



Translation

**EC-Type Examination Certificate**

(1)

(2)

**- Directive 94/9/EC -  
Equipment and protective systems intended for use  
in potentially explosive atmospheres**

(3)

**DMT 00 ATEX E 009**

(4)

**Equipment: Pressure Transmitter Type LD 301\*\*\*\*\_\*\*\*\*\_\*\*\*\*\_\***

(5)

**Manufacturer: smar Equipamentos Industriais Ltda**

(6)

**Address: BR 14160 -000 Sertaozinho-SP (Brazil)**

(7)

The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8)

The certification body of Deutsche Montan Technologie 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 confidential test and assessment report BVS PP 00.2009 EG.

(9)

The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997 General Requirements

EN 50020:1994 Intrinsic Safety "i"

EN 50284:1999 Category 1G

prEN 50303:1999 Category M1

(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. Further requirements of Directive 94/9/EC apply to the manufacture and placing on the market of this equipment.

(12)

The marking of the equipment shall include the following:



**II 1/2G EEx ia IIC T4/T5/T6**

**I M1 EEx ia I**

**Deutsche Montan Technologie GmbH**

Essen, dated 22 February 2000

Signed: Jockers

Signed: Dill

DMT-Certification body

Head of special services unit



(13)

Appendix to

(14)

# EC-Type Examination Certificate

## DMT 00 ATEX E 009

(15) 15.1 Designation and Type.

Pressure transmitter	type LD 301	****_****_***_*
Code letter for differential-, gage-, absolute pressure or differential pressure at high static pressure		
Code-No. for range		
Code-No. or letter for mechanical details of diaphragm material und fill fluid (low pressure side)		
Code-No. / -letter flange(s), adapter(s), drain/vent material		
Code-No. / -letter O-rings materials		
Code-No. drain/vent position		
without LCD-indicator	= 0	
with LCD-indicator	= 1	
Code-No. /-letter process connections		
Electrical connections		
1/2-14 NPT	= 0	
M20x1,5	= A	
Pg 13,5 DIN	= B	
Zero and span adjustments		
Code-No. mounting brackets for 2" pipe or surface mounting		
Optional items (housing material)		

### 15.2 Description

The Pressure Transmitter type LD 301 \*\*\*\*\_\*\*\*\*\_\*\*\*\_\*, is an intrinsically safe supplied pressure measuring device, designated for continuous measuring of gas- or liquid-media in hazardous areas requiring category 1/2G, 2G or M1 apparatus.

The Pressure Transmitter comprises a tubular light alloy or stainless steel enclosure, closed by means of screwed caps, which contain printed circuit boards with electronic components.

The wall of the enclosure is flanged to a cast steel enclosure, which comprises a mechanical pressure gauge and printed circuit boards with electronic components, embedded in sealing compound.

The light alloy enclosure shall be installed in hazardous areas requiring category 2G equipment.

The stainless steel enclosure shall be installed in hazardous areas requiring category 2G or M1 equipment.

The process connections shall be installed in the separation wall (wall of a vessel / pipe) separating areas from each other which require category 1G or category 2G equipment.

### 15.3 Electrical, mechanical and thermal parameters

#### 15.3.1 supply- and signal-circuit

for the connection to an intrinsically safe 4 to 20 mA current loop

voltage	$U_i$	DC	28 V
current	$I_i$		93 mA
effective internal capacitance	$C_i$	$\leq$	5 nF
effective internal inductance	$L_i$		negligible

#### 15.3.2 Maximum permissible power for certified intrinsically safe supply- and signal-circuits as a function of ambient temperature and temperature class

ambient-temperature $T_a$	temperature-class T	power $P_i$
85°C	4	700 mW
50°C	5	700 mW
55°C	5	650 mW
60°C	5	575 mW
65°C	5	500 mW
70°C	5	425 mW
40°C	6	575 mW

#### 15.3.3 For the Pressure Transmitter the following ambient temperature range apply:

type LD 301****_**0*_***_*	$-40^\circ\text{C} \leq T_a \leq +85^\circ\text{C}$
type LD 301****_**1*_***_*	$-10^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$

- (16) Test report  
Nr. BVS PP 00.2009 EG  
62 pages

- (17) Special conditions for safe use  
None



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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.

45307 Essen, 22 February 2000  
BVS-Scha/Kn A 9800319

**Deutsche Montan Technologie GmbH**



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Head of certification body



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Head of special services unit



# 1<sup>st</sup> Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

## to the EC-Type Examination Certificate DMT 00 ATEX E 009

**Equipment:** Pressure Transmitter Type LD 301\*\*\*\*\_\*\*\*\*\_\*\*\*\*\_\*  
**Manufacturer:** smar Equipamentos Industriais Ltda.  
**Address:** 14170-480 Sertaozinho-SP (Brazil)

Description

The pressure transmitter can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

- EN 60079-0:2006 General requirements
- EN 60079-11:2007 Intrinsic safety 'i'
- EN 60079-26:2004 Equipment Group II Category 1G
- EN 50303:2000 Equipment Group I Category M1

The marking of the equipment shall include the following:

II 1/2G Ex ia IIC T4/T5/T6  
 I M1 Ex ia I

Parameters

1. Supply and signal circuit designed for the connection to an intrinsically safe 4 to 20 mA current loop

Voltage	U <sub>i</sub>	DC	28	V
Current	I <sub>i</sub>		93	mA
Effective internal capacitance	C <sub>i</sub>	≤	5	nF
Effective internal inductance	L <sub>i</sub>		negligible	



2. Maximum permissible power for certified intrinsically safe supply and signal circuits as a function of ambient temperature and temperature class

Max. ambient-temperature $T_a$	Temperature-class	Power $P_i$
85 °C	T4	700 mW
75 °C	T4	760 mW
44 °C	T5	760 mW
50 °C	T5	700 mW
55 °C	T5	650 mW
60 °C	T5	575 mW
65 °C	T5	500 mW
70 °C	T5	425 mW
40 °C	T6	575 mW

3. With regard to explosion protection requirements the Pressure-Transmitter is suitable for operation in the following ambient temperature range:

$$-40\text{ °C} \leq T_a \leq +85\text{ °C}$$

Special conditions for safe use

None

Test and assessment report

BVS PP 00.2009 EG as of 3<sup>rd</sup> June 2008

**DEKRA EXAM GmbH**

Bochum, dated 3<sup>rd</sup> June 2008

Signed: Simanski

Certification body

Signed: Dr. Eickhoff

Special services unit

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, 3<sup>rd</sup> June 2008  
BVS-Scha/Poh A 20070674

**DEKRA EXAM GmbH**



Certification body



Special services unit