

# Certificate of Compliance

## Safety Instrumented System

**Holder:** BYK-cera b.v., Deventer, The Netherlands

**Safety Instrumented System:** Endress+Hauser Process Solutions AG  
Overfill Prevention System - Tank System 1  
Overfill Prevention System - Tank System 2

**Basis of Certification:** IEC 61511:2003  
Type Approval: 211.259.6

**Certification Include(s):**

- ☒ Management of functional safety
- ☒ Safety requirements specification
- ☒ Hardware requirements
- ☒ Reliability requirements
- ☒ Logic requirements
- ☒ User documentation
- ☐ Factory acceptance testing
- ☐ Integrated factory acceptance testing
- ☐ Site acceptance testing

**Functional Safety Data:**  
Safety function(s) AOPS - Automated Overfill Prevention System

**Certification Results:**

Risknowlogy certifies that the above Safety Instrumented Systems meet the requirements of the Basis of Certification for the selected assessment(s). The Risknowlogy report 211.249.2 and safety manual are an integral part of this certificate.

**Certificate Number:** 211.249.3

**Issue Date:** 2016-12-06

**Expiry Date:** After modification of Safety Instrumented System

**Certifier:** 

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dr.ir. Michel Houtermans



## Tank System 1

Application Software: PLC\_Overfill\_Prevention\_System.ACD

| SIF #    | Type | SIL | Sensor Architecture        | Final Element Architecture                                                                 |
|----------|------|-----|----------------------------|--------------------------------------------------------------------------------------------|
| T0816-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0816-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0816-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0816-4  | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0816-05 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0817-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0817-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0818    | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0819-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0819-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0819-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |

| SIF #    | Type | SIL | Sensor Architecture        | Final Element Architecture                                                                 |
|----------|------|-----|----------------------------|--------------------------------------------------------------------------------------------|
| T0819-04 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0820-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0820-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0820-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0821    | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |

## Tank System 2

Application Software: PLC\_Overfill\_Prevention\_System.ACD

| SIF #    | Type | SIL | Sensor Architecture        | Final Element Architecture                                                                 |
|----------|------|-----|----------------------------|--------------------------------------------------------------------------------------------|
| T0812-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0812-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0812-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0813-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0813-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0813-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |

| SIF #    | Type | SIL | Sensor Architecture        | Final Element Architecture                                                                 |
|----------|------|-----|----------------------------|--------------------------------------------------------------------------------------------|
| T0814-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0814-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0815-01 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0815-02 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |
| T0815-03 | AOPS | 2   | 1oo1<br>FTL81+FEL85+FTL825 | 1oo1<br>MPA FB-VI (32E-MPM...)<br>+ EC0790100FSR0200<br>+ FBV1 Clean Service (Full Stroke) |