

EU-TYPE EXAMINATION CERTIFICATE



Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

EU-Type Examination Certificate Number: **DEMKO 11 ATEX 1105261X Rev. 4**

Product: **Intrinsically Safe Pressure or Temperature Switches**

Manufacturer: **United Electric Controls**

Address: **180 Dexter Avenue, Watertown, MA 02471 USA**

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

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. **US/UL/ExTR14.0105/03.**

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-11:2012

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.

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.

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

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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
I.	J	Type Designation Uncalibrated		
II.	6	Series and Model Designation 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
I.	10	Series Designation 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> I	<u>SH</u> II	<u>DM</u> III	<u>IA</u> IV	<u>12345</u> V	<u>M123</u> 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> I	<u>SH</u> II	<u>DM</u> III	<u>IA</u> IV	<u>12345</u> V	<u>M123</u> 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.		Sensor Type and Adjustment Designation		
	B	Local temperature sensor, internal knob adjustment		
	C	Local temperature sensor, internal plunger adjustment		
	E	Remote temperature sensor, internal knob adjustment		
	F	Remote temperature sensor, internal plunger adjustment		
II.		Series Designation		
	100	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
I.	H	Type Designation		
		Pressure-operated, uncalibrated		
II.	117	Series and Model Designation		
	117K	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
I.	B	Type Designation		
	E	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.		Sensor Type and Adjustment Designation			
B		Calibrated dial, immersion stem, internal adjustment with reference dial			
C		Uncalibrated dial, immersion stem, internal adjustment without reference dial			
E		Calibrated dial, bulb and capillary, internal adjustment with reference dial			
F		Uncalibrated dial, bulb and capillary, internal adjustment without reference dial			
II.		Series and Model Designation			
400		Temperature sensor switch with one snap switch provided			
402		Temperature sensor switch with two snap switches provided			
403		Temperature sensor switch with three snap switches provided			
III.		Internal Switch Adjustment Designation			
P		Common adjustment provided (does not apply to single switch devices)			
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 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.		Sensor Type and Adjustment Designation			
H		Calibrated dial, internal adjustment with reference dial			
J		Uncalibrated dial, internal adjustment without reference dial			
II.		Series and Model Designation			
400		Pressure sensor switch with one snap switch provided			
402		Pressure sensor switch with two snap switches provided			
403		Pressure sensor switch with three snap switches provided			
III.		Internal Switch Adjustment Designation			
K		Differential pressure control provided			
P		Common adjustment provided (does not apply to single switch devices)			
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			



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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 uF
 L_i : 0.0 mH

Installation instructions

See intrinsic safety Control Drawing No. 62174-3.

Routine tests

None

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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 EU-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.