

# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



Seite von  
Page 1 of 6

**Auftraggeber / Applicant:** EVEREXCEED INDUSTRIAL COMPANY LIMITED  
UNIT E, 3/F, GOOD HARVEST CENTRE, 33 ON CHUEN STREET, FANLING, N.T., HONG KONG

**Geräteart / Type of equipment:** Poly-crystalline Silicon Photovoltaic (PV) Module

**Typenbezeichnung / Type/model:**

- a) 72 6" Poly cells: ESM250-156, ESM255-156, ESM260-156, ESM265-156,  
**type:** ESM270-156, ESM275-156, ESM280-156, ESM285-156, ESM290-156, ESM295-156, ESM300-156;  
 b) 60 6" Poly cells: ESM215-156, ESM220-156, ESM225-156, ESM230-156, ESM235-156, ESM240-156, ESM245-156;  
 c) 54 6" Poly cells: ESM185-156, ESM190-156, ESM195-156, ESM200-156, ESM205-156, ESM210-156

- a) 250 W, 255 W, 260 W, 265 W, 270 W, 275 W, 280 W, 285 W, 290 W, 295 W, 300 W;  
 b) 215 W, 220 W, 225 W, 230 W, 235 W, 240 W, 245 W;  
 c) 185 W, 190 W, 195 W, 200 W, 205 W, 210 W

**Rated Output Power at STC:**

**Min. Value of Output Power or Deviation at STC:** N/A

**Maximum System Voltage:** 1000 V DC

**Max. over-current protection rating:** 15 A

**Module Dimensions (L x W x H):**  
 a) 1956 x 992 x 50 [mm]  
 b) 1650 x 992 x 50 [mm]  
 c) 1480 x 992 x 50 [mm]

**Weight:**  
 a) 27.0 kg (approx)  
 b) 22.0 kg (approx)  
 c) 17.0 kg (approx)

**Cell technology:**

Monocrystalline Silicon	<input type="checkbox"/>
Polycrystalline Silicon	<input checked="" type="checkbox"/>
Thin-film (amorphous Silicon)	<input type="checkbox"/>
CIGS	<input type="checkbox"/>
CdTe	<input type="checkbox"/>
Other	<input type="checkbox"/>

**Application classes:**

Class	A:	General access, hazardous voltage, hazardous power applications	<input checked="" type="checkbox"/>
Class	B:	Restricted access, hazardous voltage, hazardous power applications	<input type="checkbox"/>
Class	C:	Limited voltage, limited power applications	<input type="checkbox"/>

**Prüfbericht Nr. / Test Report No.:** 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

**Projektleiter / Project Engineer:** Cavic Wu

*Cavic Wu*  
2012.06.04

**Ort / place:**

**Stempel und Unterschrift / Seal and signature**



**Datum / date:**

# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



Product Service

Seite von  
Page 2 of 6

**Types of terminations:**

- Type A: wire of flying lead
- Type B: tags, threaded stubs, screws, etc.
- Type C: connector
- Junction box

**Protection devices:**

- By-pass Diode
- Fuse
- Other

**Fire safety class:**

- Class A
- Class B
- Class C

**Frame:**

- Framed
- Frameless

**Mechanical load tested:**

- 2400 Pa
- 5400 Pa

**Module Design - Minimum Distances:**

- Between cells: 1.5 mm
- Between cell and edge of laminate: a), b), c) 19.0 mm
- Between any current carrying part and edge of laminate: a) 14.0 mm  
b) 19.0 mm  
c) 16.0 mm

**Materials:**

- |                    |                |                                     |
|--------------------|----------------|-------------------------------------|
| <b>Superstrate</b> | Tempered Glass | <input checked="" type="checkbox"/> |
|                    | Normal Glass   | <input type="checkbox"/>            |
|                    | Other: _____   | <input type="checkbox"/>            |
| <b>Encapsulant</b> | EVA            | <input checked="" type="checkbox"/> |
|                    | Other          | <input type="checkbox"/>            |
|                    | TPT            | <input checked="" type="checkbox"/> |
| <b>Substrate</b>   | TPE            | <input type="checkbox"/>            |
|                    | Other: _____   | <input type="checkbox"/>            |
|                    | Aluminium      | <input checked="" type="checkbox"/> |
| <b>Frame</b>       | Other: _____   | <input type="checkbox"/>            |

**Supplementary information:**

Prüfbericht Nr. / Test Report No.: 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

Projektleiter / Project Engineer: Cavic Wu

*Cavic Wu*  
2012.06.04

Ort / place:

Datum / date:

Stempel und Unterschrift /  
Seal and signature





# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



Product Service

Seite von  
Page 3 of 6

Sicherheitsrelevante Bauteile: (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen) (Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschraken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen .....

Safety relevant components: (switch, temperature regulator, heating element, plug, socket, wiring, capacitor, motors and other components with windings e.g. transformers, coils)

(emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers .....

Bauteil / Kind of component	Hersteller / Manufacturer	Angaben über Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse / Information about type, current, power, transformer specification number, insulating class	Prüfzeichen von Test mark from (VDE, BSI, UL etc.)
1. Solar Cell For model	Shanghai JA SOLAR PV Technology Yangzhou Co., Ltd.	Poly-Si, Cell type: 156M0R2 Cell dimensions L x W: 156 x 156 (mm) Cell thickness: 200±20 (µm), Cell area: 243.36 (cm <sup>2</sup> )	Tested with appliance
2. Superstrate	Xinyi Ultraclear Photovoltaic Glass (Dongguan) Co.,Ltd.	Type: Tempered glass, Material: Tempered glass Thickness: 4.0 (mm)	Tested with appliance
3. Substrate (backsheet)	Isovolta AG	Type: ICOSOLAR 2442, Material: PVF/PET/PVF Thickness: 37/250/37 (µm)	TÜV test report
4. Encapsulant	Bridgestone Corporation	Type: S11, Material: EVA Thickness: 0.5mm	Tested with appliance
5. Junction box	Tyco Electronics AMP GmbH	Type: 1740971-1, 1000V DC, 13A, -40 to +85°C, IP65	TÜV R 60025172
6. Adhesive for junction box	Beijing TONSAN Adhesive Co., Ltd.	Type: 1527, Material: Silicone Sealant For PV Modules RTI.: 105°C	Tested with appliance
7. Cable for photovoltaic equipment	Tyco Electronics AMP GmbH	Type: ZHSCT-35-4.0-0, 1 x 4.0 mm <sup>2</sup> , 1000V DC, -40 to +90°C	TÜV R 60015317
8. Connector for Photovoltaic system	Tyco Electronics AMP GmbH	Type: Male: 6-1394461-2, Female: 1394462-4 1000V DC, 25A, -40 to +85°C, IP67	TÜV R 60021683
9. Bypass diode	Tyco Electronics AMP GmbH	Schottky, Type: SL1515 Max. peak reverse voltage: 40V, Forward Rectified current: 16A, Max junction temperature: 200°C Cells per bypass diode: a) 24, b) 20, c) 18 No. of bypass diodes: 3	Tested with appliance
10. Cell interconnector	Kunming Sunlight Science & Technology Co., Ltd.	Cross section: 2 x 0.18 (mm) Material: copper covered with Sn60Pb40	Tested with appliance
11. String connector	Kunming Sunlight Science & Technology Co., Ltd.	Cross section: 5 x 0.3 (mm) Material: copper covered with Sn60Pb40	Tested with appliance
12. Soldering material	Singapore Asahi Chemical & Solder Industries Pte Ltd	Type: ANX3133, Material: Low Residue No Clean Flux For Solar Photovoltaic Application	Tested with appliance
13. Frame	Zhangjiagang City XiechangPV CO., LTD.	Type: 6063-T5 Material: Anodized aluminum	Tested with appliance

Prüfbericht Nr. / Test Report No.: 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

Projektleiter / Project Engineer: Cavic Wu

*Cavic Wu*  
2012.06.04

Ort/place:

Datum/date:

Stempel und Unterschrift /  
Seal and signature





# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



Product Service

Seite von  
Page 4 of 6

Sicherheitsrelevante Bauteile: (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen)  
(Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschranken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen .....)

Safety relevant components: (switch, temperature regulator, heating element, plug, socket, wiring, capacitor, motors and other components with windings e.g. transformers, coils)  
(emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers .....)

Bauteil / Kind of component	Hersteller / Manufacturer	Angaben über Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse / Information about type, current, power, transformer specification number, insulating class	Prüfzeichen von Test mark from (VDE, BSI, UL etc.)																		
14. Adhesive for frame	Beijing TONSAN Adhesive Co., Ltd.	Type: 1527, Material: Silicone Sealant For PV Modules RTI.: 105°C	Tested with appliance																		
15. Markings as below: a) Rating label			<div data-bbox="987 891 1544 1742" style="border: 1px dashed black; padding: 5px;"> <p style="text-align: center;"><b>EverExceed®</b> <i>power your applications</i></p> <p style="text-align: right;"> <b>ESM275-156</b></p> <p style="text-align: center;"><b>EverExceed Corporation</b></p> <table border="0" style="width: 100%;"> <tr> <td><b>STC:</b> Irradiance 1000W/m<sup>2</sup> AM1.5 spectrum</td> <td>Module temperature 25°C</td> </tr> <tr> <td>Maximum power at STC</td> <td>Wp 275 W</td> </tr> <tr> <td>Optimum operating voltage</td> <td>Vmp 36.2 V</td> </tr> <tr> <td>Optimum operating current</td> <td>Imp 7.61 A</td> </tr> <tr> <td>Open circuit voltage</td> <td>Voc 44.0 V</td> </tr> <tr> <td>Short circuit current</td> <td>Isc 8.21 A</td> </tr> </table> <p><b>NOCT:</b> Nominal Operating Cell Temperature (the data only for reference) 45±2°C</p> <table border="0" style="width: 100%;"> <tr> <td>Temperature coefficients of Pm (%)</td> <td>-0.47/°C</td> </tr> <tr> <td>Temperature coefficients of Voc(%)</td> <td>-0.34/°C</td> </tr> <tr> <td>Temperature coefficients of Isc(%)</td> <td>0.045/°C</td> </tr> </table> <p>Operation temperature -40°C to 85°C Maximum system voltage 1000V DC Power tolerance ±5% Surface Maximum Load Capacity 60m/s (200kg/sq.m) Application Class: A Maximum over-current protection rating: 15 A Dimension: 1956X992X50mm Weight: 27kgs</p> <p><b>Warning:</b></p> <ol style="list-style-type: none"> <li>1. Solar modules produce electrical energy when light shines on their front surface. The DC voltage may exceed 30V. If modules are connected in series, the total voltage is equal to the sum of the individual module voltages. If modules are connected in parallel, the total current is equal to the sum of individual module currents.</li> <li>2. Completely cover the module with an opaque material during installation to keep electricity from being generated.</li> <li>3. Do not wear metallic rings, watchbands, ear, nose, lip rings or other metallic devices while installing or troubleshooting photovoltaic systems.</li> </ol> <div style="text-align: right; margin-top: 10px;"> </div> <p style="font-size: small; margin-top: 5px;">© Copyright 2011, all rights reserved with EverExceed Corporation Add: 78 Manchester Road, Denton, Manchester, M34 1PS, United Kingdom Unit E, 3/F, Good Harvest Centre, 33 On Chuen Street, Fanling, New Territories, Hong Kong.</p> </div>	<b>STC:</b> Irradiance 1000W/m <sup>2</sup> AM1.5 spectrum	Module temperature 25°C	Maximum power at STC	Wp 275 W	Optimum operating voltage	Vmp 36.2 V	Optimum operating current	Imp 7.61 A	Open circuit voltage	Voc 44.0 V	Short circuit current	Isc 8.21 A	Temperature coefficients of Pm (%)	-0.47/°C	Temperature coefficients of Voc(%)	-0.34/°C	Temperature coefficients of Isc(%)	0.045/°C
<b>STC:</b> Irradiance 1000W/m <sup>2</sup> AM1.5 spectrum	Module temperature 25°C																				
Maximum power at STC	Wp 275 W																				
Optimum operating voltage	Vmp 36.2 V																				
Optimum operating current	Imp 7.61 A																				
Open circuit voltage	Voc 44.0 V																				
Short circuit current	Isc 8.21 A																				
Temperature coefficients of Pm (%)	-0.47/°C																				
Temperature coefficients of Voc(%)	-0.34/°C																				
Temperature coefficients of Isc(%)	0.045/°C																				

Prüfbericht Nr. / Test Report No.: 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

Projektleiter / Project Engineer: Cavic Wu

*Cavic Wu*  
2012-06-04

Ort/place:

Datum/date:

Stempel und Unterschrift /  
Seal and signature



# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery






Product Service

Seite von  
Page 5 of 6

**Sicherheitsrelevante Bauteile:** (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen)  
(Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschranken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen .....)

Safety relevant components: (switch, temperature regulator, heating element, plug, socket, wiring, capacitor, motors and other components with windings e.g. transformers, coils)

(emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers .....)

Bauteil / Kind of component	Hersteller / Manufacturer	Angaben über Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse / Information about type, current, power, transformer specification number, insulating class	Prüfzeichen von Test mark from (VDE, BSI, UL etc.)																									
b) Serial No. code bar		<div data-bbox="893 750 1315 851" style="border: 1px solid black; padding: 5px; text-align: center;">   <b>1205051712120517001</b> </div> <div style="margin-top: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black; width: 25%; text-align: center;">12050517</td> <td style="border-bottom: 1px solid black; width: 5%; text-align: center;">12</td> <td style="border-bottom: 1px solid black; width: 25%; text-align: center;">120517</td> <td style="border-bottom: 1px solid black; width: 10%; text-align: center;">001</td> <td style="width: 35%;"></td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right; padding-right: 10px;">Production Number</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right; padding-right: 10px;">Production Date "yyymmdd"</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right; padding-right: 10px;">Factory Code</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right; padding-right: 10px;">Company Invoice Code</td> </tr> </table> </div>	12050517	12	120517	001						Production Number					Production Date "yyymmdd"					Factory Code					Company Invoice Code	
12050517	12	120517	001																									
				Production Number																								
				Production Date "yyymmdd"																								
				Factory Code																								
				Company Invoice Code																								
c) Grouding symbol																												
d) Warning label attached on the cable																												

Prüfbericht Nr. / Test Report No.: 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

Projektleiter / Project Engineer: Cavic Wu

*Cavic Wu*  
2012.06.04

Ort / place:

Datum / date:

Stempel und Unterschrift /  
Seal and signature





# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



Product Service

Seite von  
Page 6 of 6

Product Electrical Ratings at STC:						
Module	ESM250-156	ESM255-156	ESM260-156	ESM265-156	ESM270-156	ESM275-156
open-circuit voltage [V]:	43.2	43.3	43.5	43.6	43.8	44.0
short-circuit current [A]:	7.91	7.97	8.03	8.09	8.14	8.21
voltage at max. power [V]:	35.3	35.5	35.8	35.9	36.0	36.2
current at max. power [A]:	7.08	7.18	7.27	7.38	7.49	7.61
max. power (with tolerance) [W]:	250±5%	255±5%	260±5%	265±5%	270±5%	275±5%
Module	ESM280-156	ESM285-156	ESM290-156	ESM295-156	ESM300-156	ESM215-156
open-circuit voltage [V]:	44.2	44.4	45.0	45.2	45.5	36.2
short-circuit current [A]:	8.31	8.37	8.41	8.53	8.56	7.88
voltage at max. power [V]:	36.5	36.7	37.3	37.7	38.0	29.6
current at max. power [A]:	7.67	7.74	7.79	7.83	7.89	7.28
max. power (with tolerance) [W]:	280±5%	285±5%	290±5%	295±5%	300±5%	215±5%
Module	ESM220-156	ESM225-156	ESM230-156	ESM235-156	ESM240-156	ESM245-156
open-circuit voltage [V]:	36.3	36.4	36.6	36.8	37.2	37.5
short-circuit current [A]:	8.09	8.18	8.26	8.33	8.39	8.59
voltage at max. power [V]:	29.9	30.0	30.3	30.4	30.9	31.2
current at max. power [A]:	7.36	7.50	7.59	7.73	7.77	7.85
max. power (with tolerance) [W]:	220±5%	225±5%	230±5%	235±5%	240±5%	245±5%
Module	ESM185-156	ESM190-156	ESM195-156	ESM200-156	ESM205-156	ESM210-156
open-circuit voltage [V]:	32.3	32.4	32.5	32.7	32.8	33.0
short-circuit current [A]:	7.85	7.87	8.01	8.12	8.18	8.26
voltage at max. power [V]:	26.3	26.5	26.8	26.9	27.1	27.3
current at max. power [A]:	7.05	7.17	7.28	7.43	7.56	7.69
max. power (with tolerance) [W]:	185±5%	190±5%	195±5%	200±5%	205±5%	210±5%

Prüfbericht Nr. / Test Report No.: 68.260.9.013.01B

Main-license test report no.: 68.260.9.013.01

Projektleiter / Project Engineer: Cavic Wu

*Cavic Wu*  
2012.06.04

Ort/place:

Datum/date:

Stempel und Unterschrift /  
Seal and signature

