



校准证书

CALIBRATION CERTIFICATE



证书编号: ZL202512045002
Certificate No.

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委托方: 深圳市乐达精密工具有限公司
Client

委托方地址: 深圳市福田区华强北街道华强广场B座20层20K号房
Address

仪器名称: 数字万用表
Description

型号/规格: LD9801A
Model/Type

制造商: LODESTAR
Manufacturer

出厂编号: LD1801667
Serial No.

管理编号: /
Asset No.

接收日期: 2025 年 12 月 04 日
Date of Receipt Year Month Day

校准日期: 2025 年 12 月 04 日
Date of calibration Year Month Day

批准人: 张忠军
Approved by

签发日期: 2025 年 12 月 09 日
Date of issue Year Month Day

核验员: 张忠军
Checked by

校准员: 冯景雅
Calibrated by



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校准说明

DIRECTIONS OF CALIBRATION

- 本报告未经签章无效, 数据涂改无效。
It will be ineffective without certification, and the change of data will be ineffective, too.
- 本证书的校准结果仅对所校准样品有效。
The results of this certificate are only responsible for the item calibrated.
- 本证书中的测量结果均可溯源至国际单位制 (SI); 未经本实验室书面批准, 不得部分复制校准证书。
All measurements in this certificate are traceable to the International System of Units (SI); This certificate shall not be reproduced except in full, without the written approval of our laboratory.
- 证书中如有最大允许误差、技术要求、结果判定, 仅供参考, 其中“Pass”代表“符合”, “Fail”代表“不符合”。使用人员还应结合实际测量需求, 评估校准结果测量不确定度对符合性判定的影响。
MPE, technical requirement & judgement result in the datasheet is only for reference, "Pass" represents "Calibration results passed" and "Fail" represents "Calibration results failed". whereas users should evaluate the effects of measurement uncertainty of calibration results on conformity determination associated with actual measurement.
- 本次校准的技术依据及CNAS认可范围, 带*号超出范围的内容未被认可。注: 详细的认可范围请查看CNAS网站中注册编号为L15041的证书附件。
Reference document and accredited scope by CNAS for calibration, beyond which isn't accredited. Please see the attachment of certificate NO.L15041 on CNAS website for details.
参照JJF 1587-2016《数字多用表校准规范》

- 本次校准使用的主要测量标准:
Main Standards of Measurement Used in the Calibration

设备名称 Name of Equipment	溯源单位 Traceability	编号/型号 Serial No./Model	证书号/有效期 Certificate No./Due Date	计量特性 Metrological Characteristic
多功能校准仪	广电计量检测集团股份有限公司	6880016	J202509036381-0001/2026-09-17	DCV: $\pm 0.005\%$; DCA: $\pm 0.01\%$; OHM: $\pm 0.009\%$; ACV: $\pm 0.05\%$; ACA: $\pm 0.09\%$

- 校准地点、环境条件:
Place and environmental conditions of the calibration
地 点: 本公司实验室
Place
温 度: 21.3 °C 湿 度: 56 %RH
Temperature Humidity
- 建议复校时间间隔: 12 个月, 送检单位可根据实际情况自主决定。
Suggested calibration interv: 12 month or it can be altered depending on the actual usage of the user.



校准结果

Results of Calibration

1、外观及功能性检查: 正常
Appearance and Functional Check: Normal

2、直流电压示值误差:
Indication Error of DC Voltage:

量程	标准值	示值	误差	最大允许误差	不确定度 ($k=2$)	结论
Range	Standard (mV)	Indication (mV)	Error (mV)	MPE (mV)	U_{rel} (%)	Conclusion (Pass/Fail)
200mV	20	20.1	0.1	± 0.4	0.12	Pass
	100	100.2	0.2	± 0.8	0.12	Pass
	190	190.2	0.2	± 1.3	0.12	Pass
2V	(V)	(V)	(V)	(V)	(%)	
	0.2	0.201	0.001	± 0.004	0.12	Pass
	1	1.001	0.001	± 0.008	0.12	Pass
20V	1.9	1.903	0.003	± 0.013	0.12	Pass
	2	2.02	0.02	± 0.04	0.12	Pass
	10	10.05	0.05	± 0.08	0.12	Pass
200V	19	19.06	0.06	± 0.13	0.12	Pass
	20	20.2	0.2	± 0.4	0.12	Pass
	100	100.3	0.3	± 0.8	0.12	Pass
1000V	190	190.6	0.6	± 1.3	0.12	Pass
	200	201	1	± 4	0.12	Pass
	500	502	2	± 6	0.12	Pass
	900	903	3	± 8	0.12	Pass

3、交流电压示值误差 ($f=60\text{Hz}$):
Indication Error of AC Voltage ($f=60\text{Hz}$):

量程	标准值	示值	误差	最大允许误差	不确定度 ($k=2$)	结论
Range	Standard (V)	Indication (V)	Error (V)	MPE (V)	U_{rel} (%)	Conclusion (Pass/Fail)
2V	0.2	0.201	0.001	± 0.007	0.18	Pass
	1	1.002	0.002	± 0.013	0.18	Pass
	1.9	1.903	0.003	± 0.020	0.18	Pass



校准结果

Results of Calibration

	(V)	(V)	(V)	(V)	(%)	
20V	2	2.02	0.02	± 0.07	0.18	Pass
	10	10.02	0.02	± 0.13	0.18	Pass
	19	19.05	0.05	± 0.20	0.18	Pass
200V	20	20.0	0.0	± 0.7	0.18	Pass
	100	100.2	0.2	± 1.3	0.18	Pass
	190	190.2	0.2	± 2.0	0.18	Pass
750V	200	201	1	± 7	0.18	Pass
	500	502	2	± 9	0.18	Pass
	700	702	2	± 11	0.18	Pass

4、直流电流示值误差:

Indication Error of DC Current:

量程	标准值	示值	误差	最大允许误差	不确定度 (k=2)	结论
Range	Standard (μ A)	Indication (μ A)	Error (μ A)	MPE (μ A)	U_{rel} (%)	Conclusion (Pass/Fail)
20 μ A	10	9.99	-0.01	± 0.38	0.15	Pass
	19	18.98	-0.02	± 0.45	0.15	Pass
200 μ A	20	19.9	-0.1	± 0.5	0.15	Pass
	100	99.8	-0.2	± 1.1	0.15	Pass
	190	189.6	-0.4	± 1.8	0.15	Pass
2mA	0.2	0.199	-0.001	± 0.005	0.15	Pass
	1	0.998	-0.002	± 0.011	0.15	Pass
	1.9	1.896	-0.004	± 0.018	0.15	Pass
20mA	2	1.98	-0.02	± 0.05	0.15	Pass
	10	9.98	-0.02	± 0.11	0.15	Pass
	19	18.96	-0.04	± 0.18	0.15	Pass
200mA	20	19.9	-0.1	± 0.5	0.15	Pass
	100	99.8	-0.2	± 1.1	0.15	Pass
	190	189.6	-0.4	± 1.8	0.15	Pass
2A	0.2	0.199	-0.001	± 0.005	0.15	Pass
	1	0.998	-0.002	± 0.011	0.15	Pass
	1.9	1.896	-0.004	± 0.018	0.15	Pass
20A	2	1.99	-0.01	± 0.05	0.15	Pass
	5	4.98	-0.02	± 0.07	0.15	Pass
	10	9.96	-0.04	± 0.11	0.15	Pass



校准结果

Results of Calibration

5、交流电流示值误差 ($f=60\text{Hz}$):

Indication Error of AC Current ($f=60\text{Hz}$):

量程	标准值	示值	误差	最大允许误差	不确定度 ($k=2$)	结论
Range	Standard (mA)	Indication (mA)	Error (mA)	MPE (mA)	U_{rel} (%)	Conclusion (Pass/Fail)
20mA	2	1.99	-0.01	± 0.07	0.20	Pass
	10	9.98	-0.02	± 0.15	0.20	Pass
	19	18.96	-0.04	± 0.24	0.20	Pass
200mA	20	20.2	0.2	± 0.7	0.20	Pass
	100	100.3	0.3	± 1.5	0.20	Pass
	190	190.6	0.6	± 2.4	0.20	Pass
2A	(A)	(A)	(A)	(A)	(%)	
	0.2	0.201	0.001	± 0.007	0.20	Pass
	1	0.999	-0.001	± 0.015	0.20	Pass
20A	1.9	1.897	-0.003	± 0.024	0.20	Pass
	2	1.99	-0.01	± 0.07	0.20	Pass
	5	4.98	-0.02	± 0.10	0.20	Pass
20A	10	9.98	-0.02	± 0.15	0.20	Pass

6、电阻示值误差:

Indication Error of Resistance:

量程	标准值	示值	误差	最大允许误差	不确定度 ($k=2$)	结论
Range	Standard (Ω)	Indication (Ω)	Error (Ω)	MPE (Ω)	U_{rel} (%)	Conclusion (Pass/Fail)
200 Ω	100	99.9	-0.1	± 1.1	0.13	Pass
	(k Ω)	(k Ω)	(k Ω)	(k Ω)	(%)	
2k Ω	1	1.003	0.003	± 0.011	0.13	Pass
20k Ω	10	10.02	0.02	± 0.11	0.13	Pass
200k Ω	100	100.2	0.2	± 1.1	0.13	Pass
	(M Ω)	(M Ω)	(M Ω)	(M Ω)	(%)	
2M Ω	1	1.005	0.005	± 0.011	0.13	Pass
20M Ω	10	10.01	0.01	± 0.11	0.13	Pass

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