



Mine Safety Appliances Co.  
 1000 Cranberry Woods Drive  
 Cranberry Township, PA.  
 16066

# Certificate Of Compliance to IEC 61508

FM Approvals  
**Certifies herewith that the**

*Infrared Open Path Detector for Hydrocarbon Gas Application*  
 Model ULTIMA OPIR-5  
 (Safety Manual [MANOPIR5SAFETY])

**Complies with the relevant requirements of standards listed below:**

Standards	Description	Compliance
IEC 61508-1 1997	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems- General Requirements	Part 1
IEC 61508-2 2000	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems	Part 2
IEC 61508-3-2000	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems- Software Requirements	Part 3

And therefore

IS DECLARED "FIT FOR USE" IN A SIL 3, 2 or 1  
 1oo1 Low Demand SAFETY APPLICATION

PFD	SFF	λS	λDD	λDU
1.7E-4	>99%	6.77E-6	1.46E-5	1.02E-7

*This certificate is subject to conditions of use presented in FM Approval Report  
 Project ID # 3042476*

Patrick J. Byrne  
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 FM Approvals  
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22 April 2011  
 Approval Granted



Member of the FM Global Group

3042476 Ultima OPIR-5