CERTIFIKAT

[1] **TYPE EXAMINATION CERTIFICATE**

[2] **Equipment intended for use in Potentially Explosive Atmospheres**

[3] Certificate Number:

SP11EX2643X

[4] Equipment: Flow Monitors types V1 and V15

[5] Applicant (manufacturer): Eletta Flow AB

[6] Address: Box 5084, SE-141 05 Kungens Kurva, Sweden

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

[8] This equipment is not within the scope of Directive 94/9/EC of 23 March 1994. On voluntary basis, SP 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 94/9/EC of 23 March 1994.

The examination and test results are documented in a file for commission no. P801314

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

-EN 60079-0:2009	(SS-EN 60079-0 ed. 3)
-EN 60079-11:2007	(SS-EN 60079-11 ed. 1)
-EN 60079-26:2007	(SS-EN 60079-26 ed. 2)
-EN 13463-1:2009	(SS-EN 13463-1 ed. 2)

[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 Type Examination Certificate relates only to the design, examination and tests of the specified equipment. This certificate does not cover the manufacturing process and supply of this equipment.

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

Ex ia IIC T* Ga (* depends on the media temperature. See section [15] below.)

Borås 4th July 2011

SP Technical Research Institute of Sweden
Certification

Lennart Månsson
Certification Manager

Peter Bremer
Certification Officer

SP ref.: SC0371-11

SP Technical Research Institute of Sweden

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CERTIFIKAT

[13] **Schedule**

[14] **TYPE EXAMINATION CERTIFICATE No. SP11EX2643X**

[15] Description of equipment

The function of the Flow Monitors of types V1 and V15 is based on the differential pressure principle. The differential pressure affects a diaphragm. The movement of the diaphragm is mechanically transferred to the control unit by a lever. The lever transfers the movement to a micro switch that switch at a preset flow. The only difference between the type V1 and V15 is the type of springs in the diaphragm housing which gives the measurement ratio. Type V1 has measuring ratio 1:2, which means that the measurement range is between 50 to 100 % of the maximum flow. Type V15 has measuring ratio 1:5 which means measurement range between 20 to 100 % of maximum flow.

The circuit with the micro switch is an intrinsically safe circuit and the Flow monitors are considered as "simple apparatuses" according to EN 60079-11 and mechanically the Flow monitor is considered as a simple product with no potential ignition source. Thereby the Flow monitor does not fall under the scope of the ATEX directive 94/9/EC. The intrinsically safe circuit is isolated from the enclosure.

The Flow monitors consist mainly of the pipe section, the diaphragm house and the control unit. The control unit has an enclosure made of polyester coated aluminum. The diaphragm house is made of brass or alternatively stainless steel. Pipe sections of types GSS and FSS are made of stainless steel. The pipe section type GL is made mainly of brass. The material in pipe section type FA is epoxy coated copper alloy, brass and stainless steel.

The type designation marked on the equipment indicates which pipe section that is mounted according to tables below.

V**		
	Pipe dimension	
Type	DIN	ANSI
-FA15-Ex	15	15
-FA20-Ex	20	20
-FA25-Ex	25	25
-FA32-Ex	32	32
-FA40-Ex	40	40
-FA50-Ex	50	50
-FA65-Ex	65	65
-FA80-Ex	80	80
-FA100-Ex	100	100
-FA125-Ex	125	125
-FA150-Ex	150	150
-FA200-Ex	200	200
-FA250-Ex	250	250
-FA300-Ex	300	300
-FA350-Ex	350	350

Table 1 V** may be either "V1" or "V15"

V**		
	Pipe dimension	
Type	DIN	ANSI
-FSS15-Ex	15	15
-FSS20-Ex	20	20
-FSS25-Ex	25	25
-FSS32-Ex	32	32
-FSS40-Ex	40	40
-FSS50-Ex	50	50
-FSS65-Ex	65	65
-FSS80-Ex	80	80
-FSS100-Ex	100	100
-FSS125-Ex	125	125
-FSS150-Ex	150	150
-FSS200-Ex	200	200
-FSS250-Ex	250	250
-FSS300-Ex	300	300
-FSS350-Ex	350	350
-FSS400-Ex	400	400
-FSS500-Ex	500	500

Table 2 V** may be either "V1" or "V15"

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V**	
Type	Pipe dimension
-GSS15-Ex	DN15 (R ½")
-GSS20-Ex	DN20 (R ¾")
-GSS25-Ex	DN25 (R 1")

Table 3 V** may be either "V1" or "V15"

V**	
Type	Pipe dimension
-GL15-Ex	DN15 (R ½")
-GL20-Ex	DN20 (R ¾")
-GL25-Ex	DN25 (R 1")
-GL40-Ex	DN40 (R 1 ½")

Table 4V** may be either "V1" or "V15"

The control unit may be delivered without a mounted pipe section. The type designation on the control unit then applies for the complete assembled Flow monitor (control unit and pipe section) to be mounted by the user.

To avoid electrostatic charging of the enclosure the internal earth connection must be connected to earth. The intrinsically safe circuit in the Flow monitors is isolated from earth.

The temperature class for the equipment depends on the maximum temperature of the medium through the pipe section of the Flow monitor according to table 5 below. The temperature in the location for the installation must not exceed the temperature of the medium.

Maximum temperature of the medium through the pipe section of the Flow monitor (°C)	Temperature class
100	T4
70	T5
60	T6

Table 5

For correct function of the equipment the temperature of the detector part should not exceed +90 °C.

Data

Ambient temperature (T_{amb}): Minimum temperature: -20 °C
Maximum ambient temperature must not exceed temperature of the medium according to table 5 above

Intrinsically safe circuit:
Code for explosions protection: Ex ia IIC T* Ga
* according to table 5 above

Maximum input voltage (U_i): 28,0V
Maximum input current (I_i): 100 mA
Maximum input power (P_i): 1,20W
Maximum internal capacitance (C_i): 1 nF
Maximum internal inductance (L_i): 10 µH

[16] File No.

P801314

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[17] Special conditions for safe use

1 The blue enclosure of the control unit of the Monitors is made of aluminum. This light metal part shall not be subject to impacts or friction in order to avoid sparks.

2 The process connection to the Flow monitor must be performed to be sufficiently tight (IP67) between the inside and outside of the process connection.

3 To avoid electrostatic charging of the enclosure the internal earth connection must be connected to earth.

4 The ambient temperature range for the equipment deviates from the standard range. The temperature class for the equipment depends on the ambient temperature. See section [15] above.

[18] Essential health and safety requirements

Additional requirements not applicable.

[19] Drawings and documents

Description	Number	Date	Pages
Material specification Control unit V1/V15-GL/FA EX	316188-a	2011-03-21	3
Control unit V1/V15 EX	316188-a	2011-02-16	1
Material specification Control unit V1/V15 SS EX	316189-a	2011-03-21	3
Control unit V1/V15-GSS/FSS EX	316189-a	2011-02-17	1
Material specification Connection pipe GL15-40	316182	2011-03-18	1
Connection pipe GL15-40	316182	2010-12-16	1
Material specification Connection pipe GSS15-25	316183	2011-03-18	1
Connection pipe GSS15-25	316183	2010-12-16	1
Material specification Connection pipe FSS15-500	316184	2010-12-15	1
Connection pipe FSS15-500	316184	2010-12-16	1
Material specification Connection pipe FA15-400 Ex	316181	2010-12-15	1
Connection pipe FA15-400	316181	2010-12-16	1
Etikett standard	D93065-a	2011-06-08	1
Etikett Ex	316186-c	2011-06-08	1
Dekal Eletta	D93073-Ex	2011-06-18	1
Flow monitor V./R./D.-GSS Dimension drawing	316150-a	2011-05-02	1
Flow monitor V./R./D.-GL Dimension drawing	316171-a	2011-05-02	1
Flow monitor V./R./D.-FA Dimension drawing for DIN PN16	316172	2008-10-28	1
Flow monitor V./R./D.-FSS Dimension drawing for DIN PN16	316173-a	2008-10-28	1
Teknisk specifikation Lackering av impulskåpor	TS-102	2011-03-21	1
Teknisk specification Ytbehandling av anslutningsrör FA	TS-101	2010-12-16	1
Rektangulärfjäder	D91002	2011-03-21	1
Installation and operations manual	40B2E12		42 [1]

[1] The identification "40B2E12" is a unique code for this manual. Comments are added in the manual that shall be considered.

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