

Megabreak 4000 circuit breakers (with configurable protection unit) and trip-free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
 T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
 T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
 T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
 T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
 T 814ME 3200/4000


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1. USE

Megabreak air circuit breakers offer optimal solutions to answer protection requirements on the origin of the low voltage electrical installation (IEC/EN 60364-1) up to 6300 A. Their electric and mechanical robustness, in addition to breaking capacity and chances of accessorising, are perfectly suited for these requirements.

Megabreak offers a series of trip-free switches (I series) also, with high performances of insulation, robustness, closing and withstand capability. Both series are furthermore developed for increase continuity service looking at the plant energy efficiency and in respect of "green aspects" (see part 10. Conformity).

2. RANGE

■ 2.1 Megabreak circuit breakers up to 4000 A fixed version with configurable protection unit

In (A)	50 kA		65 kA		100 kA	
	3P	4P	3P	4P	3P	4P
3200	T813A3200	T814A3200	T813H3200	T814H3200	T813L3200	T814L3200
4000	T813A4000	T814A4000	T813H4000	T814H4000	T813L4000	T814L4000

■ 2.2 Megabreak circuit breakers up to 4000 A draw-out version with configurable protection unit

In (A)	50 kA		65 kA		100 kA	
	3P	4P	3P	4P	3P	4P
3200	T813AE3200	T814AE3200	T813HE3200	T814HE3200	T813LE3200	T814LE3200
4000	T813AE4000	T814AE4000	T813HE3200	T814HE4000	T813LE4000	T814LE4000

■ 2.3 Megabreak trip-free switches up to 4000 A fixed/draw-out version

In (A)	Fixed version		Draw-out version	
	3P	4P	3P	4P
3200	T813M3200	T814M3200	T813ME3200	T814ME3200
4000	T813M4000	T814M4000	T813ME4000	T814ME4000

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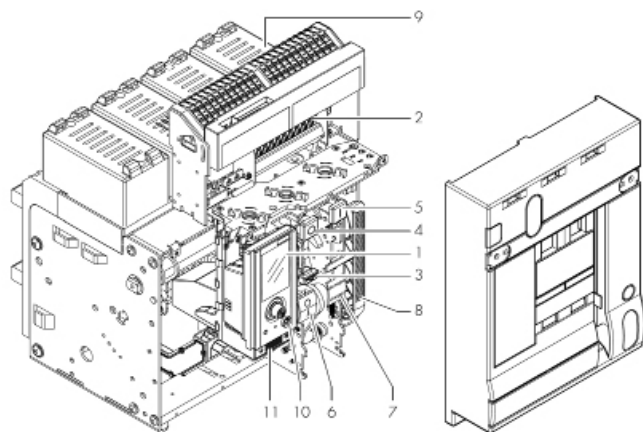
T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

2. RANGE (continued)

■ 2.4 Composition

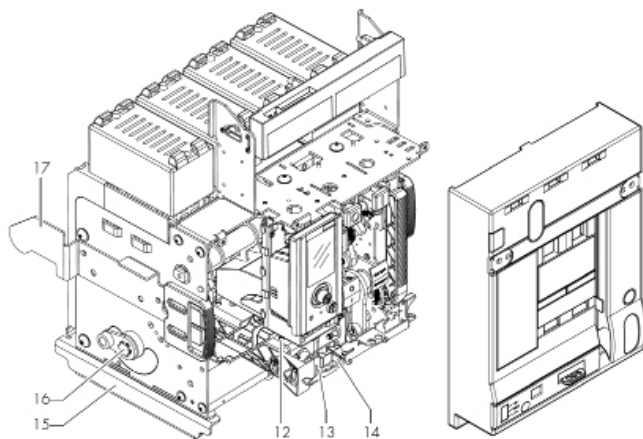
Main parts constituting the circuit breaker

Fixed version



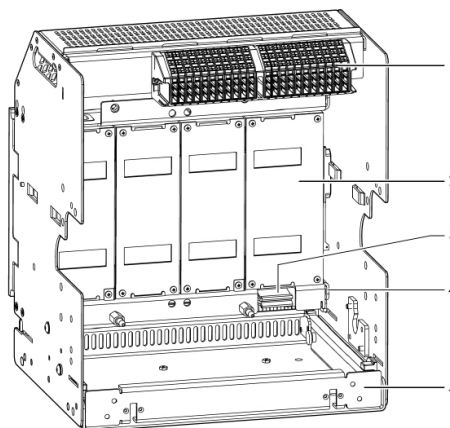
1. Protection Unit
2. Auxiliary contacts
3. Reset button
4. OFF button
5. ON button
6. ON-OFF Indication
7. Spring status indication
8. Charging handle
9. Dejon cell
10. Mini USB cover
11. Battery cover

Draw-out version



12. Draw-out mechanism
13. Draw-out bar insertion
14. Racking shutter
15. Support to place the breaker in draw-out cassette
16. Draw-out main shaft
17. Insertion guide

Draw-out base



1. Auxiliary terminal block
2. Safety shutter
3. Earth connection
4. Earth terminal
5. Removable cassette

Megabreak are equipped with auxiliary contacts (2 NO/NC, expandable up to 10) and doorframe, besides:

- Fixed version: equipped with rear terminals for horizontal connections with bars.
- Draw-out version: equipped with flat rear terminals for connections with bars and delivered with base equipped with extraction crank and isolating components.
- Door sealing.

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T 814ME 3200/4000

3. TECHNICAL CHARACTERISTICS

■ 3.1 Electrical characteristics

- Circuit breaker

		Megabreak 4000		
		50 kA	65 kA	100 kA
Frame current		4000 A		
Rated current In		3200 A/4000 A		
Poles		3P - 4P		
Rated insulation voltage Ui		1000 V		
Rated impulse withstand voltage Uimp		12 kV		
Rated operational voltage (50/60Hz) Ue		690 V		
Rated ultimate short-circuit breaking capacity Icu (kA)	220/240 V~	50	65	100
	380/415 V~	50	65	100
	440/460 V~	50	65	100
	480/500 V~	50	65	100
	600 V~	50	65	75
	690 V~	50	55	65
Rated service short-circuit breaking capacity Ics (% Icu)		100%		
Rated short-circuit making capacity Icm (kA)	220/240 V~	105	143	220
	380/415 V~	105	143	220
	440/460 V~	105	143	220
	480/500 V~	105	143	220
	600 V~	105	132	165
	690 V~	105	121	143
Rated short time withstand current Icw (kA) for t = 1s	220/240 V~	50	65	85
	380/415 V~	50	65	85
	440/460 V~	50	65	85
	480/500 V~	50	65	85
	600 V~	50	60	75
	690 V~	50	55	65
Rated short time withstand current Icw (kA) for t = 3s	220/240 V~	50	65	65
	380/415 V~	50	65	65
	440/460 V~	50	65	65
	480/500 V~	50	65	65
	600 V~	50	65	65
	690 V~	50	55	65
Individual pole short-circuit current I _{tr} (kA)	220/240 V~	1.2 times the maximum setting of the defined time delay release tripping current (I _{sd}) ⁽¹⁾		
	380/415 V~			
	440/460 V~			
	480/500 V~			
	600 V~			
	690 V~			
Suitable for insulation		Yes		
Neutral protection (% I _{th})		0 - 50 - 100 - 150 - 200		
Operation temperature		-25 °C to +70 °C		
Storage temperature		-25 °C to +85 °C		

⁽¹⁾ For more details, please consult BTicino

- Trip-free switches

		Megabreak 4000
Rated current In (A)		3200 A/4000 A
Poles		3P - 4P
Rated insulation voltage Ui		1000 V
Rated impulse withstand voltage Uimp		12 kV
Rated operational voltage (50/60Hz) Ue		690 V
Category of use		AC23A
Rated short circuit making capacity Icm (kA)	220/240 V~	187
	380/415 V~	187
	440/460 V~	187
	480/500 V~	187
	600 V~	165
	690 V~	143
Rated short time withstand current Icm (kA) for t = 1s	220/240 V~	85
	380/415 V~	85
	480/500 V~	85
	600 V~	75
Rated short time withstand current Icw (kA) for t = 3s	220/240 V~	65
	380/415 V~	65
	480/500 V~	65
	600 V~	65
	690 V~	65
	690 V~	65
Suitable for insulation		Yes
Operation temperature		-25 °C to +70 °C
Storage temperature		-25 °C to +85 °C

The maximum temperature allowed on power terminals is 135 °C (absolute). For details, see IEC 60947-1 and 60947-2.

■ 3.2 Phases limit trip current

	Thermal		Magnetic	
	I _r		I _{sd}	
In (A)	0.2 x In	1 x In	1.5 x I _r min	10 x I _r max
3200	640	3200	1920	32000
4000	800	4000	2400	40000

Note: for neutral adjustment, please consider the values ratios 0%, 50%, 100%, 150% and 200% on set currents.

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T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

3. TECHNICAL CHARACTERISTICS (continued)

3.3 Mechanical characteristics

- Endurances:

Megabreak 4000 (circuit breaker and trip-free switches)		
Endurance (cycles)	Mechanical	10000 (w/o maintenance); 20000 (with maintenance)
	Electrical	10000 (w/o maintenance)
Category of use	B	

Note:

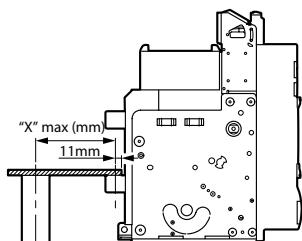
- With auxiliary contacts: same as breaker (10000 cycles w/o maintenance);
- With motor operator: 10000 cycles;
- With releases: 10000 cycles.

- Electrodynamic forces:

The table below shows an indication of suggested distances to keep between the breaker and the first fixing point of the conductor and bars in order to reduce the effects of the electrodynamic stresses that may be created during a short circuit.

In the realization of anchorage system it is recommend the use of isolators suitable for the type of conductor used and the operating voltage.

Icc (kA) max	50	65	100
"X" max. (mm)	300	250	150



According to conductor type and bar system (except BTicino bar kits), the choice of the distance to keep is to be calibrated by the installer.

Also, the installer must take into account the weight of the conductors so that it does not affect the electrical junction between the conductor itself and the connection point.

3.4 Power losses per pole at In/Ie

		Circuit breaker and trip-free switches	
		Fixed	Draw-out
Rated current In (A)	3200	83.3	163.8
	4000	130.1	256.0

Note: power loss in the table above are referred and measured as described in the standard IEC 60947-2 (Annex G) for circuit-breakers and IEC 60947-1 for switches.

Values in the table are referred to a single phase.

3.5 Electronic protection unit

All Megabreak 4000 can be equipped by a basic or advanced electronic protection unit whose main characteristics are:

- Integrated LED matrix screen to show electrical values and settings (basic) or integrated LCD screen for displaying electrical values, settings and log (advanced);
- Adjustment via rotating encoder;
- Adjustment of Ir, tr, Isd, tsd, li, Ig and tg;

- Possibility to enable/disable protections;
 - Measure and display instantaneous, maximum and average values of different electrical values and protection conditions, fault signaling and log (for versions with measure);
 - Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected (advanced).
- All protection units have onboard a mini type "B" USB socket for maintenance purposes or PCS software connection to PC.

Protection unit types

Protection unit are available in basic and advanced type as follows.

	Features		Power consumption	Cat.Nos
	Display	With measure		
Basic	LED matrix	NO	55 mA	MP210A
		YES	69 mA	MP210AM*
Advanced	LCD screen	NO	62.5 mA	MP410A
		YES	80 mA	MP410AM*

* For the correct working of metering function, it is necessary to connect a CX³ EMS power supply module Cat.No F80BA.

Protective functions

Ir: Long time delay protection against overloads

From 0.2 to 1 x In with steps of 1A

Protection: ON/OFF

tr: Long delay protection operation time

From 40 ms to 30 s (@6lr) with steps of 40 ms

Thermal memory: ON/OFF

Isd: Short time delay protection against short-circuits

From 1.5 to 10 x Ir with steps of 1 A

Protection: ON/OFF

tsd: Short time delay protection operation time

From 40 ms to 1 s with steps of 40 ms

(both $t = k$, independent time delay, and $I^2t=k$, inverse short time delay)

li: Instantaneous protection against very high short-circuits

From 2 to 15 x In or Icw with steps of 1 A

Protection: ON/OFF

Ig: Earth fault current

From 0.2 to 1 x In with steps of 1A

Protection: ON/OFF

tg: Time delay on earth fault tripping

From 80 ms to 1s with steps of 40 ms

(both $t = k$, independent time delay, and $I^2t=k$, inverse short time delay)

N: Neutral protection OFF-50%-100%-150%-200%

Configuration

Protection units basic and advanced are fully configurable and can be configured in complete freedom.

They can be used to adapt settings as closely as possible to the requirements of the specific installation, either by enabling/disabling the different protection devices (currents and tripping times), or by altering the different trip thresholds.

The tripping curve is thus fully customised to suit the real-life conditions of each project.

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T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

3. TECHNICAL CHARACTERISTICS (continued)

■ 3.5 Electronic protection unit (continued)

Protection units with integrated measurement function can also be used to display voltages, active and reactive powers, frequency, power factor, and also energy, in addition to monitoring currents.

Alarms can be programmed on a number of these parameters: max. voltage, min. voltage, voltage unbalance, max. and min. frequency, etc.

General remarks on protection unit

The protection units basic/advanced are normally supplied by the internal current transformers (CTs).

When the current flowing through the circuit breaker is greater than 50 A (single for phase load), the internal current supply ensures all operation of the protection unit (included LED status).

Display backlight is guaranteed starting from 220 A (for single phase load) and integrated measure (if available) are instead guaranteed starting from 300 A (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 50 A (for single phase load) to grant complete functions, one of the following optional power supplies can be used:

- EMS power supply module (Cat.No F80BA)
- Power supply temporarily connected to frontal USB socket, connected to a 5 V_{DC} power bank, Dongle BLE or PC.

Common accessories for protection units

Bluetooth communication key

Cat.No MPXX02

USB key for Bluetooth communication with Megabreak protection unit, needed to monitor and manage (test and report) the Megabreak protection units through EnerUp + Project App. USB connection port on the front of protection unit.

Power supply module

Cat.No F80BA

500 mA 12 V stabilized power supply module for CX³ energy management system – 1 DIN module. For correct use, choose protection units with measure function (Cat.Nos MP210AM or MP410AM)

Communication interface

Cat.No F80BIM1

RS485/CX³ energy management system conversion

Consumption: 0.344 W - 28.7 mA (12 V_{DC}) – 1 DIN module

External neutral

Cat.No M8TAX

Optional accessories, to be ordered when ordering electronic protection unit and Megabreak air circuit breakers for factory assembly.

4. INSTALLATION RULES

Temperature derating

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 deratings for Megabreak 4000 circuit breakers and trip-free switches fixed version-horizontal terminals:

Temperature	Fixed version									
	up to 40 °C		50 °C		60 °C		65 °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
Megabreak 4000 (circuit breakers and trip-free switches)	3200	1	3200	1	3200	1	3136	0.98	3008	0.94
	4000	1	3920	0.98	3680	0.92	3440	0.86	3120	0.78

Temperature deratings for Megabreak 4000 circuit breakers and trip-free switches draw-out version-horizontal terminals:

Temperature	Draw-out version									
	up to 40 °C		50 °C		60 °C		65 °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
Megabreak 4000 (circuit breakers and trip-free switches)	3200	1	3200	1	3200	1	3072	0.96	2880	0.90
	4000	1	3760	0.94	3440	0.86	3200	0.80	2960	0.74

NOTE: For further technical information, please contact BTicino technical support.

4. INSTALLATION RULES (continued)

Temperature derating (continued)

Climatic conditions: according to IEC/EN 60947-1 Annex Q, Cat. F subject to temperature, humidity, vibration, shock and salt mist.
Pollution degree: for Megabreak 4000 circuit breakers, degree 3, according to IEC/EN 60947-2.
Electromagnetic disturbances (EMC): for Megabreak 4000, according to IEC/EN 60947-2 - Annex F.

Altitude derating for Megabreak 4000 (circuit breakers and trip-free switches)

Altitude (m)	<2000	3000	4000	5000
Rated current (at 40°C/50°C) In (A)	In	0.98 x In	0.94 x In	0.9 x In
Rated voltage Ue (V)	690	600	500	440
Rated insulation voltage Ui (V)	1000	900	750	600
Dielectric withstand (V)	3500	3200	2500	2000

5. DIMENSIONS AND WEIGHTS

5.1 Dimensions

		Megabreak 4000 (circuit breakers and trip-free switches)
Height (mm)	3P-fixed	419
	3P-Draw-out	473
	4P-Fixed	419
	4P-Draw-out	473
Depth (mm)	3P-fixed	354
	3P-Draw-out	433
	4P-Fixed	354
	4P-Draw-out	433
Width (mm)	3P-fixed	408
	3P-Draw-out	425
	4P-Fixed	538
	4P-Draw-out	555

5.2 Weights

		Megabreak 4000 (circuit breakers)
Weight (kg)	3P-fixed	55
	3P-Draw-out ⁽¹⁾	106
	4P-Fixed	68
	4P-Draw-out ⁽¹⁾	134

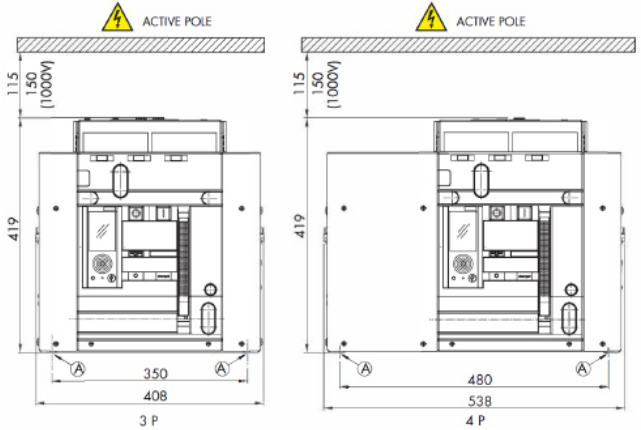
⁽¹⁾Weights for draw-out releases are to be intended with base.

		Megabreak 4000 (trip-free switches)
Weight (kg)	3P-fixed	54
	3P-Draw-out ⁽¹⁾	105
	4P-Fixed	67
	4P-Draw-out ⁽¹⁾	133

⁽¹⁾Weights for draw-out releases are to be intended with base.

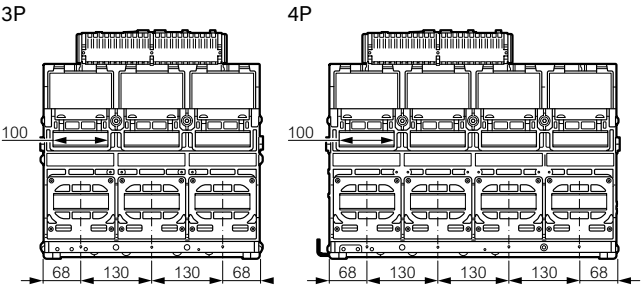
5.3 Fixed version

Frontal view

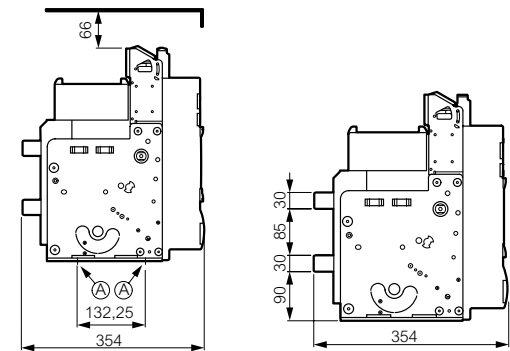


A = fixing point on plate of enclosure

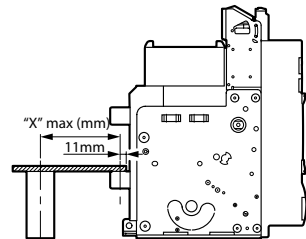
Rear view



Lateral view



A = fixing point on plate of enclosure



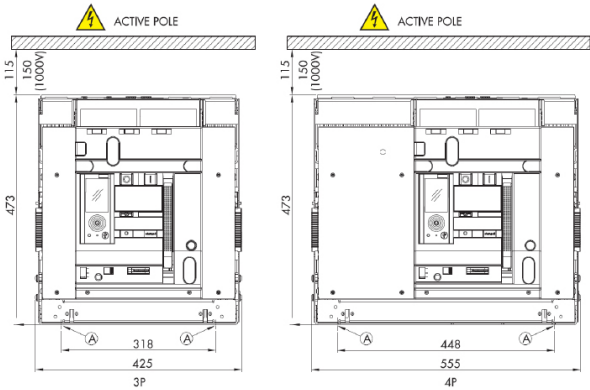
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T 814ME 3200/4000

5. DIMENSIONS AND WEIGHTS (continued)

5.4 Draw-out version

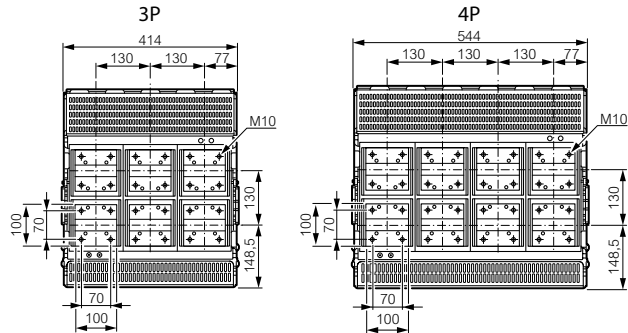
Frontal view



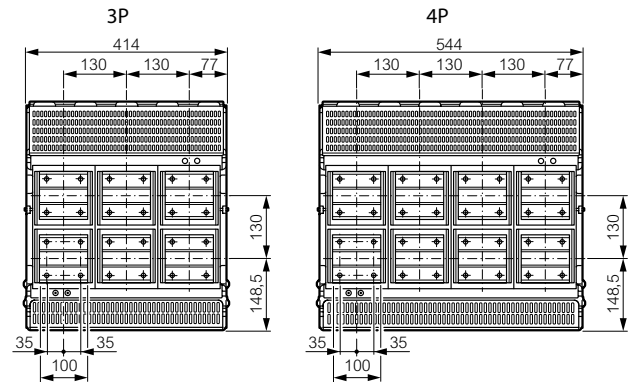
A = fixing point on plate of enclosure

Rear view

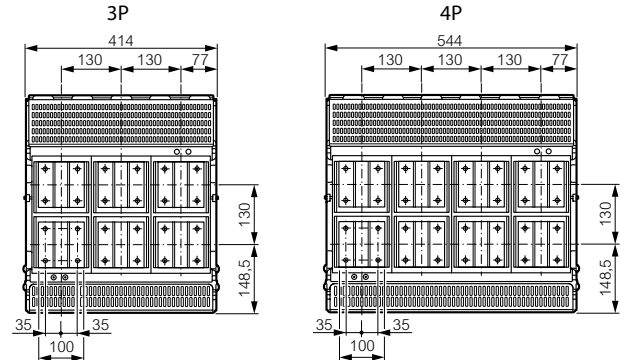
- Flat terminals



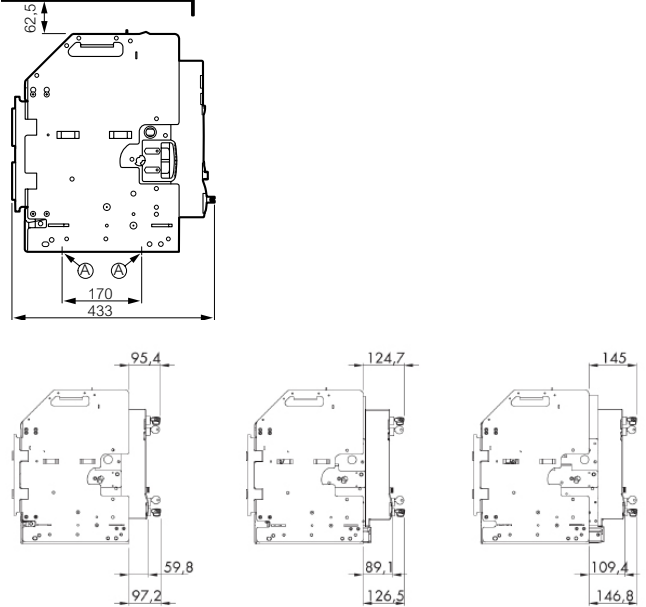
- Horizontal terminals



- Vertical terminals



Lateral view



6. ELECTRICAL CONNECTIONS

Use only as a general guideline to select products. Due to extensive variety of switchgear installation shapes and conditions of use, the solution used must always be verified. If inter-poles air distance is less than 20 mm, it is recommended to use of phase insulators or insulated bars.

Minimum cross section of Copper busbars per pole:

- Megabreak 4000 (circuit breakers and trip-free switches) fixed and draw-out versions

Rated current (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 40 x 10 or 2 bars 40 x 5	2 bars 40 x 5
800	1 bar 50 x 10 or 2 bars 50 x 5	2 bars 50 x 5
1000	1 bar 50 x 10 or 2 bars 50 x 5	2 bars 60 x 5
1250	2 bars 60 x 5	2 bars 80 x 5
1600	2 bars 80 x 5	2 bars 50 x 10
2000	2 bars 50 x 10	2 bars 60 x 10
2500	3 bars 50 x 10	3 bars 60 x 10
3200	3 bars 100 x 10	4 bars 80 x 10
4000	4 bars 100 x 10	5 bars 100 x 10

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T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

6. ELECTRICAL CONNECTIONS (continued)

Minimum cross section of Aluminium busbars per pole:

- Megabreak 4000 (circuit breakers and trip-free switches) fixed and draw-out versions

Rated current (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40 x 8	2 bars 40 x 8
800	2 bars 50 x 8	2 bars 50 x 8
1000	2 bars 50 x 8	2 bars 50 x 10
1250	2 bars 50 x 10	2 bars 60 x 10
1600	2 bars 60 x 10	4 bars 50 x 8
2000	4 bars 50 x 8	4 bars 50 x 10
2500	4 bars 60 x 10	4 bars 80 x 10
3200	4 bars 150 x 10	5 bars 150 x 10
4000	5 bars 150 x 10	6 bars 150 x 10

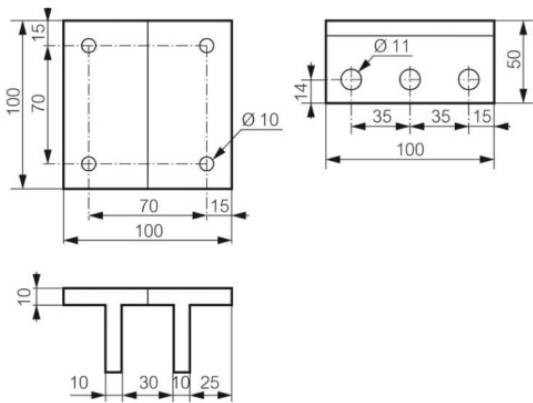
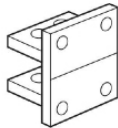
7. EQUIPMENTS AND ACCESSORIES

7.1 Terminals

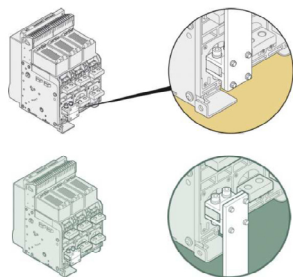
- Rear terminals for fixed version – Flat connection pitch 130 mm

They must be fixed onto horizontal rear terminals of the circuit breaker.

Cat.Nos	
3P	4P
MT8P3P2	MT8P4P2



Mounting examples:



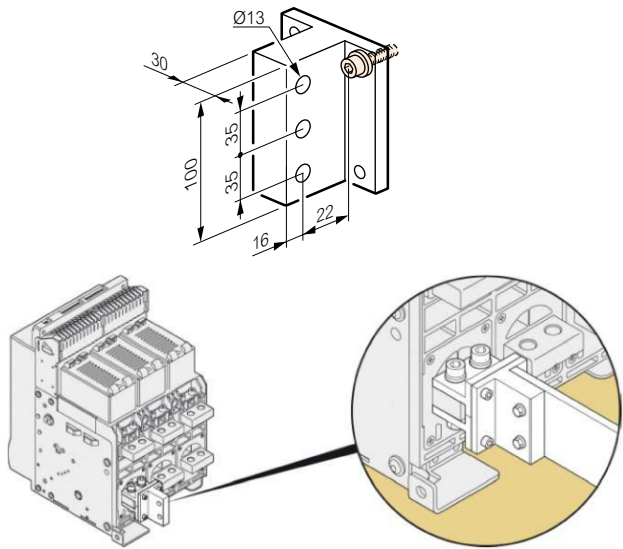
- Rear terminals for fixed version – Vertical connection pitch 130 mm

They are used to transform a flat connection into a vertical one.

They must be fixed onto Cat.Nos 0 MT8P3P2/MT8P4P2 according to the number of poles.

Cat.Nos	
3P	4P
MT8HV3P2	MT8HV4P2

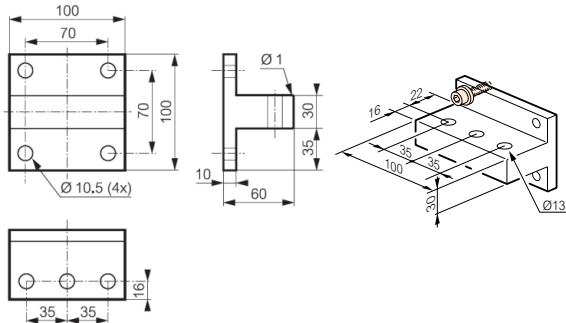
Mounting example:



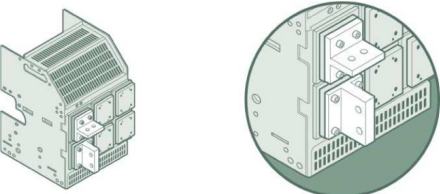
- Rear terminals for draw-out version – Flat/vertical connection

They must be fixed directly onto plate rear terminals of the circuit breaker.

Cat.Nos	
3P	4P
MT8HV3P2	MT8HV4P2



Mounting example:



Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

7. EQUIPMENTS AND ACCESSORIES (continued)

■ 7.2 Control auxiliaries

- **Shunt trip: when energised the circuit breaker will be tripped.**

24 V ~/=	Cat.No M8T024C
48 V ~/=	Cat.No M8T048C
110 ÷ 130 V ~/=	Cat.No M8T110C
220 ÷ 250 V ~/=	Cat.No M8T230C
415 ÷ 480 V ~	Cat.No M8T415

Rated operating voltage (Uc) (V)	~: 24 - 48 - 110 ÷ 130 - 220 ÷ 250 - 415 ÷ 480 =: 24 - 48 - 110 ÷ 130 - 220 ÷ 250
Voltage range(*) (% Uc)	70 ÷ 110
Pick-up consumption (W/VA)	500/500
Pick-up time (ms)	180
Hold consumption (W/VA)	5/5
Minimum opening time (ms)	30
Insulation voltage (kV)	2.5

(*) The minimum voltage range % is referred to the rated voltage minimum value and the maximum voltage range % is referred to the rated voltage maximum value.

- **Undervoltage releases: device trips when coil is de-energised.**

24 V ~/=	Cat.No M8M024C
48 V ~/=	Cat.No M8M048C
110 ÷ 130 V ~/=	Cat.No M8M110C
220 ÷ 250 V ~/=	Cat.No M8M230C
415 ÷ 440 V ~	Cat.No M8M415

Rated operating voltage (Uc) (V)	~: 24 - 48 - 110 ÷ 130 - 220 ÷ 250 - 415 ÷ 480 =: 24 - 48 - 110 ÷ 130 - 220 ÷ 250
Voltage range(*) (% Uc)	85 ÷ 110
Pick-up consumption (W/VA)	500/500
Pick-up time (ms)	180
Hold consumption (W/VA)	5/5
Minimum opening time (ms)	60
Insulation voltage (kV)	2.5

(*) The minimum voltage range % is referred to the rated voltage minimum value and the maximum voltage range % is referred to the rated voltage maximum value.

- **Modules for delayed tripping, to be used with undervoltage releases.**

110 V ~/=	Cat.No M8MR110C
230 V ~/=	Cat.No M8MR230C

Rated operating voltage (Uc) (V)	~: 110 or 230 =: 110 or 230
Voltage range (% Uc)	85 to 110
Pick-up consumption (W/VA)	16.5 (@110 V)/34.5 (@230 V)
Time delay (s)	1 ⁽¹⁾
Hold consumption (W/VA)	5 (@110 V)/10 (@230 V)
Opening threshold	0.3 to 0.75 x Un
Closing threshold	0.85 x Un
Operating temperature (°C)	-10 to +55

⁽¹⁾ It is possible to connect up to 3 modules - 1s of delay for each module installed.

- **Closing coils: to enable remote closing of the circuit breaker if the closing spring is charged.**

24 V ~/=	Cat.No M8C024C
48 V ~/=	Cat.No M8C048C
110 ÷ 130 V ~/=	Cat.No M8C110C
220 ÷ 250 V ~/=	Cat.No M8C230C
415 ÷ 480 V ~	Cat.No M8C415

Rated operating voltage (Uc) (V)	~: 24 - 48 - 110 ÷ 130 - 220 ÷ 250 - 415 ÷ 480 =: 24 - 48 - 110 ÷ 130 - 220 ÷ 250
Voltage range(*) (% Uc)	85 ÷ 110
Pick-up consumption (W/VA)	500/500
Pick-up time (ms)	180
Hold consumption (W/VA)	5/5
Maximum closing time (ms)	30
Insulation voltage (kV)	2.5

(*) The minimum voltage range % is referred to the rated voltage minimum value and the maximum voltage range % is referred to the rated voltage maximum value.

- **Motor operators connect to a release coil (UVR or trip on energising) and a closing coil.**

24 V ~/=	Cat.No M8MT024C
48 V ~/=	Cat.No M8MT048C
110 ÷ 130 V ~/=	Cat.No M8MT110C
220 ÷ 250 V ~/=	Cat.No M8MT230C
415 ÷ 440 V ~	Cat.No M8MT415
480 V ~/=	Cat.No M8MT480

Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

7. EQUIPMENTS AND ACCESSORIES (continued)

■ 7.2 Control auxiliaries (continued)

- Motor operators connect to a release coil (UVR or trip on energising) and a closing coil (continued).

Rated operating voltage (Uc) (V)	$\sim$: 24 - 48 - 110 ÷ 130 - 220 ÷ 250 - 415 ÷ 480 $\equiv$: 24 - 48 - 110 ÷ 130 - 220 ÷ 250
Voltage range(*) (% Uc)	85 ÷ 110
Maximum power consumption (W/VA)	180/180 (up to 65 kA); 240/240 (100 kA)
Maximum peak current for 80 ms	2 to 3 x In
Charging time (s)	5 (up to 65 kA); 7 (100 kA)
Operating frequency (n°/min.)	2 (up to 65 kA); 1 (100 kA)

(*) The minimum voltage range % is referred to the rated voltage minimum value and the maximum voltage range % is referred to the rated voltage maximum value.

■ 7.3 Signalling auxiliaries

- Signalling contact for draw-out version inserted/test/drawn-out signalling contact 3 changeover contacts per position.

Cat.No M8POS		
Rated operating voltage (Uc)	$\equiv$	250 V - 0.3 A
		125 V - 0.6 A
	$\sim$	250 V - 16 A
		125 V - 16 A

- Contact "ready to close" with charged springs.

Cat.No M8PC		
Rated operating voltage (Uc)	$\equiv$	250 V - 0.3 A
		125 V - 0.6 A
	$\sim$	250 V - 16 A
		125 V - 16 A

- Additional signalling contact.

Cat.No M8AGG		
Rated operating voltage (Uc)	$\equiv$	250 V - 0.3 A
		125 V - 0.6 A
	$\sim$	250 V - 16 A
		125 V - 16 A

- Signalling contact for auxiliaries (ST, CC and UVR).

Cat.No M8SB		
Rated operating voltage (Uc)	$\equiv$	250 V - 0.3 A
		125 V - 0.6 A
	$\sim$	250 V - 16 A
		125 V - 16 A

■ 7.4 Locking

- Universal key locks: to be used in combination with key locking support Cat.No MT805A or MT805E01.

Key barrel and flat key with random mapping	Cat.No M7K01
Key barrel and flat key with fixed mapping EL43525	Cat.No M7K02
Key barrel and flat key with fixed mapping EL 43363	Cat.No M7K03
Key barrel and star key with random mapping	Cat.No M7K04

- Keylocks supports:

Key locking support in "open" position (to be equipped with universal keylocks Cat.Nos M7K01/02/03/04)	Cat.No MT805A
Key locking support in "draw-out" position (to be equipped with universal keylocks Cat.Nos M7K01/02/03/04)	Cat.No MT805E01

- Door locking: prevents opening of the door with the circuit breaker closed.

Left-hand and right-hand side mounting	Cat.No MT807SD
--	----------------

- Padlocks in "open" position:

Padlocking system for ACB (padlock not supplied)	Cat.No MT807OP
Padlock for buttons	Cat.No MT807LT
Padlocking system for shutters (padlock not supplied)	Cat.No MT805SS

■ 7.5 Mechanical operations counter

to count total number of operation cycles of device	Cat.No MT807CM
---	----------------

■ 7.6 Rating mis-insertion device

to prevent the insertion of a draw-out circuit breaker into an incompatible base

Cat.No MT806AT

■ 7.7 Lifting plate

Cat.No MT809PS

■ 7.8 Fixing devices for Megabreak 4000 (circuit breakers and trip-free switches)

Specific instruction sheets are provide to integrate Megabreak 4000 into MAS enclosures ranges (fixing plates, metal faceplates for circuit breakers and cable sleeves, etc.).

■ 7.9 Equipment for conversion of a fixed device into draw-out device

- Bases for draw-out device

For Megabreak 4000 3P	Cat.No M803B2
For Megabreak 4000 4P	Cat.No M804B2

- Transformation kit for draw-out version

For Megabreak 4000 3P	Cat.No M803P2
For Megabreak 4000 4P	Cat.No M804P2

■ 7.10 Equipment for interlocking

The mechanical interlock is set up using cables and can interlock 2 or 3 devices, which may be different type in a vertical or horizontal configuration. The interlock unit is mounted on the right-hand side of the device. Interlock cables to be ordered separately.

Interlock for Megabreak 4000	Cat.No MT817F2
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Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

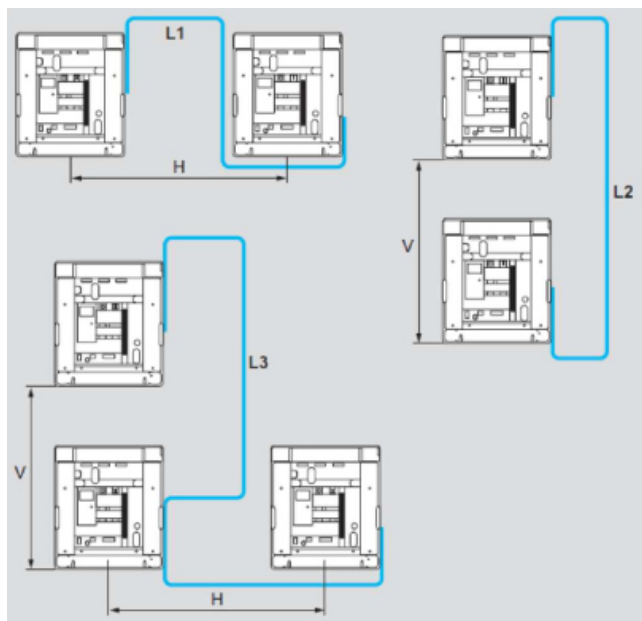
7. EQUIPMENTS AND ACCESSORIES (continued)

7.11 Interlock cables

Length: 1000 mm
Length: 1500 mm
Length: 2600 mm
Length: 3000 mm
Length: 3600 mm
Length: 4000 mm
Length: 4600 mm
Length: 5600 mm

Cat.No MT807M7
Cat.No MT807M8
Cat.No MT807M1
Cat.No MT807M2
Cat.No MT807M3
Cat.No MT807M4
Cat.No MT807M5
Cat.No MT807M6

Choice of interlock cable:



Calculation of cable length:

$L1 = 1430 + H$
 $L2 = 1570 + V$
 $L3 = 1430 + V + H$

7.12 Insulating shields

Fixed version 3P
Fixed version 4P
Draw-out version 3P
Draw-out version 4P

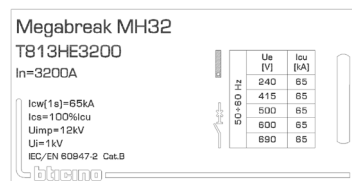
Cat.No MT8SF3P
Cat.No MT8SF4P
Cat.No MT8SF3P
Cat.No MT8SF4P

8. MARKING

Product is 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 Icu at 415 V.



Product laser label on side:

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

T813HE3200

In 3200A
Icu 65kA
Draw-out
Frame 2 3P
Z0425AAC
CIRCUIT BREAKER
Made in Italy
23W30 0 80

8005543706880824263

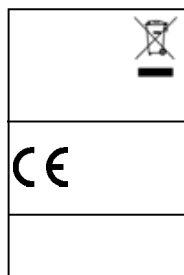


BTICINO V.le Borri, 231 21100 (VA) ITALY

Mark sticker label on side:

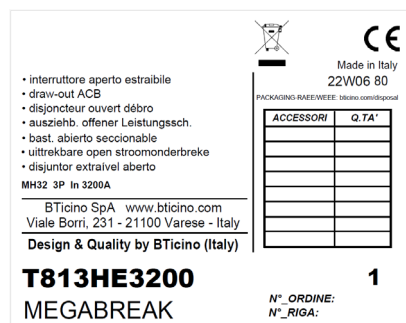
- Product code;
- Mark/Licence (if any);
- Country deviation (if any).

T813HE3200



Packaging sticker label:

- Manufacturer responsible;
- Denomination and type product;
- Standard conformity;
- Mark/Licence (if any);
- Directive requirements.

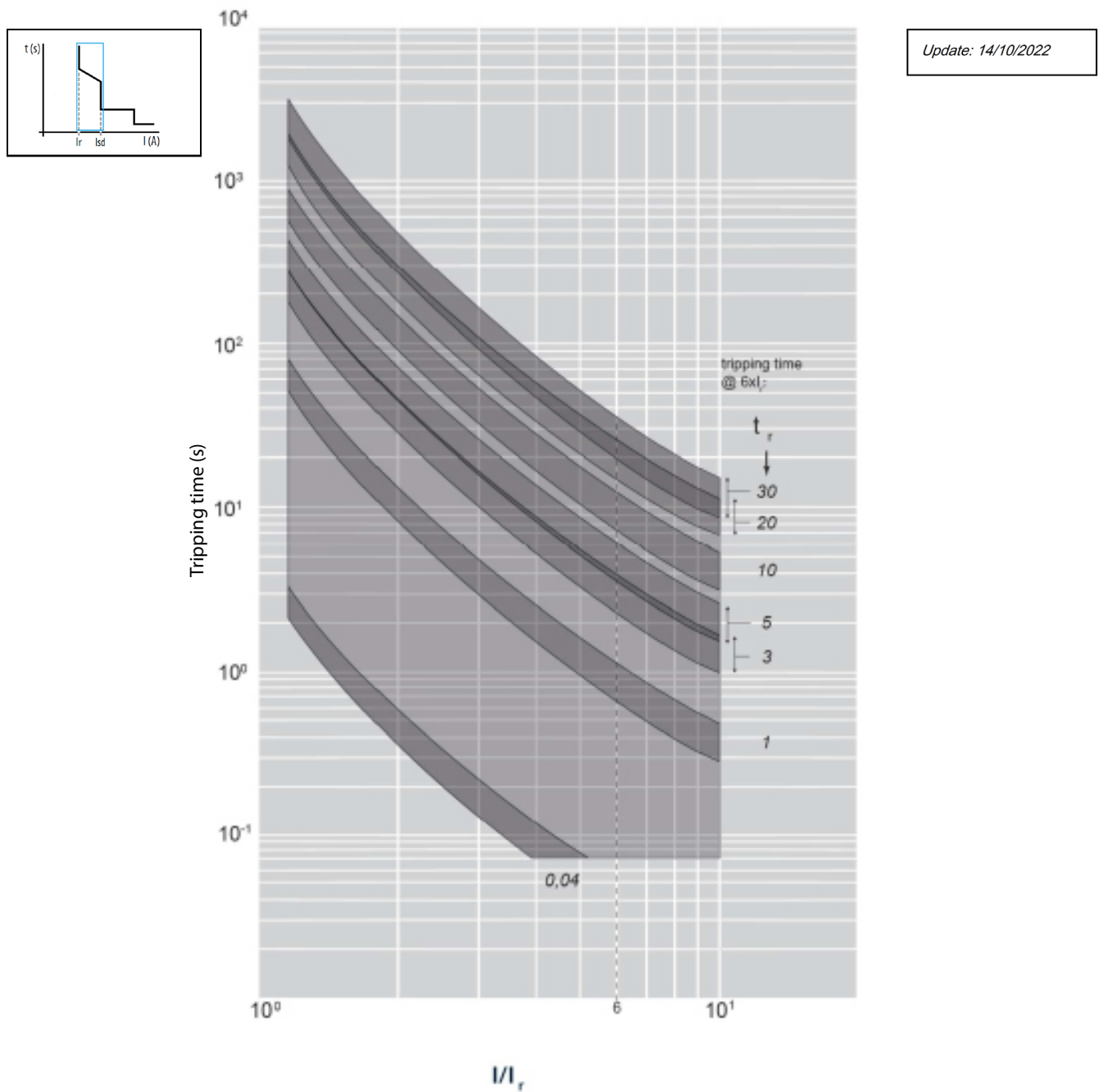


Megabreak 4000 circuit breakers
(with configurable protection unit)
and trip free switches

Cat.Nos:
T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

9. CURVES

■ 9.1 Tripping curve for Megabreak 4000 (basic and advanced) protection units: L – T protection detail.



Value	Description
I	Current
Ir	Long time setting current
tr	Long time delay

Megabreak 4000 circuit breakers
(with configurable protection unit)
and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000

T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000

T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000

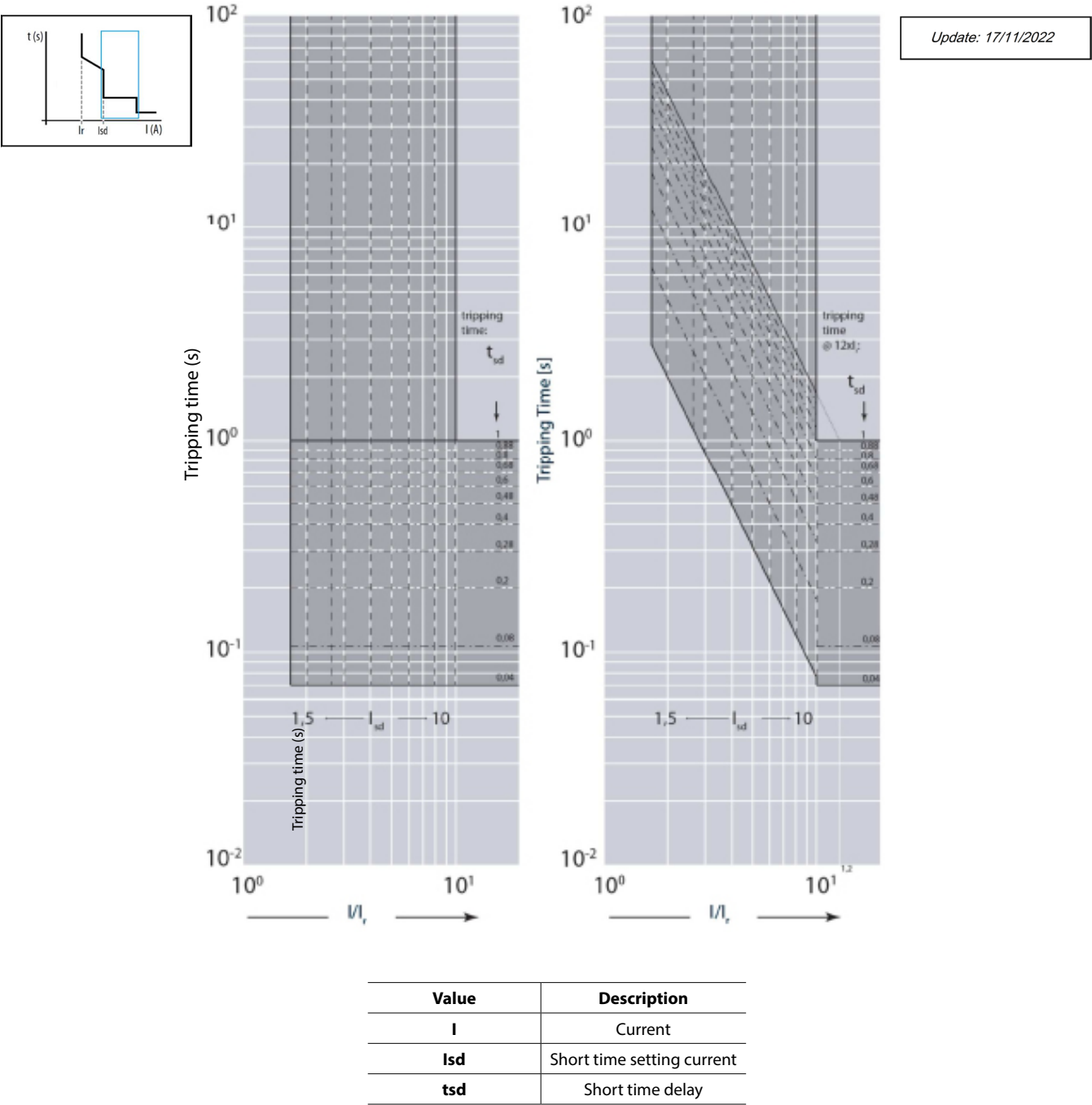
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000

T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000

T 814ME 3200/4000

9. CURVES (continued)

■ 9.2 Tripping curve for Megabreak 4000 (basic and advanced) protection units: short time trip protection detail.



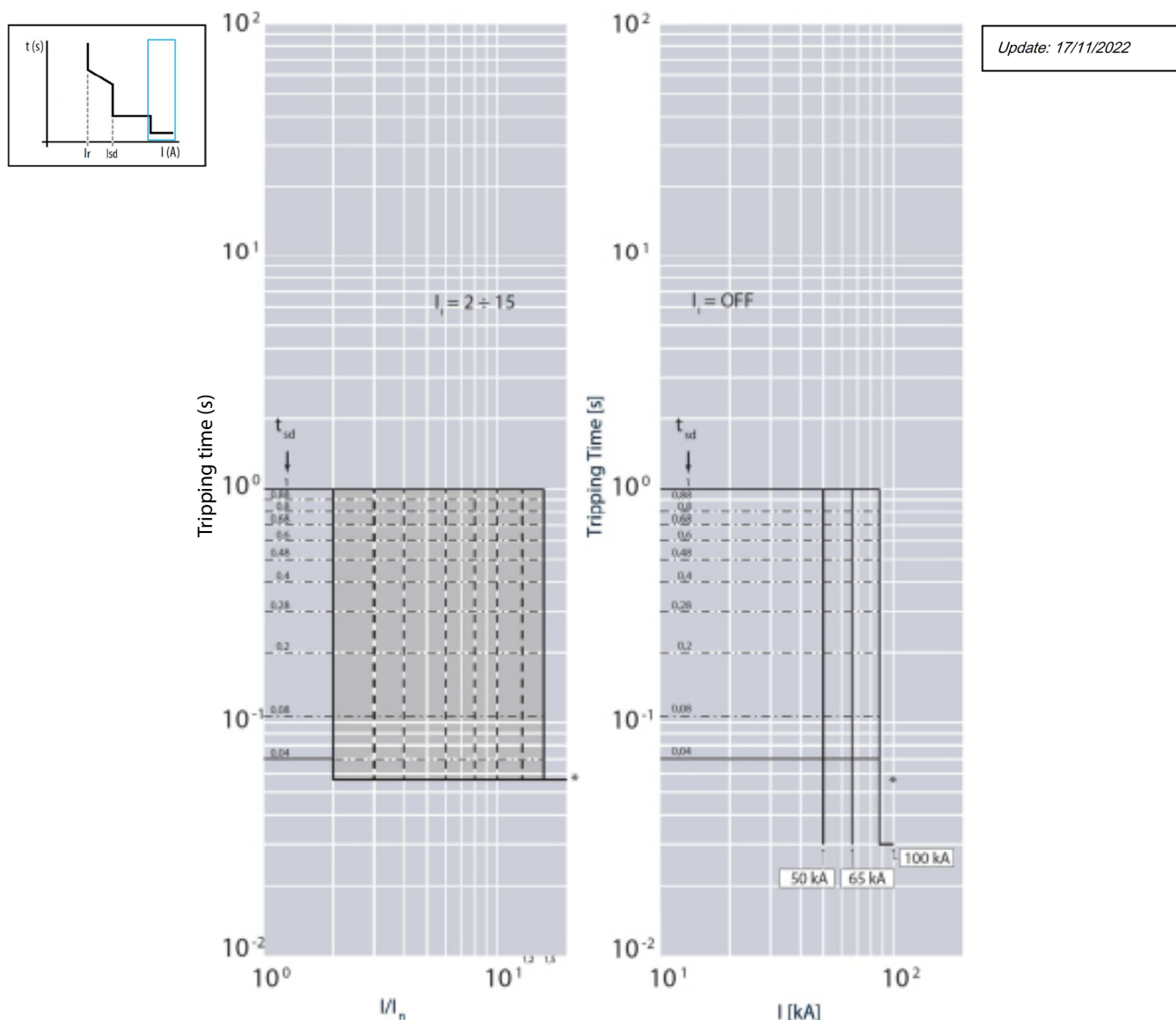
Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

**T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000**

9. CURVES (continued)

■ 9.3 Tripping curve for Megabreak 4000 (basic and advanced) protection units: instantaneous trip protection detail.



* Fixed instantaneous override - Isf

Icu	Values for Isf
50 kA	50 kA
65 kA	65 kA
100 kA	85 kA
Value	Description
I	Current
In	Rated current
tsd	Short time delay
li	Instantaneous release
Icw	Rated short time withstand current

Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000

T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000

T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000

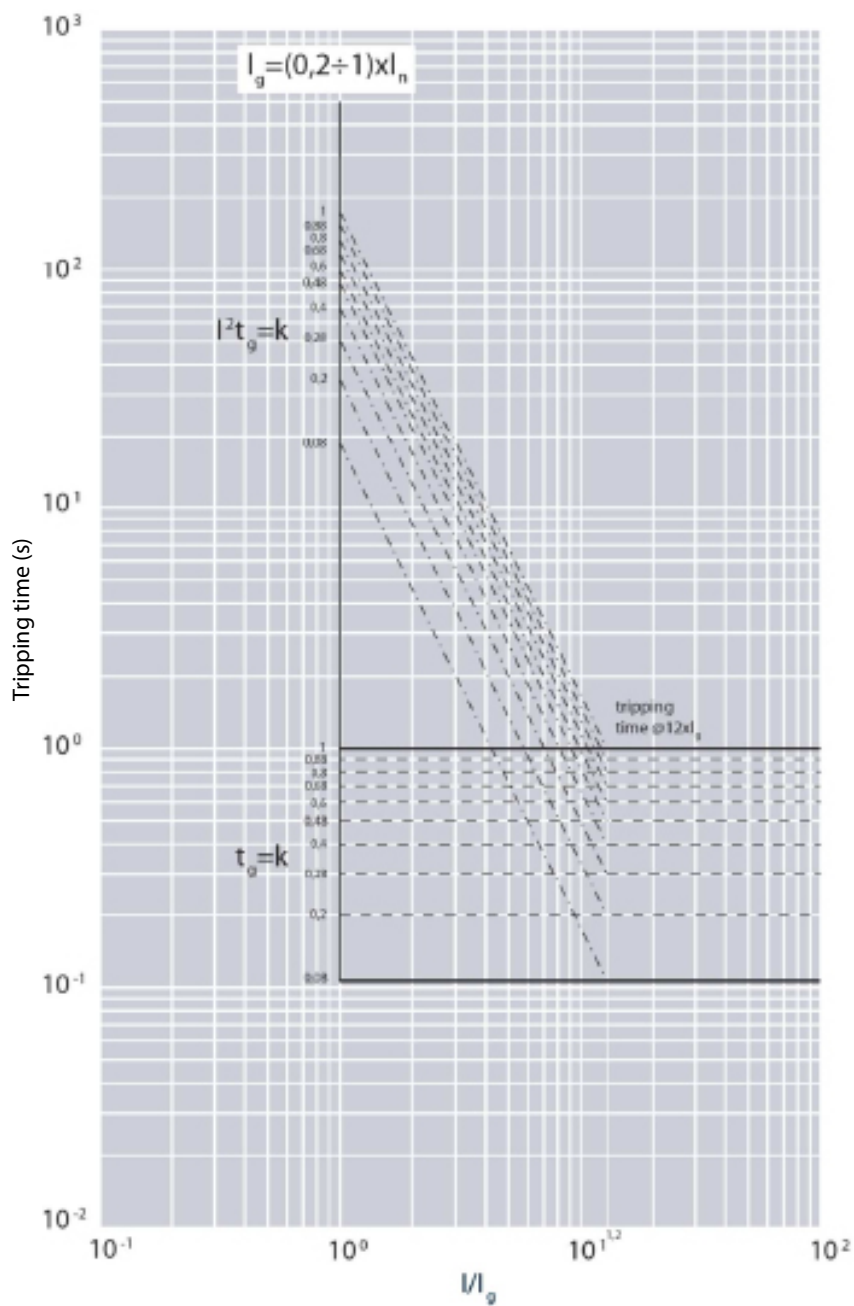
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000

T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000

T 814ME 3200/4000

9. CURVES (continued)

■ **9.4 Ground fault curve for Megabreak 4000 (basic and advanced) protection units.**

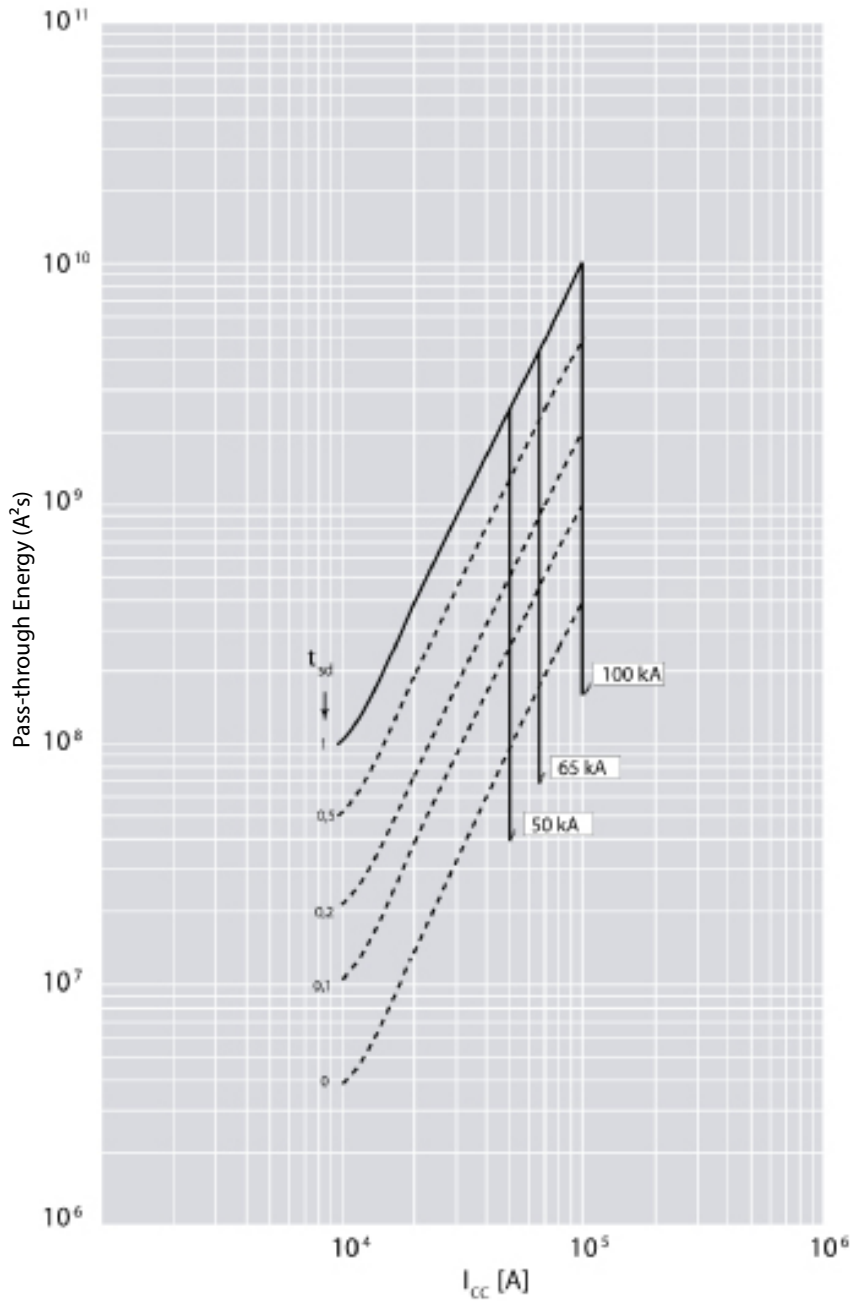


Update: 17/11/2022

Value	Description
I	Current
I_n	Rated current
I_g	Ground fault current
tsd	Short time delay
tsd = k	Constant tripping time setting
I²tsd = k	Constant pass-through energy setting

9. CURVES (continued)

■ 9.5 Pass-through specific energy curve (at 415 V).



Value	Description
I	Current
In	Rated current
Ig	Ground fault current
tsd	Short time delay
tsd = k	Constant tripping time setting
I²tsd = k	Constant pass-through energy setting

Megabreak 4000 circuit breakers (with configurable protection unit) and trip free switches

Cat.Nos:

T 813A 3200/4000 - T 814A 3200/4000 - T 814A 3200/4000
T 814H 3200/4000 - T 813L 3200/4000 - T 814L 3200/4000
T 813AE 3200/4000 - T 814AE 3200/4000 - T 813HE 3200/4000
T 814HE 3200/4000 - T 813LE 3200/4000 - T 814LE 3200/4000
T 813M 3200/4000 - T 814M 3200/4000 - T 813ME 3200/4000
T 814ME 3200/4000

10. CONFORMITY

Megabreak range of product concerning circuit breakers and trip-free switches exceed compliance with the IEC/EN 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.

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

RoHS: Compliance with the 2011/65/EU Directive (RoHS), as modified by the 2015/863/EU Delegated Directive, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

REACH: The substances identified as SVHC (Substances of Very High Concern) according to the REACH Regulation (1907/2006), if present in the products at a concentration above 0.1% weight by weight, are declared inside the European SCIP database. At the date of publication of this document none of the substance listed in the annex XIV is found in this product.

WEEE: WEEE Directive (2012/19/EU): the sale of this product includes a contribution to the appointed environmental bodies of each European country in charge of handling, at the end of their life, the products falling within the scope of the EU Directive on Electrical and Electronic Equipment Waste.

PACKAGING: Design and manufacture of packaging compliant with European Directive 94/62/CE.

BATTERIES (for product containing batteries and/or accumulators):

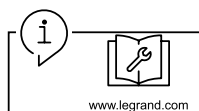
The batteries and/or accumulators included in this product comply with the requirements set out in European Regulation 2023/1542, according to the application timing indicated therein.

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.

XLPro Panels: Distribution panel design software, addressed to panelbuilders and electrical panel designers.
Design of the electrical distribution of the panel, production of electrical diagrams, establishment of products and overall costing of the project.



Workshop book: mounting informations, equipments, accessories and spare parts available on e-catalog.

Instruction sheet: all mounting information, available on e-catalog.

PEP: available on e-catalog.

For further technical information, please contact BTicino 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.