DET-TRONICS®

Infrared Hydrocarbon Gas Detector
PointWatch Eclipse®
Model PIRECL

DESCRIPTION

5 YEAR WARRANTY

The PointWatch Eclipse® Model PIRECL is a diffusion-based, infrared combustible gas detector that provides continuous, fixed monitoring of flammable hydrocarbon gases from 0 to 100% Lower Flammable Limit (LFL). Standard device outputs include an electrically isolated 4-20 mA signal with HART communication protocol, and RS-485 serial communication. Serial communication protocols supported include MODBUS and ASCII. An optional relay output board with two programmable alarm relay outputs and one fault relay output is available. An optional FlexVu® Explosion-Proof Universal Display Unit Model UD10, UD20 or UD30 can be used for remote calibration.

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 Zones 1 and 2 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 gases and vapors. The PointWatch Eclipse is performance certified to methane, propane, ethylene, and butane, and is shipped from the factory set and calibrated to one of these gases. Numerous additional operating parameters are programmable via digital communication or the optional hand-held communicator.

FM APPROVED

INMETRO

FEATURES AND BENEFITS

- Superior optics protection system.
- No undisclosed failure modes.
- SIL 2 model certified to IEC 61508 by exida®
- 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 tri-color LED eliminates need for external display module.
- Built-in optional relay package eliminates need for external relay output module.
- EQP models available.
- Non-interfering HART communication capability.
- Optional Intrinsically Safe HART communication port
- Optional hand-held HART communicator enables field configuration and calibration.
- Optional model UD10, UD20 or UD30 Universal Display for remote calibration.
- Heated sapphire optics deliver long-lasting, high performance detection capability.
- Immune to damage from exposure to constant background gases or to high gas concentrations.
- FM, CSA, ATEX, IECEx, DNV/MED, and INMETRO certifications.
- Certified to FM/CSA Class I, Div. 1 and ATEX/IECEx Ex db, eb protection standards for maximum versatility.
- Gas performance verification by FM/CSA/ATEX.
- Certified, factory set and calibrated to methane, propane, ethylene, or butane.
- Faster response output option available.

SPECIFICATIONS

Input Voltage
24 Vdc nominal. Operating range is 18 to 32 Vdc
Ripple cannot exceed 0.5 volt P-P

Power Consumption
4.0 watts nominal @ 24 Vdc
7.5 watts maximum @ 24 Vdc
10 watts maximum @ 32 Vdc

Short Circuit Current

Isc:	5.4 amperes
Isc (fuse):	3.1 amperes
Power Supply Max Voltage:	Um = 250V

Warmup Time
Two minutes from cold power-up to normal mode; 1 hour minimum recommended.

Current Output
Linear 4-20 mA (current source/sink, isolated/non-isolated

Relays (Opt.)
rated at 600 ohms maximum loop resistance @ 24 Vdc operating voltage.

Temperature Range

Operating:	–55°C to +75°C (–67°F to +167°F)
Storage:	–55°C to +85°C (–67°F to +185°F)

Humidity
0 to 99% R.H. (Det-Tronics verified)
5 to 95% R.H. (FM/CSA/DEMKO verified)

Detection Range
0 to 100% LFL standard (other ranges are configurable)

Detectable Gases
Most flammable hydrocarbon vapors are detectable. Eclipse is performance certified to methane, propane, ethylene, and butane, and is shipped from the factory set and calibrated to one of these gases.

For detection of other gases, configuration using HART, MODBUS, or EQP system software, and device calibration are required.

Device Configuration
Configuration parameters include tag number, measurement range, signal processing algorithm, alarm levels, and other selectable parameters.

Response Time in Sec. (With Methane Applied and Baffle Installed)

Baffle	T20 FR	T50 STD/FR*	T90 STD/FR*
Without Filter	< 1	4.5/1.0	7.1/1.5
With Filter	< 1	4.8/1.2	7.6/2.6

Testing based on EN 60079-29-1
See manual 95-8526 for other gases and other performance standards
STD = Standard Response, FR = Fast Response
*STD based on 100% LFL applied, FR based on 50% LFL applied

Alarm Setpoint Range

Low Alarm:	5 to 60% LFL
High Alarm:	5 to 60% LFL.

Note: Low alarm range for EQP model is 5-40% LFL

Accuracy
±3% from 0 to 50% LFL, ±5% from 51 to 100% LFL

Repeatability
±1% of full scale reading (Det-Tronics verified) at 15°C - 25°C, 20% RH - 80% RH, 86KPA - 108KPA

Self-Diagnostic Test
All critical tests performed once per second.

Detector Housing Material
Stainless Steel (316/CF8M Cast)

Conduit Entry Options
Two entries, 3/4 inch NPT or 25 mm

Wiring Terminals
Field wiring screw terminals are UL/CSA rated for up to 14 AWG wire, and are DIN/VDE rated for 2.5 mm² wire.

Shipping Weight (Approx.)
10.5 lbs. (4.8 kg)

Dimensions
L = 9.3 in (23.62 cm), W = 5.2 in (13.21 cm), H = 4.6 in (11.68 cm)

Certifications

FM & CSA:
Class I, Div. 1, Groups B, C & D (T4) with intrinsically safe output for HART communication in accordance with control drawing 007283-001
Class I, Div. 2, Groups A, B, C & D (T4)
Performance certified to Methane, Propane, Ethylene, & Butane in accordance with FM 6310/6320, ANSI/ISA 12.13.01, and CSA C22.2 No. 152
FM: Tamb = –50°C to +75°C **CSA:** Tamb = –55°C to +75°C
Acidic atmospheres excluded.
Conduit seal not required.

ATEX:
CE 0539 Ex II 2 G
Ex db eb IIC T4...T5
-- OR --
Ex db eb [ib] IIC T4...T5 (with HART communication port)
DEMKO 01 ATEX 129485X
(Performance certified to Methane, Propane, Ethylene, & Butane in accordance with EN 60079-29-1)
T5 (Tamb –50°C to +40°C), T4 (Tamb –50°C to +75°C)
IP66/IP67
-- OR --
CE 0539 Ex II 2 G
Ex db IIC T4...T5
-- OR --
Ex db [ib] IIC T4...T5 (with HART communication port)
DEMKO 01 ATEX 129485X
(Performance certified to Methane, Propane, Ethylene, & Butane in accordance with EN 60079-29-1)
T5 (Tamb –55°C to +40°C), T4 (Tamb –55°C to +75°C)
IP66/IP67

CE:
Conforms to:
Low Voltage Directive: 2014/35/EU
EMC Directive: 2014/30/EU
ATEX Directive: 2014/34/EU
Marine Equipment Directive: 2014/90/EU

IECEx:
IECEx UL 16.0157X
Ex db eb IIC T4...T5
-- OR --
Ex db eb [ib] IIC T4...T5 (with HART communication port)
(Performance certified to Methane, Propane, Ethylene, & Butane in accordance with IEC 60079-29-1)
T5 (Tamb –50°C to +40°C), T4 (Tamb –50°C to +75°C)
IP66/IP67
-- OR --
IECEx UL 16.0157X
Ex db IIC T4...T5
-- OR --
Ex db [ib] IIC T4...T5 (with HART communication port)
(Performance certified to Methane, Propane, Ethylene, & Butane in accordance with IEC 60079-29-1)
T5 (Tamb –55°C to +40°C), T4 (Tamb –55°C to +75°C)
IP66/IP67

INMETRO:
UL-BR 15.0242X
Ex d IIC T4...T5 Gb or
Ex d [ib] IIC T4...T5 Gb
T5 (Tamb –55°C to +40°C), T4 (Tamb –55°C to +75°C)
IP66/IP67
-- OR --
Ex d e IIC T4...T5 Gb or
Ex d e [ib] IIC T4...T5 Gb
T5 (Tamb –50°C to +40°C), T4 (Tamb –50°C to +75°C)
IP66/67

DNV:
Certificate No. TAA00000HA
Certificate No. MED-B-9906
Certificate No. MEDD00000DR

SIL:
All Safety-Certified PIRECL models are SIL 2 certified per IEC61508

Specifications subject to change without notice.

Det-Tronics manufacturing system is certified to ISO 9001—the world's most recognized quality management standard.

Carrier

DET-TRONICS®

Corporate Office
6901 West 110th Street
Minneapolis, MN 55438 USA
www.det-tronics.com

Phone: +1 952.941.5665
Toll-free: +1 800.765.3473
Fax: 952.829.8750
det-tronics@carrier.com