APPROVAL REPORT

SHP Pro Fire Alarm Control System
With Software V1.0

Prepared for:

Fike Corporation
704 South 10th Street
Blue Springs, MO 64015

Project ID: 3017159
Class: 3010
Date of Approval: January 12, 2004
Authorized by: George A. Smith, Manager
SHP Pro Fire Alarm Control System
With Software V1.0

From
FIKE CORPORATION
704 SOUTH 10TH STREET
BLUE SPRINGS, MO 64015

I  INTRODUCTION

1.1 Fike Corporation requested an examination of modifications made to the previously Approved SHP Fire Alarm Control. The SHP Pro software revision level is V1.0. The Part Number (P/N) designation of the control is now based on the signaling application capability of the control.

1.2 In addition, Fike Corporation requested that the examination for the SHP Pro be extended to cover central station signaling as well as automatic releases for preaction and deluge sprinkler systems.

1.3 This report supercedes J.I. No. 0Z8A0.AY, Report ID No. 3005824, and any subsequent revision reports.

1.4 This report may be freely reproduced only in its entirety and without modification.

1.5 References made in the manufacturer’s documentation to any optional equipment and signaling applications for the SHP Pro which are not covered in this report are not considered part of this Approval.

1.6 Standards

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>Deluge and Preaction Sprinkler Systems</td>
<td>FM 1011 and 1012</td>
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1.7 Listing: The SHP equipment listing will be replaced with the SHP Pro equipment listing as follows in the Approval Guide, a publication of FM Approvals:

LOCAL PROTECTIVE SIGNALING

SHP Programmable Fire Alarm Control Panel using Version 1.00 firmware. The SHP system is designated P/N 10 051- C-P, where C is either R (red cabinet) or G (gray cabinet), and P is 1=120 V ac, 2=208 V ac or 240 V ac. The system includes 10-2175 C-P series of enclosures with transformer, the 10-2190 b-7 or 17 AH battery, and the 10-2171 controller card with 10-2189 firmware. Two 12-V, 7 or 17 AH batteries provide the required 24 hours of standby power. Available in three primary voltage ratings: 120 V ac, 208 V ac, or 240 V ac. (See description
under AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT:

SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware. Controller Part Number designation as follows: P/N 10-2452-1 for clean agent release mode/or clean agent and/or preaction sprinkler release mode/or industrial releasing mode i.e. inert gas, CO2, etc. P/N 10-2452-2 for preaction sprinkler release mode only. Five initiating device circuits (IDCs) are located on the controller board of the SHP. Inputs 1 and 2 may be used with the following 2-wire smoke and heat detectors: P/N 63-1015 Photoelectric Detector; P/N 63-1017 Photo/Thermal Detector; P/N 67-1025 Ionization Detector; and P/N 60-1027 Heat Detector with P/N 67-1026, -1029, and 1031 bases. In addition, the following 2-wire smoke and heat detectors may be connected: P/N 63-1024 Photoelectric Detector; P/N 67-1033 Ionization Detector; P/N 63-1025 Photo/Thermal Detector; P/Ns 60-1029, and -1030 Heat Detectors; with P/N 67-1034, -1036, -1035, -1037, and -1012 bases. Inputs 3-5 are (Class B) Style B initiating device circuits until optional Class A input module P/N 10-2450 is connected. Three (Class B) Style Y notification appliance circuits are provided on the controller. Optional P/N 10-2448 Class A output module allows any of the 3 NACs to be wired Class A, Style Z. There are 3 SPDT Form C relay contacts on board the controller. These are rated 5A @ 50Vdc/250Vac. Optional CRM4 Relay Module P/N 10-2204 provides 4 SPDT dry contact relays each rated 2A @ 30 V dc or 0.5A @ 110 V ac. Optional Conventional Graphic Annunciator P/Ns 10-107 – 10-110 provide a graphic display of the protected area using LED’s to indicate the location of the smoke detectors. Two 12 V dc, up to 40 AH batteries wired in series provide the required 24 hours of secondary power. [See further description under AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT]

AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT

SHP Programable Fire Alarm Control Panel using version 1.00 firmware. The SHP system is designated P/N 10-051, C P, where C is either R (red cabinet) or G (gray cabinet), and P is 1=120 V ac, 2=208 V ac or 240 V ac. Also available with 2 bay and 3 bay modular enclosures. System includes 10-2175 C P series of enclosures with transformer, the 10-2190 b 7 or 17 AH battery, and the 10-2171 controller card with 10-2189 firmware. Provides for up to two initiating device circuits (capable of cross zone, sequential alarm or single detector release) for fire detection, one manual release circuit, and one abort circuit, all of which are Class B Style A. A supervisory initiating circuit can also be programmed. Initiating device circuits can be converted to Class A Style D with optional Class A input module, P/N 10-2172. One alarm and one trouble relay output. Optional SRM4 module, P/N 10-2176, provides four additional relay outputs. There is also one releasing circuit which will actuate up to six ARM-III agent release modules, P/N 10-1832, and one releasing circuit which will actuate 12 V and 24 V solenoids. When connected to the releasing circuit, optional A.R.M. Disconnect Switch P/N 10-2296 may be used to disable all the ARM-III modules. Two 12 V, 7 or 17 AH batteries provide the required 24 hr. standby power. Compatible with the following two wire initiating devices: Hochiki detector Models SLK-24F, 24FH, SH2-24F, AL-DCA 135, 190 for use with Hochiki base Model: HS 221, HSB 220, 224, YBA M220, M224; System Sensor detector Models 1151 and 2151 for use with System Sensor base Model B110RLP; System Sensor detector Models 1451, 2451, 2451TH, and 5451 for use with System Sensor base Models B401B and B401BR; System Sensor detector Models 1400, 2400, and 2400™ for use with 0 Ohm bases.
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SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware. Controller Part Number designation as follows: P/N 10-2452-1 for clean agent release mode/or clean agent and/or preaction sprinkler release mode/or industrial releasing mode i.e. inert gas, CO2, etc. Agent Release Module (ARM III) P/N 10-1832 is required for each Clean Agent Suppressant Container. Up to 6 ARMs can be supported by the SHP Pro. Two 12 V dc, up to 40 AH batteries wired in series provide the required 24 hours of secondary power. [See further description under LOCAL PROTECTIVE SIGNALING]

CENTRAL STATION SIGNALING

Digital Alarm Communicator System consisting of SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware wired to a Bosch/Radionics Model DS9471 Programmable Digital Alarm Communicator Transmitter (DACT) [Fike P/N 10-2475] using version 26-50030-0300F firmware at protected properties reporting to two or more Model D6500 or D6600 or Ademco 685 Digital Alarm Communicator Receivers (DACRs) in the central station via a signaling channel established through the public switched telephone network. The DS9471 [Fike P/N 10-2475] must be set for 24 hour test signal. [See further description under LOCAL PROTECTIVE SIGNALING]

AUTOMATIC RELEASES FOR PREACTION AND DELUGE SPRINKLER SYSTEMS

SHP Programmable Fire Alarm Control Panel using version 1.00 firmware. The SHP system is designated P/N 10-051-C-P, where C is either R (red cabinet) or G (gray cabinet), and P is 1=120 V ac, 2=208 V ac or 240 V ac. System includes 10-2175 C-P series of enclosures with transformer, the 10 2190 b 7 or 17 AH battery, and the 10 2171 controller card with 10 2189 firmware. Provides for up to two initiating device circuits (capable of cross-zone, sequential alarm or single detector release) for fire detection, one workflow circuit, and one supervisory circuit, all of which are Class B Style A. A manual release initiating circuit can also be programmed. Initiating device circuits can be converted to Class A Style D with optional Class A input module, P/N 10 2172. One alarm and one trouble relay output. Optional SRM4 module, P/N 10 2176, provides four additional relay outputs. There is also one releasing circuit which will actuate the following compatible 24 V solenoid valves: ASCO Models T210A107, R210A107, 8210A107, 8210G207 and Skinner Models LV2L8X25, 73218N4UNLVNOC111C2. For Approved combinations of solenoid and deluge water valves refer to AUTOMATIC WATER CONTROL VALVES. Two 17 AH 12 V batteries provide the required 90 hours of emergency power. Compatible with the following two wire initiating devices: Hochiki detector Models SLK-24F, 24FH, SSH 24F, AL DCA-135, 190 for use with Hochiki base Models HS 221D, HSB-220, 224, YBA M220, 2224; System Sensor detector Models 1151 and 2151 for use with System Sensor base Model B110RLP; System Sensor detector Models 1451, 2451, 2451TH, and 5451 for use with System Sensor base Models B401B and B401BR; System Sensor detector Models 1400, 2400, and 2400TH for use with 0 Ohm bases.

SHP Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware. Controller Part Number designation as follows: P/N 10-2452-2 for preaction sprinkler release mode only, or P/N 10-2452-1 for clean agent and/or preaction sprinkler release mode. Five initiating device circuits (IDCs) are located on the controller board of the SHP. Inputs 1 and 2 are capable of cross-zone, sequential alarm, or single detector release. The initiating device circuits must be converted to (Class A) Style D wiring performance with the connection of Class A input module, P/N 10-2450. Two 12 V dc, up to 40 AH batteries wired in series provide the required 90 hours of secondary power. For Approved combinations of solenoid and water control valves, refer to the Automatic Water Control Valve listings that follow. [See further description under LOCAL PROTECTIVE SIGNALING].
WATER CONTROL VALVES

Control Panel Group [2]. These panels are compatible with Solenoid Groups [A], [B], [D], [E], and [G]:

Fike Corporation, 704 S. 10th Street, Blue Springs, MO 64013
Model SHP
SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware

Control Panel Group [8]. These panels are compatible with Solenoid Groups [F] and [H]:

Fike Corporation, 704 S. 10th Street, Blue Springs, MO 64013
SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware

II DESCRIPTION

2.1 The following paragraphs give a brief description of the equipment and the modifications covered by this report. A more detailed description of the equipment can be found in the manufacturer’s SHP Pro Installation, Operation and Maintenance Manual. The manufacturer has made available all necessary circuit schematics and operating specifications, which have been examined and are retained on file at FM Approvals.

2.2 The SHP control was previously Approved for local protective signaling, automatic release for preaction and deluge sprinkler systems and automatic release for extinguishing systems and other fire protection equipment individually but not all at the same time.

2.3 The following items cover the changes made to the SHP Fire Alarm Control:

2.3.1 The SHP Pro Programmable Fire Alarm Control P/N 10-063 with V1.00 firmware has Controller Part Number designation as follows: P/N 10-2452-1 for clean agent release mode/for clean agent and/or preaction/deluge sprinkler release mode/for industrial releasing mode i.e. inert gas, CO2, etc. P/N 10-2452-2 for preaction/deluge sprinkler release mode only.

2.3.2 Five (Class B) initiating device circuits (IDCs) and three (Class B) Style Y notification appliance circuits are provided on the controller board of the SHP Pro. Three dedicated relay outputs configured for Alarm, Trouble and Supervisory rated 2A @ 30 V dc are also provided on the controller board. One each, re-settable and continuous 1.5A auxiliary output is also provided.

2.3.3 The main LCD provides display and control of the SHP Pro system.

2.3.4 Secondary power supply with P/N 02-4970 - 120 V ac transformer provides a 4 amp, 24 V dc output to the control. A battery charger for up to two batteries sized 7 to 40 AH is also provided.

2.3.5 Optional Class A input module P/N 10-2450 may be connected to the IDCs on the controller to allow for Class A, Style D wiring. Optional P/N 10-2448 Class A output module allows any of the 3 NACs to be wired Class A, Style Z.

2.3.6 Optional Relay Module CRM4 (P/N 10-2204) provides 4 SPDT programmable relays rated 30 V dc @ 2A or 110 V ac @ 0.5A.

2.3.7 Optional Conventional Graphic Annunciator P/Ns 10-107 – 10-110 provide a graphic display of the protected area using LED’s to indicate the location of the smoke detectors.
2.3.8 The SHP Pro communicates with a central station via P/N 10-2475 digital alarm communicator transmitter using version 26-50030-0300F firmware at the protected properties reporting to two or more Bosch Model D6500 or D6600 or Ademco 685 Digital Alarm Communicator Receivers (DACRs) in the central station via a signaling channel established through the public switched telephone network.

III EXAMINATIONS AND TESTS

3.1 A sample SHP Pro control with Rev V1.00 firmware was submitted for examination and testing. Many tests were conducted in Blue Springs, MO at Fike Corporation’s facilities while other tests were completed at FM Approvals’ facilities in Norwood, MA. The samples were considered to be representative of the product line and were examined, tested, and compared to the manufacturer’s drawings. All data is on file at FM Approvals along with other documents and correspondence applicable to this program.

3.2 **SHP Pro Control Normal Operation** – An SHP Pro fire alarm control connected to at least one sample of each of the following devices: 2-wire smoke and heat detectors: P/N 63-1024 Photoelectric Detector; P/N 67-1033 Ionization Detector; P/N 63-1025 PhotoThermal Detector; P/Ns 60-1029, and -1030 Heat Detectors; with P/N 67-1034, -1036, -1035, -1037, and -1012 bases. These devices were wired to the sample control to verify proper operation of the FACP under normal conditions for local protective signaling, and releasing application. The following tests were conducted:

3.2.1 **Trouble Signals** - Fault conditions (single open, single ground, and wire to wire shorts) were simulated on external circuits. The TROUBLE LED (yellow) flashed, and a pulsing local buzzer announced this change of condition. The LED did not reset until the fault was corrected as is required. It was verified that a silenced audible trouble signal re-sounded automatically 24 hours later.

3.2.2 **Alarm Signals** - Alarm conditions were simulated on the initiating device circuits. The alarm signals were annunciated by activation of the ALARM LED. In addition, the notification appliances activated under 10 seconds.

3.3 **Line Supervision Tests** – This test was conducted to verify that a ground fault or an open on the releasing circuit resulted in a trouble signal. It was verified that a single ground fault did not affect releasing operation.

3.4 **Voltage Variation Tests** - The input power to the control was varied from 85% to 110% of the rated primary supply voltage (102 to 132 V ac) and from 85% to maximum battery float voltage for the secondary supply (20.4 to 26.4 V dc).

3.4.1 The equipment operated properly and without false signal or malfunction over the entire range of voltage variation.

3.4.2 With the panel fully loaded and with the input power at 20.4 V dc, the release circuits operated normally when an alarm condition was simulated.

3.4.3 With the input power to the panel varied from 102 V ac to 132 V ac and 20.4 to 26.4 V dc, the notification appliance circuit output voltage varied from 19.7 to 27.4 V dc over this input voltage.
range. Only FM Approved notification appliances capable of operating over this entire voltage range are compatible with the SHP Pro control.

3.5 **Circuit Performance** - The initiating device circuits, the release circuits, and the notification appliance circuits were tested to verify that they met the appropriate performance requirements as described in ANSI/NFPA 72. Open, ground, wire to wire short, combination open and ground faults were introduced through the appropriate circuit.

3.5.1 **Notification Appliance Circuits** - It was verified that the notification appliance circuits on the SHP Pro are configurable for (Class A or B) Style Y, or Z circuits.

3.5.2 **Solenoid Release Circuit** - The notification appliance circuit on the SHP Pro, when configured for solenoid release operation, indicated a trouble condition when an open or ground fault condition occurred.

3.5.3 **Initiating Device Circuit** – It was verified that the initiating device circuit on the SHP Pro control meets NFPA 72 (Class B) Style B wiring unless optional Class A input module P/N 10-2450 is connected which configures the circuit for (Class A) Style D performance.

3.6 **Secondary Power Supply Tests** - The secondary (standby) power supply shall automatically supply energy to the system within 10 seconds whenever the primary power supply is incapable of providing the minimum voltage required for proper operation.

3.6.1 Transfer to the secondary power supply was accomplished automatically and in less than 10 seconds upon loss of primary power to the control.

3.6.2 The transfer to secondary power on the 120 VAC panel occurred at 94 V ac. The equipment continued to operate properly down to the transfer point.

3.6.3 The equipment operated properly before and after transfer to secondary power.

3.6.4 It was verified that secondary power is supervised.

3.6.5 When the charger circuit was disconnected from the battery, the SHP Pro displayed a system trouble condition.

3.7 **Preaction/Deluge Releasing Circuit Test** - The SHP Pro was tested for compatibility with the solenoid valves identified in Section 1.7. The input voltage to the control was varied over its operating range of 102 to 132 V ac primary and 20.4 to 26.4 V dc secondary.

3.7.1 Testing confirmed that with the specified maximum solenoid release circuit wiring resistance, the voltage at the releasing circuit remained above 21.4 V dc.

3.8 **Environmental Tests** - The SHP Pro control with attachments as described in Section 1.6 was conditioned for at least 4 hours each at 120°F (49°C) and 32°F (0°C), and for 24 hours at 100°F (38°C) with 90% relative humidity. There was no adverse effect on operation as a result of these exposures.

3.9 **Electrical Utilization Equipment Tests**

3.9.1 **Electrical Shock** - Examination showed that accessibility to the 120 Vac energized circuits was suitably restricted by a locked enclosure.
3.9.2 **Protective Grounding** - Accessible conductive parts of the equipment that are likely to become energized in the event of a fault shall be properly grounded. Accessible metal parts of the SHP Pro control are bonded to enable proper ground connections during installation. The maximum resistance measured between the ground terminal and any accessible part was measured to be less than 1 ohm.

3.9.3 **Field Wiring Terminal Spacings** - The creepage and clearance distances between field wiring terminals and between field wiring terminal parts and the enclosure was more than 1/4 in (6.3 mm) and is found to be acceptable.

3.9.4 **Battery Circuit Reverse Polarization** - The battery leads on the SHP’s power supply were connected to the battery terminals with polarity reversed. There was no emission of flame, escape of molten or glowing particles, no explosion causing rupture, and no infringement of protection against electrical shock afforded by the equipment as a result of these tests.

3.9.5 **Equipment Nameplate Rating Test** - With the maximum load applied to the SHP Pro, the AC input load drawn must not exceed 110% of the marked AC input load rating which is 2.1 A. The input to a fully loaded power supply was measured at 2.0 A. This value is within the limit specified above.

3.10 **Dielectric Tests** - Test voltage of 1240, 60 Hz was applied, respectively, for 1 minute between the following points on the SHP Pro panel: primary transformer conductors and the enclosure; the relay contact terminals with voltages in excess of 30 V ac or 60 V dc and the enclosure. No arcing or dielectric breakdown was evident during or at the end of these tests.

3.11 **Transformer Fault Test** - The transformer secondary for the SHP Pro power supply was short-circuited (to simulate internal failure) with 120 VAC applied to the primary winding. The current draw stabilized and there was no emission of flame, escape of molten or glowing particles, no explosion causing rupture and no infringement of protection against electrical shock afforded by the equipment as a result of this test.

3.12 **Battery Charge and Discharge Test** - After a fully charged battery is subjected to a single discharge cycle (90-hour stand-by and 10 minutes alarm), the charging current shall be such that after 48 hours the battery is returned to a fully charged condition. The following test was run:

3.12.1 The SHP Pro was configured to draw 0.350 A (the maximum stand-by load specified by the manufacturer for 90 hours) and the primary power disconnected. The battery voltage decreased to 21.7 V dc after 90 hours of discharge. A 10 minute alarm load of .5 A was then applied to the control. All circuits remained above 21.5 V dc.

3.12.2 The primary power was reconnected and the batteries were allowed to charge for 48 hours. At the end of 48 hours the trickle current was measured to be 27 mA and the float voltage of the batteries was measured at 27.0 V dc, which indicated a fully charged battery.

3.12.3 Testing confirmed that with the specified maximum solenoid release circuit wiring resistance, the end voltage of the standby batteries remained above 21.7 V dc which assured that the solenoid terminal voltage remained above the required 20.4 V dc after 90 hours at the maximum standby current followed by 10 minutes of alarm current.

3.13 **Vibration Test** - The SHP Pro control with its attachments was subjected to a vertical vibration test. The equipment, with power applied, was positioned in its intended orientation and subjected to a vertical vibration of 4 hours duration with a total displacement of 0.02 inch (0.05 mm) and a frequency sweep of 10-30-10 Hz at two cycles per minute. No deformation or loosening of
assembly parts on the equipment occurred and the equipment continued to operate properly during and after the test.

3.14 **Surge Transient Test** - Although not an Approval requirement, protection against surge line transients was considered. For this test, the SHP's initiating device circuit, notification appliance circuits and releasing circuits were subjected to 60 pulses consisting of five different transient waveforms having peak voltage levels of 100, 500, 1000, 1500, and 2400 volts, as delivered into a 200 ohm load. The control showed no instability before, during and after this test.

3.14.1 It was also shown that the power supply was able to withstand surge line transients of 6kV superimposed on the main line input.

3.14.2 Protection against internally induced transients was also verified. The power to the control was cycled five hundred times while monitoring the releasing circuits for instability. The test results showed that the equipment did not false alarm, operated as intended, and retained its required stored memory.

3.15 **Radio Frequency Interference** - Although not an Approval requirement, the following tests were run: An SHP Pro control with a sample of each of the devices covered by this report connected was subjected to frequencies of 155, 450, and 850 MHZ with equivalent radiation power levels of 5.0 Watts at a distance of 24 in. (0.6 m) from the detectors. The system did not false alarm or give any indication of instability as a result of these exposures.

3.16 **Central Station Signaling** - The following tests were conducted to verify that the SHP Pro when connected with a P/N 10-2475 (Bosch/Radionics DS9471) digital alarm communicator transmitter communicating with two or more Model D6500 and/or D6600 digital alarm communicator receivers in the central station via a signaling channel established through the public switched telephone network met the requirements of ANSI/NFPA 72 National Fire Alarm Code, 2002 Edition, for Digital Alarm Communication Systems.

3.16.1 When an alarm was initiated at the SHP Pro, the DACT obtained a dial tone, dialed the number of the DACR, obtained a verification that the DACR was ready to receive signals, transmitted the signals and then accepted confirmation that the DACR received the signal. The time for this transaction was less than 90 seconds.

3.16.2 Fault conditions were simulated at the SHP Pro control unit. The trouble signals were received at the central station receiver in approximately 45 seconds.

3.16.3 When primary power to the control was disconnected, the SHP Pro annunciated the fault locally but a delayed AC power loss signal was transmitted to the DACR after six hours.

3.17 Compatibility Data Forms were completed, submitted, reviewed, and filed for the following two-wire smoke and heat detectors: P/N 63-1015 Photoelectric Detector; P/N 63-1017 Photo/Thermal Detector; P/N 67-1025 Ionization Detector; and P/N 60-1027 Heat Detector with P/N 67-1026, -1029, and 1031 bases. In addition, the following 2-wire smoke and heat detectors may be connected: P/N 63-1024 Photoelectric Detector; P/N 67-1033 Ionization Detector; P/N 63-1025 Photo/Thermal Detector; P/Ns 60-1029, and -1030 Heat Detectors; with P/N 67-1034, -1036, -1035, -1037, and -1012 bases. These detectors were found to be compatible with the SHP Pro Fire alarm control.
IV  MARKING

4.1 The following information appears on the adhesive label on the inside cover of the SHP Pro Fire Alarm Control as identified in Section 1.7 and meets Standard requirements:

- Manufacturer’s name and manufacturing location.
- Model name and P/N.
- Maximum power input and output ratings.
- The FM Approval Mark.

4.2 The Software Version V1.0 is identified on the Liquid Crystal Display (LCD) of the front panel.

V  REMARKS

5.1 Installations shall comply with the relevant requirements of the latest edition of the National Electrical Code (ANSI/NFPA 70).

5.2 Installations shall comply with the latest edition of the manufacturer’s instruction manual.

5.3 Control panels for automatic release of sprinkler or extinguishing systems are not considered FM Approved if they incorporate an accessible disable or abort switch. A key operated test switch, or a disable switch behind a lockable cover, or a manually operated momentary switch is permitted, but not recommended by FM Approvals for providing an intentional interruption of operation for servicing and testing.

5.4 When disconnecting the extinguishing system discharge for testing and/or maintenance, the extinguishing system must be isolated mechanically and not solely by electrically disconnecting the equipment.

VI  FACILITIES AND PROCEDURES AUDIT

The manufacturing site in Blue Springs, MO is subject to follow-up audit inspections. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this report.

VII  MANUFACTURERS RESPONSIBILITIES

7.1 Documentation considered critical to this Approval is on file at FM Approvals and listed in the Documentation File, Section VIII of this report. No changes of any nature shall be implemented unless notice of the proposed change has been given and written authorization obtained from FM Approvals. The Approved Product Revision Report, Form 797, shall be forwarded to FM Approvals as notice of proposed changes.

7.2 On 100 percent of production, the manufacturer shall subject each transformer in the power supply of the SHP Pro fire alarm control to a dielectric test where the connections shall withstand, for one minute and with no insulation breakdown, the application of 1000 V ac (or 1400 V dc) with respect to the protective ground. Alternatively, a test potential of 1200 Vac (or 1700 V dc) may be applied for at least one second.
WARNING: The dielectric test required may present a hazard of injury to personnel and/or property and should only be performed under controlled conditions, and by persons knowledgeable of the potential hazards of such testing to minimize the likelihood of shock and/or fire.

VIII DOCUMENTATION

The following drawings describe the SHP Pro equipment and are filed under Project 3017159.

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IX CONCLUSION

The equipment described in 1.7 meets FM Approvals requirements. Since a duly signed Master Agreement is on file for this manufacturer, Approval is effective the date of this report.

EXAMINATION AND TESTING BY: Noura Milardo

PROJECT DATA RECORD: 3017159

ATTACHMENTS: None

REPORT BY: Noura Milardo

REPORT REVIEWED BY: Phil Schoenheiter

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Engineer
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Phil Schoenheiter
Senior Engineer
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