DET-TRONICS®

A UTC Fire & Security Company

INSTRUCTIONS

Duct Mount Kit

Q900

DESCRIPTION

The Detector Electronics Model Q900 Duct Mount Kit is used with the Model PIRECL PointWatch Eclipse® IR gas sensor to detect combustible hydrocarbon gases within air handling ductwork. The Q900 is mounted to the exterior of the duct wall and utilizes an inlet / return tube arrangement that provides cross-duct air sampling without the need for vacuum pumps or aspirators. The Q900 kit utilizes the differential pressure created between the inlet and return tubes to drive a continuous air sample through the PointWatch Eclipse measurement chamber. The Q900 kit provides all necessary tubes and fittings to enable proper operation, but does not include a PIRECL PointWatch Eclipse detector (purchased separately). The Q900 is suitable for hazardous industrial and commercial applications, and provides optimum protection when used in addition to a properly installed open-area gas detection system.

OPERATION

Duct air velocity drives a cross-duct air sample into the upstream sample inlet tube, which in turn routes the air sample into the PIRECL PointWatch Eclipse special baffle cover enclosure. The PIRECL PointWatch Eclipse detector measures the hydrocarbon gas concentration, and a proportional signal is generated for external use. The downstream air sample (return) tube returns the air sample back into the duct. The critical parameter for proper operation of the Q900 kit is that all sample tubing connections and duct penetrations must be completely sealed and without any leakage. The mounting plate is provided with a complete closed cell silicone gasket to ensure a proper seal on flat mounting surfaces.

One inlet tube and one return tube are furnished with each Q900 kit. It is recommended for the inlet tube to span the entire inside width of the duct. Inlet tubes are available in four lengths (1, 3, 6, or 10 foot). Length of the inlet tube must be specified at time of order entry. Inlet tubes are then trimmed down to the precise length at the time of installation. Outlet tubes are available only in one common length of 12 inches.

All sample tubes are 3/4 inch diameter, and are threaded on one end to enable proper installation into the tubing couplers on the Q900 mounting plate. The inlet tube includes small pre-drilled inlet holes, which must be aligned to face directly into the airflow (upstream) in order to capture airflow and generate proper differential pressure. A sealing plug, cork, or welded seal must be provided at the end of the sample inlet tube to ensure that all airflow is directed towards the PointWatch Eclipse detector.

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SPECIFICATIONS

Q900 DUCT MOUNT KIT

MATERIAL—
304 Stainless Steel.

DIMENSIONS—
Refer to Figures 1 and 2.

AIR VELOCITY RANGE—
600 to 4000 ft/min.

SAMPLING TUBES—

Standard Material:	304 Stainless Steel, Schedule 40, 3/4 inch NPT.
Inlet Tube:	Length to be specified by customer (1, 3, 6, or 10 feet).
Return Tube:	12 inch standard length outlet tube.

MODEL PIRECL POINTWATCH ECLIPSE GAS DETECTOR

Refer to the Model PIRECL specification data sheet (number 90-1138).

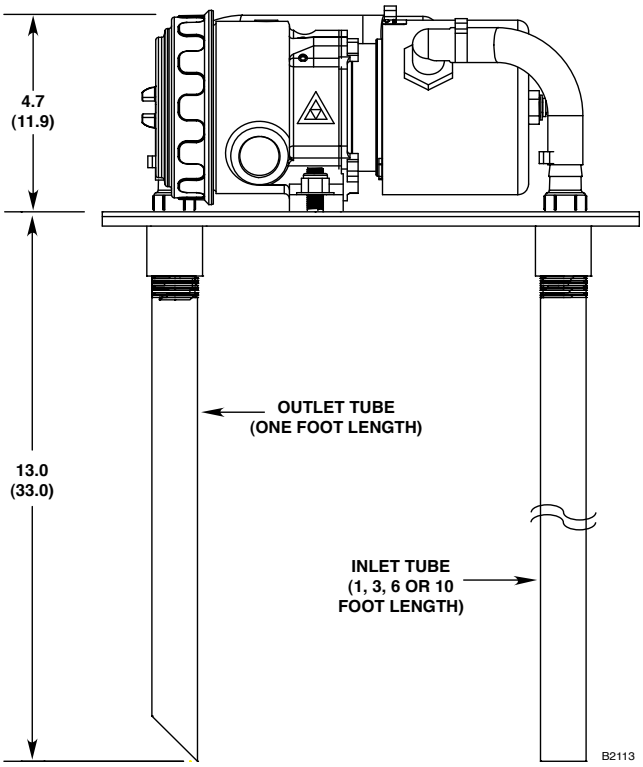

Figure 2—Q900 Dimensions in Inches (Centimeters)

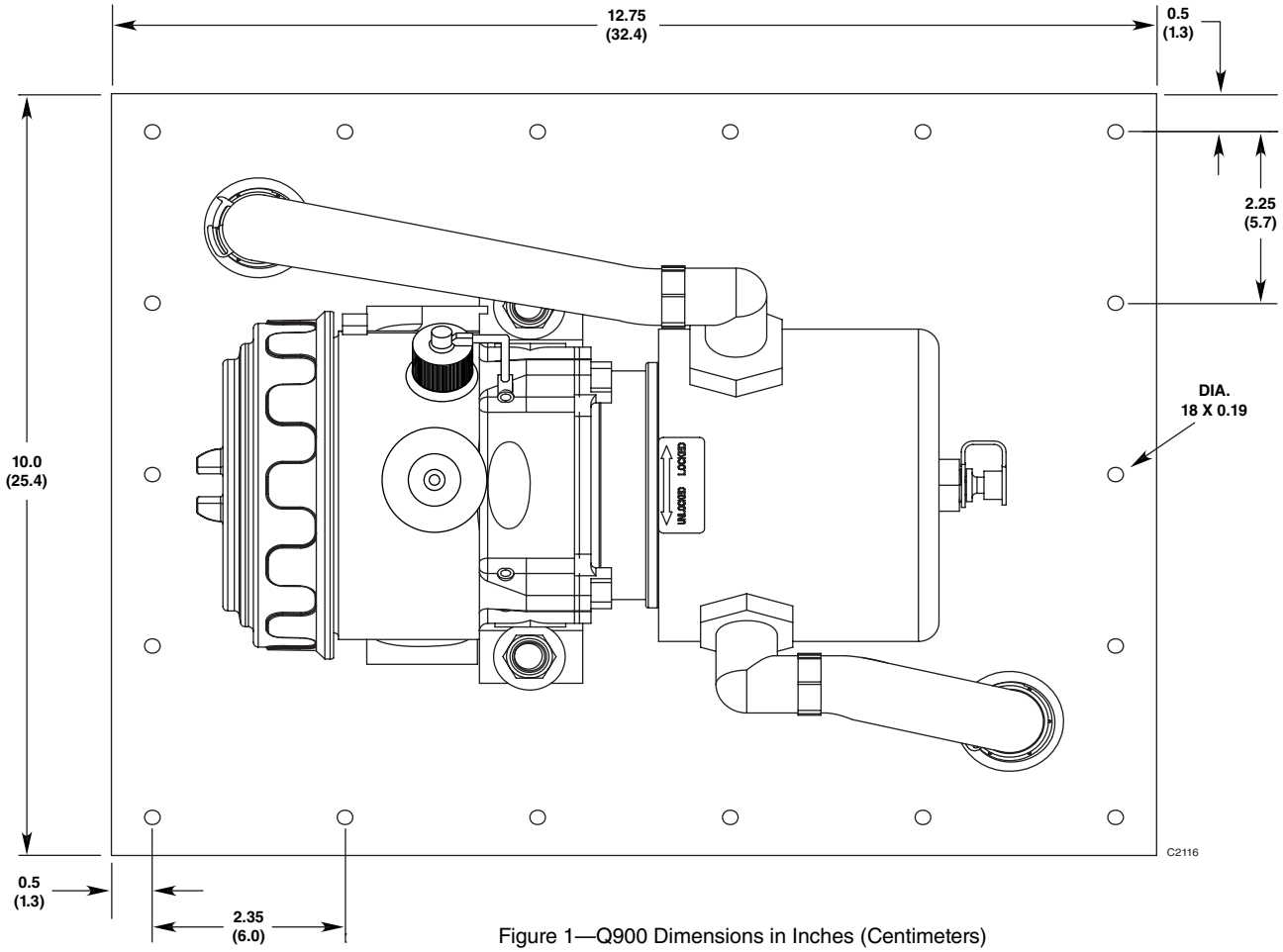

Figure 1—Q900 Dimensions in Inches (Centimeters)

INSTALLATION

The Model Q900 Duct Mount Assembly mounts directly to a flat duct wall surface. Eighteen (18) mounting holes and two (2) tubing penetrations are required. See Figure 1. Seal gaskets are provided to ensure that duct integrity is maintained. The PIRECL PointWatch Eclipse Gas Detector is affixed on the mounting plate using stainless steel screws and studs that are furnished with the Q900 kit.

WARNING

Always declassify the surrounding area before opening the unit to prevent ignition of a hazardous atmosphere.

GAS DETECTOR LOCATION

Selecting the proper mounting location is crucial for proper gas detection response. The gas detector may be mounted in the supply system upstream of the filters, or in the return system at the point of entry into a common return duct. The following are some basic rules of installation:

1. Whenever possible, detectors should be installed approximately six duct widths downstream from bends, duct openings, or deflection plates. See Figure 3. These locations provide fairly uniform, non-turbulent airflow, and are homogenous with respect to air/gas mixing.

2. Locate duct detector so that dampers do not restrict air flow at the detector location. See Figure 3.

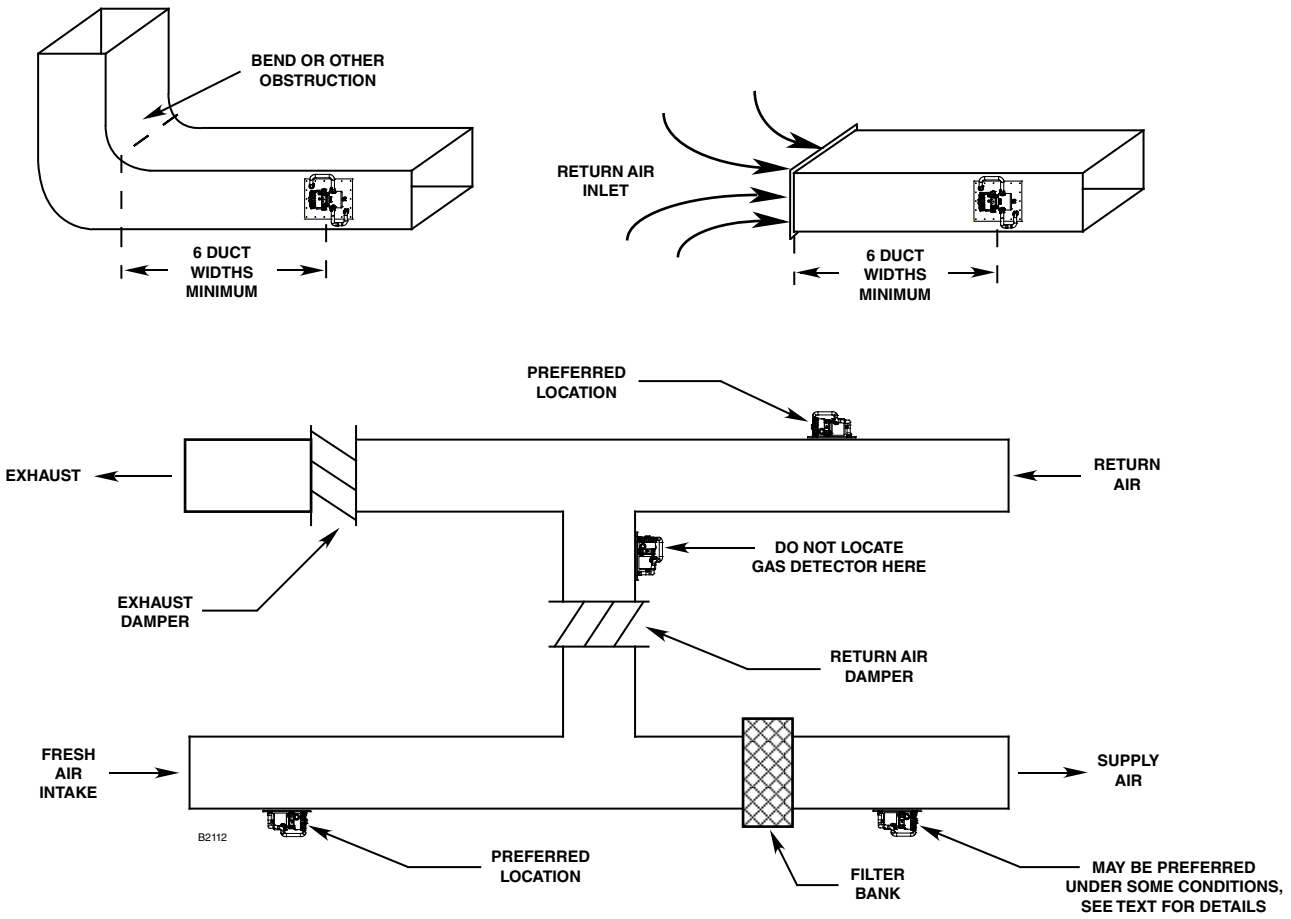

Figure 3—Gas Detector Location

3. Whenever possible, locate detectors where they can be conveniently observed and readily serviced.

4. If airflow filters exist, it may be preferable to locate detectors on the upstream side of the filter. If a filter becomes blocked, insufficient air flow may cause improper operation of the detector. However, if the unfiltered airflow is unsuitable for direct exposure to the detector (due to the effects of contaminants, corrosive materials, moisture, heat, etc.) then an installation location downstream of the filter may be preferable.

For additional information regarding the location and spacing of duct gas detectors, contact the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 and request a copy of **NFPA Standard 90A**, Installation of Air Conditioning and Ventilation Systems and NFPA Standard 72 for Automatic Fire Detectors.

MOUNTING THE Q900 PLATE

1. Select the location for mounting the plate.

2. Mark and drill the appropriate mounting and sampling tube holes on the duct wall. Refer to Figure 1 or Addendum number 95-8538 “Mounting Template for Q900 Duct Mount Kit” to determine the size and location of the holes.

NOTE

To ensure proper operation of the sampling tubes, observe proper inlet and outlet tube position and orientation as illustrated in Figure 4.

3. Attach the outlet tube to the detector housing by screwing the tube into the coupler and tightening the tube until the opening at the end of the tube (cut at an angle) is facing downstream. This opening must always face downstream or away from the direction of air flow in the duct, as shown in Figure 4. Thread locking adhesive should be applied to the threads to prevent tube movement after the final adjustment.

4. The inlet tube is available in 1, 3, 6, and 10 foot lengths. Order the shortest tube that exceeds the width of the air duct. For duct widths of three feet or smaller, the inlet tube may be cut to three quarters of the duct width. For duct widths three feet or greater, the recommended practice is to drill a hole on the duct wall directly across from the inlet tube hole of the device. This provides the required support and eliminates excessive stress on the coupling of the inlet tube connector. Use a seal material around the inlet tube to seal the duct.

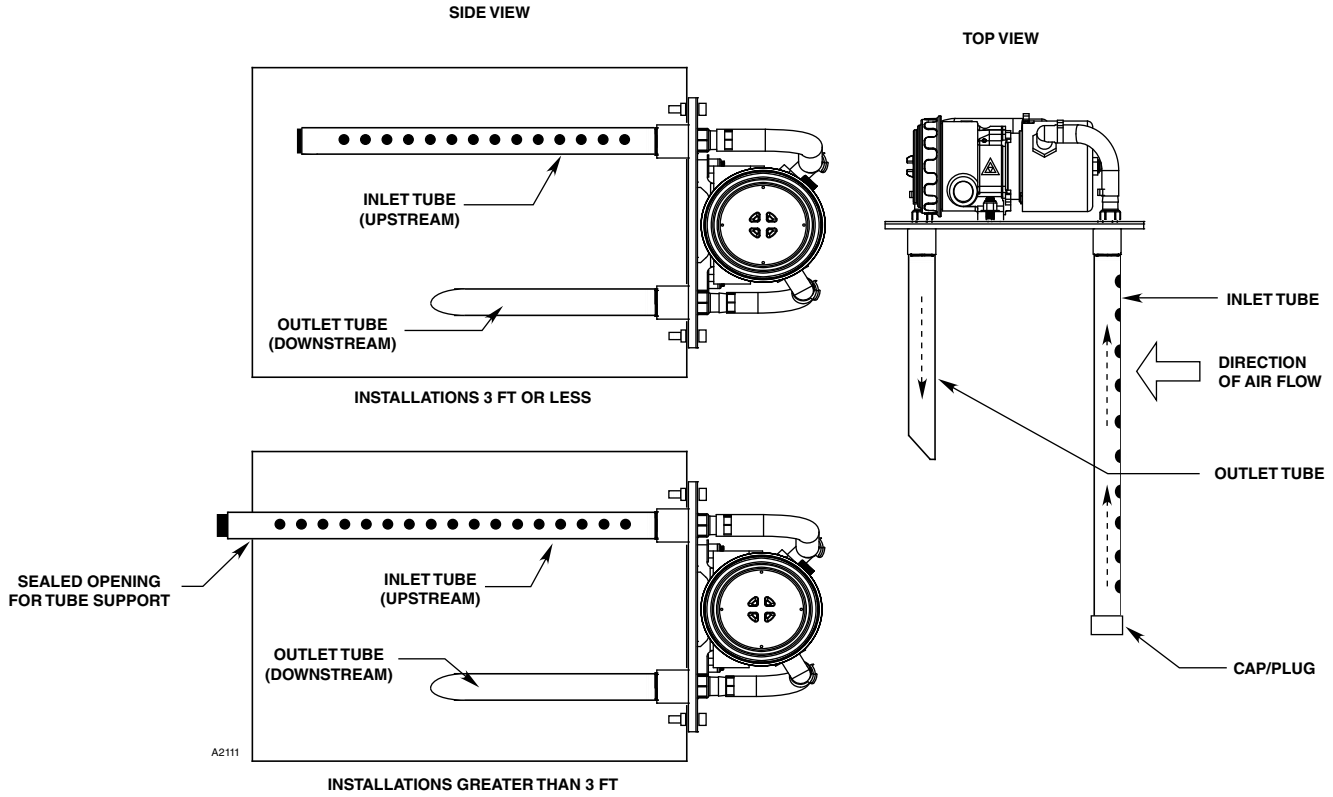

Figure 4—Sample Tube Installation

NOTE

When cutting a sampling tube, always cut the end opposite the threads. If the end with the threads is cut, the tube will not seat in the connector fitting properly and proper orientation may not be possible. When the sampling tube is cut to the proper length, install the cap/plug snugly on the end of the tube.

To assure proper detector operation, it is essential that the cap/plug be installed at the end of the inlet tube.

5. Attach the inlet tube to the detector housing in the same way that the outlet tube was installed. Apply lock-tite to the threads to prevent tube movement.

NOTE

The holes in the inlet tube must face the air flow in the duct (upstream).

6. Insert the tubes in the appropriate holes in the duct and attach the detector assembly to the duct.

7. Measure differential pressure and adjust tubes if necessary. See calibration and testing section.

WIRING

External wiring is brought into the PointWatch Eclipse through the female entry on the detector junction box. Use care not to damage the wires by twisting them. A conduit seal must be installed within 18 inches of the junction box and also at any point where the conduit enters a non-hazardous area. Refer to the instruction manual for the PointWatch Eclipse for wiring details.

CALIBRATION AND TESTING

DIFFERENTIAL PRESSURE MEASUREMENT

To ensure proper pressure differential between the inlet and outlet tubes, a measurement should be taken with the detector mounted and air flowing through the duct. The measured pressure differential should be at least 0.023 inches of water using a manometer such as the Mark II or No. 460 air meter available from Dwyer Instruments, Inc., P.O. Box 373, Michigan City, IN 46360.

Measurement Procedure:

1. Remove the corrugated FEP tubes at the mounting plate.

2. Insert the meter tubes, “high side” to the inlet tube and “low side” to the outlet tube.

3. If the pressure differential is not within the specified limits, the detector may not function properly. Check the installation to be sure that the return and sampling tubes are positioned and oriented properly. Increasing the air flow within the duct should increase the pressure differential, while decreasing the air flow will decrease the pressure differential. Minor adjustments to the return and air sampling tubes will sometimes bring the pressure differential within specified limits.

CALIBRATION / TEST PROCEDURE

Equipment required:
– Gas calibration kit, including regulator, and hose.

1. Disconnect alarm response devices prior to performing detector tests. (Be sure to place this equipment back into service when the testing is completed.)

2. Connect the gas supply tube to the detector calibration gas fitting.

3. Perform the calibration procedure as specified in the PointWatch Eclipse instruction manual.

4. If high air flow causes an unacceptable calibration, stop air flow in the duct to prevent ducted air from carrying gas away from the detector sensing head.

5. When test / calibration is complete, be sure to shut off the sample gas to the detector, remove the calibration hose and re-install the cap on the calibration gas fitting.

6. Clear any residual gas remaining within the detection chamber, and reset the detector (establish air flow in duct).

7. Reconnect alarm response devices after performing detector calibration/tests.

MAINTENANCE

The detector should be tested regularly to ensure proper operation using the procedure described in the “Calibration and Testing” section of this manual. Proper detector maintenance should also consist of cleaning dust and other contaminants from the sampling and return tubes. Pressure differential should be measured on a regular basis to ensure proper air flow through the detector enclosure.

DEVICE REPAIR AND RETURN

Prior to returning devices, contact the nearest local Detector Electronics office so that a Returned Material Identification (RMI) 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.

Pack the unit 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 factory in Minneapolis.

ORDERING INFORMATION

Q900 Duct Mount Kit, includes the following:
— Inlet sampling tube of specified length (ordered separately)
— 1 foot outlet sampling tube
— 1 cap/stopper for inlet tube
— Instruction manual.

PIRECL PointWatch Eclipse Gas Detector

Available inlet tube sizes:

Description	Part Number
1 foot length	000214-126
3 foot length	000214-127
6 foot length	000214-128
10 foot length	000214-129

SPARE PARTS

Description	Part Number
Rubber plug for inlet tube	102359-001
1 foot outlet tube	000214-130
Sample cup	007352-001
Hose nipple	103349-001
5” Corrugated tube	009274-001
8” Corrugated tube	009274-002

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
Web site: www.det-tronics.com
E-mail: det-tronics@det-tronics.com

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