

ICS 91.120.25
CCS P 15

DB

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

DB/T 13-2021

**Interface and control of ground motion observation instruments
(English Translation)**

Issued on: September 6, 2021

Implemented on: January 1, 2022

Issued by: China Earthquake Administration

Table of Contents

Preface
Introduction
1 Scope
2 Normative references
3 Terms, Definitions and Abbreviations
4 Instrument Interface Requirements
5 Data collector and sensor communication requirements
Appendix A (Informative) Connector Form, Basic Parameters and Size Example
Appendix B (normative) Data collector and sensor communication protocol framework, content and format
Reference

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" drafted.

This document replaces DB/T 13-2000 "Seismometer Interface". Compared with DB/T 13-2000, the main technical changes are as follows.

- Added the definition of the control signal of the data collector to the sensor (see 4.1, 4.2, 4.3);
- Added the definition of the data collector timing interface (see 4.4);
- Added the definition of data collector network communication interface (see 4.5);
- Added the definition of data collector power interface (see 4.6);
- Added the definition of the communication interface protocol and data format between the sensor and the data collector (see Chapter 5).

Introduction

This document defines two sensor interfaces. Type A sensor includes unlocking/locking pendulum and zero adjustment operations during the working process, and has Seismometer and force balance accelerometer with center of mass position output; B-type sensor includes no need to unlock/lock pendulum and zero adjustment during operation

Seismometers and force-balanced accelerometers that do not have a center of mass position output. The design and production departments of the sensor can choose the connection according to the actual situation.

mouth type.

Interface and Control of Ground Motion Observation Instrument

1 Scope

This document specifies the sensor output interface, sensor input interface, timing interface, network communication interface and power supply interface of the data collector.

Connector specifications and terminal definitions, input and output indicators.

This document applies to the design, production, use, maintenance, introduction and quality of data collectors, sensors (seismometers, force balance accelerometers) Supervision.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 1988-1998 Seven-bit coded character set for information exchange in information technology
GB/T 6107-2000 Interface between data terminal equipment and data circuit terminating equipment using serial binary data exchange
GB/T 13849.1-2013 Polyolefin Insulated Polyolefin Sheathed Local Communication Cable Part 1: General
GB/T 18015.5-2007 Twisted-pair or star-pair multi-core symmetrical cables for digital communication - Part 5: With 600MHz and below Sub-specification for horizontal layer wiring of twisted-pair or star-pair symmetrical cables with transmission characteristics
GB/T 18015.7-2017 Twisted-pair or star-pair multi-core symmetrical cables for digital communication - Part 7: With 1200MHz and below Sub-specification for digital and analog communication cables of twisted-pair or star-pair symmetrical cables with transmission characteristics
GJB598B-2011 General Specification for Environmental Resistant Quick Separation Circular Electrical Connectors
GJB1610A-2011 Environment-resistant quick separation circular electrical connector insulation installation office contact hole arrangement
GJB7179-2011 General requirements for high-speed network circular electrical connectors

3.1 Terms and Definitions

The following terms and definitions apply to this document.

3.1.1

seismometer

A device that converts ground motion into voltage.

[Source. DB/T 22-2020, 3.1.1] 3.1.2 the acceleration of ground motion is recorded, and the output signal is fed back to the coil to generate the accelerometer of the balance force.

3.1.3

A device that converts analog voltage signals into digital quantities and records them.