

# **QRR0.04GW/S FOR LITHIUM BATTERY BOX**

## **Condensed Aerosol Fire Extinguishing Device**

### **Technical Specification**

#### **1、 Product Overview**

QRR0.04GW/S fire extinguishing device is a new type of S-type Condensed Aerosol Fire Extinguishing Device, which is a breakthrough product in the field of fire fighting with high fire extinguishing efficiency and reliability. The product has the characteristics of compact size, no pressure storage, no need to lay pipe network and maintenance, efficient and rapid fire extinguishing, non-toxic and harmless, safe and reliable, green and environmental protection, etc. It is especially suitable for communication rooms and electronic computer rooms, battery compartments, engine compartments, battery boxes and other relatively closed places.

#### **2、 Product Features**

S-type thermal aerosol suppression of fire is mainly reflected in the following aspects: The fire extinguishing mechanisms of general fire extinguishing agents are mainly isolation method, asphyxiation method, cooling method, chemical inhibition method, different fire extinguishing agents have different fire extinguishing mechanisms.

The fire extinguishing mechanism of thermal aerosols is mainly reflected in two aspects: on the one hand, the cooling effect of heat absorption and decomposition, and on the other hand, the chemical inhibition of the gas phase and solid phase. Synergistic play between each other. In addition to the Condensed Aerosol Fire Extinguishing Device, the gas phase component of the product also plays a supporting role.

##### **(1) Cooling And Fire Extinguishing Effect Of Heat Absorption And Decomposition**

The cooling effect of Condensed Aerosol Fire Extinguishing Device relies mainly

on the heat absorption decomposition of metal oxides and carbonates. Any fire in a relatively short period of time to put out the heat is limited, if the solid particles in the aerosol in a shorter period of time can absorb part of the heat released by the fire source, then the temperature of the flame will be reduced, the heat radiated to the combustion surface and used to crack the already vaporized combustible molecules into free radicals will be reduced, and the combustion reaction will be somewhat. The combustion reaction will be suppressed to some extent.

## (2) Gas-Phase Chemical Inhibition

Under the action of heat, the Condensed Aerosol Fire Extinguishing Device decomposes vaporized metal ions such as Sr, K, Mg or cations that have lost electrons in the form of vapor. Multiple chain reactions occur with the active groups H•, •OH and O• in combustion, and the following is an example of Sr:



By repeating this, the reactive groups in combustion are consumed in large quantities, the concentration is continuously reduced, and combustion is suppressed.

## (3) Solid-Phase Chemical Inhibition

The solid particles in the Condensed Aerosol Fire Extinguishing Device are able to adsorb the chain reaction intermediates •OH, H• and O• and catalyze their reconstitution into stable molecules, thus interrupting the branching chain reaction of the combustion process. This interrupts the branching chain reaction of the combustion process, using K as an example as follows:



In the above fire-extinguishing effect, several fire-extinguishing mechanisms interact with each other and play synergistically, but the role of gas transmission and metal oxide or carbonate heat absorption and cooling effect is only to play a secondary effect, while the main fire-extinguishing effect is still dependent on the chemical inhibition of gas and solid phase.

### 3、 Technical Parameters

3.1, S-type hot aerosol production implementation standards: GA499.1 "aerosol fire extinguishing system Part 1: Condensed Aerosol Fire Extinguishing Device.

3.2, Using validity: 10 years.

3.3, Start mode: electric start and / or hot start.

3.4, Hot start temperature:  $\geq 170\text{ }^{\circ}\text{C}$ .

3.5, Electric start voltage:  $\geq \text{DC}24\text{V}$ .

3.6, Start current:  $\geq 700\text{mA}$ .

3.7, The use of ambient temperature:  $-50\text{ }^{\circ}\text{C} \sim +90\text{ }^{\circ}\text{C}$ .

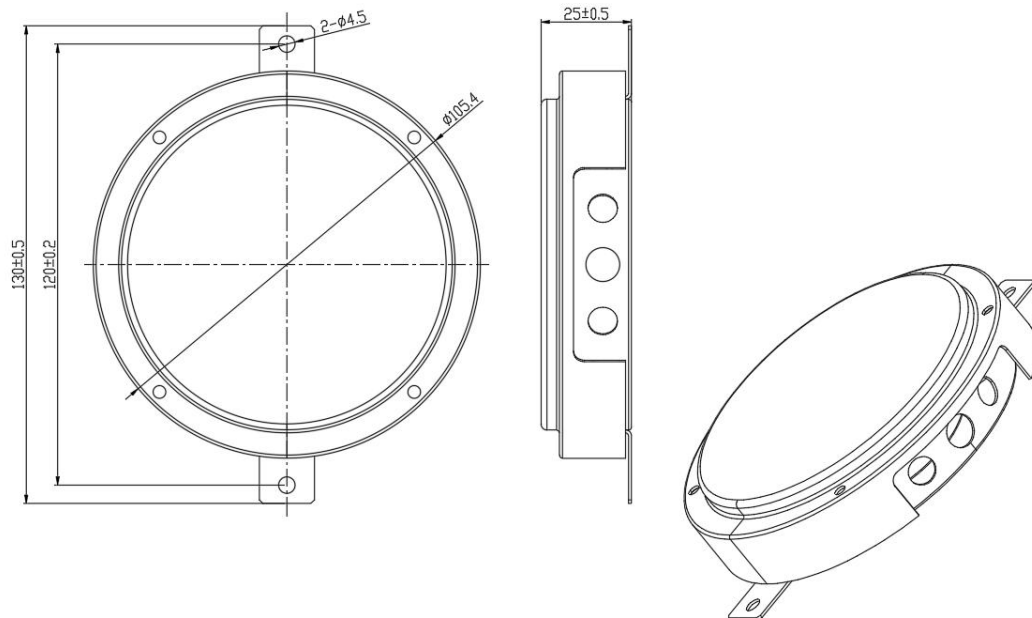
3.8, Fire extinguishing density:  $100\text{g} / \text{m}^3$ .

3.9, Hot aerosol dose:  $40\text{g} \pm 0.8\text{g}$ .

3.10, Spray lag time:  $\leq 1\text{s}$ .

3.11, Device mass:  $350 \pm 30\text{g}$  (without harness).

### 4、 Structural Installation



**Description:**

- 1, Unit: mm.
- 2, Fire extinguishing device terminals model according to the specific needs of customers change.
- 3, Standard color of product bundle: black.
- 4, Adaptation specification of fixing screw M4.

QRR0.04Gw/S Fire Extinguishing Device Interface Definition	
Pin definition	Definition Description
1	Double yellow wire starter wire
2	Double blue wire starter wire
3	Black feedback wire
4	Black feedback wire

## 5、Precautions for Use and Operation

- 5.1, The fire extinguishing device nozzle directly in front of the 0.05m range is strictly prohibited to stack equipment, debris and other obstacles to ensure the fire extinguishing device fire efficiency.
- 5.2, After the device is started, please contact the company in time for replacement.
- 5.3, The device is valid for 10 years, after the expiration date, the user should contact the supplier for replacement.

## 6、Safety Tips

- 6.1, Do not disassemble the device by non-professional personnel.
- 6.2, After spraying, do not touch the shell before it cools down to prevent burns.