

Translation

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



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



(3) **Certificate Number** TÜV 14 ATEX 153569 X

(4) for the equipment: Digital process indicator type DPA*X***** and Ultrasonic filling level indicator type USF*X****


(5) of the manufacturer: ACS CONTROL SYSTEM GmbH

(6) Address: Lauterbachstraße 57
84307 Eggenfelden
Germany

Order number: 8000442853

Date of issue: 2015-09-03

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system 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 No. 15 203 153569.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012 EN 60079-11:2012
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 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 or protective system must include the following:

 II (1) G [Ex ia Ga] IIC
II (1) D [Ex ia Da] IIIC

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

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(13) SCHEDULE

(14) EC-Type-Examination Certificate No. TÜV 14 ATEX 153569 X

(15) Description of equipment

The digital process indicator type DPA*X***** is used for recording and displaying of analogous process parameters on a LCD monitor and for the supply of connected sensors.

The ultrasonic filling level indicator type USF*X***** is used for the supply and control of an ultrasonic filling level sensor and for recording and displaying of the measuring signal on a LCD monitor.

Execution of the housings:

- Front panel housing type „M“
- Wall mounted housing type „F“
- DIN-rail housing type „P“

The devices generate intrinsically safe circuits; these are galvanically connected with the terminals for the potential equalization.

The permissible ambient temperature range is -20 °C ... +60 °C.

Electrical data

Digital process indicator type DPA*X*****

Supply circuit	$U_n = 85 \dots 253 \text{ V a. c. } 50/60 \text{ Hz, } S \leq 20 \text{ VA}$
(Terminals	resp.
Type M: 1, 2	$U_n = 18 \dots 36 \text{ V d. c., } P \leq 5 \text{ W}$
Type F/P: 1, 2, 3)	$U_m = 253 \text{ V a. c./d. c.}$

Relay circuits	Maximum values:
(Terminals	$U = 253 \text{ V a. c., } I = 6 \text{ A, } S = 1500 \text{ VA (resistive load) /}$
Type M:	$300 \text{ VA (cos}\varphi \geq 0.7)$
3, 4, 5; 6, 7, 8; 9, 10, 11; 12, 13, 14	$U = 30 \text{ V DC, } I = 6 \text{ A, } P = 180 \text{ W (resistive load)}$
Type F/P:	$U = 110 \text{ V DC, } I = 0.2 \text{ A, } P = 22 \text{ W (resistive load)}$
4, 5, 6; 13, 14, 15; 16, 17, 18; 19, 20, 21)	$U = 300 \text{ V DC, } I = 0.12 \text{ A, } P = 26.4 \text{ W (resistive load)}$

Output circuit	Signal 0...10 V, $U \leq 11 \text{ V, } I \leq 35 \text{ mA, } R \geq 440 \Omega$
(Terminals	Signal 0...20 mA, $I \leq 22 \text{ mA, } U \leq 16 \text{ V, } R \leq 636 \Omega$
Type M: 15, 16	$U_m = 253 \text{ V a. c.}$
Type F/P: 7, 8, 9)	

Digital input circuit	$U = -3 \dots 30 \text{ V d. c., } U \leq 36 \text{ V}$
(Terminals	$U_m = 253 \text{ V a. c.}$
Type M: 26, 27, 28, 29, 30	
Type F/P: 11, 12, 22, 23, 24)	

USB interface	$U = 5 \text{ V c. c., } I \leq 100 \text{ mA}$
(Plug connector)	$U_m = 253 \text{ V a. c.}$

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Sensor supply/measuring inputs in type of protection intrinsic safety
(Terminals Ex ia IIC resp. Ex ia IIIC
Type M: 19...23; PA-Terminals 24, 25 Maximum values per circuit:
Type F/P: 25...29; PA-Terminals 32, 33) $U_o = 27.3 \text{ V}$
 $I_o = 113 \text{ mA}$
 $P_o = 761 \text{ mW}$
Characteristic line: linear
Effective internal capacitance: 3.6 nF
The effective internal inductance is negligibly small.

Ex ia	IIC / IIIC
Max. permissible external inductance	0.16 mH
Max. permissible external capacitance	84 nF

Ultrasonic filling level indicator type USF*X****

Supply circuit $U_n = 85 \dots 253 \text{ V a. c. } 50/60 \text{ Hz, } S \leq 20 \text{ VA}$
(Terminals resp.
Type M: 1, 2 $U_n = 18 \dots 36 \text{ V d. c., } P \leq 5 \text{ W}$
Type F/P: 1, 2, 3) $U_m = 253 \text{ V a. c./d. c.}$

Relay circuits Maximum values:
(Terminals $U = 253 \text{ V a. c., } I = 6 \text{ A, } S = 1500 \text{ VA (resistive load) /}$
Type M: $300 \text{ VA (cos}\phi \geq 0.7)$
3, 4, 5; 6, 7, 8; 9, 10, 11; 12, 13, 14 $U = 30 \text{ V DC, } I = 6 \text{ A, } P = 180 \text{ W (resistive load)}$
Type F/P: $U = 110 \text{ V DC, } I = 0.2 \text{ A, } P = 22 \text{ W (resistive load)}$
4, 5, 6; 13, 14, 15; 16, 17, 18; 19, 20, 21) $U = 300 \text{ V DC, } I = 0.12 \text{ A, } P = 26.4 \text{ W (resistive load)}$

Output circuit Signal 0...10 V, $U \leq 11 \text{ V, } I \leq 35 \text{ mA, } R \geq 440 \Omega$
(Terminals Signal 0...20 mA, $I \leq 22 \text{ mA, } U \leq 16 \text{ V, } R \leq 636 \Omega$
Type M: 15, 16 $U_m = 253 \text{ V a. c.}$
Type F/P: 7, 8, 9)

Digital input circuit $U = -3 \dots 30 \text{ V d. c., } U \leq 36 \text{ V}$
(Terminals $U_m = 253 \text{ V a. c.}$
Type M: 26, 27, 28, 29, 30
Type F/P: 11, 12, 22, 23, 24)

Digital synchronisation circuit $U = 0 \dots 3.1 \text{ V DC, } U \leq 5 \text{ V}$
(Terminals $U_m = 253 \text{ V A. C.}$
Type M: 31, 32
Type F/P: 10, 22)

USB interface $U = 5 \text{ V c. c., } I \leq 100 \text{ mA}$
(Plug connector) $U_m = 253 \text{ V a. c.}$

Schedule EC-Type Examination Certificate No. TÜV 14 ATEX 153569 X

Sensor supply/measuring inputs in type of protection intrinsic safety
 (Terminals Ex ia IIC resp. Ex ia IIIC
 Type M: 17...23; PA-Terminals 24, 25 Maximum values per circuit:
 Type F/P: 25...31; PA-Terminals 32, 33) $U_o = 27.3 \text{ V}$
 $I_o = 102 \text{ mA}$
 $P_o = 659 \text{ mW}$
 Characteristic line: linear
 Effective internal capacitance: 3.6 nF
 The effective internal inductance is negligibly small.

Ex ia	IIC / IIIC		
Max. permissible external inductance	0.4 mH	0.3 mH	0.2 mH
Max. permissible external capacitance	14 nF	22 nF	28 nF

The intrinsically safe circuits are galvanically connected with the non intrinsically safe circuits and with the terminals for the potential equalisation.

(16) The test documents are listed in the test report no. 15 203 153569

(17) Special conditions for safe use

1. The terminals for the earth connection have to be connected with the potential equalisation in the explosion hazardous area.
2. It has to be ensured, that potential equalisation does exist in the complete course of the erection of the intrinsically safe circuits.

(18) Essential Health and Safety Requirements

no additional ones