



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



Member of the FM Global Group

# Certificate of Compliance to IEC

FM Approvals  
**Certifies herewith that the**

Gassonic Observer i  
(Safety Manual [MANOBSAFETY])

**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**

Model Observer i	SIL	HFT	SFF	PFD	$\lambda_s$	$\lambda_{DD}$	$\lambda_{DU}$
Analog Out Source	3	0	99.3%	$3.23 \times 10^{-4}$	$6.52 \times 10^{-6}$	$3.77 \times 10^{-6}$	$7.04 \times 10^{-8}$
Analog Out Sink	3	0	99.3%	$3.25 \times 10^{-4}$	$6.57 \times 10^{-6}$	$3.87 \times 10^{-6}$	$7.08 \times 10^{-8}$
Relay Out	2	0	97.28%	$1.32 \times 10^{-3}$	$6.62 \times 10^{-6}$	$4.0 \times 10^{-6}$	$2.97 \times 10^{-7}$

*This certificate is subject to conditions of use presented in FM Approval Report  
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Date