DET-TRONICS®

SPECIFICATION DATA

Eagle Quantum™

Network Extender

EQ2400NE

APPLICATION

The EQ2400NE Eagle Quantum Network Extender expands the capabilities of the system by allowing additional nodes as well as additional wiring to be added to the LON/SLC (communication loop). Without a network extender, the communication network is limited to 60 nodes on a 2000 meter loop. Each network extender, however, increases the capacity of the loop by up to 40 nodes and 2000 meters of wiring, up to a maximum of 244 field nodes and 10,000 meters of wiring.

The network extender's electronic circuitry is mounted inside an explosion-proof metal housing for installation in hazardous locations.

FEATURES

- Increases loop capacity
- Increases communication loop wiring length
- No configuration of network extender required

SPECIFICATIONS

INPUT VOLTAGE—
18 to 30 vdc.

POWER CONSUMPTION—
2.2 watts nominal at 24 vdc, 4.0 watts maximum.

INPUTS/OUTPUTS—
Digital, transformer isolated (78.5k Baud).

TEMPERATURE RANGE—
Operating: –40°F to +167°F (–40°C to +75°C)
Storage: –67°F to +185°F (–55°C to +85°C).

HUMIDITY—
5 to 95% RH at 70°C

CERTIFICATIONS—

FMR: Performance verified per ANSI/NFPA 72-1996, FM 3260 and FM 6310/6320.
Class I, Division 1, Groups B, C, & D.
Class I, Division 2, Groups A, B, C, & D (T4A).
Class II, Division 1, Groups E, F, & G.
Class II, Division 2, Groups F & G (T4A).
Class III Division 1 & 2.
NEMA Type 4X.

CSA: Performance verified per CSA C22.2, No. 152.
Class I, Division 1, Groups B, C, & D.
Class I, Division 2, Groups A, B, C, & D (T4A).
Class II, Division 1, Groups E, F, & G.
Class II, Division 2, Groups F & G (T4A).
Class III, Division 1 & 2.
NEMA Type 4X.

CENELEC: EEx d IIC T4 (T_{amb} -60°C to +75°C).
EEx d IIC T5 (T_{amb} -60°C to +65°C).
EEx d IIC T6 (T_{amb} -60°C to +50°C).
IP66.

CE: Conforms to all relevant European norms.

DIMENSIONS—
See Figure 1.

SHIPPING WEIGHT—

Aluminum:	6.0 lb (2.7 kg)
Stainless Steel:	10.0 lb (4.5 kg)
Electronic module:	3.0 lb (1.4 kg).

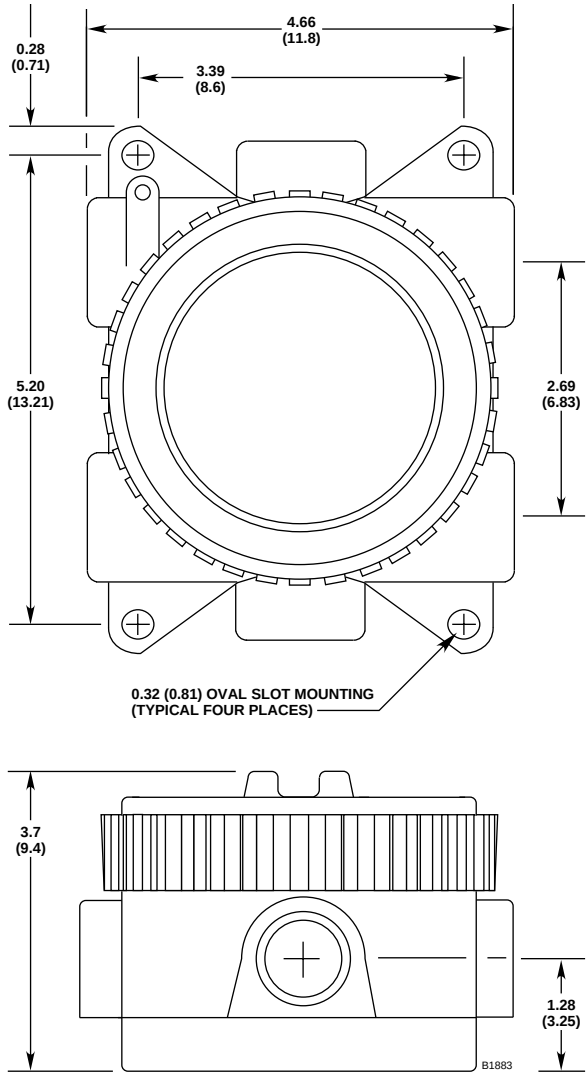

Figure 1—Dimensions in Inches (Centimeters)

DESCRIPTION

The Eagle Quantum Network Extender consists of an electronic module incorporating state-of-the-art communication technology, mounted inside an explosion-proof aluminum junction box.

Network extender circuitry supports communication in both directions. If the fault detection circuitry in a field device isolates a wiring fault in the network, uninterrupted communication can continue in the opposite direction.

The use of a network extender requires no special system configuration at the time of installation, other than the normal configuration of the gateway, logic controller and field devices.

AUTOMATIC DIAGNOSTICS

Automatic fault detection circuitry performs a self-test of the network extender's memory upon power-up. Two yellow LEDs inside the enclosure are illuminated in the event that a fault is detected. Diagnostic circuitry in the network extender does not monitor system wiring or the functioning of devices connected to the network extender.

ENCLOSURE

The network extender electronic module is mounted inside an explosion-proof, water-tight aluminum enclosure, which is available with 3/4 inch NPT or 20/25 mm conduit entries.

SYSTEM CAPACITY

The basic Eagle Quantum system supports a communication loop consisting of up to 60 nodes and up to 2000 meters of wiring. Adding a network extender to the loop allows it to be expanded by up to 40 nodes with an additional 2000 meters of wiring. Up to 6 network extenders can be utilized in a single system, supporting up to 244 field nodes and up to 10,000 meters of wiring.

INSTALLATION

NOTE

Refer to the Eagle Quantum system manual, form number 95-8470, for complete instructions regarding wiring and installation.

1. Securely mount the aluminum enclosure.

2. Remove the cover from the network extender enclosure.

3. Connect the 24 vdc power lead wires and the communication network cables to the appropriate points on the terminal block. See Figure 2 for terminal location within the junction box and Figure 3 for terminal identification. Refer to Table 1 to determine maximum wiring length.

COM 1 - Communication network connections: Connect to COM 2 terminals of the next device on the loop, A to A and B to B.

COM 2 - Communication network connections: Connect to COM 1 terminals of the previous device on the loop, A to A and B to B.

24 VDC - Connect the "+" terminal to the positive side of the 24 vdc power source. (Both "+" terminals are connected internally.)

Connect the "-" terminal to the negative side of the 24 vdc power source. (Both "-" terminals are connected internally.)

4. Connect the shields to the two designated "shield" terminals. The two shield terminals are connected internally to ensure shield continuity. **Do not** ground either shield at the network extender enclosure.

IMPORTANT

Insulate the shields to prevent shorting to the device housing or to any other conductor.

5. Check all field wiring to ensure that the proper connections have been made.

6. Inspect the enclosure O-ring to be sure that it is in good condition and properly installed. Lubricate the O-ring and the threads of the enclosure cover to ease both installation and future removal of the cover. The recommended lubricant is a silicone free grease available from Detector Electronics. If the installation uses catalytic type combustible gas sensors, it is imperative that lubricants containing silicone not be used, since they will cause irreversible damage to the sensor. Place the cover on the enclosure. Tighten only until snug. **Do not over tighten.**

7. Once powered, the green LED will blink rapidly during network traffic.

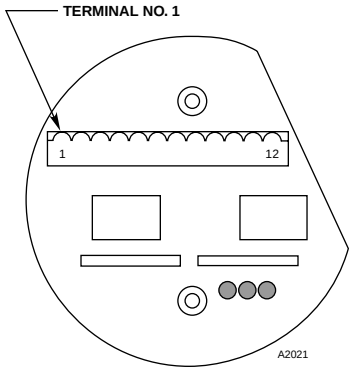

Figure 2—Network Extender Wiring Terminal Location

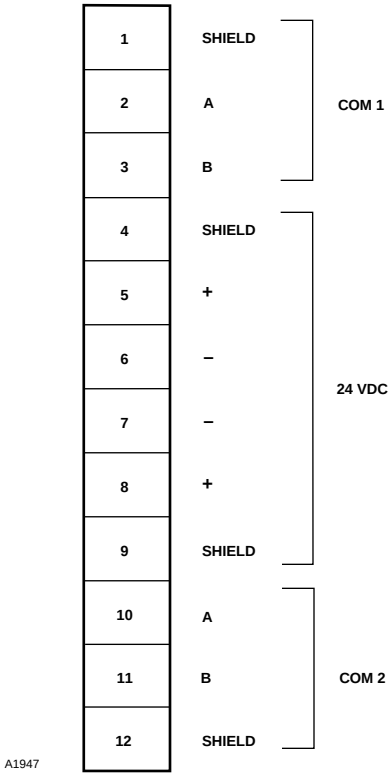

Figure 3—Network Extender Wiring Terminal Identification

Table 1—Maximum Wiring Length from Nominal 24 vdc Power Source to Network Extender

Wire Size	Maximum Wiring Distance	
	Feet	Meters
18 AWG (1.0 mm^2)*	2200	650
16 AWG (1.5 mm^2)*	3500	750
14 AWG (2.5 mm^2)*	5600	1700

* Approximate Metric Equivalent.

ORDERING INFORMATION

When ordering, please specify:

EQ2400NE — Eagle Quantum Network Extender

Specify:

Enclosure material — Aluminum or stainless steel
Number of ports — 5 or 6
Port size — 3/4 inch NPT or 25/20 mm
Certification — FM/CSA/CENELEC/CE.

For additional information or for assistance in designing a system to meet the needs of a specific 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
Web site: www.detronics.com
E-mail: detronics@detronics.com