Crowcon FGard SIM

Flame Detector – Flame Simulator

Operating Instructions

Flame simulator (FGard SIM) – FD-AC-08

Issue 1: February 21

Contents

1 Introduction

The Crowcon FGard SIM Flame Simulator is used to test the correct operation of the Crowcon FGard IR3 flame detector.

The simulator has been designed specifically to enable long range testing of the FGard IR3 flame detectors only. The device has been designed for handheld use by a single operator. The device is a completely self-contained, portable unit. A single charge is sufficient to test up to fifty flame detectors.

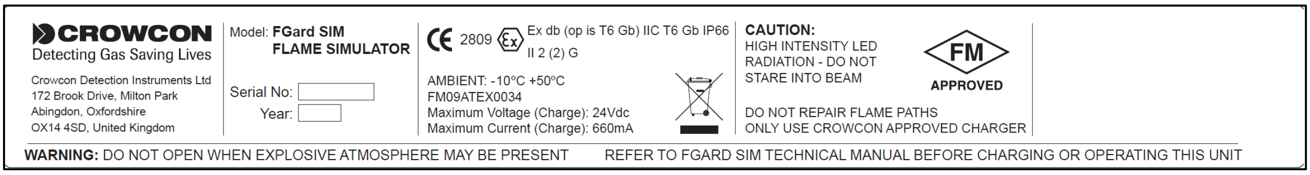
The simulator has been designed specifically for use in the extreme marine environments experienced offshore.

1.1 Features

- Long Range – the flame simulator can reliably operate FGard IR3 flame detectors at 3m to 8m.
- Portable – the flame simulator is a portable handheld unit designed for single operator operation.
- Robust and Reliable – the flame simulator has been designed for extreme offshore conditions.
- Reduced Maintenance Costs – reduces the need for scaffold or ladder access to the detector.

1.2 Flame Simulator Enclosure

The flame simulator electronics are housed in an enclosure which is certified for use in hazardous areas. For the exact certification and conditions of use see certification label on the device, or the example drawing below:



Note – certification banding will change.

The enclosure comprises of two enclosure covers (one with a faceplate window), the enclosure body (with certification label) and fixing collars to connect the enclosure body and covers together.

2 Safety Instructions

For the correct and effective use of this equipment, to maintain safety and avoid hazards it is essential that you read and understand these instructions fully and act accordingly BEFORE operating this equipment.

PAY ATTENTION TO ALL SAFETY WARNINGS AND CAUTIONS

2.1 Warnings

- This equipment is certified and intended for use in potentially hazardous areas.
- For installations in North America the National Electrical Code (NEC) should be strictly observed.
- Where appropriate local or national regulations should be used.
- The enclosure lid and body should always be fully tightened and locked into position before energising the equipment.
- Do not open the enclosure in the presence of a flammable atmosphere.
- All permits and proper site procedures and practices must be followed.
- Repair of equipment should never be performed by non-trained personnel.

2.2 Cautions

- Use only approved parts and accessories with this equipment.
- Do not attempt to replace the window as the glass and the front cover are individually matched pairs to meet the stringent requirement of the Hazardous area certification.
- The threaded portions of the detector are flame paths. These threads and the flame paths around the window are not to be repaired.
- To maintain safety standards, regular maintenance should be performed by qualified personnel.
- Charge flame simulator only; do not charge primary cells, lithium, or lead acid batteries - risk of explosion and chemical danger.
- Do not charge batteries with too high charge current.
- Disconnect charger from the mains and battery pack if it is not used for a long time.
- Do not charge hot batteries. Batteries must be at ambient temperature before charging.
- Stop the charging process if the battery gets too hot during charging (>55-60°C).
- Do not charge the batteries twice. Charging is only allowed after prior discharge.
- Do not expose the battery charger to rain, damp, or hot conditions. Charger is for indoor use only.
- Do not leave the charger unattended during operation.
- Do not plug in the charger if there are signs of damage to the housing, cables, connectors, or mains plug.
- Do not open equipment or carry out repairs. Authorized personnel may only carry out repairs.
- Do not cover equipment or obstruct ventilation, otherwise it may over-heat. Do not expose to direct sunlight.
- Keep flame simulator, battery charger and cables away from combustible materials.

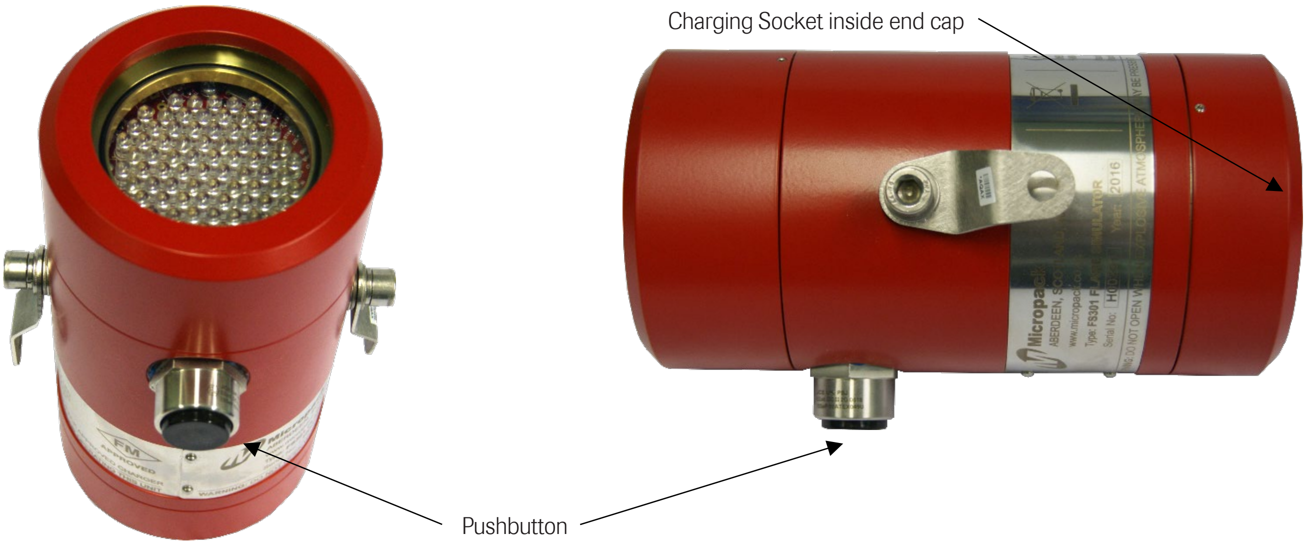
2.3 Important Notices

- Pay attention to the guidelines given throughout this document.
- If in any doubt, ask your local sales representative or contact Crowcon.
- Crowcon takes no responsibility for use of its equipment if this is not in accordance with the appropriate issue and/or amendment of the manual.
- Crowcon reserve the right to change or revise the information contained herein.

3 Operating Instructions

The flame simulator operation is extremely simple. Once aligned, simply press the button, maintaining alignment, and wait for the detector to go into alarm. The flame simulator LED's will flash when energised, and the detector response time should typically be less than 10 seconds.

The switch is spring loaded and releasing the pressure from the switch will disconnect the power.



The picture above shows the FGard SIM flame simulator. The on/off pushbutton is shown to the underside of the flame simulator. The charging socket is on the reverse end from the faceplate window, inside the end cap. The FGard SIM flame simulator will operate for a maximum of 60 seconds before timing out.

4 Maintenance and Testing

4.1 Routine

There is no set maintenance routine for the flame simulator due to the simplicity of the device. All internal maintenance or repair must be conducted by Crowcon.

Therefore, routine maintenance is simply limited to ensuring the faceplate window is kept clean and that no damage to the integrity of the enclosure or flame paths is caused.

4.2 Battery Charging

A charging unit is supplied with the flame simulator. Simply remove the reverse cover to reveal the charging socket, and conduct the following:

- Connect plug to flame simulator.
- Connect the power plug into a convenient mains socket (adaptors supplied for various world locations).
- After connecting the charger with the Flame Simulator, charging starts automatically.
- For charging indicators, please see charging table below:

Parameter	Comment
Charging Indicators	No battery: LED off. Charging: LED blinking green. Charge end: LED lights green. Error: LED blinking red.

- The charging process is done according to the dV technology.
- After charge end the charger goes in trickle charge mode automatically.
- To stop charging, disconnect the charger from the mains supply at any time before removing the plug from the simulator.

Note: battery charging should never take place within a hazardous area.

5 Fault Finding

5.1 Diagnostics

Fault finding by personnel other than Crowcon employees is prohibited and non-compliance of this will invalidate the warranty. If the flame simulator fails to operate there are two simple causes:

a) The flame simulator batteries need recharged, or
b) The unit is faulty and needs to be returned to Crowcon.

6 Replacement or Repair

The flame simulator contains no user serviceable parts.

In the unlikely event of a fault with the FGard SIM Flame Simulator please contact Crowcon (sales@crowcon.com). Please ensure that the flame simulator and flame detector are being used correctly in the first instance by referring to their manuals.

Detector/simulator returns along with a written statement describing any fault should be sent to the address listed below:

Crowcon Detection Instruments Ltd.

172 Brook Drive,

Milton Park,

Abingdon,

Oxfordshire,

OX14 4SD,

United Kingdom.

7 Technical Specification

7.1 Electrical Specification – Battery Pack

Parameter	Units	Max	Comment
4 Cells	Vdc	1.2	Each battery cell
Current	A	2.6	
Capacity	A-h	1.8	
Fast charge	Hours	1	
Full discharge / charge	Hours	10	

7.2 Technical Specification – Charger

Parameter	Units	Max	Comment
Input Voltage	Vac	100-240	+/- 10%
Charge Method			-dV
Max. Charge Current	mA	800	+/- 10%
Frequency	Hz	50-60	
Case Protection	IP	20	
Charging Indicators	No battery: LED off Charging: LED blinking green Charge end: LED lights green Error: LED blinking red		
Dimensions L x W x H	mm	118 x 62 x 47	(without mains plug)

7.3 Mechanical Specification

Parameter	Units	Value	Comment
Enclosure			
Overall Dimensions	mm	100 Diameter x 200 Length	
Shipping Weight	Kg	2.5	
Material		HE30 Aluminium	
Coating	Colour	Red Epoxy Coated Finish	
Push button	mm	1 x M25	
Ingress Protection	IP	66	
Transit Case			
Overall Dimensions	mm	410L x 200H x 175W	
Shipping Weight	Kg	4.5	

7.4 Environmental Specification

Parameter	Units	Min	Min	Comment
Operating Ambient Temperature	°C	-10	+50	
Storage Ambient Temperature	°C	0	+45	
Relative Humidity	%RH	0	100	Non-condensing

7.5 Certification and Approvals

Parameter	Authority/ Standard	Approval	Certificate*
Hazardous Area Certification	ATEX - EN 60079-1:2014	Ex II 2 (2) G Ex db (op is T6 Gb) IIC T6 Gb IP66	FM09ATEX0034
Explosive Atmospheres	ATEX - EN 60079-28:2007	Ex II 2 (2) G Ex db (op is T6 Gb) IIC T6 Gb IP66	FM09ATEX0034

Note - Certificate numbers are subject to change.

7.6 Flame Simulator Ordering Information

Parameter	Part Number
Crowcon flame detector - Flame simulator (FGard SIM)	FD-AC-06

8 Appendix A – Help us to help you.

TO: QA Department Crowcon Detection Instruments Ltd. 172 Brook Drive, Milton Park, Abingdon, Oxfordshire, OX14 4SD, United Kingdom. sales@crowcon.com	From: Tel: Fax: Email:
I suggest the following corrections/changes be made to Section	
Marked up copies attached (as appropriate): Yes/No	
Please inform me of the outcome of this change: Yes/No	
For Crowcon Action by: ____________________ Date: ____________ Response: ____________________ Date: ____________	