[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.: **UL22UKEX2360X Rev. 0**

[4] Product: **D2 HART7 PST ESD Switchbox, Model DX*-S*0***S*****

[5] Manufacturer: **TopWorx Inc.**

[6] Address: **3300 Fern Valley Road, Louisville, KY 40213 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 **US/UL/ExTR20.0072/04.**

[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 the 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:

Ex II 1 G Ex ia IIC T4 Ga

Ex II 2 D Ex ia IIIC T135°C Db

Certification Officer
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: 2022-11-11

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

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Schedule
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[15] Description of Product

The D2 HART7 PST ESD, Model DX*-S*0***S***** is an intrinsically safe switchbox monitor. The equipment consists of the DXP/DXS Enclosure and is powered by an associated apparatus. Internal to the enclosure are three boards: The Main Board, the GO-Switch Board, and the Terminal Board.

Nomenclature:

DX	P	SH	O	X	N	4	S	D	A	1	T
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII

I. Basic Series Designation
DX – Cast Enclosure

II. Enclosure Material
P – Aluminum
S – Stainless Steel

III. Sensor/Switch Supplement
SH or SS – D2 HART v7 ESD, Model ES-06762-1, 28 V dc max, 100 mA, 0.7 W input; switch outputs when fitted 24 V dc, 250 mA per switch

IV. Area Classification
0 – Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G

V. Visual Display
X - Any letter or number

VI. Shaft
S - 1/4” DD, 316L SS
N - NAMUR, 316L SS

VII. Conduit Entries
X – Any letter or number

VIII. O-ring Option
S - Silicone

IX. Pilot Type/Action
Blank - No Pilot Devices
1 - One 24 V dc 1 W coil pilot for fail open/closed
D - Two 24 V dc 1 W coil pilots wired in parallel

X. Spool Valve Material
Blank - No spool valve
A - Aluminum Black Anodized
6 - 316 SS

XI. Valve CV
Blank - No valve
X - Any number or letter

XII. Manual Override
Blank - No PST Button
T - With PST (Partial Stroke Button)

Temperature range:
The ambient temperature range is -40 °C to +80 °C or -40 °C to +50 °C when PST button is fitted.

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Electrical data:

Table 1 - INPUTS - Entity Parameters					
	Ui	Ii	Ci	Li	Pi
HART+/HART-	28V	100mA	19nF	14uH	0.7W
P1IN+/P1IN-(Pilot 1)	28V	100mA	0	0	0.7W
P2IN+/P2IN-(Pilot 2)	28V	100mA	0	0	0.7W
C1/NO1 or (C1/NC1)*	24V	250mA	0	0	Neg
C2/NO2 or (C2/NC2)*	24V	250mA	0	0	Neg
*Internal USER SW1/SW2 are volt-free contacts. Power is negligible.					

Table 2 – OUTPUTS – Entity Parameters					
	Uo	Io	Co	Lo	Po
PSNS+/PSNS- (Pressure Transmitter 4-20mA)	28V	100mA	0.082uF	200uH	0.7W
AUX2+/AUX2- or AUX+/AUX- (AUX Sw 2)	5.88V	52mA	36.374uF	1uH	364mW
AUX1+/AUX1- or +5VO/10V+ (AUX Sw 1)	7.14V	52mA	9.87uF	1uH	364mW
P1IN+, 10V+, 10V- (SOV Position Monitor)	5.88V	52mA	26.347uF	1uH	364mW
PST+/PST- (Partial Stroke Button)	5.88V	52mA	26.347uF	1uH	364mW
P1out+/P1out-	28V	100mA	0.082uF	200uH	0.7W
P2out+/P2out-	28V	100mA	0.082uF	200uH	0.7W
ALM/ALM (Alarm) [Optional]	28V	100mA	0.082uF	200uH	0.7W

Routine tests
None

[16] Test Report No. (associated with this certificate issue)
The test report no. is provided under item no. [8] on page 1 of this UK-Type Examination Certificate.

[17] Specific conditions of use:
- All unused entries must be filled with a suitably certified Ex component blanking plug.
- The plastic parts of the enclosure have the potential to produce electrostatic discharge. Clean only with damp cloth.

[18] Conditions of certification:
Where ATEX certified Ex Components or Ex Equipment are used, it is the responsibility of the manufacturer to ensure that only Ex Components or Ex Equipment having equivalent UKEx certification are used after the permission to accept such ATEX certified Ex Component or Ex Equipment is withdrawn.

[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 Model DX*-S*0***S***** has in addition passed the tests for Ingress Protection to IP 66/67 in accordance with EN60529:1991+A1:2000+A2:2013.

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:
IS Control Drawing	ES-08359-1	AB	2020-05-18
IS Control Drawing (Alt.)	ES-08941-1	AA	2021-06-15
DXP/S General Assembly	CERT-ES-06761-1	AC	-
DXP/S General Assembly (Alt.)	ES-08672-1	AC	2021-03-12
HART7 ESD Module Assembly	ES-06762-1	1	2019-09-10
HART7 ESD Module Assembly (Alt.)	ES-06762-1	AD	2020-03-12
Terminal Board Assembly and BOM	ES-06634-1	AB	2020-05-12
Terminal Board Assembly and BOM (Alt.)	ES-08612-1	AA	2021-01-04
Terminal Board PCB Fab	ES-06635-1	2	2020-01-08
Terminal Board PCB Fab (Alt.)	ES-08613-1	AA	2021-01-04
Terminal Board Schematic	ES-06636-1	2	2020-01-08
Terminal Board Schematic (Alt.)	ES-08614-1	AA	2021-01-04
Switch Board Assembly and BOM	ES-06638-1	1	2019-12-11
Switch Board Assembly and BOM (Alt.)	ES-08703-1	AB	2021-03-04
Switch Board PCB Fab	ES-06641-1	1	2019-12-11
Switch Board PCB Fab (Alt.)	ES-08704-1	AB	2021-03-04
Switch Board Schematic	ES-06642-1	1	2019-12-11
Switch Board Schematic (Alt.)	ES-08705-1	AB	2021-03-04
Main Board Assembly and BOM	ES-06829-1	1	2019-12-12
Main Board PCB Fab	ES-06830-1	AB	2020-05-29
Main Board Schematic	ES-06831-1	1	2019-12-11
O-ring drawing	S-S01-0037	AC	2020-05-28
Gasket drawing	S-S01-0065	AC	2020-05-28
Nameplate markings	CERT-ES-09038-1	AA	2022-06-04
Installation, Operation and Maintenance Manual	ES-08436-1	-	2022-05-19