

Certificate of Calibration

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Issued by: **DEMO CERTIFICATE**
Eurotherm Limited
Faraday Close Durrington
Worthing
West Sussex
BN13 3PL United Kingdom

Certificate No.: **UK-A12-02348**
Issue Date: **15 February 2016**

L Smith

Calibrated by: **Laurie Smith**
Calibration Date: **11 February 2016**

Approved signatory: **Laurie Smith**
Calibration Due: **11 May 2016**

Customer : **K C Supply Ltd**
Coventry Road
Ashington
Northumberland
NE7 9HT

Customer Acceptance Signature/Stamp

Instrument / Device details

Tag: **TAG32**
Function: **Graphic Recorder**
Plant area: **PAINT SHOP**
Equipment: **Barlow & Whitney**
Manufacturer: **Eurotherm**
Model No: **Nanodac**
Serial No.: **FC1211002163**
Calibrated In Situ: **Yes**

Procedure details **On site calibration for DC electrical signal injection with 1.0°C sensitivity check for AMS2750**

Electrical calibration was carried out to On Site Procedure DP006-1 and conforms to the requirements of AMS2750 revision E and RPS953 issue 21, with no restrictions or limitations of use unless stated otherwise.

Calibrated using a minimum of three simulated sensor inputs representing minimum, maximum and one point in the middle third of the qualified operating temperature range.

Sensitivity conforms to AMS2750 with a minimum sensitivity of 1.0 °C.

The reported results lie within the requested tolerance unless stated otherwise.

Uncertainty of Measurement is not allowed for in the Customer Tolerance.

The calibration method used was DC electrical signal injection.

Where applicable, time calibration was carried out to On Site Procedure DP006-9.

Where applicable, the time calibration method used was by comparison against the speaking clock.

The equivalent values of temperature for thermocouples were derived from BS EN 60584-1:2013 (ITS 90 TABLES).

The equivalent values of temperature for PT100 sensors were derived from BS EN 60751:2008 (ITS 90 TABLES).

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Industry specs: AMS2750 Rev.E

Channel I.D.: 01 Control

Test equipment: **Beamex MC3 Calibrator S/N: 30328560**

Uncertainty: **0.50 °C -100 to 1300 °C Type K Simulate
 Plus 1 LSD for a digital reading**

Tolerance: **±1.1°C (±2°F) or 0.2% of reading (whichever is greater)**
 (The tolerance stated above excludes the Uncertainty of Measurement)

Channel Range: 0.0 to 300.0 °C	Input Type: Type K Measure	
Working Range: 70.0 to 190.0 °C	Resolution: 0.0	Display type: Digital
Calibration Offset: 0.0	As found	As left
Process Offset: 3.0	0.0	0.0
Process Offsets removed for calibration, then reapplied.		
Ambient temperature:		19 °C

Calibration Point (°C)	Reading As Found (°C)	Error As Found (°C)	Reading As Left (°C)	Error As Left (°C)
70.00	69.9	-0.10	69.9	-0.10
130.00	129.9	-0.10	129.9	-0.10
190.00	189.8	-0.20	189.8	-0.20

	Calibration Point (°C)	Reading As Found (°C)	Reading As Left (°C)
Sensitivity Point	130.00	129.9	129.9
Sensitivity Rising	131.00	130.9	130.9
Sensitivity Falling	130.00	129.9	129.9

Connection method: **The calibrator was connected to the unit under test via interconnecting sockets**

Channel I.D.: 02 Channel 2

Test equipment: **Beamex MC3 Calibrator S/N: 30328560**

Uncertainty: **0.50 °C -100 to 1300 °C Type K Simulate
 Plus 1 LSD for a digital reading**

Tolerance: **±1.1°C (±2°F) or 0.2% of reading (whichever is greater)**
 (The tolerance stated above excludes the Uncertainty of Measurement)

Channel Range: 0.0 to 300.0 °C	Input Type: Type K Measure	
Working Range: 70.0 to 190.0 °C	Resolution: 0.0	Display type: Digital
Calibration Offset: 0.0	As found	As left
Process Offset: 0.0	0.0	0.0
Ambient temperature: 19 °C		

Calibration Point (°C)	Reading As Found (°C)	Error As Found (°C)	Reading As Left (°C)	Error As Left (°C)
70.00	69.8	-0.20	69.8	-0.20
130.00	129.8	-0.20	129.8	-0.20
190.00	189.8	-0.20	189.8	-0.20

	Calibration Point (°C)	Reading As Found (°C)	Reading As Left (°C)
Sensitivity Point	130.00	129.8	129.8
Sensitivity Rising	131.00	130.8	130.8
Sensitivity Falling	130.00	129.8	129.8

Connection method: **The calibrator was connected to the unit under test via interconnecting sockets**

Channel I.D.: 03 Channel 3

Test equipment: **Beamex MC3 Calibrator S/N: 30328560**

Uncertainty: **0.50 °C -100 to 1300 °C Type K Simulate
 Plus 1 LSD for a digital reading**

Tolerance: **±1.1°C (±2°F) or 0.2% of reading (whichever is greater)**
 (The tolerance stated above excludes the Uncertainty of Measurement)

Channel Range: 0.0 to 300.0 °C Working Range: 70.0 to 190.0 °C	Input Type: Type K Measure Resolution: 0.0 Display type: Digital	
Calibration Offset: 0.0 Process Offset: 0.0	As found 0.0 0.0	As left 0.0 0.0
		Ambient temperature: 19 °C

Calibration Point (°C)	Reading As Found (°C)	Error As Found (°C)	Reading As Left (°C)	Error As Left (°C)
70.00	70.0	0.00	70.0	0.00
130.00	130.0	0.00	130.0	0.00
190.00	189.9	-0.10	189.9	-0.10

	Calibration Point (°C)	Reading As Found (°C)	Reading As Left (°C)
Sensitivity Point	130.00	130.0	130.0
Sensitivity Rising	131.00	131.0	131.0
Sensitivity Falling	130.00	130.0	130.0

Connection method: **The calibrator was connected to the unit under test via interconnecting sockets**

Channel I.D.: 04 Channel 4

Test equipment: **Beamex MC3 Calibrator S/N: 30328560**

Uncertainty: **0.50 °C -100 to 1300 °C Type K Simulate
Plus 1 LSD for a digital reading**

Tolerance: **±1.1°C (±2°F) or 0.2% of reading (whichever is greater)**
(The tolerance stated above excludes the Uncertainty of Measurement)

Channel Range: 0.0 to 300.0 °C	Input Type: Type K Measure	
Working Range: 70.0 to 190.0 °C	Resolution: 0.0	Display type: Digital
Calibration Offset: 0.0	As found	As left
Process Offset: 0.0	0.0	0.0
Ambient temperature: 19 °C		

Calibration Point (°C)	Reading As Found (°C)	Error As Found (°C)	Reading As Left (°C)	Error As Left (°C)
70.00	70.0	0.00	70.0	0.00
130.00	130.0	0.00	130.0	0.00
190.00	189.9	-0.10	189.9	-0.10

	Calibration Point (°C)	Reading As Found (°C)	Reading As Left (°C)
Sensitivity Point	130.00	130.0	130.0
Sensitivity Rising	131.00	131.0	131.0
Sensitivity Falling	130.00	130.0	130.0

Connection method: **The calibrator was connected to the unit under test via interconnecting sockets**

Channel I.D.: RTC Time Clock

Test equipment: **National Speaking Clock**

Uncertainty: **3 Seconds Real time clocks using speaking clock
 Plus 1 LSD for a digital reading**

Tolerance: **±1 Minute**
 (The tolerance stated above excludes the Uncertainty of Measurement)

	Input Type: Time
	Resolution: 00:00:01
	Display type: Digital
	Ambient temperature: 19 °C

Calibration Point (HH:MM:SS)	Reading As Found (HH:MM:SS)	Error As Found (HH:MM:SS)	Reading As Left (HH:MM:SS)	Error As Left (HH:MM:SS)
10:02:30	10:02:10	-0:00:20	10:02:10	-0:00:20

Connection method: **The unit under test was checked by means of a visual comparison to a calibrated system**