

# EC-TYPE EXAMINATION CERTIFICATE



## Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

- [3] EC-Type Examination Certificate Number: **DEMKO 14 ATEX 1406X Rev.1**
- [4] Equipment or Protective System: **Pressure and Temperature Switches (RT-E series)**
- [5] Manufacturer: **Danfoss A/S**
- [6] Address: **Nordborgvej 81, DK-6430 Nordborg, Denmark**
- [7] This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- [8] UL International Demko A/S, notified body number 0539 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 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 report no. **4786823598**
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 60079-0:2012+A11:2013                      EN 60079-11:2012**
- [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 the certificate.
- [12] The marking of the equipment or protective system shall include the following:

 **II 2 G    Ex ia IIC T6...T1 Gb    -20 °C ≤ Ta ≤ +65 °C**

**Certification Manager**  
Jan-Erik Storgaard



This is to certify that the sample(s) of the Equipment described herein ("Certified Equipment") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. This certificate and test results obtained apply only to the equipment sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured equipment. UL has not established Follow-Up Service or other surveillance of the equipment. The Manufacturer is solely and fully responsible for conformity of all equipment to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

**Date of issue:** 2015-02-03  
**Re-issued:** 2015-04-01



**Notified Body**

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark  
Tel. +45 44 85 65 65, [info.dk@ul.com](mailto:info.dk@ul.com), [www.ul.com](http://www.ul.com)

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# Schedule EC-TYPE EXAMINATION CERTIFICATE No.

DEMKO 14 ATEX 1406X Rev.1

Report: 4786823598

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### Description of Equipment or protective system

The RT-E series consists of pressure and differential pressure switches as well as temperature switch types. All variants have a single changeover contact (SPDT) and all actuation systems are mechanical.

The units are designated for industrial refrigeration and general industrial applications in hazardous areas. It includes usage in refrigeration systems with ammonia, hydrocarbons and other applications where the presence of flammable gases, vapours and mists are likely to occur.

Enclosures are Phenolic Resin with a stainless steel outer cover. The fascia has a conductive sputtered stainless steel / Polyester coating providing a low surface resistance.

The fascia connects to earth through a contact with a metallic shroud and is bonded to an earthed part of the enclosure by the manufacturer Danfoss.

The following tables contain the variants that are covered by this certification. Information shows how each model differs between each variant.

Pressure Switch	
Variant	Maximum Working Pressure (bar)
RT 113E	0.4
RT 112E	7
RT 1AE	22
RT 116E	22
RT 5E	22
RT 6AEW	34
RT 6AEB	34
RT 6AES	34
RT 117E	42
RT 260AE	22
RT 262AE	11

Temperature Switch		
Variant	Range (°C)	Max permissible Bulb Temperature (°C)
RT 14E	-5 to +30	+150
RT 101E	+25 to +90	+300
RT 107E	+70 to +150	+215
RT 123E	+150 to +250	+300
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

### Temperature range

The ambient temperature range is -20 °C to +65 °C.

The assigned temperature classification (T-class) is dependent on the process temperature of the equipment that the probe is installed in.

The relation between process temperature and the assigned temperature class is as follows:

### RT-E Temperature Sensor

#### Process Temperature

300 °C  
289 °C  
194 °C  
129 °C  
94 °C  
79 °C

#### Temperature Classification

T1  
T2  
T3  
T4  
T5  
T6

### RT-E Pressure Switch

#### Process Temperature

100 °C  
100 °C  
100 °C  
100 °C  
94 °C  
79 °C

#### Temperature Classification

T1  
T2  
T3  
T4  
T5  
T6

### Electrical data

U<sub>i</sub> : 29 V  
I<sub>i</sub> : 500 mA  
P<sub>i</sub> : 1 W  
L<sub>i</sub> : 0.2 µH  
C<sub>i</sub> : 0.5 nF



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## Schedule

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# EC-TYPE EXAMINATION CERTIFICATE No.

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### Installation instructions

For ambient temperatures below  $-10\text{ }^{\circ}\text{C}$  and above  $+60\text{ }^{\circ}\text{C}$  use field wiring suitable for both minimum and maximum ambient temperature.

### Mounting instructions

Refer to "Instructions".

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### Descriptive Documents.

The scheduled drawings are listed in the report no. provided under item no. [ 8 ] on page 1 of this EC-Type Examination Certificate..

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### Specific conditions of use:

- The enclosure fascia has been coated with a layer of stainless steel to prevent the accumulation of electrostatic charge. In order to ensure that there is no accumulation of electrostatic charge on the enclosure, the end user shall ensure that the external metal work of the enclosure is locally bonded to earth. Information on the durability of the coating with regards to use of the equipment is contained within the instruction manual.

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### Essential Health and Safety Requirements

Concerning ESRs this Schedule verifies compliance with the Annex III of ATEX directive only. By placing the product on the market, the manufacturer declares compliance with other relevant Directives, and all other safety related requirements including those of Annex II of this Directive.

### Additional information

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.





# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx ULD 14.0013X Issue No: 1 Certificate history:  
Status: **Current** Page 1 of 4 [Issue No. 1 \(2015-04-01\)](#)  
Date of Issue: **2015-04-01** [Issue No. 0 \(2015-02-03\)](#)  
Applicant: **Danfoss A/S**  
Nordborgvej 81  
6430 Nordborg  
**Denmark**  
Electrical Apparatus: **Temperature and Pressure Switches (RT-E Series)**  
*Optional accessory:*  
Type of Protection: **Intrinsic Safety - Ex ia**  
Marking:  
Ex ia IIC T6...T1 Gb (-20 °C < Ta < +65 °C)

*Approved for issue on behalf of the IECEx  
Certification Body:*

Jasmin Omerovic

*Position:*

Program Manager

*Signature:  
(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**UL International Demko A/S**  
Borupvang 5A,  
DK-2750 Ballerup  
Denmark





# IECEx Certificate of Conformity

Certificate No: IECEx ULD 14.0013X

Issue No: 1

Date of Issue: 2015-04-01

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Manufacturer: **Danfoss A/S**  
Nordborgvej 81  
6430 Nordborg  
Denmark

Additional Manufacturing  
location(s):

**Danfoss Poland Sp z.o.o.,**  
UL. Chrzanowska 5,  
05-825 Grodzisk Mazowiecki,  
Poland

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

[DK/ULD/ExTR14.0014/00](#) [DK/ULD/ExTR14.0014/01](#)

Quality Assessment Report:

[DK/ULD/QAR12.0002/01](#)



# IECEx Certificate of Conformity

Certificate No: IECEx ULD 14.0013X

Issue No: 1

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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The RT-E series consists of pressure and differential pressure switches as well as temperature switch types. All variants have a single changeover contact (SPDT) and all actuation systems are mechanical.

The units are designated for industrial refrigeration and general industrial applications in hazardous areas. It includes usage in refrigeration systems with ammonia, hydrocarbons and other applications where the presence flammable gases, vapours and mists are likely to occur.

Enclosures are Phenolic Resin with a stainless steel outer cover. The fascia has a conductive sputtered stainless steel / Polyester coating providing a low surface resistance. The fascia connects to earth through a contact with a metallic shroud and is bonded to an earthed part of the enclosure by the manufacturer Danfoss.

The RT-E variants covered by this certification are given in the Annex.

### CONDITIONS OF CERTIFICATION: YES as shown below:

The enclosure fascia has been coated with a layer of stainless steel to prevent the accumulation of electrostatic charge. In order to ensure that there is no accumulation of electrostatic charge on the enclosure, the end user shall ensure that the external metal work of the enclosure is locally bonded to earth. Information on the durability of the coating with regards to use of the equipment is contained within the instruction manual.



# IECEX Certificate of Conformity

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Certificate No: IECEx ULD 14.0013X

Issue No: 1

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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Issue 1: Correction of additional manufacturing address to include "Poland" in the name and updating drawing schedule in ExTR package.

**Annex:**

[Annex A for IECEx ULD 14.0013X Issue 1.pdf](#)



Annex A: Additional information for Temperature and Pressure Switches (RT-E Series)

IECEX Certificate Number: IECEX ULD 14.0013X Issue 1

A.1 RT-E Variants Covered by Certification

The following tables contain the variants that are covered by this certification. Information shows how each model differs between each variant.

Pressure Switch	
Variant	Maximum Working Pressure (bar)
RT 113E	0.4
RT 112E	7
RT 1AE	22
RT 116E	22
RT 5E	22
RT 6AEW	34
RT 6AEB	34
RT 6AES	34
RT 117E	42
RT 260AE	22
RT 262AE	11

Temperature Switch		
Variant	Range (°C)	Max permissible Bulb Temperature (°C)
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RT 101E	+25 to +90	+300
RT 107E	+70 to +150	+215
RT 123E	+150 to +250	+300
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

A.2 Correlation between Process Temperature and Temperature Classification

The relation between process temperature and the assigned temperature class is as follows:

A.2.1 RT-E Temperature Sensor

Process Temperature	Temperature Classification
300 °C	T1
289 °C	T2
194 °C	T3
129 °C	T4
94 °C	T5
79 °C	T6

A.2.2 RT-E Pressure Switch

Process Temperature	Temperature Classification
100 °C	T1
100 °C	T2
100 °C	T3
100 °C	T4
94 °C	T5
79 °C	T6