



<b>Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate</b>	<b>Licence Number</b>	<b>011-7S2318 F</b>
	Issued	17/02/2014

<b>Annual collector output kWh/module</b>														
<b>Collector name</b>	Location and collector temperature (T <sub>m</sub> )													
	Athens			Davos			Stockholm			Würzburg				
	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C		
PA-SK	1,835	1,305	857	1,399	971	620	1,024	674	414	1,110	722	437		
PA-SD	2,273	1,616	1,061	1,732	1,203	768	1,268	835	513	1,375	895	541		
PA-SE	2,625	1,866	1,225	2,001	1,389	887	1,464	965	593	1,588	1,033	625		
PA-SF	3,136	2,229	1,464	2,390	1,660	1,059	1,749	1,152	708	1,897	1,234	746		

<b>Collector mounting: Fixed or tracking</b>	<b>Fixed; slope = latitude - 15° (rounded to nearest 5°)</b>
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<b>Overview of locations</b>				
Location	Latitude °	G <sub>tot</sub> kWh/m <sup>2</sup>	T <sub>a</sub> °C	Collector orientation or tracking mode
Athens	38	1,765	18.5	South, 25°
Davos	47	1,714	3.2	South, 30°
Stockholm	59	1,166	7.5	South, 45°
Würzburg	50	1,244	9.0	South, 35°

G <sub>tot</sub>	Annual total irradiation on collector plane	kWh/m <sup>2</sup>
T <sub>a</sub>	Mean annual ambient air temperature	°C
T <sub>m</sub>	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool ScenoCalc. The collector output is calculated hour by hour according to the efficiency parameters from the Keymark test using constant collector operating temperature (T<sub>m</sub>). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

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