

EU-TYPE EXAMINATION CERTIFICATE



Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

[3] EU-Type Examination Certificate Number: **UL 23 ATEX 3091X Rev. 1**

[4] Product: **HiC2422****

[5] Manufacturer: **Pepperl+Fuchs SE**

[6] Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. **DK/ULD/ExTR23.0029/01**.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-11:2012

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II (1) G [Ex ia Ga] IIC

II (1) D [Ex ia Da] IIIC

I (M1) [Ex ia Ma] I

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2023-11-21

Re-issued: 2024-01-18

Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
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Schedule

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[15]

Description of Product

The HiC2422** Power Supply/Current Driver HiC2422** is a two-channel device designed as associated apparatus for equipment group II zone 0, zone 20 or for equipment group I.
 It may be installed in the non-hazardous area or in a Zone 2 gas area. The voltages and currents at the hazardous area side terminals are limited to intrinsically safe levels. The hazardous area circuits are galvanically isolated from the non-hazardous area circuits by transformers designed in accordance with IEC 60079-11.

The HiC2422** has two basic modes of operation dependent on the application and connected equipment.
 In AI mode each channel of the HiC2422** provides power for a current transmitter placed in the hazardous area and repeats the signal to the safe area.

In AO mode each channel of the HiC2422** transfers a 4...20mA current from the safe area to the hazardous area to drive smart I/P converters, electrical valves, or positioners. Digital communication may be superimposed on the analogue values in both modes and may be transferred in both directions.

The device is intended for use with and is powered at nominal 24V dc via an appropriately certified termination board.

Temperature range

The ambient temperature range is -40°C to +70°C.
 Any temperature range within these limits may also be printed, e.g. -20°C < Ta < +60°C.

Electrical Data:

Power Supply

Connection: SL1: 1a(-), 1b(-); 2a(+), 2b(+); via termination board
 19-30V DC, 110-70mA, max. 2,1 W
 Um: 250V

SMART Transmitter Power Supply

Inputs

Field side: SL2: 5a(+), 5b(-); 1a(+), 1b(-)
 Signal: 0/4...20 mA (U > 15V at 20 mA)

Outputs

Control side: SL1: 8a(+), 7a(-); 10a(+), 9a(-)
 Signal: 0/4...20 mA (limited energy source < 30V, < 2A)

SMART Current Driver

Inputs

Control side: SL1: 8a(+), 7a(-); 10a(+), 9a(-)
 Signal: 0/4...20 mA (limited energy source < 30V, < 2A)

Outputs

Field side: SL2: 5a(+), 5b(-); 1a(+), 1b(-)
 Signal: 0/4...20 mA (650 ohm max)

Electrical data for type of protection [Ex ia]

Connection:	SL2: 5a(+), 5b(-); 1a(+), 1b(-)
	Maximum values: Uo = 25.2V Io = 100mA Po = 630mW Ci = 1,05 nF Li = negligible

The maximum permissible external capacitances, inductances, and L/R:

Group	I	IIA	IIB / IIIC	IIC
Maximum external capacity Co	4.14 µF	2.8 µF	0.81 µF	0.1059 µF
Maximum external inductivity Lo	46 mH	28 mH	14 mH	3.5 mH
Maximum external ratio Lo/Ro	735 µH/Ohm	448 µH/Ohm	224 µH/Ohm	56 µH/Ohm

Note:

The above parameters apply when one of the two conditions below is given:
 - The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
 - The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.



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Schedule

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The above parameters are reduced to 50% when both of the two conditions below are given:

- the total Li of the external circuit (excluding the cable) > 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) > 1% of the Co value .

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for I, IIA, IIB / IIIC and 600nF for IIC.

Routine tests

The protective transformers used in the associated apparatus are to be subjected to an alternating current potential as indicated in the following table for at least 60s. Alternatively, the test may be carried out at 1.2 times the test voltage, but with a reduced duration of at least 1s.

The applied voltage shall remain constant during the test. The current flowing during the test shall not increase above that which is expected from the design of the circuit and shall not exceed 5mA r.m.s. at any time.

During these tests, there shall be no breakdown of insulation between windings.

Where applied	RMS test voltage
Between input and output windings (T101, T201 = Pins 10,11 to Pins 2,3,4,5)	1500V

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Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

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Specific Conditions of Use:

Requirements for Usage as Associated Apparatus:

- The device must be installed and operated only in an environment of overvoltage category II (or better) according to EN 60664-1.
- The device must be installed and operated only in a controlled environment that ensures a pollution degree 2 (or better) according to EN 60664-1.

[18]

Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.