



उत्पाद मैनुअल
प्रत्यावर्ती दिष्ट धारा सक्रिय ऊर्जा के लिए डायरेक्ट कनेक्टेड स्टैटिक पूर्व भुगतान मीटर
श्रेणी 1 एवं श्रेणी 2
आईएस 15884: 2024 के अनुसार

PRODUCT MANUAL FOR
Alternating Current Direct Connected
Static Prepayment Meters for Active Energy (Class 1 and Class 2)
as per IS 15884:2024

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या IS No.	:	IS 15884:2024
	शीर्षक Title	:	Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and Class 2)
	संशोधनों की संख्या No. of amendments	:	None
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	-
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	3 pc Prepayment Meters
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	• General and Constructional Requirements • a.c. High Voltage Test • Insulation Test • Accuracy Requirements (Limits of Error) • Test of starting condition • Test of no-load condition • Power Consumption
6.	लाइसेंस का दायरा /Scope of the Licence:		

“License is granted to use Standard Mark as per **IS 15884: 2024** with the following scope:

Name of the product	Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and Class 2)
Model	
Type	Single phase 2-wire/ Three phase 4-wire
Accuracy Class	Class 1 / Class 2
Voltage Ratings	V
Basic Current (I _b)	A
Max Current (I _{max})	A
Load Switching Utilization Category	UC1/ UC2/ UC3
Insulating Encased Meter of Protective Class	Insulating Encased Meter of Protective Class I/ Insulating Encased Meter of Protective Class II
Type of Token Carrier Interface	

ANNEX -A**Grouping Guidelines**

1. Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and Class 2) as per IS 15884 are classified based on the following:
 - a) Accuracy Class – 1 and 2
 - b) Type - Single phase 2-wire, Three phase 4-wire
 - c) Load Switching Utilization Category – UC1, UC2, UC3
 - d) Insulating Encased Meter of Protective Class - Insulating Encased Meter of Protective Class I and/or Insulating Encased Meter of Protective Class II
 - e) Type of Token Carrier Interface
2. For considering GoL/ CSoL, samples of each variety of meters shall be tested. However, the following relaxation may be given when a particular variety of Static Prepayment Meters at a particular rated voltage as given above is tested for all the requirements:
 - a) Same basic current (I_b) and different current ratio (I_{max}/I_b) – One sample with highest current ratio (I_{max}/I_b) and another sample with lowest current ratio (I_{max}/I_b) out of the range offered be subjected to all tests.
 - b) Different basic current (I_b) but same (I_{max}/I_b) – One sample with highest (I_b) and another sample with the lowest (I_b) be subjected to all tests.
 - c) Different basic current (I_b) and different (I_{max}/I_b) – One sample with lowest (I_b) and lowest (I_{max}/I_b) and another sample with highest (I_b) and highest (I_{max}/I_b) be subjected to all tests.
 - d) If same (I_b) with different (I_{max}/I_b) is to be included in the licence, the varieties offered be subjected to tests applicable at I_{max} only.
3. The Firm shall declare the varieties of ac direct connected static prepayment meters intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of the Licence, BO shall ensure that all the Varieties covered in the Licence are tested in rotation to the extent possible.

Note 1: Manufacturer shall submit the certificate for compliance to the requirement of Retention time of the non-volatile memory as per Clause 4.2.10.2 of IS 15884:2024.

Note 2: Manufacturer shall also submit the drawings of the Static Prepayment Meters it intends to take under the scope of the licence.

ANNEX- B
LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Standard Electrical Values - Cl. 4.1 Mechanical Requirements - Cl. 4.2	Vernier Caliper, Micrometer
2.	Limits of Error due to variation of current – Cl. 4.6.1	Test Bench
3.	Starting and running with no load – Cl. 4.6.4	
4.	Repeatability of Error Test – Cl. 5.6.7	
5.	Limits of Error Due to Other Influence Quantities - Cl. 4.6.2	Gauss Meter
6.	Test of Influence of Short-Time Overcurrent - Cl. 5.4.3	Short Time Over Current Tester
7.	Test of influence of voltage dips and Interruptions - Cl. 5.4.2 Influence of Supply Voltage - Cl. 4.4.2	Voltage Dips and Interruption Tester
8.	Tests of Insulation Properties - Cl. 5.4.6.1, Cl. 5.4.6.4	a.c. High Voltage Tester Insulation Tester
9.	Tests of Electrical Requirements - Cl. 5.4.1	Digital Multi meter
10.	a.c. voltage test - Cl. 5.4.6.3	High Voltage Tester
11.	Test of Influence of Self-Heating - Cl. 5.4.4	Digital Temperature Measurement Equipment
12.	Shock Test - Cl. 5.2.2	Shock Test Device
13.	Vibration Test - Cl. 5.2.3	Vibration Test Device
14.	Spring Hammer Test - Cl. 5.2.1	Spring Hammer Test Device
15.	Impulse voltage test - Cl. 5.4.6.2	Impulse Voltage Tester
16.	Test of Resistance to Heat and Fire - Cl. 5.2.4	Glow Wire Test Apparatus
17.	Influence of Short-Time Overcurrents Cl. 4.4.3, Test of Influence of Short-Time Overcurrent Cl. 5.4.3	Short time overcurrent tester

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

- 1.1. It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.
- 1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.2.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

- 1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Meters of the same type, accuracy class and load switching utilization category manufactured in a day shall constitute a control unit.
- 1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1.
- 1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.
- 1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. **ENSURING COMPLIANCE THROUGH TESTING-** It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

- 2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

- 2.2 **TEST RECORDS-** The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. **PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and Class 2) provided always that the material so marked conforms to each requirement

of the specification.

3.1 Marking on each Prepayment Meters shall be done as per Cl. 4.2.11 of IS 15884: 2024

3.2 **Additional Marking requirements:** The Prepayment Meters shall also be marked with the following additional requirement on each product or its packaging:

a) “For BIS certification details please visit www.bis.gov.in”

3.3 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

4. HYGIENIC CONDITIONS (if applicable) – NA.

5. REJECTION - Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act,2016.

TABLE-1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S:Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	General Requirements						
4.1	Standard Electrical Values	4.1.1 to 4.1.4	IS 15884	R	Each Meter		
4.2	Mechanical Requirements						
4.2.1 to 4.2.3 4.2.7	General & Mechanical requirement	4.2.1 to 4.2.3, 4.2.7		R	Each Meter		
4.2.4 4.2.5	Terminal Blocks and Terminal Cover	4.2.4 4.2.5		S	Three	Each consignment of insulating material received	No further testing is required if ISI marked or accompanied with Test Certificate.
4.2.8	Resistance to Heat and Fire	4.2.8 5.2.4					
4.2.6	Clearances & Creepage Distances	4.2.6,		S		Once in six months	For each variety manufactured during that period
4.2.9	Protection against penetration of dust and water	4.2.9 5.2.5		S		Once in a year	For each variety manufactured during that period
4.2.10	Display of Measured Values	4.2.10		R	Three	Once in six months	For each variety manufactured during that period For Cl. 4.2.10.2 non-volatile memory shall accompany with supplier’s test certificate
4.4.6	Insulation						
	a.c high voltage test	5.4.6.1 5.4.6.3		R	Each Meter		
	Insulation Resistance Test	5.4.6.1 5.4.6.4		R			
4.6.1	Limits of Error due to variation of current	4.6.1 5.6.1 5.6.6		R			
4.6.4	Starting and running with no load	4.6.4, 5.6.3 5.6.4		R			

4.2.12	Token Carrier Interface	4.2.12	IS 15884	S	Three	Once in six months	For each variety manufactured during that period
4.4	Electrical Requirements						
4.4.1	Power Consumption	4.4.1.1 4.4.1.2 5.4.1	IS 15884	R	Each Meter		
4.4.2	Influence of Supply Voltage	4.4.2 5.4.2	IS 15884	S	Three	Once in six months	For each variety manufactured during that period
4.4.3	Short time over current test	4.4.3, 5.4.3	IS 15884	S			
4.4.4	Influence of Self Heating	4.4.4 5.4.4	IS 15884	S			
4.4.5	Influence of Heating	4.4.5 5.4.5	IS 15884	S			
4.6	Accuracy Requirements						
4.6.2	Limits of Error due to other Influence Quantities	4.6.2 5.6.2	IS 15884	S	Three	Once in six months	For each variety manufactured during that period
4.6.3	Limits of Error due to Ambient Temperature variation	4.6.3	IS 15884	S			
4.6.5	Meter Constant	4.6.5 5.6.5	IS 15884	R			
4.7	Requirement of Time Keeping	Annex D	IS 15884	S	Three	Once in six months	For each variety manufactured during that period
4.8	Load Switching Capability						
4.8.1	Load Switching General Requirements	4.8.1 5.10	IS 15884	S	One -for UCI and As per G-9 of IS 15884 for UC2/UC3	Once in a year	For each rating and load switching Utilization Category
4.8.2	Performance Requirements for Load Switching (Specific to Utilisation Category)	4.8.2 Annex G	IS 15884	S			
5.6.7	Repeatability of Error Test	5.6.7	IS 15884	S	Three	Once in six months	For each variety manufactured during that period
5.9	Test of consumption based charging	5.9	IS 15884	S			
5.10	Test of time-based charging functions	5.10	IS 15884	S			

5.8	Test of Load Switch	5.8	IS 15884	S	One -for UCI and As per G-9 of IS 15884 for UC2/UC3	Once in a year for each rating and load switching Utilization Category	
4.5	Electromagnetic Compatibility	4.5 5.5	IS 15884	S	Three	Once in a year	For each variety manufactured during that period
5.2.2	Shock Test	5.2.2		S			
5.2.3	Vibration Test	5.2.3		S			
5.2.1	Spring Hammer Test	5.2.1		S			
4.3, 5.3	Test for climatic influences	4.3, 5.3		S			
4.4.6, 5.4.6.2	Impulse Voltage Test	5.4.6.2	IS 15884	S	Three	Once in a year	
5.7	Test of the Load Switch operation for payment function	5.7		S			
5.8	Test of Charging Functions	5.8		S			
5.9	Interruption and Restoration of the Load for Emergency Credit Facility (if applicable)	5.9		S			
5.10	Tests of the Load Switch operation at Different Voltages and Temperature	5.10		S			
6	FUNCTIONAL REQUIREMENTS	6.1 6.2		R	One	Each Control Unit	