

THE WATTHOUR METER

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The Watthour Meter by William M. Shepard & Allen G. Jones

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WILLIAM M. SHEPARD & ALLEN G. JONES

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BY

WILLIAM M. SHEPARD

AND

ALLEN G. JONES



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PREFACE

Considerable information may be derived from various sources relative to the watthour meter. Realizing the desirability and advantage of collecting and publishing such information in concrete form, the authors have endeavored to describe the prominent types and the best usage of modern domestic watthour meters.

It has been the intention to prepare the facts in a form which will impart to the central station manager, the practical meter man and to the student alike, information which will be edifying and serviceable for reference and as a guide for the proper installation, connection, testing and maintenance of that most vital factor in the distributing system—the watthour meter.

Especial attention has been given the induction type and a brief but concise explanation of its theory and operation has been made without the use of higher mathematics. Maintenance and testing are also treated in detail with the dominant idea of giving the practical man assistance in modern, effective and quick methods of obtaining efficient results. Comprehensive tables of testing constants and formula are incorporated in Chapter VIII.

Where specific make of meters is mentioned, such reference should not be construed as indicating the superiority of that particular type over others, but

should be considered from the view-point of uniformity of nomenclature in order that comparisons may be made briefly and intelligently.

In preparing the contents of this book, the details of electrical design have been intentionally omitted. The authors did not feel that those interested in the general and practical phases of the subject would desire to go deeply into such matters.

It has been the urgent endeavor to cover the field thoroughly. Supplementary information pertinent to the subject will be gladly furnished by addressing the authors in care of the publishers of this book.

We desire to avail ourselves of the opportunity to thank manufacturers of meters referred to in this publication for their generous and able co-operation. We are also indebted to Mr. F. G. Vaughen, Mr. O. A. Knopp and Mr. F. E. Geibel and others for their liberal advice and assistance.

THE AUTHORS.

San Francisco, June, 1910

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THE WATTHOUR METER

CHAPTER I.

GENERAL.

Definition.

The name "recording wattmeter" or "integrating wattmeter," is often erroneously applied. The true name for the instrument commonly used for recording the energy flowing in an electrical circuit for a certain period of time is the watt-hour meter, since it records the product of the watts and the time. The "recording wattmeter" in the true sense of the word is the instrument which is ordinarily known as the graphic, or "curve-drawing wattmeter," which records the watts for any given instant without taking into consideration the time element.

Relation of the Meter to the Central Station.

The relation of the meter and the meter system to the distributing station is a factor of great importance, the gravity of which, as a rule, is not fully realized; especially is this true with the small and the medium-sized lighting and power companies. The revenue of the distributing company depends on the meter in more ways than are at first apparent, and the continued accuracy of its meters is a matter materially affecting its financial success. Inaccurate meters are eventually detrimental to the interests of the company selling current, regardless of whether the meter runs fast or slow. A fast meter furnishes the consumer a very just cause for complaint, and when detected usually reacts strongly against the company in producing mistrust of its methods and a general feeling among its customers that they are paying for something that they never receive. Such a feeling is to be