

# CERTIFICATE OF CALIBRATION



オリックス・レントεκ株式会社



Customer Name

LIGHTHOUSE Inc.

Division : Calibration Consignment Certificate Number : KJ-P0286704-20220526-00-N-0

Description : LEAK METER

Model No. : TOS3200

Manufacturer : KIKUSUI ELECTRONIC

Customer ID No. : LHQ-09

Serial No. : AT002694

Calibration Date : 26-May-2022

Location of : Tokyo Technical Center

Calibration 3-25-3 Kanamori, Machida-City, Tokyo 194-8585

Conditions : Temperature 23 °C Humidity 54 %R. H. Calibrated by : 314369

Calibration Status : Non Adjustment

Result : Pass

Location of Issue : Tokyo Technical Center

3-25-3 Kanamori, Machida-City, Tokyo 194-8585

TEL : +81-42-799-0586 FAX : +81-42-799-0652

<https://www.orixrentec.jp/>

ORIX Rentec Corporation certifies that the above instrument was calibrated according to our calibration procedures.

The standards used for this calibration are controlled by official regulations for standards and traceable to National Standards directly or through manufacturers on a regular basis.

The National Standards are such as AIST(National Institute of Advanced Industrial Science and Technology), and public calibration entities in other countries which participate in BIPM(Bureau International des Poids et Mesures), such as NIST(National Institute of Standards and Technology).

Date of issue : 30-May-2022

Head of Issue

ORIX Rentec Corporation

General Manager Quality Assurance Department : Ryoetsu Nakagawa

*Ryoetsu Nakagawa*

This Certificate shall not be copied or used partially without the previous consent of the issuer.

# RESULT OF CALIBRATION



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Calibration Date : 26-May-2022  
 Model No. : TOS3200  
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## 【Calibration Equipments Used】

	Description			Manufacturer		
	Model No.	Serial No.	Asset No.	Cal. Lab.	Cal. Date	Cal. Due. Date
1	DIGITAL MULTIMETER			Keysight Technologies		
	3458A	2823A27125	23567415	Keysight Technologies International	08-Jun-2021	31-May-2022
Certificate Number(Issue No) : 211604-000						
2	CALIBRATOR			FLUKE		
	5520A	1485002	46766119	ORIX Rentec	14-Jul-2021	30-Jun-2022
Certificate Number(Issue No) : SK-46766119-20210714-00-N-0						

## 【Calibration Item】

### 1. DC CURRENT MEASUREMENT

Accuracy ± (% of reading + μA)

Condition METER2/2, Mode:DC, Network:D

Range	Input	Accuracy	Tolerance		Dis. Val.	Judge
			Lower Limit	Upper Limit		
1	200 μA	± (5+10)	180 μA	220 μA	198 μA	Pass
2	2 mA	± (5+25)	1.88 mA	2.12 mA	1.97 mA	Pass
3	7 mA	± (5+250)	6.40 mA	7.60 mA	6.75 mA	Pass

### 2. DC CURRENT MEASUREMENT

Accuracy ± (% of reading + μA)

Condition METER2/2, Mode:RMS, Network:D

Range	Input	Accuracy	Tolerance		Dis. Val.	Judge
			Lower Limit	Upper Limit		
1	200 μA	± (5+10)	180 μA	220 μA	198 μA	Pass
2	2 mA	± (5+25)	1.88 mA	2.12 mA	1.97 mA	Pass
3	7 mA	± (5+250)	6.40 mA	7.60 mA	6.76 mA	Pass

### 3. AC CURRENT MEASUREMENT

Accuracy ± (% of reading + μA)

Condition Frequency:50Hz  
 METER2/2, Mode:RMS, Network:D

Range	Input	Accuracy	Tolerance		Dis. Val.	Judge
			Lower Limit	Upper Limit		
1	200 μA	± (2+4)	192 μA	208 μA	199 μA	Pass
2	600 μA	± (2+10)	578 μA	622 μA	595 μA	Pass
2	1.2 mA	± (2+10)	1.17 mA	1.23 mA	1.19 mA	Pass
2	1.8 mA	± (2+10)	1.76 mA	1.84 mA	1.79 mA	Pass
2	2.4 mA	± (2+10)	2.35 mA	2.45 mA	2.38 mA	Pass

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## 3. AC CURRENT MEASUREMENT

Accuracy  $\pm$  ( %of reading +  $\mu$ A)

Condition							
Frequency:50Hz METER2/2, Mode:RMS, Network:D							
Range	Input	Accuracy	Lower Limit	Tolerance Upper Limit	Dis. Val.	Judge	
2	2.9 mA	$\pm$ (2+10)	2.84 mA	2.96 mA	2.88 mA	Pass	
3	7 mA	$\pm$ (2+100)	6.76 mA	7.24 mA	6.94 mA	Pass	

## 4. AC CURRENT MEASUREMENT (FREQUENCY CHARACTERISTIC)

Accuracy  $\pm$  ( %of reading +  $\mu$ A)

Condition							
METER2/2, Mode:RMS, Network:D							
Frequency/Range	Input	Accuracy	Lower Limit	Tolerance Upper Limit	Dis. Val.	Judge	
60 Hz / 1	200 $\mu$ A	$\pm$ (2+4)	192 $\mu$ A	208 $\mu$ A	199 $\mu$ A	Pass	
400 Hz / 1	200 $\mu$ A	$\pm$ (2+4)	192 $\mu$ A	208 $\mu$ A	199 $\mu$ A	Pass	
10 kHz / 1	200 $\mu$ A	$\pm$ (2+4)	192 $\mu$ A	208 $\mu$ A	199 $\mu$ A	Pass	
60 Hz / 2	2 mA	$\pm$ (2+10)	1.95 mA	2.05 mA	1.98 mA	Pass	
400 Hz / 2	2 mA	$\pm$ (2+10)	1.95 mA	2.05 mA	1.98 mA	Pass	
10 kHz / 2	2 mA	$\pm$ (2+10)	1.95 mA	2.05 mA	1.98 mA	Pass	
60 Hz / 3	7 mA	$\pm$ (2+100)	6.76 mA	7.24 mA	6.94 mA	Pass	
400 Hz / 3	7 mA	$\pm$ (2+100)	6.76 mA	7.24 mA	6.94 mA	Pass	
10 kHz / 3	7 mA	$\pm$ (2+100)	6.76 mA	7.24 mA	6.93 mA	Pass	

## 5. AC CURRENT MEASUREMENT

Accuracy  $\pm$  ( %of reading +  $\mu$ A)

Condition							
Frequency:50Hz METER2/2, Mode:PEAK, Network:D							
Range	Input	Accuracy	Lower Limit	Tolerance Upper Limit	Dis. Val.	Judge	
1	200 $\mu$ A	$\pm$ (5+5)	185 $\mu$ A	215 $\mu$ A	201 $\mu$ A	Pass	
2	2 mA	$\pm$ (2+25)	1.94 mA	2.06 mA	2.00 mA	Pass	
3	7 mA	$\pm$ (2+250)	6.61 mA	7.39 mA	7.08 mA	Pass	

## 6. AC VOLTAGE READBACK

Accuracy  $\pm$  ( %of reading + V)

Condition							
Frequency:50Hz AC LINE							
Output Voltage	Accuracy	Lower Limit	Tolerance Upper Limit	Dis. Val.	Judge		
100 V	$\pm$ (3+1)	96.0 V	104.0 V	99.4 V	Pass		
220 V	$\pm$ (3+1)	212.4 V	227.6 V	219.2 V	Pass		

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## 7. OTHER FUNCTION

Item of Judgement	Judge
TIMER	Pass

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