



(1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in
Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 99 ATEX 2119



(4) Equipment: Contrans I-isolation switching amplifier type V17131-5.

(5) Manufacturer: ABB Automation Products GmbH

(6) Address: D-65760 Eschborn

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 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 the confidential report PTB Ex 99-29189.

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

EN 50014:1997

EN 50020:1994

(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 in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

II (1) G [EEEx ia] IIC

Zertifizierungsstelle Explosionsschutz

By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, November 23, 1999

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(13)

SCHEDULE

(14)

EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 2119

(15) Description of equipment

The Contrans I-isolation switching amplifier type V17131-5. is used for the transmission of digital electrical signals from the intrinsically safe input circuits to the non-intrinsically safe switching contact circuits resp. transistor outputs. The apparatus is mounted in a plastic housing with a degree of protection of IP20 according to IEC-publication 60529:1989. The required degree of protection is also met for the wiring posts if the connection socket described in the test documents listed in the test report, is used.

If the isolation switching amplifier is not plugged into the connection socket mentioned above, the used plug-in connector or mounting rack shall effect a degree of protection of at least IP20 according to IEC-publication 60529:1989.

The maximum permissible ambient temperature is 60 °C.

Types of construction of the isolation switching amplifier

V17131-51	1 input circuit	and 1 relay contact
V17131-52	1 input circuit	and 2 relay contacts
V17131-53	2 input circuits	and 2 relay contacts
V17131-54	1 input circuit	and 1 transistor output
V17131-55	1 input circuit	and 2 transistor outputs
V17131-56	2 input circuits	and 2 transistor outputs

Electrical data

Supply circuit $U = 19.2 \dots 33 \text{ V DC}$
(terminals resp. type V17131-51 through -53: P_{rel} approx. 0.82 W
wiring posts 1[+] and 2[-]) type V17131-54 through -56: P_{rel} approx. 0.62 W
maximum voltage $U_m = 40 \text{ V}$

Switching contact circuits up to 250 V, up to 8 A
(contact 1: terminals 4, 5 resp. up to 2000 VA, resistive load
wiring posts 3, 4
contact 2 (alternatively):
terminals 3, 6 resp.
wiring posts 5, 6)

Transistor outputs up to 33 V, up to 100 mA
 (circuit 1: terminals 4, 5 resp. maximum voltage
 wiring posts 3, 4 $U_m = 253 \text{ V AC resp. } 125 \text{ V DC}$
 circuit 2 (alternatively):
 terminals 3, 6 resp.
 wiring posts 5, 6)

Input circuits type of protection Intrinsic Safety	EEx ia IIC/IIB
channel 1: resp.	EEx ib IIC/IIB
(terminals 11, 14, 15; resp.	
wiring posts 4, 5, 6)	maximum values:
	$U_o = 10.6 \text{ V}$
	$I_o = 18 \text{ mA}$
	$P_o = 48 \text{ mW}$
channel 2 (alternatively):	linear characteristic
(terminals 12, 13, 16 resp.	$L_i \leq 120 \text{ } \mu\text{H}$
wiring posts 1, 2, 3)	$C_i \leq 12 \text{ nF}$

The maximum permissible values for the external capacitance and inductance of a connected intrinsically safe circuit are shown in the following table.

	EEx ia		EEx ib	
	IIC	IIB	IIC	IIB
L_o	4 mH	7 mH	110 mH	410 mH
C_o	545 nF	2 μF	2.5 μF	15 μF

or

channel 1 and channel 2: circuits connected in parallel (terminals 11 connected with 12 and 13 with 14 and 15 with 16; connection of the sensor to 11, 14, 15)	type of protection Intrinsic Safety resp.	EEx ia IIC / IIB EEx ib IIC/IIB
	maximum values:	
	$U_o = 11.8 \text{ V}$	
	$I_o = 36 \text{ mA}$	
	$P_o = 96 \text{ mW}$	
	linear characteristic	
	$L_i \leq 240 \text{ } \mu\text{H}$	
	$C_i \leq 24 \text{ nF}$	

The maximum permissible values for the external capacitance and inductance of a connected intrinsically safe circuit are shown in the following table.

	EEx ia		EEx ib	
	IIC	IIB	IIC	IIB
L_o	4 mH	6 mH	29 mH	100 mH
C_o	420 nF	1.6 μ F	1.7 μ F	8 μ F

The intrinsically safe input circuits are safely electrically isolated from the non-intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

The intrinsically safe input circuits are safely electrically isolated from each other up to a peak value of the nominal voltage of 60 V.

(16) Test report PTB Ex 99-29189

(17) Special conditions for safe use

not applicable

(18) Essential health and safety requirements

Met by the standards mentioned above

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