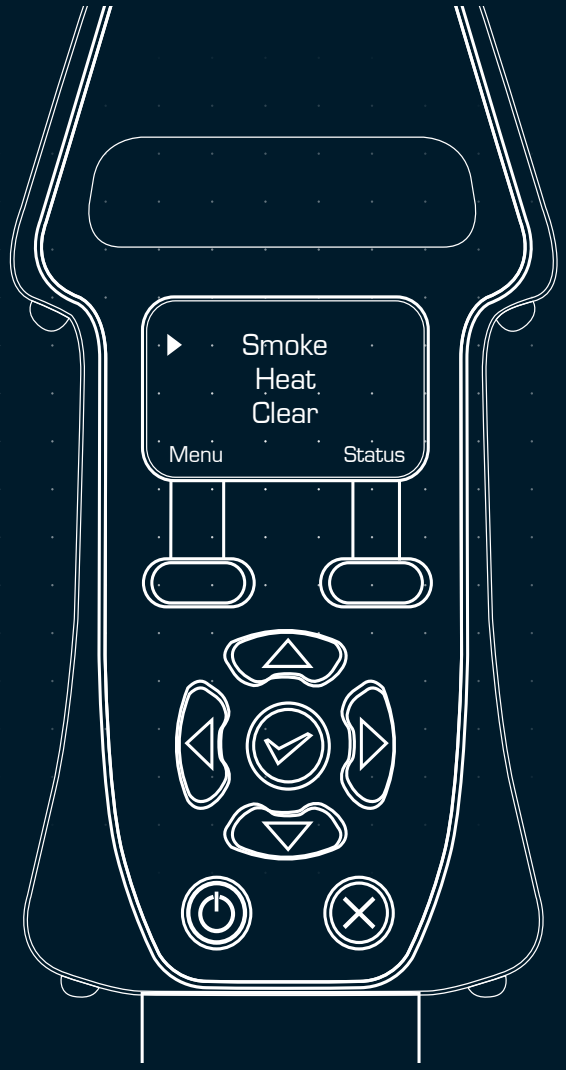
FUNCTIONAL TEST PROCEDURES

For Smoke, Heat, CO and multi-sensor detectors

EMEA Region



detectortesters

1. Follow local codes of practice

In general, the procedures for testing and maintaining detectors are described in the local codes and standards.

These codes and standards cover the frequency at which functional testing should be carried out. Typically, detectors should be inspected twice a year (at a minimum) and cleaned if they are dirty. If a detector is removed from its base for any reason it should be functionally tested after it is refitted.

2. Use approved test equipment (with UL listing)

> Smoke Detectors

To carry out a functional test of a smoke detector, use a solution from Detectortesters. Use XTR2, Testifire (1000 or 2000 series) or Solo365 with the appropriate non-pressurised, non-hazardous smoke capsule/cartridge, alternatively, you can use SoloA10s/A10/A5 smoke aerosol cans optimised for use with the Solo330/332 aerosol dispenser.

> With XTR2, Testifire and Solo365, smoke is generated automatically once the detector enters the cup. This controlled smoke delivery ensures less wasted smoke and no risk of detector contamination (through over - application of smoke).

For hand-held testing only use SmokeSabre with its extendable 'Sabre' to prevent spraying too close to the detector.

Equipment	Product Code
XTR2	Testifire-XTR2-xxx
Testifire 1000 & TS3 Smoke Capsule	Testifire1000-xxx Testifire1001-xxx
Testifire 2000 & TS3 Smoke Capsule	Testifire2000-xxx Testifire2001-xxx
Solo 365 & ES3 Smoke Cartridge	Solo365-xxx

Equipment	Product Code
Solo 330 Dispenser	Solo330-xxx
Solo 332 Dispenser	Solo332-xxx
Solo A10S Aerosol	SoloA10S-xxx
Solo A10 Aerosol	SoloA10-xxx
Solo A5 Aerosol	SoloA5-xxx
SmokeSabre	Smokesabre-01-xxx Smokesabre-100-xxx

IMPORTANT - Solo aerosols are optimised for use with the Solo330/332 dispenser and are silicone-free. Aerosols SHOULD NOT contain silicone to avoid harmful detector contamination (alternative, non-Solo aerosols are not optimised for use with the Solo330/332 dispenser).

> Heat Detectors

To carry out a functional test of heat detectors – both fixed temperature and rate-of-rise – use Detectortesters model XTR2, Testifire (1000 or 2000 series) or Solo460/461 heat tester. If HIGH HEAT function (above 90°C) is required use Testifire or XTR2. If a cordless heat tester is not suitable, use the mains powered Solo423/424 heat tester.

Equipment	Product Code
XTR2	Testifire-XTR2-xxx
Testifire 1000	Testifire1000-xxx Testifire1001-xxx
Testifire 2000	Testifire2000-xxx Testifire2001-xxx
Solo 460	Solo460-xxx
Solo423 (110/120v)	Solo423-xxx
Solo424 (220/240v)	Solo424-xxx

> CO Detectors

To carry out a functional test of CO detectors use Detectortesters model Testifire (2000 series) with the CO capsule TC3 or the SoloC3 aerosol can with the Solo330 dispenser. For hand-held use, with CO life safety systems, the SoloC6 can is also available.

Equipment	Product Code
Testifire 2000 & TC3 CO Capsule	Testifire2000-xxx Testifire2001-xxx
Solo330 Dispenser	Solo330-xxx
Solo 332 Dispenser	Solo332-xxx
Solo C3 Aerosol	SoloC3-xxx
Solo C6 Aerosol	SoloC6-xxx

> Multi-Sensor Detectors

For compliant functional testing of multi-sensor detectors use Detectortesters model - Testifire or XTR2. The all-in-one solutions XTR2 and Testifire 1000/1001 allow for smoke and heat testing – either sequentially or simultaneously. In addition to smoke and heat testing, the Testifire 2000/2001 allows for CO testing – again, sequentially or simultaneously.

IMPORTANT - Simultaneous testing is only possible with XTR2 and Testifire

Equipment	Product Code
Testifire 1000	Testifire1000-xxx Testifire1001-xxx
Testifire 2000	Testifire2000-xxx Testifire2001-xxx
XTR2	Testifire-XTR2-xxx

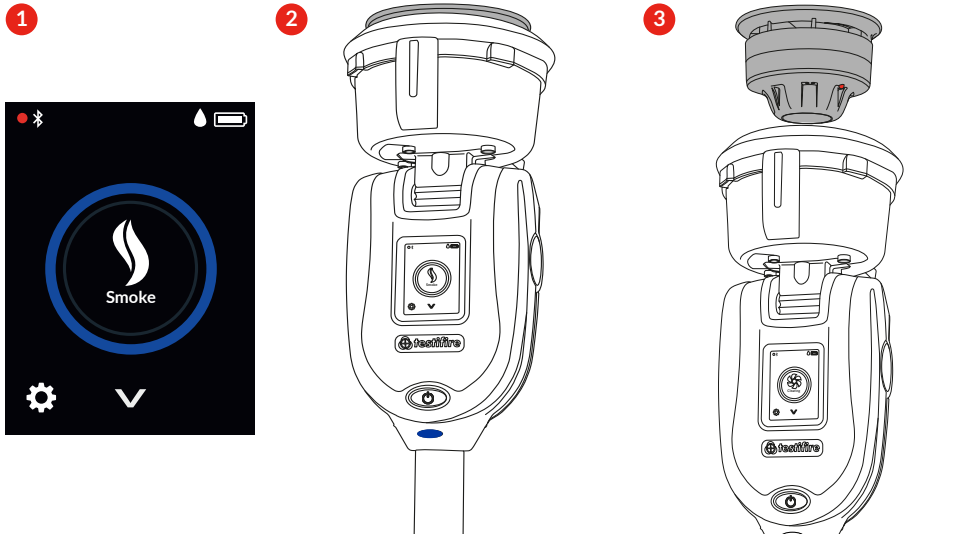
3. Functional Test Instructions

IMPORTANT - Before any work begins on the fire detection system, all necessary persons should be notified that the fire system is to undergo maintenance and that the system, or part of it, will be temporarily out of service. Ensure the control panel is in 'Test Mode' and/or take the necessary precautions to prevent unwanted alarms. Ensure that the same persons are informed once the system is fully operable again.

a) Functional Smoke Testing

Functional Smoke Testing with XTR2

1. When powered on, XTR2 LCD will be configured to perform a smoke test by default, indicated by a smoke icon on the display and a solid blue status LED.
2. The test starts automatically when the tester cup is placed over the detector, breaking the infrared beam, and the status LED flashes blue to indicate smoke generation.
3. When the detector is activated, the test will automatically end, the status LED will flash green, and clearing mode will start. Remove XTR2 to end clearing.

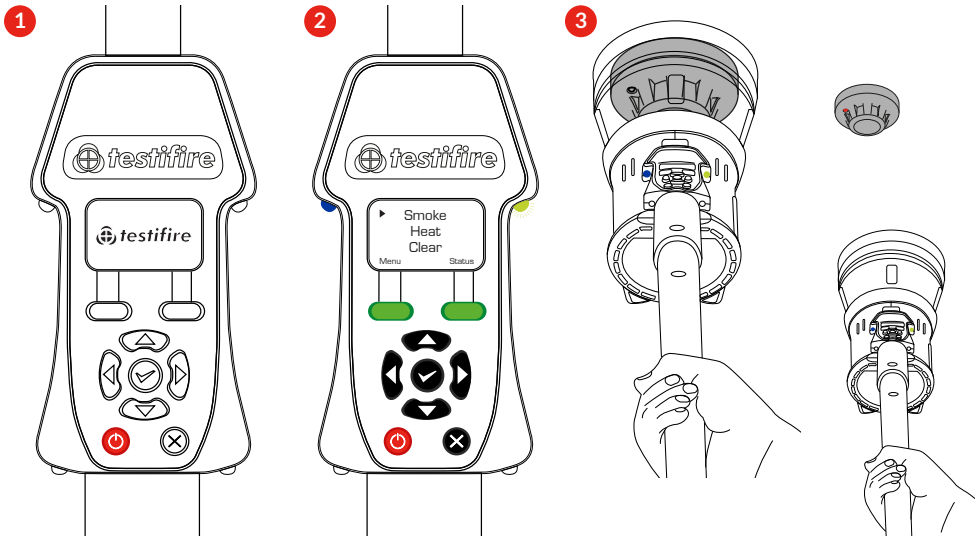


NOTE:
XTR2 works alongside the DT Connect App. Please read the XTR2 User Manual and Quick Start Guide for more information.

If after two minutes the test has not completed, XTR2 will time-out and the test will be recorded as failed. The status LED will flash triple red to indicate the test has been unsuccessful and you should remove XTR2 by gently lowering it.

Functional Smoke Testing with Testifire

1. Press and hold the red power button for 2 seconds
2. Select 'Smoke' from the main menu using the up and down arrows on the keypad to position the cursor
3. The test will begin when the head unit is placed over the detector, breaking the infrared beam. When the detector is activated, move Testifire away from the detector by lowering it gently. Testifire will return to idle ready for the next test

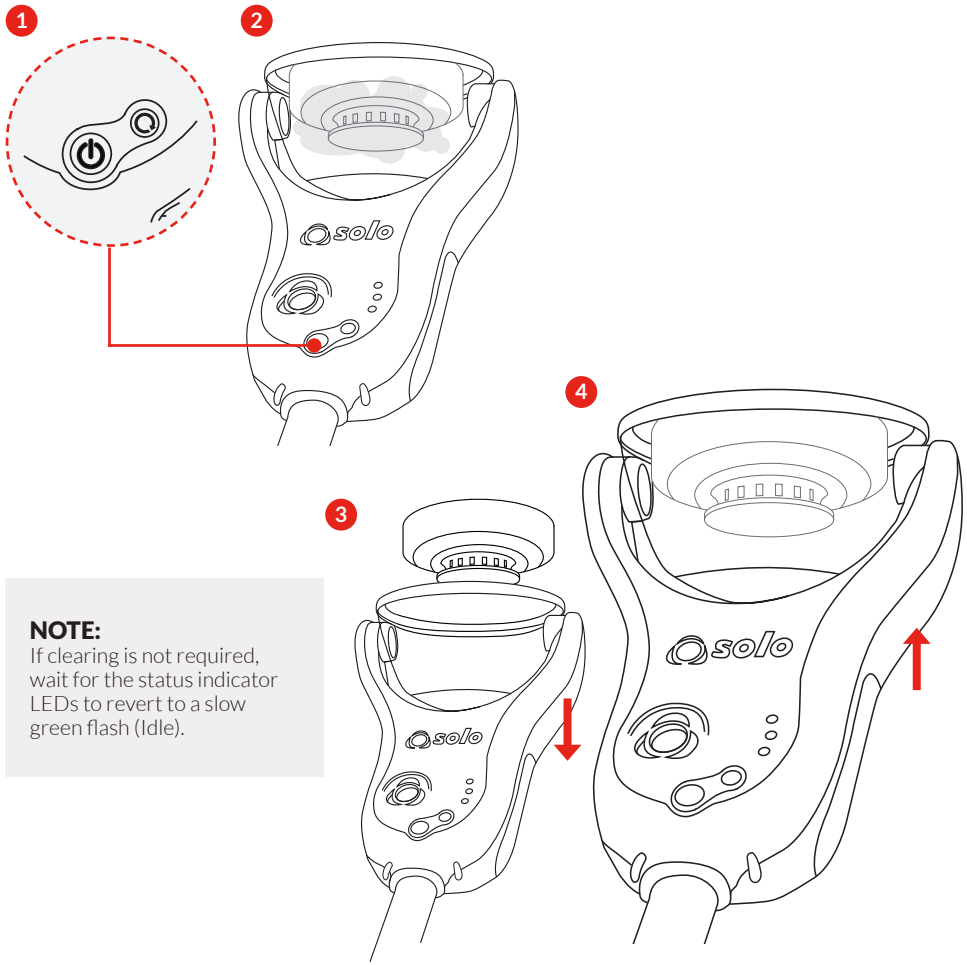


NOTE:
Testifire will remain in 'Smoke' mode until it is powered off or another selection is made.

The optional 'Clearing' mode can also be programmed, this will clear smoke away from the detector after testing and can also be used during 'sequential' testing of multi-sensor detectors.

Functional Smoke Testing with Solo 365

1. Hold the power button until the status indicator LEDs flash slow green
2. Raise Solo 365 to the detector so it is fully enclosed within the cup, the proximity sensor will trigger the start of the test. During a test the status indicator LEDs will flash fast blue
3. Once the detector is activated, move Solo365 away from the detector by lowering it gently. Status Indicator LEDs will flash fast green, ready to enter clearing mode
4. Raise Solo 365 again to begin clearing, indicated by fast white flashing status indicator LED



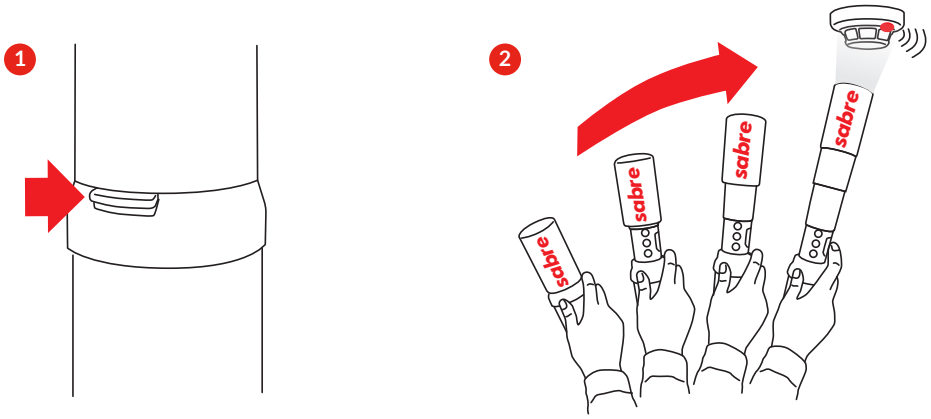
NOTE:
If clearing is not required, wait for the status indicator LEDs to revert to a slow green flash (Idle).

Functional Smoke Testing with Solo330/332 dispenser and aerosols

1. Insert the Solo A10s/A10/A5 smoke aerosol can inside the smoke dispenser
2. Place the dispenser over the detector ensuring seal around the smoke detector
3. Push the dispenser upwards slightly to release a 0.5-1 second burst of aerosol
4. Hold the dispenser over the detector until the detector activates. If the detector does not activate after 10 seconds, repeat as before. The total number of test attempts on each detector should not exceed five at 10 second intervals

Functional Smoke Testing with SmokeSabre

1. Press release button and flick wrist, or gently extend the 'Sabre', to extend fully
2. Hold can at slight angle in the direction of the detector and release aerosol for a 0.5-1 second burst, repeating every 10 seconds as necessary



b) Functional Heat Testing

Functional Heat Testing with XTR2

1. Use the navigation arrows to select the heat function, indicated by a heat icon and solid red LED, then tap the icon to select the high heat function for testing.
2. The test starts automatically when the tester cup is placed over the detector, breaking the infrared beam, and the status LED flashes red to indicate heat generation.
3. When the detector is activated, the test will automatically end. The status LED will flash green, and you should gently lower the XTR2 to remove it.

NOTE:
XTR2 works alongside the DT Connect App. Please read the XTR2 User Manual and Quick Start Guide for more information.

If after two minutes the test has not completed, XTR2 will time-out and the test will be recorded as failed. The status LED will flash triple red to indicate the test has been unsuccessful and you should remove XTR2 by gently lowering it.

Functional Heat Testing with Testifire

1. Press and hold the red power button for 2 seconds
2. Select 'Heat' from the main menu using the up and down arrows on the keypad to position the cursor. If needed, select 'Hi Heat ON' in Heat Status menu for heat detectors with classifications above 90°C
3. When the detector is activated, move Testifire away from the detector by lowering it gently. Testifire will return to idle ready for the next test

NOTE:
Testifire will remain in 'Heat' mode until another selection is made.

Functional Heat Testing with Solo 460/461

1. Press the red switch to turn on. LED illuminates green. Flashing at slow rate indicates normal STANDBY mode
2. Position Solo 460 tester over detector and it will automatically start testing when infrared beam in cup is broken. The green LED will flash faster
3. Hold Solo 460 in place until the detector is activated, then move Solo 460 away from the detector by lowering gently
4. The tester will revert to standby mode (slow flashing green LED) and the internal fan will cool the heating element for a few seconds

Functional Heat Testing with Solo 423/424

1. Connect to mains power and press ON switch
2. Place Solo 423/424 over detector (also suitable for heat detectors with classifications above 90°C)
3. Hold Solo 423/424 in place until the detector is activated, then move the Solo 423/424 away from the detector by lowering gently
4. If the detector does not activate within 1 minute it may be faulty

c) Functional CO Testing

Functional CO Testing with Testifire 2000/2001

1. Press and hold the red power button for 2 seconds
2. Select 'CO' from the main menu using the up and down arrows on the keypad to position the cursor
3. The test will begin when the head unit is placed over the detector, breaking the infrared beam. When the detector is activated, remove Testifire by lowering it gently. Testifire will return to idle ready for the next test

NOTE:
Testifire will remain in 'CO' mode until another selection is made or the unit is powered off.

Functional CO Testing with Solo330/332 dispenser & SoloC3

1. Insert the SoloC3 can inside the Solo330 dispenser
2. Place the dispenser over the detector ensuring seal around the CO detector
3. Apply upward pressure for no more than 1 second to activate – one application should be sufficient
4. Hold the dispenser over the detector until the detector activates– some detectors may have a built-in delay

Functional CO Testing with hand-held SoloC6

1. Place the SoloC6 application straw in to the CO test port
2. Spray SoloC6 for approximately 1 second directly into the alarm and then wait
3. CO alarms with fast test modes should activate immediately. A CO life safety alarm without a fast test mode may require up to 2 minutes before activation occurs

d) Functional Multi-sensor Testing

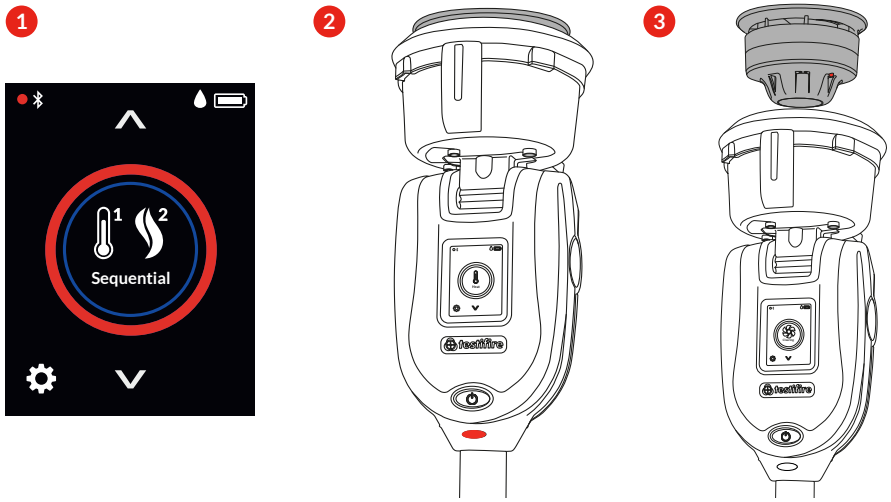
Functional Multi-sensor Testing with XTR2

Sequential Testing of the Detector's Sensors

Using XTR2 to carry out a sequential test means that a number of operations (Smoke, Heat and Clearing) can be pre-programmed into the unit before it is reaised up to the detector. This saves time, reduces handling and enables the testing of certain multi-sensor detectors.

To illustrate this, instructions for a **Sequential** Smoke and Heat Test:

1. Select the Sequential function using the navigation arrows on the LCD display. Once selected the status LED's will turn solid red to identify the first test in the sequence as heat. Sequential tests follow the following predefined order:
   - Heat
   - Smoke
   - Clearing
2. The test starts automatically when the tester cup breaks the infrared beam over the detector. The optical LED reader in the cup senses the detector activation LED. The detector LED must reset before the next test begins.
3. After the Sequential test, the status LED will flash green three times to indicate success, and clearing will start automatically. To end Clearing, gently lower the XTR2.



NOTE:
XTR2 works alongside the DT Connect App. Please read the XTR2 User Manual and Quick Start Guide for more information.

Functional Multi-sensor Testing with Testifire

IMPORTANT

- Testifire 1000/1001 allows for smoke and heat testing
- Testifire 2000/2001 allows for smoke, heat and CO testing
- XTR2 allows for smoke and heat testing

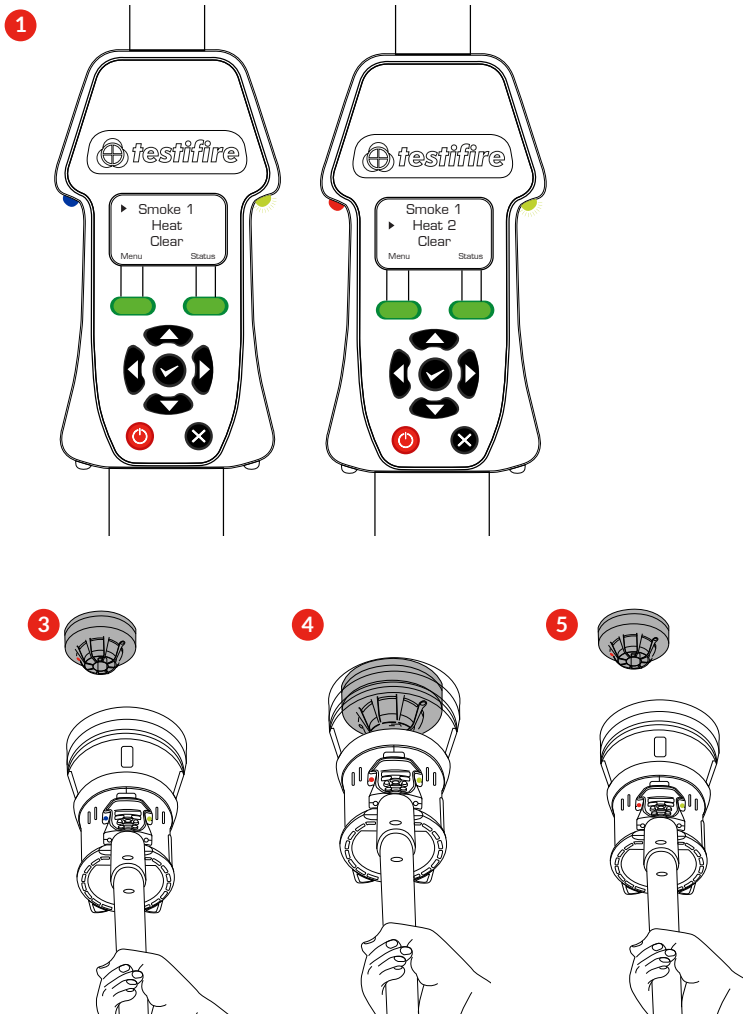
Sequential Testing of the Detector's Sensors

Use of Testifire enables sequential or simultaneous testing of smoke, heat and CO sensors within a multi-sensor detector. Note: Testifire 2000 required for CO testing.

This saves time and the need for separate test tool to test individual sensors; for example, a Solo330 for smoke testing and a Solo461 heat tester.

To illustrate this, instructions for a **Sequential** Smoke and Heat Test:

1. Select 'Smoke' from the main menu using the up and down arrows on the keypad to position the cursor. Press the enter key to select smoke, then move the cursor and select 'Heat'
2. The smoke test will begin when the head unit is placed over the detector, breaking the infrared beam
3. When the detector is activated, lower Testifire slightly so the detector is no longer in the cup
4. After 2 seconds raise again, placing Testifire over the detector to begin the heat test
5. Lower Testifire once the heat test has completed. Testifire will return to idle



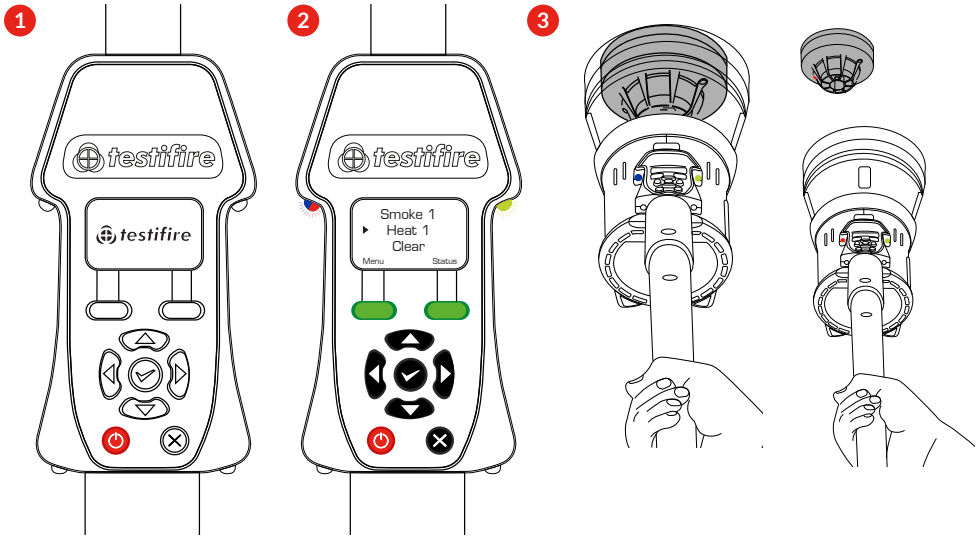
NOTE:
Testifire will remain in this test configuration until powered off or re-programmed.

The 'Clearing' mode can be selected after the 'Smoke' test to clear smoke away from the detector.

Simultaneous Testing of the Detector's Sensors – this is only possible with Testifire!

To illustrate this, instructions for a Simultaneous Smoke, Heat and CO Test:

1. Press and hold the red power button for 2 seconds
2. Select 'Smoke' from the main menu using the up and down arrows on the keypad to position the cursor Press the enter key to select smoke, then move the cursor and select 'Heat' Press the enter key Twice to set simultaneous testing
3. Raise Testifire over the detector. Smoke, heat and CO are tested at the same time in a simultaneous test. Once the detector is activated lower Testifire away from the detector. Testifire will return to idle



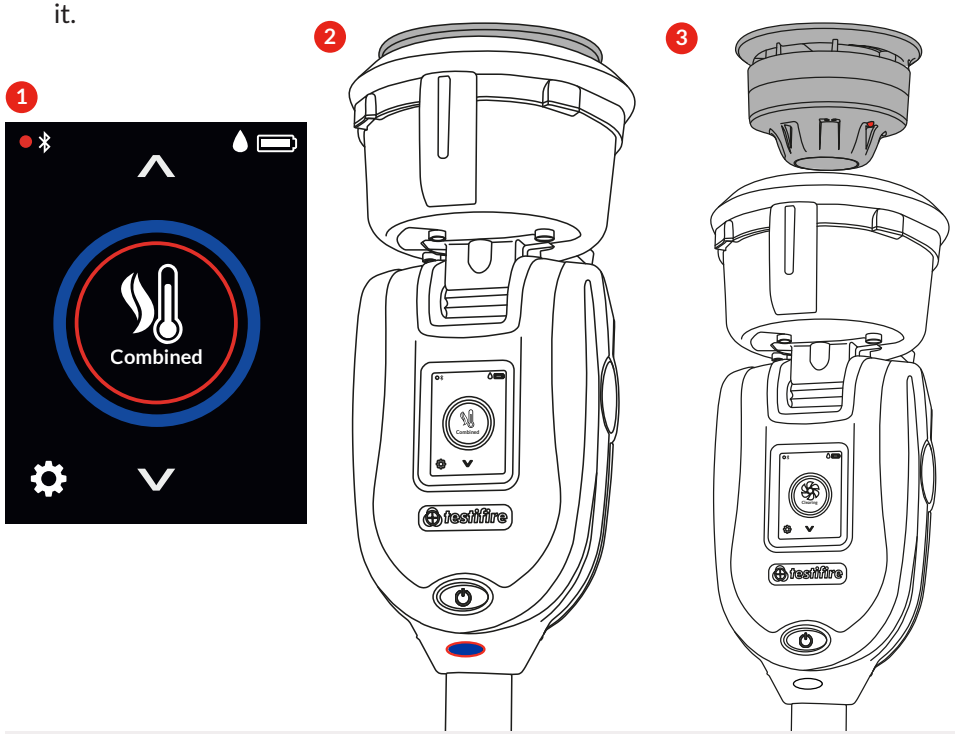
NOTE:
Testifire will remain in this test configuration until powered off or re-programmed.

Some detectors may take up to 2 minutes to respond dependent upon which detection mode they are set at and/or their integrating periods.

Note: should a detector fail to activate after following these test instructions, it may be faulty, please seek further advice from the detector manufacturer.

Using XTR2 to carry out **Sequential/Combined Testing** means that a number of operations (Smoke, Heat and Clearing) can be pre-programmed into the unit before it is raised up to the detector. This saves time, reduces handling and enables the testing of certain multi-sensor detectors.

1. Select the Combined function using the navigation arrows on the LCD display. Once selected the status LED's will alternate between solid blue and solid red.
2. The test will begin automatically when the tester cup is placed over the detector, breaking the infrared beam. When performing a combined test, the status LED will flash blue and red alternately to indicate both smoke and heat are being generated simultaneously.
3. When the detector is activated, the optical LED reader inside the tester cup will sense the detector activation LED and automatically end the test. The status LED's will flash triple green to indicate the test has been successful and clearing mode will begin automatically. To end clearing, remove XTR2 by gently lowering it.



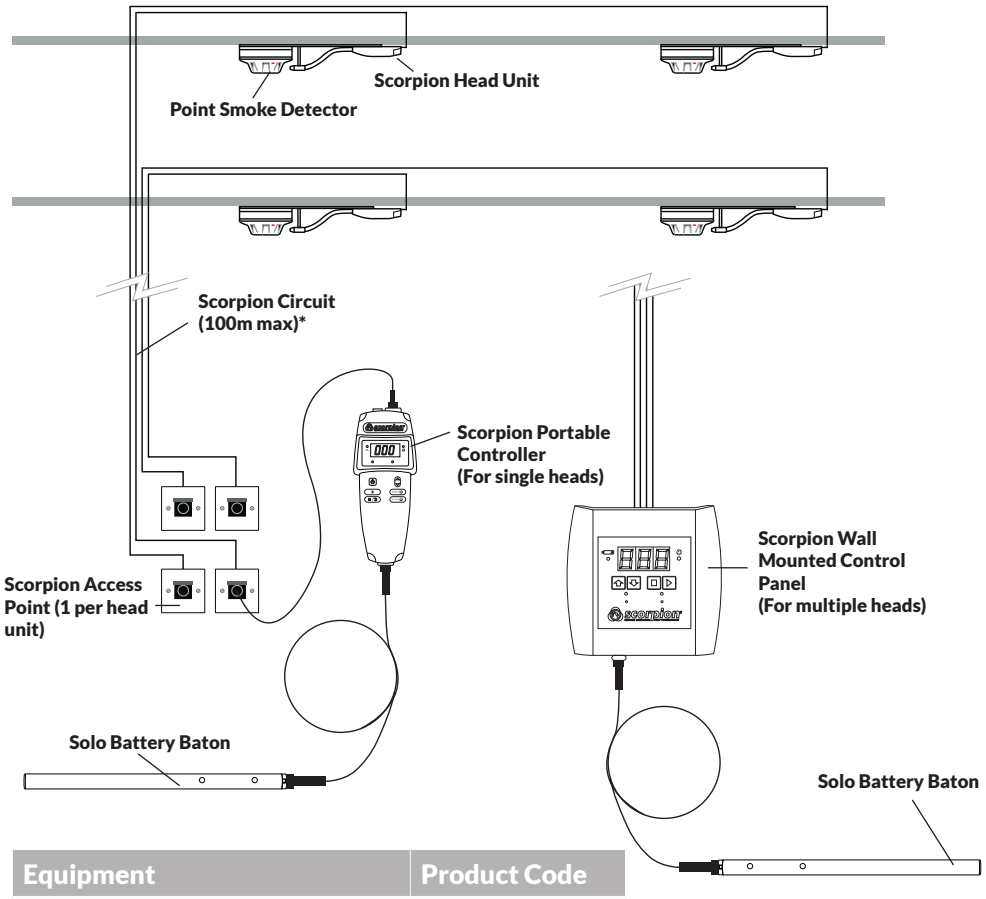
NOTE:
If after two minutes the test has not completed, XTR2 will time-out and the test will be recorded as failed. The status LED will flash triple red to indicate the test has been unsuccessful and you should remove XTR2 by gently lowering it.

e) Functional Smoke Testing – Hard-to-access detectors

Functional Smoke Testing with Scorpion

- Install the Scorpion head-unit adjacent to the smoke detector
- Wire the head-unit to a conveniently located Scorpion access point
- Connect the Scorpion controller to the access point to initiate smoke generation
- Smoke is directed into the detector chamber, providing a functional test

Point Installation Example



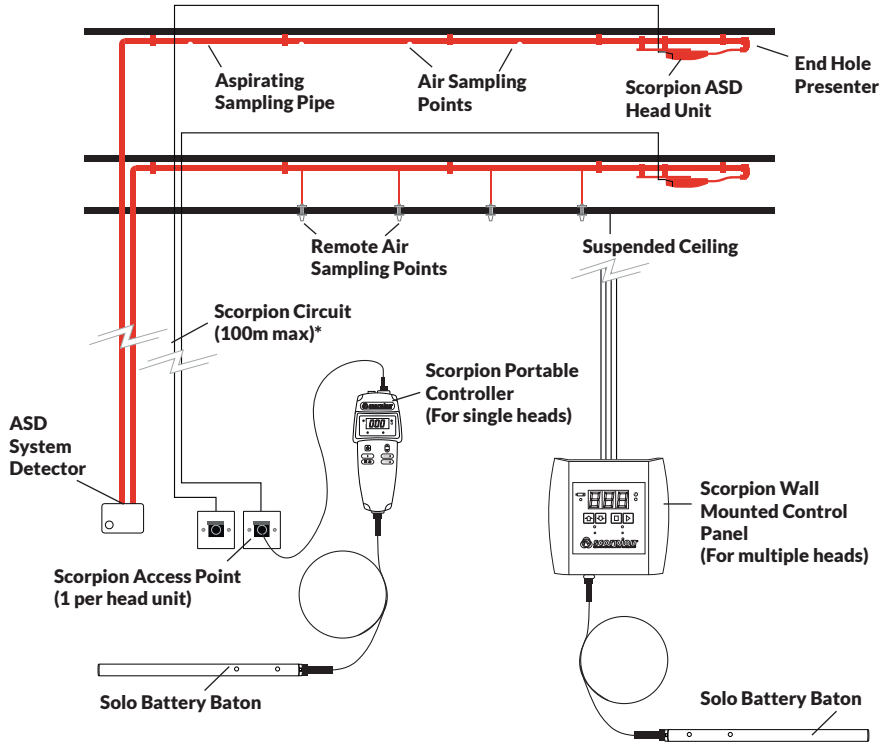
Equipment	Product Code
Scorpion Point Smoke Detector Tester	SCORP 1011-xxx
Engineers Portable Controller	SCORP 7000-xxx
Wall Mounted Control Panel	SCORP 8000-xxx
Access Point	SCORP 25-xxx

f) Functional Smoke Testing – Aspirating Smoke Detection (ASD) Systems

Functional ASD System Testing with Scorpion

- Attach the Scorpion ASD head unit adjacent to a sampling point on the ASD pipe, typically at the end of the pipe run
- Wire the head-unit to a conveniently located Scorpion access point
- Connect the Scorpion controller to the access point to initiate smoke generation
- Smoke is directed along the pipe run enabling a test of the ASD system
- Transport time can also be measured via the controller

ASD Installation Example



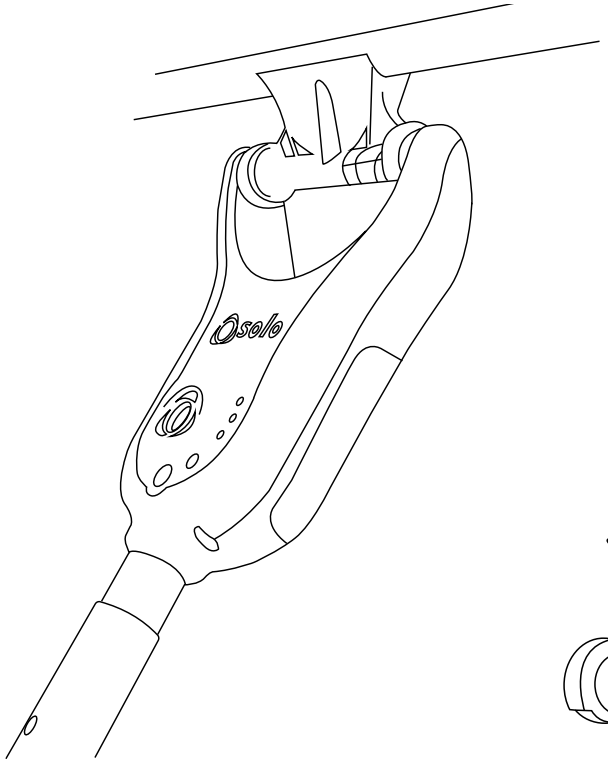
Equipment	Product Code
Scorpion ASD System Tester	SCORP 2011-xxx

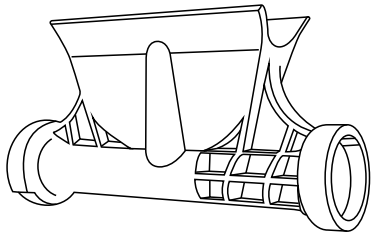
NOTE:
A specialist adaptor (Solo 372) can be purchased separately and fitted to Solo 365 to enable testing of ASD systems.

g) Functional Smoke Testing – Aspirating Smoke Detection (ASD) Systems

Functional ASD System Testing with Solo 365

- Power Solo 365 on
- Select the 'Delayed Start Mode' by pressing the 'function button' for one second - the status LEDs will flash orange
- Within 20 seconds ensure Solo 365 is located over the sampling hole on the aspirating pipe to carroy out the test
- Smoke will automatically be generated for 20 seconds indicated by the status LEDs flashing blue



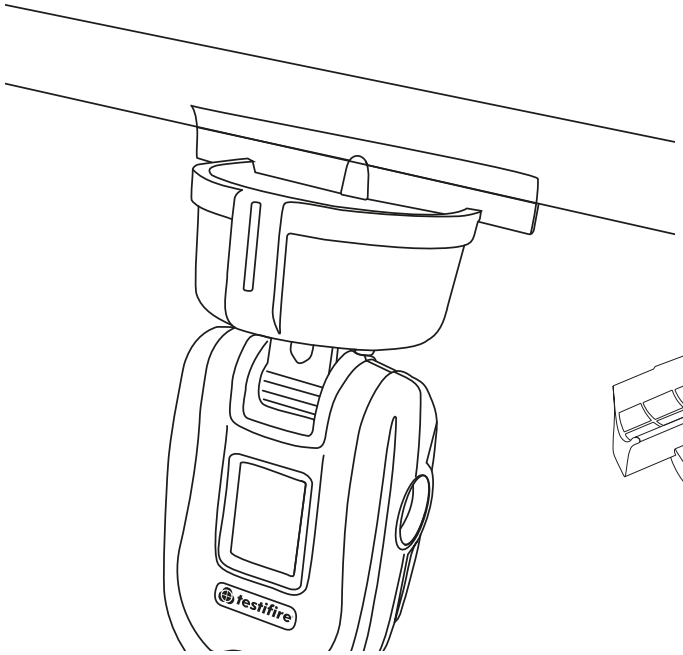


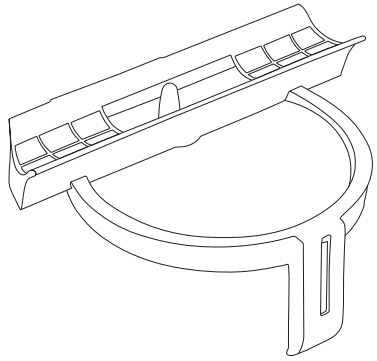
Equipment	Product Code
Solo 365 Smoke Detector Tester	SOLO 365-xxx
ASD Adaptor for Solo 365	SOLO 372-xxx

h) Functional Smoke Testing – Aspirating Smoke Detection (ASD) Systems

Functional ASD System Testing with XTR2

- Power on XTR2
- Select the 'Delayed Start Mode' by using the navigation arrows on the LCD display
- Tap the Delayed Start icon to begin the timer. During the timer the status LEDs will flash orange
- Locate XTR2 over the sampling hole. Smoke will automatically be generated for 20 second indicated by the status LEDs flashing blue





Equipment	Product Code
XTR2 Tester	Testifire-XTR2-xxx
ASD Adaptor for XTR2	Testifire-Adap-xxx

NOTE:
XTR2 works alongside the DT Connect App. Please read the XTR2 User Manual and Quick Start Guide for more information.

The delayed start timer is set to a 20 second by default and can be configured via the DT Connect App.

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