

CERTIFICATE

EU-Type Examination

- (2) **Component intended for use on/in equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **KEMA 10ATEX0196U** Issue Number: **7**

(4) Product: **PCB Connector Series Combicon EX:**
(E)(S)MSTB(V)(A) 2,5 GFKC 2,5
MVSTB(P)(R)(W) 2,5 FKIC 2,5
GMSTB(V) 2,5 TFKC 2,5
GMVSTB(R)(W) 2,5 IC(V) 2,5
FKC 2,5

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

(6) Address: **Flachsmarktstraße 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 B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 confidential test report number NL/KEM/ExTR10.0108/06.

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

EN IEC 60079-0 : 2018

EN 60079-7:2015 + A1:2018

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

(10) The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

(11) This EU-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.

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



II 2 GD Ex eb IIC Gb

Date of certification: 14 april 2025

DEKRA Certification B.V.

L.G. van Schie
Certification Manager

Page 1/2



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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 10ATEX0196U**

Issue No. 7

(15) **Description**

The PCB Connector Series Combicon Ex, (E)(S)MSTB(V)(A) 2,5, MVSTB(P)(R)(W) 2,5, GMSTB(V) 2,5, GMVSTB(R)(W) 2,5, FKC 2,5, GFKC 2,5, FKIC 2,5, TFKC 2,5 and IC(V) 2,5 for the interconnection of copper conductors in enclosures in type of protection increased safety "e".

Service temperature range -60 °C to +110 °C.

For electrical data and nomenclature see Annex 1 to Report No. NL/KEM/ExTR10.0108/05.

Installation instructions

The manufacturers instructions shall be followed in detail to assure safe operation.

(16) **Report Number**

NL/KEM/ExTR10.0108/06.

(17) **Schedule of Limitations**

1. The PCB connectors shall be mounted in an certified enclosure that meets the requirements of a type of protection as specified in EN 60079-0 clause 1, with a degree of protection at least as required for Ex e.
2. When assembling the PCB connectors, the required creepage distances and clearances have to be observed.
3. The installation instruction of the manufacturer shall be followed. The data regarding current and associated temperature rise shall be used as guideline for the given conductor cross sections. The cross section has influence on the temperature rise which shall be assessed in the end application.
4. If the PCB connectors are used in electrical apparatus of temperature classes T1 up to T5, the highest temperature of the insulating material shall not exceed the maximum value of the operating temperature range.
5. If the PCB connectors are used in electrical apparatus of temperature classes T6 the permissible ambient temperature range is $-60\text{ °C} \leq T_{amb} \leq +40\text{ °C}$.
6. To avoid mechanical stress to the soldered joints, the headers have to be mechanically supported by e.g. screwing or, bending the solder pins.

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/KEM/ExTR10.0108/06.

Note 1: in this document a point [.] is used as decimal separator.

Type designation

Series (E)(S)MSTB(V)(A), MVSTB(P)(R)(W), GMSTB(V) and GMSTB(R)(W) 2,5:

E MSTB V A 2,5 / 2 - ST F - 5,08 RN EX
I II III IV V VI VII VIII IX X XI

Designation	Explanation	Value	Explanation
I	Indicator for pitch between electrical contacts or type of connection between header and PCB	-- G E S ES	Normal pitch (5.08 mm) Large pitch (7.62 mm) Header with press-in solder pins Angled header Press in angled header with solder pins
II	Type indicator	MSTB MVSTB	Headers with solder pins (also compatible with FKC Plugs) and plugs with screw connection. With 90° cable entry into plug.
III	Plug-in direction (for header only)	-- V R W PR PW	Horizontal plug-in direction Vertical plug-in direction Cable entry in header at smooth side Cable entry in header at ribbed side As R with test sockets As W with test sockets
IV	Indicator for option on header	A	With side panels
V	Rated cross section	2,5	2.5 mm², 12 AWG
VI	Electrical contacts of plug and header	2 to 16	Amount of contacts
VII	Indicator for plug or header	ST G	Plug Header
VIII	Indicator for type of mechanical locking between plug and header	F FE FZ --	Screw flange Screw flange without screw Screw flange with cable support Designation X applies
IX	Pitch between electrical contacts	5,08 7,62 10,16	5.08 mm (normal pitch) 7.62 mm (large pitch) 10.16 mm (increased normal pitch)
X	Indicator for type of mechanical locking between plug and header	-- RN LR	Designation VIII applies Self-locking nozzle (header only) Lock and release lever (LR)
XI	Indicator for use in potential explosive atmospheres	EX	With Ex approval

Type designation (Continued)

Series FKC, GFKC 2,5 and FKIC:

G FKC 2,5 / 2 - ST F - 5,08 RF EX
I II III IV V VI VII VIII IX

Designation	Explanation	Value	Explanation
I	Indicator for pitch between electrical contacts	-- G	Normal pitch (5.08 mm) Large pitch (7.62 mm)
II	Type indicator	FKC FKIC	Plugs with push-in spring-cage connection (FKC=female FKIC=male)
III	Rated cross section	2,5	2.5 mm ² , 12 AWG
IV	Electrical contacts between plug and header	2 to 16	Amount of contacts
V	Indicator for plug or header	ST	Plug
VI	Indicator for type of mechanical locking between plug and header	F FZ --	Screw flange Screw flange with cable support Designation VIII applies
VII	Pitch between electrical contacts	5,08 7,62 10,16	5.08 mm (normal pitch) 7.62 mm (large pitch) 10.16 mm (increased normal pitch)
VIII	Indicator for type of mechanical locking between plug and header	-- RF LR	Designation VI applies Self-locking flange (RF) Lock and release lever (LR)
IX	Indicator for use in potential explosive atmospheres	EX	With Ex approval

Series TFKC 2,5:

FKC 2,5 / 2 - ST - 5,08 LR EX
I II III IV V VI VII

Designation	Explanation	Value	Explanation
I	Type indicator	TFKC	Plugs with twin push-in spring-cage connection (two wiring terminals per pole)
II	Rated cross section	2,5	2.5 mm ² , 12 AWG
III	Electrical contacts between plug and header	2 to 10	Amount of contacts
IV	Indicator for plug	ST	Plug
V	Pitch between electrical contacts	5,08	5.08 mm (normal pitch)
VI	Indicator for type of mechanical locking between plug and header	LR	Lock and release lever (LR)
VII	Indicator for use in potential explosive atmospheres	EX	With Ex approval

Type designation (Continued)

Series IC(V) 2,5:

G ICV 2,5 / 2 - ST F - 5,08 : EX
I II III IV V VI VII VIII IX

Designation	Explanation	Value	Explanation
I	Indicator for pitch between electrical contacts	-- G	Normal pitch (5.08 mm) Large pitch (7.62 mm)
II	Type indicator	IC ICV	Horizontal plug-in direction Vertical plug-in direction
III	Rated cross section	2,5	2.5 mm ² , 12 AWG
IV	Electrical contacts between plug and header	2 to 12	Amount of contacts
V	Indicator for plug or header	ST GF	Plug (male) Header (female)
VI	Indicator for type of mechanical locking between plug and header	F --	Screw flange Designation VIII applies
VII	Pitch between electrical contacts	5,08 7,62	5.08 mm (normal pitch) 7.62 mm (large pitch)
VIII	Indicator for type of mechanical locking between plug and header	-- RF LR	Designation VI applies Self-locking flange (RF) Lock and release lever (LR)
IX	Indicator for use in potential explosive atmospheres	EX	With Ex approval

Electrical data

Note 1: in this document a point [.] is used as decimal separator.

Type:	(E)(S)MSTB(V)(A) 2,5/...-5,08-...	EMSTBVA 2,5/...-10,16-...
Rated insulation voltage [V]	160	400
Rated voltage [V]	176	440
Rated current [A]	12	12
Maximum load current [A]	12	12
Temperature rise [K]	18.8 (13.5 A; 2.5 mm ²)	14.5 (13.2 A; 2.5 mm ²)
Contact resistance [mΩ]	0.7	1.1
Rated cross section [mm ²] (AWG)	2.5 (12)	2.5 (12)
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	0.2 - 1.0 (24 - 18)	0.2 - 1.0 (24 - 18)
- flexible [mm ²] (AWG)	0.2 - 1.5 (24 - 16)	0.2 - 1.5 (24 - 16)
Type:	MVSTB(P)(R)(W) 2,5/...	
Rated insulation voltage [V]	160	
Rated voltage [V]	176	
Rated current [A]	12	
Maximum load current [A]	12	
Temperature rise [K]	16.5 (13.5 A; 2.5 mm ²)	
Contact resistance [mΩ]	0.9	
Rated cross section [mm ²] (AWG)	2.5 (12)	
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	0.2 - 1.0 (24 - 18)	
- flexible [mm ²] (AWG)	0.2 - 1.5 (24 - 16)	

Electrical data (continued)

Type:	GMSTB(V) 2,5/...	GMVSTB(R)(W) 2,5/...
Rated insulation voltage [V]	320	320
Rated voltage [V]	352	352
Rated current [A]	12	12
Max. load current [A]	12	12
Temperature rise [K]	18.8 (13.5 A; 2.5 mm ²)	14.4 (13.5 A; 2.5 mm ²)
Contact resistance [mΩ]	0.7	0.9
Rated cross section [mm ²] (AWG)	2.5 (12)	2.5 (12)
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	0.2 - 1.0 (24 - 18)	0.2 - 1.0 (24 - 18)
- flexible [mm ²] (AWG)	0.2 - 1.5 (24 - 16)	0.2 - 1.5 (24 - 16)
Type:	FKC 2,5/...-5,08-...	FKC 2,5/...-10,16-...
Rated insulation voltage [V]	160	400
Rated voltage [V]	176	440
Rated current [A]	12	12
Max. load current [A]	12	12
Temperature rise [K]	30.6 (13.2 A; 2.5 mm ²)	30.6 (13.2 A; 2.5 mm ²)
Contact resistance [mΩ]	1.1	1.1
Rated cross section [mm ²] (AWG)	2.5 (12)	2.5 (12)
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	-	-
- flexible [mm ²] (AWG)	-	-

Electrical data (continued)

Type:	GFKC 2,5/...	FKIC 2,5/...
Rated insulation voltage [V]	320	200
Rated voltage [V]	352	220
Rated current [A]	12	12
Max. load current [A]	12	12
Temperature rise [K]	30.6 (13.2 A; 2.5 mm ²)	19.8 (13.5 A; 2.5 mm ²)
Contact resistance [mΩ]	1.1	0.9
Rated cross section [mm ²] (AWG)	2.5 (12)	2.5 (12)
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	-	-
- flexible [mm ²] (AWG)	-	-
Type:	TFKC 2,5/...-5,08-...	IC(V) 2,5/...
Rated insulation voltage [V]	160	160
Rated voltage [V]	176	176
Rated current [A]	12	12
Max. load current [A]	12	12
Temperature rise [K]	19.4 (13.2 A; 2.5 mm ²)	20.3 (13.5 A; 2.5 mm ²)
Contact resistance [mΩ]	1.5	0.9
Rated cross section [mm ²] (AWG)	2.5 (12)	2.5 (12)
Connectable conductor cross section		
- solid [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
- flexible [mm ²] (AWG)	0.2 - 2.5 (24 - 12)	0.2 - 2.5 (24 - 12)
Multi-conductor connection		
(2 conductors with the same cross section)		
- solid [mm ²] (AWG)	-	0.2 - 1.0 (24 - 18)
- flexible [mm ²] (AWG)	-	0.2 - 1.5 (24 - 16)

Scope

Series (E)(S)MSTB(V)(A) 2,5:

MSTB 2,5/...-STF-5,08 EX
MSTB 2,5/...-STFZ-5,08 EX
MSTB 2,5/...-GF-5,08 EX
EMSTB 2,5/...-GF-5,08 EX
MSTBV 2,5/...-GF-5,08 EX
EMSTBV 2,5/...-GF-5,08 EX
MSTBA 2,5/...-G-5,08-RN EX
MSTBVA 2,5/...-G-5,08-RN EX
EMSTBA 2,5/...-G-5,08-RN EX
EMSTBVA 2,5/...-G-5,08-RN EX
EMSTBVA 2,5/...-G-5,08-LR EX
SMSTB 2,5/...-G-5,08-RN EX
MSTBV 2,5/...-GFE-5,08-LR EX
EMSTBVA 2,5/...-G-10,16-LR EX

Series MVSTB(P)(R)(W) 2,5:

MVSTBR 2,5/...-STF-5,08 EX
MVSTBW 2,5/...-STF-5,08 EX
MVSTBPR 2,5/...-STF-5,08 EX
MVSTBPW 2,5/...-STF-5,08 EX

Series GMSTB(V) 2,5:

GMSTB 2,5/...-STF-7,62 EX
GMSTB 2,5/...-STFZ...-7,62 EX
GMSTB 2,5/...-GF-7,62 EX
GMSTBV 2,5/...-GF-7,62 EX

Series GMVSTB(R)(W) 2,5:

GMVSTBR 2,5/...-STF-7,62 EX
GMVSTBW 2,5/...-STF-7,62 EX

Series FKC 2,5:

FKC 2,5/...-STF-5,08 EX
FKC 2,5/...-ST-5,08-RF EX
FKC 2,5/...-ST-5,08-LR EX
FKC 2,5/...-ST-10,16-LR EX

Series GFKC 2,5:

GFKC 2,5/...-STF-7,62 EX

Series FKIC 2,5:

FKIC 2,5/...-STF-5,08 EX

Series TFKC 2,5:

TFKC 2,5/...-ST-5,08-LR EX

Series IC(V) 2,5:

IC 2,5/...-STF-5,08 EX
IC 2,5/...-STFZ...-5,08 EX
IC 2,5/...-GF-5,08 EX
ICV 2,5/...-GF-5,08 EX