Why Choose Advantech for Your Solar Energy System?

- Industrial grade products at a competitive cost
- Strict revision control and design reliability
- Global logistics and RMA services with local support
- Product warranty up to 2-5 years and superior service options
- Partnerships with multiple respected software companies

www.advantech.com/eA

Advantech’s Solar Energy Solutions
Robust Products for Solar Energy Applications

- Solar Tracking System
- Solar Monitoring System
- Advantech Solar Product Offerings
Overview

Renewable energy solutions are receiving a lot of attention lately as concerns over our reliance on fossil fuels and climate change increase. Solar energy solutions are one of the most popular and crucial renewable energies in the world today. Advantech’s industrial automation products play an important role in providing efficient solar energy solutions, such as in solar tracking and solar power monitoring systems.

Solar Tracking System

Solar energy is not available 24 hours a day; thus, advanced sun tracking systems and solar cells are vital in providing efficient solar powered solutions. By detecting the strength of sunlight from different directions, our tracking systems determine the location of the strongest sunlight and direct the solar cells in that direction. Accordingly, multi-axis motion control systems and reset controllers are designed to constantly adjust the solar cells.

Advantech’s Solar Tracking Solution

In order to effectively collect sunlight, the PEC-3240, an Intel® Core™ M Embedded Motion Controller, can control the stepper motors of the sun tracking system and easily adjust the solar cells to the correct direction of the strongest sunlight. If two transmitters detect different sunlight strengths, the PEC-3240 will calculate the sunlight strength difference to adjust the stepper motors and find the optimal position of the solar cells. Combined with the ADAM-4117, the PEC-3240 with 4-axis motion control and 32-channel isolated digital I/O enables the solar tracking systems to continuously track the relative data and optimize the digital I/O enables the solar tracking systems to continuously track the relative data and optimize the efficiency of solar cell modules.

Solar Power Monitoring System

In order to effectively collect and analyze the accurate sunlight and power generation data, advanced solar power monitoring systems must have robust and compact controllers for power plant control applications. Fast sampling, recording and analysis of data such as sunlight strength, overall direct current power, average energy conversion efficiency of solar cell modules and power converters are also important. In addition, the systems must be able to efficiently perform remote configuration, troubleshooting and maintenance as well.

Advantech’s Solar Monitoring Solution

In Advantech’s solar power monitoring solution, Programmable Automation Controllers (PAC) serve as efficient power controllers due to their outstanding performance in monitoring, recording, control, storage, and remote maintenance functionalities. With its fast computing capacity, the APAX-5046 used as the control host to oversee the DC to AC conversion process, analyze equipment efficiency, and detect the converter’s lifetime length of voltage converters. The APAX-5046 is an analog input module that can be used to monitor the sensor signal and sunlight information, and the APAX-5047, a digital input module, is able to efficiently collect critical alarms, temperature sensors, thermal control, IGBT over voltage, temperature, contact, contact over-voltage and HVAC sensor circuits. The APAX-5048 acts as a digital output module to precisely control status of gas circuit breaker switching and power controllers in the grid. The EKI-7530A, a high-speed managed redundant Ethernet switch with wide operating temperature, provides excellent network communication and conveys important data to remote control rooms. Its fiber optic ports also build a high speed redundant network, which enables one switch to immediately take over data processing jobs and protect data loss in the breakdown of another switch. As well, the EKI-7324, a 12” 386 industrial Panel PC, can be installed in remote control rooms to facilitate auxiliary control of solar power generation.

Product Offerings

IPPC-6152A
15" Embedded Panel PC with Intel® Core™ i5/i7 CPU
• Dual Gigabit Ethernet with Intel vPro out-of-support
• Dual channel DDR3 SDRAM up to 4GB
• Intel® Core™ i5/i7 CPU
• Windows® 7/8/10 ready solution

EKI-7650CI
ISA/PCIe SBC with 4-axis Analog Input Module and 8-channel Analog Output Module
• Input characteristic curve according to IEC 61131, type 1
• ±70 V
• ±5 V
• ±10 V

PEC-3240
Intel® Core™ M 1.3 GHz 4-axis Embedded Motion Controller with 20-pin Digital I/O
• 2 x RJ-45 ports, 2 x 8/10/100BASE-T Ethernet ports
• 2 x DB-25 ports, 2 x IEC 61850

APAX-5570/APAX-5571
FPC with Intel® Core™ M 1.3 GHz / 1.7 GHz CPU
• High performance CPU with high-speed interface and SSD card storage

APAX-5017
12-ch Analog Input Module
• built-in voltage and current inputs including ±10 V and ±20 mA

APAX-5046
24-ch Digital Input Module
• Isolated 8 channels (sink and source type)

APAX-5047
24-ch Digital Module
• Isolated 8 channels (sink and source type)

APAX-5048
Robust 8-ch Analog Input Module with Modbus
• 8 differential and independent configuration channels
• Wide operating temperature: -40 ~ 85°C

- Ordering Information
  - IPPC-6152A-9AIE
  - EKI-7650CI-I
  - PEC-3240-AE
  - APAX-5570-5571-AE
  - APAX-5017-AE
  - APAX-5046-AE
  - APAX-5047-AE
  - APAX-5048-AE
  - APAX-5049-AE