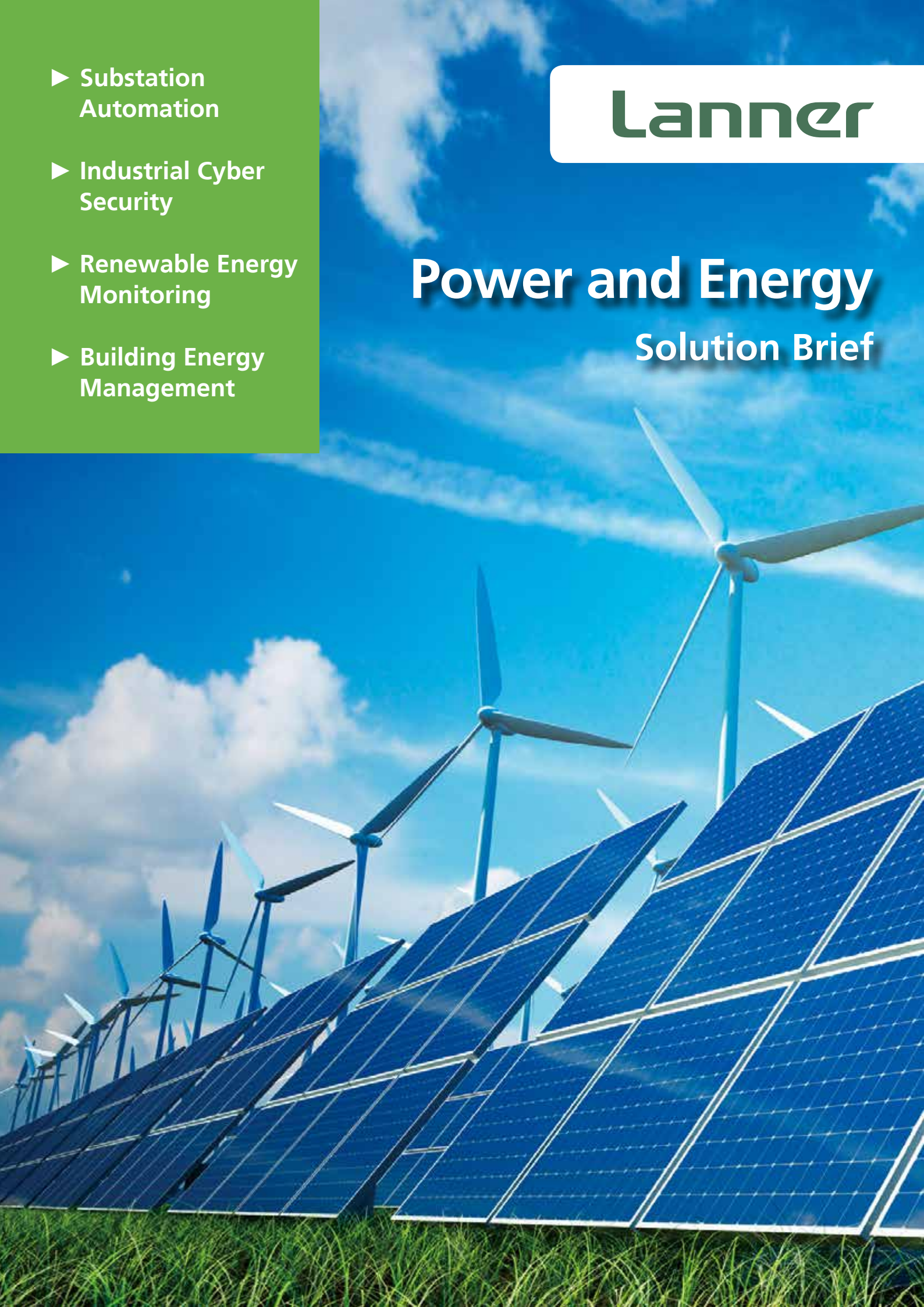
- Substation Automation
- Industrial Cyber Security
- Renewable Energy Monitoring
- Building Energy Management

Lanner

Power and Energy

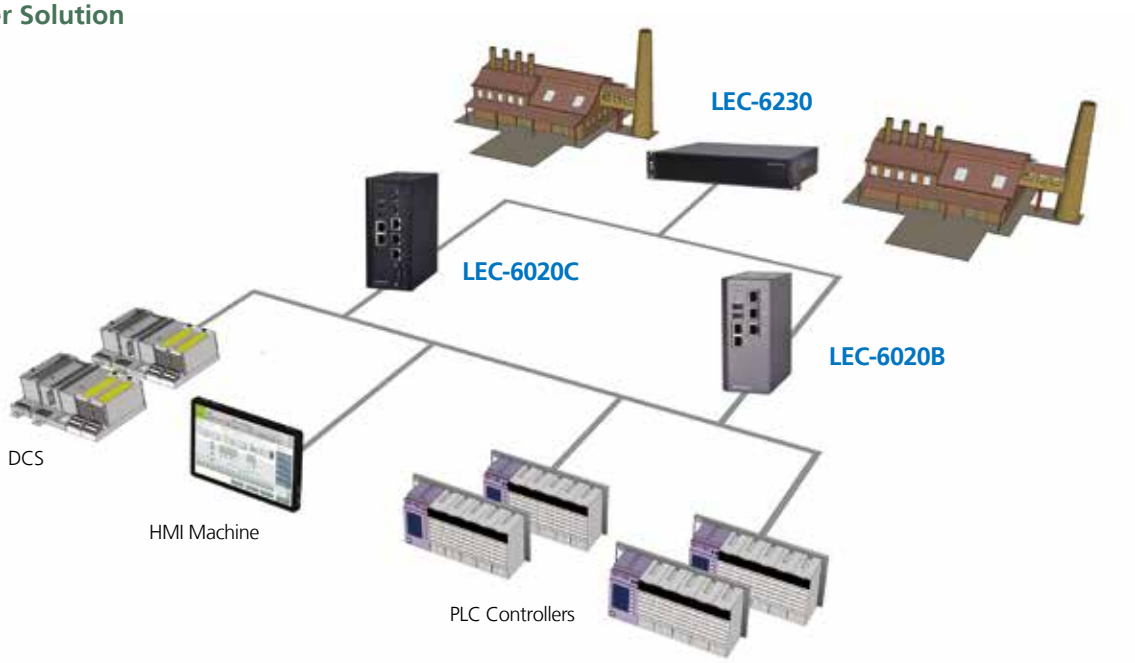
Solution Brief



Background

Traditionally, industrial control systems (ICS) like SCADA system used to be isolated for its sole purpose of performing mission-critical tasks. However, with the increasing complexity in hardware design and the implementation of open network due to convenience and cost-effectiveness, ICS environments are vulnerable towards cyber threats.The reports indicated that hackers usually attack the weak sides of DCS (distributed control systems), PLC (programmable logic controllers) and HMI (human machine interface) through unauthorized remote accesses, non-inspected packets, lack of protocol scanning and filtering as well as loose authentication process.

Lanner Solution



As shown in the diagram above, LEC-6020B/LEC-6020C act as the gateway controllers to perform white-listing, protocol filtering, and access detections for the networks that bridge PLCs/HMIs/DCS with the infrastructure. These gateway controllers will deeply inspect the packets traveling through its monitored network protocols. In addition, these control platforms can be programmed to conduct white-listing, which restricts the access to unrecognized individuals. In that case, the protocols are protected against unauthorized applications and even potential malware that might devastate the whole operations.

In a more advanced implementation, LEC-6230 acts as the main control center to perform encryptions while LEC-6020s will function as the decryption stage. LEC-6230 acts as the main control center to perform encryptions while LEC-6020s will function as the decryption stage. With encryption, data and information flowing in this protocol will be "transformed" into meaninglessly unreadable random logs to those without the decryption key. This will secure the transmission among devices in ICS and SCADA systems.

Key Application

- **Protocol filtering**
- **Access detection**
- **Packet inspection**
- **White-listing**
- **Network traffic monitoring.**
- **Data encryption and decryption**
- **LAN Bypass**

Industrial Cyber Security

Benefits

IEC 61850-3 and IEEE 1613 compliant
Measured and certified for use in industrial condition such as power substation

Customizable I/O sections
Flexible I/O ports selections and Ethernet modules for easy customization

ESD/Surge protection
Strong built-in EMC protection to cope with harsh environment

Fanless Design
Without the most frequently replaced part, the systems can be widely deployed in various environments.

Wide Temperate Range
Withstand in challenge conditions with temperatures as low as -40 to 70°C

Dual Power Inputs
Provide redundant power supply when main power source fails

LAN Bypass
Allow uninterrupted network traffic even if a single device is down

Advanced Secure Function
Support security functions such as TPM and BIOS Lockup

Featured Products

LEC-6020

Fanless Industrial DIN Rail Security Platform with Intel® Atom™ N2600 CPU

- Intel® Atom N2600 processor with NM10 chipset
- DDR3 memory, maximum capacity is 2 GB
- Fanless design with corrugated aluminum
- Wide temperature range (-40~70°C)
- 15KV ESD and surge protection on Serial COM ports
- 3 or 5 Intel GbE LAN ports with 15KV magnetic isolation protection
- Flexible I/O selections (LAN/USB/Serial COM/Phoenix Contact)
- 1 or 2 pairs of LAN Bypass
- Dual power input (12~36Vdc)
- DIN-rail mount and wall mount

LEC-6230

IEC 61850-3 certified 2U Rackmount Security Appliance with flexible I/O Module Design

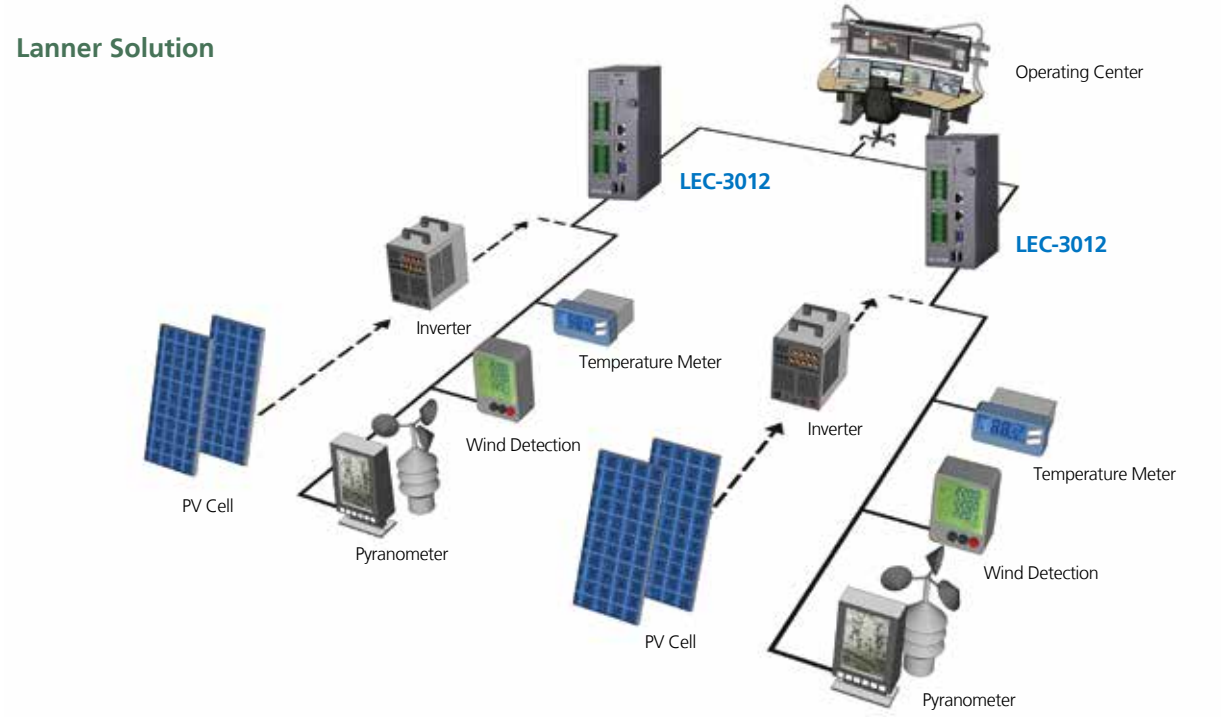
- Intel Core i7-3217UE processor with HM65 chipset
- DDR3 memory, maximum capacity is 8 GB
- Fanless design with corrugated aluminum
- IEC 61850-3 & IEEE 1613 compliant
- Wide temperature range (-20~55°C)
- Rich and expandable modules for flexible Ethernet connectivity
- ESD and surge protection on Serial COM ports
- Intel GbE LAN ports with magnetic isolation protection
- Rich I/O: 2 Serial COM, 2 USB port, 1 VGA port
- Optional Gen.1 LAN Bypass function

Solar Power Monitoring

Background

One of China's electric companies sent out a request for hardware solutions capable of monitoring solar power substations located at unmanned, remote areas with harsh climates. The requested system was to be developed into an integrated communications platform for gathering, storing and analyzing data relating to sunlight strength, direct current power, power conversion efficiency, array disconnect statistics and overseeing meters such as wind speed and temperature. The collected data would be uploaded instantly to an operation center via the serial-to-Ethernet communication.

Lanner Solution



Lanner's LEC-3012, a robust and compact IPC was eventually selected as the data concentrator for the aforementioned solar power monitoring system capable of gathering and analyzing data from sensors and meters deployed at the remote site. LEC-3012 features Intel Atom N455 CPU, 4 Serial COM ports with 15KV ESD/surge protections and 2 GbE LAN ports with magnetic isolation protections; such configuration makes possible an integrated setup on which reliable communications with inverters for overseeing the DC to AC conversion efficiency can be developed. LEC-3012 also features 2 x 10 terminal block function for the Serial COM ports, providing a multitude of wiring options adaptable for various types of sensors and meters. LEC-3012's solid chassis and fanless design are two critical factors for a remote site industrial communication device. Furthermore, the DIN rail mount and front access ports simplify hardware maintenance as service can be carried out while the appliance was still mounted.

Key Application

- **Solar Photovoltaic Monitoring System**
- **Data Concentrator**
- **Wind Turbine Vibration Monitoring System**
- **Wind Power Field Monitoring System**

Solar Power Monitoring

Benefits

ESD/Surge protection
Strong built-in EMC protection to cope with harsh environment

Diversified I/O sections
Various I/O options, including multiple COM, LAN, USB, CF, VGA and Phoenix Contacts connectors.

Wide Temperate Range
Withstand in challenge conditions with temperatures as low as -40 to 70°C

Advanced Secure Function
Majority of our industrial platforms are designed with DIN-Rail mounting option for convenient installation in industrial environments.

Low -Power Consumption
Many of our industrial box PCs use low power Intel® Atom™ processor with 13W, 6.5W or even only 3.5W TDP (Thermal Design Power).

Fanless Design
Without the most frequently replaced part, the systems can be widely deployed in various environments.

Featured Products

LEC-3013-I10

10 Serial Port Fanless DIN Rail Box PC with Intel Atom D525

- Intel® Atom™ Dual Core D525 processor with ICH8M chipset
- DDR3 memory, maximum capacity up to 4GB
- 10 Serial COM ports with ESD and surge protection
- Fanless design with corrugated aluminum
- Wide temperature range (-20~55°C)
- 15KV ESD and surge protection on Serial COM ports
- Rich I/O selections (4 x USB 2.0, 1 x VGA)
- 2 Intel GbE LAN ports with magnetic isolation protection
- Storage: 1 x CF card slot and 1 x SATA port

LEC-3012A

Fanless Industrial DIN Rail Box IPC with Intel® Atom™ N455 CPU

- Intel® Atom™ N455 processor with ICH8M chipset
- DDR3 memory, maximum capacity up to 2GB
- Fanless design with corrugated aluminum
- Wide temperature range (-20~55°C)
- ESD and surge protection on Serial COM ports
- 2 to 4 Intel GbE LAN ports with magnetic isolation protection
- Flexible I/O: 4, 6, or 8-port serial COM or 2, 4 Gigabit Ethernet ports
- Storage: 1 x CF card slot and 1 x SATA port