



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 CSAE 23.0005X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2023-03-30

Applicant: **Mid-West Instrument**
6500 Dobry Drive,
Sterling Heights
MI 48314
United States of America

Equipment: **Model 220 Differential Pressure Switch**

Optional accessory:

Type of Protection: **Flameproof "db", Dust Protection by Enclosure "tb" and Non-electrical "h"**

Marking: Ex db h IIB+H₂ T* Gb
Ex tb h IIIC T*°C Db IP6X
(-40°C ≤ Ta ≤ +70°C)*

*Refer to the Equipment description for temperature class and ambient combinations.

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.
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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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Manufacturing
locations: **Mid-West Instrument**
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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 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 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

[ISO 80079-36:2016](#) Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
Edition:1.0

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 Report:

[GB/CSAE/ExTR23.0019/00](#)

Quality Assessment Report:

[GB/CSAE/QAR23.0002/00](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Model 220 Pressure Switch is for measuring differential pressure and comprises a pressure assembly and cover housing a single or double reed switch assembly and either a circuit board with a terminal strip interface or a single or double relay assembly with terminal strip interface. The switch, or switches, and pressure indication are magnetically coupled to a moving magnet inside the pressure assembly.

Refer to the Annexe for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The maximum gap permitted between the body and cover is less than the maximum permitted in the standard. Therefore it is the responsibility of the user of this equipment to ensure the maximum gap between the body and the cover is not greater than 0.038mm (0.0015").
2. The cover fasteners are of a non-standard production. For replacement purposes these fasteners shall be obtained from the unit manufacturer only.
3. The optional dial gauge may present a potential electrostatic charging hazard. Clean only with a damp cloth.
4. Potential electrostatic hazards shall be addressed in accordance with the guidance given in the instructions, and IEC TS 60079-32-1.

Annex:

[IECEx CSAE 23.0005X Annexe Issue 0.pdf](#)

Annexe to: IECEx CSAE 23.0005X Issue 0

Applicant: Mid-West Instrument

Apparatus: Model 220 Differential Pressure Switch



EQUIPMENT (continued)

The Model 220 Pressure Switch has a maximum working pressure rating of up to 20.7MPa (3000psig) with a cast body (pressure assembly) and cover manufactured from aluminium.

The body may optionally include a stainless-steel insert to provide all stainless steel wetted parts.

The cover is secured to the body with seven M5, stainless steel hexagon head captive screws.

Internal and external earth facilities are provided.

The various electrical configurations for the Model 220 Pressure Switches are identified by a 3 letter code, where the first letter identifies the number of switches fitted (R = single switch & S = double switch), the second letter identifies the input voltage (A = no input power required, B = 5/6 V dc, C = 12V dc, D = 24V dc, E = 48V dc, F = 24V ac, G = 120V ac, H = 240V ac) and the third letter identifies the output option (A = 120V ac/dc, E, F, G or H = 240V ac/dc and R relay).

The electrical ratings together with the temperature classification, ambient temperature range and the temperature markings for dust atmospheres associated with each version are listed below.

CONFIGURATION CODE	ELECTRICAL RATINGS	TEMPERATURE CLASS FOR GAS	AMBIENT TEMPERATURE RANGE	TEMPERATURE MARKING FOR DUST
RAA; SAA	0.025A 120V dc/ac 0.1A 30V dc 0.25A 12V dc	T6 T5	-40°C ≤ Ta ≤ 70°C -40°C ≤ Ta ≤ 85°C	T85°C T100°C
RAE; SAE	0.25A 240V dc/ac	T6	-40°C ≤ Ta ≤ 70°C	T85°C
RAF*; SAF*	0.5A 120V dc/ac	T5	-40°C ≤ Ta ≤ 85°C	T100°C
RAG*; SAG*	3.0A 12V dc			
RAH; SAH	0.25A 240V dc/ac 0.5A 120V dc/ac 1.0A 30V dc	T6 T5	-40°C ≤ Ta ≤ 70°C -40°C ≤ Ta ≤ 85°C	T85°C T100°C
RBR; SBR	10A 30V dc	T6	-40°C ≤ Ta ≤ 70°C	T85°C
RCR; SCR	10A 120Vac			
RDR; SDR	10A 240V ac			
RER; SER				
RFR; SFR				
RGR; SGR				
RHR; SHR		T4	-40°C ≤ Ta ≤ 70°C	T135°C
Transmitter unit**	28V dc	T6	-40°C ≤ Ta ≤ 70°C	T85°C

* These electrical configurations are not available for the Model 240 Pressure Switch, see below.

** As detailed at Variation 0.3 below

A ½" NPT-14 cable entry hole is provided as specified on the certificate schedule drawings for the accommodation of a suitable certified flameproof cable entry device, with or without the interposition of a suitable certified flameproof thread adaptor. The cable entry device and thread adaptor shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a Component).

Variation 0.1

An alternative version with a maximum working pressure rating of up to 10.3MPa (1500psig). In this form the equipment is designated a Model 240 Pressure Switch.

Variation 0.2

The optional fitting of a dial gauge assembly for the indication of differential pressure.

The indication assembly is comprised of a circular housing manufactured from a thermoplastic or aluminium material into which is fitted an aluminium dial and a magnetically operated indicating mechanism.

The parts are sealed behind a weatherproof plastic or glass lens assembly.

Variation 0.3

The optional replacement of the magnetic switches with an electronics unit having a 4-20mA proportional output. In this form the unit is designated a Transmitter Unit.

Date: 30 March 2023

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