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Reference(s) : **see relative tables**

Megatiker M5 electronic circuit breakers

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1. USE

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

DPX^3 platform provide easy assembly procedures during the phase of installation and mounting of accessories, suitable for professional use.

2. RANGE

Circuit breaker

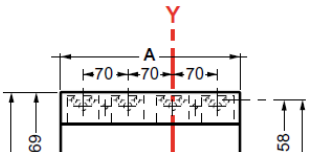
	Li		Lsi		Lsi+ measure	
	36kA		36kA		36kA	
I_n (A)	3P	4P	3P	4P	3P	4P
500	T753F500EB	T754F500EB	T753F500E	T754F500E	T753F500M	T754F500M
630	T753F630EB	T754F630EB	T753F630E	T754F630E	T753F630M	T754F630M
800	T753F800EB	T754F800EB	T753F800E	T754F800E	T753F800M	T754F800M
1000	T753F1000EB	T754F1000EB	T753F1000E	T754F1000E	T753F1000M	T754F1000M
1250	T753F1250EB	T754F1250EB	T753F1250E	T754F1250E	T753F1250M	T754F1250M
1600	T753F1600EB	T754F1600EB	T753F1600E	T754F1600E	T753F1600M	T754F1600M
	50kA		50kA		50kA	
I_n (A)	3P	4P	3P	4P	3P	4P
500	T753N500EB	T754N500EB	T753N500E	T754N500E	T753N500M	T754N500M
630	T753N630EB	T754N630EB	T753N630E	T754N630E	T753N630M	T754N630M
800	T753N800EB	T754N800EB	T753N800E	T754N800E	T753N800M	T754N800M
1000	T753N1000EB	T754N1000EB	T753N1000E	T754N1000E	T753N1000M	T754N1000M
1250	T753N1250EB	T754N1250EB	T753N1250E	T754N1250E	T753N1250M	T754N1250M
1600	T753N1600EB	T754N1600EB	T753N1600E	T754N1600E	T753N1600M	T754N1600M
	70kA		70kA		70kA	
I_n (A)	3P	4P	3P	4P	3P	4P
500	T753H500EB	T754H500EB	T753H500E	T754H500E	T753H500M	T754H500M
630	T753H630EB	T754H630EB	T753H630E	T754H630E	T753H630M	T754H630M
800	T753H800EB	T754H800EB	T753H800E	T754H800E	T753H800M	T754H800M
1000	T753H1000EB	T754H1000EB	T753H1000E	T754H1000E	T753H1000M	T754H1000M
1250	T753H1250EB	T754H1250EB	T753H1250E	T754H1250E	T753H1250M	T754H1250M
1600	T753H1600EB	T754H1600EB	T753H1600E	T754H1600E	T753H1600M	T754H1600M
	100kA		100kA		100kA	
I_n (A)	3P	4P	3P	4P	3P	4P
500	T753L500EB	T754L500EB	T753L500E	T754L500E	T753L500M	T754L500M
630	T753L630EB	T754L630EB	T753L630E	T754L630E	T753L630M	T754L630M
800	T753L800EB	T754L800EB	T753L800E	T754L800E	T753L800M	T754L800M
1000	T753L1000EB	T754L1000EB	T753L1000E	T754L1000E	T753L1000M	T754L1000M
1250	T753L1250EB	T754L1250EB	T753L1250E	T754L1250E	T753L1250M	T754L1250M
1600	T753L1600EB	T754L1600EB	T753L1600E	T754L1600E	T753L1600M	T754L1600M

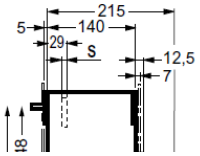
	Lsig		Lsig + measure	
	36kA		36kA	
I_n (A)	3P	4P	3P	4P
500	T753F500T	T754F500T	T753F500MT	T754F500MT
630	T753F630T	T754F630T	T753F630MT	T754F630MT
800	T753F800T	T754F800T	T753F800MT	T754F800MT
1000	T753F1000T	T754F1000T	T753F1000MT	T754F1000MT
1250	T753F1250T	T754F1250T	T753F1250MT	T754F1250MT
1600	T753F1600T	T754F1600T	T753F1600MT	T754F1600MT
	50kA		50kA	
I_n (A)	3P	4P	3P	4P
500	T753N500T	T754N500T	T753N500MT	T754N500MT
630	T753N630T	T754N630T	T753N630MT	T754N630MT
800	T753N800T	T754N800T	T753N800MT	T754N800MT
1000	T753N1000T	T754N1000T	T753N1000MT	T754N1000MT
1250	T753N1250T	T754N1250T	T753N1250MT	T754N1250MT
1600	T753N1600T	T754N1600T	T753N1600MT	T754N1600MT
	70kA		70kA	
I_n (A)	3P	4P	3P	4P
500	T753H500T	T754H500T	T753H500MT	T754H500MT
630	T753H630T	T754H630T	T753H630MT	T754H630MT
800	T753H800T	T754H800T	T753H800MT	T754H800MT
1000	T753H1000T	T754H1000T	T753H1000MT	T754H1000MT
1250	T753H1250T	T754H1250T	T753H1250MT	T754H1250MT
1600	T753H1600T	T754H1600T	T753H1600MT	T754H1600MT
	100kA		100kA	
I_n (A)	3P	4P	3P	4P
500	T753L500T	T754L500T	T753L500MT	T754L500MT
630	T753L630T	T754L630T	T753L630MT	T754L630MT
800	T753L800T	T754L800T	T753L800MT	T754L800MT
1000	T753L1000T	T754L1000T	T753L1000MT	T754L1000MT
1250	T753L1250T	T754L1250T	T753L1250MT	T754L1250MT
1600	T753L1600T	T754L1600T	T753L1600MT	T754L1600MT

3. DIMENSIONS AND WEIGHTS

3.1 Dimensions

Implantation

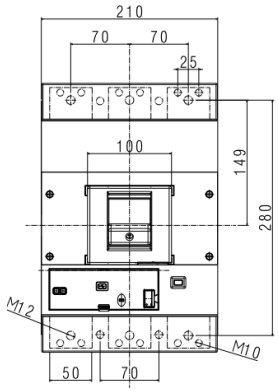


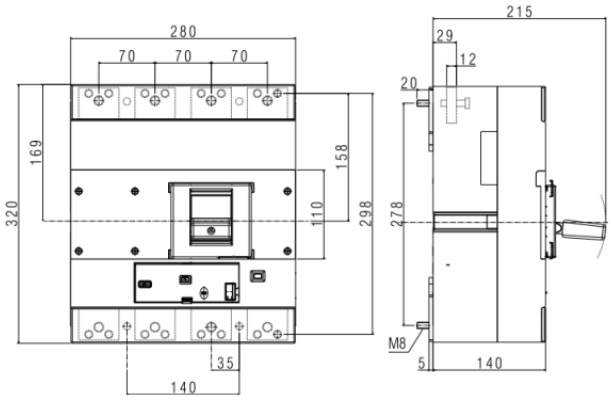


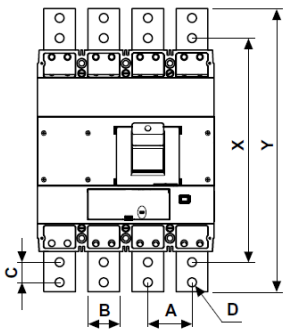
Megatiker M5 electronic circuit breakers

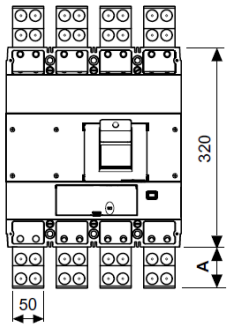
Reference(s) : **see relative tables**

Front terminals, fixed version





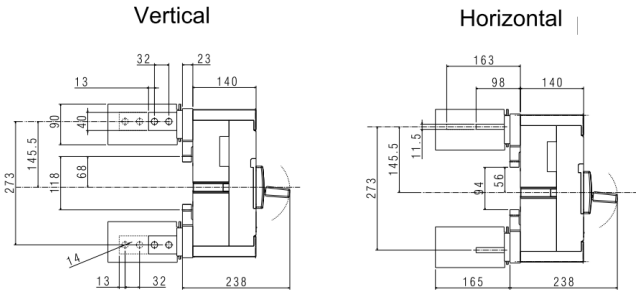




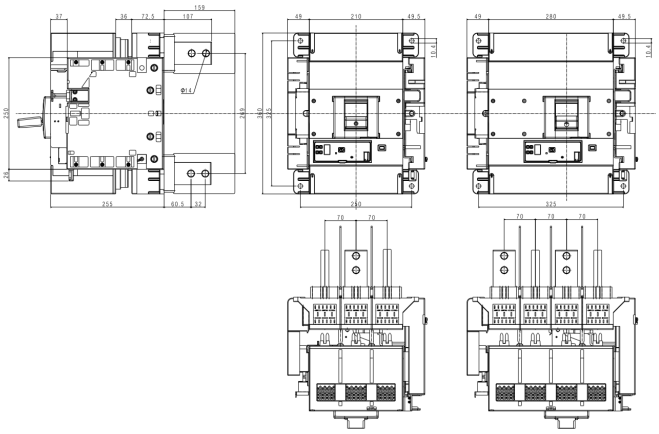
	A	B	C	D	X	Y
	70	50	32	14	358	452
	125	100	25	14,5	544	624

A	1,5	63

Side view, flat rear terminals



Draw-out version, rear terminals



3.2 Weights

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

4. OVERVIEW

4.1 Supplied with:

- fixing screws (4 for 3P and 4P)
- screws for connections (6 for 3P and 8 for 4P)
- phase insulators (2 for 3P and 3 for 4P)

5. ELECTRICAL CONNECTIONS

5.1 Mounting possibilities

On plate:

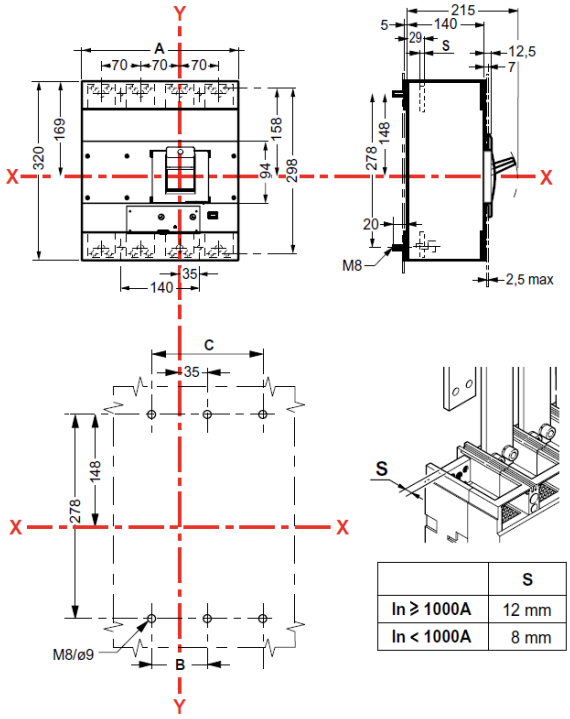
- Vertical
- Horizontal
- Supply invertor type

Megatiker M5 electronic circuit breakers

Reference(s) : **see relative tables**

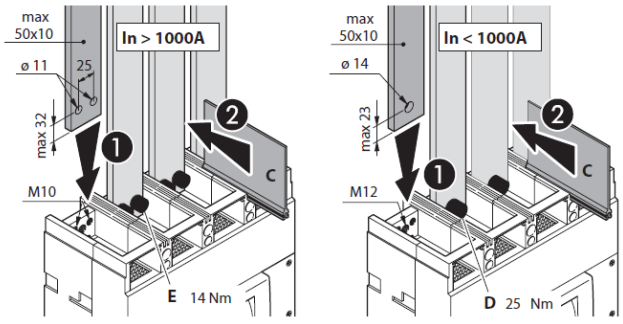
5.2 Mounting

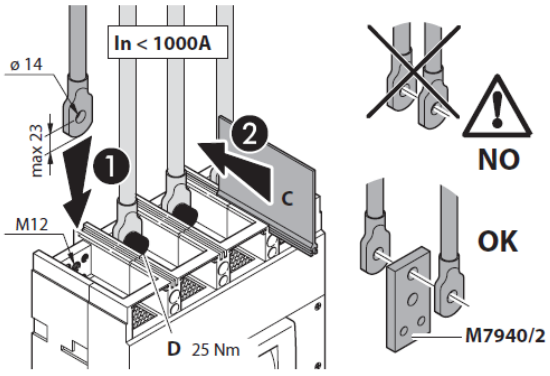
(see instruction sheet for detailed mounting procedures)

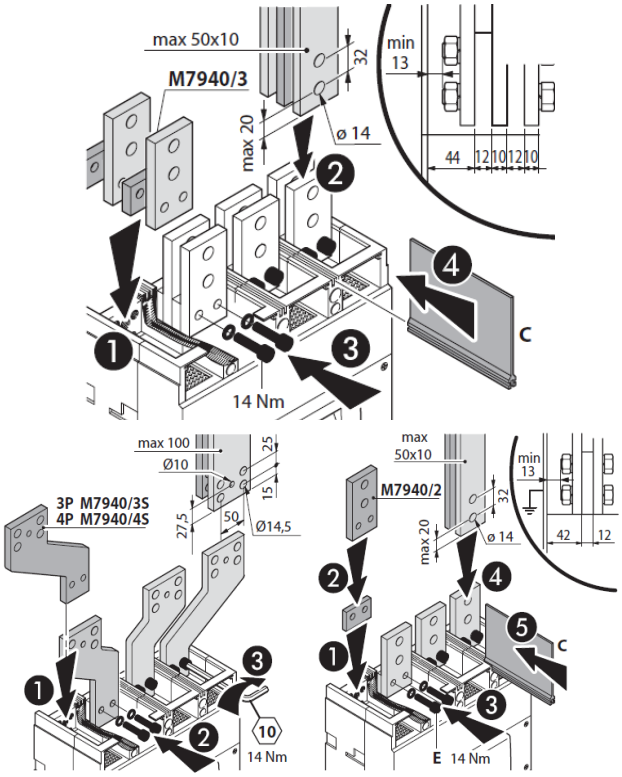


	S
In ≥ 1000A	12 mm
In < 1000A	8 mm

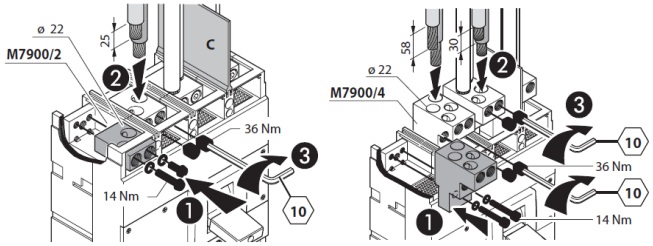
Busbars/cable lugs:







Cables:



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

Megatiker M5 electronic circuit breakers

Reference(s) : **see relative tables**

6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit Breaker	Megatiker M5 ELE F/N/H/L (36kA, 50kA, 70kA, 100kA)
Rated current (A)	500, 630, 800, 1000, 1250, 1600
Poles	3 - 4
Pole pitch (mm)	70
Rated insulation voltage (50/60Hz) U_i (V)	1000
Rated operating voltage (50/60Hz) U_e (V)	690
Rated impulse withstand current U_{imp}	8
Rated frequency (Hz)	50 - 60
Operating temperature (°C)	-25 ÷ 70
Mechanical endurance (cycles)	10000
Mechanical endurance with motor control	5000
Electrical endurance at I_n (cycles)	4000
Electrical endurance at 0.5 I_n (cycles)	8000
Utilization category	B
Suitable for isolation	Yes
Type of protection	Electronic
Thermal type protection	Adjustable
Thermal adjustment I_r [x I_n]	0,4 ÷ 1
Thermal adjustment t_r [s]	3-5-10-15-20-25-30
Thermal time tripping at 2xIn (single pole) [s]	33s±20% if tr = 3s@12Ir
Magnetic type protection	Adjustable
Magnetic adjustment I_{sd} [x I_r]	1.5 ÷ 10
Time adjustement t_{sd} (t=k o I^2t=k) [s]	0-0.1-0.2-0.3-0.4-0.5
Minimum release single pole	1.2 I_{sd}
Istantaneous electronic adjustment I_i	15 kA (I_n <=1250A); 20kA (I_n=1600A)
Neutral protection for 4P (%I_{th} of phase pole)	100
Dimensions (W x H x D) (mm)	210(3P)/280 (4P) x 320x 140

The maximum admissible (absolute) temperature is 125° C (for detail, see IEC 60947-1 and 60947-2)

Megatiker product line has the possibility to supply both in "direct" and "reverse" feed.
If "direct", the word "LINE" needs to be marked on supply terminals (normally the top ones), as well as "LOAD" has to be written on the output terminals to be connected to the load (normally the bottom ones).
If "reverse", any indications about LINE / LOAD are NOT expected on the product.

6.1 Breaking capacity (kA)

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

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

	Phases limit trip current			
	thermal (I_r)		magnetic (I_i)	
I_n (A)	0.4 x I_n	1 x I_n	1.5 x I_r	10 x I_r
500	200	500	750	5000
630	252	630	945	6300
800	320	800	1200	8000
1000	400	1000	1500	10000
1250	500	1250	1875	12500
1600	640	1600	2400	16000

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

6.3 Load operations

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

6.4 Electrodynamic forces

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

I_{cc} (kA)	Maximum Distance (mm)
36	350
50	300
70	250
100	200

According to conductor type and bar system (except Legrand bar kits), the choice of the distance to keep is to be calibrated by the installer.
Also installer must take into account the weight of the conductors so that this does not affect the electrical junction between the conductor itself and the connection point.

6.5 Power losses per pole under I_n

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

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

6.6 DERATINGS

6.6.1 Temperature

Rated current and his adjustment has to be considered relating to a rise or fall of ambient temperature and to a different version or installation conditions. The table below indicates the maximum long-time (LT) protection setting depending on the ambient temperature.

	Temperature Ta (°C)		
I_n (A)	up to 50	60	70
500	500	500	500
630	630	630	630
800	800	800	720
1000	1000	1000	900
1250	1250	1250	938
1600	1600	1600	1360

For derating temperature with other configurations, see table A.

6.6.2 Specific condition use

Climatic conditions

according to IEC/EN 60947-1 Annex Q, Cat. F subject to temperature, humidity, vibration, shock and salt mist.

Electromagnetic disturbances (EMC)

for Megatiker M5 circuit breakers, according to IEC/EN 60947-2 Annex F

Pollution degree

for Megatiker M5 circuit breakers, degree 3, according to IEC/EN 60947-2

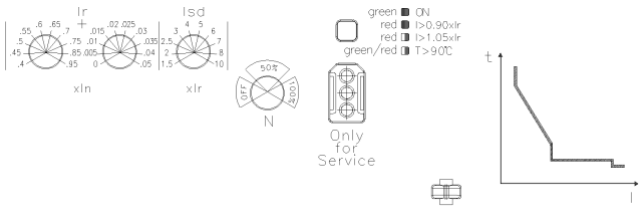
6.6.3 Altitude

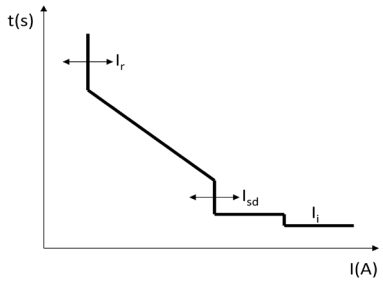
Altitude derating for Megatiker M5

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

7. ELECTRONIC PROTECTION UNIT

7.1 Version Li – Adjustment of I_r, I_{sd}





Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = 0.4 \div 1\ I_n$ (steps 1A)

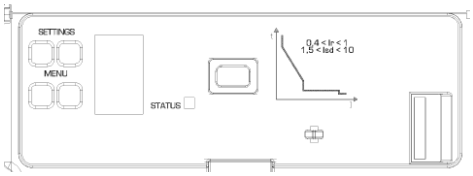
Short delay protection against short-circuits with an adjustable I_{sd} threshold:

- I_{sd} = 1.5 - 2 – 2.5 - 3 - 4 - 5 - 6 – 7 - 8 – 9 – 10 x I_r (11 steps)

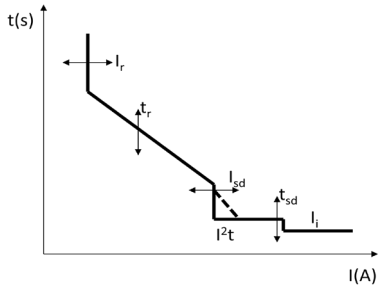
Instantaneous protection with fixed threshold:

- 500A I_i = 15kA,
- 630,800A I_i = 15kA,
- 1000A I_i = 15kA,
- 1250A I_i= 15kA,
- 1600A I_i= 20kA

7.2 Version Lsi– Adjustment of I_r, T_r, I_{sd}, T_{sd}



LCD display with adjustment buttons, battery case and USB port.



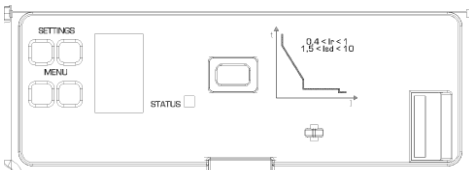
Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = 0.4 \div 1\ I_n$ (steps 1A)
- T_r =3 - 30s (3 – 5 – 10 – 15 – 20 – 25 – 30) (7 steps)

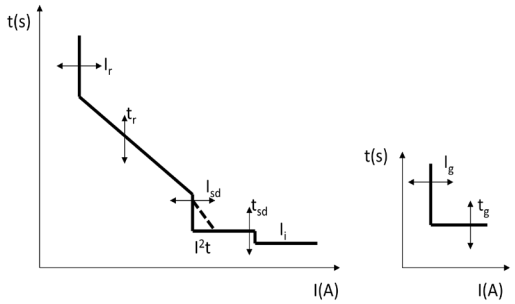
Short delay protection against short-circuits with an adjustable I_{sd} threshold:
- I_{sd} = 1.5 - 2 – 2.5 - 3 - 4 - 5 - 6 – 7 - 8 – 9 – 10 x I_r (11 steps)
- T_{sd} = 0 – 100 – 200 - 300 – 400 - 500 ms (I = K)
- T_{sd} = 0 – 100 – 200 – 300 – 400 - 500 ms (I^2t = K)

Instantaneous protection with fixed threshold:
- 500A I_i = 15kA,
- 630,800A I_i = 15kA,
- 1000A I_i = 15kA,
- 1250A I_i= 15kA,
- 1600A I_i= 20kA

7.3 Version Lsig - Adjustment of I_r, T_r, I_{sd}, T_{sd}, I_g, T_g



LCD display with adjustment buttons, battery case and USB port.



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:
- I_r = 0.4 ÷ 1 I_n (steps 1A)
- T_r =3 - 30s (3 – 5 – 10 – 15 – 20 – 25 – 30) (7 steps)

Short delay protection against short-circuits with an adjustable I_{sd} threshold :
- I_{sd} = 1.5 - 2 – 2.5 - 3 - 4 - 5 - 6 – 7 - 8 – 9 – 10 x I_r (11 steps)
- T_{sd} = 0 – 100 – 200 - 300 – 400 – 500 ms (I = K)
- T_{sd} = 0 – 100 – 200 – 300 – 400 – 500 ms (I^2t = K)

Instantaneous protection with fixed threshold:
- 500A I_i = 15kA,
- 630,800A I_i = 15kA,
- 1000A I_i = 15kA,
- 1250A I_i= 15kA,
- 1600A I_i= 20kA

Measure of ground fault:
- I_g : 0.2 – 0.3 – 0.4 – 0.5 – 0.6 – 0.7 – 0.8 – 0.9 – 1 x I_n (9 steps) and OFF
- T_g : 0.1 – 0.2 – 0.3 – 0.4 – 0.5 – 1 s

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.

General remarks on protection unit

The protection units Li/Lsi/Lsig are normally supplied by the internal current transformers (CTs).

When the current flowing through the circuit breaker is greater than 12% of the maximum power (20% of In for single phase load), the internal current supply ensures all operation of the protection unit, included LED status, display indications(*) and diagnostic functions (e.g. trip test).

(*)Display backlight and integrated measure (if available) are instead guaranteed starting from 20% of the maximum power (35% of In 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 In 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 communication interface.
- (*)power supply temporarily connected to frontal USB socket, connected to a 5V DC power bank or PC.
- (**)power supply temporarily connected to frontal Service port, connected to specific adapter for PC (Legrand use only)

(*) available only for Lsi/Lsig versions

(**) available only for Li versions

Megatiker M5 electronic circuit breakers

Reference(s) : **see relative tables**

In the electronic unit protection type Lsi/Lsig, an energy metering central unit, if available, is integrated.

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

Measured	UNIT	DESCRIPTION
I_1	A	L1 realtime measured value
I_2	A	L2 realtime measured value
I_3	A	L3 realtime measured value
I_N (4P)	A	N realtime measured value
I_G	A	G realtime measured value
U_{12} U_{23} U_{31} (3P)	V	Phase to Phase Voltage
V_{12} V_{23} V_{31} (4P)	V	Voltage
Freq.	Hz	Frequency
P_{Tot}	kW	Active Power
Q_{Tot}	kvar	Reactive Power
PF		Power Factor
E_p ↓	kWh	Consumed active energy
E_p ↑	kWh	Returned active energy
E_q ↓	kvar h	Consumed reactive energy
E_q↑	Kvar h	Returned reactive energy
$THDU_{12}/THDU_{23}/THDU_{31}$ (3P)	%	Chained Voltage THD
$THDV_{1N}/THDV_{2N}/THDV_{3N}$ (4P)	%	Voltage THD
$THDI_1/THDI_2/THDI_3/THDI_N$	%	Current THD
MEM	A - °C	Cause of the last intervention and its value

Function performance class according to IEC 61557-12

Function symbol	Performance class	Measurement range					Other complementary characteristics				
		Megatiker M5					I_{max} PMD				
I_n		**630A**	**800A**	**1000A**	**1250A**	**1600A**	**630A**	**800A**	**1000A**	**1250A**	**1600A**
P	1	0.5kW	0.5kW	0.5kW	0.5kW	0.5kW	750A	960A	1200A	1500A	1920A
		900kW	1.15MW	1.4MW	1.8MW	2.3MW	I_b=400A, U_n=400V, f_n=50Hz				
QA, Q_v	2	0.5kvar	0.5kvar	0.5kvar	0.5kvar	0.5kvar	750A	960A	1200A	1500A	1920A
		900kW	1.15MW	1.4MW	1.8MW	2.3MW	I_b=250A, U_n=400V, f_n=50Hz				
E_a	1	0...999 GW/h					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
ERA, E_{rv}	2	0...999 GW/h					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
f	0.02	50...60 Hz					-				
I	1	20A	20A	20A	20A	20A	750A	960A	1200A	1500A	1920A
		750A	950A	1200A	1500A	1950A	I_b=400A, U_n=400V, f_n=50Hz				
I_N	1	20A	20A	20A	20A	20A	750A	960A	1200A	1500A	1920A
		750A	950A	1200A	1500A	1950A	I_b=400A, U_n=400V, f_n=50Hz				
U	0.5	88...690V					-				
P_{FA}	0.5	-					750A	960A	1200A	1500A	1920A
							I_b=400A, U_n=400V, f_n=50Hz				
THDu	5	110...690V					-				
THD_i	5	400A	400A	400A	400A	400A	-				
		630A	800A	1000A	1250A	1600A					

Megatiker M5 electronic circuit breakers

Reference(s) : **see relative tables**

8. CONFORMITY

Megatiker range of product concerning circuit-breakers exceed compliance with the EN/IEC standard 60947-2 and 60947-3 respectively.

Certification available by IECEE CB-scheme or LOVAG Compliance scheme.

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

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

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

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For specific information, please contact Legrand support.

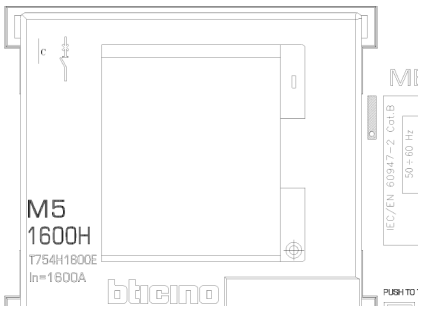
8.1 Marking

Product (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:

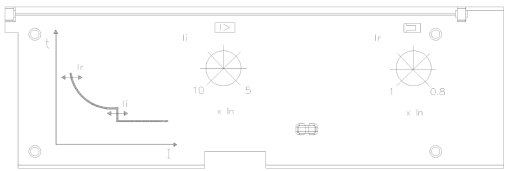
Product laser label on front

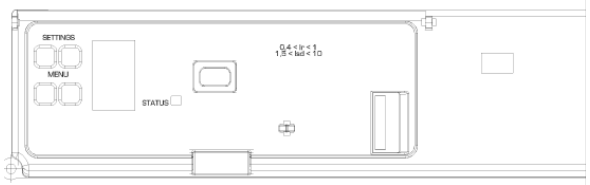
- -Manufacturer responsible
- -Denomination, type product, code
- -Standard conformity
- -Standard characteristics declared
- -coloured identification of I_{cu} at 415V

S1 releas



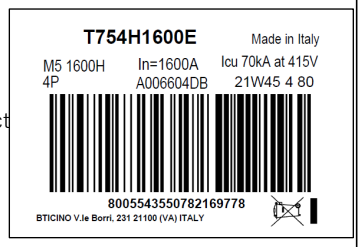
S2/Sg





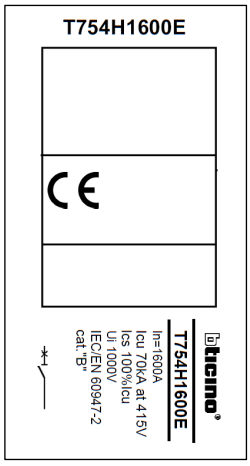
Product sticker label on side

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



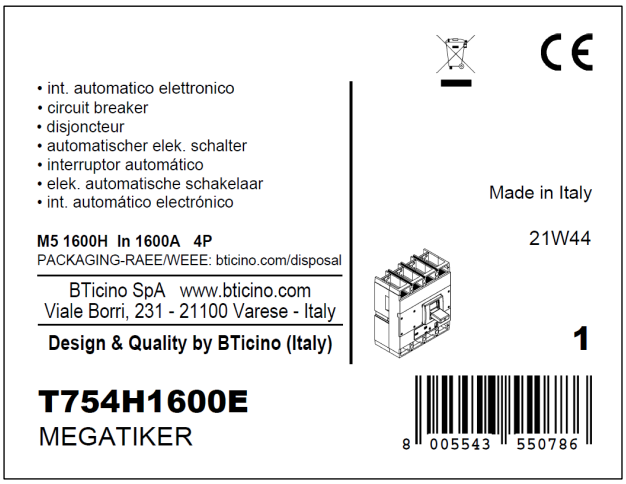
Mark sticker label on side

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



Packaging sticker label

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



9. EQUIPMENTS AND ACCESSORIES

9.1 Releases (for Megatiker M4 and M5)

- shunt releases with voltage:

24 Vac and dc	*ref.* M7C024
48 Vac and dc	*ref.* M7C048
110÷130 Vac and dc	*ref.* M7C110
220÷250 Vac and dc	*ref.* M7C230
380÷440 Vac and dc	*ref.* M7C400

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

- undervoltage releases with voltage:

24 V dc	ref. M7T024C
24 V ac	ref. M7T024
48 V dc	ref. M7T048C
110 - 125 V ac	ref. M7T110
220 - 240 V ac	ref. M7T230
380 - 415 V ac	ref. M7T400

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

- time-lag undervoltage releases (800 ms)

Time-lag modules with voltage:

24 V ac/dc	ref. M7000E/024
230 V ac	ref. M7000MR/230
400 V ac	ref. M7000MR/400

Universal Release ref. M7TMEV
(to be equipped with a time-lag module *M7000MR/230/400*)

9.2 Auxiliary contacts (for DPX³ 630 / DPX³ 1600)

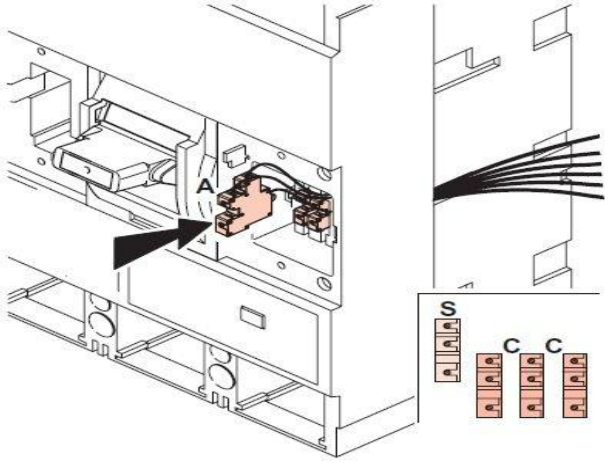
Changeover switch 3A – 250 VAC ref. M7X01

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

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

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

Configurations:
M5/MS5 → 3 auxiliary contacts + 1 fault signal + 1 release



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

9.3 Universal keylocks

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

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

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

- 1 lock + 1 flat key with random mapping ref. M7K01
- 1 lock + 1 flat key with fixed mapping (EL43525) ref. M7K02
- 1 lock + 1 flat key with fixed mapping (EL43363) ref. M7K03
- 1 lock + 1 star key with random mapping ref. M7K04

Megatiker M5 electronic circuit breakers

9.4 Rotary handles

Direct on Megatiker (with auxiliary option)

- Standard (black) ref. M7647

Vari-depth handle IP55 (with auxiliary option)

- Standard (black) ref. T7649
- For emergency use (red / yellow) adapting on standard handle ref. T7649E

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

- Key lock accessory for vari-depth rotary handle *ref.* M7R17

Ref. M7R17 must be used with universal keylocks to get the complete locking kit for rotary handle

9.5 Motor-driven handles

Factory assembled

Front operated

- Voltage 24 V AC/DC ref. M7875P/024
- Voltage 48V AC/DC ref. M7875P/048
- Voltage 230 V AC ref. M7875P/230*

*DC versione by request

Customer assembled

Front operated

- Voltage 24 V AC and DC ($I_n \leq 1250A$) ref. 0 261 24
- Voltage 48 V AC and DC ($I_n \leq 1250A$) ref. 0 261 25
- Voltage 110 V AC and DC ($I_n \leq 1250A$) ref. 0 261 26
- Voltage 220 V AC and DC ($I_n \leq 1250A$) ref. 0 261 23

- Voltage 24 V AC and DC ($I_n = 1600A$) ref. 0 261 19
- Voltage 48 V AC and DC ($I_n = 1600A$) ref. 0 261 28
- Voltage 110 V AC and DC ($I_n = 1600A$)) ref. 0 261 29
- Voltage 220 V AC and DC ($I_n = 1600A$)) ref. 0 261 27

Locking accessories

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

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

9.6 Mechanical accessories

Phase insulators

- 12x2 set ref. M7695

Sealable terminal shields

- Set of 2 3P ref. M7935
- Set of 2 4P ref. M7936

Padlock

- Accessories to lock in open position ref. M7055

Terminal covers to guarantee IP20

- Set of 2 3P ref. M7C13
- Set of 2 4P ref. M7C14
- External neutral ref. M7X39

9.7 Connection accessories

Cage terminals

- Set of 4 terminals for cables 2x240mm² max (rigid) or 2x185mm² max (flexible) (Cu/Al) ref. M7900/2
- Set of 4 terminals for cables 4x240mm² max (rigid) or 4x185mm² max (flexible) (Cu/Al) ref. M7900/4

Extended front terminals

- Short terminals for 500 - 1250A (2 bars max. per pole) ref. M7940/2
- Long terminals for 1600A (3 bars max. per pole) ref. M7940/3

Spreaders

- Set of 3 (incoming or outgoing 3P) ref. M7940/3S
- Set of 4 (incoming or outgoing 4P) ref. M7940/4S

Rear terminals

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

- Set of swivel terminals, incoming or outgoing
  - 3P ref. M7960
  - 4P ref. M7961
- Set of flat rear terminals, incoming or outgoing
  - 3P ref. M7950
  - 4P ref. M7951

Cage terminal use specifications

Megatiker M5							
Type of cage terminal	***Cable standard suggested cross section (mm²)****			***Dimensions limits of cable for cage terminals***			
	In (A)	Cu	Al	MIN cross section (mm²)		MAX cross section (mm²)	
				Flexible	Rigid	Flexible	Rigid
Standard	500	2x150	2x240	95	70	185	240
	630	2x185	\				
	800	2x240	\				
	1000	\	\				
	1250	\	\				
	1600	\	\				
High capacity	500	2x150	2x240	95	70	185	240
	630	2x185	3x240				
	800	2x240	3x240				
	1000	4x150	4x240				
	1250	4x185	\				
	1600	4x240	\				
* The suggested cross section are in compliance with standard IEC60947-1 (ed.6 2020/04) and IEC60947-2 (ed.5.1 2019/07)							

9.8 Draw-out version

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

Draw-out base

Base for Megatiker M5 equipped with "Débro-lift" mechanism

- Front terminals
  - 3P ref. M7B25
  - 4P ref. M7B26
- Rear terminals
  - 3P ref. M7B27
  - 4P ref. M7B28

"Débro-lift" mechanism

To be fitted on a Megatiker M5 fixed version in order to obtain the movable part of a drawout circuit breaker

- Mobile part for draw-out version
  3P ref. M7B29
  4P ref. M7B30

Key lock for "Débro-lift" mechanism

- One key for Megatiker only

(enable locking in draw - out position)

- Key lock accessory for draw-out (frontal masks for motor operator or rotary handle) ref. M7B39
- Key lock accessory for draw-out ref. M7B40

Ref. M7B39 and M7B40 must be used with universal keylocks to get the complete locking kit for draw-out version

Accessories for "Débro-lift" mechanism

- Isolated handle for drawing-out ref MT7412
- Signal contact (plugged-in / drawn-out) ref MT7910N
- Set of connectors (8 contacts) ref M7500
- Support plate for draw-out version ref BT-M7B35
- Automatic auxiliary contacts (12 pin) D/O version ref. M7B21

9.9 Plate for transfer switches (factory assembled)

(A transfer switch plate is composed of one plate with interlock for 2 devices)

- Plate for breaker or trip-free switch fixed version *ref.* M7198N
- Plate for breaker or trip-free switch plug-in and draw-out version *ref.* M7298N

9.10 Specific accessories for electronic version

Auxiliary power supply

- For supplying electronic units *ref.* M7ALIM

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

Technical characteristics:

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

M7ALIM	DPX³ 250 / 250HP / 630 / 1600	[mA]
I_{out} MAX = 250 mA	Electronic/Electronic + RCD (S2/Sg)	50
	Electronic/Electronic + RCD with power metering (S2/Sg)	62.5
	Electronic/Electronic + RCD (S10)	70
	Electronic/Electronic + RCD with power metering (S10)	83

According to single absorptions, it can be possible to connect more than one breaker

MODBUS communication

- RS485 MODBUS communication interface *ref. M7COM*

Is used for sharing on MODBUS network all information managed by Megatiker electronic circuit breakers Lsi/Lsig with / without earth leakage module and with / without energy metering central unit.

Technical characteristics:

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

Consumption: 90mA

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

In case of use of MODBUS interface M7COM, the external power supply module M7ALIM is not necessary because the external power is already provided by the MODBUS module

Megatiker electronic interface - EMS BTDIN

- For connecting electronic Megatiker (M3 250, M4, M5) to an EMS communication network. All the informations managed by circuit breaker's electronic card will be shared on the EMS network
  Dimension: 1 module
  Power supply: with EMS BTDIN power supply module F80BA
  Address can be modified and set locally by DIP switches or remotely with the help of the EMS configurator software

  ref. M7EMS

Bluetooth communication key

USB key for BLE communication with electronic Megatiker S10 (M3 250, M4, M5) to configure, monitor and manage it remotely through App Connection port USB on front of the circuit breaker

ref. MPXX02

EnerUp + Project App for smartphone and tablet available on Apple Store and Google Play Configuration, monitoring and management software (PCS) available for download via e-catalogue (does not require the use of Bluetooth communication key Ref. MPXX02)

Modular power supply

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

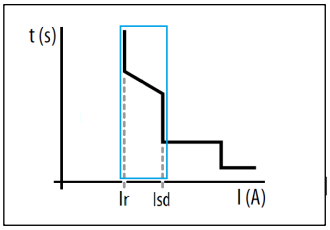
Touch screen

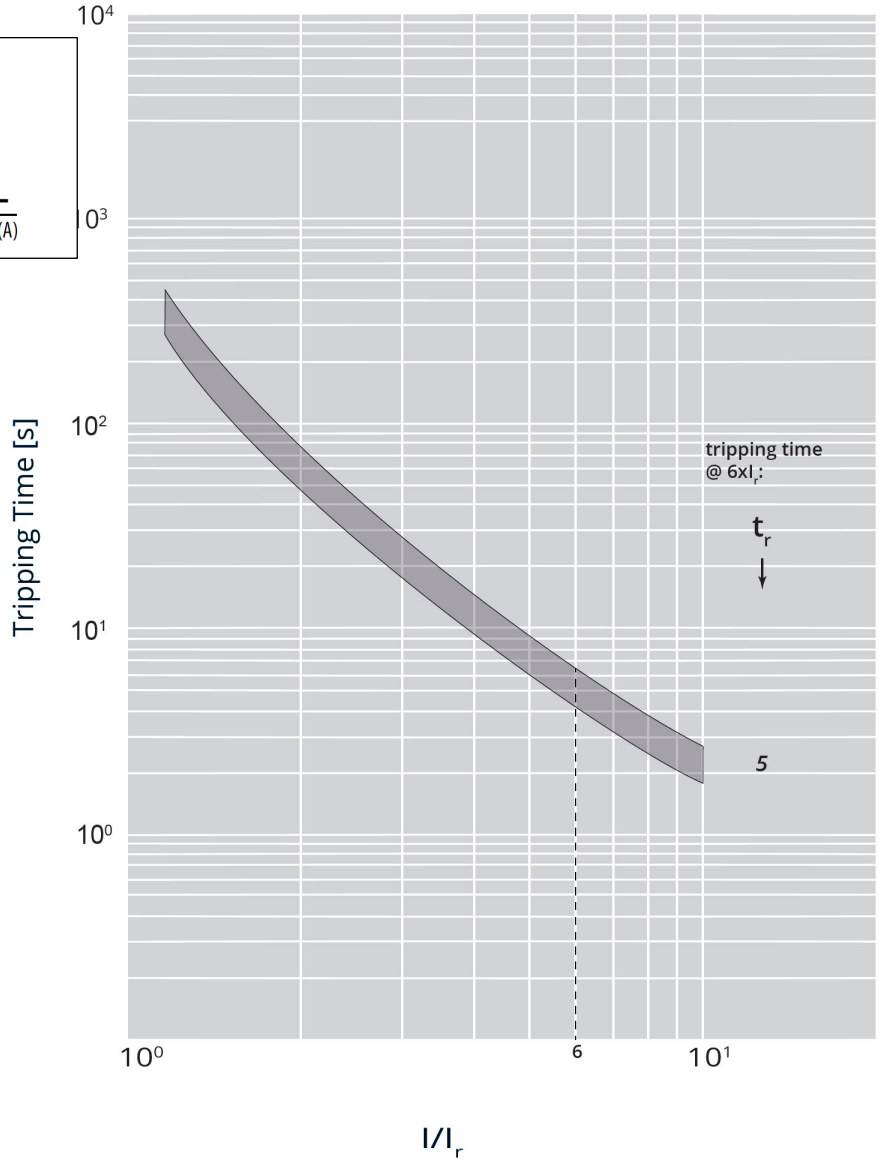
- To show data collected different protection devices. It can manage up to 8 devices *ref. PM1TS*

10. CURVES

Update: 02/07/2018

10.1.1 Long time Tripping curve (Li)



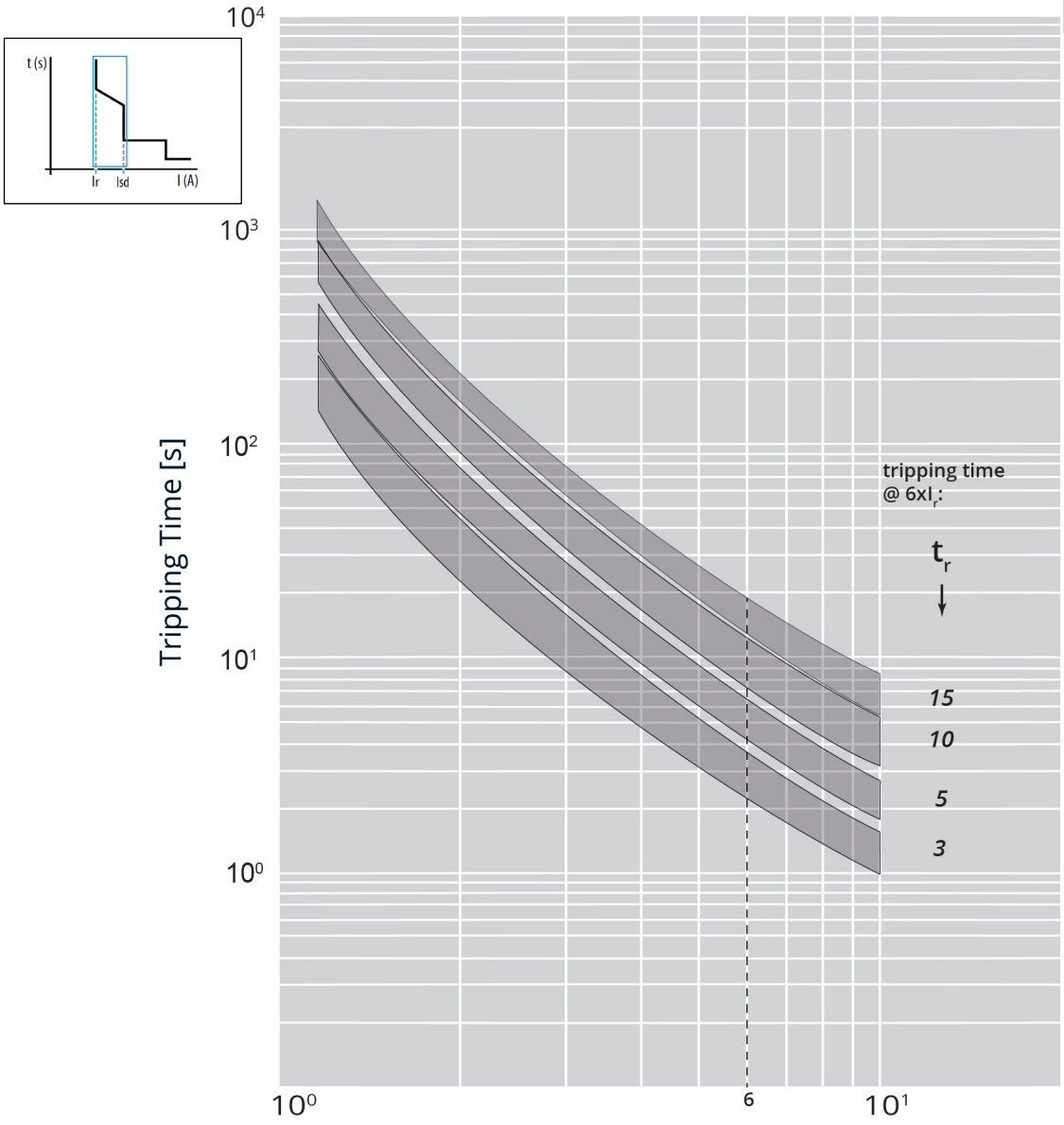


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.1.2 Long time Tripping curve (Lsi-Lsig); tr = 3-15

Update:

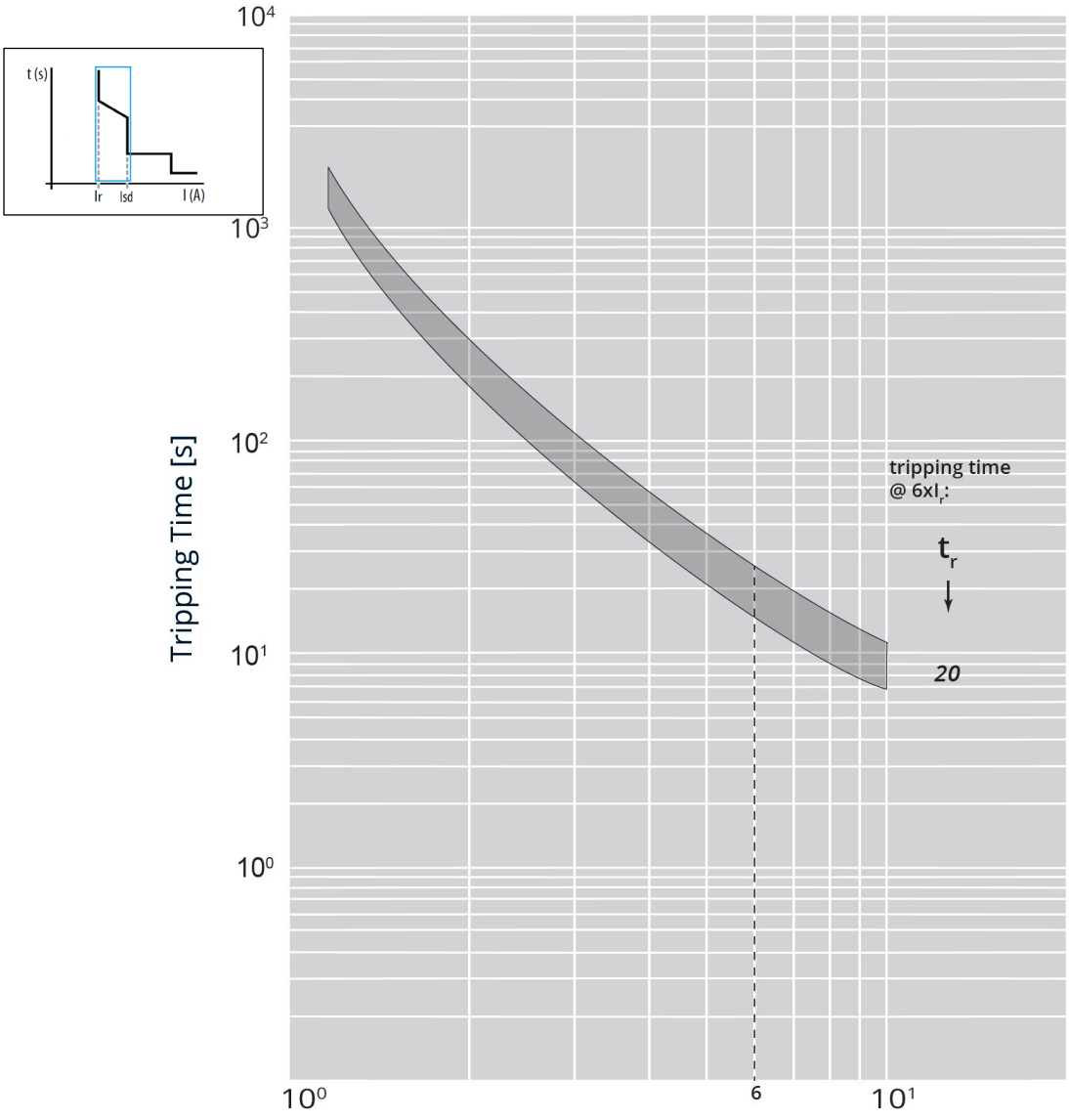


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.1.3 Long time Tripping curve (Lsi-Lsig) ; tr = 20

Update:



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

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

10.1.4 Long time Tripping curve (Lsi-Lsig); tr = 25-30

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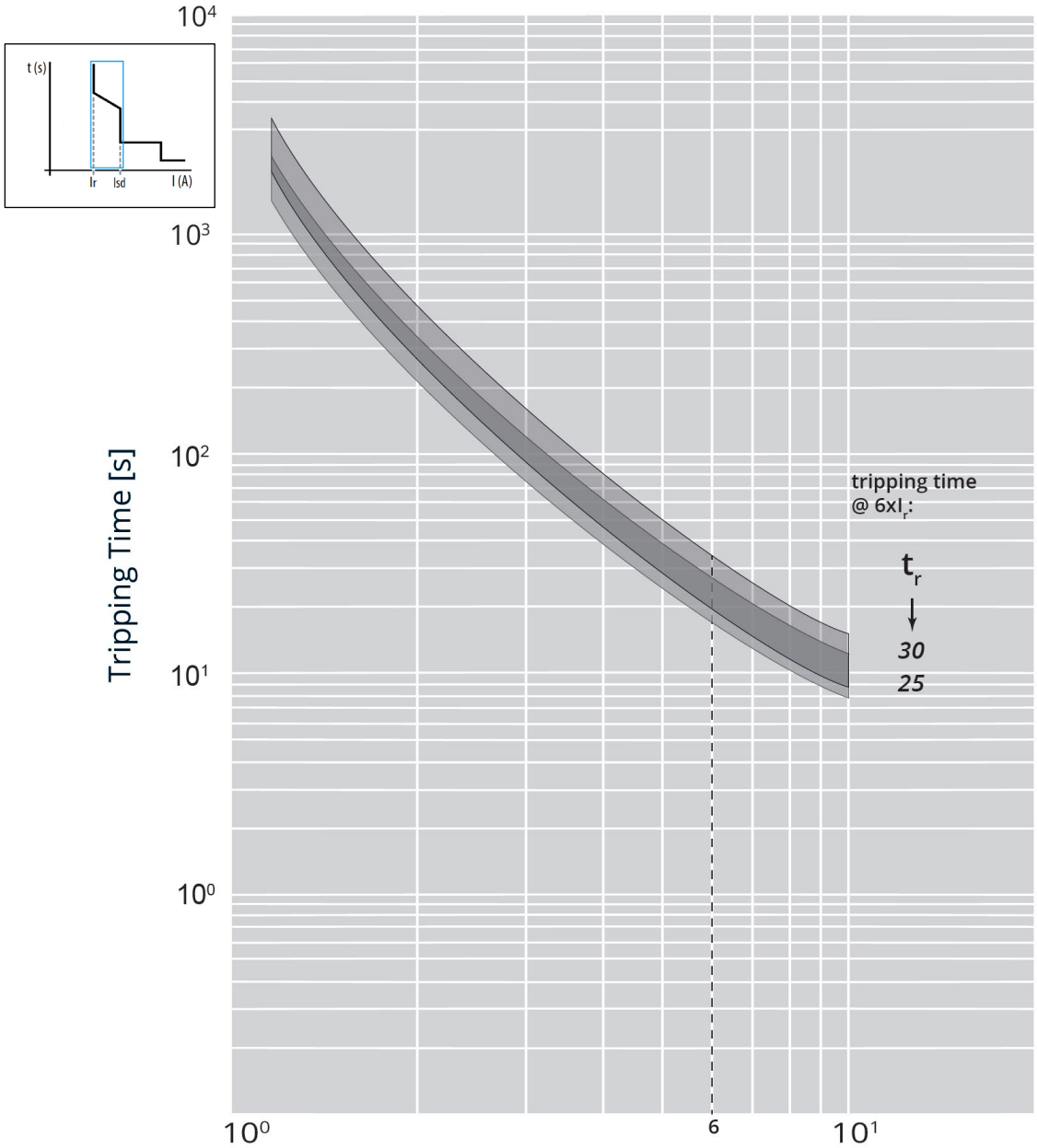
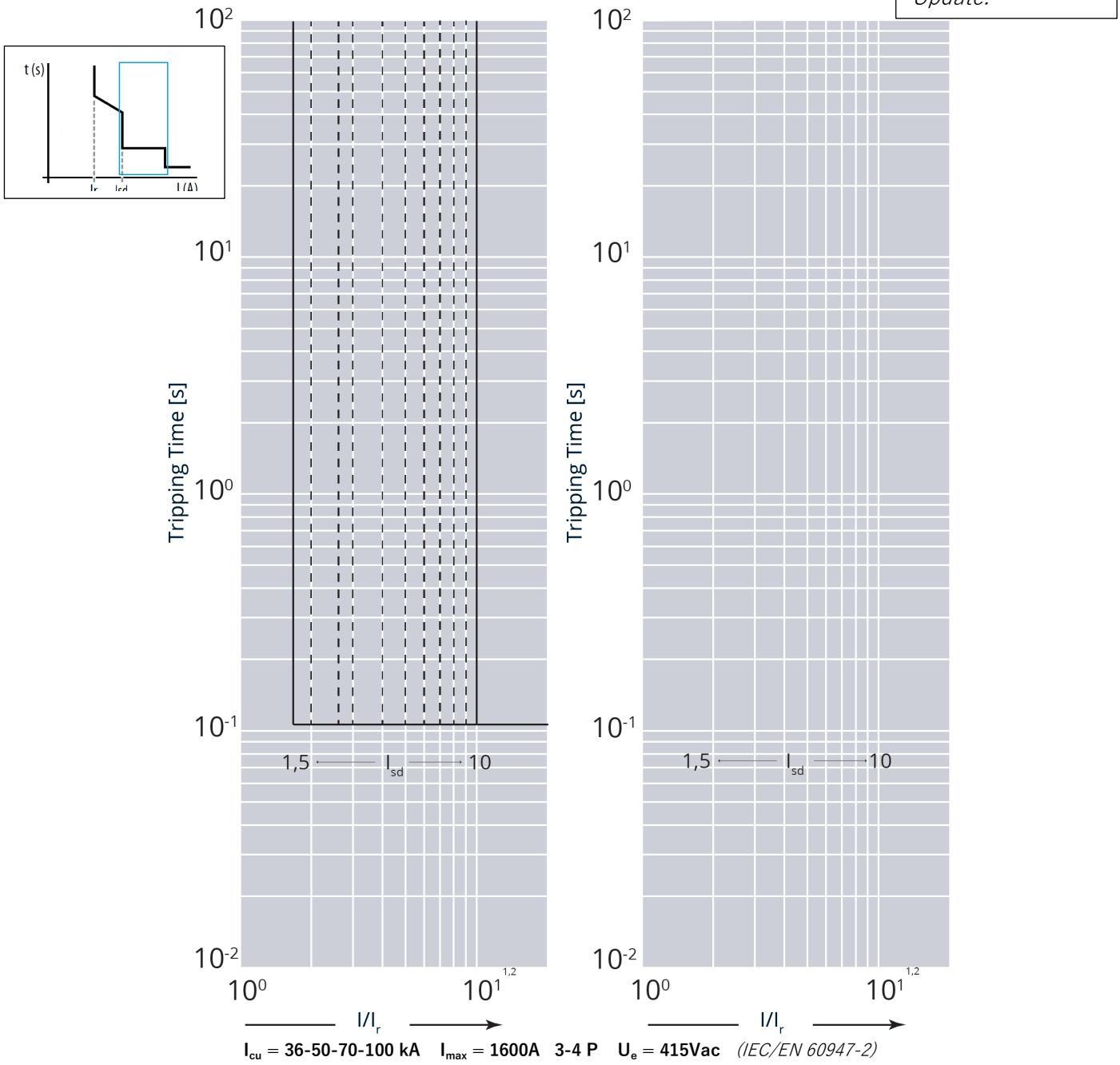


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.2.1 Short time Tripping curve (Li)

Update:



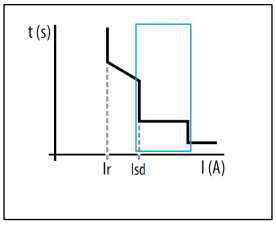
I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

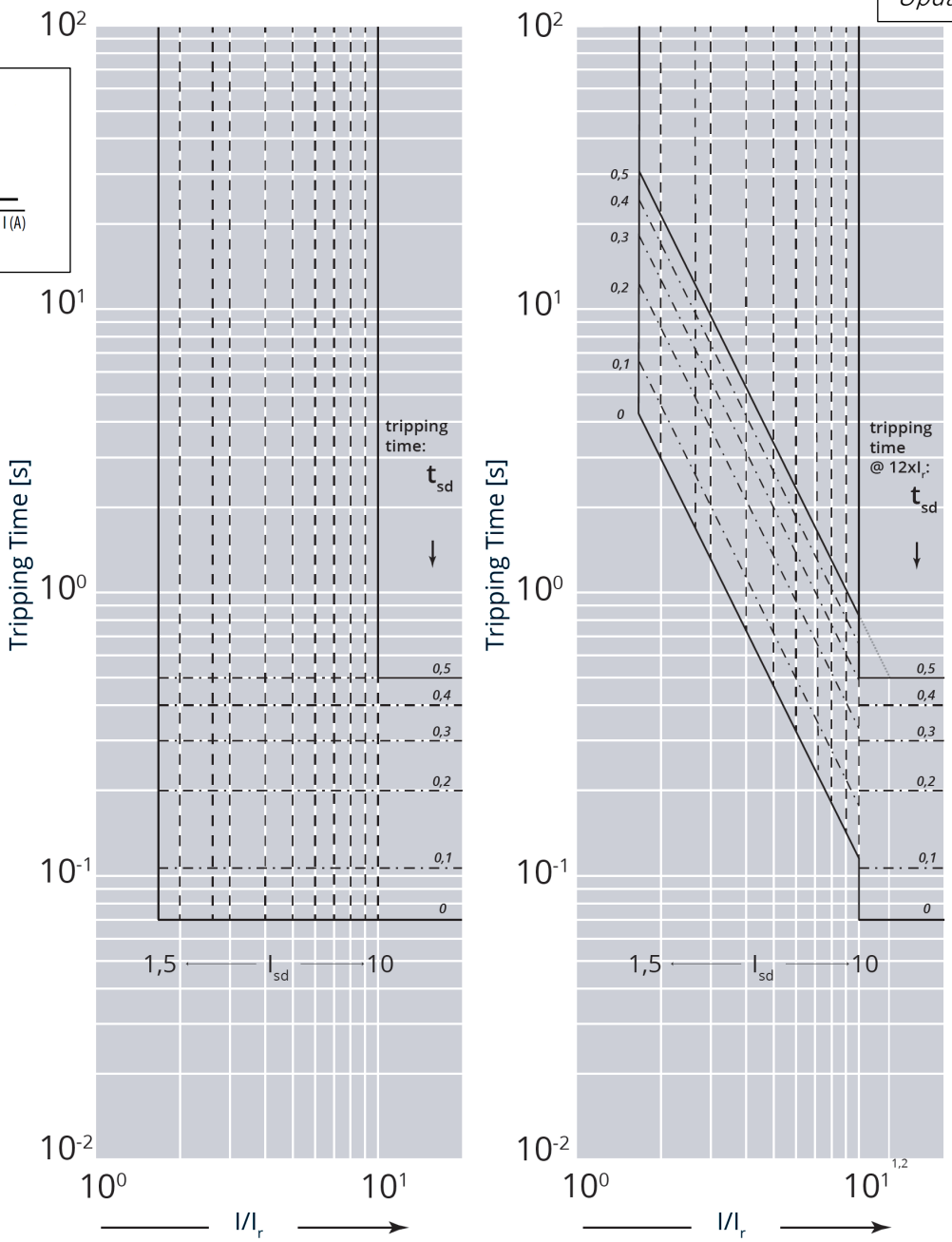
Value	Description
t	time
I	current
I_r	long time setting current
t_r	long time delay
Isd	short time setting current
tsd	short time delay
Ii	instantaneous release
Icu	rated ultimate short-circuit breaking capacity
I^2t = K	constant pass-through energy setting
t = K	constant tripping time setting
————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

Megatiker M5 electronic circuit breakers

10.2.2 Short time Tripping curve (Lsi-Lsig)

Update:



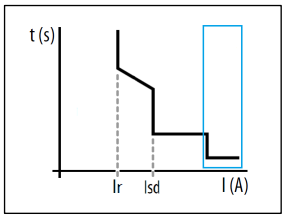


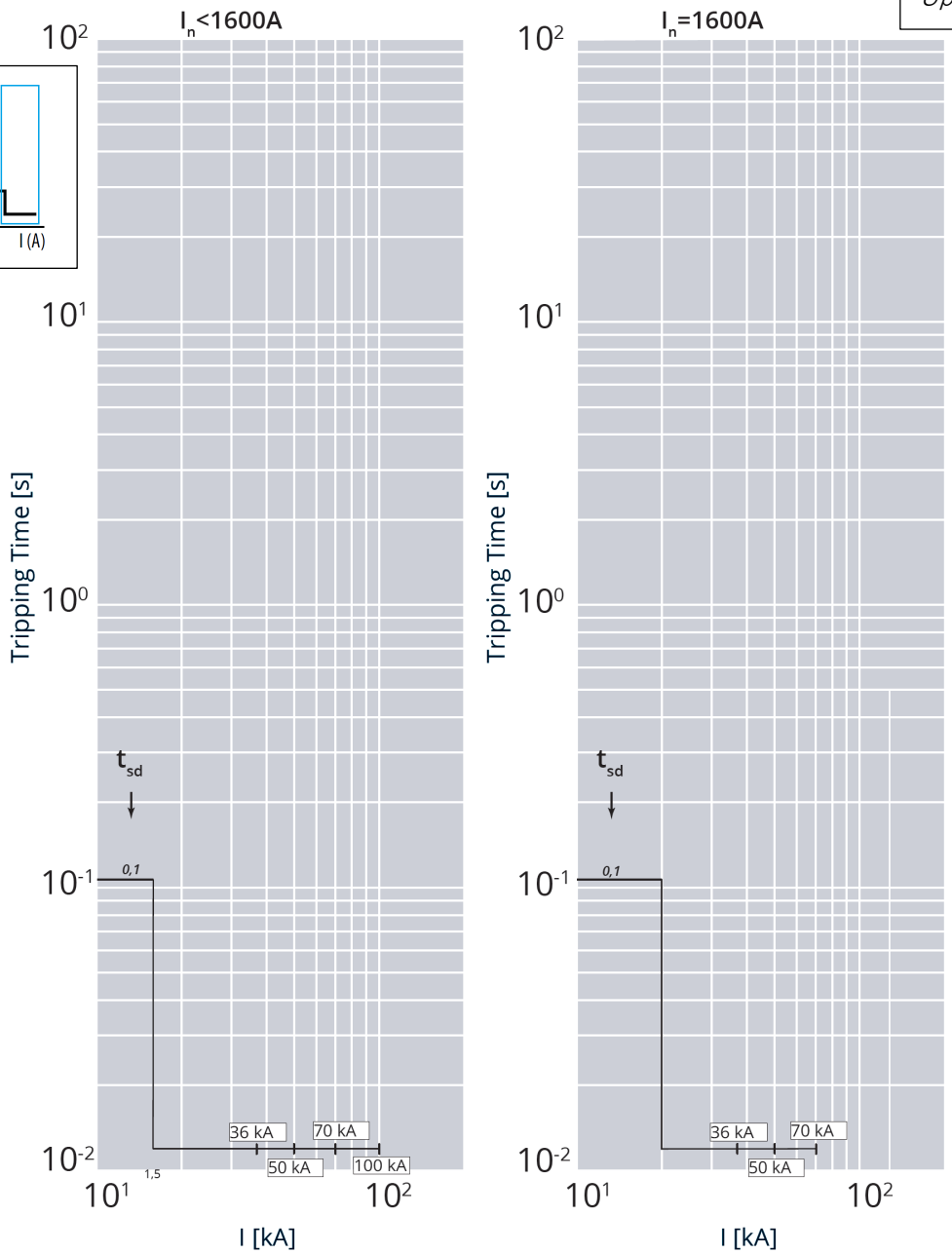
I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.3.1 Instantaneous time Tripping curve (Li)

Update:





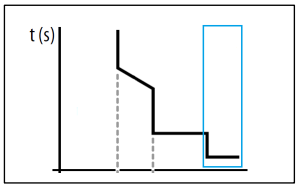
I_{cu} = 36-50-70-100 kA **I_{max} = 1600A** **3-4 P** **U_e = 415Vac** *(IEC/EN 60947-2)*

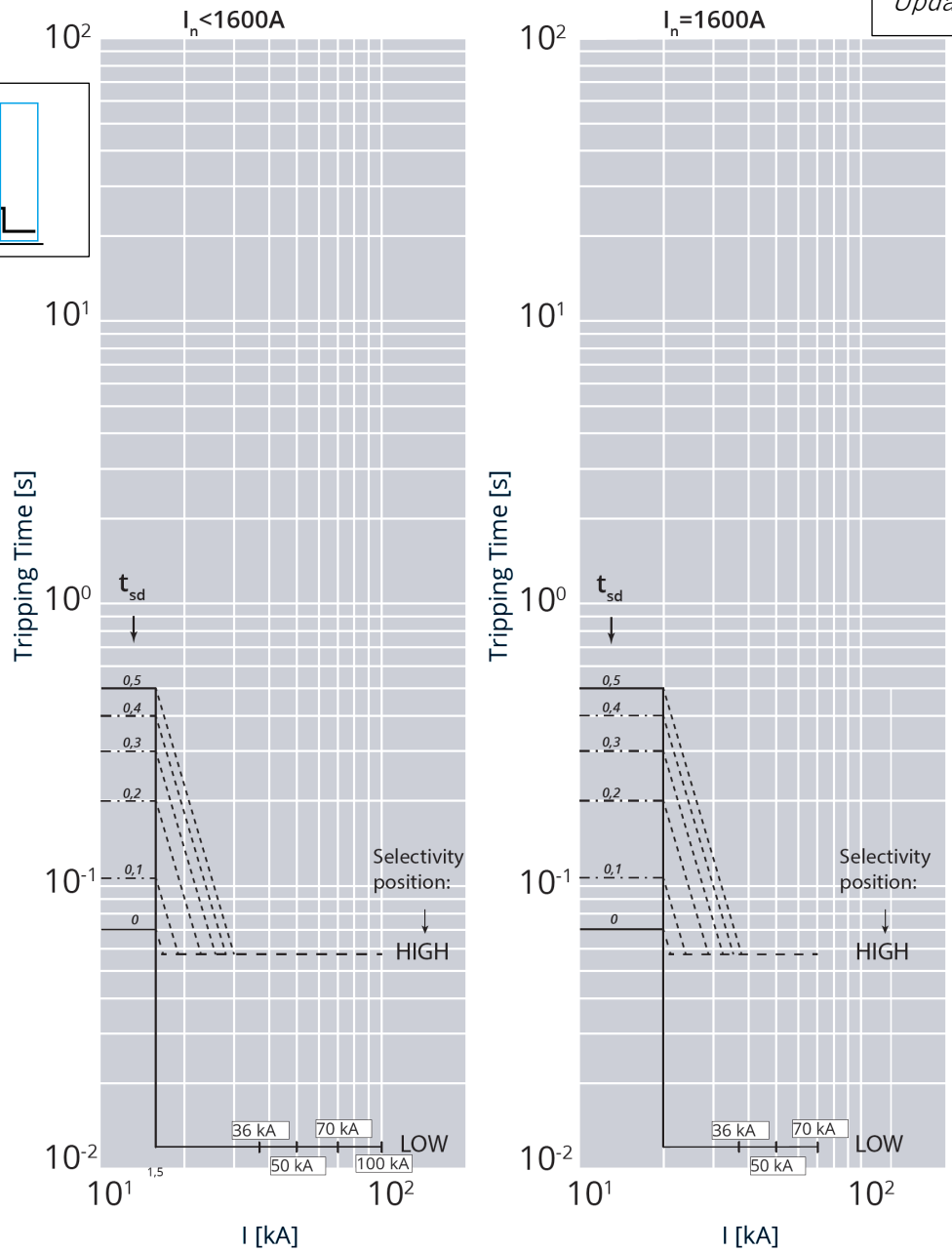
Fixed Instantaneous override I_{sf} = 15kA (for I_n < 1600A) and I_{sf} = 20kA (for I_n =1600A)

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

10.3.2 Instantaneous time Tripping curve (Lsi-Lsig)

Update: 02/07/2018





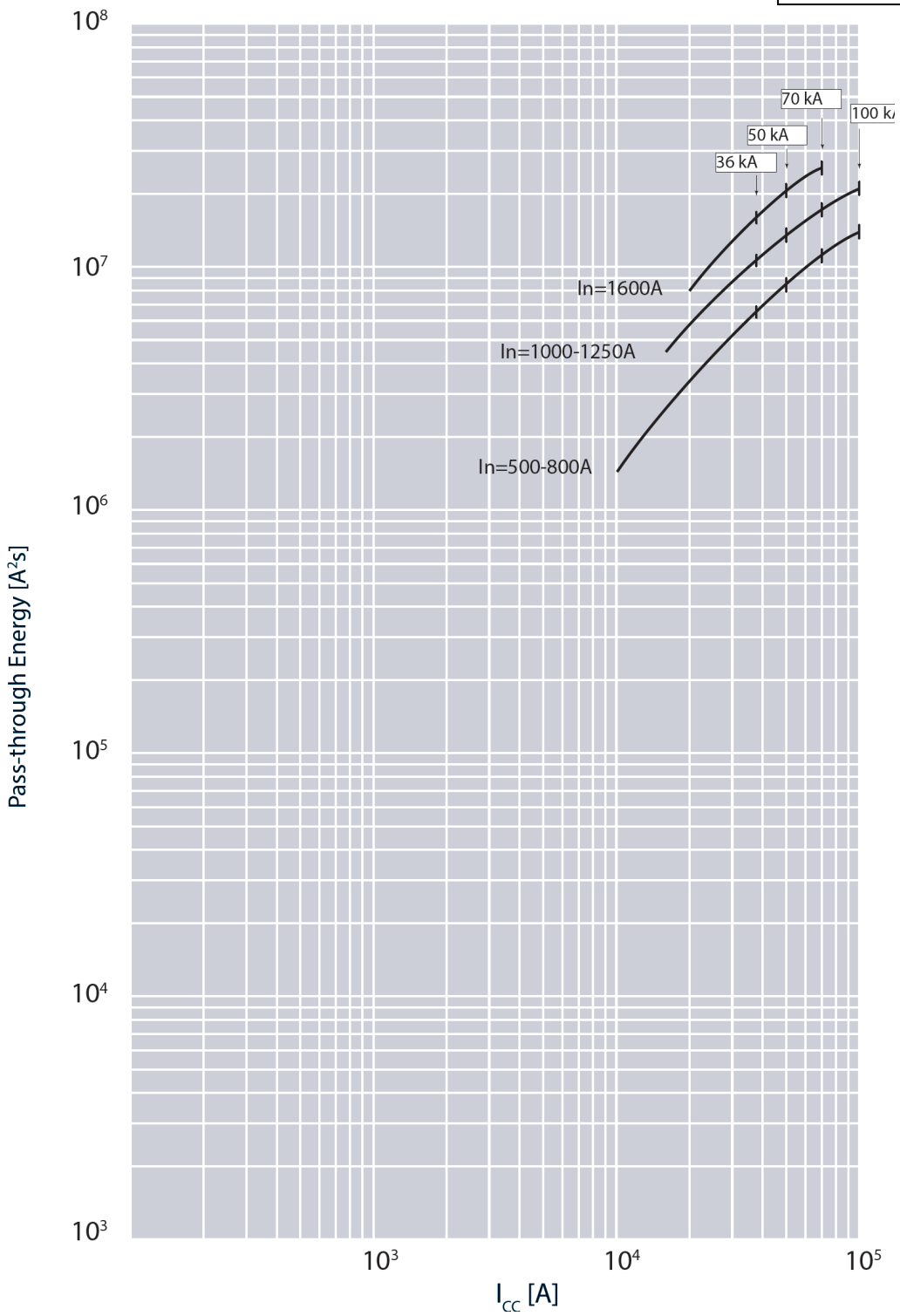
I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

Fixed Instantaneous override I_{sf} = 15kA (for I_n < 1600A) and I_{sf} = 20kA (for I_n =1600A)

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

10.4 Pass-through specific energy characteristic curve

Update:

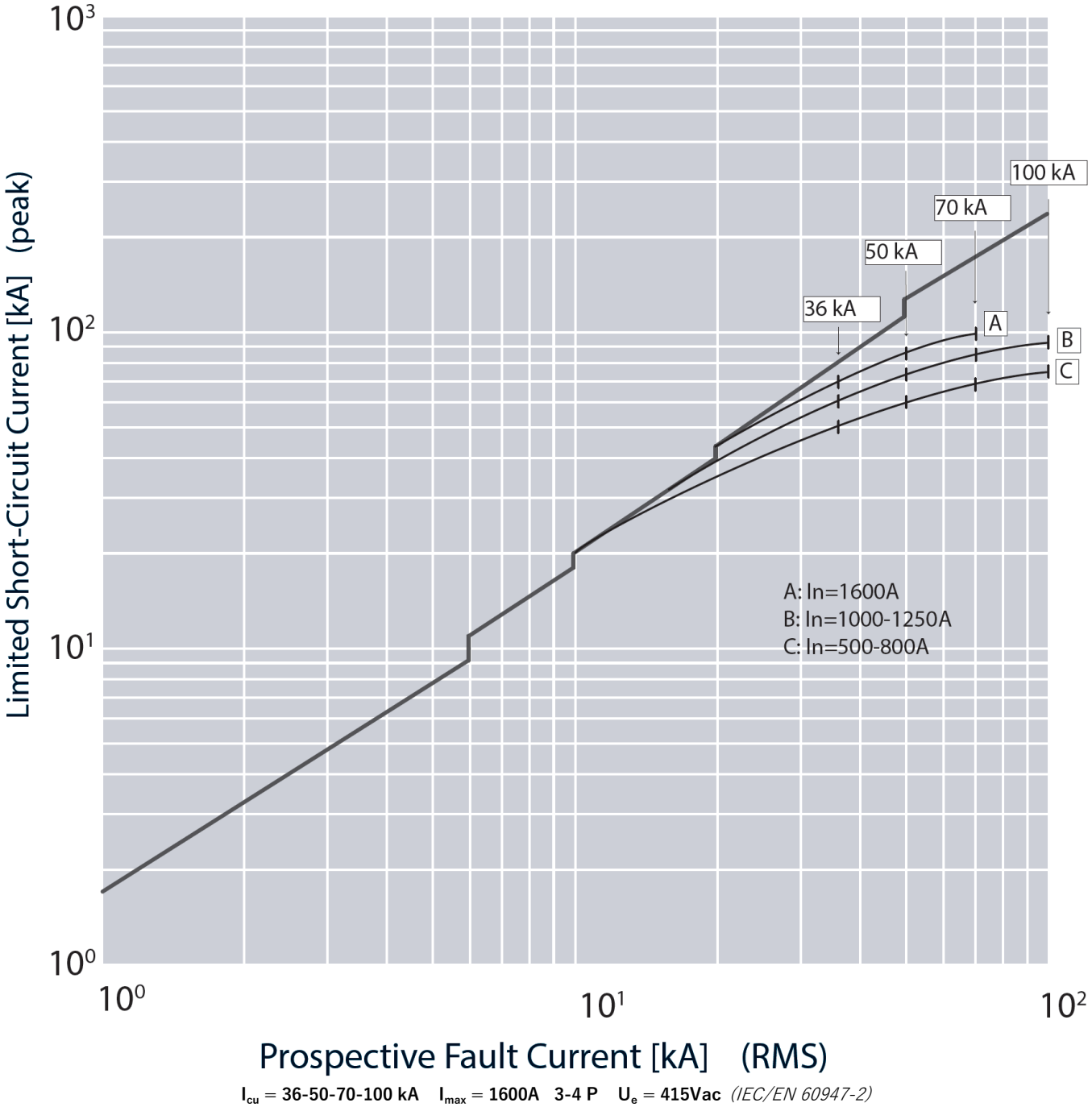


I_{cu} = 36-50-70-100 kA I_{max} = 1600A 3-4 P U_e = 415Vac *(IEC/EN 60947-2)*

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

10.5 Cut-off peak current characteristic curve (kA)

Update: 02/07/2018



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

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

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Reference(s) : **see relative tables**

A) Derating Temperature and configurations

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

For further technical information, please contact Legrand technical support.

Data indicated in this document refers exclusively to test conditions according to product standards, unless otherwise indicated in the documentation.
For the different conditions of use of the product, inside electrical equipment or in any case inserted in the installation context, refer to the regulatory requirements of the equipment, local regulations and design specifications of the system