



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 MSC 21.0005X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2021-12-03

Applicant: **Accutron Instruments Inc.**
11 Mary Street
Sudbury, Ontario P3C 1B4
Canada

Equipment: **Accutron IS Airflow Monitor**

Optional accessory:

Type of Protection: **Intrinsic safety ia**

Marking: **Ex ia I Ma**
-40°C ≤ T_{amb} ≤ 60°C

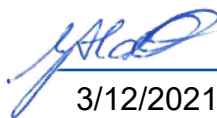
Approved for issue on behalf of the IECEx
Certification Body:

Geoff Slater

Position:

MSTC Manager

Signature:
(for printed version)



Date:

3/12/2021

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3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



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MSTC Mine Safety Technology Centre
8 Hartley Drive
Thornton NSW 2322
PO Box 343
Australia



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Manufacturer: **Accutron Instruments Inc.**
11 Mary Street
Sudbury, Ontario P3C 1B4
Canada

Additional manufacturing locations: **NLT Australia Pty Limited**
U1-2 / 22-26 Cessna Drive
Caboolture QLD 4510
Australia

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

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:

[AU/MS/ExTR21.0006/00](#)

[CA/QPS/ExTR21.0002/02](#)

Quality Assessment Reports:

[AU/TSA/QAR07.0013/07](#)

[CA/QPS/QAR21.0001/00](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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The Accutron IS Airflow Monitor can be used for airflow measurements in the area of a mine known as the drift, or measuring output airflow from large mine fans. The airflow measurements are made using ultrasonic Transducer assemblies. The use of a particular system is identified in the model part number as shown below.

- ACCIS-IECEX-SYS-001
- ACCIS-SYS-002-DR (Drift)
- ACCIS-SYS-002-FN (Fan)

There are no differences in the internal hardware or intrinsically safe circuitry between the two models. The operational differences are only in the physical mounting hardware which is different for the drift and fan models.

The basic operation of the Airflow System uses ultrasonic pulses which are sent back and forth between two transducers across the drift through the air current or across a fan output. The difference in time between the ultrasonic signal sending time and receiving time is directly proportional to the airflow.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- CAUTION – The Accutron IS Airflow Monitor must only be installed in a manner that will avoid an ignition hazard due to impact or friction.
- WARNING – DO NOT OPEN WHEN COAL DUST IS PRESENT
- CAUTION – The cover screws must be torqued to a value of 4.5N*m (40in*lbs)
- CAUTION – Refer to IS control drawing during installation.
- ATTENTION – No user replaceable parts. Contact the manufacturer for service.

The following parameters shall be observed during installation:

J1 Power Supply

- $U_i = 12.6V_{dc}$
- $I_i = 2.5A$
- $C_i = 0.0\mu F$
- $L_i = \text{Negligible}$

J2 Isolated 4-20mA Output

- $U_i = 28V_{dc}$
- $I_i = 93mA$
- $P_i = 0.65W$
- $C_i = 1\mu F$
- $L_i = 5\mu H$

J3 Isolated RS485 – Power Externally

- $U_i = 5.88V_{dc}$
- $I_i = 3.25A$
- $I_i = 0.5A$
- $C_i = 0.3\mu F$
- $L_i = \text{Negligible}$

Annex:

[Annex of IECEx MSC 21.0005X-00_1.pdf](#)



IECEx Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 21.0005X Issue No:00

Drawing list pertaining to Issue 0 of this Certificate:

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
Equivalent Lumped LCR for System	ACCIS-IECEX-SYS-001-EQCCT	Rev 0	2020/03/23
System Drawing	ACCIS-IECEX-SYS-001-DWG	Rev 0	2020/03/23
Functional Explanation	ACCIS-IECEX-SYS-001-FE	Rev 0	2020/03/23
Bill of Materials	ACCIS-IECEX-SYS-001-BOM	Rev 0	2020/03/23
Block Diagram of System	ACCIS-IECEX-SYS-001-BKDIAG	Rev 0	2020/03/23
Input / Output Parameters for J1, J2, J3	ACCIS-IECEX-SYS-001- PORTPRMTRS	Rev 0	2020/03/23
System Documentation Map	ACCIS-IECEX-SYS-001- DOCMAP	Rev 0	2020/03/23
Bill of Materials	ACCIS-IECEX-SYS-001- WIRESPEC	Rev A	2010/12/01
Bill of Materials	ACCIS-IECEX-SYS-001- PCBSPEC	Rev A	2010/12/07
Maintaining IP65 Rating	ACCIS-IECEX-SYS-001- INSTGUIDE	Rev 0	2020/03/23
Bill of Materials	ACCIS-CNTRL-ASY-003-BOM	Rev 0	2020/03/23
Control Box Sub-Assemblies	ACCIS-CNTRL-ASY-003-DWG	Rev 0	2020/03/23
Bill of Materials	ACCIS-CNTRL-ENC-002-BOM	Rev 1	2020/12/18
Control Box Enclosure (<i>Sheet 1 of 4</i>)	ACCIS-CNTRL-ENC-002-DWG	Rev D	2021-09-01
Box Cover with Window (<i>Sheet 2 of 4</i>)	ACCIS-CNTRL-ENC-002-DWG	Rev D	2021-09-01
Manufacturer Sticker (<i>Sheet 3 of 4</i>)	ACCIS-CNTRL-ENC-002-DWG	Rev D	2021-09-01
Manufacturer Internal Label (<i>Sheet 4 of 4</i>)	ACCIS-CNTRL-ENC-002-DWG	Rev D	2021-09-01
Bill of Materials	ACCIS-CNTRL-INTCAB-001-BOM	Rev A	2010/07/08
Internal Transducer cable	ACCIS-CNTRL-INTCAB-001-SCH	Rev B	2011/02/24
Bill of Materials	ACCIS-MBD-ASY-002-BOM	Rev G.1	2020/09/01
Top Copper (<i>PCB Artwork Sheet 1 of 3</i>)	ACCIS-MBD-PWC-005-DWG	Rev 3	2011/02/25
Bottom Copper (<i>PCB Artwork Sheet 2 of 3</i>)	ACCIS-MBD-PWC-005-DWG	Rev 3	2011/02/25
Top Silk (<i>PCB Artwork Sheet 3 of 3</i>)	ACCIS-MBD-PWC-005-DWG	Rev 3	2011/02/25
Motherboard Schematic (<i>2 Sheets</i>)	ACCIS-MBD-ASY-004-SCH	Rev 3.1	2020/09/01

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Annex for Certificate No.: IECEx MSC 21.0005X Issue No:00

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
Gerber 7 Files	ACCIS-MBD-PWC-005	----	N/A
Top Copper (PCB Artwork Sheet 1 of 5)	ACCIS-BAB-PWC-001-DWG	Rev 5	2013/05/09
Inner Layer 1 (PCB Artwork Sheet 2 of 5)	ACCIS-BAB-PWC-001-DWG	Rev 5	2013/05/09
Inner Layer 2 (PCB Artwork Sheet 3 of 5)	ACCIS-BAB-PWC-001-DWG	Rev 5	2013/05/09
Bottom Copper (PCB Artwork Sheet 4 of 5)	ACCIS-BAB-PWC-001-DWG	Rev 5	2013/05/09
Top Silk (PCB Artwork Sheet 5 of 5)	ACCIS-BAB-PWC-001-DWG	Rev 5	2013/05/09
Bill of Materials	ACCIS-BAB-ASY-001-BOM	Rev H.1	2020/09/01
Baby Board Schematic (2 Sheets)	ACCIS-BAB-ASY-001-SCH	Rev 7	2013/10/31
Gerber 9 Files	ACCIS-BAB-PWC-001	Rev 5	N/A
Bill of Materials (2 Sheets)	ACCIS-BARBT-ASY-002-BOM	Rev N.2	2021/08/10
Barrier Board Fix	ACCIS-BARBT-ASY-FIX-DWG	Rev 0	2013/11/06
Top Copper (PCB Artwork Sheet 1 of 3)	ACCIS-BARBT-PWC-003-DWG	Rev 7	2013/06/21
Bottom Copper (PCB Artwork Sheet 2 of 3)	ACCIS-BARBT-PWC-003-DWG	Rev 7	2013/06/21
Top Silk + Outline (PCB Artwork Sheet 3 of 3)	ACCIS-BARBT-PWC-003-DWG	Rev 7	2013/06/21
Barrier Board Zener Diode Placement	ACCIS-BARBT-ASY-002-DWG	Rev B	2010/11/05
Functional Explanation	ACCIS-BARBT-002-FE	Rev A	2010/07/28
Gerber7 files	ACCIS-BARBT-PWC-003	Rev 6	N/A
Bill of Materials	ACCIS-BCKPLT-ASY-003-BOM	Rev 0	2020/03/23
Back Panel Layout	ACCIS-BCKPLT-ASY-003-DWG	Rev 0	2020/03/23
Barrier Board schematic	ACCIS-BARBT-ASY-003-SCH	Rev 9.1	2020/09/01
Bill of Materials	ACCIS-CABXXX-ASY-001-BOM	Rev B	2011/05/16
Cable Assembly Wiring Detail	ACCIS-CABXXX-ASY-002-SCH	Rev A	2010/06/08
Bill of Materials (2 Sheets)	ACCIS-UXDC-ASY-002-BOM	Rev H	2021/06/23
Transducer Circuit Schematic (2 Sheets)	ACCIS-UXDC-ASY-003-SCH	Rev 4.1	2020/09/01

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
Top Copper (PCB Artwork Sheet 1 of 5)	ACCIS-UXDC-PWC-004-DWG	Rev 2	2010/07/29
Inner Layer 1 (PCB Artwork Sheet 2 of 5)	ACCIS-UXDC-PWC-004-DWG	Rev 2	2010/07/29
Inner Layer 2 (PCB Artwork Sheet 3 of 5)	ACCIS-UXDC-PWC-004-DWG	Rev 2	2010/07/29
Bottom Copper (PCB Artwork Sheet 4 of 5)	ACCIS-UXDC-PWC-004-DWG	Rev 2	2010/07/29
Top Silk (PCB Artwork Sheet 5 of 5)	ACCIS-UXDC-PWC-004-DWG	Rev 2	2010/07/29
Gerber 9 Files	ACCIS-UXDC-PWC-004	Rev 2	N/A
Bill of Materials	ACCIS-XDC-ASY-001-BOM	Rev B	2011/02/17
Functional Explanation (2 Sheets)	ACCIS-XDC-ASY-001-FE	Rev A	2010/07/28
Transducer Assembly (2 Sheets)	ACCIS-XDC-ASY-002-DWG	Rev B	2011/02/18
Bill of Materials	ACCIS-XDC-ENC-002-BOM	Rev B	2010/11/16
Transducer Enclosure	ACCIS-XDC-ENC-002-DWG	Rev D	2011/02/24
Bill of Materials	ACCIS-XDC-INTCAB-001-BOM	Rev B	2010/07/28
Internal Transducer Assembly	ACCIS-XDC-INTCAB-002-SCH	Rev B	2010/07/28
Bill of Materials	ACCIS-XDC1-ENC-001-BOM	Rev A	2011/02/17
Transducer Enclosure	ACCIS-XDC1-ENC-001-DWG	Rev A	2011/02/17
ESD Sticker Drawing	XDC-ESDSTKR1-001-DWG	Rev C	2021/08/23
ESD Sticker Drawing	XDC-ESDSTKR2-001-DWG	Rev A	2011/01/07
ESD Sticker Drawing	XDC-ESDSTKR3-001-DWG	Rev C	2021/08/23

Reference Documents				
Drawing/Document Number:	Page/s :	Title:	Rev Level:	Date:
-----	41	ACCUTRON IS AIRFLOW MONITOR Intrinsically Safe Airflow Metering Systems Technical / Operations Manual	V2021.10.22	undated

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