# Certificate / Certificat
# Zertifikat / 合格証

## AME 1705133 C001

*exida* hereby confirms that the:

## WDG-V Oxygen Sensor/Transmitter

## Ametek Process Instruments
## Pittsburgh, PA - 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 Capability: SC 2 (SIL 2 Capable)

## Random Capability: Type B Element

### SIL 2 @ HFT=0; Route $2_H$

**PFH/$PFD_{avg}$ and Architecture Constraints
must be verified for each application**

### Safety Function:
The WDG-V Combustion Analyzer measures the oxygen content of the process gas and ensures the 4-20 mA output represents the oxygen content within the safety accuracy of the WDG-V Combustion Analyzer.

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

_____
Evaluating Assessor

_____
Certifying Assessor

# Certificate / Certificat / Zertifikat / 合格証

## AME 1705133 C001

## Systematic Capability: SC 2 (SIL 2  Capable)

## Random Capability: Type B Element

### SIL 2 @ HFT=0; Route $2_H$

### PFH/$PFD_{avg}$ and Architecture Constraints must be verified for each application

**WDG-V Oxygen Sensor/Transmitter**

**Systematic 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.

**Random Capability:**

The SIL limit imposed by the Architectural Constraints must be met for each element. This Device meets *exida* criteria for Route $2_H$.

### IEC 61508 Failure Rates in FIT*

| Device | SD | SU | DD | DU |
|---|---|---|---|---|
| WDG-V Current Output | 0 | 761 | 4643 | 864 |

* FIT = 1 failure / $10^9$ hours

**SIL Verification:**

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/$PFD_{avg}$ 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 element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

**Assessment Report:** AME 17-05-133 R002 V1R0 IEC 61508 - WDG-V

**Safety Manual:**  9000-263-VE, Rev. A

*exida*

T-013, V5R1