

CERTIFICATE OF CALIBRATION

ISSUED BY ROTRONIC INSTRUMENTS (UK) LTD

DATE OF ISSUE: 25th October 2013

CERTIFICATE NUMBER: 24039b



rotronic
MEASUREMENT SOLUTIONS

Calibrated by: P Image

Approved Signatory: M Smith

A handwritten signature in black ink, appearing to be 'M Smith', written over a horizontal line.

Unit 1a Crompton Fields, Crompton Way,
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Dates Measurements Performed:

21st October 2013

Calibration Procedure Used: RUKP20

Customer Details : Signatrol Limited, Unit 2, Green Lane Business Park,
Tewkesbury, Gloucestershire, GL20 8SJ

Customer's Order Number : 44429

Rotronic Ref Number : 24039

Instrument Description : Humidity & temperature Probe

Manufacturer : Rotronic AG

Model Type (s) : HC2-S

Serial Number (s) : 60785 619

Certificate 24039b has been issued due to a change requested by the customer on the original certificate 24039 please amend your records accordingly.

The hygrometer was calibrated using ROTRONIC non-saturated salt relative humidity (RH) standards, certified as traceable to National Standards. The probe of the hygrometer was subjected to the relative humidity generated by the RH standard inside a calibration chamber, and the values taken from the instruments display. The calibration was conducted in controlled laboratory conditions 23 °C ± 2 °C. Rotronic Handheld Display 0066 was used to observe the results.

AS-FOUND RESULTS

Applied Relative Humidity (%rh)	Calibration Uncertainty ** (%rh)	Indicated Relative Humidity (%rh)	Instrument Error (%rh)	Indicated Temperature (°C) *	Ambient Temperature (°C) *
11.5	±0.5	11.2	-0.3	23.9	23.7
50.2	±1.1	49.5	-0.7	23.9	23.6
75.3	±1.3	74.9	-0.4	23.7	23.4

* Not included within the scope of the UKAS accreditation

**The uncertainties quoted apply only to values obtained during the calibration and are not indicative of long-term stability of the instrument under calibration.

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.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. (TSDC1 Issue 6)

CERTIFICATE OF CALIBRATION

ISSUED BY ROTRONIC INSTRUMENTS (UK) LTD

DATE OF ISSUE: 25th October 2013

CERTIFICATE NUMBER: 24075



rotronic

MEASUREMENT SOLUTIONS

Calibrated by: P Image

Approved Signatory: M Smith

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Dates Measurements Performed:

24th & 25th October 2013

Calibration Procedure Used: RUKP20

Customer Details : Signatrol Limited, Unit 2, Green Lane Business Park,
Tewkesbury, Gloucestershire, GL20 8SJ

Customer's Order Number : 44429

Rotronic Ref Number : 24075

Instrument Description : Humidity & temperature Probe

Manufacturer : Rotronic AG

Model Type (s) : HC2-S

Serial Number (s) : 60785 619

The hygrometer was calibrated using ROTRONIC non-saturated salt relative humidity (RH) standards, certified as traceable to National Standards. The probe of the hygrometer was subjected to the relative humidity generated by the RH standard inside a calibration chamber, and the values taken from the instruments display. The calibration was conducted in controlled laboratory conditions 23 °C ± 2 °C. Rotronic Handheld Display 0066 was used to observe the results.

POST ADJUSTMENT RESULTS

Applied Relative Humidity (%rh)	Calibration Uncertainty ** (%rh)	Indicated Relative Humidity (%rh)	Instrument Error (%rh)	Indicated Temperature (°C) *	Ambient Temperature (°C) *
11.5	±0.5	11.2	-0.3	23.9	23.7
50.2	±1.1	50.3	+0.1	23.7	23.6
75.3	±1.3	75.5	+0.2	23.7	23.6

* Not included within the scope of the UKAS accreditation

**The uncertainties quoted apply only to values obtained during the calibration and are not indicative of long-term stability of the instrument under calibration.

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.

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(TSDC1 Issue 6)

CERTIFICATE OF CALIBRATION

ISSUED BY ROTRONIC INSTRUMENTS (UK) LTD

DATE OF ISSUE: 21st October 2013

CERTIFICATE NUMBER: 24039a



rotronic
MEASUREMENT SOLUTIONS

Calibrated by: G Thompson

Approved Signatory: M Smith 

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Dates Measurements Performed:

18th October 2013

Calibration Procedure Used: RUKP2

Customer Details	: Signatrol Limited, Unit 2, Green Lane Business Park, Tewkesbury, Gloucestershire, GL20 8SJ
Customer's Order Number	: 44429
Rotronic Ref Number	: 24039
Instrument Description	: Humidity & Temperature Probe
Manufacturer	: Rotronic AG
Model Type (s)	: HC2-S
Serial Number (s)	: 60785 619

The probe was calibrated by comparison with platinum resistance thermometers, which are traceable to national standards, and the values taken from the instruments display. The calibration was conducted in a liquid temperature bath under controlled laboratory conditions $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$. The probe under calibration was immersed to a depth of 120mm.

Applied Temperature ($^{\circ}\text{C}$)	Indicated Temperature ($^{\circ}\text{C}$)	Instrument Error ($^{\circ}\text{C}$)	Calibration Uncertainty ($^{\circ}\text{C}$)*
-0.03	0.06	+0.09	± 0.08
39.98	39.97	-0.01	± 0.07

*The uncertainties quoted apply only to values obtained during the calibration and are not indicative of long-term stability of the instrument under calibration.

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.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. (TSDC12 Issue 5)