



## Technical data

For further details please see: [www.e-t-a.de/ti\\_e](http://www.e-t-a.de/ti_e)

Voltage rating	AC 250 V; 3 AC 433 V (50/60 Hz); DC 65 V (UL: AC 277/480 V; DC 65 V)	
Current rating range	0.1...32 A for curves M1, T1 0.1...16 A for curves F1, F2	
Auxiliary circuit	1 A, AC 240 V / DC 65 V, resistive (min. 10 V / 10 mA)	
Typical life	3 AC 433 V; AC 250 V: 0.1...25 A 10,000 operations at 1 x I <sub>N</sub> , inductive	
DC 65 V:	0.1...32 A 10,000 operations at 1 x I <sub>N</sub> , inductive	
3 AC 433 V; AC 250 V:	32 A 6,000 operations at 1 x I <sub>N</sub> , resistive	
Ambient temperature	-30...+60 °C (-22...+140 °F) T 60	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	pollution degree 2
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area main/aux. circuit pole/pole	AC 3,000 V AC 3,000 V AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I <sub>cn</sub>	0.1...5 A    400 A 6...32 A    800 A	
curves F1, F2, M1, T1:	0.1...16 A    2,500 A	(at DC 32 V)
Interrupting capacity (UL 1077)		
<b>I<sub>N</sub></b>	<b>0.1...16 A</b>	<b>20...32 A</b>
AC 277 V 1-pole	5,000 A	2,000 A
AC 277/480 V 2-/3-pole	5,000 A	2,000 A
DC 65 V	2,000 A	2,000 A
Degree of protection (IEC 60529/DIN 40050)	operating area IP30 terminal area IP20	
Vibration	curves F1, F2: 3 g (57-500 Hz), ± 0.23 mm (10-57 Hz) curves M1, T1: 5 g (57-500 Hz), ± 0.38 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	curves F1, F2: 25 g (11 ms), directions 1, 2, 3, 4, 5 10 g (11 ms), direction 6 curves M1, T1: 25 g (11 ms), directions 1, 2, 3, 4, 5 20 g (11 ms), direction 6 to IEC 60068-2-27, test Ea	
Corrosion	96 hours at 5 % salt mist to IEC 60068-2-11, test Ka	
Humidity	240 hours at 95 % RH to IEC 60068-2-78, test Cab	
Mass	approx. 60 g per pole	

## Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)			
	F1	F2	M1	T1
	fast acting for DC only	fast acting delay for AC + DC	standard for AC+DC	delayed low resistance for AC only
0.1	162	162	92	81
0.2	39.3	39.3	26.1	24.2
0.3	17.5	17.5	11.6	10.4
0.4	9.2	9.2	6.6	6.0
0.5	6.8	6.8	4.1	3.9
0.6	4.2	4.2	3	2.7
0.8	2.8	2.8	1.65	1.53
1	1.6	1.6	1.10	0.98
1.5	0.78	0,78	0.47	0.42
2	0.42	0,42	0.28	0.24
2.5	0.26	0.26	0.183	0.17
3	0.18	0.18	0.124	0.12
4	0.12	0.12	0.077	0.073
5	0.092	0.092	0.063	0.055
6	0.054	0.054	0.045	0.039
8	0.025	0.025	≤ 0.02	≤ 0.02
10	0.022	0.02	≤ 0.02	≤ 0.02
12	≤ 0.02	≤ 0.02	≤ 0.02	≤ 0.02
16	≤ 0.02	≤ 0.02	≤ 0.02	≤ 0.02
20	-	-	≤ 0.02	≤ 0.02
25	-	-	≤ 0.02	≤ 0.02
32	-	-	≤ 0.02	≤ 0.02

## Approvals

Authority	Standard	Rated voltage	Current ratings
VDE	IEC/EN 60934	3 AC 433 V AC 250 V DC 65 V	0.1 A...32 A 0.1 A...32 A 0.1 A...32 A
UL	UL 1077	AC 277/480 V AC 277 V DC 65 V	0.1 A...32 A 0.1 A...32 A 0.1 A...32 A
CSA	C22.2 No 235	AC 277/480 V AC 277 V DC 65 V	0.1 A...32 A 0.1 A...32 A 0.1 A...32 A
CQC	GB 17701	AC 250/433 V AC 250 V DC 65 V	0.1 A...32 A 0.1 A...32 A 0.1 A...32 A
DNV GL	IEC 60934, DNVGL- CG 0339	3 AC 433 V AC 250 V DC 65 V	0.1 A...32 A 0.1 A...32 A 0.1 A...32 A
KTL	KC60934	AC 250 V, 1-pole AC 433 V, 2-pole	0.1 A...16 A 0.1 A...16 A

## Preferred types

Preferred types are E-T-A products most frequently used by E-T-A customers. We manufacture E-T-A preferred types in particularly high

volumes. Our preferred types are supplied at shorter lead times than non-standard versions.

Preferred types	Standard current ratings (A)											
	0.5	1	2	3	4	5	6	8	10	16	20	
<b>1-pole</b>												
2210-T210-K0M1-H121-	x	x	x	x	x	x	x	x	x	x	x	x
<b>2-pole</b>												
2210-T220-K0M1-H221-			x		x		x		x		x	x

## Ordering information

<b>Type No.</b>	
<b>2210</b>	single and multipole thermal-magnetic circuit breaker
<b>Mounting</b>	
<b>T</b>	rail mounting
<b>Actuator design</b>	
<b>2</b>	toggle
<b>Number of poles</b>	
<b>1</b>	single pole protected
<b>2</b>	2-pole protected
<b>3</b>	3-pole protected
<b>Accessories</b>	
<b>0</b>	without accessories
<b>Terminal design (main contacts)</b>	
<b>K0</b>	screw terminals
<b>Characteristic curve</b>	
<b>F1</b>	fast acting: therm. 1.01-1.4xI <sub>N</sub> ; magn. 2-4xI <sub>N</sub> DC (DC only)
<b>F2</b>	fast acting: therm. 1.01-1.4xI <sub>N</sub> ; magn. 3,5-6,5xI <sub>N</sub> AC/4,5-8,5xI <sub>N</sub> DC
<b>M1</b>	standard delay: therm. 1.01-1.4xI <sub>N</sub> ; magn. 6-12xI <sub>N</sub> AC, 7,8-15,6xI <sub>N</sub> DC
<b>T1</b>	delayed: therm. 1.01-1.4xI <sub>N</sub> ; magn. 10-20xI <sub>N</sub> AC
<b>Auxiliary contact design</b>	
<b>H</b>	without intermediate position
<b>Auxiliary contacts</b>	
<b>1</b>	with auxiliary contacts
<b>2</b>	auxiliary contacts on pole 1 only (multipole devices)
<b>Auxiliary contact function (see diagrams)</b>	
<b>2</b>	1 N/O contact
<b>3</b>	1 N/C contact
<b>Auxiliary contact - terminal design</b>	
<b>1</b>	screw terminals
<b>Current ratings</b>	
	0.1...32 A
<b>2210 - T 2 1 0 - K0 M1 - H 1 2 1 - 10 A</b>	ordering example

Please be informed that we have minimum ordering quantities to be observed.

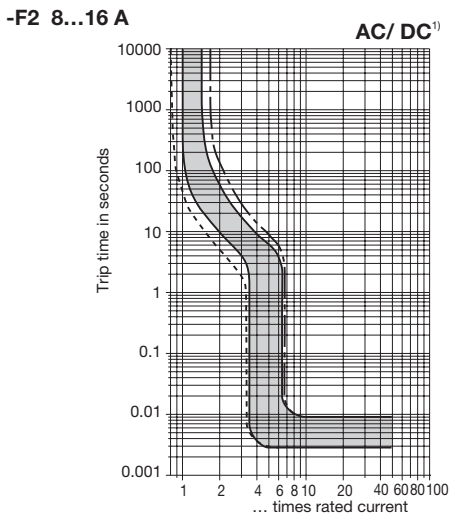
## Custom designed versions

Looking for a version you cannot find in our ordering number code? Please get in touch. We will be pleased to find a solution for you.





Typical time/current characteristics



--- +60 °C    ——— +23 °C    - - - -30 °C  
 +140 °F    +73.4 °F    -22 °F

<sup>1)</sup>Magnetic tripping currents are increased by 30% on DC supplies.

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## Typical time/current characteristics



The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

Ambient temp.	-22 °F -30 °C	-4 °F -20 °C	+14 °F -10 °C	+32 °F 0 °C	+73.4 °F +23 °C	+86 °F +30 °C	+104 °F +40 °C	+122 °F +50 °C	+140 °F +60 °C
Derating factor	0.76	0.79	0.83	0.88	1	1.04	1.11	1.19	1.29

Multi pole devices: all poles symmetrically loaded. With single pole overload, thermal tripping will be at max.  $1.7 \times I_N$  with curves F1, F2 and M1.

<sup>1)</sup> Magnetic tripping currents are increased by 30 % on DC supplies (curves F2, M1).

## Accessories

### Connector bus links -K10

**X210 589 01/** 2.5 mm<sup>2</sup>, (AWG 14) (black) up to 20 A max. load  
**X210 589 02/** 1.5 mm<sup>2</sup>, (AWG 16) (brown) up to 13 A max. load



### Busbar 1-pole, 90° X 222 540 11

The one metre long busbars can be cut to suitable lengths. Plug-on caps can be fitted on the ends to provide brush contact protection. cross section: 16 mm<sup>2</sup>



### Busbar 1-pole Y 308 498 01

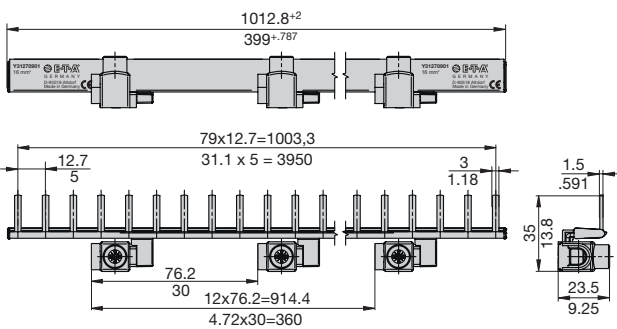
cross section: 16 mm<sup>2</sup>



### Busbar for 1-pole devices

Firmly mounted supply terminals, placed at fixed distances (1 supply terminal every 7 modules)  
 For cable feed from the side

Ideal for applications with high vibration requirements  
**Y31270901** cross section: 16 mm<sup>2</sup>

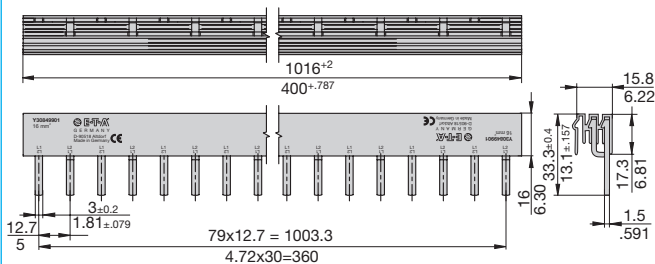


### Plug-on cap, 1-pole Y 307 851 01

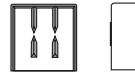


### Busbar 2-pole

**Y 308 499 01** cross section: 16 mm<sup>2</sup>



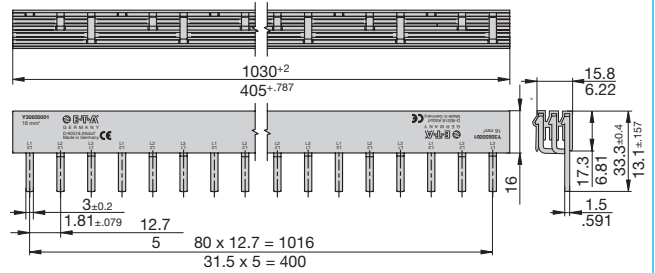
### Plug-on cap, busbar 2/3-pole Y 308 506 01



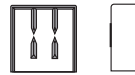
### Busbar 3-pole

**Y 308 500 01**

cross section: 16 mm<sup>2</sup>



### Plug-on cap, busbar 2/3-pole Y 308 506 01

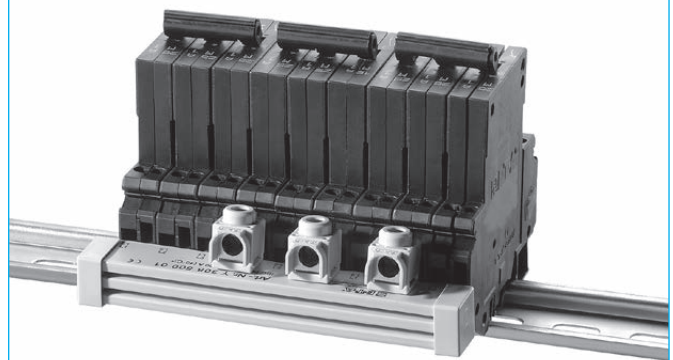
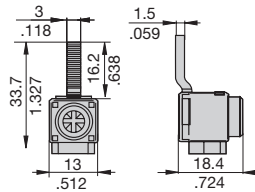


### Supply terminal

**Y 308 503 01**

I<sub>max</sub> 63 A with 1-pole busbar,  
**50 A with multipole busbar**

Max. tightening torque of terminal screw 2 Nm  
 Max. cable cross section: 25 mm<sup>2</sup> / single strand  
 16 mm<sup>2</sup> / multistrand  
 with wire end ferrule



### Caution:

When using multipole busbars please leave at least one pole's width between two adjacent line entry terminals.

This is a metric design and millimeter dimensions take precedence (mm/inch)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.



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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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