



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



Certificate of Compliance to IEC

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 61508-1:2010	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems- General Requirements	Part 1
IEC 61508-2:2010	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems	Part 2
IEC 61508-3:2010	Functional Safety of Electronic/Electrical/Programmable Electronic Safety-Related Systems- Software Requirements	Part 3

And therefore

**IS DECLARED "FIT FOR USE" IN A
Low Demand SAFETY APPLICATION**

Models	SIL	HFT	SFF	PFD	λ_s	λ_{DD}	λ_{DU}
ULTIMA OPIR-5	3, 2, 1	0	>99%	1.7×10^{-4}	6.77×10^{-6}	1.46×10^{-5}	1.02×10^{-7}

*This certificate is subject to conditions of use presented in FM Approval Report
Project ID # 3042476, RR201536*


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26 June 2015

Date