S8000 *Integrale*

High Performance
Precision Dew-point Meter

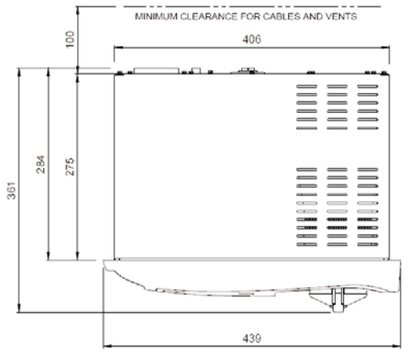
Technical Specifications

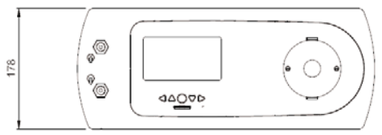
GENERAL	
Measurement range	-60°C to +40°C dew point
Measurement accuracy*	±0.1°C dew point
Stability	<0.05°C
Repeatability	<0.05°C
Measurement units	°C or °F dew point; % rh; gm^{-3}; gkg^{-1}; ppm_V; ppm_W SF_6; $mlmin^{-1}$
Response speed	2°C sec^{-1} + settling time
Power supply	85 to 264 V, 47/63 Hz; 100 VA
Operating temperature range	-20 to +50°C
DEW-POINT SENSOR	
Mirror	Gold plated copper
Temperature measurement	4 wire 100 Ω PRT 1/10 DIN class B
Pressure	2 Barg (for higher pressure consult factory)
FLOW SENSOR	
Measurement range	0 to 1000 $mlmin^{-1}$
DISPLAY UNIT	
Resolution	User-selectable to 0.001 dependant on parameter
Outputs:	
Analogue	Three channels; user-selectable 4-20 mA, 0-20 mA or 0-1 V
Digital	USB, SD Card slot
Alarm	Two volt free changeover contacts, one process alarm, one fault alarm; 1A @ 30 V dc
Cable pack	Supply and USB cables. Output connectors suitable for indoor use
OPTIONAL REMOTE PRT	
Temperature measurement	4 wire 100 Ω PRT 1/10 DIN class B
Measurement accuracy*	±0.1°C
Measurement units	°C or °F
Cable length	2 metres (250 metres max)
OPTIONAL PRESSURE SENSOR (IN-BUILT)	
Measurement range	0 to 2 Barg
Measurement accuracy*	0.25 % Full Scale, typical
Measurement units	Barg; Psig; Kpg; MPag
OPTIONS	
Microscope	
Rack-mount kit (Horizontal version)	
UKAS Calibration	
Transportation case	

*Measurement accuracy means maximum deviation between instrument under test and corrected reference. To this must be added the uncertainties associated with the calibration system and the environmental conditions during testing or subsequent use.

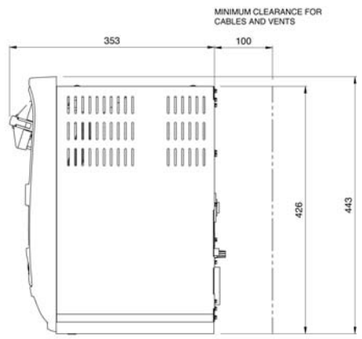
Dimensions

Horizontal Version





Vertical Version



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Please note: The accuracy stated represents the typical variation between the instruments under test and a calibrated and corrected reference.

Please contact us for latest version: S8000 *Integrale*: Ref: S8K-0908

S8000 Integrale

Cooled Mirror Instruments

S8000 *Integrale*

High Performance Precision Dew-point Meter

A reference dew-point meter combining the ultimate measurement sensitivity and accuracy with portability for accurate field or calibration measurements.

Features

- Fundamental, accurate and drift-free measurement
- 1 mK display resolution
- -60 to +40ºC dew point range with 0.1ºC accuracy
- FAST – guaranteed frost formation below 0ºC
- Data logging to USB or SD card
- Multi-language display
- Vertical or horizontal configuration

Applications

- Metrology laboratories
- High voltage switchgear
- Clean / dry rooms
- Pharmaceutical
- Fuel cell research
- ... and many more

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S8000 Integrale

Cooled Mirror Instruments

The NEW Reference Hygrometer

The S8000 *Integrale* continues Michell's tradition of excellence in the design of high performance humidity products. Building from the solid foundations of performance and reliability in its predecessor, the S4000, this new generation dew-point meter adds a multitude of new features and user benefits. The S8000 *Integrale* offers a wider measurement range, major improvement in response speed, a frost assurance system that eliminates any ambiguity over ice/super-cooled water formation, easy mirror cleaning, multi-language display, vertical and horizontal orientations amongst many other improvements.

The self-contained instrument is lightweight and portable, making it equally suitable for laboratory or field measurements, such as verification of process air systems and SF_6 in high voltage switchgear.

Hinged Sensor Head for Easy Access to Clean Mirror Surface

Measurement Range

The S8000 *Integrale* offers class-leading measurement range, down to –60°C dew point. An innovative composite cooling system (Patent Pending) boosts the effective power of the Peltier cooler by more than 25 %, allowing measurements below $10ppm_V$ to be made with ease. Active opto-electronics handle the vast dynamic moisture range with no need for adjustment, making operation fully automatic and trouble-free.

www.michell.com

S8000 *Integrale*

High Performance Precision Dew-point Meter

Clear and easy to read multi-language display

Rear panel:
3 x analogue output
2 x alarm contact
1 x remote temperature measurement
1 x sensor PRT connection

Dual optics

Microscope

Sample gas inlet ports

Data logging: USB and SD card

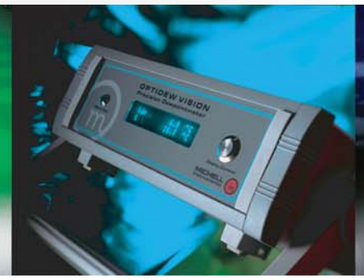
Pressure rated to 20 Barg (200 MPa)

Integrated electronic flowmeter

Related Products

S4000 TRS

Calibration Systems



Optidew Vision

Dew Point Generator

Response Speed

The active opto-electronics, composite cooling system and minimal sensor volume give the S8000 *Integrale* an incredibly fast response speed. Some instruments use water injection to promote condensation, which could potentially contaminate the sensor or gas process. However, the S8000 *Integrale* responds to a frostpoint of –50°C FOUR TIMES more quickly than older instruments, taking only ten minutes to reach stability from ambient conditions.

FAST – Frost Assurance System Technology

In the past, cooled mirror measurements below 0°C dew point were subject to potential error due to the formation of super-cooled water. In the temperature range 0 to around –40°C it is possible for the meta-stable super-cooled water to form on the mirror surface rather than ice. The difference in the respective saturation vapour pressure of these two physical states amounts to approximately 10 % of the measured value below 0°C. The S8000 *Integrale* overcomes this problem by utilising a dynamic control algorithm that predicts the approximate frost-point temperature and forces ice formation on the mirror surface, guaranteeing at all times that frost is formed at temperatures below 0°C. The FAST routine is user-selectable from the display menu.

In addition, the optional mirror microscope allows the type and quality of condensate to be viewed directly. This visual verification provides complete confidence in measurement accuracy.

SF6 switch gear

Measurement Reliability

All of the Michell Cooled Mirror Instruments incorporate an automatic compensation system that periodically re-balances the optics to compensate for any reduction in light intensity caused by contamination of the components in the optical path. The S8000 *Integrale* utilises a system called DCC (Dynamic Contamination Correction). The DCC system is intuitive and adapts the instrument control to the operating conditions to achieve optimum measurement performance at all times. Although the DCC system is fully automatic it can be configured by the user for individual applications.

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