



## Translation



# 1) EC-Type Examination Certificate

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

3) **DMT 00 ATEX E 025 X**

4) **Apparatus: Universal Transmitter Type \*\*\*USTD\*\*\* / \*\*\*USTE\*\*\***

5) **Manufacturer: Bopp & Reuther Messtechnik GmbH**

6) **Address: D 68261 Mannheim**

7) The design and construction of this apparatus and any acceptable variation thereto are specified in the annex to this type test certificate.

8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of Directive 94/9/EC of the European Parliament and the Council dated 23rd March 1994 certifies that this apparatus 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 in accordance with Annex II of the Directive.  
The results of the test are recorded in the confidential test and assessment report no. BVS PP 00.2036 EG.

9) The essential health and safety requirements are assured by compliance with

EN 50014:1997 General requirements  
EN 50018:1994 Flameproof enclosure "d"  
EN 50019:1994 Increased safety "e"  
EN 50020:1994 Intrinsic safety "i"

10) If an "X" is placed after a certificate number it indicates that the annex to this certificate contains special conditions for the safe use of the apparatus.

11) This EC type test certificate refers only to the design and construction of the specified apparatus. Further requirements of Directive 94/9/EC apply to the manufacture and placing on the market of this apparatus.

12) The marking of the apparatus shall contain the following information:

**II 2G EEx d [ia] IIC / IIB T6 or  
II 2G EEx de [ia] IIC / IIB T6**

**Deutsche Montan Technologie GmbH**

Essen, 26 May 2000

Signed: Jockers

Signed: Dill

DMT Certification Body

Head of Special Services Unit

(13) Annex to

(14) **EC-Type Examination certificate**

**DMT 00 ATEX E 025 X**

(15) 15.1 Designation and type

Universal transmitter type \*\*\*USTD\*\*\* / \*\*\*USTE\*\*\*

(in the complete designation the "\*" are replaced by numbers and / or letters for marking the details of the design that are not relevant to explosion protection)

15.2 Description

The universal smart transmitter type \*\*\*USTD\*\*\* / \*\*\*USTE\*\*\* consists of a flameproof measuring transducer enclosure sealed with a threaded cover in accordance with EC type examination certificate DMT 00 ATEX E 010 U.

The compartment in type of protection flameproof enclosure "d" contains electronic subassemblies for the transmission of measuring data from an intrinsically safe pick-up circuit into a non-intrinsically safe 4 - 20 mA supply and signal circuit and optionally into an additional non-intrinsically safe Namur optocoupler output.

The threaded cover of the compartment is fitted alternatively with an inspection window for the observation of an LCD display.

The terminal compartment in type of protection flameproof enclosure "d" or increased safety "e" contains terminals for connecting the 4 - 20 mA supply and signal circuit and the Namur optocoupler output. Cable entries certified for this purpose are used to lead the non-intrinsically safe circuits into the terminal compartment.

To connect the pick-up the enclosure is fitted with an adapter with an integrated bushing for an intrinsically safe circuit. The intrinsically safe pick-up can be assembled directly with the enclosure or installed separately.

15.3 Electrical, mechanical and thermal parameters

15.3.1 Non-intrinsically safe circuits

15.3.1.1 Supply and signal circuit

Terminals 1, 2

Rated voltage

$U_N$  = DC 24 V

$U_m$  = AC 250 V

Rated current

$I_N$  = 4 - 20 mA

Rated consumption

$P_N$  = 600 mW

15.3.1.2 Namur optocoupler output  
Terminals 3, 4

Rated voltage  $U_N = DC 8 V$   
 $U_m = AC 250 V$

15.3.2 Intrinsically safe pick-up circuit in type of protection EEx ia IIC / IIB  
(for connection to pulse-generating sensors)

Voltage  $U_o = UC 9,25 V$   
Current  $I_o = 5,2 mA$   
Power  $P_o = 12 mW$   
Effective internal inductance  $L_i$  negligible  
Characteristic linear

	IIC	IIB
max. lumped capacitance $C_i + C_o$ and lumped inductance $L_o$ (combined installation)	200 nF 846 mH	200 nF 2.325 H
or inductance-resistance ratio $L_i/R_i$	-	11,82 mH/ $\Omega$

15.3.3 The following ambient temperature range applies to the universal smart transmitter:

Type \*\*\*USTD\*\*\*:  $-40^\circ C \leq T_a \leq +70^\circ C$

Type \*\*\*USTE\*\*\*:  $-25^\circ C \leq T_a \leq +70^\circ C$

(16) Test report

No. BVS PP 00.2036 EG

30 pages

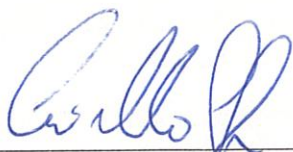
(17) Special conditions for safe use

For universal smart transmitters for direct assembly at the pick-up the effect of external heat sources (process temperature) on the enclosure temperature must be taken into account.

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

45307 Essen, dated 13 July 2000

Deutsche Montan Technologie



DMT Certification Body



Head of Special Services Unit