JK e-solutions ApS

FS 10 / FS 12

Control and Monitoring system for

Fixed Aerosol Fire Extinguishing Systems

Test Device

R4

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1. Preface

This document is the manual for the Test Device for FS12 – Control and Monitoring System for Fixed Aerosol Fire Extinguishing Systems.

1.1 Purpose

The purpose of this document is to describe in short terms the use of the test device for the FS12 system. Installation and service for the FS12 system itself is described in the FS12 Installation Manual.

2. Description

The purpose of the Test Device for the FS12 system is to ease test of the FS12 system after installation has been completed. The FS12 Test Device replaces the light bulb typically used for testing. The FS12 Test Device provides an easier and safer display of the test result than the short flash emitted by the light bulb.

3. Overview

The FS12 Test Device is shown below:

1. On/Reset/Battery test button

   When the button is pushed, the test device turns on and make a lamp test (if not already on) and resets the indicators. Furthermore, it will measure the battery voltage when the button is pressed.
   Push 1 sec for battery test.
   Push 4 sec to turn OFF, If the test device is disconnected it will turn off by itself after 30 minutes.

2. Power On indicator
   The power on indicator (green) is on when the Test Device is on.

3. Test current indicator
   The test current indicator (green) lights up shortly when the test device measures the test current generated by the FS12 sub-unit. This is normally once per second.

4. Activation OK indicator
   The Activation OK indicator (orange) turns on when a valid activation pulse is measured by the test device. The Activation OK indicator will remain lit until the Test Device turns off or the On/Reset button is pressed.

5. Low battery indicator
   The Low battery indicator (yellow) turns on when the batteries are near end of life. Please replace the batteries at the earliest convenient time.

6. Fault indicator
   The Fault indicator (red) turns on if the Test Device measurements differ from the expected output from the FS12 sub-unit. The Fault indicator will remain lit until the Test Device turns off or the On/Reset button is pressed.

7. Cable for sub-unit
   Cable for connection to the sub-unit. When used with sub-unit var. A with direct cable connection, please observe polarity when connecting the cable to the sub-unit. The cable must be mounted with the positive (brown) wire pointing to the loop 2 connector.

4. Test procedure

4.1. Testing the installation

All FS12 installations must be tested to verify that activation of aerosol generators is possible. The aerosol generators will not actually be activated, but the installation's ability to do so will be verified by connecting the test device to the aerosol generator terminals in the subunit(s).

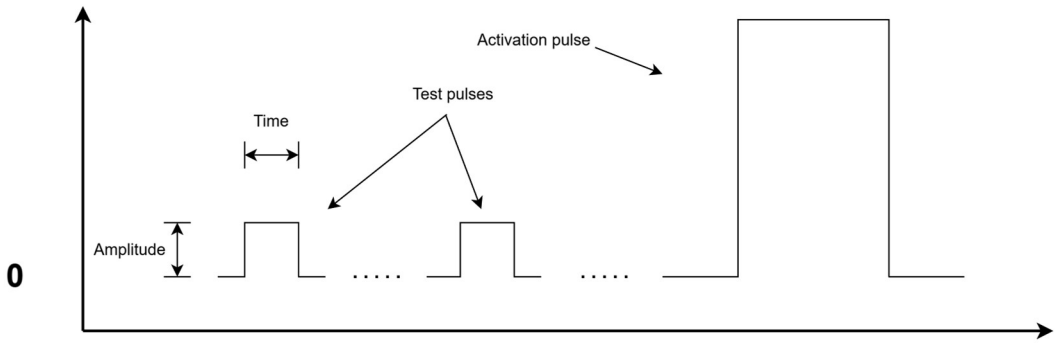
Remember to disconnect the aerosol generators before performing an installation test!

- Turn off both power supplies to the FS12 main unit.
- Disconnect all aerosol generators
- Connect FS12 test devices instead of aerosol generators to all sub-units.
- Turn on both power supplies
  (The FS12 test devices turn on automatically when FS12 system is turned on)
- Verify that "System OK" is indicated on the front panel of the FS12 main unit.
- Verify that the "ON" is indicated, and "TESTING OK" indicator is flashing on all test devices.
- Flip the cover of the activation button in the FS12 main unit.
- Turn the activation button on the FS12 main unit.
- Verify that the ventilation in the protected area is turned off.
- Verify that all installed aerosol release warning alarm devices are activated.
- Verify that the FS12 main unit internal buzzer is bleeping (1.9) and that the FS12 main unit "System released" indicator (1.2) is flashing.
- Wait the time specified as the "activation delay" during installation (default is 30 seconds).
- Verify that the internal buzzer (1.9) is permanently on and that the "System released" indicator (1.2) is permanently on in the mFS12 main unit.
- Verify that the "RELEASED" indicator is lit on all test devices.
- Verify that the ventilation in the protected area can be restarted by pressing the "Restart ventilation" button on the FS12 main unit.
- Turn off both power supplies to the FS12 system.
- End of test.

5. How the tester works

The tester works by monitoring the test- and activation pulses one the cable where the aerosol is normally connected.

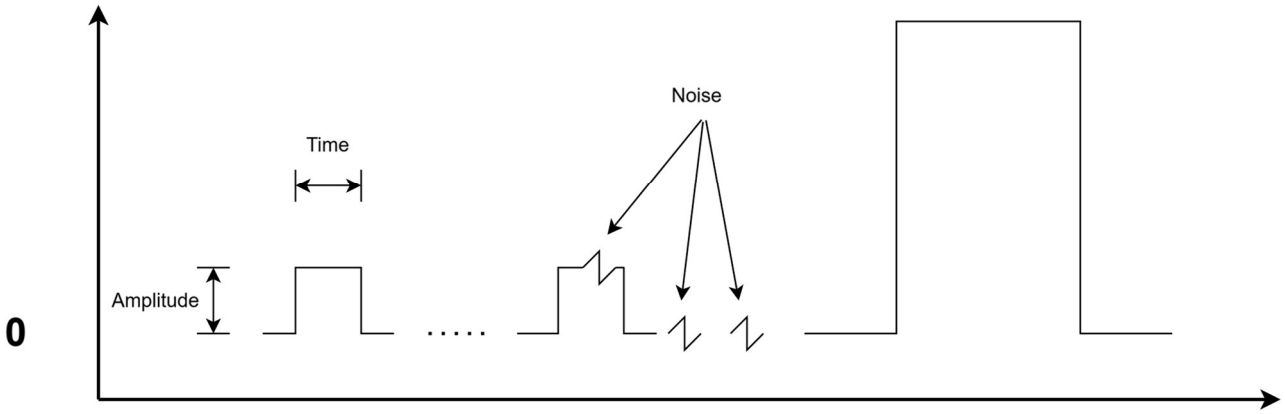
A rough sketch of the pulses is shown in this figure:



The Test Current indicator (green) lights up shortly when a test pulse is detected.

The Activation OK indicator (orange) turns on when an activation pulse is detected.

Noise can be present on the cable, causing the Fault indicator (red) to turn on. This situation is sketched in the figure below:



The Test Device is sensitive to noise as it is not designed for permanent use in the system.

If the Fault indicator turns on, it may be caused by on or more of the following issues:

- Use of unscreened cables (FS12 power and loop cables)
- Screened cables not connected correctly in EMC cable glands (FS12 power and loop cables)
- Excessive emission of electrical noise from equipment mounted close to the fire suppression system/cables.

The Fault indicator should not be used a reason for approving or rejecting the functionality of the complete fire suppression system. The fire suppression system can be approved on the following conditions:

- No faults are indicated on the fire suppression system (FS12 main-unit / FS10)
- The Tester Test Current indicator blinks steadily (1 - 10seconds period) when the system is on.
- The Tester Activation OK indicator turns on when system activation is tested.