



# 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](http://www.iecex.com)

Certificate No.:	<b>IECEX UL 13.0065X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 4	Issue 3 (2023-03-21)
Date of Issue:	2024-01-30		Issue 2 (2019-11-14)
Applicant:	<b>Malema Engineering Corp.</b> 1060 S. Rogers Circle Boca Raton, FL 33487 <b>United States of America</b>		Issue 1 (2015-10-02)
Equipment:	<b>Intrinsically Safe Flow Switches, Type M-50X, M-60X, M-100X, M-200X</b>		
Optional accessory:			
Type of Protection:	<b>Intrinsic Safety "ia"</b>		
Marking:	Ex ia IIC T6...T3		
	Ex ia III C T80...T150°C Da		

Approved for issue on behalf of the IECEx  
Certification Body:

**Katy A. Holdredge**

Position:

**Senior Staff Engineer**

Signature:  
(for printed version)

Date:  
(for printed version)

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Certificate issued by:

**UL Solutions (US)**  
333 Pfingsten Road  
Northbrook IL 60062-2096  
**United States of America**





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Manufacturer: **Malema Engineering Corp.**  
1060 S. Rogers Circle  
Boca Raton, FL 33487  
**United States of America**

Manufacturing locations: **Malema Engineering Corp.**  
1060 S. Rogers Circle  
Boca Raton, FL 33487  
**United States of America**

**Malema Sensors (I) Private Limited**  
No. 1433, 3rd And 4th Floor Pipeline Road,  
Mahalakshmi Puram  
Bangalore 560 086, Karnataka  
**India**

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:

[US/UL/ExTR13.0068/00](#)  
[US/UL/ExTR13.0068/03](#)

[US/UL/ExTR13.0068/01](#)  
[US/UL/ExTR13.0068/04](#)

[US/UL/ExTR13.0068/02](#)

### Quality Assessment Reports:

[US/UL/QAR13.0006/06](#)

[US/UL/QAR23.0017/00](#)



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**EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The M-50X, M-60X, M-100X and M-200X Series flow switches are used to monitor increasing and decreasing flow. They utilize a single moving part which responds to fluid (liquid or gas) flowing within a system.

**Please see Annex for additional information.**

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

- To ensure suitability for Group III, these switches shall be used with a cable fitting having an IECEx Certificate with a minimum IP5X rating.
- Warning - Enclosure contains aluminum. Care must be taken to avoid ignition due to impact or friction.



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

Issue 1: Manufacturer is adding an additional encapsulation epoxy. The rated temperature for the new epoxy is -40°C to +145°C. This only affects the "mb" installation/certificates associated with this product. Encapsulation is not relied upon for "i".

Issue 2: Documentation updates; removed the use of Epoxy Stycast 3050; and removed IEC 60079-26.

Issue 3: Minor revisions to the labels and documentation. Additionally, IEC 60079-0 was updated to the latest edition.

Issue 4: Addition of new manufacturing location.

## **Annex:**

[Annex to IECEx UL 13.0065X Issue 4.pdf](#)



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## PARAMETERS RELATING TO THE SAFETY

$U_i = 30 \text{ V}$ ,  $I_i = 0.5 \text{ A}$ ,  $C_i = 40 \text{ pF}$ ,  $L_i = 4 \text{ }\mu\text{H}$ ,  $P_i = 0.7 \text{ W}$

## MARKING

Marking has to be readable and indelible; it has to include the following indications:

Model M-100X:

		<b>MALEMA SENSORS</b>		1-800-637-6418			
MALEMA ENGINEERING CORPORATION 1060 South Rogers Circle, Boca Raton, FL USA 33487							
PART #		EXPLOSION PROOF ADJ. FLOW SWITCH (IP65)		UL IS		0539	
TYPE		EXPLOSION PROOF ADJ. FLOW SWITCH (IP65)		CE		0539	
PRESSURE		300 psig max.		YR. OF MFG			
ATEX-INTRINSIC SAFETY - DEMKO 19 ATEX 2270X ENCAPSULATION- DEMKO 19 ATEX 2278X							
Ex ia IIC T6...T3 Ga		Ex mb IIC T3 Gb					
Ex ia IIIC T80°C...T150°C Da		Ex mb IIIC T150°C Db					
INTRINSIC SAFETY: IECEX UL 13.0065X				ENCAPSULATION: IECEX UL 13.0067X			
For Gases: Ex ia IIC T6...T3 Ga		For Gases: Ex mb IIC T3 Gb		UL Rating		UL=280 VDC OR AC Im=1A	
For Dusts: Ex ia IIIC T80°C...150°C Da		For Dusts: Ex mb IIIC T150 °C Db		Temp. Range		-40°C ≤ Tamb+145°C	
U <sub>i</sub> ≤ 30V C <sub>i</sub> ≤ 40pF		SPDT switching I/carrying I=0.25/1.5A		SPDT switching Vdc/Breakdown= 175/200			
P <sub>i</sub> ≤ 0.7W L <sub>i</sub> ≤ 4uH L <sub>i</sub> ≤ 0.5A		SPST switching I/carrying I=0.5/1.2A		SPST switching Vdc/Breakdown=200/250			
UL RATING		120Vac, 0.1A or 240Vac, 0.208A					
RANGE		sccm Air/		ccm Liquid			
SERIAL #		Set @					

Model M-200X:

		<b>MALEMA SENSORS</b>		1-800-637-6418			
MALEMA ENGINEERING CORPORATION 1060 South Rogers Circle, Boca Raton, FL USA 33487							
PART #		EXPLOSION PROOF ADJ. FLOW SWITCH (IP65)		UL IS		0539	
TYPE		EXPLOSION PROOF ADJ. FLOW SWITCH (IP65)		CE		0539	
PRESSURE		300 psig max.		YR. OF MFG			
ATEX-INTRINSIC SAFETY - DEMKO 19 ATEX 2270X ENCAPSULATION- DEMKO 19 ATEX 2278X							
Ex ia IIC T6...T3 Ga		Ex mb IIC T3 Gb					
Ex ia IIIC T80°C...T150°C Da		Ex mb IIIC T150°C Db					
INTRINSIC SAFETY: IECEX UL 13.0065X				ENCAPSULATION: IECEX UL 13.0067X			
For Gases: Ex ia IIC T6...T3 Ga		For Gases: Ex mb IIC T3 Gb		UL Rating		UL=280 VDC OR AC Im=1A	
For Dusts: Ex ia IIIC T80°C...150°C Da		For Dusts: Ex mb IIIC T150 °C Db		Temp. Range		-40°C ≤ Tamb+145°C	
U <sub>i</sub> ≤ 30V C <sub>i</sub> ≤ 40pF		SPDT switching I/carrying I=0.25/1.5A		SPDT switching Vdc/Breakdown= 175/200			
P <sub>i</sub> ≤ 0.7W L <sub>i</sub> ≤ 4uH L <sub>i</sub> ≤ 0.5A		SPST switching I/carrying I=0.5/1.2A		SPST switching Vdc/Breakdown=200/250			
UL RATING		120Vac, 0.1A or 240Vac, 0.208A					
RANGE		SCFM Air/		GPM Liquid			
SERIAL #		Set @					



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Model M-50X/60X:

<b>MALEMA SENSORS</b> 1-800-637-6418 MALEMA ENGINEERING CORPORATION 1060 South Rogers Circle, Boca Raton, FL USA 33487		
PART #		 0539
TYPE	EXPLOSION PROOF FLOW SWITCH (IP65)	
YR. OF MFG		
	PRESSURE 3000 psig max. Set @ _____ sccm	
ATEX-INTRINSIC SAFETY - DEMKO 19 ATEX 2270X II 1 G Ex ia IIC T6...T3 Ga II 1 D Ex ia IIIC T80°C...T150°C Da		ENCAPSULATION - DEMKO 19 ATEX 2278X II 2 G Ex mb IIC T3 Gb II 2 D Ex mb IIIC T150°C Db
INTRINSIC SAFETY: IECEX UL 13.0065X For Gases: Ex ia IIC T6...T3 Ga For Dusts: Ex ia IIIC T80°C...T150°C Da		ENCAPSULATION: IECEX UL 13.0067X For Gases: Ex mb IIC T3 Gb For Dusts: Ex mb IIIC T150 °C Db
UI < 30V Ci=40pF Pi<0.7W Li=4uH Li=0.5A		Um=250 VDC OR AC Im=1A Temp. Rang -40°C ≤ Tamb ≤ 145°C
SPDT switching I/carrying IHO.25/1.5A SPST switching I/carrying IHO.5/1.2A		SPDT switching Vdc/Breakdown= 175/200 SPST switching Vdc/Breakdown=200/250
UL RATING	120Vac, 0.1A	SERIAL #
FLOW DIRECTION		