

## (1) EC-TYPE EXAMINATION CERTIFICATE

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

- (3) EC-Type Examination Certificate Number: **KEMA 04ATEX1339** Issue Number: **4**
- (4) Equipment: **2-Wire Programmable Transmitter Type MBT 9110 084Z 7441 and Type MBT 9110 084Z 7443**
- (5) Manufacturer: **Danfoss A/S**
- (6) Address: **Nordborgvej 81, 6430 Nordborg, Denmark**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC 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 report number 2096562.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0 : 2006**  
**EN 61241-0 : 2006**

**EN 60079-11 : 2007**  
**EN 61241-11 : 2006**

**EN 60079-26 : 2007**

- (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, examination and tests of the specified equipment according to the 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 1 G Ex ia IIC T4 or T6**  
**II 1 D Ex iaD**

This certificate is issued on November 5, 2010 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

C.G. van Es  
Certification Manager

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1339**

Issue No. 4

(15) **Description**

The 2-wire Programmable Transmitters Type MBT 9110 084Z 7441 and Type MBT 9110 084Z 7443, suitable for mounting in an enclosure form B according to DIN 43729, are used to convert the temperature measurement signal of a temperature sensor or a mV signal into a 4 ... 20 mA current signal.

The relation between ambient temperature range, temperature class and maximum surface temperature "T" is shown in the table below.

Ambient temperature range	Temperature class
-40 °C ... +85 °C	T4
-40 °C ... +60 °C	T6

**Electrical data**

Transmitter Type MBT 9110 084Z 7443

Supply and output circuit (terminals 1 and 2):

in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the following maximum values:

$U_i = 30 \text{ V}$ ;  $I_i = 120 \text{ mA}$ ;  $P_i = 0,84 \text{ W}$ ;  $C_i = 1 \text{ nF}$ ;  $L_i = 10 \text{ }\mu\text{H}$

Sensor circuit, Thermocouple, RTD, resistance or mV (terminals 3, 4, 5 and 6):

in type of protection intrinsic safety Ex ia IIC or Ex iaD, with the following maximum values:

$U_o = 9,6 \text{ V}$ ;  $I_o = 25 \text{ mA}$ ;  $P_o = 60 \text{ mW}$ ;  $C_o = 2,4 \text{ }\mu\text{F}$ ;  $L_o = 33 \text{ mH}$

The above mentioned circuits are not infallibly galvanically isolated from each other.

However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500 Vac during 1 minute.

Transmitter Type MBT 9110 084Z 7441

Supply and output circuit (terminals 1 and 2):

in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the following maximum values:

$U_i = 30 \text{ V}$ ;  $I_i = 120 \text{ mA}$ ;  $P_i = 0,84 \text{ W}$ ;  $C_i = 1 \text{ nF}$ ;  $L_i = 10 \text{ }\mu\text{H}$

Sensor circuit (terminals 3, 4 and 6):

in type of protection intrinsic safety Ex ia IIC or Ex iaD, with the following maximum values:

$U_o = 27 \text{ V}$ ;  $I_o = 7 \text{ mA}$ ;  $P_o = 45 \text{ mW}$ ;  $C_o = 90 \text{ nF}$ ;  $L_o = 35 \text{ mH}$

The above mentioned circuits are galvanically connected with each other.

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1339**

Issue No. 4

**Installation instructions**

In a potentially explosive gas atmosphere, the transmitter shall be mounted in an enclosure in order to provide a degree of protection of at least IP20 according to EN 60529.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment of category 1 G and if the enclosure is made of aluminium, it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded; if the enclosure is made of non-metallic materials, electrostatic charging shall be avoided.

For installation in a potentially explosive dust atmosphere, the following instructions apply:

The transmitter shall be mounted in a metal enclosure form B according to DIN 43729 that is providing a degree of protection of at least IP6X according to EN 60529, that is suitable for the application and is correctly installed.

Cable entries and blanking elements shall be used that are suitable for the application and are correctly installed.

For an ambient temperature  $\geq 60$  °C, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

The surface temperature of the enclosure is equal to the ambient temperature plus 20 K, for a dust layer with a maximum thickness of 5 mm.

(16) **Test Report**

KEMA No. 2096562.

(17) **Special conditions for safe use**

None.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 2096562.