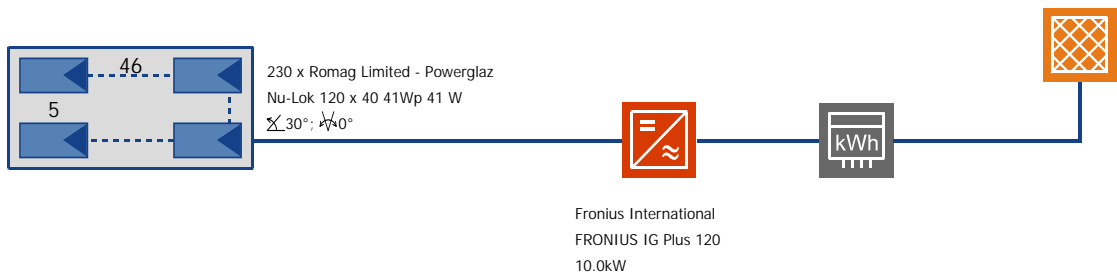


Project Name: PV10216 - Wooden House Farm Kennels 14/07/2010  
 Variant Reference: PV10216  
 Designer: Ian Winn



Location: Northampton  
 Climate Data Record: Northampton (1981-2000)  
 PV Output: 9.50 kWp  
 Gross/Active PV Surface Area: 75.07 / 75.35 m<sup>2</sup>

PV Array Irradiation: 82,931 kWh  
 Energy Produced by PV Array (AC): 7,920.3 kWh  
 Grid Feed-in: 7,920.3 kWh

System Efficiency: 9.5 %  
 Performance Ratio: 75.5 %  
 Inverter Efficiency: 94.1 %  
 PV Array Efficiency: 10.1 %  
 Specific Annual Yield: 830.9 kWh/kWp  
 CO2 Emissions Avoided: 6,993 kg/a

The results are determined by a mathematical model calculation. The actual yields of the photovoltaic system can deviate from these values due to fluctuations in the weather, the efficiency of modules and inverters, and other factors. The System Diagram above does not represent and cannot replace a full technical drawing of the solar system..

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**System in Grid Connected Operation**

Location:	Northampton	PV Output:	9.50 kWp
Climate Data Record:	Northampton	Gross/Active PV Surface Area:	75.1 m <sup>2</sup> / 75.4 m <sup>2</sup>
Number of Arrays:	1		

**Wooden House Farm Kennels**

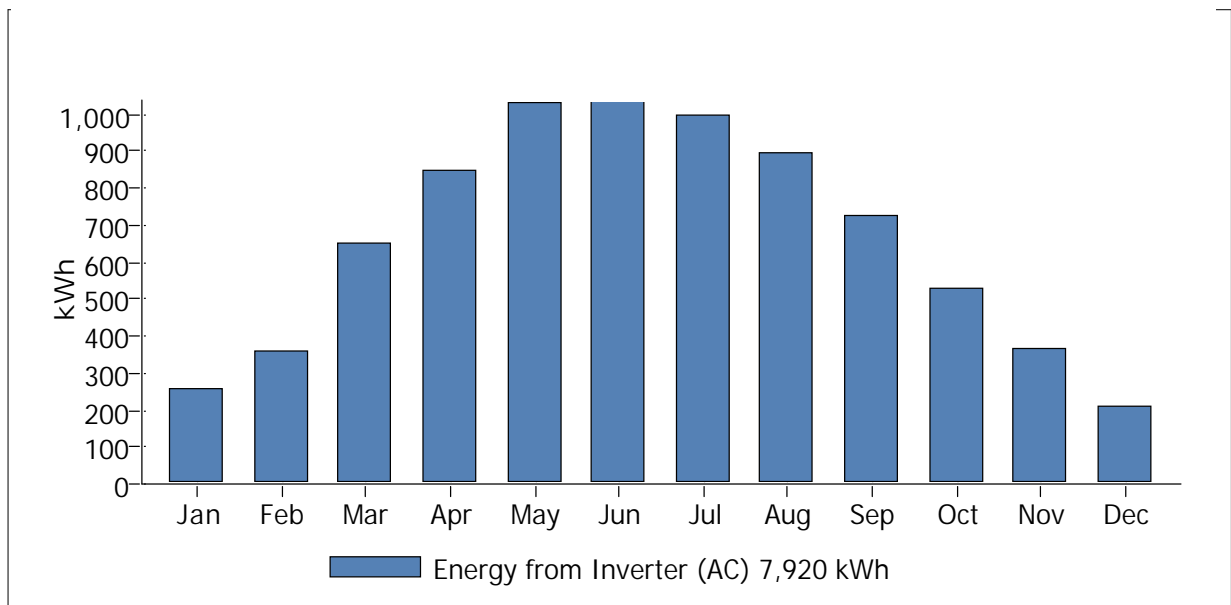
Output:	9.50 kW	Ground Reflection:	20.0 %
Gross/Active Solar Surface Area:	75.1 m <sup>2</sup> / 75.4 m <sup>2</sup>	Output Losses due to	
PV Module:	230 x	Deviation from AM 1.5:	1.0 %
Manufacturer:	Romag Limited - Powerglaz	Deviation from Manufacturer's Specification:	2.0 %
Type:	Nu-Lok 120 x 40 41Wp	In Diodes:	0.5 %
Nominal Output:	41 W	Due to Pollution:	0.0 %
Power Rating Deviation:	0 %		
Efficiency (STC):	12.6 %		
No. of Modules in Series:	46		
MPP Voltage (STC):	396 V		
Orientation:	0.0 °		
Inclination:	30.0 °		
Mount:	With Ventilation		
Shade:	No		

**System Inverter**

Manufacturer:	Fronius International	European Efficiency:	95.5 %
Type:	FRONIUS IG Plus 120	No. of MPP Trackers:	1
Output:	10.00 kW	MPP Tracking:	230 V To 500 V

**Simulation Results for Total System:**

Irradiation onto Horizontal:	72,166 kWh	Energy Produced by PV Array:	8,390 kWh
PV Array Irradiation:	82,931 kWh	System Efficiency:	9.5 %
Irradiation minus Reflection:	79,081 kWh	Performance Ratio:	75.5 %
Energy from Inverter (AC):	7,920 kWh	Final Yield:	2.3 h/d
Consumption Requirement:	0 kWh	Specific Annual Yield:	831 kWh/kWp
Energy from Grid:	27 kWh	Array Efficiency:	10.1 %
Own Use:	27.1 kWh	Inverter Efficiency:	94.1 %



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