

CERTIFICATE

(1) EC-Type Examination

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

(3) EC-Type Examination Certificate Number: **DEKRA 14ATEX0117 X** Issue Number: 1

(4) Equipment: **Level Transmitter Pulscon LTC50, LTC51, LTC57**

(5) Manufacturer: **Pepperl+Fuchs GmbH**

(6) Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**

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

(8) DEKRA Certification 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 NL/DEK/ExTR14.0072/00.

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

EN 60079-0 : 2012
EN 60079-26 : 2007

EN 60079-1 : 2007
EN 60079-31 : 2009

EN 60079-11 : 2012

(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 T6 - T1 Ga or
II 1/2 G Ex ia IIC T6 - T1 Ga/Gb or Ex d [ia] IIC T6 - T1 Ga/Gb or
II 1/2/3 G Ex ic [ia] IIC T6 - T1 Ga/Gb/Gc or
II 1 D Ex ta IIIC Txx °C Da or
II 1/2 D Ex ia IIIC Txx °C Da/Db or Ex ta IIIC Txx °C Da/Db

DEKRA Certification B.V.

R. Schuller
Certification Manager



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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate DEKRA 14ATEX0117X**

Issue No. 1

This certificate is issued on 14 October 2014 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.

(15) **Description**

Level Transmitters Pulscon LTC50, LTC51 and LTC57 are used for the measurement of the level of liquid or solid materials on basis of the Time of Flight (ToF) method.

The transmitter consists of an electronics enclosure and an integral probe or rod probe.

Depending on the interface applied, the probe measurement signal is converted into an electrical output signal.

See Annex 1 for detailed information on all possible variations and options and the applicable electrical data.

Ambient temperature range -40 °C to +80 °C.

See Annex 1 for detailed information on the relation between ambient temperature and process temperature and temperature class and maximum surface temperature.

Electrical data

See Annex 1 for the electrical data.

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation.

(16) **Test Report**

DEKRA No. NL/DEK/ExTR14.0072/00.

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

Depending on the configuration and the application of the equipment, specific conditions of use may apply, e.g. regarding electrostatic discharge. For details, refer to the equipment specific Safety Instructions.

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

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/DEK/ExTR14.0072/00.

**Annex 1 to EC-Type Examination Certificate DEKRA 14ATEX0117 X, issue 1,
to Certificate of Conformity IECEx DEK 14.0066, issue 0 and
to IECEx Test Report NL/DEK/ExTR14.0072/00**

Thermal data

Ambient temperature at the electronics enclosure -40 °C to +80 °C.

The process temperature range, depending on the probe specifications and the relation between ambient temperature, process temperature and temperature class and maximum surface temperature T for the different models of Level Transmitters Pulscon LTC5x is listed in the safety instructions, provided with the equipment.

Electrical data

I/O Interface

The codes of the type(s) of protection in the following table only relate to the electrical data of the I/O Interface and may differ from the codes as listed for the approval code in the Type Designation table.

Intrinsically safe versions

Approval Code	I/O Interface		Type of protection	Electrical data/maximum values	
	Code	Mode (functional)		Supply/output (terminals 1 and 2)	Supply/output (terminals 3 and 4)
E1, EX, SX, IA, IB,	IH	4 ... 20 mA HART	Ex ia IIC	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W}; C_i = 12 \text{ nF};$ $L_i = 0 \text{ mH}$	---
EW			Ex ia IIC/IIIC	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W}; C_i = 5 \text{ nF};$ $L_i = 0 \text{ mH}$	---
E2, ID			Ex ic IIC	$U_i = 35 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 5 \text{ nF};$ $L_i = 0 \text{ mH}$	---
IH				$U_i = 35 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 12 \text{ nF};$ $L_i = 0 \text{ mH}$	
E1, EX, SX, EW, IA, IB	ID	4 ... 20 mA HART+ PFS	Ex ia IIC/IIIC	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W}; C_i = 5 \text{ nF};$ $L_i = 0 \text{ mH}$	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 0,7 \text{ W}/0,85 \text{ W}/1 \text{ W}^{2)}$ $C_i = 3 \text{ nF}/5,28 \text{ nF}^{3)};$ $L_i = 0 \text{ mH}$
E2, ID, IH,			Ex ic IIC	$U_i = 35 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 5 \text{ nF};$ $L_i = 0 \text{ mH}$	$U_i = 35 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = 0,7 \text{ W}/0,85 \text{ W}/1 \text{ W}^{2)};$ $C_i = 3 \text{ nF}/5,28 \text{ nF}^{3)};$ $L_i = 0 \text{ mH}$
E1, EX, SX, EW, IA, IB,	IE	4 ... 20 mA HART + 4 ... 20 mA	Ex ia IIC/IIIC	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W}; C_i = 30 \text{ nF};$ $L_i = 0 \text{ mH}$	$U_i = 30 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W}; C_i = 30 \text{ nF};$ $L_i = 0 \text{ mH}$
E2, ID, IH,			Ex ic	$U_i = 30 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 30 \text{ nF};$ $L_i = 0 \text{ mH}$	$U_i = 30 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 30 \text{ nF};$ $L_i = 0 \text{ mH}$
E1, EX, SX, EW, IA, IB,	PA	Profibus PA + PFS Foundation Fieldbus + PFS	Ex ia IIC/IIIC	FISCO with $U_i = 17,5 \text{ V};$ $I_i = 550 \text{ mA}; P_i = 5,5 \text{ W};$ $C_i = 5 \text{ nF}; L_i = 10 \mu\text{H}$	$U_i = 35 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 1 \text{ W};$ $C_i = 3 \text{ nF}/5,28 \text{ nF}^{3)};$ $L_i = 0 \text{ mH}$
E2, ID, IH,		Profibus PA + PFS Foundation Fieldbus + PFS	Ex ic IIC	FISCO or $U_i = 32 \text{ V}; I_i = \text{N/A}^{1)};$ $P_i = \text{N/A}; C_i = 5 \text{ nF};$ $L_i = 10 \mu\text{H}$	$U_i = 35 \text{ V}; I_i = 300 \text{ mA};$ $P_i = 0,7 \text{ W}/0,85 \text{ W}/1 \text{ W}^{2)};$ $C_i = 3 \text{ nF}/5,28 \text{ nF}^{3)};$ $L_i = 0 \text{ mH}$

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Non-intrinsically safe versions

Approval Code	I/O Interface		Type of protection	Electrical data/maximum values	
	Code	Mode (functional)		Supply/output (terminals 1 and 2)	Supply/output (terminals 3 and 4)
ED, EG, EW, IC	IH	4 ... 20 mA HART	Ex d IIC	$U_N = 35 \text{ V}$, $I_{\max} = 22 \text{ mA}$, $P_N = 0,7 \text{ W}$ $U_m = 250 \text{ Vac}$	---
S3, S4, EG, IE, IF, I3			Ex ta IIIC		
IG			Ex nA IIC		
ED, EG, EW, IC	ID	4 ... 20 mA HART+ PFS	Ex d IIC	$U_N = 35 \text{ V}$, $I_{\max} = 22 \text{ mA}$, $P_N = 0,7 \text{ W}$ $U_m = 250 \text{ Vac}$	$U_N = 35 \text{ V}$, $P_N = 0.7 \text{ W}$ $U_m = 250 \text{ Vac}$
S3, S4, EG, IE, IF			Ex ta IIIC		
IG			Ex nA IIC		
ED, EG, EW, IC	IE	4 ... 20 mA HART + 4 ... 20 mA	Ex d IIC	$U_N = 10,4 \dots 30 \text{ V}$, $I_{\max} = 22 \text{ mA}$, $P_N = 0,7 \text{ W}$ $U_m = 250 \text{ Vac}$	$U_N = 10.4 \dots 30 \text{ V}$, $I_{\max} = 22 \text{ mA}$, $P_N = 0.7 \text{ W}$ $U_m = 250 \text{ Vac}$
S3, S4, EG, IE, IF			Ex ta IIIC		
IG			Ex nA IIC		
ED, EG, EW, IC	PA	Profibus PA + PFS Foundation Fieldbus + PFS	Ex d IIC	$U_N = 9 \dots 32 \text{ Vdc}$ $P_N = 880 \text{ mW}$ $U_m = 250 \text{ Vac}$	$U_N = 10.4 \dots 35 \text{ V}$, $P_N = 0.7 \text{ W}/0,85 \text{ W}/1 \text{ W} \text{ } ^2)$ $U_m = 250 \text{ Vac}$
S3, S4, EG, IE, IF			Ex ta IIIC		
IG			Ex nA IIC		
ED, EG, IC	AH	4-wire ac, 4 - 20 mA HART	Ex d IIC	90 ... 253 Vac, 50/60 Hz $U_m = 250 \text{ Vac}$	$U_N = 22 \text{ V}$, $I_{\max} = 22 \text{ mA}$ $U_m = 250 \text{ Vac}$
S3, S4, EG, IE, IF			Ex ta IIIC		
IG			Ex nA IIC		
ED, EG, IC	DH	4-wire dc, 4 - 20 mA HART	Ex d IIC	10.4 ... 48 Vdc $U_m = 250 \text{ Vac}$	$U_N = 22 \text{ V}$, $I_{\max} = 22 \text{ mA}$, $U_m = 250 \text{ Vac}$
S3, S4, EG, IE, IF			Ex ta IIIC		
IG			Ex nA IIC		

Notes: 1) Current controlled output, $I_N \leq 25 \text{ mA}$

2) Different values of P_i or P_N resulting in different surface temperature values (refer to thermal data)

3) Capacitance between the lines, respectively with respect to ground

Service connector, equivalent to connector X500 / service interface (CDI)

The type of protection of the service connector, which is intended for connection to the Certified Service Tool or any other interface, depends on the Approval code of the equipment.

If used as interface in type of protection intrinsic safety Ex ia IIC/IIIC, the following maximum values apply:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $U_i = 7.3 \text{ V}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

If used as non-intrinsically safe interface, $U_N = 6.5 \text{ V}$