

# Certificate



**No.: 968/FSP 1252.00/16**

<b>Product tested</b>	Valve Position Controllers AMI/AX33 and AMI/AX44 according Route 2H/2S	<b>Certificate holder</b>	StoneL 26271 US Highway 59 Fergus Falls, MN 56537 USA
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<b>Type designation</b>	AMI33xHxxxxxx, AX33SxHxSxxxxxx, AMI44xExxxxxx, AX44SxExSxxxxxx
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<b>Codes and standards</b>	IEC 61508 Parts 1-7:2010	IEC 61511-1:2003 + Corr. 1:2004
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<b>Intended application</b>	The valve controller can be used in applications - up to SIL 2 in low demand mode of operation with a HFT=0 - up to SIL 2 in high demand mode of operation with a HFT=1
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<b>Specific requirements</b>	The instructions of the associated installation and safety manual shall be considered.
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The position indication monitor uses Type B components and is not part of this certification. Nevertheless it's strongly recommended to use it for diagnostic purpose within safety-related applications.

This certificate does not waive the need for further functional safety verification to establish the achieved Safety Integrity Level (SIL) of the safety-related system.

Valid until 2021-04-06

The issue of this certificate is based upon an examination, whose results are documented in Report No. 968/FSP 1252.00/16 dated 2016-04-06.

This certificate is valid only for products which are identical with the product tested. It becomes invalid at any change of the codes and standards forming the basis of testing for the intended application.

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Bereich Automation  
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Köln, 2016-04-06

Certification Body Safety & Security for Automation & Grid

Dipl.-Ing. Stephan Häb

Safety function: Control of the position of the attached actuator / valve.

Model Series	Type	Demand Mode	SIL	HFT	PFD <sub>avg</sub>	
AMI33xHxxxxxx	A	low	2	0	4,1 E-3	41 % of SIL 2
AX33SxHxSxxxxxx	A	low	2	0	4,1 E-3	41 % of SIL 2
AMI44xExxxxxx	A	low	2	0	3,0 E-3	30 % of SIL 2
AX44SxExSxxxxxx	A	low	2	0	3,0 E-3	30 % of SIL 2

The calculation of PFD<sub>avg</sub> is based on a route 2h assessment according to IEC 61508 with a confidence interval of 95%.

A proof test has to be performed at least 1 time per year.

Model Series	Type	Demand Mode	SIL	$\lambda$ / 1/h	$\lambda_s$ / 1/h	$\lambda_d$ / 1/h
AMI33xHxxxxxx	A	high	1 / SC 2	9,4 E-7	0	9,4 E-7
AX33SxHxSxxxxxx	A	high	1 / SC 2	9,4 E-7	0	9,4 E-7
AMI44xExxxxxx	A	high	1 / SC 2	7,0 E-7	0	7,0 E-7
AX44SxExSxxxxxx	A	high	1 / SC 2	7,0 E-7	0	7,0 E-7

The calculation of PFH is based on a route 2h assessment according to IEC 61508 with a confidence interval of 95%.

$\lambda$  Total Failure Rate ( $\lambda = \lambda_s + \lambda_d$ )

$\lambda_s$  Safe Failure Rate

$\lambda_d$  Dangerous Failure Rate

SC 2 Systematic Capability: SIL 2 can be achieved in high demand mode only if redundant valve controllers are used.

Note:

The position indication monitor of the AMI/AX33 and AMI/AX44 series was not considered, as it uses type B components without the required diagnostic measures. Nevertheless it's strongly recommended to use the position indication monitor for diagnostic purpose in safety-related applications.

For complete safety and reliability the actuator / valve that are being operated should also be considered.