



Scanner Tester 02-04

General:

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 Fireye flame detectors. Equipped with a 9 V block battery, mobile operation is also possible. The 4-20mA analog output from the compact flame scanner can be checked. Different flickering frequencies of a burner flame can be simulated. The states of the flame and fault relays of compact 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 compact 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, a compact 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 operating instructions must be read carefully before commissioning and kept for later use.

Description:

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.



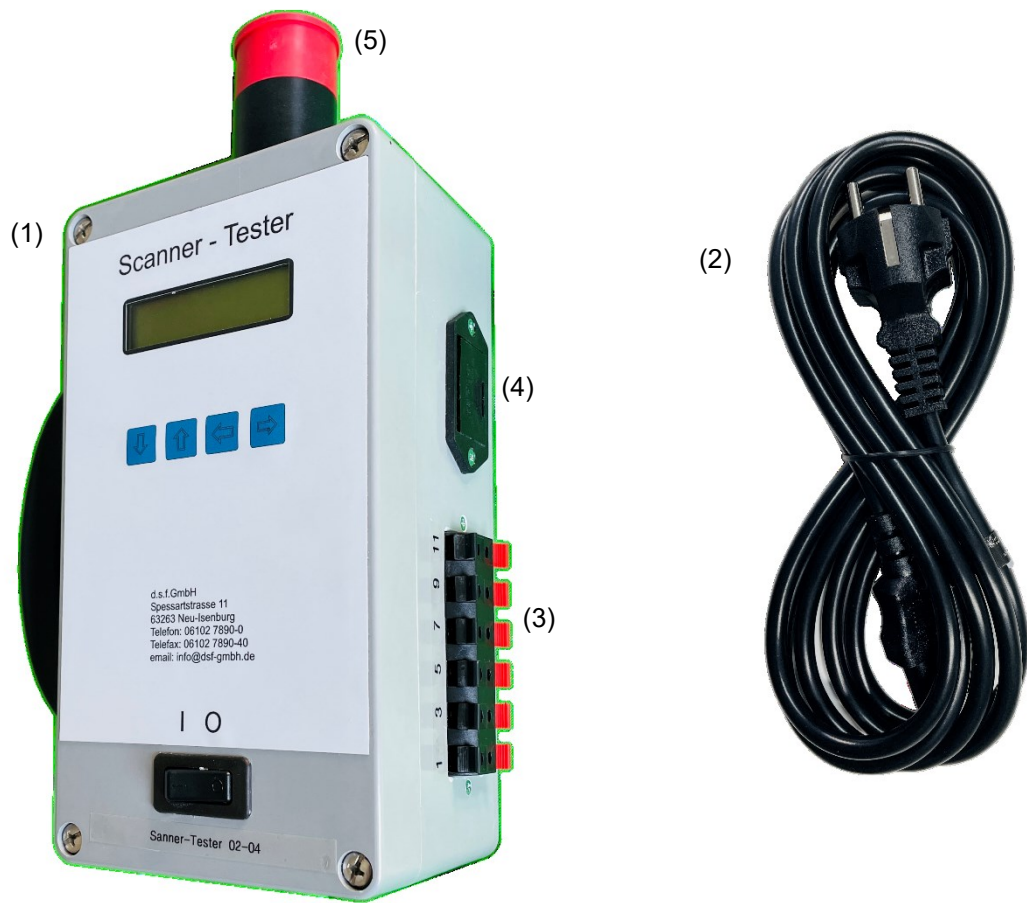
Changes:

Version 02-03 to 02-04:

- a) A jumper between terminals 11 and 12 is no longer required for flame simulation for compact flame monitors of the 45UV5 and 65UV5 series. For the connection of this flame simulation in the 265 nm range, see section 2 - Connection of compact flame monitors, note 2.
- b) The display shows when the 265 nm UV LED is switched on. See section 3 - Test procedure for compact flame detector, operating display.
- c) The intensity of the UV and IR simulation lights can be set separately (see section 6 - Intensity of the simulation lights).



Scope of delivery:

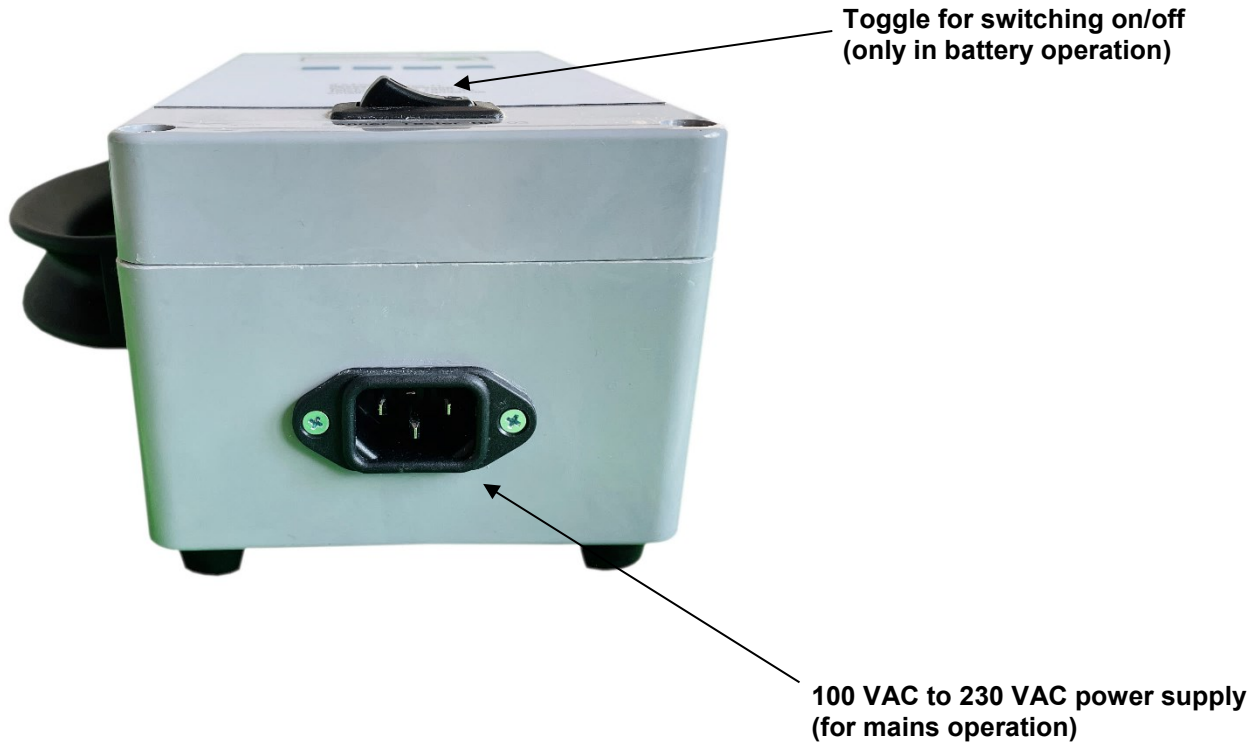


- (1) Scanner tester
- (2) Power supply cable
- (3) Terminal strip
- (4) Battery compartment
- (5) Cover cap



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.





1. Operating modes:

1.1. Battery operation:

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)

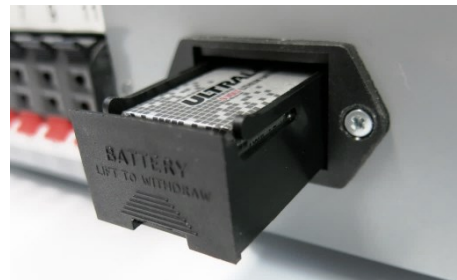


Figure 2 – Battery compartment (opened)

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

1.2. Mains operation:

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 switched on as long as the device is supplied with power.



Figure 3- Power connector plugged in



2. Connection of compact flame monitors to the scanner tester:

To test the fault relay and the 4-20 mA analog output, a compact 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 **02-04** 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-compact UV flame detectors of the 45UV5 and UV1A series is only possible in combination with a suitable power supply and amplifier unit (eg 25SU3).



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

ATTENTION: Incorrect wiring can lead to the destruction of the flame scanner or the scanner tester!



SCN-TST-02-04									
Designation	95XXS1/S2	95XXS4WINC 95DSS3-WINC	95XXS4	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	BL	---	
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 02-04



3 . Test procedure for compact flame monitor:

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.



(Down) (Up) (Left) (Right)

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 <u>s</u> ignal in mA
	F: Status <u>f</u> lame relay 1+2 (1=closed, 0=open)
	E: Error relay status (<u>E</u> rror) (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.

5. Timer functions :

ODT

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

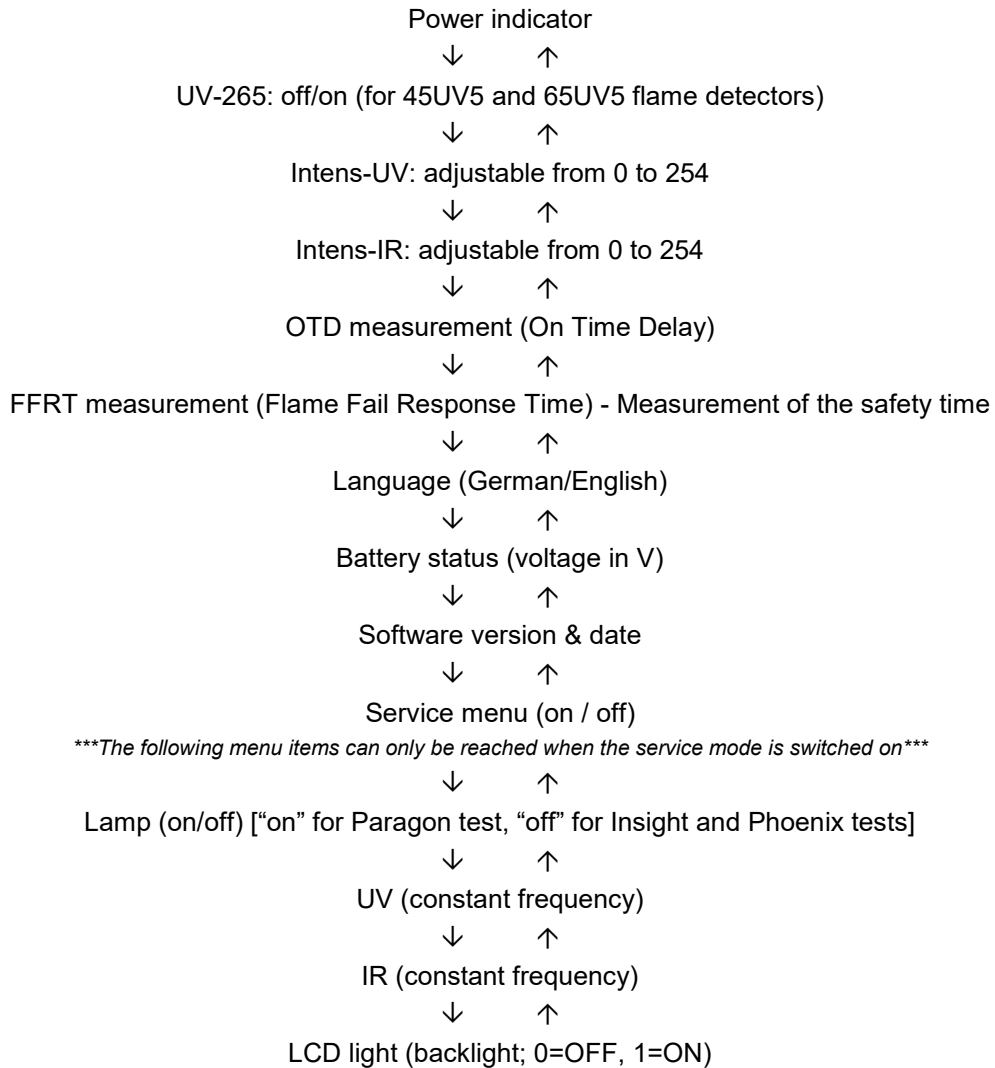
FFRT

To measure the release time of the flame relay, use the "Up" (↑) and "Down" (↓) buttons to open the "FFRT=xxxx " menu (FFRT = Flame Failure Response Time) 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



Program flow :





Technical specifications:

Housing material:	Plastic (glass fiber reinforced polyester)
Dimensions LxWxH:	290x170x100 mm
Weight:	1.55 kg
Ambient temperature:	+5°C to +50°C
Voltage supply:	100 VAC to 230 VAC
Frequency range:	50 Hz to 60 Hz
Current:	60 mA
Rated Power:	0.5 W
Battery:	9 VDC (lithium battery)
Battery life:	approx. 4 hours

Warranty:

We guarantee, for a period of 24 months, starting at the date of delivery, a warranty exchange of the scanner tester when the failure is due to broken components or process failures. The guarantee is invalid if the device has been opened without our express written consent.

Repairs are only carried out in our workshop. Compensation for repairs by other workshops is excluded. Defective devices must be send to dsf GmbH for evaluation.

Liability:

We assume no liability for consequential damage that may occur as a result of one of our devices. dsf GmbH cannot be held liable in any way for any claims arising from non-compliance with these instructions for use.