## **BUREAU OF INDIAN STANDARDS**

## **Program of Work**

#### ETD 12: Measuring Equipment For Basic Electrical Quantities

Scope:

To prepare standards for direct and indirect acting analogue and digital indicating and recording instruments and their accessories, also transducers having electrical inputs and outputs for measuring electrical quantities by any method on direct current and alternating current at distribution system frequencies and their harmonics To prepare standards for primary reference apparatus, operating on direct current and alternating current at distribution frequencies and their harmonics for the purpose of measurement, traceability and intercomparison

Liaison: **IEC TC-85 (P):** *Measuring equipment for electrical and electromagnetic quantities* 

## **Published Standards**

S.No	IS No.	TITLE	Reaffirm M-Y	No. of Amds	Eqv.
1	IS 10659 : 1983	Specification for DC bridges for		=	Modified/Technically
	IEC 60564	measuring resistance			Equivalent
	Reviewed In: 2017				
	IEC Publication 564				
	( 1977 )				
2	IS 11067 : 1984	Specification for DC standard		=	Indigenous
	Reviewed In: 2017	resistors			
3	IS 11212 : 1985	Specification for direct current		-	Indigenous
	Reviewed In: 2017	resistive volt ratio boxes			
4	IS 11287 : 2023	Bridge Insulations Testers		-	Indigenous
		(Magneto Generator Type) �			
		Specification (First Revision)			
5	IS 12312 : 2020	Inductive Voltage Dividers (First	-	-	Identical under dual
	IEC 618: 1978	Revision )			numbering
	IEC 60618:				
	1978+AMD				
6	IS 1248 (Part 1):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	IEC 60051-1: 2016	and their accessories Part 1:			
	IEC 60051-1: 2016	$\varepsilon$			
		requirements common to all parts			
		Fifth Revision			
7	IS 1248 (Part 2):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	60051-2: 2018	and their accessories Part 2:			
	60051-2: 2018	Special requirements for ammeters			
		and voltmeters			
8	IS 1248 (Part 3):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	60051-3: 2018,	and their accessories Part 3:			
	60051-3: 2018,	Special requirements for			
		wattmeters and varmeters			

9	IS 1248 (Part 4): 2021	Direct acting indicating analogue electrical measuring instruments		-	Identical under dual numbering
	60051-4: 2018 60051-4: 2018	and their accessories title Part 4: Special requirements for frequency			
		meters			
10	IS 1248 (Part 5):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	60051-5: 2018	and their accessories Part 5:			
	60051-5: 2018	Special requirements for phase			
		meters power factor meters and			
		synchroscopes			
11	IS 1248 (Part 6):	DIRECT ACTING INDICATING		-	Identical under dual
	2021	ANALOGUE ELECTRICAL			numbering
	60051-6:2017	MEASURING INSTRUMENTS			
	60051-6:2017	AND THEIR ACCESSORIES Part			
		6: Special requirements for			
		ohmmeters impedance meters and			
		conductance meters			
12	IS 1248 (Part 7):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	60051-7: 2017	and their accessories Part 7:			
	60051-7: 2017	Special requirements for multi-			
		function instruments			
13	IS 1248 (Part 8):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments			numbering
	60051-8: 2017	and their accessories Part 8:			
	60051-8: 2017	Special requirements for			
1.4	IC 1040 (D + 0)	accessories			T
14	IS 1248 (Part 9):	Direct acting indicating analogue		-	Identical under dual
	2021	electrical measuring instruments and their accessories Part 9:			numbering
	60051-9:2019				
15	60051-9:2019 IS 14570 : 2021	Recommended test methods			Identical under dual
13	60688: 2012	ELECTRICAL MEASURING TRANSDUCERS FOR		-	
	60688: 2012	CONVERTING AC AND DC			numbering
	00000. 2012	ELECTRICAL QUANTITIES TO			
		ANALOGUE OR DIGITAL			
		SIGNALS			
16	IS 14571 : 1998	Electrical measuring instruments -		1	Identical under dual
10	IEC 1028 (1991)	X - Y recorders		1	numbering
	Reviewed In: 2018	71 Tecorders			numbering
	IEC 1028 (1991)				
17	IS 1765 : 2020	Direct-Current Potentiometers (		_	Identical under dual
	IEC 60523 : 1975 +	Third Revision )			numbering
	Amend 1 + Amend 2	· · · · · · · · · · · · · · · · · · ·			6
	(1997)				
	60523				
18	IS 2419 : 2012	Panel mounted equipment -	April, 2024	-	Identical under dual
	IEC 60473(74)	Electrical measuring instrument -			numbering
	Reviewed In: 2024	Dimensions for panel mounting			
	IEC 61554 : 1999	(Second Revision)			
19	IS 2442 : 2023	D.C. Moving Coil Galvanometers		-	Indigenous
		� Specification (First Revision)			
20	IS 2442 : 1963	Specification for DC moving coil	March, 2020	1	Indigenous
	Reviewed In: 2020	galvanometers			
21	IS 3602 : 1966	Recommendations for the design		-	Modified/Technically
		of scales and indexes for indicating			Equivalent
	B.S. 3693 ( Part-1 )-	instruments for scales of 1 to 2			
	1964	percent resolution			
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22	IS 3635 : 1966	Methods of test for resistance of	March 2020	I	Indiannous
22	Reviewed In : 2020	metallic electrical resistance	March, 2020	-	Indigenous
	Reviewed III . 2020	material			
23	IS 3636 : 1966	Method of test for temperature	March, 2020		Modified/Technically
23	Reviewed In : 2020	coefficient of precision resistor	Maich, 2020	-	Equivalent
	se only, New	wires			Equivalent
24	IS/IEC 61010-2- 020		July, 2024	_	Identical under single
24	: 2016	equipment for measurement,	July, 2024	-	numbering
		control, and laboratory use: Part 2 -			numbering
	2016	020 particular requirements for			
	Reviewed In: 2024	laboratory centrifuges			
	IEC 61010-20 : 2016				
25		ELECTRICAL SAFETY IN LOW			Identical under single
	2019	VOLTAGE DISTRIBUTION			numbering
	61557 : Part 1: 2019				numbering
		AND 1500 V DC - EQUIPMENT			
		FOR TESTING MEASURING OR			
		MONITORING OF			
		PROTECTIVE MEASURES:			
		PART 1 GENERAL			
		REQUIREMENTS			
26	IS/IEC 61557-2 :	ELECTRICAL SAFETY IN LOW		_	Identical under single
20	2019	VOLTAGE DISTRIBUTION			numbering
	61557 : Part 2: 2019				Tunno er m.g
		AND 1500 V DC - EQUIPMENT			
		FOR TESTING MEASURING OR			
		MONITORING OF			
		PROTECTIVE MEASURES:			
		PART 2 INSULATION			
		RESISTANCE			
27	IS/IEC 61557-3:	Electrical Safety in Low Voltage		-	Identical under single
	2019	Distribution Systems up to 1 000 V			numbering
	IEC 61557-3: 2019	a.c. and 1 500 V d.c Equipment			
	IEC 61557-3: 2019	for Testing, Measuring or			
		Monitoring of Protective Measures			
		Part 3 Loop Impedance			
28	IS/IEC 61557-4:	Electrical safety in low voltage		-	Identical under single
	2019	distribution systems up to 1 000 V			numbering
	IEC 61557-4 : 2019	ac and 1 500 V dc Equipment for			
	IEC 61557-4: 2019	testing measuring or monitoring of			
		protective measures Part 4:			
		Resistance of earth connection and			
		equipotential bonding			
29	IS/IEC 61557-5:	Electrical safety in low voltage		-	Identical under single
	2007	distribution systems up to 1000 V			numbering
	IEC 61557 : Part	a.c. and 1500 V d.c Equipment			
	5:2007	for testing, measuring or			
		monitoring of protective measures:			
	IEC 61557 : Part 5	Part 5 resistance to earth			
30	IS/IEC 61557-6:	Electrical Safety in Low Voltage		-	Identical under single
	2019	Distribution Systems up to 1 000 V			numbering
	IEC 61557-6:2019	a.c. and 1 500 V d.c Equipment			
	IEC 61557-6:2019	for Testing, Measuring or			
		Monitoring of Protective Measures			
		Part 6 Effectiveness of Residual			
		Current Devices (RCD) in TT, TN			
	10/IEC (1555.5	and IT Systems			T44: 1 1 1 1
31	IS/IEC 61557-7:	Electrical Safety in Low Voltage		=	Identical under single
	2019	Distribution Systems up to 1 000 V			numbering
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	IEC 61557-7:2019	ac and 1 500 V dc Equipment for			
	IEC 61557-7:2019	Testing Measuring or Monitoring			
		of Protective Measures Part 7			
		Phase Sequence			
32	IS 6236 : 2020	20 Direct Recording Electrical		-	Identical under dual
	IEC 258: 1968	Measuring Instruments and Their			numbering
	IEC 60258:	Accessories (First Revision)			
	1968+AMD				
33	IS/IEC 62586-1:	Power Quality Measurement in		-	Identical under single
	2017	Power Supply Systems Part 1			numbering
	62586-1:2017	Power Quality Instruments (Pqi)			
	62586-1:2017				
34	IS/IEC 62586-2:	Power Quality Measurement in		-	Identical under single
	2017	Power Supply Systems Part 2:			numbering
	62586-2:2017	Functional tests and uncertainty			
	62586-2:2017	requirements			
35	IS 7889 : 1975	Specification for vibration	March, 2020	-	Indigenous
	Reviewed In: 2020	galvanometers			
36	IS 7889 : 2023	Vibration Galvanometers �		-	Indigenous
		Specification (First Revision)			
37	IS 7890 : 2023	Ballistic Galvanometers �		-	Indigenous
		Specification (First Revision)			
38	IS 8143 : 2023	Plugs and Keys for Resistance		=	Indigenous
		Boxes � Specification (First			
		Revision)			
39	IS 8160 : 2023	Tangent Galvanometers �		=	Indigenous
		Specification (First Revision)			
40	IS 8197 : 1976	Terminal markings for electrical	March, 2020	-	Indigenous
	Reviewed In: 2020	measuring instruments and their			
		accessories			
41	IS 8525 : 1977	Recommendations for design of		-	Indigenous
	Reviewed In: 2017	linear scales and indexes for			
		indicating instruments to be read to			
		0.33 - 1.25 percent resolution			
42	IS 9051 : 2023	Rheostats � Specification (First		=	Indigenous
		Revision)			
43	IS 9249 (Part 1):	Safety requirements for indicating		-	Modified/Technically
	1979	and recording electrical measuring			Equivalent
	iec 60414	instruments and their accessories:			
	Reviewed In: 2017	Part 1 common safety			
	IEC Pub 414 ( 1973)	requirements for instruments			
44	IS 9249 (Part 2):	Safety requirements for indicating		-	Modified/Technically
	1982	and recording electrical measureing			Equivalent
	iec 60414	instruments and their accessories:			
	Reviewed In: 2017	Part 2 safety requirements or			
	IEC Pub 414 ( 1973)	instruments for instruments using a			
		mains supply			

# **Standards under Development**

Projects Approved			
SI. No.	Doc No.	Title	
No Records Found			

Preliminary Draft Standards		
SI. No.	Doc No.	Title

## No Records Found

Drafts Standards in WC Stage				
SI. No.	SI. No. Doc No. Title			
No Records Found				

	Draft Standards Completed WC Stage			
SI. No.	Doc No.	Title		
1	ETD 12 (24306)	Electrical safety in low voltage distribution systems up to 1000 V ac and 1500 V dc Equipment for testing measuring or monitoring of protective measures Part 9 Equipment for insulation fault location in IT systems		

	Finalized Draft Indian Standard				
SI. No.	SI. No. Doc No. Title				
	No Records Found				

		Finalized Draft Indian Standards under Print
SI. No.	Doc No.	Title
1	ETD 12 (24293) Revision	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c -
	of: IS/IEC 61557:2007	Equipment for Testing Measuring or Monitoring of Protective Measures Part 5 Resistance to Earth
		First Revision
2	ETD 12 (24295) Revision	Electrical Measuring Transducers for Converting A C and D C Electrical Quantities to Analogue
	of: IS 14570:2021	or Digital Signals Third Revision
3	ETD 12 (24304)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V ac and 1 500 V dc Equipment
		for Testing Measuring or Monitoring of Protective Measures Part 8 Insulation Monitoring Devices for IT Systems
4	ETD 12 (24308)	Electrical Safety in Low voltage Distribution Systems up to 1 000 V a c and 1 500 V d c
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 10 Combined
		Measuring Equipment for Testing Measuring or Monitoring of Protective Measures
5	ETD 12 (24310)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c -
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 11 Effectiveness of
		Residual Current Monitors RCM In TT TN and IT Systems
6	ETD 12 (24311)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c -
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 12 Power Metering
		and Monitoring Devices PWD
7	ETD 12 (24313)	Electrical Safety in Low Voltage Distribution Systems Up To 1 000 V ac and 1 500 V dc
		Equipment for Testing Measuring or Monitoring of Protective Measures- Part 13 Hand- Held and
		Hand-Manipulated Current Clamps and Sensors for Measurement of Leakage Currents in Electrical
		Distribution Systems
8	ETD 12 (24314)	Electrical Safety in Low Voltage Distribution Systems Up To 1 000 V ac and 1 500 V dc
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 14 Equipment for
		testing the safety of electrical equipment for machinery
9	ETD 12 (24315)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c -
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 15 Functional Safety
		Requirements for Insulation Monitoring Devices in IT Systems and Equipment for Insulation Fault
		Location in IT Systems
10	ETD 12 (24316)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c -
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 16 Equipment for
		Testing the Effectiveness of the Protective Measures of Electrical Equipment and or Medical
		Electrical Equipment
11	ETD 12 (24317)	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c
		Equipment for Testing Measuring or Monitoring of Protective Measures Part 17 Non-Contact a c
		Voltage Indicators

# **Aspect Wise Report**

Product: 31
Code of Practices: 0
Methods of Test: 5
Terminology: 0
Dimensions: 1
System Standard: 0
Safety Standard: 0

Others: 5 Service Specification: 0 Process Specification: 0 Unclassified: 0

# Annexure-I :List of Indian Standards Withdrawn/Superseded

SI. No.	IS No. & Year	Title
1	IS 11576 : 1986	Barlow s wheel
	Reviewed In: 1991	
2	IS 11599 : 1986	Portable ac clip-on-ammeters
	Reviewed In: 2002	
3	IS 11994 : 1986	Code of practice for use of screed board concrete vibrators
	Reviewed In: 2017	
4	IS 12784 (Part 1): 1989	Electrical Measuring Transducers For Converting Ac Electrical Quantities Into Dc Electrical
	Reviewed In: 2005	Quantities Part 1 General Purpose Transducers
5	IS 1565 : 1966	Electrical Apparatus Comprising Resistors revised
6	IS 2992 : 1987	Insulation resistance testers hand operated magneto generator type
	Reviewed In: 2015	
7	IS H2992 : 1987	Insulation resistance testers hand operated magneto generator type HINDI
	Reviewed In: 2010	
8	IS 3107: 1974	Portable multi purpose direct acting electrical indicating instruments
	Reviewed In: 2010	
9	IS 7914 : 1975	Standard Cells
	iec 60428	
	Reviewed In: 2015	
10	IS 9223 : 1989	Portable Earth Resistance Meters
	iec 61557	
	Reviewed In: 2015	

# **Annexure-II : List of Indian Product Standards**

SI. No.	IS No. & Year	Title
1	IS 10659 : 1983	Specification for DC bridges for measuring resistance
	IEC 60564	
	Reviewed In: 2017 IEC	
	Publication 564 ( 1977 )	
2	IS 11067 : 1984	Specification for DC standard resistors
	Reviewed In: 2017	
3	IS 11212 : 1985	Specification for direct current resistive volt ratio boxes
	Reviewed In: 2017	
4	IS 11287 : 2023	Bridge Insulations Testers Magneto Generator Type Specification First Revision
5	IS 12312 : 2020	Inductive Voltage Dividers First Revision
	IEC 618 : 1978	
	IEC 60618 : 1978+AMD	
6	IS 1248 (Part 1): 2021	Direct acting indicating analogue electrical measuring instruments and their accessories Part 1

	IEC 60051-1: 2016 ISO 8274: 2005	Definitions and general requirements common to all parts Fifth Revision
7	IS 1248 (Part 2) : 2021 60051-2: 2018 ISO 15099: 2003	Direct acting indicating analogue electrical measuring instruments and their accessories Part 2  Special requirements for ammeters and voltmeters
8	IS 1248 (Part 3) : 2021 60051-3: 2018, ISO 13314 : 2011	Direct acting indicating analogue electrical measuring instruments and their accessories Part 3  Special requirements for wattmeters and varmeters
9	IS 1248 (Part 4) : 2021 60051-4: 2018 ISO/IEC 10561:1999	Direct acting indicating analogue electrical measuring instruments and their accessories title Part 4  Special requirements for frequency meters
10	IS 1248 (Part 5) : 2021 60051-5: 2018 ISO/IEC 18000-2	Direct acting indicating analogue electrical measuring instruments and their accessories Part 5  Special requirements for phase meters power factor meters and synchroscopes
11	IS 1248 (Part 6) : 2021 60051-6:2017 ISO/IEC 18000-3:2010	DIRECT ACTING INDICATING ANALOGUE ELECTRICAL MEASURING INSTRUMENTS AND THEIR ACCESSORIES Part 6 Special requirements for ohmmeters impedance meters and conductance meters
12	IS 1248 (Part 7) : 2021 60051-7: 2017 ISO/IEC 18000-4:2018	Direct acting indicating analogue electrical measuring instruments and their accessories Part 7  Special requirements for multi-function instruments
13	IS 1248 (Part 8) : 2021 60051-8: 2017 ISO/IEC 18000-6:2013	Direct acting indicating analogue electrical measuring instruments and their accessories Part 8  Special requirements for accessories
14	IS 14570 : 2021 60688: 2012 ISO 21586:2020	ELECTRICAL MEASURING TRANSDUCERS FOR CONVERTING AC AND DC ELECTRICAL QUANTITIES TO ANALOGUE OR DIGITAL SIGNALS
15	IS 14571 : 1998 IEC 1028 (1991) Reviewed In : 2018 IEC 1028 (1991)	Electrical measuring instruments - X - Y recorders
16	IS 1765 : 2020 IEC 60523 : 1975 + Amend 1 + Amend 2 (1997) 60523	Direct-Current Potentiometers Third Revision
17	IS 2442 : 2023	D C Moving Coil Galvanometers Specification First Revision
18	IS/IEC 61010-2- 020 : 2016 IEC 61010-2-020 : 2016 Reviewed In : 2024 IEC 61010-20 : 2016	Safety requirements for electrical equipment for measurement control and laboratory use Part 2 - 020 particular requirements for laboratory centrifuges
19	IS/IEC 61557-1 : 2019 61557 : Part 1: 2019 ISO 12866: 1999 + AMD 1: 2008	ELECTRICAL SAFETY IN LOW VOLTAGE DISTRIBUTION SYSTEMS UP TO 1000 V AC AND 1500 V DC - EQUIPMENT FOR TESTING MEASURING OR MONITORING OF PROTECTIVE MEASURES PART 1 GENERAL REQUIREMENTS
20	IS/IEC 61557-3 : 2019 IEC 61557-3: 2019	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c - Equipment for Testing Measuring or Monitoring of Protective Measures Part 3 Loop Impedance
21	IS/IEC 61557-4 : 2019 IEC 61557-4 : 2019	Electrical safety in low voltage distribution systems up to 1 000 V ac and 1 500 V dc Equipment for testing measuring or monitoring of protective measures Part 4 Resistance of earth connection and equipotential bonding
22	IS/IEC 61557-5 : 2007 IEC 61557 : Part 5:2007 Reviewed In : 2017 IEC 61557 : Part 5	Electrical safety in low voltage distribution systems up to 1000 V a c and 1500 V d c - Equipment for testing measuring or monitoring of protective measures Part 5 resistance to earth
23	IS/IEC 61557-6 : 2019 IEC 61557-6:2019	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a c and 1 500 V d c - Equipment for Testing Measuring or Monitoring of Protective Measures Part 6 Effectiveness of Residual Current Devices RCD in TT TN and IT Systems
24	IS/IEC 61557-7 : 2019 IEC 61557-7:2019	Electrical Safety in Low Voltage Distribution Systems up to 1 000 V ac and 1 500 V dc Equipment for Testing Measuring or Monitoring of Protective Measures Part 7 Phase Sequence

25	IS 6236 : 2020	Direct Recording Electrical Measuring Instruments and Their Accessories First Revision
	IEC 258 : 1968	
	IEC 60258 : 1968+AMD	
26	IS/IEC 62586-1 : 2017	Power Quality Measurement in Power Supply Systems Part 1 Power Quality Instruments Pqi
	62586-1:2017	
27	IS 7889 : 2023	Vibration Galvanometers Specification First Revision
28	IS 7890 : 2023	Ballistic Galvanometers Specification First Revision
29	IS 8143 : 2023	Plugs and Keys for Resistance Boxes Specification First Revision
30	IS 8160 : 2023	Tangent Galvanometers Specification First Revision
31	IS 9051 : 2023	Rheostats Specification First Revision