. RANGE

Circuit breakers

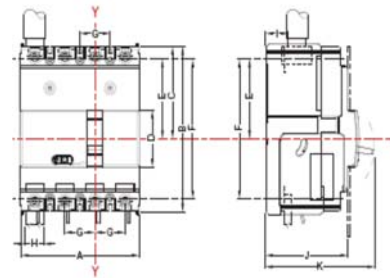
	16 kA	25 kA
I_n (A)	4P	4P
16	4 200 30	4 200 70
25	4 200 31	4 200 71
40	4 200 32	4 200 72
63	4 200 33	4 200 73
80	4 200 34	4 200 74
100	4 200 35	4 200 75
125	4 200 36	4 200 76
160	4 200 37	4 200 77
	36 kA	50 kA
I_n (A)	4P	4P
16	4 201 10	4 201 50
25	4 201 11	4 201 51
40	4 201 12	4 201 52
63	4 201 13	4 201 53
80	4 201 14	4 201 54
100	4 201 15	4 201 55
125	4 201 16	4 201 56
160	4 201 17	4 201 57

Switches

I _n (A)	4P
160	4 201 97

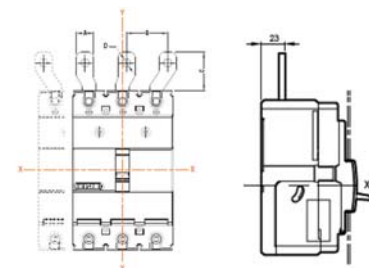
3. DIMENSIONS

Fixed version



A	B	C	D	E	F	G	H	I	J	K
108	160	72,5	45	62,5	140	27	19	18	74	97

Fixed version, front terminals

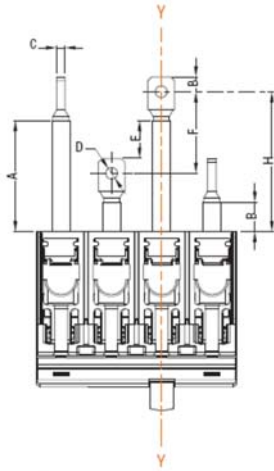


	A	B	C	D
160	17,5	35	41	8,5

DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

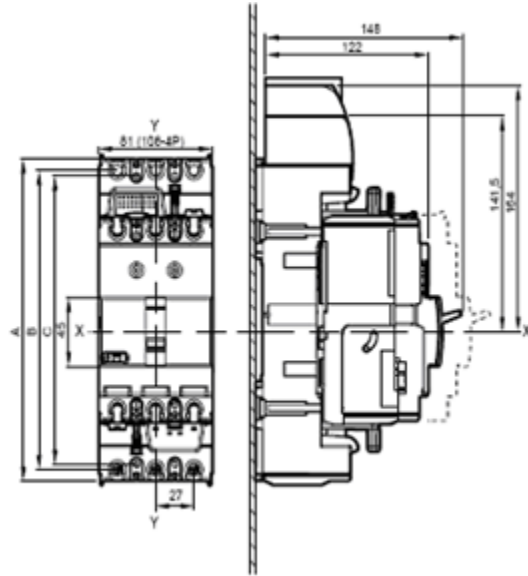
Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

Fixed version, rear terminals

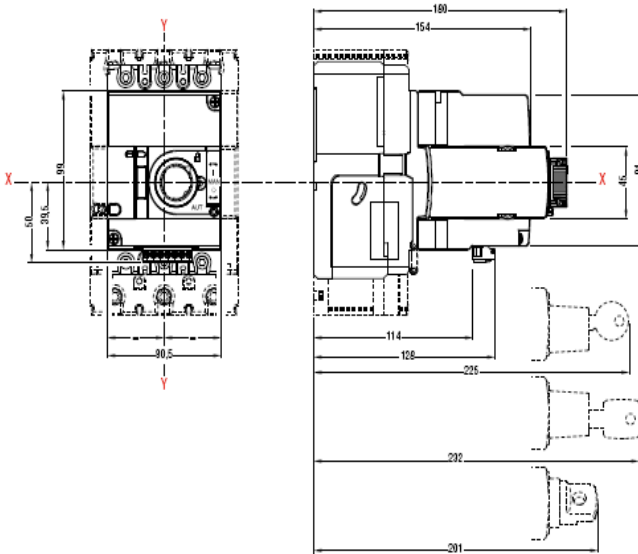


	A	B	C	D	E	F	G	H
160	65,5	21,5	4,5	6,3	19,5	44	11	79

Plug-in version

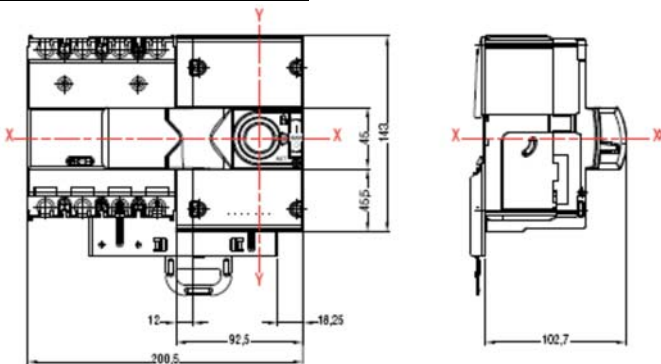


Fixed version, front motor operator



	A	B	C
DPX ³ 160 + RCD - 4P	238	223	216

Fixed version, side motor operator



DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

4. OVERVIEW

4.1 Supplied

Supplied with

- fixing screws
- cage terminals (70mm² flexible cable or 95mm² rigid cable)

4.2 Mounting possibilities

On plate:

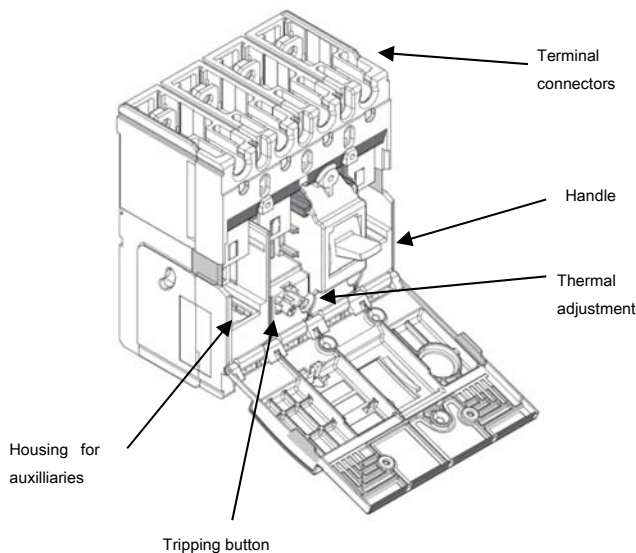
- Vertical
- Horizontal
- Supply inverter type

On DIN rail:

- Vertical
- Supply inverter type

5. ELECTRICAL AND MECHANICAL CHARACTERISTICS

5.1 Main parts constituting the circuit breaker



Circuit Breaker	DPX ³ 160 E/B/F/N (16kA, 25kA, 36kA, 50kA)
Rated current (A)	16, 25, 40, 63, 80, 100, 125, 160
Poles	4
Rated insulation voltage U _i (V)	500
Rated operating voltage (50/60Hz) U _e (V)	500
Rated impulse withstand current U _{imp} (kV)	6
Rated frequency (Hz)	50 - 60
Reference ambient temperature(°C)	40 - 50
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	25000
Mechanical endurance with motor control (cycles)	25000
Electrical endurance at I _n (cycles)	8000
Electrical endurance at 0.5 I _n (cycles)	10000
Utilization category	A
Suitable for isolation	Yes
Type of protection	Thermal-magnetic + earth leakage
Magnetic adjustment	400A (I _n up to 40A); 10 x I _n (I _n > 40A)
Thermal adjustment	(0.8 ÷ 1) x I _n
Neutral protection for 4P version (%I _{nb})	100
Dimensions (W x H x D) (mm)	110 x 160 x 97
Weight (kg)	1.51
Earth leakage type	A - Integrated
Adjustable sensitivity (A)	0.03 - 0.3 - 1 - 3
Adjustable tripping (s)	0 - 0.3 - 1 - 3 (with 0.03 A possible only 0 s)

Switch	DPX ³ -I
Uninterrupted nominal current I _n (A)	160
Short-time resistive current I _{cu} (kA) for 1s	2
Rated short-circuit making capacity I _{cm} (kA)	3
Isolated voltage U _i (V AC)	500
Maximum rated operating voltage U _e (V AC/DC)	500
Rated impulse withstand voltage U _{imp} (kV)	8
Utilisation category	AC23A
Nominal frequency (Hz)	50-60
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	25000
Mechanical endurance with motor control (cycles)	25000
Electrical endurance (cycles) at I _n	8000
Electrical endurance (cycles) at 0.5 I _n	10000
Dimensions (W x H x D) (mm) - 4P	110 x 160 x 97
Weight (kg)	1.51

5.2 Breaking capacity (kA)

	Breaking capacity (kA) & I _{cs}	Breaking capacity (kA) & I _{cs}			
		3P-4P	3P-4P	3P-4P	3P-4P
IEC 60947-2	U _e /I _{cu}	E	B	F	N
	220/240 V AC	25	35	50	65
	380/415 V AC	16	25	36	50
	440/460 V AC	10	18	25	30
	480/500 V AC	8	10	12	15
	I _{cs} (% I _{cu})	100	100	100	100
Rated making capacity under short circuit I _{cm}					
	I _{cm} (kA) at 415V	32	53	76	105
NEMA AB-1	220/240 V AC	25	35	50	65
	480/500 V AC	8	10	12	15

5.3 Nominal current (I_n) at 40°C / 50°C

I _n (A)	Assigned current trip			
	thermal		magnetic	
	L1-L2-L3	N	L1-L2-L3	N
16	16	16	400	400
25	25	25	400	400
40	40	40	400	400
63	63	63	630	630
80	80	63	800	800
100	100	63	1000	1000
125	125	80	1250	1250
160	160	100	1600	1600

5.4 Power losses per pole under I_n

Circuit breaker

Cage terminals	Power losses per pole (W)							
	I _n (A)							
	16	25	40	63	80	100	125	160
	2.4	4.9	4.9	5.8	8.1	9.9	9.4	12.5

Total power losses are calculated as the sum of losses of every accessory installed.

5.5 Load operations

Loads operation	
Rated current (A)	I _n = 160A
Opening (N)	45
Closing (N)	78
Reset (N)	75

DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

5.6 Functioning in particular conditions

5.6.1 Temperature

I _n (A)	Temperature T _a (°C)												
	-25	-20	-10	-5	0	10	20	30	40	50	60	70	
16	22	21	20	20	20	19	18	16	16	16	14	13	
25	34	33	32	31	31	30	28	25	25	25	22	21	
40	54	53	51	50	49	48	45	41	40	40	36	34	
63	85	83	81	79	78	76	71	65	63	63	58	55	
80	108	106	102	100	99	96	90	84	80	80	72	67	
100	135	132	128	126	123	120	112	102	100	100	94	90	
125	169	165	160	157	154	150	140	127	125	125	112	105	
160	216	211	205	201	197	192	179	168	160	160	145	139	

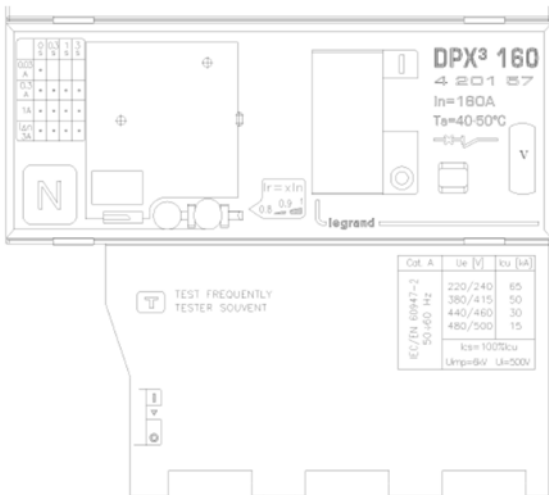
5.6.2 Altitude

Altitude (m)	2000	3000	4000	5000
U _e (V)	500	430	380	330
I _n (A) (T _a = 40°C/50°C)	I _n	0.98 x I _n	0.93 x I _n	0.9 x I _n

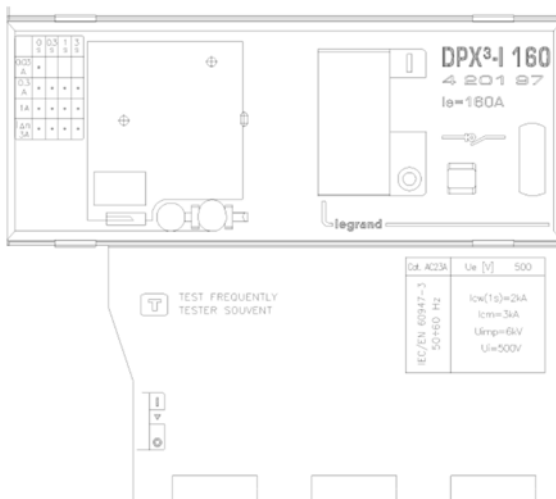
5.6.3 Use at 400 Hz

Not possible with this release.

Circuit breaker:



Switch:



6. NAVIGATION

Setup mode

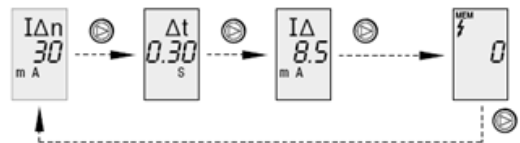
Setting I_{Δn}:



Setting t:



ATTENTION: after 5" of permanence on display of the new protection value I_{Δn} or time Δt, it is automatically set.



I_{Δn} value set Δt value set I_Δ measured value present History of interventions for differential intervention

DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

7. CONFORMITY

DPX³ range of product concerning circuit-breakers and switch-disconnectors are in full compliance with the EN/IEC standard 60947-2 and 60947-3 respectively.

The certificate are issued by LOVAG and/or by IECEE CB-scheme certification scheme.

All the product range are CE, CCC, EAC, ANCE marked.

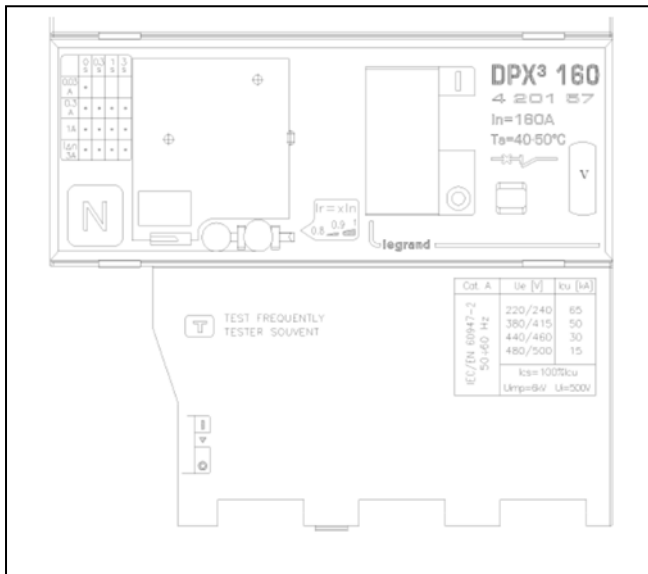
DMX³ are full in compliance with the Shipping Register of Lloyds, RINA, Bureau Veritas, Germanische Lloyds, Norske Veritas and ABS.

"Tropical climate" :

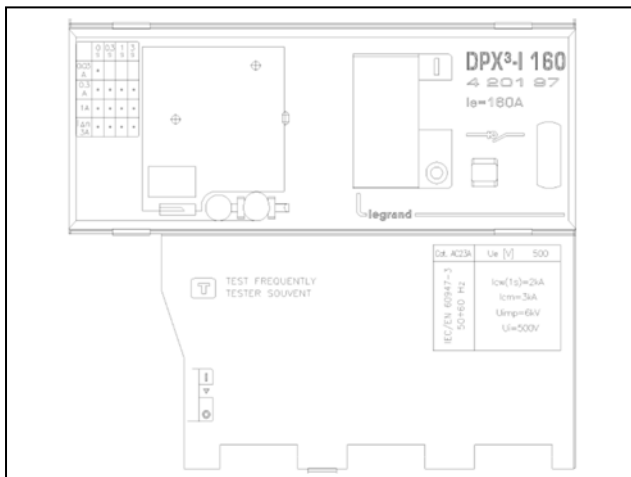
- execution II (all climates) according to IEC 60947-1 Annex Q, Cat. F.

7.1 Marking

Circuit breaker:



Switch:



8. EQUIPMENTS AND ACCESSORIES

8.1 Releases

- Shunt releases

12 V ac/dc	ref. 4 210 12
24 V ac/dc	ref. 4 210 13
48 V ac/dc	ref. 4 210 14
110-130 V ac	ref. 4 210 15
200-277 V ac	ref. 4 210 16
380-480 V ac	ref. 4 210 17

Maximum power = 400 VA / W

- Undervoltage releases

12 V ac/dc	ref. 4 210 18
24 V ac/dc	ref. 4 210 19
48 V ac/dc	ref. 4 210 20
110-130 V ac/dc	ref. 4 210 21
200-240 V ac	ref. 4 210 22
277 V ac	ref. 4 210 23
380-415 V ac	ref. 4 210 24
440-480 V ac	ref. 4 210 25

Maximum power = 400 VA / W

Circuit breaker opening time < 50 ms

- Time-lag undervoltage releases (800ms)

Time-lag modules with voltage:

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

Release:

To be equipped with a time-lag module

ref. 4 210 98

8.2 Auxiliary contact

set of connectors for aux contacts

ref. 4 210 44

aux contacts (1NC and 1NO) for all rotary handles

ref. 4 210 10

signalling contact plugged-in version

ref. 4 210 48

Changeover switch 3A – 250 VAC

ref. 4 210 11

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

Auxiliary contact (standard)

OC

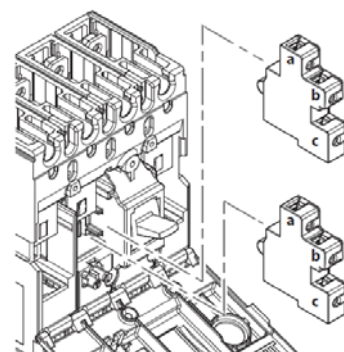
Fault signal

CTR

Auxiliary contact		
Nominal 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 160 → 1 auxiliary contact + 1 fault signal



DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

8.3 Rotary handles

Direct

- DPX³ direct rotary handle ref. 4 210 01
- DPX³ emergency direct rotary handle ref. 4 210 03

Vari-depth handle IP55

- DPX³ vari depth rotary handle ref. 4 210 04
- DPX³ emergency vari depth rotary handle ref. 4 210 05

Locking accessories

- Ronis type flat key (cod. ABA90GEL6149) for direct rotary handle ref. 4 210 06
- Profalux type star key (cod. HBA90GPS6149) for direct rotary handle ref. 4 210 07
- Ronis type flat key (cod. ABA90GEL6149) for vari-depth handle ref. 4 210 08
- Profalux type flat key (cod. HBA90GPS6149) for vari-depth handle ref. 4 210 09

8.4 Mechanical accessories

Phase insulators

- Set of 3 ref. 4 210 70

Sealable terminal shields

- sealable terminal shield for rear terminals 3P ref. 4 210 50
- sealable terminal shield for rear terminals 4P ref. 4 210 51
- sealable terminal shield for front spreaders 3P ref. 4 210 54
- sealable terminal shield for front spreaders 4P ref. 4 210 55

Padlocks

- DPX³ padlock accessory for handle (off) ref. 4 210 49

Interlock

- DPX³ interlock mounting plate ref. 4 210 58
- DPX³ interlock for plug-in / draw-out version ref. 4 210 59

8.5 Connection accessories

Cage terminals

- terminals for Cu cables kit (3) - flex 1x70mm², rigid 1x95mm², bar/cable lug 14mm ref. 4 210 93
- terminals for Cu cables kit (4) - flex 1x70mm², rigid 1x95mm², bar/cable lug 14mm ref. 4 210 94
- high capacity terminals for Al or Cu cables kit (3) - flex 1x120mm², rigid 1x150mm², bar/cable lug 18mm ref. 4 210 26
- high capacity terminals for Al or Cu cables kit (4) - flex 1x120mm², rigid 1x150mm², bar/cable lug 18mm ref. 4 210 27
- rack screw and nut for cable lug kit (3) ref. 4 210 28
- rack screw and nut for cable lug kit (4) ref. 4 210 29

Front spreaders

- DPX³ front spreaders for 3P DPX³ 160 (set of 3) ref. 4 210 32
- DPX³ front spreaders for 4P DPX³ 160 (set of 4) ref. 4 210 33

Rear terminals

- DPX³ flat rear terminals for 3P DPX³ 160 (set of 3) ref. 4 210 36
- DPX³ flat rear terminals for 4P DPX³ 160 (set of 4) ref. 4 210 37

8.6 Plug-in version

Bases

- front front/rear terminals plug-in base 3P DPX³ 160 ref. 4 210 40
- front/rear terminals plug-in base 4P (with or without earth leakage module) ref. 4 210 41

Locking accessories

- Ronis type flat key (cod. ABA90GEL6149) for plug-in base ref. 4 210 45

- Profalux type star key (cod. HBA90GPS6149) for plug-in base ref. 4 210 46
- padlock accessory for plug-in base ref. 4 210 47

8.7 Motor operator

- side motor operator 24-230 Vac/dc ref. 4 210 60
- front motor operator 24-230 Vac/dc ref. 4 210 61

Locking accessories for front motor operator

- Ronis type flat key (cod. ABA90GEL6149) for front motor operator ref. 4 210 62
- Profalux type flat key (cod. HBA90GPS6149) for front motor operator ref. 4 210 63
- padlock selector for front motor operator ref. 4 210 64

Locking accessories for side motor operator

- Ronis type flat key (cod. ABA90GEL6149) for side motor operator ref. 4 210 65
- Profalux type flat key (cod. HBA90GPS6149) for side motor operator ref. 4 210 66
- padlock selector for side motor operator ref. 4 210 67

DIN plate

- DPX³ din plate for motor operator DPX³ 160 ref. 4 210 68
- Installation kit for non-XL³ enclosures ref. 4 210 76

8.8 Mounting on rail fixing plate

- DPX³ 160 4P with earth leakage module ref. 4 210 73
- DPX³ 160 3P/4P with side mounting motor operator ref. 4 210 68

8.9 Spare parts

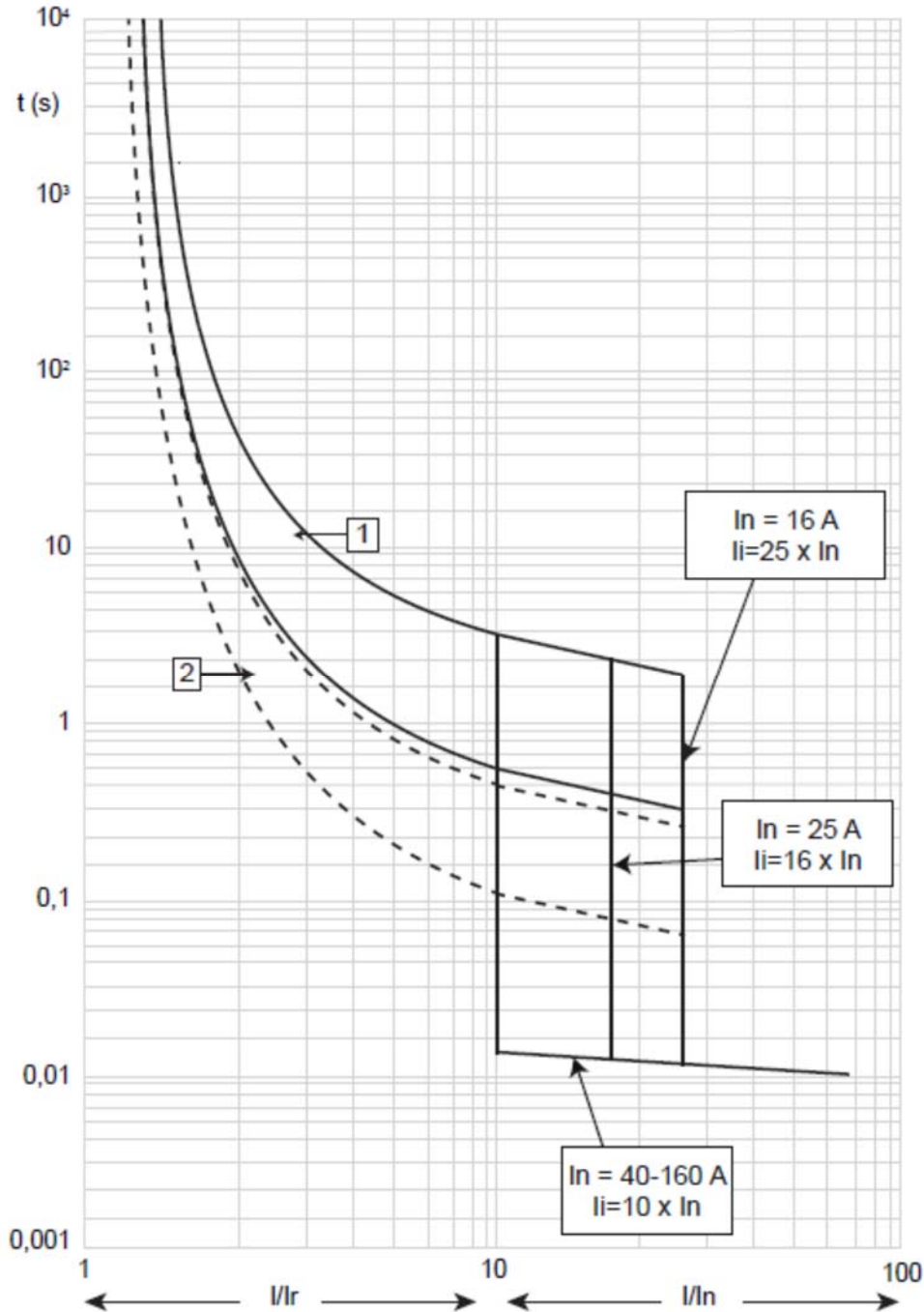
- Fixing screws (set of 4) for plate installation ref. 4 210 81
- Battery kit (batteries + extractor) for 1 breaker ref. 4 210 82
- Fixing screws (set of 12) for DIN installation ref. 4 210 84
- Mini USB cap (for 20 device) - light grey colour ref. 4 210 89
- Plug-in base kit (for 1 breaker 3P or 4P) ref. 4 210 90
- Compact terminal shields 4P (set of 2) ref. 4 210 96
- Generic seals kit (for 4x seal kit) ref. 4 210 95

DPX³ 160 + earth leakage
DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
 072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
 150/151/152/153/154/155/156/157/197

9. CURVES

9.1 TRIPPING CURVE



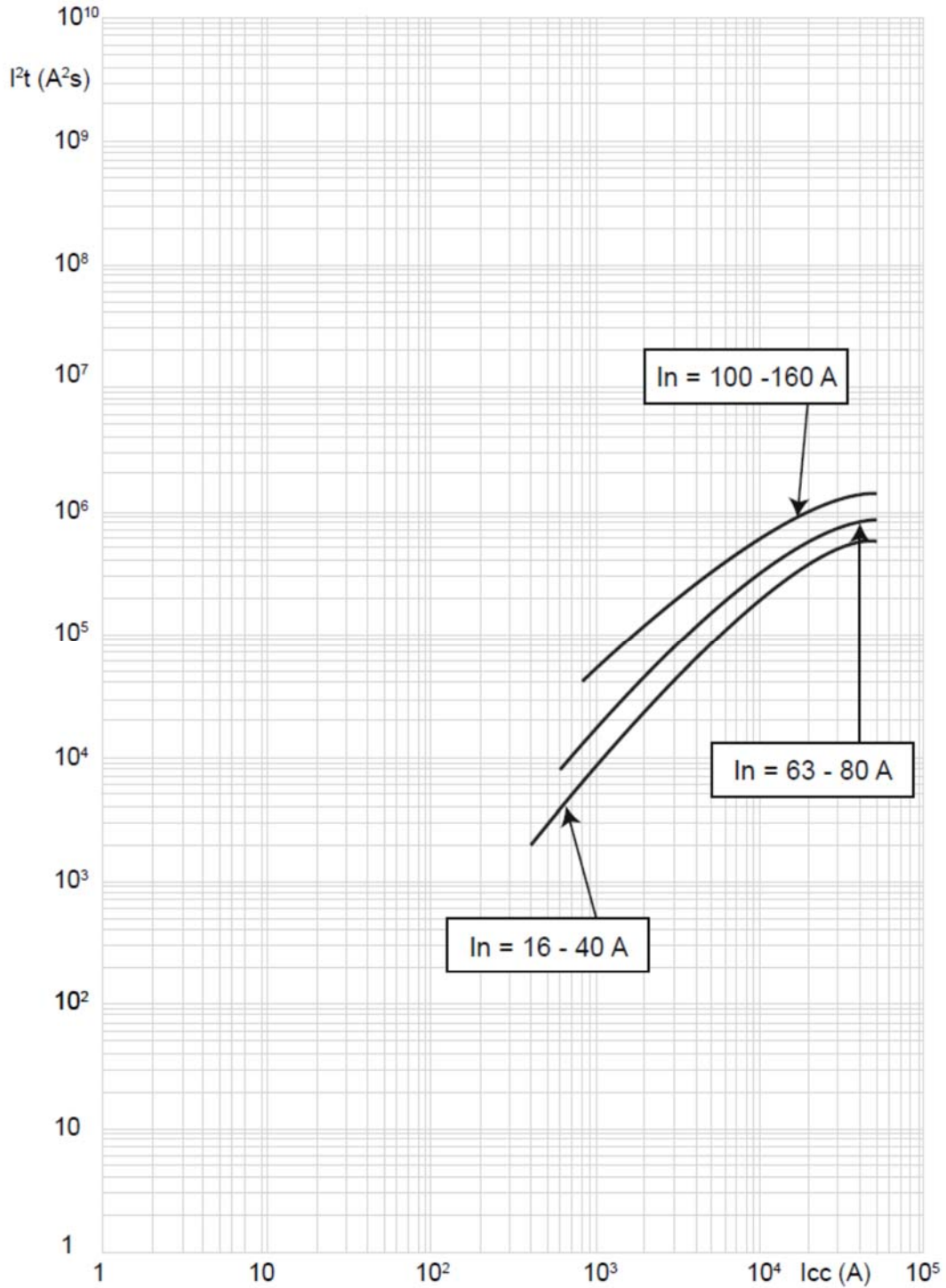
$I_{cu} = 16-25-36-50 \text{ kA}$ $I_{max} = 160\text{A}$ 4 P $U_o = 415\text{Vac}$

Value	Description
t	time
I	current
I_n	rated current
I_r	long time setting current

DPX³ 160 + earth leakage
DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
 072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
 150/151/152/153/154/155/156/157/197

9.2 Energy curve



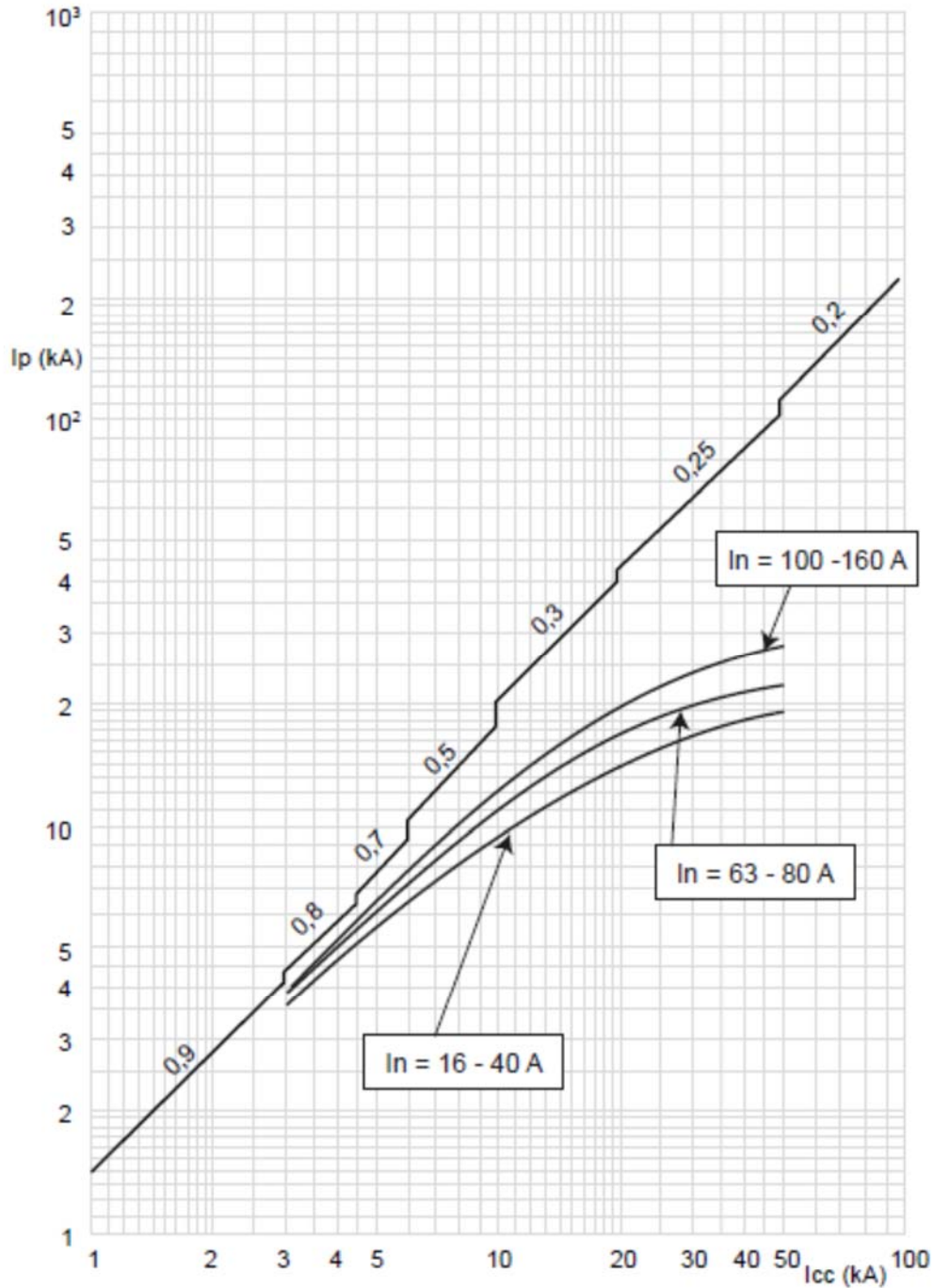
$I_{cu} = 16-25-36-50 kA$ $I_{max} = 160A$ 4 P $U_e = 415Vac$

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

DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

9.3 Restricted current curve



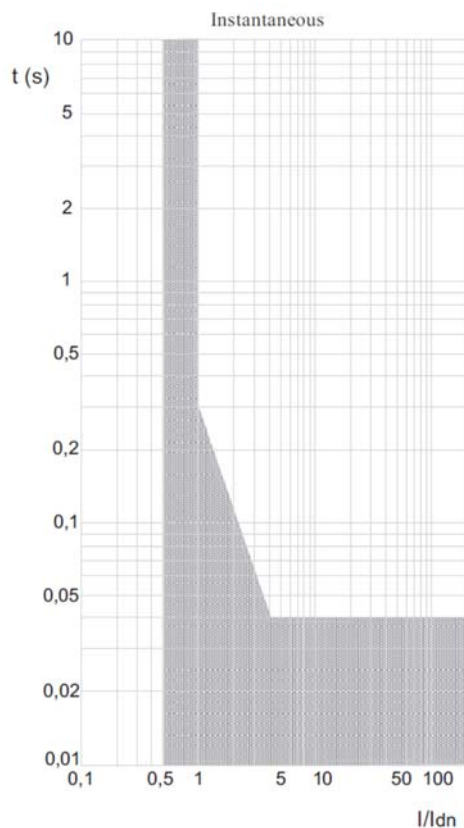
$I_{cu} = 16-25-36-50 \text{ kA}$ $I_{max} = 160\text{A}$ 4 P $U_e = 415\text{Vac}$

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

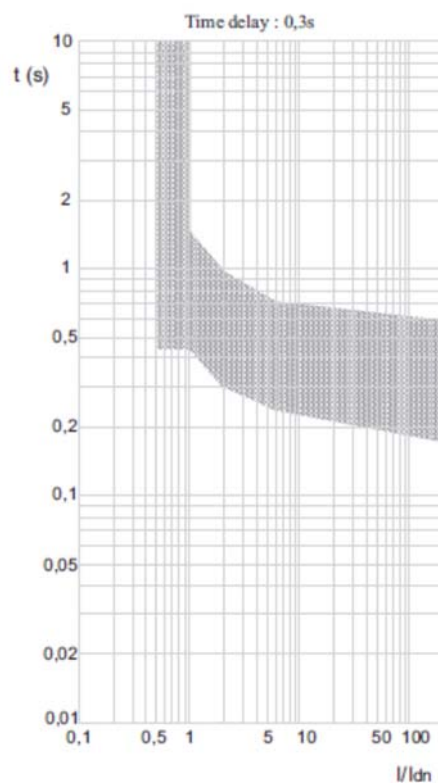
DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

9.4.1 Earth leakage curve, instantaneous



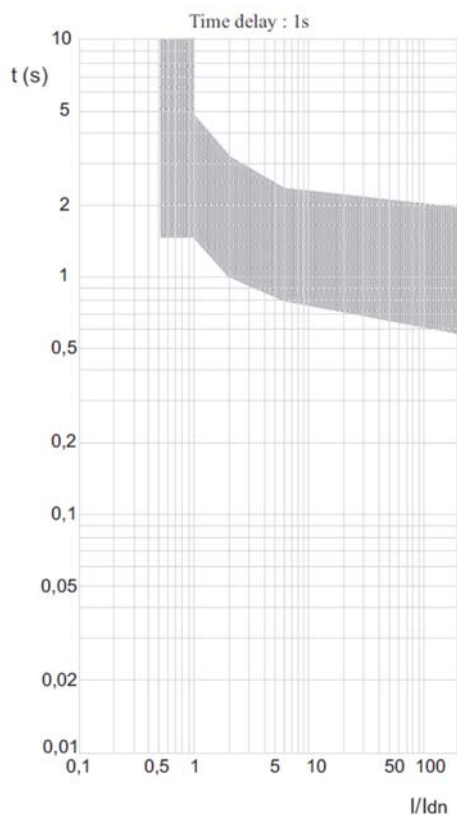
9.4.2 Earth leakage curve, time delay = 0.3 s



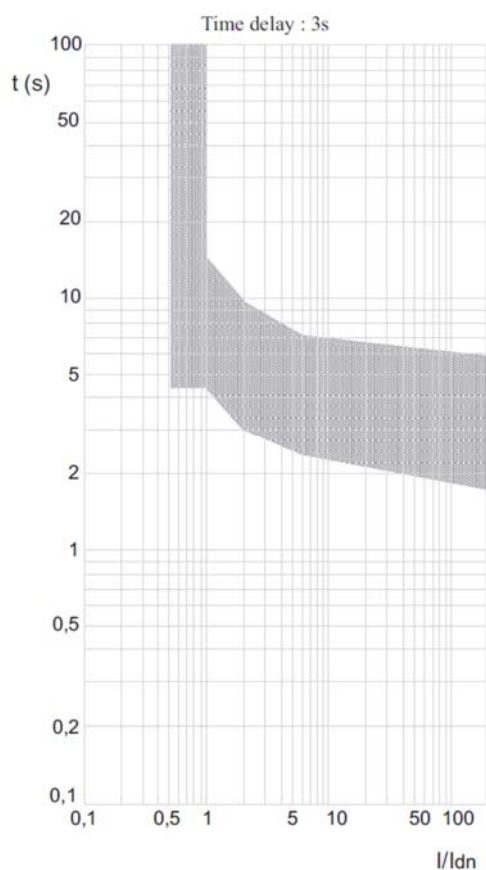
DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

9.4.3 Earth leakage curve, time delay = 1 s



9.4.4 Earth leakage curve, time delay = 3 s



DPX³ 160 + earth leakage DPX³-I 160 + earth leakage

Reference(s) : 420 030/ 031/ 032/033/ 034/ 035/ 036/ 037/ 070/ 071/
072/ 073/ 074/ 075/ 076/ 077/ 110/ 111/ 112/ 113/ 114/ 115/ 116/ 117/
150/151/152/153/154/155/156/157/197

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
DPX ³ 160 + RCD fixed - vertical installation	Flexible cable	160	1	160	1	144	0.9	128	0.8	104	0.65
	Flexible cable + sealable terminal shields	160	1	160	1	144	0.9	120	0.75	96	0.6
	Semirigid cable	160	1	160	1	144	0.9	128	0.8	104	0.65
	Semirigid cable + sealable terminal shields	160	1	160	1	144	0.9	120	0.75	96	0.6
	Clamps, flexible cable	160	1	160	1	144	0.9	128	0.8	104	0.65
	Clamps, flexible cable + sealable terminal shields	160	1	160	1	144	0.9	120	0.75	96	0.6
	Clamps, semirigid cable	160	1	160	1	144	0.9	128	0.8	104	0.65
	Clamps, semirigid cable + sealable terminal shields	160	1	160	1	144	0.9	120	0.75	96	0.6
	Cage terminals, flexible cable	160	1	152	0.95	128	0.8	120	0.75	96	0.6
	Cage terminals, semirigid cable	160	1	152	0.95	128	0.8	120	0.75	96	0.6
	Spreaders, flexible cable	160	1	160	1	136	0.85	120	0.75	96	0.6
	Spreaders, semirigid cable	160	1	160	1	136	0.85	120	0.75	96	0.6
	Rear terminals, flexible cable + sealable terminal shields	160	1	160	1	136	0.85	112	0.7	88	0.55
	Rear terminals, semirigid cable + sealable terminal shields	160	1	160	1	136	0.85	112	0.7	88	0.55
DPX ³ 160 + RCD fixed - horizontal installation	Flexible cable	152	0.95	152	0.95	128	0.8	112	0.7	96	0.6
	Flexible cable + sealable terminal shields	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Semirigid cable	152	0.95	152	0.95	128	0.8	112	0.7	96	0.6
	Semirigid cable + sealable terminal shields	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Clamps, flexible cable	152	0.95	152	0.95	128	0.8	112	0.7	96	0.6
	Clamps, flexible cable + sealable terminal shields	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Clamps, semirigid cable	152	0.95	152	0.95	128	0.8	112	0.7	96	0.6
	Clamps, semirigid cable + sealable terminal shields	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Cage terminals, flexible cable	144	0.9	136	0.85	120	0.75	104	0.65	88	0.55
	Cage terminals, semirigid cable	144	0.9	136	0.85	120	0.75	104	0.65	88	0.55
	Spreaders, flexible cable	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Spreaders, semirigid cable	152	0.95	144	0.9	128	0.8	112	0.7	88	0.55
	Rear terminals, flexible cable + sealable terminal shields	144	0.9	128	0.8	120	0.75	104	0.65	80	0.5
	Rear terminals, semirigid cable + sealable terminal shields	144	0.9	128	0.8	120	0.75	104	0.65	80	0.5