



הרשות הלאומית להסמכת מעבדות
Israel Laboratory Accreditation Authority

ISO/IEC 17025: 2017

מעבדות כיוול

תעודת הסמכה מס' 0357 סייטק מעבדת כיוול

כתובת אתר ייחוס: רח' זאב לב 25, ירושלים, 9145001

עד יום: 19.11.2028

בתוקף מיום: 10.06.2026

הארגון נבדק ונבחן על ידי הרשות הלאומית להסמכת מעבדות (להלן הרשות) ונמצא ראוי להסמכה בהתאם לנספח פירוט היקף ההסמכה המצורף לתעודה זו, המהווה חלק בלתי נפרד ממנה ומספרו זהה למספר התעודה. הסמכה מצביעה על כשירות מקצועית ותפעול מערכת ניהול איכות בעלת הכרה בינלאומית. הארגון המוסמך על ידי הרשות, עומד בתקנים/ בדרישות המפורטים מעלה. דרישות התקנים הם לכשירות מקצועית ולמערכות ניהול, שהינן הכרחיות למתן תוצאות אמינות. הסמכה זו ניתנה בהתאם לכללי ISO/IEC 17011:2017 לפיהם פועלת הרשות ובמסגרתם מקיימת פיקוח שוטף על הארגון לצורך בחינת תפקודו המתמשך בהתאם לדרישות ההסמכה. ההסמכה תקפה כל עוד הארגון עונה לאמות המידה שנקבעו על ידי הרשות. הרשות חתומה על הסכם הכרה רב צדדי (MLA) מול ארגון (EA) European Accreditation Cooperation.

תעודה זו אינה מהווה אישור לפי סעיף 12 לחוק התקנים.

תאריך הסמכה ראשון: 20.11.2016

אתי פלר
מנכ"ל

הרשות הלאומית להסמכת מעבדות



הרשות הלאומית להסמכת מעבדות
Israel Laboratory Accreditation Authority

Calibration Laboratories

ISO/IEC 17025: 2017

Accreditation Certificate No. 0357

SATEC Calibration Lab

Main site address: 25 Zeev Lev st., Jerusalem, 9145001, Israel

Valid from: 10.06.2026

Until: 19.11.2028

The organization was assessed by the Israel Laboratory Accreditation Authority (ISRAC) and found to be worthy of accreditation to the detailed schedule attached.

The schedule is an integral part of this certificate and is numbered with the above certificate number.

Accreditation demonstrates technical competence and operation of an internationally recognized quality management system.

The organization accredited by ISRAC complies with the standards/requirements mentioned above, meets the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically competent results. This accreditation is granted in accordance with the requirements of ISO/IEC 17011:2017, and entails periodic surveillance and reassessment by ISRAC to ensure that the organization continues to comply with the accreditation requirements.

The accreditation is valid provided that the organization continues to meet the criteria as laid down by ISRAC. ISRAC is an EA-MLA (European Accreditation Cooperation Multi-Lateral Agreement) signatory.

This certificate does not constitute an approval in accordance with article 12 of the standard law.

Date of first accreditation: 20.11.2016

Etty Feller
General Manager
Israel Laboratory Accreditation Authority

Date of signature 10/06/2025

Page No. 2 of: 14



	<u>Name and Address:</u>
Organization name	SATEC Calibration Lab
Address	25 Zeev Lev st., Jerusalem, 9145001, Israel
Phone	+972-2-5411000
Fax	+972-2-5812371
E-mail (contact person)	info@satec-global.com

Site: P or T or M , P-Permanent, T-Temporary, M-Mobile

A permanent (P) or temporary (T) place, or a stationary or mobile (M) facility, at or from which the organization performs activities forming part of its scope of accreditation, starting from sampling to final issuance of a report or certificate and / or quality system activities. A temporary (T) site is a site established under the responsibility of an accredited permanent site. All activities performed at a temporary site are the responsibility of the permanent site. An outdoors work is also considered to be a temporary site. Temporary site will be a site that involves work for special project and the activity will be defined in time (up to 2 years).

Type of Scopes: A- Fixed, C- Flexible scope in analytical tests : Type of matrix, analytes, experimental systems and/or analytical characteristics may be subject to changes, in accordance with the laboratory's approved and documented procedures. For details, please refer to the list of Accredited Tests, available from the laboratory upon request



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks		
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					יול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך				
1	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase network. 50/60 Hz, 3×230 V +N	אנרגיה אקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה אקטיבית ברשת תלת מופעית 50/60 Hz, 3×230 V +N	P. Factor 0.25 lag	[0.2 A – 5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1: IEC = International Electrotechnical Commission EN = European Standard NMI = National Measurement institute AS = Australian Standard ANSI = American National Standards Institute GOST = Russian Standards and Technical Regulations Remark2: Class 0.5 Class 0.2 Class 1 Class 2 Class 0.5S Class 0.2S Class A Class B Class C Remark3: For classes 1, 2, 3, A and B the CMC values may be bigger.
2	A	P				[5 A – 100 A)	0.50 mJ/J		
3	A	P			P. Factor 0.5	[0.2 A – 5 A)	0.55 mJ/J		
4	A	P				[5 A – 100 A)	0.50 mJ/J		
5	A	P			P. Factor 0.8	[0.2 A – 5 A)	0.55 mJ/J		
6	A	P				[5 A – 100 A)	0.50 mJ/J		
7	A	P			P. Factor 1	[0.1 A – 5 A)	0.49 mJ/J		
8	A	P				[5 A – 100 A)	0.20 mJ/J		
9	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase network 50/60 Hz, 3×230+N V	אנרגיה אקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה אקטיבית ברשת תלת מופעית 50/60 Hz, 3×230 V +N	P. Factor 0.25 lag	[0.02 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
10	A	P				[0.5 A – 20 A)	0.50 mJ/J		
11	A	P			P. Factor 0.5	[0.02 A – 0.5 A)	0.55 mJ/J		
12	A	P				[0.5 A – 20 A)	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
13	A	P		P. Factor 0.8 [0.02 A – 0.5 A)	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
14	A	P		[0.5 A – 20 A)	0.50 mJ/J		
15	A	P		P. Factor 1 [0.01 A – 0.5 A)	0.49 mJ/J		
16	A	P		[0.5 A – 20 A)	0.20 mJ/J		
17	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase network 50/60 Hz, 3×400V	P. Factor 0.25 lag [0.02 A – 0.5 A) [0.5 A – 20 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1 Remark2 Remark3
18	A	P			0.50 mJ/J		
19	A	P		P. Factor 0.5 [0.02 A – 0.5 A) [0.5 A – 20 A)	0.55 mJ/J		
20	A	P			0.50 mJ/J		
21	A	P		P. Factor 0.8 [0.02 A – 0.5 A) [0.5 A – 20 A)	0.55 mJ/J		
22	A	P			0.50 mJ/J		
23	A	P		P. Factor 1 [0.01 A – 0.5 A) [0.5 A – 20 A)	0.49 mJ/J		
24	A	P			0.20 mJ/J		
25	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase network 50/60 Hz, $3 \times \frac{110}{\sqrt{3}} \text{ V} + \text{N}$	P. Factor 0.25 lag [0.02 A – 0.5 A) [0.5 A – 20 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
26	A	P			0.50 mJ/J		
27	A	P		P. Factor 0.5 [0.02 A – 0.5 A) [0.5 A – 20 A)	0.55 mJ/J		
28	A	P			0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
29	A	P		P. Factor 0.8 [0.02 A – 0.5 A)	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
30	A	P		[0.5 A – 20 A)	0.50 mJ/J		
31	A	P		P. Factor 1 [0.01 A – 0.5 A)	0.49 mJ/J		
32	A	P		[0.5 A – 20 A)	0.20 mJ/J		
33	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase network 50/60 Hz, 3×110 V	P. Factor 0.25 lag [0.02 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1 Remark2 Remark3
34	A	P		[0.5 A – 20 A)	0.50 mJ/J		
35	A	P		P. Factor 0.5 [0.02 A – 0.5 A)	0.55 mJ/J		
36	A	P		[0.5 A – 20 A)	0.50 mJ/J		
37	A	P		P. Factor 0.8 [0.02 A – 0.5 A)	0.55 mJ/J		
38	A	P		[0.5 A – 20 A)	0.50 mJ/J		
39	A	P		P. Factor 1 [0.01 A – 0.5 A)	0.49 mJ/J		
40	A	P		[0.5 A – 20 A)	0.20 mJ/J		
41	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase, 50/60 Hz, $3 \times \frac{100}{\sqrt{3}} + N$ V network.	P. Factor 0.25 lag [0.02 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
42	A	P		[0.5 A – 20 A)	0.50 mJ/J		
43	A	P		P. Factor 0.5 [0.02 A – 0.5 A)	0.55 mJ/J		
44	A	P		[0.5 A – 20 A)	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
45	A	P		P. Factor 0.8 [0.02 A – 0.5 A)	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
46	A	P		[0.5 A – 20 A)	0.50 mJ/J		
47	A	P		P. Factor 1 [0.01 A – 0.5 A)	0.49 mJ/J		
48	A	P		[0.5 A – 20 A)	0.20 mJ/J		
49	A	P	Active Energy, Three Phase, Transformer operated, Active Energy Meter in three phase, 50/60 Hz, 3x100 V network. אנרגיה אקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה אקטיבית ברשת תלת מופעית 50/60 Hz, 3x100 V,	P. Factor 0.25 lag [0.02 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1 Remark2 Remark3
50	A	P		[0.5 A – 20 A)	0.50 mJ/J		
51	A	P		P. Factor 0.5 [0.02 A – 0.5 A)	0.55 mJ/J		
52	A	P		[0.5 A – 20 A)	0.50 mJ/J		
53	A	P		P. Factor 0.8 [0.02 A – 0.5 A)	0.55 mJ/J		
54	A	P		[0.5 A – 20 A)	0.50 mJ/J		
55	A	P		P. Factor 1 [0.01 A – 0.5 A)	0.49 mJ/J		
56	A	P		[0.5 A – 20 A)	0.20 mJ/J		
57	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase network אנרגיה אקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה אקטיבית ברשת תלת מופעית 50/60 Hz, 3x220 V+N	P. Factor 0.25 lag [0.2 A – 5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
58	A	P		[5 A – 100 A)	0.50 mJ/J		
59	A	P		P. Factor 0.5 [0.2 A – 5 A)	0.55 mJ/J		
60	A	P		[5 A – 100 A)	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
61	A	P		P. Factor 0.8 [0.2 A – 5 A]	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
62	A	P		[5 A – 100 A]	0.50 mJ/J		
63	A	P		P. Factor 1 [0.1 A – 5 A]	0.49 mJ/J		
64	A	P		[5 A – 100 A]	0.20 mJ/J		
65	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase, network 50/60 Hz, 3x690 V	P. Factor 0.25 lag [0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1 Remark2 Remark3
66	A	P		[5 A – 100 A]	0.50 mJ/J		
67	A	P		P. Factor 0.5 [0.2 A – 5 A]	0.55 mJ/J		
68	A	P		[5 A – 100 A]	0.50 mJ/J		
69	A	P		P. Factor 0.8 [0.2 A – 5 A]	0.55 mJ/J		
70	A	P		[5 A – 100 A]	0.50 mJ/J		
71	A	P		P. Factor 1 [0.1 A – 5 A]	0.49 mJ/J		
72	A	P		[5 A – 100 A]	0.20 mJ/J		
73	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase network 50/60 Hz, 3x120 V+N	P. Factor 0.25 lag [0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
74	A	P		[5 A – 100 A]	0.50 mJ/J		
75	A	P		P. Factor 0.5 [0.2 A – 5 A]	0.55 mJ/J		
76	A	P		[5 A – 100 A]	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
77	A	P		P. Factor 0.8 [0.2 A – 5 A]	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
78	A	P		[5 A – 100 A]	0.50 mJ/J		
79	A	P		P. Factor 1 [0.1 A – 5 A]	0.49 mJ/J		
80	A	P		[5 A – 100 A]	0.20 mJ/J		
81	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase network 50/60 Hz, 3×480 V	P. Factor 0.25 lag [0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20 GOST 31818.11 GOST 31819.22	Remark1 Remark2 Remark3
82	A	P		[5 A – 100 A]	0.50 mJ/J		
83	A	P		P. Factor 0.5 [0.2 A – 5 A]	0.55 mJ/J		
84	A	P		[5 A – 100 A]	0.50 mJ/J		
85	A	P		P. Factor 0.8 [0.2 A – 5 A]	0.55 mJ/J		
86	A	P		[5 A – 100 A]	0.50 mJ/J		
87	A	P		P. Factor 1 [0.1 A – 5 A]	0.49 mJ/J		
88	A	P		[5 A – 100 A]	0.20 mJ/J		
89	A	P	Active Energy, Three Phase, Direct Active Energy Meter in three phase network 50/60 Hz, 3×277 V +N	P. Factor 0.25 lag [0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-21 IEC 62053-22 EN 50470-3 NMI M 6-1 AS 62053.22 ANSI C12.1 ANSI C12.20	Remark1 Remark2 Remark3
90	A	P		[5 A – 100 A]	0.50 mJ/J		
91	A	P		P. Factor 0.5 [0.2 A – 5 A]	0.55 mJ/J		
92	A	P		[5 A – 100 A]	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
93	A	P		P. Factor 0.8 [0.2 A – 5 A]	0.55 mJ/J	GOST 31818.11 GOST 31819.22	
94	A	P		[5 A – 100 A]	0.50 mJ/J		
95	A	P		P. Factor 1 [0.1 A – 5 A]	0.49 mJ/J		
96	A	P		[5 A – 100 A]	0.20 mJ/J		
97	A	P	Reactive Energy, Three Phase, Direct Reactive Energy Meter in three phase network 50/60 Hz, 3×230 V +N	sin φ = 0.25 [0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4: Class 0.5 Class 0.5S Class 1 Class 1S Class 2 Class 3
98	A	P		[5 A – 100 A]	0.50 mJ/J		
99				sin φ = 0.5 [0.2 A – 5 A]	0.55 mJ/J		
100	A	P		[5 A – 100 A]	0.50 mJ/J		
101	A	P		sin φ = 1 [0.1 A – 5 A]	0.49 mJ/J		
102	A	P		[5 A – 100 A]	0.20 mJ/J		
103	A	P					
104	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network 50/60 Hz, 3×230 V +N	sin φ = 0.25 [0.1 A – 0.5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
105	A	P		[0.5 A – 20 A]	0.50 mJ/J		
106	A	P		sin φ = 0.5 [0.05 A – 0.5 A]	0.55 mJ/J		
107	A	P		[0.5 A – 20 A]	0.50 mJ/J		
108	A	P		sin φ = 1 [0.01 A – 0.5 A]	0.49 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge		Range [Including margins] (Does not include margins)		Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy							יול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
109	A	P				[0.5 A – 20 A)	0.20 mJ/J		
110	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network 50/60 Hz,3×400 V	אנרגיה ריאקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz , 3×400 V	sin φ = 0.25	[0.1 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
111	A	P				[0.5 A – 20 A)	0.50 mJ/J		
112	A	P			sin φ = 0.5	[0.05 A – 0.5 A)	0.55 mJ/J		
113	A	P				[0.5 A – 20 A)	0.50 mJ/J		
114	A	P			sin φ = 1	[0.01 A – 0.5 A)	0.49 mJ/J		
115	A	P				[0.5 A – 20 A)	0.20 mJ/J		
116	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network 50/60 Hz,3× $\frac{110}{\sqrt{3}}$ V +N	אנרגיה ריאקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz , 3× $\frac{110}{\sqrt{3}}$ V +N	sin φ = 0.25	[0.1 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
117	A	P				[0.5 A – 20 A)	0.50 mJ/J		
118	A	P			sin φ = 0.5	[0.05 A – 0.5 A)	0.55 mJ/J		
119	A	P				[0.5 A – 20 A)	0.50 mJ/J		
120	A	P			sin φ = 1	[0.01 A – 0.5 A)	0.49 mJ/J		
121	A	P				[0.5 A – 20 A)	0.20 mJ/J		
122	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network	אנרגיה ריאקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה ריאקטיבית ברשת תלת מופעית	sin φ = 0.25	[0.1 A – 0.5 A)	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24	Remark1 Remark3 Remark4
123	A	P				[0.5 A – 20 A)	0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					כיוול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך		
124	A	P	50/60 Hz 3×110 V	50/60 Hz, 3×110 V $\sin \varphi = 0.5$ [0.05 A – 0.5 A] [0.5 A – 20 A]	0.55 mJ/J	AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	
125	A	P			0.50 mJ/J		
126	A	P		$\sin \varphi = 1$ [0.01 A – 0.5 A] [0.5 A – 20 A]	0.49 mJ/J		
127	A	P			0.20 mJ/J		
128	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network 50/60 Hz, $3 \times \frac{100}{\sqrt{3}} \text{ V} + \text{N}$	אנרגיה ריאקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz, $3 \times \frac{100}{\sqrt{3}} \text{ V} + \text{N}$ $\sin \varphi = 0.25$ [0.1 A – 0.5 A] [0.5 A – 20 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
129	A	P			0.50 mJ/J		
130	A	P		$\sin \varphi = 0.5$ [0.05 A – 0.5 A] [0.5 A – 20 A]	0.55 mJ/J		
131	A	P			0.50 mJ/J		
132	A	P		$\sin \varphi = 1$ [0.01 A – 0.5 A] [0.5 A – 20 A]	0.49 mJ/J		
133	A	P			0.20 mJ/J		
134	A	P	Reactive Energy, Three Phase, Transformer operated, Reactive Energy Meter in three phase network 50/60 Hz, 3×100 V	אנרגיה ריאקטיבית, מונה תלת מופעי, לחיבור דרך שנאי, לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz, 3×100 V $\sin \varphi = 0.25$ [0.1 A – 0.5 A] [0.5 A – 20 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
135	A	P			0.50 mJ/J		
136	A	P		$\sin \varphi = 0.5$ [0.05 A – 0.5 A] [0.5 A – 20 A]	0.55 mJ/J		
137	A	P			0.50 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge		Range [Including margins] (Does not include margins)		Uncertainty of Measurement ¹	Reference Documents	Remarks
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy							יול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר מוכ		
138	A	P			sin φ = 1	[0.01 A – 0.5 A]	0.49 mJ/J		
139	A	P				[0.5 A – 20 A]	0.20 mJ/J		
140	A	P	Reactive Energy, Three Phase, Direct Reactive Energy Meter in three phase network 50/60 Hz,3x220V+N	אנרגיה ריאקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz , 3x220V+N,	sin φ = 0.25	[0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
141	A	P				[5 A – 100 A]	0.50 mJ/J		
142	A	P			sin φ = 0.5	[0.2 A – 5 A]	0.55 mJ/J		
143	A	P				[5 A – 100 A]	0.50 mJ/J		
144	A	P			sin φ = 1	[0.1 A – 5 A]	0.49 mJ/J		
145	A	P				[5 A – 100 A]	0.20 mJ/J		
146	A	P	Reactive Energy, Three Phase, Direct Reactive Energy Meter in three phase network 50/60 Hz,3x120 V+N	אנרגיה ריאקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz , 3x120 V+N,	sin φ = 0.25	[0.2 A – 5 A]	0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
147	A	P				[5 A – 100 A]	0.50 mJ/J		
148	A	P			sin φ = 0.5	[0.2 A – 5 A]	0.55 mJ/J		
149	A	P				[5 A – 100 A]	0.50 mJ/J		
150	A	P			sin φ = 1	[0.1 A – 5 A]	0.49 mJ/J		
151	A	P				[5 A – 100 A]	0.20 mJ/J		



Item	Scope Type	Site	Measurand, Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement ¹	Reference Documents	Remarks	
Calibration – Electrical Quantities LF Single & Three Phase Electrical Power and Energy					יול - גדלים חשמליים - הספק ואנרגיה חשמלית חד ותלת מופעית בתדר נמוך			
152	A	P	Reactive Energy, Three Phase, Direct Reactive Energy Meter in three phase network 50/60 Hz, 3×480 V	אנרגיה ריאקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz , 3×480 V	sin φ = 0.25	[0.2 A – 5 A) 0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
153	A	P			[5 A – 100 A) 0.50 mJ/J			
154	A	P			sin φ = 0.5	[0.2 A – 5 A) 0.55 mJ/J		
155	A	P			[5 A – 100 A) 0.50 mJ/J			
156	A	P			sin φ = 1	[0.1 A – 5 A) 0.49 mJ/J		
157	A	P			[5 A – 100 A) 0.20 mJ/J			
158	A	P	Reactive Energy, Three Phase, Direct Reactive Energy Meter in three phase network 50/60 Hz, 3×277 V +N	אנרגיה ריאקטיבית, מונה תלת מופעי לחיבור ישיר לאנרגיה ריאקטיבית ברשת תלת מופעית 50/60 Hz, 3×277 V +N,	sin φ = 0.25	[0.2 A – 5 A) 0.55 mJ/J	IEC 61557-12 IEC 62052-11 IEC 62053-23 IEC 62053-24 AS 62053.23 AS 62053.24 GOST 31818.11 GOST 31819.23	Remark1 Remark3 Remark4
159	A	P			[5 A – 100 A) 0.50 mJ/J			
160	A	P			sin φ = 0.5	[0.2 A – 5 A) 0.55 mJ/J		
161	A	P			[5 A – 100 A) 0.50 mJ/J			
162	A	P			sin φ = 1	[0.1 A – 5 A) 0.49 mJ/J		
163	A	P			[5 A – 100 A) 0.20 mJ/J			

¹⁾ The uncertainty covered by the CMC expressed as the standard measurement uncertainty multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.