



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 079

(4)

Equipment: Isolating switching repeater type TS500-Ex--**-***

(5)

Manufacturer: Martens Elektronik GmbH

(6)

Address: 22885 Barsbüttel

(7)

The design and construction of this equipment and any acceptable variation there to 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 the test and assessment report BVS PP 99.2102 EG.

(9)

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

EN 50014:1997 General requirements
EN 50020:1994 Intrinsic safety
EN 50284:1999 Equipment Group II Category 1G

(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 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 (1) G [EEx ia/ib] IIB/IIC

Deutsche Montan Technologie GmbH

Essen, dated 14. December 1999

Signed: Jockers

Signed: Dill

DMT Certification body

Special services unit

(13) Appendix to

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

DMT 99 ATEX E 079

(15) 15.1 Subject and type

The type designation of the Isolating switching repeater are the following:

TS500-Ex-**-**-*



Auxiliary voltage	0 = 230 Vac 1 = 115 Vac 5 = 24 Vdc
Output type	R = Relay T = Transistor
Number of channels	1 or 2
Kind of the circuit	ia or ib

15.2 Description

The Isolating switching repeater type TS500-Ex-**-**-* is intended for the transmission of digital signals from potentially explosive atmosphere.
 The intrinsically safe circuit is isolated from the non-intrinsically safe circuits.
 The permitted temperature range is -10 °C to +55 °C.

15.3 Parameters

15.3.1 Auxiliary energy
(terminals 14 and 15)

Power supply voltage	U	207 ... 253 Vac or 103 ... 127 Vac
	or	
	U	20,4 ... 27,6 Vdc
	U _m	253 Vac or 125 Vdc
Power dissipation		< 2 W or < 3 VA

15.3.2 Signal circuit
(terminals 1, 2 and 3 or 4, 5 and 6)

Signal input			
Connection of passive sensors or mechanical switching contacts	EEx ia/ib IIB/IIC		
Power supply voltage		8,2 Vdc	
Output circuit		8 mA	
max. output voltage	U _o	10,6 Vdc	
max. output current	I _o	26,8 mA	
max. output power	P _o	71 mW	
max. internal capacitance	C _i	negligible	
max. internal inductance	L _i	36 μH	
for		IIC	IIB
max. external capacitance	C _o	2,3 μF	16,2 μF
max. external inductance	L _o	20 mH	110 mH

15.3.3 The intrinsically safe circuit is galvanically separated from the non-intrinsically safe circuits up to a sum of the peak values of the nominal voltages of 375 V

15.3.4 Connection data Relay output by the Isolating switching repeater TS500-Ex-ia/ib-*R-*
(terminals 7, 8 and 9 or 10, 11 and 12)

max. 253 Vac / max. 2 A / max. 100 VA
max. 357 Vdc / max. 2 A / max. 50 W

15.3.5 Connection data Relay output by the Isolating switching repeater TS500-Ex-ia/ib-*T-*
(terminals 7, 8 and 9 or 10, 11 and 12)

max. 35 Vdc / max. 50 mA electronically limited

15.3.6 The ambient temperature range is - 10 °C to + 55 °C.

(16) Test and assessment report
BVS PP 99.2102 EG as of 14. December 1999
21 pages

(17) Special conditions for safe use
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, 26.10.2004
BVS-Kan/Kw A 20040662

EXAM BBG Prüf- und Zertifizier GmbH


EXAM Certification body


Special services unit



Translation

1st Supplement

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

**to the EC-Type Examination Certificate
DMT 99 ATEX E 079**

Equipment: Isolating switching repeater type TS500-Ex-**-***-*

Manufacturer: Martens Elektronik GmbH

Address: D - 22885 Barsbüttel

Subject and type
Unchanged

Description
The intrinsically safe circuits of the Isolating switching repeater type TS500-Ex-**-***-* can also be used in the presence of combustible dust.
All others instructions made in the description of the basic certificate are still valid.
The Essential Health and Safety Requirements of the modified equipment are assured by compliance with

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety
EN 50284:1999	Equipment Group II Category 1G
IEC 61241-0:2004	General requirements
prIEC 61241-11(31H/171/CDV)	Protection by Intrinsic safety

Parameters
Unchanged

Test and assessment report
BVS PP 99.2102 EG as of 26.10.2004

Special conditions for safe use
Unchanged

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 26. October 2004

Signed: Dr. Jockers

Certification body


Signed: Dr. Wittler

Special services

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, 26.10.2004
BVS-Kan/Kw A 20040662

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services

1) Gegenstand und Typ

Unverändert

2) Beschreibung

Die eigensicheren Stromkreise des Trennschaltverstärkers Typ TS500-Ex-**-**-* können auch in Bereiche mit brennbarem Staub geführt werden.
Alle anderen in der Beschreibung der Grundbescheinigung gemachten Angaben gelten nach wie vor.

3) Dokumentation


Auszug aus der Betriebsanleitung (4 Blatt), unterschrieben am 15.10.04

4) Kenngrößen

Unverändert

5) Kennzeichnung

Die Kennzeichnung (gut sichtbar, lesbar und dauerhaft) umfasst die folgenden Angaben:

- 5.1 Name und Anschrift des Herstellers
Typ TS500-Ex-**-**-*
 II (1) GD [EEx ia] IIC
Herstellungsjahr, Fertigungsnummer
Bescheinigungsnummer
 $-10\text{ °C} \leq T_a \leq +55\text{ °C}$

- 5.2 Die Kennzeichnung, die normalerweise für den betreffenden Gegenstand in den Konstruktionsnormen vorgesehen ist.

6) Stückprüfungen

Unverändert

7) Auflagen/Bedingungen für die sichere Anwendung

Unverändert

8) Sicherheitstechnisch relevante Informationen

Unverändert

44809 Bochum, den 26.10.2004
BVS-Kan/Kw A 20040662

EXAM BBG Prüf- und Zertifizier GmbH
Fachstelle für Sicherheit elektrischer Betriebsmittel - BVS




Der Sachverständige

Die zutreffenden Anforderungen der prIEC 61241-11 (31H/171/CDV) und IEC 61241-0:2004 sind erfüllt.
Für die Bauart gelten die bestehenden Anhänge unverändert.