

MDM50

Portable Fast-Response Hygrometer

Simple to use and rugged, the MDM50 high-speed portable hygrometer is the ideal tool for a wide range of on-site maintenance spot checks. The robust integral sample system and fast-response polymer moisture sensor provide a quick, accurate moisture measurement in a broad range of dew-point applications.



Highlights

- Rapid spot-check measurements to -60°C (-76°F) dew point
- 16 hours operation between recharging
- Sample at pressure or atmospheric
- Accuracy $\pm 2^{\circ}\text{C}$ ($\pm 3.6^{\circ}\text{F}$) dew point
- Traceable 9-point calibration certificate
- Rugged industrial design
- Compact and simple to use
- Sample connection kits
- Response to -60°C (-76°F) dew point in 3 minutes

Applications

- Compressed air
- Gas generators
- Railway pneumatics
- Plastic molding dryers
- Additive manufacturing
- Instrument air

MDM50 Hygrometer

Fast and Simple Dew-Point Portable

The MDM50 Hygrometer has been designed to make dew-point spot checks down to -60°C (-76°F) dew point as simple and as fast as possible. This completely self-contained instrument weighs just 4kg (8.8 lb) and is delivered ready to use. Simply connect your sample gas to the Quick Connect (or optional Swagelok®) fittings, turn on the instrument, and it will automatically begin to measure/display the dew point of the applied sample.

Extended Field Use

The MDM50 uses a rechargeable NiMH battery pack and is delivered complete with a universal battery charger that fits neatly into the instrument lid. It will operate for up to 16 hours on a full charge.

Fully Integrated Sampling System

The MDM50 is unique among portable hygrometers. Michell Instruments has built into the standard design, a complete sampling system that easily allows you to measure the dew point of any air or gas line, at up to 2 Mpa (20 barg/290 psig) pressure. The two interchangeable inlet/outlet fittings allow you to choose between dew point measured at atmospheric or line pressure, by simply swapping the position of the fittings. An integrated filter housing uses standard filter cartridges and provides 99.5% protection against particles down to $0.3\mu\text{m}$. Optionally, Swagelok® tube couplings can be specified to allow operation of the unit at up to 10 Mpa (100 barg/1450 psig).

Measurement Performance

The portable uses a proven thick-film measurement technology coupled with the latest-generation sophisticated microcontroller electronics to provide accurate and stable measurement across -60 to $+20^{\circ}\text{C}$ (-76 to $+68^{\circ}\text{F}$) dew point.

- Accuracy $\pm 2^{\circ}\text{C}$ ($\pm 3.6^{\circ}\text{F}$) dew point
- Ultra-fast response to moisture changes
- Excellent long-term stability



Field Replaceable Integral Sensor

The advanced thick-film polymer moisture-sensing technology is coupled with the latest microprocessor-based measurement circuitry to produce a 9-point traceable calibrated and interchangeable sensor transmitter module. All calibration data is stored in the sensor memory, so on-site sensor exchange for calibration or service can be performed quickly, by untrained personnel.

Easy to Read

The hygrometer features an extremely clear and bright 0.5" red LED display, making it easy to determine the dew point of your process even in dim conditions or direct sunlight. Michell also provides a 4–20 mA analog output for connection to a chart recorder, data-logger, or computer system, so dew-point trends can be analyzed over time.

Rugged Field-Use Design

The MDM50 is rugged, and easy to carry and use. It is small, with an ergonomic carrying handle, and weighs only 4kg (8.8 lb). The case of the hygrometer provides NEMA 6 protection and the outer case is covered by a lifetime guarantee, so can be returned to the factory for repair or replacement, free of charge.

Reproducibility and Calibration Integrity

The MDM50 thick-film polymer moisture sensors are subject to a 9-point calibration, where their performance is characterized against a fundamental reference hygrometer. This process, and subsequent quality testing, ensures that all sensors behave optimally before they are used in the field.

Traceable Calibration

Each MDM50 is supplied with a calibration traceable to national standards (NPL & NIST) from Michell Instruments' accredited laboratory.

Accessories and Spares

The MDM50 is available with a supporting range of practical accessories and spares that can be stored within the lid of the portable, whilst being used on site:

- Connector fittings
- Filters
- Guards
- Tubing
- Battery pack
- Charger

Customization

If your application requires a customized portable, we have specialized design and manufacturing capability to cover your requirements.

Technical Specifications

Performance Specifications

Measurement Range (Non-standard ranges available on request)	-60 to +20 °C (-76 to +68 °F) dew point
Accuracy	±2 °C (±3.6 °F) dew point
Response Time	T95 to -60 °C (-76 °F) dew point in <3 minutes
Repeatability	0.5 °C (0.9 °F) dew point
Calibration	9-point calibration certificate traceable to national standards

Electrical Specifications

Output Signal	User configurable over range; 4–20 mA (2-wire connection, current source)
Moisture Display/Output	Dew point
Power Supply	Rechargeable NiMH battery pack with 16-hour life from full charge
Battery Charger	Universal battery charger included
Electrical Safety	EN61010-1

Operating Specifications

Operating Temperature	-20 to +50 °C (-4 to +122 °F)
Compensated Temperature Range	-20 to +50 °C (-4 to +122 °F)
Storage Temperature	-20 to +60 °C (-4 to +140 °F)
Maximum Operating Pressure Low-pressure version (LP) High-pressure version (HP)	2 MPa (20 barg/290 psig) 10 MPa (100 barg/1450 psig)
Recommended Flow Rate	1 to 5 NI/min
Sampling System Configuration	Pressurized or atmospheric

Mechanical Specifications

Ingress Protection	NEMA Type 6*
Display Type	Flush mounted 3.5 digit red LED
Carry Case	Yellow Peli propylene case with internal storage of charger, sample tube accessories and output connector
Weight	4kg (8.8 lb)
Sample Block	Stainless steel, fully self-contained sample system with fixed orifice ports for flow control/pressure or atmospheric measurement and built-in filtration using a standard drop-in cartridge
Filter Cartridge	Removes 99.5% of particles ≥0.3µm supplied with cartridge installed. Spare cartridges are available
Sample Connections	Optional: Legris pneumatic fittings 6mm Swagelok® tube fittings 1/4" Swagelok® tube fittings
Sample Tubing Low pressure version (LP) High pressure version (HP)	2m (6.5 ft) of 6mm (1/4") O/D PTFE supplied Metering valve and port adaptor

NOTES * NEMA Type 6 when case closed

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Product Dimensions

