




Summary of	EN12977-5	CONTROLLER test results	Licence Number	011-7S2548 S												
Annex to Solar KEYMARK Certificate			Issued	2016-02-29												
Company	Vaillant Group Italia S.p.A unipersonale Società soggetta all' attività di direzione e coordinamento della Vaillant GmbH			Country	Italy											
Brand (optional)	Hermann Saunier Duval - Helio Set			Website	www.vaillant.com											
Street	Via Benigno Crespi, 70			E-mail	info@vaillant.com											
Postal Code	20159	Milano		Tel. / Fax	+49	(0)2191-180										
Solar heating system controller - description and features																
General control principle/type	Multi-function controller			No. temperature sensors	4											
No. clocks	1			No. irradiance sensors	-											
No. timers	4			No. flow sensorss	1											
No. counters	2			No. pressure sensors	-											
No. differential thermostats	5			No. level sensors	-											
No. output for pumps	1			No. outputs for magnetic valves	-											
No. other outputs	1			No. output for motor valves	1											
Freeze damage protection	Included			Power in W (control box only)	9											
Scald protection	Not included			Input voltage range (V)	207		to		253		V		≈			
High temperature protection	Included			Photovoltaic supply	No											
Solar heating system controller - test results																
Parameter	Test result	Sensor no:	1	2	3	4	5	6	7	8	9	10				
Clock	Max. tolerance**	min/mon	< 1													
Timer	Max. tolerance**	min/mon	< 1	< 1	< 1	< 1										
Counter	Max. tolerance	%	N.N.	N.N.												
Temperature sensor	Min. temp.****	°C	-10	-10	-15	0										
	Max. temp.****	°C	120	120	150	90										
	Tolerance at max. temp.***	K	1.8	1.8	1.8	1.5										
Irradiance sensor	Max. irradiance***	%														
	Tolerance at max. irradiance***	%														
Flow sensor	Min. flow rate****	%	10													
	Max. flow rate****	%	100													
	Tolerance at max. flow***	m ³ /h	99.9													
Pressure sensor	Min. pressure****	kPa														
	Max. pressure****	kPa														
	Tolerance at max. pressure***	kPa														
Level sensor	Min. level****															
	Max. level****															
	Tolerance at max. level***															
) Tolerance given in minutes per month. *) Max. tolerance in whole sensor range. ****) Specified by manufacturer																
Differential thermostats																
	Solar Drain Back/1				Electrical Aux/2				External Aux/3				Freeze Protection /4			
Range ΔTON	6	-	20		99.9	-	99.9		99.9	-	99.9		0	-	12	
Range ΔTOFF	1	-	5		99.9	-	99.9		99.9	-	99.9		14	-	20	
Temp. level	20°C		70°C		60				60°C				10°C			
SET/MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
ΔTON	12	11.6	12	11.9	-5	-5.9			-5	-3.3			< 10	< 10		
ΔTOFF	3	2.7	3	2.6	0.5	0.5			0.5	0			> 15	> 15		
Flow rate control																
	Solar Pump/1															
SET/MEAS	SET*	MEAS	SET*	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
Flow rate	20%	31%	70%	82%												
Temperature control																
	Store HX inlet/ 1				Store bottom/ 2				Collector/ 3				Ext. Aux/ 4			
SET/MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
Temperature	9.9	10.1	89.6	88.6	10.0	10.5	89.6	89.5	9.9	10.4	89.7	90.6	10.0	10.8	89.7	89.5
Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH															
Website	www.tuv.com/st															
Test report id. number	21227422.010															
Date of test report	2016-02-29															



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Postal Code	20159		Milano						Tel. / Fax	+49		(0)2191-180						
Differential thermostats (cont.)																		
	Solar-Aux/5				Solar Pressurized/1-1													
Range ΔT_{ON}	20	-	65		6	-	20			-				-				
Range ΔT_{OFF}	99.9	-	99.9		1	-	5			-				-				
Temp. level	70°C				50				20°C				90°C					
SET/MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
ΔT_{ON}	-5	65			7	7												
ΔT_{OFF}					3	2.4												
Flow rate controllers (cont.)																		
SET/MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
Flow rate																		
Temperature controllers (cont.)																		
SET/MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS	SET	MEAS
Temperature																		
Description of controls/functions																		
Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH																	
Website	www.tuv.com/st																	
Test report id. number	21227422.010																	
Date of test report	2016-01-28																	
Comments of test lab	As it is not possible to give the exact setting and results for all operation points, it was tried to summarize the working principle in the best way.																	
												 TÜVRheinland® Genau. Richtig.						
												TÜV Rheinland Energie und Umwelt GmbH Am Grauen Stein 51105 Köln						