

## **CBECM-TB**

# **Digital Electronic Detonator Control Module**

## **Technical Specification**

**Version: V1.0**

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## 1 Scope of Application

This technical specification specifies the dimensional outline and electrical performance parameters of the **CBECM-TB** digital electronic detonator control module (hereinafter referred to as "module").

This specification applies to the **CBECM-TB** digital electronic detonator control module designed by Shanghai Chipdance Technology Co., Ltd.

## 2 Normative References

The provisions in the following documents become provisions of this specification through reference in this specification. For dated reference documents, any subsequent amendments (excluding corrigenda) or revisions do not apply to this specification. However, parties are encouraged to discuss the possibility of applying the latest versions of such documents. For undated reference documents, the latest version applies to this specification.

WJ/T 9085-2024 Industrial Digital Electronic Detonators

WJ/T 9107-2025 Industrial Digital Electronic Detonators - Electronic Ignition Modules

### 3 Module Overview

Model	Core Components	Application Scenarios
CBECM-TB	<p><b>Tantalum capacitor:</b> 2*33uF/16V</p> <p><b>Bridge wire:</b> 32um/1.75Ω</p>	<p>Open-pit coal mines, Open-pit metal mines, Underground mines, Quarries, Infrastructure Construction, Tunnel Excavation, Directional Blasting</p>

### 4 Module Technical Requirements

#### 4.1 Appearance

4.1.1 The external plastic encapsulation of the module shall be free of exposed components, severe shrinkage, deformation, or other defects.

4.1.2 The module PCB shall be free of cracks, delamination, or other defects.

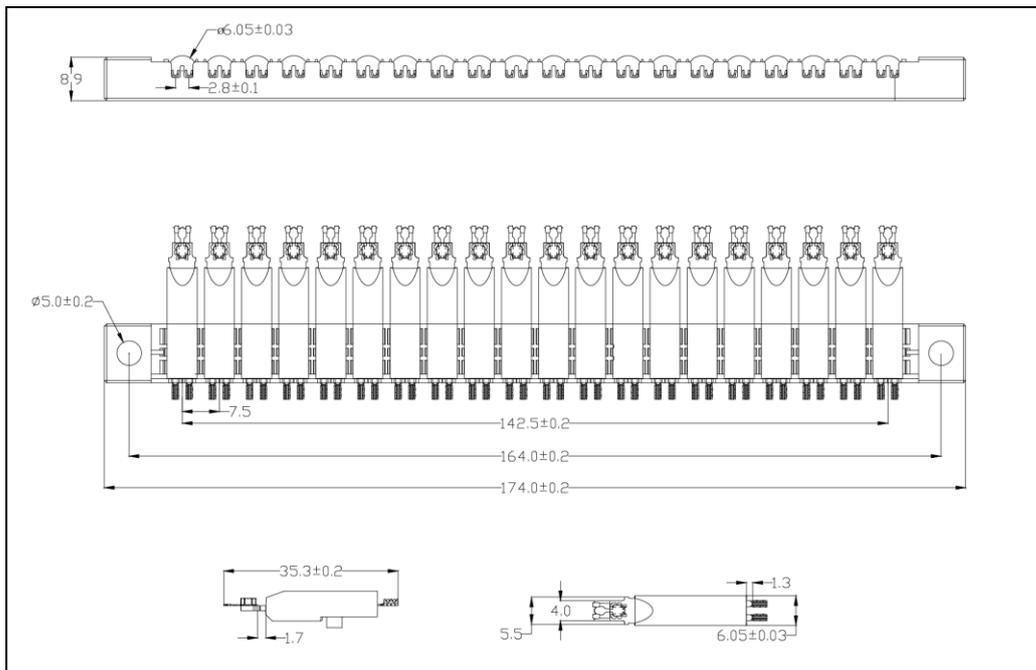
4.1.3 The riveted terminals of the module shall be free of oxidation blackening, foreign matter adhesion, deformation, or misalignment.

4.1.4 At the module's lead wire end, the bridge wire shall not have obvious offset or misalignment, and its surface shall be free of solder, flux,

or other contaminants.

## 4.2 Dimensions

The external structure, outer diameter, and length dimensions of the CBECM-TB module shall conform to the requirements shown in the following diagram:



## 4.3 Electrical Performance Parameters

**Testing Instrument:** CBECM-TB Module Final Tester.

Follow the operating instructions of the module final tester: place the module on the testing fixture, select "Start Test". A green test grid indicates pass, and a red test grid indicates fail. Carefully verify the test results and maintain test records.

The specific electrical performance parameters of the CBECM-TB

module are shown in the following table:

Test Item	Test Threshold
AB/BA Low Voltage Current	7uA~18.5uA
AB/BA Low Voltage Current Difference	≤6uA
AB/BA High Voltage Current	7uA~24uA
AB/BA High Voltage Current Difference	≤7uA
AB High/Low Voltage Current Difference	≤6uA
BA High/Low Voltage Current Difference	≤6uA
Bridge Wire Resistance	1.4Ω~2.1Ω
Energy Storage Capacitance	64.5uF~73.5uF
Energy Storage Capacitor Leakage Current	≤30uA
Charging Voltage Test	17.5V~19.5V
Current Value After Charging	12uA~41uA
Diode Voltage Drop	0.3V~0.8V
Bridge Wire Continuity Test	Bridge wire connected

## 5 Main Parameters and Performance

### 5.1 Energy Storage Capacitor Specifications

Tantalum capacitors: 2\*33uF/16V

### 5.2 Igniter Bridge Wire Specifications

32um/1.75±0.2Ω

### 5.3 Firing Voltage

0.005% Firing Voltage: 11.811V

50% Firing Voltage: 13.158V

99.995% Firing Voltage: 14.506V

## 5.4 Delay Time

The factory default delay time is 65535ms. Blasters can set any delay time within the range of (0~16000)ms according to the actual conditions of the blasting project.

Under test conditions of -40°C, 85°C, and room temperature, electronic detonators shall meet the following requirements:

- a) When the delay time is not greater than 1000ms,  $SD < 0.6$ ;
- c) When the delay time is greater than 1000ms,  $CV < 0.06\%$ ;

## 5.5 DC Resistance Performance

Apply 50V DC voltage to the lead wire end of the electronic control module and maintain it for 10s. The module's primer should not fire.

## 5.6 AC Resistance Performance

Apply 230/50Hz AC voltage to the lead wire end of the electronic control module and maintain it for 10s. The module's primer should not fire.

## 5.7 Temperature Resistance Performance

5.7.1 When kept in an 85°C environment for 4h, no explosion should occur. After removal, the primer should be able to detonate normally.

5.7.2 When kept in a -40°C environment for 4h, the primer should be able

to detonate normally in that environment.

## **5.8 Temperature Shock Resistance Performance**

After undergoing 3 cycles of -40°C for 3h and 80°C for 3h, with a temperature transition time of 20s~30s, the electronic control module's primer should not explode or suffer structural damage. After removal and kept at room temperature for 1h, the primer should be able to detonate normally.