

ICS 17.220.20

CCS N 22



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

GB/T 26831.2-2012

**Society energy metering for reading system specification -- Part
2: Physical and link layer**

社区能源计量抄收系统规范 第2部分：物理层与链路层

(English Translation)

Issued on: November 5, 2012

Implemented on: February 15, 2013

Issued by: Standardization Administration of China

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative references	
3 Terms and definitions	
4 Physical Layer Description	
4.1 Overview	
4.2 Electrical requirements from station	
4.3 Host Electrical Requirements	
4.4 Host Small electrical requirements	
4.5 Transponder	
4.6 Shock and surge requirements	
5 Link Layer (master and slave)	
5.1 Overview	
5.2 Baud Rate	
5.3 8 position	
5.4 Byte format	
5.5 9 format	
5.6 Due to the conflict caused by the failure message	

Foreword

GB/T 26831 "Collecting community energy metering system specification" consists of the following four parts.

- Part 1. Data exchange;
- Part 2. Physical and link layer;
- Part 3. Dedicated application layer;
- Part 4. Wireless meter reading copy.

This is Part 2 GB/T 26831; and the standards refer to the European Standard EN13757. Wherein, Part 1, Part 2, Part 3 is equivalent to using the EN13757-1, EN13757-2, EN13757-3 corresponding portion, Part 4 combined with wireless meter reading technology status and national wireless Letter made major changes to the relevant standards.

This section uses the translation method identical with EN13757-2:2004 "meter and remote meter reading communication system in the second part. Physical layer Link Layer. " this section according to GB/T 1.1-2009 given rules drafted Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This part is proposed by China Machinery Industry Federation.

This part of the National Electrical Instrument Standardization Technical Committee (SAC/TC104) centralized.

This section is drafted. Harbin Electrical Instrument Research Institute, Beijing Nath Electric Co., Ltd., Shenzhen, Terry, Czech Republic Electronics Co., Ltd., Guangzhou Dong-ho Di Innovation and Technology Co., Ltd., Changsha Weisheng Information Technology Co., Ltd., Shenyang Air heat measurement technology Co., Solarfun Electronics Ltd., Harbin Hua Hui Electric Co., Ltd., Xi'an flags Electronics Co., Ltd. Shenzhenshilong Power Electric Co., Ltd., Hangzhou PAX Electronic Technology Co., Ltd., Shenzhen HND Instrumentation Co., Ltd., Tengen Group Co., Ltd., Tangshan Huizhong Instrumentation Co., Ltd., Ningbo Donghai set Group Co., Ltd., Beijing Fuxing Xiaocheng Electronic Technology Co., Ltd., Qingdao Neusoft Computer Technology Co., Ltd. Zhangzhou Branch Electric Co., Ltd., United States State Echelon Corp., Hangzhou Electronics Co. swan.

Introduction

As technology advances, economic development and the continuous improvement of people's energy management requirements, community (building and residence) energy demand (Water, electricity, gas, heat) Collecting and remote management technology into the rapid development stage, the emergence of the first to use various types of communication technology, involving A variety of products and technology solutions for each field of metrology. Product manufacturing side and the user side is eager to these products or systems to follow uniform standard.

Thus, since 1999, the International Electrotechnical Commission have published the IEC 62056 "Data exchange for meter reading, tariff and load control" Series of standards; the development of the country with reference to their published content GB/T 19882 "automatic meter reading system" series of standards. This standard is an open system, it solves the interconnectivity and interoperability requirements. The standard system is divided into several independent part of the development, which is conducive to standard itself evolving. This scientific method and the content of the standards are "community energy metering system specification Collecting" national standards mentioned for a good reference.

At the same time, for obvious reasons, community energy metering and automatic meter reading system meter reading system has many similar or common content, in reality there

are products demand interconnection, "Collecting community energy metering system Norms" and should be considered with the GB/T 19882 "from Coordinated move meter reading system".

The standard system is in the above context developed to recognize this background for understanding the development of ideas and understanding of the standards within this standard Yung are beneficial.

The standard system includes two aspects of community energy metering Collecting system application management and the underlying communications. In the application management, the main content is COSEM (Energy metering package specification), the use of object identity and instrument interface object model methods, and thus described Measuring instruments for remote meter reading and a dedicated application layer. In terms of the underlying communication relates twisted pair baseband (M-BUS) and a short distance without Line two physical layer, data link layer specification.

In EN1434-3:1997 ("M-BUS"), with respect to heat meters for the first time introduced based on bus interface physical layer and link layer, twisted pair Parameters. This section is EN1434-3:1997 part of the update, it is compatible and complement each other. It also includes other measured media (Water, gas and heat allocation table), the master of communication and the development of newer technologies. Note EN1434-3:1997 also includes other through Communication technologies.

It can be applied in different application layers, especially the EN13757-3 application layer.

Collecting Community Energy Metering System Specification Part 2. Physical layer and link layer

1 Scope

This section provides the instrument communication system parameters M-BUS bus interface physical layer and link layer based on twisted pair.

This section applies to heat meters, heat cost allocators, water and gas meter.

General description of the part of the instrument communication systems and remote meter reading, see GB/T 26831.1.

Note: This section also applies to other instruments (such as power meter), sensors and actuators.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 17626.4-2008 Electromagnetic compatibility - Testing and measurement techniques -

Electrical fast transient burst immunity test (IEC 61000-4-4:2004, IDT) GB/T 17626.5-2008
Electromagnetic compatibility - Testing and measurement techniques - Surge (impact)
immunity test (IEC 61000-4-5.

2005, IDT)

GB/T 18657.1-2002 Telecontrol equipment and systems - Part 5. Transmission protocols -
Section 1. Transmission frame formats (idt IEC 60870-5-1:1990) GB/T 18657.2-2002
Telecontrol equipment and systems - Part 5. Transmission protocols Section 2. Link
transmission procedures (idt IEC 60870-5-2:1992) GB/Y26831.1-2011 Collecting
Community Energy Metering System Specification Part I. data exchange

3 Terms and Definitions

GB/T 26831.1 defined and the following terms and definitions apply to this document.

Unit load

A unit load (1UL) is 1.5mA maximum current label status.

4.1 Overview

Figure 1 shows the main electrical physical layer concept. the transmission of information
from the host to the station by a voltage level change achieved. use

A (high) voltage level static voltage U_{mark} (idle, typically 36V) and a typical value lower
than U_{mark} 12V (at least 12V) dynamic voltage value (space state) for data transmission.
High voltage change width increase from the host to the anti-noise station direction
Interference. Minimum voltage needed, can provide continuous power to a remote section
of all slaves. Electrical signal transmission through Pressure changes rather than absolute
voltage level to withstand large voltage due to the installation of the cable wire resistance
caused by fall. All slaves are connected to the constant current