



# Airwell<sup>+</sup>7

*Tunable Diode Laser Absorption Spectroscopy*

*Gas Analyzers*

*CH<sub>4</sub> NH<sub>3</sub> HCL*

*Non-Dispersive Infrared*

*Gas Analyzers*

*SF<sub>6</sub> N<sub>2</sub>O CO CO<sub>2</sub> Refrigerant*

*SO<sub>2</sub> NO C<sub>2</sub>H<sub>2</sub> C<sub>2</sub>H<sub>4</sub> C<sub>3</sub>H<sub>8</sub>*



*CE Approved  
2014 Golden Gas Award  
Green Certificate*



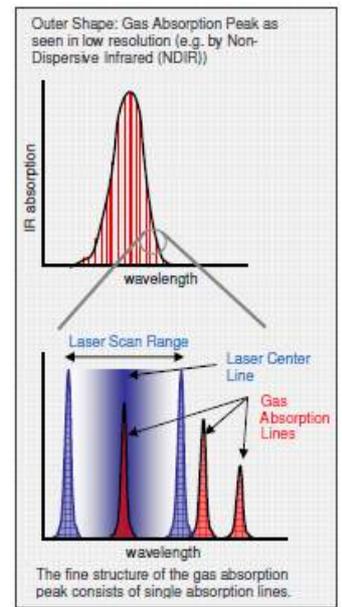
**KINSCO** Technology Co.,Ltd

*Made in the Korea*

## What is Tunable Diode Laser Absorption Spectroscopy ?

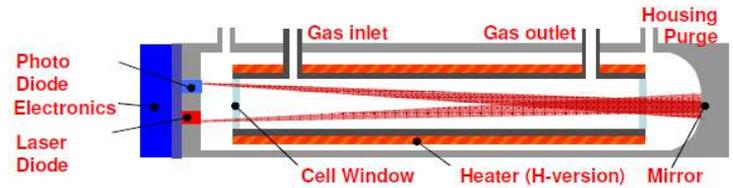
A laser diode is a laser whose active medium is a semiconductor similar to that found in a light-emitting diode. A tunable laser is a laser whose wavelength of operation can be altered in a controlled manner. Tunable diode laser absorption spectroscopy (TDLAS) is a technique for measuring the concentration of certain species such as CH<sub>4</sub>, NH<sub>3</sub> and HCL in a gaseous mixture using tunable diode lasers and laser absorption spectrometry. The advantage of TDLAS over other techniques for concentration measurement is to achieve very low detection limits.

Airwell+7 built in the proprietary technology-enhanced TDLS gas detection unit where a 0.1 nm narrow bandwidth diode laser beam is scanned across an absorption band of the target gas, performing a high-resolution near-infrared absorption measurement

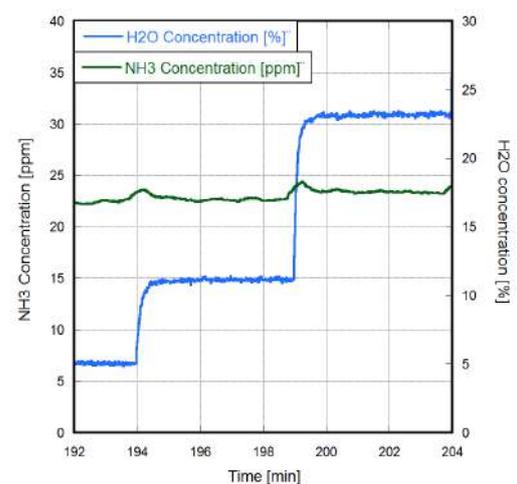
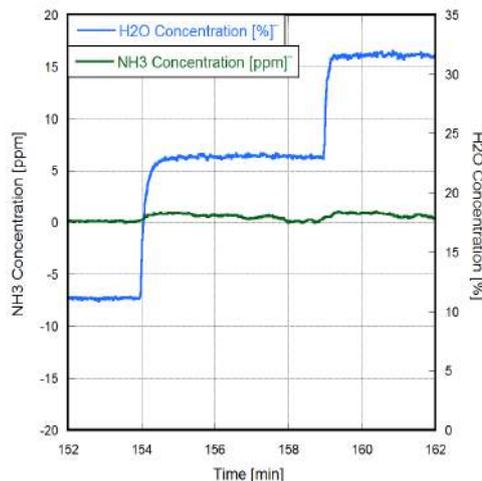
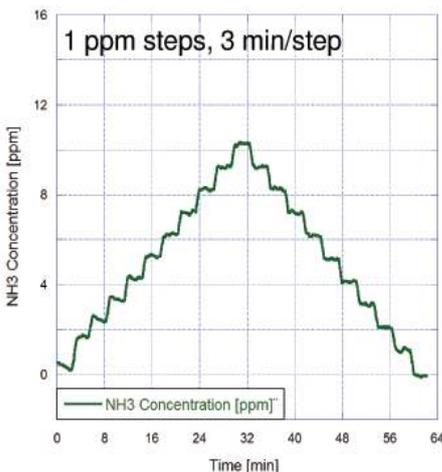


## What is the main Advantage ?

- Long calibration cycles
- Easy to operate
- Low maintenance
- Low cost
- Highly selective to target gas, no cross-sensitivity with Moisture & other gases
- No direct contact with gas, no degradation or poisoning
- No need for reference channel
- Intrinsically functionally safe (sensor status monitored permanently)
- High dynamic range (up to 5\*10<sup>3</sup>)
- Stable & accurate, practically no Zero - drift
- Long life-time (min. 5 years)
- No consumables
- Fast response - from milliseconds to seconds depending on the required detection limit
- Potential for low power consumption
- Fast recovery



NH<sub>3</sub> steps 190degC, 20s Integration time at constant ambient temperature.



# Airwell+7 Gas Analyzer Specification

## 1. Airwell+ 7 CH4 TDLAS Gas Analyzer

Application : Green House Gas, Livestock, Landfill Gas, Leak detection Fence line Air Monitoring, Bio-gas research Gas Emission		
Detection range	0-100 ppm	Max 40,000ppm
Lower Detection limit	0.3 ppm	
Display Resolution	0.1 ppm	
Sample flow rate	1.5 ~ 5 liter/min	at 10 s integration
Response time	2 sec	T=90%
Repeatability	<2 % of reading	



## 2. Airwell+ 7 NH3 TDLAS Gas Analyzer

Application : DeNox SCR, Green House Gas, Livestock, Landfill Gas, Leak detection, Refrigeration Storage, Odorants, Gas purity, Fence line Monitoring, Bio-gas research etc.. Gas Emission		
Detection range	0-100 ppm	Max 3,000ppm
Lower Detection limit	0.3 ppm	
Display Resolution	0.1 ppm	
Sample flow rate	1.5 ~ 5 liter/min	
Response time	2 sec	T=90%
Repeatability	<2 % of reading	

at 10 s integration



## 3. Airwell+ 7 HCL TDLAS Gas Analyzer

Application : Incinerator Gas Emission Leak detection , Gas Purity, Odorants Fence line Monitoring, Bio-gas research etc..		
Detection range	0-100 ppm	Max 500 ppm
Lower Detection limit	0.3 ppm	
Display Resolution	0.1 ppm	
Sample flow rate	1.5 ~ 5 liter/min	
Response time	2 sec	T=90%
Repeatability	<2 % of reading	

at 10 s integration



## 4. Airwell+7 NDIR Gas Analyzer ( User Selectable)

Gas Components: SF6 N2O Refrigerants C2H2 C2H4 C3H8 SO2 CO CO2 NO Gas Emission		
Detection range	10,100,1000 ppm ~ 100% User selectable	
Lower Detection limit	ppb or ppm, % ( depends on the range)	
Display Resolution	ppb or ppm	
Sample flow rate	1.5 ~ 5 liter/min	
Response time	10sec	T=90%
Repeatability	<2 % of reading	

If you want to measure the other gas component, please contact our technical support team



\* Airwell + is Trade mark and all system program registered.  
KINSCO has all these rights.

Remote Control & data transfer through the Internet to Mobile Unit



# Optional System : 6 Multi-point Sampling System with Airwell+7



## Sample Control System Model SCS

**\*\* Our suggestion -You can save the money !**

**If you want to use your own sample sequence valve controller for the multipoint measurement with our Airwell+7 Gas analyzer, we can make the program of display to meet your need. Please contact us.**

**Save your energy, time & cost !**

**Expandable Application.**

- Long distance sampling
- Time interval sample test
- Wide area gas sampling
- Up & down stream test
- Multi-Sample Test & Research

Control by the Airwell +7 or PC

Built-in : Test Gas port, 6 Inputs(option)

LED Status Signal, Main flowmeter

Can be connect with other Analyzer

(Please consult.)

## Airwell+7 General Specification

Display : High resolution : High resolution 7 inches Color Touch screen display

Operational power : 220VAC 50/60 Hz

Data Memory : over 4 Giga Byte

2 USB ports for the data collection and External keyboard/Mouse

Built-in sampling pump : Sample flowrate 1~5 liter/min

\* Internet Mobile connection for the Data Transmission & System Control

Operating System Max memory 4GB, DDR3 CPU Linux OS  
Slot 2, Intel chipset, High speed USB 3.0,  
Graphic (On-board VGA D-SUB) Giga byte LAN

Operation condition of detection unit

- Important : Reference conditions, external: 20°C – 23°C, 920 -1020 hPa, 40 to 50% r.H.

Principle of detection - CH<sub>4</sub> NH<sub>3</sub> CO<sub>2</sub> Tunable Diode Laser Spectrometry (TDLS)

Wavelength (μm) : CH<sub>4</sub>: 1.6 NH<sub>3</sub>: 1.5 CO<sub>2</sub>: 3 HCL: 1.8

Accuracy : ± 2% of reading or, ± 2 ppm whichever is larger

Zero drift : over 2 h period - 2% reading

Span drift : over 8 h period - within Accuracy

Max. error on temp. comp of reading/°C : < 0.1 %

Linearity - included in the accuracy

Cross talk/interference - Gas matrix and application dependent

Displayed resolution : 0.1 ppm (negative values can also be displayed)

Ambient temp. compensate : Type A : CH<sub>4</sub> : -30~60 °C, NH<sub>3</sub> & CO<sub>2</sub> : -20~60°C

Type H : NH<sub>3</sub> : -20 ~55°C

\* A: For Ambient temperature sample H: For Hot Gas sample 190 C

Meas. gas max. humidity abs. H<sub>2</sub>O % application dependent, needs calibration

Weight : about 10 kg, Case material : Anodized white aluminium

Dimension : 19 Inches Rack mountable / Table Top Depth 600 (mm)

- Options :
1. Temperature, Humidity or Flow sensor
  2. 6 points Sample Control System
  3. Other Gas sensing & Parameter (Please consult)

Point	CH <sub>4</sub>	NH <sub>3</sub>	CO <sub>2</sub>	Flow <sub>(m3/h)</sub>	°C	On
No1	3.1 ppm	15.1 ppm	2.7 %	1.60	0.0	●
No2	3.2 ppm	15.1 ppm	2.8 %	1.61	0.0	●
No3	3.2 ppm	15.0 ppm	2.7 %	0.79	0.0	●
No4	2.6 ppm	13.7 ppm	3.3 %	0.42	0.0	●
No5	0.0 ppm	0.0 ppm	0.0 %	1.39	0.0	●
No6	0.8 ppm	0.7 ppm	0.0 %	0.94	0.0	●

Nothing unusual.

MAIN SAVE



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