



E-T-A's New 1620/1626 MINI Thermal Automotive Circuit Breakers

E-T-A Circuit Breakers is pleased to announce the 1620/1626 MINI CBE product series - the latest addition to its thermal automotive product line. Designed for the use with mini-sized terminal blocks, the 1620, with a standard trip curve, is the first circuit protection device in the market to meet all requirements for the four SAE J553 type classes (Type I, Type II, Type III, Type III*) in the miniature package. Specification of part number is dependent on the type of trip curve required - Type 1620 has a standard trip curve holding 100% rated current and Type 1626 features a fast trip curve holding 70% rated current.

Product Features & Benefits:

- Current ratings available from 5... 30A
- 12 or 24 VDC voltage rating available depending on product type
- First MINI circuit breaker available at 24 VDC
- Meets all requirements for all 4 types of SAE J553 classes.
 - Automatic Reset (Type I)
 - Modified Reset (Type II)
 - Manual Reset (Type III)
 - Switchable Version (Type III*)
- First MINI circuit breaker available in this housing size to offer a Type III version (manual reset)
- 13.3 mm width allows for compact construction
- Product fits into mini-sized terminal blocks and allows for up to 30% space reduction in fuse blocks
- Product housings color coded to consistently match industry standard current ratings of blade fuses
- Easily interchangeable with mini fuses
- Provides retrofit capability
- Eliminates the need for spare fuses
- Reduces Vehicle downtime

Typical Applications:

- Protection of 12 or 24 VDC on-board electrical systems in:
 - Passenger cars
 - Trucks
 - Buses
 - Watercraft
 - Speciality vehicles
 - Extra low voltage wiring systems

Description

Single pole, thermal miniaturised circuit breaker designed for automotive applications. Fits into fuse blocks designed to ISO 8820-3, Type F.

Automatic reset (for DC 12 V only) and open circuit (modified reset to SAE) version optional. Open circuit version ensures contacts staying open as long as power is on. The circuit breaker will reset after the load is removed. Particularly suitable for installation in inaccessible locations.

Current ratings correspond to those of blade fuses. Clear colour coding of the ratings: blade fuse and circuit breaker of the same colour have the same rating.

Meets the requirements of SAE J553.

Typical applications

Protection of electrical systems of passenger cars, trucks, buses, watercraft, extra low voltage wiring systems.

Ordering information

Type No.	
1620	single pole thermal Mini-CBE with standard characteristic curve
Version, according to SAE J553	
1	type 1, DC 12 V automatic reset
2	type 2, modified reset (not yet available)
3	type 3, DC 24 V with reset button
3H	type 3*, DC 24 V with reset button and manual release facility
Voltage rating	
...	standard
1	12 V – only for type 2
2	24 V – only for type 2
Current ratings	
5	7,5 10 15 20 25 30 A
1620 - 1	- ... - 10 A ordering example

Current ratings, typical voltage drop values and colour coding

Current rating (A)	Voltage drop (mV)	Housing cap colour
5	< 150	light brown
7,5	< 150	brown
10	< 150	red
15	< 150	blue
20	< 150	yellow
25	< 150	white
30	< 150	light green

NEW



1620-1



1620-3



1620-3H

Technical data

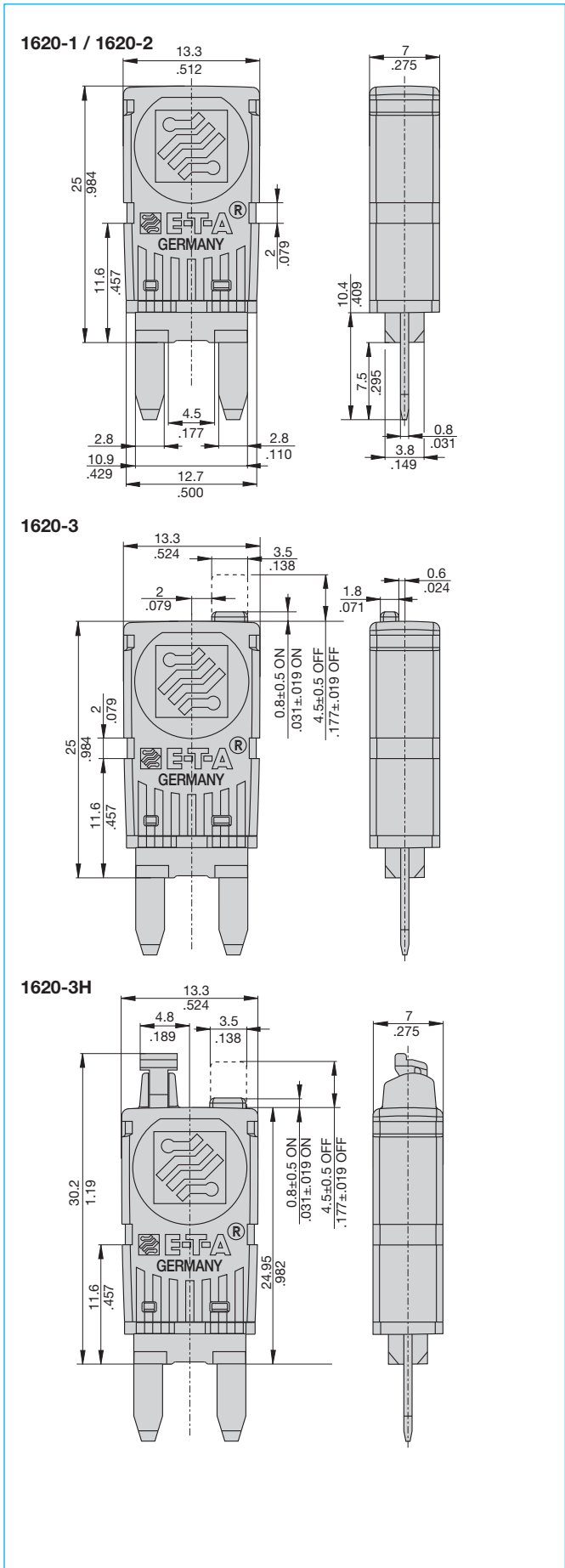
Voltage rating	1620-1, 1620-2-1: DC 12 V 1620-2-2, 1620-3, 1620-3H: DC 12 V, DC 24 V
Max. voltage rating	1620-1, 1620-2-1: DC 16 V 1620-2-2, 1620-3, 1620-3H: DC 32 V
Current ratings	DC 12 V: 5...30 A DC 24 V: 5...25 A
Service short-circuit breaking capacity	300 operations at $2 \times I_N$
Ambient temperature	-40...85 °C (-40 ... +185 °F)
Reset period for 1626-1 (at 23 °C)	≤ 15 s
Reset period for 1626-2 (at 23 °C)	after 5 sec at rated voltage < 35 s
Degree of protection (IEC 60529)	operating area IP40 (-3) operating area IP50 (-1, -2) terminal area IP00
Ultimate short-circuit breaking capacity	≥ 3 break operations at 150 A, or ≥ 1 break operation at 2,000 A
Vibration	10 g (57-500 Hz), ± 0,38 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis SAE-J553, Step No. 14, § 4.2.7.1.5
Shock	50 g (11 ms) to IEC 60068-2-27, test Ea SAE-J553, Step No. 14, § 4.2.7.1.6
Corrosion	24 hrs in 5 % salt mist, to IEC 60068-2-11, test Ka SAE-J553, Step No. 14, § 4.2.7.1.3
Humidity	240 hrs in 95 % RH, to IEC 60068-2-78, test Cab SAE-J553, Step No. 14, § 4.2.7.1.2
Mass	approx. 3 g

It is good practice to switch off the vehicle's ignition system before re-setting the circuit breaker. Free travel of the actuator must be ensured.

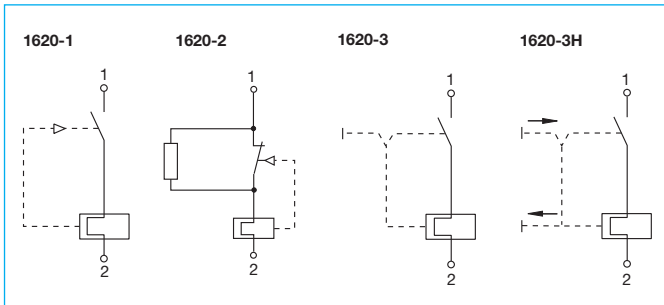
Depending on the socket used and with the 30 A device carrying a full load, the temperatures at the terminals may rise above the allowed SAE value.

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.

Dimensions

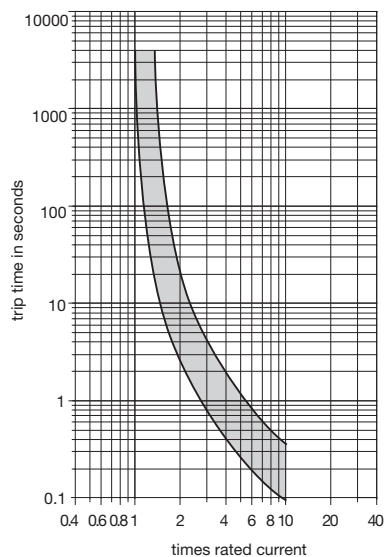


Internal connection diagrams



Typical time/current characteristic curve at +23 °C / +73.4 °F

5...30 A



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 9 – Technical information.

Ambient temperature	°F	-40	-22	-4	+14	+32	+50
	°C	-40	-30	-20	-10	0	10
Derating factor		0.73	0.78	0.82	0.86	0.91	0.95
Ambient temperature	°F	+73.4	+104	+122	+140	+158	+185
	°C	23	40	50	60	70	85
Derating factor		1	1.09	1.16	1.25	1.33	1.43

Description

Single pole, thermal miniaturised circuit breaker designed for automotive applications. Fits into fuse blocks designed to ISO 8820-3, Type F.

Automatic reset (for DC 12 V only) and open circuit (modified reset to SAE) version optional. Open circuit version ensures contacts staying open as long as power is on. The circuit breaker will reset after the load is removed. Particularly suitable for installation in inaccessible locations.

Current ratings correspond to those of blade fuses. Clear colour coding of the ratings: blade fuse and circuit breaker of the same colour have the same rating.

Breakers rated 7.5 A through 30 A have a fast characteristic curve and only hold 70 % of their rated current continuously.

Typical applications

Protection of electrical systems of passenger cars, trucks, buses, watercraft, extra low voltage wiring systems.

Ordering information

Type No.

1626 single pole thermal Mini-CBE with fast characteristic curve

Version, according to SAE J553

- 1** type 1, DC 12 V automatic reset
- 2** type 2, modified reset (not yet available)
- 3** type 3, DC 24 V with reset button
- 3H** type 3*, DC 24 V with reset button and manual release facility

Voltage rating

- ... standard
- 1** 12 V – only for type 2
- 2** 24 V – only for type 2

Current ratings

- 5** 7,5 10 15 20 25 30 A

1626 - 1 - ... - 10 A ordering example

Current ratings, typical voltage drop values and colour coding

Current rating (A)	Voltage drop (mV)	Housing cap colour
5	< 150	light brown
7,5	< 150	brown
10	< 150	red
15	< 150	blue
20	< 150	yellow
25	< 150	white
30	< 150	light green

NEW



1626-1



1626-3



1626-3H

Technical data

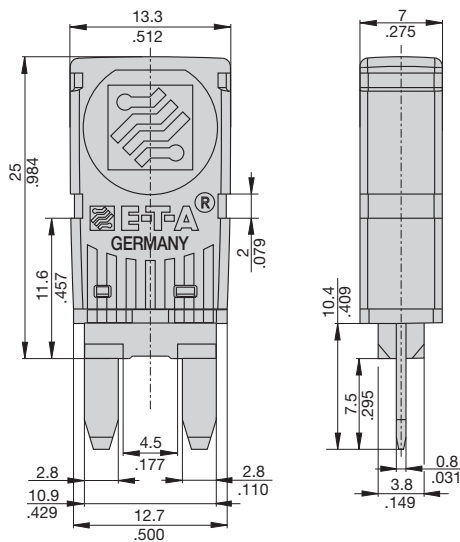
Voltage rating	1626-1, 1626-2-1: DC 12 V 1626-2-2, 1626-3, 1626-3H: DC 12 V, DC 24 V
Max. voltage rating	1626-1, 1626-2-1: DC 16 V 1626-2-2, 1626-3, 1626-3H: DC 32 V
Current ratings	5...30 A 5 A: medium characteristic curve 7.5...30 A: fast characteristic curve
Service short-circuit breaking capacity	300 operations at $2 \times I_N$
Ambient temperature	-40...85 °C (-40 ... +185 °F)
Reset period for 1626-1 (at 23 °C)	≤ 15 s
Reset period for 1626-2 (at 23 °C)	after 5 sec at rated voltage < 35 s
Degree of protection (IEC 60529)	operating area IP40 (-3) operating area IP50 (-1, -2) terminal area IP00
Ultimate short-circuit breaking capacity	≥ 3 break operations at 150 A, or ≥ 1 break operation at 2,000 A
Vibration	10 g (57-500 Hz), ± 0,38 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis SAE-J553, Step No. 14, § 4.2.7.1.5
Shock	50 g (11 ms) to IEC 60068-2-27, test Ea SAE-J553, Step No. 14, § 4.2.7.1.6
Corrosion	96 hrs in 5 % salt mist, to IEC 60068-2-11, test Ka SAE-J553, Step No. 14, § 4.2.7.1.3
Humidity	240 hrs in 95 % RH, to IEC 60068-2-78, test Cab SAE-J553, Step No. 14, § 4.2.7.1.2
Mass	approx. 3 g

It is good practice to switch off the vehicle's ignition system before re-setting the circuit breaker. Free travel of the actuator must be ensured.

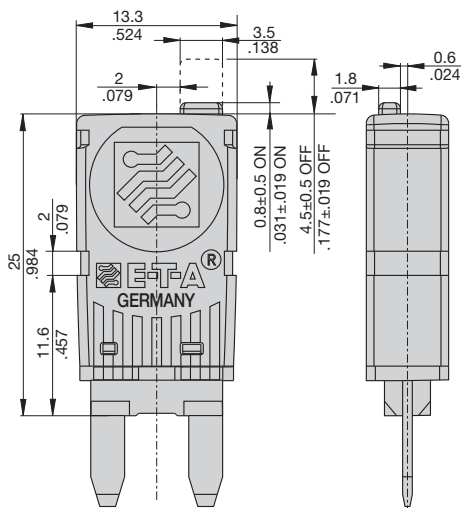
All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Dimensions

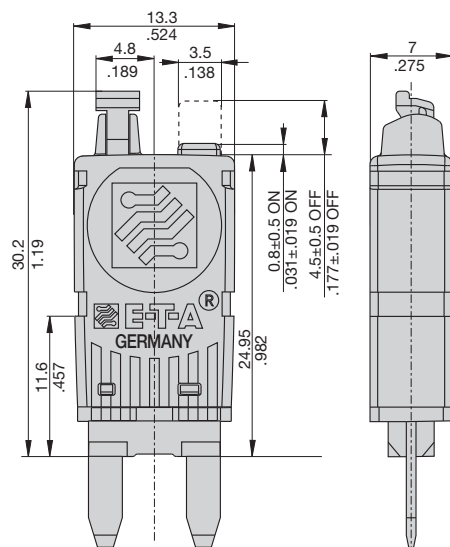
1626-1 / 1626-2



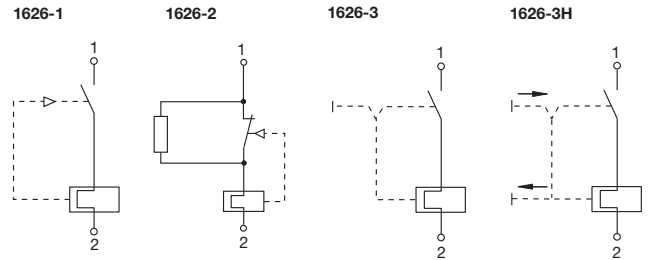
1626-3



1626-3H

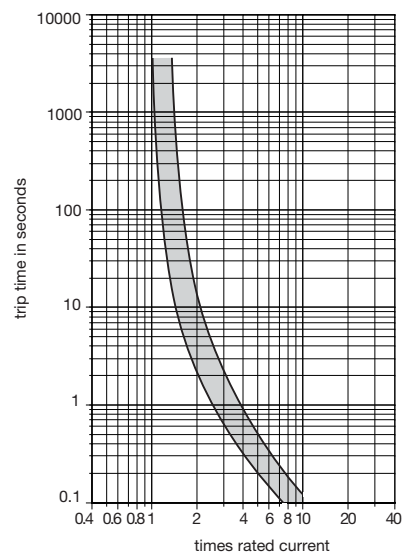


Internal connection diagrams

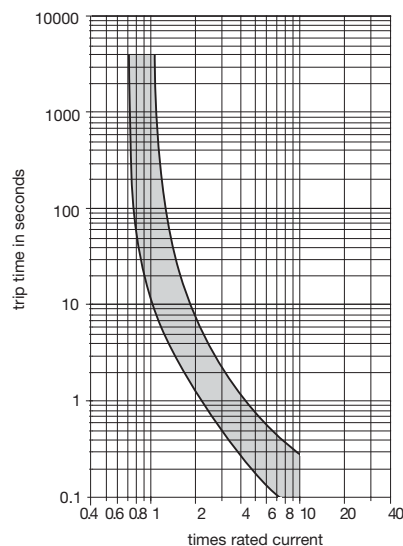


Typical time/current characteristic curve at +23 °C / +73.4 °F

5 A



7.5...30 A



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 9 – Technical information.

Ambient temperature	°F	-40	-22	-4	+14	+32	+50
	°C	-40	-30	-20	-10	0	10
Derating factor		0.73	0.78	0.82	0.86	0.91	0.95
Ambient temperature	°F	+73.4	+104	+122	+140	+158	+185
	°C	23	40	50	60	70	85
Derating factor		1	1.09	1.16	1.25	1.33	1.43

NEW

Automotive Mini CBE 1620/1626 – Optimum performance – minimum space requirement



Technical Data

Mini CBE 1620/1626

The E-T-A mini circuit breaker type 1620/1626 has a width of only 13.3 mm, enabling vehicle manufacturers to reduce their space requirement in the fuse box by up to 30 % without compromising the advantages of circuit breaker protection. Type 1620/1626 is unique in the market in offering a miniaturised design which meets all requirements of the four SAE J553 type classes. As the versions to classes I, II and III* are suitable for use both in DC 12 V and DC 24 V on-board

electrical systems, manufacturers of commercial vehicles can also benefit from the space-saving advantages of type 1620/1626 and select from the full range available. Depending on the load to be protected and on the mounting location in the vehicle, manufacturers can choose the configuration best suited to their requirements. The innovative E-T-A mini CBE offers the ideal solution for all applications. Type 1620/1626 is designed for use with the latest mini-sized terminal

blocks and provides interchangeability with blade type fuses, thereby providing an easy retrofit capability. It can be immediately reset following a fault and eliminates the need for spare fuses, saving time and reducing vehicle downtime – crucial advantages particularly for commercial vehicles. Type 1620 has a standard trip curve holding 100 % rated current. Type 1626 features a fast trip curve holding 70 % rated current.

Technical data

Rated voltage	DC 12 and DC 24 V, 1620/1626-1 only for DC 12 V
Current ratings	5, 7,5 10, 15, 20, 25, 30 A
Interrupting capacity	150 A
Rated short circuit breaking capacity	2000 A
Typical life	300 cycles at two times rated current
Temperature range	-40...+85 °C

Features and benefits

- No spare fuses required
- Clear colour-coded identification of ratings
- Interchangeable with fuses
- Small size – fits into mini fuse blocks
- Reliable performance in all kinds of vehicles
- SAE J553 type I (automatic reset), type II (modified reset), type III (manual reset) and type III* (switchable)
- SAE J553 types II, III and III*, also for DC 24 V electrical systems
- Standard (type 1620) and fast (type 1626) trip curve



E-T-A Mini CBE 1620/1626



E-T-A Elektrotechnische Apparate GmbH
D-90518 Altdorf · Industriestraße 2-8
Tel. +49 (0 91 87)10-0 · Fax +49 (0 91 87)10-397
E-Mail: info@e-t-a.de · www.e-t-a.com