



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **CSANe 20ATEX3152X** Issue: **1**

4 Equipment: **VIP I/O-Marshalling platform IOA modules**

5 Applicant: **Phoenix Contact GmbH & Co. KG**

6 Address: Flachsmarktstraße 8
32825 Blomberg
Germany

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design of Category 3 equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0: 2018 EN 60079-7: 2015+A1:2018 EN 60079-11: 2012

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This Type Examination Certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

IOA PR-DAI/DAO/F/DS/0.25A/EX

IOA PR-DAI/DAO/F/DS/2A/EX

IOA LM-DI/R/RUSIO/EX



II 3 G
Ex ec IIC T4 Gc
Ex ic IIC T4 Gc
Ta: -40°C to +75°C



II 3 G
II 3(3) G(D)
Ex ec [ic] IIC T4 Gc
Ex ec [ic IIIC Dc] IIC T4 Gc
Ta: -40°C to +70°C



II 3 G
Ex ec IIC T4 Gc
Ex ec [ic] IIC T4 Gc
Ta: -40°C to +75°C

Project Number 80078327

Signed: J A May

Title: Director of Operations



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SCHEDULE

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Issue 1

13 DESCRIPTION OF EQUIPMENT

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 Ii = 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 Ii = 6 mA

Li = 0

Ci = 0

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



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Pin 15 (nA) / Pin 18 (nB)

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

I_o = 4 mA

Li = 0

Ci = 0

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

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-)

U_m = 26.4 Vdc

V_{rated} = 26.4 V

I_{rated} = 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

U_o = voltage at
CHn+/CHn-

I_o = 66.8 mA

P_o = 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

U_o = voltage at
CHn+/CHn-,

I_o = 89.4 mA

P_o = 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)



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Issue 1

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.

'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

Variation 1 - This variation introduced the following changes:

- i. The removal of a Specific Condition of Use.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	05 March 2021	R80047686A	The release of the prime certificate.
1	17 November 2021	R80078327A	The introduction of Variation 1.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

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

- 15.1 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.
- 15.2 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.



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Issue 1

- 15.3 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.
- 15.4 The enclosure shall be provided with the following warning 'WARNING – DO NOT REMOVE OR REPLACE FUSES WHEN ENERGIZED'.
- 15.5 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

- 15.1 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.
- 15.2 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.
- 15.3 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.
- 15.4 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

- 15.1 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.
- 15.2 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.
- 15.3 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.
- 15.4 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.
- 15.5 Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +70^{\circ}\text{C}$.

IOA DAC-4DI/AI/EX

- 15.1 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.
- 15.2 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.
- 15.3 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.



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Issue 1

- 15.4 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.
- 15.5 Installer must ensure that the ambient temperature of the product is maintained within the range of $-40^{\circ}\text{C} < T_{\text{amb}} < +75^{\circ}\text{C}$.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**
The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF MANUFACTURE**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Certificates.
- 17.2 Holders of Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.