



[1]

UNITED KINGDOM CONFORMITY ASSESSMENT
UK-TYPE EXAMINATION CERTIFICATE

[2]

**Product or Protective System Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1**

[3] UK-Type Examination Certificate No.: **UL21UKEX2238X Rev. 0**

[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 (UK) Ltd, Approved Body number 0843, in accordance with Regulation 44 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.
The examination and test results are recorded in the confidential report **UKRCC-4789985906.6**

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

EN IEC 60079-0:2018

EN 60079-11:2012

Except in respect of those requirements listed at section 19 of the schedule to this certificate.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of use specified in the schedule to this certificate.

[11] This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

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

Certification Manager

Andrew Moffat

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 UKEx 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 Regulations. 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: 2022-06-21

Approved Body

UL International (UK) Ltd Unit 1-3 Horizon Kingsland Business Park Wade Road, Basingstoke RG24 8AH, UK
Phone : +44 (0)1256 312100



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

[15]

Description of Product

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		
	6D	Non-adjustable differential pressure sensor switch 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			



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

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				



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

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.		Type Designation		
H		Uncalibrated		
II.		Series and Model Designation		
100		Pressure sensor switch		
100K		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		



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

117 Series

<u>H</u> I	<u>117K</u> II	<u>12345</u> III	<u>1100</u> IV	<u>M123</u> V
I.	Type Designation			
H	Pressure-operated, uncalibrated			
II.	Series and Model Designation			
117	Pressure sensor switch with one snap switch provided			
117K	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.	Type Designation			
B	Local temperature sensor, calibrated			
E	Remote temperature sensor, calibrated			
II.	Series and Model Designation			
117	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			



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

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			



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

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

400 Series

<u>B</u>	<u>400</u>	<u>P</u>	<u>12345</u>	<u>2200</u>	<u>M123</u>
I	II	III	IV	V	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>	<u>400</u>	<u>K</u>	<u>12345</u>	<u>3000</u>	<u>M123</u>
I	II	III	IV	V	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



[13]

[14]

Schedule

UK-TYPE EXAMINATION CERTIFICATE No.

UL21UKEX2238X Rev. 0

Temperature range

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

Electrical dataIntrinsically 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.

Routine tests

None

[16]

Test Report No. (associated with this certificate issue)

US/UL/ExTR14.0105/03.

[17]

Specific conditions of use:

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

[18]

Conditions of certification:

None

[19]

Essential Health and Safety Requirements (Regulations Schedule 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

Additional information

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

The manufacturer shall inform the approved body concerning all modifications to the technical documentation as described in Annex III to UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1.

[20]

Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
Intrinsically Safe (I.S.) Control Drawing	62174-3	J	2021-07-21
Intrinsically Safe (I.S.) Label Drawing	6333-65	D	2014-07-25
6 Series Construction Drawing	62174-13	C	2016-03-09
10 Series Construction Drawing	62174-10	C	2016-03-09
12 Series Construction Drawing	62174-11	D	2016-05-12
21 Series Construction Drawing	62174-14	C	2016-03-09
100 Series Construction Drawing	62174-9	C	2016-03-09
117 Series Construction Drawing	62174-8	C	2016-03-09
120 Series Construction Drawing	62174-16	D	2016-05-12
400 Series Construction Drawing	62174-17	C	2016-03-09
ADDENDUM for Mechanical Switch SERIES (Ex ia) OPTION UKCA (United Kingdom Conformity Assessed)	UKCA_Exia-01	-	2022-06-03
LABEL, INTRINSICALLY SAFE FOR UKCA OPTION (6,10,12,21K,100,117,120,400)	6333-232	A	2022-06-02