



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 06ATEX3392X** Issue: **6**

4 Equipment: **Range of Rotary Switch On/Off Valve Indicators**

5 Applicant: **Palmstierna International AB (part of the Flowserve Group)**

6 Address: **Korta Gatan 9
SE-171 54 Solna
Sweden**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0: 2004 EN 60079-1: 2004 EN 61241-0:2006 EN 61241-1:2004

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2 GD
Ex d IIB T5
Ex tD A21 IP66/67
(Ta -20°C to +55°C)

Project Number 70025479

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The UltraSwitch™ Limit Switches provide local and remote position indication for automated valves. They are fitted with a range of pre-wired, switch limit options that suit a variety of electrical applications, refer to product nomenclature, and are constructed from the following major parts:

- Main housing base
- Main housing cover (Either flat or Ultradome)
- Bronze bearing inserts and limit switch shaft
- Associated O-ring seals

The UltraSwitch™ Limit Switches rely on the following aspects for explosion protection and have no welded joints:

- Threaded flamepaths
- Cylindrical flamepaths
- O-ring seals
- Overall mechanical strength

All user connections are made at a numbered terminal strip and both external bonding and internal grounding locations are provided for installation. Certain UltraSwitch™ Limit Switches feature the option to have a visual indicator with “red=closed” and “green=open” for intuitive local position determination.

Switch Element Code Electrical Ratings

Electrical Ratings (Model DCA- series options denoted with [])	Switch Element Type
15.1 A, ½ hp, 125/250, VAC; 0.5 A, 125 VDC; 0.25 A, 250 VDC; 5 A, 120 VAC	M1 and MA
15.1 A, ½ hp, 125/250, VAC; 0.5 A, 125 VDC; 0.25 A, 250 VDC; 5 A, 120 VAC	MC
10 A, ½ hp, 125 VAC	MD and MS
1 A, 125 VAC; 50 mA, 24 VDC	MG
15 A, 125/250 VAC; 3/5 hp, 125 VAC ½ hp, 250 VAC	M3
0.25 A, 200 VDC; 0.5 A, 100 VDC; 1 A, 50 VDC; 0.35 A, 140 VAC, 50 W	P4
0.25 A, 120 VAC, 60 Hz; 28 VDC, 3 W	P5
10 A, ½ hp, 125 VAC	MB
24 VDC, 2 A; 120 VAC, 1 A	PE
3 A, 120 VAC; 2 A, 24 VDC	PP and [P]
3 A, 120 VAC; 0.5 A, 24 VDC	PT and [T]
5-25 VDC	N8, NP, NQ
10-60 VDC, 200 mA	NR, NS, NT
31 VDC, 26 mA	FZ
5-60 VDC, 100 mA	N9, R1 and [M]
10-60 VDC, 100 mA	P1
24 VDC, 0.12A	FN

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“Ultraswitch” Model Types

Standard Model Ref.	A	N	XC L	U	2	M1	-	1 4	-	0	0	2	0	0
Nomenclature Example	A	B	C	D	E	F		G		H	I	J	K	L

A	Brand sticker	Single Alphanumeric Character
B	Shaft Type	Single Alphanumeric Character
C	Housing	XCL – Aluminum Housing with ¾ NPT (North American Std) XML – Aluminum Housing with M25 (European Std)
D	Position Indicator	Single Alphanumeric Character
E	Qty of Switch Elements	Single Alphanumeric Character
F	Switch Element Type	M1 – SPDT mechanical M3 – DPDT Mechanical MA – M1 switch with cams for 3 position control MB – DPDB mechanical – Licon MC – SPDT mechanical with terminal block rated for 250°F MD – DPDT mechanical with Cams for DA 3 position control MG – SPDT mechanical – gold plated MS – DPDT mechanical with Cams for SR 3 position control N8 – Proximity P+F NJ2-V3-N (DOW = S) N9 – Proximity P+F NBB3-V3-Z4 NP – Proximity P+F SJ3-5N (Namur) NQ – Proximity P+F NJ4-12GK-N (Namur) NR – Proximity P+F NJ4-12GM40-E1 NS – Proximity P+F NJ4-12GM40-E2 NT – Proximity P+F NJ4-12GK40-E2 R1 – Proximity P+F NBB3-V3-Z4-3G-3D (DOW = M) P1 – Proximity P+F NCB2-12GM40-Z0 P4 – SPST proximity ALEPH PS-6132 P5 – SPDT proximity Hamlin 59 135-030 PE – SPDT proximity Sabre PP – SPDT proximity Phaser (DOW = P, K) PT – SPDT proximity Phaser BRS (DOW = T, B) FN – Device net controller card. (2) type P4 switches FZ – As-I card with (2) type 4-(P4) switches
G	Certification Type	14 – General Purpose 18 – CSA and ATEX approved 19 – ATEX approved 25 – IECEx approved M3 – ATEX and IECEx approved
H	Analogue options	Single Alphanumeric Character
I	Wiring Options	Single Alpha-Numeric Character
J	Minimum Open Terminals	Single Alphanumeric Character

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K	Accessories	0 – No special options (denotes standard “Buna”(Nitrile) O-rings temp range of –15°F to +250°F V – “Viton” (Flourocarbon) O-rings - temp range of -15°F to +400°F All other Single Alphanumeric Characters do not affect Certification
L	Coating Options (Not on FLP surfaces)	Single Alpha-Numeric Character

Dow Customer Specific

Standard Model Ref.	D	N	A	3	E	B	1	N
Nomenclature Example	A	B	C	D	E	F	G	H

A	Brand	D	Dow
B	Rating Selection	N	North American Standards, Special Marker Strip 3/4" NPT.
		C	European Standards, Special Marker Strip 1/2" NPT.
C	Housing Selection	A	Explosion Proof, Aluminum
D	Indicator Section	1	Flat Top Cover, no indicator
		3	Ultradome, Black/Yellow
		5	Ultradome for 155 Deg. Diverter Valves
		6	Ultradome for 135 Deg. Diverter Valves
E	Language Selection	0	No indications
		D	Dutch
		G	German
		P	Portuguese
		S	Spanish
		I	Italian
F	Switch Selection	B	2 x Phazer III BRS
		K	2 x Phazer III
		T	2 x Phazer II BRS
		P	2 x Phazer II
		M	2 x P+F NBB3-V3-Z4-3G-3D
		S	2 x NJ2-V3-N
G	Area Selection	1	Standard
		2	12-Position Terminal for North America
H	Mounting Selection	N	NAMUR Configuration, NAMUR Shaft
		STD	Non NAMUR Configuration, Standard Shaft

Variation 1 - This variation introduced the following changes:

- i. The product switch element table of types was updated to include types P and T references together with the introduction of the new type N9 and type M switch elements.
- ii. The product nomenclature tables were updated and include alternative customer specific model “DCA- series” reference numbers.

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Variation 2 - This variation introduced the following change:

- i. The option to permit different fixing holes as shown on drawing XM0407.

Variation 3 - This variation introduced the following changes:

- i. The product nomenclature tables were updated to include an alternative customer specific model, "DCA3EW1N28L".
- ii. The company name and address, previously Flowserve Corporation, 1350 North Mountain Springs Parkway, PO Box 2200, Springville, Utah 84663 – 9003, USA, was changed to Flowserve US Inc., 1978 Foreman Drive, Cookeville, TN 38501, USA.

Variation 4 - This variation introduced the following change:

- i. The company name and address, previously Flowserve US Inc., 1978 Foreman Drive, Cookeville, TN 38501, USA was changed to Flowserve Corporation, Korta Gatan 9 SE-171 54 Solna Sweden.

Variation 5 - This variation introduced the following change:

- i. The recognition of minor modifications both administrative and technical; these amendments do not affect the aspects of the product that are relevant to explosion safety.
- ii. The addition of an O-ring groove between the cover and body of the product, this addition resulted in a decrease to the length of a flanged flamepath.
- iii. The introduction of a stainless steel shaft for use in the listed range of rotary switches and valve indicators; this shaft is detailed on drawing XC1414C that replaces the drawings detailed in the Annexe.
- iv. Due to a previous change to the Company name and address, drawing number XO1219 is a duplication of XO1329 therefore it has been removed.

Variation 6 - This variation introduced the following change:

- i. The IP rating was changed from IP65 to IP66/IP67 following acceptance of test data for IPX6 and IPX7 in accordance with EN 60529
- ii. The current rating for switch designation suffix "PE" was changed from 2 A to 1 A.
- iii. Switch options R1, P1 and FN were introduced and switch options NU, PX and PL were removed.
- iv. The model order code was updated.
- v. The description was amended to reflect the changes, where appropriate.
- vi. Nameplate drawing XO1285 was introduced.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	10 December 2007	R51A14448A	The release of the prime certificate.
1	25 March 2008	R51L17918A	The introduction of Variation 1.

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Issue	Date	Report No.	Comment
2	20 July 2009	R51A20611A	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 2, Issues 0 to 2 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.The introduction of Variation 2.
3	9 March 2010	R21889A_00	The introduction of Variation 3.
4	07 March 2011	R24204A/00	The introduction of Variation 4.
5	15 November 2012	R28655A/00	The introduction of Variation 5.
6	03 June 2015	R70025479A	The introduction of Variation 6.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 The maximum constructional gap (i_c) is less than that required by Table 1 of EN 60079-1:2004 as detailed below:

Flamepath	Maximum Gap (mm)	Comment
Cover and base	0.058	Flanged joint
Operating rod and cover bushing	0.088	Cylindrical spigot joint
Cover and bushing	0.00	Interference fit
Operating rod and base bushing	0.088	Cylindrical spigot joint
Base and bushing	0.00	Interference fit

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

Certificate Annexe

Certificate Number: Sira 06ATEX3392X
Equipment: Range of Rotary Switch On/Off
Valve Indicators
Applicant: Palmstierna International AB



Issue 0

Drawing No.	Sheets	Rev	Date (Sira Stamp)	Description
X01329*	1 of 1	0	03 Dec 07	Name Plate
X01219*	1 of 1	0	03 Dec 07	Name Plate – Assembly in Sweden
L02812	1 of 1	5	30 Nov 07	Layout, Switch, XCL, Flamepath certification
X01142	1 of 1	1	30 Nov 07	Casting, Cover, Switch, XCL Ultradome
XM0401	1 of 2	0	30 Nov 07	Cover, Switch, XCL, Ultradome machining
XM0401	2 of 2	0	30 Nov 07	Cover, Switch, XCL, Ultradome machining
X01143	1 of 2	1	30 Nov 07	Casting, Base, Switch, XCL
X01143	2 of 2	1	30 Nov 07	Casting, Base, Switch, XCL
XM0398	1 of 2	0	30 Nov 07	Base, switch, XCL ¾" Conduit
XM0398	2 of 2	0	30 Nov 07	Base, switch, XCL ¾" Conduit
XM0399	1 of 2	A	30 Nov 07	Base, switch, XCL M25
XM0399	2 of 2	A	30 Nov 07	Base, switch, XCL M25
X01141	1 of 1	1	30 Nov 07	Casting, Cover, Switch, XCL Flattop
XM0400	1 of 2	0	30 Nov 07	Cover, Switch, XCL, Flattop machining
XM0400	2 of 2	0	30 Nov 07	Cover, Switch, XCL, Flattop machining
103682-B	1 of 1	D	30 Nov 07	Limit Switch shaft W/O position indicator - Flat top
105761-A	1 of 1	B	30 Nov 07	Limit Switch shaft W/O position indicator (NAMUR) - Dome top
105762-B	1 of 1	A	30 Nov 07	Limit Switch shaft W/O position indicator(NAMUR) - Flat top
XM0339	1 of 1	0	30 Nov 07	Limit Switch shaft - Dome top(NAMUR) Flat top
XM0340	1 of 1	0	30 Nov 07	Limit Switch shaft W/O position indicator (NAMUR) - Dome top

* These drawings were amended by Sira and the client on 12 December 2007.

Issue 1

Drawing No.	Sheets	Rev	Date (Sira Stamp)	Description
X01329	1 to 2	A	14 Mar 08	Name Plate
X01219	1 to 2	D	14 Mar 08	Name Plate – Assembly in Sweden

Issue 2

Drawing No.	Sheets	Rev	Date (Sira Stamp)	Description
XM0407	1 to 2	0	20 Jul 09	Base switch XML cover thread M8 x 1

Issue 3

Drawing No.	Sheets	Rev	Date (Sira Stamp)	Description
X01329	1 of 2	B	10 Mar 10	Nameplate, Switch XCL, ATEX Rating Cookeville Manufacture
X01195	1 of 1	H	10 Mar 10	Nameplate, Switch XCL, Dual Rating

Issue 4

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
X01329	1 to 2	C	09 Feb 11	Nameplate Switch XCL, ATEX Rating

Issue 5

Drawing No.	Sheets	Rev.	Date(Sira stamp)	Title
XC1414C	1 of 1	-	08 Oct 12	PMV Switchbox, Ultraswitch D & X - Series
X01141	1 of 1	2	08 Oct 12	Casting, Cover, Switch, XCL, Flat Top
X01142	1 of 1	2	08 Oct 12	Casting, Cover, Switch, XCL, Ultradome

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Sira Certification Service

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Certificate Annexe

Certificate Number: Sira 06ATEX3392X
Equipment: Range of Rotary Switch On/Off
Valve Indicators
Applicant: Palmstierna International AB



Drawing No.	Sheets	Rev.	Date(Sira stamp)	Title
X01143	1 to 2	2	08 Oct 12	Casting, Base, Switch, XCL
X01195	1 of 1	J	08 Oct 12	Nameplate, Switch, XCL, XML, DN Dual Rating, Blank Model, Rating, Mylar, cCSAus, ATEX Solna Manufacture
X01329	1 to 2	D	25 Oct 12	Nameplate, Switch, XCL, ATEX Rating, Blank Model, Rating, Mylar, Solna Manufacture
XM0398	1 to 2	2	08 Oct 12	Base, Switch, XCL, Cover Threads, M8 X 1.25, Conduit, 3/4" NPT
XM0399	1 to 2	2	08 Oct 12	Base, Switch, XML, Cover Thrds, M8 X 1.25, Conduit, M25 X 1.5
XM0400	1 to 2	1	08 Oct 12	Cover, Switch, XCL, Flat Top, M8 X 1.25 Thrds
XM0401	1 to 2	2	08 Oct 12	Cover, Switch, XCL, Ultradome, M8 X 1.25 Thrds
LO2812	1 of 1	6	09 Oct 12	Layout, Switch, XCL, Flamepath Certification

The following drawings are removed from the certificate:

Drawing No.	Sheets	Rev.	Date(Sira stamp)	Title
103682-B	1 of 1	D	30 Nov 07	Limit Switch Shaft W/O Position Indicator
105761-A	1 of 1	B	30 Nov 07	Limit Switch Shaft Shafat W/O Pos. Ind. (Namur)
105762-B	1 of 1	A	30 Nov 07	Limit Switch Shaft W/O Position Indicator (Namur)
XMO339	1 of 1	0	30 Nov 07	Limit Switch Shaft
XMO340	1 of 1	0	30 Nov 07	Limit Switch Shaft W/O Pos. Ind. (Namur)
XO1219	1 to 2	D	14 Mar 08	Nameplate, Switch, XCL, ATEX Rating, Blank Model, Rating, Mylar, Solna Manufacture

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Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
X01195	1 of 1	L	17 Apr 15	Nameplate, switch, XCL, XML, DN, dual rating, blank model, rating, mylar, cCSAus, ATEX, solna manufacture
X01285	1 of 1	E	17 Apr 15	Nameplate, switch, XCL, blank model, rating, metal, ATEX, solna manufacture
X01329	1 of 1	E	17 Apr 15	Nameplate, switch, XCL, ATEX rating, blank model, rating, mylar, solna manufacture
XCL/XML ATEX/IECEX Model code	1 of 1	0	03 Jun 15	XCL/XML model code related to ATEX/IECEX Ex d certification

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