

# Portable FID

*For Method 21 and Environmental Monitoring of VOC's including methane*

**Ambient Air, Chemical & Petrochemical Industry, Leak detection  
Stacks, Laboratories, Remediation Sites, Landfills**



Model 115 Snap on FID



Model 115 with fuel cylinder

***Leak Detection (EPA Method 21), Stacks, Area Monitoring, Effluents***

## INTRODUCTION-

PID Analyzers acquired HNU's technology including [Portable PIDs, FID's](#) [Laboratory Instruments and Continuous Monitors](#). HNU introduced the first commercial photoionization based instrumentation. Nearly 40,000 of the portable and laboratory PIDs have been sold throughout the world. Many United States Environmental Protection Agency and Occupational Safety & Health Administration (OSHA) methods have been published in the Federal Register.

### Principle of Operation

The process of burning a hydrocarbon in a hydrogen flame generates positive (carbon) ions. An accelerator electrode (positively biased) pushes the ions, to the collector electrode where the current generated (proportional to concentration) is amplified and displayed on the digital meter.

## FEATURES

### Durable & Rugged

More than 25,000 HNU portable PID's (101's) have been sold worldwide since HNU introduced the first PID in 1974. More than 90% of these instruments are still working today. These instruments are the most rugged and durable instruments on the market today. They do not require replacement every two to three years.

### Accurate Results

HNU's unique FID design, state-of-the-art electronics and [microprocessor control](#) ensures the most accurate results for VOC measurements.

### Zero

HNU's unique automatic zero with zero gas provides a reliable calibration point so that when calibrated with a span gas, this is a two point calibration.

### Easy to Maintain

HNU's new Duraclean™ FID is more inert and will run for longer periods without the need for cleaning the FID head or the ion chamber

In addition, [a new library of compounds > 200 is available](#) for selection by the customer.

**Snap On FID-** easy to interchange modules-just snap on to the Docking Module and the instrument is ready for calibration

*in seconds.* No cables or wires to fuss with.



### Chemicals Detected

VOC's, hydrocarbons, methane, ethane, propane, benzene, TCA, methylene chloride, 1.3 butadiene ...

### Extended Range- (linear)

From 1 ppm to 30,000 ppm for DL115-FID for EPA Method 21

for leak detection

- Fast response <3 seconds to 90%
- Wide dynamic range (16 bit ADC) ppm to %
- Library- >200 compounds
- Excellent stability (zero & span)
- Alphanumeric display- pt. #, units, mode
- Other "snap on" detectors for CO, NH<sub>3</sub>, H<sub>2</sub>S, CH<sub>4</sub>, SO<sub>2</sub>, NO, Cl<sub>2</sub>, H<sub>2</sub> ...- available now

## APPLICATIONS

**Non-specific-** 115- Responds to all VOC's including methane

**Headspace-** VOCs in soil or water

**Quality control-** residual monomer in resins, residual solvents in paper or food, testing gas masks...  
EPA Method 21- to 30,000 ppm

**Emergency response-** spills from trucks & trains

**Fugitive emissions-** leak detection

**Arson investigations-** find trace accelerants

**Confined space entry-** health & safety

### Controls

- On/off
- Bkl- Backlight
- Incr
- Decr

### Menus

- Log
- Cal

### Options

Dilution probe (10:1) extends range to 30,000 ppm

- ppb Readout
- Carrying case
- Calibration kit
- RS232 & downloading software
- Belt clip for holding 102 via strap

### Specifications

- Single unit construction
- 12.0" L x 3" W x 5"H- includes fuel cylinder
- Weight 5.5 pounds
- Simple 3 button operation
- No keyboard
- Easy to use even for unskilled operators
- **Library of sensitivities built in** for > 200 compounds
- Use "Resp as" to setup for direct reading
- Alphanumeric display for compound, detector, alarm, range, & logging
- Linear to 30,000 ppm
- Bright LCD digital display for readability/backlighting selectable
- Fast response 3 sec to 90%
- Datalogging for 7,000 points
- Wide dynamic range FID- >6 decades
- RS232 output
- Auto zero in Cal, background zero
- Simple pushbutton sensitivity control

### Reliability

The basic simplicity, durable construction and design of the Model 102 has resulted in the elimination of problem areas associated with many measurement techniques.

### Other Instruments-

PID Analyzers manufactures continuous monitors such as: FIDs & PIDs for total hydrocarbons, NDIRs for CO, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O NO SO<sub>2</sub> and hydrocarbons, & Process GCs. Additional products include portable PIDs, portable GCs laboratory GCs, add-on detectors and XRF instruments

## Controls for the Model 115

- On/Off- Battery power
- Incr-Function ON, scrolling menu up, increase number
- Decr-Function OFF, scrolling menu down, decrease number
- Bkl-Turns backlight on/off



### Menus

#### Log

- Manual-Set site #, and manually log each pt.
- Auto- Set ave. time (sec) and samples/hr. to Auto log
- Site # 1-7000
- Setup- Setup Auto; Ave. time sec., samples/hour
- Exit- Return to Run

#### Cal

- Cal- Performs zero, set cal value, calibration
- Bkg Zero-
- Cal Gas- Select name of cal gas
- Resp as- Once the 115 is calibrated-change to direct reading on any of > 200 compounds
- Alarm- Set Alarm value for audible alarm
- Exit- Return to Run mode

### Datalogging

The 115 has manual or automatic datalogging capability for up to 7,000 points. The software for data logging is included with the Model 102. IT uses Windows Hyperterminal for downloading the information for the 102. A typical Auto datalogging format is shown below:

```
102 Data From Hyperterminal
Site      Date      Time      ppm
495  SP6  6/12/2004 15:02:27  7  1.7
496  SP6  6/12/2004 15:03:27  7  1.6
497  SP6  6/12/2004 15:04:27  7  1.6
498  SP6  6/12/2004 15:05:27  7  1.6
499  SP6  6/12/2004 15:06:27  7  1.6
500  SP6  6/12/2004 15:07:27  7  1.6
End Of Log Data
```

This data can be imported directly into Excel as Tab Delimited ASCII.

## SNAP ON HEADS

There are more than 20 sensors available for the HNU Snap On Head. Each head has a PID (except for the FID head). **Three additional sensors can be added** to an FID. These include a choice of the following sensors: Electrochemical (choice of 12), Infrared (choice of 2), RH/T (combined 2 sensors), and TCD

Typical Applications include:

- Indoor Air Quality- PID/RH/T/CO<sub>2</sub>
- Confined Space- PID/LEL/O<sub>2</sub>/CO
- Leak Detection- PID/LEL, FID
- Wastewater tmt. -PID/H<sub>2</sub>S
- Chemical Plant- PID/Cl<sub>2</sub>
- Pulp & Paper- PID/H<sub>2</sub>S
- Combustion leaks- PID/CO, FID/CO

## Sensors for the Model 115 Snap On Head



There are more than 20 sensors available for the Model 115.  
A PID or FID **and** any three sensors can be incorporated into the head.

**Table I**  
**Specifications of Gas Sensors for the Model 115**

Analyzer	Range ppm	Det. Limit	Response Time	Interferences
<b>FID</b>				
FID	0-30,000	1ppm	3 sec.	resp. to all VOCs incl CH4
<b>Electrochemical</b>				
Carbon Monoxide	0-500/1000	1/2	15 sec.	H <sub>2</sub> , C <sub>2</sub> H <sub>4</sub>
Chlorine	0-10	0.1	30 sec.	-----
Hydrogen	0-1000	2	45 sec.	CO, C <sub>2</sub> H <sub>4</sub>
Hydrogen Cyanide	0-100	0.1	50 sec.	C <sub>2</sub> H <sub>4</sub> , H <sub>2</sub> S, SO <sub>2</sub>
Hydrogen Chloride	0-100	0.1	1.5 min.	-----
Hydrogen Sulfide	0-100	0.1	20 sec.	-----
Nitric oxide	0-50	0.1	10 sec.	NO <sub>2</sub>
Nitrogen dioxide	0-20	0.	15 sec.	Cl <sub>2</sub> , H <sub>2</sub> S
Oxygen	0-30%	0.1%	15 sec.	-----
Sulfur dioxide	0-20	0.1	20 sec.	NO <sub>2</sub>
Carbon dioxide	0-3000	1	25 sec.	vol. org acids
Ammonia	0-3000	0.1	15 sec.	vol. amines
<b>Infrared</b>				
LEL	0-100%	1%	20 sec.	-----
Carbon dioxide	0-2%	0.04%	20 sec.	-----
<b>RH/Temperature</b>				
Relative humidity	0-100%	0.1%	50 sec.	-----
Temperature	0-60°C	0.1°C	20 sec.	-----
<b>TCD*</b>				
Organic cpds	0-100%	0.5 %	30 sec.	NA

Not available with PID in head at the same time

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