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

Ex COMPONENT CERTIFICATE

Certificate No.: **IECEx SIR 16.0091U**

Certificate history:
Issue 1 (2019-08-21)
Issue 0 (2017-01-04)

Status: **Current**

Issue No: 2

Date of Issue: 2023-03-22

Applicant: **Analog Devices Inc.**
804 Woburn St
Wilmington
MA, 01887
United States of America

Ex Component: ADUM144X Series Digital Isolators

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Intrinsic Safety**

Marking: Ex ia IIC Ga

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Director Operations, UK & Industrial Europe**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
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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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Manufacturer: **Analog Devices Inc.**
Gateway Business Park
Javalera
Gen. Trias Cavite
4107
Philippines

Manufacturing locations: **Analog Devices Inc.**
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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 component 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

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 component listed has successfully met the examination and test requirements as recorded in:

Test Reports:

GB/SIR/ExTR16.0229/00 GB/SIR/ExTR19.0212/00 GB/SIR/ExTR23.0070/00

Quality Assessment Report:

GB/SIR/QAR16.0008/03

IECEx Certificate of Conformity

Ex Component(s) covered by this certificate is described below:

The ADuM144x is a Quad channel digital isolator. This assembly is intended to be used as an isolating component between separate intrinsically safe circuits. There are 6 variants available in two package options; a 16 pin QSOP package or a 20 pin SSOP package, with different dimensions and lead frames, but the same die set and isolation transformers for each. This family of devices has channel direction variants as well as differences in the logic state maintained at the active output when half of the chip does not have power applied. The differences are programmed at assembly by bond options.

The equipment assembly should be connected to suitably certified intrinsically safe circuits considering the entity parameters as shown in the Annexe:

SCHEDULE OF LIMITATIONS:

Refer to the Annexe

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
This issue, Issue 2, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Update the report for additional entity parameters and increasing maximum ambient temperature (125°C) for SSOP-20 package.
2. Update of product marking labels to accommodate UKCA markings.

Annex:

IECEx SIR 16.0091U Annexe Iss 2.pdf

Annexe to: **IECEx SIR 16.0091U Issue 2**

Applicant: **Analog Devices Inc.**

Apparatus: **ADUM144X Series Digital Isolators**

Models

Model	Package	Model	Package	Model	Package
ADuM1440ARQZ	QSOP-16	ADuM1442ARQZ	QSOP-16	ADuM1446ARQZ	QSOP-16
ADuM1441ARQZ	QSOP-16	ADuM1445ARQZ	QSOP-16	ADuM1447ARQZ	QSOP-16
ADuM1440ARSZ	SSOP-20	ADuM1442ARSZ	SSOP-20	ADuM1446ARSZ	SSOP-20
ADuM1441ARSZ	SSOP-20	ADuM1445ARSZ	SSOP-20	ADuM1447ARSZ	SSOP-20
AD71217ARSZ	SSOP-20				

The equipment assembly should be connected to suitably certified intrinsically safe circuits considering following entity parameters:

Package Type	Entity Parameters Side 1		Entity Parameters Side 2	
QSOP-16	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF
SSOP-20	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF
Alternate entity parameters for SSOP -20				
SSOP-20	Ui = 42 V Ii = 275 mA Pi = 1.0W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.0W	Li = 0 Ci = 4pF

Schedule of Limitations

The user/installer shall comply with the following:

i. The components being certified comply with IEC 60079-11:2011. When one of these components will be used in an equipment, the component is to be fitted on a PCB inside a suitable enclosure and re-certified as equipment. The creepage and clearance distances across the isolating component have been evaluated but the distances to other circuitry remain the responsibility of the user of the certified equipment.

ii. This assembly is an isolating component between separate intrinsically safe circuits. The assembly should be connected to suitably certified intrinsically safe circuits considering following entity parameters:

Package Type	Entity Parameters Side 1		Entity Parameters Side 2		Max. operating range
QSOP-16	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	-55°C to 85°C
SSOP-20	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.3W	Li = 0 Ci = 4pF	-55°C to 85°C
Alternate entity parameters for SSOP -20					
SSOP-20	Ui = 42 V Ii = 275 mA Pi = 1.0W	Li = 0 Ci = 4pF	Ui = 42 V Ii = 275 mA Pi = 1.0W	Li = 0 Ci = 4pF	-55°C to 125°C

iii. The components (i.e. Digital Isolators) being certified will have the following safety ratings. The temperature class will be determined based on the following table:

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Hawarden Deeside CH5 3US, UK.

Package type	Maximum power Side 1 (W)	Maximum power Side 2 (W)	Maximum component temperature (°C)	Ambient Temperature (°C)
QSOP-16	1.3	1.3	189.8	85
SSOP-20	1.3	1.3	218	85
SSOP-20(for alternate parameter)	1.0	1.0	200	125

Full certificate change history

Issue 1 – this Issue introduced the following changes:

i. Adding additional model, AD71217ARSZ, which is identical to the existing components, the model table was amended accordingly.
ii. Lowering the ambient temperature, which resulted in a modification to the schedule of limitation item i.
iii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-0:2011 Ed. 6 was replaced by IEC 60079-0:2017 Ed. 7.

Issue 2 – this Issue introduced the following changes:

i. Update the report for additional entity parameters and increasing maximum ambient temperature (125°C) for SSOP-20 package.
ii. Update of product marking labels to accommodate UKCA markings.

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