# SMART IN TECHNIC AND DETAIL

Technical Data Sheet

As of: March 2014


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## TECHNICAL DATA

| POWER OUTPUT | SF-32 |
|---|---|
| Nominal output | 2,13 kWp |
| Output through 2-axle tracking | 3,2 kWp |

| SYSTEM | |
|---|---|
| Modultype | glass/backsheet |
| Modul power output warranty | 25 years on 80% |
| Module product warranty | 10 years |
| Cell type | monocrystalline |
| Inverter module | 1-phase, integrated |
| Inverter module guarantee | 5 years |
| Weight | approx. 1,000 kg |
| System warranty | 24 months |

**INSTALLATION**

6 fastening points

Assembly on earth studs or concrete foundation

| APPLICATION AREA | |
|---|---|
| Temperature range | -20° C to +60° C |

**ELECTRICAL CONNECTIONS**

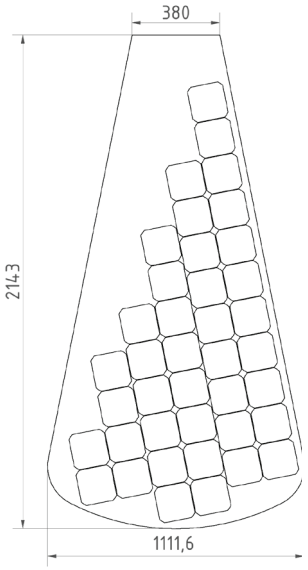
3 x 1,5 mm² AWG 16 (bis 15 m);
3 x 2,5 mm² AWG 14 (ab 15 m)

## MODUL MANUFACTURER

**energetica Energietechnik GmbH**
Adi-Dassler Gasse 6 · 9073 Klagenfurt-Viktring · Österreich

| SMARTFLOWER™ | MODUL 1-11 |
|---|---|
| Nominal Power Pmpp | 180 Wp |
| Open Circuit Voltage Uoc | 25,70 V |
| Nominal Voltage Umpp | 21,03 V |
| Nominal Current Impp | 8,54 A |
| Short Circuit Current Isc | 9,07 A |
| Maximum Power Tolerance | +/-5% |
| Current Temperature Coefficient ($I_{SC}$) | 0,05 %/° C |
| Voltage Temperature Coefficient ($U_{OC}$) | -0,33 %/° C |
| Power Temperature Coefficient ($P_{MPP}$) | -0,40%/°C |
| NOCT | 46° C |
| Cells | 40 monocrystalline solar cells |
| Cell-Dimensions | 6" – 156 x 156 mm |
| Bypass Dyodes (per modul) | 2 |
| Connector Type & Cables | MC4 connector, 1 x 4 mm² (0.04 x 0.16 inch²) |
| Ambient Temperature Range | -25°C - +85° C |
| Max. System Voltage UL | 600 Vdc |
| Serial Fuse Rating | 10 A |

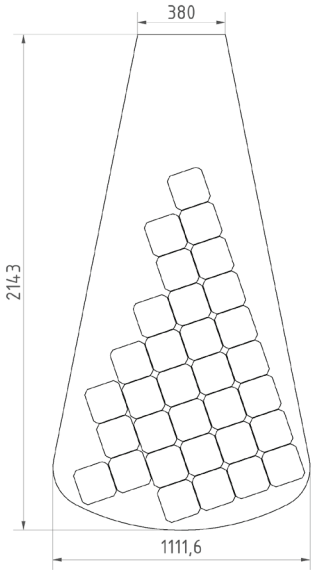
CELL CONFIGURATION 6" MODUL 1-11




| SMARTFLOWER™ | MODUL 12 |
|---|---|
| Nominal Power Pmpp | 145 Wp |
| Open Circuit Voltage Uoc | 20,56 V |
| Nominal Voltage Umpp | 16,82 V |
| Nominal Current Impp | 8,54 A |
| Short Circuit Current Isc | 9,07 A |
| Maximum Power Tolerance | +/- 5% |
| Current Temperature Coefficient ($I_{SC}$) | 0,05 %/°C |
| Voltage Temperature Coefficient ($U_{OC}$) | -0,33 %/°C |
| Power Temperature Coefficient ($P_{MPP}$) | -0,40%/°C |
| NOCT | 46 °C |
| Cells | 32 monocrystalline solar cells |
| Cell-Dimensions | 6" – 156 x 156 mm |
| Bypass Dyodes (per modul) | 2 |
| Connector Type & Cables | MC4 connector, 1 x 4 mm² (0.04 x 0.16 inch²) |
| Ambient Temperature Range | -25°C - +85° C |
| Max. System Voltage UL | 600 Vdc |
| Serial Fuse Rating | 10 A |

All modules are assembled with standard glas – backsheet technology
(tempered thin glass with 2.1mm)

CELL CONFIGURATION 6" MODUL 12

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| **Country application** | **GooDWE GW 2000-SS** | **OMNIK OMNIKSOL-2.0k-TL** |
|---|---|---|
| | Switzerland, Germany, UK, France, Slovenia, Croatia | Austrian, Netherlands, Luxemburg, Denmark, Belgium, Spain, Czech Republik, Slovakia |
| **DC Input Data** | | |
| Max. PV-generator power | 2300 W | 2300 W |
| Max. DC voltage | 500 V | 500 V |
| MPPT voltage range | 125–450 V | 150–450 V |
| Max. DC work current | 15 A | 18 A |
| Number of inputs/MPP trackers | 2/1 | 1/1 |
| **AC Output Data** | | |
| Nominal AC power | 2000 W | 2000 W |
| Max. AC power | 2000 W | 2200 W |
| Max. AC current | 10 A | 12 A |
| Nominal output voltage range | VDE-AR-N 4105, VDE 0126-1-1/A1, RD1699, G83/2, AS4777.2/.3 | VDE 0126-1-1, RD1663, ENEL2010, C10/11, G83/1, AS4777, CEI-021 |
| AC grid frequency | VDE-AR-N 4105, VDE 0126-1-1/A1, RD1699, G83/2, AS4777.2/.3 | VDE 0126-1-1, RD1663, ENEL2010, C10/11, G83/1, AS4777, CEI-021 |
| Power factor | ~1 | 0,99 |
| Power factor | single phase | single phase |
| **Feed-in phases** | | |
| Max. efficiency | 97,0% | 97,5% |
| European efficiency | >96.0% | 96,6% |
| **Safety equipment** | | |
| Leakage current monitoring unit | yes | yes |
| Grid monitoring | VDE-AR-N 4105, VDE 0126-1-1/A1, RD1699, G83/2, AS4777.2/.3 | VDE 0126-1-1, RD1663, ENEL2010, C10/11, G83/1, AS4777, CEI-021 |
| **Normative references** | | |
| General Data | EN 61000-6-1; EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 | EN 61000-6-1; EN 61000-6-2, N 61000-6-3, EN 61000-6-4 |
| | IEC 62109-1, AS3100 | EN 61000-3-2; EN 61000-3-3, EN 61000-3-11, EN 61000-3-12 |
| **General Data** | | |
| Operative temperature range | -20/+60° C | -20/+60° C |
| Relative humidity | 0-95% | 0-98% |
| IP protection class | IP65 | IP65 |
| Topology | trafolos | trafolos |
| Standard warrenty | 5 (optional 10-20) years | 5 (optional 10-20) years |
| **For more information** | **data sheet – www.goodwe-power.com** | **data sheet – www.omnik-solar.com** |

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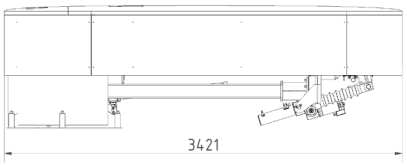
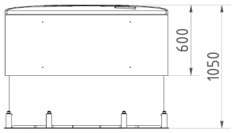
## HOUSING DIMENSIONS – ALL DIMENSIONS IN MM

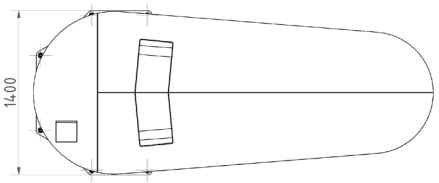
LATERAL VIEW – LENGTH




FRONT VIEW – HEIGHT

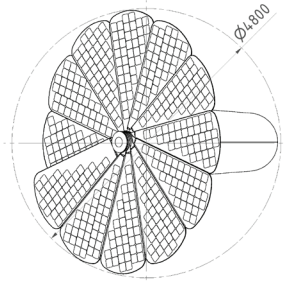



TOP VIEW – WIDTH

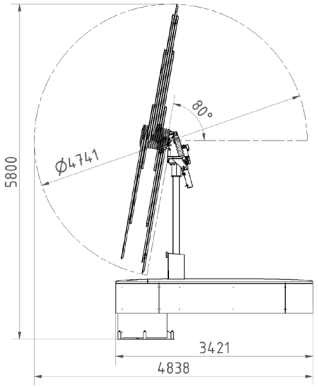



## DIMENSIONS SOLAR PANEL SURFACE AREA FANNED

AERIAL PERSPECTIVE – SWIVEL RANGE

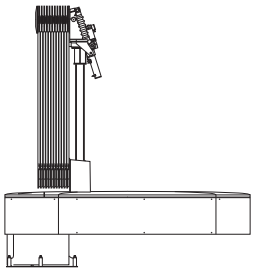



LATERAL VIEW – SWIVEL RANGE AT 80° ELEVATION (MAX. HEIGHT)

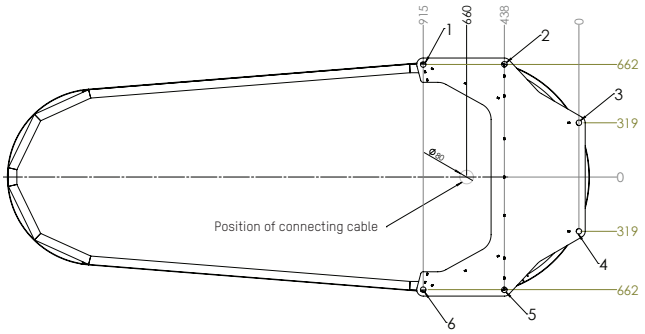



## MAX. PERMITED WINDSPEED

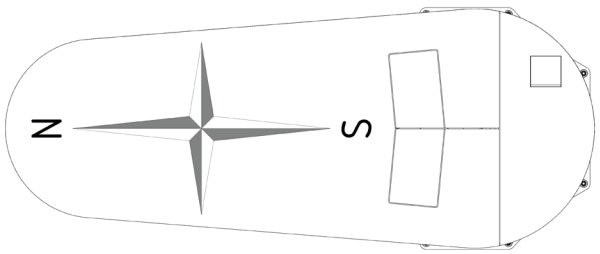
IN SAFETY POSTION 2: 140 KM/H



## FIXING POINTS




## ORIENTATION




## TENSILE FORCES*

| Anchor points | max-Transv. (kN) | max-Tens. (kN) | max Compr. (kN) | Appropriate screw foundation Krinner** | Mounting screws for screw foundation – min. length | Mounting concrete foundation – threaded rod/anchor – min. lenght above foundation |
|---|---|---|---|---|---|---|
| 1 | 0,71 | 12,20 | 17,80 | KSF M 76x1600-M16 | M16 – 150 mm | M16 – 150 mm |
| 2 | 11,10 | 16,40 | 19,40 | KSF M 76x2100-M16 | M16 – 150 mm | M16 – 150 mm |
| 3 | 12,00 | 32,50 | 28,00 | KSF M 89x2100-M24 | M24 – 150 mm | M16 – 150 mm |
| 4 | 12,00 | 32,50 | 28,00 | KSF M 89x2100-M24 | M24 – 150 mm | M16 – 150 mm |
| 5 | 11,10 | 16,40 | 19,40 | KSF M 76x2100-M16 | M16 – 150 mm | M16 – 150 mm |
| 6 | 0,71 | 2,20 | 17,80 | KSF M 76x1600-M16 | M16 – 150 mm | M16 – 150 mm |

* Tensile forces calculated on a max. windspeed of 24.5 m/sec, panel surface area completely fanned, security system failure.

** Reference according to the assumption of soil class „Aue Löslehm, halbfest".
If soil class is comparable or better screw foundations as mentioned above are sufficient.
If soil class is poorer bigger screw foundations might be necessary.

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