

OMNIGUARD MODEL 540/545 TEST SOURCE

Operating and service manual

Description

The Omniguard model 540/545 test source is a self-contained, portable, hand-held, explosion-proof device designed to stimulate Omniguard flame detectors.

Model 540

The model 540 is designed for to test Omniguard UV/IR and UV flame detectors. The model 540 contains a rechargeable battery and circuitry to power two light sources which emit a calibrated ratio of ultraviolet (UV) and infrared (IR) energy simulating the spectral radiant characteristics of a flame source.

The model 540 is not an absolute calibration source however, and is only intended to generate sufficient UV and IR radiation in a ratio recognized by the UV/IR flame detector and by the UV flame detector as being representative of a flame source, thereby initiating a fire output signal and subsequent alarm.

Proper calibration of Omniguard flame detectors can only be achieved by the manufacturer using open flames and sophisticated test equipment.

Model 545

The model 545 is designed for to test Omniguard Multi-Spectrum IR, UV/IR and UV flame detectors. The model 545 contains a rechargeable battery and circuitry to power two light sources which emit a calibrated ratio of ultraviolet (UV) and infrared (IR) energy simulating the spectral radiant characteristics of a flame source. The light source for the IR energy has been filtered to the correct spectral radiant characteristics of a flame source for a Multi-Spectrum IR flame detector.

The model 545 is not an absolute calibration source however, and is only intended to generate sufficient UV and IR radiation in a ratio recognized by the Multi-Spectrum IR flame detector, UV/IR flame detector and UV flame detector as being representative of a flame source, thereby initiating a fire output signal and subsequent alarm.

Proper calibration of Omniguard flame detectors can only be achieved by the manufacturer using open flames and sophisticated test equipment.

Application

Model 540

The model 540 test source is designed to test Omniguard UV/IR Models 730, 750, 850, 860 and Omniguard UV Models 651, 652, 653, 654, 655, 656, 657, 658, 660.

Model 545

The model 545 test source is designed to test Omniguard IR Model 760, Omniguard UV/IR Models 730, 750, 850, 860 and Omniguard UV Models 651, 652, 653, 654, 655, 656, 657, 658, 660.

Specifications

The model 540/545 test source is approved for use in Class I, Division 1, Groups C and D areas. Third party testing has been performed by Canadian Standards Association (CSA).

Performance

Model 540

Typically a fully charged model 540 test source will work effectively at a range not to exceed 15 feet (4.6 meters) when aimed directly at the face of a detector. The effective test distance to the flame detector and number of tests achievable on a full charged battery will vary depending on the Omniguard flame detector model and the user selectable settings.

Model 545

Typically a fully charged model 545 test source will work effectively at a range not to exceed 10 feet (3 meters) when aimed directly at the face of a detector. The effective test distance to the flame detector

and number of tests achievable on a full charged battery will vary depending on the Omniguard flame detector model and the user selectable settings.

Operating instructions

Cautions: For safety reasons, the following operational cautions must be understood and strictly adhered to while using the model 540/545 test source:

- Do not look at or aim the test source in the direction of another person. When powered, the ultraviolet radiation generated by the model 540/545 test source can permanently damage eyesight.
- Due to its size and weight (13 pounds (5.9 kilograms)), care should be taken when climbing ladders etc.
- Charging the model 540/545 should only be performed in nonhazardous environments with approved charging device. After charging has been completed, replace and securely tighten the charging plug access cap prior to entering a hazardous area.
- Never energize the model 540/545 while it is being charged
- Deactivate all automatic fire suppression systems prior to testing the flame detectors to avoid unwanted discharging of the suppressant.

Operation

The model 540/545 test source is shipped with an uncharged battery and will require full charging prior to use.

Remove the charging plug access cap located in front of the handle on the top side of the test source. Do not remove the rear cover. First plug the connector of the Omniguard charger into the test source socket, then plug the charger into the AC outlet. Allow the test source to charge for a full 16 hours. Do not turn on the test source while charging.

Remember to securely tighten the charging plug access cap after charging is complete to maintain the explosion–proof integrity of the test source.

In a fully charged state, the test source will typically provide 50-60 five seconds tests (30-40 five seconds tests for earlier version of the test source, using a NiCD battery).

To perform a simulated flame test, it is important to face the flame detector as squarely as possible at a maximum distance of:

- Model 540 test source: 15 feet (4.6 meters), or in the case of the Omniguard 753, 9 feet (2.74 meters).
- Model 545 test source: 10 feet (3 meters), or in the case of the Omniguard 753, 9 feet (2.74 meters).

The extremely narrow beam width of the IR light source requires use of the sighting tube for reliable operation. Proper aiming is achieved when the following conditions are met. 540

- UV/IR flame detector: The smaller window should be centered within the viewing angle of the sighting tube.
- UV flame detector: The large window should be centered within the viewing angle of the sighting tube.

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- Multi-Spectrum IR flame detector: The two windows together should be centered within the viewing angle of the sighting tube.
- UV/IR flame detector: The smaller window should be centered within the viewing angle of the sighting tube.
- UV flame detector: The large window should be centered within the viewing angle of the sighting tube.

Note: Off-axis aiming of the model 540/545 test source will result in a reduction of sensitivity (test distance) and is not recommended.

To initiate a test, pull back on the slide trigger. Release the trigger only after the flame detector has alarmed or sufficient time has elapsed in which the detector should have gone into an alarm state. Do not maintain trigger engagement for periods longer than 10 seconds.

Omniguard flame detectors are typically set at the factory for a fire actuation time delay of three seconds. In order to perform a simulated fire test and activate the fire relay it is necessary to maintain aiming of the test source on the flame detector for the duration of the time delay setting. It is not recommended that the model 540/545 test source be used for testing flame detectors with delays exceeding three seconds.

Upon release of the model 540/545 trigger, a period of approximately 60 seconds is required for the battery pack to regain full capacity. The model 540/545 circuitry includes a lock-out feature; attempts to retest prior to completion of battery recovery period will result in no output signal being generated from the 540/545 test source.

The quartz halogen lamps used in the model 540/545 generate significant amounts of heat during use. Therefore, when using the test source, it is recommended that in cases where several tests of up to ten seconds duration are to be made, cool-down periods are allowed between successive tests. It is important to note the case temperature during use and allow the model 540/545 to cool if it becomes noticeably warm to the touch.

Failure of the flame detector to respond indicates one of the following:

- The distance between the test source and the flame detector is too great.
- Aiming of the test source was not accurate enough to excite both channels of the flame detector.
- The flame detector under test is inoperable.
- The flame detector optics (windows) require cleaning. Clean the optics and repeat the test.
- Obstructions between the flame detector and test source may be preventing sufficient "light energy" from reaching the flame detector face.
- The test source battery may have insufficient charge or is malfunctioning.

Battery pack maintenance

In order to ensure long life capacity of the NiMh battery pack please use the following suggestions.

- New battery packs will require 4 to 6 full charge/discharge cycles to reach full capacity.
- Allow the battery pack to fully discharge before recharging it. The NiMh chemistry will allow for proper operation until it nears the end of its charge cycle. Recharging the battery pack prior to being fully discharged can change the battery chemistry and shorten the discharge cycle.
- Allow the test source and battery to fully cool before charging.





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Picture shows Omniguard model 540 test source. Model 545 test source has the same dimension as model 540.

Battery pack replacement procedure

Caution: Do not open and or attempt to replace the battery pack in hazardous environments.

- 1. Loosen the two 4-40 set screws in the rear cover using a .050 Allen wrench (hex key).
- 2. Remove the rear cover. Note: Be careful not to get the anti-seize compound on hands and clothes.
- 3. Carefully remove the battery pack plug from the control board connector. The battery pack plugs into the left connector on the
- control board when the pistol grip handle is pointing downward. 4. Remove the battery pack.
- 5. Insert the battery pack replacement into the battery pack holder. Insure the battery pack is fully seated in the holder.
- 6. Plug the battery pack into the open connector on the left side of the control board J1.
- 7. Securely attach the rear cover by tightening five to six turns (minimum). Re-tighten the two set screws.
- 8. Charge the battery pack per the first paragraph within the operating instructions of this manual.

Optional equipment

Part No.	Description
22633	Charger with adapter plug 100-240 VAC universal input Including wall outlet plugs for EU, UK , US and AUS
70718	NiMh Battery Pack







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