



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 SIR 21.0005X	Page 1 of 4	<u>Certificate history:</u> Issue 0 (2021-03-05)
Status:	Current	Issue No: 1	
Date of Issue:	2021-11-17		
Applicant:	PHOENIX CONTACT GmbH & Co. KG Flachsmarktstraße 8 32825 Blomberg Germany		
Equipment:	VIP I/O-Marshalling platform IOA modules		
Optional accessory:			
Type of Protection:	Increased Safety "ec" and Intrinsically Safe "ic"		
Marking:	IOA PR-DAI/DAO/F/DS/0.25A/EX IOA PR-DAI/DAO/F/DS/2A/EX IOA LM-DI/R/RUSIO/EX Ex ec IIC T4 Gc Ex ic IIC T4 Gc Ta: -40°C to +75°C IOA FEED-THRU-DO/NI/EX Ex ec [ic] IIC T4 Gc Ex ec [ic] IIC Dc] IIC T4 Gc Ta: -40°C to +70°C IOA DAC-4DI/AI/EX Ex ec IIC T4 Gc Ex ec [ic] IIC T4 Gc Ta: -40°C to +75°C		

Approved for issue on behalf of the IECEx
Certification Body:

Neil Jones

Position:

Certification Manager

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
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Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom





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Issue No: 1

Manufacturer: **PHOENIX CONTACT Electronics GmbH**
Dringenauer Straße 30
31821 Bad Pyrmont
Germany

Additional
manufacturing
locations: **Phoenix Contact Development &
Manufacturing**
586 Fulling Mill Road
Middletown
Pennsylvania 17057
United States of America

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 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

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 Reports:

[GB/CSAE/ExTR21.0149/00](#)

[GB/SIR/ExTR21.0037/00](#)

Quality Assessment Reports:

[NL/DEK/QAR11.0009/08](#)

[NL/DEK/QAR11.0012/04](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

These IOA Modules are designed to be installed in the Phoenix certified VIP Viper base module which is used in the VIP I/O- Marshalling platform.

The various Input / Output Accessories (IOAs) that are intended to install on the base elements and in an enclosure of a minimum IP54. It will have various functions such as, feed-thru, analog protection, digital protection, digital input / output relay, and signal conditioning, as examples.

Refer to the Annexe for additional Information

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to the Annexe as each module has their own.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1 – this Issue introduced the following changes:

1. The removal of a Specific Condition of Use.

Annex:

[IECEx SIR 21.0005X Annexe Issue 1.pdf](#)

Annexe to: IECEx SIR 21.0005X Issue 1

Applicant: Phoenix Contact GmbH & Co. KG

Apparatus: VIP I/O-Marshalling platform IOA modules



The description is copied here in full for clarity

These IOA Modules are designed to be installed in the Phoenix certified VIP Viper base module which is used in the VIP I/O- Marshalling platform.

The various Input / Output Accessories (IOAs) that are intended to install on the base elements and in an enclosure of a minimum IP54. It will have various functions such as, feed-thru, analog protection, digital protection, digital input / output relay, and signal conditioning, as examples.

Manufacturer Part -No.	Model No. Description
1048208	IOA PR-DAI/DAO/F/DS/2A/EX
1188706	IOA PR-DAI/DAO/F/DS/0.25A/EX
1048209	IOA LM-DI/R/RUSIO/EX
1172189	IOA FEED-THRU-DO/NI/EX
1145061	IOA DAC-4DI/AI/EX

IOA PR-DAI/DAO/F/DS/...A/EX

The IOA PR-DAI/DAO/F/DS/...A/EX module is an input/output module for analog and digital signals. It allows easy measurement of current values via integrated test points and a disconnect switch. An integrated, replaceable fuse protects connected field devices. The IOA PR-DAI/DAO/F/DS/2A/EX incorporates a 2.5A fuse (F1) and the IOA PR-DAI/DAO/F/DS/0.25A/EX incorporates a 315mA fuse (F1) in the power connection from P1.

'Ex ec IIC T4 Gc' Ratings

30 V Max
1.0 A Max

'Ex ic IIC T4 Gc' Entity Parameters

Pin 5 (CHn+) / Pin 6 (CHn-)

Ui = 30 V li = 1 A

Li = 0

Ci = 0

Pin 15 (nA) / Pin 18 (nB)

nA/nB Uo = voltage at CHn+/CHn

Io = current at CHn+/CHn

Li = 0 Ci = 0

IOA LM-DI/R/RUSIO/EX

The IOA LM-DI/R/RUSIO/EX module is a digital input module for switching contacts. It allows line fault monitoring to enable standard switching contacts in safety applications with a Honeywell RUSIO-3224 safety IO card. With the two resistors installed in the device, both wire breaks and short circuits between IO card and IOA can be detected.

'Ex ec IIC T4 Gc' Ratings

30 V Max
6 mA Max

6 mA Max is achieved only if field terminals are shorted together.

'Ex ic IIC T4 Gc' Entity Parameters

Pin 5 (CHn+) / Pin 6 (CHn-)

Ui = 30 V li = 6 mA

Li = 0 Ci = 0

6 mA Max is achieved only if field terminals are shorted together.

Pin 15 (nA) / Pin 18 (nB)

nA/nB Uo = voltage at CHn+/CHn Io = 4 mA

Li = 0 Ci = 0

4 mA Max is achieved only if field terminals are shorted together.

Annexe to: IECEx SIR 21.0005X Issue 1

Applicant: Phoenix Contact GmbH & Co. KG

Apparatus: VIP I/O-Marshalling platform IOA modules



IOA FEED-THRU-DO/NI/EX

The IOA FEED-THRU-DO/NI/EX module is a non-incendive barrier for digital signals. It limits the maximum voltage and available current on the field side. This is a single channel IOA that has two options for installation to help minimize the amount of power loss.

Option 1: offers 400 Ohms of series resistance

Option 2: offers 300 Ohms of series resistance

'Ex ec IIC T4 Gc Ratings

26.4 V Max

88 mA Max

88 mA Max is achieved using option #2, if field terminals are shorted together.

'Ex ec [ic] IIC T4 Gc', 'Ex ec [ic IIIC Dc] IIC T4 Gc' Entity Parameters

Pin 5 (CHn+) / Pin 6 (CHn-)

Um = 26.4 Vdc Vrated = 26.4 V

Irated = 88 mA

Prated = 2.32 W

88 mA Max is achieved using option #2, if field terminals are shorted together.

Pin 15 (nA) / Pin 18 (nB) Option #1

nA/nB Uo = voltage at CHn+/CHn-

Io = 66.8 mA

Po = 588 mW

Lo

Co

15.4 mH (IIC)

0.25 uF (IIC)

61.9 mH (IIB)

1.58 uF (IIB)

123 mH (IIA)

6.3 uF (IIA)

61.9 mH

1.58 uF

(IIIA, IIIB, IIIC)

(IIIA, IIIB, IIIC)

Pin 19 (nC) / Pin 22(nD) Option #2

nC/nD Uo = voltage at CHn+/CHn-,

Io = 89.4 mA

Po = 680 mW

Lo

Co

8.7 mH (IIC)

0.25 uF (IIC)

34.9 mH (IIB)

1.58 uF (IIB)

69.7 mH (IIA)

6.3 uF (IIA)

34.9 mH

1.58 uF

(IIIA, IIIB, IIIC)

(IIIA, IIIB, IIIC)

IOA DAC-4DI/AI/EX

The IOA DAC-4DI/AI/EX accepts digital inputs and converts them to status-proportional 4-20 mA current signals. This allows conversion of up to four digital inputs to a single analog channel, freeing 3 channels on the base.

'Ex ec IIC T4 Gc' Ratings

Pin 5 (CHn+) / Pin 6 (CHn-) 30 V Max 19 mA +/- 0.25 mA

Pin 15 (nA) / Pin 18 (nB) nA/nB/nC/nD 2.5 V

nA with respect to CHn- = 1 mA

1 mA is achieved with a max load of 350 Ohms.

nB with respect to CHn- = 2 mA

2 mA is achieved with a max load of 350 Ohms.

nC with respect to CHn- = 4 mA

4 mA is achieved with a max load of 350 Ohms.

nD with respect to CHn- = 8 mA

8 mA is achieved with a max load of 350 Ohms.

Annexe to: IECEx SIR 21.0005X Issue 1

Applicant: Phoenix Contact GmbH & Co. KG

Apparatus: VIP I/O-Marshalling platform IOA modules



'Ex ec [ic] IIC T4 Gc' Entity Parameters

Pin 5 (CHn+) / Pin 6 (CHn-)

Um = 30 V Vrated = 30 V

Irated = 19 mA

Prated = 570 mW

Pin 15 (nA) / Pin 18 (nB) Pin 19 (nC) / Pin 22(nD)

nA/nB/nC/nD Uo = 2.5125 V Io = 19.55 mA Po = 49 mW Co = 999 uF Lo = 209 mH

Specific Conditions of Use

IOA PR-DAI/DAO/F/DS/...A/EX

- The equipment shall be fitted to, and used with, a suitably certified Phoenix Contact VIPER Base Module that will provide the required external connection facilities.
- Provision shall be made externally to prevent the rated input from being exceeded by transient disturbances of more than 140% of the rated voltage value. See electrical ratings in this document.
- The equipment must be installed in a suitably certified, tool-secured enclosure providing a minimum ingress protection of IP 54 in accordance with IEC 60079-0. The overall equipment (with its enclosure) shall only be used in an area of pollution degree 2 or better, as defined in IEC 60664-1. Alternatively, the additional enclosure must provide a pollution degree of 2 or better, as defined in IEC 60664-1, on the inside.
- The enclosure shall be provided with the following warning 'WARNING – DO NOT REMOVE OR REPLACE FUSES WHEN ENERGIZED'.
- Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +75^{\circ}\text{C}$.

IOA LM-DI/R/RUSIO/EX

- The equipment shall be fitted to, and used with, a suitably certified Phoenix Contact VIPER Base Module that will provide the required external connection facilities.
- Provision shall be made externally to prevent the rated input from being exceeded by transient disturbances of more than 140% of the rated voltage value. See electrical ratings in this document.
- The equipment must be installed in a suitably certified, tool-secured enclosure providing a minimum ingress protection of IP 54 in accordance with IEC 60079-0. The overall equipment (with its enclosure) shall only be used in an area of pollution degree 2 or better, as defined in IEC 60664-1.
- Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +75^{\circ}\text{C}$.

IOA FEED-THRU-DO/NI/EX

- The equipment shall be fitted to, and used with, a suitably certified Phoenix Contact VIPER Base Module that will provide the required external connection facilities.
- Provision shall be made externally to prevent the rated input from being exceeded by transient disturbances of more than 140% of the rated voltage value. See electrical ratings in this document.
- When the equipment is connected to intrinsically safe circuits, provision shall be made external to the equipment that ensures that the circuits are limited to overvoltage category II as defined in IEC 60664-1.
- The equipment must be installed in a suitably certified, tool-secured enclosure providing a minimum ingress protection of IP 54 in accordance with IEC 60079-0. The overall equipment (with its enclosure) shall only be used in an area of pollution degree 2 or better, as defined in IEC 60664-1.
- Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +70^{\circ}\text{C}$.

Date: 17 November 2021

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Annexe to: IECEx SIR 21.0005X Issue 1

Applicant: Phoenix Contact GmbH & Co. KG

Apparatus: VIP I/O-Marshalling platform IOA modules



IOA DAC-4DI/AI/EX

- i. The equipment shall be fitted to, and used with, a suitably certified Phoenix Contact VIPER Base Module that will provide the required external connection facilities.
- ii. Provision shall be made externally to prevent the rated input from being exceeded by transient disturbances of more than 140% of the rated voltage value. See electrical ratings in this document.
- iii. When the equipment is connected to intrinsically safe circuits, provision shall be made external to the equipment that ensures that the circuits are limited to overvoltage category II as defined in IEC 60664-1.
- iv. The equipment must be installed in a suitably certified, tool-secured enclosure providing a minimum ingress protection of IP 54 in accordance with IEC 60079-0. The overall equipment (with its enclosure) shall only be used in an area of pollution degree 2 or better, as defined in IEC 60664-1.
- v. Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +75^{\circ}\text{C}$.