



INSTRUCTIONS

95-8511

Eagle Quantum Heart Beat Monitor

EQ2400HBM

Eagle 2000 Heart Beat Monitor

EA2400HBM



INSTRUCTIONS

Heart Beat Monitor

EQ2400HBM & EA2400HBM



Section I General Information

The **EA2400HBM** and **EQ2400HBM** are handheld instruments, used to trouble shoot communication wiring problems on the Det-tronics **Eagle 2000** and **Eagle Quantum** systems. The EA2400HBM is for use on Eagle 2000 systems and the EQ2400HBM is for use on the Eagle Quantum systems.

DESCRIPTION / SYSTEM THEORY OF OPERATION

The Heart Beat Monitor provides the means to determine the location of a break or short in the communications network loop of a Eagle Quantum™ or Eagle 2000™ system . The hand held device is powered by an internal standard 9V battery and is supplied with a carrying case and test leads.

The Det-tronics Eagle System network communications modules utilize a unique patented technique for detecting network wiring problems. This feature minimizes the possibility of a communication breakdown in the event of a wiring fault and can also serve as an aid in troubleshooting. To establish systems integrity a “Systems Heart Beat” is generated by the Gateway and sent to each module on the system’s network communications loop from the first network communication port (COM 1). This Heart beat must be received by all communication modules on the network and return to the second network communications port (COM 2) on the gateway.

If a problem occurs somewhere within the LON network wiring, the systems Gateway annunciates the fault, while the fault isolation circuitry in the affected nodes isolate the section of the network where the fault has occurred. A single open or short on the network will not typically affect system communication between the field devices and the systems Gateway. Systems communication will continue until the wiring problem can be repaired.

The Heart Beat Monitor is supplied with a carrying case and test leads. The monitors carrying case can be attached to the technicians wrist, via the Velcro strap, to provide hands free operation of the test leads. The carrying case is provided with a viewing window to view the status LED’s.

FEATURES

- Status LED’s: COM 1, COM 2 and AUXILIARY
- Standard Banana Jacks for test connections
- Carrying case with wrist strap and test leads



SPECIFICATIONS

OPERATING VOLTAGE :

9 vdc nominal, Standard Battery.

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 RANGE :

5 to 95% RH, non-condensing.

CERTIFICATION :

None (Area should be declassified prior to use in a hazardous location)

DIMENSIONS : (See figure 1)

2.5" (6.35cm) wide x 5" (12.7cm) tall x 1" (2.54cm) deep

SHIPPING WEIGHT (approximate)—

1.0 pound (2.2 kilogram).

OPERATION / SET UP OF EA2400HBM / EQ2400HBM

- 1- Strap tester module to wrist.
- 2- Plug test leads into test jacks.
- 3- Place ON/OFF switch in the "ON" position.

The LED's (COM 1, COM 2 and Auxiliary) will flash on once.

Connect the test leads to either set of LON communication terminals on the module under test. (see figure 2)

Note: the test lead connections are not polarity sensitive.

The tester's status LED's will flash approximately every 4 seconds and display the source (COM 1 or COM 2 of the main gateway or the auxiliary gateway) of the systems Heart Beat.

OPERATION OF EQ2400HBM FOR EAGLE QUANTUM

With normal operation indicated on the Gateway display, and the Test leads of the Heart Beat monitor connected to a given communications module's terminals A & B (COM1 or COM2), the COM 1 LED on the Heart Beat Monitor will light.

Note: If operating power is lost to a field communications module, a pass-through circuit is created for the network wiring. This ensures network integrity, even if a node is down for service or has been damaged

When a LON fault occurs, the fault isolation circuitry in the affected node(s) isolates the section of the network where the fault has occurred. The Gateway will heal the ring allowing communications to continue from COM 1 and the COM 1 LED will continue to be lit.

To isolate a fault with the Heart Beat Monitor, the Eagle Vision™ OIS software must first be used to force the LON Override function and open the Gateway relay to un-heal the ring. To access the Override, select the Gateways' point display in the OIS software and then select "LON OVERVIEW", at the bottom of the display the LON override button can then be selected. When selected, the nodes on the screens will change to a consistent color (blue or green). This displays which nodes are receiving communications from the COM1 side of the gateway and which are receiving communications from the COM2 side.

Using the Heart Best Monitor it is then easy to isolate in the field the point in the LON wiring where the communications changes COM ports and the exact point of communication failure.

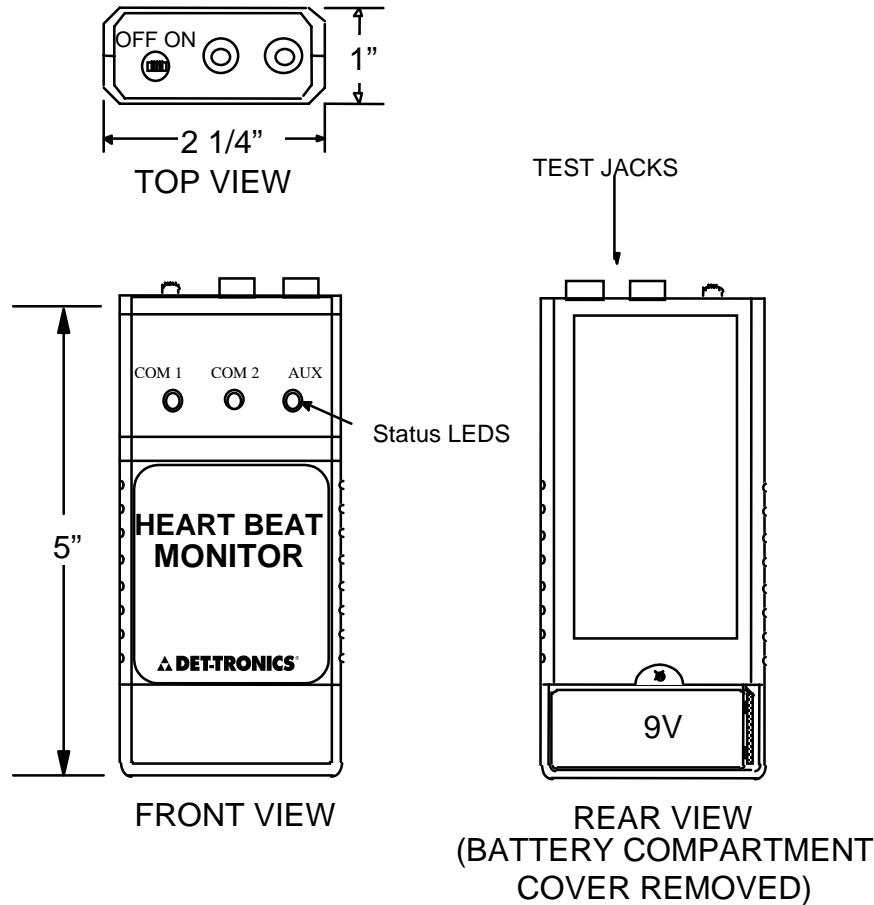


Figure 1

OPERATION OF EA2400HBM FOR EAGLE 2000

With normal operation indicated on the Gateway display, and the Test leads of the Heart Beat monitor connected to a given communications module's terminals A & B (COM1 or COM2), the COM 1 LED on the Heart Beat Monitor will light.

Note: If operating power is lost to a field communications module, a pass-through circuit is created for the network wiring. This ensures network integrity, even if a node is down for service or has been damaged

When a LON fault occurs, the fault isolation circuitry in the affected nodes typically isolates the section of the network where the fault has occurred. The Gateway will start to communicate from both COM 1 and COM 2 thus allowing communications to continue from the Gateway to the un-isolated modules.

To isolate a LON fault, connect the test leads of the Heart Best Monitor to the suspect communications module's terminals A & B (COM1 or COM2). The LED's will indicate whether communications are originating from COM 1 or COM 2 of the Main Gateway or the Auxiliary Gateway.

Using the Heart Best Monitor it is then easy to isolate in the field the point in the LON wiring where the communications changes COM ports and the exact point of communication failure.

NOTE

*The Heart Beat monitor is designed for use in NON-HAZARDOUS AREA locations only.
Warning: The monitor will be damaged if the leads are connected to the 24VDC terminals by mistake.*



TROUBLESHOOTING

CONNECTIONS TO THE COMMUNICATIONS LOOP

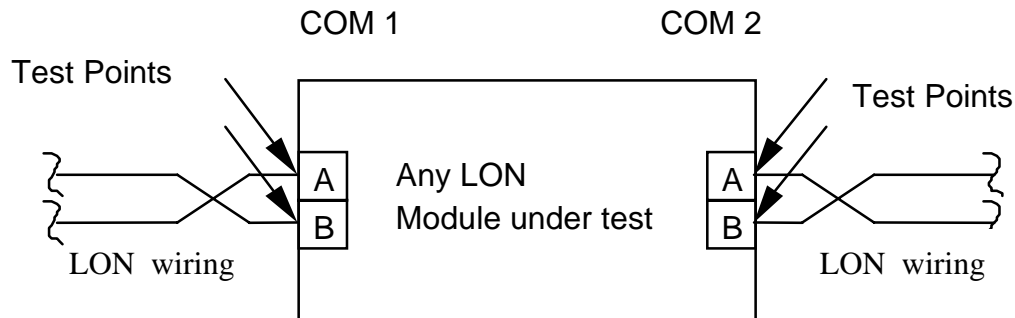


Figure 2
Connections to
LON module under test

MONITOR FAILURE

The Heart Beat Monitor is not designed to be repaired in the field. If a problem should develop, first check the battery condition and continuity of the test leads. In addition, remember that multiple LON faults (opens/shorts) can isolate nodes from any heart beat. In this event no LED's will illuminate. If this is suspect check for a heartbeat directly from the output terminals of the Gateway or LCU module.

If it is determined that the problem is caused by an internal electronic defect in the monitor, the device must be returned to the factory for repair. See directions below.

DEVICE REPAIR AND RETURN

Prior to returning devices or components, contact the Detector Electronics Minneapolis MN office so that an RMI (Return Material Identification) number can be assigned. A written statement describing the malfunction must accompany the returned device or component to expedite finding the cause of the failure, thereby reducing the time and cost of the repair.

Pack the unit or component properly. Use sufficient packing material in addition to an antistatic bag or aluminum-backed cardboard as protection from electrostatic discharge.

Return all equipment transportation prepaid to the Minneapolis factory location below, and c/o the Returns goods department.

Detector Electronics Corporation
6901 West 110th Street
Minneapolis, Minnesota 55438 USA
Telephone (612) 941-5665 or (800) 765-FIRE
Telex 6879043 DETEL UW
Cable DETRONICS
Facsimile (612) 829-8750

DET-TRONICS®

Detector Electronics Corporation
6901 West 110th Street Minneapolis, Minnesota 55438 USA
Tel: 612.941.5665 or 800.765.3473 Fax: 612.829.8750

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ORDERING INFORMATION

Complete Assemblies:

EQ2400HBM, Eagle Quantum, Heart Beat Monitor:

- Part Number: 000703-091

EA2400HBM, Eagle 2000, Heart Beat Monitor:

- Part Number: 000703-092

Replacement Parts:

Battery, 9V Transistor

- Part Number: 162447-001

Test Lead, 1 lead

- Part Number: 000147-124

Carrying Case

- Part Number: 0000001-634

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