[1] # EC-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

[3] EC-Type Examination Certificate Number: **DEMKO 06 ATEX 0425693X Rev. 0**

[4] Equipment or Protective System: **Series WV450XD, WV450XE, WV450XLD and WV450XLE Visual Signaling Devices**

[5] Manufacturer: **Federal Signal Corporation**

[6] Address: **2645 Federal Signal Drive, University Park, IL 60466 USA**

[7] This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems 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. **4786074029**

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

EN 60079-0:2012 **EN 60079-1:2007** **EN 60079-7:2007**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the equipment or protective system 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, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system.
These are not covered by the certificate.

[12] The marking of the equipment or protective system shall include the following:

II 2 G Ex d IIB +H_2 T6...T3 Gb

II 2 G Ex d e IIB+H_2 T6…T3 Gb

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Equipment described herein ("Certified Equipment") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. This certificate and test results obtained apply only to the equipment 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 equipment. UL has not established Follow-Up Service or other surveillance of the equipment. The Manufacturer is solely and fully responsible for conformity of all equipment 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: 2006-08-11
Re-issued: 2014-01-30

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
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[13] [14]

Schedule
EC-TYPE EXAMINATION CERTIFICATE No.
DEMKO 06 ATEX 0425693X Rev. 0
Report: 4786074029

[15] Description of Equipment or protective system

The flameproof visual indicators consist of a cylindrical black polymeric body ending with a glass Dome of different possible colors. The glass dome is mechanically secured to a dome cover and forms a cemented joint between the two parts. The dome cover forms a threaded joint with the body and is also mechanically secured against moving. The body end of series WV450XD or WV450XLD is completed with a plug forming a threaded joint with the body, and a threaded opening for suitable field wiring means. The body end of series WV450XE or WV450XLE also has an increased safety terminal wiring box attached to the bottom of the body accessed via a flameproof bushing in the threaded opening of the body. The only difference between Models WV450XD, WV450XE to WV450XLD and WV450XLE respectively is the different lamp type used.

Nomenclature for type WV450XD and WV450XE:

Form Nos.	WV450XD	05	-	024	R
	I	II		III	IV

I – Basic Form

WV450XD – Flameproof ‘d’ model only
WV450XE – Flameproof with additional Increased Safety ‘e’ terminal wiring box

II – Lamp Joules

05 – 5 Joules
10 – 10 Joules
15 – 15 Joules
21 - 21 Joules

III - Electrical Input Rating

024 – 24-48VDC
110 – 110VAC, 50/60 Hz
220 – 220-248VAC, 50/60 Hz
220 - 220 VAC, 50/60 Hz, 21 Joule Version Only

IV – Globe Glass Color (This option is not related to the safety of the device)

A-Z - Colors

Nomenclature for type WV450XLD and WV450XLE:

Form Nos.	WV450XLD	-	024	R
	I		II	III

I – Basic Form

WV450XLD – Flameproof ‘d’ model only
WV450XLE – Flameproof with additional Increased Safety ‘e’ terminal wiring box

III - Electrical Input Rating

024 – 24-48VDC
110-220 – 110VAC-248VAC, 50/60 Hz

IV – Globe Glass Color (This option is not related to the safety of the device)

A-Z - Colors

Ambient temperature range	**Temperature class**
WV450XD: -55°C ≤ Ta ≤ 55°C	See electrical data below
WV450XE: -20°C ≤ Ta ≤ 55°C	See electrical data below
WV450XLE: -20°C ≤ Ta ≤ 55°C	T6
WV450XLD: -55°C ≤ Ta ≤ 55°C	T6

[13] **Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE No.**

DEMKO 06 ATEX 0425693X Rev. 0

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Electrical data

Ex d IIB+H2 T4
Model WV450XD05-024X, rated 24-48VDC, 0.87/0.48A, 5 Joule
Model WV450XD10-024X, rated 24-48VDC, 0.91/0.46A, 10 Joule
Model WV450XD15-024X, rated 24-48VDC, 0.94/0.48A, 15 Joule

Ex d IIB+H2 T3
Model WV450XD-5-110X, rated 110VAC, O.17A, 5 Joule
Model WV450XD10-110X, rated 110VAC, 0.27A, 10 Joule
Model WV450XD15-110X, rated 110VAC, 0.57A, 15 Joule
Model WV450XD21-110X, rated 110VAC, 0.75A, 21 Joule

Ex d IIB+H2 T3
Model WV450XD05-220X, rated 220-248VAC, 0.12A, 5 Joule
Model WV450XD10-220X, rated 220-248VAC, 0.23A, 10 Joule
Model WV450XD15-220X, rated 220-248VAC, 0.33A, 15 Joule
Model WV450XD21-220X, rated 220VAC, 0.50A, 21 Joule

Ex d e IIB+H2 T4
DEMKO 06 A TEX 0425693X
Report: 10CA29648
Model WV450XE05-024X, rated 24-48VDC, 0.87/0.48A, 5 Joule
Model WV450XE1 0-024X, rated 24-48VDC, 0.91/0.46A, 10 Joule
Model WV450XE15-024X, rated 24-48VDC, 0.94/0.48A, 15 Joule
Ex d e IIB+H2 T3
Model WV450XE05-110X, rated 110VAC, O.17A, 5 Joule
Mode1WV450XE10-110X, rated 110VAC, 0.27A,10Joule
Mode1WV450XE15-110X, rated 110VAC, 0.57A,15Joule
Model WV450XE21-11 OX, rated 110VAC, 0.75A, 21 Joule

Ex d e IIB+H2 T3
Model WV450XE05-220X, rated 220-248VAC, 0.12A, 5 Joule
Model WV450XE10-220X, rated 220-248VAC, 0.23A, 10 Joule
Model WV450XE15-220X, rated 220-248VAC, 0.33A, 15 Joule
Model WV450XE21-220X, rated 220VAC, 0.50A, 21 Joule

Ex d IIB+H2 T6
Model WV450XLD, rated 24-48VDC; 110VAC-248VAC; 50/60 Hz
Model WV450XLE, rated 24-48 VDC; 110VAC-248VAC; 50/60 Hz

Installation instructions
See Instructions Manual and Special conditions for safe use.

For ambient temperatures below –10 °C and above +60 °C use field wiring suitable for both minimum and maximum ambient temperature.

Mounting instructions
Refer to “Instructions”.

Routine Tests
Routine overpressure tests in accordance with EN60079-1:2007 shall be conducted on all units in accordance with clause 16.1.1, at a pressure of 12.4 bar (180 PSI) for a duration of not less than 10 seconds. There shall be no sign of damage, deformation or rupture that will invalidate the concept of protection.

[16] Report No.
Project Report No.: 4786074029 (Hazardous Location Testing)

[13] **Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE No.**

DEMKO 06 ATEX 0425693X Rev. 0

Report: 4786074029

Documents: WV450XD and WV450XE

Description:	Drawing No.:	Rev. Level:	Date:
WV450XD Assembly	AT8595104A	A4	2014-01-14
WV450XE Assembly	AT8595105A	A5	2014-01-14
110/240 Vac Schematic	AT2581921B	B1	2010-06-03
110 Vac, 5 J Layout and Parts List	AT2001921B-01	B	2007-12-06
110 Vac, 10 J Layout and Parts List	AT2001921B-02	B	2007-12-06
110 Vac, 15 J Layout and Parts List	AT2001921B-03	B	2007-12-06
240 Vac, 5 J Layout and Parts List	AT2001921B-04	B	2007-12-06
240 Vac, 10 J Layout and Parts List	AT2001921B-05	B	2007-12-06
240 Vac, 15 J Layout and Parts List	AT2001921B-06	B	2007-12-06
220 Vac, 21 J Layout and Parts List	AT2001921B-08	B	2010-06-03
24-48 Vdc, 5 J Schematic	AT2581926A	A	2005-09-30
24-48 Vdc, 5 J Layout and Parts List	AT2001926A-01	A	2005-09-30
24-48 Vdc, 10 J Layout and Parts List	AT2001926A-02	A	2005-09-30
24-48 Vdc, 15 J Layout and Parts List	AT2001926A-03	A	2005-09-30
Flash Tube Assembly	AT8107177A	A3	2005-09-30
Transformer 1 Assembly	AT120518A	A	2005-09-30
Transformer 2 Assembly	AT120C501A (2 pages)	A3	2005-09-30
WV450X Manual	2562015C (16 pages)	D	-

Documents: WV450XLD and WV450XLE

Description:	Drawing No.:	Rev. Level:	Date:
WV450XLD Assembly	850000208	A1	2014-01-14
WV450XLE Assembly	850000209	A1	2014-01-14
PCB Components 24V version	850000210	A0	2013-10-10
Schematic 24V version	850000211	A0	2013-10-10
PCB Components 120-240V version	850000212	A0	2013-10-10
Schematic 120-240V version	850000213	A0	2013-10-10
LED Module	850000214	A0	2013-10-10
Nameplate d version	850000215	A1	2014-01-17
Nameplate de version	850000216	A1	2014-01-17
Additional warning label	850000217	A0	2013-10-10
Instruction Manual	25500104A	A0	2013-11

[17] Specific conditions of use:

- WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – This device must only be cleaned with a damp cloth.
- Contact the manufacturer for information on the dimensions of the flameproof joints.
- Measured capacitance of unearthed metal parts is 10 pF.

[18] Essential Health and Safety Requirements

Concerning ESRs this Schedule verifies compliance with the Annex III of ATEX directive only. By placing the product on the market, the manufacturer declares compliance with other relevant Directives, and all other safety related requirements including those of Annex II of this Directive.

Additional information

The series WV450XD, WV450XE, WV450XLD and WV450XLE have, in addition, passed the tests for Ingress Protection to IP66 in accordance with EN60529: 1991/A1 2001.

This certificate was issued as “Accredited by DANAK under registration number 7011 to certification of products”.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.