

# Photo-hydrogen ionization module



## Overview

PHI utilizes a broad-spectrum, high intensity UV light targeted on a hydrated quad-metallic catalyst. The UV light in conjunction with the catalyst promotes the conversion of naturally occurring water vapor into airborne molecules of hydrogen peroxide ( $H_2O_2$ ). (PHI or Photo-hydro-ionization) is an advanced Indoor Air Quality (IAQ) technology developed by RGF Environmental Group to minimize and neutralize indoor air pollutants such as bacteria, viruses, mold, gases (VOCs) and odors. sitive, rapid, and reliable gas detection is critical. Among the various gas detection technologies available, Photoionization Detectors (PIDs) have carved out an important niche thanks to their exceptional sensitivity ring to chemical manufacturing and emergency response. This product is designed specifically for package systems and utilizes adjustable magnetic feet to. TSI measures Volatile Organic Compounds (VOCs) in air by Photo-Ionization Detection (PID).



## Article Content

Aug 30, 2025

Photoionization of Electrons in Degenerate Energy Level of Hydrogen ...

Photoionization dynamics of bounded electrons in the ground state, the first and second excited states of a hydrogen atom,

Mar 09, 2026

PHI Air Purification — Harbin Heating & Air

The Photohydroionization (PHI) Package Unit by RCP® is designed to eliminate sick building syndrome risks by reducing odors, air pollutants, VOCs (chemical odors),

Jun 04, 2026

Hydrogen Production: Photobiological | Department of Energy

The photobiological hydrogen production process uses microorganisms and sunlight to turn water, and sometimes organic matter, into hydrogen.

Feb 12, 2026

Statistical and quantum photoionization cross sections in

Most of the matter in the universe is ionized and in the so-called plasma state. 1-3 There are essentially two main sources of ionization: collisional

May 09, 2026

Photoionization Physics in the ISM and CSM

0 corresponding to the ionization potential of hydrogen (13.6 eV). Each time a hydrogen atom is ionized, a proton and an electron will form. These will eventually recombine radiatively. Sometimes the

Feb 17, 2026

Plasmonic photocatalysts for enhanced solar hydrogen production: A ...

Plasmon-enhanced photocatalytic hydrogen production has the advantage of utilizing the visible (VIS) and near-infrared (NIR) regions in the solar spectrum. Collective electronic oscillation on

Jun 12, 2026

Photoionization

The photoionization technique ionizes molecules using a high-energy photon source, such as UV radiation, while flame ionization technique burns organic molecules in a hydrogen flame.

Oct 01, 2025

Photohydroionisation - What You Need To Know | Airius PureAir

PDF file

Guide Photoionization Detectors (PID), A Comprehensive

A Photoionization Detector (PID) is a type of gas sensor that uses ultraviolet (UV) light to ionize gas molecules in order to detect and measure volatile organic compounds (VOCs) and some inorganic

Nov 23, 2025

Photoionization Detectors (PID) | Honeywell

Utilizing advanced ionization technology, these portable devices deliver rapid and accurate readings, making them essential for environmental monitoring and

Oct 06, 2025

MITOCW | L11.3 Ionization of hydrogen: conditions of validity, initial ...

So ionization of hydrogen. Ionization of hydrogen. Very good. So we're going to think of a hydrogen atom on its ground state sitting there, and then you shine an electromagnetic field, and if the

May 27, 2026

How Does a Photoionization Detector Work? | Explained

Air containing target gases enters the ionization chamber through either active sampling or passive diffusion. Modern PIDs can process samples in milliseconds, allowing for near-instantaneous

Dec 27, 2025

Ionization Processes

Auger ionization an inner-shell electron is photoionized a higher-level electron fills in releasing a photon, or energy transferred to an electron excited or ionized of an Auger electron Collisional ionization

Dec 12, 2025

Transforming Air Purification with Innovative UV PHI-Cell Powered ...

with UV ionization to reduce microbes and pathogens, among other pollutants. Traditionally, air conditioning contractors and HVAC companies focus exclusively on heating and cooling and

Aug 22, 2025

Reversible photo-electrochemical device for solar hydrogen and power ...

Reversible photo-electrochemical device for solar hydrogen and power generation Patel et al. demonstrate the reversible operation of a photo-electrochemical device for both hydrogen and

Aug 07, 2025

Air purifiers: The PHI Package Unit by RGF uses

The RGF-PKG package unit uses RGF's patented Photohydroionization (PHI-CELL) technology to reduce airborne and surface

Jan 25, 2026

Photo-Ionization

An accurate expression for the photo-ionization cross-section close to the ionization threshold (i.e., ) can only be obtained using unbound positive energy hydrogen atom wavefunctions as the final electron

Mar 19, 2026

PHOTO-IONIZATION DETECTION (PID) TECHNOLOGY

The PID then detects or measures the charge of the ionized gas, with the charge being a function of the concentration of VOCs in the air. Note that the gas ions recombine to reform the original gas or

Oct 06, 2025

Photo-hydro Ionization

This exclusive advanced oxidation process utilizes dual wavelength UV elements that are targeted onto a tri-metallic catalyst surface. This surface is coated with a proprietary TiO<sub>2</sub>, Ag, Cu,

Jan 07, 2026

Photo-induced redox catalysis for proton reduction to hydrogen with ...

Photo-induced redox catalysis for proton reduction to hydrogen with homogeneous molecular systems using rhodium-based catalysts☆

Dec 29, 2025

new ionization network and radiation transport module in pluto ...

ABSTRACT. We introduce a new general-purpose time-dependent ionization network (IN) and a radiation transport (RT) module for the magnetohydrodynamic (MHD)

Dec 24, 2025

A thermally synergistic photo-electrochemical hydrogen

For photo-electrochemical hydrogen production to become viable on a large scale, not only efficiency but also power density must be optimized. Here,

Feb 09, 2026

Hole transport materials for scalable p-i-n perovskite solar modules

Researching the stability of modules is of greater significance for achieving industrial-scale applications. One of the major obstacles to stability during the scaling-up process is the unevenness

Jun 08, 2026

Photoionization of Atoms | Springer Nature Link

The detailed understanding of single-photon ionization processes in atoms described in this chapter have recently proved useful in interpreting more complex interactions of electromagnetic radiation

Dec 15, 2025

Entanglement in photo-ionization process | Scientific Reports

We present the results of a comparative study of the entanglement in the photo-ionization process for various ionization regimes, including the tunneling and the multiphoton

May 15, 2026

Photo-electrochemical green-hydrogen generation: Fundamentals and ...

In this review article, we discuss the basic principles of green hydrogen generation using photo-electrochemical water splitting. The methods to evaluate the catalytic activity of the catalysts

Feb 08, 2026

All-perovskite-based unassisted photoelectrochemical water splitting ...

Ideal photoelectrochemical systems for hydrogen production should be highly efficient, stable and scalable. Here the authors report that a perovskite-based system with promising efficiency

Apr 15, 2026

US firm unveils sunlight-powered hydrogen module to

US tech firm unveils 20.7 sq ft solar hydrogen module powered by sunlight, water The module is the most advanced version of the company's

Sep 23, 2025

## HIGH-POWER PHOTODETECTOR MODULE

High-power photodetector modules are of interest for down-converting optically generated signals in the field of microwave photonics. The photodetector chips inside the modules are based on mature InP

## Contact Us

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