

ICS 29.180

CCS K 41



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

GB/T 20840.6-2017

**Instrument transformers -- Part 6: Additional general
requirements for low-power instrument transformers
(English Translation)**

Issued on: November 1, 2017

Implemented on: May 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Normal and special conditions of use
5 Rating

Foreword

GB/T 20840 "Transformer" is divided into the following sections.

- Part 1. General technical requirements;
- Part 2. Current transformer additional technical requirements;
- Part 3. Electromagnetic voltage transformer supplementary technical requirements;
- Part 4. Combined transformer technical requirements;
- Part 5. Capacitive voltage transformer supplementary technical requirements;
- Part 6. Low-power mutual inductor universal technical requirements;
- Part 7. Electronic voltage transformers;
- Part 8. Electronic current transformers;
- Part 9. Digital interface of the transformer.

This section GB/T 20840 Part 6.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section GB/T 20840.1-2010 "Transformer Part 1. General technical requirements" supporting the use. This section follows GB/T 20840.1 preparation of the structure, is its corresponding provisions of the addition and modification. When the terms of GB/T 20840.1 is not mentioned in this section Timely, as long as reasonable, then these provisions also apply to this section. When specified in this section "add" "modify" or "alternative", it means the relevant provisions of GB/T 20840.1 in this section be adapted accordingly.

For GB/T 20840.1-2010 supplemented on the basis of chapters, bars, diagrams, tables, notes and appendices, this section uses the following numbering.

- Chapter, Article, Figure, Table and note number starting from 601;

--- Appendices numbered 6A, 6B and so on.

This section uses the redrafted law to amend the use of IEC 61869-6:2016 "Transformer Part 6. Low-power transformers supplement General skills requirement".

This part of the structure and IEC 61869-6:2016 differences are as follows.

--- Remove clause 3.2 of IEC 61869-6:2016, merge the contents into 3.3 and change the title of 3.3 to " Definition of flow or voltage rating ";

--- 7.2.1.1 of IEC 61869-6:2016 is adjusted to 7.2.1.2 of this standard;

--- IEC 61869-6:2016 7.3.1, 7.3.4 and 7.3.5 were adjusted to 7.3.2, 7.3.6 and 7.3.7 of this section;

--- IEC 61869-6:2016 Appendix 6B and Appendix 6C order was replaced in this section.

This section and IEC 61869-6:2016 technical differences and the reasons are as follows.

--- On the normative references, this section made a technical difference with the adjustment to adapt to China's technical conditions, adjust the situation Concentration reflected in the second chapter "Normative references", the specific adjustments are as follows.

- Equivalent with the international standard GB/T 7826 instead of IEC 60812:2006;

- Equivalent with the international standard GB/T 17626.11 instead of IEC 61000-4-11:2004;

- Equivalent to the international standard GB/T 17626.29 instead of IEC 61000-4-29:2000;

- Replacing IEC 61869-1:2007 with GB/T 20840.1-2010 modified to adopt international standards;

- GB/T 20840.2-2014 modified to adopt international standards instead of IEC 61869-2:2012;

- Replacing IEC 61869-3-2011 with revision GB/T 20840.3-2013 of international standard;

--- In order to meet the voltage conditions in China, in 5.3.601.2, the priority value of the AC voltage is changed from "100V ~ 230V" to "110V, 220V ";

--- In order to adapt to China's national conditions, in Table 7.1.2 7.1, the "gas dew point measurement" and "capacitance and dielectric loss factor measurement" by special Special test adjustment as a routine test;

--- In order to adapt to the climatic conditions in our country, in 7.2.601.1, the atmospheric temperature of the atmosphere should be changed from "10 °C ~ 30 °C" to "5 °C ~ 40 °C";

--- In order to meet the national conditions of our country, in Appendix 6A, Figure 6A.2 by "fr = 60Hz, fs = 4800Hz" instead of "fr = 50Hz, fs = 4000Hz "drawing.

This section also made the following editorial changes.

--- Remove IEC 61869-6:2016 references in the IEC 60044-7:1999, IEC 60050-321:1986, IEC 60050-421:1990, IEC 61869 (all parts), IEC 61869-7 and IEEE 37.92-2005.

This part is proposed by China Electrical Equipment Industry Association.

This part of the National Standardization Technical Committee transformer (SAC/TC222) centralized.

This part of the drafting unit. Shenyang Transformer Research Institute Co., Ltd., Nanjing NARI Insurance Electric Co., Ltd., China Electric Power Research Institute, NARI Aerospace (Beijing) Electric Control Technology Co., Ltd., Beijing Tianwei Ruiheng Electric Co., Ltd., Beijing Automation Control Equipment Institute, Dalian First Transformer Co., Ltd., Jiangsu Jingjiang Transformer Co., Ltd., Zhejiang Horizon Transformer Co., Ltd., Zhongshan Taifeng Electric Co., Ltd., State Grid Shaanxi Electric Power Company Electric Power Research Institute.

1 Scope

GB/T 20840 provisions of this part of the rated frequency of 15Hz ~ 100Hz AC or DC use of low-power transformers (LPIT) supplement general technical requirements. This product standard to GB/T 20840.1 as the basis, the terms of the relevant special standards were Supplement.

This section does not include the technical specifications of the transformer digital output format.

This section defines the error of the analog or digital output. Other characteristics of the transformer digital interface, see GB/T 20840.9, and application Substation hierarchical communication structure of the series of standards.

This section considers additional requirements related to bandwidth. Harmonic accuracy requirements and anti-aliasing filter requirements are listed in Appendix 6A.4.

The general block diagram of a single-phase LPIT is shown in Figure 601.

Depending on the technology used, not all of the components listed in Figure 601 are essential for the transformer.

For example, for passive low power transformers (LPITs that do not contain active electronics), each block consists of passive components only and none power supply.

Figure 601 General block diagram of single-phase LPIT

2 Normative references

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

GB/T 20840.1-2010 Chapter 2 and the following additions apply.

GB/T 7826 System Reliability Analysis Techniques Failure Mode and Effects Analysis (FMEA) Procedure (GB/T 7826-2012, IEC 60812:2006, IDT) GB/T 17626.11 electromagnetic compatibility test and measurement techniques voltage dips, short interruptions and voltage variations immunity test (GB/T 17626.11-2008, IEC 61000-4-11:2004, IDT) GB/T 17626.29 electromagnetic compatibility test and measurement technology DC power input port voltage dips, short interruptions and voltage changes Immunity test (GB/T 17626.29-2006, IEC 61000-4-29:2000, IDT) Transformers GB/T 20840.1-2010 Part 1. General technical requirements (IEC 61869-1:2007, MOD) Transformers - Part 2. Additional technical requirements for current transformers (IEC 61869-2-2012,