



CALIBRATION LABORATORY Co., LTD.

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NSC-TISI-TIS 17025
CALIBRATION 0059
CLC

CERTIFICATE OF CALIBRATION FOR

NOMENCLATURE : TEMPERATURE SENSOR
MANUFACTURER : ISTARTEK
MODEL / TYPE : VT200-L CN
SERIAL NO. : 213231127579
CLID. NO. : 232400581
JOB CONTROL NO. : 240203012131
CALIBRATION SERVICE : ☒ IN-LABORATORY ☐ ON-SITE

CUSTOMER : SIAM GPS CO., LTD.
5/128, M.1, SOI NAM DAENG-BANG PHLI 10,
BANG KAEW, BANG PHLI, SAMUT PRAKAN 10540

DATE OF RECEIVED : 03 February 2024

DATE OF ISSUED : 08 February 2024

The report of calibration shall not be reproduced except in full without approval of the Calibration Laboratory Co., Ltd.

Calibrated By : Pimsiri Hemtanon
Calibration Engineer

Approved By : Mongkol Yotsoontorn
Authorized Signatory
08 February 2024



This Calibration Certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI)

Certificate No. Q24012131

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@clccalibration

REPORT OF CALIBRATION

FOR

NOMENCLATURE : **TEMPERATURE SENSOR**
MANUFACTURER : **ISTARTEK**
MODEL / TYPE : **VT200-L CN**
SERIAL NO. : **213231127579**
DATE OF CALIBRATION : **06 February 2024**

ENVIRONMENT CONDITIONS :

Temperature : **$(23 \pm 2) ^\circ\text{C}$**

Relative Humidity : **$(55 \pm 10) \% \text{ RH}$**

PROCEDURE USED :

This instrument was calibrated under procedure No. **WI-305-187** based on **ASTM E 644-11:2019** as calibration guidelines.

The calibration was performed by using Calibration Bath, Precision Thermometer and IPRT
which maintained by the Calibration Laboratory Co., Ltd.

REFERENCE STANDARD USED :

1. Calibration Bath, Kambic Model OB-22/2 ULT S/N. 17115653.
2. Precision Thermometer, ASL Model F200-A-8 S/N. 014433/03.
3. IPRT, ASL Model T100-250-1D S/N. L0193A-1-1.

TRACEABILITY :

1. The measurements are traceable to International System of Units (SI) , through Calibration Laboratory Co., Ltd.
Certificate No. Q23136342, Due Date 20 December 2024.
2. The measurements are traceable to International System of Units (SI) , through Thailand Institute of Scientific and Technological Research (TISTR). Certificate No. PSL-T 0203/67, Due Date 07 December 2024.
3. The measurements are traceable to International System of Units (SI) , through National Institute of Metrology (Thailand).
Certificate No. TT-0136-23, Due Date 12 December 2024.

UNCERTAINTY :

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2,00$ which for a normal distribution corresponds to a coverage probability of approximately 95 %.
It has been evaluated according to the "Evaluation of the Uncertainty of Measurement in Calibration (EA-4/02 M:2022)"

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CONDITION OF CALIBRATION ITEM : RECEIVED IN GOOD OPERATIONAL CONDITION

MEASUREMENT RESULTS : (X) without adjustment () adjustment

The DUC Reading were recorded and the means value were reported of five times measurement in the table below.

CALIBRATION DATA

CORRECTION OF TEMPERATURE [THERMISTOR]

Immersion depth (mm)	Actual Temperature (°C)	DUC Reading (°C)	Correction (°C)	Uncertainty $\pm$ (°C)
200	-30.00	-29.4	-0.60	0.07
	-10.00	-9.6	-0.40	
	0.00	0.1	-0.10	
	10.00	10.0	0.00	
	80.02	80.1	-0.08	

Note. Probe $\varnothing$ 5 mm

Materials : Stainless Steel.

The Scope of Accredited TISI Certificate No. 23-LB0092 Issue 02 Page 35 of 138

This report is valid for the above stated instrument/s only.

End of Certificate

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