



1. **EC-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3. **EC-Type Examination Certificate Number:** ITS11ATEX27383X/2

4. **Equipment or Protective System:** Angle Sensor Type OPF

5. **Manufacturer:** TEMPRESS A/S

6. **Address:** Nordlandsvej 64-66,  
DK-8240 Risskov,  
Denmark

7. This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8. Intertek Testing and Certification Limited, notified body number 0359 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Intertek Reports Ref 11051583 Issue 1 dated September 2011 and G101295959 Issue 1 dated 17<sup>th</sup> September 2013.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards BS EN 60079-0:2012 and BS EN 60079-11:2012 except in respect of those requirements referred to at item 16 of the Schedule.

10. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11. This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12. The marking of the equipment or protective system shall include the following:-

 II 1 G Ex ia IIC T6 Ga  
-20°C ≤ Ta ≤ +40°C

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**Registered No 3272281 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex, CM14 5NQ.**



**A M Smart**  
Certification Officer  
10<sup>th</sup> March 2015

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SCHEDULE

EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS11ATEX27383X/2

13. **Description of Equipment or Protective System**

The **Tempress A/S OPF** (Optischer Potentiometrischer Ferngerber) is an angle sensor designed as a feedback potentiometer in servo systems.

The OPF consists of 2 printed circuit boards and light-head unit comprising rotating transformer and LED assembly and photosensitive resistance track.

Type designations:

OPF/EX4-2 R/L A P

OPF/EX4-2 R/L B P

OPF/EX4-2 R or LAF (X = Angle Value)

OPF/EX4-2 R/L\_P

OPF/EX4-2 R or LAF (X = Angle Value)

The only difference between types is the mechanical design of the axle.

Intrinsic Safety Parameters:

Ui = 28V, Ii = 100 mA, Pi = 0.66W, Ci = 38 nF, Li = 840µH

14. **Report Number**

Intertek Reports Ref: 11051583 Issue 1 dated September 2011, G101295959 Issue 1 dated 17<sup>th</sup> September 2013 and G102010153 Issue 1 dated 10<sup>th</sup> March 2015.

15. **Conditions of Certification**

(a). Special Conditions for safe use

- The OPF shall be installed so that ingress protection IP 20 (or greater) is maintained at the connection terminals.
- The sensor shall not be used where the axle is rotated continuously.
- The sensor shall be powered by a certified Intrinsically Safe interface located outside the hazardous area or protected by an appropriate hazardous area protection.
- The sensor does not meet the 500 Volt insulation requirement of IEC 60079-11 and shall therefore be powered by an interface providing Galvanic Isolation, or, where a Zener Barrier is used, appropriate precautions shall be taken.

(b). Conditions of Manufacture

- None

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16. Essential Health and Safety Requirements (EHSR's)

The relevant EHSR's have been identified and assessed in Intertek Report Ref: 11051583 Issue 1 dated September 2011.

17. Drawings and Documents

Document No.	Sheets	Document Title	Issue	Date (yyyy/mm/dd)
30.1.161	1	2-leder SMD OPF-ny var.	B	2011_08_10
30.2.261	1	Stykliste 2-leder elektronikdel, ny var. Rest	B	2011_07_07
30.2.263	1	Print m. komp.OPF-SMD Atex	B	2011_09_01
30.1.262	1	EMC print for OPF	B	2011_08_10
30.2.262	1	EMC-print stykliste	B	2011_07_06
30.1.143	1	Lyshoved	A	2011_08_09
30.2.143	1	Stykliste Lyshoved	B	2011_07_06
001320-A	1	Samlingstegning isometrisk OPF med snit og angivelse af opstøbning	A	2011_08_09
13.1.140	1	OPFEX ATEX Brugsanvisning Direction for use	C	2011_08_17
40.1.141	1	Etikette OPFEX4-2-P	C	2011_08_17

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### 18. Variations

**No. 1** Assessment Performed under Intertek Report Ref.: G101295959 Issue: 1 Dated: 17<sup>th</sup> September 2013

- Change of Zener diodes D5, D6 and D10 values for increased compatibility.
- Change to resistors R5 and R6 to accommodate the diode change.
- Recalculation of Ci value based on the new values of R5 and R6 from 43nF to 38nF.
- Update to drawings to highlight above changes and to include the statement 'No unauthorised change without approval from notified body'.
- Update to latest versions of standards, EN 60079-0:2012 and EN 60079-11:2012 from EN 60079-0:2009 and EN 60079-11:2007 respectively.
- No changes to Ex coding.

Document No.	Sheets	Document Title	Issue	Date (yyyy/mm/dd)
30.1.161	1	2-leder SMD OPF-ny var.	C	2013_09_06
30.2.261	1	Stykliste 2-leder elektronikdel, ny var. Rest	C	2013_07_04
30.2.263	1	Print m. komp.OPF-SMD Atex	D	2013_07_04
30.1.262	1	EMC print for OPF	C	2013_09_13
30.2.262	1	EMC-print stykliste	E	2013_09_16
30.1.143	1	Lyshoved	B	2013_07_04
30.2.143	1	Stykliste Lyshoved	C	2013_07_04
001320-B	1	Samlingstegning isometrisk OPF med snit og angivelse af opstøbning	B	2013_07_03
13.1.140	1	OPFEX ATEX Brugsanvisning Direction for use	E	2013_09_13
40.1.141	1	Etikette OPFEX4-2-P	E	2013_09_16

**No. 2** Assessment Performed under Intertek Report Ref.: G102010153 Issue: 1 Dated: 10<sup>th</sup> March 2015

- Update to drawings to include 4 digit code of new quality auditor.

Document No.	Sheets	Document Title	Issue	Date (yyyy/mm/dd)
13.1.140	1	OPFEX ATEX Brugsanvisning Direction for use	F	20140129
40.1.141	1	Etikette OPFEX4-2-P ATEX	F	20140129

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