

IEC 61508 DECLARATION OF CONFORMITY Model ST51A/75A/75AV SERIES

We, *Fluid Components International LLC*, located at 1755 La Costa Meadows Drive, San Marcos, California 92078-5115 USA, declare as manufacturer, that the *ST51A/75A/75AV Series* of products is suitable for use in a safety instrumented system for SIL 1, flow and temperature measurement.

The meter has been classified as Type B subsystem according to IEC 61508-1 Chapter 7.4.4.1.3 with a Hardware tolerance (HFT) of 0.

The Failure Modes, Effects and Diagnostic Analysis (FMEDA) report carried out by *exida*, resulted in the following failure ratings:

SIL 1, HFT = 0
 SIL 2, HFT = 1
 SIL 3, HFT = 2
 Subsystem type B

Failure rates according to IEC 61508-1

Function	SFF	λ_{DU}	λ_{DD}	λ_{SU}
AC CH1	79.2 %	179	349	332
DC CH2	81.1 %	156	357	312
AC HART	78.5%	199	369	358
DC HART	80.1%	176	369	339

Terminology:

SFF = Safe Failure fraction

λ_{DU} = failure rate dangerous undetected faults

λ_{DD} = failure rate dangerous detected faults

λ_{SU} = failure rate safe undetected faults

FIT = Failure Rate in 10^{-9} /hour

Above analysis is based on assuming:

- The HART protocol is used for setup, calibration and diagnostics purposes, not for safety critical function.
- Materials are compatible with process conditions.
- The device is installed per manufacturer's instructions.
- External power supply failure rates are not included.
- Worst-case internal fault detection time is 15 seconds.
- The device is configured for fault detection per NAMUR NE43 or the logic solver is configured to interpret output fault conditions.
- Proof test interval of 1 year.

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Eric Wible, Engineering Manager

Visit FCI on the Worldwide Web: www.fluidcomponents.com

FCI World Headquarters | 1755 La Costa Meadows Drive | San Marcos, California 92078 USA | Phone: 760-744-6950 • 800-854-1993 • Fax: 760-736-6250

FCI Europe | Persephonestraat 3-01 | 5047 TTTilburg – The Netherlands | Phone 31-13-5159989 • Fax 31-13-5799036

FCI Measurement and Control Technology (Beijing) Co., LTD | www.fluidcomponents.cn

Room 107, Xianfeng Building II, No.7 Kaituo Rd, Shangdi IT Industry Base, Haidian District | Beijing 100085, P.R. China.

Phone: 86-10-82782381 • Fax: 86-10-58851152