



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 21.0057X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 2	Issue 1 (2022-09-27) Issue 0 (2021-10-29)
Date of Issue:	2025-01-09		
Applicant:	PHOENIX CONTACT GmbH & Co. KG Flachsmarktstr. 8 32825 Blomberg Germany		
Equipment:	One-piece surge protective device types see Subject and Type		
Optional accessory:			
Type of Protection:	Increased Safety "e"		
Marking:	Ex ec IIC T4 Gc		

Approved for issue on behalf of the IECEx
Certification Body:

Dr Franz Eickhoff

Position:

**Senior Lead Auditor, Certification Manager and officially
recognised expert**

Signature:
(for printed version)

Date:
(for printed version)

2025-01-09

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3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany





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Manufacturer: **PHOENIX CONTACT GmbH & Co. KG**
Flachsmarktstr. 8
32825 Blomberg
Germany

Manufacturing
locations: **PHOENIX CONTACT GmbH & Co.
KG**
Flachsmarktstr. 8
32825 Blomberg
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/BVS/ExTR21.0072/02](#)

Quality Assessment Report:

[NL/DEK/QAR11.0009/10](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Subject and Type

See Annex

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.

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

The surge protective device TTC must be installed in an enclosure with a minimum degree of protection of IP54 according to 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 IEC 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.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- 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

Annex:

[BVS_21_0057X_Phoenix_Annex_issue2_1.pdf](#)



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Annex
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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

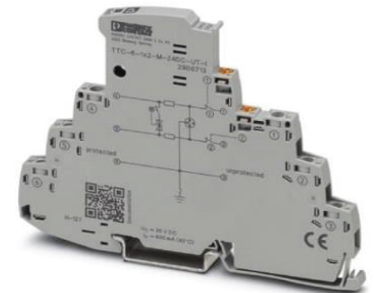


Figure 1: One-piece TTC-6



Figure 2: Multi-piece TTC-6P

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

TTC	-aa	-bbbbbb	-c	-d	-eeee	-ff	-g	-h
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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



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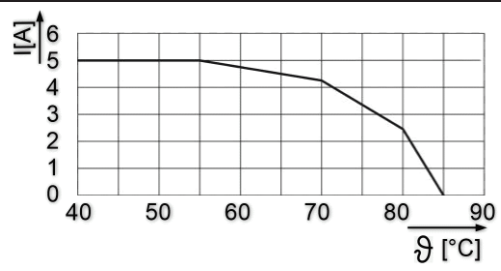
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Type designation (Function monitoring devices)

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	

Parameters

Electrical parameters

Types TTC-6-1x2..., TTC-6P-1x2..., TTC-6P-3... and TTC-6P-4...			
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)	$T_{amb} \leq 55\text{ °C}$	5	A
with derating			
Maximum current pluggable articles (type TTC-6P-...)	$T_{amb} \leq 30\text{ °C}$	0.6	A
	$30\text{ °C} < T_{amb} \leq 50\text{ °C}$	0.5	A
	$50\text{ °C} < T_{amb} \leq 70\text{ °C}$	0.4	A
Maximum current – not pluggable articles (type TTC-6-...)	$T_{amb} \leq 30\text{ °C}$	0.6	A
	$30\text{ °C} < T_{amb} \leq 50\text{ °C}$	0.5	A
	$50\text{ °C} < T_{amb} \leq 70\text{ °C}$	0.3	A
Maximum current type TTC-6P-3-APL-24DC-UT-I	w/o de-rating	3	A



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Types TTC-6-FMRS-*T			
Supply voltage range RX and TX (for set RS)	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
Remote contact voltage U _{FM}	DC	≤ 36	V
Remote contact voltage U _{FM}	AC peak	± 18	V
Remote contact current I _{FM} @ -40 ≤ T _{amb} ≤ 25 °C	DC / AC _{rms}	0.5	A
Remote contact current I _{FM} @ 25 < T _{amb} ≤ 60 °C	DC / AC _{rms}	0.3	A

Type TTC-6-FM*X-*T			
Supply voltage range RX and TX	DC	12 - 48	V
Supply voltage range RX and TX	AC	24 - 48	V
Operation current RX and TX @ 24 V U _{in}	DC	0.012	A
Operation current RX and TX @ 12 V U _{in}	DC	0.023	A
Remote contact voltage U _{FM}	DC	≤ 48	V
Remote contact voltage U _{FM}	AC peak	≤ 48	V
Remote contact current I _{FM} @ -40 ≤ T _{amb} ≤ 50 °C	DC / AC _{rms}	0.1	A
Remote contact current I _{FM} @ 50 < T _{amb} ≤ 70 °C	DC / AC _{rms}	0.05	A

Thermal parameters

Ambient temperature range with derating for types TTC-6-1x2... , TTC-6P-1x2... , TTC-6P-3... and TTC-6P-4... (inside the separately certified enclosure)	-40 °C ≤ T _{amb} ≤ 85 °C (T4) Note: Observe de-rating
Ambient temperature range with derating for types TTC-6-FM*X-*T (inside the separately certified enclosure)	-40 °C ≤ T _{amb} ≤ 70 °C (T4) Note: Observe de-rating
Ambient temperature range with derating for types TTC-6-FMRS-*T (inside the separately certified enclosure)	-40 °C ≤ T _{amb} ≤ 60 °C (T4) Note: Observe de-rating

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