

Portable FTIR DW-EXPEC1920 Fourier Transform Infrared Gas Telemeter

Introduction

DW-EXPEC1920 Fourier Transform Infrared Gas Telemeter displays the spatiotemporal distribution of toxic, harmful, flammable and explosive gases through images, with the functions of background visual imaging and gas cloud chemical imaging, among which the gas cloud chemical imaging adopts the innovative Fast Fourier transform infrared remote sensing detection technology. For the atmosphere of the target area, it uses passive Fourier transform infrared the remote sensing technology obtains the infrared absorption spectrum of the gas; based on the gas infrared fingerprint characteristic spectrum, DW-EXPEC1920 through the deep neural network algorithm and chemical measurement method, the gas composition is qualitatively determined, the gas concentration is calculated quantitatively, and depict the image of gas clouds.

Features

- Highly integrated
- Visual detection
- High security
- Strong compatibility



Applications

1. Fire emergency: Chemical accidents, fire emergency monitoring, security for large gatherings, etc.
2. Environmental protection monitoring: industrial park atmospheric monitoring, tank storage area leakage monitoring, chimney gas emission monitoring, etc.
3. Scientific research: airport aircraft exhaust research, port ship exhaust research, trace analysis of pollution sources, etc



Fire Emergency



Environmental
Protection Monitoring



Scientific Research

Specifications

DW-EXPEC1920 Fourier Infrared Gas Telemeter	
Measurement mode	Fourier infrared passive telemetry scanning imaging, no infrared light source is required
Maximum measurement distance	2km
Measured substance types	Built-in standard spectral library of ≥ 400 measurable gases, which should include hydrocarbons (methane, ethylene, propylene, halogenated hydrocarbons, etc.), alcohols (ethanol, isopropyl alcohol, etc.), aldehydes (formaldehyde, etc.), ketones (acetone, etc.), esters (methyl acetate, ethyl acetate, etc.), acids (acetic acid, etc.), phenols (phenol, etc.), benzene series (benzene, toluene, xylene, etc.), ammonia (ammonia, etc.), sulfides (sulfur dioxide, hydrogen sulfide, etc.), ozone etc. and more than 400 kinds of gases. And can be customized according to the actual needs of the purchaser;
Measuring range	horizontal $0\sim 360^\circ$, pitch $-90^\circ\sim +90^\circ$;
Image presentation method	Present visible and infrared superimposed video images, and measure the gas concentration in the dynamic depiction of the image;
The equipment has a built-in pan/tilt system, and the core optical components such as the interferometer and detector do not rotate with the pan/tilt during the entire detection process to prevent system interference caused by high-frequency rotation;	
Detection limit	ppm level;
Wave number range/ cm^{-1}	600-1500;
Spectral resolution/ cm^{-1}	≤ 4 ;
Blackbody radiation calibration	built-in blackbody calibration system, temperature accuracy 0.1°C , temperature range: ambient temperature $\sim 100^\circ\text{C}$;
Detector	Stirling refrigerator cryogenic, cooling temperature $< 80\text{K}$, MCT mercury cadmium telluride detector;
Operation mode	unattended automatic cruise + manual operation dynamic scanning dual mode;
Wave number calibration	The system software should have the function of automatically calibrating the wave number accuracy based on the narrow-line absorption spectrum of a specific gas;
Impact of changes in ambient temperature	When the ambient temperature changes within the range of $(-10\sim 55)^\circ\text{C}$, the change in the displayed value of the instrument's measured components shall not exceed $\pm 5\%$;
Visible camera	light or low-light night vision camera;
Analysis Software	
Spectral library	built-in standard spectral library of measurable gases;
Analysis software	The analysis software is equipped with infrared imaging of chemical gases and dynamic diffusion effect display of gas clouds. It can quickly identify multiple types of gases at the same time, which can achieve precise location of leak sources, early warning of excessive gases, semi-quantitative calculation of chemical gas concentrations, and form a chemical Gas infrared spectrum characteristic database, which can preset multiple gas components according to on-site conditions;
Data analysis	Based on chemometrics algorithm and infrared spectrum, qualitative identification and quantitative analysis of various gas concentration distributions in the target area;
Software functions	It should have the function of displaying gas trend distribution in the detection area, the function of displaying instrument status and real-time data, the function of displaying alarm information, and the function of displaying the historical operating status of the system and instrument;
Monitoring mode	The system can choose continuous monitoring, scheduled monitoring, timed monitoring, remote trigger monitoring or manual monitoring mode;
Data display	It can display measured components and contents, and comprehensively analyze historical trends and data statistics. The detection interface can simultaneously display five meteorological parameter information; it can retrieve infrared absorption spectra, gas trend charts and other secondary indicators in real time during detection. window;
Historical data	saved locally and uploaded to the server for retrieval and analysis at any time;
The online analysis system can be remotely controlled, the working status of the instrument can be set, and parameters such as analysis, replacement plan, and instrument working status can be controlled remotely.	