


Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results						Licence Number		011-7S1622 F							
						Date issued		2016-08-24							
						Issued by		DIN CERTCO							
Licence holder		KYRIAZIS Sa				Country		Greece							
Brand (optional)						Web		www.e-kyriazis.gr							
Street, Number						E-mail		info@e-kyriazis.gr							
Postcode, City		59032 Arachos-Platy				Tel		+30 23330 64240 / 64388							
Collector Type						Flat plate collector, glazed									
Collector name						Power output per collector									
						G _b = 850 W/m ² ; G _d = 150 W/m ² ; u = 3 m/s ϑ _m - ϑ _a									
						0 K	10 K	30 K	50 K	70 K	102 K				
						W	W	W	W	W	W				
IMMO LOGIS GSS 250		2.53	2 008	1 258	87	1 759	1 667	1 471	1 262	1 038	651				
IMMO LOGIS GSS 200		2.02	2 006	1 007	85	1 404	1 331	1 175	1 007	829	520				
Power output per m ² gross area						695	659	582	499	410	257				
Performance parameters test method						Quasi dynamic									
Performance parameters (related to A _G)						η _{0,b}	c1	c2	c3	c4	c6	K _d			
Units						-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	s/m	-			
Test results						0.696	3.581	0.007	0.000	0.000	0.000	0.993			
Incidence angle modifier test method						Quasi dynamic - outdoor									
Bi-directional incidence angle modifiers						No									
Incidence angle modifier						Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal						K _{θT, coll}	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	0.00
Longitudinal						K _{θL, coll}	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	0.00
Heat transfer medium for testing						Water									
Flow rate for testing (per gross area, A _G)						dm/dt	0.020	kg/(sm ²)							
Maximum temperature difference for thermal performance calculations						(ϑ _m -ϑ _a) _{max}	102	K							
Standard stagnation temperature (G = 1000 W/m ² ; ϑ _a = 30 °C)						ϑ _{stg}	187	°C							
Effective thermal capacity, incl. fluid (per gross area, A _G)						C/m ²	11.669	kJ/(Km ²)							
Maximum operating temperature						ϑ _{max, op}	n.a.	°C							
Maximum operating pressure						p _{max, op}	1600	kPa							
Testing laboratory						TZS, ITW University Stuttgart				www.itw.uni-stuttgart.de					
Test report(s)						10COL933OEM02 10COL934OEM02 10COL934QOEM02				Dated 16.08.2011 16.08.2011 16.08.2011					
Comments of testing laboratory						Datashet version: 5.01, 2016-03-01									
This data sheet replaces the data sheet issued on 16.08.2011 The data sheet is issued on the newest version 5.01						 Forschungs- und Testzentrum für Solaranlagen Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 6, 70560 Stuttgart (Vaihingen)									
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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S1622 F
	Issued	2016-08-24

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
Standard Locations		Athens			Davos			Stockholm			Würzburg		
Collector name	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
IMMO LOGIS GSS 250		2 852	2 010	1 321	2 139	1 470	936	1 579	1 024	625	1 729	1 113	669
IMMO LOGIS GSS 200		2 277	1 605	1 055	1 708	1 174	747	1 260	817	499	1 380	889	534
Annual output per m ² gross area		1 127	795	522	846	581	370	624	405	247	683	440	264
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		
The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc													

Additional Information		
Collector heat transfer medium	Water-Glycole	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	No	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	B	--
Maximum tested positive load	3000	Pa
Maximum tested negative load	3000	Pa
Hail resistance using steel ball (maximum drop height)	n.a.	m

Energy Labelling Information			
	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
IMMO LOGIS GSS 250	2.53	Collector efficiency (η_{col})	54 %
IMMO LOGIS GSS 200	2.02	Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.	
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0.695 --
		First-order coefficient (a_1)	3.58 W/(m ² K)
		Second-order coefficient (a_2)	0.007 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0.92 --
		Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.	