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

<table>
<thead>
<tr>
<th>Function</th>
<th>SFF</th>
<th>λDU</th>
<th>λDD</th>
<th>λSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC CH1</td>
<td>79.2 %</td>
<td>179</td>
<td>349</td>
<td>332</td>
</tr>
<tr>
<td>DC CH2</td>
<td>81.1 %</td>
<td>156</td>
<td>357</td>
<td>312</td>
</tr>
<tr>
<td>AC HART</td>
<td>78.5%</td>
<td>199</td>
<td>369</td>
<td>358</td>
</tr>
<tr>
<td>DC HART</td>
<td>80.1%</td>
<td>176</td>
<td>369</td>
<td>339</td>
</tr>
</tbody>
</table>

Terminology:
SFF = Safe Failure fraction
\( \lambda_{DU} \) = failure rate dangerous undetected faults
\( \lambda_{DD} \) = failure rate dangerous detected faults
\( \lambda_{SU} \) = failure rate safe undetected faults
FIT = Failure Rate in \( 10^{-9}/\text{hour} \)

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.

Issued at San Marcos, California USA
October 18, 2016

Eric Wible, Engineering Manager