

## CERTIFICATE OF CALIBRATION

### شهادة معايرة



Certificate No. : 1788 / 13 / 2018

- **NIS Lab** : Mass, Density and Pressure  
اسم المعمل
- **Issued For** : ميجا جرين  
صادر الى مدينة السادات
- **Device Description** : Pneumatic pressure sensor displayed with digital indicator of  
اسم ووصف الجهاز تحت المعايرة Model No. ESM-9930 S.N. 30833118.  
Range : 0 – 100 bar Resolution : 0.1 bar
- **Manufacturer** : BD-Sensors-Str. 1  
اسم الشركة المنتجة
- **Model/Type** : \_\_\_\_\_  
موديل الجهاز
- **Serial Number** : 10341014      ■ **Code** : \_\_\_\_\_  
الرقم المسلسل للجهاز      كود
- **Reference Number of Calibration** : 3569 / 692 / 13 / 2018  
رقم المعايرة المرجعى
- **Date of Receipt** : 16<sup>th</sup> Oct. ,2018      ■ **Date of Calibration** : 22<sup>nd</sup> Oct. ,2018  
تاريخ الاستلام      تاريخ المعايرة
- **Issue Date** : 30<sup>th</sup> Oct. ,2018      ■ **Due Date** : 21<sup>st</sup> Oct. ,2019  
تاريخ الإصدار      تاريخ اعادة المعايرة

Approved by

Head of Laboratory

NIS President

Dr. Alaaeldin A.Eltawil

Prof. Dr. Mohamed A. Amer



Calibration Method : Comparison method using PPC3 based on: DKD R 6-1, 2014.

Uncertainty : The reported expanded uncertainty is based on GUM standard. The standard uncertainty is multiplied by a coverage factor  $k=2$  to give confidence level of 95 %.The uncertainty was calculated at full scale. The calculation doesn't include the hysteresis component. The user shall estimate this component according to real measurement procedure.

Traceability : The traceability of measurement results to the SI units is assured by the National Standard maintained at NIS with Certificate No. NIS/296/13/2016 issued by NIS-Egypt.

Measurement Standard:

Name	Type	Manufacturer	Expanded Uncertainty
PPC3	296	Druck , England	$\pm 0.008$ % F.S.

Environmental conditions:

Temp.( $^{\circ}$ C) : $21.3 \pm 0.3$	R. H.( %) : $48.3 \pm 3$	Atm. P.( mbar) : $1014.40 \pm 0.25$
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- The digital pressure sensor was subjected to preload three times up to max. pressure.
- The given readings are the mean measurement of two cycles.



Results

Gauge Reading (bar)	Reference Value (bar)	
	Pressure Rising	Pressure Falling
0	-0.15	-0.15
10	9.85	9.85
20	19.85	19.90
30	29.85	29.90
40	39.85	39.90
50	49.85	49.90
60	59.90	59.90
70	69.90	69.90
80	79.90	79.90
90	89.90	89.90
100	99.95	99.90

The expanded uncertainty of measurements:  $\pm 0.06$  bar.

Calibrated by : Eng. Bikheet M. Sayed

Reviewed by : Phy. Ali .H.Magrabi



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## CERTIFICATE OF CALIBRATION

### شهادة معايرة



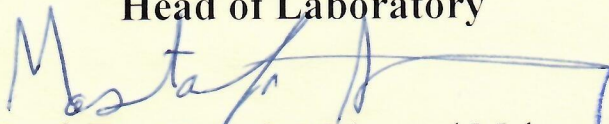
Certificate No: 2265/32/2018

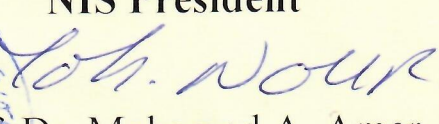
- **NIS Lab** : Thermal Metrology  
*اسم المعمل*
- **Issued For** : **ميجا جرين**  
*صادر الى*
- **Device Description** : Dry oven, with dial controller range (from 10 °C up to 210 °C),  
*اسم ووصف الجهاز تحت المعايرة* subdivision 10 °C and dial indicator range from (0 °C up to 200 °C), subdivision 5 °C
- **Manufacturer** : TITANOX  
*اسم الشركة المنتجة*
- **Model/Type** : -----  
*موديل الجهاز*
- **Serial Number** : 050256  
*الرقم المسلسل للجهاز*
- **Code** : -----  
*كود*
- **Reference Number of Calibration** : 3432/724/32/2018  
*رقم المعايرة المرجعي*
- **Date of Receipt** : 09 Oct., 2018  
*تاريخ الاستلام*
- **Date of Calibration** : 28 Oct., 2018  
*تاريخ المعايرة*
- **Issue Date** : 12 Nov., 2018  
*تاريخ الإصدار*
- **Due Date** : 27 Oct., 2019  
*تاريخ اعادة المعايرة*

Approved by

Head of Laboratory

NIS President

  
Prof. Dr. Mostafa Mahmoud Mekawy

  
Prof. Dr. Mohamed A. Amer





## Calibration Certificate of: Dry oven

Reference No. : 3432/724/32/2018 Date of Calibration: 28 Oct. 2018  
Certificate No. : 2265/32/2018 Calibrated by: Ebtessam Ragab Qamar  
Serial number : 050256

## Results

Setting Temperature °C	Thermometer reading $t_m$ °C	Temperature on ITS-90 $t_s$ °C	Correction $\Delta t = t_s - t_m$ °C	Uncertainty at C.L. 95% (k=2) °C
50.0	61	60	-1	±2.9
100.0	100	97	-3	±3.1
150.0	147	145	-2	±3.1

### Environmental conditions:

Temperature: 25 °C ± 2 °C

Humidity: 45 % ± 15 %

### Calibration method:

\*The calibration is carried out using thermocouple type T & calibrator S.N. 2143038 according to Calibration Method. No. NIS/ThML/32/CM/11 which traceable to ITS-90.

Calibrated by

*Ebtessam Ragab*

Reviewed by

*Mostafa*

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25/11/10/18/02/E





## CERTIFICATE OF CALIBRATION شهادة معايرة



Certificate No: 2264/32/2018

- **NIS Lab** : Thermal Metrology  
اسم المعمل
- **Issued For** : ميجا جرين  
صادر الى
- **Device Description** : Thermocouple type J, with digital indicator, resolution 1°C  
اسم ووصف الجهاز تحت المعايرة
- **Manufacturer** : EMKO  
اسم الشركة المنتجة
- **Model/Type** : ESM-9910  
موديل الجهاز
- **Serial Number** : 30816660(indicator)      ■ **Code** : N.TC-63(sensor)  
الرقم المسلسل للجهاز      كود
- **Reference Number of Calibration** : 3432/724/32/2018  
رقم المعايرة المرجعي
- **Date of Receipt** : 09 Oct., 2018      ■ **Date of Calibration** : 28 Oct., 2018  
تاريخ الاستلام      تاريخ المعايرة
- **Issue Date** : 12 Nov., 2018      ■ **Due Date** : 27 Oct., 2019  
تاريخ الإصدار      تاريخ إعادة المعايرة

Approved by

Head of Laboratory

NIS President

Prof. Dr. Mostafa Mahmoud Mekawy

Prof. Dr. Mohamed A. Amer



## Calibration Certificate of: Thermocouple type J



Reference No. : 3432/724/32/2018      Date of Calibration: 28 Oct. 2018  
Certificate No. : 2264/32/2018      Calibrated by: Ebtessam Ragab Qamar  
Serial number : 30816660(indicator)      Code: N.TC-63(sensor)

### Results

Temperature on ITS-90 $t_s$ °C	Measured temperature $t_m$ °C	Correction $\Delta t = t_s - t_m$ °C	Uncertainty at C.L. 95% (k=2) °C
50.0	54	-4	±1.0
100.0	105	-5	±1.5
150.0	156	-6	±1.5

#### Environmental conditions:

Temperature: 25 °C ± 2 °C

Humidity: 45 % ± 15 %

#### Calibration method:

\* The calibration is carried out using thermocouple type T & calibrator S.N. 2143038 according to Calibration Method. No NIS/ThML/32/CM/04 which traceable to ITS-90.

Calibrated by

*Ebtessam Ragab*

Reviewed by

*M. El-Sayed*

