

## 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 |
| <b>Version, according to SAE J553</b> |                                                                 |
| 1                                     | type 1, DC 12 V automatic reset                                 |
| 2                                     | type 2, DC 12 V modified reset                                  |
| 3                                     | type 3, DC 24 V with reset button                               |
| 3H                                    | type 3*, DC 24 V with reset button and manual release facility  |
| <b>Current ratings</b>                |                                                                 |
| 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        |
| 30                 | < 150             | light-green        |



## Technical data

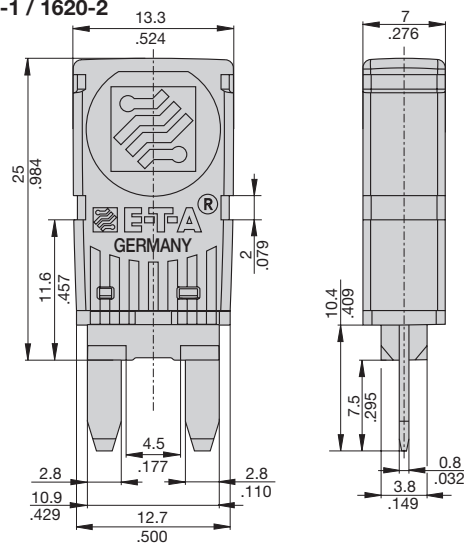
|                                          |                                                                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Voltage rating                           | 1620-1/-2: DC 12 V<br>1620-3/-3H: DC 12 V, DC 24 V                                                                                    |
| Max. voltage rating                      | 1620-1/-2: DC 14.5 V<br>1620-3/-3H: DC 29.0 V                                                                                         |
| Current ratings                          | DC 12 V: 5...30 A<br>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)<br>(for higher temperatures please enquire)                                                              |
| Reset period for 1620-1 (at 23 °C)       | ≤ 15 s                                                                                                                                |
| Reset period for 1620-2 (at 23 °C)       | after 5 sec at rated voltage < 35 s                                                                                                   |
| Degree of protection (IEC 60529)         | operating area IP40 (-3)<br>operating area IP50 (-1, -2)<br>terminal area IP00                                                        |
| Ultimate short-circuit breaking capacity | ≥ 3 break operations at 150 A, or<br>≥ 1 break operation at 2,000 A                                                                   |
| Vibration                                | 10 g (57-500 Hz), ± 0.38 mm (10-57 Hz)<br>to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis<br>SAE-J553, Step No. 14, § 4.2.7.1.5 |
| Shock                                    | 50 g (11 ms)<br>to IEC 60068-2-27, test Ea<br>SAE-J553, Step No. 14, § 4.2.7.1.6                                                      |
| Corrosion                                | 24 hrs in 5 % salt mist,<br>to IEC 60068-2-11, test Ka<br>SAE-J553, Step No. 14, § 4.2.7.1.3                                          |
| Humidity                                 | 240 hrs in 95 % RH,<br>to IEC 60068-2-78, test Cab<br>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 manually releasing or re-setting the circuit breaker. Free travel of the actuator must be ensured.

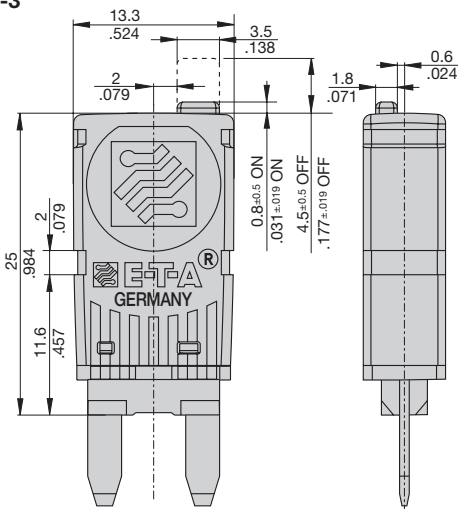
Depending on the socket used and with the 30 A device carrying a full load, the temperatures at the terminals may rise above the allowed SAE value.

## Dimensions

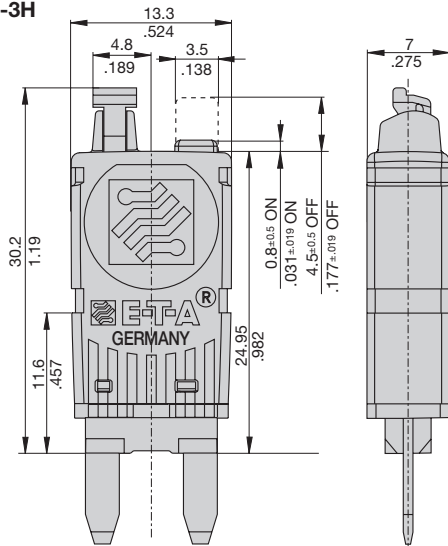
**1620-1 / 1620-2**



**1620-3**

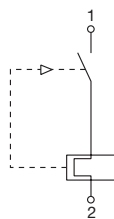


**1620-3H**

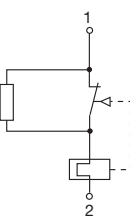


## Internal connection diagrams

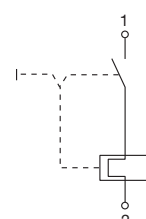
**1620-1**



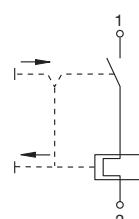
**1620-2**



**1620-3**

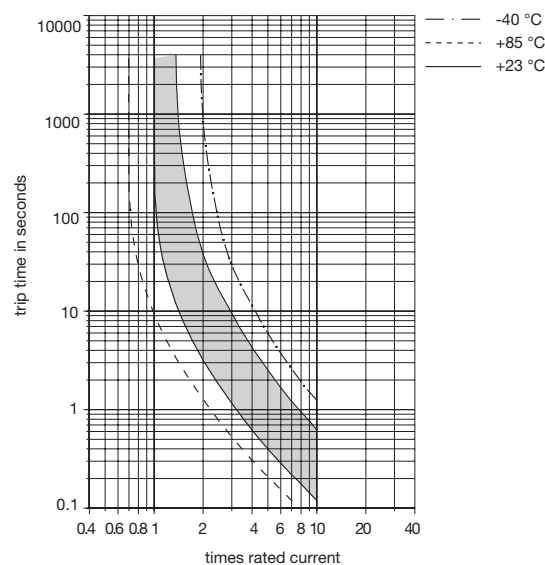


**1620-3H**



## 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 Technical information.

|                        |       |      |      |      |      |      |
|------------------------|-------|------|------|------|------|------|
| Ambient temperature °F | -40   | -22  | -4   | +14  | +32  | +50  |
| Ambient temperature °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 |
| Ambient temperature °C | +23   | +40  | +50  | +60  | +70  | +85  |
| Derating factor        | 1     | 1.09 | 1.16 | 1.25 | 1.33 | 1.43 |

This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

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.