

Code of practice for

# Design of alternating current, watthour meters for active energy (classes 1 and 2)

ICS 17.220.20

|                           |
|---------------------------|
| Confirmed<br>January 2010 |
|---------------------------|

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

**BSI**  
Documents



Document Sharing Hub

# Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee PEL/13, Electricity meters, upon which the following bodies were represented:

- BEAMA Metering Association (BMA)
- Building Automation and Mains Signalling Association (BAMSA) (BEAMA Ltd.)
- Electricity Association
- Electricity Pool of England and Wales
- Energy Systems Trade Association
- Flag Association
- Institution of Electrical Engineers
- Office of Electricity Regulation (OFFER)
- United Kingdom Automatic Meter Reading Association

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 November 1996

© BSI 1996

## Amendments issued since publication

| Amd. No. | Date | Text affected |
|----------|------|---------------|
|          |      |               |
|          |      |               |
|          |      |               |
|          |      |               |
|          |      |               |

The following BSI references relate to the work on this standard:  
Committee reference PEL/13  
Draft for comment 94/207913 DC

ISBN 0 580 25839 4

# Contents

|                                                                                                                   | Page               |
|-------------------------------------------------------------------------------------------------------------------|--------------------|
| Committees responsible                                                                                            | Inside front cover |
| Foreword                                                                                                          | ii                 |
| <b>Code of practice</b>                                                                                           |                    |
| 1 Scope                                                                                                           | 1                  |
| 2 Normative references                                                                                            | 1                  |
| 3 Definitions                                                                                                     | 1                  |
| 4 Mechanical features                                                                                             | 1                  |
| 5 Electrical features                                                                                             | 1                  |
| <b>Tables</b>                                                                                                     |                    |
| 1 Dimensions and spacing of fixing holes and terminals                                                            | 2                  |
| 2 Standard currents                                                                                               | 2                  |
| <b>Figures</b>                                                                                                    |                    |
| 1 Spacing of fixing holes and terminals for single-phase, two-wire meter                                          | 3                  |
| 2 Diagrams of connections for a single-phase, two-wire, two-rate meter                                            | 4                  |
| 3 Diagrams of connections for a single-phase, two-wire, single-rate meter                                         | 5                  |
| 4 Diagrams of connections and graphical symbols for a two-element meter used on three-wire systems                | 6                  |
| 5 Diagrams of connections and graphical symbols for a two-element meter used on a two-phase, four-wire system     | 7                  |
| 6 Diagrams of connections and graphical symbols for a three-element meter used on a three-phase, four-wire system | 8                  |
| <b>List of references</b>                                                                                         | Inside back cover  |

## Foreword

This British Standard has been prepared under the direction of the Electrotechnical Sector Board by Technical Committee PEL/13.

This British Standard has been developed to aid users of the following standards.

BS EN 60521 : 1995 *Class 0.5, 1 and 2 alternating-current watthour meters*

NOTE 1. This is based on IEC 521 : 1989 and supersedes BS 5685 : Part 1 : 1979.

BS EN 61036 : 1993 *Alternating current static watt-hour meters for active energy (classes 1 and 2)*

NOTE 2. This is based on IEC 1036 : 1990.

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

# Code of practice

## 1 Scope

This British Standard gives recommendations for special design practices applicable to alternating current electromechanical and static watt-hour meters installed in domestic, commercial and industrial premises within the United Kingdom.

This British Standard should be read in conjunction with BS EN 60521 : 1995 for electromechanical meters and BS EN 61036 : 1993 for static meters, in which the safety and performance requirements are specified.

## 2 Normative references

This British Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this British Standard only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

## 3 Definitions

For the purposes of this British Standard, the definitions in BS EN 60521 and BS EN 61036 apply.

## 4 Mechanical features

**4.1** For single-phase, two-wire meters, the overall dimensions of the meter and the spacing of fixing holes should be in accordance with the appropriate values given in table 1.

**4.2** For single-phase, two-wire meters, the dimensions and spacing of the terminals should be in accordance with the appropriate values given in table 1 and shown in figure 1.

For polyphase meters, the current terminals of directly connected meters having rated maximum currents up to and including 100 A should be in accordance with dimensions *K*, *L* and *P* given in table 1.

**4.3** For directly connected polyphase meters having a rated maximum current above 100 A and up to and including 160 A, the diameter of the terminal cable aperture should be  $(12.7^{+0.5}_0)$  mm.

**4.4** In drum-type registers, the figure height should lie between 4.6 mm and 8.9 mm, except for those which indicate decimal fractions of the unit.

**4.5** Auxiliary terminal(s) for single-phase directly connected meters should preferably be provided on the right hand side of the terminal block enabling auxiliary wiring to clear 18 mm to the right of the centreline of the meter. The auxiliary terminal for switching the two-rate register should be located as shown in figures 1 and 2.

**4.6** A facility in single-phase directly connected meters for the disconnection of the voltage terminal from the input current terminal need not be provided. However, if fitted, such voltage disconnection links should be under the main cover.

**4.7** All directly connected meters for rated maximum currents up to and including 160 A, and all meters operated from external current transformers, should have two screws in each current terminal for the effective clamping of the external conductors or thimbles.

## 5 Electrical features

**5.1** For single-phase and three-phase meters for use where the neutral is available, the external control of rate change should be accomplished by connecting the rate change terminal or terminals to neutral. For multi-rate meters, the rate switching logic should be in accordance with BS 5685 : Part 5.

**5.2** Single-phase electromechanical meters should be fitted with anti-reverse devices and an indication of reverse energy flow should be fitted to all static meters.

**5.3** The standard and maximum currents for different types of meter should be as given in table 2.

**5.4** The standard connections of the respective directly connected meters covered by this standard should be as shown in figures 2 to 6.