Common Building Defects 4

Available Tools and Diagnostic Equipment

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Common Building Defects for Technical and Non-Technical Officers

- *Consideration of a range of diagnostic tools and equipment available - together with their pros and cons, attributes and potential failings*



- *What Equipment Do You Take ?*

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Determinination of Damp

- *5, 6.....7 Senses*
- *Endescopes – Traditional and Extendable Video*
- *Moisture Meters..... Pin Type*
- *Capacitance Meter – Radio Frequency*
- *Hygrometer Applications, Floor Units etc*
- *Speedy Meter – Calcium Carbide Meter*
- *Salts Analysis*
- *Wall temperature Guns*
- *Thermal Imagery*
- *Data Loggers*

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PROTIMETER INSTRUMENTS

More protimeter instruments ›



Protimeter Mini

£124.00 exc. VAT
£148.80 inc. VAT



Protimeter Digital Mini - NEW

£149.00 exc. VAT
£178.80 inc. VAT



Protimeter Aquant - NEW

£248.00 exc. VAT
£297.60 inc. VAT



Protimeter Surveymaster - NEW

£329.00 exc. VAT
£394.80 inc. VAT



Protimeter Timbermaster Standard - NEW

£232.00 exc. VAT
£278.40 inc. VAT



Protimeter Timbermaster Plus - NEW

£303.00 exc. VAT
£363.60 inc. VAT



Protimeter Hygromaster2 c/w Hygrostick - NEW

£378.00 exc. VAT
£453.60 inc. VAT



Protimeter Hygromaster2 c/w Quikstick - NEW

£378.00 exc. VAT
£453.60 inc. VAT



Protimeter MMS2 Basic Package

£676.00 exc. VAT
£811.20 inc. VAT



Protimeter MMS2 Basic Survey Package

£847.00 exc. VAT
£1,016.40 inc. VAT

Electronic moisture meters

Pros	Cons
Accurate **quantitative** readings in timber	Relative/qualitative readings in masonry/plaster
Fast **qualitative** readings for profiling many plaster and masonry	Subject to widespread misuse
Easy to use	Credibility on-site often misplaced
Offers moderate credibility on site	Can over-read due to salt contamination and less common causes.
Cheap to buy	Cannot be used for diagnosis to BRE245
Offers instant results	Interpretation of test results requires training and experience
Can be used with deep wall probes and hammer electrodes	
Many offer radio frequency or capacitance mode for below surface readings (without damage).	
Many offer Psychrometric measurements for condensation and mould inspections	
Non-destructive	



This meter can instantly calculate vapour pressure, air temperature, dew point, surface temperature and it can wirelessly link to the authors thermal imaging camera, overlaying real-time data within the thermogram.

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PROTIMETER Digital Mini®

BLD5702

FOR USE WITH:

•Wood •Drywall •Building Materials

Tough, accurate, easy-to-use. Introducing our portable and precise pin type moisture meter featuring both color LED indication and a large digital display.

Moisture damage prevention begins with a better diagnosis.

The Digital Mini allows building professionals—such as flood damage restoration contractors, surveyors, homebuilders and architects—to assess building moisture levels during new build and refurbishing activities. It helps you easily identify the extent of the moisture penetration, diagnose the cause of the problem and monitor changes in moisture level. Plus, the ability to add optional attachments and a patent pending reference mode enables you to compare your reading with a baseline measurement. All Protimeter instruments have a two-year warranty.



Protimeter BLD5702 Digital Mini Pin Type Moisture Meter



PROTIMETER DIGITAL MINI MOISTURE METER

Pin-type measurement
Industry standard pin-type measurement allows the user to quickly assess the moisture content within building materials

'Traffic light' scale
Coloured LEDs (green for 'dry', yellow for 'at risk', red for 'wet') indicate the moisture level quickly and clearly. Also includes numerical digital display

Simple operation
Incredibly simple, two button operation provides fast and accurate readings



Measurement range
6-90% represents the moisture content of wood (%) and the WME (wood moisture equivalent) within other construction materials

Free accessories
Comes with carry pouch, instructional documentation, an extension lead for accessing tricky areas, wrist lanyard and a calibration checking device



Pin Probes Mode

The Protimeter Surveymaster features in-built pin probes which allow you to quickly and accurately measure the moisture in various materials.

Calibrated for wood the results are given on the WME (wood moisture equivalent) scale which allows you to measure accurately the conditions of other materials such as plaster & brickwork.



Non-Invasive Mode

This professional moisture meter features an industry leading non-invasive mode which allows you to check the relative moisture condition over large areas without the need to make holes with the pin probes.

This mode measures sub surface moisture between 1-3cm beneath the surface so is also well suited to users who wish to test beneath finished surface such as tiles you to search for sub surface moisture problems behind finished surfaces such as tiles where the use of pin probes is not possible.

Specifications

MOISTURE MEASUREMENT RANGE	7.9% to 99% WME (pin measurement) Dry (green)-7-16.9 At Risk (yellow) 17-19.9 Wet (red) – 20-99.9
DISPLAY 1	Digital LCD backlit
DISPLAY 2	60 LEDs green (dry), yellow (at risk) and red (wet)
DEPTH OF MOISTURE	Pin up to 0.5 in (12.7mm)
POWER	9V battery (supplied)
WEIGHT	8 oz (including battery)
DIMENSIONS	7.5 in x 2.75 in x 1.9 in (190 mm x 70 mm x 49 mm)



Why Treat Damp Meters With Caution ?

- *Calibrated to Woodwork*
- *Affected by Salts.....*
- *Density*
- *Anything which conducts electricity*
- *Carbon*
- *Surface Condensation*

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Diagnosing Damp













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6.1

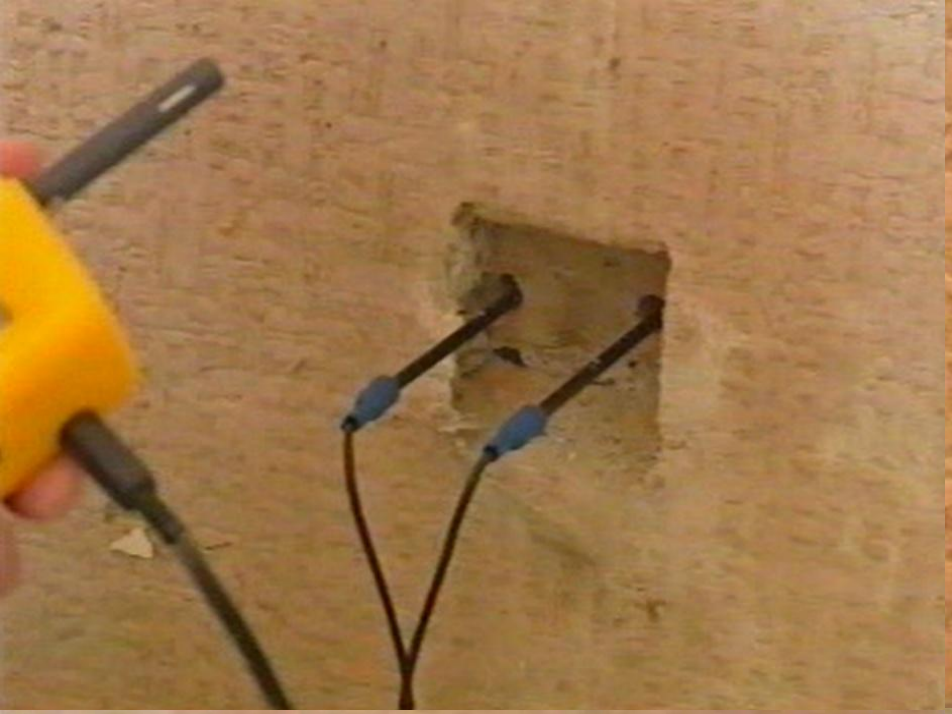

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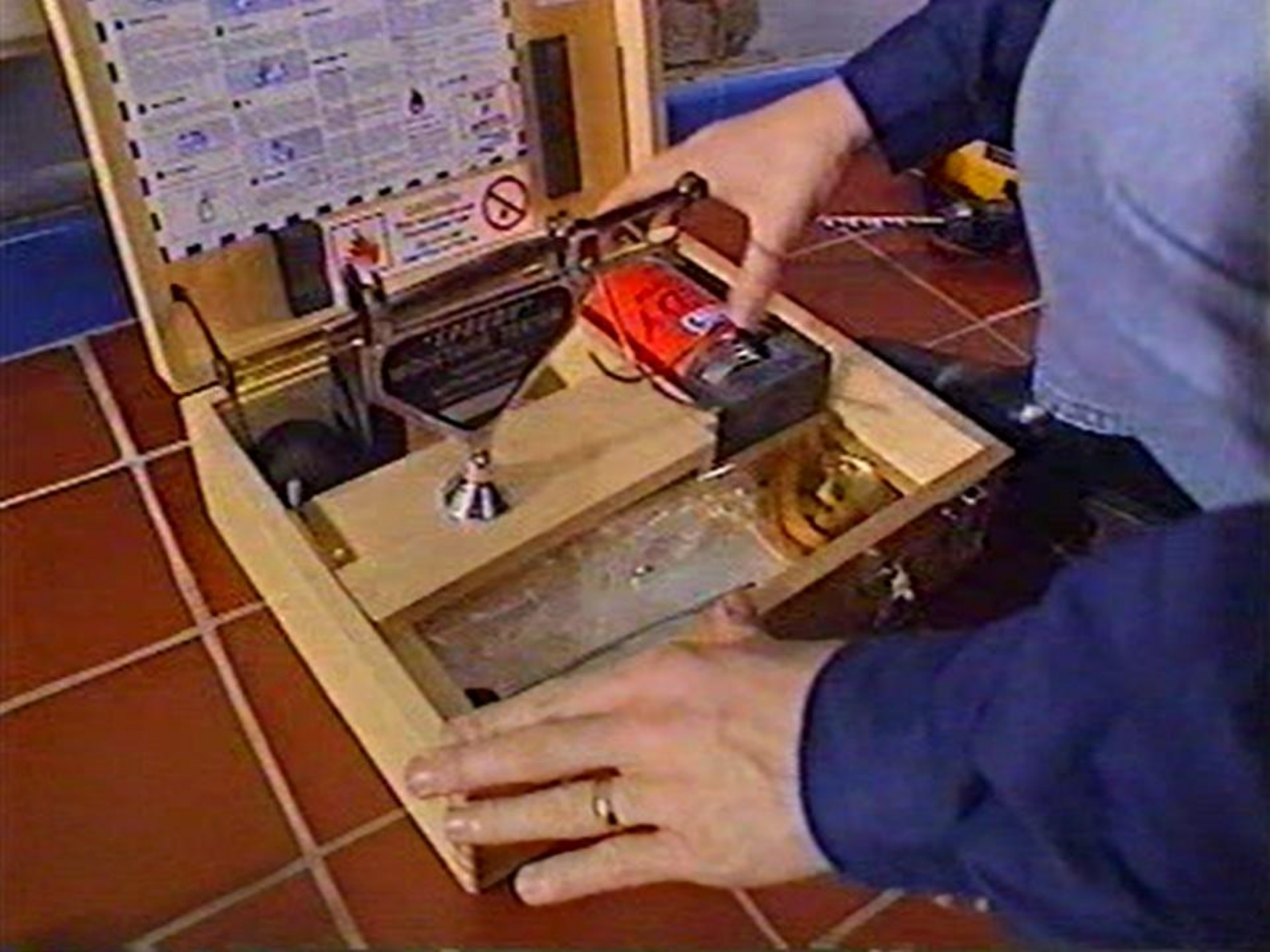
Chemical moisture meters – (speedy), for use in damp diagnosis – pros and cons

Pros	Cons
Accurate **quantitative** readings (total moisture content as percentage by wet weight)	Requires specialist calibration for scales and the gauge
Fast for 'one off' readings	Very slow for profiling with only consecutive test results – one after the other.
Offers good credibility on site	Credibility on-site often misplaced
Easy to use	Harmful/explosive gas emissions
Offers access to diagnosis to BRE 245 if used in the lab	Subject to widespread misuse
	The sample is destroyed in the process
	Cannot practically be used for BRE 245 diagnosis of multiple samples (too slow).
	Interpretation of test results requires training and experience
	Destructive, especially for profiling
	Requires separate samples for hygroscopic %mc to be determined
	Many reading uses lots of reagent which is expensive, harmful and wasteful.





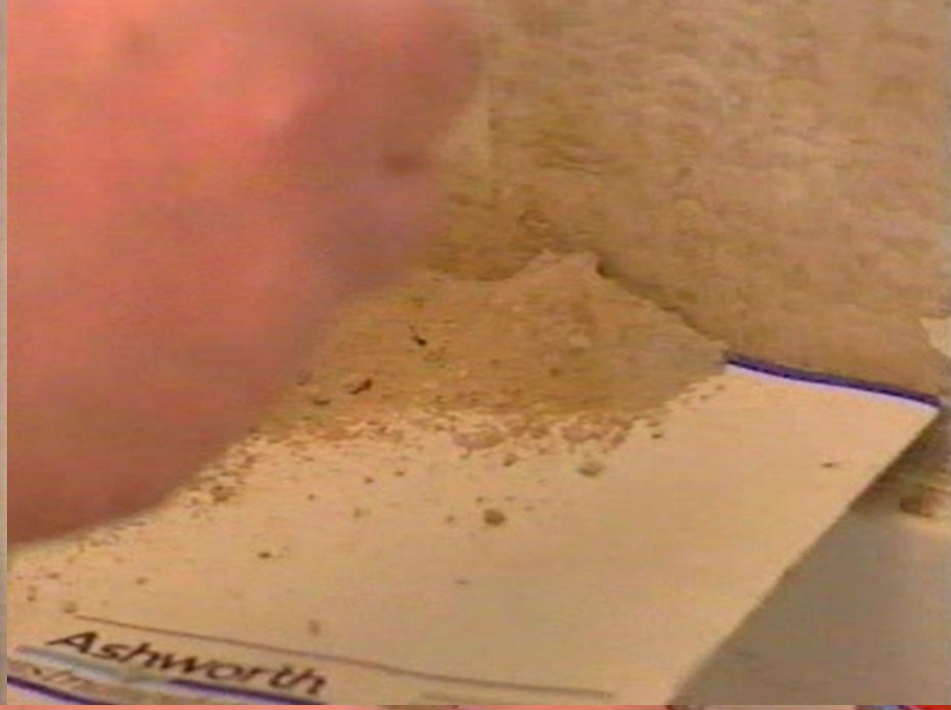











Ashworth

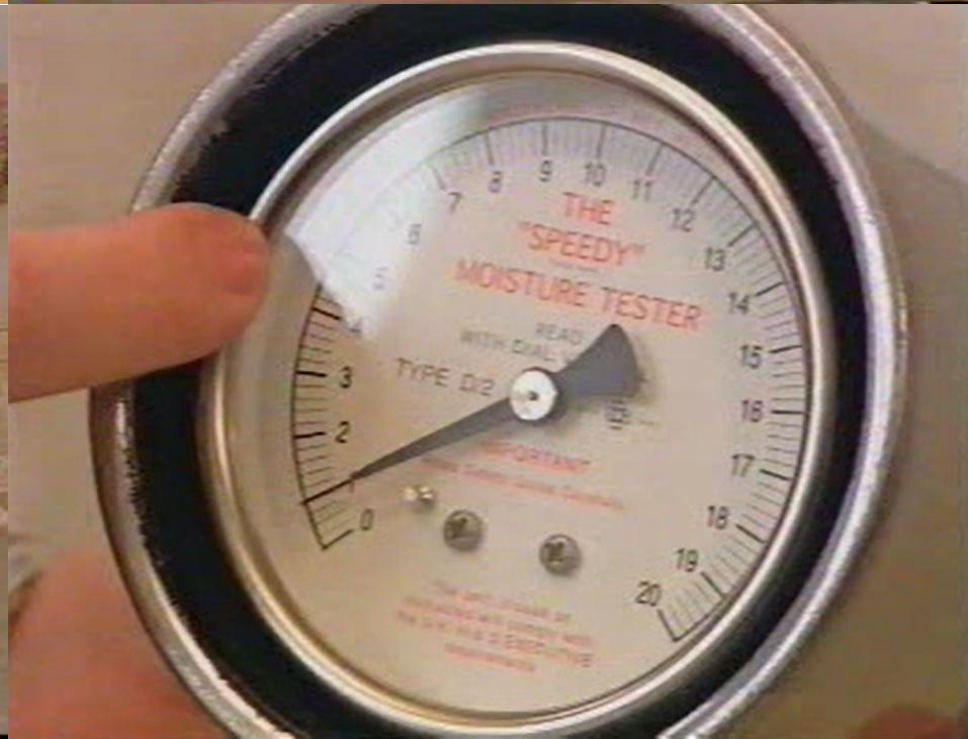





SPEEDY


SPEEDY




THE
"SPEEDY"
MOISTURE TESTER
TYPE D/2
0
2
3
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Very simple and takes just a few minutes
A colour change will indicate whether or
not certain nitrates and chlorides are present



Protimeter Salt Analysis

Determine the presence of electrically conducting salts contamination on site



The Protimeter Salt Analysis kit enables a surveyor to analyses samples of wallpaper and plaster for the presence of soil salts.

Certain nitrates and chlorides are deposited by evaporation of soil-water (rising damp) on the surface of walls. A meaningful analysis can therefore be carried out provided a wall has not been disturbed for several years.

It consists of two chemicals packed in sachets of the correct amount for each test, a bottle of distilled water, and two measuring beakers.

The test is very simple and takes just a few minutes. A colour change will indicate whether or not certain nitrates and chlorides are present.

The diagnosis of the origin of salts should not be made on the presence of salt alone, but considering other information available such as the moisture distribution within the building. A high reading of nitrates may signify that evaporation of soil water has continued for a long time. Soil salts are hygroscopic.

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G+

Protimeter Salts Analysis Kit

Model: BLD4900

Supplied with:
+ Nitrate No 1 - 10 Tablets
+ Nitrate No 2 - 10 Tablets
+ Chloride - 10 Tablets
+ Plastic scoop
+ 10cc Measuring beaker
+ 60cc Measuring beaker
+ Bottle of De-Ionised water
+ Instructions
+ Large carrying case

Price: £75.00
ex VAT

List price: £75.00

Price: £90.00 Incl VAT

Add to Cart

Protimeter Salts Analysis Refill Pack

Model: BLD4901

Supplied with:
+ Nitrate No 1 - 10 Tablets
+ Nitrate No 2 - 10 Tablets
+ Chloride - 10 Tablets

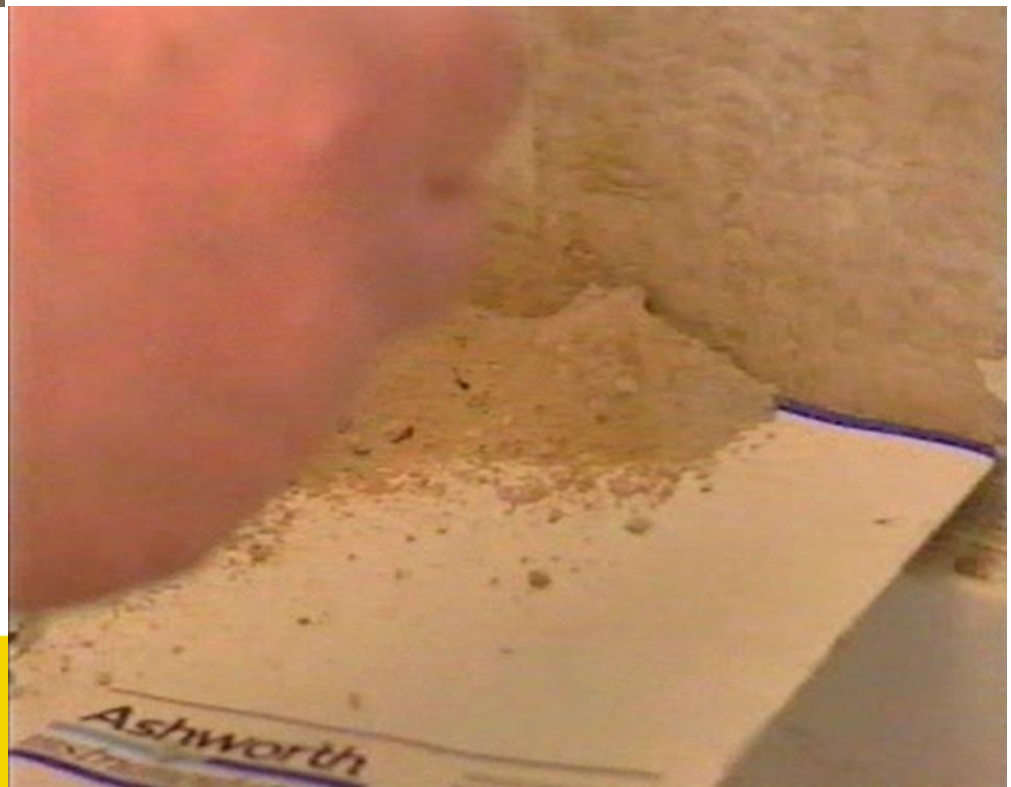
Price: £49.00
ex VAT

List price: £49.00

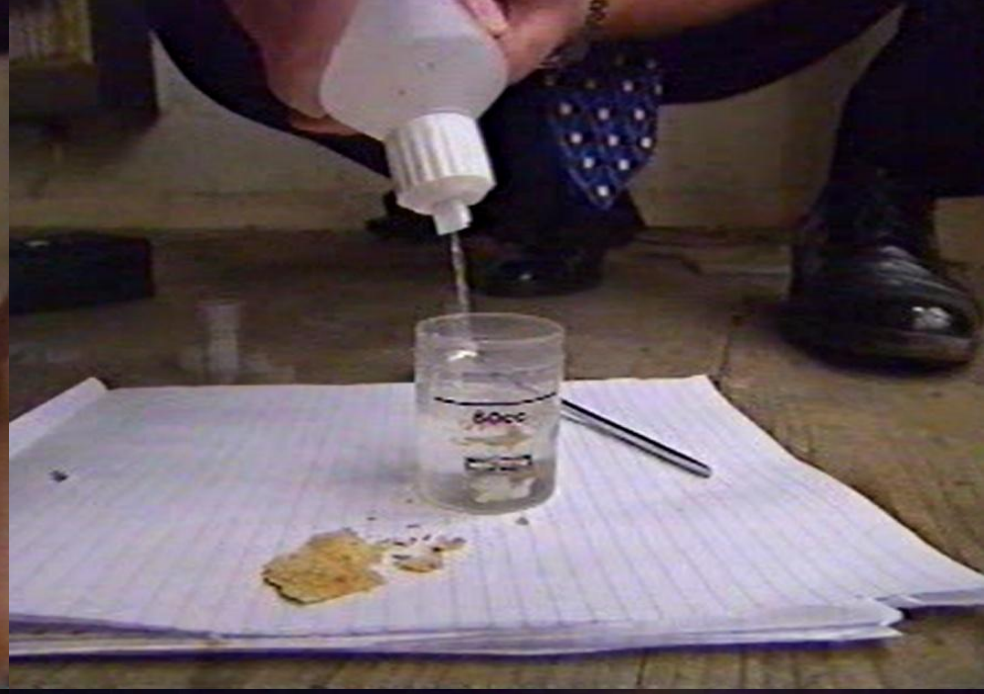
Price: £58.80 Incl VAT

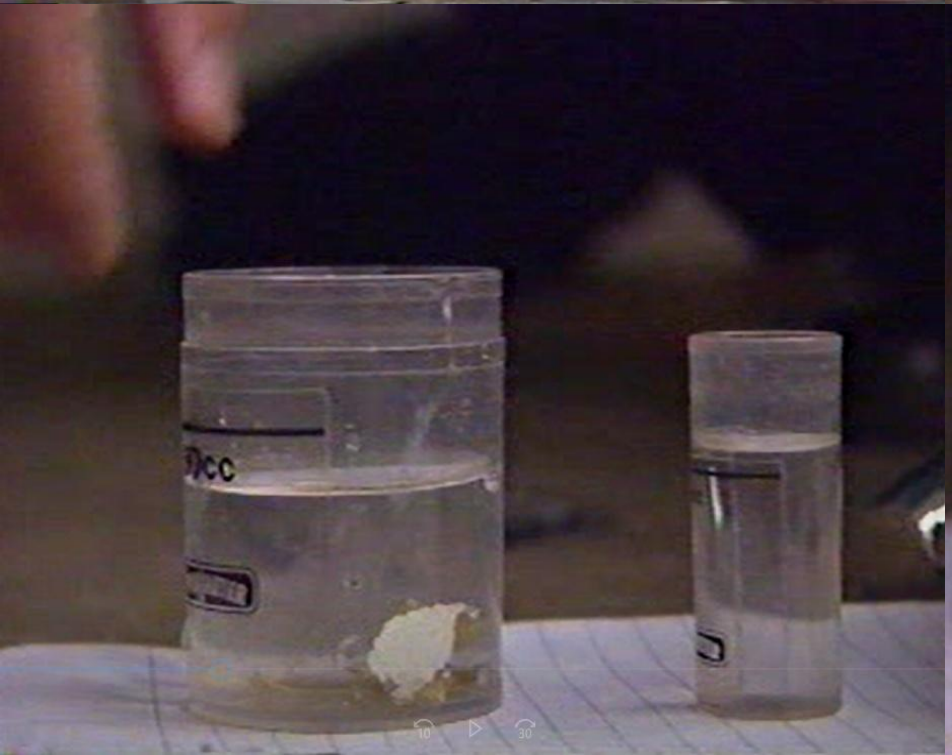
Add to Cart

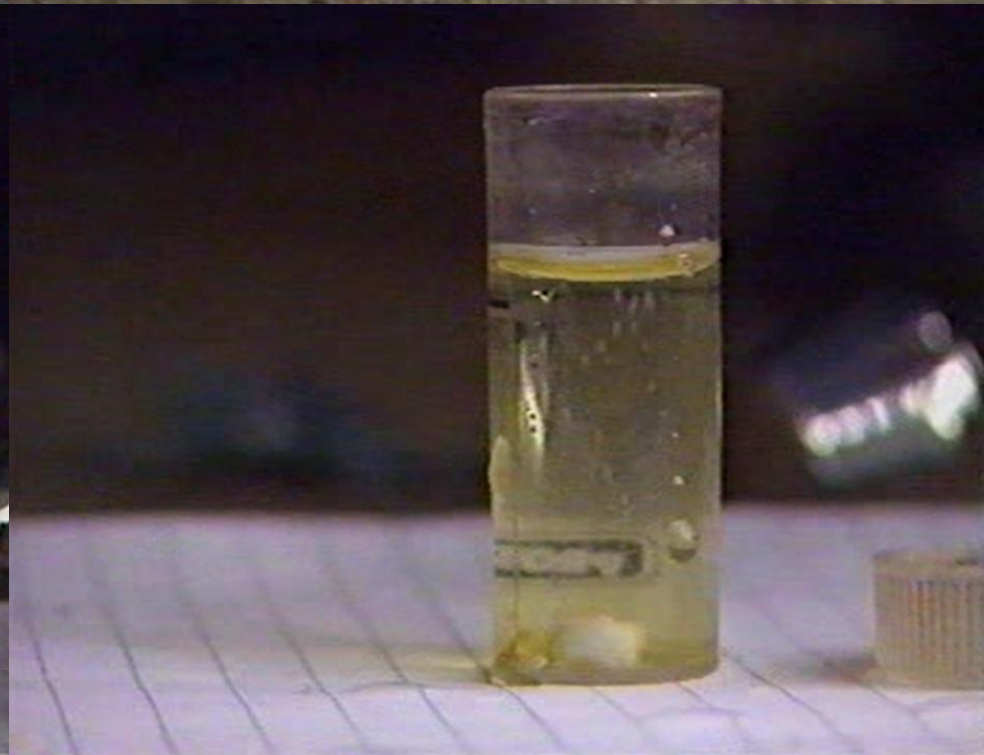



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DISTILLED
WATER
60cc


60cc











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Gravimetric – oven drying method of damp testing to BRE 245

Accurate **quantitative** readings	Requires calibration of scales and hygrometer plus specialist lab oven
Very fast for multiple readings and concurrent test results	Slow for 'one off' readings
Allows separation of hygroscopic and free moisture in one sample	Expensive set up and maintenance costs
Easy compliance with BRE 245	Destructive
Samples undamaged for further analysis	Interpretation of the results requires training and experience



Two profiles being 'air dried at 75%RH before oven drying (essential to calculate the hygroscopic moisture content). BRE 245

Reading the above you can see some shared pros and cons. Comparing the tables reveals some obvious differences – only the electronic meters are non-destructive and quick for profiling on site (multiple tests very fast).

Only the chemical moisture meter and gravimetric methods offer **quantitative results**, acceptable for a BRE245 test.

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MMS2 RANGE

Sort by Price, low to high



Protimeter MMS2 Basic Package

£676.00 exc. VAT
£811.20 inc. VAT



Protimeter MMS2 Standard Package

£768.00 exc. VAT
£921.60 inc. VAT



Protimeter MMS2 Basic Survey Package

£847.00 exc. VAT
£1,016.40 inc. VAT



Protimeter MMS2 Survey Package

£899.00 exc. VAT
£1,078.80 inc. VAT



Protimeter MMS2 Restoration Package

£965.00 exc. VAT
£1,158.00 inc. VAT

http://www.amphenol-sensors.com/microsites/protimeter/MMS2

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The MMS2.

It takes the "all-in-one" concept to a whole new level.

Introducing the Protimeter MMS2, the world's most advanced all-in-one moisture meter.

WATCH THE VIDEO ▶ SEE THE 3D INTERACTIVE DEMO ▶



OVERVIEW | FEATURES AND BENEFITS | APPLICATIONS | OPTIONS

Protimeter MMS 2

Four-In-One Moisture Measurement System



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Smaller Humidity Sensor
A small humidity sensor is housed at the rear of the instrument based on the Hygrostick. This reduces the overall dimension of the instrument. However, if the user requires the digital Quickstick, this can be attached.



Direct Moisture Measurements
The Protimeter MMS2 incorporates two metal pins housed at the top of the instrument to undertake direct moisture measurements. Similarly measurements using the radio mode can be undertaken as normal through a sensor housed on the reverse of the instrument.



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Protimeter MMS2 features non-contact Surface Temperature (IR) laser thermometer



Protimeter MMS2 features a Quikstick ST sensor for rapid response readings



Protimeter MMS2 can be supplied with a range of kit options including a hard case

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Protimeter Mini
Protimeter Aquant2
Protimeter Surveymaster2
Protimeter Hygromaster
Protimeter Psyclone
Protimeter Timbermaster
Protimeter MMS2
Protimeter Salt Analysis Kit
Protimeter Speedy Moisture Meter

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DIGITAL HYGROMETER

BASIS OF TEST

The codes of practice BS 8203 (Installation of resilient floorcoverings), BS 5325 (Installation of textile floorcoverings) and BS 8201 (Installation of wood floorcoverings) recommend that dampness testing is carried out using a hygrometer. The hygrometer measures the Relative Humidity (R.H.) of a small volume of confined air in equilibrium with the subfloor, but isolated from the surrounding air. The base can be considered dry enough to install most floorcoverings if a series of tests produce readings not exceeding 75% R.H. (65% R.H. for solid timber floorcoverings). For wood floorcoverings consult the suppliers for further advice.

CONTENTS

A calibrated Digital Hygrometer in an insulating box, butyl sealing tape and a technical data sheet.

The Digital Hygrometer incorporates an accurate thermo hygrometer that indicates both relative humidity and air temperature. The measuring range is 20% - 99% R.H., with a temperature range of 0°C – 50°C. The thermo hygrometer will record minimum and maximum values whilst it remains switched on. This memory will be lost when the instrument is switched off.

Spare butyl tape is available to order as a separate item.

https://www.amphenol-sensors.com/microsites/protimeter/MMS2FlooringKit

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The MMS2 Flooring Kit

Unrivaled Moisture Testing for Concrete Floor Slabs



Introducing the Protimeter MMS2 Flooring kit
A multi function moisture meter with the most innovative humidity sleeves system available.

WATCH THE VIDEO ▶

OVERVIEW | FEATURES AND BENEFITS | APPLICATIONS | OPTIONS

http://www.amphenol-sensors.com/microsites/protimeter/MMS2FlooringKit



1. Humidity Sleeves









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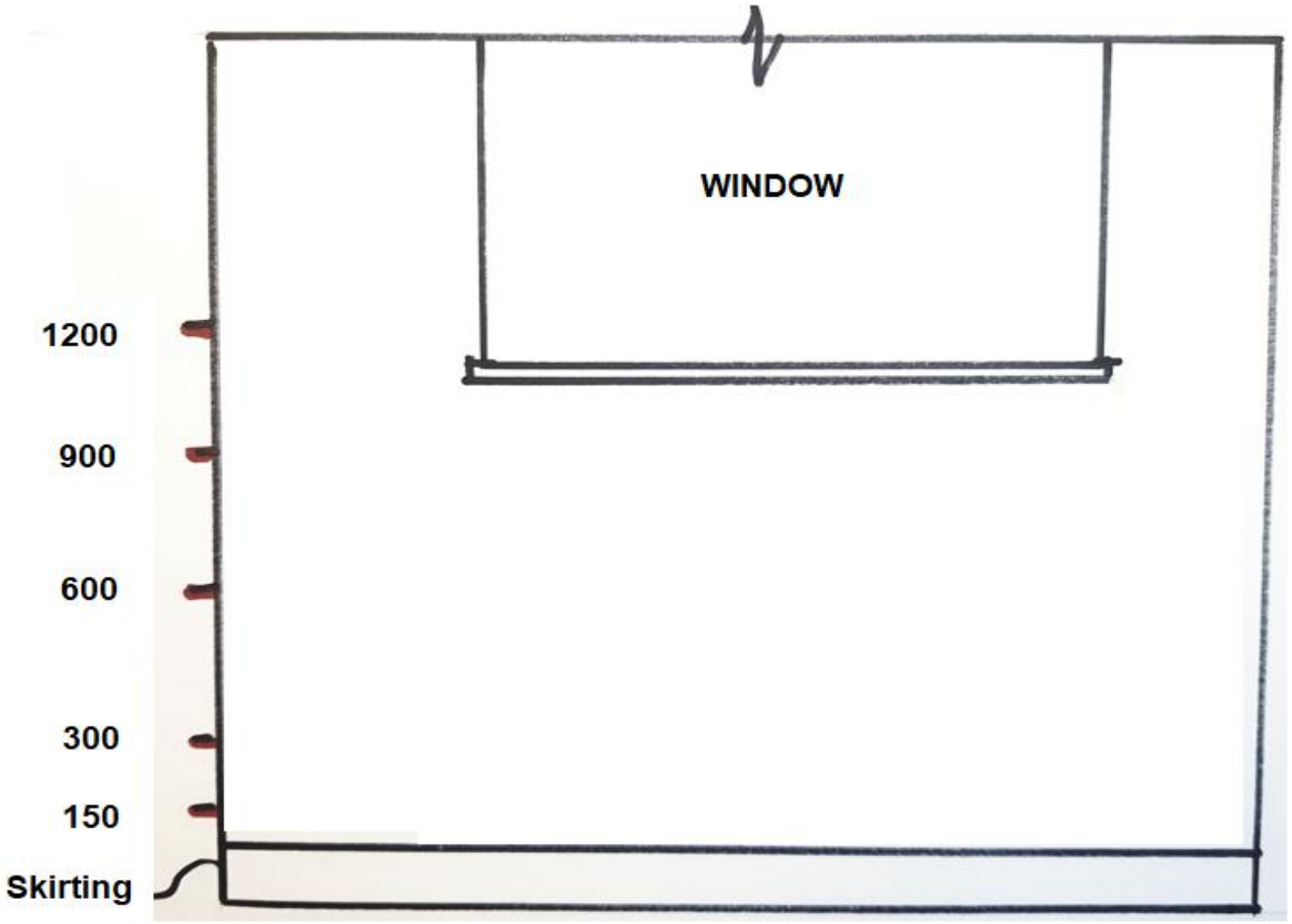







823

INTERNAL WALL ELEVATION



	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
1.200mm	90% wme	8%	45%	100%	12%	9%
900mm	70%wme	20%	35%	100%	9%	9%
600mm	40% wme	80%	45%	100%	12%	12%
300mm	9% wme	85%	16%	100%	17%	85%
150mm	8%wme	90%	34%	100%	98%	98% (see patch)
Skirting board	4%wme	64%	24%	4%	64%	45%

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Profiling

	Penetrating damp	Rising damp	Condensation	Foil behind the surface (wall is dry)	Plaster Bridging	Active rising damp just started
1.200mm	90% wme	8%	45%	100%	12%	9%
900mm	70%wme	20%	35%	100%	9%	9%
600mm	40% wme	80%	45%	100%	12%	12%
300mm	9% wme	85%	16%	100%	17%	85%
150mm	8%wme	90%	34%	100%	98%	98% (see patch)
Skirting board	4%wme	64%	24%	4%	64%	45%

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Extendable video endoscope



Stanley STHTO-77363 ...
£89.99
Screwfix.com



Inspection Camera with ...
£59.99
Maplin Electron...



Borescope with Telescoping ...
£975.60
pce-instruments...



2.7" Endoscope Borescope ...
£55.00
eBay



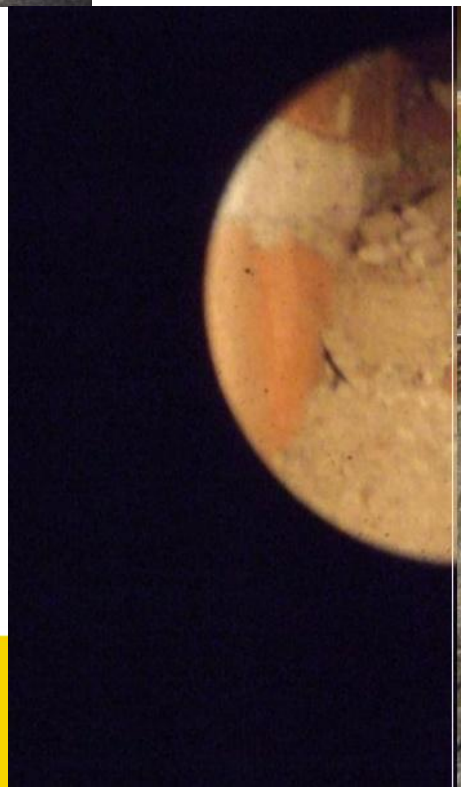
USB Endoscope Borescope ...
£5.24
LightInTheBox



bipol

Articulating video endoscopes


2017. 8 14 14










Wall Temperature Gun





Fluke 62 Max Infrared Thermometer

The Fluke 62 MAX infrared thermometers are small in size, extremely accurate and very easy to use.

0 Review(s) | Add Your Review

Next Day Delivery (subject to availability)

£54.95 (£65.94 including VAT @ 20%)

~~£94.80~~

- -30 °C to 500 °C
- Adjustable Emissivity
- Single Laser
- Min/Max/Avg/Dif

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How To Use The Fluke 62 Max

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Handy Reviews

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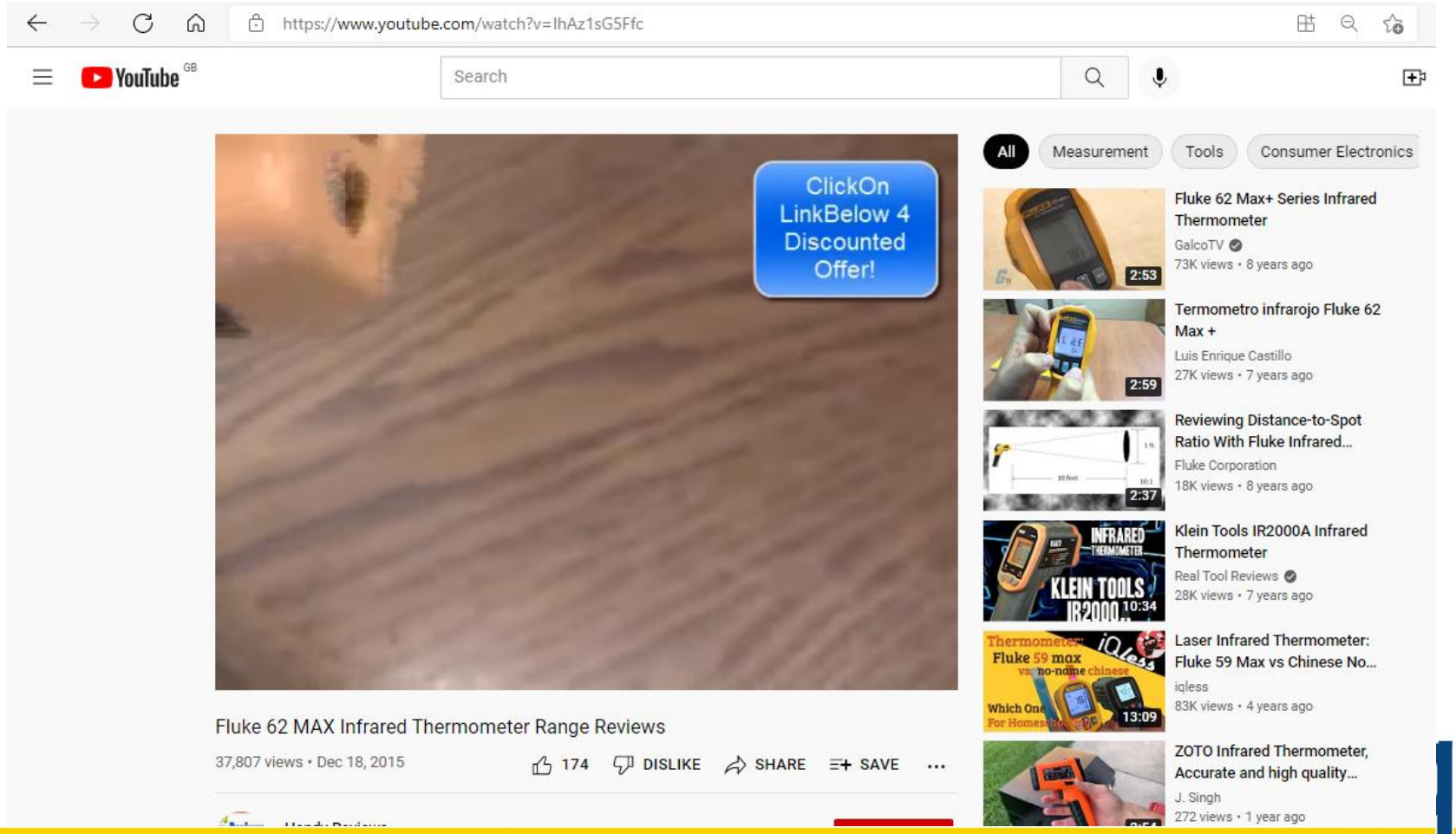


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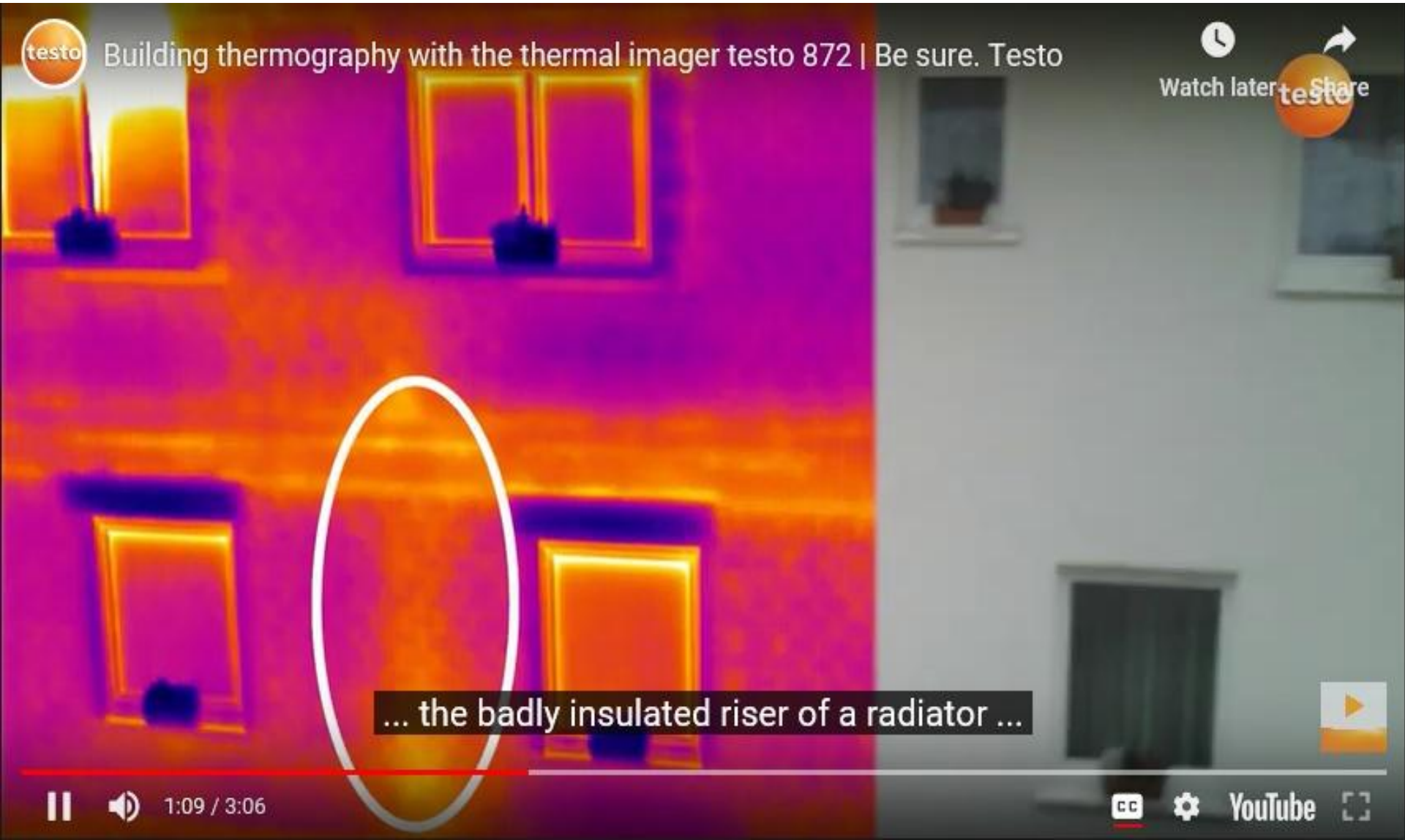
Gutter Seam Leaks





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https://www.google.com/search?ei=zYn6XIuoDPrggwefkYhI&q=how+to+use+a+thermal+imaging+camera+for+building+defects+on+you+tube&oq=how+to+use+a+thermal+imaging+camera+for+building+defects+on+you+tube&gs_l=psy-ab.12...27334.36531..38697...1.0..0.113.1991.20j2.....0....1..gws-wiz.....0i71.1jG9RAmL52o#kpvalbx=1



Types

(±2% humidity, ±0.4ºC)



www.zeta-tec.co.uk/



w.grant.co.uk/

(±3% humidity, ±0.01ºC)



www.geminidataloggers.com



http://www.lascarelectronics.com/data-logger/



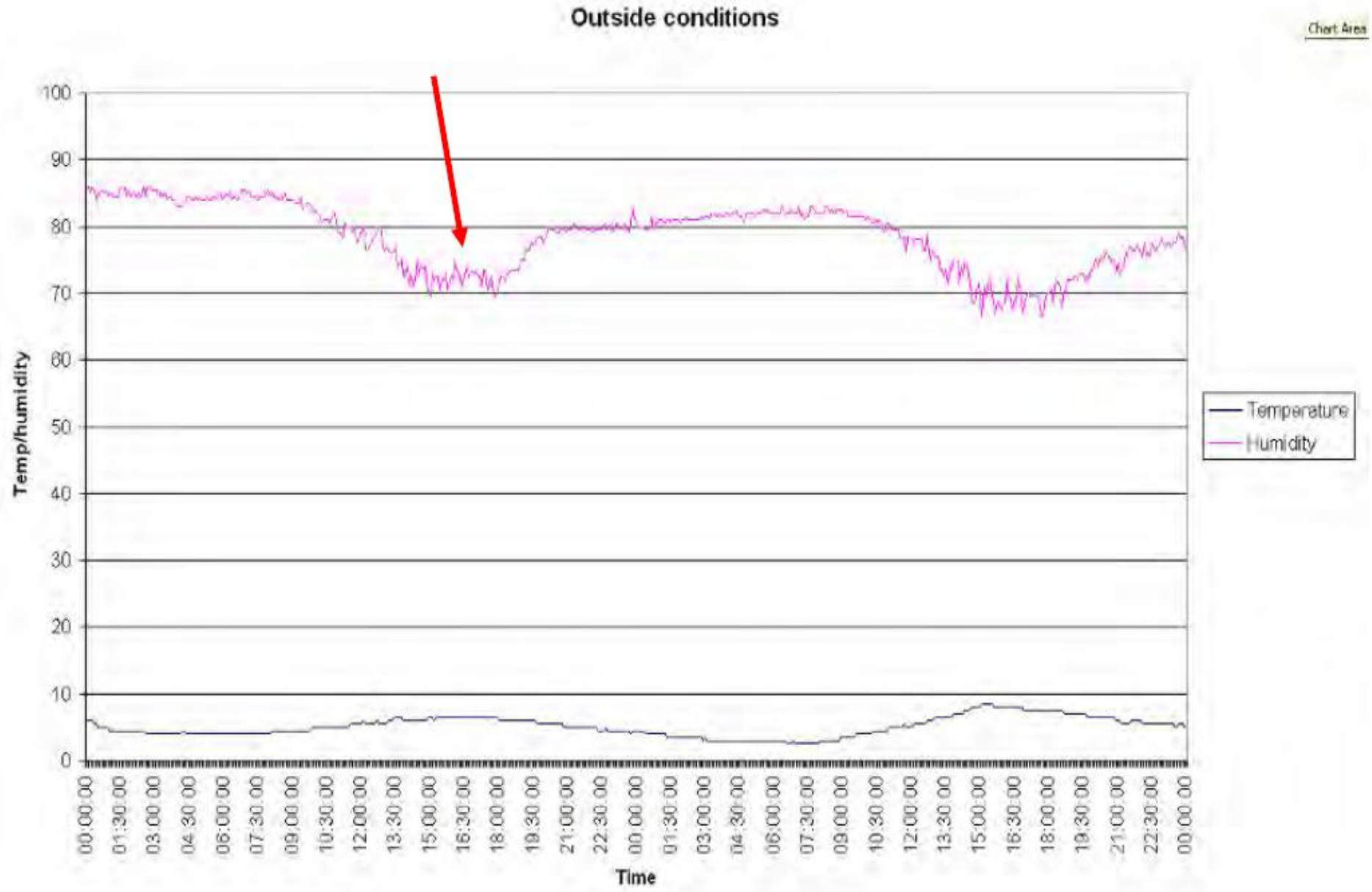
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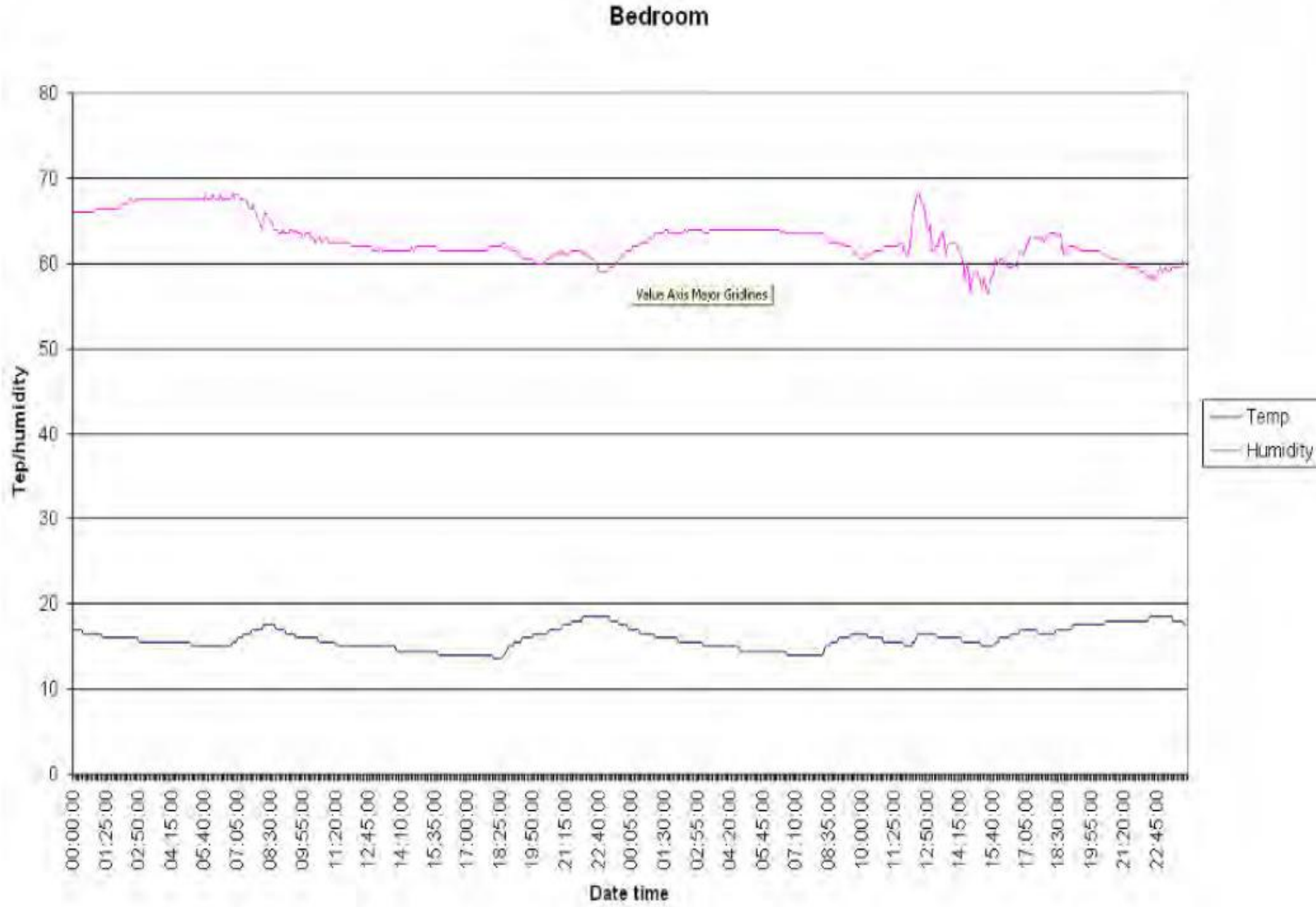
From Sheet 1 in ‘Example One’

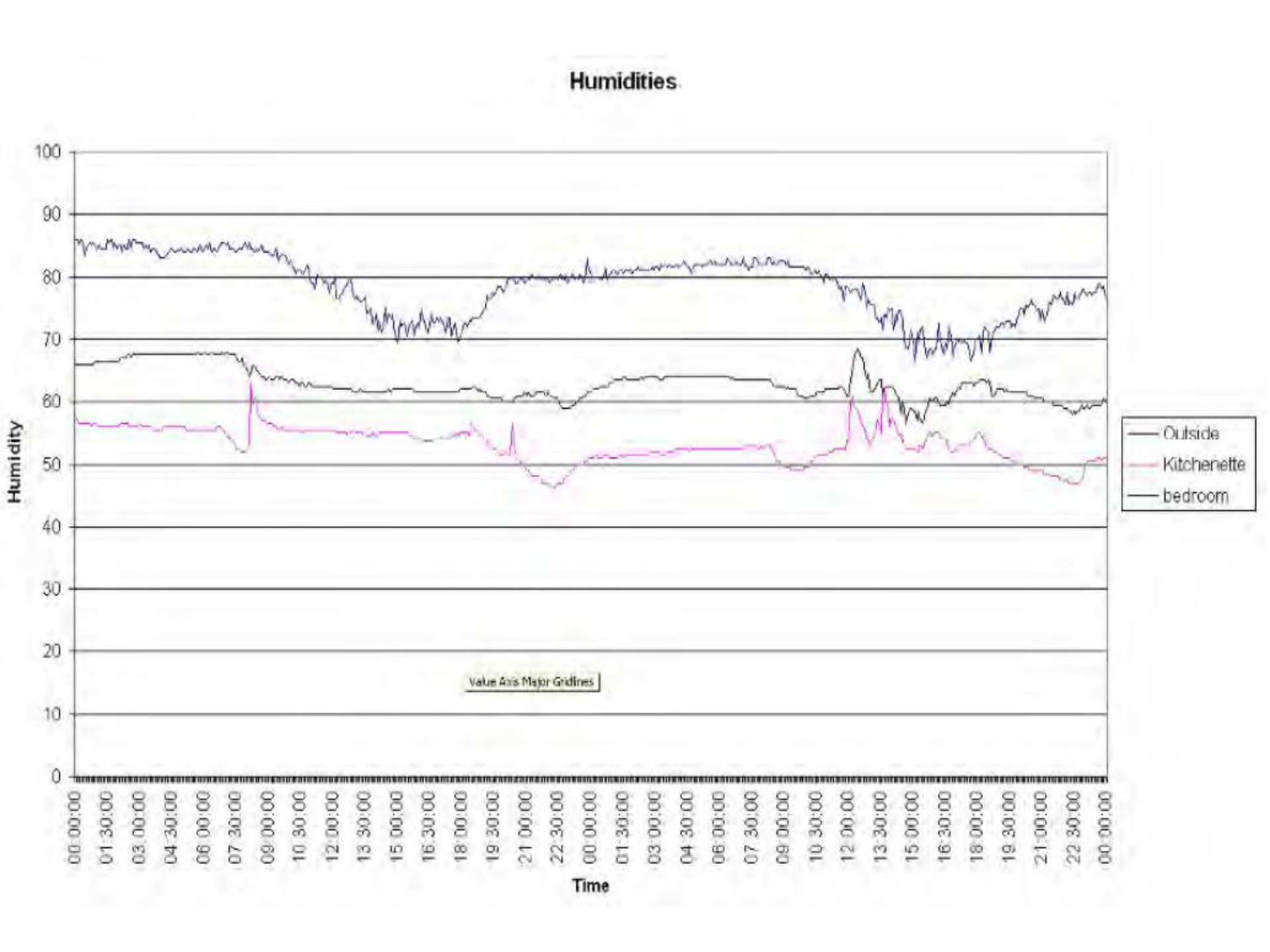
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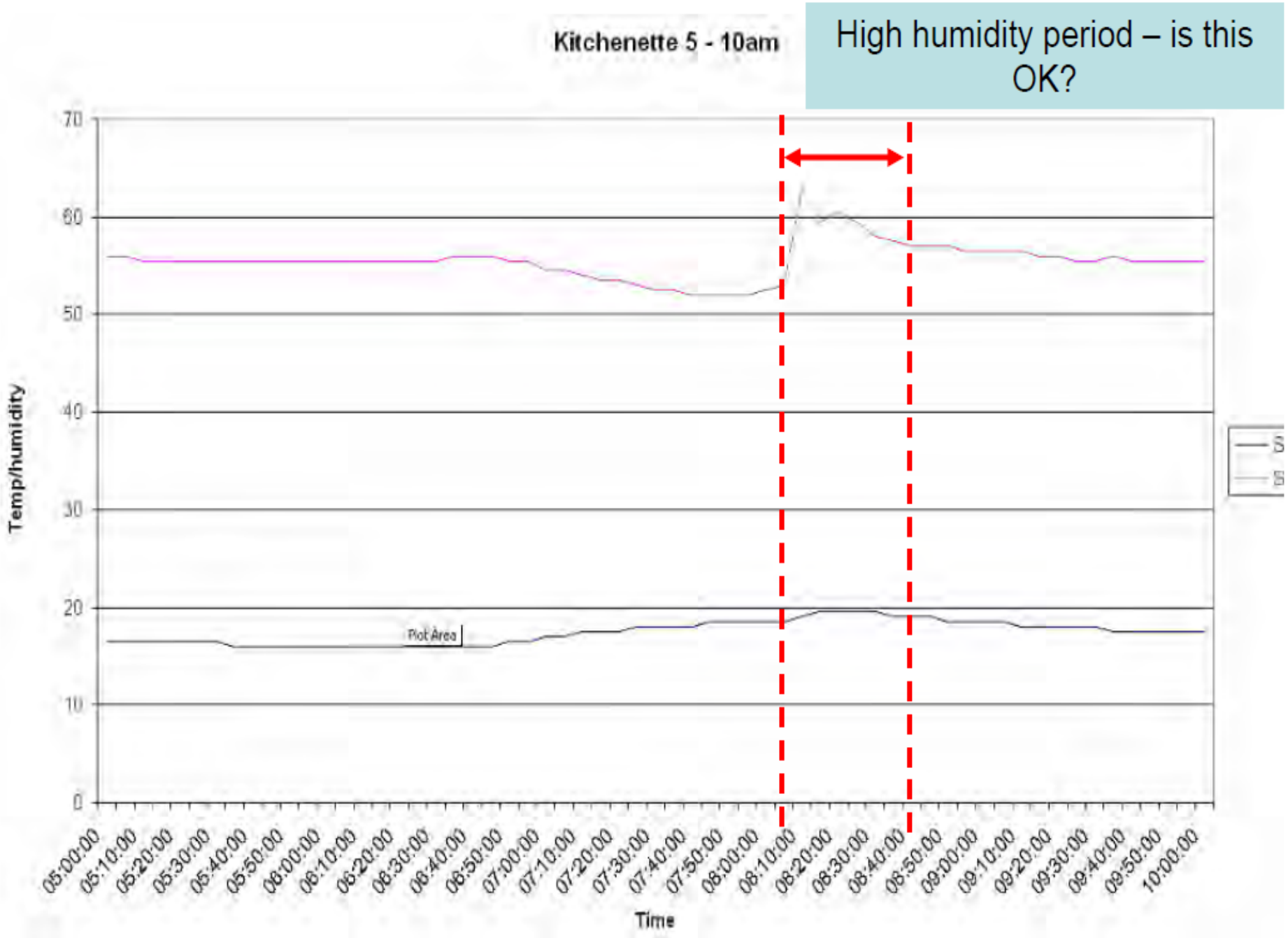
	A	B	C	D	E	F	G	H	I	J
1										
2			**Outside**			**Kitchenette**			**Bedroom**	
3	Date	Time	Temp	RH		Temp	RH		Temp	RH
581										
582										
583	**Average**		**5.1**	**78.56**		**18.01**	**53.1**		**15.94**	**62.8**
584	Above 65%			577			0			105
585	% above 65%			100			0			18.2
586										
587										

Number of readings above 65%


Outside conditions
Chart Area
Temp/humidity
100
90
80
70
60
50
40
30
20
10
0
Temperature
Humidity
00:00:00
01:30:00
03:00:00
04:30:00
06:00:00
07:30:00
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12:00:00
13:30:00
15:00:00
16:30:00
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22:30:00
00:00:00
Time


Bedroom
80
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50
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30
20
10
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Tep/humidity
Value Axis Major Gridlines
Temp
Humidity
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01:25:00
02:50:00
04:15:00
05:40:00
07:05:00
08:30:00
09:55:00
11:20:00
12:45:00
14:10:00
15:35:00
17:00:00
18:25:00
19:50:00
21:15:00
22:40:00
00:05:00
01:30:00
02:55:00
04:20:00
05:45:00
07:10:00
08:35:00
10:00:00
11:25:00
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21:20:00
22:45:00
Date time

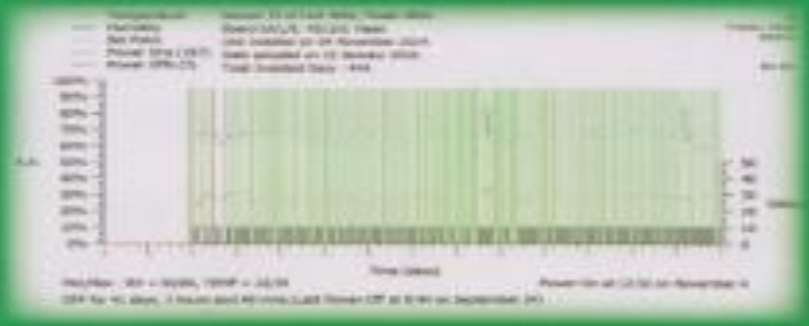

Humidities
Humidity
100
90
80
70
60
50
40
30
20
10
0
Value Axis Major Gridlines
00:00:00
01:30:00
03:00:00
04:30:00
06:00:00
07:30:00
09:00:00
10:30:00
12:00:00
13:30:00
15:00:00
16:30:00
18:00:00
19:30:00
21:00:00
22:30:00
00:00:00
01:30:00
03:00:00
04:30:00
06:00:00
07:30:00
09:00:00
10:30:00
12:00:00
13:30:00
15:00:00
16:30:00
18:00:00
19:30:00
21:00:00
22:30:00
00:00:00
Time
Outside
Kitchenette
bedroom

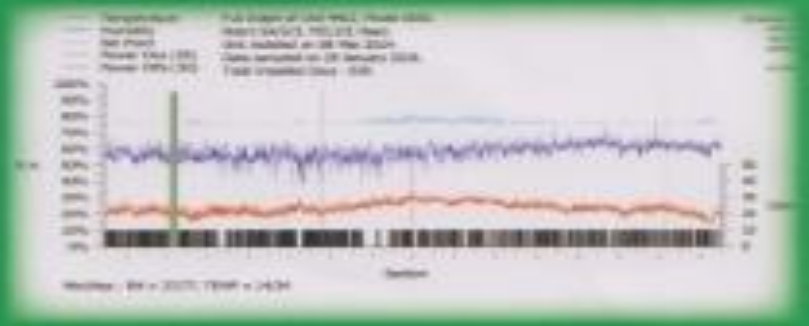

Kitchenette 5 - 10am
High humidity period – is this OK?
Temp/humidity
Time
Plot Area
70
60
50
40
30
20
10
0
05:00:00
05:10:00
05:20:00
05:30:00
05:40:00
05:50:00
06:00:00
06:10:00
06:20:00
06:30:00
06:40:00
06:50:00
07:00:00
07:10:00
07:20:00
07:30:00
07:40:00
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09:00:00
09:10:00
09:20:00
09:30:00
09:40:00
09:50:00
10:00:00

DataFan *Putting You in Control*





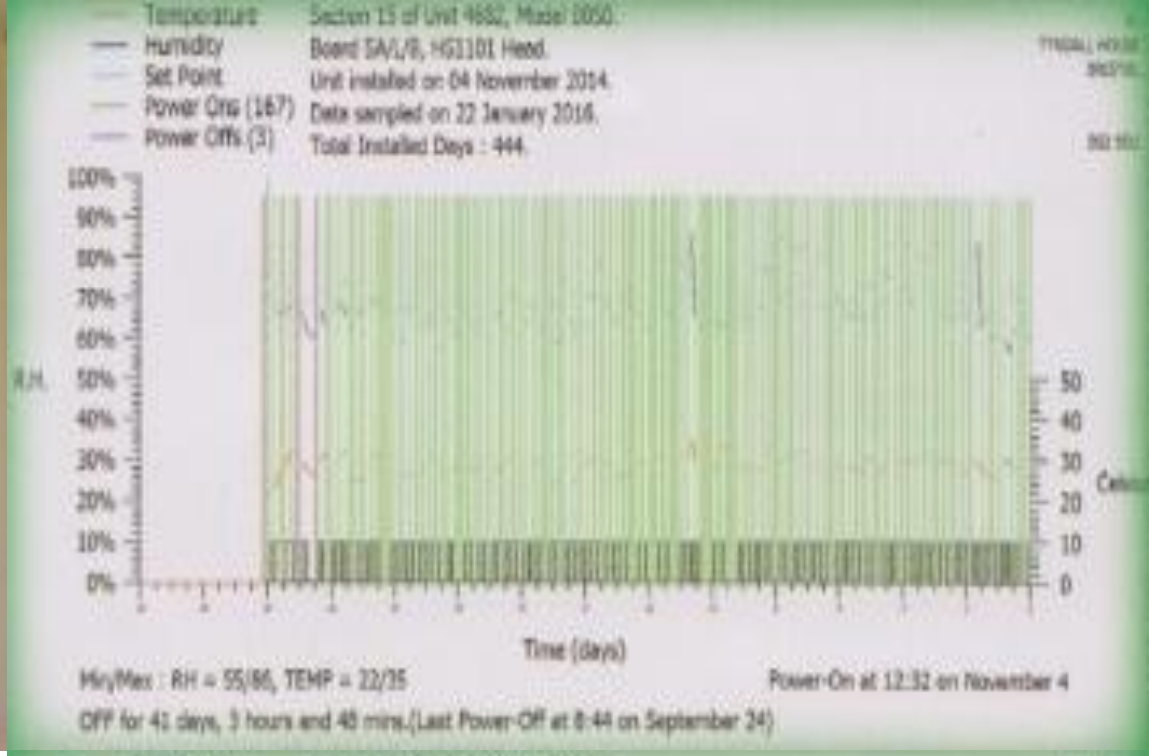


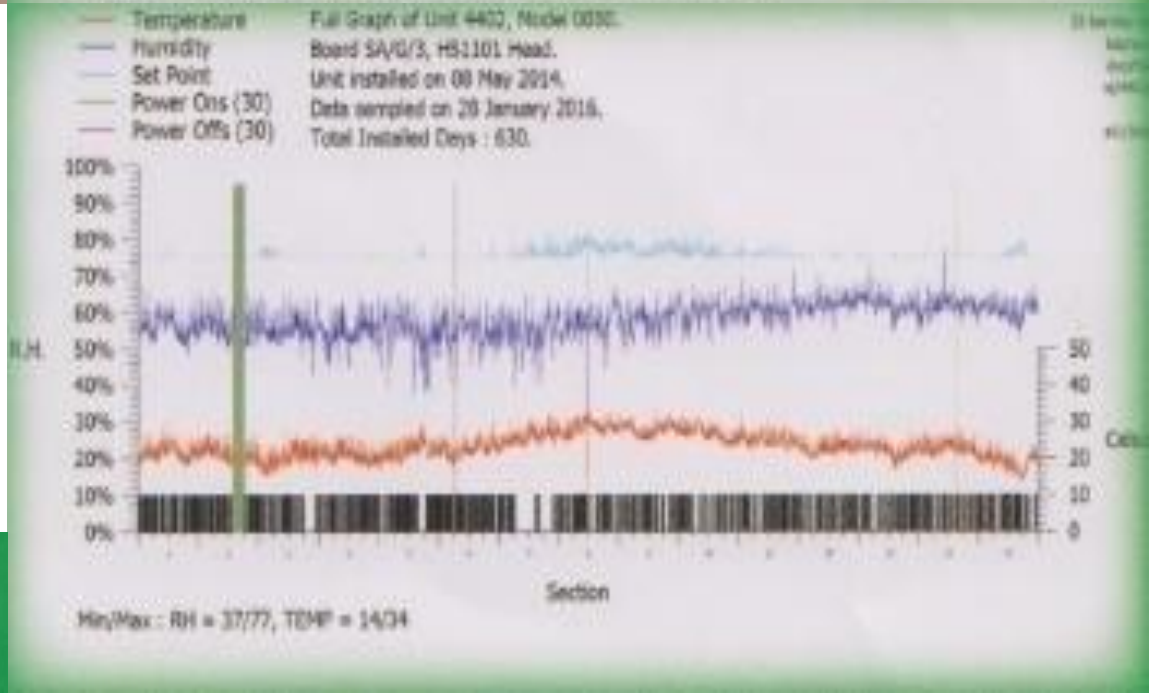


Vital for disrepair cases, high level complaints or ongoing mould and condensation issues.

For more information and details on how this fan can help you please fill in the form on the back.

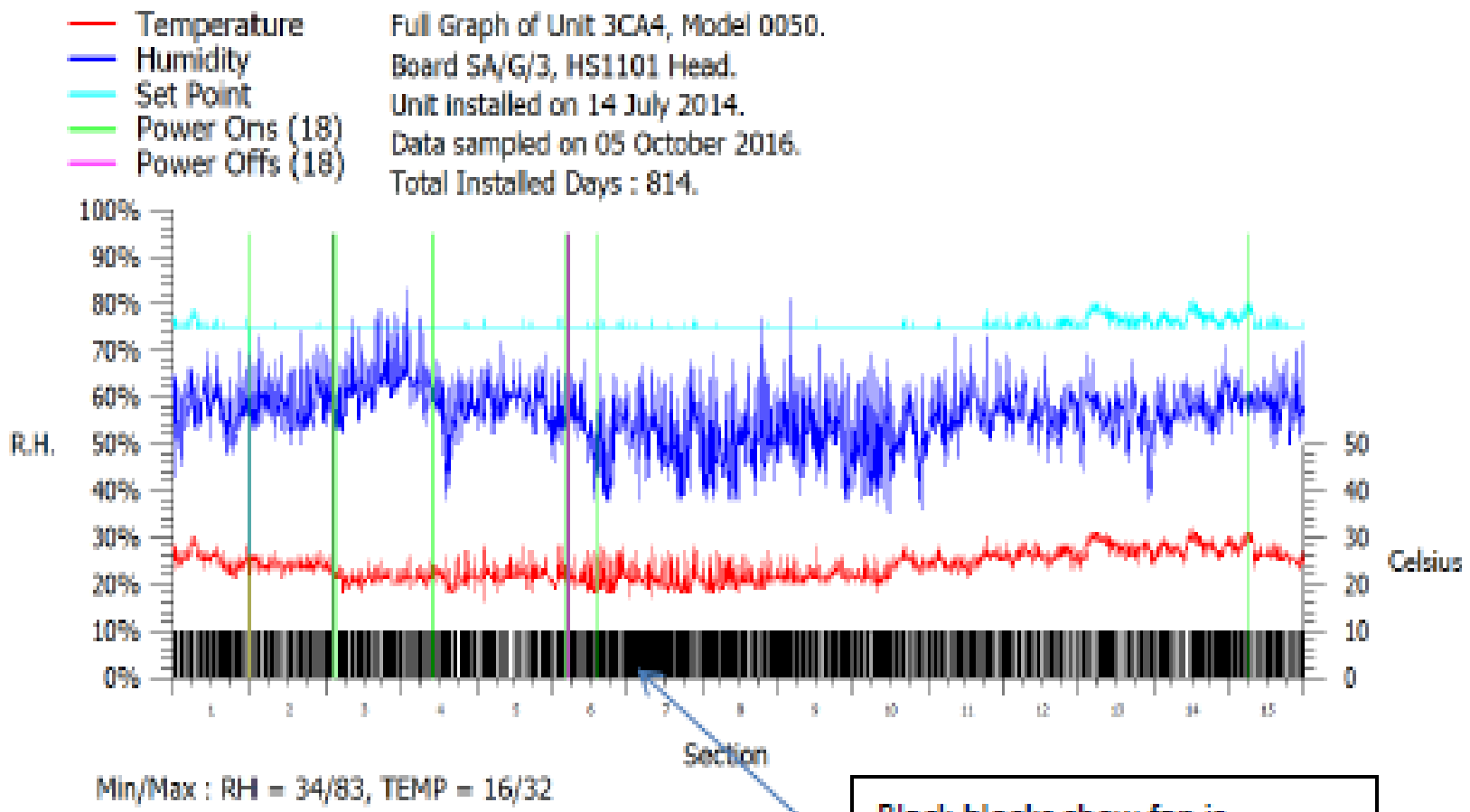






Vital for disrepair cases, high level complaints or ongoing mould and condensation issues.

Bathroom full graph



Black blocks show fan is working very hard; a warning sign of underlying damp issues/ lacking airflow or ventilation in other areas.



Testo 417 Digital 100mm Vane Anemometer Kit 1

Part Number : COR.C004513

£315.00 Ex VAT
£378.00 Inc VAT

1 Qty

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Add To Favourites

In remote warehouse , delivery 3-5 days

Be sure. testo

Easy, fast and precise measurement of flow, volume flow and temperature at air inlets and outlets

Efficient regulation of balanced residential ventilation and fast documentation with the testo Smart App

Fast in-app configuration, graph history, second screen and measurement data memory in the testo Smart App

Timed and multi-point mean calculation

hqn
teamnet

- AdviseTenant of runing cost of an Envirovent filterless fan – (costs based on Oct 2022 electricity prices)

Filterless Fan

Setting	Annual Cost
Bathroom	£4.47
Kitchen	£11.67

