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**RAILWAY INDUSTRY STANDARD OF THE  
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**General technical specification for elastic parts for railways**

机车车辆用橡胶弹性元件通用技术条件

**(English Translation)**

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### Foreword

Appendix A of this standard is a normative appendix.

This standard was proposed by AND shall be under the jurisdiction of Beijing All-Way Communication Signal Research and Design Institute.

### 1 Scope

This standard specifies the terms and definitions AND technical requirements for the axle counter application system.

This standard is applicable to the automatic block, automatic inter-station block, and inter-station interlock system which are composed of the axle counter track inspection device. It is the technical criterion for researching, designing, manufacturing and using.

### 2 Terms and definitions

The following terms and definitions apply to this standard.

#### 2.1

Axle counter train detection device

It refers to the safety device which realizes the cleared and occupied inspection of the track section through the arithmetic calculation of the counting in and counting out axle number AND output of control conditions.

#### 2.2

Axle application system

It refers to the application system which is composed of the axle counter train detection device and the signal circuit.

## 2.3

Axle track section

It refers to the cleared track section as checked by the axle counter train detection device.

## 2.4

Cleared

- c) When the axle counter train detection device and the available inner-station track circuit are combined to settle the issue that the low resistance track bed circuit cannot be adjusted for once, the axle track relay and this section track circuit relay can be connected in parallel;
- d) When the axis track section is reset, it shall, after manually confirming that this section has no train, adopt instant reset mode.

**3.7 Automatic inter-station block of axle counting shall meet the following requirements.**

- a) The axle counter train detection device completes the inter-section cleared and occupied state inspection;
- b) When the departure station handles the departure route, the inter-station will automatically switch to the block state;
- c) When the train arrives at the reception station or returns back to the departure station, after confirming that the inter-section is cleared, it shall automatically terminate the block state;
- d) After the inter-section block and before the departure route is unlocked, it shall not terminate block; after cancelling the departure route and the departure route is unlocked, the block is automatically terminated accordingly;
- e) When the inter-section axle counter train detection device is reset, after

manually confirming that the inter-section is cleared by both stations, BREAK the lead seal, AND both stations shall simultaneously operate the instant reset button within 13 s;

f) The system shall make use of relevant inner-station interlocking conditions and take other measures to realize the logic judgment function of distinguishing normal traffic and external interference;

g) The system shall be powered by an uninterruptible power supply, which shall, after an interruption of the AC power supply, guarantee the time required by the normal operating train from departure to completely reach to the reception station.

**3.8 The automatic block axis application system shall meet the following requirements.**

a) The system shall have a large section axle counting detection function.

When the block section is in occupied state AND required for reset, it shall

5) The loop current is not less than 600 mA, to ensure reliable reception of locomotive signals;

6) The loop shall be fixed reliably every 2 m;

7) The loop shall have locomotive signal code sending, code cutting, disconnection, and short-circuit detection alarming and indication.

**3.9 The communication transmission channel shall meet the following requirements.**

a) The inter-station and indoor-outdoor equipment communication transmission channel of the axle counting system shall adopt the special transmission line pair (optical cable or symmetrical cable).

b) The axle counting system shall continuously monitor its communication transmission channel; when this channel has fault, the corresponding axle track section shall be at occupied state, AND meanwhile indication is provided.

**3.10 It shall equip reliable power supply to ensure the uninterrupted normal operation of the system.**

**3.11 The axle counting system shall have a fault alarm function; once fault occurs, the corresponding axle track section shall be at occupied state, AND meanwhile indication is provided.**

**3.12 The axle counting system shall have a standard interface, AND the information can be included in micro-computer monitoring, computer interlocking, TDCS (train dispatching command system), and CTC (centralized traffic control).**

**3.13 The channels, equipment, power supply, etc., of the axle counting system shall be configured with lightning protection facilities as specified. As for the electrification section, the grounding shall be of through grounding line, with the grounding resistance not more than 1ohm; as for the non-electrified section, outdoor can adopt distributed grounding mode, with the grounding resistance not more than 4ohm; under special conditions, it may use through grounding line, with the grounding resistance not more than 1ohm.**

**3.14 It shall, at the entrance and exit of the section under the protection of the axle counter train detection device, respectively install the wheel sensors, which shall be on the same rail.**

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