

The manufacturer  
may use the mark:



**Reports:**

DET 11-02-049 R004 V1R1  
IEC 61508 Assessment  
UD10

DET 11-02-049 R002 V1 R2  
FMEDA Report UD10

**Validity:**

This assessment is valid for  
the FlexVu® Model UD10  
Universal Display.

This assessment is valid until  
August 1, 2015.

Revision 1.1 July 27, 2012



# Certificate / Certificat Zertifikat / 合格証

DET 1102049 C001

*exida* hereby confirms that the:

## FlexVu® Model UD10 Universal Display

**Detector Electronics Corporation  
Minneapolis, MN - USA**

Has been assessed per the relevant requirements of:

**IEC 61508 : 2010 Parts 1-7**

and meets requirements providing a level of integrity to:

**Systematic Integrity: SIL 2 Capable**

**Random Integrity: Type B Element**

**PFD<sub>AVG</sub> and Architecture Constraints  
must be verified for each application**

**Safety Function:**

The UD10 will measure a 4-20mA input signal and provide representative alarm status to its 4-20mA and relay outputs within the Safety Accuracy.

The UD10 display and magnetic switches, HART, Modbus, and Foundation Fieldbus options are interference-free.

**Application Restrictions:**

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



*John C. Yozallinas*  
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Evaluating Assessor

*Conjuro B. B.*  
\_\_\_\_\_  
Certifying Assessor

# Certificate / Certificat / Zertifikat / 合格証

DET 1102049 C001

**Systematic Integrity: SIL 2 Capable**

**Random Integrity: Type B Element**

**PFD<sub>AVG</sub> and Architecture Constraints  
must be verified for each application**

**FlexVu® Model UD10  
Universal Display  
Detector Electronics  
Corporation  
Minneapolis, MN - USA**

## SIL 2 Capability:

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated without "prior use" justification by end user or diverse technology redundancy in the design.

## IEC 61508 Failure Rates in FIT\*

Device	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$	SFF
FlexVu® Model UD10 Universal Display Current Output	0	68.5	555.0	52.8	92.2%
FlexVu® Model UD10 Universal Display Relay Output	0	195.2	514.0	49.6	93.5%

## SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>AVG</sub> considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

\* FIT = 1 failure / 10<sup>9</sup> hours



Form	Version	Date
C61508	2.7-2	Mar 2011