



Federation for Development of Accreditation Services

CERTIFICATE OF ACCREDITATION **(AS PER ISO/IEC 17025:2017)**

This is to attest that

M/s “TEMPSENSE INSTRUMENTATION PRIVATE LIMITED”

No-467, Krishna Complex, Shop No 8 & 9, 1st Floor,
Electronic City, Bangalore (Karnataka) -560100, India

Calibration Laboratory

has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories and supplementary criteria for calibration laboratories.

Certificate Number: CL-107

Issue Date: 10.03.2023

Valid Until: 09.03.2025

The certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard and the relevant requirements of FDAS (scope of accreditation also displayed at www.fdasindia.org).


DEVI SARAN TEWARI
Director



Federation for Development of Accreditation Services

SCOPE OF ACCREDITATION

Laboratory Name	M/s "Tempense Instrumentation Private Limited" No-467, Krishna Complex, Shop No 8 & 9, 1 st Floor, Electronic City, Bangalore (Karnataka) -560100, India		
Accreditation Standard	ISO/IEC 17025:2017		
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MECHANICAL CALIBRATION

Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
Pressure				
1	Differential pressure gauge /Indicators, Magnehelic Gauge / Manometer/Transmitter / Transmitter with Indicators/Transducers with Indicators (Pneumatic)	Using Low Pressure Calibrator with Pump by Comparison Method as per DKD R 6-1:2014	-50 mbar to 0 mbar	0.4 mbar
2	Differential pressure gauge /Indicators, Magnehelic Gauge / Manometer/Transmitter / Transmitter with Indicators/Transducers with Indicators (Pneumatic)	Using Low Pressure Calibrator with Pump by Comparison Method as per DKD R 6-1:2014	0 mbar to 50 mbar	0.4 mbar
3	Pressure Gauge (Digital & Analog) / Switch / Manometer/Transmitter/ Transducers with Indicators/Transmitter with Indicator/, Compound gauge	Pressure & Vacuum Calibrator with pump by comparison method as per DKD R-6-1:2014	0 bar to 70 bar	0.03 bar
4	Pressure Gauge (Digital & Analog) / Switch / Manometer/Transmitter/ Transducers with Indicators/Transmitter with Indicator/, Compound gauge (Hydraulic)	Pressure Calibrator with pump by comparison method as per DKD R-6-1:2014	0 bar to 700 bar	0.29 bar
5	Vacuum Gauge (Digital & Analog) / Switch / Manometer/Transducer with Indicators Transmitter with Indicator/Compound Gauge	Pressure & Vacuum Calibrator with pump by comparison method as per ISO 27893:2011 /IS: 3624:1987	-0.8 bar to 0 bar	0.007 bar

Jikendra Parmar
Dealing Officer



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MECHANICAL CALIBRATION

Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
Volume				
6	Glasswares (Pipette, Burette, Measuring Cylinder/Jar, Volumetric flask Graduated Pipette/ One Mark Pipette, Clevenger Apparatus)	Using Weighing Balance (0.01mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 4787:2021 & ISO TR 20461:2000	0.1 ml to 10 ml	0.02 ml
7	Glasswares (Pipette, Burette, Measuring Cylinder/Jar, Volumetric flask /Graduated Pipette/ One Mark Pipette)	Using Weighing Balance (0.01mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 4787:2021 & ISO TR 20461:2000	10 ml to 100 ml	0.04 ml
8	Glassware (Pipette, Burette, Measuring Cylinder/Jar, Volumetric flask Graduated Pipette/One Mark Pipette)	Using Weighing Balance (1mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 4787:2021 & ISO TR 20461:2000	100 ml to 300 ml	0.27 ml
9	Glassware (Pipette, Burette, Measuring Cylinder/Jar, Volumetric flask Graduated One Mark Pipette)	Using Weighing Balance (10mg least count) & Standard Weights of Accuracy Class F1 Distilled water by Gravimetric method on ISO 4787:2021 & ISO TR 20461:2000	1000 ml to 2000 ml	1.5 ml

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Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
10.	Pipettes/ Micropipette	Using Weighing Balance (0.01mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 8655 (Part 6):2022	20 µl to 100 µl	1.7µl
11.	Pipettes/ Micropipette	Using Weighing Balance (0.01mg least count) & Standard Weights of Accuracy Class F1 Distilled water by Gravimetric method on ISO 8655 (Part 6):2022	100 µl to 1000µl	1.7 µl
12.	Pipettes/ Micropipette	Using Weighing Balance (0.01 mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 8655 (Part 6) :2022	1ml to 5 ml	0.086ml
13.	Pipettes/ Micropipette	Using Weighing Balance (0.01 mg least count) & Standard Weights of Accuracy Class E1 & Distilled water by Gravimetric method on ISO 8655 (Part 6) :2022	5 ml to 10 ml	0.086ml
Weighing Scale & Balance				
14.	Weighing Scale/Balance LC:0.01 mg Class I and Coarser	Using E1 Class Standard Weights (1mg to 200g) As per OIML R-76-1:2006 & R-76-2:2007	1mg to 220g	0.07mg
15.	Weighing Scale/Balance LC:1 mg Class II and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1, Class Weights As per OIML R-76-1:2006 & R-76-2:2007	10mg to 500g	2 mg

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Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
16.	Weighing Scale/Balance LC:10 mg Class II and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1, Class Weights As per OIML R-76-1:2006 & R-76-2:2007	50mg to 3.2kg	20 mg
17.	Weighing Scale/Balance LC:1 g Class III and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1,F2 Class Weights up to 35 kg As per OIML R-76-1:2006 & R-76-2:2007	1g to 25kg	2 g
Weights				
18.	Weights (F2 Class)	Using E1 Class Standard Weights and Weighing Balance of Readability 0.01mg As per OIML R-111:2004 By ABBA Method	1mg 2mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.02 mg 0.02 mg 0.02 mg 0.02 mg 0.02 mg 0.03 mg 0.11 mg 0.12 mg 1.3 mg

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MECHANICAL CALIBRATION

Calibration at Site

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
Pressure				
1.	Differential pressure gauge /Indicators, Magnehelic Gauge / Manometer/Transmitter / Transmitter with Indicators/Transducers with Indicators (Pneumatic)	Using Low Pressure Calibrator with Pump by Comparison Method as per DKD R 6-1:2014	-50 mbar to 0 mbar	0.4 mbar
2.	Differential pressure gauge /Indicators, Magnehelic Gauge / Manometer/Transmitter / Transmitter with Indicators/Transducers with Indicators (Pneumatic)	Using Low Pressure Calibrator with Pump by Comparison Method as per DKD R 6-1:2014	0 mbar to 50 mbar	0.4 mbar
3.	Pressure Gauge (Digital & Analog) / Switch / Manometer/Transmitter/ Transducers with Indicators/Transmitter with Indicator/, Compound gauge	Pressure & Vacuum Calibrator with pump by comparison method as per DKD R-6-1:2014	0 Bar to 70 Bar	0.03 Bar
4.	Pressure Gauge (Digital & Analog) / Switch / Manometer/Transmitter/ Transducers with Indicators/Transmitter with Indicator/, Compound gauge (Hydraulic)	Pressure Calibrator with pump by comparison method as per DKD R-6-1:2014	0 Bar to 700 Bar	0.29 Bar
5.	Vacuum Gauge (Digital & Analog) / Switch / Manometer/Transducer with Indicators Transmitter with Indicator/Compound Gauge	Pressure & Vacuum Calibrator with pump by comparison method as per ISO 27893:2011/ IS:3624:1987	-0.8 Bar to 0.0 Bar	0.007 Bar

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Calibration at Site

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
Weighing Scale & Balance				
6.	Weighing Scale/Balance LC:0.001 mg Class I and Coarser	Using E1 Class Standard Weights (1mg to 200g) As per OIML R-76-1:2006 & R-76-2:2007	1mg to 5g	0.008mg
7.	Weighing Scale/Balance LC:0.01 mg Class I and Coarser	Using E1 Class Standard Weights (1mg to 200g) As per OIML R-76-1:2006 & R-76-2:2007	1mg to 220g	0.07mg
8.	Weighing Scale/Balance LC:1 mg Class II and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1 Class Weights As per OIML R-76-1:2006 & R- 76-2:2007	10mg to 500g	2 mg
9.	Weighing Scale/Balance LC:10 mg Class II and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1 Class weights As per OIML R-76-1:2006 & R-76-2:2007	50mg to 6 kg	20 mg
10.	Weighing Scale/Balance LC:0.1g Class II and Coarser	Using E1 Class Standard Weights (1mg to 200g) & F1, F2 Class up to 35 kg As per OIML R-76-1:2006 & R-76-2:2007	1g to 35kg	2 g
SPEED				
11.	Centrifuge/Refrigerated Centrifuge/Shaking Incubator, Dissolution Test Apparatus	Using Tachometer as per SANAS TR-45-01:2008 &SANAS TR-45-02:2017 by Comparison method	10 rpm to 100 rpm	2.6 % rpm

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Calibration at Site

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
12.	Centrifuge/Refrigerated Centrifuge/Shaking Incubator, Dissolution Test Apparatus	Using Tachometer as per SANAS TR-45-01:2008 & SANAS TR-45-02:2017 by Comparison method	100 rpm to 5000 rpm	0.6 %rpm
13.	Centrifuge/Refrigerated Centrifuge	Using Tachometer as per TR-45-01:2008 & SANAS TR-45-02:2017 by Comparison method	5000 rpm to 15000 rpm	0.05 % rpm
14.	Centrifuge/Refrigerated Centrifuge	Using Tachometer as per TR-45-01:2008 & SANAS TR-45-02:2017 by Comparison method	15000 rpm to 20000 rpm	0.4 % rpm

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THERMAL CALIBRATION

Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
Temperature & Humidity				
1.	Thermo Hygrometer, Temperature & Humidity Meter, Humidity Indicator, Humidity Transmitter, Temperature and Humidity Data Logger, Humidity Transmitter with indicator,	Using Class-A RTD With Indicator & Humidity Meter by Comparison Method	0°C to 50°C @ 50% RH	0.19°C
2.	Thermo Hygrometer, Temperature & Humidity Meter, Humidity Indicator, Humidity Transmitter, Temperature and Humidity Data Logger, Humidity Transmitter with indicator	Using Class-A RTD With Indicator & Humidity Meter by Comparison Method	15% RH to 95%RH @ 25°C	0.87% RH
3.	Liquid in Glass Thermometer	Using Class-A RTD With Indicator, by Comparison Method OIML R133:2002	(-)80°C to 250°C	0.63°C
4.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	(-)80°C to 25°C	0.20°C
5.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	0.27°C

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Laboratory based Calibration

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
6.	Temperature Indicator of Incubator, Chamber, Temperature Baths, Oil bath, Dry Bath (Single Point)	Using Class-A RTD With Indicator by Comparison Method	(-)80°C to 25°C	0.33°C
7.	Temperature Indicator of Oven, Incubator, Chamber, Temperature Baths, Oil bath, Dry Bath Furnace(Single Point)	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	0.33°C
8.	Temperature Indicator of Temperature Baths, Oil bath, Dry Bath, Furnace (Single Point)	Using S Type TC with Indicator by Comparison Method	400°C to 1200°C	2.48°C
9.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using S Type Thermocouple With indicator by Comparison Method	400°C to 1200°C	2.04°C

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THERMAL CALIBRATION

Calibration at Site

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
1.	Humidity Chamber/Stability Chamber (Single Point)	Using Humidity Meter by Comparison Method	0°C to 60°C @ 50% RH	0.30°C
2.	Humidity Chamber/Stability Chamber Dry Storage Chamber/Cabinet (Single Point)	Using Humidity Meter by Comparison Method	15% RH to 95%RH @ 25°C	0.87%RH
3.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	-35°C to 25°C	0.23°C
4.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	0.27°C
5.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using S Type Thermocouple With indicator by Comparison Method	400°C to 1200°C	2.04°C

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Calibration at Site

S. No.	Parameter	Standard(S), BIS, ISO, ASTM, Regulators, etc.	Range	Uncertainty in Measurement*
6.	Multi-channel mapping of Environmental/Walking/Temp. chamber, Oven, Cold Room, Deep freezer, Dry Heat Sterilizer, Co2 Incubator, Incubator, Autoclave (Only non-medical Purpose)	Using RTD Sensors with Data Logger by Comparison Method IEC-60068 3-5:2001	(-)80°C to 300°C	0.62°C
7.	Temperature Indicator of Incubator, Stability Chamber, BOD Incubator, Oven, Temperature Baths, Oil bath, Dry Bath, Freezers, Deep freezer, Cold Room, Refrigerator, Refrigerated Centrifuge (Single Point)	Using Class-A RTD With Indicator by Comparison Method	-80°C to 25°C	0.33°C
8.	Temperature Indicator of Oven, Incubator, Refrigerated Centrifuge, CO2 Incubator, Chamber, BOD Incubator, Temperature Baths, Oil bath, Dry Bath, Water Bath, Autoclave (For Non-medical purpose), Muffle furnace, Furnace (Single Point)	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	0.33°C
9.	Temperature Indicator of Temperature Baths, Oil bath, Dry Bath, Muffle Furnace, Furnace (Single Point)	Using S Type Thermocouple with Indicator by Comparison Method	400°C to 1200°C	2.48°C

* Expanded uncertainty expressed in coverage probability of approximately 95% (coverage factor K=2)

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