[1]

UNITED KINGDOM CONFORMITY ASSESSMENT

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] Type Examination Certificate No.: **UL21UKEX2239 Rev. 0**

[4] Product: **One Series Electronic Pressure and Temperature Switches**

[5] Manufacturer: **United Electric Controls**

[6] Address: **180 Dexter Ave., 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 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-4789985906.8**

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

EN IEC 60079-0:2018 **EN 60079-15:2010**

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 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:

Series 1XSWLL:

II 3 G Ex nA IIC T4 Gc

Series 1XTX:

II 3 G Ex nA IIC T4 Gc

Series 1XSWHH, 1XSWHL:

II 3 G Ex nA IIC T4 Gc

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 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: 2022-06-14

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[15] Description of Product

The devices are pressure and temperature operated switches, with a solid-state switch mechanism, an LCD (Liquid Crystal Display), an enclosure and may contain solid-state analog outputs. The metal enclosure consists of a body and a cover with a glass window, as well as two conduit entries and a sensor port. The cover is secured to the body by a threaded joint. The window is cemented into the cover and additionally secured by a retaining ring that threads into the cover. The sensors engage the body of the enclosure by a threaded joint. The devices are provided with terminal blocks for field installation.

For the 1X series:

1X	SW	L	L	P	10	M124
I	II	III	IV	V	VI	VII

I – Series Designation
1X – 2-wire switch

II – Type
SW – Switch only

III – Input Voltage (Range)
L – Low Voltage, 7.8 – 50 Vdc

IV – Input Current
L – Low Current, @ .1 A

V – Sensor Type
P – Pressure Sensor
T – Temperature Sensor
K – Differential Pressure Sensor

VI – Sensor Model
Pressure Sensors:
06 – 14.7 to 30 psi
08 – 14.7 to 100 psi
10 – 0 to 5 psi
11 – 0 to 15 psi
12 – 0 to 30 psi
13 – 0 to 50 psi
14 – 0 to 100 psi
15 – 0 to 300 psi
16 – 0 to 500 psi
17 – 0 to 1000 psi
18 – 0 to 3000 psi
19 – 0 to 4500 psi
20 – 0 to 6000 psi

Temperature Sensors:
L1 – 4 in. Length Local Mount
L2 – 6 in. Length Local Mount
L3 – 10 in. Length Local Mount
R1 – 6 ft. Remote Probe Low Temp
RC – Custom Length Remote Probe Low Temp
H1 – 6 ft. Remote Probe High Temp
HC – Custom Length Remote Probe High Temp
C1 – 6 ft. Remote Probe Low Temp
CC – Custom Length Remote Probe Low Temp

Differential Pressure Sensors:
10 – 0 to 5 psid
11 – 0 to 50 psid
12 – 0 to 100 psid
13 – 0 to 200 psid

VII – Options
M-041 Dual Seal Adapter or four character alphanumeric code not affecting electrical or mechanical ratings of the device

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For the 1XTX series:

1X	TX	00	P	10	M124
I	II	III	IV	V	VI

I – Series Designation
1X – 2-wire switch

II – Communication
TX – 4-20 mA Transmitter

III – Output
SW – 2-wire, Switch Outputs
00 – No Switch Outputs

IV – Sensor Type
P – Pressure Sensor
T – Temperature Sensor
K – Differential Pressure Sensor

V – Sensor Model
Pressure Sensors:
06 – 14.7 to 30 psi
08 – 14.7 to 100 psi
10 – 0 to 5 psi
11 – 0 to 15 psi
12 – 0 to 30 psi
13 – 0 to 50 psi
14 – 0 to 100 psi
15 – 0 to 300 psi
16 – 0 to 500 psi
17 – 0 to 1000 psi
18 – 0 to 3000 psi
19 – 0 to 4500 psi
20 – 0 to 6000 psi

Temperature Sensors:
L1 – 4 in. Length Local Mount
L2 – 6 in. Length Local Mount
L3 – 10 in. Length Local Mount
R1 – 6 ft. Remote Probe Low Temp
RC – Custom Length Remote Probe Low Temp
H1 – 6 ft. Remote Probe High Temp
HC – Custom Length Remote Probe High Temp
C1 – 6 ft. Remote Probe Low Temp
CC – Custom Length Remote Probe Low Temp

Differential Pressure Sensors:
10 – 0 to 5 psid
11 – 0 to 50 psid
12 – 0 to 100 psid
13 – 0 to 200 psid

VI – Options
M-041 Dual Seal Adapter or four character alphanumeric code not affecting electrical or mechanical ratings of the device

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For Models 1XSWHL, 1XSWHH:

1X	SW	HL	P	10	M041
I	II	III	IV	V	VI

I – Series Designation

1X – 1X Series

II- Communication

SW – Switch output

III – Output

HL – 70 – 240 VAC/VDC 10A max. De-rate 1Ma per 1℃ › 25℃

HH – 24 – 280 VAC/VDC 10A max. De-rate 8% per 10℃ › 25℃

IV – Sensor Type

P – Pressure Sensor

T – Temperature Sensor

K – Differential Pressure Sensor

V – Sensor Model

Pressure Sensors:

06 – 14.7 to 30 psi
08 – 14.7 to 100 psi
10 – 0 to 5 psi
11 – 0 to 15 psi
12 – 0 to 30 psi
13 – 0 to 50 psi
14 – 0 to 100 psi
15 – 0 to 300 psi
16 – 0 to 500 psi
17 – 0 to 1000 psi
18 – 0 to 3000 psi
19 – 0 to 4500 psi
20 – 0 to 6000 psi

Temperature Sensors:

L1 – 4 in. Length Local Mount
L2 – 6 in. Length Local Mount
L3 – 10 in. Length Local Mount
R1 – 6 ft. Remote Probe Low Temp
RC – Custom Length Remote Probe Low Temp
H1 – 6 ft. Remote Probe High Temp
HC – Custom Length Remote Probe High Temp
C1 – 6 ft. Remote Probe Low Temp
CC – Custom Length Remote Probe Low Temp

Differential Pressure Sensors:

10 – 0 to 5 psid
11 – 0 to 50 psid
12 – 0 to 100 psid
13 – 0 to 200 psid

VI – Options

M-041 - Dual Seal Adapter

Four character alphanumeric code other than M-041 are single seal. These do not affect electrical or mechanical ratings of the device.

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Temperature range
1XSWLL:
The ambient temperature range is -40 °C to +85 °C. Device is classified as temperature code T4 (T135°C).
1XTXSW, 1XTX00:
The ambient temperature range is -40 °C to +80 °C. Device is classified as temperature code T4 (T135°C).
1XSWHH, 1XSWHL:
The ambient temperature range is -40 °C to +80 °C. Device is classified as temperature code T4 (T135°C).

Electrical data

Model	Input Voltage	Switch Output (+)	Analog Output
1XSWLL	7.8-50Vdc	7.8-50Vdc. 100mA	N/A
1XTX00	30 Vdc, 20mA	0-280 Vac, 300 mA	4-20 mA
1XTXSW	30 Vdc, 20mA	-	4-20 mA
1XSWHL	N/A (++)	70-240 Vac/Vdc, 100 mA	-
1XSWHH	70-240 V AC, 100 mA	24-280 Vac/Vdc, 10 A	-

+ - Switch current outputs are de-rated, based on ambient temperature, as shown in the “Switch Ratings Table” provided in the Installation Instructions

++ - The load from the switch also powers the electronic and does not need a separate power supply.

Routine tests
A routine Dielectric Strength Test shall be performed by the manufacturer with the test conditions as follows:
4-20mA circuit to case at 500V for 60 seconds
IAW circuit to case at 500V for 60 seconds
Switch outputs to case at 1560V for 60 seconds.

[16] Test Report No. (associated with this certificate issue)
US/UL/ExTR08.0022/11.

[17] Specific conditions of use:
None

[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 device has in addition passed the tests for Ingress Protection to IP 66 in accordance with EN60529:1991+A1:2000+A2:2013.

The trademark UE® 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.

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[20] Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
One Series Enclosure Assembly and Nameplate	B-62174-45	J	2021-09-09
One Series Pressure Sensors	B-62174-46	A	2009-03-05
One Series Temperature Sensors	B-62174-47	B	2014-03-26
2SLP Installation and Maintenance Instructions	IM_ONE_Safety	09	N/A
DUAL Seal Option Drawing	B-62174-50	B	2014-06-20
Schematic, One Series 2 Wire Switch	6247-694	F	2019-01-10
One Series Critical Components, Resistors	A-6289-789	B	2017-01-09
Resistor, Through Hole	A-6289-708	B	2015-05-07
Diode, Schottky	A-62132-109	D	2015-05-07
*Diode, Schottky	A-62132-139	C	2021-05-20
Model 1, One Series PC Panel	B-62137-491	D	2019-01-10
Intrinsically Safe (I.S.) Control Drawing	A-62174-64	D	2019-01-14
One Series Critical Components for Intrinsic Safety Circuit	62174-76	B	2021-02-25
PCB Ass'y 1XSWLL	B-63136-404	G	2019-02-28
1XTXSW, 1XTX00 Installation and Maintenance Instructions	IM_1XTXSW	09	N/A
1XTXSW One Series Mainboard	6247-698	D	2019-01-10
PCB Ass'y 1XTXSW	63136-406	F	2020-08-13
1XTXSW One Series PC Panel	B-62137-494	D	2019-01-10
Schematic, Model 4 Relay Board	6247-699	E	2015-10-14
PCB ASSY Relay 1XTXSW	A-63136-405	F	2015-10-14
PC Board Model 4 Relay	B-62137-495	C1	2015-08-05
1XSWLL, 1XSWHL, 1XSWHH Installation and Maintenance Instructions	IM_1XSW	04	N/A
1XSWHL,1XSWHH One Series Mainboard	6247-708	G	2019-01-10
PCB Ass'y 1XSWHL,1XSWHH	B-63136-414	H	2019-02-28
1XSWHL,1XSWHH One Series PC Panel	B-62137-506	G	2019-01-10
Schematic, 1XSWHH Relay Board	6247-709	B	2017-02-27
PCB ASSY Relay 1XSWHH	A-63136-415	B	2017-02-27
ADDENDUM for ADDENDUM for ONE SERIES OPTION UKCA (United Kingdom Conformity Assessed)	UKCA_ONE-01	-	2022-06-03
ONE SERIES 1XSWLL NAMEPLATE OPTION: UKCA M462	6311-7	A	2022-05-23
ONE SERIES 1XTXSW, 1XTX00 NAMEPLATE OPTION: UKCA M462	6311-8	A	2022-05-23
ONE SERIES 1XSWHL, 1XSWHH NAMEPLATE OPTION: UKCA M462	6311-9	A	2022-05-23