



# AIR PRODUCTS & CONTROLS LTD. RWH DUCT SMOKE DETECTORS

## HIGH VOLTAGE

### 230 V.A.C., 24 V.A.C., 24 V.D.C.

### PRODUCT APPLICATION

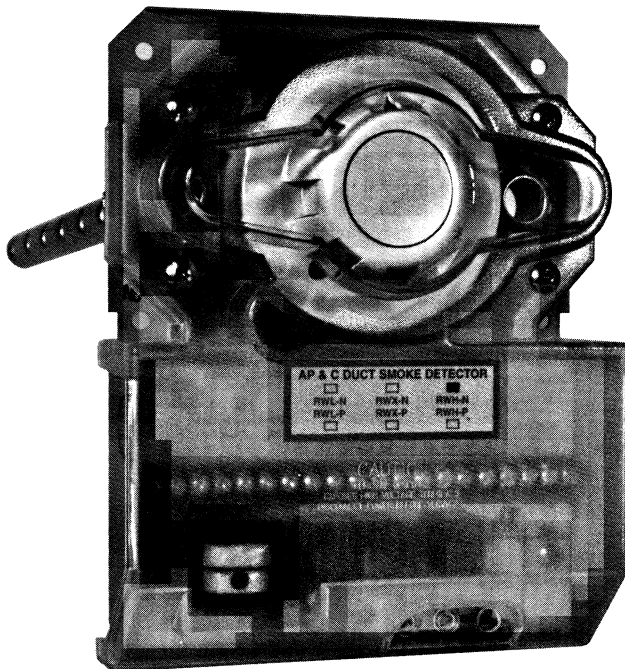
The RWH duct smoke detector provides early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial, Industrial and Residential applications. The RWH is designed to prevent the recirculation of smoke in areas by the air handling systems, fans and blowers. Complete systems may be shut down in the event of smoke detection. The RWH High Voltage Model will operate on any one of three input voltages (230 V.A.C., 24 V.A.C., or 24 V.D.C.).

### PRODUCT DESCRIPTION

Continuing to expand on the reliable design utilized in the previous duct units, the compact RWH contains 3 sets of alarm contacts, namely, 1 set of form "C" contacts rated at 10amps, 1 set of form "A" contacts rated at 10amps, 1 set of form "A" contacts rated at 1amp and 1 set of form "C" 10amp trouble contacts for monitoring detector head removal, and the failure of the input supply voltage.

The pilot and alarm visual indicators provided on the front of the RWH duct unit, signal the operating status of the device. A manual test/reset switch is located along side the visual indicators.

The RWH is designed and built to meet all local requirements, as well as the NFPA regulations regarding duct smoke detectors. Output terminals are provided for remote accessories such as a horn, strobe, remote status indicators and reset key switches or push buttons. The ionization and photoelectric detector heads are interchangeable. Air sampling is accomplished by two tubes which protrude into the duct. An exhaust tube of one standard length (7.5") is supplied in the installation kit with the duct smoke unit. Once the duct width has been determined the air intake sampling tubes must be ordered. Sampling tubes are supplied in three standard lengths 2.5ft, 5.0ft and 10.0ft and cut to size to fit the duct. Mounting the duct smoke unit is accomplished by the use of a template and 4 sheet metal screws, which are provided. Mounting can be achieved without the removal of the clear cover which is secured by 4 capture screws.



**UNDERWRITERS  
LABORATORIES LISTED**

CSFM Listing No. 3240-1004:100



Made in U.S.A.

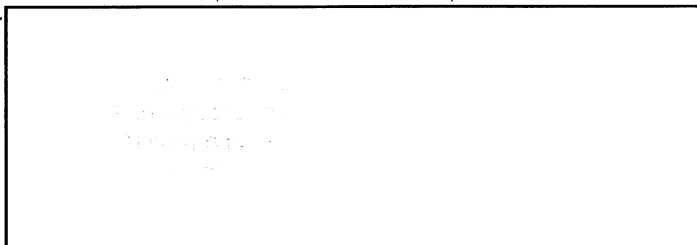
MEA No. 73-92-E

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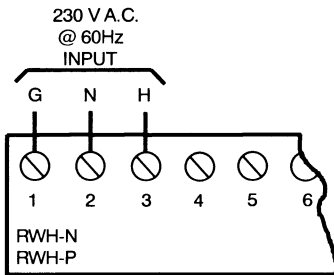
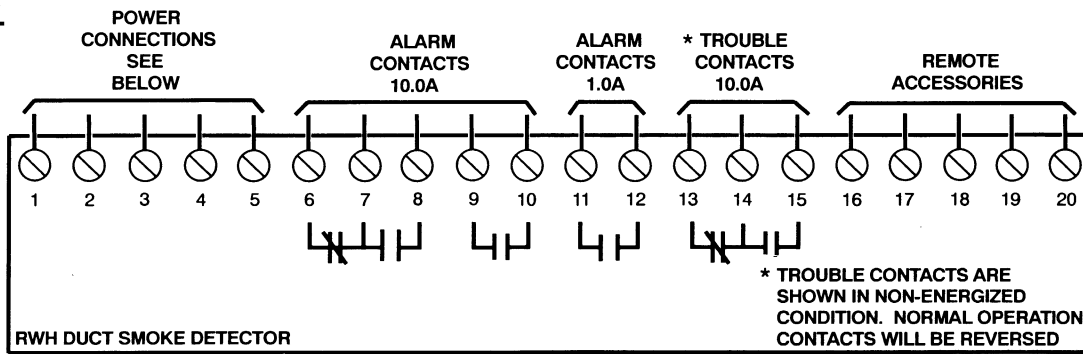
- Operating voltages 230 V.A.C., 24 V.A.C., 24 V.D.C.
- Compact size
- 3 Sets of alarm contacts
- 1 Set of trouble contacts
- Ease of installation without cover removal (Mechanical)
- Rugged steel backbox with clear cover
- Clear cover fitted with 4 capture screws
- Large terminal connection screws
- Interchangeable "Plug-In" photoelectric or ionization heads
- Compatible with building automation and fire alarm system
- Dust filtering Included in detector head
- No additional screens or filters to clean

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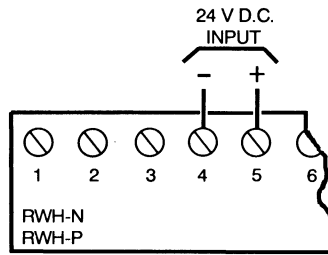
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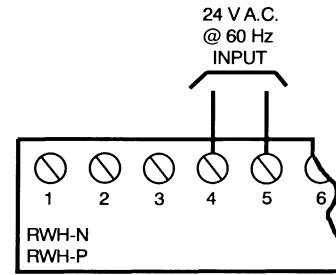
# WIRING



230 V.A.C. OPERATION



24 V.D.C. OPERATION



24 V.A.C. OPERATION

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## PRODUCT SPECIFICATIONS

MODEL NUMBER:	RW-H - N -230 V.A.C., 24 volt A.C., or 24 volt D.C. Ionization
	RW-H - P -230 V.A.C., 24 volt A.C., or 24 volt D.C. Photoelectric
Sampling Tubes:	STS-2.5                      Sampling tube for 6" to 2.5' duct width
	STS-5.0                      Sampling tube for 2.5' to 5.0' duct width
	STS-10.0                     Sampling tube for 5.0' to 10.0' duct width
POWER REQUIREMENTS: Quiescent (Without accessories)	230 V.A.C.                     7 m A
	24 V.A.C.                      22.0 m A
	24 V.D.C.                      13.0 m A
Head in Alarm	230 V.A.C.                     13.0 m A
	24 V.A.C.                      85.0 m A
	24 V.D.C.                      54.0 m A
RELAY CONTACT RATING: Alarm contacts,	1 set form "C" rated at 10 amps @ 115 V.A.C. Resistive
	1 set form "A" rated at 10 amps @ 115 V.A.C. Resistive
	1 set form "A" rated at 1 amp @ 24V. Resistive
	Trouble contacts,            1 set form "C" rated at 10 amps @ 115 V.A.C. Resistive
AIR VELOCITY:	300 to 4000 ft./min.
AMBIENT TEMPERATURE:	32°F to 120°F (0°C TO 49°C)
HUMIDITY:	10% to 85% R.H. No Condensation
APPROVAL:	Underwriters Laboratories Listed, (UL268A)
MATERIAL:	18 G.A. steel backbox, clear plastic cover
FINISH:	Grey paint
DIMENSIONS:	L - 9 1/8" X W - 7 1/4" X H - 2 1/4"
MAX. NET WT.:	3 1/2 LBS
RADIOACTIVE ELEMENT:	For RW-H- N (Ionization) Americium 241; 0.9 Micro-Curie

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## ENGINEERS & ARCHITECTS SPECIFICATIONS

Air duct smoke detectors shall be Air Products & Controls, Ltd. RW-Series. For ionization detectors the model number is RW-H-N, for photoelectric detectors the model number is RW-H-P. The detectors shall be listed by Underwriters Laboratories per U.L. 268A. The detectors shall operate at air velocities from 300 feet per minute to 4000 feet per minute.

The duct detector housings shall be of metal construction and complete mechanical installation may be performed without removal of detector cover.

Visual indication of alarm and power must be provided on detector front.

A manual reset switch shall be located on front of the device.

Detector heads shall not require additional filters or screens which must be maintained.

The housing shall contain a detector base which will accept photoelectric or ionization detector heads.

Terminal connections shall be of the screw type and be a minimum of # 6 screw. Terminals shall be provided for remote pilot, remote alarm indication, strobe/horn and remote reset switch. All wiring must comply with local codes and regulations.

# AIR PRODUCTS & CONTROLS, LTD.

## INSTALLATION INSTRUCTIONS FOR RW-SERIES DUCT SMOKE DETECTORS

RWL-N	4 WIRE	24 V.A.C. OR 24 V.D.C. Ionization
RWL-P	4 WIRE	24 V.A.C. OR 24 V.D.C. Photoelectric
RWX-N	4 WIRE	24 V.A.C., 24 V.D.C., OR 115 V.A.C. Ionization
RWX-P	4 WIRE	24 V.A.C., 24 V.D.C., OR 115 V.A.C. Photoelectric
RWH-N	4 WIRE	24 V.A.C., 24 V.D.C., OR 230 V.A.C. Ionization
RWH-P	4 WIRE	24 V.A.C., 24 V.D.C., OR 230 V.A.C. Photoelectric

### PRODUCT OVERVIEW

#### **PRODUCT APPLICATION:**

The RW-Series Duct Smoke Detectors provide early detection of smoke and products of combustion present in air moving through an HVAC duct in commercial, industrial and residential applications.

These devices are designed to prevent the recirculation of smoke in areas by the air handling systems, fans and blowers. Complete systems may be shut down in the event of smoke detection.

#### **NOTE**

For the correct installation of a duct smoke unit, please refer to the NFPA 72E (Standard for Automatic Fire Detectors) and NFPA 90A (Standard for Installation of Air Condition and Ventilation Systems.)

This detector is not intended for open area protection nor should it be used for early warning detection or replace a regular fire detection system.

#### **PRODUCT DESCRIPTION:**

The RW Smoke Detector is fitted with a mounting base that will accept an Apollo Ionization Model # 55000 - 250 or Photoelectric Detector Head Model # 55000 - 350. The duct unit supports 3 sets of Alarm Contacts and 1 form "C" Trouble Contact. The trouble contact supervises the presence of the input power and removal of the detector head.

#### **THE TROUBLE CONTACTS (TERMINALS 13-14-15) ARE SHOWN IN THE NON-ENERGIZED CONDITION:**

The trouble contact will not operate in the event of a smoke alarm.

The RW-Duct Detector will operate from various input voltage sources namely 24V.A.C., 24V.D.C., 115V.A.C and 230V.A.C.. To determine the voltage source of the unit being installed, note the model number on the clear cover and verify it with the model numbers at the top of the page.

The duct smoke detector units are designed to operate in duct widths from 12 inches to 10 feet wide with an air velocity between 300 and 4000 feet per minute. To verify correct installation, the pressure differential between the input and exhaust tubes should be measured using a Magnehelic pressure gauge or equivalent. An acceptable reading must be between 0.01 and 1.2 inches of water.

For a Smoke Duct Detector unit to operate correctly, it must be installed 6 duct widths from any obstruction i.e. elbows, deflector plates, filters, dampers, etc. In situations where the criteria cannot be met, deviations are acceptable providing they meet the pressure differential requirements.

#### **SAMPLING TUBES:**

The principal of operation of a duct detector is based on the Venturi effect. Two tubes extend into the HVAC duct. Air flowing through the duct is forced into the air intake tube via the air intake holes, and passes over the detector head. The air will be drawn out via the exhaust tube back into the HVAC duct. (7" exhaust tube provided in the installation kit.)

When the particles of smoke suspended in the air stream reach the alarm threshold of the detector head, the unit will go into alarm.

#### **REMOTE ACCESSORIES:**

Audible and visual alarm indicators, remote status indicators and remote reset/test switches can be accommodated by the RW-Series Duct units by connecting to the D.C. voltage output terminals 16 to 20. These terminals are not supervised and the current will only be present when the detector unit is in alarm. The remote pilot led will be permanently illuminated when connected to the output terminals.

# Duct Unit Installation

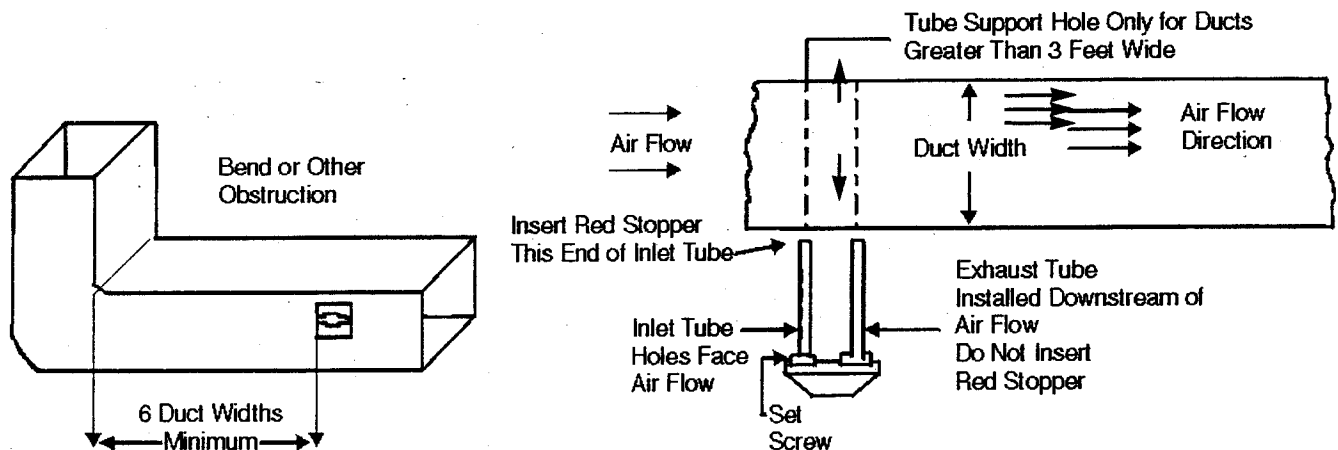
## DUCT SMOKE LOCATION PRE-REQUISITES:

This guideline contains general information on duct smoke detector installation, but does not preclude the NFPA documents listed. Air Products & Controls, Ltd. assumes no responsibility for improperly installed duct detectors. To determine the correct installation position for an RW Series Duct Smoke Detector, the following factors must be considered.

- 1) A uniform non turbulent airflow of between 300 ft/min to 4000 ft/min. must be present in the HVAC duct. To determine the duct velocities examine the engineering specifications that define the expected velocities or use an Alnor model 6000P velocity/meter (or equivalent).
- 2) In order to prevent stratification, duct smoke units where possible, must be located a minimum of six duct widths down stream from a source of turbulence i.e. elbows, deflector plates, filters, dampers, and inlets.

In installations where it is impossible to adhere to the six duct width requirement, units can be installed closer but as far from inlets, bends or deflector plates as possible. Should this situation arise, check velocity readings in the duct prior to the duct smoke unit installation. Ensure the duct smoke unit pressure differential complies with the unit specifications. The pressure differential between the input sampling tube and exhaust tube for the RW series smoke duct unit should be greater than 0.01 inches of water and less than 1.2 inches of water.

- 3) Identify a location for the installation of the duct unit that will permit easy access for viewing and serviceability.
- 4) Install duct units in the return air side of an HVAC unit prior to the air being exhausted from the building or diluted with outside air.
- 5) When installing duct smoke units down stream of filters, fires occurring in the filters will be detected, but if the filters become blocked insufficient air flow through the duct unit will prevent the correct operation of the duct detector.
- 6) Where possible, install duct detectors upstream of air humidifiers and downstream of dehumidifiers..
- 7) To prevent false alarms, the duct detector should not be mounted in areas of extreme high or low temperatures, in areas where high humidity exists or in areas where the duct may contain gases or excess dust.



## SAMPLING TUBE ASSEMBLY:

Sampling tubes are to be ordered separately in one of the 3 standard lengths.

STS-2.5	For duct widths of	1.0' TO 2.5'
STS-5.0	For duct widths of	2.5' TO 5.0'
STS-10.0	For duct widths of	5.0' TO 10.0'

The standard sampling tubes are steel tubes with air intake holes drilled down the entire length of the tube. These tubes must be cut to length and must span the entire width of the duct. Sampling tubes over 3.0 feet must be supported on the opposite side of the duct. To ensure the correct operation of the sensing tube, the red end cap (red stopper in installation kit) must be inserted in the end of the air intake sampling tube.

Once the airflow direction has been determined, insert the inlet and exhaust tubes into the sampling tube connectors fitted to the back of the duct smoke detector which are equipped with set screws. These connectors will allow the tubes to be correctly orientated and secured by tightening the set screw. Ensure air intake sampling tube is positioned so that the inlet holes are facing the airflow.

**DUCT PREPARATION:**

For ease of duct unit installation, remove mounting template from the installation kit. Remove paper backing from the mounting template and affix it to the duct at the desired location. Using the template as a guide, drill 4 mounting holes (3/32" diam.) for the 12 X 1/2" sheet metal screws packaged in the installation kit.

Drill or punch 1 3/8" holes for sampling tubes, using the template as a guide. Clean all holes.

**MOUNTING DUCT SMOKE DETECTOR:**

After securing the sampling tubes to the duct smoke unit, or initially placing the tubes through the 1 3/8" holes drilled or punched in the HVAC duct to accept the sampling tubes and then attaching them to the duct unit. Hold the duct unit assembly in position and using 4# 12 X 1/2" sheet metal screws (Packaged in the installation kit) secure the duct smoke detector to the HVAC duct sheet metal work.

**AIR SAMPLING VERIFICATION:**

To ensure correct operation of the duct unit use a Magnehelic differential pressure gauge or Dwyer model 4000 to determine the differential pressure between the inlet and exhaust tubes. The differential pressure between the two tubes should be greater than 0.01 inches of water and less than 1.2 inches of water.

**PRODUCT SPECIFICATIONS**

<b>Model Number:</b>	RWL-N	24V AC/DC Ionization Duct Unit
	RWL-P	24V AC/DC Photoelectric Duct Unit
	RWX-N	115V AC, 24V AC/DC Ionization Duct Unit
	RWX-P	115V AC, 24V AC/DC Photoelectric Duct Unit
	RWH-N	230V AC, 24V AC/DC Ionization Duct Unit
	RWH-P	230V AC, 24V AC/DC Photoelectric Duct Unit

<b>Apollo Detector Model Number:</b>	S60A Ionization Detector	55000 - 250
	S60A Photoelectric Detector	55000 - 350

**POWER REQUIREMENTS**

<b><u>RWL</u></b>	<b><u>QUIESCENT CURRENT</u></b>	<b><u>ALARM CURRENT</u></b>
	24V AC 20 mA	24V AC 95mA
	24V DC 13mA	24V DC 62mA
<b><u>RWX</u></b>	<b><u>QUIESCENT CURRENT</u></b>	<b><u>ALARM CURRENT</u></b>
	24V AC 20mA	24V AC 95mA
	24V DC 13mA	24V DC 62mA
	115V AC 14mA	115V AC 28mA
<b><u>RWH</u></b>	<b><u>QUIESCENT CURRENT</u></b>	<b><u>ALARM CURRENT</u></b>
	24V AC 22mA	24V AC 85mA
	24V DC 13mA	24V DC 54mA
	230V AC 7mA	230V AC 13mA

**RELAY CONTACT RATINGS:**

Alarm contacts:           1 Set form "C" rated at 10AMPS @ 115V A.C. resistive  
                                   1 Set form "A" rated at 10AMPS @ 115V A.C. resistive  
                                   1 Set form "A" rated at 1AMP @ 24V. resistive

Trouble contacts:        1 Set form "C" rated at 10AMPS @ 115V A.C. resistive  
 Air velocity:            300 to 4000ft/min  
 Ambient temperate:     32°F to 120°F (0°C to 49°C)  
 Humidity:               10% to 85% R.H. no condensation  
 Material:                18GA Steel back box, clear plastic cover  
 Finish:                  Gray paint  
 Dimensions:            L-9 1/8" X W-7 1/4" X H-2 1/4"  
 Max. net wt.:           3 1/2 lbs.  
 Radioactive element:   For RW-N (Ionization models)  
                                   Americium 241, 0.9 micro curie

Do not expose to corrosive atmospheres.

# TEST PROCEDURES

## **OPERATIONAL TESTING**

To determine the correct operation of the RW Duct Smoke Detector, ensure power is connected and the green pilot led is illuminated.

The led on the detector head does not flash during the standby mode. The led on the detector head will be permanently illuminated when smoke is detected and the head is in alarm.

With the air handling unit shut down, and the clear cover removed, press and hold the test/reset button on the RW Duct Unit. The red alarm led on the circuit board will be illuminated and the alarm relay outputs will change state. Using a multimeter set to OHMS (or continuity buzzer function on the meter) place the meter probes on the following terminals and ensure the contacts are closed (continuity) 7, 8 - 9, 10-11, 12 when releasing the test/reset button these contacts will open.

The trouble contacts 13, 14, 15 will not change state in the event of a fire alarm, operational or functional testing. The trouble contacts can be tested by rotating the Apollo detector head counter-clockwise and removing the detector head. This action will extinguish the pilot (green) led and cause the trouble contacts to change state, 13, 14 will be closed (continuity) 14, 15 will be open circuit. Replacing the detector head and rotating it clockwise until it locks, will cause the green pilot led to be illuminated and the unit will be operational, terminals 13, 14 will be open circuit and 14, 15 will be closed (continuity).

## **FUNCTIONAL TESTING**

Once operational testing is concluded the unit requires functional testing to determine the correct operation of the detector head.

With the clear cover removed and using the aerosol test smoke Apollo test gas part # 29600-105 or Home Safeguard test gas part # RW-25S-TG (Obtainable from Air Products & Controls LTD.) Spray the test gas directly at the detector head from a distance of 12 inches for 2 seconds.

### **CAUTION      **SPRAYING FROM A DISTANCE CLOSER THAN 12 INCHES CAN CAUSE DETECTOR CONTAMINATION.****

After 15 to 20 seconds the detector head will go into alarm, illuminating the detector head led and causing the duct unit functions to operate, relays will change state and the remote accessories if attached will function.

If no test gas is available to conduct the testing, light a piece of clothesline (rope) and blow the flame out, hold the smoldering rope 3 inches from the detector head and blow across the lit area towards the detector head, the alarm indicator will illuminate within one minute.

Should testing be required for simulated fire conditions, smoke bombs placed in the duct may not be suited for the particular detector head selected and installed.

S60A Apollo ionization detector 55000-250 utilizes a radio active source as its means of detection and will detect smoke particles of between .1 and 1 micron in size.

S60A Photoelectric Detector 55000 - 350 operates on the principle of light scatter and will detect smoke particles of between 1 and 10 microns in size.

When purchasing smoke bombs for functional testing, ensure smoke particle sizes comply with the criteria as described above.

## **MAINTENANCE**

Each installation location must be assessed on its own merits. If the protected area is of a very dirty nature then the RW Duct units will have to be checked and cleaned on a Quarterly basis or when cleaning is required.

As a guideline the Apollo detector head should be cleaned every six months or as required.

The best methods of cleaning are to vacuum the detector head thoroughly or to blow the detector head out using compressed air.

Do not use chemicals to clean the detector head housing as this could contaminate the detector head and damage the casing.

Sensing tubes must be inspected and cleaned in accordance with the schedule as determined above, to allow the free flow of air through the sensing tube.

# Electrical Installation

## WIRING

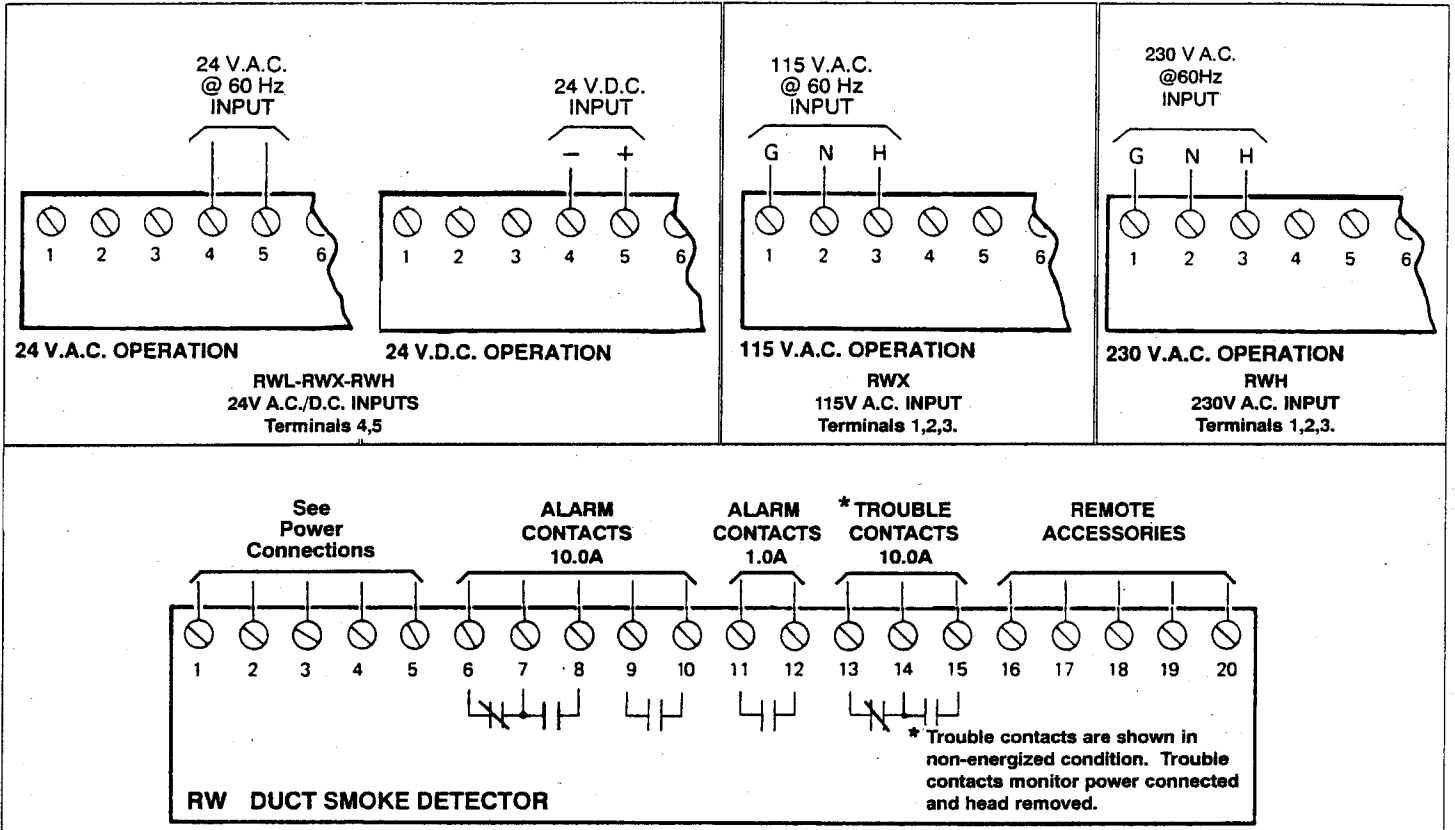
Prior to connecting power to the duct unit, determine the correct input voltage and ensure it is connected to the correct terminals. (Refer to power connections)

**RWL** 24V A.C./D.C. Terminals 4, 5

**RWH** 24V A.C./D.C. Terminals 4, 5  
230V A.C. Terminals 1, 2, 3

**RWX** 24V A.C./D.C. Terminals 4, 5  
115V A.C. Terminals 1, 2, 3

## POWER CONNECTIONS:



## CAUTION:

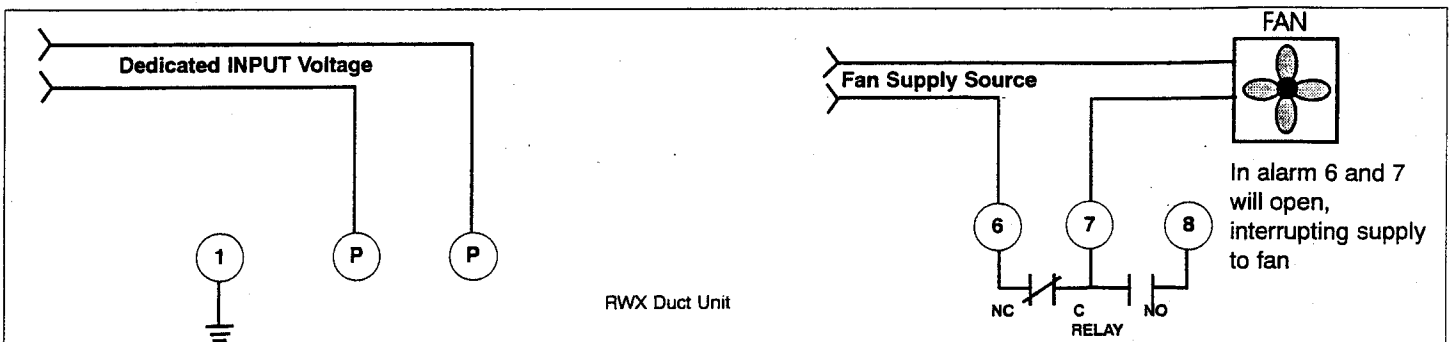
For terminals 6, 7, 8, - 9, 10 - 11, 12 do not use looped wire under terminals. Break wire run to provide supervision of connections.

With detector head removed, connect one of the appropriate dedicated power sources to the applicable terminals. (See above)

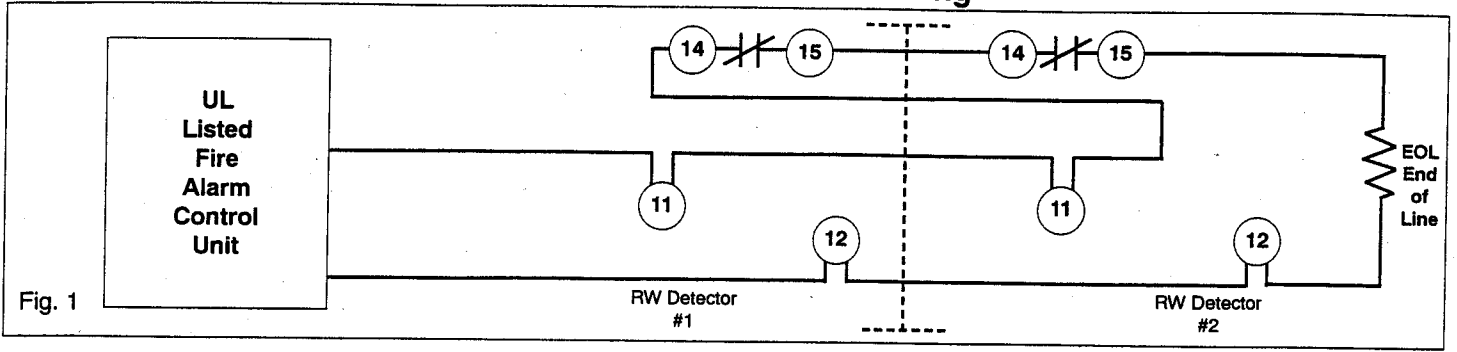
Replace detector head and the unit will be energized. The green pilot led will be illuminated, and when pressing the test/reset button the red alarm led will be illuminated. This test confirms the correct operation of the duct smoke unit, excluding the detector head (See Functional testing page 4).

In the event of a fire alarm, certain equipment may have to be shut down. A shut down will be achieved by interrupting the supply source to that particular piece of equipment when wired as indicated below.

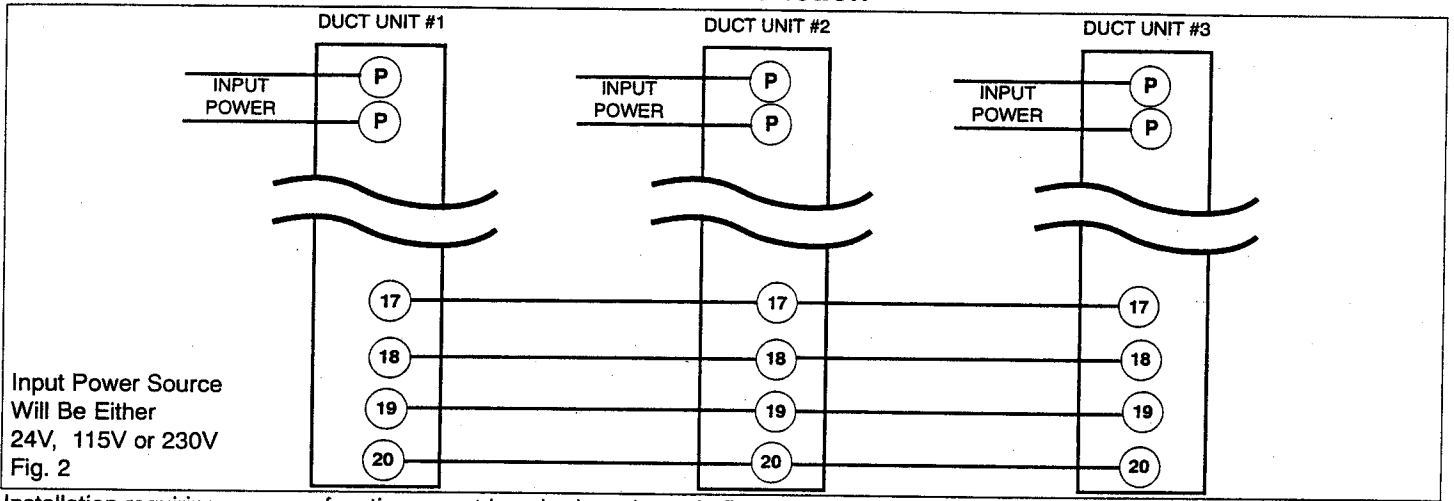
## EXAMPLE: RWX



## Fire Alarm Control Panel Wiring



## Common Function



Installation requiring common functions must be wired as shown in fig. 2.

Common functions include one or all of the following:

Remote common Alarm indication, remote Pilot indication, remote common reset, common shutdown, and common visual indication.

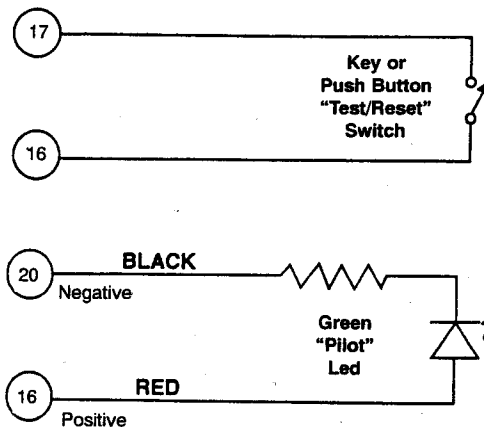
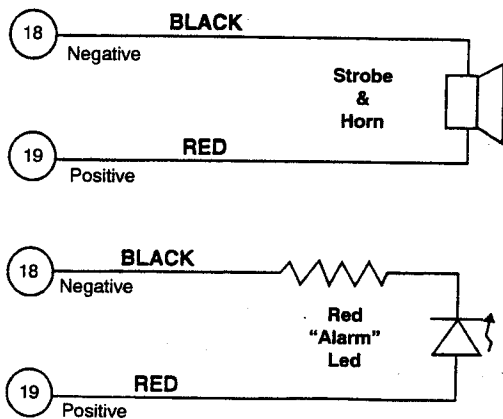
Common Fault indication ( when green pilot led is extinguished) can not be achieved on the RW Duct Units. Individual Remote Pilot led's must be installed to monitor detector head or power source removal for each unit.

In the event of an alarm, the detector head and duct unit alarm (Red) led's will be illuminated. All remaining duct unit alarm led's will not be illuminated. All remote alarm led's fitted to the duct units will be illuminated when any of the units go into alarm. Only the duct unit in alarm will permit resetting of the system from the built in Test/Reset switch on that particular duct unit.

A common Remote reset switch will reset all detectors.

### REMOTE ACCESSORY WIRING

Remote accessory terminals 16 to 20 are not supervised and the output voltage will be present when the duct detector is in alarm or the test/reset switch is operated.





CITY OF NEW YORK  
DEPARTMENT OF BUILDINGS

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

Richard C. Visconti, R.A., Acting Commissioner  
MEA 73-92-E Vol. XXIII  
Report of Material and Equipment Acceptance Division

Manufacturer - Air Products and Controls, Inc.

Trade Name(s) - Air Products and Controls, Inc.

Product - Ionization and photoelectric type air duct smoke detectors and relays.

Pertinent Code Section(s) - Reference Standard RS 17.

Prescribed Test(s) - Compliance with U.L. 864.

Laboratory - Underwriters Laboratories, Inc.

Test Report - File S2829, Project 97NK32301 dated May 4, 1998; File S3403, Project 85NK27071 dated February 10, 1986 and Revised February 13, 1998.

Description - The RWL-N, RWX-N, RWH-N Ionization Air Duct Smoke Detectors and the RWL-P, RWX-P, RWH-P Photoelectric Smoke Detectors provide early warning of smoke moving through air ducts intended to prevent the spread of smoke through a protected area. Operating power may be 230VAC, 115VAC, 24VAC or 24VDC; (3) Alarm Contacts (1) Trouble Contact.

N - suffix are 4-wire ionization type detectors.

P - suffix are 4-wire photoelectric type detectors.

The relays are intended for general purpose relay switching and incorporate multiple voltage operation. All models are listed by Underwriters Laboratories as control unit accessories and are within relay specifications.

RIC-1 Single SPDT Relay Module with L.E.D. that provides 10AMP Form C Contacts; and may be energized by one of three input voltages: 24VDC, 24VAC, or 115VAC.

RIC-2 Single DPDT Relay Module with L.E.D. that provides TWO (2) 10AMP Form C Contacts; and may be energized by one of three input voltages: 24VDC, 24VAC, or 115VAC.

Pursuant to "Promulgation of the Rules relating to Material and Equipment Application Procedures" dated November 5, 1992. The Bureau of Fire Prevention has no objections letter dated October 19, 1998, F.P. Index # 9810013.

Recommendation - That the above units be accepted on conditions that all uses, configurations, arrangements and functions, locations and installations comply with the New York City Building Code, specifically Subchapter 17 and with Reference Standards RS 17-3 through RS 17-3C, inclusive, as applicable, including the NFPA 72 and 90A, UL 268A and 864 listings, manufacturer's instructions, Fire Prevention Information Bulletins, and the New York City Electrical Code.

All shipments and deliveries of such equipment shall be provided with a metal tag, suitably placed, certifying that the equipment shipped or delivered is equivalent to those tested and accepted for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance July 14, 1999  
Examined By Mark Jacoby

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION  
OFFICE OF THE STATE FIRE MARSHAL  
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

# LISTING SERVICE

**LISTING No.** 3240-1004:105 Page 1 of 1

**CATEGORY:** Duct Smoke Detector Housing/Base

**LISTEE:** Air Products and Controls Inc., 1749 East Highwood, Pontiac MI 48340  
Contact: \*Richard Steele (248) 332-3900 \*FAX (248) 332-8807

**DESIGN:** Models RWH-N, RWH-P, RWL-N, RWL-P, RWX-N, RWX-P, RWJ-N, RWJ-P, RWF-N, RWF-P and SL-2000-N and SL-2000-P duct smoke detectors. All units are four-wire duct detectors. Suffix -N indicates the unit employs an ionization smoke detector head. Suffix -P indicates the unit employs a photoelectric smoke detector head.

Refer to listee's data sheet for additional detailed product description and operational considerations.

**RATING:** 24 VAC, 24 VDC, 115 VAC or 230 VAC

**INSTALLATION:** In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

**MARKING:** Listee's name, model number, electrical rating and UL label.

**APPROVAL:** Listed as duct detectors for use with separately listed compatible fire alarm control units when installed in HVAC systems with air velocity between 500 and 4000 ft./min.

\*Rev. 05-28-2004



This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: **JUNE 22, 2004**

*Listing Expires **June 30, 2005***

Authorized By: **DIANE K. AREND, Senior Deputy  
Program Manager**