

### PointWatch Eclipse® Infrared Hydrocarbon Gas Detector SIL 2 Certified Model PIRECL



#### DESCRIPTION



The PointWatch Eclipse® Model PIRECL is the first and only gas detector to be SIL 2 certified by TÜV. It is a diffusion-based, infrared combustible gas detector that provides continuous, fixed monitoring of flammable hydrocarbon gases from 0 to 100% Lower Explosive Limit (LEL). Standard device outputs include an electrically isolated 4 to 20 mA signal, and an optional relay

output board with two programmable alarm relay outputs and one fault relay output.

Ideally suited for protection of challenging on/offshore oil and gas facilities and other downstream hydrocarbon applications, the PointWatch Eclipse® is globally certified for use in Class I, Divisions 1 and 2, and Zone 1 hazardous areas. In addition, the stainless steel construction, sapphire optics, and modular design all combine to deliver industrial grade hardness along with easy installation and the lowest cost of ownership available.

The PointWatch Eclipse® is capable of detecting hundreds of flammable hydrocarbon vapors. Field-selectable algorithms are provided for methane (default), ethane, propane, butane, ethylene, and propylene. Numerous additional operating parameters are programmable via digital communications or the optional hand-held communicator.

#### FEATURES AND BENEFITS

##### PointWatch Eclipse® TECHNOLOGY FEATURES

- SIL 2 Certified by TÜV.
- No undisclosed failure modes.
- Built-in tri-color LED eliminates need for external display module.
- Heated sapphire optics deliver long-lasting, high performance detection capability.
- EQP Models Available.
- FM, CSA, DNV, CENELEC and CE (including ATEX 94/9/EC) certifications.
- Certified to FM/CSA Div. 1 and CENELEC EEx d, e protection standards for maximum versatility.
- Gas performance verification by FM/CSA/CENELEC.

##### BENEFITS

- Superior optics protection system.
- Routine calibration not required.
- Explosion-proof, stainless steel housing with tethered weather protection baffle.
- Integral wiring compartment eliminates need for external junction boxes.
- Built-in optional relay package eliminates need for external relay output module.
- Immune to damage from exposure to constant background gases or to high gas concentrations.

## SPECIFICATIONS

<b>Operating Voltage</b>	24 VDC nominal. Operating range is 18 to 32 VDC including ripple.												
<b>Power Consumption</b>	4.0 watts nominal @ 24 VDC 7.5 watts maximum @ 24 VDC 10 watts maximum @ 32 VDC.												
<b>Short Circuit Current</b>	Isc: 5.4 amperes. Isc (fuse): 3.1 amperes.												
<b>Warmup Time</b>	Two minutes from cold power-up to normal mode; 1 hour minimum recommended.												
<b>Current Output Relays (Opt.)</b>	Linear 4 to 20 mA (current source/sink, isolated/ non-isolated) rated at 600 ohms maximum loop resistance @ 24 VDC operating voltage.												
<b>Temperature Range</b>	Operating: -40°C to +75°C (-40°F to +167°F). Storage: -55°C to +85°C (-67°F to +185°F).												
<b>Humidity (non-condensing)</b>	0 to 99% R.H. (Det-Tronics verified). 5 to 95% R.H. (FM/CSA/CENELEC verified).												
<b>Detection Range</b>	0 to 100% LEL standard. Other ranges are configurable.												
<b>Detectable Gases</b>	Most flammable hydrocarbon vapors are detectable. Standard gases include methane, ethane, ethylene, propane, butane and propylene. Detection of non- standard gases is configurable using the HC375 HART communicator.												
<b>Calibration</b>	All units are methane-calibrated at the factory. Device configuration is required for detection of vapors other than methane.												
<b>Device Configuration</b>	Configuration parameters include tag number, measurement range, signal processing algorithm, alarm levels, and other selectable parameters.												
<b>Response Time (With Baffle Installed)</b>	<table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><b>T50</b></td> <td style="text-align: center;"><b>T60</b></td> <td style="text-align: center;"><b>T90</b></td> </tr> <tr> <td>Without Hydrophobic Filter:</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">9</td> </tr> <tr> <td>With Hydrophobic Filter:</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">12</td> </tr> </table>		<b>T50</b>	<b>T60</b>	<b>T90</b>	Without Hydrophobic Filter:	3	4	9	With Hydrophobic Filter:	6	7	12
	<b>T50</b>	<b>T60</b>	<b>T90</b>										
Without Hydrophobic Filter:	3	4	9										
With Hydrophobic Filter:	6	7	12										
<b>Alarm Setpoint Range</b>	Low Alarm: 5 to 60% LEL. High Alarm: 5 to 60% LEL.												
<b>Accuracy</b>	±3% from 0 to 50% LEL, ±5% from 51 to 100% LEL.												
<b>Self-Diagnostic Test</b>	All critical tests performed once per second.												
<b>Ingress Protection</b>	IP67 (CENELEC Verified).												
<b>Dust Environment</b>	⊕ II 2 D T125°C IP67.												
<b>Detector Housing Material</b>	316 stainless steel.												
<b>Conduit Entry Options</b>	Two entries, 3/4 inch NPT or 25 mm.												
<b>HART Communicator Port</b>	Intrinsically safe.												

**Optics Protection** Weather baffle assembly is Polythalamide plastic, UV-resistant, static dissipating black. Optional internal hydrophobic filter recommended for areas with high levels of airborne particulates or humidity.

**Wiring Terminals** Field wiring screw terminals are UL/CSA rated for 14 to 24 AWG wire, and are DIN/VDE rated for 2.5 mm<sup>2</sup> wire.

**Shipping Weight (Approximate)** 11.5 pounds (5.2 kg).

**Dimensions** L = 9.3 in, W = 5.2 in, H = 4.6 in.

**Certifications** FM & CSA: Class I, Div. 1, Groups B, C & D (T4)  
Class I, Div. 2, Groups A, B, C & D (T4).



⊕ II 2 G  
⊕ II 2 D T125°C  
EEx de [ib] IIC T4-T5  
DEMKO 01 ATEX 129485X.  
Performance verified in accordance  
with EN 61779-1 and EN 61779-4).  
T5 (Tamb -40°C to +40°C)  
T4 (Tamb -40°C to +75°C)  
IP67  
-- OR --

⊕ II 2 G  
EEx d [ib] IIC T4-T5  
DEMKO 01 ATEX 129485X  
T5 (Tamb -40°C to +40°C)  
T4 (Tamb -40°C to +75°C)  
IP67

IECEx ULD 04.0002X  
Ex de [ib] IIC T4-T5  
T5 (Tamb -40°C to +40°C)  
T4 (Tamb -40°C to +75°C)  
IP67.  
-- OR --  
IECEx ULD 04.0002X  
Ex d [ib] IIC T4-T5  
T5 (Tamb -55°C to +40°C)  
T4 (Tamb -55°C to +75°C)  
IP67.

Conforms to:  
Low Voltage Directive: 73/23/EEC,  
EMC Directive: 2004/108/EC,  
ATEX Directive: 94/9/EC.

All Safety-Certified PIRECL models are certified compliant to:  
IEC61508: 2000  
SIL 2 certified  
Safety accuracy: 10%  
Safety response time: 9 seconds to  
T90 (without hydrophobic filter)  
12 seconds to T90  
(with hydrophobic filter)  
Product Life: 20 years, based on  
manufacturer data.



**Analog Output**  
Safe Failure Fraction (SFF) = 94.6%  
Failure Rate (λ<sub>du</sub>) = 123 FIT.

**Relay Output**  
Safe Failure Fraction (SFF) = 94.0%  
Failure Rate (λ<sub>du</sub>) = 132 FIT.



### Detector Electronics Corporation

6901 West 110th Street • Minneapolis, Minnesota 55438 USA

Operator: (952) 941-5665 or (800) 765-FIRE

Customer Service: (952) 946-6491 • Fax (952) 829-8750

<http://www.det-tronics.com> • E-mail: [dettronics@dettronics.com](mailto:dettronics@dettronics.com)

Specifications subject to change without notice.