CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM17US0258X**
3. **Equipment: (Type Reference and Name)** **Eagle Quantum Premier Fire and Gas Detection/Releasing System: Combustible and Low Concentration (PPM) Gas Detection.**
4. **Name of Listing Company:** **Detector Electronics Corp**
5. **Address of Listing Company:** **6901 W 110th St**
   Minneapolis MN 55438
   United States
6. The examination and test results are recorded in confidential report number:

   3013843 dated 17th January, 2003

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2011, FM Class 3611:2004, FM Class 3615:2006, FM Class 3810:2005

	EQ3xxx	EQ3700DCIO	EQ3710AIM	EQ3730EDIO	EQ22xxDCU	EQ22xxDCUEX	UD10xxx28
FM6320:2014, ANSI/ISA-60079-29-1:2013	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FM6325:2005, ANSI/ISA-12.13.04:2007	Yes	Yes	Yes	Yes	Yes	No	No
FM6340:2014, ANSI/ISA-92.00.01:2010	Yes	Yes	Yes	Yes	Yes	No	No

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

9 July 2019
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

System Controller model EQ3XXX Series:
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 80°C; Class I, Zone 2 IIC; T4 Ta = 80°C hazardous (classified) indoor locations.

EQ3700DCIO. Discrete Input/Output Module,
EQ3710AIM. Analog Input Module,
EQ3730EDIO. Enhanced Discrete Input/Output Module
EQ3750ASH. Addressable Smoke and Heat Module,
EQ3760ASM. Addressable Smoke Module,EQ3LTM. LON Termination Module,
EQ2220. Ground Fault Monitor,
HART Interface Module,
EQ2230RSP. EMI Filter:
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 85°C; Class I, Zone 2 IIC; T4 Ta = 85°C hazardous (classified) indoor locations.**EQ3720RM. Relay Module:**
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T3C Ta = 85°C; Class I, Zone 2 IIC; T3 Ta = 85°C hazardous (classified) indoor locations.

EQ3780HSDM. High Speed Deluge Module,
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 85°C; Class I, Zone 2 IIC; T4 Ta = 75°C hazardous (classified) indoor locations

EQ2200DCUEX. Digital Communication Unit,
EQ2200DCU. Digital Communication Unit,
UD10xxx28, Universal Display Unit DCU Emulator:
Suitable for installation in Class I, Division 1, Groups B, C and D; Class II/III, Division 1, Groups E, F, and G; Class I, Division 2, Groups A, B, C and D; Class II/III, Division 2, Groups F and G; T4 Ta = 75°C hazardous (classified) locations and indoor/outdoor use (Type 4X) when used with FM Approved Sensor Termination Box Model STB Series.

EQ2400NE. Eagle Quantum Network Extender,
EQ2400PLR. Eagle Quantum Physical Layer Repeater,
EQ25EMSAM, EQ25EMARM, EQ22EMIDC and EQ22EMIDCFG. Electronic Modules:
Suitable for Class I, Division 1, Groups B, C, and D, Class II/III, Division 1, Groups E, F, and G; Class I, Division 2, Groups A, B, C and D; T4A Ta = 75°C; Class II/III, Division 2, Groups F and G; T4A Ta = 75°C hazardous (classified) locations and indoor/outdoor use (Type 4X).

EQ3900RPSE. Remote Power Supply:
Suitable for installation in Class I, Division 1, Groups C and D; T6 Ta = 50°C hazardous (Classified) outdoor (Type 4) locations

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EQ3900RPSG. Remote Power Supply:
Suitable for general purpose locations

EQ3800. Eagle Quantum Premier Power Distribution Module:
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T3A Ta = 80°C; Class I, Zone 2 IIC, T3 Ta = 80°C hazardous (classified) indoor locations.

EQ3770 Explosionproof Input/Output Enclosure:
Suitable for use in Class I, Division 1, Groups B, C, D, T6 = -20°C to +50°C hazardous (classified) locations.

EQ3900N. Eagle Quantum Premier System Enclosure, Non-Incendive:
Suitable for installation in Class I, Division 2, Groups A, B, C and D; T3C Ta = 60°C; Class I, Zone 2, IIC; T3 Ta = 60°C hazardous (Classified) indoor/outdoor (Type 4X) locations.

EQ3900E. Eagle Quantum Premier System Enclosure, Explosionproof:
The EQ3900E (without operators) is suitable for installation in Class I, Division 1, Groups B, C and D; Class I, Zone 1, IIB; Class II/III, Division 1, Groups E, F and G hazardous (Classified) outdoor (Type 4) locations. The EQ3900E (with pushbuttons and pilot lamps) is suitable for installation in Class I, Division 1, Groups B, C and D, T5; Class II, Division 1, Groups E, F and G, T5 hazardous (Classified) locations. The EQ3900E (with key switch) is suitable for installation in Class I, Division 1, Groups C and D, T5; Class II, Division 1, Groups E, F and G, T5 hazardous (Classified) locations.

EQ2100PSM. Power Supply Monitor:
Suitable for installation in unclassified locations.

11. The marking of the equipment shall include:

System Controller model EQ3XXX Series:
Class I Division 2 Groups A, B, C & D, T4
Class I Zone 2 IIC; T4
Ta = 80°C

EQ3700DCIO. Discrete Input/Output Module,
EQ3710AIM. Analog Input Module,
EQ3730EDIO. Enhanced Discrete Input/Output Module,
EQ3750ASH. Addressable Smoke and Heat Module,
EQ3760ASM. Addressable Smoke Module,EQ3LTM. LON Termination Module,
EQ2220. Ground Fault Monitor,
HART Interface Module,
EQ2230RSP. EMI Filter:
Class I Division 2 Groups A, B, C & D, T4
Class I Zone 2 IIC;
Ta = 85°C**EQ3720RM. Relay Module:**
Class I Division 2 Groups A, B, C & D, T3C
Class I Zone 2 IIC; T3
Ta = 85°C

EQ3780HSDM. High Speed Deluge Module,
Class I Division 2 Groups A, B, C & D, T4
Class I Zone 2 IIC;
Ta = 75°C

EQ2200DCUEX. Digital Communication Unit,

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EQ2200DCU. Digital Communication Unit,
UD10xxx28. Universal Display Unit DCU Emulator:
Class I Division 2 Groups A, B, C & D, T4
Ta = 75°C

EQ2400NE. Eagle Quantum Network Extender,
EQ2400PLR. Eagle Quantum Physical Layer Repeater,
EQ25EMSAM, EQ25EMARM, EQ22EMIDC and EQ22EMIDCFG. Electronic Modules:
Class I, Division 1, Groups B, C, & D
Class I, Division 2 Groups A, B, C & D, T4
Class II, Division 1, Groups E, F & G
Class II, Division 2, Groups F & G, T4
Class III, Division 1 & 2
Ta = 75°C

EQ3900RPSE. Remote Power Supply:
Class I, Division 1, Groups C & D, T6

EQ3900RPSG. Remote Power Supply:
Ordinary locations

EQ3800. Eagle Quantum Premier Power Distribution Module:
Class I Division 2 Groups A, B, C & D, T3A
Class I Zone 2 IIC; T3
Ta = 80°C

EQ3770 Explosionproof Input/Output Enclosure:
Class I, Division 1, Groups B, C & D, T6

EQ3900N. Eagle Quantum Premier System Enclosure, Non-Incendive:
Class I Division 2 Groups A, B, C & D, T3C
Class I Zone 2 IIC; T3
Ta = 60°C

EQ3900E. Eagle Quantum Premier System Enclosure, Explosionproof:

EQ3900E (with key switch):
Class I, Division 1, Groups C & D
Class II, Groups E, F & G
Ta = 60°C

EQ3900E (with pushbuttons and pilot lamps):
Class I, Division 1, Groups B, C & D
Class II, Groups E, F & G
Ta = 60°C

EQ3900E (without operators):
Class I, Division 1, Groups B, C & D (T5)
Class II/III, Div. 1, Groups E, F & G (T5)
Class I, Zone 1, Group IIB (T5)
Ta = 60°C

EQ2100PSM. Power Supply Monitor:

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Suitable for installation in unclassified locations.

12. **Description of Equipment:**

COMBUSTIBLE GAS DETECTORS, Fixed

Eagle Quantum™ Premier Fire and Gas Detection/Releasing System: Combustible and Low Concentration (PPM) Gas Detection. The system consists of the following:

System Controller model EQ3XXX Series

System Controller model EQ3XXX Series provides communications with up to 246 field devices over the local operating network (LON) and provides isolated RS232, RS485 (ModBus), Ethernet, ControlNet and Ethernet Device Level Ring (DLR) communication links with a supplemental Operator Interface Station (OIS). The controller can be configured for stand-alone, redundant or multi-loop modes of operation. The EQ3LTM LON Termination Module (p/n 008982-001) provides a means of connection for the LON when using the redundant controller configuration and is suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 85°C; Class I, Zone 2 IIC; T4 Ta = 85°C hazardous (classified) indoor locations. The EQ2230RSP RS485 EMI Filter (p/n 013828-001) is used when RS485 connections are utilized for multi-loop operation and controller separation distances exceed 20 feet. The distance between controllers can be extended using an RS485 to Fiber Optic Converter: MOXA single mode fiber optical converter (p/n MOXA TCF-142-S) or Phoenix Contact multi-mode fiber optic converter (p/n PCI-MOS-RS485W2/FO 850T). The controller provides an alphanumeric VFD to display 0-100% LFL combustible gas-in-air measurements and other system information and LED indicators for viewing operational, alarm and fault status, a 7 contact keypad and 9 mechanical SPST relays for alarm and status contacts. The relay contacts are rated 30V, 1A. The operating temperature of the controller is -40°C to + 80°C and operating voltage is 24 Vdc (nominal) and is suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 80°C; Class I, Zone 2 IIC; T4 Ta = 80°C hazardous (classified) indoor locations. The following System Controller models are included in the Approval:

EQ3 XXXabcd. Eagle Quantum Premier Controller

XXX = Controller: 001 (246 Nodes), 005 (246 Nodes Customer specific Config.), 016 (16 Nodes), 150 (150 Nodes)
a = Mounting Option: D (DIN rail) or P (panel mount)
b = COM board 1: N (none) or C (ControlNet) or D (Ethernet DLR)
c = COM board 2: N (none) or S (Serial) or E (Ethernet)
d = Approval Agency: A, F, T, T-C, W or W-C

LON I/O NON-INCENDIVE DEVICES

Multiple Channel Modules model EQ37X0 Series provide 8 channel field input/output which can be configured for dry contact, signaling or releasing output operation. The operating temperature of the modules are -40°C to +85°C and the operating voltage is 24Vdc (nominal) and is suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 85°C; Class I, Zone 2 IIC; T4 Ta = 85°C hazardous (classified) indoor locations.

The Analog Input Module is an 8-channel microprocessor-based module providing 4-20mA analog input. Two fault isolation relays are utilized in the module. The relay contacts are rated 30V, 1A. Each channel on the module has LED status indicators for both active and fault conditions. The Analog Input Module is housed in a cast aluminum enclosure (5.2 x 4.5 x 1.7 inch) with optional DIN rail mount or panel mount configurations.

The HART Interface (p/n 008056-xxx) Module option provides the necessary impedance filtering for HART communications ability with the Analog Input Module. The HART Interface Module (HIM) is intended to be used only with the EQ3710ab Analog Input Module and mounted in the same enclosure.

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The Relay Module provides 8 channel dry contact relay outputs. The relay contacts are rated 30Vdc 1A.

EQ37X0ab. Eagle Quantum Premier Multiple Channel Module

X = 0 (8 Channel DCIO Module) 1 (8 Channel Analog Input Module) 2 (8 Channel Relay Module) or 3 (8 Channel EDIO Module)

a = Mounting Option: D (DIN rail) or P (panel mount)
b = Approval Agency: A, F, T or W [Option T is available only for Analog Input Module (option X=1) and EDIO (option X=3)]

The Addressable Smoke Module EQ3760ASM is a LON module that provides a single Class A or Class B signaling line circuit intended for use with addressable, Apollo Fire Detectors Ltd devices identified herein. It is mechanically and electronically identical to the presently Approved EQ3750ASH Addressable Smoke and Heat Module, differing only in the operating firmware which provides increased SLC capability, i.e. 100 devices and 101 isolators/isolating bases, vs. 64 devices and 6 isolators for the EQ3750ASH. A maximum of 10 ASH and ASM modules combined can be installed on a LON. The ASM and ASH operate on 18 to 30 V dc, nominal 24 V, obtained from a connected EQP system power supply. Their operating temperature range is -40 to 185°F (-40 to 85°C). They are suitable for installation in Class I, Division 2, Groups A, B, C, D T4 Ta = 85°C; Class I, Zone 2, Group IIC T4 Ta = 85°C hazardous (classified) indoor locations.

The High Speed Deluge Module EQ3780HSDM is a LON module that provides six Class A or Class B input channels and six Class A or B output channels intended for releasing output function and the capability for cascading modules. The HSDM operates on 18 to 30 V dc, nominal 24 V, obtained from a connected EQP system power supply. The operating temperature range is -40 to 167°F (-40 to 75°C). The module is suitable for installation in Class I, Division 2, Groups A, B, C, D T4 Ta = 75°C; Class I, Zone 2, Group IIC T4 Ta = 75°C hazardous (classified) indoor locations.

EQ3750ab Addressable Smoke Module

a = Mounting Option: D (DIN rail) or P (panel mount)
b = Approval Agency: T

The Addressable Smoke and Heat Module Model EQ3750ASH Series. Input rated 18-30Vdc, 24Vdc nominal. 690 mA input current; Output 225 mA loop current, digital I/O, serial data. Transformer isolated digital communication (proprietary LON). The EQ3750ASH provides connection to 64 addressable Apollo XP95A and Discovery modules; reference EQ3750ASH Manual 95-8654 for recommended / supported Apollo Modules.

LON I/O EXPLOSIONPROOF DEVICES

Digital Communication Unit model EQ2200DCU and UD10XXX28 Series connects to any FM Approved 4-20mA gas detection instrument including Models C7064E4012, C7064E5012 and C7064E5014 Hydrogen Sulfide Sensors PIR9400 or PIRDUCT Series FM Approved Stand Alone Combustible Sensor/Transmitter for communication with the EQ3 XXX Series Eagle Quantum Premier Controller via the local operating network (LON). Digital Communication Unit model EQ2200DCUEX and UD10XXX28XXC Series accepts sensor signaling from Model CGS Series Combustible Gas Sensors for communication with the EQ3 XXX Series Eagle Quantum Premier Controller via the local operating network (LON). The operating temperature of the Digital Communication Units and Combustible Gas Sensors are -40°C to +75°C and -40°C to +50°C for H2S Sensors and operating voltage of the Digital Communication Units is 24 Vdc (nominal). The devices are suitable for installation in Class I, Division 1, Groups B, C and D; Class II/III, Division 1, Groups E, F, and G; Class I, Division 2, Groups A, B, C and D; Class II/III, Division 2, Groups F and G; T4 Ta = 75°C hazardous (classified) locations and indoor/outdoor use (Type 4X) when used with FM Approved Sensor Termination Box Model STB Series. The following Digital Communications and Sensor Termination box models are included in the Approval:

EQ22abDCUEX. Digital Communication Unit

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a = Housing Material: 0 or 5 (AL), 1 or 6 (SST)
b = Thread Type: 0 (2 port, ¾ NPT), 1 (3 port, ¾ NPT), 2 (4 port, ¾ NPT), 3 (5 port, ¾ NPT), 4 (2 port, M25), 5 (3 port, M25), 6 (4 port, M25), 7 (5 port, M25), 8 (6 port, M25)

EQ22abDCU. Digital Communication Unit

a = Housing Material: 0 or 5 (AL), 1 or 6 (SST)
b = Thread Type: 0 (2 port, ¾ NPT), 1 (3 port, ¾ NPT), 2 (4 port, ¾ NPT), 3 (5 port, ¾ NPT), 4 (2 port, M25), 5 (3 port, M25), 6 (4 port, M25), 7 (5 port, M25), 8 (6 port, M25)

{See UD10 FM cert. for model option details}

STBabcA. Sensor Termination Box

FM Certificate No. 3013252

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

Network Extender EQ2400NE Series provides system capability for a maximum of 60 nodes on the local operating network (LON) and is suitable for Class I, Division 1, Groups B, C, and D, Class II/III, Division 1, Groups E, F, and G; Class I, Division 2, Groups A, B, C and D; T4A Ta = 75°C; Class II/III, Division 2, Groups F and G; T4A Ta = 75°C hazardous (classified) locations and indoor/outdoor use (Type 4X). The operating temperature of the Network Extender is -40°C to +75°C and the operating voltage is 24 Vdc (nominal). The following Network Extender models are included in the Approval:

EQ24abNE. Eagle Quantum Network Extender

a = Housing Material: 0 (AL), 1 (SST), 5 (AL with clamp), 6 (SST with clamp)
b = Thread Type: 0 (2 port, ¾ NPT), 1 (3 port, ¾ NPT), 2 (4 port, ¾ NPT), 3 (5 port, ¾ NPT), 4 (2 port, 25mm), 5 (3 port, 25mm), 6 (4 port, 25mm), 7 (5 port, 25mm), 8 (6 port, 25mm)

Physical Layer Repeater EQ2400PLR Series provides signal re-transmission capability on the local operating network (LON) and is suitable for Class I, Division 1, Groups B, C, and D, Class II/III, Division 1, Groups E, F, and G; Class I, Division 2, Groups A, B, C and D; T4A Ta = 75°C; Class II/III, Division 2, Groups F and G; T4A Ta = 75°C hazardous (classified) locations and indoor/outdoor use (Type 4X). The operating temperature of the Physical Layer Repeater is -40°C to +75°C and the operating voltage is 24 Vdc (nominal). The following Physical Layer Repeater models are included in the Approval:

EQ24abPLR. Eagle Quantum Physical Layer Repeater

a = Housing Material: 0 (AL), 1 (SST), 5 (AL with clamp), 6 (SST with clamp)
b = Thread Type: 0 (2 port, ¾ NPT), 1 (3 port, ¾ NPT), 2 (4 port, ¾ NPT), 3 (5 port, ¾ NPT), 4 (2 port, 25mm), 5 (3 port, 25mm), 6 (4 port, 25mm), 7 (5 port, 25mm), 8 (6 port, 25mm)

POWER SYSTEM / DEVICE / MODULE

The standard system configuration includes the EQ2110PS Power Supply, EQ2130PS Power Supply, EQ2175PS Power Supply, EQP2120PS(-B) Power Supply or EQ3900RPS. The EQ2110PS, EQ2130PS, and EQ2175PS, with EQ2100PSM Power Supply Monitor, provide the controller and remote field devices with 24 Vdc power derived from 120/240 Vac, 60/50 Hz input power, have an operating temperature range of 0°C to +50°C and are suitable for installation in unclassified locations. The EQP2120PS(-B) provides the system with nominal 24.5 V dc (24.5 – 28 V dc) power derived from 120/220 V ac, 60/50 Hz input power and operates in pairs, one connected to the primary supply and the other to the secondary supply source; the secondary source is separately provided and must be of adequate capacity, be continuously powered,

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and comply with NFPA 72 requirements as acceptable to the authority having jurisdiction. Up to 8 primary power supplies can be operated in parallel to provide increased capacity with the same number of secondary power supplies also connected. he Redundancy Module, P/N 009934-001(-002) is connected to the power supply outputs. Operating temperature range for EQP2120PS(-B), and EQP2410PS(-P), and P/N 009934-001(-002) is -25°C to 55°C (-13°F to 131°F). The EQ3900RPS provides the system with 24 V dc power derived from dual 120/220 V ac, 60/50 Hz inputs, has an operating temperature range of -4 to 122 °F (-20° to 50 °C), a temperature code of T6, and is suitable for installation in Class I, Division 1, Groups C and D hazardous (Classified) outdoor (Type 4) locations; it is subject to the same restrictions as the EQP2120PS supplies. Alternatively, power to the controller and field devices may be provided from Power Distribution Module model EQ3800 Series that derives power from primary and secondary dc power sources. The operating temperature of the power distribution module is -40°C to +80°C and operating voltage is 24Vdc (nominal) and is suitable for installation in Class I, Division 2, Groups A, B, C and D; T3A Ta = 80°C; Class I, Zone 2 IIC, T3 Ta = 80°C hazardous (classified) indoor locations. The following EQ3900RPS and System Power Distribution Module models are included in the Approval:

EQ3900RPSabcde. Remote Power Supply

XP/I/1/CD;T6 -20°C≤ Ta≤ 50°C; Type 4
a = Enclosure: E (explosionproof), G (general purpose)
b = 24 VDC Power Outputs: 1 (one 24 Vdc Power Output {20 Amp Fuses}), 2 (two 24 Vdc Power Outputs {10 Amp Fuses}), 3 (three 24 Vdc Power Outputs {6 Amp Fuses})
c = Fuse Monitoring: 0 (no Fuse Monitoring), 1 (one Fuse Monitoring {Power Output: #1}), 2 (two Fuse Monitoring {Power Outputs: #1 & #2}), 3 (three Fuse Monitoring {Power Outputs: #1, #2, & #3})
d = Indicators (one or more letters may be used): N (No Indicator or Operator), A (Power Present Indicator), B (Power Trouble Indicator), C (Ground Fault Indicator), D (Ground Fault Test Operator)
e = Window: N (No Window), W (Window)

EQ3800ab. Eagle Quantum Premier Power Distribution Module

a = Mounting Option: N (none)
b = Approval Agency: A or W

The Ground Fault Monitor provides ground fault monitoring in systems that include reliable dual isolated 24Vdc power. The output from the Ground Fault Monitor is a contact closure in the presence of a ground fault. The relay contacts are rated 30V, 1A. The Ground Fault Monitor is intended to be mounted within the same cabinet as the controller. The Ground Fault Monitor must be installed within the EQP System but can monitor either the power supply or an individual device. The operating temperature of the Ground Fault Monitor is -40°C to +85°C and operating voltage is 24Vdc (nominal) and is suitable for installation in Class I, Division 2, Groups A, B, C and D; T4 Ta = 85°C; Class I, Zone 2 IIC, T4 Ta = 85°C hazardous (classified) indoor locations. The following Ground Fault Monitor models are included in the Approval:

EQ2220ab Ground Fault Monitor

a = Mounting Option: D (DIN rail)
b = Approval Agency: A, or W

ENCLOSURE SOLUTIONS

The EQ3770EIO is an EQP System assembly consisting of specific combinations of components/devices and an enclosure. The EQ3770EIO includes an explosionproof enclosure, a single EQ37xx Module (EQ3700DCIO, EQ3710AIM, EQ3720RM, or EQ3730EDIO), optional EQ2220GFM Ground Fault Monitor, and wiring terminals.

Input voltage is 24 V dc nominal with a range of 18 to 30 V dc, 11 watts max. The operating temperature range is -4°F to +122°F (-20°C to +50°C). The EQ3770EIO is suitable for use in Class I, Division 1, Groups B, C, D, T6; Ta = -

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20°C to +50°C hazardous (classified) locations.

EQ3770abcd Explosionproof Input/Output Enclosure

a = Input/Output module: A (EDIO), B (AIM), C (RM), D (DCIO)
b = Port threads: A (NPT), B (M25)
c = Ground Fault Monitor: A (no GFM), B (GFM)
d = Approvals: W (FM/CSA/ATEX/IECEx), B (SIL/FM/CSA/ATEX/IECEx)

The Eagle Quantum Premier EQ3 XXX Series System components are available in various combinations within enclosure model EQ3900N. The EQ3900N is suitable for installation in Class I, Division 2, Groups A, B, C and D; T3C Ta = 60°C; Class I, Zone 2, IIC; T3 Ta = 60°C hazardous (Classified) indoor/outdoor (Type 4X) locations or shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application and have a tool removable cover. The following system enclosure models are included in the Approval:

EQ3900Na-b. Eagle Quantum Premier System Enclosure, Non-Incendive

a = Sales (Factory) Order Number
b = Final Assembly Bill of Materials Number.
.

* **Enclosure options covered under this Approval:**
304SS and 316SS
Cover/Door: hinged with clamp(s) and padlock hasp or screw fastened
Gland plates
Window
Operators: pilot lamps, pushbuttons, double pushbuttons, 2-position selector switch and 2-position key switch
GND Lug (internal/external one piece)

EQ3900N Enclosure model number and size:

Model	H (in)	W (in)	D (in)
TN4X-141008	14	10	8
TN4X6-141008	14	10	8
TSC4X-141008	14	10	8
TSC4X6-141008	14	10	8
CN4X-161206	16	12	6
CN4X6-161206	16	12	6
TN4X-161206	16	12	6
TN4X6-161206	16	12	6
CN4X-161608	16	16	8
CN4X6-161608	16	16	8
TN4X-161608	16	16	8
TN4X6-161608	16	16	8
TSC4X-161608	16	16	8
TSC4X6-161608	16	16	8

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CN4X-201610	20	16	10
CN4X6-201610	20	16	10
TN4X-201610	20	16	10
TN4X6-201610	20	16	10
CN4X-241608U	24	16	8
CN4X6-241608U	24	16	8
TN4X-241608U	24	16	8
TN4X6-241608U	24	16	8
CN4X-302408	30	24	8
CN4X6-302408	30	24	8
TN4X-302408	30	24	8
TN4X6-302408	30	24	8

The Eagle Quantum Premier EQ3 XXX Series System components are available in various combinations within enclosure model EQ3900E. The EQ3900E (without operators) is suitable for installation in Class I, Division 1, Groups B, C and D T5; Class I, Zone 1, IIB, T5; Class II/III, Division 1, Groups E, F and G, T5 hazardous (Classified) indoor/outdoor (Type 4) locations. The EQ3900E (with pushbuttons and pilot lamps) is suitable for installation in Class I, Division 1, Groups B, C and D, T5; Class II, Division 1, Groups E, F and G, T5 hazardous (Classified) locations. The EQ3900E (with key switch) is suitable for installation in Class I, Division 1, Groups C and D, T5; Class II, Division 1, Groups E, F and G, T5 hazardous (Classified) locations. The following system enclosure models are included in the Approval:

EQ3900Ea-b. Eagle Quantum Premier System Enclosure, Explosionproof

a = Sales (Factory) Order Number
b = Final Assembly Bill of Materials Number.

*** Enclosure options covered under this Approval:**

Window
Operators: pilot lamps, single and double pushbuttons, 2 and 3 position key switches (maximum of 8)
Drain
GND Lug (separate internal, external)

The Eagle Quantum Premier EQ3 XXX Series System Controller, EQ3800 Series Power Distribution Module and EQ37X0 Series Multiple Channel Module and related system modules are available in the EQ3900G general purpose enclosures. The EQ3900G enclosures are for use in indoor, non-hazardous locations and have a voltage range of 20.4 to 26.4 V dc and an operating temperature range of 32° to 122°F (0° to 50°C) for the enclosures and all devices installed therein. The following System Base Enclosure models are included in the Approval (Enclosure depth values are specific to particular Enclosure sizes):

EQ3900Ga-b. Eagle Quantum Premier System Base Enclosure

a = Sales (Factory) Order Number
b = Final Assembly Bill of Materials Number.

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The System Controller, Power Distribution and Multiple Channel modules in addition to electronic modules EQ22EMDCU, EQ22EMDCUEX, EQ24EMNE, EQ24EMPLR, EQ25EMSAM, EQ25EMARM, EQ22EMIDC and EQ22EMIDCFG are suitable for installation in Class I, Division 2, Groups A, B, C and D; T4A Ta = 75°C hazardous (Classified) Locations or shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application and have a tool removable cover.

SENSORS / DETECTORS

COMBUSTIBLE GAS DETECTORS, Fixed

PIRECL, PointWatch Eclipse Infrared Hydrocarbon Gas Detector

FM Certificate No. FM16US0457X

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

PIRDUCT, DuctWatch Infrared Hydrocarbon Gas Detector.

FM Certificate No. 3018516

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

PIR9400, PointWatch Infrared Hydrocarbon Gas Detector.

FM Certificate No. 1B9A4.AX

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

PIR9400, PointWatch Infrared Hydrocarbon Gas Detector.

FM Certificate No. FM18US0217X

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

PIRTB, PointWatch Termination Box

FM Certificate No. 3011273

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

LOW CONCENTRATION (PPM) GAS DETECTORS, Fixed & Portable

Eagle Quantum™ Premier Fire and Gas Detection/Releasing System: Combustible and Low Concentration (PPM) Gas Detection. Models C7064E4012, C7064E5012 and C7064E5014 Electrochemical Hydrogen Sulfide (H2S) Sensors for use with EQ2200DCU Series Digital Communication Unit are suitable for installation in Class I, Division 1, Groups C and D for C7064E4012 & C7064E5012 and Groups B, C and D for C7064E5014; Class I, Division 2, Groups A, B, C and D

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hazardous (classified) locations. The Digital Communication Units are suitable for installation in Class II/III, Division 1, Groups E, F and G; Class II/III, Division 2, Groups F and G hazardous (classified) locations and indoor/outdoor use (Type 4X) when used with FM Approved Sensor Termination Box Model STB Series. The sensors monitor 0-20, 0-50 or 0-100 PPM H2S with an operating temperature range of -40°C to +50°C. Included in the Approval is optional hydrophobic filter assembly P/N 004956-001 and calibration Kit P/N 227115-001. (See Eagle Quantum Premier Fire and Gas Detection/Releasing System description under COMBUSTIBLE GAS DETECTORS, Fixed). (For descriptions of power supplies, power supply monitor and associated fire detection and control apparatus included in the Eagle Quantum Premier System, see Eagle Quantum Premier Fire and Gas Detection/Releasing System in AUTOMATIC RELEASES OF PREACTION AND DELUGE SPRINKLER SYSTEMS, CONTROL PANELS (compatible for use with Automatic Water Control Valves), AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT and LOCAL PROTECTIVE SIGNALING.)

GT3000, Toxic Gas Detector.

FM Certificate No. 3036783

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

OPEN PATH GAS MONITORS, Fixed

OPECL, Open Path Eclipse Infrared Hydrocarbon Gas Detector

FM Certificate No. 3023459

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

LS2000, FlexSight™, Line of Sight Infrared Gas Detector

FM Certificate No. FM16US0221X

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

COMBUSTIBLE AND TOXIC GAS DETECTOR CONTROL UNITS, Fixed

UD10, FlexVu® Universal Display Unit

FM Certificate No. FM16US0249

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

UD10, FlexVu® Universal Display Unit with CGS

FM Certificate No. FM16US0253

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

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UD20, FlexVu® Universal Display Unit

FM Certificate No. FM16US0254

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

(For description of C7064E Series Hydrogen Sulfide (H2S) detectors, see Eagle Quantum Premier Fire and Gas Detection/Releasing System in LOW CONCENTRATION (PPM) GAS DETECTORS, Fixed and Portable).

(For descriptions of power supplies, power supply monitor and associated fire detection and control apparatus included in the Eagle Quantum Premier System, see Eagle Quantum Premier Fire and Gas Detection/Releasing System in AUTOMATIC RELEASES OF PREACTION AND DELUGE SPRINKLER SYSTEMS, CONTROL PANELS (compatible for use with Automatic Water Control Valves), AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT and LOCAL PROTECTIVE SIGNALING.)

UD30, FlexVu® Universal Display Unit

FM Certificate No. FM18US0216X

Refer to the individual certificate for complete details of the specific configurations, model codes, ratings, standards and specific conditions of use.

13. **Specific Conditions of Use:**

1. The EQ3XXX Controller, Multiple Channel Modules, EQ3760ASM Addressable Smoke Module, EQ3750ASH Addressable Smoke and Heat Module, EQ2220 Ground Fault Monitor and the EQ3800 Power Distribution Module shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application and have a tool removable cover.

2. The EQ2100PSM Power Supply Monitor shall be installed in a suitable NRTL labeled NEMA rated enclosure.

3. The EQ22xx DCUEX Digital Communication Unit is for use with FM Approved CGS Series Combustible Gas Sensors.

4. The EQ22xx DCU Digital Communication Unit and EQ22xx DCUEX Digital Communication Unit may be used with FM Approved Sensor Termination Box Model STB Series.

5. The EQ22xx DCU Digital Communication Unit is for use with FM Approved 4-20mA Stand Alone gas detection instrument.

6. The GT3000 Toxic Gas Detector and C7064E Series H2S Sensors shall be connected to an EQ3770EIO Enclosure, EQ2200DCU/DCUEX Digital Communication Unit or STB Sensor Termination Box to maintain the type of protection specified for this instrumentation. Refer to the individual product certificates for additional details.

7. The Sensor Termination Box must be used in conjunction with FM Approved Combustible Gas or Low Concentration (ppm) Gas Detectors.

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14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
17th January 2003	Original Issue.
12th December 2017	Supplement 22: Report Reference: Project ID 3059080 dated 12th December 2017. Description of the Change: Hardware and firmware updates. New certificate format.
9th July 2019	Supplement 23: Report Reference: Project ID PR451962 dated 9th July 2019. Description of the Change: Addition of HDSM module: EQ3780HSDM