

# OptiCal Humidity Calibrator



The OptiCal is a premium calibration solution for humidity sensors. The stand-alone and transportable calibrator requires no external services other than mains power, and features an integrated chilled mirror reference instrument to enable the operator to perform calibrations that are traceable to national standards.

The calibration chamber features 5 interchangeable ports to accommodate virtually any brand, type or model of sensor. The environment within the insulated calibration chamber is temperature controlled using a 4-zone fan-assisted Peltier arrangement for maximum stability, and minimum temperature gradient. The humidity of the circulating air is precisely regulated using a closed-loop control system that functions by proportionally mixing flows of dry and saturated air.

A bright and clear VFD (vacuum fluorescent display) displays the parameters measured by the reference instrument in various relative and absolute humidity units, alongside the temperature within the chamber.

The humidity and temperature set-points can be controlled either manually or automatically as part of a calibration program. Manual control is achieved by the switches on the front panel and response time to a humidity or temperature step change is typically quicker than 10 minutes. The supplied application software allows calibration programs to be created, enabling automatic time-based control of temperature and humidity set points. The software also allows the user to monitor, chart and log calibration reference data on a PC for later analysis.

The OptiCal is supplied with an integrated Optidew chilled mirror reference instrument with traceable calibration to national standards, which provides measurement integrity and traceability for the sensors being calibrated.

The desiccant changes color to indicate when it needs to be recharged, and is visible through a clear window on the front of the unit. Recharging the desiccant is simply a matter of heating it in a conventional oven at +150°C (+302°F) for 3 hours. The water reservoir at the front of the unit shows the current saturator fill level, and makes it easy to top-up with distilled water when required. No other maintenance is necessary, apart from periodic calibration of the chilled mirror reference.

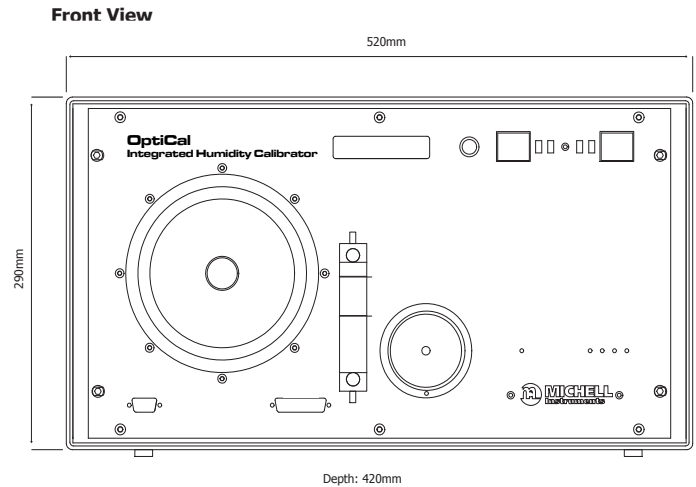
## Highlights

- Simple operation and maintenance
- Excellent chamber stability and uniformity
- Manual control or optional straightforward automated set point programming
- Generate 10 to 90% RH over +10 to +50°C (+50 to +122°F) temperature
- Built in precision chilled mirror reference instrument
- Transportable to allow on-site calibrations

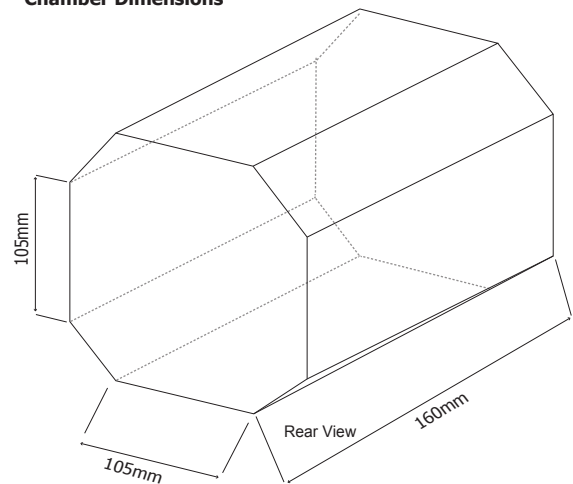
## Technical Specifications

Humidity	
<b>Generated range</b>	10 - 90% RH
<b>Control element accuracy</b>	≤ ±1% RH (10-70% RH) ≤ ±1.5% RH (70-90% RH)
<b>Stability</b>	±0.2% RH (20-80% RH)
Temperature	
<b>Generated range</b>	+10 to +50°C (+50 to +122°F) (lowest T set point = 10°C (18°F) below ambient)
<b>Accuracy</b>	±0.1°C (±0.18°F)
<b>Stability</b>	±0.1°C (±0.18°F)
Chamber	
<b>Ramp rate from</b>	
+20 to +40°C (+68 to +104°F)	1.5°C / minute (2.7°F / minute)
+40 to +20°C (+104 to +68°F)	0.7°C / minute (1.2°F / minute)
<b>Control element</b>	Removable relative humidity sensor
Reference	
<b>Accuracy</b>	
<b>Dew Point</b>	±0.2°C (±0.36°F)
<b>Temperature</b>	±0.1°C (±0.18°F)
<b>Measurement units</b>	
<b>Dew Point</b>	(°C/°F), % RH
<b>Temperature</b>	(°C/°F), gm <sup>-3</sup> , gkg <sup>-1</sup> , water activity (a <sub>w</sub> )
<b>Outputs</b>	
<b>Analog</b>	4-20 mA or 0-20 mA over user-settable output
<b>Accuracy</b>	±0.2°C (±3.6°F)
<b>Digital</b>	500 Ω maximum load resistance
<b>Alarm</b>	RS232 @ 9600 baud rate Volt free contact, 30 V, 100 mA maximum
General	
<b>Probe ports</b>	Up to 5 - sensor body diameters 5 to 25mm (0.2 to 0.98") accommodated by port adapters
<b>Chamber volume</b>	2000cm <sup>3</sup> (112.1in <sup>3</sup> )
<b>Chamber dimensions</b>	105 x 105 x 160mm (4.13 x 4.13 x 6.3") (w x h x d)
<b>Instrument dimensions</b>	290 x 520 x 420mm (11.4 x 20.5 x 16.5") (h x w x d)
<b>Set-point resolution</b>	0.1 for humidity and temperature
<b>Displays</b>	2 line Vacuum Fluorescent Display
<b>Supply</b>	85 to 264 V AC, 47/63 Hz, 150 VA
<b>Weight</b>	20kg (44lbs)

## Dimensions



### Chamber Dimensions



Michell Instruments adopts a continuous development program which sometimes necessitates specification changes without notice.  
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