



March, 2006

## SIL Declaration of Conformity

Functional safety according to IEC 61508

Magnetrol International Inc., 5300 Belmont Road, Downers Grove, IL 60515-4499 and  
Magnetrol International N.V., Heikensstraat 6, 9240 Zele (Belgium),  
Confirm that the level switches:

**Echotel 961 (1 setpoint) and 962 (2 setpoints) – loop powered**

are suited for use in safety-instrumented loops according to IEC 61508, on condition that the “the good practice of engineering rules” as described in the IEC standards and the following parameters of the instrument are applied.

Series	Echotel 961	Echotel 962
SIL class as per IEC 61508	2 as 1oo1 / 3 as 1oo2	
Type of instrument	Type “B” instrument – see 7.4.3.1.3 of IEC 61508-2	
Proof test interval	≤ 1 year	
SFF	91.4%	91.8%
PFDavg	1.61 E-04	1.89 E-04
Fail Dangerous Detected - $\lambda_{dd}$	288	362
Fail Detected (detected by int diag)	129	138
Fail High (detected by logic solver)	29	35
Fail Low (detected by logic solver)	130	189
Fail Dangerous Undetected - $\lambda_{du}$	36	42
No Effect	96	110
Annunciation Undetected	0	0

1. Above table assumes that a Fail Detected failure will force the output to  $\leq 3.6\text{mA}$ , 3.6mA being selected as fail-safe condition.
2. The logic server needs to be configured to detect over – and under currents. Failure rate is expressed in FIT's (Failure in time:  $1 \times 10^{-9}$  failures per hour).
3. The full FMEDA report should be consulted for a complete list of related assumptions and operating conditions.



M.J. Mulrooney  
Director of Engineering, Q.A. & Quality Control

Marcel Adriaens  
Engineering Manager - Europe