HygroCal100
Humidity Validator

A new, compact, portable system for simple automated validation of relative humidity probes.

Highlights

- Truly portable at 3.2kg (7lbs), and completely self-contained
- Intuitive UI makes automating probe verification simple
- Integral battery pack means validation can be done without access to services
- Validate 7 probes simultaneously
- Automated validation procedures for complete hands-off probe verification
- Internal calibration correction cycle ensures continued confidence
- Optional chilled mirror reference hygrometer, allowing use as a calibrator
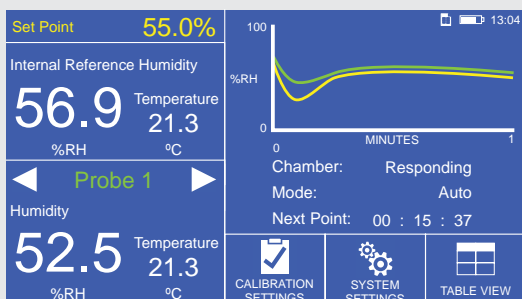- Download logged verification data direct to USB memory

Applications

- On-site or in-lab verifications
- Validation of RH probes at pharmaceutical manufacturing facilities
- Validation of RH probes at meteorological offices
- Validation of RH probes in food manufacturing

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HygroCal100 Humidity Validator

The all-in-one validation package for your humidity sensors

The HygroCal100 provides a stable test chamber to quickly evaluate the performance of relative humidity sensors across a wide range of 5 to 95% relative humidity. The intuitive design allows the probes under test to be fully integrated with the chamber and user interface (UI), so up to 7 probes with a variety of diameters and output signals can be powered, monitored and logged simultaneously by one self-contained unit.

A 4.3″ LCD touch-screen runs a powerful UI, which displays all measured values from the reference and probes under test, along with a graphical trend indication of chamber stability. It is also capable of automating complete validation procedures with ease, and providing a complete logged output in csv format straight to your USB memory device, to minimize the time you spend taking readings.

Chamber Integrity

The HygroCal100 has a test chamber milled from a solid piece of Acetal, with minimal sealing points, ensuring the integrity required to maintain <5% RH from laboratory ambient temperatures, and ±0.5% RH uniformity across the chamber.

Portability

The HygroCal100 can optionally be fitted with a high capacity battery pack, which can power the generator and 7 sensors under test for up to 8 hours. The unit can also run from mains power while charging the battery.

An optional hard carry case is also available with the unit. This has space for the HygroCal100 itself, in addition to the battery charger, spare water and desiccant.

Integrate Your Own Reference

The HygroCal interface allows you to assign any hygrometer with an analog output as your reference device, giving you the flexibility to incorporate your traceable reference in your validation routine.

Automated Validation

The HygroCal100's advanced UI allows you to define your own calibration procedure, point-by-point, assigning times to each condition to allow your probes under test to stabilize. The system always waits until the conditions in the chamber are completely stable before beginning the check.

Correct Chamber Control To Your Own Reference

To ensure continual long term stability of the chamber, the in-built calibration correction system can compare the readings of your traceable reference to a range of pre-set generated conditions – making adjustments to the control sensor to ensure that your set point always matches your own reference.

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Technology:
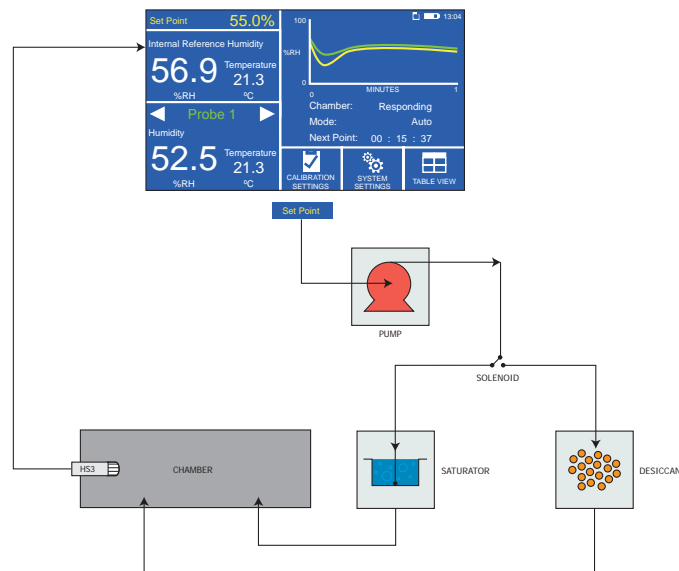# Divided Flow Mixing with
HS3 Control

The simple, low maintenance system can transition between and stabilise on constant humidity conditions very quickly. It features a reservoir for saturation and a reservoir for desiccation. By driving ambient air through either one of these reservoirs and into the chamber, the conditions inside can be quickly altered.

Reliable, Stable Control HS

The HygroSmart HS3 sensor uses the latest Michell H8000 capacitive polymer element, developed as a result of over 40 years experience in making challenging moisture measurements, to give outstanding accuracy across the complete RH range.

- Interchangeable sensor accuracy ±0.8% RH

- ±1% RH long-term stability per year

The sensor stores its own unique calibration data within its integral electronics, ensuring 100% field interchangeability.

Calibration Kits

The HygroCal100 can be supplied with several different combination packages, allowing you to begin making traceable calibration checks immediately.

MDM25

The MDM25 is a portable, battery-operated hand-held hygrometer, which makes an ideal portable reference for use with the HygroCal100. The MDM25 is supplied with a standard probe, which is calibrated traceable to national standards. Also included is a port adaptor, to fit this probe, in the HygroCal100 chamber.
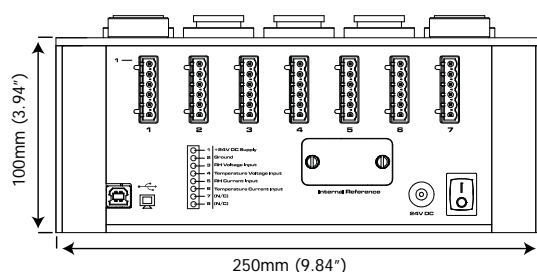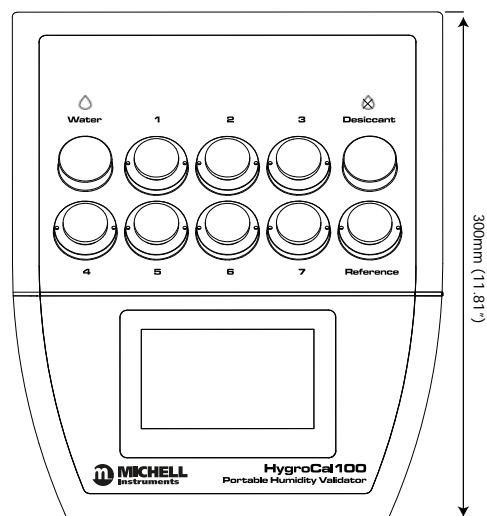
Optidew Vision

The Optidew Vision is a fundamental chilled mirror hygrometer, its high accuracy and repeatability make it the choice for applications where traceability and precision measurements are key. This kit includes port adaptors to fit both the dew-point and temperature sensors into the chamber.

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Technical Specifications

Chamber

Generation range	5 to 95% RH
RH stability	±0.5%
RH uniformity	±0.5%
Stabilization time	Typically <5 min for full stability from step changes of 10% RH

Control Probe

RH accuracy	±0.8%
Temperature accuracy	±0.2°C (±0.36°F)
Long term stability	±1% per year

Electrical Specifications

User interface	4.3″ color LCD with touchscreen
Interface with probes	24V excitation voltage, accepts signals: 0–20 mA, 4–20 mA, 0–1 V, 0–5 V, 0–10 V
Measurement units	%RH, temperature in °C, °F
Displayed resolution	0.1
Data logging	2Gb internal memory available for log files; or 10.6yrs storage at 5s intervals
Battery (Optional)	1500 mAh
Power supply	24 V DC (100 to 240 V AC, 50/60 Hz adaptor included)

Mechanical Specifications

Probe ports	8 - port adaptors to accomodate probes of diameters: 12mm, 13.5mm, 14mm, 15mm, 18.5mm, 19mm, 24mm, 25mm
Chamber volume	Approx 1050cm^3 (64.07in^3)
Maximum probe insertion depth	60mm (2.36″)
Desiccant reservoir capacity	25cm^3 (1.53in^3)
Saturator reservoir capacity	25ml (0.85floz)
Environmental conditions	+5 to +40°C (+41 to +104°F)
Dimensions	100 x 250 x 300mm (3.94″ x 9.84″ x 11.81″) (h x w x d)
Weight	3.2kg (7lbs)

Dimensions

HS This HygroSmart symbol is used to identify any Michell RH product which has an interchangeable sensor.

Related Products

HygroSmart HS3 Probe
Advanced Interchangeable Relative Humidity and Temperature Probe

OptiCal
Humidity Calibrator

MDM25
Hand-Held Hygrometer

Optidew Vision
Dew-Point Hygrometer

S8000 Remote
High Precision Hygrometer

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HygroCal100
Order Codes

To construct the order code, select the relevant feature from the tables below, starting with the base model, which is {Feature A} and then add on options to create a string: {Feature A} + {Feature B} + {Feature C} + {Feature D} + {Feature E} + {Feature F}

Ordering Example: HC100-B2+C1+D1+E1+F1+F1+F1+F1+F6+F6+F6
HygroCal100 with internal battery, MDM25 calibration kit, Transport case, euro power supply, 4x 12mm port adaptors and 3x 19mm port adaptors

HC100	B2	C1	D1	E1	F1, F1, F1, F1, F6 ,F6, F6

Base Model {Feature A}

Portable Humidity Validator + 7 probe input connectors, 8 user specified port adapters, port adapter tool, syringe and desiccant.	HC100

Calibration Kit {Feature B}

No additional calibration equipment	B1
Calibration kit 1 (HC100 including MDM25 hand-held hygrometer and probe with calibration certificate and 7 user specified port adaptors)	B2*
Calibration kit 2 (Optidew Vision Chilled Mirror Hygrometer, Optidew port adaptor kit and 6 user specified port adaptors)	B3**

*If option B2 is selected, only 7 port adaptors should be chosen

**If option B3 is selected, only 6 port adaptors should be chosen

Internal Battery {Feature C}

No internal battery	C0
Internal battery	C1

Port Adaptors {Feature F}

Port adaptor 12mm (0.47″)	F1
Port adaptor 13.5mm (0.53″)	F2
Port adaptor 14mm (0.55")	F3
Port adaptor 15mm (0.59")	F4
Port adaptor 18.5mm (0.73")	F5
Port adaptor 19mm (0.75")	F6
Port adaptor 24mm (0.94")	F7
Port adaptor 25mm (0.98")	F8

Power Lead {Feature E}

European power supply	E1
UK power supply	E2
North American power supply	E3
Australian power supply	E4

Transport Case {Feature D}

No transport case supplied	D0
Transport case with foam insert for HygroCal100 and accessories, with bottles for desiccant and water	D1

Accessories and Spare Parts

Item	Product / Description
HC100-CHA	HC100 Power Supply Adaptor
A000171	Spare 0.25kg desiccant
A000172	Spare 3kg desiccant
HC100-TC	Spare carry case
HC100-BOT	Bottles for spare desiccant and water storage
HC100-CMKIT	Optidew/S8000 Remote port adaptor kit (dew point sensor adaptor and pt100 adaptor, including blind stops)
HC100-HS3CON	HygroSmart cable connector
HC100-CON	Spare phoenix connector, screw terminal
HC100-HS3-S-R	Replacement Hygrosmart Sensor, prepared for the HC100
Port Adaptors (8 port adaptors can be specified free-of-charge with a new HygroCal100)	
A000291	Port adaptor 12mm (0.47")
A000292	Port adaptor 13.5mm (0.53")
A000293	Port adaptor 14mm (0.55")
A000294	Port adaptor 15mm (0.59")
A000295	Port adaptor 18.5mm (0.73")
A000296	Port adaptor 19mm (0.75")
A000297	Port adaptor 24mm (0.94")
A000298	Port adaptor 25mm (0.98")

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