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Data exchange for meter reading, tariff and load control – Local bus data exchange

Echange des données pour la lecture des compteurs, contrôle des tarifs et de la charge – Echange des données par bus en local

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This International Standard has been prepared by IEC Technical Committee No. 13: Equipment for electrical energy measurement and load control.

The text of this standard is based on the following standards:

DIS	Report on Voting
13(CO)1016	13(CO)1020

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

INTRODUCTION

This International Standard has been established by working group 14: Data exchange for meter reading, tariff and load control of technical committee 13: Equipment for electrical energy measurement and load control.

The working group has the task of establishing standards, by reference to ISO Standards, necessary for data exchanges by different communication media, for remote reading, tariff and load control, consumer information.

The media can be either distribution line carrier (DLC), telephone (including ISDN), radio or other electrical or optical systems and they may be used for local or remote data exchanges.

Meter reading and programming may be performed manually by a meter reader, or supported by means of a local communication system, or automatically by means of a remote communication system. Manual meter reading means that the reader has access to the meter and reads each register, while "supported" reading implies the use of a communication system or a local bus system and a hand-held unit (HHU). Fully remote reading implies a remote communication system such as those involving distribution line carrier or telephone systems.

DATA EXCHANGE FOR METER READING, TARIFF AND LOAD CONTROL – LOCAL BUS DATA EXCHANGE

1 General

1.1 *Scope and object*

This International Standard describes a method for local bus data exchange, where a number of tariff devices in a given area are connected by a dedicated bus; all of these tariff devices may then be read by connection of a hand-held unit to a central magnetic plug.

This standard presents hardware and protocol specifications for local systems, while specifications for a remote system falls within the scope of another standard.

Considering the fact that several systems are in practical use already, particular care was taken to maintain compatibility with existing systems and/or system components and their relevant protocols.

This standard is specific for local bus systems. In these systems, a hand-held unit also known as primary station or MASTER is connected to several tariff devices also known as secondary stations or SLAVES through a dedicated bus having a flexible structure.

The master is connected to the bus by a magnetic (inductive) plug. The bus itself is passive and all the tariff units – the number of which is limited – are electrically isolated from it.

The protocol is also based on OSI and uses four layers: PHYSICAL, DATA LINK, SESSION and APPLICATION.

The protocol permits the reading and programming of tariff devices. It allows for the detection and identification of so-called "forgotten" units that are not registered in the portable terminal's data base.

The protocol has been designed to be particularly suitable for the environment of electricity metering, especially as regards electrical isolation, and software security. While the protocol is well defined, its use and application are left to the user. The use of the local bus system for point to point communication is also left to the user.

1.2 *Normative references*

The following normative standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7480: 1984, *Information processing - Start/stop transmission – Signal quality at DTE/DCE interfaces.*

ISO 7498: 1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model.*