SUMMARY INFORMATION SHEET

FLORIDA SOLAR ENERGY CENTER

1679 CLEARLAKE ROAD, COCOA, FLORIDA 32922-5703 (321) 638-1000



November 2002 **FSEC** # 00089N

MANUFACTURER

Collector Model

AE-32

Alternate Energy Technologies, LLC 1057 N. Ellis Road, Unit 4 Jacksonville, Florida 32254

This solar collector was evaluated by the Florida Solar Energy Center (FSEC) in accordance with prescribed methods and was found to meet the minimum standards established by FSEC. This evaluation was based on solar collector tests performed at the Bodycote Materials Testing Canada Inc., Mississauga, Ontario, Canada. The purpose of the tests is to verify initial performance conditions and quality of construction only. The resulting certification is not a quarantee of long term performance or durability.

DESCRIPTION						
Gross Length		2.470	meters	8.10	feet	
Gross Width		1.200	meters	3.94	feet	
Gross Depth		0.079	meters	0.26	feet	
Gross Area		2.96 5	square meters	31.91	square feet	
Transparent Frontal Area		2.781	square meters	29.93	square feet	
Volumetric Capacity		4.9	liters	1.3	gallons	
Weight (empty)		51.3	kilograms	113.0	pounds	
Recommended Flow Rate		76	ml/s	1.2	gpm	
Test Pressure		1103	kPag	160	psig	
Number of Cover Plates		One				
Flow Pattern		Parallel		Forced Circulation		
Number of Flow Tubes		Ten				
		MA	ATERIALS			
Enclosure	Aluminum frame, aluminum back					
Glazing	Tempered low iron glass, 0.30 cm thick					
Absorber	Copper tubes welded to copper fins					
Absorber Coating	Selective coating					
Insulation	Foil faced polyisocyanurate, 3.2 cm thick					
		TUEDMAI	DERECRMANCE			

THERMAL PERFORMANCE

Tested per ASHRAE 93-1986

Incident Angle Modifier $K\tau\alpha = 1.0 - 0.19 \left(\frac{1}{\cos\theta} - 1\right)$

Efficiency Equations

 $\eta = 71.7 - 499$ (Ti-Ta)/I $\eta = 71.7 - 87$ (Ti-Ta)/I

 $\eta = 70.1 - 344$ (Ti-Ta)/I - 1598 [(Ti-Ta)/I]² $\eta = 70.1 - 60$ (Ti-Ta)/I - 50 [(Ti-Ta)/I]²

Units of (Ti-Ta)/I are °C / Watt/m² Units of (Ti-Ta)/I are °F / Btu/hr•ft²

RATING

The collector has been rated for energy output on measured performance and an assumed standard day. Total solar energy available for the standard day is 5045 Watt-hours/m² (1600 Btu/ft²) distributed over a 10 hour period.

Output energy ratings for this collector based on the second-order efficiency curve are:

Collector Temperature	Energy Out	out
Low Temperature, 35°C (95°F)	5,300 Kilojoules/da	y 33,500 Btu/day
Intermediate Temperature, 50°C (122°F)	9,000 Kilojoules/da	y 27,500 Btu/day
High Temperature, 100°C (212°F)	9,700 Kilojoules/da	y 9,200 Btu/day

REFERENCE 00081N