



# Certificate of Compliance

Certificate: 70136717

Master Contract: 158887

Project: 70136717

Date Issued: June 16, 2017

Issued to: PHOENIX CONTACT GmbH & Co. KG

8 Flachsmarktstrasse

Blomberg, Germany,

Attention: Mr. Volker Juckel

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only*



*A Young Peng*

Issued by:

Anthony Yeung P.Eng

## PRODUCTS

CLASS 4873 02 - SECONDARY PROTECTORS USED IN TELECOMMUNICATION NETWORKS  
CLASS 4873 82 - SECONDARY PROTECTORS USED IN TELECOMMUNICATION NETWORKS -  
CERTIFIED TO U.S. STANDARDS

Component protectors TTC series with suffixes for use in data communication and fire alarm circuit. Details as shown below:

### TTC-6P – 6.2 mm Overall width Pluggable

Model	Nominal Voltage	Nominal Current	Rated Breakdown Voltage	
			100 V/s (Vdc)	100 V/μs (Vdc)
1X2-12DC	12 V dc	600 mA (40°C)	15-25 (L-L)	<1000 (L-L)
<b>1X2-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-L)	<1000 (L-L)
1X2-48DC	48 V dc	160 mA	60-80 (L-L)	<1000 (L-L)
2-HC-24DC	24 V dc	6 A (40°C)	30-45 (L-L)	<1000 (L-L)
2X1-12DC	12 V dc	600 mA (40°C)	15-25 (L-G)	<1000 (L-G)
<b>2X1-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-G)	<1000 (L-G)
2X1-48DC	48 V dc	220 mA	60-80 (L-G)	<1000 (L-G)
2XTVSD-12DC	12 V dc	6 A (40°C)	15-25 (L-G)	<1000 (L-G)
2XTVSD-24DC	24 V dc	6 A (40°C)	30-45 (L-G)	<1000 (L-G)
<b>3-HF-(EX)-12DC</b>	12 V dc	600 mA (40°C)	15-25 (L-L & L-G)	<1000 (L-L & L-G)
<b>3-HF-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-L & L-G)	<1000 (L-L & L-G)



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For models with additional GDT between signal ground and ground (-F), (L-G means lead to signal ground).

TTC 6 - 6,2mm overall width, non-pluggable

Model	Nominal Voltage	Nominal Current	Rated Breakdown Voltage	
			100 V/s (Vdc)	100 V/ $\mu$ s (Vdc)
1X2-12DC	12 V dc	600 mA (40°C)	15-25 (L-L)	<1000 (L-L)
<b>1X2-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-L)	<1000 (L-L)
1X2-48DC	48 V dc	160 mA	60-80 (L-L)	<1000 (L-L)
2-24DC	24 V dc	450 mA (40°C)	30-45 (L-L)	<1000 (L-L)
2-HC-24DC	24 V dc	6 A (40°C)	30-45 (L-L)	<1000 (L-L)
2X1-12DC	12 V dc	600 mA (40°C)	15-25 (L-G)	<1000 (L-G)
<b>2X1-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-G)	<1000 (L-G)
2X1-48DC	48 V dc	220 mA	60-80 (L-G)	<1000 (L-G)
2XTVSD-12DC	12 V dc	6 A (40°C)	15-25 (L-G)	<1000 (L-G)
2XTVSD-24DC	24 V dc	6 A (40°C)	30-45 (L-G)	<1000 (L-G)
<b>3-HF-(EX)-12DC</b>	12 V dc	600 mA (40°C)	15-25 (L-L & L-G)	<1000 (L-L & L-G)
<b>3-HF-(EX)-24DC</b>	24 V dc	600 mA (40°C)	30-45 (L-L & L-G)	<1000 (L-L & L-G)



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TTC 6 - 6,2mm single stage

Model	Nominal Voltage	Nominal Current	Rated Breakdown Voltage	
			100 V/s (Vdc)	100 V/μs (Vdc)
GDT-C-24AC	24 V ac	2 A	184-276 (L-G)	<1000 (L-G)
<b>GDT-C-110AC</b>	<b>110 V ac</b>	<b>2 A</b>	<b>184-276 (L-G)</b>	<b>&lt;1000 (L-G)</b>
GDT-D-24AC	24 V ac	2 A	184-276 (L-L)	<1000 (L-L)
GDT-D-60AC	60 V ac	2 A	184-276 (L-L)	<1000 (L-L)
MOV-C-24DC	24 V dc	10 A	38-93 (L-G)	<1000 (L-G)
MOV-C-48DC	48 V dc	10 A	85-165 (L-G)	<1000 (L-G)
MOV-C-60DC	60 V dc	10 A	100-200 (L-G)	<1000 (L-G)
<b>MOV-C-120AC</b>	<b>120 V ac</b>	<b>10 A</b>	<b>200-395 (L-G)</b>	<b>&lt;1000 (L-G)</b>
MOV-D-24DC	24 V dc	10 A	38-93 (L-L)	<1000 (L-L)
TVSD-C-12DC	12 V dc	10 A	15-25 (L-G)	<1000 (L-G)
TVSD-C-24DC	24 V dc	10 A	30-45 (L-G)	<1000 (L-G)
TVSD-C-48DC	48 V dc	10 A	60-80 (L-G)	<1000 (L-G)
TVSD-C-60DC	60 V dc	10 A	75-100 (L-G)	<1000 (L-G)
TVSD-D-24DC	24 V dc	10 A	30-45 (L-L)	<1000 (L-L)
TVSD-D-48DC	48 V dc	10 A	60-80 (L-L)	<1000 (L-L)
TVSD-D-60DC	60 V dc	10 A	75-100 (L-L)	<1000 (L-L)



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TTC 3 – 3,5mm housing

Model	Nominal Voltage	Nominal Current	Rated Breakdown Voltage	
			100 V/s (Vdc)	100 V/ $\mu$ s (Vdc)
1X2-24DC	24 V dc	250 mA	30 – 45 (L-L)	<1000 (L-L)
2X1-24DC	24 V dc	250 mA	30 – 45 (L-G)	<1000 (L-G)

TTC 6 – FM modules

Model	Nominal Voltage	Nominal Current	Rated Breakdown Voltage	
			100 V/s (Vdc)	100 V/ $\mu$ s (Vdc)
FMRS	24 V dc	30 mA	n.a.	n.a.



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**APPLICABLE REQUIREMENTS**

CAN/CSA C22.2 No. 0-M - General Requirements - Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 226-92 - Protectors in Telecommunication Networks

UL Std No. 497B - Protectors for Data Communication and Fire Alarm Circuits



## *Supplement to Certificate of Compliance*

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*The products listed, including the latest revision described below,  
are eligible to be marked in accordance with the referenced Certificate.*

### **Product Certification History**

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<b>Project</b>	<b>Date</b>	<b>Description</b>
<b>70136717</b>	<b>June 16, 2017</b>	<b>Original Certification.</b>