



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx CML 19.0063X

Issue No: 0

Certificate history:

[Issue No. 0 \(2019-08-14\)](#)

Status: **Current**

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Date of Issue: **2019-08-14**

Applicant: **Swift Energy Sdn Bhd**  
Lot 48521 (PT 25145), Jalan Palam 34.17, 40470, Shah Alam, Selangor  
**Malaysia**

Equipment: **Solar Modules**

*Optional accessory:*

Type of Protection: **Increased Safety "eb", Encapsulation "mb"**

Marking:

Ex eb mb IIC T4 Gb

IP66

Ta: -40°C / -20°C to +55°C

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

D R Stubbings MIET

*Position:*

Technical Director

*Signature:  
(for printed version)*

*Date:*

2019-08-14

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.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**Certification Management Limited**  
Unit 1, Newport Business Park  
New Port Road  
Ellesmere Port, CH65 4LZ  
United Kingdom





# IECEX Certificate of Conformity

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Date of Issue: 2019-08-14 Page 2 of 3  
Manufacturer: **Swift Energy Sdn Bhd**  
Lot 48521 (PT 25145), Jalan Palam 34.17, 40470, Shah Alam, Selangor  
**Malaysia**

Additional Manufacturing location(s):

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 apparatus 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:

<b>IEC 60079-0 : 2017</b> Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
<b>IEC 60079-18 : 2017</b> Edition:4.1	Explosive atmospheres - Part 18: Protection by encapsulation "m"
<b>IEC 60079-7 : 2017</b> Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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/CML/ExTR19.0086/00](#)

Quality Assessment Report:

[NL/DEK/QAR11.0005/05](#)



# IECEX Certificate of Conformity

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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Solar Modules Types SM125Ex, SM190Ex, SM250Ex, SM320Ex, SM380Ex contain high efficiency series connected solar cells.

Each module consists of a solar panel which is fitted with a separately certified increased safety junction box that contains a terminal block and encapsulated diodes. The solar modules are IP66 rated.

The solar modules have an ambient temperature range of  $-40^{\circ}\text{C}$  /  $-20^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$ .

Refer to Annex for full description and conditions of manufacture.

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

Refer to Annex for specific conditions of use.

### Annex:

[IECEX CML 19.0063X Iss. 0 Certificate Annex.pdf](#)

**Annexe to:** IECEx CML 19.0062X Iss. 0  
**Applicant:** Swift Energy Sdn Bhd  
**Apparatus:** Solar Modules



## Description

The Solar Modules Types SM125Ex, SM190Ex, SM250Ex, SM320Ex, SM380Ex contain high efficiency series connected solar cells.

Each module consists of a solar panel which is fitted with a separately certified increased safety junction box that contains a terminal block and encapsulated diodes. The solar modules are IP66 rated.

The solar modules have an ambient temperature range of -40°C / -20°C to +55°C.

The solar modules contain cells in the following arrangements:

Model	Number of cells	Configuration
SM125Ex	36	4 x 9
SM190Ex	36	4 x 9
SM250Ex	72	6 x 12
SM320Ex	60	10 x 6
SM380Ex	72	6 x 12

## Electrical Ratings

	SM125Ex	SM190Ex	SM250Ex	SM320Ex	SM380Ex
Power @mpp	125 W (±10%)	190 W (±10%)	250 W (±10%)	320 W (±10%)	380 W (±10%)
Nominal Voltage	12.00 V dc	12.00 V dc	24.00 V dc	24.00 V dc	24.00 V dc
Voltage @open circuit	24.40 V	23.32 V	48.30 V	39.20 V	46.65 V
Voltage @mpp	21.55 V	20.00 V	42.70 V	33.00 V	40.00 V
Current @mpp	5.80 A	9.6 A	5.80 A	9.39 A	9.60 A
Current @short circuit	6.10 A	10.45 A	6.10 A	10.33 A	10.45 A
Maximum system voltage	352 V	352 V	352 V	352 V	352 V

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## Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
- ii. Each unit shall be subjected to routine visual inspections of the encapsulated parts in accordance with EN/IEC 60079-18 Clause 9.1. There shall be no damage evident.
- iii. Each unit shall be subjected to routine dielectric strength tests in accordance with EN/IEC 60079-18 Clause 9.2. The test shall be at least 700 V dc between the diode connections are the surface of the diode encapsulant
- iv. Each unit shall be subjected to routine dielectric strength tests in accordance with EN/IEC 60079-7 Clause 7.1. The test shall be at least 700 V dc between the input connections and the solar panel frame.

## Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

- i. The solar cells shall be completely covered with an opaque material during installation to prevent inadvertent charging of the solar cells.
- ii. To maintain the IP66 rating of the equipment, it shall only be used with suitably certified and dimensioned IP66 rated increased safety "eb" entry devices.
- iii. The terminal enclosure is a potential electrostatic charging hazard and therefore shall only be cleaned with a damp cloth.