Design Manual
Installation • Operation • Maintenance

Model FT193

UV Only Portable
Flame Detector Test Lamp

SST
Safety Systems Technology

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Quick Finder

MODEL FT193 Portable Flame Detector Test Lamp

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MODEL FT193 Portable Flame Detector Test Lamp

SAFETY INFORMATION

Please read and understand this Design Manual **BEFORE** operating or conducting maintenance on the flame detector test lamp.

Pay close attention to important messages marked as WARNINGS and IMPORTANT throughout the Design Manual.

Failure to follow the instructions and safety precautions in this Design Manual can result in serious injury or death.

Equipment that has been repaired or modified by the user, damaged as a result of an accident, improper installation or used in an environment for which it was not intended will void the warranty.

INSTALLATION WARNINGS

Use of this equipment to test flame detectors must only be conducted by trained and in some cases a licensed personnel.

Observe the recognized standards of the appropriate authority in the in the country concerned. Follow all appropriate standards to test the detector. Ensure all local regulations and site safety procedures are followed.

Declassify the area before using the flame detector test lamp. The test lamp is intended for non-hazardous applications. Do not use the test lamp in any location where potentially explosive atmospheres exist.

DO NOT open the housing/enclosure or replace the batteries in potentially hazardous atmospheres.

DO NOT tamper, modify, repair, or disassemble the electronics module or the test lamp.

DO NOT expose the test lamp to temperatures outside the recommended ranges as damage or failure may occur.

Every effort has been made to ensure the accuracy of this Design Manual. However, Safety Systems Technology assumes no responsibility for any errors or omissions in this document. Please report any errors or omissions found in the content of the Design Manual.

Safety Systems Technology reserve the right to change or revise this Design Manual without notice and without obligation to notify any person or organization of such changes. You may request any additional information required that is not included in the Design Manual through the local distributor or Safety Systems Technology.

QUICK USE GUIDE

Contents

Model FT194 / FT193 Flame Detector Test Lamp

4 standard disposable "D" cell batteries

Or 4 rechargeable batteries with 120 volt or 220 volt battery charger

WARNING: De-classify the area to reduce the risk of ignition of hazardous atmosphere. Combustible and flammable gases and vapors are very dangerous. Extreme caution should be taken when these hazards are present.

WARNING: DO NOT look directly into the test lamp while it is on. Never point the test lamp at another person while it is on. When operating the flame detector test lamp, shortwave ultraviolet radiation is emitted which can damage your eyesight.

Operating the Test Lamp

1. Open the case.

2. If using for the first time, charge the rechargeable batteries if included.

3. Carefully remove the test lamp from the case.

4. Make sure the lens is free and clear of any dust, dirt, or debris prior to use

IMPORTANT: Do not allow , dust, dirt, debris, or finger marks to get onto the face of the lens. The transmission of the UV and IR signal from the test lamp requires the lens to be free of any obstruction to properly operate.

5. Position the test lamp within 5 feet (1.5 meters) from the flame detector and within the detector's field-of-view

6. Point the head of the test lamp towards the viewing window of the flame detector

7. **Press and HOLD** the switch on the test lamp until the flame detector responds

   You must continue pressing down the switch to activate the test lamp until the detector responds

8. For SST's Model F110, F120 or Model F2 set for UV operation only, a red LED light will turn on to signal an alarm condition

9. Release the switch on the test lamp, you have successfully confirmed the flame detector is operational

10. The flame detector will return to normal operation when the test lamp has been deactivated turning off the red LED and only the green LED should be illuminated

11. Repeat test if necessary

12. Store the test lamp in the carrying case when not in use

GENERAL DESCRIPTION

A fire is composed of heat and light , both visible and invisible. And during the combustion process, smoke may be generated. A fire will emit specific radiation in the infrared and ultraviolet spectrum. A flame detector uses specialized sensors to detect these radiation to report and confirm a fire.

The Model FT193 Flame Detector Test Lamp is a specifically designed portable source of ultraviolet (UV) radiation for testing Safety Systems Technology's UV flame detectors. The test lamp is used to test and confirm the operation of the flame detector. It tests the viewing window of the detector is clean and unobstructed as well as verify its internal electronics operation is functioning normally similar to how a built-in internal automatic self-test works. Furthermore, it will confirm the operation of the detector's critical alarm outputs such as the contact relays, 4-20 mA alarm output, and the system's wiring terminals, cabling and its connections, functionality of the fire alarm panel, proper audible and or visual alarm notification, and the suppression system if required.

Operational Description

Inside the unit is a UV source lamp. The test lamp emits a wide band of UV radiation which includes the region of 1850 to 2450 Angstrom. Because all flame detectors are line-of-sight devices, the test lamp also verifies that the window of the flame detector is unobstructed which will allow the transmission of the UV signal from the test lamp to reach the sensor. Any obstruction such as dust, dirt, grease, or debris on the lens of the flame detector will prevent it from seeing the simulated fire from the test lamp. The test lamp must be within 65 feet or 20 meters of the detector and in the vicinity of the field-of-view of the detector to operate. The flame detector, depending on the settings, should respond to the test lamp within seconds. And once the detector has detected an alarm condition, it should activate the critical alarm outputs confirming normal operation.

Housed inside the test lamp is a state-of-the-art electronics module that controls the UV source lamp to simulate a real flame. The test lamp uses a highly specialized sapphire lens which allows transmission of the UV radiation. Always handle the test lamp with extreme caution to prevent damage to the special lens. The test lamp functions on internal batteries which, when fully charged, will allow operation for an extended period of time. The test lamp uses a momentary switch and must be pressed and held to activate and operate the unit while testing a flame detector. This prevents the test lamp from being left on and to conserve battery power.

SPECIFICATIONS

System Specifications

UV Output .... Full range 1850 to 2450 Angstrom

Operating Range................... 65 feet (20 meters)

Operating Time...................... Approximately 40 hours with new set of batteries

Warranty............................... 3 or 6 seconds

Warranty:.............................. 5 years

Environmental Specifications

Operating Temperature .... 32°F to 158°F (0°C to 70°C)

Operating Humidity .... 0-100% RH, non-condensing

Ingress Protection IP64

Mechanical Specifications

Dimensions .... 14.62 inches long x 2.25 inches in diameter (371 x 57 mm)

Weight .... 2.5 lbs (1.134 kg)

Housing .... Aluminum

Test Lamp

Momentary Switch

Serial Number

Battery Compartment
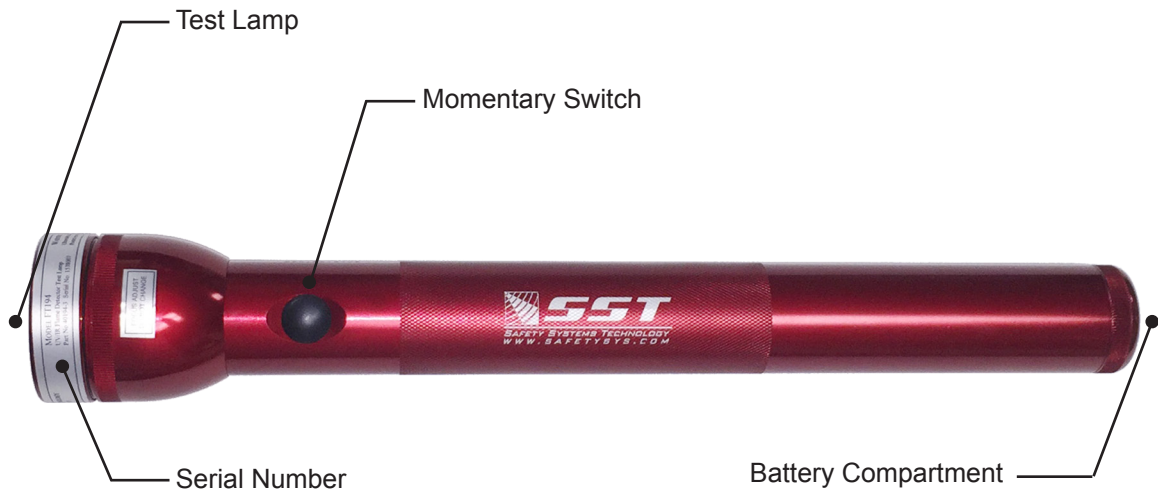
MAINTENANCE

Factory Recommended Maintenance

The flame detector test lamp has been designed with very little to no required maintenance. Depending on your application and safety guidelines in your facility, additional maintenance may be necessary to ensure the unit will functioning properly.

Periodic maintenance should be performed per the manufacturer's recommendations and instructions. Factory recommended regular maintenance schedule is as follows:

• Lens Cleaning Prior to Use

• Annual Battery Check

Maintenance intervals should be independently established through a documented procedure such as a maintenance log maintained by plant/safety personnel or third party testing services.

Lens Cleaning

! WARNING: The lens material is a highly specialized sapphire designed to transmit UV and IR radiation from the source lamps. NEVER clean the lens with Windex or other commercial glass cleaners. These often contain silicone or other UV inhibitors that will prevent the transmission of the UV and IR signals. Only use water or alcohol to wipe the lens clean.

Cleaning the outside surface of the lens of any accumulated dust, dirt, film or debris will insure trouble free operation.

A clean, soft, lint-free cloth, tissue (lotion-free) or cotton swab should be used.

1. Wet the lens with water or alcohol.

2. Rub with a clean and dry cloth until the window is free of dirt, dust, or debris.

3. Let the lens dry completely.

Cleaning the lens prior to routine testing of the detectors will be sufficient in most cases

Annual Battery Check

The test lamp uses very little power and does not require frequent battery replacement. It is recommended to periodically check the batteries prior to use when the test lamp has not been used for an extended amount of time. Check for any damage or leaks and replace as necessary.

Disposable Batteries

Disposable batteries should be replaced when it no longer supplies enough power to the test lamp, is damaged or leaks. Use standard size "D" cell batteries.

Rechargeable Batteries

Rechargeable batteries should be replaced when it no longer holds a charge, is damaged or leaks. Any standard size "D" rechargeable batteries are suitable.

FLAME DETECTOR TESTING

! **WARNING: The Model FT193 Flame Detector Test Lamp is not rated for use in hazardous locations. De-classify the area to reduce the risk of ignition of hazardous atmosphere. DO NOT use the test lamp where combustible and flammable gases are present.**

The Model FT193 Flame Detector Test Lamp is specifically designed portable sources of ultraviolet radiation for testing UV flame detectors. The test lamp emits a wide band of UV radiation which includes the region of 1850 to 2450 Angstrom, corresponding to the response of the UV sensor of the detector.

The Model FT193 is a specially designed test lamp which consists of a highly specialized sapphire lens. The sapphire lens allows transmission of the ultraviolet (UV) radiation. This lens is extremely expensive and must never be replaced with a standard glass or plastic lens. Always handle the test lamp with extreme caution to prevent damage to the special lens. Store the test lamp in the provided carrying case when not in use.

The following testing procedure refers to Safety Systems Technology's line of flame detectors.

Factory Recommended Test Schedule

Factory recommends testing the flame detectors on a monthly basis to ensure proper operation.

When to Test the Flame Detector

The following lists when to test the flame detector:

• After initial installation

• Every 30 days after the last operational test

• After a FAULT has been resolved

• After cleaning the lens

• In areas where severe lightning storms occur, it is recommended to test the flame detectors after a severe lightning storm

! **NOTE: The Monthly Operational Test can be performed by one person. No manual adjustments are required for testing.**
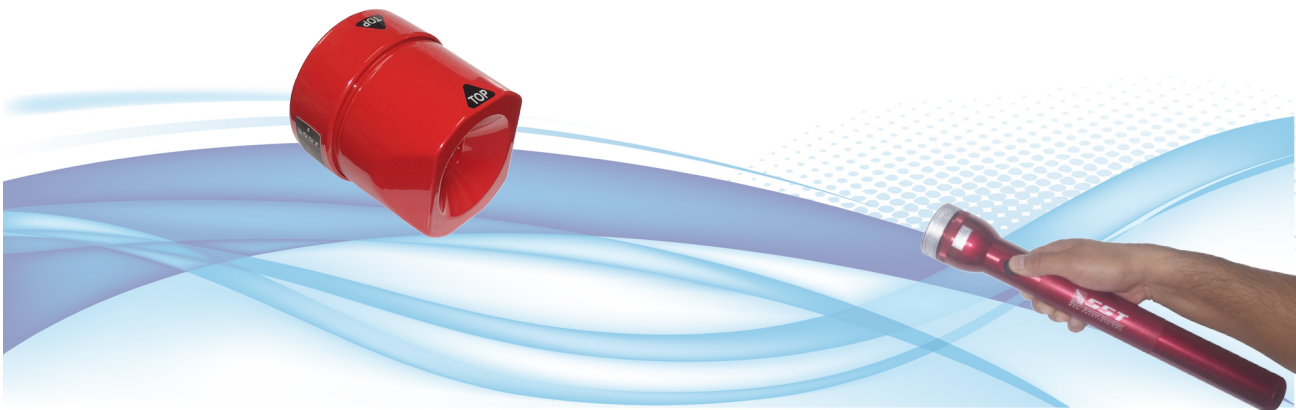
Tools Required

Safety Systems Technology has specifically designed a portable flame detector test lamp to test its flame detectors.

SST Part #	Description
193-1	Model FT193 Flame Detector Test Lamp with rechargeable batteries and 240 volt battery charger, carrying case included
193-2	Model FT193 Flame Detector Test Lamp with standard "D" cell batteries, carrying case included
193-3	Model FT193 Flame Detector Test Lamp with rechargeable batteries and 120 volt battery charger, carrying case included

! WARNING: The Model FT193 Flame Detector Test Lamp is not rated for use in hazardous locations. De-classify the area to reduce the risk of ignition of hazardous atmosphere. DO NOT use the test lamp where combustible and flammable gases are present.

Step-by-step Test Procedure

! WARNING: DO NOT look directly into the test lamp while it is on. Never point the test lamp at another person while it is on. When operating the flame detector test lamp, shortwave ultraviolet radiation is emitted which can damage your eyesight.

1. To test a flame detector, position the flame detector test lamp within 65 feet (20 meters) from the flame detector and within its field-of-view.

2. While aiming directly at the detector, PRESS and HOLD the test lamp switch. The response of the detector will depend on the distance between the detector and the test lamp.

3. Once the detector has detected the UV and IR radiation from the test lamp, the red LED will illuminate which can be seen from the viewing window of the detector.

4. Depress the test lamp switch once detector's red LED is turned on.

   For flame detectors with the Delayed Alarm set to NON-LATCHING, the detector will automatically reset and the red LED will turn off.

   For flame detectors with the Delayed Alarm set to LATCHING, the detector will have to be manually reset to return to normal operation.

5. This concludes your test and you have confirmed the detector is operating normally.

Failed or Incomplete Test

When testing the flame detector, make sure to account for the time delay settings of the detector. The flame detector has a factory default time delay setting of 3 seconds and a user selectable setting of 6 seconds. During this time, the flame detector confirms the presence of radiation emitted by the fire before reporting an alarm condition.

The response time of the detector will depend on the distance between the detector and the test lamp.

Causes of Failed or Incomplete Tests

If the flame detector does not respond to the test lamp, check the following:

1. Confirm the flame detector has power.

   A green LED indicator is illuminated on the viewing window of the detector to indicate it is powered and operating.

2. Verify the test lamp is working.

   While the unit if off, check that there are no dust, debris, finger marks, or any type of oily residue on the lens. Clean the lens using a clean, soft, lint-free, tissue (lotion-free), or cotton swab with water or alcohol. DO NOT use Windex or any commercial glass cleaners.

3. Confirm the test lamp has power.

   Point the test lamp on the floor or a wall while pressing and HOLDING the power switch. DO NOT look directly on the lens of the test lamp while it is on. The test lamp should light up and "flicker." Reduced intensity may indicate the batteries are low. Recharge the batteries or replace them if using a disposable type.

4. Make sure the test lamp is within 5 feet (1.5 meters) from the flame detector and pointed directly at the viewing window of the detector.

   The test lamp must be within the detector's field of view. Move closer to the flame detector and repeat the test.

5. Make sure you press and HOLD the power switch while pointing the test lamp directly into the viewing window of the detector for at least 10 seconds or until the red LED comes on.

6. SEE "Troubleshooting" section of the flame detector's manual if the flame detector doesn't respond to the test lamp.

TROUBLESHOOTING

! CAUTION: All repairs shall only be performed at a Safety Systems Technology facility and by its authorized service personnel. Failure to comply will invalidate the warranty on the detector.

! WARNING: Do not operate the test lamp or the battery charger in any location where combustible gases, vapor, or dust is present. And do not change batteries in any location where potentially explosive atmospheres exist.

Test Lamp Won't Turn On

- You must PRESS and HOLD the switch to activate and continually operate the test lamp. Depressing the switch will turn off the test lamp.

- Check if test lamp is generating any light. In bright areas, the flashing light generated by the test lamp may not be visible. Check the test lamp in a dimly light room to verify if it is generating a flashing light. NEVER look directly into the source lamp while the unit is on as damage to your eyes may result.

  The lack of intensity of the flashing light being generated by the test lamp may indicate the batteries may need to be replaced.

- Check batteries. Make sure the batteries are properly installed inside the unit. Replace any leaking or damaged batteries. For rechargeable batteries, charge the batteries. If the batteries no longer holds a charge, replace as necessary.

- Check source lamps. DO NOT look directly into the source lamps when the test lamp is ON or activated as damage to your eyes may result.

  The UV and IR source lamps inside the test lamps may be damaged or burnt out. Replace source lamps or return the unit to Safety Systems Technology for repairs. SEE "Repairs" section of this manual for detailed instructions on how to return the unit for repairs or replacement.

Flame Detector is not Responding

- Verify you are testing a UV ONLY flame detector. The Model FT193 UV Flame Detector Test Lamp has been designed specifically for UV ONLY flame detectors. UV/IR, Triple-IR and Multi-spectrum IR operate on a different frequency and is not suitable for testing with the test lamp.

- Confirm the flame detector has power. Most flame detectors have a green LED to indicate normal operation. If the detector is not operating, troubleshoot the flame detector. Repeat test once the flame detector is operational.

- Confirm the flame detector is not in alarm. An active red LED on the flame detector may indicate the detector is in alarm. If the red LED remains on, this may indicate the detector's alarm is in LATCHING mode. Reset the flame detector and repeat test.

- Confirm the flame detector in not reporting a Fault. An active yellow LED on the flame detector may indicate the detector is reporting a Fault. Troubleshoot the flame detector. In some cases, the detector's automatic self-check may have determined the lens on the detector is obstructed. Clean the lens and repeat test.

- Verify you are within 65 feet (20 meters) from the flame detector and are within its field-of-view. Move closer to the flame detector and repeat test.

- Check the lens of the test lamp. Remove any obstruction such as dirt, grime, or debris. If the lens has just been cleaned, make sure Windex or other commercial grade glass

cleaners was not used. Use of these cleaners inhibit the transmission of UV signals to the sensors.

Only use water or alcohol to clean the lens of the detector. SEE "Maintenance" section of the manual for instructions on how to clean the lens of the detector.

Technical Support

Headquarters

Safety Systems Technology, Inc.
23282 Mill Creek Drive, Suite 215
Laguna Hills, CA 92653
U.S.A.

Phone Numbers

  1.866.507.2264 Toll-free (USA only)
+1.949.583.1857 Main
+1.949.340.6643 FAX

E-Mail Addresses

techalert@safetysys.com   Technical Support
sales@safetysys.com   Sales

SPARE PARTS AND ACCESSORIES

To order spare parts and/or accessories, please contact the nearest Safety Systems Technology's authorized distributor or Safety Systems Technology Customer Care Department and provide the following information:

• Part number

• Description

• Quantity

Replacement Parts

40193-3   Complete test lamp unit only, no batteries or other accessories

20206-001   Replacement UV source lamp *

* For UV source lamp replacement, it is recommended to send the unit to factory for repairs to prevent any damage to the internal electronics and the lens.

WARRANTY

Safety Systems Technology, Inc. warrants the Model FT193 to be free of defects in materials or workmanship under normal use and will repair or replace any unit that is found to be defective for five years after the date of manufacture. Units that are damaged by exposure to contaminants, incorrect hookup, abuse, accident, or abnormal operating conditions are not covered by this warranty.

Defective or damaged equipment must be shipped to Safety Systems Technology accompanied by a detailed description of any issue.

Safety Systems Technology reserves the right to make the final determination of the nature of and responsibility for defective or damaged equipment. Equipment that has been repaired or modified by the user, damaged as the result of an accident, incorrectly installed or used in an application or environment for which it was not intended is not covered by this warranty. Safety Systems Technology's responsibility under this warranty shall be limited to the repair or replacement of the defective equipment at its option when it is returned to the factory transportation prepaid. The defective unit will be repaired or replaced free of charge to the customer and returned transportation prepaid. In all cases, this warranty is limited to the cost of the equipment.

REPAIRS

All equipment requiring repair must be shipped to Safety Systems Technology accompanied by a Return Material Authorization (RMA) form. The form can be downloaded through SST's website at www.safetysys.com.

1. **The following information is required:**

   • Model Number or Part Number

   • Serial Number - imprinted on the nameplate of the detector

   • Brief description of the problem

   • Contact information

   • Complete shipping address for the return of the repaired items

2. **Contact Safety Systems Technology to obtain an RMA number at:**

   +1.949.583.1857 Main
   +1.866.507.2264 Toll-free number (USA only)
   or via e-mail at techalert@safetysys.com

3. **Ship the unit(s) prepaid to with a copy of the RMA form inside the package:**

   Safety Systems Technology
   Attention: Repair Department
   23282 Mill Creek Drive, Suite 215
   Laguna Hills, California 92653
   U.S.A.
   +1.949.583.1857 Phone

Upon receipt of your equipment, a repair estimate will be sent to you and repairs will be made only after your authorization. Repair and shipping costs will be invoiced to account holders or charged to a credit card.