



[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**

[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU09ATEX1051** | Issue 3

[4] Product: **Supply module SDVM 125^{ex}**
Type: SD.211.XXX1.XX

[5] Manufacturer: Sigmann Delta GmbH

[6] Address: Hauptstraße 53
74928 Hüffenhardt
GERMANY

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

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-20-3-0079.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018, EN 60079-5:2015, EN IEC 60079-7:2015/A1:2018, EN 60079-11:2012 and EN 60079-31:2014
except in respect of those requirements listed at item [18] of the schedule.

[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 EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive 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:

 **II 2G Ex eb q [ib IIC/IIB] IIC T4 Gb**
 **II 2D Ex tb [ib] IIIC T135 °C Db**
 $-25\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$

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Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-06-02

[13] **Schedule**

[14] **Certificate number IBExU09ATEX1051 | Issue 3**

[15] **Description of product**

The supply module SDVM125^{ex} consists of an enclosure made of aluminium including separate termination compartments for the connection of non-intrinsically safe circuits (type of protection "e") and intrinsically safe circuits (type of protection "i") and the PCB with the electronic components which is located in powder filling.

The supply modules are used for intrinsically safe supply of an external hardware and implementation of non-intrinsically safe data signals on intrinsically safe data signals.

Technical data

Ambient temperature range: -25 °C up to +60 °C

Degree of protection: IP64 (EN 60529)

Supply circuits:

Type SD.211.1XX1.XX	DC +12 V +10 %
Type SD.211.2XX1.XX	DC +24 V ± 25 %
Type SD.211.3XX1.XX	AC 90 – 253 V, 50 – 60 Hz

Data circuits:

Type SD.211.X0X1.XX (RS232)	DC ±12 V, 4 mA
Type SD.211.X0X1.XX (RS422)	DC +12 V / -7 V, 4 mA
Type SD.211.X1X1.XX (USB)	DC +5 V, 68 mA
Type SD.211.X2X1.XX (USB2)	DC +5 V, 68 mA

Non-intrinsically safe circuits:

Maximum voltage U_m AC 253 V

Intrinsically safe circuits in type of protection Ex ib:

Version RS232/RS422 (terminal X9, X10, X11; X12, X13)

Type	SD.211.X001.XX		SD.211.X011.XX		SD.211.X021.XX		SD.211.X031.XX	
U_o	5.5 V		4.9 V		4.9 V		5.3 V	
I_o	440 mA		440 mA		710 mA		1125 mA	
P_o	(trapezoidal) 1.20 W		(trapezoidal) 1.17 W		(trapezoidal) 1.95 W		(trapezoidal) 3.16 W	
R_i	25 Ω		25 Ω		16 Ω		10 Ω	
C_i	2.2 μ F		2.2 μ F		2.2 μ F		2.2 μ F	
	IIB	IIC	IIB	IIC	IIB	IIC	IIB	IIC
$C_o^{(1)}$	1000 μ F	55 μ F	1000 μ F	113 μ F	1000 μ F	113 μ F	1000 μ F	68 μ F
$L_o^{(2)}$	1.3 mH	0.1 mH	1.3 mH	0.1 mH	0.55 mH	0.1 mH	0.2 mH	0.06 mH

⁽¹⁾ if L_o negligible

⁽²⁾ if C_o negligible

Version USB Type SD.211.X111.XX or USB2 Type SD.211.X211.XX

Terminal	X11...X13, supply		X9...X11, data	
U_o	4.9 V		4.9 V	
I_o	440 mA		40 mA	
P_o	(trapezoidal) 1.17 W		(linear) 48 mW	
R_i	25 Ω		246 Ω	
C_i	2.2 μ F		1.2 μ F	
	IIB	IIC	IIB	IIC
$C_o^{(1)}$	1000 μ F	113 μ F	1000 μ F	113 μ F
$L_o^{(2)}$	0.53 mH	0.1 mH	0.53 mH	0.1 mH

⁽¹⁾ if L_o negligible

⁽²⁾ if C_o negligible

Version USB Type (High Power) SD.211.X121.XX or USB2 Type SD.211.X221.XX

Terminal	X11...X13, supply		X9...X11, data	
U _o	4.9 V		4.9 V	
I _o	710 mA		40 mA	
P _o	(trapezoidal) 1.95 W		(linear) 48 mW	
R _i	16 Ω		246 Ω	
C _i	2.2 μF		1.2 μF	
	IIB	IIC	IIB	IIC
C _o ⁽¹⁾	1000 μF	113 μF	1000 μF	113 μF
L _o ⁽²⁾	0.53 mH	0.1 mH	0.53 mH	0.1 mH

⁽¹⁾ if L_o negligible

⁽²⁾ if C_o negligible

Version USB2 Type SD.211.X231.XX

terminal	X11...X13, supply		X9...X11, data	
U _o	5.3 V		4.9 V	
I _o	1125 mA		40 mA	
P _o	(trapezoidal) 3.16 W		(linear) 48 mW	
R _i	10 Ω		246 Ω	
C _i	2.2 μF		1.2 μF	
	IIB	IIC	IIB	IIC
C _o ⁽¹⁾	1000 μF	67 μF	1000 μF	67 μF
L _o ⁽²⁾	0.2 mH	0.06 mH	0.2 mH	0.06 mH

⁽¹⁾ if L_o negligible

⁽²⁾ if C_o negligible

The intrinsically safe circuits are galvanically connected to the supply circuit. During installation, continuous equipotential bonding must be ensured within the hazardous area.

Variations compared to issue 2 of this certificate:

Variation 1

The sealing of supply module has been changed.

Variation 2

A separately certified venting element is used.

Variation 3

The internal boards have been changed, thus alternate fuses and resistors may be used. A EMC filter has been added. The intrinsically safe parameter remain unchanged.

[16] Test report

The test results are recorded in the confidential test report IB-20-3-0079 of 2020-05-28.

The test documents are part of the test report and they are listed there.

Summary of the test results

The supply module SDVM125^{ex} further fulfils the requirements of explosion protection for associated apparatus of group II and category 2G and 2D in type of protection intrinsic safety "ib" in combination with increased safety, powder filling or protection by enclosure.

[17] Specific conditions of use

None

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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