



## Translation

# EC-Type Examination Certificate

- Directive 94/9/EC -

Equipment and protective systems intended for use  
in potentially explosive atmospheres

**BVS 09 ATEX E 123 X**

- (4) **Equipment:** 3D-Level-Scanner type II S \* B \* V \* A B, type II M \* B \* V \* A B and type II MV \* B \* V \* A B
- (5) **Manufacturer:** A.P.M. Automation Solutions Ltd.
- (6) **Address:** 62997 Tel Aviv, Israel
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council 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 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 the test and assessment report BVS PP 09.2146 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:  
EN 60079-0:2006 General requirements EN 61241-0:2006 General requirements  
EN 60079-11:2007 Intrinsic safety 'i' EN 61241-11:2006 Protection by IS
- (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 appendix to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.  
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:



**II 2G Ex ib/ia IIB T4**  
**II 1/2D Ex ibD/iaD 20/21 T110°C**

**DEKRA EXAM GmbH**

Bochum, dated 21. September 2009

Signed: Hans Christian Simanski

Signed: Dr. Franz Eickhoff

Certification body

Special services unit

(13)

Appendix to

(14)

## EC-Type Examination Certificate

### BVS 09 ATEX E 123 X

(15) 15.1 Subject and type

3D-Level-Scanner type II S \* B \* V \* A B, type II M \* B \* V \* A B and type II MV \* B \* V \* A B  
a b c d e f g h i      a b c d e f g h i      a b c d e f g h i

a = mechanical model:		= II
b = Software-Version:		= S, M or MV
c = Approval:	ATEX for dust application	= DX
	ATEX for gas, group IIB application	= GX
d = Horn antenna:	Ø 195 mm; material ALU	= B
e = Process connection		= GD, ND, FD, AD, FE, FF, FD, AE*) <sup>1</sup>
f = Electronics version:	4 -20 mA / HART (4-wire)	= V
g = Electrical connection:	cable gland M20x1.5	= M
	cable gland 1/2 NPT	= N
h = Display internal:	with	= A
i = Display external:	without	= B

\*)<sup>1</sup> not Ex relevant

#### 15.2 Description

The purpose of the 3D-Level-Scanner type II S/M/MV\*\*\*\*\* is to measure and display the Silo's content height, volume, and mass by analyzing the surface material inside the silo.

The 3D-Level-Scanner is divided into two mechanical parts:

- Antenna-Unit, consisting of antenna and transducers enclosure which may be located in areas requiring 2G or 1D (Zone 2 or Zone 20) equipment.
- Electronics-Unit, consisting of an enclosure which may be located in areas requiring 2G or 2D (Zone 2 or Zone 21) equipment.

For installation purposes, the Electronics-Unit may be removed from the Antenna-Unit.

The Electronics Unit contains the printed circuit boards of the main electronic assembly embedded in casting compound. The free space above the casting compound is carried out as terminal box for the external IS circuits.

Display and keyboard are integrated in the top side of the Electronic Unit enclosure.

The Electronics Unit is identical with that one of 3D Level Scanner according to EC-Type Examination Certificate BVS 08 ATEX 038 X.

Interconnection circuits between transducers, thermistor and main electronic assembly comply with intrinsic safety level of protection 'ia' Group IIB as required for dust applications Zone 20.

Interconnection circuits between display, keyboard and main electronic assembly comply with intrinsic safety level of protection 'ib' Group IIB as required for dust applications Zone 21.

### 15.3 Parameters

#### 15.3.1 Electrical

Parameters	Supply circuit ) <sup>1</sup>		Interface	
	Input ) <sup>1</sup>	Output ) <sup>2</sup>	4 -20 mA	RS 485
Level of protection	Ex ibD	Ex ibD	Ex iaD	Ex iaD
Voltage U <sub>i</sub>	DC 24 V	N / A	DC 10.5 V	DC 5 V
Current I <sub>i</sub>	) <sup>3</sup>	N / A	106 mA	2 x 0.5 A
Power P <sub>i</sub>	3 W	N / A	1,1 W	2 x 0.5 A
Internal effective capacitance C <sub>i</sub>	4 nF		8 nF	0 nF
Internal effective inductance L <sub>i</sub>	negligible		negligible	0 mH
Voltage U <sub>o</sub>	N / A	DC 24 V ) <sup>3</sup>	DC 10.5 V	DC 5 V
Current I <sub>o</sub>	N / A	) <sup>3</sup>	106 mA	2 x 0.5 A
Power P <sub>o</sub>	N / A	3 W ) <sup>3</sup>	1,1 W	2 x 625 mW
max. external capacitance C <sub>o</sub>	N / A	) <sup>4</sup>	16 μF	2 x 500 μF
max. external capacitance L <sub>i</sub>	N / A	) <sup>4</sup>	80 μH	142 μH
max. inductance- / resistance ratio L <sub>o</sub> /R <sub>o</sub>	N / A	) <sup>4</sup>	17.77 μH/Ω	113.7 μH/Ω
Characteristics	N / A	) <sup>3</sup>	trapezoid	linear
Terminals	J12.1 (+), J12.2 (GND)	J13.1 (+), J13.2 (GND)	J12.4 (4 - 20 mA signal), J12.3 (GND common with J12.2)	J13.3 (P), J13.4 (N)
Remarks: ) <sup>1</sup> shall be connected only to IS power supply devices providing level of protection 'ib' Group IIB as a minimum ) <sup>2</sup> J12.1, J12.2 directly connected to J13.1, J13.2 ) <sup>3</sup> same values as of attached IS power supply ) <sup>4</sup> same values as of attached IS power supply reduced by C <sub>i</sub> , L <sub>i</sub>  N / A = not applicable				

#### 15.3.2 Sonic radiation

Radiated power (average power density)	≤	0.1 W/cm <sup>2</sup>
Pulse radiation	≤	2 mJ/cm <sup>2</sup>
Frequency range	3.5 kHz ≤ f ≤	10 kHz

15.3.3 Ambient temperature range: -40 °C ≤ T<sub>a</sub> ≤ +85 °C

### (16) Test and assessment report

BVS PP 09.2146 EG as of 21. September 2009

(17) Special conditions for safe use

17.1.1 3D-Level-Scanner type II S DX B \* V \* A B / II M DX B \* V \* A B / II MV DX B \* V \* A B

17.1.1.1 The installation of the 3D-Level-Scanner in the wall to areas requiring category 1D equipment shall provide a degree of protection IP6X according to EN 60529.

17.1.1.2 The installation of the 3D-Level-Scanner in the wall to areas requiring category 1D equipment shall be carried out in such a way, that all metallic parts are integrated in the local equipotential bonding.

17.1.1.3 Manufacturer's technical information related to use of the 3D-Level-Scanner in contact with aggressive / corrosive media and to avoid any risk of mechanical impact shall be observed.

17.1.2 3D-Level-Scanner type II S GX B \* V \* A B / II M GX B \* V \* A B / II MV GX B \* V \* A B

None

---

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 21. September 2009  
BVS-Scha/Sz A 20090479

**DEKRA EXAM GmbH**



Certification body



Special services unit