

CERTIFICATE

(1) Type Examination

- (2) **Product or Protective System intended for use in potentially explosive atmospheres - UKSI 2016:1107 (as amended) - Schedule 3A, Part 6**

(3) Type Examination Certificate Number: **DEKRA 23UKEX7003X** Issue Number: **0**

(4) Product: **Surge protective device type TTC-**-***-**-**-****-**-***

(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 Testing and Certification GmbH 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 2016, UKSI 2016:1107 (as amended).

The examination and test results are recorded in confidential report BVS PP 21.2126 UK

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

EN IEC 60079-0 : 2018

EN IEC 60079-7 : 2015+A1:2018

(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 Type Examination Certificate relates only to the design and construction of the specified product and not to the manufacturing process and its monitoring.

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



II 3G Ex ec IIC T4 Gc

DEKRA Testing and Certification GmbH
Bochum, 20.07.2023

Certification Manager

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(13) **Appendix**

(14) **Type Examination Certificate
DEKRA 23UKEX7003X Issue 0**

(15) **Description**

Subject and Type

Surge protection device type TTC-**-***-**-**_*-****_*-**-**

One-piece surge protective devices

TTC-6-1x2-M-24DC-UT-I TTC-6-1x2-M-24DC-PT-I

Multi-piece surge protective devices

TTC-6P-3-HF-M-12DC-UT-I TTC-6P-3-HF-M-12DC-PT-I
TTC-6P-3-HF-F-M-12DC-UT-I TTC-6P-3-HF-F-M-12DC-PT-I
TTC-6P-3-HF-F-M-24DC-UT-I TTC-6P-3-HF-F-M-24DC-PT-I
TTC-6P-1x2-M-24DC-UT-I TTC-6P-1x2-M-24DC-PT-I
TTC-6P-3-24DC-PT-I

Spare plug-in modules

TTC-6P-1x2-24DC-I-P TTC-6P-3-HF-12DC-I-P
TTC-6P-3-HF-24DC-I-P TTC-6P-3-24DC-I-P

Function monitoring remote signaling devices

TTC-6-FMRS-UT TTC-6-FMRS-PT
TTC-6-FMRX-UT TTC-6-FMRX-PT
TTC-6-FMTX-UT TTC-6-FMTX-PT

Type designation (One-piece, Multi-piece and Spare plug-in)

TTC -aa -bbb -cc -d -e -ffff -gg -h -i

Placeholder	Value	Description
-aa	-6	6 mm non-pluggable version
	-6P	6 mm pluggable version
-bbb	-1x2	Protection of 1 loop consisting of 2 signal wires, floating
	-3	Three signal wires, without decoupling
-cc	-3-HF	Two signal wires with reference conductor for high- frequency signals
-d	-F	Optional: floating earth (with gas discharge tube)
-e	-M	Optional: signal path breaker
-ffff	-12DC	12 V signals
	-24DC	24 V signals
-gg	-UT	Screwed connection terminals
	-PT	Push in connection terminals
-i	-I	Status indication
-j	-P	Spare plug

Type designation (Function monitoring devices)

TTC -6 -aaaab -bb

Placeholder	Value	Description
-aaaa	-FMRS	Set contains of a transmitter (TX) and receiver (RX)
	-FMTX	Transmitter (TX)
	-FMRX	Receiver (RX)
-bb	-UT	Screwed connection terminals
	-PT	Push in connection terminals



Description of product

The surge protective devices TTC... (one-piece, multi-piece and spare plug-in) are used to limit transient overvoltage which could be coupled into signal circuits. Thereto, a surge protective module is connected into the signal circuits which have to be protected.

The surge protective devices TTC-**-***-**-M-****-**-** have disconnection screws which can interrupt the signal lines for maintenance purposes.

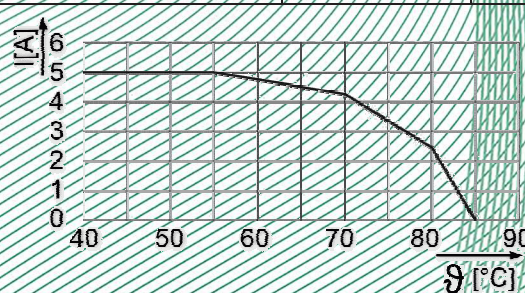
The monitoring devices TTC-6-FM... (function monitoring) are used to monitor the other modules between the transmitter and the receiver by an optical system if they have been triggered.

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.

Parameters

Electrical parameters

Types TTC-6-1x2..., TTC-6P-1x2... and TTC-6P-3...			
Maximum continuous operating voltage of signal lines (type ...-24DC...)	DC	30	V
Maximum continuous operating voltage of signal lines (type ...-12DC...)	DC	15	V
Maximum current (type TTC-6P-3-24DC-PT-I) with derating	$T_{amb} \leq 55^{\circ}\text{C}$	5	A
			
Maximum current pluggable articles (type TTC-6P-....)	$T_{amb} \leq 30^{\circ}\text{C}$	0.6	A
	$30^{\circ}\text{C} < T_{amb} \leq 50^{\circ}\text{C}$	0.5	A
	$50^{\circ}\text{C} < T_{amb} \leq 70^{\circ}\text{C}$	0.4	A
Maximum current – not pluggable articles (type TTC-6-....)	$T_{amb} \leq 30^{\circ}\text{C}$	0.6	A
	$30^{\circ}\text{C} < T_{amb} \leq 50^{\circ}\text{C}$	0.5	A
	$50^{\circ}\text{C} < T_{amb} \leq 70^{\circ}\text{C}$	0.3	A

Types TTC-6-FM...			
Supply voltage range RX and TX	DC	10 - 36	V
Operation current RX and TX @ 24 V U_{in}	DC	0.035	A
Operation current RX and TX @ 10 V U_{in}	DC	0.060	A

Types TTC-6-FMRS-*T			
Remote contact voltage U_{FM}	DC	≤ 36	V
Remote contact voltage U_{FM}	AC peak	± 18	V
Remote contact current I_{FM} @ $-40 \leq T_{amb} \leq 25 \text{ }^{\circ}\text{C}$	DC / AC _{rms}	0.5	A
Remote contact current I_{FM} @ $25 < T_{amb} \leq 60 \text{ }^{\circ}\text{C}$	DC / AC _{rms}	0.3	A

Type TTC-6-FMRX-PT			
Remote contact voltage U_{FM}	DC	≤ 36	V
Remote contact voltage U_{FM}	AC peak	± 18	V
Remote contact current I_{FM} @ $-40 \leq T_{amb} \leq 60 \text{ }^{\circ}\text{C}$	DC / AC _{rms}	0.1	A

Thermal parameters

Ambient temperature range with derating for types TTC-6-1x2..., TTC-6P-1x2... and TTC-6P-3... (inside the separately certified enclosure)	$-40 \text{ }^{\circ}\text{C} \leq T_{amb} \leq 85 \text{ }^{\circ}\text{C}$ (T4) Note: Observe de-rating
Ambient temperature range with derating for types TTC-6-FM... (inside the separately certified enclosure)	$-40 \text{ }^{\circ}\text{C} \leq T_{amb} \leq 60 \text{ }^{\circ}\text{C}$ (T4) Note: Observe de-rating

Connection cross-sections

Conductor with ferrule	0.2 to 2.5 mm ²
Conductor without ferrule	AWG 24 to AWG 12
Solid wire	0.2 to 4 mm ²

Installation instructions

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

(16) Report Number

BVS PP 21.2126 UK

(17) **Specific conditions of use**

- The surge protective device TTC must be installed in an enclosure with a minimum degree of protection of IP54 according to EN IEC 60079-0.
- The ambient temperature range specified in the thermal parameters refers to the internal temperature in the IP54 enclosure.
- The surge protective device TTC shall only be used in an area of at least pollution degree 2, as defined in EN 60664-1.
- The ambient temperature of the TTC modules depends on the derating for high temperatures and the actual type. See parameters and/or the operation manual for details.

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

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, compliance with all other requirements is demonstrated in the report.

(19) **Test documentation**

As listed in Report number BVS PP 21.2126 UK