



FST-0001
April 1, 2026



SCN-TST-02-03

Line and battery powered

FLAME SCANNER TESTER OPERATING GUIDE

USED TO TEST FIREYE PARAGON, PHOENIX, AND INSIGHT
FLAME SCANNERS

DESCRIPTION

The scanner tester simulates both infrared (IR) and ultraviolet (UV) radiation found in burner flames. These features make it a unique testing device for the Fireeye flame detectors. Equipped with a 9 V block battery, mobile operation is also possible. The 4-20mA analog output from the integrated flame scanner can be checked. Different flickering frequencies of a burner flame can be simulated. The states of the flame and fault relays of integrated flame monitors can be checked via the simulator display. In addition, the scanner tester can be used to measure and check both the switch-on time and the release time of the flame relay.

The scanner tester has two possible operating modes.

1. **Battery operation:** This operation is for a mobile test of integrated flame scanners on a system. When running in Battery Mode the power to the flame scanner must come from the external plant-power supply.
2. **Mains operation:** Here, an integrated flame scanner can be supplied with 24 VDC (terminals 1 and 2) directly via the terminal strip on the side using a connection cable.

The scanner tester has a robust polyester housing reinforced with glass fibers: There is a 1-inch double pipe nipple with external thread for the system connection at the front. On the side of the tester there is the option of connecting various connection cables via a 12-pin terminal strip and a battery compartment. Equipped with a carrying handle, the tester can be conveniently transported.

The device has a two-line alphanumeric LCD display with backlighting and a keyboard with four operating keys. The status of the fault and flame relays can be viewed via the display. There is an IEC socket on the side of the scanner tester for connection to a 100 VAC to 230 VAC power supply with 50 Hz to 60 Hz.

Please read the operating manual carefully before using the unit.

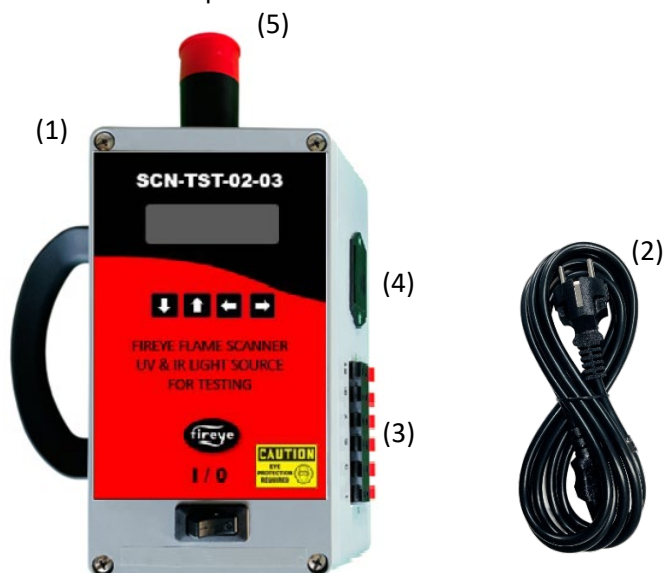


SPECIFICATION

	SCN-TST-02-03
Main Supply Voltage/Current	100 to 230Vac @ 50Hz/60Hz, 60mA nominal
Battery Supply	9Vdc (Lithium battery)
Battery Operating Time	Approx. 4 hours
Power Consumption	0.5W (nominal)
Temperature Rating	41°F to 122°F (+5°C to +50°C)
Housing Material	Plastic (glass fiber reinforced polyester)
Dimension	11.4 x 6.7 x 3.9 in (290x170x100 mm)
Weight	Approx. 3.42lbs (1.55Kg)

SCOPE OF DELIVERY

1. Scanner-Tester
2. Power supply cable
3. Terminal strip
4. Battery compartment
5. Cover cap



Note: The original Fireeye flame scanner cable must be used and must be ordered separately.



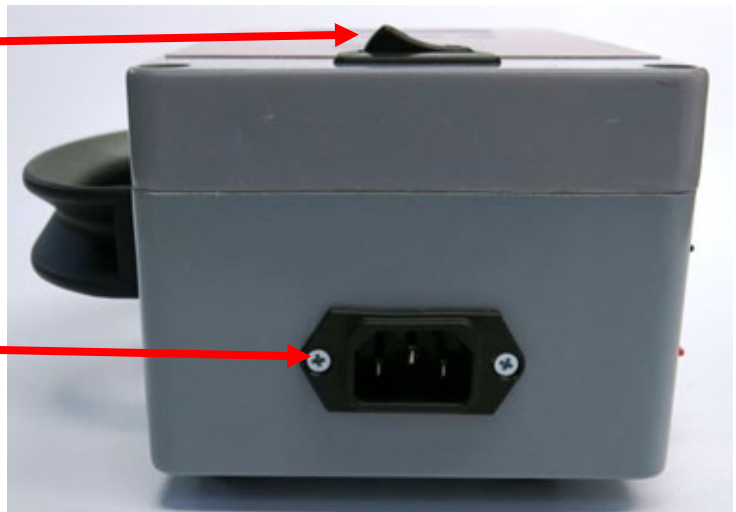
GENERAL

Flame simulation will always start with default settings. Intensity and frequency can be changed using the push buttons as indicated on the display. The scanner tester simulates a flame using independent, randomly controlled pulse width modulation (PWM).

Note: Change the menu language to your preferred language, German or English, before using the program for the first time! See section 7 Service..., Program sequence.

**Toggle for switching on/off.
(Only in battery operation)**

**100 Vac to 230 Vac power supply.
(For mains operation)**



OPERATION

1. MODE OF OPERATION

1.1 Battery Mode:

The battery compartment is located next to the 12-pin terminal block on the side of the scanner tester. The battery compartment opens by pressing and simultaneously sliding upwards. The battery compartment is removed, and a 9 V block battery is inserted. When inserting the battery, the contacts point in the direction of the device, the positive pole is on the left side (see label on the battery compartment). After inserting a battery, the compartment is pushed back into the opening until you feel it click into place.

The scanner tester is switched on in battery mode by toggling the On/Off switch on the top.

The current battery voltage is displayed in volts under the menu item "Batt:" (Battery) after the device is switched on in battery operation.



Figure 1 - Battery compartment (closed)



Figure 1 – Battery compartment (opened)

IMPORTANT NOTE: In battery operation, the flame monitor to be checked must be externally supplied with 24 VDC!

1.2 AC Power Mains Mode:

For mains operation, the mains connection cable included in the scope of delivery must be connected to the socket of the scanner tester before commissioning start. The power cord must then be plugged into a properly grounded outlet. After connection, the LCD display lights up and the current software version with the revision date is displayed for about three seconds. The tester then switches to mains operation.

With mains operation, the scanner tester is always switched on if the device is supplied with power.



Figure 2- Power connector plugged in

2 CONNECTION BETWEEN SCANNER-TESTER AND INTEGRATED FLAME SCANNER

To test the fault relay and the 4-20 mA analog output, an integrated flame monitor is first connected to the scanner tester using a suitable connection cable. When using an original Fireye cable, the connection for the Insight I, Insight II or Phoenix series flame detectors is made according to *Table 1*. A copy of the table is located on the underside of the scanner tester.

Note 1: To test the 4-20mA signal of the 2nd output on the 95DSS3-1, the red/white wire on pin 4 must be swapped with the red/black wire.

Note 2: The scanner tester 02-03 can simulate UV radiation. This radiation is not visible and can cause eye damage if the flame simulation is visible (through the 1" connection nipple with external thread). To switch on the 2nd UV LED, the UV-265 option must be switched to "on" in the scanner tester menu as shown in Figure 4. To do this, use the "Down" arrow button (↓) to switch to the UV-265 menu item and use the "Right" arrow button (⇒) to switch on the UV LED.

IMPORTANT: Under no circumstances should you look into the simulated flame when the UV-265 LED is switched on (as shown in Fig. 4). Eye damage is possible!!!

Note 3: The power supply and testing of non-integrated UV flame detectors of the 45UV5 and UV1A series is only possible in combination with a suitable power supply and amplifier unit (e.g., 25SU3).

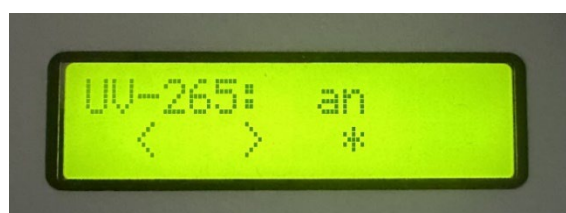


Figure 4 - Switch on the 265 nm UV-LED.

SCN-TST-02-03									
Designation		95XS1/S2	95XS4WINC 95DSS3-WINC	95XS4	95DSS3-1** (12-pole)	95DSS3-1 (8-pole)	85XXF1-1QD	65UV5***	UV-Scanner General****
1	(-) 0 VDC*	WH/BU	WH/BU	YE/BK	BK/OG	---	BU	WH	---
2	(+) 24 VDC*	BK/RD	BK/RD	BU/RD	BU/RD	---	BK	BN	---
3	- 4-20 mA	GY/RD	GY/RD	BK/OG	YE/BK	---	RD	---	---
4	+ 4-20 mA	VT	VT	RD/WH	RD/WH	---	VT	OG	---
5	Fl. relay 1	WH/RD	WH/RD	OG/WH	---	BK	OG	BK	---
6	Fl. relay 1	WH/BK	WH/BK	VT/WH	---	RD	YE	YE	---
7	Fl. relay 2	---	---	---	---	BN	---	---	---
8	Fl. relay 2	---	---	---	---	YE	---	---	---
9	Fault relay	RD	---	BN/BK	---	VT	DARK BN	---	---
10	Fault relay	PK	---	RD/BK	---	OG	LIGHT BN	---	---
*The 24 VDC output is only available with mains supply									
** 95DSS3-1, to check the 4-20mA signal of the 2nd flame relay, the RD/WH wire must be swapped with the RD/BK wire									
***Switch on UV-265 in the scanner tester menu (for 45UV5 and 65UV5 flame monitors)									
****Only in combination with suitable power supply and amplifier unit									

Table 1- Connection scheme for the scanner tester 02-03

3 TEST PROCEDURE FOR INTEGRATED FLAME SCANNER

Boot process:

After switching on the scanner tester, the software version and the revision date appear in the display for about three seconds. The display then automatically switches to the battery status display. After a few seconds, you will switch to normal mode (see figure below).

The left and right buttons (⇐)(⇒) can be used to switch between different output signal modes. You can choose between sole IR and UV simulations as well as between the combination of IR+UV simulations. The current mode is shown on the display.



Operating display:

As soon as the operating display appears, the channels for the signal output are activated.

Display Line 1: Signal: IR+UV1 / IR / UV1 / UV1+2* / off

Display Line 2: S: Flame signal in mA

F: Status flame relay 1+2 (1=closed, 0=open)

E: Error relay status (Error) (1=Closed, 0=Open)

*See section 2 (Connection of compact flame monitors), note 2 for connecting the UV LED2 with 265 nm.

Menu navigation is accomplished using the Up (↑) and Down (↓) buttons and is described in the Menu Structure section below.



4 TIMER FUNCTION

ODT

To measure the switch-on time of flame relays, use the "Up" (↑) and "Down" (↓) buttons to select the "OTD=xxxx" menu (O_n T_ime D_elay) and start the measuring process using the right button (⇒).

FFRT

To measure the release time of the flame relay, use the "Up" (↑) and "Down" (↓) buttons to open the "FFRT=xxxx" menu (FFRT = Flame F_ailure R_esponse T_ime) is selected and the measurement process is started with the "Right" (⇒) button.

According to DIN EN 298-2012: Response time between the failure of the flame detection and the resulting switching off of the terminals for the shut-off valves.

5 BRIGHTNESS

Use the "Up" (↑) and "Down" (↓) buttons to select the "Brightness" menu. The intensity of the simulated UV and/or IR radiation can be changed using the "Left" (⇐) and "Right" (⇒) buttons.

6 SERVICE

Service menu can be selected using the "Up" (↑) and "Down" (↓) buttons. Using the Left button (⇐) the service program is set to "on".

6.1 Setting the frequency of the flame simulator.

To set the flashing frequencies, after the service program has been switched on, the "Lamp" menu is selected via "Down" (↓) and set to "on" via "Left" (⇐). The "UV" menu can then be selected using "Down" (↓) and the frequency of the UV diode can be set using the "Left" (⇐) and "Right" (⇒) buttons. Finally, the "IR" menu can be selected via "Down" (↓) and the frequency can be set using the "Left" (⇐) and "Right" (⇒) buttons.



7 MENU STRUCTURE

Keys:

Menu buttons

Buttons shown in the program

(↓)(↑)(←)(→)

(+/-★ → ▲▼)

The corresponding function of the buttons is shown on the display.

Key Description:

Menu items can be selected using the “Up” (↑) and “Down” (↓) buttons.

Adjustment keys:

+/-: Adjustment of a value

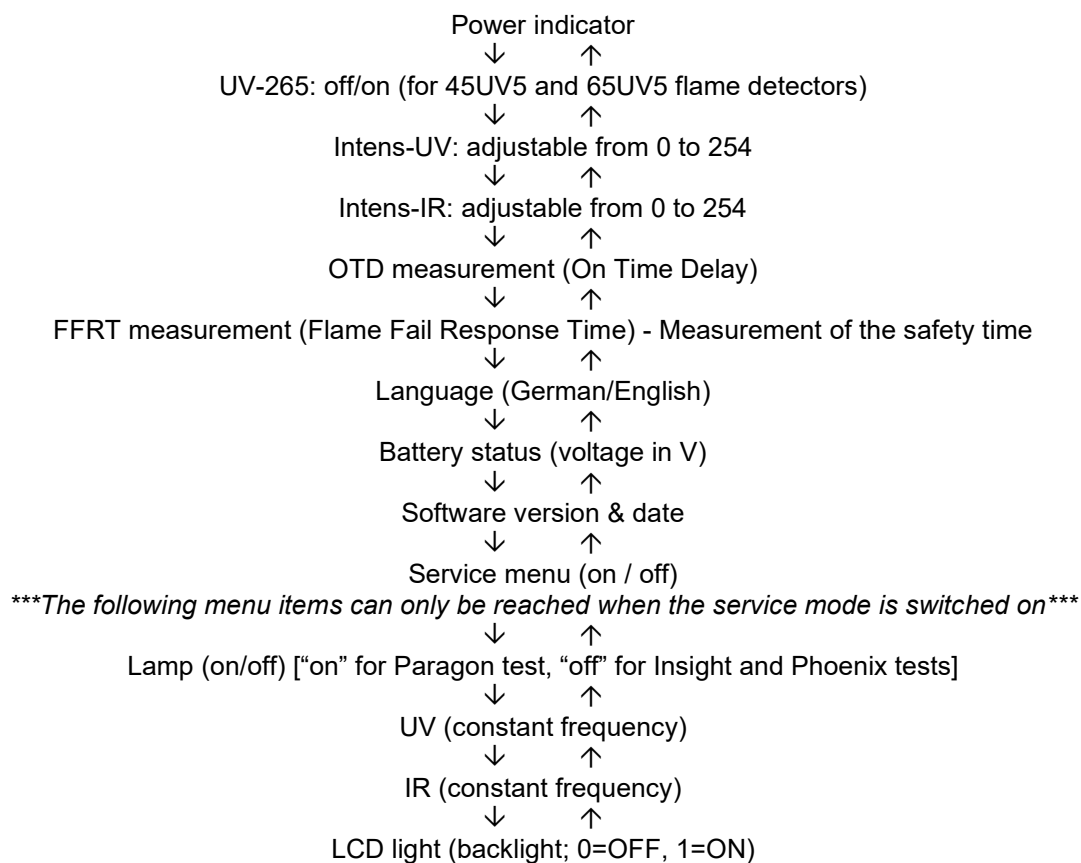
If the button is pressed longer than 5 seconds, the value is increased or decreased faster.

▲▼: Value larger or smaller

★: Button has switching function.

→: Start a measurement process.

8 PROGRAM FLOW





WARNING: THE INAPPROPRIATE SELECTION OR APPLICATION OF A SYSTEM SETTING COULD RESULT IN AN UNSAFE CONDITION HAZARDOUS TO LIFE AND PROPERTY. Selection of the proper settings for a particular application should be made by a competent professional, such as a Boiler/Burner technician licensed by a state or government agency, engineering personnel of the burner, boiler or furnace manufacturer (OEM) or in the performance of duties based on the information from the OEM.



The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or user to ensure that the equipment described is installed, operated and commissioned in compliance with the requirements of all national and local codes.



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