



## DRAFT TANZANIA STANDARD

(Draft for comments only)

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**Electricity metering equipment - Particular requirements -  
Part 21: Static meters for AC active energy (classes 0,5, 1  
and 2)**

**TANZANIA BUREAU OF STANDARDS**

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## 1 National Foreword

This draft Tanzania Standard has been prepared by the TBS Electrical Equipment Technical Committee, under the supervision of the Electrotechnical Divisional Standards Committee (EDC)

This draft Tanzania Standard is identical to International Standard **IEC 62053-21:2020** *Electricity metering equipment - Particular requirements - Part 21: Static meters for AC active energy (classes 0,5, 1 and 2)*, which has been prepared by the International Electrotechnical Commission.

This draft standard cancels and replaces TZS 1628-2:2013 which has been technically revised.

## 2 Terminology and conventions

Some terminologies and certain conventions are not identical with those used in Tanzania standards; attention is drawn especially to the following: -

- 1) The comma has been used as a decimal marker for metric dimensions. In Tanzania Standards, it is current practice to use "full point" on the baseline as the decimal marker.
- 2) Where the words "International Standard(s)" appear, referring to this standard they should read "Tanzania Standard(s)"



## ELECTRICITY METERING EQUIPMENT –

### PARTICULAR REQUIREMENTS –

Part 21: Static meters for AC active energy (classes 0,5, 1 and 2)

#### 1 Scope

This part of IEC 62053 applies only to static watt-hour meters of accuracy classes 0,5, 1 and 2 for the measurement of alternating current electrical active energy in 50 Hz or 60 Hz networks and it applies to their type tests only.

NOTE 1 For other general requirements, such as safety, dependability, etc., see the relevant IEC 62052 or

IEC 62059 standards.

This document applies to electricity metering equipment designed to:

- measure and control electrical energy on electrical networks (mains) with voltage up to 1 000 V;

NOTE 2 For AC electricity meters, the voltage mentioned above is the line-to-neutral voltage derived from nominal

voltages. See IEC 62052-31: 2015, Table 7.

- have all functional elements, including add-on modules, enclosed in, or forming a single meter case with exception of indicating displays;
- operate with integrated or detached indicating displays, or without an indicating display;
- be installed in a specified matching socket or rack;
- optionally, provide additional functions other than those for measurement of electrical energy.

Meters designed for operation with low power instrument transformers (LPITs as defined in the IEC 61869 series) may be tested for compliance with this document only if such meters and their LPITs are tested together and meet the requirements for directly connected meters.



NOTE 3 Modern electricity meters typically contain additional functions such as measurement of voltage magnitude, current magnitude, power, frequency, power factor, etc.; measurement of power quality parameters; load control

functions; delivery, time, test, accounting, recording functions; data communication interfaces and associated data

security functions. The relevant standards for these functions may apply in addition to the requirements of this

document. However, the requirements for such functions are outside the scope of this document.

NOTE 4 Product requirements for power metering and monitoring devices (PMDs) and measurement functions such

as voltage magnitude, current magnitude, power, frequency, etc., are covered in IEC 61557-12. However, devices

compliant with IEC 61557-12 are not intended to be used as billing meters unless they are also compliant with

IEC 62052-11:2020 and one or more relevant IEC 62053-xx accuracy class standards.

NOTE 5 Product requirements for power quality instruments (PQIs) are covered in IEC 62586-1. Requirements for

power quality measurement techniques (functions) are covered in IEC 61000-4-30. Requirements for testing of the

power quality measurement functions are covered in IEC 62586-2.

This document does not apply to:

- meters for which the voltage line-to-neutral derived from nominal voltages exceeds 1 000 V
- meters intended for connection with low power instrument transformers (LPITs as defined in the IEC 61869 series) when tested without such transformers;
- metering systems comprising multiple devices (except LPITs) physically remote from one another;
- portable meters;

NOTE 6 Portable meters are meters that are not permanently connected.



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- meters used in rolling stock, vehicles, ships and airplanes;
- laboratory and meter test equipment;
- reference standard meters;
- data interfaces to the register of the meter;
- matching sockets or racks used for installation of electricity metering equipment;
- any additional functions provided in electrical energy meters.

This document does not cover measures for the detection and prevention of fraudulent attempts to compromise a meter's performance (tampering).

NOTE 7 Nevertheless, specific tampering detection and prevention requirements, and test methods, as relevant for

a particular market are subject to the agreement between the manufacturer and the purchaser.

NOTE 8 Specifying requirements and test methods for fraud detection and prevention would be counterproductive,

as such specifications would provide guidance for potential fraudsters.

NOTE 9 There are many types of meter tampering reported from various markets; therefore, designing meters to

detect and prevent all types of tampering could lead to unjustified increase in costs of meter design, verification and

validation.

NOTE 10 Billing systems, such as, smart metering systems, are capable of detecting irregular consumption patterns

and irregular network losses which enable discovery of suspected meter tampering.

NOTE 11 For transformer operated meters paired with current transformers (CTs) according to IEC 61869-2:

– the standard CT measuring range is specified from 0,05  $I_n$  to  $I_{max}$  for accuracy classes 0,1, 0,2, 0,5 and 1 and

these CTs are used for meters of class 0,5, 1 and 2 according to this document;



– the special CT measuring range is specified from 0,01 In to I<sub>max</sub> for accuracy classes 0,2 S and 0,5 S and these

CTs are used for meters of class 0,1 S, 0,2 S and 0,5 S according to 62053-22:2020;

– combinations of standard CTs and meters of class 0,1 S, 0,2 S and 0,5 S are subject to an agreement between

manufacturers and purchasers.

NOTE 12 This document does not specify emission requirements, these are specified in IEC 62052-11:2020, 9.3.14.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content

constitutes requirements of this document. For dated references, only the edition cited applies.

For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62052-11:2020, Electricity metering equipment – General requirements, tests and test conditions – Part 11: Metering equipment