

EU-TYPE EXAMINATION CERTIFICATE



- [2] **Equipment or Protective System intended for use
in Potentially Explosive Atmospheres
Directive 2014/34/EU**
- [3] EU-Type Examination Certificate Number: **DEMKO 11 ATEX 1105261X Rev. 3**
- [4] Product: **Intrinsically Safe Pressure or Temperature Switches**
- [5] Manufacturer: **United Electric Controls**
- [6] Address: **180 Dexter Avenue, Watertown, MA 02471 USA**
- [7] This product 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 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products 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. **4788520630.1.1**
- [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 product is subject to special conditions for safe use specified in the schedule to this certificate.
- [11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.
- [12] The marking of the product shall include the following:

 **II 1 G Ex ia IIC T6 Ga**

Certification Manager
Jan-Erik Storgaard



This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product 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 product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product 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: 2011-12-06

Re-issued: 2018-07-18



Notified Body

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Description of Equipment or protective system

The pressure and temperature operated switches consist of a stainless steel or aluminium housing containing a single or dual micro switch which can be operated by an operating rod ensuring an internal joint with the enclosure. The electrical wires are permanently mounted by the manufacturer and cannot be replaced.

Type: 6 Series, 10 Series, 12 Series, 21K Series, 100 Series, 117 Series, 120 Series, 400 Series.

6 Series

<u>J</u> I	<u>6D</u> II	<u>12345</u> III	<u>2200</u> IV	<u>M123</u> V
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I. Type Designation
J Uncalibrated

II. Series and Model Designation
6 Non-adjustable differential pressure sensor switch
6D Adjustable differential pressure sensor switch

III. Model Designation
May be three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 6000 psi, not affecting electrical ratings of the device; equivalent to a customer specification number

IV. Internal Switch Designation
May be a four digit number indicating switch designation

V. Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device

10 Series

<u>10</u> I	<u>A</u> II	<u>10</u> III	<u>12345</u> IV	<u>1100</u> V	<u>M123</u> VI
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I. Series Designation
10 Cylindrical pressure sensor switch

II. Electrical Connection Designation
A 0.11 in push-on terminals
B 0.25 in push-on terminals
C ½ NPTM, 18 in. leads
D 18 in. leads
E ½ NPTF, 5 ft. cord
F DIN male connector
G 5 ft. cord

III. Pressure Range Designation
Diaphragm 10 - 4 - 50 psi
11 - 10 - 150 psi
12 - 30 - 600 psi
Piston 13 - 100 - 1500 psi
14 - 180 - 3000 psi
15 - 400 - 4700 psi
16 - 4000 - 7500 psi

IV. Model Designation
May be a three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 7500 psi, not affecting electrical ratings of the device; equivalent to a customer specification number

V. Internal Switch Designation
May be a four digit number indicating switch designation

VI. Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device

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12 Series

<u>12</u>	<u>SH</u>	<u>DM</u>	<u>IA</u>	<u>12345</u>	<u>M123</u>
I	II	III	IV	V	VI

I. 12 Series Designation
Pressure sensor switch

II. SH SL Sensor Type and Switch Rating Designation
Stainless Steel housing material
Stainless Steel housing material

III. DM DN SM SN Switch Type and Electrical Connection Designation
DPDT (double-pole, double throw) M20 metric thread electrical connection
DPDT (double-pole, double throw) ½ NPT electrical connection
SPDT (single-pole, double throw) M20 metric thread electrical connection
SPDT (single-pole, double throw) ½ NPT electrical connection

IV. Model Designation
May be a two digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 6000 psi, not affecting electrical ratings of the device; equivalent to a customer specification number

V. Customer Specification Number Designation
May be a five digit number not affecting electrical ratings or pressure ratings of the device

VI. Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device

<u>12</u>	<u>SH</u>	<u>DM</u>	<u>IA</u>	<u>12345</u>	<u>M123</u>
I	II	III	IV	V	VI

I. 12 Series Designation
Temperature sensor switch

II. SH SL Sensor Type and Switch Rating Designation
Stainless Steel housing material
Stainless Steel housing material

III. DM DN SM SN Switch Type and Electrical Connection Designation
DPDT (double-pole, double throw) M20 metric thread electrical connection
DPDT (double-pole, double throw) ½ NPT electrical connection
SPDT (single-pole, double throw) M20 metric thread electrical connection
SPDT (single-pole, double throw) ½ NPT electrical connection

IV. Model Designation
May be a two digit numerical or alphabetical suffix indicating temperature range and sensing element not to exceed 343°C (650°F), not affecting electrical ratings of the device.

V. Customer Specification Number Designation
May be a five digit number not affecting electrical ratings or temperature ratings of the device

VI. Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or temperature ratings of the device

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21K Series

<u>J</u> I	<u>21K</u> II	<u>12345</u> III	<u>2200</u> IV	<u>M123</u> V
I.	J	Type Designation Uncalibrated		
II.	21K	Series and Model Designation Adjustable differential pressure sensor switch		
III.		Model Designation May be three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 300 psi, not affecting electrical ratings of the device; equivalent to a customer specification number		
IV.		Internal Switch Designation May be a four digit number indicating switch designation		
V.		Option Designation May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device		

100 Series

<u>B</u> I	<u>100</u> II	<u>12345</u> III	<u>3000</u> IV	<u>M123</u> V
I.	B C E F	Sensor Type and Adjustment Designation Local temperature sensor, internal knob adjustment Local temperature sensor, internal plunger adjustment Remote temperature sensor, internal knob adjustment Remote temperature sensor, internal plunger adjustment		
II.	100	Series Designation Temperature sensor switch		
III.		Model Designation May be three to five digit numerical or alphabetical suffix indicating temperature range and sensing element not to exceed 538°C (1000°F), not affecting electrical ratings of the device; equivalent to a customer specification number		
IV.		Internal Switch Designation May be a four digit number indicating switch designation		
V.		Option Designation May be a four digit numerical or alphabetical suffix not affecting electrical ratings or temperature ratings of the device		

<u>H</u> I	<u>100K</u> II	<u>12345</u> III	<u>3000</u> IV	<u>M123</u> V
I.	H	Type Designation Uncalibrated		
II.	100 100K	Series and Model Designation Pressure sensor switch Differential pressure sensor switch		
III.		Model Designation May be three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 5000 psi, not affecting electrical ratings of the device; equivalent to a customer specification number		
IV.		Internal Switch Designation May be a four digit number indicating switch designation		
V.		Option Designation May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device		

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117 Series

<u>H</u> I	<u>117K</u> II	<u>12345</u> III	<u>1100</u> IV	<u>M123</u> V
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- | | | |
|------|-------------|--|
| I. | H | Type Designation
Pressure-operated, uncalibrated |
| II. | 117
117K | Series and Model Designation
Pressure sensor switch with one snap switch provided
Differential pressure sensor switch with one snap switch provided |
| III. | | Model Designation
May be a three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 3500 psi, not affecting electrical ratings of the device; equivalent to a customer specification number |
| IV. | | Internal Switch Designation
May be a four digit number indicating switch designation |
| V. | | Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device |

<u>B</u> I	<u>117</u> II	<u>12345</u> III	<u>1100</u> IV	<u>M123</u> V
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- | | | |
|------|--------|---|
| I. | B
E | Type Designation
Local temperature sensor, calibrated
Remote temperature sensor, calibrated |
| II. | 117 | Series and Model Designation
Temperature sensor switch with one snap switch provided |
| III. | | Model Designation
May be three to five digit numerical or alphabetical suffix indicating temperature range and sensing element not to exceed 566°C (1050°F), not affecting electrical ratings of the device; equivalent to a customer specification number |
| IV. | | Internal Switch Designation
May be a four digit number indicating switch designation |
| V. | | Option Designation
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or temperature ratings of the device |

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120 Series

<u>H</u> I	<u>120</u> II	<u>K</u> III	<u>12345</u> IV	<u>3000</u> V	<u>M123</u> VI
I.	Type Designation				
H	Pressure-operated, calibrated				
J	Pressure-operated, uncalibrated				
QH	Pressure-operated, calibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
QJ	Pressure-operated, uncalibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
II.	Series and Model Designation				
120	Pressure sensor switch with one snap switch provided				
121	Pressure sensor switch with one snap switch provided				
122	Pressure sensor switch with two snap switches provided				
III.	Type of Switch and Designation				
K	Differential pressure sensing provided				
P	Common adjustment provided				
None	Individual adjustment provided				
IV.	Model Designation				
May be three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 6000 psi, not affecting electrical ratings of the device; equivalent to a customer specification number					
V.	Internal Switch Designation				
May be a four digit number indicating switch designation					
VI.	Option Designation				
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device					
<u>B</u> I	<u>120</u> II	<u>P</u> III	<u>12345</u> IV	<u>3000</u> V	<u>M123</u> VI
I.	Type Designation				
B	Local temperature sensor, calibrated				
C	Local temperature sensor, uncalibrated				
E	Remote temperature sensor, calibrated				
F	Remote temperature sensor, uncalibrated				
QB	Local temperature sensor, calibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
QC	Local temperature sensor, uncalibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
QE	Remote temperature sensor, calibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
QF	Remote temperature sensor, uncalibrated, equipped with a cover lock, external bonding terminal, enclosure vent holes and a nameplate and may also have a second conduit connection				
None	Remote temperature sensor with temperature setting adjustment and temperature indication in a separate enclosure from the explosion-proof enclosure containing the snap-switch and associated wiring				
II.	Series and Model Designation				
120	Temperature sensor switch with one snap switch provided				
121	Temperature sensor switch with one snap switch provided				
122	Temperature sensor switch with two snap switches provided				
III.	Type of Switch Designation				
P	Common adjustment provided				
None	Individual adjustment provided				
IV.	Model Designation				
May be three to five digit numerical or alphabetical suffix indicating temperature range and sensing element not to exceed 538°C (1000°F), not affecting electrical ratings of the device; equivalent to a customer specification number					
V.	Internal Switch Designation				
May be a four digit number indicating switch designation					
VI.	Option Designation				
May be a four digit numerical or alphabetical suffix not affecting electrical ratings or temperature ratings of the device					

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400 Series

<u>B</u> I	<u>400</u> II	<u>P</u> III	<u>12345</u> IV	<u>2200</u> V	<u>M123</u> VI
I.	B C E F	Sensor Type and Adjustment Designation Calibrated dial, immersion stem, internal adjustment with reference dial Uncalibrated dial, immersion stem, internal adjustment without reference dial Calibrated dial, bulb and capillary, internal adjustment with reference dial Uncalibrated dial, bulb and capillary, internal adjustment without reference dial			
II.	400 402 403	Series and Model Designation Temperature sensor switch with one snap switch provided Temperature sensor switch with two snap switches provided Temperature sensor switch with three snap switches provided			
III.	P None	Internal Switch Adjustment Designation Common adjustment provided (does not apply to single switch devices) Individual adjustment provided			
IV.	Model Designation May be three to five digit numerical or alphabetical suffix indicating temperature range and sensing element not to exceed 343°C (650°F), not affecting electrical ratings of the device; equivalent to a customer specification number				
V.	Internal Switch Designation May be a four digit number indicating switch designation				
VI.	Option Designation May be a four digit numerical or alphabetical suffix not affecting electrical ratings or temperature ratings of the device				
<u>H</u> I	<u>400</u> II	<u>K</u> III	<u>12345</u> IV	<u>3000</u> V	<u>M123</u> VI
I.	H J	Sensor Type and Adjustment Designation Calibrated dial, internal adjustment with reference dial Uncalibrated dial, internal adjustment without reference dial			
II.	400 402 403	Series and Model Designation Pressure sensor switch with one snap switch provided Pressure sensor switch with two snap switches provided Pressure sensor switch with three snap switches provided			
III.	K P None	Internal Switch Adjustment Designation Differential pressure control provided Common adjustment provided (does not apply to single switch devices) Individual adjustment provided			
IV.	Model Designation May be three to five digit numerical or alphabetical suffix indicating pressure range and sensing element not to exceed 6000 psi, not affecting electrical ratings of the device; equivalent to a customer specification number				
V.	Internal Switch Designation May be a four digit number indicating switch designation				
VI.	Option Designation May be a four digit numerical or alphabetical suffix not affecting electrical ratings or pressure ratings of the device				

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Temperature range

The ambient temperature range is $-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

Electrical data

Intrinsically Safe Parameters

U_i : 49 V
 I_i : 3 A
 C_i : 0.0 μF
 L_i : 0.0 mH

Installation instructions

See intrinsic safety Control Drawing No. 62174-3.

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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:

- Warning: Enclosure contains aluminum. Care must be taken to avoid ignition hazard due to impact or friction.

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Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

The trademark  will be used as the company identifier on the marking label.

Accredited by DANAK under registration number 7011 to certification of products.