Technical Specification

Measurement range	−70~20℃DP Standard model
Accuracy	±0.2 [℃ DP] or ±2 [ppm], the larger value applies (<20 [℃ DP]) ±(0.2xDP/20)[℃DP](≧20 [℃DP])
Response time	(τ90) -50 ⇔ 0℃ DP: ≦6sec (τ63) 10 ⇔ 90%RH @25℃: 2sec
Range of application	5~40℃, 35…85%RH (no condensation)
Measurement parameter	Dew Point (℃ DP)
Psychrometric calculation	ppmv, ppmw, g/m^3, %RH, Pa (water vapor pressure)
Background gases	Air, N_2, O_2, He, Ar, and mixture of these gases
Analog output	0~5V and 4…20mA (OUTPUT1 / OUTPUT2)
Digital output	RS-232
Alarm	PhotoMOS relay
Power supply	90~250VAC 50 / 60Hz
Dimensions / Weight	W430 x H222 x D450 mm / 22kg

Order Code

Order Code	Technical Specification
TDLAS T-1- N -100V	Standard model 100VAC
TDLAS T-1- N -240V	Standard model 100~240VAC
TDLAS T-1- H -240V	High Dew point model 100~240VAC

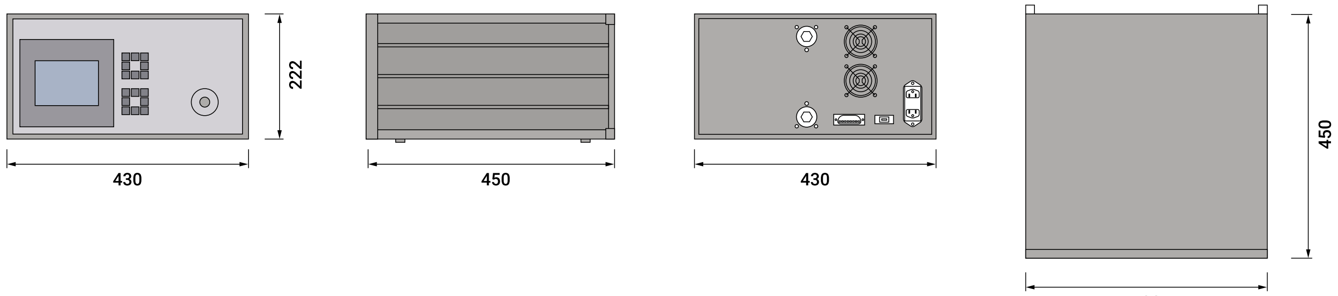
Options

Order Code	Technical Specification
TDLAS-001	19 inch rack mount bracket
TDLAS-002	Temperature sensor
TDLAS-003	Bluetooth to Serial port (RS-232) converter

Dimensions

TDLAS T-1

Front Side Rear Top



Calibration & Repair service

Shinyei provides calibration service traceable to National Metrology Institute of Japan (NMIJ).

SHINYEI

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6-5-2 Minatojima-Minamimachi, Chuo-ku, Kobe 650-0047 Japan
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https://www.shinyei.co.jp/stc/

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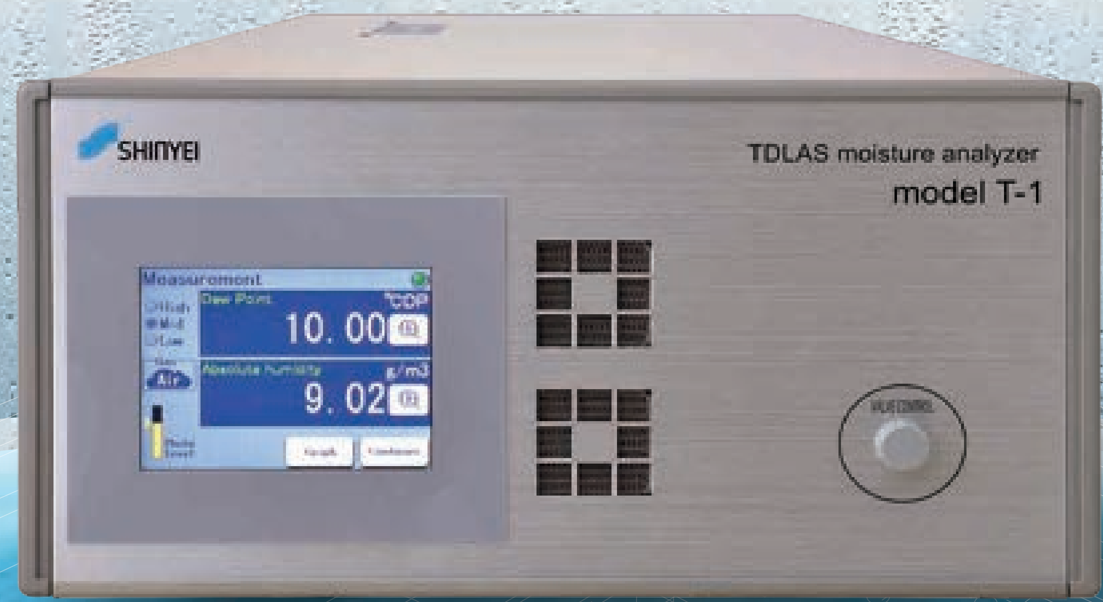
TDLAS T-1 series

Tunable Diode Laser Absorption Spectroscopy

Measure Moisture,Create Your Future



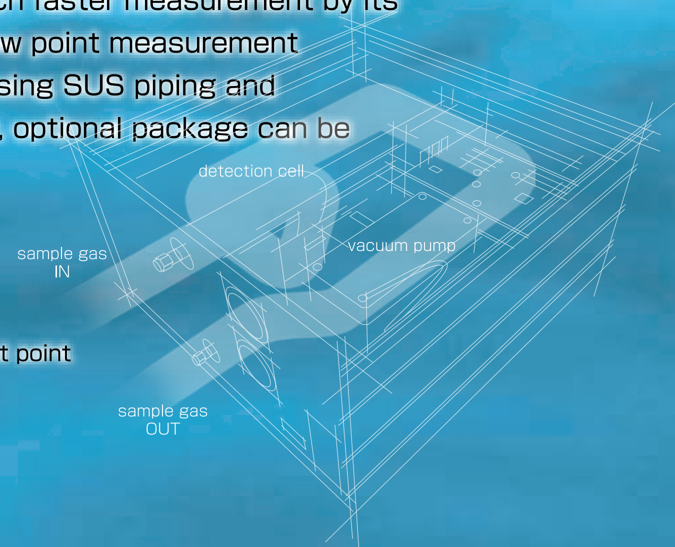
SHINYEI

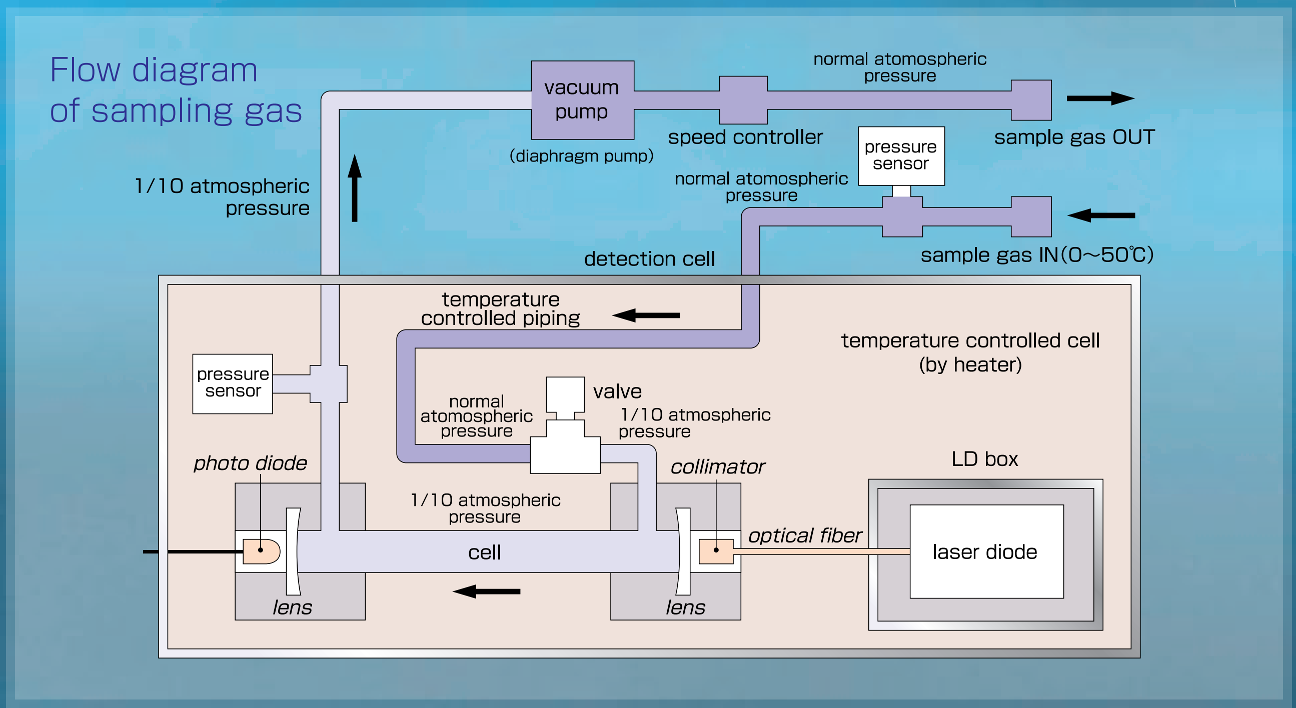
To the Next Level of Moisture Measurement ! Next-Generation Type of Dew Point Moisture Analyzer

Enabling quite fast and accurate moisture measurement. Highly recommended for the measurement in corrosive gas environment.

Shinyei "T-1" is the first moisture analyzer in Japan using tunable diode laser absorption spectroscopy (TDLAS) principle. TDLAS technique realizes much faster measurement by its laser-based technology in comparison with the conventional dew point measurement instruments. T-1 has high durability against corrosive gas by using SUS piping and fluocarbon polymer coated parts. For further enhanced durbility, optional package can be added.

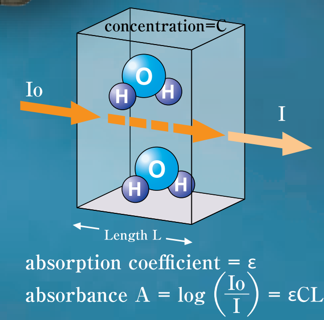
- All-in-one package with vacuum pump for drawing sample gas
- Quite fast and highly accurate measurement
- No influence of supercooling, reliable distinction between dew point and frost point
- Covering a wide range of dew point from -70 up tp 50℃ DP
- Low maintenance due to non-contact measurement





Measurement Principle

The measurement principle of Shinyei TDLAS T-1 is based on the Lambert-Beer law.
The energy of light is absorbed by water molecules at specific frequencies. When the length of the absorption path and the absorption coefficient are constant, the absorbance is proportional to the concentration of the water vapor. Shinyei TDLAS T-1 can sense and indicate moisture level directly by measuring the intensity of the diode laser, which has transmitted through a sample gas, at a photo detector.

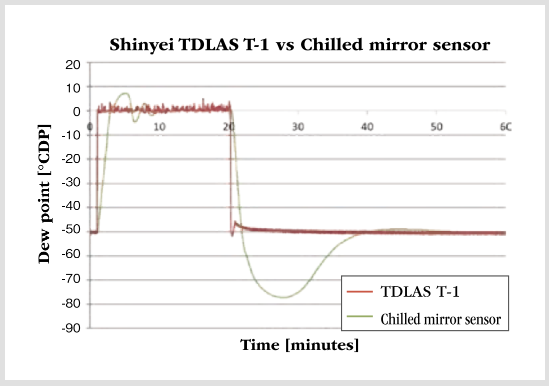


Features

The fastest response and analysis time

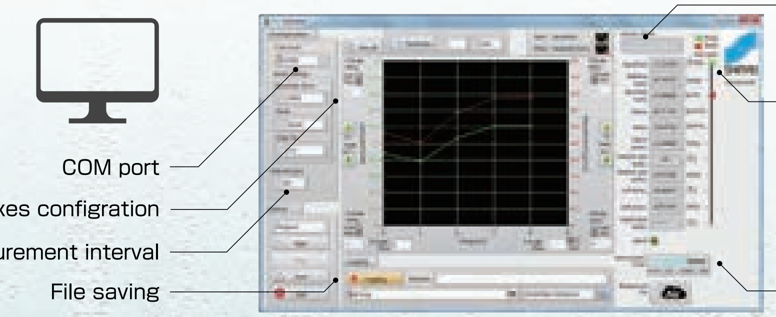
Shinyei TDLAS T-1 offers quite rapid measurement due to the direct sensing of water molecule density.

Comparison between TDLAS T-1 and chilled mirror sensor
TDLAS T-1 makes 90% response within 6 seconds against a sudden dew point change from 0 ℃DP to -50℃DP.
It takes more than 15 minutes for chilled mirror sensors.



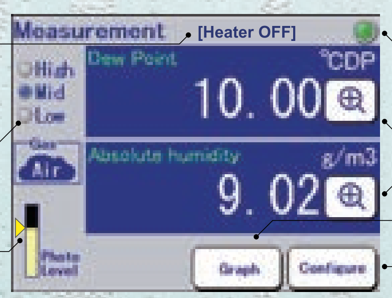
Monitoring on PC

Real-time monitoring is possible on PC with using the software attached.



Intuitive operation

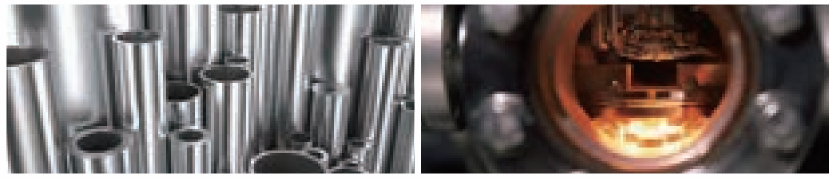
5 inches touch panel achieves intuitive and comfortable operation.

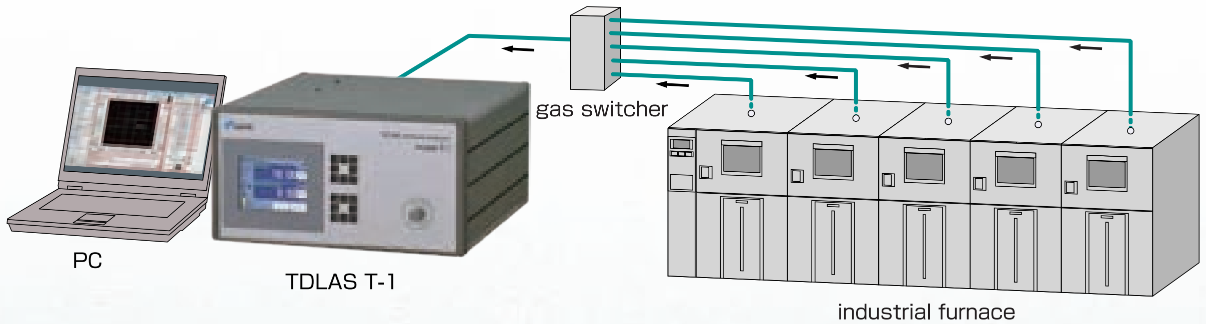


Application

Industrial furnace

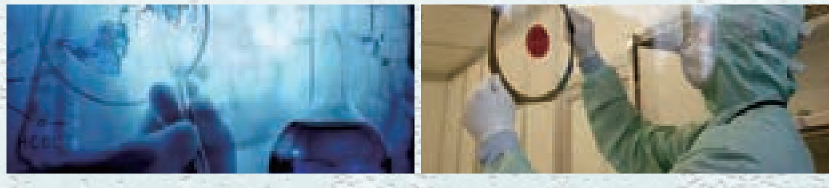
In the heat treatment process of the industrial furnace, moisture in the furnace atmosphere affects the product quality. Even in an atmosphere containing corrosive gases such as ammonia, TDLAS T-1 can perform stable moisture measurement without interference of other components. Therefore, it is free from the corrosion problems and enables the long-term operation.

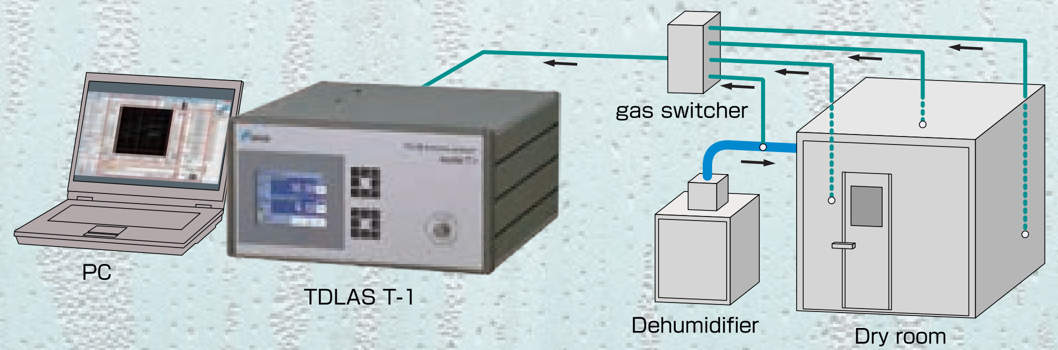




Dry room, Dry chamber

Dry air is used for various applications. Moisture level in a dry room or a dry chamber needs to be monitored. TDLAS T-1 can detect moisture rapidly and accurately to respond to the sudden changes caused by people entering and leaving a room.

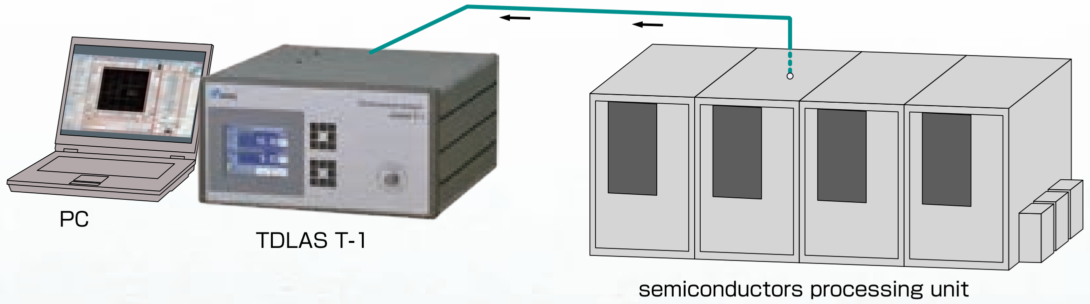




Application

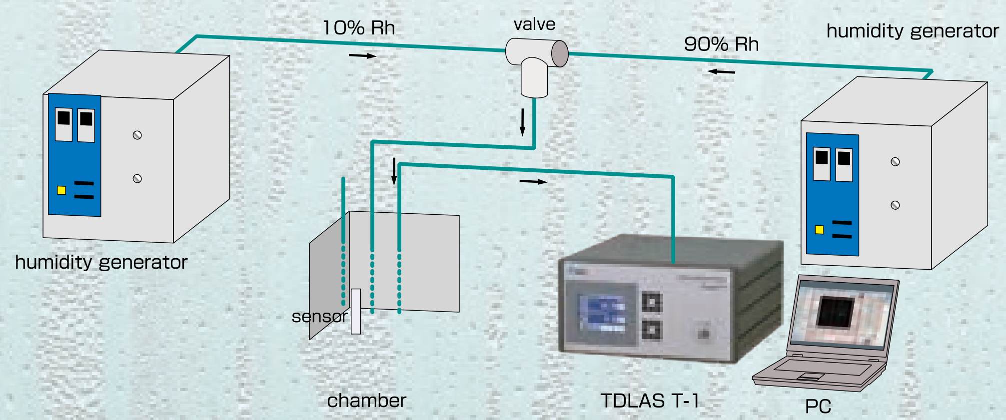
Process management of semiconductors and secondary batteries industry

Moisture in a manufacturing process atmosphere affect to the product quality and the yeild ratio of semiconductors and secondary batteries. TDLAS T-1can measure moisture stably and accurately even in an atmosphere containing corrosive, organic, acid or alcohol gases. With non-contact sensing, it has the high durability to chemical stress factors.



Standard for response time measurement

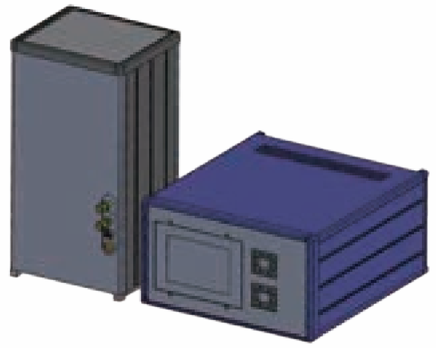
TDLAS T-1 offers quite fast response and analysis time due to non-contact measurement. Its response time is just 6 seconds (τ90, -50 ⇔0℃Dp).
Highly recommended for the response time measurement of humidity sensor.



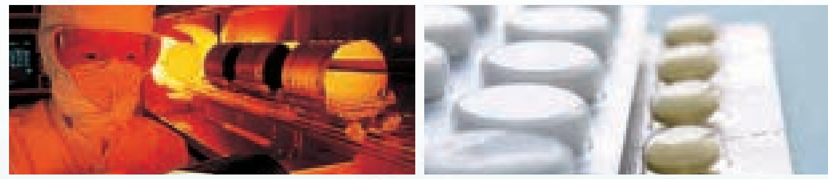
custom made

TDLAS Remote and Multi-point measurement type

It is a special specification that separates the sampling cell part from the base unit and enables simultaneous multi-point measurement. The most suitable for installing in a limited space or multiple places. For further enhanced durbility, optional package can be added. Instrumentation support is provided according to the customer's system and application.



Moisture management in clean chamber



TDLAS T-1 is highly recommended for trace moisuture monitoring in the manufacturing process where moisture management directly affects the product quality and the yeild ratio. Sampling cell part separated can be installed in each clean chamber. Its design and detection principle avoid corrosion and contaminants problems and ensure the long-term operation.