

Instructions

Eagle Quantum Premier®

Hazardous Location Electronic Based Fire and Gas Alarm Control Panel and Automatic Releasing for Pre-Action and Deluge Systems EQ3900N Series



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Eagle Quantum Premier® Hazardous Location Electronic Based Fire and Gas Alarm Control Panel and Automatic Releasing for Pre-Action and Deluge Systems EQ3900N



Non-Incendive / Non-Sparking

DESCRIPTION

As part of providing a total systems solution to industrial clients around the world, Detector Electronics Corporation offers several certified systems enclosures for mounting in hazardous locations.

These enclosures can be configured to house various combinations of Eagle Quantum Premier controllers and 8 channel IO modules, along with a power distribution module. They are intended for use in hazardous locations, with certifications that include Class 1 Division 2 per the National Electrical Code, and Zone 2 per EN/IEC 60079-15.

Regulations require that enclosures and their contents be certified as an entity for use in a hazardous location.

FEATURES

- Hazardous area certified solution (Non-incendive/non-sparking CL. 1 Div. 2, Zone 2 enclosure)
- Simple wire installation into terminal blocks
- Configurable device selection for the enclosure
- Electronics and wiring tested at the factory.

ENCLOSURE

Depending upon the equipment selection, the front door may or may not have a window, indicators, and operators installed.

SPECIFICATIONS

INPUT VOLTAGE—

24 Vdc nominal, 18 to 30 Vdc. 10% overvoltage will not cause damage to equipment.

Input Current is specific to the actual assembled enclosure and I/O channel usage / type. Current requirements of individual Enclosure(s) is placed on Label. Tables 3-1 and 3-2 in EQP System Manual 95-8533, provides Minimum and Maximum Module currents.

TEMPERATURE RANGE—

Operating: -40°F to +140°F (-40°C to +60°C)
Storage: -40°F to +140°F (-40°C to +60°C)

HUMIDITY—

5% to 95%, non-condensing.

CERTIFICATION—

FM/CSA: See Appendix A for FM and CSA details.



ATEX/CE &

IECEX: See Appendix B for ATEX and IECEX details.



USCG: See Appendix D of the EQP Manual (95-8533) for details on USCG, DNV certification.



Refer to the Eagle Quantum Premier manual (form number 95-8533) for system certification details, individual controller and module specifications, and installed equipment operation details.

WEIGHT (Approximate, w/o Electronic Assemblies)—

16x16x08:	35 pounds (16 kg)
16x12x06:	Consult Factory
20x16x10:	50 pounds (23 kg)
14x10x08:	32 pounds (14.5 kg)
24x16x08:	44 pounds (20 kg)
30x24x08:	75 pounds (34 kg)
60x36x16:	Consult Factory

INSTALLATION

The enclosure must be securely bolted in place.

MOUNTING

Refer to the appropriate drawing for mounting dimensions.

ENCLOSURE ENTRY

The number and position of wiring entries must be specified when the enclosure is ordered. The enclosures can accept a certain number and size of entries as specified by enclosure manufacture. Only manufacturer recommended cable glands can be used with the enclosures. Consult with Det-Tronics Corporation on the exact number and sizes of entries that are available for each enclosure.

WIRING INSTRUCTIONS

Electrical wiring schematics for the custom device configuration will be provided with the enclosure. Wiring is made to the appropriate terminals located inside of the enclosure and is secured in place.

Wiring terminals on internal modules except 30-12 awg (0.05 to 4mm²) wire.

Wire Terminal Torque 0.5 to 0.6 N-m.

EQP System Manual 95-8533 has recommended wire size(s) based on distance and signal losses.

ORDERING INFORMATION

Refer to the EQ3900N Enclosure Model Matrix for details.

For assistance in ordering a system to fit your application, please contact:

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
E-mail: det-tronics@det-tronics.com

or contact your local sales office, which can be found on the Det-Tronics web site:

www.det-tronics.com

EQ3900N Enclosure Model Matrix

MODEL	DESCRIPTION				
EQ3900N	EQP, Class 1, Division 2/Zone 2 Enclosure Solution				
	<table border="1"> <thead> <tr> <th>TYPE</th> <th>CONFIGURATION</th> </tr> </thead> <tbody> <tr> <td>XXXXXXXX-XXX</td> <td>Sales Order # Drawing Packet</td> </tr> </tbody> </table>	TYPE	CONFIGURATION	XXXXXXXX-XXX	Sales Order # Drawing Packet
TYPE	CONFIGURATION				
XXXXXXXX-XXX	Sales Order # Drawing Packet				

EQ3900N Design Criteria

ATEX / IECEx EQ3900N EQP System Enclosure Solutions									3rd Party Devices	
Cabinet Size	Operating Temperature Range	IECEX/ATEX Zone	EQ3xxx Cont.	EQ37xx Modules	EQ2230 GFM	EQ2230 RSP	EQ3 LTM	EQ3800 PDM	Terminal Strip	Fuse(s) (STAHL)
14x10x08	-20 to +60°C	T3		≤1	≤1				≤1	
16x16x08	-20 to +75°C	T3		≤1	≤1				≤2	
20x16x10	-20 to +75°C	T3		≤1	≤1				≤2	
24x16x08	-20 to +75°C	T3		≤1	≤1				≤2	
30x24x08	-20 to +29°C	T3	≤2	≤2	≤1	≤2	≤2	≤1	≤1	
	-20 to +70°C	T3		≤6	≤1				≤2	
	-20 to +59°C	T3		≤6	≤1				≤2	Y
	-20 to +59°C	T3							≤2	Y
FM / CSA EQ3900N EQP System Enclosure Solutions									3rd Party Devices	
Cabinet Size	Operating Temperature Range	Class Div./Zone	EQ3xxx Cont.	EQ37xx Modules	EQ2230 GFM	EQ2230 RSP	EQ3 LTM	EQ3800 PDM	Terminal Strip	Fuse(s) (STAHL)
14x10x08	-40 to +60°C	T3A/T3		≤1	≤1				≤1	Optional
16x12x06	-40 to +60°C	T3A/T3		≤1	≤1				≤1	Optional
16x16x08	-40 to +60°C	T3A/T3		≤1	≤1				≤2	Optional
20x16x10	-40 to +60°C	T3A/T3	≤1	≤2	≤1	≤1	≤1	≤1	≤1	Optional
24x16x08	-40 to +60°C	T3A/T3		≤1	≤1				≤2	Optional
30x24x08	-40 to +60°C	T3A/T3		≤6	≤1				≤1	Optional
			≤2	≤3	≤1	≤2	≤2	≤1	Optional	

Notes:

Optional Windows and Operators Allowed: Windows and operators are installed by Adalet

Operators include: Lamps (white, red, green, and amber), push-buttons (single and double), two position selector switch and key switch

Enclosures available in Adalet TSC, TN, and CN series. 304SS and 316SS

EQ37xx Modules = EQ3700DCIO, EQ3710AIM, EQ3720RM, EQ3730EDIO, EQ3750ASH, EQ3760ASM and EQ3780HSDM

FM / USCG EQ3900N EQP System Enclosure Solutions													
Cabinet Size	Operating Temperature Range	IECEX/ATEX Zone	EQ3xxx Cont.	EQ37xx Modules	EQ2230 GFM	EQ2230 RSP	EQ3 LTM	EQ3800 PDM	Terminal Strip	Fuse(s) (BUSSMAN)	QUINT Diode	QUINT EQP2120 PS	QUINT EQP2410 PS
60x36x16	-20 to +49°C	T4	1	*d	1				Y	Y	2	1	2
				*e	1				Y	Y	2	1	2

Notes:

*d = 1 EDIO

*e = 4 units total (2 AIM and 2 EDIO)

APPENDIX A

FM and CSA APPROVALS

Class I, Div. 2, Groups A, B, C & D (T3A)

Class I, Zone 2, Group IIC (T3)

NEMA/Type 4X

Tamb = -40°C to +60°C


Note:

Operators and windows must be installed by Adalet in order to maintain the ingress protection rating.

APPENDIX B

ATEX and IECEx APPROVAL

ATEX CERTIFICATION

DEMKO 02 ATEX 133754X
CE  II 3 G

IP66
EN 60079-29-1
EN 60079-29-4

IECEx CERTIFICATION

IECEx ULD.10.0011X

IP66

Compliance to EN60079-29-1/-4 only applies to configurations with EQ3710AIM, EQ3730EDIO and EQ3XXX present. The relevant EQ3900N Enclosure must be used with gas detection apparatus that are certified for compliance to EN60079-29-1/-4 and that provide a suitable linear 4-20 mA output, relay contact output or LON communication output relative to the %LFL of the available gas in the area of the gas detection apparatus. See the EQP Manual 95-8533 for details on the required connection parameters.

Configurations covered by these certificates:

A. 14x10x08 Inches Enclosure:

1x I/O device (DCIO, EDIO, HSDM AIM, RM, ASH, and ASM), plus 1x terminal strip

EX code	Ambient Temperature Range	Temperature Class
EX nA nC IIC T3 Gc	-20°C to +60°C	T3

B. 16x16x08 Inches Enclosure:

1x I/O device (DCIO, EDIO, HSDM, AIM, RM, ASH, and ASM) plus 2x terminal strip

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +75°C	T3

C. 20x16x10 Inches Enclosure:

1x I/O device (DCIO, EDIO, HSDM, AIM, RM, ASH, and ASM) plus 2x terminal strip

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +75°C	T3

D. 24x16x08 Inches Enclosure:

1x I/O device (DCIO, EDIO, HSDM, AIM, RM, ASH, and ASM) plus 2x terminal strip

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +75°C	T3

E. 30x24x08 Inches Enclosure:

2x EQ3XXX controller plus 2x I/O devices (DCIO, EDIO, HSDM, AIM, RM, ASH, and ASM), plus 1x PDM, plus 2x EQ3LTM, plus 1x EQ223RSP, plus 1x terminal strip

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +29°C	T3

F. 30x24x09 Inches Enclosure:

6x I/O devices (DCIO, EDIO, HSDM, AIM, RM, ASH and ASM), plus 2x terminal strip and fuses. Fuses may be mounted at the first or second rail from the bottom only. The modules shall be mounted as shown on page 6 in design drawing 007570 001

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +70°C (without fuses)	T3
Ex nA nC IIC T3 Gc	-20°C to +59°C (with fuses)	T3

G. 30x24x08 Inches Enclosure:
No modules, only fuses and 2x terminal strips

EX code	Ambient Temperature Range	Temperature Class
Ex nA nC IIC T3 Gc	-20°C to +59°C	T3

Compliance With:

EN 60079-0:2012	IEC 60079-0:2011
EN 60079-15:2010	IEC 60079-15:2010
EN 60529:1991/A1:2001	IEC 60529:2001
EN 60079-29-1: 2007	
EN 60079-29-4: 2010	

INSTALLATION INSTRUCTIONS

For ambient temperatures below -10°C and above +60°C, use field wiring suitable for both minimum and maximum ambient temperature. All cable and blanking elements used to close unused apertures shall be certified to the valid standards, rated minimum IP66, suitable for the conditions for use, and correctly installed.

All internal wiring is 18 AWG stranded, 600V rated unless otherwise specified. A twin ferrule is required where 2 wires land on same terminal. Torque per terminal manufacturer's specification (0.5 Nm min - 0.8 Nm max). All grounding wires are 16 AWG green with yellow stripe unless otherwise specified. Power distribution wiring of 302408 enclosure with 6x I/O modules is 10 AWG for input feed and 14 AWG internally.

Conditions for Safe Use:

An EQ38XXPDM (Power Distribution Module) may be installed only in enclosure 302408 (30 x 24 x 08 inches /76.2 x 60.9 x 20.3 cm), one EQ38XXPDM per enclosure.

The EQP system enclosure type EQ3900N may only be installed, connected, or removed when the area is known to be non-hazardous.

The EQP System enclosure type EQ3900N shall be used in an area of no more than pollution degree 2 conforming to IEC 60664-1 and be connected to supply circuits where the rated voltage cannot be exceeded by 40% caused by transient disturbances.

For ambient temperatures above +60°C, conductors suitable for at least 20°C above the ambient temperature must be used. All installed components (external pushbuttons, lights, switches and internal terminals) must be certified to the relevant EN/IEC standards for hazardous locations, correctly installed to maintain IP66 rating, and suitable for the conditions of use.

Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.

For Compliance to EN 60079-29-1 / EN 60079-29-4, the EQ3900N must be used with gas detection apparatus that are certified for compliance to EN 60079-29-1 & -4 providing 4-20mA (For use EQ3710 AIM), relays outputs (for use with EQ3730EDIO) or LON communication (for use with the EQ3xxx Controller).

When Model EQ3XXX is present:

- For EQ3XXX - The ambient temperature range is limited:
 - from -40°C to +70°C if any of the output relays K1 through K7 is used.
 - from -40°C to +80°C if all output relays K1 through K7 remain open-contacted and de-energized.

- For compliance to EN 60079-29-1 (resp. EN 60079-29-4), the EQ3XXX Controller must be used with gas detection apparatus that are certified for compliance to EN 60079-29-1 (resp. EN 60079-29-4) and that provide a suitable linear 4-20mA output, relay contact output or LON communication output relative to the %LFL of the available gas in the area of the gas detection apparatus. See the Manual for details on the required connection parameters.

















- The EQ3XXX Controller shall be used in an area of no more than pollution degree 2 conform EN 60664-1, , and be connected to supply circuits where the rated voltage cannot be exceeded by 140% caused by transient disturbances.

When Model EQ3700DCIO, EQ3710AIM, EQ3720RM, EQ3730EDIO, EQ3750ASH, EQ3760ASM, EQ3780HSDM or EQ2220GFM is present:

- The device shall be used in an area with a classification of no more than pollution degree 2 and conforming to EN 60664-1,

- The device shall be connected to supply circuits where the rated voltage cannot be exceeded by 140% caused by transient disturbances.

EQUIPMENT SAFETY SYMBOLS

Symbol	Description
	Direct current
	Alternating current
	Both direct and alternating current
3 	Three-phase alternating current
	Earth (ground) current
	Protective conductor terminal
	Frame or chassis terminal
	On (power)
	Off (power)
	Equipment protected throughout by double insulation or reinforced insulation
	Caution, possibility of electric shock
	Caution, hot surface
	Caution*
	In position of bi-stable push control
	Out position of bi-stable push control
	Ionizing radiation

* Manufacturer to state that documentation must be consulted in all cases where this symbol is marked.



95-8559



FlexSonic® Acoustic
Leak Detector



X3301 Multispectrum
IR Flame Detector



PointWatch Eclipse® IR
Combustible Gas Detector



FlexVu® Universal Display
with GT3000 Toxic Gas Detector



Eagle Quantum Premier®
Safety System

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