

CERTIFICATE

(1) UK Type Examination

(2) **Product or Protective System Intended for use in Potentially Explosive Atmospheres - UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

(3) UK Type Examination Certificate Number: **DEKRA 23UKEX0110X** Issue Number: **0**

(4) Product: **Surge protection devices TTC Ex**

(5) Manufacturer: **Phoenix Contact GmbH & Co. KG**

(6) Address: **Flachsmarktstr. 8, 32825 Blomberg, Germany**

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

(8) DEKRA Certification UK Ltd., Approved Body number 8505 in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in confidential report **EX22090002-024 Rev. 0.**

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

EN IEC 60079-0 : 2018

EN 60079-11 : 2012

except in respect of those requirements listed at item 18 of the Schedule to this certificate.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This UK Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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



II 2(1)G Ex ia [ia Ga] IIC T4/T6 Gb

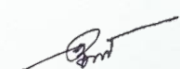
II (1)D [Ex ia Da] IIIC

Details see next pages

Date of certification: 15th June 2023



DEKRA Certification UK Ltd.


Abul Kashem
Certification Manager

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(13) **SCHEDULE**

(14) **to UK Type Examination Certificate DEKRA 23UKEX0110X**

Issue No. 0

(15) **Description**

Subject and type

The TTC Ex product portfolio consists of following surge protection devices:

One-piece surge protection devices

type **TTC-6-1X2-M-EX-24DC-UT-I**

type **TTC-6-2X1-M-EX-24DC-UT-I**

type **TTC-6-3-HF-F-M-EX-12DC-UT-I**

type **TTC-6-3-HF-F-M-EX-24DC-UT-I**

Multi-piece surge protection devices

type **TTC-6P-1X2-M-EX-24DC-UT-I** consisting of

one base element type **TTC-6P-1X2-M-EX-UT-BE** and

one plug module type **TTC-6P-1X2-EX-24DC-I-P**

type **TTC-6P-2X1-M-EX-24DC-UT-I** consisting of

one base element type **TTC-6P-2X1-M-EX-UT-BE** and

one plug module type **TTC-6P-2X1-EX-24DC-I-P**

type **TTC-6P-3-HF-F-M-EX-12DC-UT-I** consisting of

one base element type **TTC-6P-3-HF-F-M-EX-UT-BE** and

one plug module type **TTC-6P-3-HF-EX-12DC-I-P**

type **TTC-6P-3-HF-F-M-EX-24DC-UT-I** consisting of

one base element type **TTC-6P-3-HF-F-M-EX-UT-BE** and

one plug module type **TTC-6P-3-HF-EX-24DC-I-P**

type **TTC-6P-3-EX-24DC-UT-I** consisting of

one base element type **TTC-6P-3-EX-UT-BE** and

one plug module type **TTC-6P-3-EX-24DC-I-P**

type **TTC-6P-1X2-EX-24DC-UT-I** consisting of

one base element type **TTC-6P-1X2-EX-UT-BE** and

one plug module type **TTC-6P-1X2-EX-24DC-I-P**

The base elements and the plug modules of the multi-piece surge protection devices are coded. A confusion is thus excluded.

Description of Product

The surge protection devices TTC Ex are used to limit transient overvoltages which could be coupled into protected intrinsically safe circuits. Thereto, a surge protection module is connected into the intrinsically safe circuit which has to be protected.

The intrinsically safe circuit is not affected by the connection of the surge protection module in its properties.

The surge protection devices TTC ... -M- ... have screw disconnectors (knife disconnection) which can interrupt the signal lines for maintenance.

The surge protection devices can be installed in the Zone 1 (Category 2 / EPL Gb).

The surge protection devices can be mounted on a 35 mm width DIN-rail.

The mounting foot establishes an electrical connection to the 35 mm width DIN-rail.

See special conditions for use.

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Electrical data

Terminals 1-3 input (unprotected), terminals 4-6 output (protected)

Maximum input / output voltage	U_i / U_o	30 V for TTC ... 24 DC ... 15 V for TTC ... 12 DC ...
Maximum input / output current (see additional thermal ratings)	I_i / I_o	350 mA (T6) 100 mA (T6) 400 mA (T4 / dust) 250 mA (T4)
Maximum internal capacitance	C_i	negligible
Maximum internal inductance	L_i	negligible

The intrinsically safe circuit is not affected by the connection of the surge protection module in its properties.

The mounting foot establishes an electrical connection to the 35 mm width DIN-rail.
See special conditions for use.

The one-piece surge protection device type TTC-6-3-HF-F-M-EX-24DC-UT-I and the multi-piece surge protection device type TTC-6P-3-HF-F-M-EX-24DC-UT-I consisting of a base element type TTC-6P-3-HF-F-M-EX-UT-BE and a plug module type TTC-6P-3-HF-EX-24DC-I-P ($I_i / I_o = 400 \text{ mA} / T4 / -40^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$) can be used for connection inside of a fieldbus system according to the FISCO concept.

Thermal ratings

Ambient temperature range for installation inside of the hazardous area:

- 40 °C ≤ T_a ≤ +50 °C for temperature class T4 and $I_i = 400 \text{ mA}$
- 40 °C ≤ T_a ≤ +70 °C for temperature class T4 and $I_i = 250 \text{ mA}$
- 40 °C ≤ T_a ≤ +35 °C for temperature class T6 and $I_i = 350 \text{ mA}$
- 40 °C ≤ T_a ≤ +70 °C for temperature class T6 and $I_i = 100 \text{ mA}$

Ambient temperature range for installation outside of the hazardous area:

- 40 °C ≤ T_a ≤ +85 °C

Installation instructions

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

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(17) Specific conditions of use

17.1 Ambient temperature range for installation inside of the hazardous area:

-40 °C ≤ Ta ≤ +50 °C for temperature class T4 and I_i = 400 mA

-40 °C ≤ Ta ≤ +70 °C for temperature class T4 and I_i = 250 mA

-40 °C ≤ Ta ≤ +35 °C for temperature class T6 and I_i = 350 mA

-40 °C ≤ Ta ≤ +70 °C for temperature class T6 and I_i = 100 mA

Ambient temperature range for installation outside of the hazardous area:

-40 °C ≤ Ta ≤ +85 °C

17.2 For installation inside of the hazardous area:

The surge protection devices must be protected from electrostatic charging.

17.3 The mounting foot establishes an electrical connection to the 35 mm width DIN-rail.

The surge protection devices type TTC-6-1X2-M-EX-24DC-UT-I, type TTC-6-2X1-M-EX-24DC-UT-I, type TTC-6P-1X2-M-EX-24DC-UT-I, type TTC-6P-2X1-M-EX-24DC-UT-I and type TTC-6P-1X2-EX-24DC-UT-I are directly connected over the terminals 3 and 6 to the mounting foot.

The surge protection devices type TTC-6-3-HF-F-M-EX-12DC-UT-I, type TTC-6-3-HF-F-M-EX-24DC-UT-I, type TTC-6P-3-HF-F-M-EX-12DC-UT-I and type TTC-6P-3-HF-F-M-EX-24DC-UT-I are connected over the terminals 3 and 6 and via a surge arrester to the mounting foot.

The terminals 1, 2, 4 and 5 are connected to terminals 3 and 6 via surge arresters for all types above.

Each of the terminal pairs 1 – 4, 2 – 5 and 3 – 6 of the surge protection device type TTC-6P-3-EX-24DC-UT-I is connected via a surge arrester with the mounting foot.

The breakdown voltage of the surge arresters is less than 500 VAC.

The breakdown voltage between the intrinsically safe circuit and the earth connection (mounting foot) is therefore less than 500 VAC depending on the design.

The intrinsically safe circuit is earthed, depending on the type of surge protection device and from the installation, in normal operation or by fault. Along to the intrinsically safe circuit potential equalization has to be provided.

17.4 The surge protection devices are intrinsically safe apparatus. The devices were tested in accordance to the standards EN IEC 60079-0 and EN 60079-11.

The suitability of the devices as an overvoltage protection device according to EN 60079-25 is not subject of this EU-Type Examination Certificate. Further considerations are required.

(18) Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

(19) Test documentation

Technical Construction File, consisting of certificates, diagrams, equipment lay-out, manuals and operating instructions, material specifications, etc., all on file at DEKRA Certification UK Ltd.