

เอกสารแนบ 5

หนังสือรับรองห้องปฏิบัติการวิเคราะห์เอกชน

Certificate Number CCP-2568-24

Calibration Certificate

Seven2Go™ pH/mV meter S2

Customer

Company	<u>AQUA NISHIHARA CORPORATION LIMITED</u>
Address	<u>202/12 Soi Prawit Lae Phuean , Prachachuen Road, Ladyao, Jatujak,</u>
	<u>BANGKOK 10900</u>
Customer ID number	<u>301610860</u>
Customer representative	<u>-</u>

Instrument

Type	<u>Seven2Go™ pH/mV S2</u>	Instrument Serial Number	<u>B432884282</u>
Internal identification	<u>-</u>	Firmware version	<u></u>

Technical specifications

Measuring Range	-1999.9 ... 1999.9 mV	-2 ... 20 pH
Resolution	1 mV	0.01 pH
Limit of Error	± 1 mV	± 0.01 pH
 Temperature range MTC	 -5 ... 105 °C	
Temperature range ATC	-5 ... 105 °C	
Resolution	0.1 °C	
Limit of Error	± 0.5 °C	

Procedure Statement

METTLER TOLEDO Seven2Go Service Manual Section B (Doc. No. 30232219) will be used as referring documentation to adjust and certify the instrument indicated in the "Type" and "Serial number" section. The measurement results of this certification were obtained at ambient conditions.

Certificate Number CCP-2568-24

Certification Tools

Certified digital voltmeter

Manufacturer Keysight Technologies
Type 34401A

Serial number MY60041207
Certificate number E1U2300607
Date of Certification 27-May-2023

Certified Temperature Resistors

Manufacturer METTLER-TOLEDO
Type 51302410

Serial number A117
Certificate number 67602
Date of Certification 20-Jan-2023

Designation	Nominal value	Certified value
NTC 30 kΩ, 0 °C	94.980 kΩ	94.9434 kΩ
NTC 30 kΩ, 25 °C	30.000 kΩ	29.9963 kΩ
NTC 30 kΩ, 50 °C	10.969 kΩ	10.9696 kΩ
NTC 30 kΩ, 75 °C	4.528 kΩ	4.53130 kΩ
NTC 30 kΩ, 100 °C	2.070 kΩ	2.07160 kΩ

Certificate Number CCP-2568-24

Certification Measurements

pH/mV Sensor Input

Designation	Certified value	Measured value	Max. Tolerance	Passed / Failed
-1900 mV	-1900.0 mV	-1900 mV	1 mV	Passed
-1000 mV	-1000.0 mV	-1000 mV	1 mV	Passed
-500 mV	-500.0 mV	-500 mV	1 mV	Passed
-180 mV	-180.0 mV	-180 mV	1 mV	Passed
0 mV	0.0 mV	0 mV	1 mV	Passed
180 mV	180.0 mV	180 mV	1 mV	Passed
500 mV	500.0 mV	500 mV	1 mV	Passed
1000 mV	1000.0 mV	1000 mV	1 mV	Passed
1900 mV	1900.0 mV	1900 mV	1 mV	Passed

Temperature Sensor Input

Designation	Nominal value	Measured value	Max. Tolerance	Passed / Failed
NTC 30 kΩ, 0 °C	0.0 °C	0.0 °C	0.5 °C	Passed
NTC 30 kΩ, 25 °C	25.0 °C	25.0 °C	0.5 °C	Passed
NTC 30 kΩ, 50 °C	50.0 °C	50.0 °C	0.5 °C	Passed
NTC 30 kΩ, 75 °C	75.0 °C	74.9 °C	0.5 °C	Passed
NTC 30 kΩ, 100 °C	100.0 °C	100.0 °C	0.5 °C	Passed

Summary of Certification

Certification of instrument

Passed

The instrument referred to in this certificate has fulfilled the criteria of the certification. This is indicated by the notation Passed in the column above.

Remarks Test high impedance at 1900.0 mV, Results : 1900 mV

Difference = 0.00% Within MPE (0.1%)

Certification of the instrument was performed by

Name Sompong Nonting

Function Service Technician

Company Mettler-Toledo (Thailand) Ltd.

Date 29-Mar-2024

Signature



Performance Test

Attachment to Certificate No. CCP-2562-24

pH Electrode

Type: InLab Expert Go-ISM S/N: 2015878

Certified standards used

Standard 1:	Type: pH Buffer	Manufacturer: METTLER TOLEDO	Exp. date: 4-Dec-2026
	Nominal value: pH (25.00 °C):	4.01	Lot No.: 1J338E
Standard 2:	Type: pH Buffer	Manufacturer: METTLER TOLEDO	Exp. date: 21-Nov-2026
	Nominal value: pH (25.00 °C):	7.00	Lot No.: 1J331B
Standard 3:	Type: pH Buffer	Manufacturer: METTLER TOLEDO	Exp. date: 20-Sep-2025
	Nominal value: pH (25.00 °C):	10.01	Lot No.: 1J263A
Standard 4:	Type: Redox Solution	Manufacturer: METTLER TOLEDO	Exp. date: 12-Aug-2025
	Nominal value: pH (25.00 °C):	7.00	Lot No.: 1J224B

Adjustment

<i>Set Calibration Buffer</i>	<i>B7</i> <i>(25 °C) 2.00, 4.01, 7.00, 10.00</i>								
<i>Select Calibration Mode</i> <i>Linear</i>	<i>3-Point calibration</i>			<i>2-Point calibration</i>			<i>2-Point calibration</i>		
3-Point Calibration	°C		pH	°C		pH	°C		pH
Cal 1	ATC	25.1	4.01	ATC	-	-	ATC	-	-
Cal 2	ATC	25.0	7.00	ATC	-	-	ATC	-	-
Offset (mV)	11			-			-		
Slope % (or mV/pH)	96.3			-			-		
Cal 3	ATC	25.4	10.01						
Offset (mV)	11								
Slope % (or mV/pH)	96.3								

Measurements

Resolution: 2 Decimal places

As Found					As Left				
Buffer Values		Measured		Difference	Buffer Values		Measured		Difference
pH	°C	pH		pH	pH	°C	pH		pH
4.01	25.1	ATC	4.11	0.10	4.01	24.9	ATC	3.99	-0.02
7.00	25.0	ATC	6.91	-0.09	7.00	24.6	ATC	6.98	-0.02
10.01	25.3	ATC	9.90	-0.11	10.01	24.6	ATC	9.99	-0.02

Redox Measurement Result = 224 mV

Note: The difference result of calibrated electrode should be within +/- 0.05 pH

Remarks: Calibrate electrode ORP with model: InLab Redox, SRN:2111177

Place: Laboratory Calibration Date: 29-Mar-2024Service Specialist: