

ICS 27.140
CCS P 59

DL

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

DL/T 1107-2019

**Basic specifications of automatic components for hydropower
plant
(English Translation)**

Issued on: January 1, 1970

Implemented on: October 1, 2019

Issued by: National Energy Administration

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Foreword

This standard is based on the rules given in GB/T 1.1-2009 "Guidelines for Standardization Part 1: Standard Structure and Compilation".

DL/T 1107-2009 "Basic Technical Conditions of Automation Components for Hydropower Plants" shall be revised.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

The main contents of this standard revision to DL/T 1107-2009 include.

--Delete or modify the content of the scope.

--Delete, modify and increase the content of normative references.

--Deleted, modified and added terms and definitions.

--Deleted, modified and perfected the content of the relevant general provisions in the technical requirements.

--Infrared temperature measurement and detection instruments, pressure level gauges, float level gauges, ultrasonic level gauges, radar level gauges, and Proximity switch, swing and key phase sensor, vibration sensor, magnetic flux density sensor, partial discharge sensor, shaft current monitoring Technical requirements for devices and load monitoring components.

--Repair the technical requirements of temperature, pressure, liquid level, displacement, vibration and other monitoring components, adjustment components, and actuators Revised and improved, and added standard references for corresponding clauses.

- Delete the content of corresponding clauses such as flow monitoring element, speed monitoring element and automatic water filter, and add standard reference.
- Chapter 5 "Quality Inspection" was revised to "Test". Delete "test method" in this chapter. Add "field test" and "experiment report". And modify and improve the content of the chapter.
- Chapter 6 "Handover and Acceptance" was revised to "Technical Documents". Delete "6.1.1 and 6.1.3 Clause" in this chapter-Delete the contents of "Transport" and "Storage" in Chapter 7 of the original standard, and add standard reference.
- Delete Appendix A and Appendix B of the original standard.

This standard was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Electric Power Industry Hydropower Station Automation Standardization Technical Committee.

Drafting organizations of this standard. China Institute of Water Resources and Hydropower Research, Tianjin Water Conservancy and Electric Power Machinery Research Institute, China Three Gorges Corporation, Chongqing Datang International Pengshui Hydropower Development Co., Ltd., Datang Guangxi Branch Guangxi Pingban Hydropower Development Co., Ltd., Shenzhen Ruidesen Industry Industry Automation Equipment Co., Ltd.

1 Scope

This standard specifies the basic technical requirements for the structure, function, and performance of automation components (devices) in hydropower plants, and also specifies the corresponding test Related requirements for inspection and marking, packaging, transportation and storage.

This standard is applicable to the configuration selection design and production of the units and auxiliary equipment of hydropower plants and the automation components used by the public equipment of the whole plant.

Product design and manufacturing.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

The definition and selection of GB/T 1048 pipe component nominal pressure GB/T 4798.1 Environmental conditions for application of electrical and electronic products Part 1: Storage GB/T 4798.2 Environmental conditions for application of electrical and electronic products Part 2: Transportation GB/T 5465.2 Graphical symbols for electrical equipment

Part 2: Graphical symbols GB/T 6075.5 Measuring and evaluating mechanical vibration of machines on non-rotating parts Part 5 Hydroelectric power plants and pumping stations GB/T 7551 load cell GB/T 11348.5 Measurement and Evaluation of Radial Vibration of Rotating Machinery Shaft Part 5 Hydroelectric Power Plant and Pumping Station Unit GB/T 12244 General requirements for pressure reducing valves GB/T 12245 Pressure reducing valve performance test method GB/T 12246 Pilot-operated pressure reducing valve GB/T 13384 General technical conditions for packaging of mechanical and electrical products GB/T 13927 Industrial valve pressure test GB/T 14048.1 Low Voltage Switchgear and Control Equipment Part 1: General GB/T 15479 Technical requirements and tests for insulation resistance and insulation strength of industrial automation instruments GB/T 17626.4 Electromagnetic compatibility test and measurement technology Electrical fast transient pulse group immunity test GB/T 24923 Technical requirements for ordinary valve electric devices DL/T 619 Hydropower plant automation components (devices) and their system operation, maintenance and overhaul test procedures DL/T 664 Infrared Diagnosis Application Specification DL/T 1197 Technical conditions for online monitoring system of hydro-generator unit status DL/T Hydropower Plant Flow Measurement Device Technical Conditions DL/T 1859 Technical conditions of rotational speed measuring device for hydropower plant DL/T 1858 Technical conditions of automatic water filter in hydropower plant JB/T 7352 Solenoid valve for industrial process control system Technical conditions of JB/T 7376 pneumatic air pressure reducing valve JB/T 10373 hydraulic electro-hydraulic directional valve and hydraulic directional valve JB/T 10674 hydraulic control valve

3 Terms and definitions

The following terms and definitions apply to this standard.

Automatic components (devices) it refers to a device with a compact structure and a single function that can complete the functions of information acquisition, conversion, display, transmission, processing and execution.

Mainly include sensors, annunciators, and monitors for non-electric monitoring of temperature, pressure, liquid level, flow, speed, vibration, displacement, etc.

And monitoring devices, as well as automatic pressure reducing valves and filters used to adjust the parameters of the working medium, and the electric Magnetic valve, electric valve, hydraulic operation valve, etc.

Transducer/sensor

A device or device that can feel the measured and convert it into a usable output signal according to a certain rule, usually composed of sensitive components and conversion components composition.

Note 1: Sensing element refers to the part of the sensor that can directly feel or respond to the measurement.

Note 2: Transducing element (transducing element) refers to the sensor that can convert the sensed or response of the sensitive element into the part of the electrical signal suitable for transmission or measurement.

Note 3: When the output is a specified standard signal, it is called a transmitter (transmitter).

Note 4: The slash symbol "/" in English words means that the words before and after it are common (the same below).

Annunciator

Refers to a device that specifically monitors whether the measured non-electricity change exceeds the limit. When the measured non-electricity change rises or falls to the set value, a switch is issued 3.4 Monitoring instrument it refers to a long-term online running instrument that collects, processes, displays, and outputs signals from sensor signals. Signal output includes switch Quantity, analog quantity and digital communication.

Monitoring device

Refers to measuring equipment composed of sensors and monitors.

Accuracy (precision,) accuracy the degree of agreement between the measurement result and the measured true value.

Repeatability error

Refers to when the annunciator changes up or down under the specified working conditions, and the same signal point moves continuously in the same direction.

Inconsistency of monitored quantities.

Sensitivity

The ratio of the change of the output of the instrument to the corresponding change of the measured value.

Linearity

The degree to which the calibration curve is consistent with a specified straight line.

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Return coefficient

It refers to the return value of the same contact of the annunciator divided by the action value.

3.11

Resolution

It refers to the minimum input change value that can produce an observable output change