

Type Examination Certificate

Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

Type Examination Certificate Number: **BVS 21 ATEX E 052 X** Issue: **02**

Equipment: **Surge protective device type TTC-**-***_**_*_*_*_*_*_*_*_*_***

Manufacturer: **Phoenix Contact GmbH & Co. KG**

Address: **Flachsmarktstr. 8, 32825 Blomberg, Germany**

This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

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 Annex II to the Directive.
The examination and test results are recorded in the confidential Report No. BVS PP 21.2126 EU.
This issue of the Type Examination Certificate replaces the previous issue of the Type Examination Certificate BVS 21 ATEX E 052 X issue 01.

The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018 **General requirements**
EN IEC 60079-7:2015+A1:2018 **Increased Safety "e"**

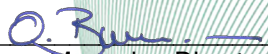
If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

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

The marking of the product shall include the following:

 **II 3G Ex ec IIC T4 Gc**

DEKRA Testing and Certification GmbH
Bochum, 2025-01-06


Managing Director

13 Appendix

14 Type Examination Certificate

BVS 21 ATEX E 052 X Issue 02

15 Product description

15.1 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 TTC-6P-3-APL-24DC-UT-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
TTC-6P-4-GDT-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	-bbbbbb	-c	-d	-eeee	-ff	-g	-h
-----	-----	---------	----	----	-------	-----	----	----

Placeholder	Value	Description
-aa	-6	6 mm non-pluggable version
	-6P	6 mm pluggable version
-bbbbbb	-1x2	Protection of 1 loop consisting of 2 signal wires, floating
	-3	Three signal wires, without decoupling
	-3-HF	Two signal wires with reference conductor for high- frequency signals
	-3-APL	for coarse protection of 3 lines for APL (advance physical layer) make up
	-4-GDT	for coarse protection of signal wires
-c	-F	Optional: floating earth (with gas discharge tube)
-d	-M	Optional: signal path breaker
-eeee	-12DC	12 V signals
	-24DC	24 V signals
-ff	-UT	Screwed connection terminals
	-PT	Push in connection terminals
-g	-I	Status indication
-h	-P	Spare plug



Type designation (Function monitoring devices)

TTC	-6	-aaaa	-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

15.2

Description

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.

The maximum permissible installation height of this product is 4000 m above sea level.

Reasons for this issue:

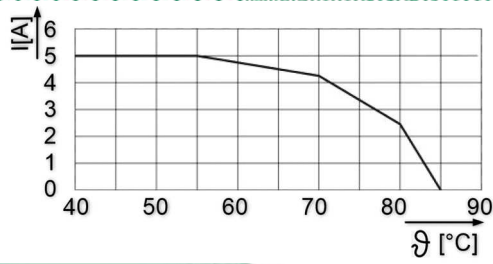
- Addition of new type TTC-6P-3-APL-24DC-UT-I (base module) with type TTC-6P-4-GDT-24DC-I-P (spare plug-in module)
- Update and correction of electrical parameters for TTC-6-FM... types
- Minor changes in the general documentation

15.3

Parameters

15.3.1

Electrical parameters

Types TTC-6-1x2..., TTC-6P-1x2..., TTC-6P-3... and TTC-6P-4...			
Maximum continuous operating voltage of signal lines (type ...-24 DC...)	DC	30	V
Maximum continuous operating voltage of signal lines (type ...-12 DC...)	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
Maximum current type TTC-6P-3-APL-24DC-UT-I	w/o de-rating	3	A

Thermal parameters

Connection cross-sections

Flexible wire min.	0.2 mm ²
Flexible wire max.	2.5 mm ²
Solid wire min.	0.2 mm ²
Solid wire max.	4.0 mm ²
AWG min.	24
AWG max.	12

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

Met by compliance with the requirements mentioned in item 9.

19

Remarks and additional information

Drawings and documents are listed in the confidential report.