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D. Pearsall - Master - Schedule C Specifications

Statitrol Corporation

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SCHEDULE C
SPECIFICATIONS

*See revised
Schedule C
8-3-67*

SELF-SWITCHING IONIZATION
FIRE DETECTORS (DEVICES)

Section I - General

1.0 Market Objective

Expand the existing smoke detection market.

2.0 Results Expected

2.1 Provide a self-contained products of combustion detector which operates on the ionization principle.

2.2 The detector will provide alarm signal initiation to existing Fire Alarm Control Units and Transmitters.

2.3 The detector will provide contacts for alarm signal initiation and for trouble or fault signal initiation.

* 2.4 The detector will be powered by a separate low voltage DC regulated power supply panel.

3.0 Application

3.1 The detector will be connected to Honeywell Fire Alarm Control Units and Transmitters to signal the presence of products of combustion and to signal a failure of the detector. Several detectors may be connected to the signal initiating circuit of a Fire Alarm Control Unit or Transmitter; such as the W247, W728, W733, S473, W729 or any other control units which are operated by normally open alarm and normally closed trouble contacts.

3.2 The number of detectors on a circuit shall be limited only by the capacity of the power supply and voltage drop in the supply circuit.

* 3.3 The detectors will be installed on the ceiling of open areas and as a part of the air conditioning system in buildings ~~as follows:~~
~~(a) in return air stream prior to exhausting from the building or being diluted by outside air (b) in the main supply duct on the downstream side of the filter.~~

* 4.0 International Market Applications

The detector will be used in the International Market.
The power supply must be rated for 50-60 hz.

^ 220-240 5

5.0 Related Development Specifications

CF4 00929A, CF4 11794A

6.0 Honeywell Devices Replaced

This detector will partially replace the W702B, W704B Smoke Detector System.

* 7.0 Engineering Models Required

Eight models at same time that devices are submitted to U.L.
Twenty models following U.L. approval.

8.0 Literature Requirements

Installation Instructions, Specification Data, Engineering Data, Maintenance and Repair Data to be prepared by Honeywell following U.L. approval.

Section II - Design Specifications

9.0 Performance

9.1 The basic function of the detector shall be as follows:

- * 9.1.1 Close a set of alarm contacts and transfer a single pole double throw auxilliary contact when sensing invisible products of combustion.
- * 9.1.2 The detector shall open a set of trouble contacts upon loss of power or failure of the basic components of the detector including the alarm and supervisory relay coils and the indicator lamp. The trouble contacts shall also open when the normal 1.5 volt test point voltage drops to 1 volt.
- 9.1.3 The detector shall operate on the principle of ionization of the invisible particles of combustion by the incorporation of a single ionization chamber with a radiation source of 0.5 microcuries maximum of radium sulfate.
- 9.1.4 The detector shall be listed by Underwriters' Laboratories for spacing of at least 60 feet on center or within 30 feet to the nearest wall. This represents a range of 42.5 feet radius from the detector.
- 9.1.5 The sensitivity shall be equivalent to light obscuration due to smoke of not more than 4% per foot at the detector as described in paragraph 111, U.L. Standard 168.

* 9.1.6 The detector shall be capable of maintaining a set sensitivity for at least one year with no more than a 20% change in sensitivity at the 4%/foot setting while operating in normal ambient atmosphere specified.

* 9.1.7 The sensitivity shall be maintained within ^{40%} 20% of the 4%/foot setting when the voltage is varied between ~~24~~ 25 and ~~32~~ ₃₃ volts DC.

* 9.1.8 The detector shall provide a visual indication of normal, alarm, and trouble condition.

* 9.1.9 The detector shall lock in, and hold the alarm condition until manually reset by reducing the supply voltage.

* 9.1.10 - *Each detector shall have polarity reversal protection.*

9.2 Electrical Ratings and Tolerances.

* 9.2.1 The detector shall be capable of operating from ²⁵⁻³³ ~~24-32~~ volts DC.

* 9.2.2 The maximum current input shall be 22 milliamperes in normal condition and 65 milliamperes in alarm condition.

* 9.2.3 The alarm and auxilliary contacts shall be rated for:

- 1.0 amps at 24 VDC or 120 VAC maximum resistive ¹⁵
- 0.5 amps at 24 VDC or 120 VAC 50-60 hz inductive
- (5 times inrush at 0.5 PF)
- 0.5 amps at 24 VDC or 120 VAC ⁵⁰⁻ 60 hz lampload

The trouble contacts shall be rated for:

switch ¹⁰⁰ 20 ma and carry ¹⁰⁰ 0.5 amp relay load at 120 V maximum 50-60 hz or half or full wave rectified AC.

9.3 Calibration.

* 9.3.1 The sensitivity shall be adjustable ~~from the minimum equivalent to the 60 foot spacing (as defined by U.L.) to a maximum of approximately twice as sensitive.~~

9.3.2 Instructions and marking of the calibration or sensitivity adjustments shall be provided on the detector to indicate the proper adjustments and the effects of the adjustments.

* 9.3.3 The detector may require an initial set up calibration to compensate for pressure changes at different altitudes and line voltages between ~~24~~ ₂₅ and ~~32~~ ₃₃ volts.

9.4 Reliability and Life.

- * 9.4.1 The detector must be designed for a life expectancy of 15 years with an anticipated alarm and trouble operation once monthly. ~~Any lamp must be rated for one year of continuous operation.~~
- 9.4.2 The alarm and trouble relay contacts shall operate reliably when switching 10 milliamperes at 120 VAC and 20 milliamperes at 24 VDC under all environmental conditions.

9.5 Environmental

- 9.5.1 The detector must operate reliably after exposure to saturated hydrogen sulfide atmosphere for a period of 24 hours.
- 9.5.2 The detector must function within the sensitivity range specified in paragraph 9.1.6 over the temperature range of 30°F to 120°F.
- 9.5.3 Detector must function within the sensitivity range specified in paragraph 9.1.6 after exposure to 95% R.H. at 77°F for a period of one week.
- 9.5.4 The detector shall not be affected by ambient light or by dust accumulation over a reasonable length of time under normal space conditions.
- * 9.5.5 The ceiling mounted detector must function within the sensitivity range specified in 9.1.6 over the air velocity range of 0-100 feet per minute.
- * 9.5.6 The duct mounted detector ^{shall be capable of operation in duct} velocity range of 300-1500 feet per minute.

9.6 Interconnected System

- * 9.6.1 The detector shall be provided with a connector and color coded lead wires.
- * 9.6.2 The detector shall be connected to a separate power supply and control panel which has the following characteristics:
 1. Terminal connections for 14 ga wire.
 2. 120 volt 50/60 hz input. ~~120~~ 220/240V 50-60 Hz
 3. ~~48~~ volts DC regulated output.
 4. ~~36~~ 48 volt battery standby provisions.
 5. Reset switch for resetting the detectors from alarm condition.

6. Control the voltage turn on rate to the detectors to prevent false alarms upon power failure restoration or alarm reset.
7. Provide two circuits for connection of the detectors. Each circuit to be rated for 1.0 amp at ~~32~~³² VDC.
8. SPDT contacts which transfer upon failure of the primary AC power. The contacts shall be rated the same as the detector alarm contacts as specified in 9.2.3.

9. Overvoltage ~~protection~~ protection required to protect heads.

10.0 Field Installation

10. power supply panel to have 30 to 120° F amb. rating.

* 10.1 The detector shall be 6 1/2 in dia and not protrude more than 3" from the mounting surface.

10.2 The detector mounting shall be as follows:

* 10.2.1 Flush or surface mounted on a 4" x 4" x 2 1/8" deep outlet box.

10.2.2 A model of the detector shall be designed for mounting in a duct.

10.3 Field Wiring

* 10.3.1 Field wiring shall be made to a connector with color coded leads that will plug into the detector head.

10.4 Service

10.4.1 Any special tools or procedures required for proper installation, service or calibration shall be provided.

10.4.2 Typical voltage or current values shall be provided on the internal circuit schematic. The schematic shall provide component values.

10.4.3 Any lamps or other parts requiring replacement during the life of the device must be accessible for simple replacement.

10.4.4 The detector must operate within the performance requirements with a minimum of once per year service and maintenance.

11.0 Styling

12.0 Approval Body or Customer

12.1 The detector shall meet the requirements of Underwriters' Laboratories Standard 168, "Smoke Detectors for Fire-Protective Signalling Systems." The detector shall be listed by U.L. under the Label Service Inspection.

12.2 The Underwriters' Laboratories Test Report and Factory Inspection Procedure shall be included as a part of this specification.

12.3 The detector shall be listed by Factory Mutual Engineering.

13.0 Application or Sales Information

13.1 It is not anticipated that the duct mounted models will be listed by Underwriters' Laboratories or by Factory Mutual Engineering and, therefore, the standards for the duct model shall be the same as those for the ceiling model, with the addition of a velocity shield, a mounting box and a duct mounting plate.

Section III - Quality Provisions

14.0 Quality Assurance - Self Switching Devices

14.1 Preliminary Procedures

14.1.1 At the time Statitrol has completed the design of self-switching devices and, at submittal to U.L., eight units are to be supplied to Honeywell and are to be tested for conformance to this specification.

14.1.2 Copies of correspondence between Statitrol and U.L. during U.L. testing is to be supplied to Honeywell. The final report and inspection procedure is also to be supplied to Honeywell as soon as it is issued.

14.2 Design Acceptance

After units have been tested and satisfactorily meet specification requirements, Honeywell will set up drawings showing details of Product, write Engineering Specification describing devices for ratings and performance requirements the product is to meet.

14.3 Vendor Qualification

Statitrol and their assembly subcontractor, if one exists, shall be qualified as a vendor to Honeywell as determined by surveys of his manufacturing and engineering facilities.

14.4 Production Acceptance

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At least ~~eight~~²⁰ of the first production units purchased will be tested by Honeywell Quality Engineering for conformance to our prints, Engineering Specifications and workmanship standards.

14.5 Receiving Inspection

All production units shall be subject to normal receiving inspection procedures and quality audits used by Honeywell to assure the quality of this type product. These procedures require the testing of the units purchased against the specification and workmanship standards established by Honeywell.

15.0 Quality Assurance - A403, A404 and A405 Devices

15.1 Vendor Qualification

Statitrol Corporation and their assembly subcontractor, if one exists, shall qualify as a vendor to Honeywell - Commercial Division.

15.2 Device Inspection

That all subject devices A403, A404 and A405 purchased by Honeywell shall be subject to inspection by Honeywell to the performance requirements established by Underwriters' and Statitrol and workmanship standards established by Honeywell to assure product reliability and performance consistent with that of Honeywell manufactured products used in the Fire Alarm market.