

OVERVIEW:
TURBINE SAFETY SOLUTIONS



CERTIFIED FIRE & GAS SAFETY SYSTEM FOR GAS TURBINE ENCLOSURES

Fire & gas detection and releasing system designed to monitor and protect gas turbines.



SAFETY IS WHAT WE DO. **PARTNER WITH US.**

det-tronics.com

Listed Fire & Gas Safety System for Gas Turbine



Heat Detector

Senses temperature and alarms if temperature exceeds the design set point.

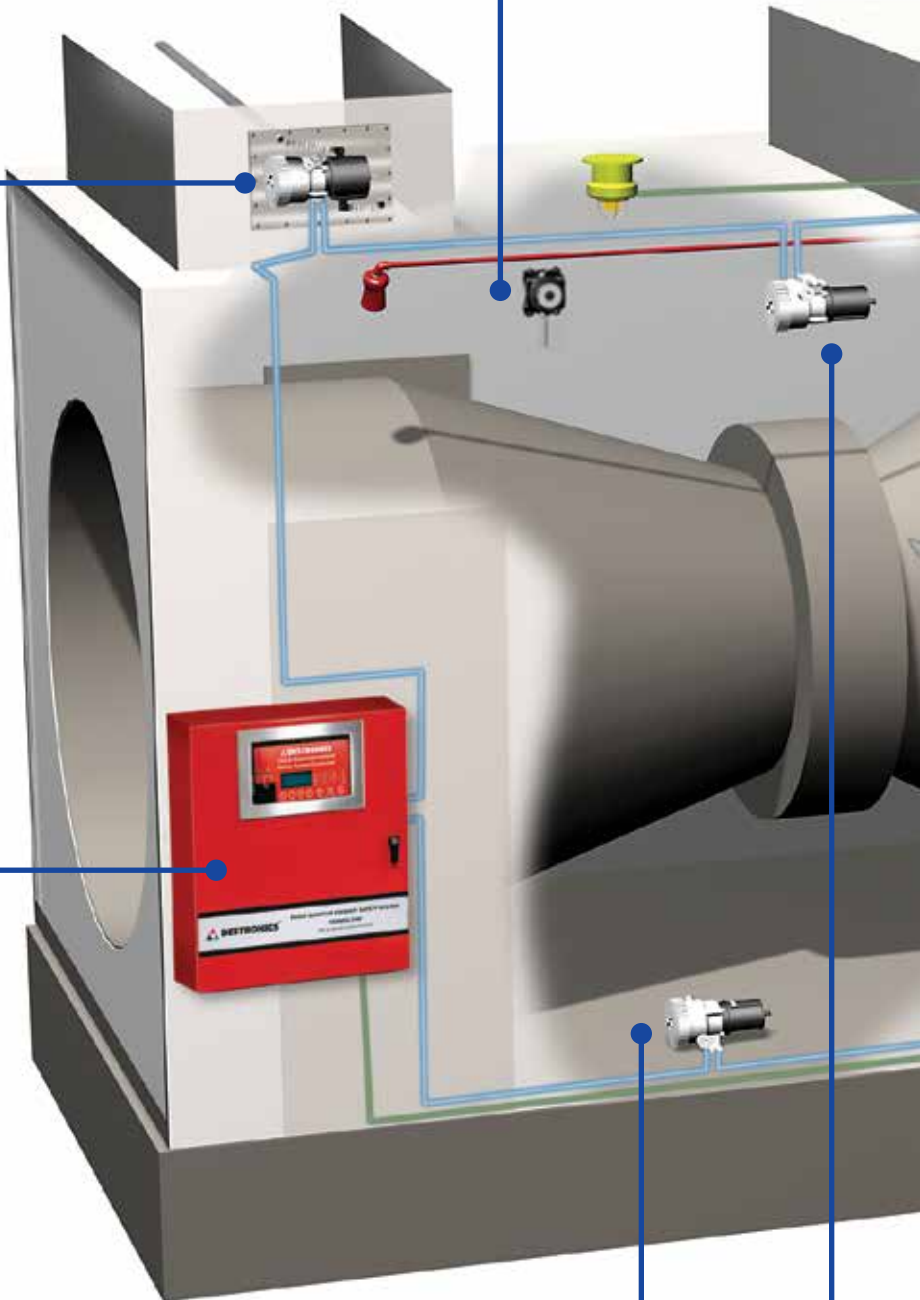
Duct Mounted Combustible Gas Detector

Detects potential combustible gas leaks in the enclosure ventilation exhaust duct.



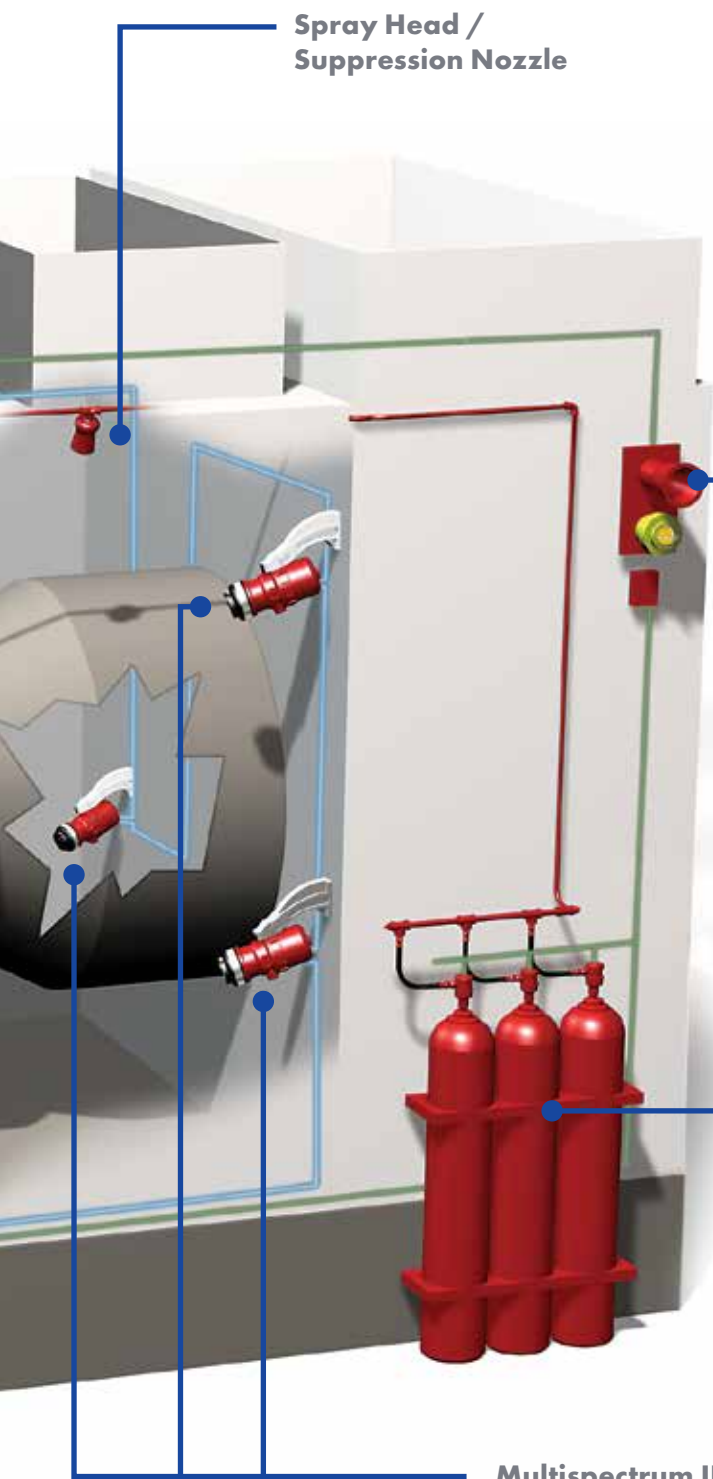
Flame & Gas Detection Releasing System

Supervises and controls the fire and gas detection and releasing system. Includes necessary controls and power supply.



Combustible Gas Detector

Detects potential combustible gas leaks using reliable infrared (IR) technology.



**Spray Head /
Suppression Nozzle**



Notification Appliances

Provide audible or visual notification of a gas leak and/or fire alarm.



**Fire Suppression
Agent Cylinders**

Cylinders contain high-purity water for water mist systems or High-Pressure Carbon Dioxide for CO₂ suppression systems.

Multispectrum IR Flame Detector

Detects potential lube oil and fuel gas fires.



Eagle Quantum Premier® EQP3900 Safety System

EQ3900G | EQ3900N | EQ3900E



EQ3900G

- General purpose area certified
- Flexible device selection options
- Simple wire installation into terminal blocks
- Available in redundant controller configuration to increase availability of the safety system



EQ3900N

- Hazardous area certified solution (non-incendive / non-sparking Class 1, Div 2, Zone 2 enclosure)
- Flexible device selection options
- Simple wire installation into terminal blocks
- Available in redundant controller configuration to increase availability of the safety system



EQ3900E

- Hazardous area certified solution (Class 1, Div 1 and Class 2, Div 1, Zone 1 enclosure)
- Flexible device selection options
- Simple wire installation into terminal blocks
- Available in redundant controller configuration to increase availability of the safety system

CERTIFIED SIL2 CAPABLE



The Eagle Quantum Premier (EQP) system is a combined fire and gas safety system that is certified for annunciation and releasing. The EQ3900G system is suitable for use in general purpose locations while the EQ3900E and N systems are certified for installation in hazardous locations.

System components include an Eagle Quantum Premier (EQP) Safety System Controller and a number of addressable microprocessor-based field devices. The EQP Controller coordinates system device configuration, monitoring, annunciation, and control, while the various system modules and field devices communicate their status and alarm conditions to the EQP Controller.

The EQ3900 systems can be configured for redundancy, thereby increasing the availability of the system. Models that are certified SIL2 capable are available.

All Eagle Quantum Premier EQ3900 systems are listed by FM Approvals allowing compliance with National Fire Alarm and Signaling Code requirements (FM 3010 in accordance with NFPA 72®, 2013 edition).



Performance and Reliability

Eagle Quantum Premier Safety System Controller

- The Eagle Quantum Premier (EQP) Safety System Controller is available in a redundant configuration to increase the availability of the system
- Selectable quantity of Enhanced Discrete Input Output (EDIO) modules, Analog Input Modules (AIM), and Relay Modules (RM)
- Available in models that are SIL2 capable
- Eagle Quantum Premier systems have provided a reliable solution for over 20 years



The Eagle Quantum Premier Safety System Controller is the heart of the distributed addressable system. It coordinates system device configuration, monitoring, annunciation, and control functions and includes numerous communication interface capabilities including Ethernet DLR, Control Net, RS485 Modbus, and onboard relays. Easy-to-read, scrolling display communicates status to the operator. Onboard event log function records system status, faults, alarms, and other vital information.

A variety of flexible options to meet the requirements of gas turbine applications



Enhanced Discrete Input Output Module EQ3730EDIO

- Eight channels of configurable input or output points that can be programmed for supervised or unsupervised operation
- Each input point can accept fire detection devices such as heat, smoke or manual pull stations
- Each output point can be configured for signaling or releasing output operation
- Each channel on the module is provided with individual indicators for active and fault conditions



Analog Input Module EQ3710AIM

- Connects devices with a calibrated 4-20 mA output signal to the Eagle Quantum Premier System
- Flame detector 4-20mA inputs are FM Approved as an NFPA 72 initiating device circuit
- Each channel on the module is provided with individual indicators for active and fault conditions



Relay Module EQ3720RM

- Provides eight relay output channels for use with non-supervised devices (PLCs, fans, dampers, motor control centers, etc.) or devices with their own supervision
- Each channel on the module is provided with individual indicators for active and fault conditions

Flame and Gas Detectors

X3301 / X3302 Multispectrum IR Flame Detectors

The Det-Tronics X3301 Radiant Energy-Sensing Flame Detector is ideally suited to detect hydrocarbon fires from gaseous fuels, diesel, or lube oil that may occur in gas turbines.

The Det-Tronics X3302 Radiant Energy-Sensing Flame Detector is ideally suited to detect hydrogen and Syngas fuel fires.



- X3301 models are optimized for installation within turbine enclosures. X3301 includes third-party performance listings to diesel and methane fires. It is capable of detecting heavy hydrocarbon fires such as lube oil.
- X3302 includes third-party performance listings to hydrogen, Syngas, methane, and methanol fires.
- Automatic Optical Integrity (Oi®) performs automatic fail-safe checks every 60 seconds
- Det-Tronics Multispectrum IR detectors resist generating unwarranted alarms from the intense infrared emissions of the turbine engine
- Detects small fires while simultaneously viewing the intense infrared emissions from the turbine engine

FlexVu® Universal Display + Catalytic Gas Detector

The Det-Tronics FlexVu® Universal Display + Catalytic Gas Sensor detects hydrogen and hydrocarbon gas vapors.



- Proven catalytic bead sensor manufactured by Det-Tronics
- Reliably detects hydrogen vapors in turbine applications
- Duct Mount Enclosures, Sensor Separation Kits, and Remote Calibration Cups allow for ideal installation locations for sensors and displays, providing easier access for routine sensor calibration

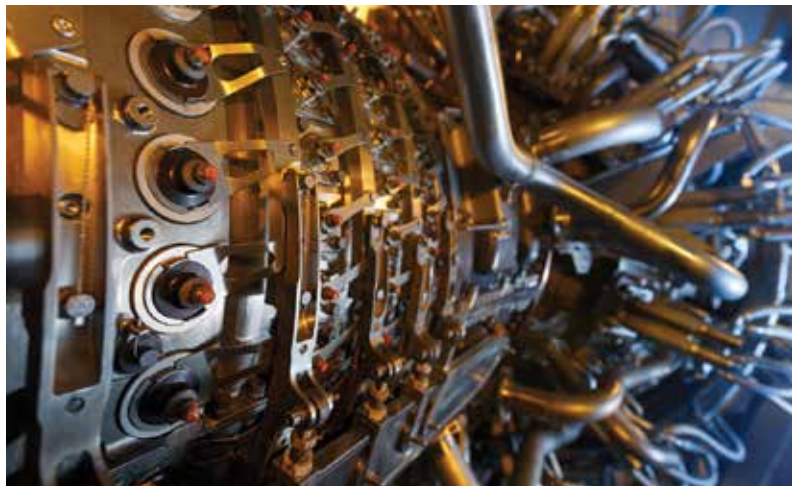
PIRECL Infrared Combustible Gas Detector

The Det-Tronics PointWatch Eclipse® PIRECL Infrared Combustible Gas Detector

detects hydrocarbon gas vapors from fuels and gases commonly found in gas turbines.



- Continuous optical monitoring, fail-safe operation
- Extremely reliable and robust, suitable for the detection of a wide range of hydrocarbon gases
- Proven in-use for over 20 years in gas turbine applications
- Available in redundant controller configuration Q900 Duct Mount Kit for monitoring enclosure ventilation exhaust duct



Suppression for Gas Turbine Enclosures



Water Mist Suppression

Water mist fire protection systems are safe for both people and the environment and provide superior fire protection performance.

- Water mist fire protection functions even if the acoustic enclosure door has been left open due to human error or if the integrity of the enclosure has deteriorated over the equipment's lifecycle
- Water mist quickly and gently cools down the fire and the structures below the flammable liquid flashpoint, thus preventing reignition
- Options include cylinder unit systems or an electric pump unit/systems as containerized modular solutions with minimal effort needed on site
- Water mist systems protect hundreds of gas turbines globally from leading turbine manufacturers
- An inexpensive and easy-to-access agent when refill is necessary
- Wide ranges of proven, safe hazard protection
- Reduces the oxygen content of the atmosphere to a point where combustion becomes impossible
- Hardware to accommodate any application or system type
- Damage-free fire suppression reduces loss
- Non-corrosive, electrically non-conductive by-products that are free of decomposition
- Fights small and large surface and deep-seated fires
- Suppressant is delivered through a fixed piping network with specially designed nozzle



CO₂ Suppression

High Pressure CO₂ systems are ideal for industrial processes where flammable materials and vapors present a potential hazard.

CO₂ Offers Unmatched Versatility

- Addresses hazards with partial enclosure or unenclosed equipment
- Compensates for continuous air handling process
- Suitable for extreme temperatures

Provides Unmatched Availability

- Worldwide availability
- Inexpensive to procure
- Uncomplicated re-fill process

Additional components



Power System Components

Power Supplies/Battery Chargers

- Listed for use with EQP EQ3900 systems
- 10/30/75 Ampere models available
- Wall mount brackets available



Remote Power Supply

EQ3900 RPS

- Listed for use with EQP EQ3900 systems
- Accepts two independent AC inputs
- Class 1/Div 1 and Class 2/Div 2 Hazardous Location models available



EQ3900 Power Supply Distribution/Monitoring

- Listed for use with EQP EQ3900 systems
- Monitors power supply status
- Digitally communicates with the EQP Safety System Controller
- Notifies in case of:
 - Power Supply Failure
 - Loss of AC Power Input
 - Loss of backup battery power
 - Power Ground Fault condition

A Global Leader in Fire and Gas Safety Systems

Utilizing our licensed Fire Protection Engineers (FPEs), Det-Tronics provides expertise in design of detection and releasing systems for gas turbines.

Each project is followed carefully through the design stage to ensure a code-compliant system. Our services include generation of system cause-and-effect diagrams, electrical connection drawings, power calculations, and all suppression system calculations.

A worldwide support network is available when service of the system becomes necessary.



92-1085-2.0 (US)



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

Phone: +1 952.941.5665
Toll-free: +1 800.765.3473
Fax: +1 952.829.8750