



Translation

EC-Type Examination Certificate

(1)

(2)

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

(3)

DMT 99 ATEX E 083

(4)

Equipment: Ultraschallsensor Prosonic Type FDU 85-***

(5)

Manufacturer: Endress + Hauser GmbH + Co.

(6)

Address: D 79690 Maulburg

(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 99.2093 EG.

(9)

The Essential Health and Safety Requirements are assured by compliance with:
EN 50281-1-1:1998 (VDE 0170/0171 Teil 15-1-1/10.99) Electrical apparatus for use in the presence of
combustible dust, part 1-1: Electrical apparatus protected by enclosures,
Construction and testing

(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 / 2 D IP 68 T105 °C

Deutsche Montan Technologie GmbH

Essen, dated 03. December 1999

Signed: Dr. Jockers

Signed: Dr. Dill

DMT-Certification body

Head of special services unit

(13)

Appendix to

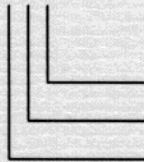
(14)

EC-Type Examination Certificate

DMT 99 ATEX E 083

(15) 15.1 Subject and Type

Ultrasonic sensor Prosonic
type FDU 85 - * * *



cable length
process connection
certificate

15.2 Description

The Prosonic ultrasonic sensor type FDU 85-*** is a level measurement device based on ultrasonics and is used for non-contact level measurement in vessels of all types containing powdery or grainy bulk solids.

The enclosure consists of conductive plastic material.

The complete measurement system consists of the Prosonic ultrasonic sensor type FDU 85-*** and an evaluation and trigger unit Prosonic FMU 86* installed outside the explosion-hazardous area. The sensor and the evaluation and trigger unit are connected to each other by three-wire cabling.

15.3 Electrical, mechanical and thermal parameters

15.3.1 Electrical data

15.3.1.1 Emitting and signal circuit (FMU 86* for FDU 85-***)

Emitting voltage	≤	80	V _{eff}
NTC supply voltage	≤	DC 5,5	V
Power consumption of probe	≤	2	VA

15.3.1.2 Piezo circuit

Ultrasonic frequency (emitting frequency)	ca.	17-18	Hz
Eff. emitting voltage	≤	750	V _{eff}
Pulse duration	≤	1,1	ms
Pulse pause		0,3-1	s
Eff. continuous power output (apparent output)	≤	2	VA

15.3.2 Thermal data
Maximum surface temperature T of the sensor
(category 1) at 40 °C ambient temperature 65 °C
Maximum surface temperature T of the sensor
(category 1) at 80 °C ambient temperature 105 °C
Permitted ambient temperature at the sensor (category 1) - 20 °C...+ 80°C

15.3.3 Type of protection according to EN 60529 IP 68

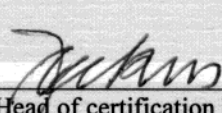
(16) Test report
Nr. BVS PP 99.2093 EG
10 pages

(17) Special conditions for safe use
Not applicable


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, 03. December 1999
BVS-HK/Kn A 9900003

Deutsche Montan Technologie GmbH



Head of certification body



Head of special services unit