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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB 27900-2026**

Replacing GB 27900-2011

**Firefighter personal alert safety systems**

消防员呼救器

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## 1 Scope

GB 27900-2026 is the Chinese national standard covering the distress alarm a firefighter carries - the device that sounds if its wearer stops moving for a set time, and that can be triggered manually, so that a crew inside a burning building can be found. A mandatory standard, 25,000 words. It replaces GB 27900-2011 and takes effect on 1 April 2027. It was issued on 31 March 2026 and takes effect on 1 April 2027, replacing GB 27900-2011. The document is under the responsibility of the National Fire and Rescue Administration. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document defines the terminology and specifications for firefighter distress signals; provides classifications and models; and stipulates technical requirements, inspection rules, and markings. Requirements; the corresponding experimental methods are described. This document applies to the firefighter's distress call device (hereinafter referred to as "distress call device") carried by firefighters during firefighting, rescue, and disaster relief operations. rescuer").

## 4 Classification and Model

4.1 Classification Based on whether they have communication functions, distress call devices are divided into two types. ordinary distress call devices and communication distress call devices. According to different communication methods, communication types are divided into. public network communication, private network communication and satellite communication. The communication method codes are shown in Table 1. In addition to the functions of a regular emergency call device, communication-type emergency call devices generally also have one or more other functions listed in Table 2.

The function names and function codes of the distress call devices are shown in Table 2.  
Model 4.2

4.2.1 Emergency call device model The model designation of distress call devices shall comply with the following regulations.

4.2.2 Communication Platform Model The designation of communication platform product models shall comply with the following regulations.

## 5 Technical Requirements

5.1 Appearance and Structure The appearance and structure of the distress call device should meet the following requirements.

- a) The surface of the distress call device should not have obvious spots, bubbles, cracks and scratches. (b) The distress call device should be powered by a rechargeable battery. During battery charging, the distress call device or charger should have an indicator light or Indicator lights clearly distinguish between charging and charging complete states. The distress call device should at least include a Type-C charging port for charging. The interface should have a protective plug, and the protective plug should not be easily detached.
- c) The distress call device should use a built-in battery or a removable rechargeable battery, and should be equipped with a battery charge/discharge protection circuit. The battery should have a neat appearance and be free of defects. Damage, deformation, and corrosion are not permitted. The battery itself should have clear, permanent markings including the product name, model number, rated capacity, etc. Rated energy, charging limit voltage, nominal voltage, positive and negative polarity, manufacturer, production date or batch number.
- d) Communication-type distress call device, the system consists of the distress call device itself, communication platform, and charger. A data gateway and signal processing unit can be configured if necessary. Relay equipment, etc.
- e) All buttons on the emergency call device should be operable when the user is wearing fire gloves; the power on and power off buttons should have anti-accidental operation features. The manual alarm button (hereinafter referred to as the "SOS button") should be red, marked with the word "SOS", and its size or shape should be consistent with the design. The top button should be distinguishable from other buttons to ensure clear identification.
- f) The distress call device should be equipped with an easy-to-wear and securely durable wearing device, and should be able to withstand an adult jumping from a height of not less than [a certain height]. Ten jumps of 30cm each. After the test, the distress call device and its accessories should not fall off, and the fasteners should not be loose or damaged.

g) The emergency call device should be switched on/off using either a key-operated or button-operated method. If a button-operated method is used, the button should have [indications/markings]. The power button is labeled as follows: When facing the front of the emergency call device, the power button is on the right side. Press and hold the power button for 3 seconds to activate it. Turn the device on or off.

## 5.2 Basic Functional Requirements

5.2.1 Pre-alarm function When the emergency call device is in automatic mode, it should have a pre-alarm function. When the allowed standby time exceeds  $(30 \pm 2)$  s, the distress caller should be able to emit an audible and visual alarm signal. During the pre-alarm period, the distress caller's location will be indicated. When changes occur or the vehicle undergoes accelerated motion with an acceleration greater than  $5 \text{ m/s}^2$ , the pre-alarm audible signal should be immediately deactivated.

5.2.3 Manual Alarm Function When the distress call device is in manual alarm mode, it should be able to emit audible and visual alarm signals. During manual alarm operation, the alarm sound and location indicator should be activated. The strobe signal should not be affected by changes in the operating position or speed of the distress caller, and should only be manually activated by repeatedly double-clicking the SOS button. eliminate. The manual alarm sound level of the distress call device should not be less than 100 dB(A). The frequency and pitch variation period of the manual alarm sound of the distress call device should meet the requirements of Table 3.

5.2.4 Battery level display and low battery alarm function The emergency call device should be able to display the battery level via a screen or indicator light. The distress call device should have a low battery alarm function and should be able to emit audible and visual alarm signals. When the distress call device emits a low battery alarm, its normal operating time should be [not specified]. It should not be less than 1 hour. The low battery alarm sound level of the distress call device should not be less than 65 dB(A). The frequency and pitch variation period of the low battery alarm sound of the distress call device should meet the requirements of Table 3.

5.2.5 Temperature alarm function For emergency call devices with temperature alarm functions, they should be able to emit audible and visual alarm signals when operating in an environment with a temperature not lower than  $80^\circ\text{C}$ . The alarm number should be set, and the time for triggering the temperature alarm should not exceed 30 minutes. The sound level of the emergency call device's temperature alarm should not be less than 100 dB(A). The frequency and pitch variation period of the alarm sound should meet the requirements of Table 3.

5.2.6 Direction Indication Function The distress call device should have directional indicator lights on all four sides of its front. These indicator lights should emit red or yellow light, especially in smoke. In the environment, it should be able to indicate the location of the

distress call device. The flashing frequency of the distress signal indicator light should meet the following requirements.

- a) Under normal operating conditions, the directional lights flash once every  $2s \pm 0.1s$ ;
- b) Under each alarm state, the directional light flashes once every  $1s \pm 0.1s$ .

### 5.3 Basic Performance Requirements

5.3.1 Luminous brightness When the distress call device is fully charged, its luminance should not be less than 500 cd/m<sup>2</sup> when it is emitting light.

5.3.2 Insulation performance The insulation performance of distress call devices should meet the following requirements.

- a) The insulation resistance between the positive and negative electrodes and the outer casing should not be less than 50 MΩ under normal operating conditions;
- b) The insulation resistance between the positive and negative electrodes and the outer casing should not be less than 10 MΩ after the damp heat test.

5.3.3 Weather resistance performance The distress call device shall undergo the various climatic and environmental tests specified in Table 4, and shall meet the requirements of 5.2.1, 5.2.2, and

5.2.3 after the tests.

5.3.4 Resistance to mechanical environment The distress call device should undergo all the mechanical environmental tests specified in Table

5. After the tests, there should be no mechanical damage or loosening of fasteners, and it should... It meets the requirements of

5.3.5 Electromagnetic compatibility performance The distress call device should be able to withstand the electromagnetic compatibility performance test specified in Table 6, and there should be no abnormalities during the test. After the test, it should meet the requirements of 5.2.1. Requirements of

5.2.2 and 5.2.3.

5.3.6 Salt spray resistance The distress call device shall be subjected to a salt spray test in a non-powered state for 72 hours. After the test, it shall meet the requirements of

5.3.7 Performance of Orientation in Simulated Smoke Environments In a dense smoke environment where objects are not visible to the naked eye at a distance of 1 meter, the directional light of the distress call device should be able to indicate the location of the distress call device.

5.3.8 Flame retardant properties After the flame retardant performance test, the distress